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xCommand xSystem
Automation, control and visualization

Moeller is Eaton

EATON
Powering Business Worldwide

Darwin Technology
The easy way to connect

xCommand
Control and Indication

xStart
Switching, protecting and actuating motors

xCommand
xSystem
Automation, control and visualization

Safety Technology
Control the unexpected

Matching of Voltage and Current

xEnergy
Xpole
Energy distribution, switching and protection

Xboard
Optimal switchgear enclosure

Service

DILET, ETR Timing Relays, measuring relays and EMR Monitoring relays

The range of electronic time relays comprises three different construction types, adapted for the most widely varying applications. The time relays are mounted on a DIN top-hat rail.

The measurement and monitoring relays monitor fluids, currents, phases, resistances or voltages.

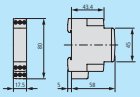
Electronic timing relay DILET
45 mm contactor width +++ Numerous time relay functions +++ Ideal when combined with contactors

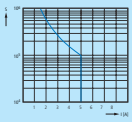
Electronic timing relay ETR2
17.5 mm width (one division unit = 18 mm) +++ With 45 mm cap dimensions, suitable for integration into distribution boards +++ Numerous time relay functions

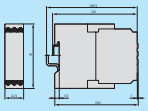
Electronic timing relay ETR4
Robust industrial construction, 22.5 mm width +++ Numerous time relay functions

EMR Electronic measuring and monitoring relays
Monitors levels of conductive fluids, current, phase sequence and position, insulation resistance, asymmetry, over- and undervoltage +++ All devices in 22.5 mm or 45 mm width +++ Phase monitor at 580 V AC in 45 mm width

Timing relay, measuring relay and monitoring relay



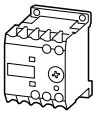
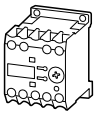


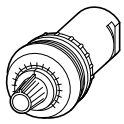
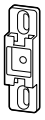


Our product range of measurement and monitoring relays has been partially updated.

Old device	Old article no.	New device	New article no.
EMR4-W500-2-C	221785	EMR5-W500-1-D	134221
EMR4-W500-2-D	221786	EMR5-W500-1-D	134221
EMR4-W580-2-D	221787	EMR5-AWM720-2	134236
EMR4-A400-1	221788	EMR5-A400-1	134222
EMR4-AW300-1-C	290243	EMR5-AW300-1-C	134223
EMR4-AW500-1-D	290244	EMR5-AW500-1-D	134224
EMR4-AWN170-1-E	290245	EMR5-AWN170-1-E	134225
EMR4-AWN280-1-F	290246	EMR5-AWN280-1-F	134226
EMR4-W300-1-C	290182	EMR5-W300-1-C	134227
EMR4-W500-1-D	290183	EMR5-W500-1-D	134221
EMR4-W380-1	290184	EMR5-W380-1	134228
EMR4-W400-1	290185	EMR5-W400-1	134229
EMR4-A300-1-C	290180	EMR5-A300-1-C	134230
EMR4-A500-1-D	290181	EMR5-A400-1	134222

This table provides assistance in replacing EMR4 articles with current EMR5 products.

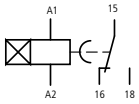
	Rated operational current AC-11		Conventional thermal current	Time Range	Voltage range	**Part no.** Article No.	**Price** See price list	Std. pack
	230 V	400 V	I_{th}					
	I_e	I_e	A					
	A	A						
	A	A						
Timing relays DILET								
On-delayed Timing functions → Page 11/8 Component lifespan → Page 11/10								
	3	3	6	1.5 - 30 s	24 - 240 V AC, 50/60 Hz 24 - 240 V DC	**DILET11-30-A** 048878		1 off
	3	3	6	1.5 - 30 s	400 V AC, 50/60 Hz	**DILET11-30-W** 048904		
	3	3	6	0.05 - 1 s 0.15 - 3 s 0.5 - 10 s 3 - 60 s 0.15 - 3 min 0.5 - 10 min 3 - 60 min 0.15 - 3 h 0.5 - 10 h 3 - 60 h	24 - 240 V AC, 50/60 Hz 24 - 240 V DC	**DILET11-M-A** 048886		
	3	3	6		400 V AC, 50/60 Hz	**DILET11-M-W** 048891		
Multi-functional with remote potentiometer Timing functions → Page 11/8 Component lifespan → Page 11/10								
	3	3	6	0.05 - 1s 0.15 - 3 s 0.2217925 - 10 s 3 - 60 s 0.15 - 3 min 0.5 - 10 min 3 - 60 min 0.15 - 3 h 0.5 - 10 h 3 - 60 h	24 - 240 V AC, 50/60 Hz 24 - 240 V DC	**DILET70-A** 048893		1 off
	3	3	6		400 V AC, 50/60 Hz	**DILET70-W** 048899		

	Resistance R kΩ	Rated power P W	For use with	**Part no.** Article no.	**Price** See price list	Std. pack
Remote potentiometer, IP66						
	10	≦ 0.5	DILET… ETR4-70	**M22-R10K** 229491		1 off
	10	–	DILET… ETR4-70	**M22S-R10K** 232233		1 off
Screw adapters						
For screw fixing						
	–	–	EWDIL ETS4-VS3 ETR4	**CS-TE** 095853		10 off

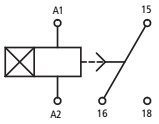
Notes

Information relevant for export to North America

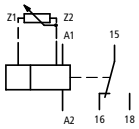
Fixed
11, On-delayed



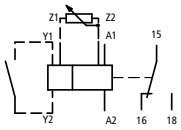
Product Standards	IEC/EN 61812-1; IEC/EN 60947-5-1; UL 508; CSA-22.2 No. 14-05; CE marking
UL File No.	E29184
UL CCN	NKCR, NKCR7
CSA File No.	12528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA Certified
Degree of Protection	IEC: IP20, UL/CSA Type: -



Adjustable
11, On-delayed
21, Fleeting contact on energization
42, Flashing
81, Pulse generating
ON-OFF



Adjustable
12, Off-delayed
16, On- and off-delayed
22, Fleeting contact on de-energization
82, Pulse shaping
ON-OFF



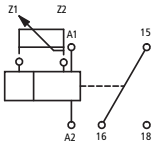
Cable connection with Y1/Y2, Z1/Z2

Permissible cable length (cable unshielded, with cable cross-section 0.5-1.5 mm²):

Two-core cable	250 m
Two-core cable in the same cable duct with mains cable, 50/60 Hz	50 m

Product Standards	IEC/EN 61812-1; IEC/EN 60947-5-1; UL 508; CSA-22.2 No. 14-05; CE marking
UL File No.	E29184
UL CCN	NKCR, NKCR7
CSA File No.	12528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA Certified
Degree of Protection	IEC: IP20, UL/CSA Type: -

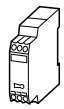
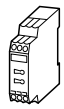
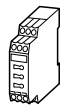
11 ON-DELAYED
21 FLEETING CONTACT ON ENERGIZATION
42 FLASHING
81 PULSE GENERATING CONTACT



Information relevant for export to North America

Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14-05; CSA-C22.2 No. 94-91; CE marking
UL File No.	E29184
UL CCN	NKCR
CSA File No.	012528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA Certified
Degree of Protection	UL/CSA part no. 3R, 4X, 12, 13

UL/CSA certification not required

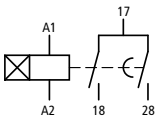
		Rated operational current AC-15		Conventional thermal current	Time Range	24 - 240 V AC, 50/60 Hz 24 - 240 V DC			400 V AC, 50/60 Hz		
		230 V	400 V	I_{th}		**Part no.** Article no.	**Price** See price list	Std. pack	**Part no.** Article no.	**Price** See price list	Std. pack
		I_e A	I_e A	A							
Electronic timing relays ETR4, 22.5 mm wide											
	Star-delta switching Timing functions → Page 11/8	3	3	6	3 - 60 s	**ETR4-51-A** 031884		1 off	**ETR4-51-W** 031885		1 off
	On-delayed Timing functions → Page 11/8	3	3	6	0.05 - 1 s 0.15 - 3 s 0.5 - 10 s 1.5 - 30 s 5 - 100 s 15 - 300 s 1.5 - 30 min 15 - 300 min 1.5 - 30 h 5 - 100 h	**ETR4-11-A** 031882			**ETR4-11-W** 031883		
	Multifunctional Timing functions → Page 11/8	3	3	6		**ETR4-69-A** 031891			**ETR4-69-W** 031887		
	Multifunctional with connection for potentiometer, and two changeover contacts that can be converted to two timed contacts or one non-delayed contact and one timed contact. Timing functions → Page 11/8	3	–	6		**ETR4-70-A** 031888					

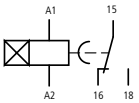
Notes

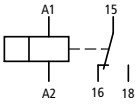
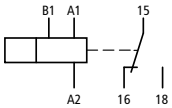
Information relevant for export to North America

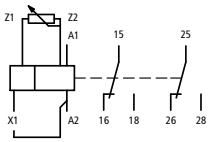
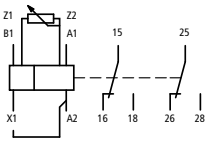
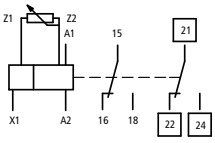
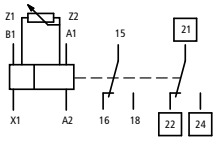
Product Standards	IEC/EN 61812-1; IEC/EN 60947-5-1; UL 508; CSA-22.2 No. 14-05; CE marking
UL File No.	E29184
UL CCN	NKCR
CSA File No.	12528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP20, UL/CSA Type: -

Notes

Function	Terminal marking according to EN 50042
Fixed 51, Star-delta	

Function	Terminal marking according to EN 50042
Fixed 11, On-delayed	

Function	Terminal marking according to EN 50042	Function	Terminal marking according to EN 50042
Adjustable 11, On-delayed 21, Fleeting contact on energization 42, Flashing, pulse initiating 81, Pulse generating ON-OFF		Adjustable 12, Off-delayed 16, On- and off-delayed 22, Fleeting contact on de-energization 82, Pulse shaping ON-OFF	

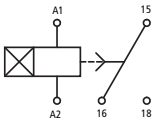
Function	Terminal marking according to EN 50042	Function	Terminal marking according to EN 50042
A2/X1 linked 11, On-delayed 21, Fleeting contact on energization 42, Flashing, pulse initiating 81, Pulse generating ON-OFF		A2/X1 linked 12, Off-delayed 16, On- and off-delayed 22, Fleeting contact on de-energization 82, Pulse shaping ON-OFF	
A2/X1 not linked 11, On-delayed 21, Fleeting contact on energization 42, Flashing, pulse initiating 81, Pulse generating ON-OFF		A2/X1 not linked 12, Off-delayed 16, On- and Off-delayed 22, Fleeting contact on de-energization 82, Pulse shaping ON-OFF	

Cable connection with B1, Z1/Z2

Permissible cable length (cable unshielded, with cable cross-section 0.5--1.5 mm²):

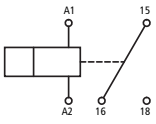
Two-core cable	250 m
Two-core cable in the same cable duct with mains cable, 50/60 Hz	50 m

ETR4-11



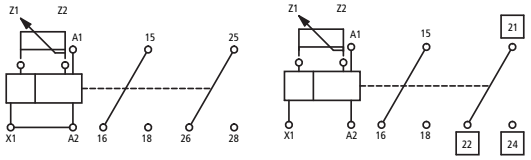
ON-DELAYED

ETR4-69



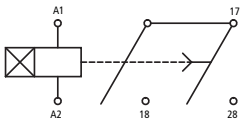
11 ON-DELAYED
21 FLEETING CONTACT ON ENERGIZATION
42 FLASHING
81 PULSE GENERATING CONTACT

ETR4-70

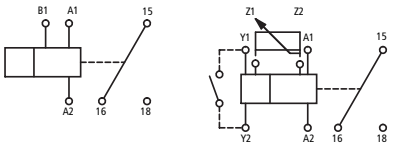


11 ON-DELAYED
21 FLEETING CONTACT ON ENERGIZATION
42 FLASHING
81 PULSE GENERATING CONTACT

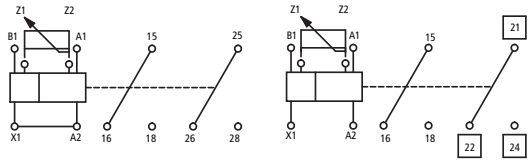
ETR4-51



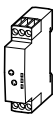
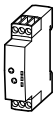
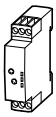
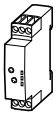
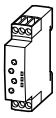
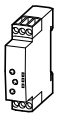
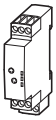
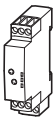
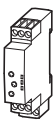
ON-DELAYED



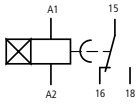
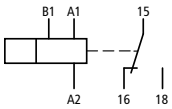
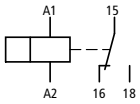
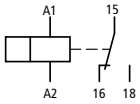
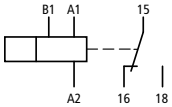
12 OFF-DELAYED
16 ON- and OFF-DELAYED
22 FLEETING CONTACT ON DE-ENERGIZATION
82 PULSE SHAPING CONTACT

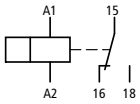
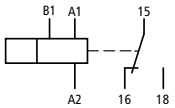


12 OFF-DELAYED
16 ON- and OFF-DELAYED
22 FLEETING CONTACT ON DE-ENERGIZATION
82 PULSE SHAPING CONTACT

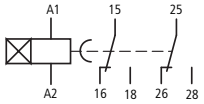
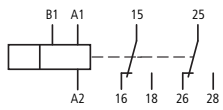
		Rated operation current N/O 230 V I_e A	Rated operation current 230 V (N/C) I_e A	Conventional thermal current I_{th} A	Time Range	Voltage range	**Part no.** Article no.	**Price** See price list	Std. pack
Electronic timing relays ETR2, 17.5 mm wide									
One changeover contact									
	On-delayed Timing functions → Page 11/8 Load limit curves → Page 11/10	3	–	6	0.05 - 1 s 0.5 - 10 s 5 - 100 s 0.5 - 10 min 5 - 100 min 0.5 - 10 h 5 - 100 h	24 - 240 V AC, 50/60 Hz 24 - 48 V DC	**ETR2-11** 262684		1 off
	Off-delayed Timing functions → Page 11/8 Load limit curves → Page 11/10	3	–	6			**ETR2-12** 262686		
	Fleeting contact on energization Timing functions → Page 11/8 Load limit curves → Page 11/10	3	–	6			**ETR2-21** 262687		
	Flashing, pulse initiating Timing functions → Page 11/8 Load limit curves → Page 11/10	3	–	6			**ETR2-42** 262688		
	Flashing, 2 speeds (ON/OFF times variable) Timing functions → Page 11/8 Load limit curves → Page 11/10	3	–	6			**ETR2-44** 262730		
	Multifunction relay Timing functions → Page 11/8 Load limit curves → Page 11/10	3	–	6			**ETR2-69** 262689		
Two changeover contacts									
	On-delayed Timing functions → Page 11/8 Load limit curves → Page 11/10	3	–	6	0.05 - 1 s 0.5 - 10 s 5 - 100 s 0.5 - 10 min 5 - 100 min 0.5 - 10 h 5 - 100 h	24 - 240 V AC, 50/60 Hz 24 - 48 V DC	**ETR2-11-D** 119426		1 off
	Off-delayed Timing functions → Page 11/8 Load limit curves → Page 11/10	3	–	6			**ETR2-12-D** 119427		
	Multifunctional Timing functions → Page 11/8 Load limit curves → Page 11/10	3	0.75	6		12 - 240 V AC, 50/60 Hz	**ETR2-69-D** 119428		

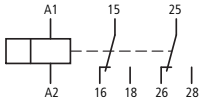
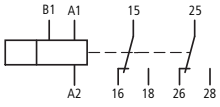
Information relevant for export to North America

Function	Terminal marking according to EN 50042
Fixed 11, On-delayed	
Fixed 12, Off-delayed	
Fixed 21, Fleeting contact on energization	
Fixed 42, Flashing, pulse initiating	
Fixed 44, Flashing, 2 variable times Can be set to either pulse or pause initiating	

Function	Terminal marking according to EN 50042	Function	Terminal marking according to EN 50042
Adjustable 11, On-delayed 21, Fleeting contact on energization 42, Flashing, pulse initiating 43, Flashing, pause initiating		Adjustable 12, Off-delayed 22, Fleeting contact on de-energization 82, Pulse shaping	

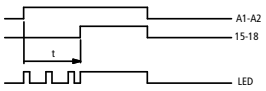
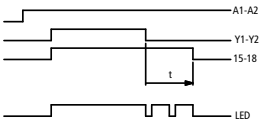
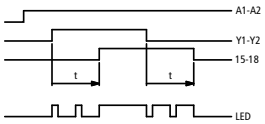
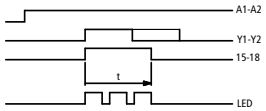
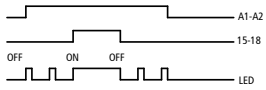
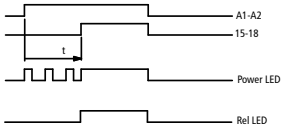
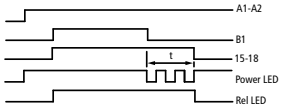
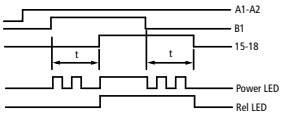
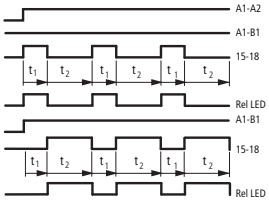
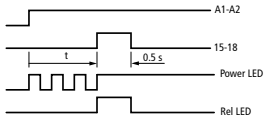
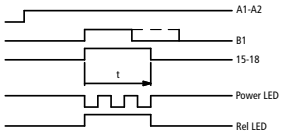
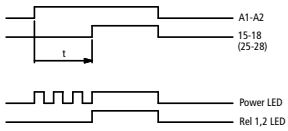
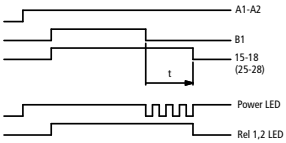
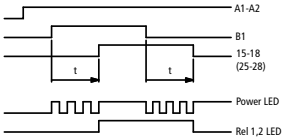
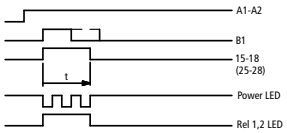
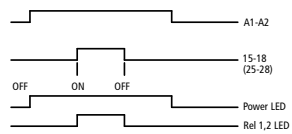
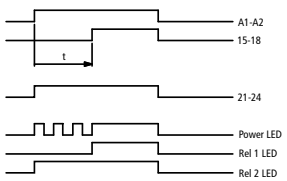
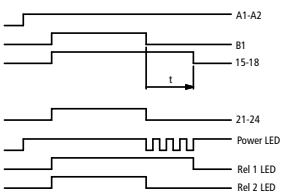
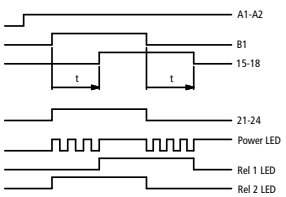
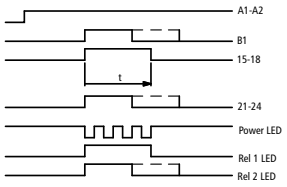
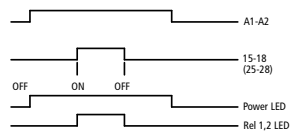
Product Standards	IEC/EN 61812-1; IEC/EN 60947-5-1; UL 508; CSA-22.2 No. 14-05; CE marking
UL File No.	E29184
UL CCN	NKCR, NKCR7
CSA File No.	UL report valid
CSA Class No.	3211-03
NA Certification	UL Listed, Certified by UL for use in Canada
Degree of Protection	IEC: IP20, UL/CSA Type: -

Function	Terminal marking according to EN 50042
Fixed 11, On-delayed	
Fixed 12, Off-delayed	

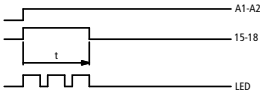
Function	Terminal marking according to EN 50042	Function	Terminal marking according to EN 50042
Adjustable 11, On-delayed 21, Fleeting contact on energization 42, Flashing, pulse initiating 43, Flashing, pause initiating		Adjustable 12, Off-delayed 22, Fleeting contact on de-energization 82, Pulse shaping	

Product Standards	IEC/EN 61812-1; IEC/EN 60947-5-1; UL 508; CSA-22.2 No. 14-05; CE marking
UL File No.	E29184
UL CCN	NKCR, NKCR7
CSA File No.	UL report valid
CSA Class No.	3211-03
NA Certification	UL Listed, Certified by UL for use in Canada
Degree of Protection	IEC: IP20, UL/CSA Type: -

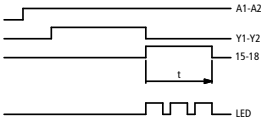
Engineering

Electronic timing relays	Contact sequence diagram		
DILET	**11** On-delayed 	**12** Off-delayed 	**16** On- and Off-delayed 
	82 Pulse shaping 	On-Off function 	
ETR2..., ETR4...	**11** On-delayed 	**12** Off-delayed 	**16** On- and Off-delayed 
	44 Flashing, 2 speeds 	**81** Pulse generating 	**82** Pulse shaping 
ETR4-70... A2/X1 linked	**11** On-delayed 	**12** Off-delayed 	**16** On- and Off-delayed 
	82 Pulse shaping 	On-Off function 	
ETR4-70... A2/X1 not linked	**11** On-delayed 	**12** Off-delayed 	**16** On- and Off-delayed 
	82 Pulse shaping 	On-Off function 	

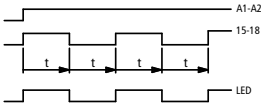
21 Fleeting contact on energization



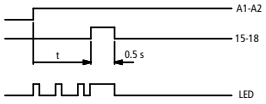
22 Fleeting contact on de-energization



42 Flashing, pulse initiating

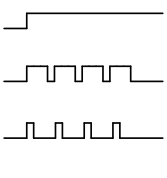


81 Pulse generating



Legend to contact sequence diagrams

LED display

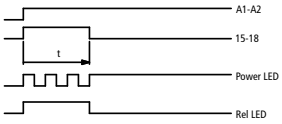


Time not running,
Contact 15 – 18 closed

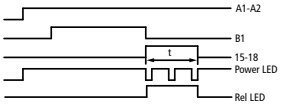
Time running,
Contact 15 – 18 closed

Time running,
Contact 15 – 18 not closed

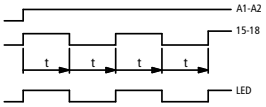
21 Fleeting contact on energization



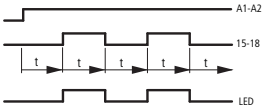
22 Fleeting contact on de-energization



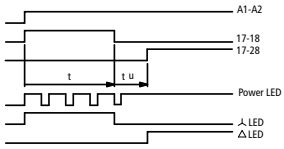
42 Flashing, pulse initiating



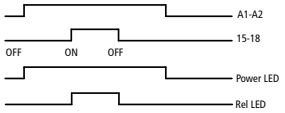
43 Flashing, pause initiating



51 Star-delta

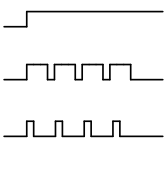


On-Off function



Legend to contact sequence diagrams

LED display

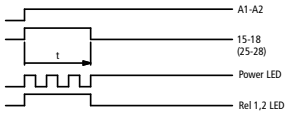


Time not running,
Contact 15 – 18 closed

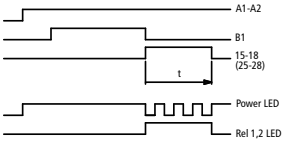
Time running,
Contact 15 – 18 closed

Time running,
Contact 15 – 18 not closed

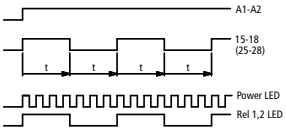
21 Fleeting contact on energization



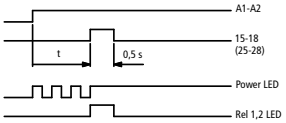
22 Fleeting contact on de-energization



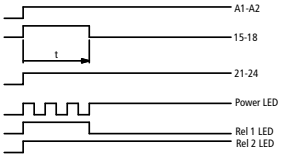
42 Flashing



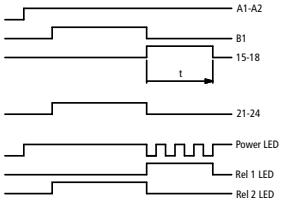
81 Pulse generating



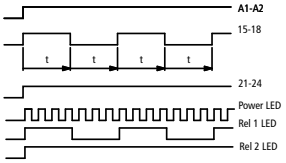
21 Fleeting contact on energization



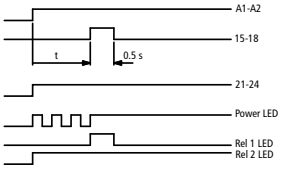
22 Fleeting contact on de-energization



42 Flashing

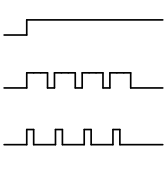


81 Pulse generating



Legend to contact sequence diagrams

LED display



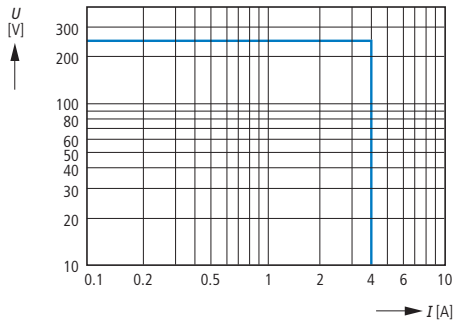
Time not running,
Contact 15 – 18 closed

Time running,
Contact 15 – 18 closed

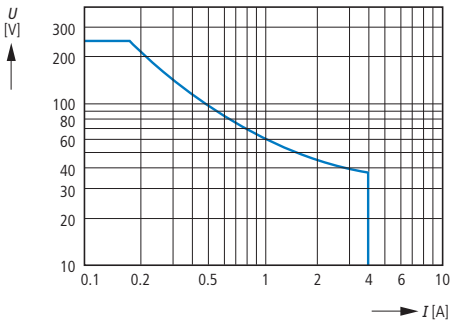
Time running,
Contact 15 – 18 not closed

Load limit curves, ETR2-11/12/21/42/44/69

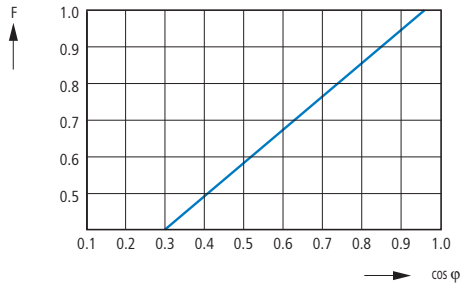
AC load (resistive)



DC load (resistive)

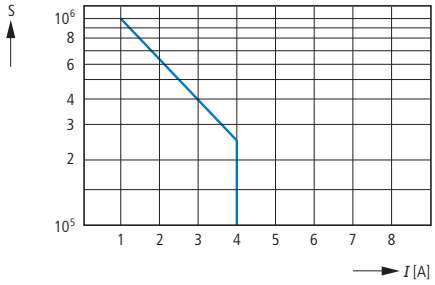


Derating factor with inductive AC load



Derating factor F with inductive load

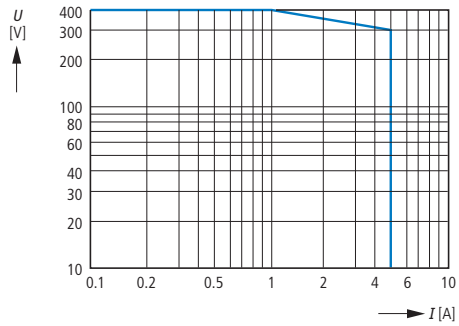
Contact life



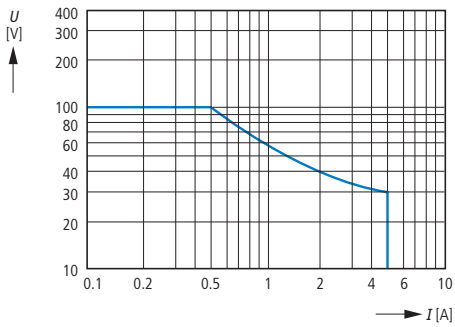
Contact life
Operations S
220 V 50 Hz AC-1
360 operations/h

Load limit curves, ETR2...-D

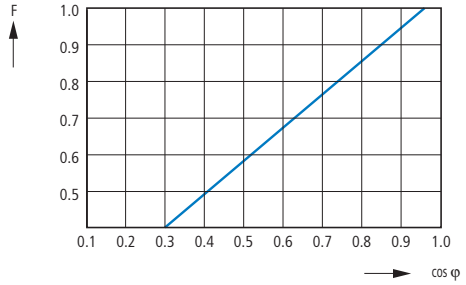
AC load (resistive)



DC load (resistive)

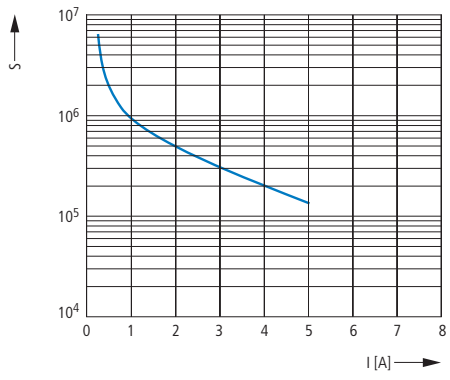


Derating factor with inductive AC load



Derating factor F with inductive load

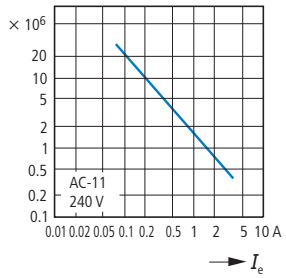
Contact life



Contact life
Operations S
220 V 50 Hz AC-1
360 operations/h

DILET (AC-11)

Component lifespan (operations)
I_e = Rated operational current



			DILET-A	DILET-W	ETR4-A	ETR4-W
General						
Standards			IEC/EN 61812 VDE 0435	IEC/EN 61812 VDE 0435	IEC/EN 61812 VDE 0435	IEC/EN 61812 VDE 0435
Lifespan, mechanical						
AC operated	Switch operations	x 10^6	30	30	30	30
DC operated	Switch operations	x 10^6	30	30	30	30
Climatic proofing			Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60068-2-30			
Ambient temperature						
Storage		°C			-45 - 60	-45 - 60
Open		°C	-20 - 60	-20 - 60	-25 - 60	-25 - 60
Encapsulated		°C	-20 - 45	-20 - 45	-25 - 45	-25 - 45
Mounting position			Any	Any	Any	Any
Mechanical shock resistance (IEC/EN 60068-2-27)						
Half-sinusoidal shock 20 ms						
N/O		g	4	4	4	4
Degree of protection						
Clamps			IP20	IP20	IP20	IP20
Weight		kg	0.09	0.09	0.1	0.1
Terminal capacity						
Solid		mm^2	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)
Flexible with ferrule		mm^2	1 x (0.75 - 1.5) 2 x (0.75 - 1.5)	1 x (0.75 - 1.5) 2 x (0.75 - 1.5)	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)
Solid or stranded		AWG	1 x (18 - 14)	1 x (18 - 14)	1 x (20 - 14)	1 x (20 - 14)
Contacts						
Rated impulse withstand voltage	U_{imp}	V AC	6000	6000	6000	6000
Overvoltage category/pollution degree			III/2	III/2	III/2	III/2
Rated insulation voltage	U_i	V AC	600	600	600	600
Rated operating voltage	U_e	V AC	440	440	440	440
Safe isolation according to EN 61140						
Between coil and auxiliary contacts		V AC	250	250	250	250
Between the auxiliary contacts		V AC	250	250	250	250
Making capacity						
AC-14 p.f. φ = 0.3 440 V		A	48	48	48	48
AC-15 p.f. φ = 0.3 220 V		A	50	50	50	50
DC-11 L/R ≦ 40 ms		x I_e	1.1	1.1	1.1	1.1
Breaking capacity						
AC-14 p.f. φ = 0.3 440 V		A	3	3	3	3
AC-15 p.f. φ = 0.3 220 V		A	3	3	3	3
DC-11 L/R ≦ 40 ms		x I_e	1.1	1.1	1.1	1.1
Rated operation current						
AC-14						
440 V	I_e	A	3	3	3	3
AC-15						
220 V (230 V)	I_e	A	3	3	3	3
DC-11[1]						
L/R max. 15 ms						
24 V	I_e	A	1.5	1.5	1.5	1.5
L/R max. 50 ms		A	1.2	1.2	1.2	1.2
Conventional thermal current	I_{th}	A	6	6	6	6
General use						
AC operated		V	250	250	250	250
AC operated		A	6	6	6	6
Pilot duty						
AC operated			B300	B300	B300	B300
Short-circuit rating without welding[2]						
Max. fuse, N/O (normally open)		A gG/gL	6	6	6	6
Max. fuse, N/C (normally closed)		A gG/gL	6	6	6	6
Max. overcurrent protective device, 220/230 V		Part no.	–	–	FAZ-B4/1-HI	FAZ-B4/1-HI

Notes
[1] Making and breaking conditions to DC13, time constant as stated
[2] When supplied directly from mains or transformer > 1000 VA

			DILET-A	DILET-W	ETR4-A	ETR4-W
Magnet systems						
Rated operating voltage						
AC			24 - 240	400	24 - 240	400
DC			24 - 240	–	24 - 240	–
Rated frequency		Hz	47 - 63	47 - 63	47 - 63	47 - 63
AC operated	Pick-up	x U_c	0.85 - 1.1	0.85 - 1.1	0.85 - 1.1	0.85 - 1.1
DC operated	Pick-up	x U_c	0.7 - 1.1	–	0.7 - 1.1	–
Power consumption						
AC pick-up rating		VA	2	0.5	2	0.5
AC holding rating		VA	2	0.5	2	0.5
DC pick-up rating		W	1.8	–	1.8	–
DC holding rating		W	1.8	–	1.8	–
Duty factor		% duty factor	100	100	100	100
Maximum operating frequency		Ops/h	4000	4000	4000	4000
Minimum command time						
AC		ms	50	50	50	50
DC		ms	30	–	30	–
Repetition accuracy (deviation)		%	≦ 0.5	≦ 0.5	≦ 0.5	≦ 0.5
Recovery time (after 100% time delay)		ms	70	70	70	70
Contact changeover time[1)]	t_u	ms	–	–	4	4
Electromagnetic compatibility (EMC)						
Electrostatic discharge (IEC/EN 61000-4-2, Level 3, ESD)		kV	–	–	–	–
Air discharge		kV	8	8	8	8
Contact discharge		kV	6	6	6	6
Electromagnetic fields (IEC/EN 61000-4-3, RFI)		V/m	10	10	10	10
Radio interference suppression (EN 55011)			EN 55011 Class A	EN 55011 Class A	EN 55011 Class A	EN 55011 Class A
Burst pulses (IEC/EN 61000-4-4, level 3)			2	2	2	2
High-energy pulses (surge) (IEC/EN 61000-4-5, level 2)		kV	1	1	1	1
Immunity to line-conducted interference (IEC/EN 61000-4-6)		V	10	10	10	10

Notes [1)] ETR4-51: 50 ms

Technical data

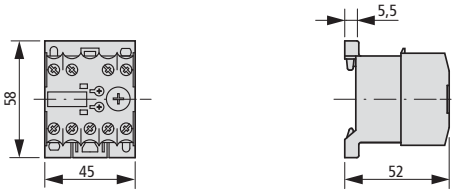
Part no.	ETR2-11(12, 21, 42, 44, 69)	ETR2-69-D	ETR2-11-D/ETR2-12-D
Input circuit - power supply circuit			
Rated control voltage U_S			
A1 - A2	24 - 240 V AC/24 - 48 V DC	12-240 V AC/DC	24 - 240 V AC/24 - 48 V DC
Tolerance of rated control voltage U_S	-15 - +10 %	-15 - +10 %	-15 - +10 %
Rated frequency	DC or 50/60 Hz	DC or 50/60 Hz	DC or 50/60 Hz
Frequency range	DC or 47 - 63 Hz	DC or 47 - 63 Hz	DC or 47 - 63 Hz
Typical current/power consumption			
12 V DC	–	35 mA	–
24 V DC	0.6 W	–	24.1mA
230 V AC	1.3 VA	6.25 mA	31.3 mA
115 V AC	1.3 VA	34.25 mA	20 mA
Mains failure buffering time	min. 30 ms	min. 30 ms	min. 30 ms
Input circuit - control circuit			
Type of actuation	Non-isolated actuation	Non-isolated actuation	Non-isolated actuation
Control input, control function	External time start	External time start	External time start
Parallel connection possible/polarized	Yes/yes	Yes/yes	Yes/yes
Maximum cable length at the control inputs	50 m - 100 pF/m	50 m - 100 pF/m	50 m - 100 pF/m
Minimum control pulse length/duration	30 ms	30 ms	30 ms
Control voltage potential	see Rated control voltage	see Rated control voltage	see Rated control voltage
Power consumption of control input	Max. 4 mA		
12 V DC	–	0.018 mA	–
24 V DC	–	–	0.92 mA
230 V AC	–	0.01 mA	6.43 mA
115 V AC	–	0.01 mA	3.27 mA
Timing circuit			
Time ranges			
7 time ranges 0.05 s - 100 h	0.05 - 1 s, 0.5 - 10 s, 5 - 100 s, 0.5 - 10 min, 5 - 100 min, 0.5 - 10 h, 5 - 100 h	0.05 - 1 s, 0.5 - 10 s, 5 - 100 s, 0.5 - 10 min, 5 - 100 min, 0.5 - 10 h, 5 - 100 h	0.05 - 1 s, 0.5 - 10 s, 5 - 100 s, 0.5 - 10 min, 5 - 100 min, 0.5 - 10 h, 5 - 100 h
Recovery time	< 50 ms	< 50 ms	< 50 ms
Accuracy within the rated control voltage tolerance	Δt < 0.005 %/V	Δt < 0.005 %/V	Δt < 0.005 %/V
Accuracy within temperature range	Δt < 0.06 %/°C	Δt < 0.06 %/°C	Δt < 0.06 %/°C
Operating status indication			
U control voltage/time running: green LED	Continuous light: control voltage present; slow flashing: time running		
Relay status R: yellow LED	Continuous light: output relay 1 picked up	Continuous light: output relay 1 or 2 picked up	Continuous light: output relay 1 or 2 picked up
Output circuits			
Output type			
15 - 16/18	Relay, 1 changeover contact	–	–
15 - 16/18; 25 - 26/28	–	Relay, 2 changeover contacts	Relay, 2 changeover contacts
Contact material	Cadmium-free	Cadmium-free	Cadmium-free
Rated operational voltage Ue	250 V	250 V	250 V
Minimum switching voltage/minimum switching current	12 V/100 mA	12 V/100 mA	12 V/100 mA
Rated operational current (IEC 60947-5-1)			
AC12 (resistive) 230 V	6 A	5 A	5 A
AC15 (inductive) 230 V N/O	3 A	3 A	3 A
AC15 (inductive) 230 V N/C	3 A	0.75 A	0.75 A
DC12 (resistive) 24 V	6 A	5 A	5 A
DC13 (inductive) 24 V N/O	2 A	3 A	3 A
DC13 (inductive) 24 V N/C	2 A	1 A	1 A
Rated operational data AC (UL 508)			
Utilization category (Control Circuit Rating Code)	B300	N/O: B300; N/C: C300	N/O: B300; N/C: C300
Max. rated operational voltage	300 V AC	300 V AC	300 V AC
Max. thermal continuous current	at B300 = 5 A	at B300 = 5 A; at C300 = 2.5 A	at B300 = 5 A; at C300 = 2.5 A
Max. input/output rating (N/O / N/C)	at B300 = 3600/360 VA	at B300 = 3600/360 VA; at C300 = 1800/180 VA	at B300 = 3600/360 VA; at C300 = 1800/180 VA
Mechanical lifespan	30 x 10^6 operations	30 x 10^6 operations	30 x 10^6 operations
Electrical lifespan (AC12, 230 V, 4 A)	0.1 x 10^6 operations	0.1 x 10^6 operations	0.1 x 10^6 operations
Short-circuit rating, max. fuse (IEC/EN 60947-5-1)			
N/C	6 A fast	6 A fast	6 A fast
N/O	10 A fast	10 A fast	10 A fast

Part no.	ETR2-11(12, 21, 42, 44, 69)	ETR2-69-D	ETR2-11-D/ETR2-12-D
General data			
Duty factor (DF)	100 %	100 %	100 %
Repetition accuracy (constant parameters)	Δt < 0.5 %	Δt < 0.5 %	Δt < 0.5 %
Weight	0.060 kg	0.065 kg	0.065 kg
Enclosure measurements (w x h x d)	17.5 mm x 70 mm x 58 mm (0.69 x 2.76 x 2.28 inches)	17.5 mm x 80 mm x 58 mm (0.69 x 3.15 x 2.28 inches)	17.5 mm x 80 mm x 58 mm (0.69 x 3.15 x 2.28 inches)
Mounting position	Any	Any	Any
Degree of protection of enclosures/terminals	IP50/IP20	IP50/IP20	IP50/IP20
Minimum horizontal/vertical distance to adjacent devices	None/none	None/none	None/none
Mounting	DIN rail (IEC/EN 60715), clip-type toolless	DIN rail (IEC/EN 60715), clip-type toolless	DIN rail (IEC/EN 60715), clip-type toolless
Electrical connection			
Terminal capacity			
Flexible with/without ferrule	2 x 0.5 - 1.5 mm² (2 x 20 - 16 AWG)/ 1 x 0.5 - 2.5 mm² (1 x 20 - 14 AWG)	3 x 0.5 - 1.5 mm² (2 x 20 - 16 AWG)/ 1 x 0.5 - 2.5 mm² (1 x 20 - 14 AWG)	4 x 0.5 - 1.5 mm² (2 x 20 - 16 AWG)/ 1 x 0.5 - 2.5 mm² (1 x 20 - 14 AWG)
Rigid	2 x 0.5 - 1.5 mm² (2 x 20 - 16 AWG) 1 x 0.5 - 4 mm² (1 x 20 - 12 AWG)	2 x 0.5 - 1.5 mm² (2 x 20 - 16 AWG) 1 x 0.5 - 4 mm² (1 x 20 - 12 AWG)	2 x 0.5 - 1.5 mm² (2 x 20 - 16 AWG) 1 x 0.5 - 4 mm² (1 x 20 - 12 AWG)
Stripped length	7 mm (0.28 incheses)	7 mm (0.28 incheses)	7 mm (0.28 incheses)
Tightening torque	0.5 - 0.8 Nm	0.5 - 0.8 Nm	0.5 - 0.8 Nm
Environmental data			
Ambient temperature range, operation/storage	-20 - +60 °C/-40 - +85 °C	-20 - +60 °C/-40 - +85 °C	-20 - +60 °C/-40 - +85 °C
Damp heat (cyclic) (IEC/EN 60068-2-30)	6 x 24 h cycle, 55 °C, 95 % RH	6 x 24 h cycle, 55 °C, 95 % RH	6 x 24 h cycle, 55 °C, 95 % RH
Vibration (sinusoidal) (IEC/EN 60068-2-6)	40 m/s², 20 cycles, 10...150...10 Hz	40 m/s², 20 cycles, 10...150...10 Hz	40 m/s², 20 cycles, 10...150...10 Hz
Impact (half-sinusoidal) (IEC/EN 60068-2-27)	100 m/s², 11 ms	100 m/s², 11 ms	100 m/s², 11 ms
Insulation data			
Rated impulse withstand voltage Uimp between all insulated circuits (VDE 0110, IEC/EN 60664-1)	4 kV; 1.2/50 µs	4 kV; 1.2/50 µs	4 kV; 1.2/50 µs
Pollution degree (IEC/EN 60664-1, VDE 0110, UL 508)	3	3	3
Overvoltage category (IEC/EN 60664-1, VDE 0110, UL 508)	III	III	III
Rated insulation voltage Ui			
Input circuit/output circuit	300V	300V	300V
Output circuit 1/output circuit 2	300 V	300 V	300 V
Basic isolation (IEC/EN 61140) input circuit/output circuit	300 V	300 V	300 V
Safe isolation (VDE 0106 Part 101 and Part 101/A1; IEC/EN 61140) input circuit/output circuit	250 V	250 V	250 V
Power-frequency withstand voltage test (test voltage, part test) between all insulated circuits	2.5 kV, 50 Hz, 1s	2.5 kV, 50 Hz, 1s	2.5 kV, 50 Hz, 1s
Directives and standards			
Product standard	IEC 61812-1, EN 61812-1 + A11, DIN VDE 0435 Part 2021	IEC 61812-1, EN 61812-1 + A11, DIN VDE 0435 Part 2021	IEC 61812-1, EN 61812-1 + A11, DIN VDE 0435 Part 2021
Low-Voltage Directive	2006/95/EC	2006/95/EC	2006/95/EC
EMC Directive	2004/108/EC	2004/108/EC	2004/108/EC
RoHS Directive	2002/95/EC	2002/95/EC	2002/95/EC
Electromagnetic compatibility			
Interference immunity	IEC/EN 61000-6-1, IEC/EN 61000-6-2	IEC/EN 61000-6-1, IEC/EN 61000-6-2	IEC/EN 61000-6-1, IEC/EN 61000-6-2
Electrostatic discharge (ESD) IEC/EN 61000-4-2	Level 3 (6 kV/8 kV)	Level 3 (6 kV/8 kV)	Level 3 (6 kV/8 kV)
Electromagnetic field (immunity to RF interference) IEC/EN 61000-4-3	Level 3 (10 V/m)	Level 3 (10 V/m)	Level 3 (10 V/m)
Fast transients (burst) IEC/EN 61000-4-4	Level 3 (2 kV/5 kHz)	Level 3 (2 kV/5 kHz)	Level 3 (2 kV/5 kHz)
High-energy pulses (surge) IEC/EN 61000-4-5	Level 4 (2 kV L-L)	Level 4 (2 kV L-L)	Level 4 (2 kV L-L)
Cable-borne HF IEC/EN 61000-4-6	Level 3 (10 V)	Level 3 (10 V)	Level 3 (10 V)
Emitted interference	IEC/EN 61000-6-3, IEC/EN 61000-6-4	IEC/EN 61000-6-3, IEC/EN 61000-6-4	IEC/EN 61000-6-3, IEC/EN 61000-6-4
Electromagnetic field (resistance to RF interference) IEC/CISPR 22, EN 55022	Class B	Class B	Class B
Cable-borne HF IEC/CISPR 22; EN 55022	Class B	Class B	Class B

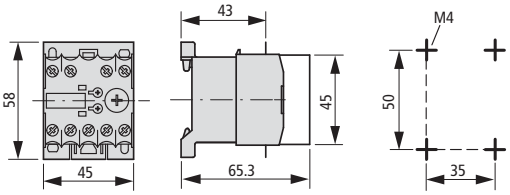
Dimensions

Electronic timing relays

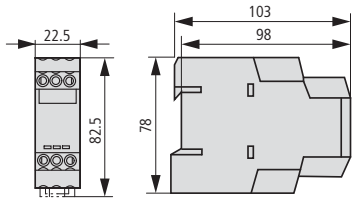
DILET…



DILET… + HDILE

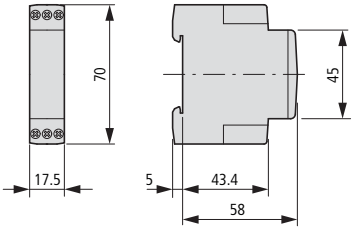


ETR4-…

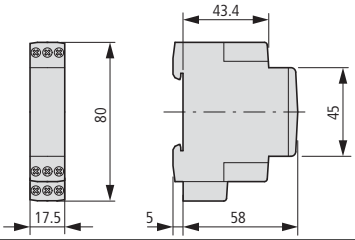


ETR2-…

250 x 006

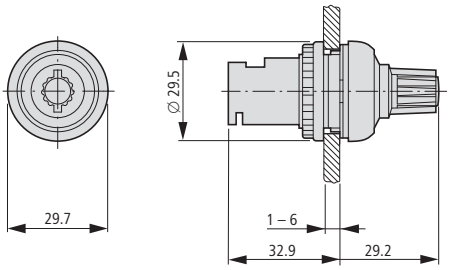


ETR2-…-D



Potentiometers

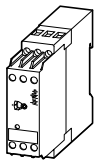
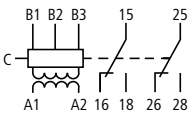
M22-R…K…



Ordering

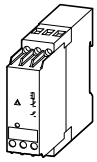
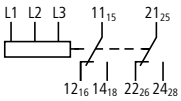
Current monitoring relays EMR4-I..., single-phase

Load limit curves → Page 11/21
Circuit and contact sequence diagrams → Instructional leaflet (AWA) under www.moeller.net/support

		Current measurement range I~/I= A	Contact sequences	Supply voltage connection	Part no. Article no.	Price See price list	Std. pack
	• Switching hysteresis adjustable from 3 - 30 % • Response delay 0.1 - 30 s • Monitoring of one upper or lower limit • Extension of the measurement range possible with current transformers	3 - 30 mA 10 - 100 mA 0.1 - 1 A		24 - 240 V AC, 50/60 Hz 24 - 240 V DC	**EMR4-I1-1-A** 106942		1 off
		0.3 - 1.5 A 1 - 5 A 3 - 15 A		24 - 240 V AC, 50/60 Hz 24 - 240 V DC	**EMR4-I15-1-A** 106943		1 off
		0.3 - 1.5 A 1 - 5 A 3 - 15 A		220 - 240 V AC, 50/60 Hz	**EMR4-I15-1-B** 106944		1 off

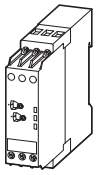
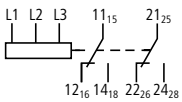
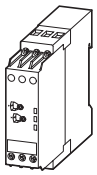
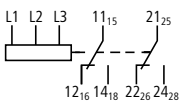
EMR4-F... phase sequence relay

Load limit curves → Page 11/21
Circuit and contact sequence diagrams → Instructional leaflet (AWA) under www.moeller.net/support

		Monitoring voltage per phase U_N V AC	Contact sequences	Supply voltage connection	Part no. Article no.	Price See price list	Std. pack
	• Monitors three-phase systems for phase sequence and phase failure (< 0.6 x U_e) • Supply voltage connection = monitored voltage	200 - 500 V AC, 50/60 Hz		200 - 500 V AC, 50/60 Hz	**EMR4-F500-2** 221784		1 off

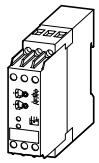
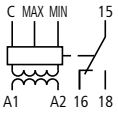
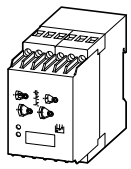
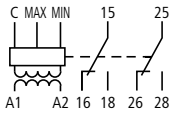
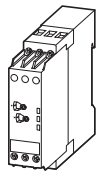
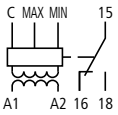
EMR5-A... phase imbalance monitoring relays

Load limit curves → Page 11/21
Circuit and contact sequence diagrams → Instructional leaflet (AWA) under www.moeller.net/support

		Threshold value	Contact sequences	Supply voltage connection	Part no. Article no.	Price See price list	Std. pack
	Power supply from measuring circuit Three-phase monitoring • Phase sequence • Phase failure • Asymmetry • Imbalance threshold values adjustable 2 - 25 % of mean value of phase voltages • On-delay: None = 0 or adjustable from 0.1 to 30 s	Imbalance = 2 - 25 % of phase voltage mean value		160 - 300 V AC, 50/60 Hz	**EMR5-A300-1-C** 134230		1 off
	Power supply from measuring circuit Three-phase monitoring • Phase sequence • Phase failure • Asymmetry • Imbalance threshold values adjustable • On-delay: None = 0 or adjustable from 0.1 to 30 s	Imbalance = 2 - 25 % of phase voltage mean value		300 - 500 V AC, 50/60 Hz	**EMR5-A400-1** 134222		1 off

Notes **Information relevant for export to North America**

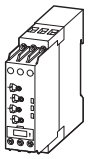
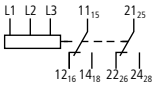
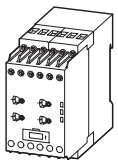
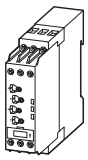
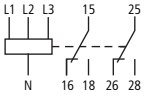
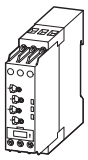
Product Standards	IEC 255-6; UL 508; CSA-22.2 No. 14-05; CE marking
UL File No.	E29184
UL CCN	NKCR, NKCR7
CSA File No.	UL report valid
CSA Class No.	3211-03
NA Certification	UL Listed, Certified by UL for use in Canada
Degree of Protection	IEC: IP20, UL/CSA Type: -

		Response sensitivity	Contact sequences	Supply voltage connection	**Part no.** Article no.	**Price** See price list	Std. pack
Liquid level monitoring relays EMR4-N…							
Load limit curves → Page 11/21 Circuit and contact sequence diagrams → Instructional leaflet (AWA) under www.moeller.net/support							
	• Fill level monitoring of conductive liquids • Mixture ratio monitoring of conductive liquids • Selectable dry-running or overflow protection	5 kΩ - 100 kΩ		220 - 240 V AC, 50/60 Hz	**EMR4-N100-1-B** 221789		1 off
	• Fill level monitoring of conductive liquids • Mixture ratio monitoring of conductive liquids • Selectable on-delay or off-delay between 0.5 - 10 s	250 Ω - 500 kΩ		24 - 240 V AC, 50/60 Hz 24 - 240 V DC	**EMR4-N500-2-A** 221791		1 off
		250 Ω - 500 kΩ		220 - 240 V AC, 50/60 Hz	**EMR4-N500-2-B** 221790		1 off
Liquid level monitoring relays EMR5N...							
Load limit curves → Page 11/21 Circuit and contact sequence diagrams → Instructional leaflet (AWA) under www.moeller.net/support							
	• Fill level monitoring of conductive liquids • Conductivity (mixture ratio) monitoring of conductive liquids	5 kΩ - 100 kΩ		220 - 240 V AC, 50/60 Hz	**EMR5-N80-1-B** 134232		1 off

Notes

Information relevant for export to North America

Product Standards	IEC 255-6; UL 508; CSA-22.2 No. 14-05; CE marking
UL File No.	E29184
UL CCN	NKCR, NKCR7
CSA File No.	UL report valid
CSA Class No.	3211-03
NA Certification	UL Listed, Certified by UL for use in Canada
Degree of Protection	IEC: IP20, UL/CSA Type: -

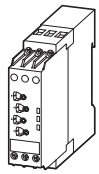
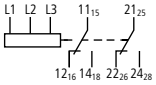
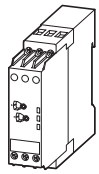
		Monitoring voltage per phase	Threshold value[1]	Contact sequences	Supply voltage connection	Width mm	**Part no.** Article no.	**Price** See price list	Std. pack
Phase monitoring relay EMR5-(A)W...									
Multifunctional Load limit curves → Page 11/21 Connections and contact sequence diagrams → Instructional leaflet (AWA) under www.moeller.net									
	Power supply from measuring circuit Three-phase monitoring • Phase sequence • Phase failure • Overvoltage • Undervoltage • Asymmetry • Adjustable threshold values for overvoltage/ undervoltage and imbalance • On-/Off-delay: None = 0 or adjustable between 0.1 - 30 s	160 - 300 V AC, 50/60 Hz	U_{max} 220 - 300 V AC U_{min} 160 - 230 V AC		160 - 300 V AC, 50/60 Hz	22.5	**EMR5-AW300-1-C** 134223		1 off
		300 - 500 V AC, 50/60 Hz	U_{max} 420 - 500 V AC U_{min} 300 - 380 V AC		300 - 500 V AC, 50/60 Hz	22.5	**EMR5-AW500-1-D** 134224		
		350 - 580 V AC, 50/60 Hz	U_{max} 480 - 580 V AC U_{min} 350 - 460 V AC		350 - 580 V AC, 50/60 Hz	45	**EMR5-AWM580-2** 134235		
		450 - 720 V AC; 50/60 Hz	U_{max} 600 - 720 V AC U_{min} 450 - 570 V AC		350 - 720 V AC, 50/60 Hz	45	**EMR5-AWM720-2** 134236		
		530 - 820 V AC; 50/60 Hz	U_{max} 690 - 820 V AC U_{min} 530 - 660 V AC		530 - 820 V AC, 50/60 Hz	45	**EMR5-AWM820-2** 134237		1 off
	Power supply from measuring circuit Three-phase monitoring • Phase sequence • Phase failure • Overvoltage • Undervoltage • Asymmetry • Neutral cable break (not EMR5-AWN500-1) • Adjustable threshold values for overvoltage/ undervoltage and imbalance • On-/Off-delay: None = 0 or adjustable between 0.1 - 30 s	90 - 170 V AC, 50/60 Hz	U_{max} 120 - 170 V AC $U_{min.}$ 90 - 130 V AC		90 - 170 V AC, 50/60/ 400 Hz	22.5	**EMR5-AWN170-1-E** 134225		1 off
		180 - 280 V AC, 50/60 Hz	U_{max} 240 - 280 V AC U_{min} 180 - 220 V AC		180 - 280 V AC, 50/60/ 400 Hz	22.5	**EMR5-AWN280-1** 134233		
		180 - 280 V AC, 50/60 Hz	U_{max} 240 - 280 V AC U_{min} 180 - 220 V AC		180 - 280 V AC, 50/60 Hz	22.5	**EMR5-AWN280-1-F** 134226		
		300 - 500 V AC, 50/60 Hz	U_{max} 420 - 500 V AC U_{min} 300 - 380 V AC		300 - 500 V AC, 50/60 Hz	22.5	**EMR5-AWN500-1** 134234		

Notes [1] Imbalance = 2 - 25% of phase voltage mean value

Information relevant for export to North America

Product Standards	IEC 255-6; UL 508; CSA-22.2 No. 14-05; CE marking
UL File No.	E29184
UL CCN	NKCR, NKCR7
CSA File No.	UL report valid
CSA Class No.	3211-03
NA Certification	UL Listed, Certified by UL for use in Canada
Degree of Protection	IEC: IP20, UL/CSA Type: -

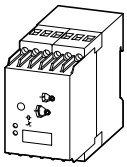
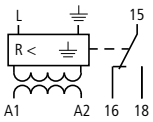
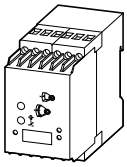
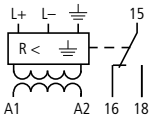
HPL11019EN

		Monitoring voltage per phase	Threshold value[1]	Contact sequences	Supply voltage connection	Width mm	**Part no.** Article no.	**Price** See price list	Std. pack
Phase monitoring relay EMR5-(A)W...									
On- and Off-delayed Load limit curves → Page 11/21 Connections and contact sequence diagrams → Instructional leaflet (AWA) under www.moeller.net									
	Power supply from measuring circuit Three-phase monitoring of phase parameters • Phase sequence • Phase failure • Overvoltage • Undervoltage • Adjustable threshold values for overvoltage/ undervoltage and imbalance • On-/Off-delay: None = 0 or adjustable between 0.1 - 30 s	160 - 300 V AC, 50/60 Hz	U_{max} 220 - 300 V AC U_{min} 160 - 230 V AC		160 - 300 V AC, 50/60 Hz	22.5	**EMR5-W300-1-C** 134227		1 off
		300 - 500 V AC, 50/60 Hz	U_{max} 420 - 500 V AC U_{min} 300 - 380 V AC		300 - 500 V AC, 50/60 Hz	22.5	**EMR5-W500-1-D** 134221		
	Power supply from measuring circuit Three-phase monitoring of phase parameters • Phase sequence • Phase failure • Overvoltage • Undervoltage • Adjustable threshold values for overvoltage/ undervoltage permanently set at ± 10% • On-/Off-delay: None = 0 or adjustable between 0.1 - 30 s	380 V AC, 50/60 Hz	U_{max} 418 V AC U_{min} 342 V AC		380 V, 50/60 Hz	22.5	**EMR5-W380-1** 134228		
		400 V AC, 50/60 Hz	U_{max} 440 V AC U_{min} 360 V AC		400 V, 50/60 Hz	22.5	**EMR5-W400-1** 134229		

Notes [1] Imbalance = 2 - 25% of phase voltage mean value

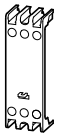
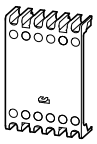
Information relevant for export to North America

Product Standards	IEC 255-6; UL 508; CSA-22.2 No. 14-05; CE marking
UL File No.	E29184
UL CCN	NKCR, NKCR7
CSA File No.	UL report valid
CSA Class No.	3211-03
NA Certification	UL Listed, Certified by UL for use in Canada
Degree of Protection	IEC: IP20, UL/CSA Type: -

	Description	Insulation resistance range Ω	Contact sequences	Supply voltage connection V AC	Part no. Article no.	Price See price list	Std. pack
Insulation monitoring relays EMR4-R...							
	Monitors the insulation resistance between non-grounded AC supply systems and the protective ground conductor Insulation monitoring in 1- and 3-phase AC voltage networks Test via local test button or remote test operation Status display via LED (according to VDE 0413/Part 2) Tripping function memory	1 - 110 kΩ		24 - 240 V AC, 50/60 Hz 24 - 240 V DC	**EMR4-RAC-1-A** 221793		1 off
	Monitors the insulation resistance in non-grounded DC supply systems Selector switch for open- or closed-circuit principle Test and reset via local test button or remote test operation Status indication via LEDs	10 - 110 kΩ		24 - 240 V AC, 50/60 Hz 24 - 240 V DC	**EMR4-RDC-1-A** 221792		1 off

Information relevant for export to North America

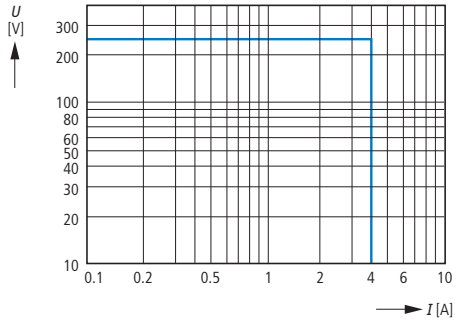
Product Standards	IEC 255-6; UL 508; CSA-22.2 No. 14-05; CE marking
UL File No.	E29184
UL CCN	NKCR, NKCR7
CSA File No.	203843
CSA Class No.	3211-03
NA Certification	UL Listed, CSA Certified
Degree of Protection	IEC: IP20, UL/CSA Type: -

	Width mm	Part no. Article no.	Price See price list	Std. pack
Sealable shroud EMR4-PH...				
	22.5	**EMR4-PH22** 221795		1 off
	45	**EMR4-PH45** 221794		1 off

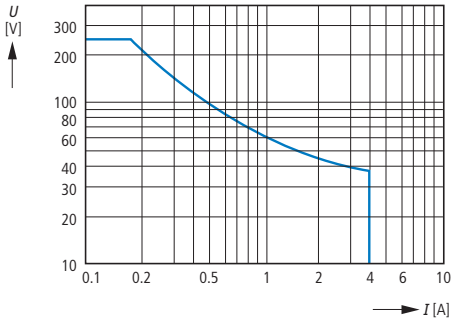
Engineering

Load limit curves, 22.5 mm range

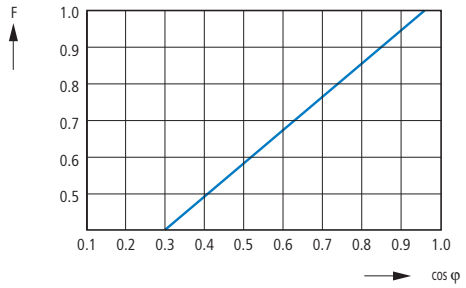
AC load (resistive)



DC load (resistive)

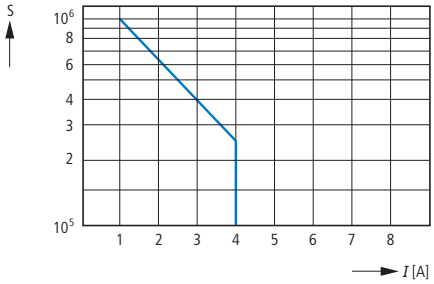


Derating factor with inductive AC load



Derating factor F with inductive load

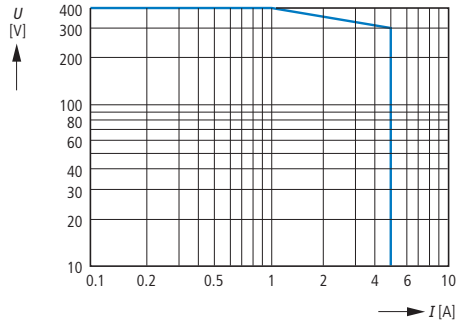
Contact life



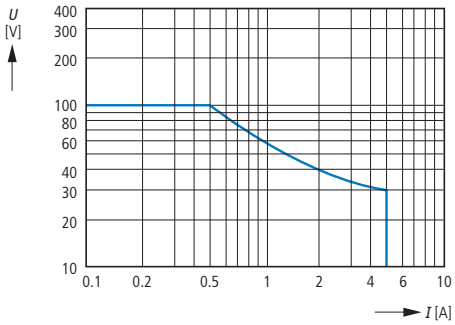
Contact life
Operations S
220 V 50 Hz AC-1
360 operations/h

Load limit curves, 45 mm range

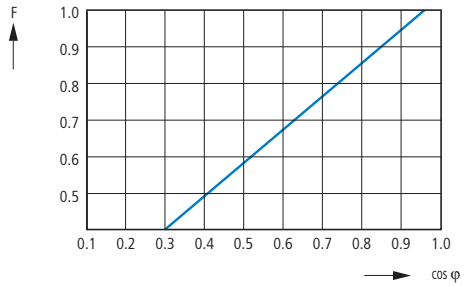
AC load (resistive)



DC load (resistive)

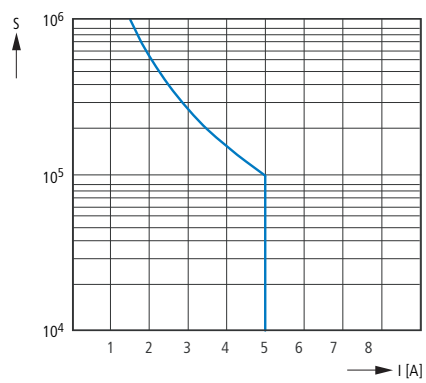


Derating factor with inductive AC load



Derating factor F with inductive load

Contact life



Contact life
Operations S
220 V 50 Hz AC-1
360 operations/h

Technical data

	EMR4-I1-1-A	EMR4-I15-1-A	EMR4-I15-1-B
Input circuit, power supply circuit A1-A2			
Rated control voltage U_S - power consumption:			
A1-A2	24 - 240 V AC/DC	24 - 240 V AC/DC	220 - 240 V AC
Tolerance of rated control voltage U_S	-15 - +10 %	-15 - +10 %	-15 - +10 %
Rated frequency			
AC versions	50/60 Hz	50/60 Hz	50/60 Hz
AC/DC versions	50/60 Hz or DC	50/60 Hz or DC	50/60 Hz or DC
Current/power consumption			
24 V DC	30 mA/0.75 W	30 mA/0.75 W	
115 V AC	24 mA/2.6 VA	24 mA/2.6 VA	
230 V AC	11 mA/2.6 VA	11 mA/2.6 VA	12 mA/2.6 VA
Duty factor (DF)	100 %	100 %	100 %
Mains failure buffering	20 ms	20 ms	20 ms
Transient overvoltage protection	Varistors	Varistors	Varistors
Input circuit measuring circuit B1/B2/B3-C			
Monitoring functions	Overcurrent or undercurrent monitoring can be configured	Overcurrent or undercurrent monitoring can be configured	Overcurrent and undercurrent monitoring
Measurement method	True RMS value measurement, any curve shapes		
Measuring inputs			
Terminal assignment B1 - C	–	–	–
Measurement ranges AC/DC	3 - 30 mA	0.3 - 1.5 A	0.3 - 1.5 A
Input resistance	3.3 Ω	0.05 Ω	0.05 Ω
Pulse overload capacity t < 1 s	500 mA	15 A	15 A
Long-term overload	50 mA	2 A	2 A
Measuring inputs			
Terminal assignment B2 - C	–	–	
Measurement ranges AC/DC	10 - 100 mA	1 - 5 A	1 - 5 A
Input resistance	1 Ω	0.01 Ω	0.01 Ω
Pulse overload capacity t < 1 s	1 A	50 A	50 A
Long-term overload	150 mA	7 A	7 A
Measuring inputs			
Terminal assignment B3 - C	0.1 - 1 A	3 - 15 A	3 - 15 A
Measurement ranges AC/DC	0.1 Ω	0.0025 Ω	0.0025 Ω
Input resistance	10 A	100 A	100 A
Pulse overload capacity t < 1 s	1.5 A	17 A	17 A
Long-term overload	–	–	–
Threshold value(s)	Adjustable within specified measuring range		
Threshold value setting accuracy	0.1	0.1	0.1
Repetition accuracy (constant parameters)	±0.07 % of full-scale value	±0.07 % of full-scale value	±0.07 % of full-scale value
Hysteresis relative to threshold value	3 - 30 % adjustable	3 - 30 % adjustable	3 - 30 % adjustable
Frequency range of measuring signal	DC/15 Hz - 2 kHz	DC/15 Hz - 2 kHz	DC/15 Hz - 2 kHz
Rated frequency range of measuring signal	DC/50 - 60 Hz	DC/50 - 60 Hz	DC/50 - 60 Hz
Maximum response time	AC: 80 ms/DC: 120 ms	AC: 80 ms/DC: 120 ms	AC: 80 ms/DC: 120 ms
Measuring error within control voltage tolerance	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %
Measuring error within temperature range	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C
Timing circuits			
Release delay T_v	0 or 0.1 - 30 s adjustable	0 or 0.1 - 30 s adjustable	0 or 0.1 - 30 s adjustable
Repetition accuracy (constant parameters)	None	±0.07 % of full-scale value	±0.07 % of full-scale value
Time error within control voltage tolerance	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %
Timeout error within temperature range	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C
Operating status indication			
Control voltage U/T: green LED	Continuous light: control voltage present; slow flashing: trip delay T_v active		
Measured value I: red LED	Continuous light: overcurrent; slow flashing: undercurrent		
Relay status R: yellow LED	Continuous light: relay picked up, no storage Slow flashing: duty factor long: relay picked up, active storage Slow flashing: duty factor short: relay dropped out, active storage		
Output circuits	11(15) - 12(16)/14(18), 21(25) - 22(26)/24(28) - relays	11(15) - 12(16)/14(18), 21(25) - 22(26)/24(28) - relays	11(15) - 12(16)/14(18), 21(25) - 22(26)/24(28) - relays
Output type	Two changeover contacts	Two changeover contacts	Two changeover contacts
Operating principle	Open-circuit principle: Output relays pick up when actual value exceeds or is below set threshold value.		

	EMR4-I1-1-A	EMR4-I15-1-A	EMR4-I15-1-B
Contact material	AgNi	AgNi	AgNi
Rated operating voltage (VDE 0110, IEC 947-1)	250 V	250 V	250 V
Minimum switching voltage/minimum switching current	24 V/10 mA	24 V/10 mA	24 V/10 mA
Maximum switching voltage/maximum switching current	250 V AC/4 A AC	250 V AC/4 A AC	250 V AC/4 A AC
Rated operational current (IEC 60947-5-1)			
AC12 (resistive) at 230 V	4 A	4 A	4 A
AC15 (inductive) at 230 V	3 A	3 A	3 A
DC12 (resistive) at 24 V	4 A	4 A	4 A
DC13 (inductive) at 24 V	2 A	2 A	2 A
Rating data AC (UL 508)			
Utilization category (Control Circuit Rating Code)	B 300	B 300	B 300
Max. rated operational voltage	300 V AC	300 V AC	300 V AC
Max. thermal uninterrupted current at B 300	5 A	5 A	5 A
Max. input/output rating (N/O / N/C) for B 300	3600/360 VA	3600/360 VA	3600/360 VA
Mechanical lifespan	30 x 10^6 operations	30 x 10^6 operations	30 x 10^6 operations
Electrical lifespan (AC12, 230 V, 4 A)	0.1 x 10^6 operations	0.1 x 10^6 operations	0.1 x 10^6 operations
Short-circuit strength/maximum fuse rating			
Normally closed contact	6 A fast	10 A fast	10 A fast
Normally open contact	6 A fast	10 A fast	10 A fast
General data			
Enclosure measurements (w x h x d)	22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)	22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)	22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)
Mounting	DIN rail (EN 50022)	DIN rail (EN 50022)	DIN rail (EN 50022)
Mounting position	Any	Any	Any
Degree of protection of enclosures/terminals	IP50/IP20	IP50/IP20	IP50/IP20
Electrical connection			
Terminal capacities			
Flexible with/without ferrule	2 x 0.75 - 2.5 mm² (2 x 18 - 14 AWG) With measuring currents > 10 A lateral clearance of 10 mm required		
Rigid	2 x 0.5-4 mm² (2 x 20-12 AWG) With measuring currents > 10 A lateral clearance of 10 mm required		
Stripped length	7 mm (0.28 inches)	7 mm (0.28 inches)	7 mm (0.28 inches)
Tightening torque	0.6 - 0.8 Nm	0.6 - 0.8 Nm	0.6 - 0.8 Nm
Environmental data			
Ambient temperature range (operation/storage)	-20 - +60 °C/-40 - +85 °C	-20 - +60 °C/-40 - +85 °C	-20 - +60 °C/-40 - +85 °C
Damp heat (IEC 60068-2-30)	55 °C, 6 cycles	55 °C, 6 cycles	56 °C, 6 cycles
Vibration (sinusoidal) (IEC/EN 60255-21-1)	Class 2	Class 2	Class 2
Impact (IEC/EN 60255-21-2)	Class 2	Class 2	Class 2
Insulation data			
Rated insulation voltage (VDE 0110, IEC 60947-1, IEC/EN 60255-5)			
Power supply/measuring circuit/output	600 V	600 V	600 V
Power supply/output 1/output 2	250 V	250 V	250 V
Rated impulse withstand voltage Uimp (IEC/EN 60947-1, IEC/EN 60255-5)			
Power supply/measuring circuit/output	6 kV 1.2/50 µs	6 kV 1.2/50 µs	6 kV 1.2/50 µs
Power supply/output 1/output 2	4 kV 1.2/50 µs	4 kV 1.2/50 µs	4 kV 1.2/50 µs
Pollution degree (VDE 0110, IEC 664, IEC/EN 60255-5)	3	3	3
Overvoltage category (VDE 0110, IEC 664, IEC/EN 60255-5)	III	III	III
Directives and standards			
Product standard	IEC/EN 60255-6	IEC/EN 60255-6	IEC/EN 60255-6
Low-Voltage Directive	2006/95/EC	2006/95/EC	2006/95/EC
EMC Directive	2004/108/EC	2004/108/EC	2004/108/EC
Electromagnetic compatibility			
Noise immunity	IEC/EN 61000-6-2	IEC/EN 61000-6-2	IEC/EN 61000-6-2
Electrostatic discharge (ESD) IEC/EN 61000-4-2	Level 3	Level 3	Level 3
Electromagnetic field (immunity to RF interference) IEC/EN 61000-4-3	Level 3	Level 3	Level 3
Fast transients (burst) IEC/EN 61000-4-4	Level 3	Level 3	Level 3
High-energy pulses (surge) IEC/EN 61000-4-9	Level 3	Level 3	Level 3
Cable-borne HF IEC/EN 61000-4-6	Level 3	Level 3	Level 3
Interference emission	IEC/EN 61000-6-3	IEC/EN 61000-6-3	IEC/EN 61000-6-3
Electromagnetic field (immunity to RF interference) IEC/CISPR 22, EN 55022	Class B	Class B	Class B
Cable-borne HF IEC/CISPR 22; EN 55022	Class B	Class B	Class B

	EMR4-F500-2
Input circuit, measuring circuit	
Phase conductor	L1-L2-L3
Rated control voltage U_S	3 x 200 - 500 V AC
Power consumption	Approx. 15 VA
Tolerance of rated control voltage U_S	-15 - +10 %
Rated frequency	50/60 Hz
Duty factor (DF)	100%
Measuring circuit	
Monitoring functions	
Phase failure	Yes
Phase sequence	Yes
Measuring range	3 x 200 - 500 V AC
Threshold value	0.6 x U_N
Frequency of measuring signal	50/60 Hz
Response time	500 ms
Measuring error within rated control voltage tolerance	≤ 0.5 %
Measuring error within temperature range	≤ 0.06 %/°C
Timing circuit	
On-delay T_s	Fixed 500 ms
Operating status indication	
Relay status R: yellow LED	Continuous light: output relay picked up
Output circuits	
Output circuits	11(15) -12(16)/14(18), 21(25) -22(26)/24(28)
Output type	Two changeover contacts
Operating principle	Closed-circuit principle: output relays drop out when value exceeds/below set threshold value
Contact material	AgNi
Rated operating voltage (VDE 0110, IEC 60947-1)	250 V
Maximum switching voltage	250 V AC, 250 V DC
Rated operational current (IEC 60947-5-1)	
AC12 (resistive) at 230 V	4 A
AC15 (inductive) at 230 V	3 A
DC12 (resistive) at 24 V	4 A
DC13 (inductive) at 24 V	2 A
Rating data AC (UL 508)	
Utilization category (Control Circuit Rating Code)	B 300
Max. rated operational voltage	300 V AC
Max. thermal uninterrupted current at B 300	5 A
Max. input/output rating (N/O / N/C) for B 300	3600/360 VA
Mechanical lifespan	30 x 10^6 operations
Electrical lifespan (AC12, 230 V, 4 A)	0.1 x 10^6 operations
Short-circuit strength/maximum fuse rating	
Normally closed contact	4 A fast
Normally open contact	6 A fast
General data	
Enclosure measurements (w x h x d)	22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)
Mounting position	Any
Degree of protection of enclosures/terminals	IP50/IP20
Mounting	DIN rail (EN 50022)
Electrical connection	
Terminal capacities	
Flexible with ferrule	2 x 0.75- 2.5 mm² (2 x 18 - 14 AWG)
Flexible without ferrule	2 x 0.75- 2.5 mm² (2 x 18 - 14 AWG)
Rigid	2 x 0.5 - 4 mm² (2 x 20 - 12 AWG)
Stripped length	7 mm (0.28 inches)
Tightening torque	0.6 - 0.8 Nm

	EMR4-F500-2
Environmental data	
Ambient temperature range, operation/storage	-20 - +60 °C / -40 - +85 °C
Climatic testing (IEC 68-2-30)	24 h cycle, 55 °C, 93 % rel., 96 h
Operating safety (IEC 68-2-6)	4 g
Mechanical strength (IEC 68-2-6)	6 g
Insulation data	
Rated voltage between supply, measuring, and output circuits (VDE 0110, IEC 60947-1)	500V
Rated impulse withstand voltage U_{imp} between all insulated circuits (VDE 0110, IEC 664)	2.5 kV, 50 Hz, 1 min.
Test voltage between all insulated circuits (routine test)	4 kV, 50 Hz, 1 min.
Pollution degree (VDE 0110, IEC 664, IEC 255-5)	3
Overvoltage category (VDE 0110, IEC 664, IEC 255-5)	III
Directives and standards	
Product standard	IEC 255-6, EN 60255-6
Low-Voltage Directive	2006/95/EC
EMC Directive	2004/108/EC
Electromagnetic compatibility	
Noise immunity	EN 61000-6-2
Electrostatic discharge (ESD) IEC/EN 61000-4-2	Level 3 (6 kV/8 kV)
Electromagnetic field (immunity to RF interference) IEC/EN 61000-4-3	Level 3 (10 V/m)
Fast transients (burst) IEC/EN 61000-4-4	Level 3 (2 kV/5 kHz)
High-energy pulses (surge) IEC 1000-4-5, EN 61000-4-5	Level 4 (2 kV L-L)
Cable-borne HF IEC 100-4-6, EN 61000-4-6	Level 3 (10 V)
Interference emission	EN 61000-6-4

			EMR5-A300-1-C	EMR5-A400-1
Input circuit, measuring circuit			L1,L2,L3	L1,L2,L3
Rated control voltage, monitored voltage	U_s		3 x 160 - 300 V AC	3 x 300 - 500 V AC
Typical current/power consumption			25 mA/10 VA/230 V AC	25 mA/18 VA/400 V AC
Rated control voltage tolerance	U_s	%	-15 - +10	-15 - +10
Rated frequency		Hz	50/60	50/60
Frequency range		Hz	45 - 65	45 - 65
Measuring circuit				
Monitoring functions				
Phase failure			Yes	Yes
Phase sequence			Yes	Yes
Automatic phase sequence correction			No	No
Asymmetry			Yes	Yes
Overvoltage/undervoltage			No	No
Neutral conductor			No	No
Measuring range				
Overvoltage			No	No
Undervoltage			No	No
Asymmetry			2 - 25 % of phase voltage mean value	
Adjustable threshold values				
Overvoltage			No	No
Undervoltage			No	No
Imbalance (disconnection value)			Adjustable within measuring range	Adjustable within measuring range
Hysteresis relative to threshold value				
Overvoltage/undervoltage			No	No
Asymmetry			Fixed 20 %	Fixed 20 %
Rated frequency of measuring signal		Hz	50/60	50/60
Frequency range of measuring signal		Hz	45 - 65	45 - 65
Maximum monitoring cycle		ms	100	100
Measuring error within rated control voltage tolerance				
Measuring error within temperature range				
Measurement method			True RMS value measurement	True RMS value measurement
Timing circuit				
On-delay	T_s	ms	Fixed 200	Fixed 200
Response delay	T_v	s	On-delayed: none = 0; adjustable 0.1 - 30	On-delayed: none = 0; adjustable 0.1 - 30
Timeout error within rated control voltage tolerance		%	≤ 0.5	≤ 0.5
Timeout error within temperature range		% /°C	≤ 0.06	≤ 0.06
Repetition accuracy (constant parameters)		%	< ±0.2	< ±0.2
Operating status indication				
Relay status R: yellow LED			See instructional leaflet	See instructional leaflet
Output circuits				
Output circuits			15-16/18, 25-26/28	15-16/18, 25-26/28
Output type			2 x 1 relay (changeover contact)	2 x 1 relay (changeover contact)
Operating principle			Closed-circuit principle: output relays drop out when value above/ below set threshold value	
Contact material			AgNi alloy, Cd-free	AgNi alloy, Cd-free
Rated operating voltage (VDE 0110, IEC 60947-1)		V	250	250
Minimum switching voltage/minimum switching current		No	24 V/10 mA	24 V/10 mA
Minimum switching duty		V/mA	24/10	24/10
Maximum switching voltage			→ Page 11/21	→ Page 11/21
Rated operational current (IEC 60947-5-1)				
AC12 (resistive) at 230 V		A	4	4
AC15 (inductive) at 230 V		A	3	3
DC12 (resistive) at 24 V		A	4	4
DC13 (inductive) at 24 V		A	2	2
Rating data AC (UL 508)				
Utilization category (Control Circuit Rating Code)			B 300	B 300
Max. rated operational voltage		V AC	300	300
Max. thermal uninterrupted current at B 300		A	5	5
Max. input/output rating (N/O / N/C) for B 300		VA	3600/360	3600/360
Mechanical lifespan		Operations	30 x 10^6	30 x 10^6
Electrical lifespan (AC12, 230 V, 4 A)		Operations	0.1 x 10^6	0.1 x 10^6

			EMR5-A300-1-C	EMR5-A400-1
Short-circuit strength/maximum fuse rating				
Normally closed contact			6 A fast	6 A fast
Normally open contact			10 A fast	10 A fast
General data				
Enclosure measurements (w x h x d)		mm (inch)	22.5 x 78 x 100 (0.89 x 3.07 x 3.94)	22.5 x 78 x 100 (0.89 x 3.07 x 3.94)
Mounting position			Any	
Degree of protection of enclosures/terminals			IP50/IP20	
Mounting			DIN rail (EN 60715), clip-type toolless	
Minimum distance to adjacent devices				
Horizontal (min. 10 mm of continuous voltage)		V	> 220	> 400
Vertical			None	None
Electrical connection				
Terminal capacities				
Flexible with ferrule		mm² (AWG)	2 x 0.75-2.5 (2 x 18 - 14)	2 x 0.75-2.5 (2 x 18 - 14)
Flexible without ferrule		mm² (AWG)	2 x 0.75-2.5 (2 x 18 - 14)	2 x 0.75-2.5 (2 x 18 - 14)
Rigid		mm² (AWG)	2 x 0.5-4 (2 x 20 - 12)	2 x 0.5-4 (2 x 20 - 12)
Stripped length		mm (inch)	7 (0.28)	7 (0.28)
Tightening torque		Nm	0.6 - 0.8	0.6 - 0.8
Environmental data				
Ambient temperature range, operation/storage		°C	-25 - +60/-40 - +85	-25 - +60 /-40 - +85
Damp heat (IEC 60068-2-30)			55 °C, 6 cycles	55 °C, 6 cycles
Climate class			3K3	3K3
Vibration (sinusoidal) (IEC/EN) 60255-21-1)		Class	2	2
Impact (IEC/EN 60255-21-2)		Class	2	2
Insulation data				
Rated voltage between supply, measuring, and output circuits (VDE 0110, IEC 60947-1)				
Rated impulse withstand voltage Uimp between all insulated circuits (VDE 0110,IEC 664)				
Rated insulation voltage Ui				
Input circuit/output circuit		V	600	600
Input circuit 1/output circuit 2		V	300	300
Rated impulse withstand voltage Uimp (VDE 0110, IEC/EN 60664)				
Input circuit			6 kV; 1.2/50 µs	6 kV; 1.2/50 µs
Output circuits			4 kV; 1.2/50 µs	4 kV; 1.2/50 µs
Test voltage between all insulated circuits (routine test)			2.5 kV, 50 Hz, 1 s	2.5 kV, 50 Hz, 1 s
Basic insulation, input circuit/output circuit		V	600	600
Safe isolation (VDE 0160 Part 101 and 101/A; IEC/EN 61140) input circuit/output circuit			No	No
Pollution degree (VDE 0110, IEC/EN 60664, UL 508)			3	3
Overvoltage category (VDE 0110, IEC 60664, UL 508)			III	III
Directives/Standards				
Product standard			IEC/EN 60255-6, EN 50178	IEC/EN 60255-6, EN 50178
Low-Voltage Directive			2006/95/EC	2006/95/EC
EMC Directive			2004/108/EC	2004/108/EC
RoHS Directive			2002/95/EC	2002/95/EC
Electromagnetic compatibility				
Noise immunity			EN 61000-6-1, EN 61000-6-2	EN 61000-6-1, EN 61000-6-2
Electrostatic discharge (ESD) IEC/EN 61000-4-2		Level	3 (6 kV/8 kV)	3 (6 kV/8 kV)
Electromagnetic field (immunity to RF interference) IEC/EN 61000-4-3		Level	3 (10 V/m)	3 (10 V/m)
Fast transients (burst) IEC/EN 61000-4-4		Level	3 (2 kV/2 kHz)	3 (2 kV/2 kHz)
High-energy pulses (surge) IEC 1000-4-5, EN 61000-4-5		Level	4 (2 kV L-L)	4 (2 kV L-L)
Cable-borne HF IEC 100-4-6, EN 61000-4-6		Level	3 (10 V)	3 (10 V)
Resistance to harmonics EN 61000-4-13		Class	3	3
Interference emission			EN 61000-6-3, EN 61000-6-4	EN 61000-6-3, EN 61000-6-4
Electromagnetic field (immunity to RF interference) IEC/CISPR 22, EN 50022		Class	B	B
Cable-borne HF		Class	B	B

	EMR5-N080-1-B	EMR4-N100-1-B	EMR4-N500-2-B	EMR4-N500-2-A
Input circuit				
Rated control voltage U_S - power consumption:				
A1 - A2	220 - 240 V AC approx. 1.5 VA	220 - 240 V AC approx. 4 VA	220 - 240 V AC approx. 3 VA	24 - 240 V AC/DC approx. 2 VA/W
Tolerance of rated control voltage U_S	-15 % - 10 %	-15 % - 10 %	-15 % - +10 %	-15 % - +10 %
Rated frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz or DC	50 - 60 Hz or DC
Duty factor (DF)	100 %	100 %	100 %	100 %
Measuring circuit	MAX-MIN-C	MAX-MIN-C	MAX-MIN-C	MAX-MIN-C
Monitoring functions	Level control	Level control	Level control	Level control
Response sensitivity	5 - 100 kΩ, adjustable	5 - 100 kΩ, adjustable	250 Ω - 5 kΩ, adjustable	250 Ω - 5 kΩ, adjustable
Maximum electrode voltage	30 V AC	30 V AC	20 V AC	20 V AC
Maximum electrode current	1 mA	1 mA	8 mA	8 mA
Electrode supply cable				
Cable capacity max.	10 nF	10 nF	200 nF	200 nF
Cable length max.	100 m	100 m	1000 m	1000 m
Response sensitivity			2.5-50 kΩ, adjustable	2.5-50 kΩ, adjustable
Maximum electrode voltage			20 V AC	20 V AC
Maximum electrode current			2 mA	2 mA
Electrode supply cable				
Cable capacity max.			20 nF	20 nF
Cable length max.			100 m	100 m
Response sensitivity			25 - 500 kΩ, adjustable	25 - 500 kΩ, adjustable
Maximum electrode voltage			20 V AC	20 V AC
Maximum electrode current			0.5 mA	0.5 mA
Electrode supply cable				
Cable capacity max.			4 nF	4 nF
Cable length max.			20 m	20 m
Timing circuit				
Release delay	Approx. 250 ms	Approx. 250 ms		
Delay time			0.1 - 10 s, adjustable, on-delay without off-delay	0.1 - 10 s, adjustable, on-delay without off-delay
Operating status indication				
Control voltage	U: green LED	U: green LED	U: green LED	U: green LED
Output relay energized	R MAX/MIN: yellow LED			
Alarm relay AL1	–	R AL1: yellow LED	U: green LED	U: green LED
Alarm relay AL2	–	R AL2: yellow LED	R: yellow LED	R: yellow LED
Output circuits				
Output circuits	11-12/14, 21-22, 31-32	11-12/14, 21-22, 31-32	15-16/18, 25-26/28	15-16/18, 25-26/28
Output type	1 changeover contact, 1 normally closed contact + 1 normally open contact	1 changeover contact, 1 normally closed contact + 1 normally open contact	Two changeover contacts	Two changeover contacts
Operating principle	Live current principle[1)]	Open-[1)] and closed-circuit principle[2)]	Live current principle[1)]	Live current principle[1)]
Contact material	AgCdO	AgCdO	AgCdO	AgCdO
Rated voltage (VDE 0110, IEC 60947-1)	250 V	250 V	400 V	400 V
Maximum switching voltage	250 V	250 V	400 V	400 V
Rated operational current (IEC 60947-5-1)				
AC12 (resistive) 230 V	4 A	4 A	5 A	5 A
AC15 (inductive) 230 V	3 A	3 A	3 A	3 A
DC12 (resistive) 24 V	4 A	4 A	5 A	5 A
DC13 (inductive) 24 V	2 A	2 A	2 A	2 A

Notes

[1)] Output relays pick up when value above/below set threshold value

[2)] Output relays drop out when value above/below set threshold value

	EMR5-N080-1-B	EMR4-N100-1-B	EMR4-N500-2-B	EMR4-N500-2-A
Rated operational data AC (UL 508)				
Utilization category (Control Circuit Rating Code)	B 300	B 300	B 300	B 300
Max. rated operational voltage	300 V AC		300 V AC	300 V AC
Max. thermal uninterrupted current at B 300	5 A	5 A	5A	5A
Max. input/output rating (N/O / N/C) for B 300	3600/360 VA	3600/360 VA	3600/360 VA	3600/360 VA
Mechanical lifespan	30 x 10^6 operations	30 x 10^6 operations	30 x 10^6 operations	30 x 10^6 operations
Electrical lifespan (AC12, 230 V, 4 A)	0.3 x 10^6 operations	0.3 x 10^6 operations	0.1 x 10^6 operations	0.1 x 10^6 operations
Short-circuit rating, max. fuse rating, N/C / N/O contact	10 A fast/10 A fast	10 A fast/10 A fast	4 A fast/6 A fast	4 A fast/6 A fast
General data				
Enclosure measurements (w x h x d)	22.5 x 70 x 100 mm (0.89 x 3.07 x 3.94 in)	22.5 x 70 x 100 mm (0.89 x 3.07 x 3.94 in)	45 x 78 x 100 mm (1.77 x 3.07 x 3.94 in)	45 x 78 x 100 mm (1.77 x 3.07 x 3.94 in)
Mounting position	Any	Any	Any	Any
Degree of protection of enclosures/terminals	IP50/IP20	IP50/IP20	IP50/IP20	IP50/IP20
Ambient temperature range, operation/storage	-20 - +60 °C / -40 - +85 °C	-20 - +60 °C / -40 - +85 °C	-25 - +65°C / -40 - 85°C	-25 - +65°C / -40 - 85°C
Mounting	DIN rail (EN 50022)	DIN rail (EN 50022)	DIN rail (EN 50022)	DIN rail (EN 50022)
Electrical connection				
Terminal capacity	2 x 2.5 mm² (2 x 14 AWG)	2 x 2.5 mm² (2 x 14 AWG)	2 x 2.5 mm² (2 x 14 AWG)	2 x 2.5 mm² (2 x 14 AWG)
Flexible with ferrule				
Directives and standards				
Product standard	IEC 255 - 6, EN 60255-6	IEC 255 - 6, EN 60255-6	IEC 255-6, EN 60255-6	IEC 255-6, EN 60255-6
Low-Voltage Directive	2006/95/EC	2006/95/EC	2006/95/EC	2006/95/EC
EMC Directive	2004/108/EC	2004/108/EC	2004/108/EC	2004/108/EC
Electromagnetic compatibility (EMC)	No	No	No	No
Electrostatic discharge (ESD) IEC/EN 61000-4-2	Level 3 (6 kV/8 kV)	Level 3 (6 kV/8 kV)	Level 3 (6 kV/8kV)	Level 3 (6 kV/8kV)
Electromagnetic field (immunity to RF interference) IEC/EN 61000-4-3	Level 3 (10 V/m)	Level 3 (10 V/m)	Level 3 (10 V/m)	Level 3 (10 V/m)
Fast transients (burst) IEC/EN 61000-4-4	Level 3 (2 kV/5 kHz)	Level 3 (2 kV/5 kHz)	Level 3 (2 kV/5 kHz)	Level 3 (2 kV/5 kHz)
High-energy pulses (surge) IEC1000-4-5, EN 61000-4-5	Level 4 (2 kV L-L)	Level 4 (2 kV L-L)	Level 4 (2 kV L-L)	Level 4 (2 kV L-L)
Immunity to line-conducted interference, IEC 1000-4-6, IEC 1000-4-6, EN 61000-4-6	Level 3 (10 V)	Level 3 (10 V)	Level 3 (10 V)	Level 3 (10 V)
Operating safety (IEC 68-2-6)	4 g	4 g	5 g	5 g
Mechanical strength (IEC 68-2-6)	6 g	6 g	10 g	10 g
Insulation data				
Rated voltage between supply, measuring, and output circuits (VDE 0110, IEC 60947-1)	250 V	250 V	500 V	500 V
Rated impulse withstand voltage between all insulated circuits (VDE 0110, IE C664)	4 kV/1.2 - 50 µs	4 kV / 1.2 - 50 µs	4 kV/1.2 - 50 µs	4 kV/1.2 - 50 µs
Test voltage between all insulated circuits	2.5 kV, 50 Hz, 1 min.	2.5 kV, 50 Hz, 1 min.	2.5 kV, 50 Hz, 1 min.	2.5 kV, 50 Hz, 1 min.
Pollution degree (VDE 0110, IEC 664, IEC 255-5)	3/C	3/C	3/C	3/C
Overvoltage category (VDE 0110, IEC 664, IEC 255-5)	III/C	III/C	III/C	III/C
Climatic testing (IEC 68-2-30)	24 h cycle, 55 °C, 93 % rel., 96 h	24 h cycle, 55 °C, 93 % rel., 96 h	24 h cycle, 55 °C, 93 % rel., 96 h	24 h cycle, 55 °C, 93 % rel., 96 h

	EMR4-RDC-1-A	EMR4-RAC-1-A
Input circuit		
Rated control voltage U_S power consumption:		
A1-B2	24 - 240 V AC/DC - approx. 8 VA / 2 W	24 - 240 V AC/DC - approx. 8 VA / 2 W
Tolerance of rated control voltage U_S	-15 % - +10 %	-15 % - +10 %
Rated frequency		
AC/DC versions	15 - 400 Hz or DC	15 - 400 Hz or DC
AC versions	–	50 - 60 Hz
Duty factor (DF)	100 %	100 %
Measuring circuit L-PE		
Monitoring function, insulation monitoring for isolated AC networks	Isolated DC networks	
Measuring range, threshold value setting range min-max.	10 - 110 kΩ	1 - 11 kΩ , 10 - 110 kΩ
Minimum internal resistance	–	57 kΩ
Minimum internal AC resistance	–	100 kΩ
Internal DC resistance	–	100 kΩ
Test resistance	–	820
Max. voltage at measuring input	300 V DC	415 V AC
Max. DC measuring voltage	24 - 240 V DC	30 V DC
Max. cable length for clear-test button		10 m
Time delay	< 1 s with insulation, < 0.9 x response value	Proportional to insulation resistance and dependent on set threshold value
Operating status indication		
Control voltage	U: green LED	U: green LED
Insulation fault	L+: red LED, L-: red LED	F: red LED
Output circuits		
Output circuits	15-16/18	15-16/18
Output type	One changeover contact	One changeover contact
Operating principle	Open-circuit principle: Output relays pick up when value above/ below set threshold value Closed-circuit principle: output relays drop out when value above/below set threshold value	Open-circuit principle: Output relays pick up when value above/below set threshold value
Contact material	AgCdO	AgCdO
Rated operating voltage (VDE 0110, IEC 664-1, IEC 60947-1)	250 V	250 V
Maximum switching voltage	400 V AC, 300 V DC	400 V AC, 300 V DC
Rated operational current (IEC 60947-5-1, EN 60947-5-1)		
AC12 (resistive) 230 V	5A	5A
AC15 (inductive) 230 V	3A	3A
DC12 (resistive) 24 V	5A	5A
DC13 (inductive) 24 V	2A	2A
Rated operational data AC (UL 508)		
Utilization category (Control Circuit Rating Code)	B300	B300
Max. rated operational voltage	300 V AC	300 V AC
Max. thermal uninterrupted current at B 300	5A	5A
Max. input/output rating (N/O / N/C) for B 300	3600/360 VA	3600/360 VA
Mechanical lifespan	30 x 10^6 operations	30 x 10^6 operations
Electrical lifespan (AC12, 230 V, 4 A)	0.1 x 10^6 operations	0.1 x 10^6 operations
Short-circuit rating, max. fuse protection, N/C / N/O contact	4 A fast/6 A fast	4 A fast/6 A fast

	EMR4-RDC-1-A	EMR4-RAC-1-A
General data		
Enclosure measurements	45 x 78 x 100 mm (1.77 x 3.07 x 3.94 in)	45 x 78 x 100 mm (1.77 x 3.07 x 3.94 in)
Weight	approx. 0.3 kg (0.66 lb)	approx. 0.3 kg (0.66 lb)
Mounting position	Any	Any
Degree of protection of enclosures/terminals	IP50/IP20	IP50/IP20
Ambient temperature range, operation/storage	-25 - +65 °C / -40 - +85 °C	-25 - +65 °C / -40 - +85 °C
Mounting	DIN rail (EN 50022)	DIN rail (EN 50022)
Electrical connection		
Terminal capacity		
Flexible with ferrule	2 x 2.5 mm² (2 x 14 AWG)	2 x 2.5 mm² (2 x 14 AWG)
Directives and standards		
Product standard	IEC 255-6, EN 60255-6	IEC 255-6, EN 60255-6
Low-Voltage Directive	2006/95/EC	2006/95/EC
EMC Directive	2004/108/EC, 91/263/EEC, 92/31/EEC, 93/68/EEC, 93/67/EEC	2004/108/EC, 91/263/EEC, 92/31/EEC, 93/68/EEC, 93/67/EEC
Electromagnetic compatibility (EMC)	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4
Electrostatic discharge (ESD) IEC/EN 61000-4-2	Level 3 (6 kV/8 kV)	Level 3 (6 kV/8 kV)
Electromagnetic field (immunity to RF interference) IEC/EN 61000-4-3	Level 3 (10(3)V/m)	Level 3 (10(3)V/m)
Fast transients (burst) IEC/EN 61000-4-4	Level 3 (2(1) kV/5 kHz)	Level 3 (2(1) kV/5 kHz)
High-energy pulses (surge) IEC 1000-4-5, EN 61000-4-5	Level 3 (2(1) kV L-L)	Level 3 (2(1) kV L-L)
Immunity to line-conducted interference, IEC 1000-4-6, EN 61000-4-6	Level 3 (10(3) V)	Level 3 (10(3) V)
Operating safety (IEC 68-2-6)	5 g	5 g
Mechanical strength (IEC 68-2-6)	10 g	10 g
Climatic testing (IEC 68-2-30)	24 h cycle, 55 °C, 93 % rel., 96 h	24 h cycle, 55 °C, 93 % rel., 96 h
Insulation data		
Rating (HD 625.1 S1, VDE 0110, IEC 664-1, IEC 60255-5)		
Rated voltage between supply, measuring, and output circuits	250 V	250 V
Rated impulse withstand voltage between all insulated circuits	4 kV / 1.2 - 50 µs	4 kV / 1.2 - 50 µs
Test voltage between all insulated circuits	2.5 kV, 50 Hz, 1 min.	2.5 kV, 50 Hz, 1 min.
Pollution degree	3	3
Overvoltage category	III	III

	EMR5-W300-1-C	EMR5-W380-1	EMR5-W400-1	EMR5-W500-1-D	EMR5-AW300-1-C
Input circuit, measuring circuit					
Main pole, neutral conductor	L1,L2,L3	L1,L2,L3	L1,L2,L3	L1,L2,L3	L1, L2, L3
Rated control voltage U_S = monitored voltage	3 x 160 - 300 V AC	3 x 380 V AC	3 x 400 V AC	3 x 300 - 500 V AC	3 x 160 - 300 V AC
Tolerance of rated control voltage U_S	-15 - +10 %	-15 - +10 %	-15 - +10 %	-15 - +10 %	-15 - +10 %
Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Frequency range	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz
Typical current/power consumption	25 mA/10 VA /at 250 V AC	25 mA/18 VA /at 380 V AC	25 mA/18 VA /at 400 V AC	25 mA/18 VA /at 400 V AC	25 mA/10 VA (230 V AC)
Duty factor (DF)					
Measuring circuit					
Monitoring functions					
Phase failure	Yes	Yes	Yes	Yes	Yes
Phase sequence	Can be deactivated	Can be deactivated	Can be deactivated	Can be deactivated	Can be deactivated
Automatic phase sequence correction	No	No	No	No	No
Asymmetry	No	No	No	No	Yes
Overvoltage/undervoltage	Yes	Yes	Yes	Yes	Yes
Neutral conductor/break					No
Neutral conductor	No	No	No	No	
Measuring range					
Overvoltage	3 x 220 - 300 v AC	3 x 418 V AC	3 x 440 V AC	3 x 420 - 500 V AC	3 x 220 - 300 V AC
Undervoltage	3 x 160 - 230 V AC	3 x 342 V AC	3 x 360 V AC	3 x 300 - 380 V AC	3 x 160 - 230 V AC
Asymmetry	No	No	No	No	2 - 25 % of phase voltage mean value
Adjustable threshold values					
Overvoltage	Adjustable within measuring range	Fixed	Fixed	Adjustable within measuring range	Adjustable within measuring range
Undervoltage	Adjustable within measuring range	Fixed	Fixed	Adjustable within measuring range	Adjustable within measuring range
Imbalance (disconnection value)	No	No	No	No	Adjustable within measuring range
Asymmetry					
Hysteresis relative to threshold value					
Overvoltage/undervoltage	Fixed 5 %	Fixed 5 %	Fixed 5 %	Fixed 5 %	Fixed 5 %
Asymmetry	No	No	No	No	Fixed 20 %
Rated frequency of measuring signal	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Frequency range of measuring signal	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz
Reaction time	No	No	No	No	
Maximum monitoring cycle	100 ms	100 ms	100 ms	100 ms	100 ms
Measuring error within rated control voltage tolerance	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %
Measuring error within temperature range	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C
Measurement method	True RMS value measurement				
Timing circuit					
On-delay T_s	Fixed 200 ms	Fixed 200 ms	Fixed 200 ms	Fixed 200 ms	Fixed 200 ms
On-delay T_{s1}					
Response delay T_v	On- or off-delay 0; 0, 1-30 s adjustable	On- or off-delay 0; 0, 1-30 s adjustable	On- or off-delay 0; 0, 1-30 s adjustable	On- or off-delay 0; 0, 1-30 s adjustable	On- or off-delay; none = 0, adjustable 0.1 - 30 s
Timeout error within rated control voltage tolerance	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %
Timeout error within temperature range	≤ 0.06 % /°C	≤ 0.06 % /°C	≤ 0.06 % /°C	≤ 0.06 % /°C	≤ 0.06 %/°C
Repetition accuracy (constant parameters)	±0.2 %	±0.2 %	±0.2 %	±0.2 %	±0.2 %
Operating status indication					
Relay status R: yellow LED	See instructional leaflet	See instructional leaflet	See instructional leaflet	See instruc-tional leaflet	See instruc-tional leaflet

EMR5-AW500-1-D	EMR5-AWM580-2	EMR5-AWM720-2	EMR5-AWM820-2	EMR5-AWN170-1-E	EMR5-AWN280-1	EMR5-AWN280-1-F	EMR5-AWN500-1
L1, L2, L3	L1, L2, L3	L1, L2, L3	L1, L2, L3	L1, L2, L3, N	L1,L2,L3 N	L1, L2, L3, N	L1,L2,L3
3 x 300 - 500 V AC	3 x 350 - 580 V AC	3 x 450 - 720 V AC	3 x 530 - 820 V AC	3 x 90 - 170 V AC	3 x 180 - 280 V AC	3 x 180 - 280 V AC	3 x 300 - 500 V AC
-15 - +10 %	-15 - +10 %	-15 - +10 %	-15 - +10 %	-15 - +10 %	-15 - +10 %	-15 - +10 %	-15 - +10 %
50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60/400 Hz	50/60 Hz	50/60/400 Hz
45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 440 Hz	45 - 65 Hz	45 - 440 Hz
25 mA/18 VA (400 V AC)	29 mA/41 VA (480 V AC)	29 mA/52 VA (600 V AC)	29 mA/59 VA (690 V AC)	25 mA / 10 VA (115 V AC)	5 mA/4 VA (230 V AC)	25 mA/18 VA (230 V AC)	5 mA/4 VA (400 V AC)
	100%	100%	100%		100%		100%
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Can be deactivated	Can be deactivated	Can be deactivated	Can be deactivated	Can be deactivated	Can be deactivated	Can be deactivated	Can be deactivated
No	Yes	Yes	Yes	No	Yes	No	Yes
Yes	Yes	Yes	Yes	Yes		Yes	
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No	No	No	No	Yes	Yes	Yes	No
3 x 420 - 500 V AC	3 x 480 - 580 V AC	3 x 690 - 820 V AC	3 x 690 - 820 V AC	3 x 120 - 170 V AC	3 x 240 - 280 V AC	3 x 240 - 280 V AC	3 x 420 - 500 V AC
3 x 300 - 380 V AC	3 x 450 - 570 V AC	3 x 530 - 660 V AC	3 x 530 - 660 V AC	3 x 90 - 130 V AC	3 x 180 - 220 V AC	3 x 180 - 220 V AC	3 x 300 - 380 V AC
2 - 25 % of phase voltage mean value	2 - 25 % of phase voltage mean value	2 - 25 % of phase voltage mean value	2 - 25 % of phase voltage mean value	2 - 25 % of phase voltage mean value	2 - 25 % of phase voltage mean value	2 - 25 % of phase voltage mean value	2 - 25 % of phase voltage mean value
Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range
Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	
Adjustable within measuring range	2 - 25 % of phase voltage mean value	2 - 25 % of phase voltage mean value	2 - 25 % of phase voltage mean value	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range
	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range	Adjustable within measuring range
Fixed 5 %	Fixed 5 %	Fixed 5 %	Fixed 5 %	Fixed 5 %	Fixed 5 %	Fixed 5 %	Fixed 5 %
Fixed 20 %	Fixed 20 %	Fixed 20 %	Fixed 20 %	Fixed 20 %	Fixed 20 %	Fixed 20 %	Fixed 20 %
50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60/400 Hz	50/60 Hz	50/60/400 Hz
45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 65 Hz	45 - 440 Hz	45 - 65 Hz	45 - 440 Hz
100 ms	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms
≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %
≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C
True RMS value measurement							
Fixed 200 ms	Fixed 200 ms	Fixed 200 ms	Fixed 200 ms	Fixed 200 ms	Fixed 200 ms	Fixed 200 ms	Fixed 200 ms
	Fixed 250 ms	Fixed 250 ms	Fixed 250 ms		Fixed 250 ms		Fixed 250 ms
On- or off-delay; none = 0, adjustable 0.1 - 30 s	On- or off-delay; none = 0, adjustable 0.1 - 30 s	On- or off-delay; none = 0, adjustable 0.1 - 30 s	On- or off-delay; none = 0, adjustable 0.1 - 30 s	On- or off-delay; none = 0, adjustable 0.1 - 30 s	On- or off-delay; none = 0, adjustable 0.1 - 30 s	On- or off-delay; none = 0, adjustable 0.1 - 30 s	On- or off-delay; none = 0, adjustable 0.1 - 30 s
≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %
≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C	≤ 0.06 %/°C
±0.2 %	±0.2 %	±0.2 %	±0.2 %	±0.2 %	±0.2 %	±0.2 %	±0.2 %
See instructional leaflet	See instructional leaflet	See instructional leaflet	See instructional leaflet	See instructional leaflet	See instruc-tional leaflet	See instruc-tional leaflet	See instruc-tional leaflet

	EMR5-W300-1-C	EMR5-W380-1	EMR5-W400-1	EMR5-W500-1-D	EMR5-AW300-1-C
Output circuits					
Output circuits	15-16/18, 25-26/28	15-16/18, 25-26/28	15-16/18, 25-26/28	15-16/18, 25-26/28	15-16/18, 25-26/28
Output type	2 x 1 relay (changeover contact)	2 x 1 relay (changeover contact)	2 x 1 relay (changeover contact)	2 x 1 relay (changeover contact)	1 x 2 relays (changeover contact)
Operating principle	Closed-circuit principle: Output relays drop out when value above/below set threshold value				
Contact material	AgNi alloy, Cd-free				
Rated operating voltage (VDE 0110, IEC 60947-1)	250 V	250 V	250 V	250 V	250 V
Minimum switching voltage/minimum switching current	No	No	No	No	
Minimum switching duty	24 V/10 mA	24 V/10 mA	24 V/10 mA	24 V/10 mA	24 V/10 mA
Maximum switching voltage	See TB_EMR_PRO_01	See TB_EMR_PRO_01	See TB_EMR_PRO_01	See TB_EMR_PRO_01	See TB_EMR_PRO_01
Rated operational current (IEC 60947-5-1)					
AC12 (resistive) at 230 V	4 A	4 A	4 A	4 A	4 A
AC15 (inductive) at 230 V	3 A	3 A	3 A	3 A	3 A
DC12 (resistive) at 24 V	4 A	4 A	4 A	4 A	4 A
DC13 (inductive) at 24 V	2 A	2 A	2 A	2 A	2 A
Rated operational data AC (UL 508)					
Utilization category (Control Circuit Rating Code)	B 300	B 300	B 300	B 300	B 300
Max. rated operational voltage	300 V AC	300 V AC	300 V AC	300 V AC	300 V AC
Max. thermal uninterrupted current at B 300	5 A	5 A	5 A	5 A	5 A
Max. input/output rating (N/O / N/C) for B 300	3600/360 VA	3600/360 VA	3600/360 VA	3600/360 VA	3600/360 VA
Mechanical lifespan	30 x 10^6 operations	30 x 10^6 operations	30 x 10^6 operations	30 x 10^6 operations	30 x 10^6 operations
Electrical lifespan (AC12, 230 V, 4 A)	0.1 x 10^6 operations	0.1 x 10^6 operations	0.1 x 10^6 operations	0.1 x 10^6 operations	0.1 x 10^6 operations
Short-circuit strength, maximum fuse rating					
Normally closed contact	6 A fast	6 A fast	6 A fast	6 A fast	6 A fast
Normally open contact	10 A fast	10 A fast	10 A fast	10 A fast	10 A fast
Duty factor (DF)	100 %	100 %	100 %	100 %	100 %
General data					
Enclosure measurements (w x h x d)	22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)	22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)	22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)	22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)	22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)
Mounting position	Any	Any	Any	Any	Any
Weight					0.13 kg (0.29 lb)
Degree of protection of enclosures/terminals	IP50/IP20	IP50/IP20	IP50/IP20	IP50/IP20	IP50/IP20
Mounting	DIN rail (IEC/EN 60715), clip-type toolless				
Minimum distance to adjacent devices					
Horizontal (min. 10 mm from continuous voltage)	> 220 V	> 400 V	> 400 V	> 400 V	> 220 V
Vertical	None	None	None	None	None
Electrical connection					
Terminal capacities					
Flexible with ferrule	2 x 0.75-2.5 mm² (2 x 18 - 14 AWG)				
Flexible without ferrule	2 x 0.75-2.5 mm² (2 x 18 - 14 AWG)				
Rigid	2 x 0.5-4 mm² (2 x 20 - 12 AWG)				
Stripped length	7 mm (0.28 inches)	7 mm (0.28 inches)	7 mm (0.28 inches)	7 mm (0.28 inches)	7 mm (0.28 inches)
Tightening torque	0.6 - 0.8 Nm	0.6 - 0.8 Nm	0.6 - 0.8 Nm	0.6 - 0.8 Nm	0.6 - 0.8 Nm
Environmental data					
Ambient temperature range, operation/storage	-25 - +60 °C /-40 - +85 °C				
Damp heat (IEC 60068-2-30)	55 °C, 6 cycles	55 °C, 6 cycles	55 °C, 6 cycles	55 °C, 6 cycles	55 °C, 6 cycles
Climate class	3K3	3K3	3K3	3K3	3K3
Vibration (sinusoidal) (IEC/EN) 60255-21-1)	Class 2	Class 2	Class 2	Class 2	Class 2
Impact (IEC/EN 60255-21-2)	Class 2	Class 2	Class 2	Class 2	Class 2

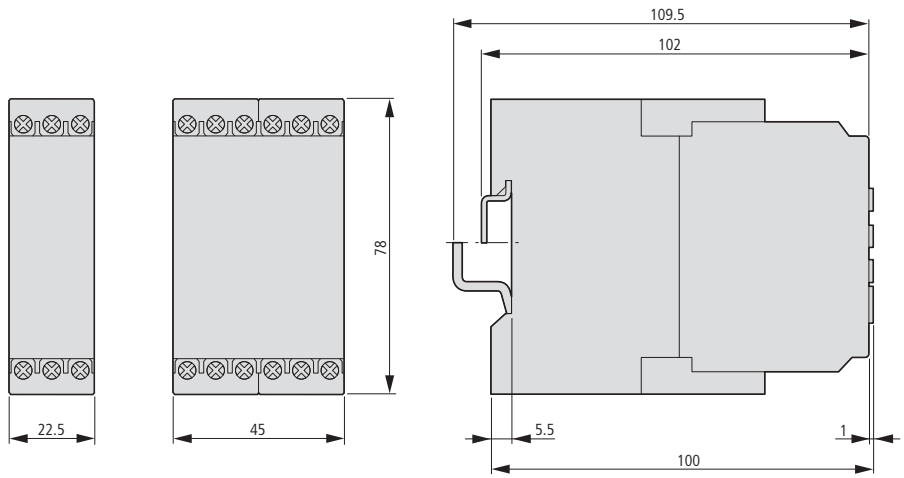
EMR5-AW500-1-D	EMR5-AWM580-2	EMR5-AWM720-2	EMR5-AWM820-2	EMR5-AWN170-1-E	EMR5-AWN280-1	EMR5-AWN280-1-F	EMR5-AWN500-1
15-16/18, 25-26/28	15-16/18, 25-26/28	15-16/18, 25-26/28	15-16/18, 25-26/28	15-16/18, 25-26/28	15-16/18, 25-26/28	15-16/18, 25-26/28	15-16/18, 25-26/28
1 x 2 relays (changeover contact)	2 x 1 or 1 x 2 changeover contact, selectable (relay)	2 x 1 or 1 x 2 changeover contact, selectable (relay)	2 x 1 or 1 x 2 changeover contact, selectable (relay)	1 x 2 relays (changeover contact)	2 x 1 or 1 x 2 changeover contact, selectable (relay)	1 x 2 relays (changeover contact)	2 x 1 or 1 x 2 changeover contact, selectable (relay)
250 V	250 V	250 V	250 V	250 V	250 V	250 V	250 V
24 V/10 mA	24 V/10 mA	24 V/10 mA	24 V/10 mA	25 V/10 mA	26 V/10 mA	27 V/10 mA	28 V/10 mA
See TB_EMR_PRO_01	See TB_EMR_PRO_02	See TB_EMR_PRO_02	See TB_EMR_PRO_02	See TB_EMR_PRO_01	See TB_EMR_PRO_01	See TB_EMR_PRO_01	
4 A	4 A	4 A	4 A	4 A	4 A	4 A	4 A
3 A	3 A	3 A	3 A	3 A	3 A	3 A	3 A
4 A	4 A	4 A	4 A	4 A	4 A	4 A	4 A
2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A
B 300	B 300	B 300	B 300	B 300	B 300	B 300	B 300
300 V AC	300 V AC	300 V AC	300 V AC	300 V AC	300 V AC	300 V AC	300 V AC
5 A	5 A	5 A	5 A	5 A	5 A	5 A	5 A
3600/360 VA	3600/360 VA	3600/360 VA	3600/360 VA	3600/360 VA	3600/360 VA	3600/360 VA	3600/360 VA
30 x 10^6 operations	30 x 10^6 operations	30 x 10^6 operations	30 x 10^6 operations	30 x 10^6 operations	30 x 10^6 operations	30 x 10^6 operations	30 x 10^6 operations
0.1 x 10^6 operations	0.1 x 10^6 operations	0.1 x 10^6 operations	31 x 10^6 operations	31 x 10^6 operations	0.1 x 10^6 operations	0.1 x 10^6 operations	0.1 x 10^6 operations
6 A fast	10 A fast	10 A fast	10 A fast	6 A fast	6 A fast	6 A fast	6 A fast
10 A fast	10 A fast	10 A fast	10 A fast	10 A fast	10 A fast	10 A fast	10 A fast
100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)	45 x 78 x 100 mm (1.78 x 3.07 x 3.94 inches)	45 x 78 x 100 mm (1.78 x 3.07 x 3.94 inches)	45 x 78 x 100 mm (1.78 x 3.07 x 3.94 inches)	22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)	22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)	22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)	22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)
Any	Any	Any	Any	Any	Any	Any	Any
0.13 kg (0.29 lb)	0.22 kg (0.49 lb)	0.22 kg (0.49 lb)	0.22 kg (0.49 lb)	0.14 kg (0.31 lb)	0.14 kg (0.31 lb)	0.14 kg (0.31 lb)	0.13 kg (0.29 lb)
IP50/IP20	IP50/IP20	IP50/IP20	IP50/IP20	IP50/IP21	IP50/IP20	IP50/IP20	IP50/IP20
> 400 V	None	None	None	> 120 V	None	> 240 V	None
None	None	None	None	None	None	None	None
7 mm (0.28 inches)	7 mm (0.28 inches)	7 mm (0.28 inches)	7 mm (0.28 inches)	7 mm (0.28 inches)	7 mm (0.28 inches)	7 mm (0.28 inches)	7 mm (0.28 inches)
0.6 - 0.8 Nm	0.6 - 0.8 Nm	0.6 - 0.8 Nm	0.6 - 0.8 Nm	0.6 - 0.8 Nm	0.6 - 0.8 Nm	0.6 - 0.8 Nm	0.6 - 0.8 Nm
55 °C, 6 cycles	55 °C, 6 cycles	55 °C, 6 cycles	55 °C, 6 cycles	55 °C, 6 cycles	55 °C, 6 cycles	55 °C, 6 cycles	55 °C, 6 cycles
3K3	3K3	3K3	3K3	3K3	3K3	3K3	3K3
Class 2	Class 2	Class 2	Class 2	Class 2	Class 2	Class 2	Class 2
Class 2	Class 2	Class 2	Class 2	Class 2	Class 2	Class 2	Class 2

	EMR5-W300-1-C	EMR5-W380-1	EMR5-W400-1	EMR5-W500-1-D	EMR5-AW300-1-C
Insulation data					
Rated insulation voltage U_i					
Input circuit/output circuit	600 V	600 V	600 V	600 V	600 V
Input circuit 1/output circuit 2	300 V	300 V	300 V	300 V	300 V
Rated impulse withstand voltage U_{imp} (VDE 0110, IEC/EN 60664)					
Input circuit	6 kV; 1.2/50 µs	6 kV; 1.2/50 µs	6 kV; 1.2/50 µs	6 kV; 1.2/50 µs	6 kV; 1.2/50 µs
Output circuits	4 kV; 1.2/50 µs	4 kV; 1.2/50 µs	4 kV; 1.2/50 µs	4 kV; 1.2/50 µs	4 kV; 1.2/50 µs
Test voltage between all insulated circuits (routine test)	2.5 kV, 50 Hz, 1 s	2.5 kV, 50 Hz, 1 s	2.5 kV, 50 Hz, 1 s	2.5 kV, 50 Hz, 1 s	2.5 kV, 50 Hz, 1 s
Input circuit and insulated output circuits					
Basic insulation, input circuit/output circuit	600 V	600 V	600 V	600 V	600 V
Safe isolation (VDE 0160 Part 101 and 101/A1, IEC/EN 61140) input circuit/output circuit	No	No	No	No	No
Pollution degree (VDE 0110, IEC/EN 60664, UL 508)	3	3	3	3	3
Overvoltage category (VDE 0110, IEC 60664, UL 508)	III	III	III	III	III
Directives and standards					
Product standard	IEC/EN 60255-6, EN 50178				
Low-Voltage Directive	2006/95/EC	2006/95/EC	2006/95/EC	2006/95/EC	2006/95/EC
EMC Directive	2004/108/EC	2004/108/EC	2004/108/EC	2004/108/EC	2004/108/EC
RoHS Directive	2002/95/EC	2002/95/EC	2002/95/EC	2002/95/EC	2002/95/EC
Electromagnetic compatibility					
Interference immunity	EN 61000-6-1, EN 61000-6-2				
Electrostatic discharge (ESD) IEC/EN 61000-4-2	Level 3 (6 kV/8 kV)	Level 3 (6 kV/8 kV)	Level 3 (6 kV/8 kV)	Level 3 (6 kV/8 kV)	Level 3 (6 kV/8 kV)
Electromagnetic field (immunity to RF interference) IEC/EN 61000-4-3	Level 3 (10 V/m)	Level 3 (10 V/m)	Level 3 (10 V/m)	Level 3 (10 V/m)	Level 3 (10 V/m)
Fast transients (burst) IEC/EN 61000-4-4	Level 3 (2 kV/2 kHz)	Level 3 (2 kV/2 kHz)	Level 3 (2 kV/2 kHz)	Level 3 (2 kV/2 kHz)	Level 3 (2 kV/2 kHz)
High-energy pulses (surge) IEC 1000-4-5, EN 61000-4-5	Level 4 (2 kV L-L)	Level 4 (2 kV L-L)	Level 4 (2 kV L-L)	Level 4 (2 kV L-L)	Level 4 (2 kV L-N)
Cable-borne HF IEC 100-4-6, EN 61000-4-6	Level 3 (10 V)	Level 3 (10 V)	Level 3 (10 V)	Level 3 (10 V)	Level 3 (10 V)
Resistance to harmonics EN 61000-4-13	Class 3	Class 3	Class 3	Class 3	Class 3
Emitted interference	EN 61000-6-3, EN 61000-6-4				
Electromagnetic field (immunity to RF interference) IEC/CISPR 22, EN 50022	Class B	Class B	Class B	Class B	Class B
Cable-borne HF	Class B	Class B	Class B	Class B	Class B

Dimensions

Measuring and monitoring relays

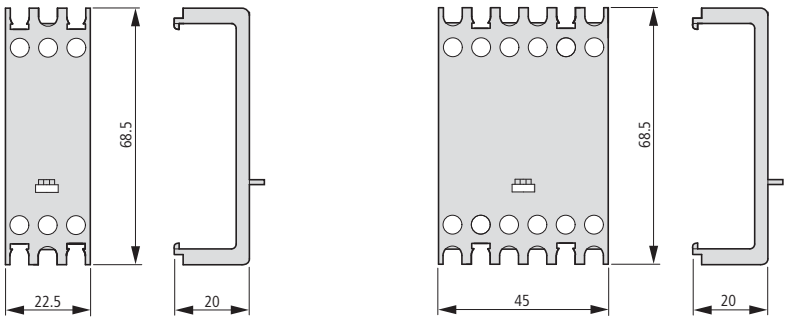
EMR-…



EMR5-AW500-1-D	EMR5-AWM580-2	EMR5-AWM720-2	EMR5-AWM820-2	EMR5-AWN170-1-E	EMR5-AWN280-1	EMR5-AWN280-1-F	EMR5-AWN500-1
600 V	1000 V	1000 V	1000 V	600 V	600 V	600 V	600 V
300 V	300 V	300 V	300 V	300 V	300 V	300 V	300 V
6 kV; 1.2/50 µs	8 kV; 1.2/50 µs	8 kV; 1.2/50 µs	8 kV; 1.2/50 µs	6 kV; 1.2/50 µs	6 kV; 1.2/50 µs	6 kV; 1.2/50 µs	6 kV; 1.2/50 µs
4 kV; 1.2/50 µs	4 kV; 1.2/50 µs	4 kV; 1.2/50 µs	4 kV; 1.2/50 µs	4 kV; 1.2/50 µs	4 kV; 1.2/50 µs	4 kV; 1.2/50 µs	4 kV; 1.2/50 µs
2.5 kV, 50 Hz, 1 s	2.5 kV, 50 Hz, 1 s	2.5 kV, 50 Hz, 1 s	2.5 kV, 50 Hz, 1 s	2.5 kV, 50 Hz, 1 s	2.5 kV, 50 Hz, 1 s	2.5 kV, 50 Hz, 1 s	2.5 kV, 50 Hz, 1 s
	4 kV, 50 Hz, 1 s	4 kV, 50 Hz, 1 s	4 kV, 50 Hz, 1 s		2.5 kV, 50 Hz, 1 s		2.5 kV, 50 Hz, 1 s
600 V	1000 V	1000 V	1000 V	600 V	600 V	600 V	600 V
No	No	No	No	Yes	No	Yes	No
3	III	III	III	3	III	3	III
III	3	3	3	III	3	III	3
2006/95/EC	2006/95/EC	2006/95/EC	2006/95/EC	2006/95/EC	2006/95/EC	2006/95/EC	2006/95/EC
2004/108/EC	2004/108/EC	2004/108/EC	2004/108/EC	2004/108/EC	2004/108/EC	2004/108/EC	2004/108/EC
2002/95/EC	2002/95/EC	2002/95/EC	2002/95/EC	2002/95/EC	2002/95/EC	2002/95/EC	2002/95/EC
Level 3 (6 kV/8 kV)	Level 3 (6 kV/8 kV)	Level 3 (6 kV/8 kV)	Level 3 (6 kV/8 kV)	Level 3 (6 kV / 8 kV)	Level 3 (6 kV/8 kV)	Level 3 (6 kV/8 kV)	Level 3 (6 kV/8 kV)
Level 3 (10 V/m)	Level 3 (10 V/m)	Level 3 (10 V/m)	Level 3 (10 V/m)	Level 3 (10 V/m)	Level 3 (10 V/m)	Level 3 (10 V/m)	Level 3 (10 V/m)
Level 3 (2 kV/2 kHz)	Level 3 (2 kV/2 kHz)	Level 3 (2 kV/2 kHz)	Level 3 (2 kV/2 kHz)	Level 3 (2 kV / 2 kHz)	Level 3 (2 kV/2 kHz)	Level 3 (2 kV/2 kHz)	Level 3 (2 kV/2 kHz)
Level 4 (2 kV L-N)	Level 4 (2 kV L-L)	Level 4 (2 kV L-L)	Level 4 (2 kV L-L)	Level 4 (2 kV L-N)	Level 4 (2 kV L-N)	Level 4 (2 kV L-N)	Level 4 (2 kV L-L)
Level 3 (10 V)	Level 3 (10 V)	Level 3 (10 V)	Level 3 (10 V)	Level 3 (10 V)	Level 3 (10 V)	Level 3 (10 V)	Level 3 (10 V)
Class 3	Class 3	Class 3	Class 3	Class 3	Class 3	Class 3	Class 3
Class B	Class B	Class B	Class B	Class B	Class B	Class B	Class B
Class B	Class B	Class B	Class B	Class B	Class B	Class B	Class B

Sealable shrouds

EMR4-PH…



easy control relay
MFD-Titan multi-function display

The control relays easy500/700/800 and the multifunction display MFD Titan offer all the technical possibilities needed to realize applications in industrial and manual applications as well as in machinery or apparatus construction.

easy500
Functions such as multifunction relays, current pulse switches, counters, analog value comparators, week and year time switches +++ Stand-alone device +++ Optimal for smaller applications +++ Connectable to Ethernet

easy700
Complete functional scope of an easy500 +++ Local and remote extension options for flexible applications +++ Connectable to current bus systems or Ethernet

easy800
Complete functional scope of an easy700 +++ Numerous additional functions such as PID controller, arithmetic functions, value scaling, fast counter (5 kHz) +++ To perform comprehensive control tasks +++ Digital and analog expandability +++ Integrated communication through easyNet +++ Connectable to current bus systems or Ethernet

MFD-Titan
Combines control function of an easy800 with convenient visualization +++ Display, control, regulation and communication with one device +++ E/A modules for direct temperature sensing +++ Digital and analog expandability +++ Communication through easyNet possible +++ Connectable to current bus systems or Ethernet



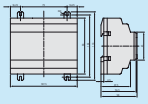






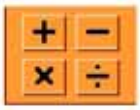




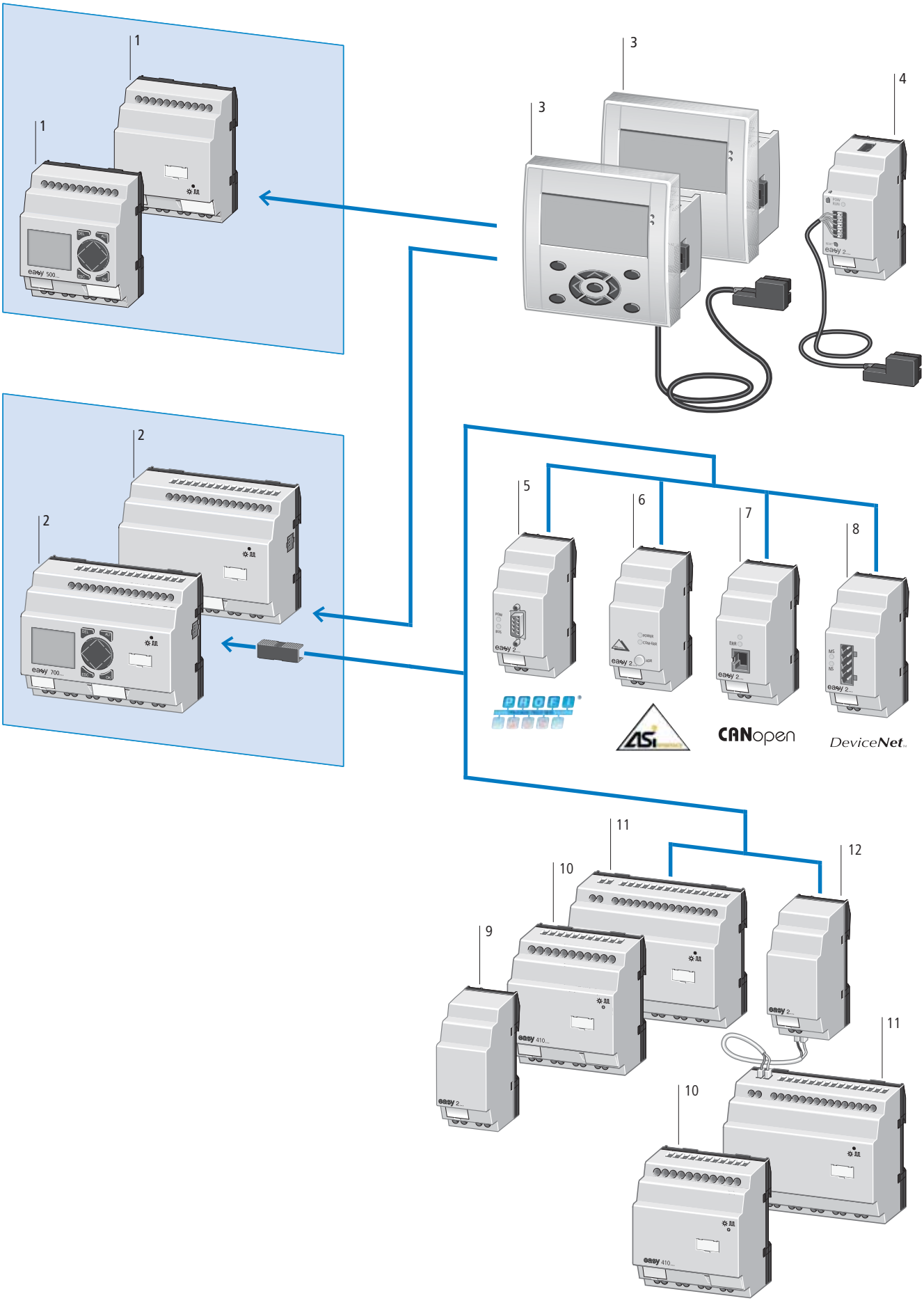


Notes

Technical overview

Functions		easy500/700	easy800	MFD-...CP8...
Counter functions 	Counter relay (up, down counting)	16 (0 to 32000)	32 ($\pm 2^{31}$)	32 ($\pm 2^{31}$)
	Frequency counters	2 (max. 1 kHz)	4 (max. 5 kHz)	4 (max. 3 kHz)
	High-Speed counter	2 (max. 1 kHz)	4 (max. 5 kHz)	4 (max. 3 kHz)
	Incremental counters	–	2 (max. 3 kHz)	2 (max. 3 kHz)
	Hour meter	4 (operating hours value is stored super-retentively (e.g also with program change)		
Time functions 	Weekly timer (4 channels per timer, each channel offers one On/Off time)	8	32	32
	Year time switch	8	32	
	Set cycle time	–	1	1
	Timing relay	16 (0.01 s … 99 h 59 min)	32 (0.005 s … 2^{32} min), On-delayed and/or off-delayed (optionally random switching), pulse shaping, flashing	
Program sequencing functions 	Jump	8	32	32
	Conditional jump	–	32	32
	Master reset	3	32	32
Maths functions 	Analog value comparator	16	32	32
	Arithmetic	–	32 (ADD, SUB, MUL, DIV)	32 (ADD, SUB, MUL, DIV)
	PID controller	–	32	32
	PT1 signal smoothing filter	–	32	32
	Value scaling	–	32	32
	Numerical converter	–	32	32
	Pulse output	–	2	–
	Pulse width modulation	–	2	2
	Value limit	–	32	32
Memory functions 	Block comparison	–	32	32
	Block transfer	–	32	32
	Boolean operation	–	32 (AND, OR, NOT)	32 (AND, OR, NOT)
	Comparator	16	32	32
	Data function block	–	32	32
	Data multiplexer	–	32	–
	Shift register	–	32	32
	Table function	–	32	32
Communication functions 	Get value from the NET	–	32	32
	Put value on the NET	–	32	32
	Bit output via NET	–	32	32
	Bit input via NET	–	32	32
	Diagnostic alarm	–	9	9
	Serial protocol	–	32	–
	Synchronize clock via NET	–	1	1
Text functions 	Text display (can be edited via software)	16 × (4 × 12 characters)	32 × (4 × 16 characters)	Yes
	Static text			Yes
	Message text			Yes
	Screen menu			Yes
	Running text			Yes
	Rolling text			Yes
Value entry functions 	Date and time information			Yes
	Year time switch entry			Yes
	Latching pushbutton			Yes
	Button field			Yes
	Timing relay value entry	Yes	Yes	Yes
	Value entry			Yes
	Week clock input			Yes
	Enter counter value/reference value/OT	Yes	Yes	Yes
Value display functions 	Bit display			Yes
	Message bitmap			Yes
	Bargraph			Yes
	Numerical value			Yes
	Timing relay value display			Yes
	Actual values	Yes	Yes	Yes
	Date and time	Yes	Yes	Yes

System overview



Basic devices

easy500 1

Stand-alone

12 V DC = easy...DA...
24 V DC = easy...DC...
24 V AC = easy...AB...
100 - 240 V AC = easy...AC...

8 digital inputs
2 usable as analog inputs
(DA, DC or AB versions)

4 relay outputs (max. 10 A, UL) or
4 transistor outputs

Display and keypad optional

Bolt-on and top-hat rail mounting

Screw terminals

→ Page 12/6

easy700 2

Expandable: Digital inputs/outputs and bus systems AS-Interface, CANopen, PROFIBUS-DP, DeviceNet

12 V DC = easy...DA...
24 V DC = easy...DC...
24 V AC = easy...AB...
100 - 240 V AC = easy...AC...

12 digital inputs
4 usable as analog inputs
(DA, DC or AB versions)

6 relay outputs (max. 10 A, UL) or
8 transistor outputs

Display and keypad optional

Bolt-on and top-hat rail mounting

Screw terminals

→ Page 12/7

Remote text display

Consists of:

Display/operating unit MFD-80(-B) 3

Power supply unit/communication module MFD(-AC)-CP4-500 3

Including connection cable
(5 m, can be cut to length) for
easy500/700
24 V DC = MFD-CP4-500
100 - 240 V AC = MFD-AC-CP4-500

Spring-loaded terminals

→ Page 12/16

Ethernet gateway

EASY209-SE 4

24 V DC

Serial interface easyRelay to Ethernet

→ Page 12/16

Bus modules

EASY204-DP 5

PROFIBUS-DP slave connection, 24 V DC

→ Page 12/16

EASY205-ASI 6

AS-Interface connection as slave

→ Page 12/16

EASY221-CO 7

CANopen connection, 24 V DC

→ Page 12/16

EASY222-DN 8

DeviceNet connection, 24 V DC

→ Page 12/16

Output expansion

EASY202-RE 9

2 relay outputs (max. 10 A, UL)

Bolt-on and top-hat rail mounting

Screw terminals

→ Page 12/15

I/O expansions

EASY410... 10

24 V DC

6 digital inputs

4 relay outputs (max. 10 A, UL) or
4 transistor outputs

Bolt-on and top-hat rail mounting

Screw terminals

→ Page 12/15

EASY6... 11

24 V DC

12 digital inputs

6 relay outputs (max. 10 A, UL) or
8 transistor outputs

Bolt-on and top-hat rail mounting

Screw terminals

→ Page 12/15

Coupling module

EASY200-EASY 12

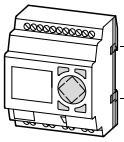
For remote connection of a digital I/O expansion through two-pole connection cable (max. 30 m);
e.g. NYM 3 × 1.5 mm²

Bolt-on and top-hat rail mounting

Screw terminals

→ Page 12/15

Ordering

	Inputs		Outputs		Other features		Supply voltage	Part no. Article no.	Price See price list	Std. pack
	Digital	Of which can be used as analog	Relays 10 A (UL)	Transistor	Display + keypad	Real-time clock				
easy500										
Stand alone										
	8	2	4	–	√	√	24 V AC	**EASY512-AB-RC** 274101		1 off
	8	2	4	–	–	√	24 V AC	**EASY512-AB-RCX** 274102		
	8	–	4	–	√	–	100 - 240 V AC	**EASY512-AC-R** 274103		
	8	–	4	–	√	√	100 - 240 V AC	**EASY512-AC-RC** 274104		
	8	–	4	–	–	√	100 - 240 V AC	**EASY512-AC-RCX** 274105		
	8	2	4	–	√	√	12 V DC	**EASY512-DA-RC** 274106		
	8	2	4	–	–	√	12 V DC	**EASY512-DA-RCX** 274107		
	8	2	4	–	√	–	24 V DC	**EASY512-DC-R** 274108		
	8	2	4	–	√	√	24 V DC	**EASY512-DC-RC** 274109		
	8	2	4	–	–	√	24 V DC	**EASY512-DC-RCX** 274110		
	8	2	–	4	√	√	24 V DC	**EASY512-DC-TC** 274111		
	8	2	–	4	–	√	24 V DC	**EASY512-DC-TCX** 274112		
	Customized inscription, user program									
	• Customized inscription of easy control relay trough labeling software Labeleditor or • Supply of easy control relay programmed with user program							**EASY-COMBINATION-***1) 257823		1 off

Notes

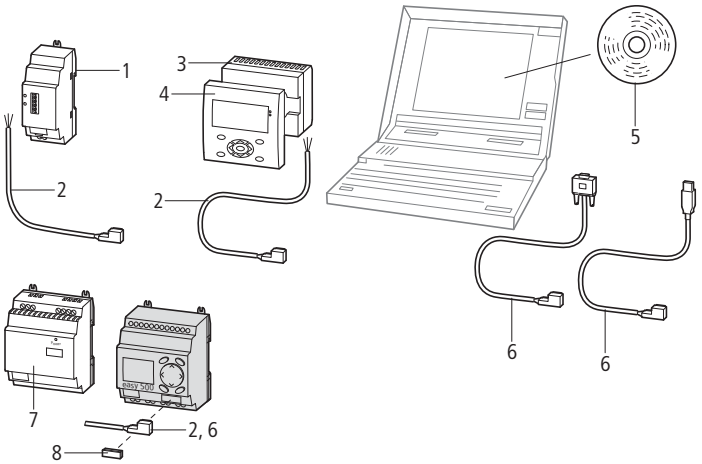
Procedure and ordering example for Labeleditor inscription software
Individually inscribe your device in 4 stages:
– Download the inscription software: www.moeller.net/support, keyword: "Labeleditor"
– Creation of label template (menu-guided in the software)
– Send the label template to the factory by email.
The email address is automatically set for the selected product by the program. When your template is sent, the Labeleditor issues a file name such as "EASY_12345.zip". This file name is part of the article to be ordered (see Ordering examples).
– Send order to the Eaton office or the electrical wholesalers.

Ordering example easy
EASY719-DC-RC with "Company logo":
1 x EASY-COMBINATION-*
1 x EASY719-DC-RC
1 x the file name "EASY_xxxxx.zip" issued by the Labeleditor

Information relevant for export to North America

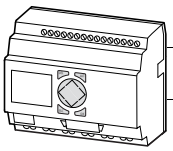
Product Standards	IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking
UL File No.	E135462
UL CCN	NRAQ
CSA File No.	012528
CSA Class No.	2252-01 + 2258-02
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP20, UL/CSA Type: -

1) UL/CSA certification not required



Accessories	Page
1 Ethernet gateway	→ Page 12/16
2 Connection cable	→ Page 12/27
3 Power supply unit/communication	→ Page 12/23
4 Display/keypad	→ Page 12/16
5 Programming software	→ Page 12/9
6 PC programming cable	→ Page 12/9
7 Switched-mode power supply unit	→ Page 12/10
8 Memory card	→ Page 12/9

HPL12007EN

	Inputs		Outputs		Other features		Supply voltage	Part no. Article no.	Price See price list	Std. pack
	Digital	Of which can be used as analog	Relays 10 A (UL)	Transistor	Display + keypad	Real-time clock				
easy700										
Expandable: Digital inputs/outputs and bus systems AS-Interface, CANopen, PROFIBUS-DP, DeviceNet										
	12	4	6	–	√	√	24 V AC	**EASY719-AB-RC** 274113		1 off
	12	4	6	–	–	√	24 V AC	**EASY719-AB-RCX** 274114		
	12	–	6	–	√	√	100 - 240 V AC	**EASY719-AC-RC** 274115		
	12	–	6	–	–	√	100 - 240 V AC	**EASY719-AC-RCX** 274116		
	12	4	6	–	√	√	12 V DC	**EASY719-DA-RC** 274117		
	12	4	6	–	–	√	12 V DC	**EASY719-DA-RCX** 274118		
	12	4	6	–	√	√	24 V DC	**EASY719-DC-RC** 274119		
	12	4	6	–	–	√	24 V DC	**EASY719-DC-RCX** 274120		
	12	4	–	8	√	√	24 V DC	**EASY721-DC-TC** 274121		
	12	4	–	8	–	√	24 V DC	**EASY721-DC-TCX** 274122		
Customized inscription, user program										
• Customized inscription of easy control relay trough labeling software Labeleditor or • Supply of easy control relay programmed with user program								**EASY-COMBINATION-*** [1] 257823		1 off

Notes

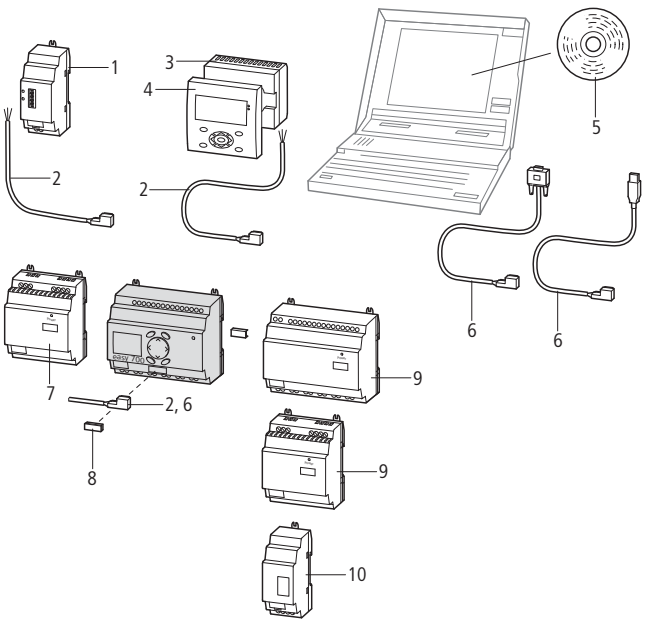
Procedure and ordering example for Labeleditor inscription software
Individually inscribe your device in 4 stages:
– Download the inscription software: www.moeller.net/support, keyword: "Labeleditor"
– Creation of label template (menu-guided in the software)
– Send the label template to the factory by email.
The email address is automatically set for the selected product by the program.
When your template is sent, the Labeleditor issues a file name such as "EASY_12345.zip".
This file name is part of the article to be ordered (see Ordering examples).
– Send order to the Eaton office or the electrical wholesalers.

Ordering example easy
EASY719-DC-RC with "Company logo":
1 x EASY-COMBINATION-*
1 x EASY719-DC-RC
1 x the file name "EASY_xxxxx.zip" issued by the Labeleditor

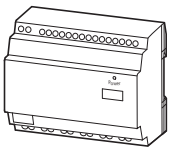
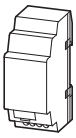
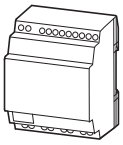
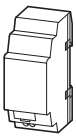
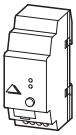
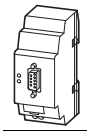
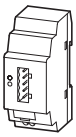
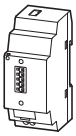
Information relevant for export to North America

Product Standards	IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking
UL File No.	E135462
UL CCN	NRAQ
CSA File No.	012528
CSA Class No.	2252-01 + 2258-02
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP20, UL/CSA Type: -

[1] UL/CSA certification not required



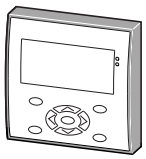
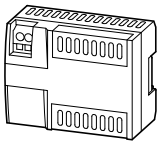
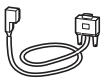
Accessories	Page
1 Ethernet gateway	→ Page 12/16
2 Connection cable	→ Page 12/27
3 Power supply unit/communication module	→ Page 12/23
4 Display/keypad	→ Page 12/16
5 Programming software	→ Page 12/9
6 PC programming cable	→ Page 12/9
7 Switched-mode power supply unit	→ Page 12/10
8 Memory card	→ Page 12/9
9 Inputs/outputs expansion	→ Page 12/15
10 output expansion, bus module, coupling module	→ Page 12/16

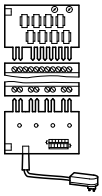
	Inputs	Outputs		Supply voltage	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
	Digital	Relay 10 A (UL)	Transistor					
I/O expansions								
Can be used through easyLink								
	12	6	–	100 - 240 V AC	**EASY618-AC-RE** 212314		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	12	–	8	24 V DC	**EASY620-DC-TE** 212313			
	12	6	–	24 V DC	**EASY618-DC-RE** 232112			Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	–	2	–	24 V DC	**EASY202-RE**1) 232186			
	6	4	–	24 V DC	**EASY410-DC-RE** 114293			NA Certification: Request filed for UL and CSA Degree of Protection: IEC: IP20, UL/CSA Type: -
	6	–	4	24 V DC	**EASY410-DC-TE** 114294			
Coupling module								
Can be used through easyLink								
	For remote connection of a digital I/O expansion up to 30 m.				**EASY200-EASY** 212315		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
Bus modules								
Can be used through easyLink								
	AS-Interface	Slave 4 inputs, 4 outputs, 4 parameter bits Addresses available 0 to 31		–	**EASY205-ASI** 221598		1 off	
	PROFIBUS-DP	Slave Addresses available 1 to 126		24 V DC	**EASY204-DP** 212316			
	CANopen	Addresses available 1 to 127		24 V DC	**EASY221-CO** 233539			
	DeviceNet	Addresses available 0 to 63		24 V DC	**EASY222-DN** 233540			
Ethernet gateway								
	Serial interface easyRelay or MFD-...CP8/CP10... to Ethernet, for connecting to easyOPC server, easySoft, or easyCom			24 V DC	**EASY209-SE** 101520		1 off	

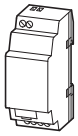
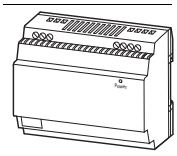
Notes

1) Not for use in combination with basic unit EASY719-DA-...
Cannot be used on the EASY200-EASY coupling module

HPL12009EN

	Supply voltage	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Remote text display						
Display/keypad Monochrome display 132 × 64 pixels with switchable backlight IP65, removable silver front frame						
		With keypad, with Moeller company logotype NEMA 4x in conjunction with MFD-XM-80 protective diaphragm → 12/29	**MFD-80-B** 265251		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP65, in combination with MFD-XM-80: UL/CSA Type 4X
		With keypad, without Moeller company logotype NEMA 4x in conjunction with MFD-XM-80 protective diaphragm → 12/29	**MFD-80-B-X** 284905			
		Without keypad, with Moeller company logotype	**MFD-80** 265250		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP65, UL/CSA Type 4X
		Without keypad, without Moeller company logotype NEMA 4x	**MFD-80-X** 284904			
Power supply unit/communication modules IP20, can be combined with display/operating unit MFD-80... as remote text display						
	24 V DC	With connection cable (5 m, can be cut to length)	**MFD-CP4-500** 274094		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	100 - 240 V AC	With connection cable (5 m, can be cut to length)	**MFD-AC-CP4-500** 286823			
	24 V DC	Without connection cable	**MFD-CP4** 280888			
	100 - 240 V AC	Without connection cable	**MFD-AC-CP4** 286822			
Programming software						
		Menu selection in 13 languages Operating systems: Windows 2000 SP4, Windows XP SP3, Windows Vista (32 Bit), Windows 7 (32 Bit)	**EASY-SOFT-BASIC** 284545		1 off	UL/CSA certification not required
			EASY-SOFT-PRO 266040			
Programming cable						
		SUB-D, 9 pole, serial, 2 m	**EASY-PC-CAB** 202409		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
		USB, 2 m	**EASY-USB-CAB** 107926		1 off	
Connecting cables						
		For connecting the MFD(-AC)-CP4 or EASY209-SE with easy500/easy700, 5 m, can be cut to length	**MFD-CP4-500-CAB5** 280886		1 off	
Memory cards						
		32-kB module	**EASY-M-32K** 270884		1 off	
Manuals						
	Deutsch		**AWB2528-1508D** 278499		1 off	
	English		**AWB2528-1508GB** 278500		1 off	

	Supply voltage	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Input/output simulators							
	24 V DC	With plug-in power supply unit 100 - 240 V AC/ 24 V DC	easy500-DC	**EASY412-DC-SIM** 212318		1 off	
	24 V DC	With plug-in power supply unit 120 V AC/24 V DC, plug for North America	easy500-DC	**EASY412-DC-SIM-NA** 222566			
	24 V DC	With plug-in power supply unit 100 - 240 V AC/ 24 V DC	easy700-DC easy800-DC EC4P	**EASY800-DC-SIM** 256278			

	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Switched-mode power supply units					
Primary-switched mode, stabilized					
	Rated input voltage: 50/60 Hz: 100 - 240 V Rated output voltage: 24 V/12 V DC Rated output current: 0.35 A/20 mA	**EASY200-POW** 229424		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	Rated input voltage: 50/60 Hz: 100 - 240 V AC Rated output voltage (residual ripple): 24 V DC (± 3 %) Rated output current: 1.25 A	**EASY400-POW** 212319		1 off	
		EASY430-POW 110940		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 107.1-01; CE marking UL File No.: E300415 UL CCN: NMTR, NMTR7 CSA File No.: UL report applies to both US and Canada CSA Class No.: 3211-87, 3211-07 NA Certification: UL Listed, certified by UL for use in Canada Degree of Protection: IEC: IP20, UL/CSA Type: -
	Rated input voltage: 50/60 Hz: 100 - 240 V AC Rated output voltage (residual ripple): 24 V DC (± 3 %) Rated output current: 2.5 A	**EASY500-POW** 110941		1 off	
	Rated input voltage: 50/60 Hz: 100 - 240 V AC Rated output voltage (residual ripple): 24 V DC (± 3 %) Rated output current: 4.2 A	**EASY600-POW** 262399		1 off	

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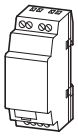
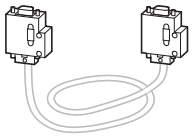
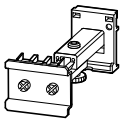
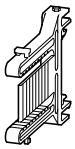
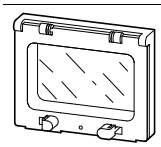
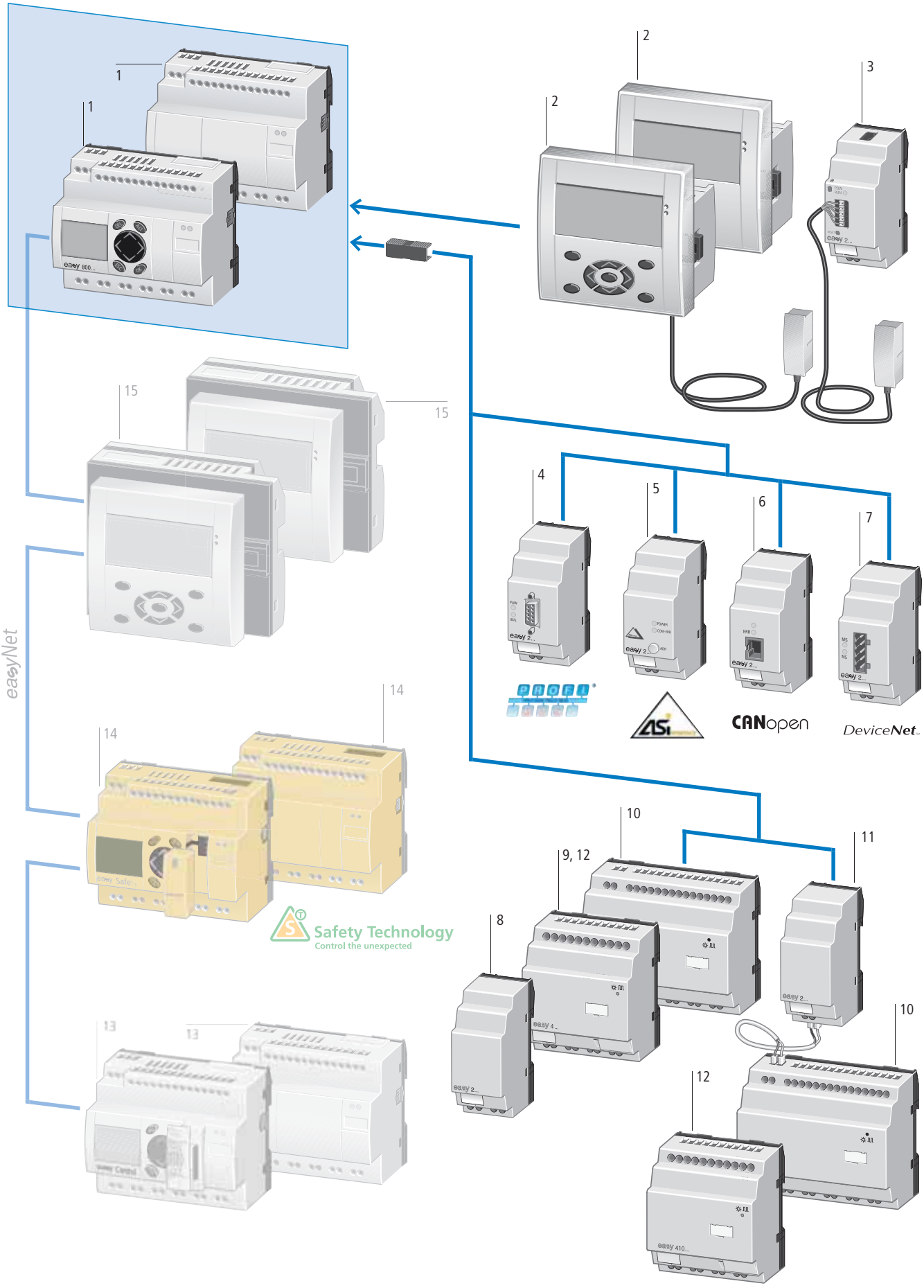
	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Ballast					
To increase the AC input current					
	6 channels, cable length up to 100 m	**EASY256-HCI** 231168		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
PROFIBUS-DP data cable					
	Twisted pair, without plug, 2-core, 2 x 0.64 mm² (only suitable for fixed wiring) 100 m	**ZB4-900-KB1** 206983		100 m	
PROFIBUS-DP bus connector plug					
	Pins, 9 pole Cable entry, angled 90°	**ZB4-209-DS2** 206982		1 off	
	Metallized insulated housing Maximum transfer rate 12 MBit/s Integrated switch (accessible from the outside) for the bus terminating resistors Terminal block for two cable entries, with straight or 90° angled cable entry, as required	**ZB4-209-DS3** 217820		1 off	
Connection plug					
	Bus connector plug between base unit and expansion unit/bus module	**EASY-LINK-DS** 221607		1 off	UL/CSA certification not required
Fixing bracket For screw fixing to mounting plate					
	3 fixing brackets per easy400, 500, 600, 700, 800, EC4P, ES4P 2 fixing brackets per easy200 3 fixing brackets per, MFD...-CP8/CP10…	**ZB4-101-GF1** 061360		9 off	UL/CSA certification not required
Telescopic clip					
	With 35mm top-hat rail to IEC/EN 60715 for adjusting the mounting depth when rear mounting in CI-K… enclosures and cabinets. Stepless adjustment via scale from 75 – 115 mm. Screw and snap fastening	**M22-TA** 226161		1 off	Product Standards: IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14-05; CSA-C22.2 No. 94-91; CE marking UL File No.: E29184 UL CCN: NKCR CSA File No.: 012528 CSA Class No.: 3211-03 NA Certification: UL Listed, CSA certified
Top-hat rail adapter for inspection flap window					
	12 mm x 66 mm x 82 mm Mounting on hinged inspection window, for front fitting of devices. Complete set, consisting of 2 brackets and 4 screws	**SKF-HA** 233782		1 off	UL/CSA certification not required
Inspection window					
	94 mm x 77 mm x 25 mm (4 space units) For use with easy500	**SKF-FF4** 233780		1 off	UL/CSA certification not required
	130 mm x 77 mm x 25 mm (6 space units) For use with EASY700, EASY800, EC4P, ES4P	**SKF-FF6** 233781		1 off	

System overview



Basic device

easy800	1
Expandable: Digital and analog inputs/ outputs and bus systems AS-Interface, CANopen, PROFIBUS-DP, DeviceNet	
Bus system easyNet on board	
24 V DC = easy...DC... 100 - 240 V AC = easy...AC...	
12 digital inputs 4 usable as analog inputs (DC versions)	
6 relay outputs (max. 10 A, UL) or 8 transistor outputs	
1 analog output, optional on DC versions	
Display and keypad optional	
Bolt-on and top-hat rail mounting	
Screw terminals	
Technical overview	
→ Page 12/14	

Remote text display

Consists of:	
Display/operating unit MFD-80(-B)	2
Power supply/communication module	2
Including connection cable (5 m, can be cut to length) for easy800 24 V DC = MFD-CP4-800 100 - 240 V AC = MFD-AC-CP4-800	
Spring-loaded terminals	
→Page 12/16	

Ethernet gateway

EASY209-SE	3
24 V DC Serial interface easyRelay to Ethernet	
→ Page 12/16	

Bus modules

EASY204-DP4	4
PROFIBUS DP connection as slave, 24 V DC	
→ Page 12/16	

EASY205-ASI	5
AS-Interface connection as slave	
→ Page 12/16	

EASY221-CO	6
CANopen connection, 24 V DC	
→ Page 12/16	

EASY222-DN	7
DeviceNet connection, 24 V DC	
→ Page 12/16	

Output expansion

EASY202-RE	8
2 relay outputs (max. 10 A, UL)	
Bolt-on and top-hat rail mounting	
Screw terminals	
→ Page 12/15	

I/O expansions

EASY406-DC-ME	9
24 V DC 1 digital input	
2 analog inputs (2 × 0–10 V, 2 × 0 – 20 mA, or 2 × x Pt100; voltage inputs can be combined in any arrangement Voltage inputs (0 – 10 V) can optionally be used as digital inputs	
2 transistor outputs	
1 analog output (0 - 10 V)	
Bolt-on and top-hat rail mounting	
Screw terminals	
→ Page 12/15	

EASY411-DC-ME	9
24 V DC	
1 digital input	
6 analog inputs (2 × 0–10 V, 2 × 0–20 mA and 2 × Pt100; voltage inputs (0–10 V) can optionally be used as digital inputs	
2 transistor outputs/ 2 analog outputs (0–10 V)	
Bolt-on and top-hat rail mounting	
Screw terminals	
→ Page 12/15	

EASY6...	10
24 V DC	
12 digital inputs	
6 relay outputs (max. 10 A, UL) or 8 transistor outputs	
Bolt-on and top-hat rail mounting	
Screw terminals	
→ Page 12/15	

EASY410...	12
24 V DC	
6 digital inputs	
4 relay outputs (max. 10 A, UL) or 4 transistor outputs	
Bolt-on and top-hat rail mounting	
Screw terminals	
→ Page 12/15	

Coupling module

EASY200-EASY	11
For remote connection of a digital I/O expansion through two-pole connection cable (max. 30 m); e.g. NYM 3 × 1.5 mm²	
Bolt-on and top-hat rail mounting	
Screw terminals	
→ Page 12/15	

Compact PLC easyControl

EC4P	13
→ Page 14/64	

Safety control relays easySafety

ES4P	14
→ Page 13/5	

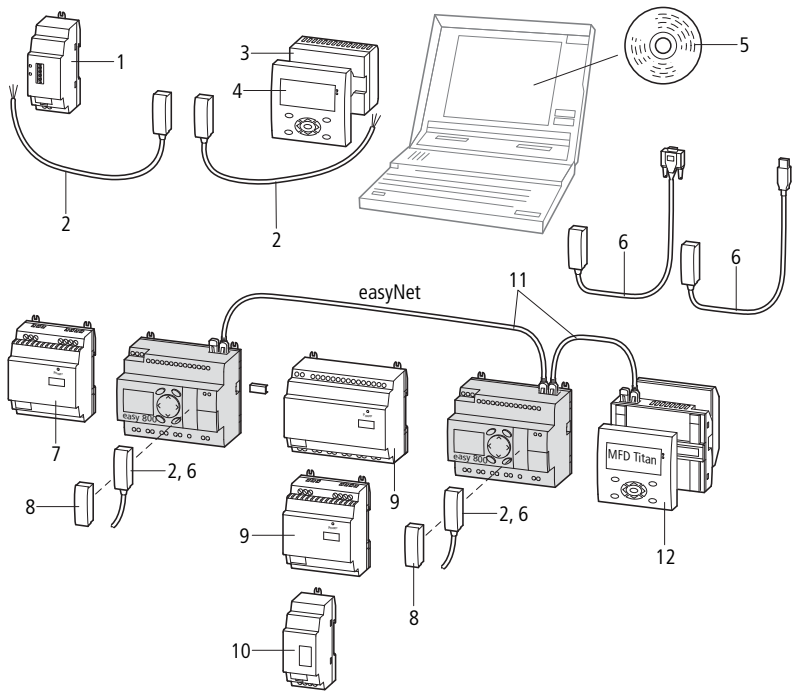
Multi-function display MFD-Titan	15
→ Page 12/22	

Ordering

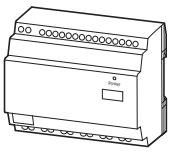
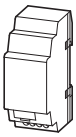
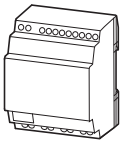
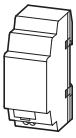
Inputs		Outputs			Other features		Supply voltage	Part no. Article no.	Price See price list	Std. pack
Digital	Of which can be used as analog	Relay 10 A (UL)	Transistor	Analog	Display + keypad	Real-time clock				
easy800										
Expandable: Digital and analog inputs/outputs and bus systems AS-Interface, CANopen, PROFIBUS-DP, DeviceNet Bus system easyNet on board Individual laser inscription possible with EASY-COMBINATION-* → Page 12/6										
easyNet on board										
12	–	6	–	–	√	√	100 - 240 V AC	**EASY819-AC-RC** 256267		1 off
12	–	6	–	–	–	√	100 - 240 V AC	**EASY819-AC-RCX** 256268		
12	4	6	–	–	√	√	24 V DC	**EASY819-DC-RC** 256269		
12	4	6	–	–	–	√	24 V DC	**EASY819-DC-RCX** 256270		
12	4	6	–	1	√	√	24 V DC	**EASY820-DC-RC** 256271		
12	4	6	–	1	–	√	24 V DC	**EASY820-DC-RCX** 256272		
12	4	–	8	–	√	√	24 V DC	**EASY821-DC-TC** 256273		
12	4	–	8	–	–	√	24 V DC	**EASY821-DC-TCX** 256274		
12	4	–	8	1	√	√	24 V DC	**EASY822-DC-TC** 256275		
12	4	–	8	1	–	√	24 V DC	**EASY822-DC-TCX** 256276		

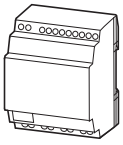
Information relevant for export to North America

Product Standards	IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking
UL File No.	E135462
UL CCN	NRAQ
CSA File No.	012528
CSA Class No.	2252-01 + 2258-02
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP20, UL/CSA Type: -



Accessories	Page
1 Ethernet gateway	→ Page 12/16
2 Connection cable	→ Page 12/27
3 Power supply unit/communication module	→ Page 12/23
4 Display/keypad	→ Page 12/16
5 Programming software	→ Page 12/9
6 PC programming cable	→ Page 12/9
7 Switched-mode power supply unit	→ Page 12/10
8 Memory card	→ Page 12/9
9 Inputs/outputs expansion	→ Page 12/15
10 output expansion units, bus module, coupling module	→ Page 12/16
11 easyNet	→ Page 12/18
12 Multi-function display MFD-Titan	→ Page 12/22

	Inputs	Outputs		Supply voltage	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
	Digital	Relay 10 A (UL)	Transistor					
I/O expansions								
Can be used through easyLink								
	12	6	–	100 - 240 V AC	**EASY618-AC-RE** 212314		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	12	–	8	24 V DC	**EASY620-DC-TE** 212313			
	12	6	–	24 V DC	**EASY618-DC-RE** 232112			Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	–	2	–	24 V DC	**EASY202-RE**1) 232186			
	6	4	–	24 V DC	**EASY410-DC-RE** 114293			NA Certification: Request filed for UL and CSA Degree of Protection: IEC: IP20, UL/CSA Type: -
	6	–	4	24 V DC	**EASY410-DC-TE** 114294			
Coupling module								
Can be used through easyLink								
	For remote connection of a digital I/O expansion up to 30 m.				**EASY200-EASY** 212315		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CE marking; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987 UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -

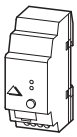
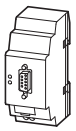
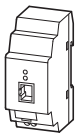
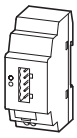
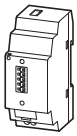
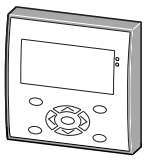
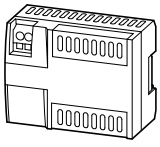
	Inputs		Outputs			Supply voltage	Part no. Article no.	Price See price list	Std. pack
	Digital / analog	Of which usable as digital	Relays 10 A (UL)	Transistor	Analog				
I/O expansions									
Can be used through easyLink									
	1 / 2 2)	2	–	2	1	24 V DC	**EASY406-DC-ME** 114295		1 off
	1 / 6 3)	2	–	2	2	24 V DC	**EASY411-DC-ME** 116567		1 off

Notes

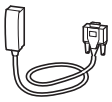
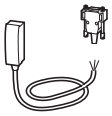
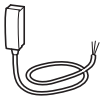
1) Not for use in combination with EASY719-DA-…basic unit
Cannot be used on the EASY200-EASY coupling module
2) 2 × 0 - 10 V, 2 × 0 - 20 mA, 2 × RTD (2/3-wire connection); any combination
Voltage inputs (0–10 V) can optionally be used as digital inputs
3) 2 x 0 - 10 V, 2 x 0 - 20 mA, 2 x Pt100 (2/3 wire connection);
Voltage inputs (0–10 V) can optionally be used as digital inputs

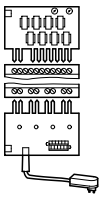
Information relevant for export to North America

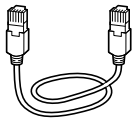
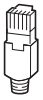
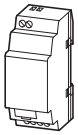
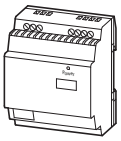
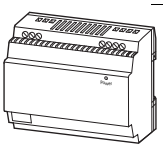
NA Certification	Request filed for UL and CSA
Degree of Protection	IEC: IP20, UL/CSA Type: -

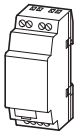
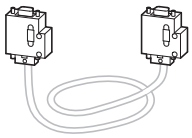
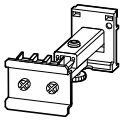
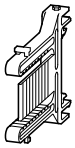
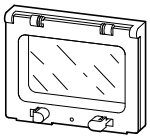
	Description		Supply voltage	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Bus modules							
Can be used through easyLink							
	AS-Interface	Slave 4 inputs, 4 outputs, 4 parameter bits Addresses available 0 to 31	–	**EASY205-ASI** 221598		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CE marking; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987 UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	PROFIBUS-DP	Slave Addresses available 1 to 126	24 V DC	**EASY204-DP** 212316			
	CANopen	Addresses available 1 to 127	24 V DC	**EASY221-CO** 233539			
	DeviceNet	Addresses available 0 to 63	24 V DC	**EASY222-DN** 233540			
Ethernet gateway							
	Serial interface easyRelay or MFD-...CP8/CP10... to Ethernet, for connecting to easyOPC server, easySoft, or easyCom		24 V DC	**EASY209-SE** 101520		1 off	
Remote text display							
Display/keypad Monochrome display 132 × 64 pixels with switchable backlight IP65, removable silver front frame							
	With keypad, with Moeller company logotype NEMA 4x in conjunction with MFD-XM-80 protective diaphragm → 12/29			**MFD-80-B** 265251		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP65, in combination with MFD-XM-80: UL/CSA Type 4X
	With keypad, without Moeller company logotype NEMA 4x in conjunction with MFD-XM-80 protective diaphragm → 12/29			**MFD-80-B-X** 284905		1 off	
	Without keypad, with Moeller company logotype			**MFD-80** 265250		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP65, UL/CSA Type 4X
	Without keypad, without Moeller company logotype NEMA 4x			**MFD-80-X** 284904		1 off	
Power supply unit/communication modules IP20, can be combined with display/operating unit MFD-80... as remote text display							
	With connection cable (5 m, can be cut to length)		24 V DC	**MFD-CP4-800** 274095		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	With connection cable (5 m, can be cut to length)		100 - 240 V AC	**MFD-AC-CP4-800** 286824			
	Without connection cable		24 V DC	**MFD-CP4** 280888			
	Without connection cable		100 - 240 V AC	**MFD-AC-CP4** 286822			

HPL12017EN

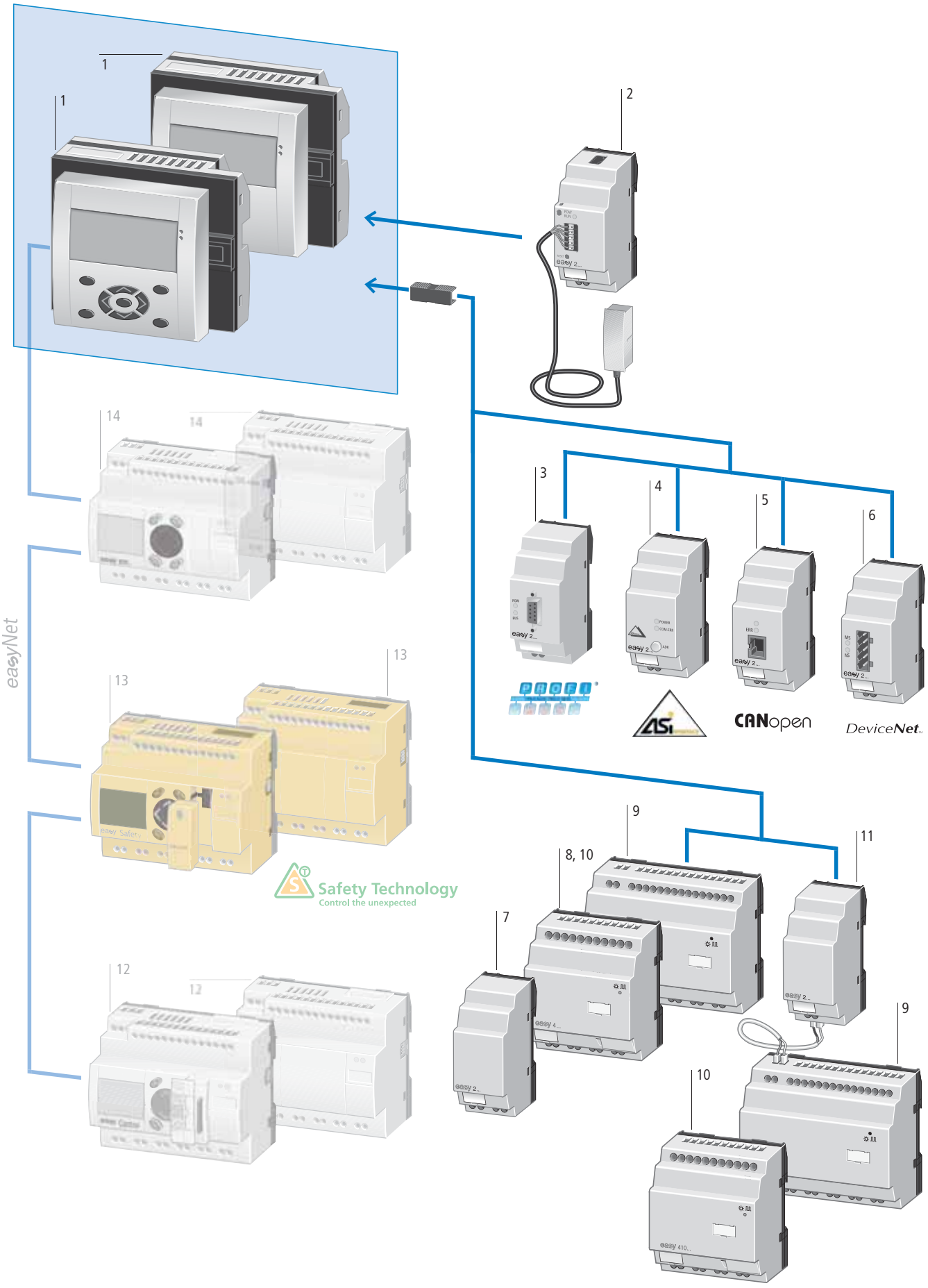
	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Programming software					
	Menu selection in 13 languages Operating systems: Windows 2000 SP4, Windows XP SP3, Windows Vista (32 Bit), Windows 7 (32 Bit)	**EASY-SOFT-PRO** 266040		1 off	UL/CSA certification not required
Programming cable					
	Sub-D, 9 pole, serial, 2 m	**EASY800-PC-CAB** 256277		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified
	USB, 2 m	**EASY800-USB-CAB** 106408		1 off	
Modem cable					
	Configurable modem, printer and programming cable, possible transfer rate 56 kbaud, 9 pole Sub-D plug (plug + socket for assembly by user)	**EASY800-MO-CAB** 286079		1 off	
Connecting cables					
	For connecting MFD(-AC)-CP4 with easy800/MFD-..-CP8/CP10... 5 m, can be cut to length	**MFD-CP4-800-CAB5** 280887		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
Memory cards					
	256-kB module	**EASY-M-256K** 256279		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -

	Supply voltage	Description	For use with	Part no. Article no.	Price See price list	Std. pack
Input/output simulator						
	24 V DC	With plug-in power supply unit 100 - 240 V AC/ 24 V DC	easy700-DC easy800-DC EC4P	**EASY800-DC-SIM** 256278		1 off
Manual						
		User manual, German		**AWB2528-1423D** 261371		1 off
		User manual, English		**AWB2528-1423GB** 262671		1 off

	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Network connection cables						
	Length: 0.3 m	easyNet	**EASY-NT-30** 256283		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	Length: 0.8 m	easyNet	**EASY-NT-80** 256284			
	Length: 1.5 m	easyNet	**EASY-NT-150** 256285			
Bus termination resistor						
	8 pole, RJ45, 124 Ω Connection to PIN 1 and PIN 2	easyNet	**EASY-NT-R** 256281		2 off	
Data cable						
	4 x 0.14 mm², twisted pair, AWG 26 Length: 100 m	easyNet	**EASY-NT-CAB** 256286		1 off	UL File No.: E135462 UL CCN: NRAQ NA Certification: UL Listed Degree of Protection: IEC: IP 20, UL/CSA Type: -
Bus connector plug						
	8 pole, RJ45	easyNet	**EASY-NT-RJ45** 256280		10 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
Crimping tool						
	For RJ45 plug	EASY-NT-CAB EASY-NT-RJ45	**EASY-RJ45-TOOL** 256282		1 off	
Point-to-point connection cable						
	Serial interface for connecting MFD-…-CP8/ CP10... to easy800 or MFD-…-CP8/CP10..., 5 m, can be cut to length		**MFD-800-CAB5** 266041		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
Switched-mode power supply units						
Primary-switched mode, stabilized						
	Rated input voltage: 50/60 Hz: 100 - 240 V Rated output voltage: 24 V/12 V DC Rated output current: 0.35 A/20 mA		**EASY200-POW** 229424		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	Rated input voltage: 50/60 Hz: 100 - 240 V AC Rated output voltage (residual ripple): 24 V DC (± 3 %) Rated output current: 1.25 A		**EASY400-POW** 212319		1 off	
			EASY430-POW 110940		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 107.1-01; CE marking UL File No.: E300415 UL CCN: NMTR, NMTR7 CSA File No.: UL report applies to both US and Canada CSA Class No.: 3211-87, 3211-07 NA Certification: UL Listed, certified by UL for use in Canada Degree of Protection: IEC: IP20, UL/CSA Type: -
	Rated input voltage: 50/60 Hz: 100 - 240 V AC Rated output voltage (residual ripple): 24 V DC (± 3 %) Rated output current: 2.5 A		**EASY500-POW** 110941		1 off	
	Rated input voltage: 50/60 Hz: 100 - 240 V AC Rated output voltage (residual ripple): 24 V DC (± 3 %) Rated output current: 4.2 A		**EASY600-POW** 262399		1 off	

	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Ballast					
To increase the AC input current					
	6 channels, cable length up to 100 m	**EASY256-HCI** 231168		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
PROFIBUS-DP data cable					
	Twisted pair, without plug, 2-core, 2 x 0.64 mm² (only suitable for fixed wiring) 100 m	**ZB4-900-KB1** 206983		100 m	
PROFIBUS-DP bus connector plug					
	Pins, 9 pole Cable entry, angled 90°	**ZB4-209-DS2** 206982		1 off	
	Metallized insulated housing Maximum transfer rate 12 Mbits/s Integrated plug, accessible from outside, for bus terminating resistors Terminal block for two cable entries, with straight or 90° angled cable entry, as required	**ZB4-209-DS3** 217820		1 off	
Connection plug					
	Bus connector plug between base unit and expansion unit/bus module	**EASY-LINK-DS** 221607		1 off	UL/CSA certification not required
Fixing bracket For screw fixing to mounting plate					
	3 fixing brackets per easy400, 500, 600, 700, 800, EC4P, ES4P 2 fixing brackets per easy200 3 fixing brackets per MFD...-CP8/CP10-…	**ZB4-101-GF1** 061360		9 off	UL/CSA certification not required
Telescopic clip					
	With 35 mm top-hat rail to IEC/EN 60715 for mounting depth compensation when rear mounting in CI-K… enclosures and cabinets. Stepless adjustment via scale from 75 – 115 mm. Screw and snap fastening	**M22-TA** 226161		1 off	Product Standards: IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14-05; CSA-C22.2 No. 94-91; CE marking UL File No.: E29184 UL CCN: NKCR CSA File No.: 012528 CSA Class No.: 3211-03 NA Certification: UL Listed, CSA certified
Top-hat rail adapter for inspection flap window					
	12 mm x 66 mm x 82 mm Mounting on hinged inspection window, for front fitting of devices. Complete set, consisting of 2 brackets and 4 screws	**SKF-HA** 233782		1 off	UL/CSA certification not required
Inspection window					
	130 mm x 77 mm x 25 mm (6 space units) For use with EASY700, EASY800, EC4P, ES4P	**SKF-FF6** 233781		1 off	UL/CSA certification not required

System overview



MFD-Titan

The multi-function display MFD-Titan can be used in the following combinations:
Power supply unit/CPU
Power supply unit/CPU + I/O modules
Power supply unit/CPU + display and operating unit
Power supply unit/CPU + display and operating unit + I/O modules
→ Page 12/22

I/O modules 1
24 V DC
100 - 240 V AC
12 digital inputs
4 usable as analog inputs
(DC versions)
4 relay outputs (max. 10 A,UL)
or 4 transistor outputs
1 analog output,
optional on DC versions
Spring-loaded terminals
→ Page 12/24

I/O modules with temperature measuring 1
24 V DC
6 digital inputs
2 of which usable as analog inputs
2 Pt 100 or 2 Ni1000 RTD inputs
4 transistor outputs
1 Analog output, optional
Spring-loaded terminals
→ Page 12/24

Power supply unit/CPU module 1
24 V DC
100 - 240 V AC
Bus system easyNet optionally on-board
→ Page 12/22

Display/keypad 1
24 V DC
Monochrome display
132 × 64 pixels
With or without keypad
Custom laser labeling possible
→ Page 12/16

Ethernet gateway

EASY209-SE 2
24 V DC
Serial interface, PSU/CPU module to Ethernet
→ Page 12/16

Bus modules

EASY204-DP 3
PROFIBUS DP connection as slave, 24 V DC
→ Page 12/16

EASY221-CO 5
CANopen connection, 24 V DC
→ Page 12/16

EASY205-ASI 4
AS-Interface connection as slave
→ Page 12/16

EASY222-DN 6
DeviceNet connection, 24 V DC
→ Page 12/16

Output expansion

EASY202-RE 7
2 relay outputs (max. 10 A, UL)
Bolt-on and top-hat rail mounting
Screw terminals
→ Page 12/15

I/O expansions

EASY406-DC-ME 8
24 V DC
1 digital input
2 analog inputs
(2 × 0–10 V, 2 × 0–20 mA, 2 × RTD);
any combination
Voltage inputs (0–10 V) can optionally be used as digital inputs
2 transistor outputs
1 analog output (0 - 10 V)
Bolt-on and top-hat rail mounting
Screw terminals
→ Page 12/15

EASY411-DC-ME 8
24 V DC
1 digital input
6 analog inputs
(2 x 0 - 10 V, 2 x 0 - 20 mA, 2 x Pt100);
Voltage inputs (0–10 V) can optionally be used as digital inputs
2 transistor outputs/
2 Analog outputs (0 - 10 V)
Bolt-on and top-hat rail mounting
Screw terminals
→ Page 12/15

EASY6... 9
24 V DC
12 digital inputs
6 relay outputs (max. 10 A,UL)
or 8 transistor outputs
Bolt-on and top-hat rail mounting
Screw terminals
→ Page 12/15

EASY410... 10
24 V DC
6 digital inputs
4 relay outputs (max. 10 A,UL)
or 4 transistor outputs
Bolt-on and top-hat rail mounting
Screw terminals
→ Page 12/15

Coupling module

EASY200-EASY 11
For remote connection of a digital I/O expansion through two-pole connection cable (max. 30 m);
e.g. NYM 3 × 1.5 mm²
→ Page 12/15

Compact PLC easyControl

EC4P 12
→ Page 14/64

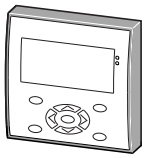
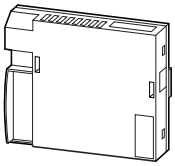
Safety control relays easySafety

ES4P 13
→ Page 13/5

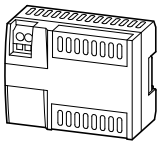
Control relays easy800

EASY8… 14
→ Page 12/14

Ordering

	Supply voltage	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Display/keypad						
Monochrome display 132 × 64 pixels with switchable backlight IP65, removable silver front frame						
		With keypad, with Moeller company logotype NEMA 4x in conjunction with MFD-XM-80 protective diaphragm → 12/29	**MFD-80-B** 265251		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP65, in combination with MFD-XM-80: UL/CSA Type 4X
		With keypad, without Moeller company logotype NEMA 4x in conjunction with MFD-XM-80 protective diaphragm → 12/29	**MFD-80-B-X** 284905		1 off	
		Without keypad, with Moeller company logotype NEMA 4x	**MFD-80** 265250		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP65, UL/CSA Type 4X
		Without keypad, without Moeller company logotype NEMA 4x	**MFD-80-X** 284904		1 off	
Power supply unit/CPU module						
Can be combined with display and control unit MFD-80-.. and I/O module; expandable: Digital and analog inputs/outputs and bus systems AS-Interface, CANopen, PROFIBUS-DP, DeviceNet; bus system easyNet optional on-board IP20 Spring-loaded terminals						
	Supply voltage					
	100 - 240 V AC	Program and screen memory, with easyNet	**MFD-AC-CP8-NT** 274092		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	100 - 240 V AC	Program and screen memory, without easyNet	**MFD-AC-CP8-ME** 274091			
	24 V DC	Program and screen memory, without easyNet	**MFD-CP8-ME** 267164			
	24 V DC	Program and screen memory, with easyNet	**MFD-CP8-NT** 265253			
	24 V DC	Dual program and screen memory as MFD-...-CP8..., without easyNet	**MFD-CP10-ME** [1] 133801		1 off	
	24 V DC	Dual program and screen memory as MFD-...-CP8..., with easyNet	**MFD-CP10-NT** [1] 133800		1 off	

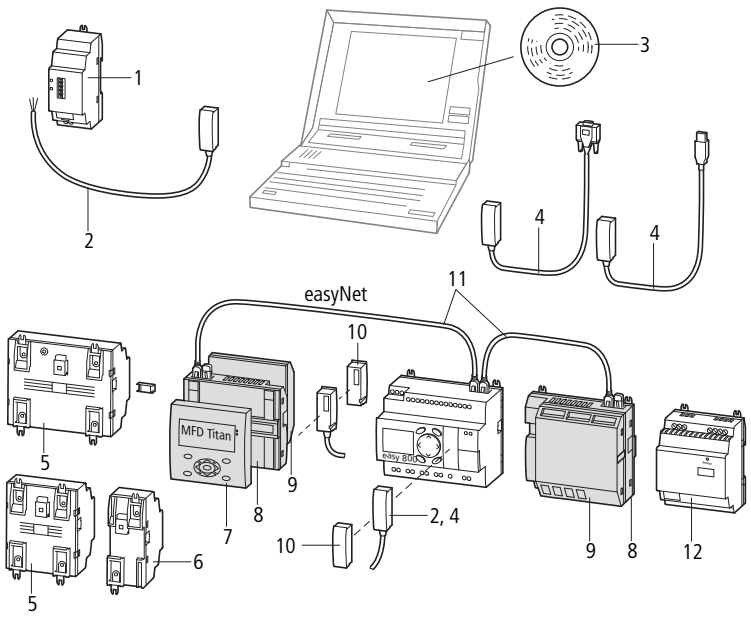
[1] **Note** [1] For availability please inquire

	Supply voltage	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Power supply unit/communication modules							
IP20, can be combined with display/operating unit MFD-80... as remote text display							
	24 V DC	With connection cable (5 m, can be cut to length)	easy500 easy700	**MFD-CP4-500** 274094		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	24 V DC	With connection cable (5 m, can be cut to length)	easy800 EC4P ES4P	**MFD-CP4-800** 274095			
	100 - 240 V AC	With connection cable (5 m, can be cut to length)	easy500 easy700	**MFD-AC-CP4-500** 286823			
	100 - 240 V AC	With connection cable (5 m, can be cut to length)	easy800 EC4P ES4P	**MFD-AC-CP4-800** 286824			
	24 V DC	Without connection cable		**MFD-CP4** 280888			
	100 - 240 V AC	Without connection cable		**MFD-AC-CP4** 286822			
Customized inscription, user program							
• Customized inscription of multi-function display with labeling software Labeleditor or • Supply of multi-function display programmed with user program			MFD-80-... MFD-CP8... MFD-CP10...	**MFD-COMBINATION-*** 265260		1 off	UL/CSA certification not required

Notes

Procedure and ordering example for Labeleditor inscription software
Individually inscribe your device in 4 stages:
– Download the inscription software: www.moeller.net/support, keyword: “Labeleditor”
– Creation of label template (menu-guided in the software)
– Send the label template to the factory by email. The email address is automatically set for the selected product by the program. When your template is sent, the Labeleditor issues a file name such as “EASY_12345.zip”. This file name is part of the article to be ordered (see Ordering examples).
– Send order to the Eaton office or the electrical wholesalers.

Ordering example: MFD-Titan
MFD-80-B multi-function display with “company name”:
1 x MFD-COMBINATION-*
1 x MFD-80-B
1 x the file name “MFD_xxxxx.zip” issued by the Labeleditor



Accessories	Page
1 Ethernet gateway	→ Page 12/16
2 Connection cable	→ Page 12/27
3 Programming software	→ Page 12/9
4 PC programming cable	→ Page 12/9
5 Inputs/outputs expansion	→ Page 12/15
6 output expansion, bus module, coupling module	→ Page 12/16
7 Display/keypad	→ Page 12/16
8 Power supply unit/CPU module	→ Page 12/23
9 I/O module	→ Page 12/17
10 Memory card	→ Page 12/9
11 easyNet	→ Page 12/18
12 Switched-mode power supply unit	→ Page 12/10

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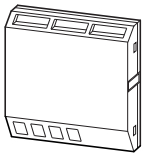
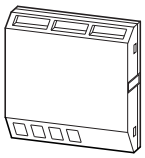
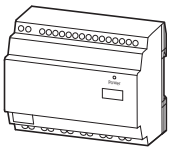
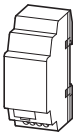
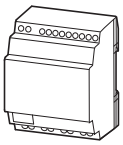
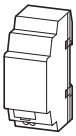
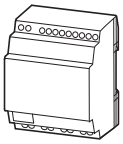
Power supply	For use with	Inputs Digital	Ofwhich can be used as analog	Pt100	Outputs Relays 10 A (UL)	Transistor	Analog	Temperature range	**Part no.** Article no.	**Price** See price list	Std. pack
I/O modules											
IP20, spring-loaded terminals 											
24 V DC	MFD-CP8... MFD-CP10...	12	4	–	4	–	–	–	**MFD-R16** 265254		1 off
24 V DC	MFD-CP8... MFD-CP10...	12	4	–	–	4	–	–	**MFD-T16** 265255		1 off
24 V DC	MFD-CP8... MFD-CP10...	12	4	–	4	–	1	–	**MFD-RA17** 265364		1 off
24 V DC	MFD-CP8... MFD-CP10...	12	4	–	–	4	1	–	**MFD-TA17** 265256		1 off
100 - 240 V DC	MFD-AC-CP8...	12	–	–	4	–	–	–	**MFD-AC-R16** 274093		1 off
I/O module with temperature measuring											
IP20, spring-loaded terminals Temperature range configurable 											
24 V DC	MFD-CP8... as of device version 08, MFD-CP10...	6	2	2	–	4	–	-40…+90 °C 0…+250 °C 0…+400 °C	**MFD-TP12-PT-A** 106042		1 off
		6	2	2	–	4	–	-200…+200 °C 0…+850 °C	**MFD-TP12-PT-B** 106043		1 off
		6	2	–	–	4	–	-40…+90 °C 0…+250 °C	**MFD-TP12-NI-A** 106044		1 off
		6	2	2	–	4	1	-40…+90 °C 0…+250 °C 0…+400 °C	**MFD-TAP13-PT-A** 106045		1 off
		6	2	2	–	4	1	-200…+200 °C 0…+850 °C	**MFD-TAP13-PT-B** 106046		1 off
		6	2	–	–	4	1	-40…+90 °C 0…+250 °C	**MFD-TAP13-NI-A** 106047		1 off

Information relevant for export to North America

Product Standards	IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking
UL File No.	E135462
UL CCN	NRAQ
CSA File No.	012528
CSA Class No.	2252-01 + 2258-02
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP20, UL/CSA Type: -

	Inputs	Outputs		Supply voltage	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
	Digital	Relay 10 A (UL)	Transistor					
I/O expansions								
Can be used through easyLink								
	12	6	–	100 - 240 V AC	**EASY618-AC-RE** 212314		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	12	–	8	24 V DC	**EASY620-DC-TE** 212313			
	12	6	–	24 V DC	**EASY618-DC-RE** 232112			Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	–	2	–	24 V DC	**EASY202-RE**1) 232186			
	6	4	–	24 V DC	**EASY410-DC-RE** 114293			NA Certification: Request filed for UL and CSA Degree of Protection: IEC: IP20, UL/CSA Type: -
	6	–	4	24 V DC	**EASY410-DC-TE** 114294			
Coupling module								
Can be used through easyLink								
		For remote connection of a digital I/O expansion up to 30 m.			**EASY200-EASY** 212315		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -

	Inputs		Outputs			Supply voltage	Part no. Article no.	Price See price list	Std. pack
	Digital / Analog	Of which usable as digital	Relay 10 A (UL)	Transistor	Analog				
I/O expansions									
Can be used through easyLink									
	1 / 2[2]	2	–	2	1	24 V DC	**EASY406-DC-ME** 114295		1 off
	1 / 6[3]	2	–	2	2	24 V DC	**EASY411-DC-ME** 116567		1 off

Notes

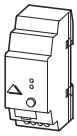
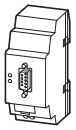
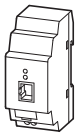
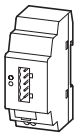
[1] Not for use in combination with basic unit EASY719-DA-... Cannot be used on the EASY200-EASY coupling module

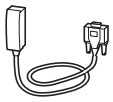
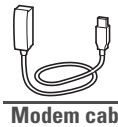
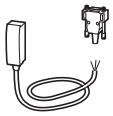
[2] 2 × 0 - 10 V, 2 × 0 - 20 mA, 2 × RTD (2/3-wire connection); any combination
Voltage inputs (0–10 V) can optionally be used as digital inputs

[3] 2 x 0 - 10 V, 2 x 0 - 20 mA, 2 x Pt100 (2/3 wire connection); Voltage inputs (0 –10 V) can optionally be used as digital inputs

Information relevant for export to North America

NA Certification: Request filed for UL and CSA
Degree of Protection: IEC: IP20, UL/CSA Type: -

	Description		Supply voltage	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Bus modules							
Can be used through easyLink							
	AS-Interface	Slave 4 inputs, 4 outputs, 4 parameter bits Addresses available 0 to 31	–	**EASY205-ASI** 221598		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	PROFIBUS-DP	Slave Addresses available 1 to 126	24 V DC	**EASY204-DP** 212316			
	CANopen	Addresses available 1 to 127	24 V DC	**EASY221-CO** 233539			
	DeviceNet	Addresses available 0 to 63	24 V DC	**EASY222-DN** 233540			
Ethernet gateway							
	Serial interface easyRelay or MFD-...CP8/CP10... to Ethernet, for connection to easyOPC server, easySoft, or easyCom		24 V DC	**EASY209-SE** 101520		1 off	

	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Programming software						
	Menu selection in 13 languages Operating systems: Windows 2000 SP4, Windows XP SP3, Windows Vista (32-bit), Windows 7 (32-bit)		**EASY-SOFT-PRO** 266040		1 off	
Programming cable						
	SUB-D, 9 pole, serial, 2 m		**EASY800-PC-CAB** 256277		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified
	USB, 2 m		**EASY800-USB-CAB** 106408		1 off	
Modem cable						
	Configurable modem, printer and programming cable, possible transfer rate 56 kbaud, 9 pole Sub-D plug (plug + socket for self connection)		**EASY800-MO-CAB** 286079		1 off	
Connecting cables						

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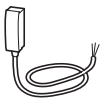
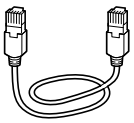
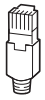
	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
	For connecting the MFD (-AC)-CP4 or EASY209-SE with easy500/easy700, 5 m, can be cut to length		**MFD-CP4-500-CAB5** 280886		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	For connecting the MFD (-AC)-CP4 or EASY209-SE with easy800/MFD-..-CP8/CP10..., 5 m, can be cut to length		**MFD-CP4-800-CAB5** 280887		1 off	
Memory cards						
	256-kB module	MFD-…-CP8	**EASY-M-256K** 256279		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	512-kB module	MFD-CP10...	**EASY-M-512K**[1] 134969		1 off	
Manuals						
	German	MFD-Titan	**AWB2528-1480D** 267187		1 off	
	English	MFD-Titan	**AWB2528-1480GB** 267188		1 off	
Network connection cables						
	Length: 0.3 m	easyNet	**EASY-NT-30** 256283		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	Length: 0.8 m	easyNet	**EASY-NT-80** 256284		1 off	
	Length: 1.5 m	easyNet	**EASY-NT-150** 256285		1 off	
Bus termination resistor						
	8 pole, RJ45, 124 Ω Connection to PIN 1 and PIN 2	easyNet	**EASY-NT-R** 256281		2 off	
Data cable						
	4 x 0.14 mm², twisted pair, AWG 26 Length: 100 m	easyNet	**EASY-NT-CAB** 256286		1 off	UL File No.: E135462 UL CCN: NRAQ NA Certification: UL Listed Degree of Protection: IEC: IP 20, UL/CSA Type: -

Note [1] For availability please inquire

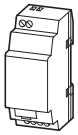
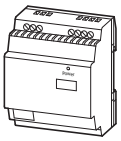
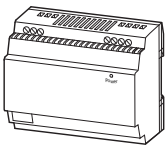
	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Bus connector plug						
	8 pole, RJ45	easyNet	**EASY-NT-RJ45** 256280		10 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
Crimping tool						
–	For RJ45 plug	EASY-NT-CAB EASY-NT-RJ45	**EASY-RJ45-TOOL** 256282		1 off	

Point-to-point connection cable

	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
	Serial interface for connecting MFD-…-CP8/CP10... to easy800 or MFD-…-CP8/CP10..., 5 m, can be cut to length	easy800 MFD-…-CP8	**MFD-800-CAB5** 266041		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -

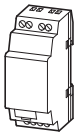
Switched-mode power supply units

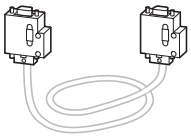
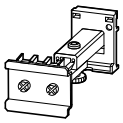
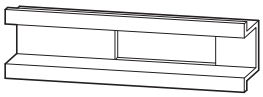
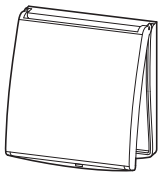
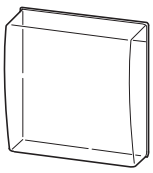
Primary-switched mode, stabilized

	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
	Rated input voltage: 50/60 Hz: 100 - 240 V Rated output voltage: 24 V/12 V DC Rated output current: 0.35 A/20 mA	**EASY200-POW** 229424		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	Rated input voltage: 50/60 Hz: 100 - 240 V AC Rated output voltage (residual ripple): 24 V DC (± 3 %) Rated output current: 1.25 A	**EASY400-POW** 212319		1 off	
		EASY430-POW 110940		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 107.1-01; CE marking UL File No.: E300415 UL CCN: NMTR, NMTR7 CSA File No.: UL report applies to both US and Canada CSA Class No.: 3211-87, 3211-07 NA Certification: UL Listed, certified by UL for use in Canada Degree of Protection: IEC: IP20, UL/CSA Type: -
	Rated input voltage: 50/60 Hz: 100 - 240 V AC Rated output voltage (residual ripple): 24 V DC (± 3 %) Rated output current: 2.5 A	**EASY500-POW** 110941		1 off	
	Rated input voltage: 50/60 Hz: 100 - 240 V AC Rated output voltage (residual ripple): 24 V DC (± 3 %) Rated output current: 4.2 A	**EASY600-POW** 262399		1 off	

Ballast

To increase the AC input current

	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
	6 channels, cable length up to 100 m	**EASY256-HCI** 231168		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -

	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
PROFIBUS-DP data cable						
	Twisted pair, without plug, 2-core, 2 x 0.64 mm² (only suitable for fixed wiring) 100 m		**ZB4-900-KB1** 206983		100 m	
PROFIBUS-DP bus connector plug						
	Pins, 9 pole Cable entry, angled 90°		**ZB4-209-DS2** 206982		1 off	
	Metallised insulated housing Maximum transfer rate 12 MBit/s Integrated switch (accessible from the outside) for the bus terminating resistors Terminal block for two cable entries, with straight or 90° angled cable entry, as required		**ZB4-209-DS3** 217820		1 off	
Connection plug						
	Bus connector plug between base unit and expansion unit/bus module		**EASY-LINK-DS** 221607		1 off	UL/CSA certification not required
Fixing bracket For screw fixing to mounting plate						
	3 fixing brackets per easy400, 500, 600, 700, 800, EC4P, ES4P 2 fixing brackets per easy200 3 fixing brackets per MFD...-CP8/CP10…		**ZB4-101-GF1** 061360		9 off	UL/CSA certification not required
Telescopic clip						
	With 35mm top-hat rail to IEC/EN 60715 for mounting depth compensation when rear mounting in CI-K… enclosures and cabinets. Stepless adjustment via scale from 75 – 115 mm. Screw and snap fastening		**M22-TA** 226161		1 off	Product Standards: IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14-05; CSA-C22.2 No. 94-91; CE marking UL File No.: E29184 UL CCN: NKCR CSA File No.: 012528 CSA Class No.: 3211-03 NA Certification: UL Listed, CSA certified
Mounting rail to IEC/EN 60715 Mounting rail with cutout specifically for MFD...-CP8/CP10… for fixing easy expansion units (2 space units) Length: 142.5 mm						
		easy200	**MFD-TS-144** 274090		1 off	UL/CSA certification not required
Protective cover						
	Transparent Protection against accidental actuation sealable Application without front frames	MFD-80…	**MFD-XS-80** 265259		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified
Protective diaphragm						
	Transparent version for harsh environmental conditions and application in the food industry For increasing the degree of protection to NEMA 4X for MFD-80-B	MFD-80…	**MFD-XM-80** 265258		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP65, UL/CSA Type 4X

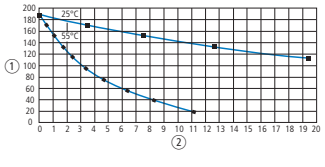
Technical data

			EASY200-EASY EASY202-RE	EASY4…-DC-…E EASY512-…	EASY6... EASY7…	EASY8..-…
General						
Standards			EN 55011, EN 55022, IEC/EN 61000-4, IEC 60068-2-6, IEC 60068-2-27			
Dimensions (W x H x D)		mm	35.5 x 90 x 58 (2 space units)	71.5 x 90 x 58 (4 space units)	107.5 x 90 x 58 (6 space units)	107.5 x 90 x 72 (6 space units)
Weight		kg	0.07	0.2	0.3	0.3
Mounting			Top-hat rail IEC/EN 60715, 35 mm or screw fixing using fixing brackets ZB4-101-GF1 (accessories).			
Terminal capacity						
Solid		mm^2	0.2 - 4 (AWG 22 - 12)			
Flexible with ferrule		mm^2	0.2 - 2.5 (AWG 22 - 12)			
Flat-blade screwdriver		mm	3.5 x 0.8			
Max. tightening torque		Nm	0.6			
Ambient climatic conditions						
Operating ambient temperature		°C	-25…55, low temperatures to IEC 60068-2-1, high temperatures to IEC 60068-2-2			
Condensation			Prevent condensation by means of suitable measures			
LCD display (clearly legible)		°C	0 - 55	0 - 55	0 - 55	0 - 55
Storage		°C	-40 - 70	-40 - 70	-40 - 70	-40 - 70
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95	5 - 95	5 - 95	5 - 95
Air pressure (in operation)		hPa	795 - 1080	795 - 1080	795 - 1080	795 - 1080
Ambient mechanical conditions						
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20	IP20	IP20	IP20
Vibrations (IEC/EN 60068-2-6)						
	Constant amplitude 0.15 mm	Hz	10 - 57	10 - 57	10 - 57	10 - 57
	Constant acceleration, 2 g	Hz	57 - 150	57 - 150	57 - 150	57 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Shocks	18	18	18	18
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	1	1	1	1
Mounting position			Vertical or horizontal			
Electromagnetic compatibility (EMC)						
Overvoltage category/pollution degree			II/2	II/2	II/2	II/2
Electrostatic discharge (ESD), to IEC EN 61000-4-2						
	Air discharge	kV	8	8	8	8
	Contact discharge	kV	6	6	6	6
Electromagnetic fields (RFI), to IEC EN 61000-4-2		V/m	10	10	10	10
Radio interference suppression			EN 55011 Class B, EN 55022 Class B			
Burst to IEC/EN 61000-4-4						
	Supply cables	kV	2	2	2	2
	Signal cables	kV	2	2	2	2
Power pulses (surge), to IEC/EN 61000-4-5		kV	2 (supply cables, symmetrical, EASY…AC)			
Power pulses (surge), to IEC/EN 61000-4-5		kV	0.5 (supply cables, symmetrical, EASY…DC)			
Radiated RFI, to IEC/EN 61000-4-6		V	10	10	10	10
Insulation resistance						
Clearance in air and creepage distances			EN 50178, UL 508, CSA C22.2, No. 142			
Insulation resistance			EN 50178	EN 50178	EN 50178	EN 50178
Back-up/accuracy of the real-time clock						
Back-up time			–	– [1]	– [1]	[1]
Accuracy of the real-time clock at 55 °C		s/day	–	– Normally ± 5 (± 0.5 h/Year)	– Normally ± 5 (± 0.5 h/Year)	Normally ± 5 (± 0.5 h/Year)
Repetition accuracy of timing relays						
Accuracy of timing relay (of value)		%	–	– ± 1	± 0.02	± 0.02
Resolution	Range "S"	ms	–	– 10	10	5
	Range "M:S"	s	–	– 1	1	1
	Range "H:M"	min	–	– 1		
Retentive memory						
Write cycles of the retentive memory (minimum)			–	– 1000000 (10^6)	1000000 (10^6)	10000000 (10^{10}) (read/write cycles)

Notes

For additional technical data EASY5… and EASY7… → AWB2528-1508D, EASY8… → AWB2528-1423D

1)



① Back-up time (hours)
② Service life (years)

			EASY512-DA-...	EASY719-DA-...
Power supply				
Rated operational voltage	U_e	V	12 DC (-15/+30%)	12 DC (-15/+30%)
Permissible range		V DC	10.2…15.6	10.2…15.6
Ripple		%	≤ 5	≤ 5
Input current				
At rated voltage		mA	Normally 140	Normally 200
Voltage dips (IEC/EN 61131-2)		ms	10	10
Heat dissipation		W	Normally 2	Normally 3.5
Digital inputs 12 V DC				
Number			8	12
Inputs can be used as analog inputs			2 (I7, I8)	4 (I7, I8, I11, I12)
Status display			LCD display (if provided)	LCD display (if provided)
Potential isolation				
From power supply			No	No
Between digital inputs			No	No
From the outputs			Yes	Yes
Rated operating voltage	U_e	V DC	12	12
On signal "0"	U_e	V DC	4 (I1 - I8)	4 (I1 - I12)
On signal "1"	U_e	V DC	8 (I1 - I8)	8 (I1 - I12)
Input current on signal "1"				
I1 to I6		mA	3.3 (at 12 V DC)	3.3 (at 12 V DC)
I7, I8, I11, I12		mA	1.1 (at 12 V DC)	1.1 (At 12 V DC)
I9 to I10		mA	–	3.3 (at 12 V DC)
Delay time from 0 to 1				
Debounce ON		ms	20	20
Debounce OFF		ms	Normally 0.3 (I1 - I6), 0.35 (I7, I8)	Normally 0.3 (I1 - I6, I9, I10), 0.35 (I7, I8, I11, I12)
Delay time from 1 to 0				
Debounce ON		ms	20	20
Debounce OFF		ms	Normally 0.3 (I1 - I6), 0.15 (I7, I8)	Normally 0.4 (I1 - I6, I9, I10), 0.35 (I7, I8, I11, I12)
Cable length (unshielded)		m	100	100
Frequency counters			2 (I3, I4)	2 (I3, I4)
High-speed counter inputs			2 (I1, I2)	2 (I1, I2)
Maximum counter frequency		kHz	< 1	< 1
Pulse shape			Square	Square
Cable length shielded		m	< 30	< 30
Analog inputs				
Number			2 (I7, I8)	4 (I7, I8, I11, I12)
Potential isolation				
From power supply			No	No
From the digital inputs			No	No
From the outputs			Yes	Yes
Between the inputs			No	No
Input type			DC voltage	DC voltage
Signal range		V DC	0 - 10	0 - 10
Resolution, analog		V	0.01	0.01
Resolution, digital		V	0.01	0.01
Resolution		Bit	10 (value 1 - 1023)	10 (value 0 - 1023)
Input impedance		kΩ	11.2	11.2
Accuracy of actual value				
Two EASY devices		%	± 3	± 3
Within a single device		%	± 2, (I7, I8, I11, I12) ± 0.12 V	± 2, (I7, I8, I11, I12) ± 0.12 V
Conversion time analog/digital		ms	Input delay ON: 20; Input delay OFF: each cycle time	Input delay ON: 20; Input delay OFF: each cycle time
Input current		mA	< 1	< 1
Cable length shielded		m	< 30	< 30

Relay outputs → See technical data, relay outputs

Notes For additional Technical Data EASY5… and EASY7… → AWB2528-1508D, EASY8… → AWB2528-1423D

			EASY512-AB-...	EASY719-AB-...
Power supply				
Rated operational voltage	U_e	V	24 AC	24 AC
Permissible range		V AC	20.4…26.4	20.4…26.4
Frequency		Hz	50/60 (± 5%)	50/60 (± 5%)
Input current				
At 24 V AC 50/60 Hz		mA	Normally 200	Normally 300
Voltage dips (IEC/EN 61131-2)		ms	20	20
Heat dissipation				
At 24 V AC		VA	Normally 5	Normally 7
Digital inputs 24 V DC				
Number			8	12
Inputs can be used as analog inputs			2 (I7, I8)	4 (I7, I8, I11, I12)
Status display			LCD display (if provided)	LCD display (if provided)
Potential isolation				
From power supply			No	No
Between digital inputs			No	No
From the outputs			Yes	Yes
Rated operational voltage	U_e	V	24 AC	24 AC
Rated voltage L (sinusoidal)				
On signal "0"		V AC	0 - 6	0 - 6
On signal "1"	U_e	V	(I7, I8) > 7 AC, > 9.5 DC (I1 - I6) 14 - 26.4 AC	(I7, I8, I11, I12) > 7 AC, > 9.5 DC (I1 - I6, I9, I10) 14 - 26.4 AC
Rated frequency		Hz	50 - 60	50 - 60
Input current on signal "1"				
I1 to I6		mA	4 (at 24 V AC, 50 Hz)	4 (at 24 V AC, 50 Hz)
I7, I8		mA	2 (at 24 V AC, 50 Hz) 2 (at 24 V DC)	2 (at 24 V AC, 50 Hz) 2 (at 24 V DC)
I9, I10		mA	–	4 (At 24 V AC, 50 Hz)
I11, I12		mA	–	2 (at 24 V AC, 50 Hz) 2 (at 24 V DC)
Delay time (0 - 1/1 - 0) I1 - I12				
Debounce ON, 50/60 Hz		ms	80/66⅔	80/66⅔
Debounce OFF, 50/60 Hz		ms	20/16⅔	20/16⅔
Max. admissible cable length (per input)				
Maximum remote installation distance		m	40	40
I9, I10		m	–	Normally 40
Analog inputs				
Number			2 (I7, I8)	4 (I7, I8, I11, I12)
Potential isolation				
From power supply			No	No
From the digital inputs			No	No
From the outputs			Yes	Yes
Between the inputs			No	No
Input type			DC voltage	DC voltage
Signal range		V DC	0 - 10	0 - 10
Resolution, analog		V	0.01	0.01
Resolution, digital		V	0.01	0.01
Resolution		Bit	10 (value 1 - 1023)	10 (value 0 - 1023)
Input impedance		kΩ	11.2	11.2
Accuracy of actual value				
Two EASY devices		%	± 3	± 3
Within a single device		%	± 2, (I7, I8) ± 0.12 V	± 2, (I7, I8, I11, I12) ± 0.12 V
Conversion time analog/digital		ms	Input delay ON: 20; Input delay OFF: each cycle time	Input delay ON: 20; Input delay OFF: each cycle time
Input current		mA	< 1	< 1
Cable length shielded		m	< 30	< 30
Relay outputs			→ See technical data, relay outputs	

Notes For additional technical data EASY5… and EASY7… → AWB2528-1508D, EASY8… → AWB2528-1423D

			EASY410-DC-RE EASY410-DC-TE	EASY512-DC-...	EASY6..-DC-.E	EASY7..-DC-...	EASY7..-DC-...	EASY8..-DC-...
Power supply								
Rated operational voltage	U_e	V	24 DC (-15/+20%)					
Permissible range		V DC	20.4…28.8	20.4…28.8	20.4…28.8	20.4…28.8	20.4…28.8	20.4…28.8
Ripple		%	≦ 5	≦ 5	≦ 5	≦ 5	≦ 5	≦ 5
Input current								
At rated voltage		mA	Normally 140	Normally 80	Normally 140	Normally 140	Normally 140	Normally 140
Voltage dips (IEC/EN 61131-2)		ms	10	10	10	10	10	10
Heat dissipation		W	Normally 3.5	Normally 2	Normally 3.4	Normally 3.5	Normally 3.5	Normally 3.4
Digital inputs 24 V DC								
Number			6	8	12	12	12	12
Inputs can be used as analog inputs			-	2 (I7, I8)	–	4 (I7, I8, I11, I12)	4 (I7, I8, I11, I12)	4 (I7, I8, I11, I12)
Status display			LCD display (if provided)					
Potential isolation								
From power supply			No	No	No	No	No	No
Between digital inputs			No	No	No	No	No	No
From the outputs			Yes	Yes	Yes	Yes	Yes	Yes
From PC interface, memory card, easyNet, easyLink			–	–	–	–	–	Yes
Rated operating voltage	U_e	V DC	24	24	24	24	24	24
On signal "0"	U_e	V DC	< 5 (R1 - R6)	< 5 (I1 - I8)	< 5 (I1 - I12, R1 - R12)	< 5 (I1 - I12, R1 - R12)	< 5 (I1 - I12, R1 - R12)	< 5 (I1 - I6, I9, I10) < 8 (I7, I8, I11, I12)
On signal "1"	U_e	V DC	> 15.0 (R1 - R6)	> 15 (I1 - I6), > 8 (I7, I8)	–	> 15.0 (I1 - I6, I9, I10), > 8.0 (I7, I8, I11, I12)	> 15.0 (I1 - I6, I9, I10), > 8.0 (I7, I8, I11, I12)	> 15.0 (I1 - I6, I9, I10), > 8.0 (I7, I8, I11, I12)
Input current on signal "1"								
R1 - R6 (R12)		mA	3.3 (at 24 V DC)	–	3.3 (at 24 V DC)	–	–	–
I1 to I6		mA	–	3.3 (at 24 V DC)	–	3.3 (at 24 V DC)	3.3 (at 24 V DC)	3.3 (at 24 V DC)
I7, I8		mA	–	2.2 (at 24 V DC)	–	2.2 (at 24 V DC)	2.2 (at 24 V DC)	2.2 (at 24 V DC)
I9, I10		mA	–	–	–	3.3 (at 24 V DC)	3.3 (at 24 V DC)	3.3 (at 24 V DC)
I11, I12		mA	–	–	–	2.2 (at 24 V DC)	2.2 (at 24 V DC)	2.2 (at 24 V DC)
Delay time from 0 to 1								
Debounce ON		ms	20	20	20	20	20	20
Debounce OFF		ms	Normally 0.25 (R1 - R6)	Normally 0.25 (I1 - I8)	Normally 0.25 (R1 - R12)	Normally 0.25 (I1 - I12)	Normally 0.25 (I1 - I12)	Normally 0.1 (I1 - I4), normally 0.25 (I5 - I12)
Delay time from 1 to 0								
Debounce ON		ms	20	20	20	20	20	20
Debounce OFF		ms	–	–	–	–	–	Normally 0.1 (I1 - I4), normally 0.4 (I5, I6, I9, I12), normally 0.2 (I7, I8, I11, I12)
Cable length (unshielded)		m	100	100	100	100	100	100
Frequency counters								
Number			–	2 (I3, I4)	–	2 (I3, I4)	2 (I3, I4)	4 (I1, I2, I3, I4)
Counter frequency		kHz	–	< 1	–	< 1	< 1	< 5
Pulse shape			–	Square	–	Square	Square	Square
Incremental counters								
Number			–	–	–	–	–	2 (I1 + I2, I3 + I4)
Counter frequency		kHz	–	≦ 1	–	≦ 1	≦ 1	≦ 3
Pulse shape			–	–	–	–	–	Square
Counter inputs I1 and I2, I3 and I4			–	–	–	–	–	2
Signal offset			–	–	–	–	–	90°
Mark-to-space ratio			–	–	–	–	–	1:1
High-speed counter inputs								
Number			–	2 (I1, I2)	–	2 (I1, I2)	2 (I1, I2)	4 (I1, I2, I3, I4)
Cable length, shielded		m	–	< 20	–	< 20	< 20	< 20
Counter frequency		kHz	–	< 1	–	< 1	< 1	< 5
Pulse shape			–	Square	–	Square	Square	Square
Cable length (unshielded)		m	–	100	100	100	100	100
Relay outputs			→ See technical data, relay outputs					
Transistor outputs			→ See technical data, transistor outputs					
Notes			For additional technical data EASY5… and EASY7… → AWB2528-1508D, EASY8… → AWB2528-1423D					

		EASY406…-DC-ME	EASY411-DC-ME	EASY512-DC-…	EASY7..-DC-…	EASY8..-DC-…
Analog inputs						
Number		2	6	2 (I7, I8)	4 (I7, I8, I11, I12)	4 (I7, I8, I11, I12)
Potential isolation						
From power supply		No	No	No	No	No
From the digital inputs		No	No	No	No	No
From the outputs		No	No	Yes	Yes	Yes
From PC interface, memory card, easyNet, easyLink		Yes	Yes	No	No	Yes
Input type		DC voltage	DC voltage	DC voltage	DC voltage	DC voltage
Signal range	V DC	0 - 10	0 - 10	0 - 10	0 - 10	0 - 10
Resolution, analog	V	–	–	0.01	0.01	0.01
Resolution, digital	V	–	–	0.01	0.01	0.01
Resolution	Bit	10 (value 0 - 1023)				
Input impedance	kΩ	11.2	11.2	11.2	11.2	11.2
Accuracy of actual value						
Two EASY devices	%	± 3	± 3	± 3	± 3	± 3
Within a single device	%	< ± 3 %	< ± 3 %	± 2, (I7, I8, I11, I12) ± 0.12 V	± 2, (I7, I8, I11, I12) ± 0.12 V	± 2, (I7, I8, I11, I12) ± 0.12 V
Conversion time analog/digital	ms	800	800	Input delay ON: 20; input delay OFF: every cycle time		Each CPU cycle
Input current	mA	< 1	< 1	< 1	< 1	< 1
Cable length shielded	m	< 10	< 10	< 30	< 30	< 30
Analog outputs						
Number		1	2	–	–	1
Potential isolation						
From power supply		No	No	No	No	No
From the digital inputs		No	No	No	No	No
From the digital outputs		No	No	No	No	Yes
easyLink		Yes	Yes	No	No	Yes
Output type		DC voltage	DC voltage	–	–	DC voltage
Signal range						
Signal range min. voltage	V	0	0	–	–	0
Signal range max. voltage	V	10	10	–	–	10
Max. output current	A	0.01	0.01	–	–	0.01
Load resistance		1 kΩ	1 kΩ	–	–	1 kΩ
Overload and short-circuit protection		Yes	Yes	–	–	Yes
Resolution, analog	V DC	0.01	0.01	–	–	0.01
Resolution, digital	Bit	10 (value 0 - 1023)	10 (value 0 - 1023)	–	–	10, (value: 0 – 1023)
Recovery time	µs	–	–	–	–	100
Accuracy						
-25 °C - 55 °C	%	2	2	–	–	2
25C	%	1	1	–	–	1
Conversion time analog/digital	ms	200	200	Input delay ON: 20; input delay OFF: every cycle time		Each CPU cycle
Network easyNet						
Stations	Number	–	–	–	–	Max. 8
Data transfer rate/distance		–	–	–	–	1000 Kbit/s, 6 m 500 Kbit/s, 25 m 250 Kbit/s, 60 m 125 Kbit/s, 125 m 50 Kbit/s, 300 m 20 Kbit/s, 700 m 10 Kbit/s, 1000 m
Potential isolation						
Of the 2 additional inputs		–	–	–	–	Yes
Potential isolation		–	–	–	–	Yes
Electrical isolation between inputs and internal power supply		–	–	–	–	Yes
Potential isolation		–	–	–	–	Yes
Bus termination (first and last station)		–	–	–	–	Yes
Terminal type		–	–	–	–	RJ45, 8 pole

Notes For additional technical data EASY5… and EASY7… → AWB2528-1508D, EASY8… → AWB2528-1423D

			EASY512-AC-R..	EASY618-AC-RE	EASY719-AC-RC.	EASY819-AC-RC.
Power supply						
Rated operational voltage	U_e	V	100/110/115/120/230/240 AC (+10/-15 %)			
Permissible range		V AC	85…264	85…264	85…264	85…264
Frequency		Hz	50/60 (± 5%)	50/60 (± 5%)	50/60 (± 5%)	50/60 (± 5%)
Input current						
At 115/120 V AC 60 Hz		mA	Normally 40	Normally 70	Normally 70	Normally 70
At 230/240 V AC 50 Hz		mA	Normally 20	Normally 35	Normally 35	Normally 35
Voltage dips (IEC/EN 61131-2)		ms	20	20	20	20
Heat dissipation						
At 115/120 V AC		VA	Normally 5	Normally 10	Normally 10	Normally 10
At 115/230 V AC		VA	Normally 5	Normally 10	Normally 10	Normally 10
Digital inputs 115/230 V AC						
Number			8	12	12	12
Status display			LCD display (if provided)			
Potential isolation						
From power supply			No	No	No	No
Between digital inputs			No	No	No	No
From the outputs			Yes	Yes	Yes	Yes
Potential isolation			–	–	–	Yes
Rated voltage L (sinusoidal)						
On signal "0"		V AC	0 - 40	0 - 40	0 - 40	0 - 40
On signal "1"		V AC	79 - 264	79 - 264	79 - 264	79 - 264
Rated frequency		Hz	50 - 60	50 - 60	50 - 60	50 - 60
Input current on signal "1"						
R1 to R12		mA		12 x 0.25 (at 115 V AC, 60 Hz)12 x 0.5 (at 230 V AC, 50 Hz)		
I1 to I6		mA	6 x 0.25 (at 115 V AC, 60 Hz)6 x 0.5 (at 230 V AC, 50 Hz)		6 x 0.25 (at 115 V AC, 60 Hz)6 x 0.5 (at 230 V AC, 50 Hz)	6 x 0.25 (at 115 V AC, 60 Hz)6 x 0.5 (at 230 V AC, 50 Hz)
I7, I8		mA	2 x 4 (at 115 V AC, 60 Hz)2 x 6 (at 230 V AC, 50 Hz)		2 x 4 (at 115 V AC, 60 Hz)2 x 6 (at 230 V AC, 50 Hz)	2 x 4 (at 115 V AC, 60 Hz)2 x 6 (at 230 V AC, 50 Hz)
I9 to I12		mA			4 x 0.25 (at 115 V AC, 60 Hz)4 x 0.5 (at 230 V AC, 50 Hz)	4 x 0.25 (at 115 V AC, 60 Hz)4 x 0.5 (at 230 V AC, 50 Hz)
Delay time						
Delay time (0 - 1/1 - 0) I1 - I6, I9 - I12, R1 - R12						
Debounce ON, 50/60 Hz		ms	80/66⅔	80/66⅔	80/66⅔	80/66⅔
Debounce OFF, 50/60 Hz		ms	20/16⅔	20/16⅔	20/16⅔	20/16⅔
Delay time I7, I8 (1 - 0)						
Debounce ON, 50/60 Hz		ms	160/150	80/66⅔	80/66⅔	120/100
Debounce OFF, 50/60 Hz		ms	100/100	20/16⅔	20/16⅔	40/33⅓
Delay time I7, I8 (0 - 1)						
Debounce ON, 50/60 Hz		ms	80/66⅔	80/66⅔	80/66⅔	80/66⅔
Debounce OFF, 50/60 Hz		ms	20/16⅔	20/16⅔	20/16⅔	20/16⅔
Max. admissible cable length (per input)						
R1 to R12		m	–	Normally 40	–	–
I1 to I6		m	Normally 40	Normally 40	Normally 40	Normally 60
I7, I8		m	Normally 100	Normally 100	Normally 100	Normally 100
I9 to I12		m	–	Normally 40	Normally 40	Normally 60
Relay outputs			→ See technical data, relay outputs			

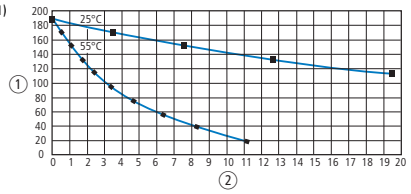
Notes For additional technical data EASY5… and EASY7… → AWB2528-1508D, EASY8… → AWB2528-1423D

			MFD-80..	MFD-CP4...	MFD-AC-CP4.. MFD-AC-CP8..	MFD-CP10.. MFD-CP8..
General						
Standards			EN 61000-6-1/-2/-3/-4, IEC 60068-2-6, IEC 60068-2-27			
Dimensions (W x H x D)		mm	86.5 x 86.5 x 21.5 (with buttons) 86.5 x 86.5 x 20 (without buttons)	75 x 58 x 36.2	107.5 x 90 x 30	107.5 x 90 x 30
Weight		kg	0.13	0.16	0.14	0.14
Mounting			2 x 22.5 mm, display fastened using 2° threaded fixing rings. Wall thickness: without top-hat rail (CPU) 1 – 6 mm with top-hat rail 1 – 4 mm	Plug-fitted to the display fixing shaft	Fitted on the fixing shaft of the display or on top-hat rail according to IEC/EN 60715, 35 mm deep (without display)	Fitted on the fixing shaft of the display or on top-hat rail according to IEC/EN 60715, 35 mm deep (without display)
Terminal capacity						
Solid		mm^2	–	–	0.2/4 (AWG 24 - 12)	0.2/4 (AWG 24 - 12)
Flexible with ferrule		mm^2	–	–	0.2/2.5 (AWG 24 - 12)	0.2/2.5 (AWG 24 - 12)
Flat-blade screwdriver		mm	–	–	3.5 x 0.6	3.5 x 0.6
Max. tightening torque		Nm	–	–	–	–
Ambient climatic conditions						
Operating ambient temperature		°C	-25 - 55, low temperatures to IEC 60068-2-1, high temperatures to IEC 60068-2-2			
Condensation			Prevent condensation by means of suitable measures			
LCD display (clearly legible)		°C	-5 - 50			
Storage		°C	-40 - 70	-40 - 70	-40 - 70	-40 - 70
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95	5 - 95	5 - 95	5 - 95
Air pressure (in operation)		hPa	795 - 1080	795 - 1080	795 - 1080	795 - 1080
Ambient mechanical conditions						
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP65	IP20	IP20	IP20
Vibrations (IEC/EN 60068-2-6)						
Constant amplitude 0.15 mm		Hz	10 - 57	10 - 57	10 - 57	10 - 57
Constant acceleration, 2 g		Hz	57 - 150	57 - 150	57 - 150	57 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Shocks	18	18	18	18
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	1	1	1	1
Mounting position			Vertical or horizontal			

			MFD-80..	MFD-CP4...	MFD-AC-CP4.. MFD-AC-CP8..	MFD-CP10.. MFD-CP8..
Electromagnetic compatibility (EMC)						
Overvoltage category/ pollution degree			–	–	–	–
Electrostatic discharge (ESD), to IEC EN 61000-4-2						
Air discharge		kV	8	8	8	8
Contact discharge		kV	6	6	6	6
Electromagnetic fields (RFI), to IEC EN 61000-4-2		V/m	10	10	10	10
Radio interference suppression			EN 55011 Class B, EN 55022 Class B			
Burst to IEC/EN 61000-4-4						
Supply cables		kV	2	2	2	2
Signal cables		kV	2	2	2	2
High-energy pulses (surge) (IEC/EN 61000-4-5, Level 2)						
Supply cables, symmetrical			–	0.5	1	0.5
Radiated RFI, to IEC/EN 61000-4-6		V	10	10	10	10
Insulation resistance						
Clearance in air and creepage distances			EN 50178, UL 508, CSA C22.2, No. 142			
Insulation resistance			EN 50178			
Back-up/accuracy of the real-time clock						
Back-up time			–	–	1)	1)
Accuracy of the real-time clock at 55 °C		s/day	–	–	Normally ±5 s/day (±0.5 h/Year)	Normally ±5 s/day (±0.5 h/Year)
Repetition accuracy of timing relays						
Accuracy of timing relay (of value)		%	–	–	± 0.02	± 0.02
Resolution						
Range "S"		ms	–	–	5	5
Range "M:S"		s	–	–	1	1
Range "H:M"		min	–	–	1	1
Retentive memory						
Write cycles of the retentive memory (minimum)			–	–	10^{10} (read/write cycles)	10^{10} (read/write cycles)

Notes For additional technical data EASY5... and EASY7... → AWB2528-1508D, EASY8... → AWB2528-1423D

1)



① Backup time (hours)
② Service life (years)

			MFD-CP4..	MFD-CP8.. MFD-CP10..	MFD-AC-CP4.. MFD-AC-CP8..
Power supply					
Rated operational voltage	U_e	V	24 DC (-15/+20 %)	24 DC (-15/+20 %)	100/110/115/120//230/240 AC (+10/-15 %)
Permissible range		V AC			85…264
Permissible range		V DC	20.4…28.8	20.4…28.8	
Ripple		%	≤ 5	≤ 5	–
Frequency		Hz	–	–	50/60 (± 5%)
Input current					
At 115/120 V AC 60 Hz		mA	–	–	Normally 90
At 230/240 V AC 50 Hz		mA	–	–	Normally 60
At 24 V DC		mA	Normally 185	Normally 200	–
Voltage dips (IEC/EN 61131-2)		ms	10	10	10
Heat dissipation					
At 115/120 V AC		VA	–	–	Normally 11
At 230/240 V AC		VA	–	–	Normally 15
At 24 V DC		W	1.5	3.4	–
Point-to-point connection					
Stations			1	–	–
Baud rate					
easy500, easy700		MBit/s	9.6 kBaud	–	–
easy800, MFD, EC4P			19.2 kBaud	–	–
Distance		m	Max. 5	Max. 5	Max. 5
Potential isolation					
From power supply			Yes	–	–
From the connected device			Yes	–	–
Terminal type			Spring-loaded terminals	–	–
Power pulses					
Stations		Number	Max. 1	Max. 8	Max. 8
Data transfer rate/distance			–	1000 Kbit/s, 6 m 500 Kbit/s, 25 m 250 Kbit/s, 40 m 125 Kbit/s, 125 m 50 Kbit/s, 300 m 20 Kbit/s, 700 m 10 Kbit/s, 1000 m	1000 Kbit/s, 6 m 500 Kbit/s, 25 m 250 Kbit/s, 40 m 125 Kbit/s, 125 m 50 Kbit/s, 300 m 20 Kbit/s, 700 m 10 Kbit/s, 1000 m
Potential isolation					
From power supply			–	Yes	Yes
From the inputs			–	–	Yes
From the outputs			–	Yes	Yes
From PC interface, memory card, easyNet, easyLink			–	Yes	Yes
Bus termination (first and last station)			–	Yes	Yes
Terminal type			–	RJ45, 8 pole	RJ45, 8 pole

			MFD-R16 MFD-RA17	MFD-AC-R16	MFD-T16 MFD-TA17	MFD-T.P..
General						
Standards			EN 61000-6-1/-2/-3/-4, IEC/EN 61000-4, IEC 60068-2-6, IEC 60068-2-27	EN 61000-6-1/-2/-3/-4, IEC/EN 61000-4, IEC 60068-2-6, IEC 60068-2-27	EN 61000-6-1/-2/-3/-4, IEC/EN 61000-4, IEC 60068-2-6, IEC 60068-2-27	EN 61000-6-1/-2/-3/-4, IEC 60068-2-6, IEC 60068-2-27
Dimensions (W x H x D)		mm	89 x 90 x 44	89 x 90 x 44	89 x 90 x 25 (built-in)	89 x 90 x 25 (built-in)
Weight		kg	0.15	0.15	0.14	0.14
Mounting			Fitted into the power supply unit.			
Terminal capacity						
Solid		mm^2	0.2/4 (AWG 24 - 12)	0.2/4 (AWG 24 - 12)	0.2/4 (AWG 24 - 12)	0.2/4 (AWG 24 - 12)
Flexible with ferrule		mm^2	0.2/2.5 (AWG 24 - 12)	0.2/2.5 (AWG 24 - 12)	0.2/2.5 (AWG 24 - 12)	0.2/2.5 (AWG 24 - 12)
Flat-blade screwdriver		mm	3.5 x 0.6	3.5 x 0.6	3.5 x 0.6	3.5 x 0.6
Power supply						
Solid		mm^2	–	–	–	–
Flexible with ferrule		mm^2	–	–	–	–
Flat-blade screwdriver		mm	–	–	–	–
Data cable						
Solid		mm^2	0.08/2.5 (AWG 28 - 12)	0.08/2.5 (AWG 28 - 12)	0.08/2.5 (AWG 28 - 12)	0.08/2.5 (AWG 28 - 12)
Flexible with ferrule		mm^2	0.08/1.5 (AWG 28 - 12)	0.08/1.5 (AWG 28 - 12)	0.08/1.5 (AWG 28 - 12)	0.08/1.5 (AWG 28 - 12)
Ambient climatic conditions						
Operating ambient temperature		°C	-25 - 55, low temperatures to IEC 60068-2-1, high temperatures to IEC 60068-2-2			
Condensation			Prevent condensation by means of suitable measures			
LCD display (clearly legible)		°C				
Storage		°C	-40 - 70	-40 - 70	-40 - 70	-40 - 70
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95	5 - 95	5 - 95	5 - 95
Air pressure (in operation)		hPa	795 - 1080	795 - 1080	795 - 1080	795 - 1080
Ambient mechanical conditions						
Pollution degree			2	2	2	2
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20	IP20	IP20	IP20
Vibrations (IEC/EN 60068-2-6)						
Constant amplitude 0.15 mm		Hz	10 - 57	10 - 57	10 - 57	10 - 57
Constant acceleration, 2 g		Hz	57 - 150	57 - 150	57 - 150	57 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Shocks	18	18	18	18
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	1	1	1	1
Mounting position			Vertical or horizontal			
Electromagnetic compatibility (EMC)						
Electrostatic discharge (ESD), to IEC EN 61000-4-2						
Air discharge		kV	8	8	8	8
Contact discharge		kV	6	6	6	6
Electromagnetic fields (RFI), to IEC EN 61000-4-2		V/m	10	10	10	10
Radio interference suppression			EN 55011 Class B, EN 55022 Class B			
Burst to IEC/EN 61000-4-4						
Supply cables		kV	2	2	2	2
Signal cables		kV	2	2	2	2
Power pulses (surge) (IEC/EN 61000-4-5)		kV	2 (supply cables, symmetrical)	2 (supply cables, symmetrical)	2 (supply cables, symmetrical)	2 (supply cables symmetrical, MFD-AC-CP8..)
Power pulses (surge), to IEC/EN 61000-4-5		kV	0.5 (supply cables, symmetrical)	0.5 (supply cables, symmetrical)	0.5 (supply cables, symmetrical)	0.5 (supply cables, symmetrical, MFD-CP8..)
Radiated RFI, to IEC/EN 61000-4-6		V	10	10	10	10
Insulation resistance						
Clearance in air and creepage distances			EN 50178, UL 508, CSA C22.2, No. 142			
Insulation resistance			EN 50178			

			MFD-R16 MFD-RA17	MFD-T16 MFD-TA17	MFD-T...P...	MFD-AC-R16
Digital inputs 24 V DC						
Number			12	12	6	
Inputs can be used as analog inputs			4 (I7, I8, I11, I12)	4 (I7, I8, I11, I12)	2 (I11, I12)	
Potential isolation						
From power supply			No	No	No	
Between digital inputs			No	No	No	
From the outputs			Yes	Yes	Yes	
From PC interface, memory card, easy NET, easyLink			Yes	Yes	Yes	
Rated operating voltage	U_e	V DC	24	24	24	
On signal "0"	U_e	V DC	< 5.0 (I1 - I6, I9 - I10), < 8 (I7, I8, I11, I12)	< 5.0 (I1 - I6, I9 - I10), < 8 (I7, I8, I11, I12)	< 5.0 (I1 - I4), < 8.0 (I11, I12)	
On signal "1"	U_e	V DC	> 15.0 (I1 - I6, I9 - I10), > 8.0 (I7, I8, I11, I12)	> 15.0 (I1 - I6, I9 - I10), > 8.0 (I7, I8, I11, I12)	>15.0 (I1 - I4), > 8.0 (I11, I12)	
Input current on signal "1"						
I1 to I6		mA	3.3 (at 24 V DC)	3.3 (at 24 V DC)	–	
I1 to I4		mA	–	–	3.3 (at 24 V DC)	
I7, I8		mA	2.2 (at 24 V DC)	2.2 (at 24 V DC)	–	
I9, I10		mA	3.3 (at 24 V DC)	3.3 (at 24 V DC)	–	
I11, I12		mA	2.2 (at 24 V DC)	2.2 (at 24 V DC)	2.2 (at 24 V DC)	
Delay time from 0 to 1						
Debounce ON		ms	20	20	20	
Debounce OFF		ms	Normally 0.1 (I1 - I4), normally 0.25 (I5 - I12)			
Delay time from 1 to 0						
Debounce ON		ms	20	20	20	
Debounce OFF		ms	Normally 0.1 (I1 - I4), normally 0.4 (I5, I6, I9, I10), normally 0.2 (I7, I8, I11, I12)	Normally 0.1 (I1 - I4), normally 0.4 (I5, I6, I9, I10), normally 0.2 (I7, I8, I11, I12)	Normally 0.1 (I1 - I4), normally 0.2 (I11, I12)	
Cable length (unshielded)		m	100	100	100	
Frequency counters						
Number			4 (I1, I2, I3, I4)	4 (I1, I2, I3, I4)	4 (I1, I2, I3, I4)	
Counter frequency		kHz	< 3	< 3	< 3	
Pulse shape			Square	Square	Square	
Incremental counters						
Number			2 (I1 + I2, I3 + I4)	2 (I1 + I2, I3 + I4)	2 (I1 + I2, I3 + I4)	
Counter frequency		kHz	≦ 3	≦ 3	≦ 3	
Pulse shape			Square	Square	Square	
Signal offset			90°	90°	90°	
High-speed counter inputs						
Number			4 (I1, I2, I3, I4)	4 (I1, I2, I3, I4)	4 (I1, I2, I3, I4)	
Counter frequency		kHz	< 3	< 3	< 3	
Pulse shape			Square	Square	Square	
Cable length, shielded		m	< 20	< 20	< 20	
Digital inputs 115/230 V AC						
Number						12
Status display						LCD display (if provided)
Potential isolation						
From power supply						No
Between digital inputs						No
From the outputs						Yes
From PC interface, memory card, easyNet, easyLink						Yes
Rated voltage L (sinusoidal)						
On signal "0"		V AC				0 - 40
On signal "1"		V AC				79 - 264
Rated frequency		Hz				50 - 60
Input current on signal "1"						
I1 to I12		mA				12 x 0.2 (at 115 V AC, 60 Hz), 12 x 0.5 (at 230 V AC, 50 Hz)
Delay time						
Delay time (0 - 1/1 - 0) I1 - I12, 50/60 Hz						10/100
Max. admissible cable length (per input)						
I1 to I12		m				Normally 60

		MFD-R... MFD-T...			MFD-RA17 MFD-TA17	MFD-TAP
Analog inputs			**Analog outputs**			
Number		4 (I7, I8, I11, I12) 2 (I11, I12) for MFD-T(A)P	Number		1	1
Potential isolation			Potential isolation			
From power supply		No	From power supply		No	No
From the digital inputs		No	From the digital inputs		No	No
From the outputs		Yes	From the digital outputs		Yes	Yes
From PC interface, memory card, easyNet, easyLink		Yes	From PC interface, memory card, easyNet, easyLink		Yes	Yes
Input type		DC voltage	Output type		DC voltage	DC voltage
Signal range	V DC	0 - 10	Signal range	V DC	0 - 10	0 - 10
Resolution, analog	V	0.01	Max. output current	A	0.01	0.01
Resolution, digital	V	0.01	Load resistance	kΩ	1	1
Resolution	Bit	10 (value 0 - 1023)	Overload and short-circuit protection		Yes	Yes
Input impedance	kΩ	11.2	Resolution, analog	V DC	0.01	0.01
Accuracy of actual value			Resolution, digital	Bit	10 (value 0 - 1023)	12 (value 0 - 4095) at QA01, MD
Two MFD devices	%	± 3	Resolution, digital	V DC	–	0.1, 0.01, 0.001 at MD
Within a single device	%	± 2 %	Recovery time	µs	100	100
Conversion time analog/digital	ms	Each CPU cycle	Accuracy			
Input current	mA	< 1	-25 °C - 55 °C	%	2	2
Cable length shielded	m	< 30	25C	%	1	1
			Conversion time, analog/digital	ms	Each CPU cycle	Each CPU cycle

		MFD-TP, MFD-TAP
Analog input temperature resistance Pt100 or Ni1000 sensors		
Number		2 x Pt 100 or 2 x Ni1000 (according to part no.)
Input type resistance sensor		
Platinum sensor Pt100 according to DIN EN 60751, IEC 751		MFD-TP12-PT...
Nickel sensor Ni1000 according to DIN 43760		MFD-TP12-NI...
Temperature range		
Pt100, range A, selectable	°C, (°F)	-40 - +90, (-40 - 194); 0 - 250, (32 - 482); 0 - 400, (32 - 752)
Ni1000, range A, selectable	°C, (°F)	-40 - +90, (-40 - 194); 0 - 250, (32 - 482)
Pt100, range B	°C, (°F)	-0 - +8500, (32 - 1562); -200 - 200, (-328 - 392)
Potential isolation		
From power supply		No
From the digital inputs		No
From the outputs		Yes
From PC interface, memory card, easyNet, easyLink		Yes
Resolution digital, scaling per sensor		
With operands "IA" and "MD", selectable under scaling	Bit	12 (0 - 4095)
With operand "MD", selectable under scaling	°C, (°F)	1, 0.1, (1), (0.1)
Measurement value resolution analog/digital	Bit	Depending upon the scaling
Measuring current	mA	< 1.6
Damage limit (in the case of a wiring error)		Apply external voltage
Measurement method		Two or three wire per sensor, selectable by connection of sensor
Accuracy (without EMC interference)		
Two MFD devices one above the other	%	Normally 1; maximal 1.6 (Pt), 1.2 (Ni)
Pt100 RTD (offset error, linearity error, repetition accuracy, temperature dependency of the device included)	%	± 0.8 of measurement range
Ni1000 RTD (offset error, linearity error, repetition accuracy, temperature dependency of the device included)	%	± 0,6 of measurement range
Conversion time analog/digital		
Without sampling time setting, selectable per sensor	ms	200
With sampling time (adjustable), selectable per sensor	ms	200 - 65535
Additional measurement aids		
Filtering (software), analog input signal smoothing (Pt1 characteristic), only with set sampling time, selectable for each detector		Yes
Filter for suppression of certain frequencies and their multiples	Hz	50, 60, 250, 500
Diagnostics		
Card diagnostic		Yes
Wire break diagnostic per sensor		Yes
Wire break diagnostic per sensor		Yes
Below lower measurement range		Yes
Upper measuring range limit of sensor exceeded		Yes
Cable length shielded	m	< 10

			EASY4...-DC-ME	EASY512-DC-T..	EASY410-DC-TE EC4E-221-DT...
Transistor outputs					
Number			2	4	4
Rated operating voltage	U_e	V DC	24	24	24
Permissible range	U_e	V DC	20.4 - 28.8	20.4 - 28.8	20.4 - 28.8
Ripple		%	≦ 5	≦ 5	≦ 5
Supply current					
On signal "0"	Normally/ max.	mA	24V/2A	9/16	9/16
On signal "1"	Normally/ max.	mA	12/22	12/22	12/22
Protection against polarity reversal			Yes (Caution: A short circuit will result if 0 V or GND is applied to the outputs in the event that the supply voltage is connected to the wrong poles.)		
Potential isolation					
Potential isolation from power supply, inputs			No	Yes	Yes
From PC interface, memory card, easyNet, easyLink			Yes	Yes	Yes
From the inputs			–	–	–
Rated operational current on signal "1" DC	I_e	A	1	Max. 0.5	Max. 0.5
Lamp load without R_v		W	5	5	5
Residual current on signal "0" per channel		mA	< 0.1	< 0.1	< 0.1
Max. output voltage					
On "0" at external load < 10 MΩ		V	2.5	2.5	2.5
On "1" at I_e = 0.5 A		V	$U = U_e$ -1 V	$U = U_e$ -1 V	$U = U_e$ -1 V
Short-circuit protection			Yes, thermal (analysis via diagnostics input R16)	Yes, thermal (analysis via diagnostics input I16, I15; R15, R16)	Yes, thermal (analysis via diagnostics input R16)
Short-circuit tripping current for R_a ≦ 10 mΩ		A	$1.4 \leqq I_e \leqq 4$	$0.7 \leqq I_e \leqq 2$ per output	$0.7 \leqq I_e \leqq 2$ per output
Total short-circuit current		A	8	8	8
Peak short-circuit current		A	16	16	16
Thermal cutout			Yes	Yes	Yes
Max. operating frequency at constant resistive load R_L < 100 kΩ (dependent on program and load)		Ops/h	40000	40000	40000
Parallel connection of outputs					
With resistive load, inductive load with external suppressor circuit, combination within a group			Q1 and Q2	Group 1: Q1 to Q4	Group 1: Q1 to Q4
Number of outputs	Max.		2	4	4
Max. total current		A	2 (Attention! Outputs must be activated simultaneously and for the same duration)		
Status indication of the outputs			LCD display (if provided)		
Inductive load to EN 60947-5-1					
Without external suppressor circuit					
$T_{0.95}$ = 1 ms, R = 48 Ω, L = 16 mH					
Utilization factor		g	0.25	0.25	0.25
Duty factor		% DF	100	100	100
Max. operating frequency f = 0.5 Hz (max. ED = 50 %)		Operations	1500	1500	1500
DC-13, $T_{0.95}$ = 72 ms, R = 48 Ω, L = 1.15 H					
Utilization factor		g	0.25	0.25	0.25
Duty factor		% DF	100	100	100
Max. operating frequency f = 0.5 Hz (max. ED = 50 %)		Operations	1500	1500	1500
$T_{0.95}$ = 15 ms, R = 48 Ω, L = 0.24 H					
Utilization factor		g	0.25	0.25	0.25
Duty factor		% DF	100	100	100
Max. operating frequency f = 0.5 Hz (max. ED = 50 %)		Operations	1500	1500	1500
With external suppressor circuit					
Utilization factor		g	1	1	1
Duty factor		% DF	100	100	100
Max. switching frequency, max. duty factor		Operations	Depending on the suppressor circuit		

Notes For additional technical data EASY5... and EASY7... → AWB2528-1508D, EASY8... → AWB2528-1423D, MFD-Titan →AWB2528-1480D

EASY620-DC-TE	EASY721-DC-T..	EASY8..-DC-T..	MFD-T..
8	8	8	4
24	24	24	24
20.4 - 28.8	20.4 - 28.8	20.4 - 28.8	20.4 - 28.8
≦ 5	≦ 5	≦ 5	≦ 5
18/32	18/32	18/32	18/32
24/44	24/44	24/44	24 /44
Yes (Caution: A short circuit will result if 0 V or GND is applied to the outputs in the event that the supply voltage is connected to the wrong poles.)			
Yes	Yes	Yes	Yes
Yes	Yes	Yes	–
–	–	Yes	Yes
Max. 0.5	Max. 0.5	Max. 0.5	Max. 0.5
5	5	3 (Q1 - Q4) 5 (Q5 - Q8)	5 (Q1 - Q4)
< 0.1	< 0.1	< 0.1	< 0.1
2.5	2.5	2.5	2.5
$U = U_e$ -1 V	$U = U_e$ -1 V	$U = U_e$ -1 V	$U = U_e$ -1 V
Yes, thermal (analysis via diagnostics input I16, I15; R15, R16)	Yes, thermal (analysis via diagnostics input I16, I15; R15, R16)	Yes, electronic (Q1 – Q4), thermal (Q5 – Q8), (analysis via diagnostics input I16, I15)	Thermal (Q1 – Q4), (analysis via diagnostics input I16)
$0.7 \leqq I_e \leqq 2$	$0.7 \leqq I_e \leqq 2$ per output	$0.7 \leqq I_e \leqq 2$ per output	$0.7 \leqq I_e \leqq 2$ per output
16	16	16	8
32	32	32	16
Yes	Yes	Yes	Yes
40000	40000	40000	40000
Group 1: S1 - S4 Group 2: S5 - S8	Group 1: Q1 to Q4 Group 2: Q5 to Q8	Group 1: Q1 to Q4 Group 2: Q5 to Q8	Group 1: Q1 to Q4
4	4	4	4
2 (Attention! Outputs must be activated simultaneously and for the same duration)			
LCD display (if provided)			
0.25	0.25	0.25	0.25
100	100	100	100
1500	1500	1500	1500
0.25	0.25	0.25	0.25
100	100	100	100
1500	1500	1500	1500
0.25	0.25	0.25	0.25
100	100	100	100
1500	1500	1500	1500
1	1	1	1
100	100	100	100
Depending on the suppressor circuit			

				EASY202-RE	EASY410-DC-RE EASY512-..-R.. MFD-R.. MFD-AC-R..	EASY618/719-..-R.. EASY8..-...-R...
Relay outputs						
Number				2	4	6
Outputs in groups of				2	1	1
Parallel switching of outputs to increase performance				Not permissible	Not permissible	Not permissible
Protection of an output relay				Miniature circuit-breaker B16 or fuse 8 A (slow)		
Potential isolation						
From power supply				Yes	Yes	Yes
From the inputs				Yes	Yes	Yes
Electrical isolation in groups				Yes	Yes	Yes
Safe isolation according to EN 50178			V AC	300	300	300
Basic insulation			V AC	600	600	600
Lifespan, mechanical	Operations		x 10^6	10	10	10
Contacts						
Conventional thermal current (10 A UL)			A	8	8	8
Recommended for load: 12 V AC/DC			mA	> 500	> 500	> 500
Short-circuit proof p.f. = 1, characteristic B16 at 600 A			A	16	16	16
Short-circuit proof p.f. = 0.5 - 0.7; characteristic B16 at 900 A			A	16	16	16
Rated impulse withstand voltage U_{imp} contact coil			kV	6	6	6
Rated operating voltage	U_e		V AC	250	250	250
Rated insulation voltage	U_i		V AC	250	250	250
Safe isolation to EN 50178 between coil and contact			V AC	300	300	300
Safe isolation to EN 50178 between two contacts			V AC	300	300	300
Making capacity						
AC-15, 230 V AC, 3 A	Operations			300000	300000	300000
DC-13, 24 V DC, 5 A, 0.1 Hz	Operations			200000	200000	200000
Breaking capacity						
AC--15, 250 V AC, 3 A (600 ops./h)	Operations			300000	300000	300000
DC-13, L/R ≦ 150 ms, 24 V DC, 1 A (500 S/h)	Operations			200000	200000	200000
Filament bulb load						
1000 W at 230/240 V AC	Operations			25000	25000	25000
500 W at 115/120 V AC	Operations			25000	25000	25000
Fluorescent lamp load						
Fluorescent lamp load 10 x 58 W at 230/240 V AC						
With upstream electrical device	Operations			25000	25000	25000
Uncompensated	Operations			25000	25000	25000
Fluorescent lamp load 1 x 58 W at 230/240 V AC, conventionally compensated	Operations			25000	25000	25000
Switching frequency						
Mechanical operations			x 10^6	10	10	10
Switching frequency			Hz	10	10	10
Resistive load/lamp load			Hz	2	2	2
Inductive load			Hz	0.5	0.5	0.5
UL/CSA						
Continuous current at 240 V AC			A	10	10	10
Continuous current at 24 V DC			A	8	8	8
AC						
Control circuit rating codes (utilization category)				B 300 Light Pilot Duty		
Max. rated operational voltage			V AC	300	300	300
Max. thermal continuous current p.f. = 1 at B 300			A	5	5	5
Max. make/break p.f. ≠ capacity 1 at B 300			VA	3600/360	3600/360	3600/360
DC						
Control circuit rating codes (utilization category)				R 300 Light Pilot Duty		
Max. rated operational voltage			V DC	300	300	300
Max. thermal continuous current at R 300			A	1	1	1
Max. make/break capacity at R 300			VA	28/28	28/28	28/28

Notes For additional technical data EASY5... and EASY7... → AWB2528-1508D, EASY8... → AWB2528-1423D, MFD → AWB2528-1480D

			EASY205-ASI EASY204-DP	EASY221-CO EASY222-DN
General				
Standards			EN 55011, EN 55022, IEC/EN 61000-4, IEC 62026	EN 55011, EN 55022, IEC/EN 61000-4, EN 50325
			EN 55011, EN 55022, IEC/EN 61000-4, IEC 61158	EN 55011, EN 55022, IEC/EN 61000-4, IEC 62026
Dimensions (W x H x D)		mm	35.5 x 90 x 58 (2 space units)	35.5 x 90 x 58 (2 space units)
Weight		kg	0.12 0.15	0.15
Mounting			Top-hat rail IEC/EN 60715, 35 mm or screw fixing using fixing brackets ZB4-101-GF1 (accessories).	
Terminal capacity				
Solid		mm^2	0.2 - 4 (AWG 22 - 12)	0.2 - 4 (AWG 22 - 12)
Flexible with ferrule		mm^2	0.2 - 2.5 (AWG 22 - 12)	0.2 - 2.5 (AWG 22 - 12)
Flat-blade screwdriver		mm	3.5 x 0.8	3.5 x 0.8
Max. tightening torque		Nm	0.6	0.6
Ambient climatic conditions				
Operating ambient temperature		°C	-25…55, low temperatures to IEC 60068-2-1, high temperatures to IEC 60068-2-2	
Condensation			Prevent condensation by means of suitable measures	
Storage		°C	-40 - 70	-40 - 70
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95	5 - 95
Air pressure (in operation)		hPa	795 - 1080	795 - 1080
Ambient mechanical conditions				
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20	IP20
Vibrations (IEC/EN 60068-2-6)				
Constant amplitude 0.15 mm		Hz	10 - 57	10 - 57
Constant acceleration, 2 g		Hz	57 - 150	57 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Shocks	18	18
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	1	1
Mounting position			Vertical or horizontal	Vertical or horizontal
Electromagnetic compatibility (EMC)				
Overvoltage category/pollution degree			II/2	II/2
Electrostatic discharge (ESD), to IEC EN 61000-4-2				
Air discharge		kV	8	8
Contact discharge		kV	6	6
Electromagnetic fields (IEC/EN 61000-4-3, RFI)	V/m		10	10
Radio interference suppression			EN 55011 Class B, EN 55022 Class B	
Burst to IEC/EN 61000-4-4				
AS-Interface cables		kV	2	–
Supply cables		kV	–	2
Signal cables		kV	–	2
Power pulses (surge), to IEC/EN 61000-4-5		kV	– 0.5 (supply cables, symmetrical)	0.5 (supply cables, symmetrical)
Radiated RFI, to IEC/EN 61000-4-6		V	10	10
Insulation resistance				
Clearance in air and creepage distances			EN 50178, UL 508, CSA C22.2, No. 142	
Insulation resistance			EN 50178	EN 50178

			EASY205-ASI	EASY204-DP	EASY221-CO	EASY222-DN
Power supply						
Rated operational voltage	U_e	V	26.5 - 31.6	24 (-15/+20 %)	24 (-15/+20 %)	24 (-15/+20 %)
Permissible range		V DC		20.4…28.8	20.4…28.8	20.4…28.8
Total power consumption of the AS interface		mA	≦ 30	–	–	–
Ripple		%	–	≦ 5	≦ 5	≦ 5
Max. current consumption (at 24 V DC)		mA	–	Normally 200	Normally 200	Normally 200
Voltage dips (IEC/EN 61131-2)		ms	–	10	10	10
Heat dissipation at 24 V DC		W	–	4.8	4.8	4.8
Protection against polarity reversal						
AS-Interface protection against polarity reversal			Yes	–	–	–
AS-Interface profile			7F (hex)	–	–	–
Slave address			0 - 31			
Addressing unit interface			3.5 mm socket	–	–	–
Power supply			–	Yes	Yes	Yes
LED indicators						
Supply			Power: green	Power LED (POW): green	RUN LED (RUN): green	Module status LED (MS): green
LED display			Com Error: red	LED PROFIBUS-DP (BUS): red	LED ERROR (ERR): red	Network status LED (NS): red/green
I/O addresses						
easy700/easy800 contact and coil ↔ AS-Interface			S1 → input 0 S2 → input 1 S3 → input 2 S4 → input 3 R1 ← outputs 0 R2 ← outputs 1 R3 ← outputs 2 R4 ← outputs 3 R5 ← PARAMETEROUTPUT 0 R6 ← PARAMETEROUTPUT 1 R7 ← PARAMETEROUTPUT 2 R8 ← PARAMETEROUTPUT 3	–	–	–
Network						
Terminal type			–	SUB-D 9 pole, socket	RJ45	5 pole, pluggable screw terminal
Potential isolation			–	Between bus and power supply (simple), between bus and power supply and easy base unit (safe isolation)		
Function			–	PROFIBUS-DP slave	CANopen slave	DeviceNet slave
Interface			–	RS485	CAN	CAN
Bus protocol			AS-Interface	PROFIBUS-DP	CANopen	DeviceNet
Baud rates			–	Automatic search up to 12 MBit/s	Automatic search up to 1 MBit/s	Automatic search up to 500 kBit/s
Bus terminating resistors			–	Can be connected via plug	Separate external bus termination required (120 Ω)	Separate external bus termination required (120 Ω)
Bus addresses			–	1 - 126 can be addressed via easy base unit with display or via EASY-SOFT	1 - 127 can be addressed via easy basic units with display or via easySoft	0 - 63 can be addressed via easy basic units with display or via easySoft
Services						
Cyclical			–	All data R1 - R16, S1 - S8		
Acyclical			–	Read/write, time, day, daylight saving time All parameters of the EASY function relay		

			EASY209-SE	EASY256-HCI
General				
Standards			EN 55011, EN 55022, IEC/EN 61000-4, EN 50178	
Dimensions (W x H x D)		mm	35.5 x 90 x 58 (2 space units)	35.5 x 90 x 58 (2 space units)
Weight		kg	0.15	0.15
Mounting			Top-hat rail IEC/EN 60715, 35 mm or screw fixing using fixing brackets ZB4-101-GF1 (accessories).	
Channels		Number	–	6
Voltage range for U_e				0 - 264
Current increase 115/230 V AC		mA	–	4/6
Delay time		ms	–	40/37
Cable length		m	–	100
Parallel switching of outputs to increase performance			–	Several possible (Off-delay extended depending on the number of parallel channels)
Type of resistance			–	Capacitive
Terminal capacity				
Solid		mm^2	0.2 - 4 (AWG 22 - 12)	0.2 - 4 (AWG 22 - 12)
Flexible with ferrule		mm^2	0.2 - 2.5 (AWG 22 - 12)	0.2 - 2.5 (AWG 22 - 12)
Flat-blade screwdriver		mm	3.5 x 0.8	3.5 x 0.8
Max. tightening torque		Nm	0.6	0.6
Data cable				
Solid		mm^2	0.25/1.5 (AWG 24/16)	–
Flexible with ferrule		mm^2	0.14/ 1 (AWG 26/17)	–
Ambient climatic conditions				
Operating ambient temperature		°C	-25…55	-25…55, low temperatures to IEC 60068-2-1, high temperatures to IEC 60068-2-2
Condensation			Prevent condensation by means of suitable measures	
Storage		°C	-40 - 70	-40 - 70
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95	5 - 95
Air pressure (in operation)		hPa	795 - 1080	795 - 1080
Ambient mechanical conditions				
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20	IP20
Vibrations (IEC/EN 60068-2-6)				
Constant amplitude 0.15 mm		Hz	10 - 57	10 - 57
Constant acceleration, 2 g		Hz	57 - 150	57 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Shocks	18	18
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	1	1
Mounting position			Vertical or horizontal	
Electromagnetic compatibility (EMC)				
Overvoltage category/pollution degree			II/2	II/2
Electrostatic discharge (ESD), to IEC EN 61000-4-2				
Air discharge		kV	8	8
Contact discharge		kV	6	6
Electromagnetic fields (IEC/EN 61000-4-3, RFI)	V/m		RS-232 line unshielded: 3, shielded: 10	10
Radio interference suppression			EN 55011 Class B, EN 55022 Class B	
Burst to IEC/EN 61000-4-4				
AS-Interface cables		kV	–	–
Supply cables		kV	2	–
Signal cables		kV	–	–
Ethernet interface cable		kV	2	–
COM interface cable		kV	2	–
Power pulses (surge), to IEC/EN 61000-4-5		kV	1 (supply cables, symmetrical)	2 (supply cables, symmetrical, EASY…DC)
Radiated RFI, to IEC/EN 61000-4-6		V	RS-232 line unshielded: 3, shielded: 10	10
Insulation resistance				
Clearance in air and creepage distances			EN 50178, UL 508, CSA C22.2, No. 142	
Insulation resistance			EN 50178	EN 50178

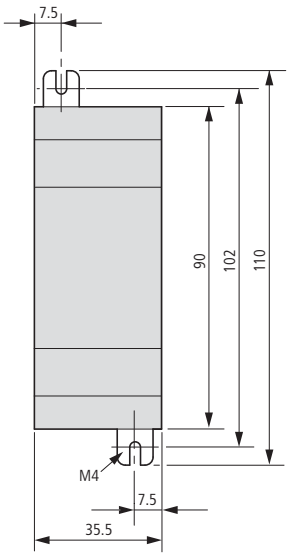
			EASY209-SE
Power supply			
Rated operational voltage	U_e	V	24 (-15/+20 %)
Permissible range		V DC	20.4…28.8
Ripple		%	≤ 5
Max. current consumption (at 24 V DC)		mA	Normally 65
Voltage dips (IEC/EN 61131-2)		ms	–
Heat dissipation at 24 V DC		W	1.7
Protection against polarity reversal			
Power supply			Yes
LED indicators			
Supply			Front-LED Power: ON
LED display			Front-LED COM active: flashes
RJ-45 socket, top			No Activity: OFF, Amber: Half Duplex, Green: Full Duplex
RJ-45 socket, bottom			No Link: OFF, Amber: 10 MBit/s, Green: 100 MBit/s
Gateway ready for operation			–
Power supply SmartWire (contactor)			–
Network Status (easyNet/CANopen)			–
Status SmartWire		LED	–
Reset			Front: per pushbuttons > 2s
Strain relief			By cable tie in fastener
Network			
Terminal type			–
Potential isolation			–
Bus protocol			–
Bus terminating resistors			–
Bus addresses			Default settings Ethernet: IP adress 0.0.0.0 SUBNET screen: 255.255.0.0 coupling unit address 0.0.0.0 remote address 0.0.0.0

			EASY200-POW	EASY400-POW EASY430-POW	EASY500-POW	EASY600-POW
General						
Standards			EN 55011, EN 55022, IEC/EN 61000-4, IEC 60068-2-6, IEC 60068-2-27, EN 61000-6-2			
Dimensions (W x H x D)		mm	35.5 x 90 x 58 (2 space units)	71.5 x 90 x 58 (4 space units)	71.5 x 90 x 58 (4 space units)	107.5 x 90 x 58 (6 space units)
Weight		kg	0.1	0.25	0.28	0.3
Mounting			Top-hat rail IEC/EN 60715, 35 mm or screw fixing using fixing brackets ZB4-101-GF1 (accessories).			
Terminal capacity						
Solid		mm^2	0.2 - 4 (AWG 22 - 12)			
Flexible with ferrule		mm^2	0.2 - 2.5 (AWG 22 - 12)			
Flat-blade screwdriver		mm	3.5 x 0.8	3.5 x 0.8	3.5 x 0.8	3.5 x 0.8
Max. tightening torque		Nm	0.6	0.6	0.6	0.6
Ambient climatic conditions						
Operating ambient temperature		°C	-25…55, low temperatures to IEC 60068-2-1, high temperatures to IEC 60068-2-2	-25…55, low temperatures to IEC 60068-2-1, high temperatures to IEC 60068-2-2	-25 - 55, low temperatures to IEC 60068-2-1, high temperatures to IEC 60068-2-2; -25 - 45 to UL/CSA	-25…55, low temperatures to IEC 60068-2-1, high temperatures to IEC 60068-2-2
Condensation			Prevent condensation by means of suitable measures			
Storage		°C	-40 - 70	-40 - 70	-40 - 70	-40 - 70
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95	5 - 95	5 - 95	5 - 95
Air pressure (in operation)		hPa	795 - 1080	795 - 1080	795 - 1080	795 - 1080
Max. installation altitude above sea level, observe derating at higher altitudes		m	2000	2000	2000	2000
Ambient mechanical conditions						
Pollution degree			2	2	2	2
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20	IP20	IP20	IP20
Vibrations (IEC/EN 60068-2-6)						
Constant amplitude 0.15 mm		Hz	10 - 57	10 - 57	10 - 57	10 - 57
Constant acceleration, 2 g		Hz	57 - 150	57 - 150	57 - 150	57 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Shocks	18	18	18	18
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	1	1	1	1
Mounting position			Vertical or horizontal	Vertical or horizontal	Horizontal, terminals at top	Horizontal, terminals at top
Electromagnetic compatibility (EMC)						
Electrostatic discharge (ESD), to IEC EN 61000-4-2						
Air discharge		kV	8	8	8	8
Contact discharge		kV	6	6	6	6
Electromagnetic fields (RFI), to IEC EN 61000-4-2		V/m	10	10	10	10
Radio interference suppression			EN 55011 Class B; EN 55022 Class B, EN 50081-2 Class B			
Burst pulses (IEC/EN 61000-4-4, level 3)		kV	2	2	2	2
Power pulses (surge) (IEC/EN 61000-4-5)		kV	2 (supply cables, symmetrical)			
Power pulses (surge) (IEC/EN 61000-4-5, Level 2), 24 V		kV	0.5 (output cables, symmetrical)			
Radiated RFI, to IEC/EN 61000-4-6		V	10	10	10	10
Surge voltage (EN 50 178), 24 V		kV	6	6	6	6
Insulation resistance						
Clearance in air and creepage distances			EN 50178			
Insulation resistance			EN 50178			
Protection class U_{out} to U_{in}			Class II to IEC 60536			
Potential isolation primary/secondary			Yes, SELV (VDE 0100 Part 410; IEC 60364-4-41, HD 384.4.41 S2) EN 60950, EN 50178			
Input voltage						
Rated input voltage AC		V	100/120/230/240 (-15/+10 %)			
Protective switches AC			FAZ-C1/1 or FAZ-B6/1			
Rated input voltage DC		V	85 - 264	85 - 264	85 - 264	85 - 264
DC protective switches			FAZ-C2/1-DC	FAZ-C2/1-DC	FAZ-C2/1-DC	FAZ-C2/1-DC
Voltage range		V AC	85 - 264	85 - 264	85 - 264	85 - 264
Frequency range		Hz	47 - 63	47 - 63	47 - 63	47 - 63
Mains failure bridging 115/230 V (IEC/EN 61000-4-11)		ms	> 10/> 20	> 20/> 40	> 20/> 40	> 20/> 40
Fuse 115/230 V		A	1.5 slow	2/1 time delay	2/1 time delay	2/1 time delay

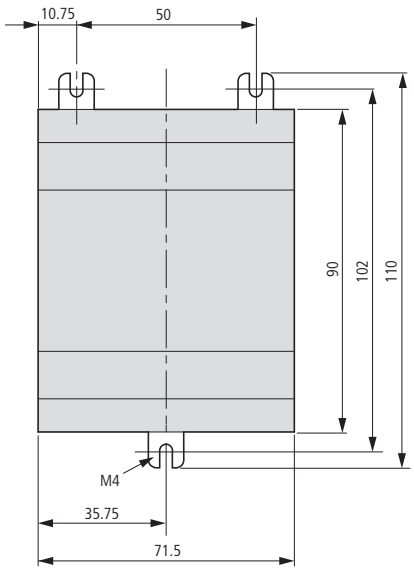
			EASY200-POW	EASY400-POW EASY430-POW	EASY500-POW	EASY600-POW
Rating data						
Efficiency		%	> 80	> 83	> 85	> 85
Power consumption		W	Normally 7	Normally 35	Normally 70	Normally 115
Heat dissipation		W	Normally 1	Normally 5	Normally 10	Normally 18
Input current						
Rated input current value 115/230 V AC		A	Approx. 0.17/0.05	Approx. 0.6/0.3	Approx. 0.8/0.4	Approx. 1/0.5
Inrush current at 230 C 25 V		A	< 5	< 18	< 30	< 30
Output voltage						
12 V DC (reference voltage)						
Rated value		V DC	12	–	–	–
Tolerance		%	± 4	–	–	–
Switching peaks		mV_{SS}	< 7	–	–	–
Effect of input voltage		%	± 1	–	–	–
Effect with 25 – 100 % load change		%	± 1	–	–	–
24 V DC						
Rated value		V DC	24	24	24	24
Tolerance		%	± 3	± 3	± 3	± 3
Switching peaks 115/230		mV_{SS}	< 50/30	< 5	< 5	< 5
Effect of input voltage		%	± 1	± 1	± 1	± 1
Effect with 25 – 100 % load change		%	± 1	± 2	± 2	± 2
Can be connected in parallel to increase power			–	– Yes	Yes	Yes
Output current						
12 V DC (reference voltage)						
Output current		mA	0 - 20	–	–	–
Effectiveness of current limitation		mA	20	–	–	–
Reduction of output voltage after current limitation		V	< 12	–	–	–
Overload proof			Yes, by current limitation permanently short-circuit proof	–	–	–
Proof against sustained short circuit			Yes	–	–	–
24 V DC						
Output current		A	0 - 0.35	0 - 1.25	0 - 2.5	0 - 4.2
Effectiveness of current limitation		A	> 0.4	> 1.5	> 2.8	> 4.8
Reduction of output voltage after current limitation		V	–	< 18	< 18	< 18
Overload proof			Yes, by current limitation			
Proof against sustained short circuit			Yes, hickup-mode	Yes, hickup mode, approx. 2 Hz		
Special load conditions						
Lamp load, cold, 24 V DC		W	2	10	–	–
Base load present		W	1	5	–	–
Behavior in the event of emergency switch off in 24 V circuit, switch off using contactor (contactor load, no damage)		W	6	30	–	–
Indication						
Indication of output voltage (LED, continuous green light = OK)		V DC	24	24	24	24

Dimensions

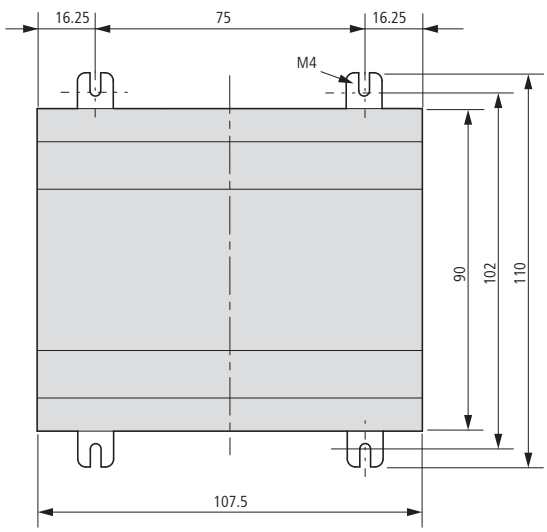
easy200



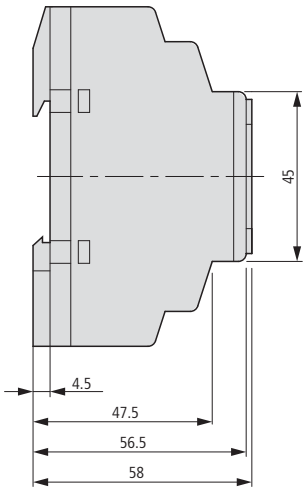
easy400
easy500



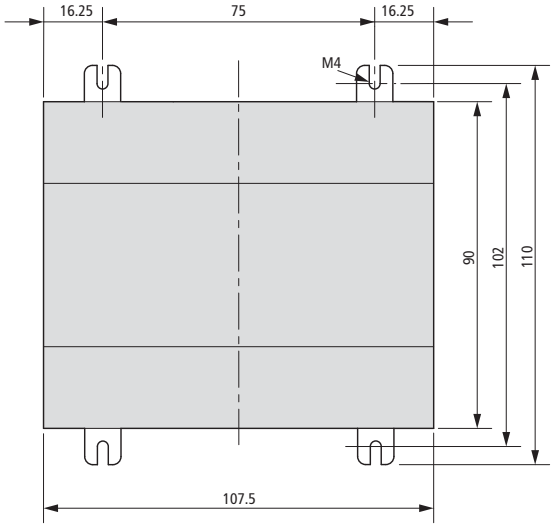
easy600
easy700

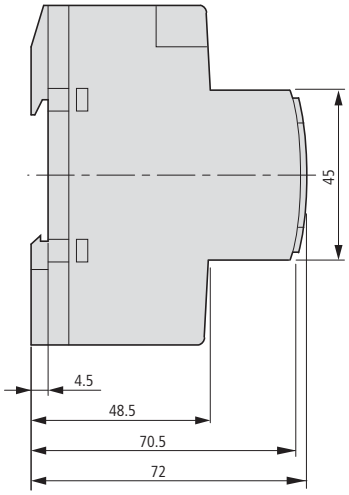


easy200
easy400
easy500
easy600
easy700

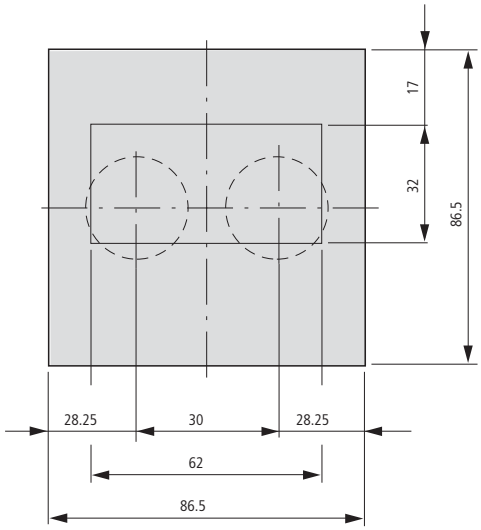


easy800

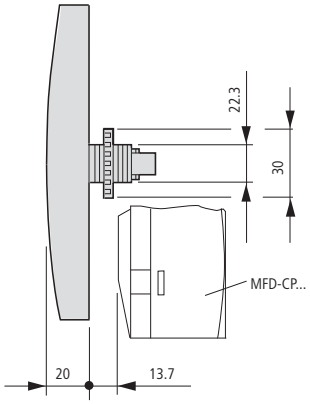




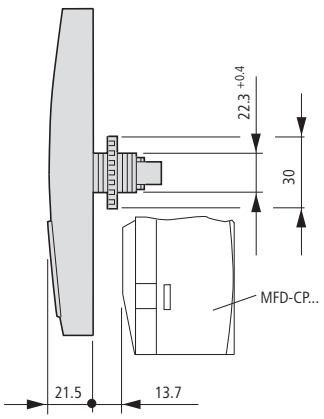
MFD-80...



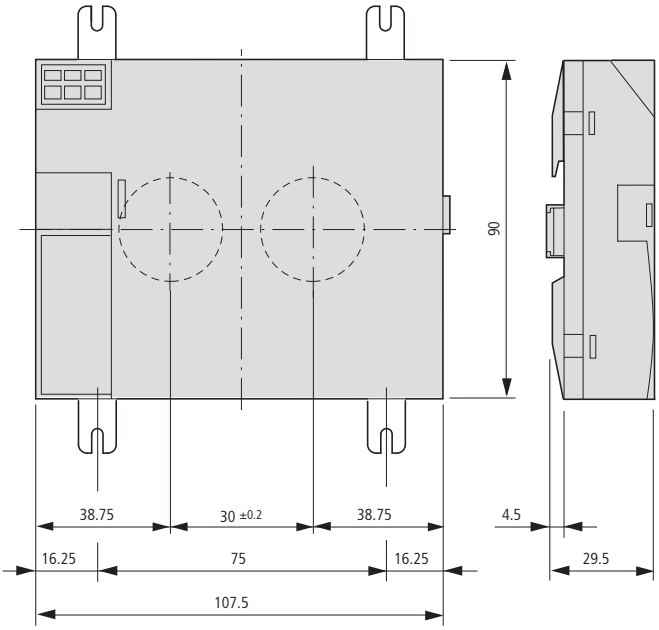
MFD-80



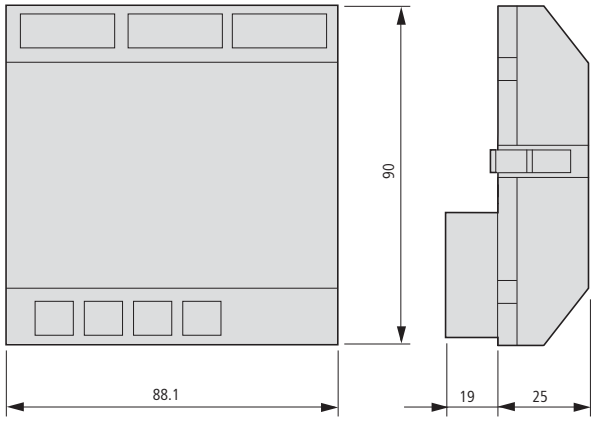
MFD-80-B



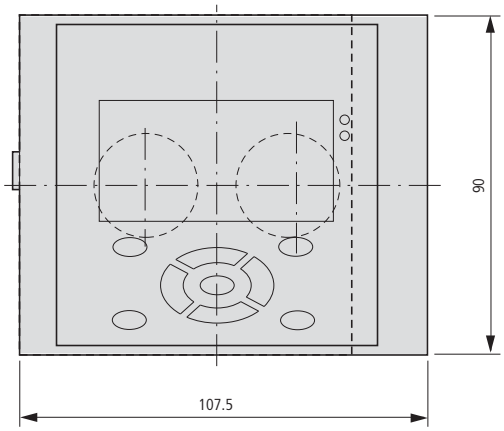
MFD-CP... , MFD-AC-CP...



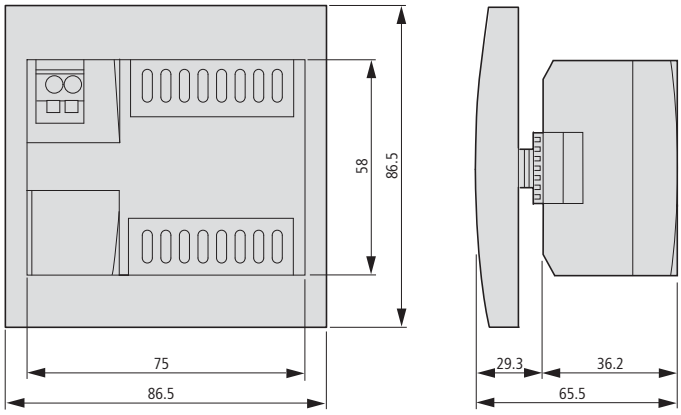
MFD-R... , MFD-T... , MFD-AC-R16

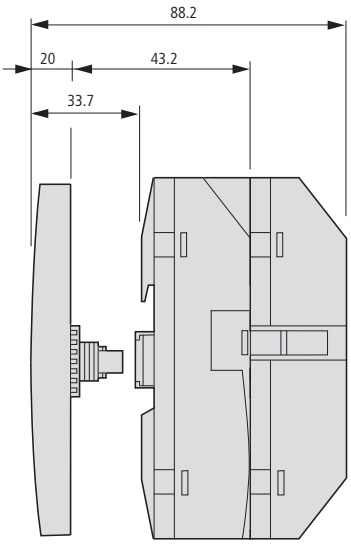


MFD-80... + MFD-CP... + MFD-R.../MFD-T...
MFD-80... + MFD-AC-CP... + MFD-AC-R16



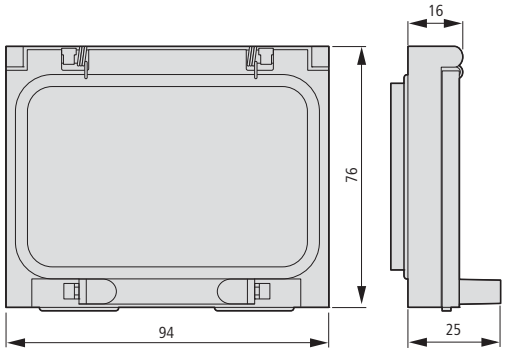
MFD-80... + MFD-CP4



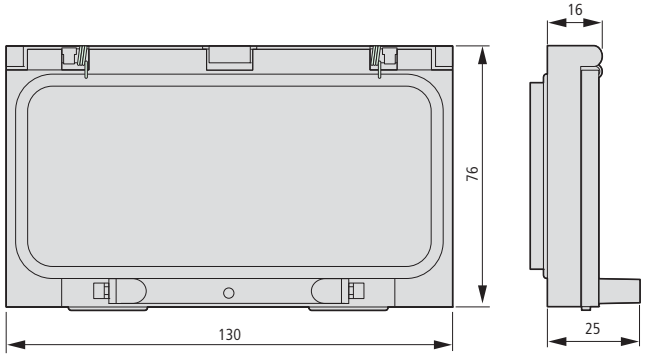


Hinged inspection windows

SKF-FF4

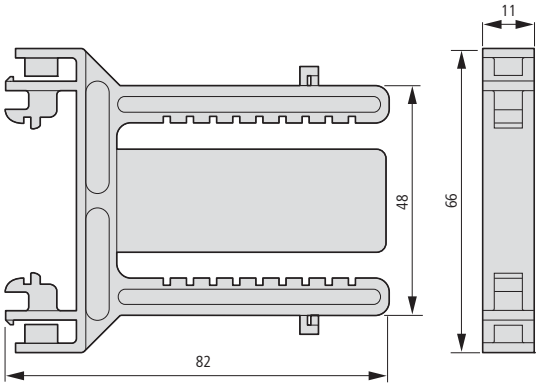


SKF-FF6



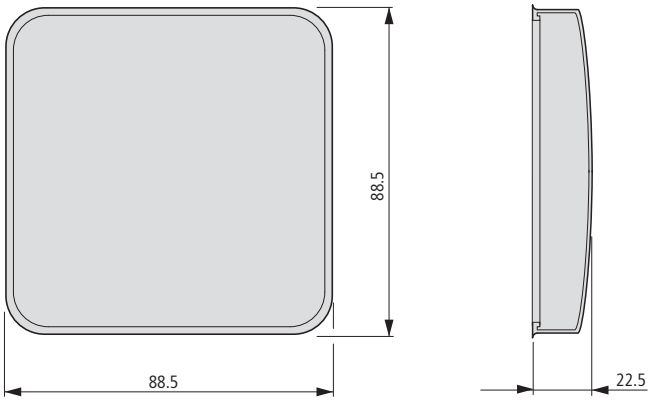
Top-hat rail adapter for hinged inspection window

SKF-HA



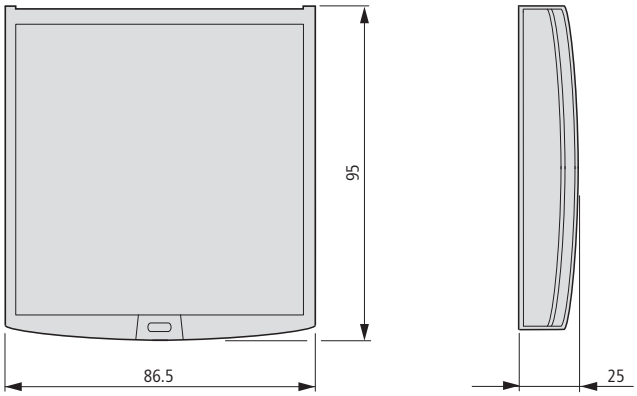
Protective diaphragm

MFD-XM-80



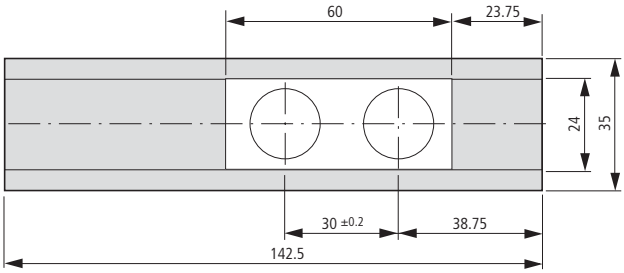
Protective cover

MFD-XS-80



Mounting rail

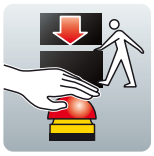
MFD-TS-144

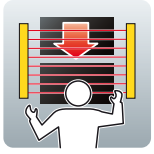
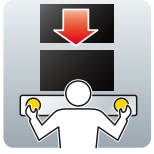
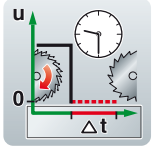


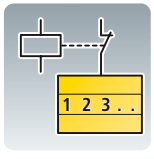
ESR5 safety relay
Control relay suitable for safety applications easySafety

Safety Technology
Control the unexpected

The safety of humans and machinery must be guaranteed throughout the entire life cycle of the machinery or installation. Safety-related components for functional safety, such as position switches, light barriers, two-hand operation, or emergency stop pushbuttons provide personnel protection. Safety-related logic units monitor and evaluate safety-relevant information. Safety relays from the series ESR5 and the safety-related control relay easySafety fulfill the highest requirements of international safety norms.





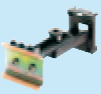
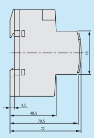
easySafety control relays – Flexible, safety-related information processing
All-in-One: Safety and control functions combined in one device +++ Simple configuration through prefabricated and tested safety components +++ Direct state display and increased machine availability due to fast error diagnosis through integrated display +++ Multistep password concept prevents unwanted manipulation

ESR5 safety relays – profitable monitoring
The right safety function for each application +++ Fast commissioning and error-free exchange through plug-in screw terminals +++ Multivoltage variants 24 – 230 V AC/DC for universal application

Safety relay, control relay suitable for safety circuits

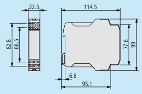




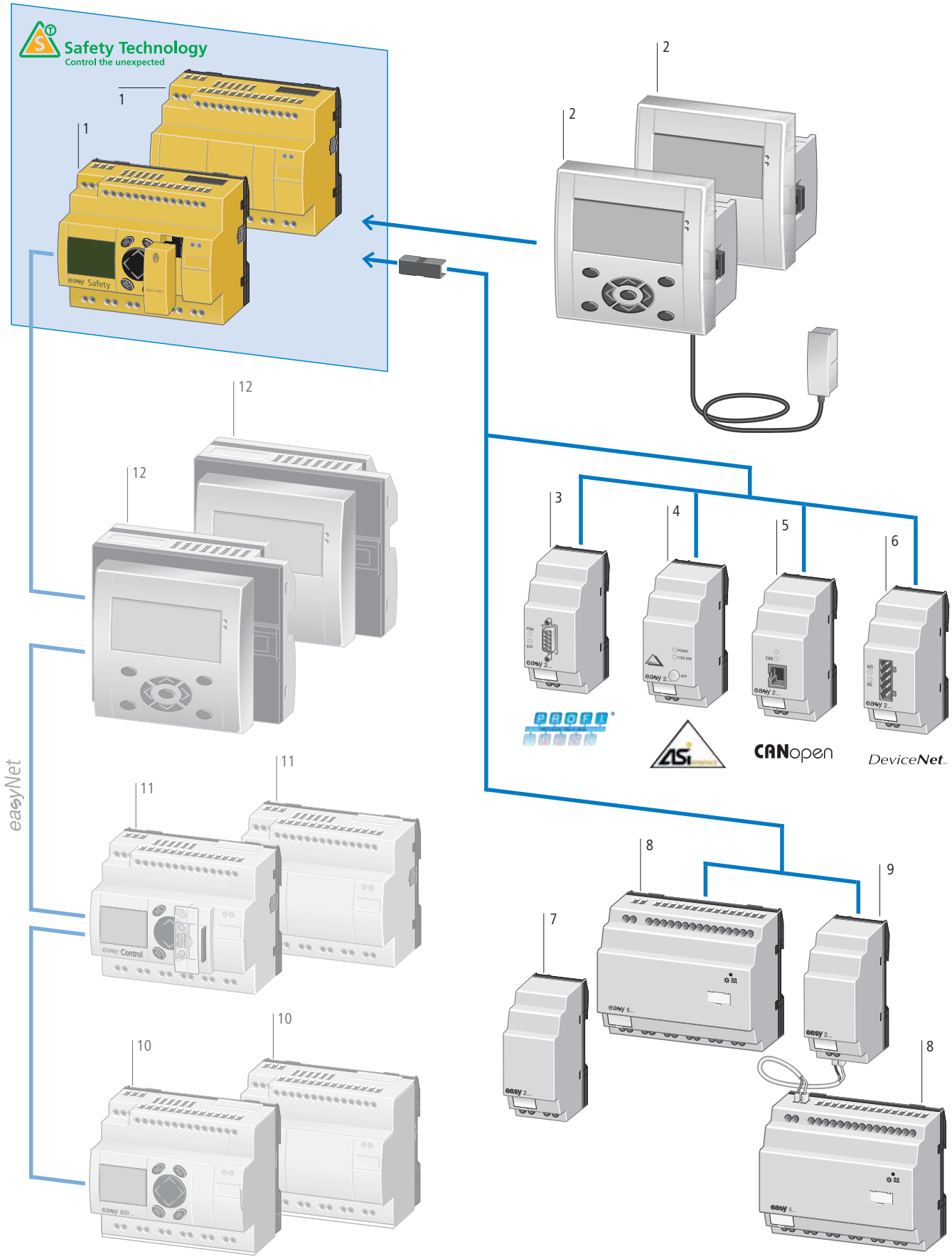
Safety relays





electronic safety relay

System overview



Basic device

ES4P… 1

Expandable: standard inputs/outputs and standard bus systems
Bus system easyNet on board
24 V DC
14 safe digital inputs
4 safe relay outputs or
1 safe redundant relay output and 4 safe transistor outputs
Display and keypad optional
Bolt-on and top-hat rail mounting
Screw terminals
→ Page 13/5

Remote text display 2

Consists of:
- display/operating unit MFD-80(-B)
- power supply/communication module

Including connecting cable (can be cut to desired length, 5 m)
24 V DC = MFD-CP4-800
100 - 240 V AC = MFD-AC-CP4-800
Spring-loaded terminals
→ Page 13/7

Bus modules

EASY204-DP 3

PROFIBUS DP slave interface, 24 V DC
→ Page 13/6

EASY205-ASI 4

AS-Interface slave, 24 V DC
→ Page 13/6

EASY221-CO 5

CANopen interface, 24 V DC
→ Page 13/6

EASY222-DN 6

DeviceNet interface, 24 V DC
→ Page 13/6

Output expansion

EASY202-RE 7

2 relay outputs (max. 10 A, UL)
Bolt-on and top-hat rail mounting
Screw terminals
→ Page 13/6

I/O expansions

EASY6... 8

24 V DC
12 digital inputs
6 relay outputs (max. 10 A, UL) or
8 transistor outputs
Bolt-on and top-hat rail mounting
Screw terminals
→ Page 13/6

Coupling module 9

EASY200-EASY
For remote connection of a digital I/O expansion through two-pole connection cable (max. 30 m); e.g. NYM 3 × 1.5 mm²
→ Page 13/6

easy800 10

Expandable: digital and analog inputs/outputs and AS-Interface, CANopen, PROFIBUS-DP, DeviceNet
Bus system easyNet on board
24 V DC = easy...DC...
100 - 240 V AC = easy...AC...
12 digital inputs
4 usable as analog inputs (DC versions)
6 relay outputs (max. 10 A, UL) or
8 transistor outputs
1 analog output, optional in DC models
Display and keypad optional
Bolt-on and top-hat rail mounting
Screw terminals
→Page 12/14

Compact PLC easyControl 11

EC4P
→Page 14/64

MFD-Titan Multi?Function?Display 12

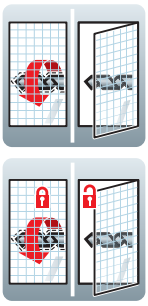
→Page 12/22

Description

The easySafety control relay for safety-related applications monitors all commonly used safety devices and also takes over the required control tasks for the machine. Packed with a host of conventional safety relays in the form of safety function blocks, easySafety not only features integrated safety functions but also standard functions in a single device – all in one.
In addition to the safety circuit diagram containing the safety configuration, the safety control relay also contains a standard circuit diagram. This circuit diagram can be used for standard tasks, such as the processing of diagnostics signals or general control tasks of a machine.
Thanks to the large number of safety function blocks, this provides the user with a number of application options with only one device. The user can now also respond directly to future and changing application requirements. This saves financial resources and offers future investment security. Last but not least, it reduces the stock-keeping required for special safety relays.
easySafety meets the requirements of category 4 to EN 954-1, PL e to EN ISO 13849-1, SILCL 3 to EN IEC 62061 and SIL 3 to EN IEC 61508. With easySafety, it is therefore possible to implement applications meeting the most stringent safety requirements.

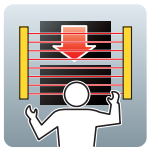
In addition to many standard function blocks from the easy800, easySafety offers the following safety function blocks:

Emergency stop circuits
Allows the safe stopping of a hazardous movement, immediate stop for Stop category 0 and controlled stop for Stop category 1 according to IEC 60204-1; for use in single or dual channel safety monitoring of emergency stop circuits.

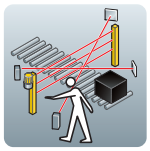


Guard door monitoring with and without interlock/guard locking
Used with moving guards such as doors, barriers or flaps. Positions are reliably detected, monitored and enabled to safety-related requirements – optional interlock device with guard locking when increased personal and process protection are required; this securely keeps the guard closed until machine standstill.

Safe operation with two-hand control
Type III to EN 574. Used for hazardous machine movement such as presses, punching, shearing. It allows the movement of hazardous operation only when both hands of the operator are outside the hazardous area and the two pushbuttons are operated within 0.5 seconds of each other.



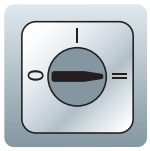
Electro-sensitive protective devices (ESPE)
Protection of the hazardous location or area in the vicinity of machines by means of contactless guards such as light grids/light barriers/light curtains.



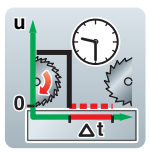
Optionally with muting function,
which temporarily bypasses the protective function of a safety device, such as a light curtain. Typical applications include feeding materials into a machine without having to interrupt the machine's operation.

Enabling switch
The manual or foot operated enable switch allows the temporary enabling of a guard, such as a safety door, by continuous actuation. This may be necessary for setting or servicing a machine.

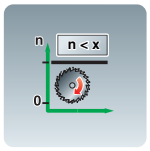
Start device
For the safe starting of an application by means of an external start pushbutton or start condition from the safety circuit diagram.



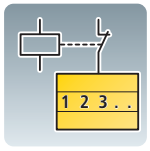
Operating mode selector switches
Used for the safe selection and acceptance of a preselected operating mode on an external control circuit device.



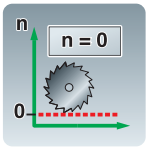
Safety timing relay
Used for changing the switch duration and the on or off switch points of an enable contact in the safety circuit. Safety-related timing relay with on and/or off delayed or single pulse function.



Overspeed monitoring
For the safety-related overspeed monitoring of a motor or a shaft. If the maximum speed is exceeded, the drive is disabled.



Feedback loop monitoring (EDM)
Used for the safety-related monitoring of externally connected actuators, e.g. contactors, relays or valves.



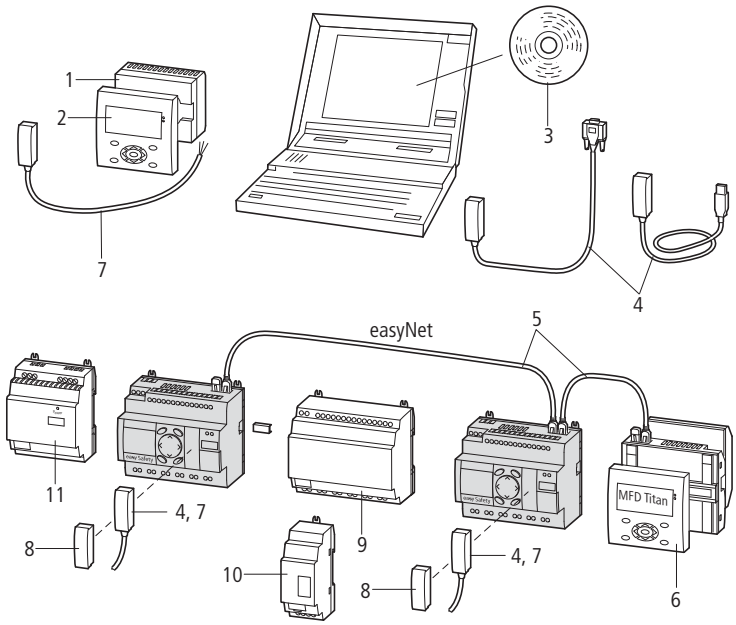
Zero monitoring
Used when the entry or access to the hazardous area is not permitted until the hazardous driving force has come to a standstill.

HPL13005EN

Ordering

Inputs (safety) Digital	Outputs (safety) 6 A relay	Transistor	Test signal	Display + keypad	easyNet/ easyLink	Safety/standard circuit diagram	Part no. Article no.	Price See price list	Std. pack
easySafety									
EN 954-1: 1996, category 4 EN ISO 13849-1: 2006, PL e (Performance Level) IEC 61508: 1998, SIL 3 (Safety integrity Level) IEC 62061: 2005, SILCL 3 (Safety integrity level claim limit) Expandable: standard inputs/outputs and standard bus systems 24 V DC supply voltage									
Safety Technology Control the unexpected									
14	1 (redundant)	4	4	–	✓/✓	✓/✓	**ES4P-221-DMXX1** 111016		1 off
14	1 (redundant)	4	4	✓	✓/✓	✓/✓	**ES4P-221-DMXD1** 111017		1 off
14	4	–	4	–	✓/✓	✓/✓	**ES4P-221-DRXX1** 111018		1 off
14	4	–	4	✓	✓/✓	✓/✓	**ES4P-221-DRXD1** 111019		1 off

Notes



Accessories		Page
1	Power supply unit/communication mod-	→ 13/7
2	Display/keypad	→ 13/7
3	Safety-related programming software	→ 13/8
4	Programming cables, Serial	→ 13/8
	Programming cables, USB	→ 13/8
5	easyNet	→ 13/9
6	MFD silver (Standard)	→ Chapter 12
7	Connection cable	→ 13/8
8	Safety-related memory card	→ 13/8
9	I/O expansion (standard)	→ 13/6
10	Output expansion, bus module, coupling module (standard)	→ 13/6
11	Switched-mode power supply unit	→ 13/9

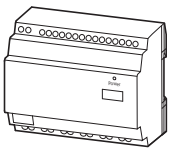
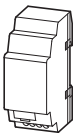
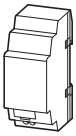
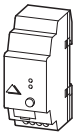
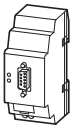
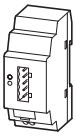
Information relevant for export to North America

Product Standards	IEC/EN see Technical Data; UL 508; CSA-C22.20.4-04; CSA-22.2 No. 142-MI1987; CE marking
UL File No.	CSA report applies to both US and Canada
UL CCN	NRAQ
CSA File No.	012528
CSA Class No.	2252-81; 2252-01
NA Certification	CSA certified, certified by CSA for use in the US
Degree of Protection	IEC: IP20, UL/CSA Type: -

	Part no. Article no.	Price See price list	Std. pack
Individual laser inscription			
• Individual labelling of ES4P control relay for safety-related applications with Labeleditor labelling software	**ES4-COMBINATION-*** 121711		1 off

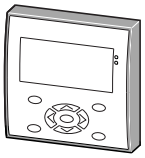
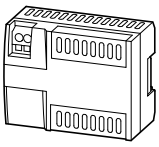
Information relevant for export to North America

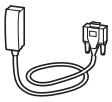
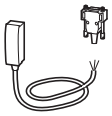
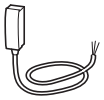
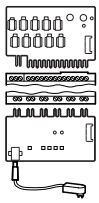
UL/CSA certification not required

	Inputs	Outputs		Supply voltage	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
	Digital	Relay 10 A (UL)	Transis-tor					
I/O expansions								
Can be used through easyLink								
	12	6	–	100 - 240 V AC	**EASY618-AC-RE** 212314		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	12	–	8	24 V DC	**EASY620-DC-TE** 212313			
	12	6	–	24 V DC	**EASY618-DC-RE** 232112			Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	–	2	–	24 V DC	**EASY202-RE**[1] 232186			
Coupling module								
Can be used through easyLink								
	For remote connection of a digital I/O expansion up to 30 m.				**EASY200-EASY** 212315		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
Bus modules								
Can be used through easyLink								
	AS-Interface	Slave 4 inputs, 4 outputs, 4 parameter bits Addresses available 0 to 31		24 V DC	**EASY205-ASI** 221598		1 off	
	PROFIBUS-DP	Slave Addresses available 1 to 126		24 V DC	**EASY204-DP** 212316			
	CANopen	Addresses available 1 to 127		24 V DC	**EASY221-CO** 233539			
	DeviceNet	Addresses available 0 to 63		24 V DC	**EASY222-DN** 233540			

Notes

[1] Not for use in combination with basic devices EASY719-DA-...
Cannot be used on the EASY200-EASY coupling module

	Supply voltage connection	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Remote text display						
Display/keypad monochrome display 132 × 64 pixels with switchable backlight IP65, removable silver front frame						
		With keypad, with Moeller company logotype NEMA 4x in connection with MFD-XM-80 protective membrane → Page 12/29	**MFD-80-B** 265251		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP65, in combination with MFD-XM-80: UL/CSA part no. 4X
		With keypad, without Moeller company logotype NEMA 4x in connection with MFD-XM-80 protective membrane → Page 12/29	**MFD-80-B-X** 284905			
		Without keypad, with Moeller company logotype NEMA 4x	**MFD-80** 265250		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP65, UL/CSA Type 4X
		Without keypad, without Moeller company logotype NEMA 4x	**MFD-80-X** 284904			
Power supply unit/communication modules IP20, can be combined with display/operating unit MFD-80... as remote text display						
	100 - 240 V AC	With connection cable (can be cut to desired length, 5 m)	**MFD-AC-CP4-800** 286824		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	24 V DC	With connection cable (can be cut to desired length, 5 m)	**MFD-CP4-800** 274095			
	24 V DC	Without connection cable	**MFD-CP4** 280888			
	100 - 240 V AC	Without connection cable	**MFD-AC-CP4** 286822			

	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Programming software					
	easySoft-Safety (including easySoftPro) → Page 12/17 Menu selection in German, English, French, and Italian Operating systems: Windows 2000 SP4, Windows XP SP1, Windows Vista (32 Bit)	**ESP-SOFT** 111460		1 off	UL/CSA certification not required
Programming cables					
	SUB-D, 9 pole, serial, 2 m	**EASY800-PC-CAB** 256277		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified
	USB, 2 m	**EASY800-USB-CAB** 106408		1 off	
Modem cable					
	Configurable modem, printer and programming cable, possible data transfer rate 56 kBaud, 9 pole SUB-D plug (plug + socket for self connection)	**EASY800-MO-CAB** 286079		1 off	
Connecting cables					
	For the connection of MFD(-AC)-CP4 to easy800/MFD-…-CP8/ES4P 5 m, can be cut to desired length	**MFD-CP4-800-CAB5** 280887		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
Memory card					
	256 kB module	**ES4A-MEM-CARD1** 111461		1 off	UL/CSA certification not required
Input/output simulator					
	With plug-in power supply unit 100 - 240 V AC/ 24 V DC	**ES4A-221-DMX-SIM** 116953		1 off	UL/CSA certification not required
Manual					
	German	**AWB2528-1599DE** 121076		1 off	
	English	**AWB2528-1599EN** 121077		1 off	
	French	**AWB2528-1599FR** 121078		1 off	
	Italian	**AWB2528-1599IT** 121079		1 off	

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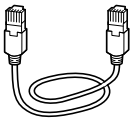
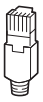
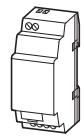
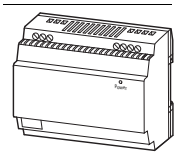
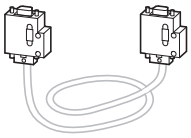
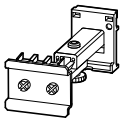
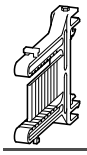
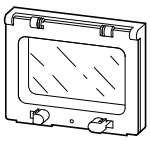
	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Network connection cables						
	Length: 0.3 m	easyNet	**EASY-NT-30** 256283		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	Length: 0.8 m	easyNet	**EASY-NT-80** 256284			
	Length: 1.5 m	easyNet	**EASY-NT-150** 256285			
Bus termination resistor						
	8 pole, RJ45, 124 Ω Connection to PIN 1 and PIN 2	easyNet	**EASY-NT-R** 256281		2 off	
Data cable						
	4 x 0.14 mm², twisted pair, AWG 26 Length: 100 m	easyNet	**EASY-NT-CAB** 256286		1 off	UL File No.: E135462 UL CCN: NRAQ NA Certification: UL Listed Degree of Protection: IEC: IP 20, UL/CSA Type: -
Bus connector plug						
	8 pole, RJ45	easyNet	**EASY-NT-RJ45** 256280		10 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
Crimping tool						
	For RJ45 plug	EASY-NT-CAB EASY-NT-RJ45	**EASY-RJ45-TOOL** 256282		1 off	

	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Switched-mode power supply units					
Primary-switched mode, regulated					
	Rated input voltage: 50/60 Hz: 100 - 240 V Rated output voltage: 24 V/12 V DC Rated output current: 0.35 A/20 mA	**EASY200-POW** 229424		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	Rated input voltage: 50/60 Hz: 100 - 240 V AC Rated output voltage (residual ripple): 24 V DC (± 3 %) Rated output current: 1.25 A	**EASY400-POW** 212319			
		EASY430-POW 110940		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 107.1-01; CE marking UL File No.: E300415 UL CCN: NMTR, NMTR7 CSA File No.: UL report applies to both US and Canada CSA Class No.: 3211-87, 3211-07 NA Certification: UL Listed, certified by UL for use in Canada Degree of Protection: IEC: IP20, UL/CSA Type: -
	Rated input voltage: 50/60 Hz: 100 - 240 V AC Rated output voltage (residual ripple): 24 V DC (± 3 %) Rated output current: 2.5 A	**EASY500-POW** 110941			
	Rated input voltage: 50/60 Hz: 100 - 240 V AC Rated output voltage (residual ripple): 24 V DC (± 3 %) Rated output current: 4.2 A	**EASY600-POW** 262399			

	Supply voltage	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
PROFIBUS-DP data cable						
		Twisted pair, without plug, 2-core, 2 x 0.64 mm² (only suitable for fixed wiring) 100 m	**ZB4-900-KB1** 206983		100 m	
PROFIBUS-DP bus connector plug						
		Pins, 9 pole Cable entry, angled 90°	**ZB4-209-DS2** 206982		1 off	
		Metallised insulated housing Maximum transfer rate 12 MBit/s Integrated switch (accessible from the outside) for the bus terminating resistors Terminal block for two cable entries, with straight or 90° angled cable entry, as required	**ZB4-209-DS3** 217820		1 off	
Connection plug						
		Bus connector plug between base unit and expansion unit/bus module	**EASY-LINK-DS** 221607		1 off	UL/CSA certification not required
Fixing bracket For screw fixing to mounting plate						
		2 fixing brackets per easy200 3 fixing brackets per easy400, 500, 600, 800, ES4P, EC4P, MFD(-AC)-CP8...	**ZB4-101-GF1** 061360		9 off	UL/CSA certification not required
Telescopic clip						
		With 35mm top-hat rail to IEC/EN 60715 for mounting depth compensation when rear mounting in CI-K… enclosures and cabinets. Stepless adjustment via scale from 75 – 115 mm. Screw and snap mounting	**M22-TA** 226161		1 off	Product Standards: IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14-05; CSA-C22.2 No. 94-91; CE marking UL File No.: E29184 UL CCN: NKCR CSA File No.: 012528 CSA Class No.: 3211-03 NA Certification: UL Listed, CSA certified
Top-hat rail adapter for inspection window						
		12 mm x 66 mm x 82 mm Installation on hinged inspection window, for front fitting of devices. Complete set, consisting of 2 brackets and 4 screws	**SKF-HA** 233782		1 off	UL/CSA certification not required
Inspection window						
		130 mm x 77 mm x 25 mm (6 space units) For use with EASY700, EASY800, EC4P, ES4P	**SKF-FF6** 233781		1 off	UL/CSA certification not required

Technical data

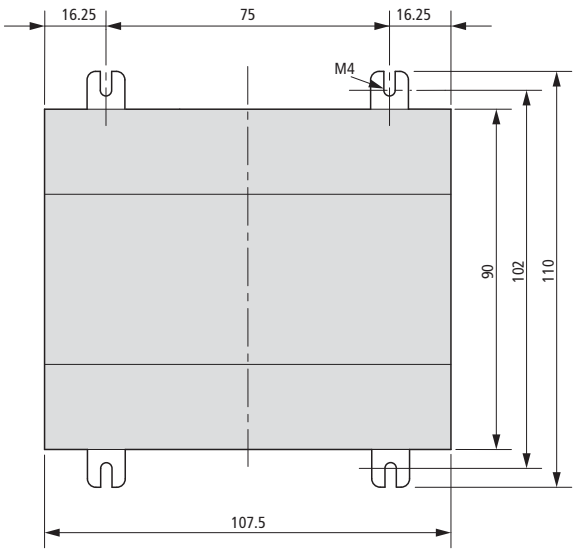
			ES4P…
General			
Standards			EN 55011, EN 55022, IEC/EN 61000-4, IEC 60068-2-6, IEC 60068-2-27, EN 954-1 : Category 4, EN ISO 13849-1: PL e, EN IEC 62061 : SILCL 3, EN IEC 61508 : SIL 3
Dimensions (W x H x D)		mm	107.5 (6 space units) x 90 x 72
Mounting			Top-hat rail IEC/EN 60715, 35 mm or screw fixing using fixing brackets ZB4-101-GF1 (accessories)
Times			
Inputs			
Max. duration of external test pulde		ms	1
Semi-conductor output			
Off test pulse		ms	<1
Switch-off delay		ms	<0.15
Terminal capacity			
Solid		mm^2	0.2 - 4 (AWG 22 - 12)
Flexible with ferrule		mm^2	0.2 - 2.5 (AWG 22 - 12)
Standard screwdriver		mm	3.5 x 0.8
Max. tightening torque		Nm	0.6
Ambient climatic conditions			
Operating ambient temperature		°C	-25…55, low temperatures to IEC 60068-2-1, high temperatures to IEC 60068-2-2
Condensation			Prevent condensation by means of suitable measures
LCD display (clearly legible)		°C	0…55
Storage		°C	-40…70
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5…95
Air pressure (in operation)		hPa	795…1080
Ambient mechanical conditions			
Protection type, IEC/EN 60529			IP20
Vibrations (IEC/EN 60068-2-6)			
Constant amplitude 0.15 mm		Hz	10…57
Constant acceleration, 2 g		Hz	57…150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms	Shocks		18
Drop to IEC/EN 60068-2-31	Drop	mm	50
Mounting position			Horizontal/vertical
Electromagnetic compatibility (EMC) according to IEC/EN 61000-6-2			
Electrostatic discharge (IEC/EN 61000-4-2, Level 3, ESD)			
Air discharge		kV	8
Contact discharge		kV	6
Radio interference suppression (EN 55011)			EN 55011 Class B, EN 55022 Class B
Power pulses (surge) (IEC/EN 61000-4-5, level 2)		kV	1 (supply cables, symmetrical)
Insulation resistance			
Overvoltage category/pollution degree			III/2
Clearance in air and creepage distances			EN 50178, UL 508, CSA C22.2, No. 142, EN 60664-1:2003
Insulation resistance			EN 50178
Back-up/accuracy of the real-time clock			
Accuracy of the real-time clock		s/day	Normally ± 5 (± 0.5 h/year)
Repetition accuracy of timing relays in standard circuit			
Accuracy of timing relay (of value)		%	± 0.02
Resolution			
Range “S”		ms	5
Range “M:S”		s	1
Retentive memory			
Write cycles of the retentive memory (minimum)			10000000000 (10^{10}) (read/write cycles)
Power supply			
Rated operational voltage	U_e	V	24 DC (-15/+20%)
Permissible range		V DC	20.4…28.8
Ripple		%	≦ 5
Interfaces			
easyNet (CAN based)			
Bus termination (first and last station)			Yes
Control operating mode easyNet			
Number of users			Max. 8

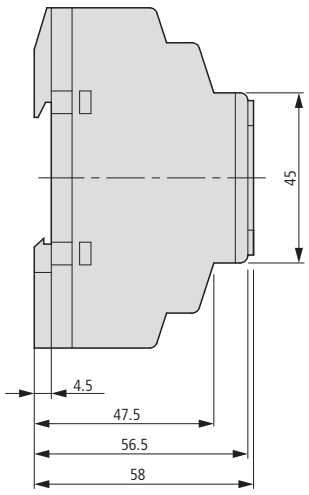
			ES4P…
NET network			
Stations	Number		Max. 8
Data transfer rate/distance			1000 Kbit/s, 6 m 500 Kbit/s, 25 m 250 Kbit/s, 60 m 125 Kbit/s, 125 m 50 Kbit/s, 300 m 20 Kbit/s, 700 m 10 Kbit/s, 1000 m Bus lengths greater than 40 m can only be achieved with enhanced cross-section conductors and terminal adapters.
Potential isolation			
From power supply			Yes
From the inputs			Yes
From the outputs			Yes
From the PC interface, memory card, NET network, EASY-Link			Yes
Bus termination (first and last station)			Yes
Terminal type			RJ45
Digital inputs 24 V DC			
Number			14
Inputs can be used as analog inputs			-
Status display			LCD display (if provided)
Potential isolation			
From power supply			No
Between digital inputs			No
From the outputs			Yes
From PC interface, memory card, easyLink			No
From network easyNet			Yes
Rated operational voltage	U_e	V DC	24
At signal "0"	U_e	V DC	< 5
At signal "1"	U_e	V DC	> 15
Clock outputs			
Number			4
Voltage		V DC	24
Electrical isolation			No
Relay outputs			
Number			4 for ES4P-...-DR.. 1 redundant for ES4P-…-DM…
Outputs in groups of			1
Parallel switching of outputs to increase power			Not permissible
Protection of an output relay			Fuse: 6 A gG, Circuit-breaker with characteristic C: 24 V DC 4 A, Short-circuit current < 250 A
Potential isolation			
From power supply			Yes
From the inputs			Yes
From PC interface, memory card, easyNet, easyLink			Yes
Safe isolation according to EN 50178		V AC	300
Basic insulation		V AC	600
Lifespan, mechanical	Operations	x 10^6	10
Contacts			
Conventional thermal current		A	6
Rated impulse withstand voltage Uimp contact coil		kV	6
Rated operational voltage	U_e	V AC	250
Rated insulation voltage	U_i	V AC	250
Safe isolation to EN 50178 between coil and contact		V AC	300
Making capacity			
AC-15, 230 V AC, 3 A	Operations		80000
DC-13, 24 V DC, 5 A, 0,1 Hz	Operations		40000
Switching frequency			
Mechanical operations		x 10^6	10
Switching frequency		Hz	10
UL/CSA			
UL 508			B300/R300

			ES4P…
Transistor outputs			
Number			4
Rated operational voltage	U_e	V DC	24
Permissible range	U_e	V DC	20.4 - 28.8
Ripple		%	≦ 5
Protection against polarity reversal			Yes (Caution: A short circuit will result if 0 V or GND is applied to the outputs in the event that the supply voltage is connected to the wrong poles.)
Potential isolation			
From power supply			Yes
From the inputs			Yes
From PC interface, memory card, network, easyNet, easyLink			Yes
Rated operational current at signal "1" DC	I_e	A	Max. 0.5
At signal "1" with I_e = 0.5 A		V	$U = U_e$ -1 V
Short-circuit protection			Yes, thermal
Short-circuit tripping current for R_a ≦ 10 mΩ		A	0.7 ≦ I_e ≦ 2 per output
Total short-circuit current		A	8
Peak short-circuit current		A	16
Thermal cutout			Yes
Max. operating frequency at constant resistive load RL < 100 kO (dependant on program and load)		Ops/h	40000
Parallel connection of outputs			No
Status indication of the outputs			LCD display (if provided)
Inductive load			
Without external suppressor circuit			
Duty factor			$T_{0.95} \approx 3 \times T_{0.65} = 3 \times L/R$ $T_{0.95}$ = Time in ms, until 95 % of the steady-state current has been reached
With external suppressor circuit			
Utilization factor		g	1
Duty factor		% DF	100
Max. switching frequency, max. duty factor	Operations		Depending on the suppressor circuit

Safety technical data www.moeller.net/de/products_solutions/solutions/safety/safety_values

ESP4





Description

Functional safety on machines – monitoring with safety relay ESR5
Moeller's new ESR5 safety relays provide optimal safety and an extremely high degree of reliability on plant and machinery. Applications that meet the highest safety requirements in accordance with EN ISO 13849-1 up to PL e, in accordance with IEC 62061 up to SILCL 3 and in accordance with IEC 61508 up to SIL 3 can be realized with the ESR5 series of devices.

Functionality

Safety relays are intended to reliably monitor the signals from safety devices at all times and switch off quickly and reliably in an emergency. Single-channel and dual-channel versions are available for the construction of safety-orientated applications. The internal logic of the safety relay monitors the safety circuits (Emergency Stop, guard door…) and activates the enable paths in fault-free condition. Upon actuation of the safety device or in the event of a fault the enable paths are switched off in compliance with the stop category. Any faults that occur in the control circuit, such as a ground fault, cross connection fault or wire breakage are detected with certainty. Activation of the enable paths is prevented in the event of a fault.

Configuration

Universal use is achieved due to the extensive performance range and voltage range of the ESR5 safety relays. The electronic safety relay consists of the internal logic and two redundant relays with positively driven contacts for the enable and signalling paths. The wiring is effected simply on encoded plug-in terminals. If any servicing is performed, these ensure fault-free replacement of the modules without any additional wiring work.

Approvals

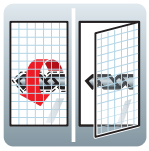
Safety relays ESR5 are approved according to:

- TÜV-Rheinland
- UL/CUL

Advantages at a glance

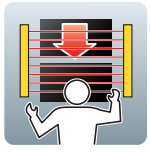
- Use for the highest safety requirements in accordance with EN ISO 13849-1, IEC 62061 and IEC 61508.
- Devices suitable for the world market thanks to certification from UL, CUL and TÜV Rhineland.
- Plug-in screw terminals for fast and fault-free replacement.
- Multi-voltage versions 24 - 230 V AC DC for a flexible range of application.

Emergency stop circuits
Allows the safe stopping of a hazardous movement, immediate stop for Stop category 0 and controlled stop Stop category 1 according to IEC 60204-1; for use in single or dual channel safety monitoring of emergency stop circuits.

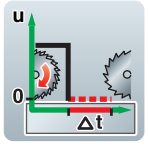


Guard door monitoring
Used with moving guards such as doors, barriers or flaps. Positions are reliably detected, monitored and enabled to safety-related requirements.

Safe operation with two-hand control
Type III to EN 574. Used for hazardous machine movement such as presses, punching, shearing. It allows the movement of dangerous operation only when both hands of the operator are outside the dangerous area and the two pushbuttons are operated within 0.5 seconds of each other.



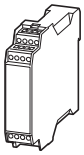
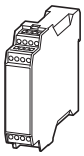
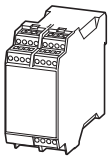
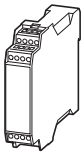
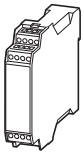
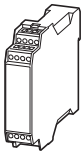
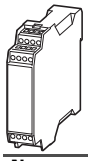
Electro-sensitive protective devices (ESPE)
Protection of the hazardous location or area in the vicinity of machines by means of contactless guards such as light grids/ light barriers/light curtains.



Off-delay circuit
Makes it possible to safely stop a hazardous movement with controlled stopping according to IEC 60204-1 stop category 1.

HPL13015EN

Ordering

	Actuating voltage U_c	Suitable for	Number of enabling paths to IEC/EN 60204 Stop category 0	1	Signal contacts	Part no. Article no.	Price See price list	Std. pack
ESR5 electronic safety relays								
Safety relays for Emergency-Stop and guard door monitoring								
Single-channel 	24 V DC, 24 V AC, 50/60 Hz	Cat. 2 according to EN 954-1 PL d according to EN ISO 13849-1 SILCL 3 according to IEC 62061 SIL 3 according to IEC 61508 Cat. 4/PL e possible only with the aid of fault exclusions .	4	–	1	**ESR5-NO-41-24VAC-DC** 118701		1 off
dual channel 		Cat. 4 according to EN 954-1 PL e according to EN ISO 13849-1 SILCL 3 according to IEC 62061 SIL 3 according to IEC 61508	2	–	1	**ESR5-NO-21-24VAC-DC** 118700		
		Cat. 4 according to EN 954-1 PL e according to EN ISO 13849-1 SILCL 3 according to IEC 62061 SIL 3 according to IEC 61508	3	–	1	**ESR5-NO-31-24VAC-DC** 118702		
dual-channel 	24 V AC/DC, 230 V AC/DC, 50/60 Hz	Cat. 4 according to EN 954-1 PL e according to EN ISO 13849-1 SILCL 3 according to IEC 62061 SIL 3 according to IEC 61508	3	–	1	**ESR5-NO-31-24V-230VAC-DC** 118704		1 off
	230 V AC, 50/60 Hz	Cat. 4 according to EN 954-1 PL e according to EN ISO 13849-1 SILCL 3 according to IEC 62061 SIL 3 according to IEC 61508	3	–	1	**ESR5-NO-31-230VAC** 119380		
Safety relays for emergency stop, guard door and light curtain monitoring								
Off-delayed[1] 	24 V DC	Cat. 4 according to EN 954-1 PL e according to EN ISO 13849-1 SILCL 3 according to IEC 62061 SIL 3 according to IEC 61508 SIL 3 only for high demand requirements	2	2	0	**ESR5-NV3-30** 118705		
Two-hand relay, suitable for applications to EN 574 Typ III C								
dual channel 	24 V DC, 24 V AC, 50/60 Hz	Cat. 4 according to EN 954-1 PL e according to EN ISO 13849-1 SILCL 3 according to IEC62061 SIL 3 according to IEC61508	2	–	1	**ESR5-NZ-21-24VAC-DC** 118703		1 off
Contact expansion modules The basic device determines the maximum stop category according to IEC 61508 and IEC 60204								
Off-delayed 	24 V DC, 24 V AC, 50/60 Hz	Cat. 3 according to EN 954-1 PL d according to EN ISO 13849-1 SILCL 2 according to IEC 62061 SIL 2 according to IEC 61508	–	4	2	**ESR5-VE3-42** 118706		
Non-delayed 	24 V DC, 24 V AC, 50/60 Hz	Cat. 4 according to EN 954-1 PL e according to EN ISO 13849-1 SILCL 3 according to IEC 62061 SIL 3 according to IEC 61508	5	–	2	**ESR5-NE-51-24VAC-DC** 118707		1 off

Notes [1] Suitable for safety position switch with guard locking LS-S…MT-ZBZ.

Information relevant for export to North America

Product Standards	IEC/EN see Technical Data; UL 508; CSA-C22.2 No. 14-95; CE marking
UL File No.	E29184
UL CCN	NKCR; NKCR7
CSA File No.	UL report applies to both US and Canada
CSA Class No.	3211-83; 3211-03
NA Certification	UL Listed, certified by UL for use in Canada
Degree of Protection	IEC: IP20, UL/CSA Type: -

Technical data

			ESR5-NO-21…	ESR5-NO-41…	ESR5-NO-31-24VAC-DC
General					
Standards			EN ISO 13849-1, IEC 62061, IEC 61508, DIN EN 50178, UL/CUL listed		
Type-dependent standards			–	–	–
Lifespan, mechanical	c (contacts)	× 10^6	10	10	10
Maximum operating frequency					
Max. operating frequency		Ops/h	3600	3600	3600
Climatic proofing			Cold according to EN 60068-2-1, dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3	Dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3	Cold according to EN 60068-2-1, dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3
Ambient temperature		°C	-20 - 55	-20 - 55	-20 - 55
Ambient temperature storage		°C	-25 - 75	-25 - 75	-25 - 75
Mounting position			Any	Any	Any
Vibration resistance (IEC/EN 60068-2-6)			2 g, frequency: 10 – 150 Hz, amplitude: 0.15 mm	2 g, frequency: 10 – 150 Hz, amplitude: 0.15 mm	2 g, frequency: 10 – 150 Hz, amplitude: 0.15 mm
Shock resistance (IEC 60068-2-27)			-	-	-
Protection type					
Housing			IP20	IP20	IP20
Terminals			IP20	IP20	IP20
Protection against direct contact when actuated from front (IEC 0106 Part 100)			Finger- and back-of-hand proof	Finger- and back-of-hand proof	Finger- and back-of-hand proof
Weight		kg	0.17	0.22	0.17
Terminal capacity					
Solid or flexible		mm^2	1 x (0.2 - 2.5) 2 x (0.2 - 1)	1 x (0.2 - 2.5) 2 x (0.2 - 1)	1 x (0.2 - 2.5) 2 x (0.2 - 1)
Flexible with ferrule		mm^2	1 x (0.25 - 2.5) 2 x (0.25 - 1)	1 x (0.25 - 2.5) 2 x (0.25 - 1)	1 x (0.25 - 2.5) 2 x (0.25 - 1)
Solid or stranded		AWG	24 - 12	24 - 12	24 - 12
Terminal screw					
Pozidriv screwdriver		Size	2	2	2
Flat-blade screwdriver		mm	0.6 x 3.5	0.6 x 3.5	0.6 x 3.5
Max. tightening torque		Nm	0.6	0.6	0.6
Main contacts					
Rated impulse withstand voltage	U_{imp}	V AC	6000	4000	4000
Overvoltage category/pollution degree					
Outside			III/2	III/2	III/2
Inside			-	-	-
Rated insulation voltage	U_i	V AC	250	250	250
Rated operating voltage	U_e	V AC	230	230	230
Rated operation current					
AC-15					
230 V (360 ops./h)	I_e	A	5	4	5
230 V (3600 ops./h)	I_e	A	3	3	3
DC-13					
24 V (360 ops./h)	I_e	A	6	4	6
24 V (3600 ops./h)	I_e	A	3	2.5	3
Max. summation current of all poles					
24 V AC/DC devices		A	72	72	72
230 V AC devices		A	-	-	-
Square of the total current (and total current) of all current paths			72 A^2 (6 + 6)	72 A^2 (4.2 + 4.2 + 4.2 + 4.2)	72 A^2 (4.9 + 4.9 + 4.9)
Short-circuit protection					
Max. fuse		A gG/gL	10	6	10

ESR5-NZ-21…	ESR5-NO-31-230VAC	ESR5-NO-31-24V-230VAC-DC	ESR5-NV3…	ESR5-VE3…	ESR5-NE-51…
EN ISO 13849-1, IEC 62061, IEC 61508, DIN EN 50178, UL/CUL listed					
EN 574 Part no. IIIC	EN 60204 (if applicable)	EN 60204 (if applicable)	EN 60204 (if applicable)	–	–
10	10	10	10	10	10
3600	3600	3600	3600	900	3600
Dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3	Dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3	Dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3	Cold in accordance with: EN 60068-2-1, dry heat in accordance with EN 60068-2-2, humidity storage test in accordance with 60068-2-78	Dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3	Dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3
-20 - 55	-20 - 55	-20 - 55	-20 - 45	-20 - 55	-20 - 55
-25 - 75	-25 - 75	-25 - 75	-25 - 75	-25 - 75	-25 - 75
Any	Any	Any	Any	Any	Any
2 g, frequency: 10 – 150 Hz, amplitude: 0.15 mm	2 g, frequency: 10 – 150 Hz, amplitude: 0.15 mm	2 g, frequency: 10 – 150 Hz, amplitude: 0.15 mm	2 g, frequency: 10 – 150 Hz, amplitude: 0.15 mm	2 g, frequency: 10 – 150 Hz, amplitude: 0.15 mm	2 g, frequency: 10 – 150 Hz, amplitude: 0.15 mm
-	-	-	-	-	-
IP20	IP40	IP40	IP20	IP20	IP20
IP20	IP20	IP20	IP20	IP20	IP20
Finger- and back-of-hand proof	Finger- and back-of-hand proof	Finger- and back-of-hand proof	Finger- and back-of-hand proof	Finger- and back-of-hand proof	Finger- and back-of-hand proof
0.22	0.3	0.3	0.17	0.17	0.22
1 x (0.2 - 2.5) 2 x (0.2 - 1)	1 x (0.2 - 2.5) 2 x (0.2 - 1)	1 x (0.2 - 2.5) 2 x (0.2 - 1)	1 x (0.2 - 2.5) 2 x (0.2 - 1)	1 x (0.2 - 2.5) 2 x (0.2 - 1)	1 x (0.2 - 2.5) 2 x (0.2 - 1)
1 x (0.25 - 2.5) 2 x (0.25 - 1)	1 x (0.25 - 2.5) 2 x (0.25 - 1)	1 x (0.25 - 2.5) 2 x (0.25 - 1)	1 x (0.25 - 2.5) 2 x (0.25 - 1)	1 x (0.25 - 2.5) 2 x (0.25 - 1)	1 x (0.25 - 2.5) 2 x (0.25 - 1)
24 - 12	24 - 12	24 - 12	24 - 12	24 - 12	24 - 12
2	2	2	2	2	2
0.6 x 3.5	0.6 x 3.5	0.6 x 3.5	0.6 x 3.5	0.6 x 3.5	0.6 x 3.5
0.6	0.6	0.6	0.6	0.6	0.6
6000	6000	6000	4000	4000	4000
III/2	III/2	III/2	II/2	III/2	III/2
-	-	-	-	-	-
250	250	250	250	250	250
230	230	230	230	230	230
4	4	4	-	5	4
3	3	3	3	3	3
4	4	4	-	6	4
2.5	2.5	2.5	3	3	2.5
72	50	50	49	50	50
-	50	50	-	-	-
72 A² (6 + 6)	50 A² (4 + 4 + 4)	50 A² (4 + 4 + 4)	50 A² (4 + 4 + 4)	49 A² (3.5+3.5+3.5+3.5)	50 A² (3.7 + 3.7 + 3.7 + 3.7 + 3.7)
6	6	6	10	10	6

			ESR5-NO-21…	ESR5-NO-41…	ESR5-NO-31-24VAC-DC
Power supply circuit					
Actuating voltage 50/60 Hz		V AC	24	24	24
Actuating voltage	U_s	V DC	24	24	24
Voltage tolerance pick-up voltage		$\times_e$	0.85 - 1.1	0.85 - 1.1	0.85 - 1.1
Power consumption					
AC operated 50/60 Hz		VA	-	-	-
AC operated 50/60 Hz		W	3.4	3.4	3.4
DC operated		W	1.6	1.6	1.6
Fuse for control circuit supply					
24 V			Short-circuit proof	Short-circuit proof	Short-circuit proof
115 V/230 V			-	-	-
Control circuit					
Rated output voltage		V DC	24	24	24
Rated operational current		mA	S12, S22: 30, S34: 45	S12: 65, S34: 40	S12, S22: 30, S34: 45
Resistance	R		50	22	50
Short-circuit current		A	2.3	2.3	2.3
Response time		ms	100	65	100
Recovery time		ms	-	-	-
Response time with reset monitoring	t_{A1}	ms	-	-	-
Response time without reset monitoring	tA2	ms	100	65	100
Reset time	t_R/t_{R1}	ms	Single-channel 45; dual-channel 10	45	Single-channel 45; dual-channel 10
Minimum On Duration	t_M	ms	-	-	-
Recovery time	t_W	ms	Approx.1000	Approx.1000	Approx.1000
Synchronous monitoring time	t_S	ms	-	-	-
Electromagnetic compatibility (EMC)					
Emitted interference			EN 61000-6-4	EN 61000-6-4	EN 61000-6-4
Interference immunity			According to EN 61000-6-2, EN 62061	According to EN 61000-6-2	According to EN 61000-6-2, EN 62061

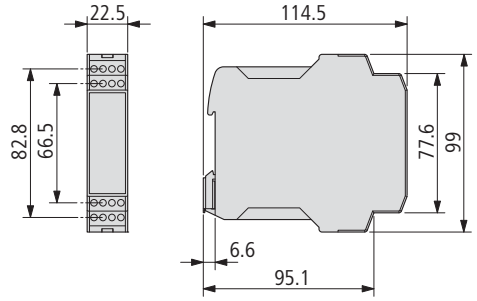
Safety technical data www.moeller.net/de/products_solutions/safety/safety_values

ESR5-NZ-21…	ESR5-NO-31-230VAC	ESR5-NO-31-24V-230VAC-DC	ESR5-NV3…	ESR5-VE3…	ESR5-NE-51…
24	230	24 - 230	-	-	24
24	-	230	24	24	24
0.85 - 1.1	0.85 - 1.1	0.85 - 1.1	0.85 - 1.1	0.85 - 1.1	0.8 - 1.1
-	-	-	-	-	-
3	5.8	5.8	-	-	2.2
1.5	2.9	2.9	1.8	2	2.2
Short-circuit proof	-	Short-circuit proof	-	-	-
-	Short-circuit proof	Short-circuit proof	-	-	-
24	24	24	24	24	24
S11, S21: 60, Y2: 45	S10, S12, S22: 35, S34, S35: 45	S10, S12, S22: 35, S34, S35: 45	S12, S22: 3.5, S34, S35: 7	A1, A2: 84, K1/K2: 5	A1, A2: 92
22	11	11	500	-	-
2.3	0.7	0.7	0.1	-	-
50	250	250	150	20	20
-	-	-	-	-	-
-	60	60	150	20	20
50	250	250	150	20	20
20	20	20	20 (non-delayed enable paths); 100 (min. delayed enable paths)	0.3 - 3 s (+ 50 %) adjustable	20
-	-	-	-	-	-
Approx.1000	Approx.1000	Approx.1000	Approx.330	Approx.1000	-
500	-	-	-	-	-
EN 61000-6-4	EN 61000-6-4	EN 61000-6-4	EN 61000-6-4	EN 61000-6-4	EN 61000-6-4
According to EN 61000-6-2	According to EN 61000-6-2	According to EN 61000-6-2	According to EN 61000-6-2, EN 62061	According to EN 61000-6-2	According to EN 61000-6-2

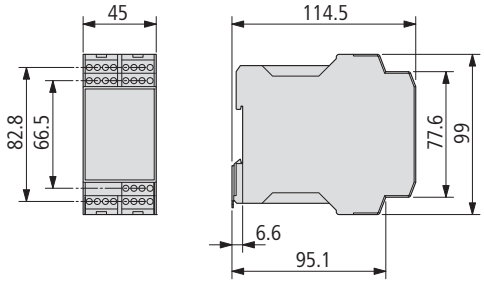
Dimensions

Safety relays, contact expansion modules

ESR5…24VAC-DC



ESR5…230VAC…



Automation solutions

Visualization solutions, modular and compact control systems, remote I/O systems and software: Eaton offer a wide spectrum of automation solutions.

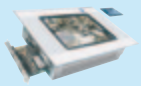
XV - visualisation solutions
Simple operation relieves operators of machinery, installations or in individual applications +++ Simultaneous high performance PLC +++ Resistive touch displays or robust infrared touch displays from 3.5 – 15 inches

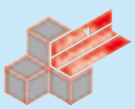
XC - modular PLCs
Construction scalable within wide limits +++ Different PLC performance classes, multiple expansion modules +++ Integration into communication concept +++ Data exchange through Ethernet and integrated Web server facilitate innovative solutions

EC4P – Compact control system
Many functions in one device +++ Automation of smaller applications +++ Ethernet variants allow remote programming +++ Numerous local expansion modules, easyNet extensions, CANopen extensions and network modules

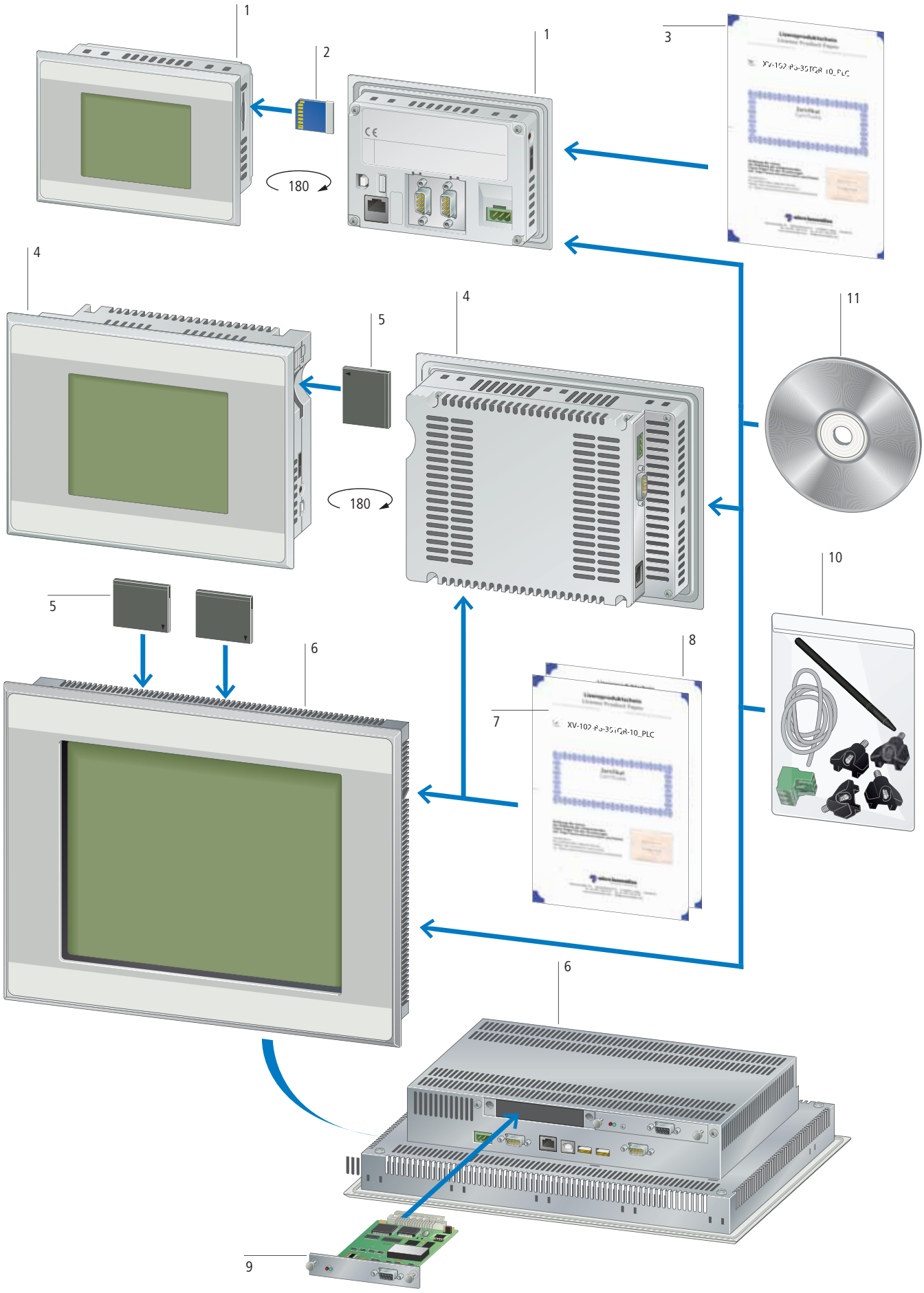
XI/ON – Remote I/O system
Control movements, measure temperature or speed, record currents and voltages +++ Ideal for solutions focused on remote signal processing +++ Modular concept and simple handling

Software
All controls programmed with CoDeSys in compliance with IEC 61131-3 +++ Easy and efficient generation of operator guidance with interactive visualization software Galileo +++ Mask generation for HMI-PLC devices (XV100, XV400); also with integrated CoDeSys visualization +++ Convenient, uncomplicated planning and realization of XI/ON stations with the cost-free I/O Assistant +++ Generate SmartWire-DT configurations with cost-free SWD-Assist





System overview



XV100 HMI/PLC with touch display 1

Compact operator panels with wide range of functions.
Fully-graphical 3.5", 5.7" or 7" wide-screen devices.
TFT display, color or monochrome
Resistive touch
Ethernet interface on board.
In addition CAN, PROFIBUS, RS232 or RS485 possible.

→ Page 14/5

SD memory card 2

Optional memory for project, recipe data, etc.

→ Page 14/12

XV license product certificate 3

Expansion of device functionality through assignment of license points.
Licensing is through the Internet.

→ Page 14/12

XV200 HMI/PLC with touch display 4

Fully graphic 5.7" devices with monochrome or color display (STN).
Resistive touch
Ethernet interface on board.
In addition CAN, PROFIBUS, or RS232 possible.

→ Page 14/6

Compact-Flash memory card 5

Memory for project, recipe data, etc.
With or without pre-installed Win CE operating system.

→ Page 14/12

XV400 HMI/PLC with touch display 6

5.7", 8.4", 10.4", 12.1", 15" devices
TFT color display
Infra-red or Resistive-touch.
Numerous communication possibilities through pluggable communication cards.
Also available in stainless steel design.

→ Page 14/10

XV license product certificate 7

Expansion of device functionality through assignment of license points.
Licensing is through the Internet.

→ Page 14/12

Windows CE licence 8

Win CE license with license label.

→ Page 14/12

Communication card for XV400 9

Depending on device size 1 or 2 cards can be plugged in.

→ Page 14/13

Mounting kit 10

Additional fixing kits for all XV devices.
Fixing kit are generally included as standard.
The illustration shows an XV-100 fixing kit.

→ Page 14/12

Software 11

Visualization software Galileo
Programming software XSOFT-CODESYS, EPAM

→ Page 14/130

Description

HMI with integratable PLC

The modern touch displays XV can optionally be used as fully-featured PLCs. This cost-saving, leading-edge concept offers the perfect solution for every application, whether in the low-cost segment or in the demanding high-end segment, where performance is key. The devices are available in display sizes from 3.5" to 15" and, depending on model with resistive or infrared touch. Alternatively, the panels can also be mounted edgewise.

XV100: Designed for the low-cost segment, these devices excel with a compact design, light-weight plastic housing and a wide range of onboard interfaces. Despite its small size, the XV100 with 3.5" touch display has an exceptional range of performance features, including PLC function.

The touch panels with 5.7" and 7" display feature an additional USB host and an RS232 interface.

XVS400 and XV400: These multipurpose devices with their rugged metal housing are exceptionally flexible and provide comprehensive communication possibilities. The XVS400 features a PROFIBUS-DP master/MPI interface as standard as well as Ethernet, RS232 and onboard USB host. With optional communication modules the XV400 can be easily and quickly expanded and adapted.

The XV400 with stainless steel front is also ideally equipped for special applications:
- IP69K: cleaning using high-pressure and steam jets (5.7")
- Ex zone 1: For use in potentially explosive atmospheres (10.4" and 12.1")

XVM400: The mobile version with its round, ergonomic design is easy to operate with just one hand.

Licencing procedure

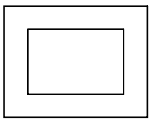
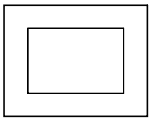
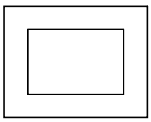
To make sure that you pay for only those functions that you actually need, the devices work with a license point system. Use the points to activate specific functions, such as:
- Runtime for the visualization (GALILEO or EPAM)
- Communication (e.g. Ethernet, CANopen, Siemens MPI)
- Tools (e.g. CE Telediag, S7 PG Router)
- XSOFT-CODESYS-2 runtime for the PLC function

With license product certificates you can buy additional license points. This has the following benefits for you:
- Cost optimization
- Low warehousing costs
- Flexible handling

→ For detailed information about this topic see chapter Licensing

HPL14005EN

Ordering

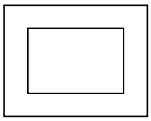
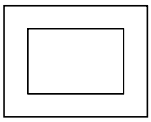
	Display	Front design	Screen diagonal Inches	Resolution Pixels	Communication interface	Part No. Article No.	Price See price list	Std. pack
XV100								
• HMI or HMI PLC with communication through on-board interface. • Communication scope extendable through licensing, → Page 14/12. • Standard front, special front please inquire • Insulating enclosure and front plate • Processor: RISC central processing unit, 32-bit, 400 MHz • OS, program and data memory: 64 MB • 1 slot for 1 SD card • Software (engineering): Visualization = GALILEO or EPAM, PLC = XSOFT-CODESYS-2 (depending on version) • Windows CE Core 5.0 license (incl.) – Built-in interfaces: 1 × Ethernet 100/10, 1 × USB device, communications interface – No PLC function possible								
	Resistive touch 3.5'' TFT LCD 32 grey levels	Standard membrane (fully enclosed)	3.5	320 x 240	–	**XV-102-A0-35MQR-10** 141759		1 off
			3.5	320 x 240	PROFIBUS	**XV-102-A2-35MQR-10** 141820		
			3.5	320 x 240	RS232	**XV-102-A3-35MQR-10** 141821		
			3.5	320 x 240	RS485	**XV-102-A4-35MQR-10** 141822		
			3.5	320 x 240	CAN RS232	**XV-102-A5-35MQR-10** 141823		
– Built-in interfaces: 1 × Ethernet 100/10, 1 × USB device, communications interface – Can be expanded with PLC function, → Page 14/14								
	Resistive touch 3.5'' TFT LCD 64 k Colors	Standard membrane (fully enclosed)	3.5	320 x 240	–	**XV-102-B0-35TQR-10** 140007		1 off
			3.5	320 x 240	PROFIBUS	**XV-102-B2-35TQR-10** 140008		
			3.5	320 x 240	RS232	**XV-102-B3-35TQR-10** 140009		
			3.5	320 x 240	RS485	**XV-102-B4-35TQR-10** 140010		
			3.5	320 x 240	CAN RS232	**XV-102-B5-35TQR-10** 140011		
– Including PLC function – Built-in interfaces: 1 × Ethernet 100/10, 1 × USB device, communications interface								
	Resistive touch 3.5'' TFT LCD 32 grey levels	Standard membrane (fully enclosed)	3.5	320 x 240	–	**XV-102-B0-35MQR-10-PLC** 140012		1 off
			3.5	320 x 240	RS232	**XV-102-B3-35MQR-10-PLC** 140013		
			3.5	320 x 240	RS485	**XV-102-B4-35MQR-10-PLC** 140014		
			3.5	320 x 240	CAN RS232	**XV-102-B5-35MQR-10-PLC** 140015		
			3.5	320 x 240	CAN RS485	**XV-102-B6-35MQR-10-PLC** 140016		
			3.5	320 x 240	PROFIBUS RS485	**XV-102-B8-35MQR-10-PLC** 140017		
	Resistive touch 3.5'' TFT LCD 64 k Colors		3.5	320 x 240	–	**XV-102-B0-35TQR-10-PLC** 140018		
			3.5	320 x 240	RS232	**XV-102-B3-35TQR-10-PLC** 140019		
			3.5	320 x 240	RS485	**XV-102-B4-35TQR-10-PLC** 140020		
			3.5	320 x 240	CAN RS232	**XV-102-B5-35TQR-10-PLC** 140021		
			3.5	320 x 240	CAN RS485	**XV-102-B6-35TQR-10-PLC** 140022		
			3.5	320 x 240	PROFIBUS RS485	**XV-102-B8-35TQR-10-PLC** 140023		

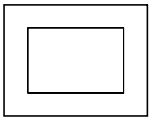
Information relevant for export to North America

Product Standards	UL 60950-01; cUL; IEC/EN 61131-2; CE marking
UL File No.	E208621
UL CCN	NWGQ2, NWGQ8
CSA File No.	UL report applies to both US and Canada
CSA Class No.	-
NA Certification	UL Recognized, certified by UL for use in Canada

Conditions of Acceptability
The investigated Pollution Degree is: 2
The following end-product enclosures are required: Fire. The unit must be supplied via a SELV source. The provided Ethernet Connection is only allowed to connect to inhouse networks

Degree of Protection
IEC: IP65, UL/CSA Type: -

	Display	Front design	Screen diagonal Inches	Resolution Pixels	Communication interface	**Part No.** Article No.	**Price** See price list	Std. pack
XV100								
– Built-in interfaces: 1 × Ethernet 100/10, 1 × USB device, 1 × USB host, communications interface – Can be expanded with PLC function, → Page 14/14								
	Resistive touch 5.7" TFT LCD 64 k Colors	Standard membrane (fully enclosed)	5.7	640 x 480	RS232	**XV-102-D0-57TVR-10** 142530		1 off
			5.7	640 x 480	CAN RS232 RS485	**XV-102-D6-57TVR-10** 142531		
			5.7	640 x 480	PROFIBUS RS232 RS485	**XV-102-D8-57TVR-10** 142532		
	Resistive touch 7" TFT LCD 64 k Colors		7	800 x 480	RS232	**XV-102-D0-70TWR-10** 142535		
			7	800 x 480	CAN RS232 RS485	**XV-102-D6-70TWR-10** 142536		
			7	800 x 480	PROFIBUS RS232 RS485	**XV-102-D8-70TWR-10** 142537		
– Including PLC function – Built-in interfaces: 1 × Ethernet 100/10, 1 × USB device, 1 × USB host, communications interface								
	Resistive touch 5.7" TFT LCD 64 k Colors	Standard membrane (fully enclosed)	5.7	640 x 480	CAN RS232 RS485	**XV-102-D6-57TVR-10-PLC** 142533		1 off
			5.7	640 x 480	PROFIBUS RS232 RS485	**XV-102-D8-57TVR-10-PLC** 142534		
	Resistive touch 7" TFT LCD 64 k Colors		7	800 x 480	CAN RS232 RS485	**XV-102-D6-70TWR-10-PLC** 142538		
			7	800 x 480	PROFIBUS RS232 RS485	**XV-102-D8-70TWR-10-PLC** 142539		

	Display	Front design	Screen diagonal Inches	Resolution Pixels	Communication interface	**Part No.** Article No.	**Price** See price list	Std. pack
XV200								
• HMI or HMI PLC with communication through on-board interface. • PLC function and communications scope can be upgraded with licenses, → Page 14/12. • Standard front, special front please inquire • Insulating enclosure and front plate • Processor: RISC central processing unit, 32-bit, 200 MHz • OS, program and data memory: 32 MB. • Built-in interfaces: 1 × Ethernet, 1 × USB device, communications interface • 1 slot for 1 Compact Flash™ card. • Software (engineering): visualization = GALILEO or EPAM, PLC = XSOFT-CODESYS-2 • Windows CE license required • Compact Flash™ required → XV accessories • Flush mounting compatible with 5.7" XV-400 devices and older predecessors								
	Resistive touch 5.7" FSTN LCD (monochrome display) 256 grey levels	Standard membrane	5.7	320 x 240	CAN	**XV-230-57CNN-1-10** 139951		1 off
			5.7	320 x 240	PROFIBUS	**XV-230-57MPN-1-10** 139952		
			5.7	320 x 240	RS232	**XV-232-57BAS-1-10** 139950		
	Resistive touch 5.7" CSTN LCD (Color display)		5.7	320 x 240	CAN RS232	**XV-252-57CNN-1-10** 139956		
			5.7	320 x 240	PROFIBUS RS232	**XV-252-57MPN-1-10** 139957		

Information relevant for export to North America	Product Standards	UL 60950-01; cUL; IEC/EN 61131-2; CE marking	Conditions of Acceptability	The investigated Pollution Degree is: 2 The following end-product enclosures are required: Fire, Electrical The unit must be supplied via a SELV source. The provided Ethernet Connection is only allowed to connect to inhouse networks.
	UL File No.	E208621		
	UL CCN	NWGQ2, NWGQ8		
	CSA File No.	UL report applies to both US and Canada		
	CSA Class No.	–		
	NA Certification	UL Recognized, certified by UL for use in Canada	Degree of Protection	IEC: IP65, UL/CSA Type: -

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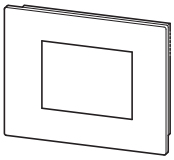
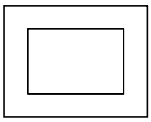
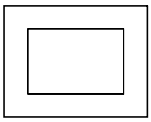
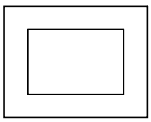
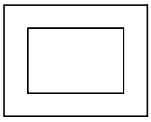
	Display		Screen diagonal Inches	Resolution Pixels	Communication interface	**Part No.** Article No.	**Price** See price list	Std. pack
MFD4								
• Memory card pluggable (optional) → Page 14/41 • Real-time clock • Operating system: Windows CE								
	Resistive touch 5.7" TFT LCD 32 k Colors		5.7	320 x 240	Ethernet CANopen/easyNet RS232	**MFD4-5-XRC-30** 109428		1 off
XVH300								
• HMI (No PLC function possible) with communication through on-board interface. • Communication scope extendable through licensing, → Page 14/12. • Standard front, special front please inquire • Metal enclosure and front plate • Processor: RISC central processing unit, 32-bit, 200 MHz • OS, program and data memory: 64 MB • Display: 5.7" CSTN LCD (Color display), 256 colors • Built-in interfaces: 1 × Ethernet, 1 × USB device, communications interface • 1 slot for 1 Compact Flash™ card • Software (engineering): visualization = GALILEO or EPAM • WinCE license required → XV accessories • Compact Flash™ required → XV accessories								
	Infra-red touch 5.7" CSTN LCD (Color display)	Standard front with standard membrane Laminated safety glass, non-reflective	5.7	320 x 240	–	**XVH-340-57BAS-1-10** 139869		1 off
			5.7	320 x 240	CAN	**XVH-340-57CAN-1-10** 139870		
			5.7	320 x 240	PROFIBUS	**XVH-340-57MPI-1-10** 139871		
			5.7	320 x 240	RS485 (Suconet K) RS232 (Sucom A)	**XVH-342-57SKS-1-10** 139873		
		Satin-finish brushed stainless steel Laminated safety glass, non-reflective	5.7	320 x 240	CAN	**XVH-340-57CAN-1-50**[1)] 139872		
	Resistive touch 5.7" CSTN LCD (Color display)	Standard front with standard membrane (fully laminated)	5.7	320 x 240	–	**XVH-330-57BAS-1-10** 139866		
			5.7	320 x 240	CAN	**XVH-330-57CAN-1-10** 139867		
			5.7	320 x 240	PROFIBUS	**XVH-330-57MPI-1-10** 139868		

Notes

[1)] Approved for IP69K.
Observe installation instructions to IP69K.

Information relevant for export to North America

Product Standards	UL 60950-01; cUL; IEC/EN 61131-2; CE marking
UL File No.	E208621
UL CCN	NWGQ2, NWGQ8
CSA File No.	UL report applies to both US and Canada
CSA Class No.	–
NA Certification	UL Recognized, certified by UL for use in Canada
Conditions of Acceptability	The investigated Pollution Degree is: 2 Proper bonding to the end-product main protective earthing termination is: Required The following end-product enclosures are required: Fire, Electrical The unit must be supplied via a SELV source. The provided Ethernet Connection is only allowed to connect to inhouse networks.
Degree of Protection	IEC: IP65, UL/CSA Type: -

	Display	Front design	Screen diagonal Inches	Resolution Pixels	**Part No.** Article No.	**Price** See price list	Std. pack
XVS400							
• HMI or HMI PLC with communication through on-board interface. • PLC function and communications scope can be upgraded with licenses, → Page 14/12. • Standard front, special front please inquire • Metal enclosure and front plate • Processor: RISC central processing unit, 32-bit, 400 MHz • OS, program and data memory: 64 MB • Software (engineering): visualization = GALILEO or EPAM, PLC = XSOFT-CODESYS-2 • WinCE license required → XV accessories • Compact Flash™ required → XV accessories							
— Display: 5.7" CSTN LCD (color display), 256 colors — 1 slot for Compact Flash™ cards — Built-in interfaces: 1 × Ethernet 100/10, 1 × RS232, 1 × PROFIBUS, 1 × USB host, 1 × USB device							
	Resistive touch 5.7" CSTN LCD (Color display)	Standard membrane (fully laminated)	5.7	320 x 240	**XVS-430-57MPI-1-10** 139967		1 off
	Infra-red touch 5.7" TFT LCD	Standard membrane Laminated safety glass, non-reflective	5.7	320 x 240	**XVS-460-57MPI-1-10** 139970		
— Display: 5.7" or 8.4" TFT LCD (Color display), adjustable: 65536 or 256 colors — 1 slot for Compact Flash™ card — Built-in interfaces: 1 × Ethernet 100/10, 1 × RS232, 1 × PROFIBUS, 1 × USB host, 1 × USB device							
	Infra-red touch 5.7" CSTN LCD (Color display)	Standard membrane Laminated safety glass, non-reflective	5.7	320 x 240	**XVS-440-57MPI-1-10** 139968		1 off
	Resistive touch 5.7" TFT LCD	Standard membrane (fully laminated)	5.7	320 x 240	**XVS-450-57MPI-1-10** 139969		
	Infra-red touch 8.4" TFT LCD	Standard membrane Laminated safety glass, non-reflective	8.4	640 x 480	**XVS-460-84MPI-1-10** 139971		
— Display: 10.4", 12.1" or 15" TFT LCD (Color display), adjustable: 65536 or 256 colors — 2 slots for Compact Flash™ cards — Built-in interfaces: 1 × Ethernet 100/10, 1 × RS232, 1 × PROFIBUS, 2 × USB host, 1 × USB device							
	Infra-red touch 10.4" TFT LCD	Standard membrane Laminated safety glass, non-reflective	10.4	640 x 480	**XVS-440-10MPI-1-10** 139973		1 off
	Resistive touch 10.4" TFT LCD	Standard membrane (fully laminated)	10.4	640 x 480	**XVS-430-10MPI-1-10** 139972		
	Infra-red touch 12.1" TFT LCD	Standard membrane Laminated safety glass, non-reflective	12.1	800 x 600	**XVS-440-12MPI-1-10** 139975		
	Resistive touch 12.1" TFT LCD	Standard membrane (fully laminated)	12.1	800 x 600	**XVS-430-12MPI-1-10** 139974		
	Infra-red touch 15" TFT LCD	Standard membrane Laminated safety glass, non-reflective	15	1024 x 768	**XVS-460-15MPI-1-10** 139976		

Information relevant for export to North America

Product Standards	UL 60950-01; cUL; IEC/EN 61131-2; CE marking
UL File No.	E208621
UL CCN	NWGQ2, NWGQ8
CSA File No.	UL report applies to both US and Canada
CSA Class No.	–
NA Certification	UL Recognized, certified by UL for use in Canada
Conditions of Acceptability	The investigated Pollution Degree is: 2 Proper bonding to the end-product main protective earthing termination is: Required The following end-product enclosures are required: Fire, Electrical The unit must be supplied via a SELV source. The provided Ethernet Connection is only allowed to connect to inhouse networks.
Degree of Protection	IEC: IP65, UL/CSA Type: -

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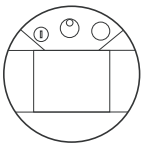
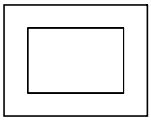
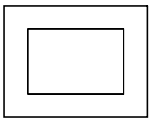
	Display	Operating elements	Part No. Article No.	Price See price list	Std. pack	Information relevant for export to North America
XVM400						
• Mobile HMI (No PLC function possible) with communication through on-board interface. • Communication scope extendable through licensing, → Page 14/12. • Standard front, 31 membrane keys, 4 status LEDs • Insulating enclosure and front plate • Processor: RISC central processing unit, 32-bit, 400 MHz • OS, program and data memory : min 64 MB • Built-in interfaces: 1 × Ethernet, 1 × RS232-C, 1 × USB host • Software (engineering): Visualization = GALILEO (runtime already installed) • Windows CE 5.0 license (incl.)						
	Resistive touch 6.5" TFT LCD 64 k Colors	2 acknowledgement keys (3-stage, 2-circuit) externally wired Emergency switching off button (2-circuit), externally wired	**XVM-430-65TVB-1-11** 139996		1 off	Product Standards: UL 508; cUL; IEC/EN 6113-2; CE marking UL File No.: E176666 UL CCN: NRAQ, NRAQ7 CSA File No.: UL report applies to both US and Canada CSA Class No.: - NA Certification: UL Recognized, certified by UL for use in Canada Degree of Protection: IEC: IP65, UL/CSA Type: -
	Resistive touch 6.5" TFT LCD 64 k Colors	2 acknowledgement keys (3-stage, 2-circuit) externally wired Emergency switching off button (2-circuit), externally wired Key switch (3-position), internally wired Electronic hand wheel, internally wired	**XVM-450-65TVB-1-11** 139998			
	Resistive touch 6.5" TFT LCD 64 k Colors	2 acknowledgement keys (3-stage, 2-circuit) externally wired Key switch (3-position), internally wired Electronic hand wheel, internally wired	**XVM-410-65TVB-1-11** 139997			

	Display	Front design	Screen diagonal Inches	Resolution Pixels	**Part No.** Article No.	**Price** See price list	Std. pack	Notes
XV400								
• HMI or HMI PLC with communication through on-board interface. • PLC function and communications scope can be upgraded with licenses, → Page 14/12. • Standard front, stainless steel front, special fronts please inquire • Metal enclosure and front plate • Processor: RISC central processing unit, 32-bit, 400 MHz • OS, program and data memory: 64 MB • Software (engineering): visualization = GALILEO or EPAM, PLC = XSOFT-CODESYS-2 • WinCE license required → XV accessories • Compact Flash™ required → S XV accessories								
— Display: 5.7" CSTN LCD (color display), 256 colors — 1 slot for Compact Flash™ cards — 1 slot for communication cards — Built-in interfaces: 1 × Ethernet 100/10, 1 × RS232, 1 × CAN, 1 × USB host, 1 × USB device								
	Infra-red touch 5.7" CSTN LCD (Color display)	Standard front with standard membrane Laminated safety glass, non-reflective	5.7	320 x 240	**XV-442-57CQB-1-10** 139892		1 off	–
	Infra-red touch 5.7" CSTN LCD (Color display)	Four-hole front with standard membrane Laminated safety glass, non-reflective	5.7	320 x 240	**XV-442-57CQB-1-20** 139894			1)
	Infra-red touch 5.7" CSTN LCD (Color display)	Satin-finish brushed stainless steel Laminated safety glass, non-reflective	5.7	320 x 240	**XV-442-57CQB-1-50** 139896			1) 2)
	Resistive touch 5.7" CSTN LCD (Color display)	Standard front with standard membrane (fully laminated)	5.7	320 x 240	**XV-432-57CQB-1-10** 139890			–
— Display: 5.7" or 8.4" TFT LCD (Color display), adjustable: 65536 or 256 colors — 1 slot for Compact Flash™ card — 1 slot for communication cards — Built-in interfaces: 1 × Ethernet 100/10, 1 × RS232, 1 × CAN, 1 × USB host, 1 × USB device								
	Infra-red touch 5.7" TFT LCD	Standard front with standard membrane Laminated safety glass, non-reflective	5.7	320 x 240	**XV-460-57TQB-1-10** 139897		1 off	–
	Infra-red touch 5.7" TFT LCD	Satin-finish brushed stainless steel Laminated safety glass, non-reflective	5.7	320 x 240	**XV-460-57TQB-1-50** 139898			2)
	Resistive touch 5.7" TFT LCD	Standard front with standard membrane (fully laminated)	5.7	320 x 240	**XV-450-57TQB-1-10** 139899			–
	Infra-red touch 8.4" TFT LCD	Standard front with standard membrane Laminated safety glass, non-reflective	8.4	640 x 480	**XV-460-84TVB-1-10** 139900			–

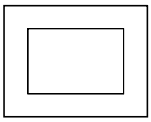
Instructions

1) Not for new applications.
2) Approved for II 2G Ex px II IP5x (ATEX 94/9/EC):
Observe installation instructions to IP69K.

Information relevant for export to North America

Product Standards	UL 60950-01; cUL; IEC/EN 61131-2; CE marking
UL File No.	E208621
UL CCN	NWGQ2, NWGQ8
CSA File No.	UL report applies to both US and Canada
CSA Class No.	–
NA Certification	UL Recognized, certified by UL for use in Canada
Conditions of Acceptability	The investigated Pollution Degree is: 2 Proper bonding to the end-product main protective earthing termination is: Required The following end-product enclosures are required: Fire, Electrical The unit must be supplied via a SELV source. The provided Ethernet Connection is only allowed to connect to inhouse networks.
Degree of Protection	IEC: IP65, UL/CSA Type: -

HPL14011EN

	Display	Front design	Screen diagonal Inches	Resolution Pixels	**Part No.** Article No.	**Price** See price list	Std. pack	Notes
XV400								
— Display: 10.4", 12.1" or 15" TFT LCD (Color display), adjustable: 65536 or 256 colors — 2 slots for Compact Flash™ cards — 2 slots for communication cards — Built-in interfaces: 1 × Ethernet 100/10, 1 × RS232, 1 × CAN, 2 × USB host, 1 × USB device								
	Infra-red touch 10.4" TFT LCD	Standard front with standard membrane Laminated safety glass, non-reflective	10.4	640 x 480	**XV-440-10TVB-1-10** 139904		1 off	–
	Infra-red touch 10.4" TFT LCD	Four-hole front with standard membrane Laminated safety glass, non-reflective	10.4	640 x 480	**XV-440-10TVB-1-20** 139906		1 off	1)
	Infra-red touch 10.4" TFT LCD	Satin-finish brushed stainless steel Laminated safety glass, non-reflective	10.4	640 x 480	**XV-440-10TVB-1-50** 139908		1 off	2)
	Resistive touch 10.4" TFT LCD	Standard front with standard membrane (fully laminated)	10.4	640 x 480	**XV-430-10TVB-1-10** 139902		1 off	–
	Infra-red touch 12.1" TFT LCD	Standard front with standard membrane Laminated safety glass, non-reflective	12.1	800 x 600	**XV-440-12TSB-1-10** 139911		1 off	–
	Infra-red touch 12.1" TFT LCD	Four-hole front with standard membrane Laminated safety glass, non-reflective	12.1	800 x 600	**XV-440-12TSB-1-20** 139913		1 off	1)
	Infra-red touch 12.1" TFT LCD	Satin-finish brushed stainless steel Laminated safety glass, non-reflective	12.1	800 x 600	**XV-440-12TSB-1-50** 139915		1 off	2)
	Resistive touch 12.1" TFT LCD	Standard front with standard membrane (fully laminated)	12.1	800 x 600	**XV-430-12TSB-1-10** 139909		1 off	–
	Infra-red touch 15" TFT LCD	Standard front with standard membrane Laminated safety glass, non-reflective	15	1024 x 768	**XV-460-15TXB-1-10** 139916		1 off	–
	Infra-red touch 15" TFT LCD	Four-hole front with standard membrane Laminated safety glass, non-reflective	15	1024 x 768	**XV-460-15TXB-1-20** 139917		1 off	1)
	Infra-red touch 15" TFT LCD	Satin-finish brushed stainless steel Laminated safety glass, non-reflective	15	1024 x 768	**XV-460-15TXB-1-50** 139918		1 off	–

Instructions

1) Not for new applications.
2) Approved for II 2G Ex px II IP5x (ATEX 94/9/EC):
Zone 1, Category 2G (Only for flush-mounting in a pressurized enclosure! Max. permissible excess pressure: 10 mbar continuous.)
Zone 2, Category 3G (Only for flush-mounting in a pressurized enclosure! Max. permissible excess pressure: 10 mbar continuous.)

Information relevant for export to North America

Product Standards	UL 60950-01; cUL; IEC/EN 61131-2; CE marking
UL File No.	E208621
UL CCN	NWGQ2, NWGQ8
CSA File No.	UL report applies to both US and Canada
CSA Class No.	–
NA Certification	UL Recognized, certified by UL for use in Canada
Conditions of Acceptability	The investigated Pollution Degree is: 2 Proper bonding to the end-product main protective earthing termination is: Required The following end-product enclosures are required: Fire, Electrical The unit must be supplied via a SELV source. The provided Ethernet Connection is only allowed to connect to inhouse networks.
Degree of Protection	IEC: IP65, UL/CSA Type: -

Description	For use with	Part No. Article No.	Price See price list	Std. pack	Information relevant for export to North America
Windows CE licenses					
License for Windows CE 3.0 incl. license label	XV-2… XVH-3… XV-4… XVS-4…	**LIC-OS-CE30** 140405		1 off	UL/CSA certification not required
License for Windows CE 5.0 Core incl. license label		**LIC-OS-CE50-C** 140406			
License for Windows CE 5.0 Professional Plus incl. license label		**LIC-OS-CE50-PP** 140408			
Memory cards					
SD memory card with min. 128 MByte Without operating system	XV-1…	**MEMORY-SD-A1-S** 139807		1 off	UL/CSA certification not required
Compact flash with min. 128 MByte Without operating system	XV-2… XVH-3… XV-4… XVS-4…	**MEMORY-CF-A1-S** 139528			
Compact flash with min. 128 MByte Windows CE 3.0 preinstalled Without Windows license (license required (LIC-OS-CE30))	XV-2… XVH-3… XV-4… XVS-4…	**OS-FLASH-A1-S** 140366			
Compact flash with min. 128 MByte Windows CE 5.0 Core preinstalled Without Windows license (license required (LIC-OS-CE 50-C))		**OS-FLASH-A1-C** 140368			
XV license product certificates					
License product certificate PLC with license label COMPACT	XV-1…-B… XV-1…-D…	**LIC-PLC-MXP-COMPACT** 142581		1 off	UL/CSA certification not required
License product certificate PLC with license label LIGHT	XV-2…-57BAS… XV-2…-57CNN…	**LIC-PLC-MXP-LIGHT** 140388			
License product certificate PLC with license label SMALL	XV-2…-57MPN… XV-4…-57… XV-4…-84… XVS-4…-57… XVS-4…-84…	**LIC-PLC-MXP-SMALL** 140389			
License product certificate PLC with license label MEDIUM	XV-4…-10… XV-4…-12… XV-4…-15… XVS-4…-10… XVS-4…-12… XVS-4…-15…	**LIC-PLC-MXP-MEDIUM** 140390			
License product certificate 40 POINTS	XV-1… XV-2… XVH-3… XV-4… XVS-4… XVM-4...	**LIC-OPT-1ST-LEVEL** 140391			
License product certificate 80 POINTS		**LIC-OPT-2ND-LEVEL** 140392			
License product certificate 160 POINTS		**LIC-OPT-3RD-LEVEL** 140393			
Additional fixing brackets					
4 mounting brackets with grub screw	XVH-3… XV-4… XVS-4…	**ACCESSORIES-HKS-IP65** 139809		1 off	UL/CSA certification not required
100 mounting brackets with grub screw		**ACCESSORIES-HKS-IP65-100** 139810			

Description	For use with	Part No. Article No.	Price See price list	Std. pack	Information relevant for export to North America
Standard accessories					
Supplied as standard with devices					
Device accessories as replacement for insulated devices: 8 mounting brackets with grub screw for flush mounting 1 sealing profile for flush mounting device 1 power supply plug 1 touch pen	XV-1… XV-2…	**ACCESSORIES-TP-57-KG-1** 139837		1 off	UL/CSA certification not required
Device accessories as replacement for 5.7" devices with resistive touch and metal front: 4 mounting brackets with grub screw for flush mounting 1 sealing profile for flush mounting device 1 power supply plug 1 touch pen	XVH-330… XV-432-57… XV-450-57… XVS-430-57… XVS-450-57…	**ACCESSORIES-TP-57-RES-1** 139827			
Device accessories as replacement for 5.7" devices with infrared touch and standard front: 4 mounting brackets with grub screw for flush mounting 1 sealing profile for flush mounting device 1 power supply plug	XVH-34… XV-442-57… XV-460-57… XVS-440-57… XVS-460-57…	**ACCESSORIES-TP-57-IR-1**[1)] 139828			
Device accessories as replacement for 5.7" devices with infrared touch and stainless steel front: 8 mounting brackets with grub screw for flush mounting 1 seal for flush mounting device 1 power supply plug	XVH-340-57…-50 XV-442-57…-50 XV-460-57…-50	**ACCESSORIES-TP-57-EST-1** 139830			
Device accessories as replacement for 10.4" and 12.1" devices with resistive touch: 6 mounting brackets with grub screw for flush mounting 1 sealing profile for flush mounting device 1 power supply plug 1 touch pen	XV-430-10… XV-430-12… XVS-430-10… XVS-430-12…	**ACCESSORIES-TP-10/12-RES-1** 139831			UL/CSA certification not required
Device accessories as replacement for 10.4", 12.1" and 15" devices with infrared touch: 8 mounting brackets with grub screw for flush mounting 1 sealing profile for flush mounting device 1 power supply plug	XV-440-10… XV-440-12… XV-440-15… XVS-440-10… XVS-440-12… XVS-460-15… XP-7…-10… XP-7…-12… XP-7…-15…	**ACCESSORIES-TP-15-IR-1** 139843			
Communication cards Protocols for communication cards → Page 14/14					
Multiple protocol card	XV-4…	**COM-MPB1-TP** 139850		1 off	UL/CSA certification refer to main component information
Multiple protocol card MPI		**COM-MPB2-TP** 139847			
PROFIBUS-DP master (12 MBaud)		**COM-DPM-MC2** 139853			
PROFIBUS-DP slave (12 MBaud)		**COM-PDP-TP** 139849			
EIB (3rd release)		**COM-EIB2-TP** 139852			
Accessories for Mobile Panel					
Wall mount with cable holder	XVM-4…	**KETOP-WB095** 139999		1 off	UL/CSA certification not required
Switch box outside control panel IP65		**KETOP-CB211** 140002		1 off	–
Switch box for installation inside control panel		**JB001/ASET** 140003		1 off	–
Connection cable, 5 m		**KETOP-TT050-MV1** 140000		1 off	UL/CSA certification not required
Connection cable, 10 m		**KETOP-TT100-MV1** 140001			
Connection cable, 15 m		**KETOP-TT150-MV1** 140005			
Jumper plug for emergency switching off		**KETOP-BC001** 140004			
Spare keys, 2 off	XVM-410… XVM-450…	**KETOP-EKY001** 140006			

Notes

[1)] XVH-340-57CAN-1-50, XV-442-57CQB-1-50 and XV-460-57TQB-1-50 have a special seal.

Engineering

Protocols for communication cards for panel XV400

For panels XV400, communications protocols are available through optional plug-in communication cards (No license products required):
Excerpt From the most common protocols, which are available for XV400 devices through optional plug-in communication cards:

Protocol	Required communication cards for XV400
EIB (3rd release)	COM-EIB2-TP
Matsushita FP series	COM-MPB1-TP / COM-MPB2-TP
Mitsubishi A series/F series	COM-MPB1-TP / COM-MPB2-TP
Moeller Suconet K	COM-MPB1-TP / COM-MPB2-TP
Omron C, H, or K series	COM-MPB1-TP / COM-MPB2-TP
PROFIBUS-DP master (12 Mbaud)	COM-DPM-MC2
PROFIBUS-DP slave (12 Mbaud)	COM-PDP-TP
Siemens MPI	COM-MPB2-TP
Telemecanique Unitelway new	COM-MPB1-TP / COM-MPB2-TP

To inquire about further protocols, contact your vendor.

Licensing for Panel XV…

The panels XV100, XV200, XVH300, XV400, XVS400 and XVM400 are supplied with license points saved to the device. License points are required to be able to perform certain functions with the device:
- XSOFT-CODESYS-2 runtime for the PLC function (not possible with XV-102-A…,XVH300 and XVM400)
- Runtime for the visualization (GALILEO or EPAM)
- Tools (e. g. CE Telediag, S7 PG Router)
- Communication (e.g. Ethernet, CANopen, Siemens MPI)

Number of license points supplied with standard devices:
- 140 license points: XV100 (without PLC function), XV200, XVH300, XV400, XVS400
- 240 license points: XV100 with PLC function
- 260 licence points: XVM400

If the device does not contain enough license points for the required functions or to add the PLC function to the HMI, you must purchase additional license points. To do this you need one or more license product certificates. The following are available:

- License product certificates for the PLC function: To enable the PLC function (XSOFT-CODESYS-2) special license product certificates are required. These contain a license label for the device type, which must be applied to the device fir legal reasons.
- License product certificates for visualization, communication and tools

Determining required license points

For the visualization and tools and communication features used, add the license points required for each function. Communication connections to several devices with the same protocol must be counted only once. From this total, subtract the points already contained on the devices (e.g. 140 points).
The difference is the number of license points that you must install for communication protocols and tools through license product certificates.

Table: Required license points for runtime and tools

Visualization/Tools	Required on-board interface	Licence points
GALILEO-Runtime	None	100
EPAM runtime	None	100
XSOFT-CODESYS-2 runtime (PLC function)	None	100
XSOFT-CODESYS-2 runtime (PLC function and TargetVisu function)	None	200
CE Telediag	RS232	40
S7 PG Router	Ethernet and PROFIBUS	80
CAN Monitor	CAN	0
Domain Server	Ethernet	80

Table: Required license points for communication through on-board interface

Manufacturer	PLC	Protocol	Required on-board interface	Licence points XSOFT-CODE-SYS-2	Licence points GALILEO	Licence points EPAM
Eaton	XV with PLC function		Local	-	0	0
	XV with PLC function		Ethernet	0	40	0
		CANopen, master	CAN	0	-	-
		CANopen, PDO	CAN	0	40	-
		CANopen, SDO	CAN	0	40	-
		XV200 DP master (1.5 MBaud)	PROFIBUS	40	-	-
		XV100/XVS400 DP master (1.5 Mbaud)	PROFIBUS	0	-	-
		Modbus RTU	RS232	0	40	-
		Modbus TCP	Ethernet	0	80	-
	CoDeSys		Ethernet	0	40	0
A. Bradley	Logix	DF1	RS232	-	120	-
	Logix	Ethernet/IP	Ethernet	-	120	-
	MicroLogix	SLC5/03 MicroLogix DF1	RS232	-	40	-
Beckhoff	TwinCAT	ADS	Ethernet	-	80	-
	BC9000	ADS	Ethernet	-	80	-
HIMA	HIMatrix	Modbus TCP	Ethernet	-	80	-
Mitsubishi	PG-AX/PG-FX		RS232	-	40	-
Eaton	easy500/easy700		RS232	-	40	-
	easy800/MFD-Titan		RS232	-	40	-
	PS4		RS232	-	40	-
	XC100, XC200		CAN	-	40	-
	XC100, XC200		Ethernet	-	40	-
	PS4	Suconet K (to XVH342-57SKS)	Suconet K	-	0	-
Siemens	S7	Industrial Ethernet	Ethernet	-	80	-
	S7	MPI	PROFIBUS	-	40	-
	S7	PROFIBUS-DP (1.5 Mbaud) S7 default profile	PROFIBUS	-	40	-
	S7-200	PPI	PROFIBUS	-	40	-
-	-	XVM400 keypad	Local	-	40	-

- Communication currently not available

To inquire about further protocols, contact your vendor.

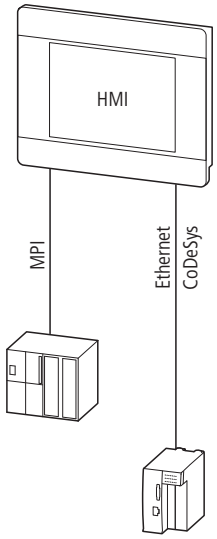
Communication cards for MICRO PANEL XV400

For panels XV400 further communications protocols are available through optional plug-in communication cards (No license products required).
Depending on the required functionality the following license product certificates are available (→ XV accessories):

Licensing examples

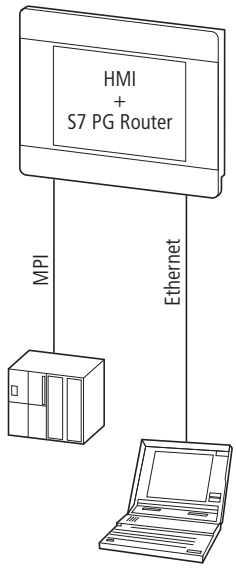
HMI application: XV100, XV200, XVS400		
Visualization, communication		
Visualization (GALILEO)	100	Points
Communication MPI	40	Points
Communication CoDeSys external	40	Points
Total	180	Points
Contained in device on delivery	-140	Points
Additionally required points for communication	40	Points
PLC		
PLC application		No

Required license product certificates:
1 x LIC-OPT-1ST-LEVEL (40 points)



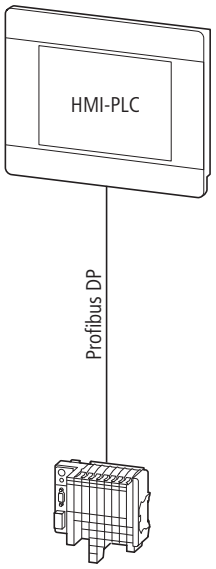
HMI application: XV100, XV200, XVS400, with additional software S7 PG Router		
Visualization, communication		
Visualization (GALILEO)	100	Points
Communication MPI	40	Points
S7 PG Router	80	Points
Total	220	Points
Contained in device on delivery	-140	Points
Additionally required points for communication	80	Points
PLC		
PLC application		No

Required license product certificates:
1 x LIC-OPT-2ND-LEVEL (80 points)



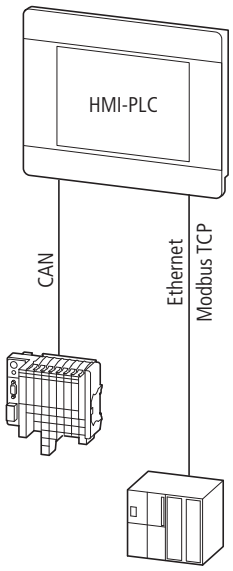
HMI-PLC Application: XV100		
Visualization, communication		
Visualization (GALILEO)	100	Points
Communication HMI-PLC local	0	Points
Communication CANopen or PROFIBUS-DP master (XSOFT-CODESYS-2)	0	Points
Total	100	Points
Contained in device on delivery	-140	Points
Additionally required points for communication	0	Points
PLC		
PLC application	100	Points

Required license product certificates:
1 x LIC-PLC-MXP-COMPACT (100 points)



For device versions XV-102-…-PLC license LIC-PLC-MXP-COMPACT is included with the device as standard (the device therefore has 240 license points).

HMI-PLC Application: XV400 10.4“		
Visualization, communication		
Visualization (GALILEO)	100	Points
Communication HMI-PLC local	0	Points
Communication Modbus TCP client (GALILEO)	80	Points
Communication CANopen (XSOFT-CODESYS-2)	0	Points
Total	180	Points
Contained in device on delivery	-140	Points
Additionally required points for communication	40	Points
PLC		
PLC application	100	Points



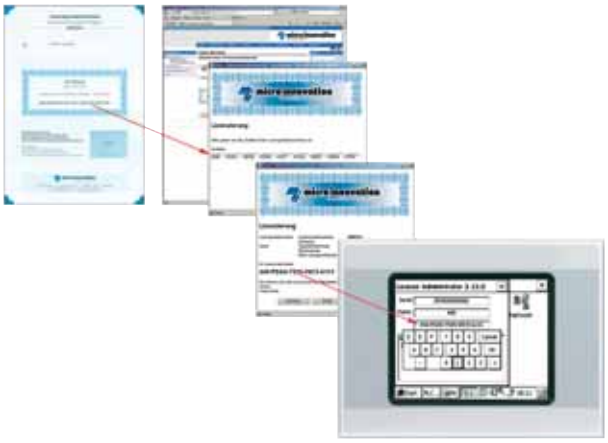
Required license product certificates:
1 x LIC-OPT-1ST-LEVEL (40 points)
1 x LIC-PLC-MXP-MEDIUM (100 points)

For device versions XV-102-…-PLC license LIC-PLC-MXP-COMPACT is included with the device as standard (the device therefore has 240 license points).

Redeeming a license product certificate (XV100, XV200, XV400, XVS400, XVH300)

1 Order the required license product certificate.
2 Keep the following information available:
– Certificate number of license product certificate
– The serial number of your device
– Your e-mail address
3 On the Micro Innovation website (www.microinnovation.com/license), select menu item “Validate License” and click [Start Licensing].
4 In the new window that opens, enter your certificate number. The license product certificate is associated with a specific device through its serial number. The website generates a license code, which is immediately shown on the web page.
5 Enter the license code in your device:
– On the device, select [Start] > [Programs] > [Control Panel].
– Double-click the Licence icon.
– Enter the license code with the License Administrator tool (Change Licence).
6 Restart the device.

After the device has been restarted the new license points are available.



Redeeming a license product certificate for XVM400 devices

Follow the procedure described in document M002379 (Mobile PANEL XVM400), which you can find on the Micro Innovation website under “Downloads”.

	XV-102-A...-35MQR-10	XV-102-B...-35MQR-10-PLC
Technical data		
Display		
Screen diagonal/type	3.5" TFT LCD (monochrome)	3.5" TFT LCD (monochrome)
Resolution	QVGA (320 × 240 pixels or 240 × 320 pixels in portrait format)	QVGA (320 × 240 pixels or 240 × 320 pixels in portrait format)
Visible screen area	70 mm x 53 mm	70 mm x 53 mm
Color resolution (grayscale or color)	32 grey levels	32 grey levels
Contrast ratio	Normally 300:1	Normally 300:1
Brightness	Normally 250 cd/m²	Normally 250 cd/m²
Backlight	LED, dimmable via software	LED, dimmable via software
Lifespan of backlight	Normally 40000 h	Normally 40000 h
Resistive touch protective screen	Touch sensor (glass with membrane)	Touch sensor (glass with membrane)
Operation		
Technology	Resistive touch, 4-conductor	Resistive touch, 4-conductor
System		
Processor	RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz
Internal memory		
DRAM (OS, program and data memory)	64 MByte	64 MByte
NAND FLASH (can be used for data backup)	Approx. 128 Byte available	Approx. 128 Byte available
NVRAM (Retain data)	–	Approx. 32 kByte available
External memory		
SD Memory Card Slot	SDA Specification 1.00	SDA Specification 1.00
Real-time clock (battery backup)		
Battery	Zero maintenance	Zero maintenance
Backup time at zero voltage	Normally 10 years	Normally 10 years
Operating system	Windows CE	Windows CE
Engineering		
Visualization software	GALILEO/EPAM	GALILEO/EPAM
PLC programming software	–	XSOFT-CODESYS-2
Interfaces, communication		
Ethernet	100Base-TX/10Base-T	100Base-TX/10Base-T
USB Host	–	–
USB device	USB 2.0, not isolated	USB 2.0, not isolated

Part No.	...A0…	...A2…	...A3…	...A4…	...A5…	...B0…	...B3…	...B4…	...B5…	...B6…	...B8…
System Port (RS232)	–	–	●[1]	–	●[1]	–	●[1]	–	●[1]	–	–
CAN	–	–	–	–	●[2]	–	–	–	●[2]	●[2]	–
PROFIBUS	–	●[3]	–	–	–	–	–	–	–	–	●[3]
RS485	–	–	–	●[4]	–	–	–	●[4]	–	●[4]	●[4]

Power supply		
Nominal voltage	24 V DC SELV (safety extra low voltage)	24 V DC SELV (safety extra low voltage)
Permissible voltage	R.m.s.: 19.2 – 30.0 V DC (rated operating voltage -20 %/+25 %) Absolute with ripple: 18.0 – 31.2 V DC Battery operation: 18.0 – 31.2 V DC (rated operating voltage -25 %/+30 %) 35 V DC for a duration of < 100 ms	
Voltage dips	10 ms from nominal voltage (24 V DC), 5 ms from undervoltage (20.4 V DC)	
Input power	Max. 5 W	Max. 5 W
Protection against polarity reversal	Yes	Yes
Fuse	Yes (fuse not accessible)	Yes (fuse not accessible)
Potential isolation	No	No
General		
Front design	Standard membrane (fully enclosed)	Standard membrane (fully enclosed)
Degree of protection		
Front	IP65	IP65
Rear	IP20	IP20
Approvals		
Approvals	cUL	cUL
Explosion protection (According to ATEX 94/9/EC)	II 3D Ex II T70°C IP5x: Zone 22, Category 3D	II 3D Ex II T70°C IP5x: Zone 22, Category 3D
Applied standards and directives		
EMC (relevant for CE)	EN 61000-6-2, EN 61000-6-4, EN 61131-2	EN 61000-6-2, EN 61000-6-4, EN 61131-2
Explosion protection (relevant for CE)	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463
Safety	EN 60950/UL 60950	EN 60950/UL 60950
Product standards	EN 50178, EN 61131-2	EN 50178, EN 61131-2
Weight	Approx. 0.3 kg	Approx. 0.3 kg
Environmental Conditions		
Temperature		
Operation	0 – 50°C	0 – 50°C
Storage/transport	-20 – 60°C	-20 – 60°C
Relative humidity	10 - 95%, non-condensing	10 - 95%, non-condensing
Impact resistance	To IEC 68-2-27	To IEC 68-2-27
Vibration	To IEC 68-2-6	To IEC 68-2-6

Notes

[1] RS232, not isolated (D-sub 9-pin, UNC)

[2] CAN, not isolated (D-sub 9-pin, UNC)

XV-102B...-35TQR-10	XV-102-B...-35TQR-10-PLC	XV-102-D...-57TVR-10	XV-102-D...70TWR-10...
3.5" TFT LCD (color)	3.5" TFT LCD (color)	5.7" TFT LCD (color)	7" TFT LCD (color)
QVGA (320 × 240 pixels or 240 × 320 pixels in portrait format)	QVGA (320 × 240 pixels or 240 × 320 pixels in portrait format)	VGA (640 × 480 pixels or 480 × 640 pixels in portrait format)	WVGA (800 × 480 pixels or 480 × 800 pixels in portrait format)
70 mm x 53 mm	70 mm x 53 mm	115 mm x 86 mm	152 mm x 91 mm
64 k Colors	64 k Colors	64 k Colors	64 k Colors
Normally 300:1	Normally 300:1	Normally 300:1	Normally 300:1
Normally 250 cd/m²	Normally 250 cd/m²	Normally 250 cd/m²	Normally 250 cd/m²
LED, dimmable via software	LED, dimmable via software	LED, dimmable via software	LED, dimmable via software
Normally 40000 h	Normally 40000 h	Normally 40000 h	Normally 40000 h
Touch sensor (glass with membrane)	Touch sensor (glass with membrane)	Touch sensor (glass with membrane)	Touch sensor (glass with membrane)
Resistive touch, 4-conductor	Resistive touch, 4-conductor	Resistive touch, 4-conductor	Resistive touch, 4-conductor
RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz
64 MByte	64 MByte	64 MByte	64 MByte
Approx. 128 Byte available	Approx. 128 Byte available	Approx. 128 Byte available	Approx. 128 Byte available
Approx. 32 kByte available	Approx. 32 kByte available	Approx. 32 kByte available	Approx. 32 kByte available
SDA Specification 1.00	SDA Specification 1.00	SDA Specification 1.00	SDA Specification 1.00
Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance
Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years
Windows CE	Windows CE	Windows CE	Windows CE
GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM
XSOFT-CODESYS-2	XSOFT-CODESYS-2	XSOFT-CODESYS-2	XSOFT-CODESYS-2
100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T
–	–	USB 2.0 (1.5 - 12 Mbit/s), not isolated	
USB 2.0, not isolated	USB 2.0, not isolated	USB 2.0, not isolated	USB 2.0, not isolated
...B0… ...B2… ...B3… ...B4… ...B5…	...B0 ... ...B3 ... ...B4 ... ...B5 ... ...B6 ... ...B8 ...	...D0… ...D6… ...D8… ...D6... PLC ...D8... PLC	...D0… ...D6… ...D8… ...D6... PLC ...D8... PLC
– – ●[1] – ●[1]	– ●[1] – ●[1] – –	●[1] ●[1] ●[1] ●[1] ●[1]	●[1] ●[1] ●[1] ●[1] ●[1]
– – – – ●[2]	– – – ●[2] ●[2] –	– ●[2] – ●[2] –	– ●[2] – ●[2] –
– ●[3] – – –	– – – – – ●[3]	– – ●[3] – ●[3]	– – ●[3] – ●[3]
– – – ●[4] –	– – ●[4] – ●[4] ●[4]	– ●[4] ●[4] ●[4] ●[4]	– ●[4] ●[4] ●[4] ●[4]
24 V DC SELV (safety extra low voltage)	24 V DC SELV (safety extra low voltage)	24 V DC SELV (safety extra low voltage)	24 V DC SELV (safety extra low voltage)
R.m.s.: 19.2 – 30.0 V DC (rated operating voltage -20 %/+25 %) Absolute with ripple: 18.0 – 31.2 V DC Battery operation: 18.0 – 31.2 V DC (rated operating voltage -25 %/+30 %) 35 V DC for a duration of < 100 ms			
10 ms from nominal voltage (24 V DC), 5 ms from undervoltage (20.4 V DC)			
Max. 5 W	Max. 5 W	Max. 10 W	Max. 10 W
Yes	Yes	Yes	Yes
Yes (fuse not accessible)			
No	No	No	No
Standard membrane (fully enclosed)	Standard membrane (fully enclosed)	Standard membrane (fully enclosed)	Standard membrane (fully enclosed)
IP65	IP65	IP65	IP65
IP20	IP20	IP20	IP20
cUL	cUL	cUL	cUL
II 3D Ex II T70°C IP5x: Zone 22, Category 3D	II 3D Ex II T70°C IP5x: Zone 22, Category 3D	II 3D Ex II T70°C IP5x: Zone 22, Category 3D	II 3D Ex II T70°C IP5x: Zone 22, Category 3D
EN 61000-6-2, EN 61000-6-4, EN 61131-2	EN 61000-6-2, EN 61000-6-4, EN 61131-2	EN 61000-6-2, EN 61000-6-4, EN 61131-2	EN 61000-6-2, EN 61000-6-4, EN 61131-2
EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463
EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60950
EN 50178, EN 61131-2	EN 50178, EN 61131-2	EN 50178, EN 61131-2	EN 50178, EN 61131-2
Approx. 0.3 kg	Approx. 0.3 kg	Approx. 0.6 kg	Approx. 0.6 kg
0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C
-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C
10 - 95%, non-condensing	10 - 95%, non-condensing	10 - 95%, non-condensing	10 - 95%, non-condensing
To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27
To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6

[3] PROFIBUS, not isolated, max. 1.5 MBit/s (D-sub 9-pin socket, UNC)

[4] RS485, not isolated (D-sub 9-pin, UNC)

	XV-230-57CNN-1-10	XV-230-57MPN-1-10	XV-232-57BAS-1-10	XV-252-57CNN-1-10	XV-252-57MPN-1-10
Display					
Screen diagonal/type	5.7" FSTN LCD (monochrome display)			5.7" CSTN LCD (Color display)	
Resolution	QVGA (320 × 240 pixels or 240 × 320 pixels in portrait format)				
Visible screen area	115 mm x 86 mm				
Color resolution (grayscale or color)	256 grey levels	256 grey levels	256 grey levels	256 colors	256 colors
Contrast ratio	Normally 10:1	Normally 10:1	Normally 10:1	Normally 35:1	Normally 35:1
Brightness	Normally 150 cd/m²				
Backlight	1 x CCFL, dimmable via software				
Lifespan of backlight	Normally 50000 h				
Resistive touch protective screen	Touch sensor (glass with membrane)				
Operation					
Technology	Resistive touch, 4-conductor				
System					
Processor	RISC, 32-bit, 200 MHz				
Internal memory					
DRAM (OS, program and data memory)	32 MByte	32 MByte	32 MByte	32 MByte	32 MByte
FLASH (can be used for data backup)	Approx. 1.5 MByte available				
NVRAM (Retain data)	Approx. 100 Byte available				
External memory					
CF slot	1 x CompactFlash card type I for operating system, programs and data				
Real-time clock (battery backup)					
Battery	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance
Backup time at zero voltage	Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years
Operating system	Windows CE	Windows CE	Windows CE	Windows CE	Windows CE
Engineering					
Visualization software	GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM
PLC programming software	XSOFT-CODESYS-2	XSOFT-CODESYS-2	XSOFT-CODESYS-2	XSOFT-CODESYS-2	XSOFT-CODESYS-2
Interfaces, communication					
Ethernet	100Base-TX/10Base-T				
System port	–	–	RS232, not isolated (D-sub 9-pin, UNC)		
CAN	CAN, not isolated (D-sub 9-pin, UNC)	–	–	CAN, not isolated (D-sub 9-pin, UNC)	–
PROFIBUS	–	PROFIBUS, not isolated, max. 1.5 MBit/s (D-sub 9-pin socket, UNC)	–	–	PROFIBUS, not isolated, max. 1.5 MBit/s (D-sub 9-pin, UNC)
USB device	USB 1.1, not isolated				
Power supply					
Nominal voltage	24 V DC SELV (safety extra low voltage)				
Permissible voltage	R.m.s.: 19.2 – 30.0 V DC (rated operating voltage -20 %/+25 %) Absolute with ripple: 18.0 – 31.2 V DC Battery operation: 18.0 – 31.2 V DC (rated operating voltage -25 %/+30 %) 35 V DC for a duration of < 100 ms				
Voltage dips	20 ms from nominal voltage (24 V DC), 10 ms from undervoltage (20.4 V DC)				
Input power	Max. 8 W	Max. 8 W	Max. 8 W	Max. 8 W	Max. 8 W
Protection against polarity reversal	Yes	Yes	Yes	Yes	Yes
Fuse	Yes (zero maintenance)	Yes (zero maintenance)	Yes (zero maintenance)	Yes (zero maintenance)	Yes (zero maintenance)
Potential isolation	No	No	No	No	No

	XV-230-57CNN-1-10	XV-230-57MPN-1-10	XV-232-57BAS-1-10	XV-252-57CNN-1-10	XV-252-57MPN-1-10
General					
Front design	Standard membrane	Standard membrane	Standard membrane	Standard membrane	Standard membrane
Degree of protection					
Front	IP65	IP65	IP65	IP65	IP65
Rear	IP20	IP20	IP20	IP20	IP20
Approvals					
Approvals	cUL	cUL	cUL	cUL	cUL
Explosion protection (According to ATEX 94/9/EC)	II 3D Ex II T70°C IP5x: Zone 22, Category 3D				
Applied standards and directives					
EMC (relevant for CE)	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61131-2				
Explosion protection (relevant for CE)	EN 60079-0, EN 61241-1, EN 13463				
Safety	EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60950
Product standards	EN 50178, EN 61131-2				
Weight	Approx. 0.7 kg	Approx. 0.7 kg	Approx. 0.7 kg	Approx. 0.7 kg	Approx. 0.7 kg
Environmental Conditions					
Temperature					
Operation	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C
Storage/transport	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C
Relative humidity	10 - 95%, non-condensing				
Impact resistance	To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27
Vibration	To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6

	MFD4-5-XRC-30
Display	
Screen diagonal/type	5.7" TFT Color display
Resolution	QVGA (320 x 240 pixels)
Visible screen area	118 mm x 89 mm
Color resolution (grayscale or color)	32 K
Contrast ratio	Normally 350:1
Brightness	Normally 500 cd/m²
Backlight	1 x CCFL, dimmable via software
Lifespan of backlight	Normally 50000 h
Resistive touch protective screen	Touch sensor (glass with membrane)
Operation	
Technology	Resistive touch, 4-conductor
System	
Processor	Risc, 32-bit 130 MHz
Internal memory	
DRAM (OS, program and data memory)	4 MByte
FLASH (can be used for data backup)	512 kByte
NVRAM (Retain data)	32 kByte
External memory	
Slot	1 x MMC for operating system, programs and data
Real-time clock (battery backup)	
Battery	Lithium, 1/2AA(3.6V)
Backup time at zero voltage	Normally 5 years
Operating system	Windows CE
Engineering	
Visualization software	XSOFT-CODESYS-2
PLC programming software	XSOFT-CODESYS-2
Interfaces, communication	
Ethernet	100Base-TX/10Base-T
System port	RS232, not isolated (D-sub 9-pin, UNC)
CAN	CAN, galvanically isolated (D-sub 9-pin, UNC)
PROFIBUS	–
USB device	–
Power supply	
Nominal voltage	24 V DC SELV (safety extra low voltage)
Permissible voltage	20.4 to 28.8 V DC, residual ripple ≤ 5 %
Voltage dips	Duration of dip to IEC/EN 61131-2: 10 ms
Input power	Max. 10 W
Protection against polarity reversal	Yes
Fuse	No
Potential isolation	No
General	
Enclosure	Metal
Front design	Seamless membrane
Degree of protection	
Front	IP65
Rear	IP20
Approvals	
Approvals	LR, GL, DNV,BV, ABS
Explosion protection (According to ATEX 94/9/EC)	II 3D Ex II T85°C IP5x: Zone 22, Category 3D
Applied standards and directives	
EMC (relevant for CE)	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61131-2
Explosion protection (relevant for CE)	EN 60079-0, EN 61241-1, EN 13463
Safety	EN 60950
Product standards	EN 50178, EN 61131-2
Weight	Approx. 1.3 kg
Environmental Conditions	
Temperature	
Operation	0 – 50°C
Storage/transport	- 20 to 70 °C
Relative humidity	10 – 95 %, non-condensing
Impact resistance	15 g/11 ms
Vibration	10 to 57 Hz ± 0.075 mm; 57 to 150 Hz ± 1.0 g

	XVM-430-65TVB-1-11	XVM-450-65TVB-1-11	XVM-410-65TVB-1-11
Display			
Screen diagonal/type	6.5" TFT LCD	6.5" TFT LCD	6.5" TFT LCD
Resolution	VGA (640 x 480 pixel)	VGA (640 x 480 pixel)	VGA (640 x 480 pixel)
Visible screen area	132 mm x 99 mm	132 mm x 99 mm	132 mm x 99 mm
Color resolution (grayscale or color)	64k Colors	64k Colors	64k Colors
Backlight	2 CCFT cold cathode tubes	2 CCFT cold cathode tubes	2 CCFT cold cathode tubes
Lifespan of backlight	Normally 50000 h	Normally 50000 h	Normally 50000 h
Resistive touch protective screen	Touch sensor (glass with membrane)	Touch sensor (glass with membrane)	Touch sensor (glass with membrane)
Operation			
Technology	Resistive touch	Resistive touch	Resistive touch
Keypad	31 membrane keys with tactile feedback, 4 status LEDs	31 membrane keys with tactile feedback, 4 status LEDs	31 membrane keys with tactile feedback, 4 status LEDs
Operating elements	2 acknowledgement keys (3-stage, 2-circuit), externally wired Emergency switching off button (2-circuit), externally wired	2 acknowledgement keys (3-stage, 2-circuit), externally wired Emergency switching off button (2-circuit), externally wired Keyswitch (3-position), internally wired Electronic hand wheel, internally wired	2 acknowledgement keys (3-stage, 2-circuit), externally wired Keyswitch (3-position), internally wired Electronic hand wheel, internally wired
System			
Processor	RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz
Internal memory			
DRAM (OS, program and data memory)	Min. 64 MByte	Min. 64 MByte	Min. 64 MByte
FLASH	Min. 64 MByte	Min. 64 MByte	Min. 64 MByte
NVRAM (Retain data)	–	–	–
Operating system	Windows CE	Windows CE	Windows CE
Engineering			
Visualization software	GALILEO	GALILEO	GALILEO
Interfaces, communication			
Ethernet	100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T
RS232	RS232-C	RS232-C	RS232-C
USB Host	USB 1.1 (12 Mbit/s)	USB 1.1 (12 Mbit/s)	USB 1.1 (12 Mbit/s)
Power supply			
Nominal voltage	24 V DC	24 V DC	24 V DC
Permissible voltage	R.m.s.: 19.2 – 30.0 V DC	R.m.s.: 19.2 – 30.0 V DC	R.m.s.: 19.2 – 30.0 V DC
Voltage dips	≦ 10 ms	≦ 10 ms	≦ 10 ms
Input power	9.6 W	9.6 W	9.6 W
General			
Front design	Standard membrane Membrane keypad with tactile feedback	Standard membrane Membrane keypad with tactile feedback	Standard membrane Membrane keypad with tactile feedback
Degree of protection			
Front	IP65	IP65	IP65
Rear	IP65	IP65	IP65
Approvals			
Approvals	cUL (UL508)	cUL (UL508)	cUL (UL508)
Applied standards and directives			
Product standards	EN 50178, EN 61131-2	EN 50178, EN 61131-2	EN 50178, EN 61131-2
Weight	Approx. 1.3 kg	Approx. 1.3 kg	Approx. 1.3 kg
Environmental Conditions			
Temperature			
Operation	0 – 50°C	0 – 50°C	0 – 50°C
Storage/transport	-20 – 70°C	-20 – 70°C	-20 – 70°C
Relative humidity	5 - 95%, non-condensing	5 - 95%, non-condensing	5 - 95%, non-condensing
Shock (IEC 60068-2-27)	25 g/11ms	25 g/11ms	25 g/11ms
Vibration (IEC 60068-2-6)	10 Hz ≧ f > 57 Hz with 0.15 mm 9 Hz ≧ f > 150 Hz with 2 g	10 Hz ≧ f > 57 Hz with 0.15 mm 9 Hz ≧ f > 150 Hz with 2 g	10 Hz ≧ f > 57 Hz with 0.15 mm 9 Hz ≧ f > 150 Hz with 2 g

	XVH-340-57BAS-1-10	XVH-340-57CAN-1-10	XVH-340-57MPI-1-10
Display			
Screen diagonal/type	5.7" CSTN LCD (color)	5.7" CSTN LCD (color)	5.7" CSTN LCD (color)
Resolution	QVGA (320 × 240 pixels or 240 × 320 pixels in portrait format)		
Visible screen area	115 mm x 86 mm	115 mm x 86 mm	115 mm x 86 mm
Color resolution (grayscale or color)	256 colors	256 colors	256 colors
Contrast ratio	Normally 35:1	Normally 35:1	Normally 35:1
Brightness	Normally 150 cd/m²	Normally 150 cd/m²	Normally 150 cd/m²
Backlight	1 x CCFL, dimmable via software		
Lifespan of backlight	Normally 50000 h	Normally 50000 h	Normally 50000 h
Resistive touch protective screen	–	–	–
Infra-red touch protective screen	Laminated safety glass, non-reflective		
Operation			
Technology	Infra-red touch, 47 × 31 logic channels		
System			
Processor	RISC, 32-bit, 200 MHz	RISC, 32-bit, 200 MHz	RISC, 32-bit, 200 MHz
Internal memory			
DRAM (OS, program and data memory)	64 MByte	64 MByte	64 MByte
FLASH (can be used for data backup)	Approx. 1.5 MByte available	Approx. 1.5 MByte available	Approx. 1.5 MByte available
NVRAM (Retain data)	–	–	–
External memory			
CF slot	1 x CompactFlash card type I/II for operating system, programs and data		
Real-time clock (battery backup)			
Battery	Zero maintenance	Zero maintenance	Zero maintenance
Backup time at zero voltage	Normally 10 years	Normally 10 years	Normally 10 years
Operating system	Windows CE	Windows CE	Windows CE
Engineering			
Visualization software	GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM
PLC programming software	–	–	–
Interfaces, communication			
Ethernet	100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T
System port	–	–	–
Com Port	–	–	–
CAN	–	CAN, isolated (Sub-D 9-pin plug)	–
PROFIBUS	–	–	PROFIBUS galvanically isolated, max. 1.5 MBit/s (D-sub 9-pin socket, UNC)
USB device	USB 1.1, not isolated		
Power supply			
Nominal voltage	24 V DC SELV (safety extra low voltage)		
Permissible voltage	R.m.s.: 20.4 – 28.8 V DC (rated operating voltage -15 %/+20 %) Absolute with ripple: 19.2 – 30.0 V DC 35 V DC for a duration < 100 ms		
Voltage dips	20 ms from nominal voltage (24 V DC), 2 ms from undervoltage (20.4 V DC)		
Input power	Max. 16 W (normally 12 W)	Max. 16 W (normally 12 W)	Max. 16 W (normally 12 W)
Protection against polarity reversal	Yes	Yes	Yes
Fuse	Yes (fuse not accessible)		
Potential isolation	No (0V connection to housing potential)		

XVH-342-57SKS-1-10	XVH-340-57CAN-1-50	XVH-330-57BAS-1-10	XVH-330-57CAN-1-10	XVH-330-57MPI-1-10
5.7" CSTN LCD (color)	5.7" CSTN LCD (color)	5.7" CSTN LCD (color)	5.7" CSTN LCD (color)	5.7" CSTN LCD (color)
QVGA (320 × 240 pixels or 240 × 320 pixels in portrait format)				
115 mm x 86 mm	115 mm x 86 mm	115 mm x 86 mm	115 mm x 86 mm	115 mm x 86 mm
256 colors	256 colors	256 colors	256 colors	256 colors
Normally 35:1	Normally 35:1	Normally 35:1	Normally 35:1	Normally 35:1
Normally 150 cd/m²	Normally 150 cd/m²	Normally 150 cd/m²	Normally 150 cd/m²	Normally 150 cd/m²
1 x CCFL, dimmable via software				
Normally 50000 h	Normally 50000 h	Normally 50000 h	Normally 50000 h	Normally 50000 h
–	–	Touch sensor (glass with membrane)	Touch sensor (glass with membrane)	Touch sensor (glass with membrane)
Laminated safety glass, non-reflective		–	–	–
Infra-red touch, 47 × 31 logic channels		Resistive touch, 4-conductor	Resistive touch, 4-conductor	Resistive touch, 4-conductor
RISC, 32-bit, 200 MHz	RISC, 32-bit, 200 MHz	RISC, 32-bit, 200 MHz	RISC, 32-bit, 200 MHz	RISC, 32-bit, 200 MHz
64 MByte	64 MByte	64 MByte	64 MByte	64 MByte
Approx. 1.5 MByte available	Approx. 1.5 MByte available	Approx. 1.5 MByte available	Approx. 1.5 MByte available	Approx. 1.5 MByte available
–	–	–	–	–
1 x CompactFlash card type I/II for operating system, programs and data				
Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance
Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years
Windows CE	Windows CE	Windows CE	Windows CE	Windows CE
GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM
–	–	–	–	–
100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T
RS232 (Sucom A), not isolated (Sub-D 9.pin plug, UNC)	–	–	–	–
RS485 (Suconet K), isolated (Sub-D 9-pin socket, UNC)	–	–	–	–
–	CAN, galvanically isolated (D-sub 9-pin, UNC)	–	CAN, galvanically isolated (D-sub 9-pin, UNC)	–
–	–	–	–	PROFIBUS galvanically isolated, max. 1.5 MBit/s (D-sub 9-pin socket, UNC)
USB 1.1, not isolated				
24 V DC SELV (safety extra low voltage)				
R.m.s.: 20.4 – 28.8 V DC (rated operating voltage -15 %/+20 %) Absolute with ripple: 19.2 – 30.0 V DC 35 V DC for a duration < 100 ms				
20 ms from nominal voltage (24 V DC), 2 ms from undervoltage (20.4 V DC)				
Max. 21 W (normally 17 W)	Max. 16 W (normally 12 W)	Max. 16 W (normally 12 W)	Max. 16 W (normally 12 W)	Max. 16 W (normally 12 W)
Yes	Yes	Yes	Yes	Yes
Yes (fuse not accessible)				
No (0V connection to housing potential)				

	XVH-340-57BAS-1-10	XVH-340-57CAN-1-10	XVH-340-57MPI-1-10
General			
Front design	Standard front with standard membrane	Standard front with standard membrane	Standard front with standard membrane
Degree of protection			
Front	IP65	IP65	IP65
	Additional mounting bracket set required for flush mounting (→ Accessories)	Additional mounting bracket set required for flush mounting (→ Accessories)	Additional mounting bracket set required for flush mounting (→ Accessories)
Rear	IP20	IP20	IP20
Approvals			
Approvals	cUL	cUL	cUL
Explosion protection (According to ATEX 94/9/EC)	II 3D Ex II T70°C IP5x: Zone 22, Category 3D	II 3D Ex II T70°C IP5x: Zone 22, Category 3D	II 3D Ex II T70°C IP5x: Zone 22, Category 3D
	Additional mounting bracket set required for flush mounting (→ Accessories)	Additional mounting bracket set required for flush mounting (→ Accessories)	Additional mounting bracket set required for flush mounting (→ Accessories)
Applied standards and directives			
EMC (relevant for CE)	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61131-2	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61131-2	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61131-2
Explosion protection (relevant for CE)	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463
Safety	EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60950
Product standards	EN 50178, EN 61131-2	EN 50178, EN 61131-2	EN 50178, EN 61131-2
Weight	Approx. 1.7 kg	Approx. 1.7 kg	Approx. 1.7 kg
Environmental Conditions			
Temperature			
Operation	0 – 50°C	0 – 50°C	0 – 50°C
Storage/transport	-20 – 60°C	-20 – 60°C	-20 – 60°C
Relative humidity	10 - 95%, non-condensing	10 - 95%, non-condensing	10 - 95%, non-condensing
Impact resistance	To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27
Vibration	To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6

XVH-342-57SKS-1-10	XVH-340-57CAN-1-50	XVH-330-57BAS-1-10	XVH-330-57CAN-1-10	XVH-330-57MPI-1-10
Standard front with standard membrane	Satin-finish brushed stainless steel	Standard front with standard membrane (fully laminated)	Standard front with standard membrane (fully laminated)	Standard front with standard membrane (fully laminated)
IP65	IP65, IP69K	IP65	IP65	IP65
Additional mounting bracket set required for flush mounting (→ Accessories)	Observe installation instructions to IP69K	Additional mounting bracket set required for flush mounting (→ Accessories)	Additional mounting bracket set required for flush mounting (→ Accessories)	Additional mounting bracket set required for flush mounting (→ Accessories)
IP20	IP20	IP20	IP20	IP20
cUL	cUL	cUL	cUL	cUL
II 3D Ex II T70°C IP5x: Zone 22, Category 3D	II 3D Ex II T70°C IP5x: Zone 22, Category 3D	II 3D Ex II T70°C IP5x: Zone 22, Category 3D	II 3D Ex II T70°C IP5x: Zone 22, Category 3D	II 3D Ex II T70°C IP5x: Zone 22, Category 3D
Additional mounting bracket set required for flush mounting (→ Accessories)		Additional mounting bracket set required for flush mounting (→ Accessories)	Additional mounting bracket set required for flush mounting (→ Accessories)	Additional mounting bracket set required for flush mounting (→ Accessories)
EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61131-2	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61131-2	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61131-2	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61131-2	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61131-2
EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463
EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60950
EN 50178, EN 61131-2	EN 50178, EN 61131-2	EN 50178, EN 61131-2	EN 50178, EN 61131-2	EN 50178, EN 61131-2
Approx. 1.9 kg	Approx. 2.1 kg	Approx. 1.7 kg	Approx. 1.7 kg	Approx. 1.7 kg
0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C
-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C
10 - 95%, non-condensing				
To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27
To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6

	XV-442-57CQB-1-10 XV-442-57CQB-1-20	XV-442-57CQB-1-50	XV-432-57CQB-1-10	XV-460-57TQB-1-10	XV-460-57TQB-1-50	XV-450-57TQB-1-10
Display						
Screen diagonal/type	5.7" CSTN LCD (color)	5.7" CSTN LCD (color)	5.7" CSTN LCD (color)	5.7" TFT LCD (color)	5.7" TFT LCD (color)	5.7" TFT LCD (color)
Resolution	QVGA (320 × 240 pixels or 240 × 320 pixels in portrait format)					
Visible screen area	115 mm x 86 mm	115 mm x 86 mm	115 mm x 86 mm	115 mm x 86 mm	115 mm x 86 mm	115 mm x 86 mm
Color resolution (grayscale or color)	256 colors	256 colors	256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors
Contrast ratio	Normally 35:1	Normally 35:1	Normally 35:1	Normally 400:1	Normally 400:1	Normally 400:1
Brightness	Normally 150 cd/m²	Normally 150 cd/m²	Normally 150 cd/m²	Normally 350 cd/m²	Normally 350 cd/m²	Normally 350 cd/m²
Backlight	1 x CCFL, dimmable via software	1 x CCFL, dimmable via software	1 x CCFL, dimmable via software	LED, dimmable via software	LED, dimmable via software	LED, dimmable via software
Lifespan of backlight	Normally 50000 h	Normally 50000 h	Normally 50000 h	Normally 40000 h	Normally 40000 h	Normally 40000 h
Resistive touch protective screen	–	–	Touch sensor (glass with membrane)	–	–	Touch sensor (glass with membrane)
Infra-red touch protective screen	Laminated safety glass, non-reflecting	Laminated safety glass, non-reflecting	–	Laminated safety glass, non-reflecting	Laminated safety glass, non-reflecting	–
Operation						
Technology	Infra-red touch, 47 x 31 logic channels	Infra-red touch, 47 x 31 logic channels	Resistive touch, 4-conductor	Infra-red touch, 47 x 31 logic channels	Infra-red touch, 47 x 31 logic channels	Resistive touch, 4-conductor
System						
Processor	RISC, 32 bit, 400 MHz					
Internal memory						
DRAM (OS, program and data memory)	64 MByte					
FLASH (can be used for data backup)	Approx. 1.5 MByte available					
NVRAM (Retain data)	Approx. 32 kByte available					
External memory						
CF slot	1 × Compact Flash card, type I/II for operating system, programs and data	1 × Compact Flash card, type I/II for operating system, programs and data	1 × Compact Flash card, type I/II for operating system, programs and data	1 × Compact Flash card, type I/II for operating system, programs and data	1 × Compact Flash card, type I/II for operating system, programs and data	1 × Compact Flash card, type I/II for operating system, programs and data
Real-time clock (battery backup)						
Battery	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance
Backup time at zero voltage	Normally 10 years					
Operating system	Windows CE	Windows CE	Windows CE	Windows CE	Windows CE	Windows CE
Engineering						
Visualization software	GALILEO/EPAM					
PLC programming software	XSOFT-CODESYS-2					
Interfaces, communication						
Ethernet	100Base-TX/10Base-T					
System port	RS232, not isolated (D-sub 9-pin, UNC)					
CAN	CAN, galvanically isolated (D-sub 9-pin, UNC)					
PROFIBUS	–	–	–	–	–	–
USB Host	USB 2.0 (1.5/12 MBit/s), not isolated					
USB device	USB 1.1, not isolated					
Slots for communication cards	1	1	1	1	1	1

XV-460-84TVB-1-10	XV-440-10TVB-1-10 XV-440-10TVB-1-20	XV-440-10TVB-1-50	XV-430-10TVB-1-10	XV-440-12TSB-1-10 XV-440-12TSB-1-20	XV-440-12TSB-1-50	XV-430-12TSB-1-10	XV-460-15TXB-1-10	XV-460-15TXB-1-50
8.4" TFT LCD (color)	10.4" TFT LCD (color)	10.4" TFT LCD (color)	10.4" TFT LCD (color)	12.1" TFT LCD (color)	12.1" TFT LCD (color)	12.1" TFT LCD (color)	15" TFT LCD (color)	15" TFT LCD (color)
VGA (640 × 480 pixels or 480 × 640 pixels in portrait format)				SVGA (800 × 600 pixels or 600 × 800 pixels in portrait format)	SVGA (800 × 600 pixels or 600 × 800 pixels in portrait format)	SVGA (800 × 600 pixels or 600 × 800 pixels in portrait format)	XGA (1024 x 768 pixel)	XGA (1024 x 768 pixel)
170 mm x 128 mm	211 mm x 158 mm	211 mm x 158 mm	211 mm x 158 mm	246 mm x 185 mm	246 mm x 185 mm	246 mm x 185 mm	304 mm x 228 mm	304 mm x 228 mm
Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors
Normally 400:1	Normally 350:1	Normally 350:1	Normally 350:1	Normally 350:1	Normally 350:1	Normally 350:1	Normally 350:1	Normally 350:1
Normally 350 cd/m²	Normally 350 cd/m²	Normally 350 cd/m²	Normally 350 cd/m²	Normally 350 cd/m²	Normally 350 cd/m²	Normally 350 cd/m²	Normally 400 cd/m²	Normally 400 cd/m²
2 x CCFL, dimmable via software	2 x CCFL, dimmable via software	2 x CCFL, dimmable via software	2 x CCFL, dimmable via software	2 x CCFL, dimmable via software	2 x CCFL, dimmable via software	2 x CCFL, dimmable via software	4 x CCFL, dimmable via software	4 x CCFL, dimmable via software
Normally 50000 h	Normally 50000 h	Normally 50000 h	Normally 50000 h	Normally 50000 h	Normally 50000 h	Normally 50000 h	Normally 50000 h	Normally 50000 h
–	–	–	Touch sensor (glass with membrane)	–	–	Touch sensor (glass with membrane)	–	–
Laminated safety glass, non-reflecting	Laminated safety glass, non-reflecting	Laminated safety glass, non-reflecting	–	Laminated safety glass, non-reflecting	Laminated safety glass, non-reflecting	–	Laminated safety glass, non-reflecting	Laminated safety glass, non-reflecting
Infra-red touch, 63 x 47 logic channel	Infra-red touch, 79 x 59 logic channels	Infra-red touch, 79 x 59 logic channels	Resistive touch, 4-conductor	Infra-red touch, 95 x 71 logic channels	Infra-red touch, 95 x 71 logic channels	Resistive touch, 4-conductor	Infra-red touch, 107 x 83 logic channels	Infra-red touch, 107 x 83 logic channels
RISC, 32 bit, 400 MHz								
64 MByte								
Approx. 1.5 MByte available								
Approx. 32 kByte available								
1 × Compact Flash card, type I/II for operating system, programs and data	2 × Compact Flash card, type I/II for operating system, programs and data	2 × Compact Flash card, type I/II for operating system, programs and data	2 × Compact Flash card, type I/II for operating system, programs and data	2 × Compact Flash card, type I/II for operating system, programs and data	2 × Compact Flash card, type I/II for operating system, programs and data	2 × Compact Flash card, type I/II for operating system, programs and data	2 × Compact Flash card, type I/II for operating system, programs and data	2 × Compact Flash card, type I/II for operating system, programs and data
Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance
Normally 10 years								
Windows CE	Windows CE	Windows CE	Windows CE	Windows CE	Windows CE	Windows CE	Windows CE	Windows CE
GALILEO/EPAM								
XSOFT-CODESYS-2								
100Base-TX/10Base-T								
RS232, not isolated (D-sub 9-pin, UNC)								
CAN, galvanically isolated (D-sub 9-pin, UNC)								
–	–	–	–	–	–	–	–	–
USB 2.0 (1.5/12 MBit/s), not isolated								
USB 1.1, not isolated								
1	2	2	2	2	2	2	2	2

	XV-442-57CQB-1-10 XV-442-57CQB-1-20	XV-442-57CQB-1-50	XV-432-57CQB-1-10	XV-460-57TQB-1-10	XV-460-57TQB-1-50	XV-450-57TQB-1-10
Power supply						
Nominal voltage	24 V DC SELV (safety extra low voltage)					
Permissible voltage	R.m.s.: 20.4 – 28.8 V DC (rated operating voltage -15 %/+20 %) Absolute with ripple: 19.2 – 30.0 V DC 35 V DC for a duration < 100 ms					
Voltage dips	20 ms from nominal voltage (24 V DC), 2 ms from undervoltage (20.4 V DC)					
Input power	Max. 24 W (Normally 13 W)	Max. 24 W (Normally 13 W)	Max. 24 W (Normally 13 W)	Max. 24 W (Normally 13 W)	Max. 24 W (Normally 13 W)	Max. 24 W (Normally 13 W)
Protection against polarity reversal	Yes	Yes	Yes	Yes	Yes	Yes
Fuse	Yes (fuse not accessible)					
Potential isolation	No (0V connection to housing potential)					
General						
Front design	Standard front with standard membrane	Satin-finish brushed stain-less steel	Standard front with standard membrane (fully laminated)	Standard front with standard membrane	Satin-finish brushed stain-less steel	Standard front with standard membrane (fully laminated)
Degree of protection						
Front	IP65	IP65, IP69K	IP65	IP65	IP65, IP69K	IP65
	Additional mounting bracket set required for flush mounting	Observe installation instructions to IP69K	Additional mounting bracket set required for flush mounting	Additional mounting bracket set required for flush mounting	Observe installation instructions to IP69K	Additional mounting bracket set required for flush mounting
Rear	IP20	IP20	IP20	IP20	IP20	IP20
Approvals						
Approvals	cUL	cUL	cUL	cUL	cUL	cUL
Explosion protection (According to ATEX 94/9/EC)	II 3D Ex II T70°C IP5x: Zone 22, category 3D	II 3D Ex II T70°C IP5x: Zone 22, category 3D	II 3D Ex II T70°C IP5x: Zone 22, category 3D	II 3D Ex II T70°C IP5x: Zone 22, category 3D	II 3D Ex II T70°C IP5x: Zone 22, category 3D	II 3D Ex II T70°C IP5x: Zone 22, category 3D
	Additional mounting bracket set required for flush mounting		Additional mounting bracket set required for flush mounting	Additional mounting bracket set required for flush mounting		Additional mounting bracket set required for flush mounting
Applied standards and directives						
EMC (relevant for CE)	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61131-2					
Explosion protection (relevant for CE)	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463
Safety	EN 60950/UL 60950					
Product standards	EN 50178, EN 61131-2					
Weight	Approx. 1.9 kg	Approx. 2.3 kg	Approx. 1.9 kg	Approx. 1.9 kg	Approx. 2.3 kg	Approx. 1.9 kg
Environmental Conditions						
Temperature						
Operation	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C
Storage/transport	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C
Relative humidity	10 - 95%, non-condensing					
Impact resistance	To IEC 68-2-27					
Vibration	To IEC 68-2-6					

XV-460-84TVB-1-10	XV-440-10TVB-1-10 XV-440-10TVB-1-20	XV-440-10TVB-1-50	XV-430-10TVB-1-10	XV-440-12TSB-1-10 XV-440-12TSB-1-20	XV-440-12TSB-1-50	XV-430-12TSB-1-10	XV-460-15TXB-1-10	XV-460-15TXB-1-50
24 V DC SELV (safety extra low voltage)								
R.m.s.: 20.4 – 28.8 V DC (rated operating voltage -15 %/+20 %) Absolute with ripple: 19.2 – 30.0 V DC 35 V DC for a duration < 100 ms								
20 ms from rated operating voltage (24 V DC), 2 ms from undervoltage (20.4 V DC)	10 ms from nominal voltage (24 V DC), 5 ms from undervoltage (20.4 V DC)							
Max. 26 W (Normally 15 W)	Max. 32 W (Normally 14 W)	Max. 32 W (Normally 14 W)	Max. 32 W (Normally 14 W)	Max. 32 W (Normally 14 W)	Max. 32 W (Normally 14 W)	Max. 32 W (Normally 14 W)	Max. 44 W (Normally 28 W)	Max. 44 W (Normally 28 W)
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes (fuse not accessible)								
No (0V connection to housing potential)								
Standard front with standard membrane	Standard front with standard membrane	Satin-finish brushed stainless steel	Standard front with standard membrane (fully laminated)	Standard front with standard membrane	Satin-finish brushed stainless steel	Standard front with standard membrane (fully laminated)	Standard front with standard membrane	Satin-finish brushed stainless steel
IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65
Additional mounting bracket set required for flush mounting	Additional mounting bracket set required for flush mounting		Additional mounting bracket set required for flush mounting	Additional mounting bracket set required for flush mounting		Additional mounting bracket set required for flush mounting	Additional mounting bracket set required for flush mounting	Additional mounting bracket set required for flush mounting
IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20
cUL	cUL	cUL	cUL	cUL	cUL	cUL	cUL	cUL
II 3D Ex II T70°C IP5x: Zone 22, category 3D	II 3D Ex II T70°C IP5x: Zone 22, category 3D	II 2G Ex px II IP5x: Zone 1, category 2G Zone 2, category 3G Zone 22, category 3D	II 3D Ex II T70°C IP5x: Zone 22, category 3D	II 3D Ex II T70°C IP5x: Zone 22, category 3D	II 2G Ex px II IP5x: Zone 1, category 2G Zone 2, category 3G Zone 22, category 3D	II 3D Ex II T70°C IP5x: Zone 22, category 3D	II 3D Ex II T70°C IP5x: Zone 22, category 3D	II 3D Ex II T70°C IP5x: Zone 22, category 3D
Additional mounting bracket set required for flush mounting	Additional mounting bracket set required for flush mounting	Zone 1, Category 2G and Zone 2, Category 3G: Only when flush-mounted in a pressurized enclosure! Max. permissible excess pressure: 10 mbar continuous	Additional mounting bracket set required for flush mounting	Additional mounting bracket set required for flush mounting	Zone 1, Category 2G and Zone 2, Category 3G: Only when flush-mounted in a pressurized enclosure! Max. permissible excess pressure: 10 mbar continuous	Additional mounting bracket set required for flush mounting	Additional mounting bracket set required for flush mounting	Additional mounting bracket set required for flush mounting
EN 61000-6-2, EN 61000-6-4, EN 61131-2								
EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463, EN 1127-1, EN 60079-2	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463, EN 1127-1, EN 60079-2	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463	EN 60079-0, EN 61241-1, EN 13463
EN 60950/UL 60950								
EN 50178, EN 61131-2								
Approx. 3.0 kg	Approx. 4.1 kg	Approx. 5.3 kg	Approx. 4.1 kg	Approx. 4.5 kg	Approx. 5.7 kg	Approx. 4.5 kg	Approx. 6.2 kg	Approx. 7.5 kg
0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C
-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C
10 - 95%, non-condensing								
To IEC 68-2-27								
To IEC 68-2-6								

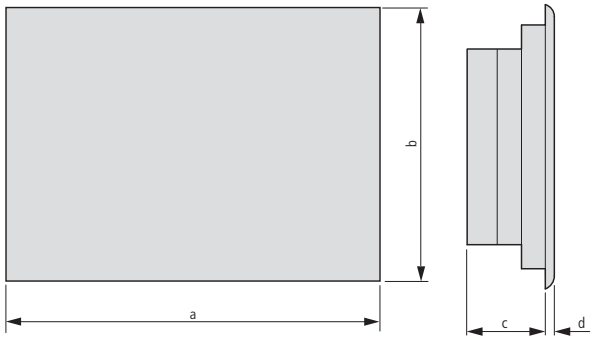
	XVS-440-57MPI-1-10	XVS-430-57MPI-1-10	XVS-460-57MPI-1-10	XVS-450-57MPI-1-10
Display				
Screen diagonal/type	5.7" CSTN LCD (color)		5.7" TFT LCD (color)	
Resolution	QVGA (320 × 240 pixels or 240 × 320 pixels in portrait format)			
Visible screen area	115 mm x 86 mm	115 mm x 86 mm	115 mm x 86 mm	115 mm x 86 mm
Color resolution (grayscale or color)	256 colors	256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors
Contrast ratio	Normally 35:1	Normally 35:1	Normally 400:1	Normally 400:1
Brightness	Normally 150 cd/m²	Normally 150 cd/m²	Normally 350 cd/m²	Normally 350 cd/m²
Backlight	1 x CCFL, dimmable via software	1 x CCFL, dimmable via software	LED, dimmable via software	LED, dimmable via software
Lifespan of backlight	Normally 50000 h	Normally 50000 h	Normally 40000 h	Normally 40000 h
Resistive touch protective screen	–	Touch sensor (glass with membrane)	–	Touch sensor (glass with membrane)
Infra-red touch protective screen	Laminated safety glass, non-reflective	–	Laminated safety glass, non-reflective	–
Operation				
Technology	Infra-red touch, 47 x 31 logic channels	Resistive touch, 4-conductor	Infra-red touch, 47 × 31 logic channels	Resistive touch, 4-conductor
System				
Processor	RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz
Internal memory				
DRAM (OS, program and data memory)	64 MByte	64 MByte	64 MByte	64 MByte
FLASH (can be used for data backup)	Approx. 1.5 MByte available			
NVRAM (Retain data)	Approx. 32 kByte available			
External memory				
CF slot	1 x CompactFlash card type I/II for operating system, programs and data			
Real-time clock (battery backup)				
Battery	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance
Backup time at zero voltage	Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years
Operating system	Windows CE	Windows CE	Windows CE	Windows CE
Engineering				
Visualization software	GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM
PLC programming software	XSOFT-CODESYS-2	XSOFT-CODESYS-2	XSOFT-CODESYS-2	XSOFT-CODESYS-2
Interfaces, communication				
Ethernet	100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T
System port	RS232, not isolated (D-sub 9-pin, UNC)			
CAN	–	–	–	–
PROFIBUS	PROFIBUS galvanically isolated, max. 1.5 MBit/s (D-sub 9-pin socket, UNC)			
USB Host	USB 2.0 (1.5/12 MBit/s), not isolated			
USB device	USB 1.1, not isolated			
Power supply				
Nominal voltage	24 V DC SELV (safety extra low voltage)			
Permissible voltage	R.m.s.: 20.4 – 28.8 V DC (nominal voltage -15 %/+20 %) Absolute with ripple: 19.2 – 30.0 V DC 35 V DC for a duration < 100 ms			
Voltage dips	20 ms from nominal voltage (24 V DC), 2 ms from undervoltage (20.4 V DC)	20 ms from nominal voltage (24 V DC), 2 ms from undervoltage (20.4 V DC)	20 ms from nominal voltage (24 V DC), 2 ms from undervoltage (20.4 V DC)	20 ms from nominal voltage (24 V DC), 2 ms from undervoltage (20.4 V DC)
Input power	Max. 19 W (Normally 12 W)	Max. 19 W (Normally 12 W)	Max. 19 W (normally 12 W)	Max. 19 W (normally 12 W)
Protection against polarity reversal	Yes	Yes	Yes	Yes
Fuse	Yes (fuse not accessible)			
Potential isolation	No (0V connection to housing potential)			

XVS-460-84MPI-1-10	XVS-440-10MPI-1-10	XVS-430-10MPI-1-10	XVS-440-12MPI-1-10	XVS-430-12MPI-1-10	XVS-460-15MPI-1-10
8.4" TFT LCD (color)	10.4" TFT LCD (color)	10.4" TFT LCD (color)	12.1" TFT LCD (color)	12.1" TFT LCD (color)	15" TFT LCD (color)
VGA (640 × 480 pixels or 480 × 640 pixels in portrait format)			SVGA (800 × 600 pixels or 600 × 800 pixels in portrait format)		XGA (1024 x 768 pixel)
170 mm x 128 mm	211 mm x 158 mm	211 mm x 158 mm	246 mm x 185 mm	246 mm x 185 mm	304 mm x 228 mm
Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors	Adjustable: 65536 or 256 colors
Normally 400:1	Normally 350:1	Normally 350:1	Normally 350:1	Normally 350:1	Normally 350:1
Normally 350 cd/m²	Normally 350 cd/m²	Normally 350 cd/m²	Normally 350 cd/m²	Normally 350 cd/m²	Normally 400 cd/m²
2 x CCFL, dimmable via software	2 x CCFL, dimmable via software	2 x CCFL, dimmable via software	2 x CCFL, dimmable via software	2 x CCFL, dimmable via software	4 x CCFL, dimmable via software
Normally 50000 h	Normally 50000 h	Normally 50000 h	Normally 50000 h	Normally 50000 h	Normally 50000 h
–	–	Touch sensor (glass with membrane)	–	Touch sensor (glass with membrane)	–
Laminated safety glass, non-reflective	Laminated safety glass, non-reflective	–	Laminated safety glass, non-reflective	–	Laminated safety glass, non-reflective
Infra-red touch, 63 x 47 logic channels	Infra-red touch, 79 x 59 logic channels	Resistive touch, 4-conductor	Infra-red touch, 95 x 71 logic channels	Resistive touch, 4-conductor	Infra-red touch, 107 x 83 logic channels
RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz	RISC, 32 bit, 400 MHz
64 MByte	64 MByte	64 MByte	64 MByte	64 MByte	64 MByte
Approx. 1.5 MByte available					
Approx. 32 kByte available					
1 x CompactFlash card type I/II for operating System, programs and data	2 x CompactFlash card type I/II for operating system, programs and data				
Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance
Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years
Windows CE	Windows CE	Windows CE	Windows CE	Windows CE	Windows CE
GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM	GALILEO/EPAM
XSOFT-CODESYS-2	XSOFT-CODESYS-2	XSOFT-CODESYS-2	XSOFT-CODESYS-2	XSOFT-CODESYS-2	XSOFT-CODESYS-2
100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T
RS232, not isolated (D-sub 9-pin, UNC)					
–	–	–	–	–	–
PROFIBUS galvanically isolated, max. 1.5 MBit/s (D-sub 9-pin socket, UNC)					
USB 2.0 (1.5/12 MBit/s), not isolated	2 x USB 2.0 (1.5/12 MBit/s), not isolated				
USB 1.1, not isolated					
24 V DC SELV (safety extra low voltage)					
R.m.s.: 20.4 – 28.8 V DC (nominal voltage -15 %/+20 %) Absolute with ripple: 19.2 – 30.0 V DC 35 V DC for a duration < 100 ms					
20 ms from nominal voltage (24 V DC), 2 ms from undervoltage (20.4 V DC)	10 ms from rated operating voltage (24 V DC), 5 ms from undervoltage (20.4 V DC)	10 ms from rated operating voltage (24 V DC), 5 ms from undervoltage (20.4 V DC)	10 ms from rated operating voltage (24 V DC), 5 ms from undervoltage (20.4 V DC)	10 ms from rated operating voltage (24 V DC), 5 ms from undervoltage (20.4 V DC)	10 ms from rated operating voltage (24 V DC), 5 ms from undervoltage (20.4 V DC)
Max. 22 W (normally 15 W)	Max. 24 W (normally 14 W)	Max. 24 W (normally 14 W)	Max. 24 W (normally 14 W)	Max. 24 W (normally 14 W)	Max. 36 W (normally 28 W)
Yes	Yes	Yes	Yes	Yes	Yes
Yes (fuse not accessible)					
No (0 V connection to housing potential)					

	XVS-440-57MPI-1-10	XVS-430-57MPI-1-10	XVS-460-57MPI-1-10	XVS-450-57MPI-1-10
General				
Front design	Standard membrane	Standard membrane (fully laminated)	Standard membrane	Standard membrane (fully laminated)
Degree of protection				
Front	IP65	IP65	IP65	IP65
	Additional mounting bracket set required for flush mounting (→ Page 14/12)			
Rear	IP20	IP20	IP20	IP20
Approvals				
Approvals	cUL	cUL	cUL	cUL
Explosion protection (According to ATEX 94/9/EC)	II 3D Ex II T70°C IP5x: Zone 22, Category 3D			
	Additional mounting bracket set required for flush mounting (→ Page 14/12)			
Applied standards and directives				
EMC (relevant for CE)	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61131-2			
Explosion protection (relevant for CE)	EN 60079-0, EN 61241-1, EN 13463			
Safety	EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60951
Product standards	EN 50178, EN 61131-2	EN 50178, EN 61131-2	EN 50178, EN 61131-2	EN 50178, EN 61131-2
Weight	Approx. 1.8 kg	Approx. 1.8 kg	Approx. 1.8 kg	Approx. 1.8 kg
Environmental Conditions				
Temperature				
Operation	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C
Storage/transport	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C
Relative humidity	10 – 95%, non-condensing	10 – 95%, non-condensing	10 – 95%, non-condensing	10 – 95%, non-condensing
Impact resistance	To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27
Vibration	To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6

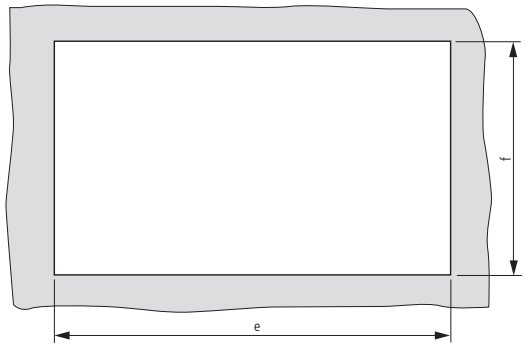
Dimensions

XV-..., XVH-3..., XVS-4..., MFD4...



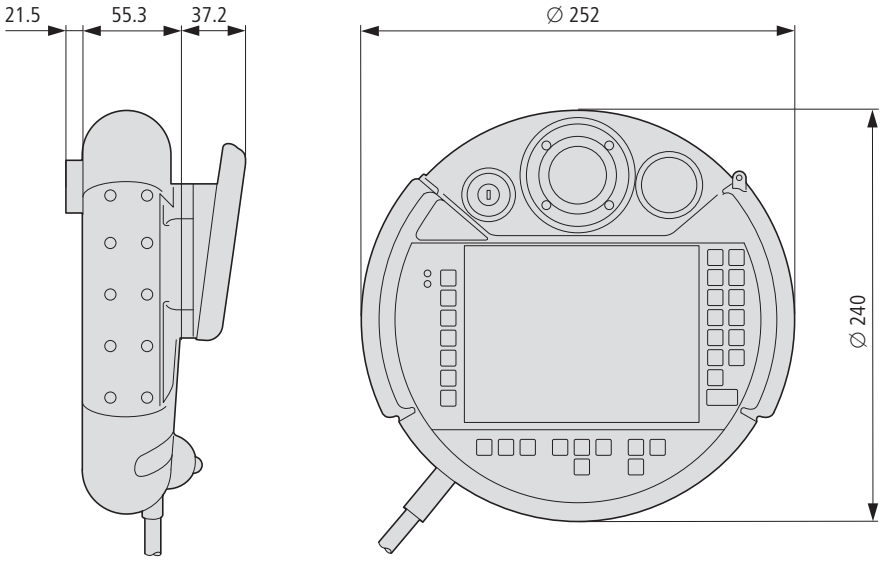
Part No.	a	b	c	d	e	f
XV-102-…-35...	136	100	25	5	123	87
XV-102-…-57...	170	130	34	5	157	117
XV-102-…-70...	210	135	33	5	197	122
XV-2…-57...	212	156	50	5	198	142
MFD4...	212	156	54	5	198	142
XVH-3…-57BAS...	212	156	55	5	198	142
XVH-3…-57CAN...	212	156	55	5	198	142
XVH-3…-57MPI...	212	156	55	5	198	142
XVH-3…-57SKS...	212	156	76	5	198	142
XVS-4…-57...	212	156	55	5	198	142
XVS-4…-84...	275	208	70	5	261	194
XVS-4…-10...	345	260	62	5	329	238
XVS-4…-12...	361	279	62	5	344	262
XVS-4…-15...	427	332	68	5	410	315
XV-4…-57...	212	156	76	5	198	142
XV-4…-84...	275	208	90	5	261	194
XV-4…-10...	345	260	88	5	329	238
XV-4…-12...	361	279	88	5	344	262
XV-4…-15...	427	332	94	5	410	315

Mounting dimensions

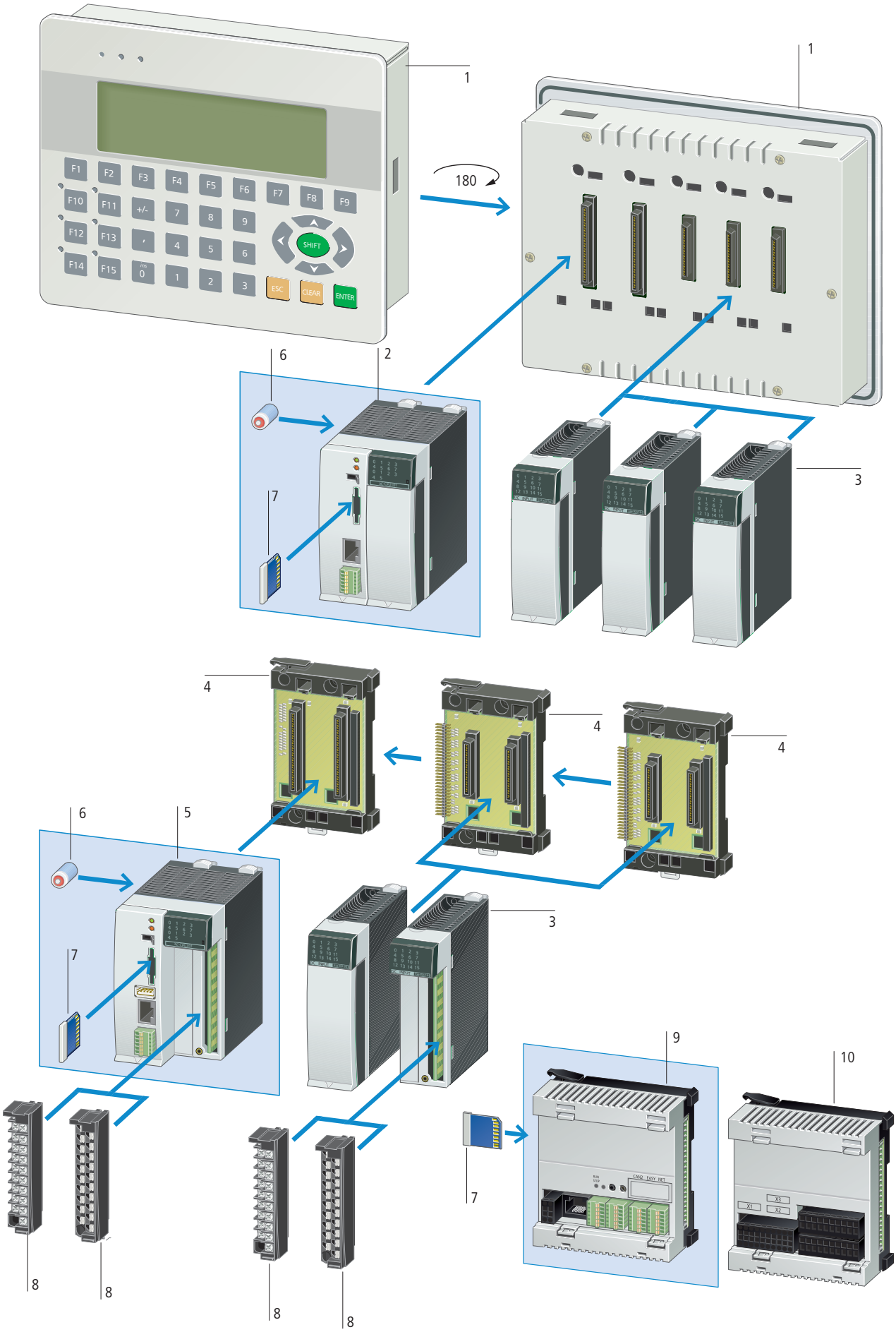


XVS-460-84MPI-1-10	XVS-440-10MPI-1-10	XVS-430-10MPI-1-10	XVS-440-12MPI-1-10	XVS-430-12MPI-1-10	XVS-460-15MPI-1-10
Standard membrane	Standard membrane	Standard membrane (fully laminated)	Standard membrane	Standard membrane (fully laminated)	Standard membrane
IP65	IP65	IP65	IP65	IP65	IP65
Additional mounting bracket set required for flush mounting (→ Page 14/12)					
IP20	IP20	IP20	IP20	IP20	IP20
cUL	cUL	cUL	cUL	cUL	cUL
II 3D Ex II T70°C IP5x: Zone 22, Category 3D					
Additional mounting bracket set required for flush mounting (→ Page 14/12)					
EN 61000-6-2, EN 61000-6-4, EN 61131-2					
EN 60079-0, EN 61241-1, EN 13463					
EN 60950/UL 60952	EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60950	EN 60950/UL 60950
EN 50178, EN 61131-2	EN 50178, EN 61131-2	EN 50178, EN 61131-2	EN 50178, EN 61131-2	EN 50178, EN 61131-2	EN 50178, EN 61131-2
Approx. 2.6 kg	Approx. 3.7 kg	Approx. 3.7 kg	Approx. 4.1 kg	Approx. 4.1 kg	Approx. 5.8 kg
0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C	0 – 50°C
-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C	-20 – 60°C
10 – 95%, non-condensing	10 – 95%, non-condensing	10 – 95%, non-condensing	10 – 95%, non-condensing	10 – 95%, non-condensing	10 – 95%, non-condensing
To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27	To IEC 68-2-27
To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6	To IEC 68-2-6

XVM-4...



System overview



XV101 text display 1

Always in conjunction with XC100-XV and XI/OC (MMI-PLC)

Displays: 4 lines × 20 characters (or 8 × 40)

LCD display with STN technology

9 (or 15) function keys with insert strips

Numerical key block and arrow keys

Controller status LED

→ Page 14/38

XC100 2

Modular PLC

8 digital inputs

6 digital outputs

4 interrupt inputs

CANopen fieldbus interface

RS232 interface

Locally expandable with XI/OC

Can be combined with XV text displays

→ Page 14/38

XI/OC I/O modules 3

Space-optimized input/ output modules

Local extension on XC100/200

Digital, analog, technology, counter and communica-tion cards

XI/OC modules can be exchanged without the need to undo wiring

→ Page 14/39

Module backplane 4

XI/OC backplane

For connecting the XC100/200 controller and the XI/OC modules with the top-hat rail

→ Page 14/40

XC200 5

Modular PLC with Ethernet interface

8 digital inputs

6 digital outputs

2 counters

2 interrupt inputs

1 incremental input

CANopen fieldbus interface

Web server

RS232 interface

Locally expandable with XI/OC

→ Page 14/38

Battery 6

→ Page 14/41

Memory card (multi-media card) 7

Memory for program, operating system, recipes, and visualization texts

→ Page 14/41

XI/OC terminal block 8

Connection options through spring-loaded or screw terminals

Exchange/remove without disconnecting wiring

→ Page 14/40

XC121 9

Compact PLC

2 CANopen interfaces

RS232 interface

RS232/RS485 interface

MMC Memory card

OPC server

→ Page 14/38

EXT121-1 10

Expansion for compact PLC

10 digital inputs, of which, 6 interrupt inputs

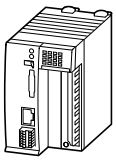
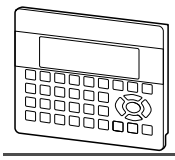
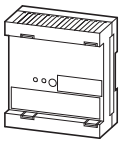
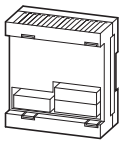
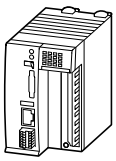
8 digital outputs

6 analog inputs: 2 Pt100 RTD, 2 x 0-10 V, 2 x 0-20 mA

2 analog outputs 0 - 10 V

→ Page 14/38

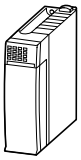
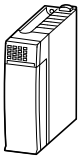
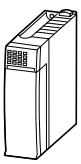
Ordering

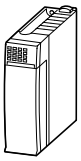
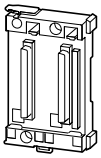
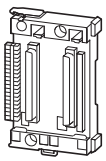
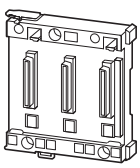
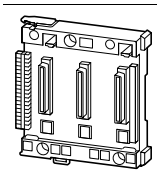
Description	Part No. Article No.	Price See price list	Std. pack
XC100			
• 24 V supply • Can be locally expanded with 15 XI/OC is remotely expandable • The following accessories are required: terminals, backplane, battery • Controller with 8 digital inputs (4 interrupt inputs) • 6 digital outputs; RS232 interface for programming and communication • CANopen interface • slot for MMC memory card • optional expansion with text display • RUN/STOP switch and LED indicators.			
 64 kByte user memory	**XC-CPU101-C64K-8DI-6DO** 262152		1 off
128 kByte user memory	**XC-CPU101-C128K-8DI-6DO** 262146		
256 kByte user memory	**XC-CPU101-C256K-8DI-6DO** 274399		
Optical CAN interface: 128 kByte user memory	**XC-CPU101-FC128K-8DI-6DO** 289169		
Operation with display XV-101-… 64 kByte user memory	**XC-CPU101-C64K-8DI-6DO-XV** 262247		
Operation with display XV-101-… 128 kByte user memory	**XC-CPU101-C128K-8DI-6DO-XV** 262150		
Operation with display XV-101-… 256 kByte user memory	**XC-CPU101-C256K-8DI-6DO-XV** 279280		
Text display for XC100			
• Backlit LCD • membrane keypad • 1 slot for XC100 • 3 spare slots for XI/OC modules • numerical keypad • arrow keys • contrast setting adjustable via software			
 Operation with XC-CPU101-….-XV 4 lines x 20 characters, resolution 122 x 32 pixels, 9 function keys	**XV-101-K42** 262403		1 off
Operation with XC-CPU101-….-XV 8 lines x 40 characters, resolution 240 x 64 pixels, 15 function keys	**XV-101-K84** 262404		1 off
XC121			
• Compact PLC • 24 V supply • 2 CANopen interfaces • RS232 interface for programming and communication • second RS232/RS485 interface • Slot for MMC memory card • Connection through spring-cage terminal blocks • OPC server			
 Can be locally expanded with I/O module XIO-EXT-121-1 256 kByte program memory, 244 kByte data memory	**XC-CPU121-2C256K** 290446		1 off
I/O expansion for XC121			
• Expansion unit with digital and analog inputs/outputs • expandable with XI/OC signal modules (except XIOC-NET-DP-M) • pluggable spring-cage terminals			
 Local I/O expansions for PLC XC121 10 digital inputs 24 V DC, of which 6 interrupt 8 digital inputs/outputs 24 V DC, 0.5 A 2 analog inputs 0 - 10 V 2 analog inputs 0 - 20 mA 2 analog inputs Pt100 RTD 2 analog outputs 0 - 10 V	**XIO-EXT121-1** 290450		1 off
XC200			
• 24 V supply • Can be locally expanded with 15 XI/OC is remotely expandable • The following accessories are required: terminals, backplane, battery • Controller with 8 digital inputs (2 counter, 2 interrupt inputs, 1 incremental input) • 6 digital outputs; Ethernet and RS232 interface for programming and communication • CANopen interface • slot for memory card (MMC) XC-CPU202 (MMC and SD) • USB interface • RUN/STOP switch and LED indicators			
 256 kByte user memory	**XC-CPU201-EC256K-8DI-6DO** 262155		1 off
2 MByte user memory	**XC-CPU201-EC512K-8DI-6DO** 262157		
256 kByte user memory Integrated web server	**XC-CPU201-EC256K-8DI-6DO-XV** 262156		
2 MByte user memory, Integrated web server	**XC-CPU201-EC512K-8DI-6DO-XV** 262158		
4 Mbyte user memory, integrated Web server	**XC-CPU202-EC4M-8DI-6DO-XV** 134238		

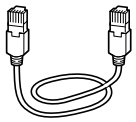
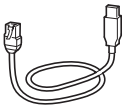
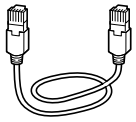
Information relevant for export to North America

Product Standards	IEC: see Technical Data; UL508; CSA-C22.2 No. 0-M; CSA-C22.2 No. 142-M; CE marking	CSA File No.	012528
UL File No.	E135462	CSA Class No.	2252-01
UL CCN	NRAQ	NA Certification	UL Listed, CSA certified
		Degree of Protection	IEC: IP20, UL/CSA Type: -

HPL14039EN

	Description	Part No. Article No.	Price See price list	Std. pack	Information relevant for export to North America
XI/OC					
• Compact I/O system for connection to XC100/200 Modular PLCs • XC100/200 expandable with up to 15 XI/OC modules • Optionally, screw terminals or spring-loaded terminals for digital/analog modules					
Digital modules					
	8 inputs, 24 V DC	**XIOC-8DI** 257891		1 off	Product Standards: IEC: see Technical Data; UL508; CSA-C22.2 No. 0-M; CSA-C22.2 No. 142-M; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	16 inputs, 24 V DC	**XIOC-16DI** 257892			
	32 inputs, 24 V DC	**XIOC-32DI** 267411			
	8 outputs, 24 V DC, 0.3 A	**XIOC-8DO** 257894			
	12 relay outputs	**XIOC-12DO-R** 257897			
	16 outputs, 24 V DC, 0.3 A	**XIOC-16DO** 257896			
	16 outputs, 24 V DC, 0.8 A, short-circuit proof	**XIOC-16DO-S** 257895			
	16 terminals, 4 inputs, 12 freely parameterizable as inputs/outputs, 24 V DC Outputs 0.5 A	**XIOC-16DX** 262322			
	32 outputs, 24 V DC, 0.2 A	**XIOC-32DO** 267413			
Analog modules					
	Inputs 8 inputs 4 - 20 mA	**XIOC-8AI-I2** 262549		1 off	Product Standards: IEC: see Technical Data; UL508; CSA-C22.2 No. 0-M; CSA-C22.2 No. 142-M; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	Inputs 8 voltage inputs 0 - 10 V	**XIOC-8AI-U1** 257899			
	Inputs 8 voltage inputs, ±10 V	**XIOC-8AI-U2** 257900			
	Inputs 4 inputs for temperature monitoring, Pt100/1000	**XIOC-4T-Pt** 257901			
	Inputs 4 inputs for thermocouples Type K, J, L, B, N, E, R, S, T	**XIOC-4AI-T** 289933			
	Outputs 2 outputs, ±10 V	**XIOC-2AO-U2** 257904			
	Outputs 2 outputs 0 - 10 V, 2 outputs 4 - 20 mA	**XIOC-2AO-U1-2AO-I2** 257902			
	Outputs 4 outputs 0 - 10 V	**XIOC-4AO-U1** 257903			
	Combination modules 2 inputs and 1 output 0 - 10 V 1 ms conversion time	**XIOC-2AI-1AO-U1** 262409			
	Combination modules 2 inputs and 1 output 0 - 10 V, 0 - 20 mA 1 ms conversion time, individual changeover	**XIOC-2AI-1AO-U1-I1** 281545			
	Combination modules 4 inputs und 2 outputs 0 - 10 V 1 ms conversion time	**XIOC-4AI-2AO-U1** 262405			
	Combination modules 4 inputs and 2 outputs 0 - 10 V, 0 - 20 mA 1 ms conversion time, individual changeover	**XIOC-4AI-2AO-U1-I1** 281544			
Counter modules					
	1 input up to 100 kHz, 24 V DC, 5 V DC, 2 digital transistor outputs, opto-isolated, 24 V DC 30 pin connector required for counter module	**XIOC-1CNT-100KHZ** 257906		1 off	Product Standards: IEC: see Technical Data; UL508; CSA-C22.2 No. 0-M; CSA-C22.2 No. 142-M; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	2 inputs up to 100 kHz, (24 V DC or 5 V diff), 4 digital transistor outputs, opto-isolated, 24 V DC 30 pin connector required for counter module	**XIOC-2CNT-100KHZ** 257907			
	2 incremental encoders up to 400 kHz, 5 V DC, 2 analog outputs ±10 V	**XIOC-2CNT-2AO-INC** 262417			

	Description	Part No. Article No.	Price See price list	Std. pack	Information relevant for export to North America	
Communication cards						
	PROFIBUS-DP master module	**XIOC-NET-DP-M** 257908		1 off	Product Standards	IEC: see Technical Data; UL508; CSA-C22.2 No. 0-M; CSA-C22.2 No. 142-M; CE marking
	PROFIBUS-DP slave module	**XIOC-NET-DP-S** 286419			UL File No.	E135462
	Suconet K master module	**XIOC-NET-SK-M** 289982			UL CCN	NRAQ
	Serial interfaces RS232C, RS485, RS422 Modes of operation: Transparent mode Modbus master/slave SUCOM-A Suconet-K slave	**XIOC-SER** 267191			CSA File No. CSA Class No. NA Certification Degree of Protection	012528 2252-01 UL Listed, CSA certified IEC: IP20, UL/CSA Type: -
	Serial interfaces RS232C, RS485, RS422 Modes of operation: Transparent mode Modbus master/slave SUCOM-A DNP protocol	**XIOC-TC1** 135265		1 off	NA Certification	Request filed for UL and CSA
Accessories						
Terminals One 18 pole terminal plug is required for each digital and analog module.						
–	18-pin connector with spring-cage terminal for digital or analog I/O.	**XIOC-TERM-18T** 258104		10 off	NA Certification	Request filed for UL and CSA
–	18-pin connector with screw terminals for digital or analog I/O.	**XIOC-TERM-18S** 258102				
–	30 pin connector for counter module, with 4 m cable XIOC-1CNT-100KHZ XIOC-2CNT-100KHZ	**XIOC-TERM30-CNT4** 262248		1 off		
–	40 pin connector for digital module, with 4 m cable XIOC-32DI XIOC-32DO	**XIOC-TERM32** 267414				
Module backplane						
	Basic backplane for mounting XC100/200 on top-hat rail, can be expanded Width: 2 slots for controller	**XIOC-BP-XC** 260792		1 off	Product Standards	IEC: see Technical Data; UL508; CSA-C22.2 No. 0-M; CSA-C22.2 No. 142-M; CE marking
	Expansion backplane for mounting XI/OC modules on top-hat rail, can be expanded Width: 2 slots for XI/OC modules	**XIOC-BP-2** 260794		1 off	UL File No. UL CCN CSA File No. CSA Class No. NA Certification Degree of Protection	E135462 NRAQ 012528 2252-01 UL Listed, CSA certified IEC: IP20, UL/CSA Type: -
	Basic backplane for mounting XC100/200 on top-hat rail, can be expanded Width: 3 slots for controller and one XI/OC module	**XIOC-BP-XC1** 260793		1 off		
	Expansion backplane for mounting XI/OC modules on top-hat rail, can be expanded Width: 3 slots for XI/OC modules	**XIOC-BP-3** 260795		1 off		
	Expansion backplane for mounting XI/OC modules on top-hat rail, can be expanded Width: 3 slots for XI/OC modules Note: Module Backplane for expansion with up to 15 modules, must be plugged into the 6th slot	**XIOC-BP-EXT** 274291		1 off		

	Description	Part No. Article No.	Price See price list	Std. pack	Information relevant for export to North America
Accessories					
Memory card For storage of programs, data, recipes for XC100, XC121, XC200, MFD4					
–	512 MByte	**XT-MEM-MM512M** 138257		1 off	NA Certification: Request filed for UL and CSA
–	32 MByte	**XT-MEM-MM32M** 262731		1 off	Product Standards: IEC: see Technical Data; UL508; CSA-C22.2 No. 0-M; CSA-C22.2 No. 142-M; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
Battery					
	For backup of real-time clock and retentive data of the MFD4	**XT-CPU-BAT1** 256209		1 off	
Programming cables					
	2 m D-sub 9-pin, serial	**XT-SUB-D/RJ45** 262186		1 off	
	2 m Ethernet cross	**XT-CAT5-X-2** 256487		1 off	
	5 m Ethernet cross	**XT-CAT5-X-5** 256488			
	Programming cable for XC, EC4P, EU5C through USB interface	**EU4A-RJ45-USB-CAB1** 115735			
Connection cables					
	0.3 m Connection cable for XC200 to interface switch	**EASY-NT-30** 256283		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	0.8 m Connection cable for XC200 to interface switch	**EASY-NT-80** 256284			
	1.5 m Connection cable for XC200 to interface switch	**EASY-NT-150** 256285			
CAN cable to ISO 11898 Recommendation: UNITRONIC bus LD, from LAPPKABEL 2 x 2 x 0.22 mm² Characteristic impedance: 100 - 120 Ω Effective capacitance: 800 Hz, max. 60 nF/km					
Empty module					
–	Empty module to cover free XI/OC slots	**XIOC-NOP** 288894		1 off	Product Standards: IEC: see Technical Data; UL508; CSA-C22.2 No. 0-M; CSA-C22.2 No. 142-M; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
Interface switch					
–	Interface adapter to split the combined RS232/Ethernet interface of the XC200 into RJ45 sockets Connection cable EASY-NT-30/80/150 usable for connection to XC200.	**XT-RJ45-ETH-RS232** 289170		1 off	
Filter					
–	Interference suppression of the external 24 V DC supply of the XC100/200 Max. current consumption: 2.2 A	**XT-FIL-1** 285316		1 off	
–	Power supply interference suppression of I/O modules of XC100/200. Max. current consumption: 12 A	**XT-FIL-2** 118980		1 off	
Insert labels					
–	Insert labels for user inscription For 3 devices: XV-101-K42 For 3 devices: XV-101-K84	**XT-BS1** 265365		1 off	UL/CSA certification not required

Programming software → Page 14/130

Technical data

			XC-CPU101- C64K-8DI-6DO(-XV)	XC-CPU101- C128K-8DI-6DO(-XV)	XC-CPU101-FC128K-8DI-6DO(-XV)	XC-CPU101- C256K-8DI-6DO(-XV)
General						
Standards			IEC/EN 61131-2 EN 50178	IEC/EN 61131-2 EN 50178	IEC/EN 61131-2 EN 50178	IEC/EN 61131-2 EN 50178
Ambient temperature		°C	0 - +55	0 - +55	0 - +55	0 - +55
Storage		°C	-25 to +70	-25 to +70	-25 to +70	-25 to +70
Mounting position			Horizontal	Horizontal	Horizontal	Horizontal
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	10 - 95	10 - 95	10 - 95	10 - 95
Air pressure (in operation)		hPa	795 - 1080	795 - 1080	795 - 1080	795 - 1080
Vibration resistance			10 - 57 Hz ±0.075 mm 57 - 150 Hz ±1.0 g	10 - 57 Hz ±0.075 mm 57 - 150 Hz ±1.0 g	10 - 57 Hz ±0.075 mm 57 - 150 Hz ±1.0 g	10 - 57 Hz ±0.075 mm 57 - 150 Hz ±1.0 g
Mechanical shock resistance			15 g/11 ms	15 g/11 ms	15 g/11 ms	15 g/11 ms
Overvoltage category			II	II	II	II
Pollution degree			2	2	2	2
Degree of Protection			IP20	IP20	IP20	IP20
Rated insulation voltage	U_i	V	500	500	500	500
Emitted interference			EN 61000-6-4, Class A	EN 61000-6-4, Class A	EN 61000-6-4, Class A	EN 61000-6-4, Class A
Interference immunity			EN 61000-6-2	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2
Battery (lifespan)			Normally 5 years	Normally 5 years	Normally 5 years	Normally 5 years
Weight		kg	0.23	0.23	0.23	0.23
Terminals			Plug-in terminal block	Plug-in terminal block	Plug-in terminal block	Plug-in terminal block
Terminal capacity						
Screw terminals						
Flexible with ferrule		mm^2	0.5 - 1.5	0.5 - 1.5	0.5 - 1.5	0.5 - 1.5
Solid		mm^2	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5
Spring-cage terminal						
Flexible		mm^2	0.34 - 1.0	0.34 - 1.0	0.34 - 1.0	0.34 - 1.0
Solid		mm^2	0.14 - 1.0	0.14 - 1.0	0.14 - 1.0	0.14 - 1.0
Electromagnetic compatibility (EMC)			→ Page 14/58			
Power supply						
Mains failure duration		ms	10	10	10	10
Repetition rate		s	1	1	1	1
Input voltage		V DC	24	24	24	24
Permissible range		V DC	20.4…28.8	20.4…28.8	20.4…28.8	20.4…28.8
Input power		W	Max. 26	Max. 26	Max. 26	Max. 26
Ripple		%	≦ 5	≦ 5	≦ 5	≦ 5
Maximum heat dissipation (without local I/O)	P_v	W	6	6	6	6
Overvoltage protection			Yes	Yes	Yes	Yes
Protection against polarity reversal			Yes	Yes	Yes	Yes
Mains filter (external)			Yes	Yes	Yes	Yes
Inrush current		x I_n	Not limited, (limiting only by a supply-side 24 V DC PSU)			
Output voltage for signal modules						
Rated value		V DC	5	5	5	5
Output current		A	3.2	3.2	3.2	3.2
Short-circuit rating			Yes	Yes	Yes	Yes
Isolated from supply voltage			No	No	No	No
CPU						
Microprocessor			Infineon C164	Infineon C164	Infineon C164	Infineon C164
Memory						
Program code/program data		kByte	64/64	128/128	128/128	256/256
Marker/retain data		kByte	4/4	8/8	8/8	8/8
Cycle time for 1 k of instructions (bits, bytes)		ms	< 0.5	< 0.5	< 0.5	< 0.5

			XC-CPU101- C64K-8DI-6DO(-XV)	XC-CPU101- C128K-8DI-6DO(-XV)	XC-CPU101-FC128K-8DI-6DO(-XV)	XC-CPU101- C256K-8DI-6DO(-XV)
Interfaces						
Serial interface (RS232) without handshake lines						
Baud rate		kbit/s	Max. 57.6	Max. 57.6	Max. 57.6	Max. 57.6
Connections			RJ45	RJ45	RJ45	RJ45
Potential isolation			No	No	No	No
CANopen						
Maximum data transfer rate		bit/s	500000	500000	500000	500000
Potential isolation			Yes	Yes	Yes	Yes
Device profile			To DS 301 V4	To DS 301 V4	To DS 301 V4	To DS 301 V4
PDO type			Asyn., cyc., acyc.	Asyn., cyc., acyc.	Asyn., cyc., acyc.	Asyn., cyc., acyc.
Connection			Plug-in terminal block	Plug-in terminal block	Optical fiber interface, wavelength 660 mm, plug e.g. HFBR-4516 Agilent Technologies	Plug-in terminal block
Bus terminating resistors			External	External	External	External
Stations		Number	Max. 126	Max. 126	Max. 126	Max. 126
Watchdog			Yes	Yes	Yes	Yes
RTC (real-time clock)			Yes	Yes	Yes	Yes
Power supply of local inputs/outputs (24 V_D/0 V_D)						
Input voltage		V DC	24	24	24	24
Voltage range		V DC	19.2 - 30, observe polarity	19.2 - 30, observe polarity	19.2 - 30, observe polarity	19.2 - 30, observe polarity
Potential isolation						
Between power supply and CPU voltage			Yes	Yes	Yes	Yes
Overvoltage protection			Yes	Yes	Yes	Yes
Protection against polarity reversal			Yes	Yes	Yes	Yes
Digital inputs						
Input current for channel at rated voltage		mA	Normally 3.5	Normally 3.5	Normally 3.5	Normally 3.5
Heat dissipation for channel			Normally 85 m W	Normally 85 m W	Normally 85 m W	Normally 85 m W
Voltage level to IEC/EN 61131-2						
Limit value type 1			Low < 5 V DC, High > 15 V DC	Low < 5 V DC, High > 15 V DC	Low < 5 V DC, High > 15 V DC	Low < 5 V DC, High > 15 V DC
Input delay						
OFF → ON		ms	Normally 0.1	Normally 0.1	Normally 0.1	Normally 0.1
ON → OFF		ms	Normally 0.1	Normally 0.1	Normally 0.1	Normally 0.1
Inputs		Number	8 (of which 4 interrupt inputs)	8 (of which 4 interrupt inputs)	8 (of which 4 interrupt inputs)	8 (of which 4 interrupt inputs)
Channels with the same reference potential		Number	8	8	8	8
Status indication			LED	LED	LED	LED
Digital outputs						
Channels		Number	6	6	6	6
Heat dissipation for channel		W	0.08	0.08	0.08	0.08
Load circuits		A	0.5	0.5	0.5	0.5
Output delay						
OFF → ON			Normally 0.1 ms	Normally 0.1 ms	Normally 0.1 ms	Normally 0.1 ms
ON → OFF			Normally 0.1 ms	Normally 0.1 ms	Normally 0.1 ms	Normally 0.1 ms
Channels with the same reference potential		Number	6	6	6	6
Status indication			LED	LED	LED	LED
Switching capacity			IEC/EN 60947-5-1, utilization category DC-13	IEC/EN 60947-5-1, utilization category DC-13	IEC/EN 60947-5-1, utilization category DC-13	IEC/EN 60947-5-1, utilization category DC-13
Duty factor		% DF	100	100	100	100
Utilization factor		g	1	1	1	1

			XV-101-K42	XV-101-K84
General				
Standards			IEC/EN 60131-2 EN 50178	IEC/EN 60131-2 EN 50178
Ambient temperature				
Operation				
When mounted vertically, up to 45° fitting angle		°C	0…50	0…50
Storage		°C	-20 - 70	-20 - 70
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	10 - 95	10 - 95
Protection type				
Front			IP65	IP65
Enclosure			IP20	IP20
Vibration resistance			10 - 57 Hz ± 0.075 mm 57 - 150 Hz ±1 g	10 - 57 Hz ± 0.075 mm 57 - 150 Hz ±1 g
Mechanical shock resistance			15 g/11 ms	15 g/11 ms
Rated impulse withstand voltage	U_{imp}	V	850	850
Overvoltage category			II	II
Pollution degree			2	2
Interference immunity			EN 61000-6-2	EN 61000-6-2
Emitted interference			EN 50081-2, Class A	EN 50081-2, Class A
Weight		kg	Approx. 0.9	Approx. 0.9
Power supply				
Rated voltage	U_e	V DC	24	24
Permissible range		V DC	18…30	18…30
Display				
Backlight			LED	LED
Lifespan of backlight		Operating hours	100000	100000
Character height			5 mm/10 mm	5 mm/10 mm
User-definable characters			256	256
Pushbuttons				
Total number of pushbuttons			29	35
Keypad service life		Operations	> 3000000	> 3000000
Features				
Memory type			SRAM, 32 KB	SRAM, 32 KB
Status indication			LED (RUN, STOP, SF)	LED (RUN, STOP, SF)
Expansions			3 XI/OC signal modules	3 XI/OC signal modules
Real-time clock			Yes	Yes

			XC-CPU121-2C256K
General			
Standards			IEC/EN 61131-2 EN 50178
Ambient temperature		°C	0 - +55
Storage		°C	-25 to +70
Mounting position			Horizontal
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	10 - 95
Air pressure (in operation)		hPa	795 - 1080
Vibration resistance			Frequency 5 - 9 Hz; 3.5 mm amplitude 9 - 150 Hz; 1.0 g constant acceleration
Mechanical shock resistance			15 g/11 ms
Overvoltage category			II
Pollution degree			2
Degree of protection			IP20
Rated insulation voltage	U_i	V	500
Emitted interference			EN 61000-6-4
Interference immunity			EN 61000-6-2
Backup time			At least 72 hours
Weight		kg	0.15
Electromagnetic compatibility (EMC)			→ Page 14/58
Connections			
Supply voltage			
Connection type			-
Terminal capacity		mm²	0.14 - 1 (AWG28-18)
COM1 interface			
Connection type			RJ45
COM2, CAN1, CAN2 interfaces			
Connection type			Spring-loaded terminal block, 6pole
Terminal capacity		mm²	0.14 - 0.5 (AWG28-20)
Power supply			
Input voltage		V DC	24
Permissible range		V DC	20.4…28.8
Input power		W	Max. 1.44
Input current		mA	60
Ripple		%	≦ 5
Maximum heat dissipation (without local I/O)	P_v	W	6
Overvoltage protection			Yes
Protection against polarity reversal			Yes
Inrush current		x I_n	No limitation (limited only by upstream 24 V DC power supply unit)
Supply failure bridging			
Duration of power failure		ms	10
Repetition rate		s	1
External supply filter			Part No.: XT-FIL-1, → Page 14/41
Memory			
Program code/program data		kByte	256/244
Marker/input/output/retain data		kByte	16/4/4/8
Cycle time for 1 k of instructions (bits, bytes)		ms	< 0.3
Interfaces			
Serial interface (RS232) without handshake lines			
Baud rate		kbit/s	–
Baud rate		kbit/s	Programming (character format: 8 data bits, No parity, 1 stop bit) 19.2, 38.4 (default), 57.6
Connector type			RJ45
Potential isolation			No
In transparent mode			
Baud rate		kbit/s	0.3, 0.6, 1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6, 115.2
Character formats			8E1, 8O1, 8N1, 8N2, 7E2, 7O2, 7N2, 7E1
Number of Send bytes for block			190
Number of Receive bytes for block			190

				XC-CPU121-2C256K
COM2 (RS232/RS485) without handshake lines				
	Baud rate		kbit/s	Transparent mode (setting through function blocks) 0.3, 0.6, 1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6
	Character formats			8E1, 8O1, 8N1, 8N2, 7E2, 7O2, 7N2, 7E1 (setting through function blocks)
	Potential isolation			No
	Bus termination			External, for RS485
CAN1/CAN2 interface				
	Baud rate		kbit/s	10 … 500
	Potential isolation			No
	Stations			126
	Bus termination			Adjustable for each interface (CAN1/CAN2)
	PDO type			Asyn., cyc., acyc.
Power supply of local inputs/outputs (24 V_D/0 V_D)				
Input voltage			V DC	24
Voltage range			V DC	19.2 - 30, observe polarity
Potential isolation				
	Between power supply and CPU voltage			Yes
Overvoltage protection				Yes

			XIO-EXT121-1
General			
Standards			IEC/EN 61131-2 EN 50178
Ambient temperature		°C	0 - +55
Storage		°C	-25 to +70
Mounting position			Horizontal
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	10 - 95
Air pressure (in operation)		hPa	795 - 1080
Vibration resistance			Frequency 5 - 9 Hz; 3.5 mm amplitude 9 - 150 Hz; 1.0 g constant acceleration
Mechanical shock resistance			15 g/11 ms
Overvoltage category			II
Pollution degree			2
Degree of protection			IP20
Rated insulation voltage	U_i	V	500
Emitted interference			EN 61000-6-4
Interference immunity			EN 61000-6-2
Backup time			At least 72 hours
Weight		kg	0.15
Electromagnetic compatibility (EMC)			→ Page 14/58
Connections			
X1 connector			
Connector type			Spring-loaded terminal block, 20 pole, B2L 3.5 (Weidmüller)
Terminal capacity (solid)		mm²	0.5 - 1
X2/X3 connector			
Connector type			Spring-loaded terminal block, 10 pole, BLZF 3.5/180 or BLI/O 3.5/10F with LEDs (Weidmüller)
Terminal capacity (solid)		mm²	0.5 - 1
Power supply			
Supply failure bridging			
Duration of power failure		ms	10
Repetition rate		s	1
Input voltage		V DC	24
Permissible range		V DC	20.4…28.8
Input power		W	Max. 1.68
Input current		mA	70
Ripple		%	≦ 5
Overvoltage protection			Yes
Protection against polarity reversal			Yes
Inrush current		x I_n	Max. 1 A
Output voltage for signal modules			
Max. field current IL		A	2
Digital inputs			
Number			X2: 9 with plug BLI/O 3.5/10F or 10 with plug BLZF 3.5/180 X3: 8 (can also be used as outputs)
Rated voltage			
Rated voltage	U_e	V DC	24
At state "0"	U_e	V DC	< 5
At state "1"	U_e	V DC	> 15
Rated operational current			
At state "1"	I_e	mA	3.3
Delay time			
X2: DI0…DI3		µs	20
X2: DI4…DI9		µs	250
X2: DX0…DX7		ms	20
Potential isolation			No

			XIO-EXT121-1
Digital outputs			
Number			At X3: 8 (can also be used as inputs)
Rated voltage			
Rated voltage	U_e	V DC	24
Permissible range			20.4 … 28.8 V DC
Ripple		%	≦ 5
Rated operational current			
At state "1"	I_e	A	0.5 at 24 V AC
Utilization factor	%	*g*	1
Maximum duty factor		ms	100 %
Lamp load without R_v		W	5
Potential isolation			No
Residual current at state "0" per channel		mA	< 0.1
Max. output voltage			
At state "0" with external load < 10 MΩ		V	2.5
At state "1" at I_e = 0.5 A		V	U = U_e - 1 V
Short-circuit tripping current			
Short-circuit tripping current for R_a ≦ 10 mΩ		A	0.7 ≦ I_e ≦ 2 for output
Total short-circuit current		A	16
Peak short-circuit current		A	32
Max. operating frequency		Ops/h	40000
Parallel connection capability			Yes
Analog inputs 0…10 V			
Number of channels			2
Primary voltage range		V	0…10
Resolution		bit	10
Conversion time		ms	≦ 5
Overall accuracy			≦ ± 1 % (of full-scale value)
Input resistance		kΩ	200
Analog inputs 0…20 mA			
Number of channels			2
Primary voltage range		mA	0…20
Resolution		bit	10
Conversion time		ms	≦ 5
Overall accuracy			≦ ± 1 % (of full-scale value)
Input resistance		Ω	50
Pt100 RTD			
Number of channels			2
Temperature range		°C	-200…+200
Resistance range		Ω	18.5…175.8
Resolution		bit	10
Overall accuracy			≦ ± 2 %
Analog outputs			
Number of channels			2
Secondary voltage range		V	0…10
Resolution		bit	12
Conversion time		ms	≦ 5
Overall accuracy			≦ ± 1 % (of full-scale value)
External load resistance	R	kΩ	10

				XC-CPU201-EC256K-8DI-6DO(-XV)	XC-CPU201-EC512K-8DI-6DO(-XV)	XC-CPU202-EC4M-8DI-6DO-XV
General						
Standards				IEC/EN 61131-2 EN 50178	IEC/EN 61131-2 EN 50178	IEC/EN 61131-2 EN 50178
Ambient temperature			°C	0 - +55	0 - +55	0 - +55
Storage			°C	-25 to +70	-25 to +70	-25 to +70
Mounting position				Horizontal	Horizontal	Horizontal
Relative humidity, non-condensing (IEC/EN 60068-2-30)			%	10 - 95	10 - 95	10 - 95
Air pressure (in operation)			hPa	795 - 1080	795 - 1080	795 - 1080
Vibration resistance				10 - 57 Hz ±0.075 mm 57 - 150 Hz ±1.0 g	10 - 57 Hz ±0.075 mm 57 - 150 Hz ±1.0 g	10 - 57 Hz ±0.075 mm 57 - 150 Hz ±1.0 g
Mechanical shock resistance				15 g/11 ms	15 g/11 ms	15 g/11 ms
Overvoltage category				II	II	II
Pollution degree				2	2	2
Degree of protection				IP20	IP20	IP20
Rated impulse withstand voltage		U_{imp}	V	850	850	850
Emitted interference				EN 61000-6-4, Class A	EN 61000-6-4, Class A	EN 61000-6-4, Class A
Interference immunity				EN 61000-6-2	EN 61000-6-2	EN 61000-6-2
Battery (lifespan)				Normally 5 years	Normally 5 years	Normally 5 years
Weight			kg	0.23	0.23	0.23
Terminals				Plug-in terminal block	Plug-in terminal block	Plug-in terminal block
Terminal capacity						
Screw terminals						
	Flexible with ferrule		mm^2	0.5 - 1.5	0.5 - 1.5	0.5 - 1.5
	Solid		mm^2	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5
Spring-cage terminal						
	Flexible		mm^2	0.34 - 1.0	0.34 - 1.0	0.34 - 1.0
	Solid		mm^2	0.14 - 1.0	0.14 - 1.0	0.14 - 1.0
Electromagnetic compatibility (EMC)				→ Page 14/58		
Power supply						
Duration of mains failure			ms	10	10	10
Repetition rate			s	1	1	1
Input voltage			V DC	24	24	24
Permissible range			V DC	20.4…28.8	20.4…28.8	20.4…28.8
Input power			W	Max. 33	Max. 33	Max. 33
Ripple			%	≦ 5	≦ 5	≦ 5
Maximum heat dissipation		P_v	W	6	6	6
Overvoltage protection				Yes	Yes	Yes
Protection against polarity reversal				Yes	Yes	Yes
Line filter				Yes	Yes	Yes
Inrush current			x I_n	Not limited, (limiting only by a supply-side 24 V DC PSU)		
Output voltage for signal modules						
Rated value			V DC	5	5	5
Output current			A	3.2	3.2	3.2
Short-circuit rating				Yes	Yes	Yes
Isolated from supply voltage				No	No	No
CPU						
Microprocessor				NEC VR4181 A MIPS	NEC VR4181 A MIPS	ARM 532 MHz
Memory						
Program code/program data				256 kByte/256 kByte	2 MB/512 kByte	4 MB/512 kByte
Marker/retain data			kByte	16/32	16/32	16/64
Cycle time for 1 k of instructions (bits, bytes)			ms	< 0.15	< 0.15	< 0.025

			XC-CPU201-EC256K-8DI-6DO(-XV)	XC-CPU201-EC512K-8DI-6DO(-XV)	XC-CPU202-EC4M-8DI-6DO-XV
Interfaces					
Ethernet					
Baud rate		MBit/s	10/100 - Autodetect	10/100 - Autodetect	10/100 - Autodetect
Connector type			RJ45	RJ45	RJ45
Potential isolation			No	No	No
Serial interface (RS232) without handshake lines					
Baud rate		kbit/s	Max. 115.2	Max. 115.2	Max. 115.2
Connector type			RJ45	RJ45	RJ45
Potential isolation			No	No	No
USB interface			1.0	1.0	2.0
CANopen					
Maximum data transfer rate		MBit/s	1	1	1
Potential isolation			Yes	Yes	Yes
Device profile			To DS 301 V4	To DS 301 V4	To DS 301 V4
PDO type			Asyn., cyc., acyc.	Asyn., cyc., acyc.	Asyn., cyc., acyc.
Connection			Plug-in terminal block	Plug-in terminal block	Plug-in terminal block
Bus terminating resistors			External	External	internal
Stations		Number	Max. 126	Max. 126	Max. 126
Watchdog			Yes	Yes	Yes
RTC (real-time clock)			Yes	Yes	Yes
Power supply of local inputs/outputs (24 V_0/0 V_0)					
Input voltage		V DC	24	24	24
Voltage range		V DC	19.2 - 30, observe polarity	19.2 - 30, observe polarity	19.2 - 30, observe polarity
Potential isolation					
Between power supply and CPU voltage			Yes	Yes	Yes
Between power supply and inputs/outputs			No	No	No
Status indication			LED	LED	LED
Terminals			Plug-in terminal block	Plug-in terminal block	Plug-in terminal block
Overvoltage protection			Yes	Yes	Yes
Protection against polarity reversal			Yes	Yes	Yes
Digital inputs					
Input current per channel at rated voltage		mA	Normally 3.5	Normally 3.5	Normally 3.5
Heat dissipation per channel			Normally 85 m W	Normally 85 m W	Normally 85 m W
Voltage level to IEC/EN 61131-2					
Limit value type 1			Low < 5 V DC, High > 15 V DC	Low < 5 V DC, High > 15 V DC	Low < 5 V DC, High > 15 V DC
Input delay					
OFF → ON		ms	Type 0.1	Type 0.1	Type 0.1
ON → OFF		ms	Type 0.1	Type 0.1	Type 0.1
Inputs		Number	8, of which parameterizable:	2 counters, 50 kHz, 2 interrupt inputs, 1 incremental input	
Channels with the same reference potential		Number	8	8	8
Status indication			LED	LED	LED
Digital outputs					
Channels		Number	6	6	6
Heat dissipation per channel		W	0.08	0.08	0.08
Load circuits		A	0.5	0.5	0.5
Output delay					
OFF → ON			Normally 0.1 ms	Normally 0.1 ms	Normally 0.1 ms
ON → OFF			Normally 0.1 ms	Normally 0.1 ms	Normally 0.1 ms
Channels with the same reference potential		Number	6	6	6
Status indication			LED	LED	LED
Switching capacity			IEC/EN 60947-5-1, utilization category DC-13		
Duty factor		% DF	100	100	100
Utilization factor		g	1	1	1

General			
Standards			IEC/EN 61131-2 EN 50178
Ambient temperature		°C	0 - +55
Storage		°C	-25 to +70
Vibration resistance			10 - 57 Hz ± 0.075 mm 57 - 150 Hz ± 1.0 g
Mechanical shock resistance			15 g/11 ms
Impact strength			500 g/50 mm ±25 g
Overvoltage category			II
Pollution degree			2
Protection class			1
Protection type			IP20
Emitted interference			DIN/EN 55011/22, Class A
Electromagnetic compatibility (EMC)			→ Page 14/58
Power supply			
Rated voltage	U_e	V DC	24 (12)
Permissible range			20.4 – 28.8 (11.8 – 14.4)
Ripple		%	≦ 5
Supply failure bridging			
Duration of power failure		ms	10
Repetition rate		s	1

			XIOC-8DI	**XIOC-16DI**	**XIOC-32DI**
Modules					
Input type			DC input	DC input	DC input
Input voltage		V DC	24	24	24
Permissible range		V DC	20.4…28.8	20.4…28.8	20.4…28.8
Input voltage		V AC	–	–	–
Permissible range		V AC			
Input resistance			Normally 3.5 kΩ	Normally 5.9 kΩ	Normally 5.6 kΩ
Input current		mA	Normally 6.9	Normally 4.0	Normally 4.3
Voltage level to IEC 61131-2, limit value type 1					
ON		V	≧ 15 DC	≧ 15 DC	≧ 15 DC
OFF		V	≦ 5 DC	≦ 5 DC	≦ 5 DC
Input delay					
OFF → ON		ms	5 (normally 4)	5 (normally 4)	5 (normally 4)
OFF → ON		ms	5 (normally 4)	5 (normally 4)	5 (normally 4)
Input channels		Number	8	16	32
Channels with the same reference potential		Number	8	16	32
Potential isolation			With optocouplers	With optocouplers	With optocouplers
Indication			LED (green)	LED (green)	16 LEDs (green), switchable: 0 – 15, 16 – 31
Terminals			Plug-in terminal block	Plug-in terminal block	XIOC-TERM32 (connector and cable)
Internal current consumption (5 V DC)		mA	Normally 26	Normally 51	Normally 100
Weight		kg	0.16	0.16	0.16

			XIOC-8DO	XIOC-16DO	XIOC-16DO-S	XIOC-32DO
Modules						
Output type			Transistor (source type)			
Output voltage		V DC	24 (-15…+20 %)	24 (-15…+20 %)	24 (-15…+20 %)	24 (-15…20 %)
Switching current, minimum		mA	1	1	1	1
Leakage current		mA	0.1	0.1	0.1	0.1
Maximum load current						
Per circuit		A	0.3	0.3	0.8	0.2
Per common potential terminal		A	2.4	4	5	3.2
Output delay						
OFF → ON		ms	≦ 0.3	≦ 0.3	≦ 0.3	≦ 0.3
OFF → ON		ms	≦ 1	≦ 1	≦ 1	≦ 1
Output channels		Number	8	16	16	32
Channels with the same reference potential		Number	8	16	16	32
Overvoltage protection			Diode	Diode	Integrated	Diode
Fuse rating		A	4	8	None	8
Potential isolation			With optocouplers			
Indication			LED (green)	LED (green)	LED (green)	16 LEDs (green), switchable: 0 – 15, 16 – 31
Terminals			Plug-in terminal block			XIOC-TERM32 (connector and cable)
Internal current consumption (5 V DC)		mA	Normally 30	Normally 50	Normally 50	Normally 250
External voltage for outputs/module (30 mA for module supply)	U_s	V	24 DC (-15/+20%)	24 DC (-15/+20%)	24 DC (-15/+20%)	24 DC (-15/+20%)
Short-circuit protection			–	–	Yes	–
Weight		kg	0.16	0.16	0.16	0.16

		XIOC-12DO-R
Modules		
Output type		Relays
Output voltage	V DC	24
Output voltage	V AC	100/240
Switching current, minimum	mA	1
Maximum load current		
Per circuit	A	2
Per common potential terminal	A	5
Output delay		
OFF → ON	ms	≦ 10
OFF → ON	ms	≦ 10
Output channels	Number	12
Channels with the same reference potential	Number	12
Overvoltage protection		External
Fuse rating	A	External
Potential isolation		With optocouplers
Indication		LED (green)
Terminals		Plug-in terminal block
Internal current consumption (5 V DC)	mA	Normally 40
External voltage for operating the relay		24 V DC (-15 - +20%, max. 70 mA)
Weight	kg	0.2

		XIOC-16DX
Power supply		
Supply voltage		24 V DC (-15/+20%)
Ripple	%	≦ 5
Overvoltage protection		Yes
Protection against polarity reversal		Yes
Potential isolation		
Between power supply and I/O bus		Yes
Between power supply and I/O		No
Internal current consumption (5 V DC)	mA	Normally 80
Channels	Number	16
Terminals		Plug-in terminal block
Status indication		LED
Inputs		
Input type		DC input
Input voltage	V DC	24 V DC
Inputs	Number	4, 12, configurable
Input current	mA	Normally 4
Voltage level to IEC 61131-2, limit value type 1		
ON	V	≧ 15 DC
OFF	V	≦ 5 DC
Input delay		
OFF → ON	ms	Normally 0.1
OFF → ON	ms	Normally 0.1
Outputs		
Output type		Transistor (source type)
Output voltage	V DC	12/24 (-15…+20 %)
Output current	A	Normally 0.5
Outputs	Number	Max. 12, configurable
Short-circuit tripping current	A	Max. 1.2 over 3 ms for output
Lamp load	W	Max. 3
Drop-out delay (High → Low)	µs	Normally 100
Switching capacity		IEC/EN 60947-5-1, utilization category DC-13
Short-circuit rating		Yes
Parallel connection of outputs		In groups 0 – 3, 4 – 7, 8 – 11; Actuation of the outputs within a group only in the same program cycle
Number of outputs that can be switched in parallel		Max. 3
Total maximum current	A	2 for group
Weight	kg	0.16

				XIOC-8AI-I2	XIOC-8AI-U1	XIOC-8AI-U2	XIOC-4T-Pt
Modules							
Input voltage			V DC	–	0 to 10	-10 to +10	–
Input current			mA	4 - 20	–	–	–
Resolution, digital			bit	12	12	12	15 bit with sign
Conversion time				≦ 5 ms	≦ 5 ms	≦ 5 ms	
Total errors			%	≦ ± 1 (of full-scale value)			–
Input resistance			kΩ	–	100	100	–
Potential isolation							
Circuit within each channel				With optocouplers			
Between the input channels				No	No	No	no
Input channels			Number	8	8	8	4
Terminals				Plug-in terminal block			
External power supply				24 V DC (-15/+20 %), approx. 150 mA			24 V DC (-15/+20 %), 100 mA
External resistance	R		kΩ	–	–	–	max 0.4, 4 channels
Connection type				2-core shielded cable (≦20 m)			Shielded cable
Platinum RTD				–	–	–	Pt100 (IEC 751), Pt1000
Accuracy							
-20 to 40 °C (Pt100)			°C	–	–	–	±0.5
-50 to 400 °C (Pt100)			°C	–	–	–	±3
-50 to 400 °C (Pt1000)			°C	–	–	–	±6
Temperature measuring range				–	–	–	-20 to +40 °C/-50 to +400 °C (uninterrupted current: 2 mA)
Internal current consumption (5 V DC)			mA	Normally 100	Normally 100	Normally 100	Max. 200
Additional function				–	–	–	Linearisation
Fault detection							
-20 to 40 °C				–	–	–	≦ -25 °C or ≧ +45 °C = resistance value 7FFFFhex
-50 to 400 °C				–	–	–	≦ -60 °C or ≧ +410 °C = resistance value 7FFFFhex
Response to cable break or unused inputs				–	–	–	In these cases, the resistance value is 7FFFhex
Weight			kg	0.18	0.18	0.18	0.18

				XIOC-4AI-T
Channels				
Number				4
Temperature measuring range				Type K: -270…1370 Type J: -210…1200 Type B: 100…1800 Type N: -270…1300 Type E: -270…1000 Type R: -50…1760 Type T: -200…400
Voltage measurement				- 50 mV…50 mV -100 mV…100 mV -500 mV…500 mV -1000 mV…1000 mV
cold-junction compensation				Yes, built-in
Interference suppression				50 Hz, 60 Hz
Unit				0.1 °C, 0.1 F
Resolution			bit	16
Total errors			%	±0.5 of measurement range
Conversion time				< 1 s
Temperature coefficient				< 200 ppm/°C of measurement range

			XIOC-2AO-U1-2AO-I2	XIOC-4AO-U1	XIOC-2AO-U2
Modules					
Output voltage	V DC		0 - 10	0 - 10	-10 - 10
Output current	mA		4 - 20	–	–
Resolution	bit		12	12	12
Conversion time			≦ 5 ms	≦ 5 ms	≦ 5 ms
Total errors	%		≦ ± 1 (of full-scale value)		
External load resistance					
Voltage output			≧ 10 kΩ	≧ 10 kΩ	≧ 10 kΩ
Current output	Ω		0 to 500 Ω	–	–
Potential isolation					
Circuit within each channel			With optocouplers		
Between channels			No	No	No
Number of outputs					
Output voltage			2 (channels 0 and 1)	4	2
Output current			2 (channels 2 and 3)	–	–
Terminals			Plug-in terminal block		
Internal current consumption (5 V DC)	mA		Normally 100	Normally 100	Normally 100
External power supply			24 V DC (-15/+20 %), approx. 150 mA		
Connection type			2-core shielded cable (≦ 20 m)		

			XIOC-2AI-1AO-U1	XIOC-2AI-1AO-U1-I1	XIOC-4AI-2AO-U1	XIOC-4AI-2AO-U1-I1
Inputs						
Input voltage	V DC		0 - 10	0 - 10	0 - 10	0 - 10
Input current	mA		–	0 - 20	–	0 - 20
Resolution	bit		14	14	14	14
Conversion time			< 1 ms	< 1 ms	< 1 ms	< 1 ms
Total errors	%		Normally 0.4	Normally 0.4	Normally 0.4	Normally 0.4
Potential isolation						
Circuit within each channel			No	No	No	No
Between the input channels			No	No	No	No
Between input/output channels			No	No	No	No
Channels	Number		2	2	4	4
Input resistance	kΩ		40	40	40	40
Outputs						
Output voltage	V DC		0 - 10	0 - 10	0 - 10	0 - 10
Output current	mA		–	0 - 20	–	0 - 20
Resolution	bit		12	12	12	12
Errors			Normally 0.4 %	Normally 0.4 %	Normally 0.4 %	Normally 0.4 %
Potential isolation						
Circuit within each channel			No	No	No	No
Between the output channels			No	No	No	No
Number of channels			1	1	2	2
External load resistance			≧ 2 kΩ	≧ 2 kΩ	≧ 2 kΩ	≧ 2 kΩ
Short-circuit rating			Yes	Yes	Yes	Yes
Terminal connection						
Terminals			Plug-in terminal block	Plug-in terminal block	Plug-in terminal block	Plug-in terminal block
Internal current consumption (5 V DC)	mA		Normally 200	Normally 200	Normally 200	Normally 200
Weight	kg		0.16	0.16	0.16	0.16

		XIOC-NET-DP-M	XIOC-NET-DP-S	XIOC-NET-SK-M	XIOC-SER	XIOC-TC1
Interfaces						
Interfaces		PROFIBUS-DP, RS485, EN 50170	PROFIBUS-DP, RS485, EN 50170	RS485	RS232(C), RS422, RS485	RS232(C), RS422, RS485
Protocol		PROFIBUS-DP master (class 1)	PROFIBUS-DP slave	Suconet K, K1	Transparent mode, Modbus master/slave, SUCOM-A, Suconet-K slave	Tranparent mode, Modbus Master/Slave, SUCOM-A, DNP3 protocol
Character formats		–	–	–	8E1, 8O1, 8N1, 8N2, 7E2, 7O2, 7N2, 7E1	8E1, 8O1, 8N1, 8N2, 7E2, 7O2, 7N2, 7E1
Control and signal cables		–	–	–	RTS, CTS, DTR, DSR, DCD	RTS, CTS, DTR, DSR, DCD
Transfer rate	kbit/s	9.6 to 12000	9.6 to 12000	187.5, 375	0.3 …57.6 187.5, 375 (Suconet)	0.3 …57.6
Potential isolation		Yes	Yes	Yes	Yes (RS485, RS422)	Yes (RS485, RS422)
Number of slaves		124	–	16	–	–
Send/receive data		3500 Byte each	Max. 244 Byte	250 Byte each	250 Byte per slave 120 Byte per slave (Suconet-K slave)	250/500
Bus terminating resistors		Switchable	Switchable	Switchable	Switchable for RS485, RS422	Switchable for RS485, RS422
Connector type		D-sub 9-pin socket	D-sub 9-pin socket	Plug-in terminal block	RS232: D-sub 9-pin RS485, 422: plug-in terminal block	RS232: D-sub 9-pin RS485, 422: plug-in terminal block
Current consumption	mA	< 300	< 300	< 275	< 275	< 275
Weight	kg	Approx. 0.2	Approx. 0.2	Approx. 0.2	Approx. 0.2	Approx. 0.2
Number of modules		XC100: 1 XC200: 3	XC100: 1 XC200: 3	XC100: 2 XC200: 4	XC100: 2 XC200: 4	XC200: 4
Slots		1, 2, 3	1, 2, 3	Any	Any	Any

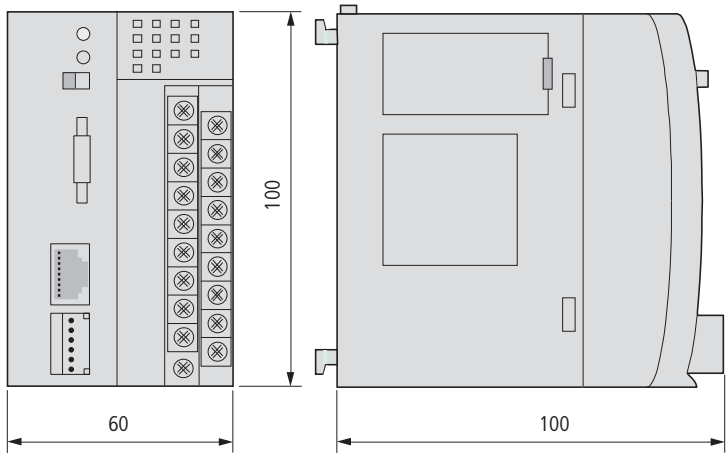
			XIOC-1CNT-100KHZ	XIOC-2CNT-100KHZ	XIOC-2CNT-2AO-INC
Inputs					
Counter limits			0 - 4294967295 (32 bit)	0 - 4294967295 (32 bit)	0 - 4294967295 (32 bit)
Internal current consumption		mA	200	200	450
Frequency		kHz	100 (25 with four times resolution)	100 (25 with four times resolution)	400 (100 with four times resolution)
Number of channels			1	2	2
Input voltage		V DC	12 - 24	12 - 24	–
Voltage for ON		V DC	> 10	> 10	–
Voltage for OFF		VA/W	< 4	< 4	–
Input current		mA	≧ 4	≧ 4	–
Differential input voltage		V DC	± 5	± 5	± 5
Voltage for ON		V DC	2 - 5	2 - 5	0.2 - 5
Voltage for OFF		V DC	-5 - 8	-5 - 8	-5 - -0.2
Differential input current		mA	35	35	5
Minimum pulse width		µs	ON ≧ 4 OFF ≧ 4	ON ≧ 4 OFF ≧ 4	–
Potential isolation			With optocouplers	With optocouplers	–
Connection for external cabling			30-pin plug: XIOC-TERM30-CNT4	30-pin plug: XIOC-TERM30-CNT4	Plug-in terminal block
External cabling			Shielded, twisted pair cable	Shielded, twisted pair cable	Shielded, twisted pair cable
Outputs					
Output type			Transistor (open collector)	Transistor (open collector)	Analog
External power supply			12/24 V DC (30 max.)	12/24 V DC (30 max.)	–
Minimum load current		mA	1	1	–
Maximum load current	I_e	mA	20	20	–
Max. leakage current		mA	0.5	0.5	–
Max. voltage drop at ON		V	1.5	1.5	–
Debounce OFF					
OFF → ON		ms	≦ 1	≦ 1	–
OFF → ON		ms	≦ 1	≦ 1	–
Output channels		Number	2	4	2
Potential isolation			With optocouplers	With optocouplers	–
Output voltage		V DC	–	–	-10 - 10
Resolution		bit	–	–	12
Conversion time			–	–	≦ 1 ms
Total errors		%	–	–	Normally 0.4
Load resistance			–	–	≧ 1 kΩ
Connection for external cabling			30-pin plug: XIOC-TERM30-CNT4	30-pin plug: XIOC-TERM30-CNT4	Plug-in terminal block
External cabling			Shielded, twisted pair cable	Shielded, twisted pair cable	Shielded 2-core cable
Current per channel		mA	–	–	≦ 300
Power supply of encoders			–	–	5 V DC
Current consumption		mA	200	200	Max. 450
Weight		kg	0.16	0.16	0.18

				XT-FIL-1	XT-FIL-2
General					
Standards				IEC/EN 61131-2 EN 50178	IEC/EN 61131-2 EN 50178
Ambient temperature			°C	0 - +55	0 - +55
Storage			°C	-25 - +70	-25 - +70
Mounting position				Vertical or horizontal	Vertical or horizontal
Vibration resistance				10 - 57 Hz ± 0.075 mm 57 - 150 Hz ± 1.0 g	10 - 57 Hz ± 0.075 mm 57 - 150 Hz ± 1.0 g
Mechanical shock resistance				15 g/11 ms	15 g/11 ms
Impact strength				500 g /50 mm ±25 g	500 g/50 mm ±25 g
Overvoltage category				II	II
Pollution degree				2	2
Protection type				IP20	IP20
Rated impulse withstand voltage		U_{imp}	V	850	850
Interference immunity				EN 61000-6-2	EN 61000-6-2
Weight			kg	0.1	0.1
Dimensions (W x H x D)			mm	35 x 90 x 30	35 x 90 x 57
Terminals				Screw terminals	Screw terminals
Terminal capacity					
Screw terminals					
	Flexible with ferrule		mm^2	0.2 - 2.5 (AWG22 - 12)	0.2 - 2.5 (AWG22 - 12)
	Solid		mm^2	0.2 - 2.5 (AWG22 - 12)	0.2 - 2.5 (AWG22 - 12)
Power supply					
Input voltage			V DC	24	24
Permissible range			V DC	20.4…28.8	20.4…28.8
Ripple			%	≦ 5	≦ 5
Mains overvoltage protection				Yes	Yes
Potential isolation					
Between input voltage and PE				Yes	Yes
Between input voltage and output voltage				No	No
Between output voltage and PE				Yes	Yes
Rated value			V DC	24	24
Output current			A	2.2	12

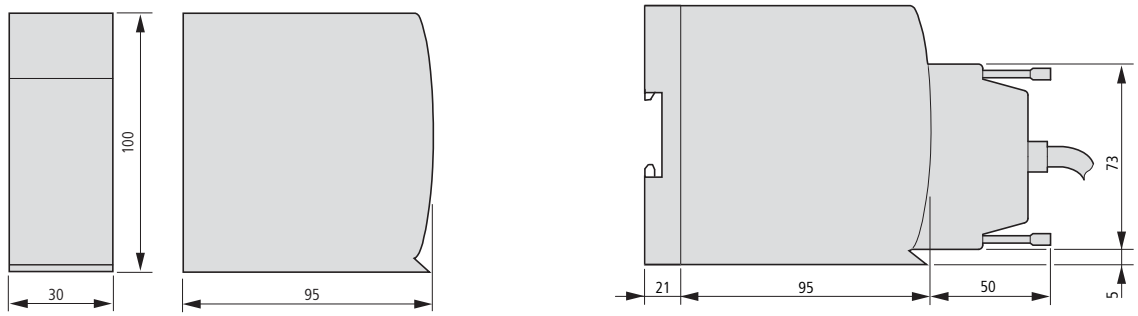
General information on electromagnetic compatibility (EMC) of automation systems				
Emitted interference	EN 55011/22 Class A (VDE 0875, Part 11)			
Interference immunity				
ESD	IEC/EN 61000-4-2	Contact discharge Air discharge		4 kV 8 kV
RFI	IEC/EN 61000-4-3	AM (80 %)	80 - 1000 MHz	10 V/m
Mobile phones/cellphones	IEC/EN 61000-4-3	PM	800 - 960 MHz	10 V/m
Burst	IEC/EN 61000-4-4	Mains/digital I/O (direct) Analog I/O, fieldbus (capacitive coupling)		2 kV 1 kV
Surge	IEC/EN 61000-4-5	Digital I/O, asymmetric, analog I/O, asymmetric, connection to shielding Mains DC, asymmetric Mains DC, symmetric Mains AC, asymmetric Mains AC, symmetric		0.5 kV 1 kV 1 kV 0.5 kV 2 kV 1 kV
Conducted interference, induced by high-frequency fields	IEC/EN 61000-4-6; 2003	AM (80 %)	150 kHz - 80 MHz	3 V

Dimensions

XC-CPU101
XC-CPU201
XC-CPU202

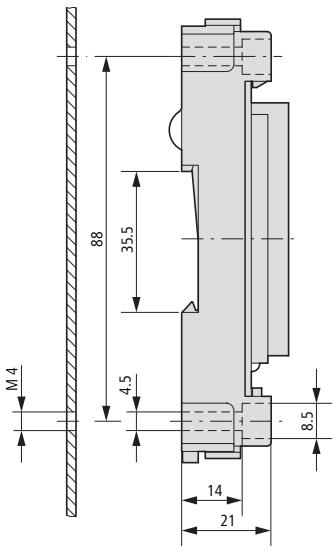


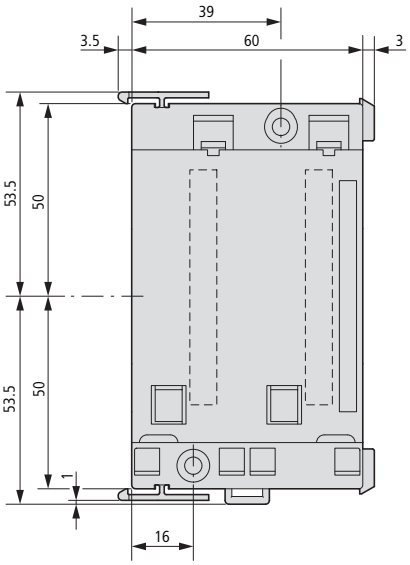
XIOC...



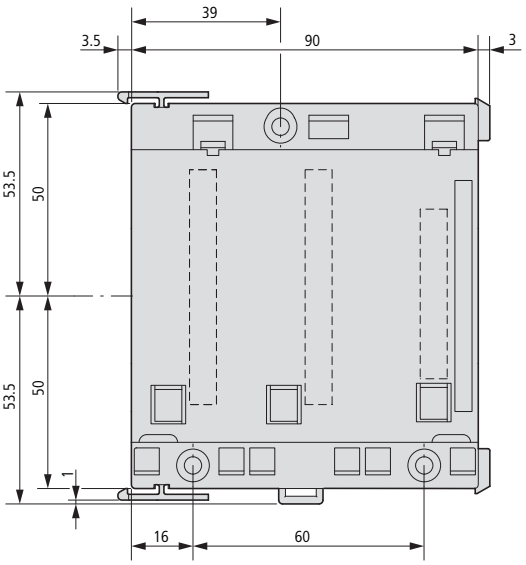
Backplanes

XIOC-BP-2
XIOC-BP-XC

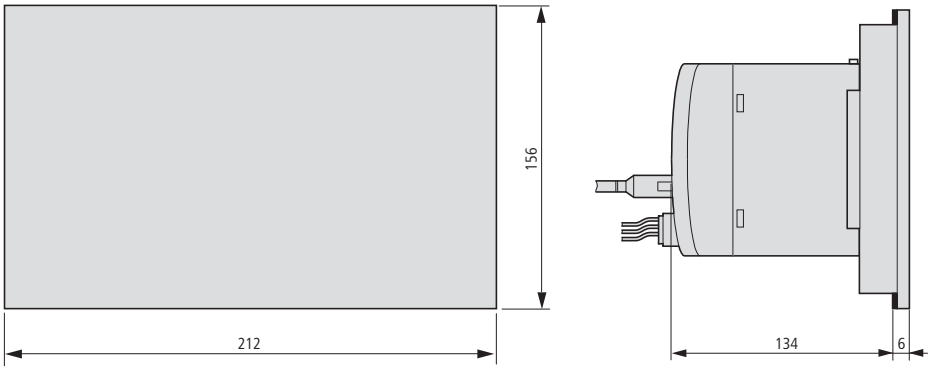




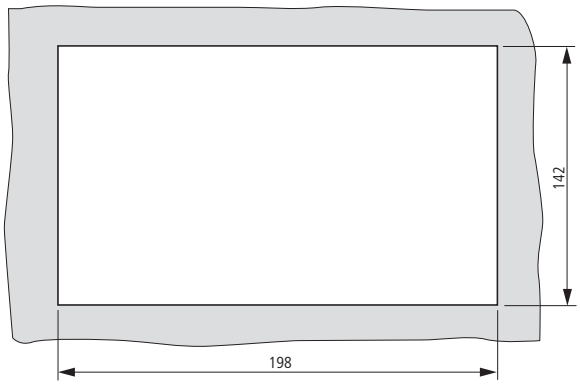
XIOC-BP-3
XIOC-BP-EXT
XIOC-BP-XC1



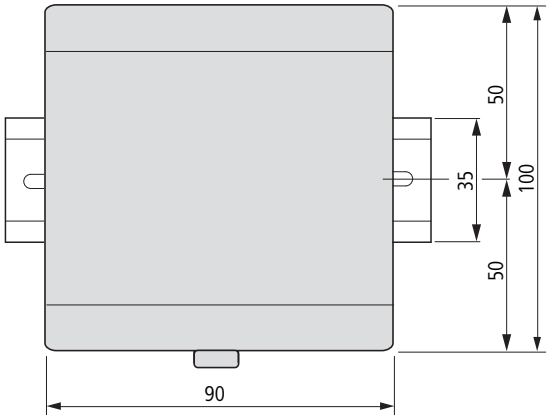
XV-101…

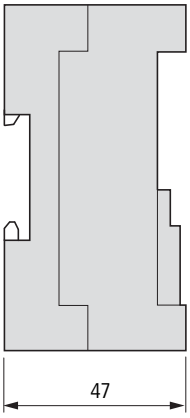


Mounting dimensions

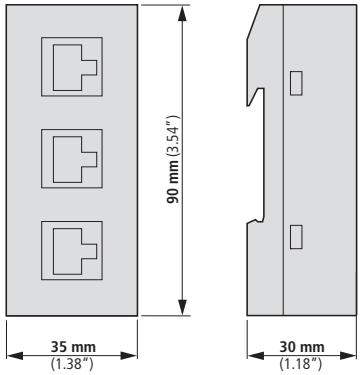


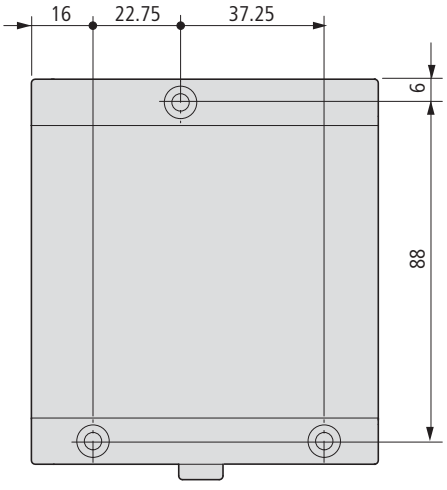
XC-CPU-121...
XIO-EXT121-1

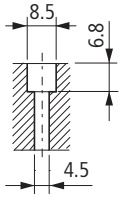




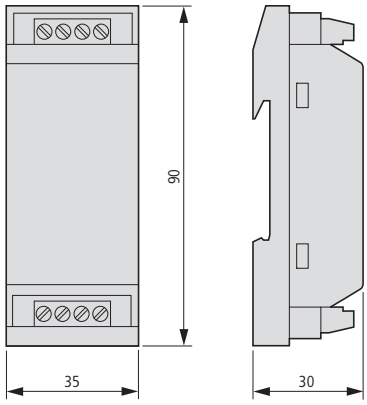
XT-RJ45-ETH-RS232



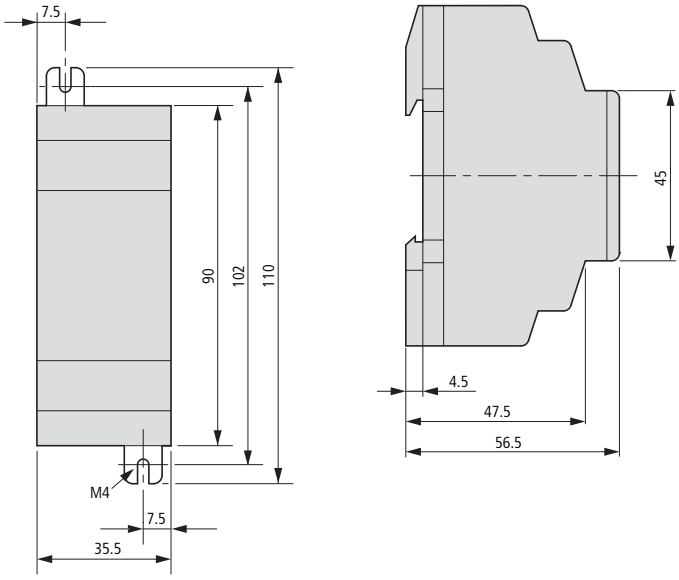




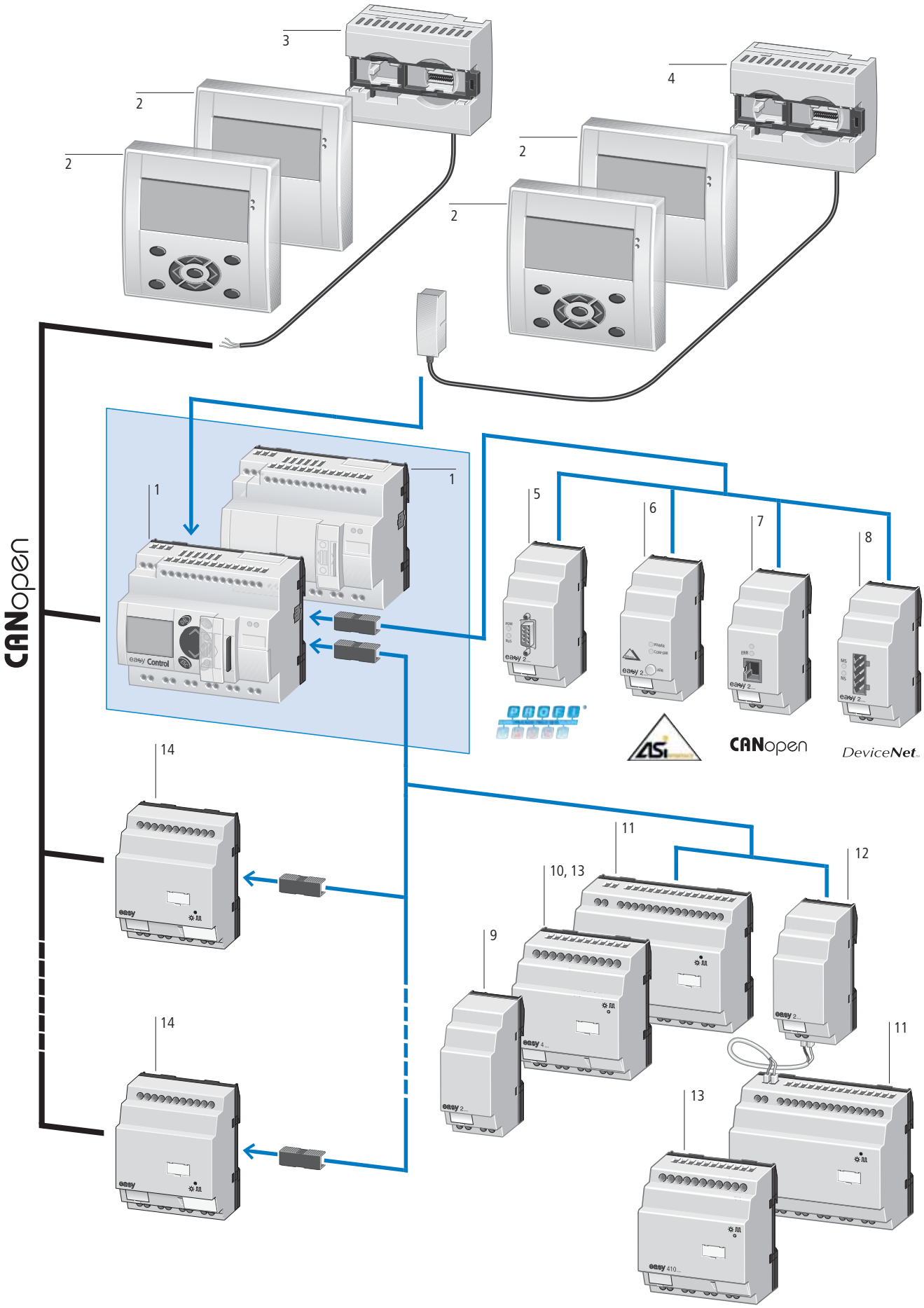
XT-FIL-1



XT-FIL-2



System overview



Basic device

EC4P 1

Expandable: Digital and analog inputs/ outputs and bus systems AS-Interface, CANopen, PROFIBUS-DP, DeviceNet; Ethernet optional

Bus system easyNet on board

24 V DC

12 digital inputs
4 of which usable as analog inputs
6 relay outputs (max. 10 A, UL) or
8 transistor outputs
1 analog output optional

Display and keypad optional

Screw and top-hat rail fixing
Screw terminals

→ Page 14/64

Remote text display 2, 3, 4

Consists of:

- Text display MFD-80..(-B) 2
- CANopen interface module MFD-CP4-CO (order connection cable EU4A-RJ45-CAB2 separately) 3
- Power supply unit/communication card, including connection cable (5 m, can be cut to desired length) for EC4P 4

24 V DC = MFD-CP4-800
100 - 240 V AC = MFD-AC-CP4-800
Spring-cage terminals

→ Page 14/66

Bus modules

EASY204-DP 5

PROFIBUS-DP interface, connection as slave
24 V DC

→ Page 14/66

EASY205-ASI 6

AS-Interface connection as slave, 24 V DC

→ Page 14/66

EASY221-CO 7

CANopen interface, 24 V DC

→ Page 14/66

EASY222-DN 8

DeviceNet interface, 24 V DC

→ Page 14/66

Output expansion

EASY202-RE 9

2 relay outputs (max. 10 A, UL)

Screw and top-hat rail fixing
Screw terminals

→ Page 14/65

I/O expansion modules

EASY406-DC-ME 10

24 V DC

1 digital input
2 analog inputs (2 × 0-10 V or
2 × 0-20 mA or 2 × Pt100 RTD;
voltage inputs 0-10 V can optionally be used as digital inputs)
1 analog output (0 - 10 V)
2 transistor outputs

Screw and top-hat rail fixing
Screw terminals

→ Page 14/65

EASY411-DC-ME 10

24 V DC

1 digital input
6 analog inputs (2 × 0-10 V and
2 × 0-20 mA and 2 × Pt100 RTD;
voltage inputs 0-10 V can optionally be used as digital inputs)
2 analog outputs (0 - 10 V)
2 transistor outputs

Screw and top-hat rail fixing
Screw terminals

→ Page 14/65

EASY6... 11

24 V DC

12 digital inputs
6 relay outputs (max. 10 A, UL) or
8 transistor outputs

Screw and top-hat rail fixing
Screw terminals

→ Page 14/65

EASY410... 13

24 V DC

6 digital inputs
4 relay outputs (max. 10 A, UL) or
4 transistor outputs

Screw and top-hat rail fixing
Screw terminals

→ Page 14/65

Coupling module

EASY200-EASY 12

For remote connection of a digital I/O expansion module through two-pole connection cable (max. 30 m);
e.g. NYM 3 × 1.5 mm²

→ Page 14/65

CANopen expansion modules

EC4E-221… 14

24 V DC

6 digital inputs
4 relay outputs or
4 transistor outputs

→ Page 14/65

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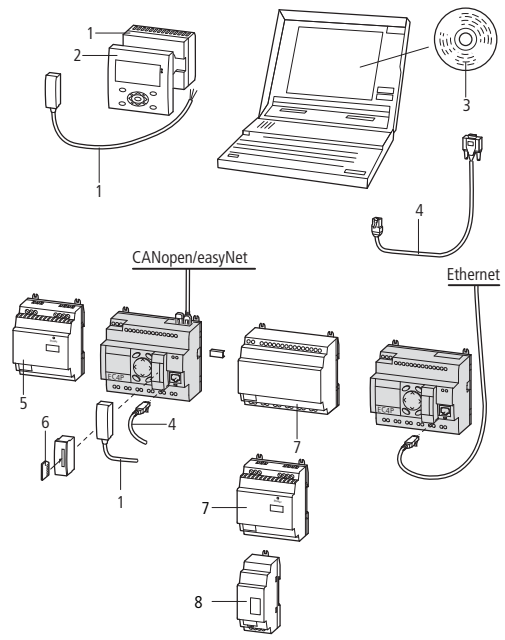
Inputs		Outputs			Other features	Supply voltage connection	**Part no.** Article no.	**Price** See price list	Std. pack
Digital	Of which can be used as analog	Relay 10 A (UL)	Transistor	Analog	Display + keypad				
easyControl									
Expandable: Inputs/outputs and bus systems Individual laser inscription possible with EC4-COMBINATION-* → Page 14/69									
easy NET/CANopen on board									
12	4	–	8	–	✓	24 V DC	**EC4P-221-MTXD1** 106391		1 off
12	4	–	8	–	–		**EC4P-221-MTXX1** 106392		
12	4	6	–	–	✓		**EC4P-221-MRXD1** 106393		
12	4	6	–	–	–		**EC4P-221-MRXX1** 106394		
12	4	–	8	1	✓		**EC4P-221-MTAD1** 106395		
12	4	–	8	1	–		**EC4P-221-MTAX1** 106396		
12	4	6	–	1	✓		**EC4P-221-MRAD1** 106397		
12	4	6	–	1	–		**EC4P-221-MRAX1** 106398		
easyNet/CANopen and Ethernet on board									
12	4	–	8	–	✓	24 V DC	**EC4P-222-MTXD1** 106399		1 off
12	4	–	8	–	–		**EC4P-222-MTXX1** 106400		
12	4	6	–	–	✓		**EC4P-222-MRXD1** 106401		
12	4	6	–	–	–		**EC4P-222-MRXX1** 106402		
12	4	–	8	1	✓		**EC4P-222-MTAD1** 106403		
12	4	–	8	1	–		**EC4P-222-MTAX1** 106404		
12	4	6	–	1	✓		**EC4P-222-MRAD1** 106405		
12	4	6	–	1	–		**EC4P-222-MRAX1** 106406		

Notes



Accessories	**Page**
1 Power supply unit/communication card	→ 14/66
2 Display/keypad	→ 14/66
3 Programming software	→ 14/130
4 PC programming cable	→ 14/67
5 Switched-mode power supply unit	→ 14/131
6 Memory card	→ 14/67
7 Input/output expansion module	→ 14/65
8 Output expansion, bus module, coupling module	→ 14/65

Information relevant for export to North America

Product Standards	IEC: see Technical Data; UL508; CSA-C22.2 No. 0-M; CSA-C22.2 No. 142-M; CE marking
UL File No.	E135462
UL CCN	NRAQ
CSA File No.	012528
CSA Class No.	2252-01
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP20, UL/CSA Type: -

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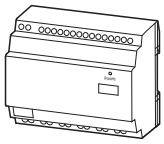
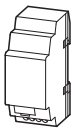
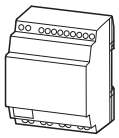
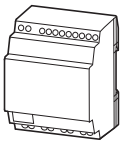
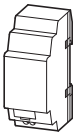
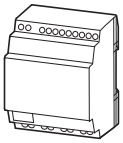
	Inputs	Outputs		Supply voltage	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
	Digital	Relay 10 A (UL)	Transistor					
I/O expansion modules								
Can be used through easyLink								
	12	6	–	100 - 240 V AC	**EASY618-AC-RE** 212314		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CE marking; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; UL File No.: E135462; UL CCN: NRAQ, NRAQ7; CSA File No.: 012528; CSA Class No.: 2252-01 + 2258-02; NA Certification: UL Listed, CSA certified; Degree of Protection: IEC: IP20, UL/CSA Type: -
	12	–	8	24 V DC	**EASY620-DC-TE** 212313			
	12	6	–	24 V DC	**EASY618-DC-RE** 232112			Product Standards: IEC/EN see Technical Data; UL 508; CE marking; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; UL File No.: E135462; UL CCN: NRAQ, NRAQ7; CSA File No.: 012528; CSA Class No.: 2252-01; NA Certification: UL Listed, CSA certified; Degree of Protection: IEC: IP20, UL/CSA Type: -
	–	2	–	24 V DC	**EASY202-RE**1) 232186			
	6	4	–	24 V DC	**EASY410-DC-RE** 114293			NA Certification: Request filed for UL and CSA; Degree of Protection: IEC: IP20, UL/CSA Type: -
	6	–	4	24 V DC	**EASY410-DC-TE** 114294			
Can be used through CANopen for: XC100/200, EC4P, MFD4, XV								
	6	4	–	24 V DC	**EC4E-221-6D4R1** 114296		1 off	NA Certification: Request filed for UL and CSA; Degree of Protection: IEC: IP20, UL/CSA Type: -
	6	–	4	24 V DC	**EC4E-221-6D4T1** 114297		1 off	
Coupling modules								
Can be used through easyLink								
	For remote connection of a digital I/O expansion up to 30 m.				**EASY200-EASY** 212315		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CE marking; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; UL File No.: E135462; UL CCN: NRAQ, NRAQ7; CSA File No.: 012528; CSA Class No.: 2252-01 + 2258-02; NA Certification: UL Listed, CSA certified; Degree of Protection: IEC: IP20, UL/CSA Type: -

	Inputs		Outputs			Supply voltage	Part no. Article no.	Price See price list	Std. pack
	Digital / Analog	Of which usable as digital	Relay 10 A (UL)	Transistor	Analog				
I/O expansion modules									
Can be used through easyLink									
	1 / 2 2)	2	–	2	1	24 V DC	**EASY406-DC-ME** 114295		1 off
	1 / 6 3)	2	–	2	2	24 V DC	**EASY411-DC-ME** 116567		1 off

Notes

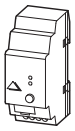
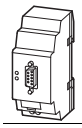
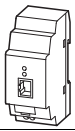
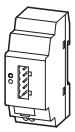
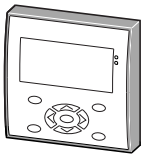
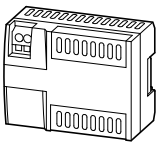
1) Not for use in combination with basic device EASY719-DA-… Cannot be used on coupling module EASY200-EASY coupling module

2) 2 × 0 - 10 V, 2 × 0 - 20 mA, 2 × Pt100 RTD (2/3-conductor connection); any combination
Voltage inputs (0 -10 V) can optionally be used as digital inputs

3) 2 x 0 - 10 V, 2 x 0 - 20 mA, 2 x Pt100 RTD(2/3 conductor connection);
Voltage inputs (0 -10 V) can optionally be used as digital inputs

Information relevant for export to North America

NA Certification	Request filed for UL and CSA
Degree of Protection	IEC: IP20, UL/CSA Type: -

	Description		Supply voltage connection	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Bus modules							
	AS-Interface	Slave 4 inputs, 4 outputs, 4 parameter bits Assignable addresses 0 to 31	24 V DC	**EASY205-ASI** 221598		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ, NRAQ7 CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	PROFIBUS-DP	Slave Assignable addresses 1 to 126	24 V DC	**EASY204-DP** 212316			
	CANopen	Assignable addresses 1 to 127	24 V DC	**EASY221-CO** 233539			
	DeviceNet	Assignable addresses 0 to 63	24 V DC	**EASY222-DN** 233540			
Remote text display							
Display/keypad Monochrome display, 132 × 64 pixels with switchable backlight IP65, removable titanium front frame							
	With keypad and Moeller logotype NEMA 4x in combination with protective membrane MFD-XM-80 → 14/69			**MFD-80-B** 265251		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP65, in combination with MFD-XM-80: UL/CSA Type: 4X
	With keypad, without Moeller logotype NEMA 4x in combination with protective membrane MFD-XM-80 → 14/69			**MFD-80-B-X** 284905		1 off	
Power supply unit/communication cards IP20, can be combined with display/operating unit MFD-80... as remote text display for easyRelay							
	Without connection cable		24 V DC	**MFD-CP4** 280888		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	Without connection cable		100 - 240 V AC	**MFD-AC-CP4** 286822		1 off	

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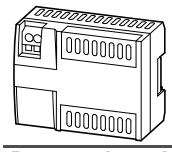
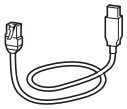
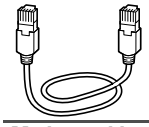
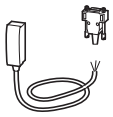
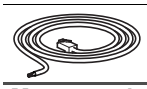
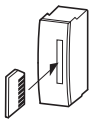
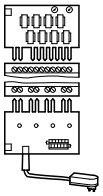
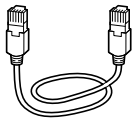
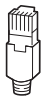
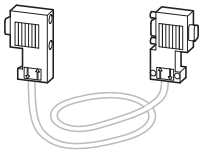
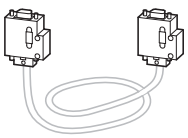
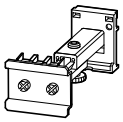
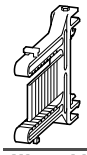
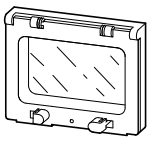
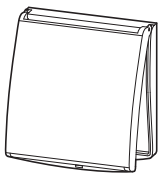
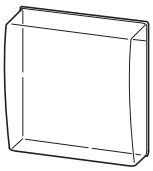
	Supply voltage connection	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
CANopen communication card						
Communication card with CANopen interface For use with display/operating unit MFD-80-B(-X) and connection cable EU4A-RJ45-CAB2 (→ Page 14/67) Automatic baud rate setting up to 1 MBaud; Up to 64 display pages can be saved.						
	24 V DC	–	**MFD-CP4-CO** 115736		1 off	NA Certification Request filed for UL and CSA
Programming cable						
	–	USB, 2 m	**EASY800-USB-CAB** 106408		1 off	
	–	D-sub 9-pin, serial, 2 m	**EU4A-RJ45-CAB1** 106726		1 off	NA Certification Request filed for UL and CSA
		For EU5C, XC and EC4P via USB interface	**EU4A-RJ45-USB-CAB1** 115735		1 off	
	–	2 m Ethernet cross	**XT-CAT5-X-2** 256487		1 off	
	–	5 m Ethernet cross	**XT-CAT5-X-5** 256488		1 off	
Modem cable						
	Configurable modem, printer and programming cable, possible transfer rate 56 kBaud, D-sub 9-pin (plug + socket for assembly by user)		**EASY800-MO-CAB** 286079		1 off	
Connecting cables						
	–	For connecting EC4P (RJ45) to MFD-CP4-CO or EC4E (terminal block)	**EU4A-RJ45-CAB2** 115387		1 off	NA Certification Request filed for UL and CSA
Memory cards						
	–	Adapter with at least 64 MByte memory card	**EU4A-MEM-CARD1** 106409		1 off	NA Certification Request filed for UL and CSA
Input/output simulator						
	24 V DC	With plug-in power supply unit 100 - 240 V AC/ 24 V DC	**EASY800-DC-SIM** 256278			

	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Network connection cables						
	Length: 0.3 m	easyNet	**EASY-NT-30** 256283		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
	Length: 0.8 m	easyNet	**EASY-NT-80** 256284			
	Length: 1.5 m	easyNet	**EASY-NT-150** 256285			
Bus termination resistor						
	8-pin, RJ45, 124 Ω Connection to PIN 1 and PIN 2	easyNet	**EASY-NT-R** 256281		2 off	
Data cable						
	4 x 0.14 mm², twisted pair, AWG 26 Length: 100 m	easyNet	**EASY-NT-CAB** 256286		1 off	UL File No.: E135462 UL CCN: NRAQ NA Certification: UL Listed Degree of Protection: IEC: IP 20, UL/CSA Type: -
Bus connector plug						
	8-pin, RJ45	easyNet	**EASY-NT-RJ45** 256280		10 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP20, UL/CSA Type: -
Crimping tool						
–	For RJ45 plug	EASY-NT-CAB EASY-NT-RJ45	**EASY-RJ45-TOOL** 256282		1 off	
PROFIBUS-DP data cable						
	Twisted pair, without plug, 2-core, 2 x 0.64 mm² (only suitable for fixed wiring) 100 m		**ZB4-900-KB1** 206983		100 m	
PROFIBUS-DP bus connector plug						
	9-pin male Cable entry, angled 90°		**ZB4-209-DS2** 206982		1 off	
	Metalized insulated housing Maximum transfer rate 12 MBit/s Integrated switch (accessible From the outside) for the bus terminating resistors Terminal block for two cable entries, with straight or 90° angled cable entry, as required		**ZB4-209-DS3** 217820		1 off	
Connection plug						
	Bus connector plug between base unit and expansion unit/bus module		**EASY-LINK-DS** 221607		1 off	UL/CSA certification not required
Fixing bracket For screw fixing to mounting plate						
	3 fixing brackets for easy400, 500, 600, 700, 800, EC4P, ES4P 2 fixing brackets for easy200 3 fixing brackets for MFD-CP8…, MFD-AC-CP8…		**ZB4-101-GF1** 061360		9 off	UL/CSA certification not required

	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Telescopic clip						
	For use with 35 mm top-hat rail to IEC/EN 60715 for mounting depth compensation when rear mounting in enclosures CI-K... and panels. Stepless adjustment via scale from 75 – 115 mm. Screw and snap mounting		**M22-TA** 226161		1 off	Product Standards: IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14-05; CSA-C22.2 No. 94-91; CE marking UL File No.: E29184 UL CCN: NKCR CSA File No.: 012528 CSA Class No.: 3211-03 NA Certification: UL Listed, CSA certified
Top-hat rail adapter for hinged inspection window						
	12 mm x 66 mm x 82 mm Installation on hinged inspection window, for front fitting of devices. Complete set, consisting of 2 brackets and 4 screws		**SKF-HA** 233782		1 off	UL/CSA certification not required
Hinged inspection window						
	94 mm x 77 mm x 25 mm (4 space units) For use with easy500		**SKF-FF4** 233780		1 off	UL/CSA certification not required
	130 mm x 77 mm x 25 mm (6 space units) For use with EASY700, EASY800, EC4P, ES4P		**SKF-FF6** 233781			
Protective cover						
	Transparent Protection against accidental actuation Sealable Use without front frame	MFD-80…	**MFD-XS-80** 265259		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified
Protective diaphragm						
	Transparent type for harsh environmental conditions and application in the food industry For increasing the degree of protection to NEMA 4X for MFD-80-B	MFD-80…	**MFD-XM-80** 265258		1 off	Product Standards: IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking UL File No.: E135462 UL CCN: NRAQ CSA File No.: 012528 CSA Class No.: 2252-01 + 2258-02 NA Certification: UL Listed, CSA certified Degree of Protection: IEC: IP65, UL/CSA Type:°4X

	Supply voltage connection	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Custom labeling, user program							
• Custom labeling of multi-function display with labeling software Labeleditor or • Supply of multi-function display programmed with user program			MFD-80-X MFD-80-B-X	**MFD-COMBINATION-*** 265260		1 off	UL/CSA certification not required
• Custom labeling of easy Control with labeling software Labeleditor or supply of easyControls programmed with user program			EC4P	**EC4-COMBINATION-***[1)] 107600		1 off	

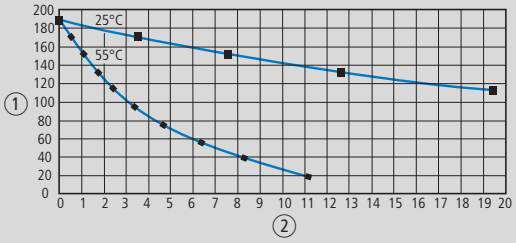
Notes

Example for using the Labeleditor la beling software
Individually label your device in 4 stages:
– Download the labeling software: www.moeller.net/support, keyword: "Labeleditor"
– Create a label template (menu-guided in the software)
– Mail the label template to the factory. The program automatically selects the correct e-mail address for the selected product and assigns a file name, such as “EASY_12345.zip”. This file name is part of the article to be ordered (see Ordering examples).
– Send your order to your Eaton sales office or your electrical wholesaler.

Ordering example: MFD-Titan
MFD-80-B multi-function display with “company name”:
1 x MFD-COMBINATION-*
1 x MFD-80-B
1 x the file name “MFD_xxxxx.zip” issued by the Labeleditor

Ordering example: EC4P
EC4P-221-MTXD1 with “company name”:
1 x EC4-COMBINATION-*
1 x EC4P-221-MTXD1
1 x the file name “EC4P_xxxxx.zip” issued by the Labeleditor

Technical data

			EC4P…
General			
Standards			EN 55011, EN 55022, IEC/EN 61000-4, IEC 60068-2-6, IEC 60068-2-27
Dimensions (W x H x D)		mm	107.5 x 90 x 72 without/79 with adapter for memory card
Weight		kg	0.3
Mounting			Top-hat rail IEC/EN 60715, 35 mm or screw fixing with 3 fixing brackets ZB4-101-GF1 (accessories)
Terminal capacity			
Solid		mm^2	0.2 - 4 (AWG 22 - 12)
Flexible with ferrule		mm^2	0.2 - 2.5 (AWG 22 - 12)
Flat-blade screwdriver		mm	3.5 x 0.8
Max. tightening torque		Nm	0.6
Ambient climatic conditions			
Operating ambient temperature		°C	-25…55, low temperatures to IEC 60068-2-1, high temperatures to IEC 60068-2-2
Condensation			Prevent condensation by means of suitable measures
LCD display (clearly legible)		°C	0 - 55
Storage		°C	-40 - 70
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95
Air pressure (in operation)		hPa	795 - 1080
Ambient mechanical conditions			
Pollution degree			2
Degree of protection (IEC/EN 60529, EN50178, VBG 4)			IP20
Vibrations (IEC/EN 60068-2-6)			
Constant amplitude 0.15 mm		Hz	10 - 57
Constant acceleration, 2 g		Hz	57 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Shocks	18
Drop to (IEC/EN 60068-2-31)	Drop height	mm	50
Free fall, packaged (IEC/EN 60068-2-32)		m	1
Mounting position			Vertical or horizontal
Electromagnetic compatibility (EMC)			
Electrostatic discharge (IEC/EN 61000-4-2, Level 3, ESD)			
Air discharge		kV	8
Contact discharge		kV	6
Electromagnetic fields (RFI), to IEC EN 61000-4-2		V/m	10
Radio interference suppression			EN 55011 Class B, EN 55022 Class B
Burst pulses (IEC/EN 61000-4-4, Level 3)			
Supply cables		kV	2
Signal cables		kV	2
Surge pulses (IEC/EN 61000-4-5, Level 2)		kV	0.5 (supply cables, symmetrical, EASY…DC)
Line-conducted interference (IEC/EN 61000-4-6)		V	10
Insulation resistance			
Clearance in air and creepage distances			EN 50178, UL 508, CSA C22.2, No. 142
Insulation resistance			EN 50178
Real-time clock accuracy/backup time			
Back-up time			 ① Backup time (hours) ② Service life (years)
Accuracy of the real-time clock		s/day	Normally ± 5 (± 0.5 h/year)
Retentive memory			
Write cycles of the retentive memory (minimum)			10000000 (10^{10}) (read/write cycles)

			EC4P-221...	EC4P-222...
Power supply				
Rated operational voltage	U_e	V	24 DC (-15/+20%)	24 DC (-15/+20%)
Permissible range		V DC	20.4 - 28.8	20.4 - 28.8
Ripple		%	≦ 5	≦ 5
Input current				
At rated voltage		mA	Normally 140	Normally 140
At rated operating voltage with load		A	–	–
Voltage dips (IEC/EN 61131-2)		ms	10	10
Heat dissipation		W	Normally 3.4	Normally 3.4
CPU				
Microprocessor			Infineon XC161	Infineon XC161
Memory				
Program code/data		kByte	256/14 segments of 16 KB each	256/14 segments of 16 KB each
Marker/input/output/retain data		kByte	16/4/4/8	16/4/4/8
Cycle time for 1 k of instructions (bits, bytes)		ms	< 0.3	< 0.3
Interfaces				
COM1 (RS232) without control cables				
Data transfer rate for programming		kBit/s	4.8, 9.6, 19.2, 38.4, 57.6, 115.2 (character format: 8 data bits, no parity, 1 stop bit)	
Connections			RJ45 bus	RJ45 bus
Potential isolation			None	None
In the transparent mode				
Baud rate		kBit/s	0.3, 0.6, 1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6	0.3, 0.6, 1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6
Character formats			8E1, 8O1, 8N1, 8N2, 7E2, 7O2, 7N2, 7E1	8E1, 8O1, 8N1, 8N2, 7E2, 7O2, 7N2, 7E1
Number of transmission bytes in a block			190 Byte	190 Byte
Number of received bytes in a block			190 Byte	190 Byte
Ethernet (for programming)				
Data transfer rate/distance		MBit/s	–	10 MBit/s, 100 m
Connection type			–	RJ45
Potential isolation			–	No
CANopen/easyNet				
Data transfer rate/distance			500 kBit/s, 25 m 250 kBit/s, 60m 125 kBit/s, 125 m 50 kBit/s, 300 m 20 kBit/s, 700 m 10 kBit/s, 1000 m	500 kBit/s, 25 m 250 kBit/s, 60m 125 kBit/s, 125 m 50 kBit/s, 300 m 20 kBit/s, 700 m 10 kBit/s, 1000 m
Potential isolation				
From power supply			Yes	Yes
From the inputs			Yes	Yes
From the outputs			Yes	Yes
Bus termination (first and last station)			EASY-NT-R plug (incl. bus terminating resistor 120 Ω)	
Connections			2 x RJ45, 8-pin	2 x RJ45, 8-pin
Control operating mode easyNet				
Number of users			8	8
CANopen operating mode				
Stations		Number	Max. 126	Max. 126
PDO type			Asynchronous, cyclic, acyclic	
Device profile			To DS 301 V4	To DS 301 V4
Analog outputs				
Number			–	–
Potential isolation				
From power supply			No	No
From the digital inputs			No	No
From the digital outputs			–	–
To network easyNet, easyLink			–	–
Output type			–	–
Signal range		V DC	0 - 10	0 - 10
Conversion time, analog/digital		ms	bit	bit

			EC4P…
Digital inputs 24 V DC			
Number			12
Inputs can be used as analog inputs			4 (I7, I8, I11, I12)
Status indication			LCD display (if fitted)
Potential isolation			
From power supply			No
Between digital inputs			No
From the outputs			Yes
From network easyNet, easyLink			Yes
Rated operating voltage	U_e	V DC	24
At state "0"	U_e	V DC	< 5 (I1 - I6, I9, I10) < 8 (I7, I8, I11, I12)
At state "1"	U_e	V DC	> 15.0 (I1 - I6, I9, I10), > 8.0 (I7, I8, I11, I12)
Input current at state "1"			
I1 to I6		mA	3.3 (at 24 V DC)
I7, I8		mA	2.2 (at 24 V DC)
I9, I10		mA	3.3 (at 24 V DC)
I11, I12		mA	2.2 (at 24 V DC)
Delay time from 0 to 1		ms	Normally 0.02 (I1 - I4), Normally 0.25 (I5 - I12)
Delay time from 1 to 0		ms	Normally 0.02 (I1 - I4), Normally 0.25 (I5 - I12)
Cable length (unshielded)		m	100
Incremental encoder			
Number			1 (I1, I2, I3, I4)
Value range			32 bit
Counter frequency		kHz	≦ 40
Pulse shape			Square
Counter inputs			I1, I2
Reference input			I3
Input for reference switch			I4
Signal offset			90°
Rapid counter inputs			
Number			2 (I1, I2) at 16 bit or 1 (I1) at 32-bit
Value range			16/32-bit
Cable length, shielded		m	< 20
Counter frequency		kHz	< 50
Pulse shape			Square
Analog inputs			
Number			4 (I7, I8, I11, I12)
Potential isolation			
From power supply			No
From the digital inputs			No
From the outputs			Yes
From network easyNet, easyLink			Yes
Input type			DC voltage
Signal range		V DC	0 - 10
Resolution, analog		V	0.01
Resolution, digital		V	0.01
Resolution, digital		bit	10 (value 0 - 1023)
Input impedance		kΩ	11.2
Accuracy of actual value			
Two devices		%	± 3
Within a single device		%	± 2, (I7, I8, I11, I12) ± 0.12 V
Conversion time, analog/digital		ms	each CPU cycle
Input current		mA	< 1
Cable length shielded		m	< 30

			EC4P-…-MT…
Transistor outputs			
Number			8
Rated operating voltage	U_e	V DC	24
Permissible range	U_e	V DC	20.4 - 28.8
Ripple		%	≦ 5
Supply current			
At state "0"	Normally/ max.	mA	18/32
At state "1"	Normally/ max.	mA	24/44
Protection against polarity reversal			Yes (Caution: A short circuit will result if 0 V or GND is applied to the outputs if the supply voltage is connected to the wrong poles.)
Potential isolation			
From power supply			Yes
To PC interface, memory card, network NET, easyLink			Yes
From the inputs			Yes
Rated operational current at state "1" DC	I_e	A	Max. 0.5
Lamp load without R_v		W	5
Residual current at state "0" for channel		mA	< 0.1
Max. output voltage			
At state "0" with external load < 10 MΩ		V	2.5
At state "1" at I_e = 0.5 A		V	$U = U_e$ -1 V
Short-circuit protection			Yes, electronic (Q1 – Q4), thermal (Q5 – Q8), (analysis via diagnostics input I16, I15)
Short-circuit tripping current for R_a ≦ 10 mΩ		A	0.7 ≦ I_e ≦ 2 for output
Total short-circuit current		A	16
Peak short-circuit current		A	32
Thermal cutout			Yes
Max. operating frequency at constant resistive load R_L < 100 kΩ (dependent on program and load)		Ops/h	40000
Parallel connection of outputs			
With resistive load, inductive load with external suppressor circuit, combination within a group			Group 1: Q1 to Q4 Group 2: Q5 to Q8
Number of outputs	max.		4
Max. total current		A	2 (Caution! Outputs must be actuated simultaneously and for the same duration.)
Output status indication			LCD display (if fitted)
Inductive load to EN 60947-5-1			
Without outer suppressor circuit			
$T_{0.95 = 1 ms, R = 48 Ω, L = 16 mH}$			
Utilization factor		g	0.25
Duty factor		% DF	100
Max. operating frequency f = 0.5 Hz (max. DF = 50 %)		Operations	1500
DC-13, $T_{0.95 = 72 ms, R = 48 Ω, L = 1.15 H}$			
Utilization factor		g	0.25
Duty factor		% DF	100
Max. operating frequency f = 0.5 Hz (max. DF = 50 %)		Operations	1500
$T_{0.95 = 15 ms, R = 48 Ω, L = 0.24 H}$			
Utilization factor		g	0.25
Duty factor		% DF	100
Max. operating frequency f = 0.5 Hz (max. DF = 50 %)		Operations	1500
With outer suppressor circuit			
Utilization factor		g	1
Duty factor		% DF	100
Max. operating frequency, max. duty factor		Operations	Depending on the suppressor circuit

				EC4P-...-MR...
Relay outputs				
Number				6
Outputs in groups of				1
Parallel switching of outputs to increase performance				Not permissible
Protection of an output relay				Miniature circuit-breaker B16 or fuse 8 A (slow)
Potential isolation				
From power supply				Yes
From the inputs				Yes
From PC interface, memory card, network NET, easyLink				Yes
Safe isolation			V AC	300
Basic insulation			V AC	600
Lifespan, mechanical		Operations	x 10^6	10
Contacts				
Conventional thermal current (10 A UL)			A	8
Recommended for 12 V AC/DC load			mA	> 500
Short-circuit proof p.f. = 1, characteristic B16 at 600 A			A	16
Short-circuit proof p.f. = 0.5 - 0.7; characteristic B16 at 900 A			A	16
Rated impulse withstand voltage U_{imp} contact coil			kV	6
Rated operating voltage		U_e	V AC	250
Rated insulation voltage		U_i	V AC	250
Safe isolation to EN 50178 between coil and contact			V AC	300
Safe isolation to EN 50178 between two contacts			V AC	300
Making capacity				
AC-15, 230 V AC, 3 A		Operations		300000
DC-13, 24 V DC, 0.1 Hz		Operations		200000
Breaking capacity				
AC-15, 250 V AC, 3 A (600 ops./h)		Operations		300000
DC-13, L/R ≦ 150 ms, 24 V DC, 1 A (500 ops./h)		Operations		200000
Filament bulb load				
1000 W at 230/240 V AC		Operations		25000
500 W at 115/120 V AC		Operations		25000
Fluorescent lamp load				
Fluorescent lamp load 10 x 58 W at 230/240 V AC				
With series-connected electrical device		Operations		25000
Uncompensated		Operations		25000
Fluorescent lamp load 1 x 58 W at 230/240 V AC, conventionally compensated		Operations		25000
Switching frequency				
Mechanical operations			x 10^6	10
Switching frequency			Hz	10
Resistive load/lamp load			Hz	2
Inductive load			Hz	0.5
UL/CSA				
Continuous current at 240 V AC			A	10
Continuous current at 24 V DC			A	8
AC				
Control circuit rating codes (utilization category)				B 300 Light Pilot Duty
Max. rated operational voltage			V AC	300
Max. thermal continuous current p.f. = 1 at B 300			A	5
Max. make/break capacity p.f. ≠ 1 at B 300			VA	3600/360
DC				
Control circuit rating codes (utilization category)				R 300 Light Pilot Duty
Max. rated operational voltage			V DC	300
Max. thermal continuous current p.f. at R 300			A	1
Max. make/break capacity at R 300			VA	28/28

			EC4E-221-…
General			
Standards			EN 55011, EN 55022, IEC/EN 61000-4, IEC 60068-2-6, IEC 60068-2-27
Dimensions (W x H x D)		mm	71.5 x 90 x 58 (4 space units)
Weight		kg	0.2
Mounting			Top-hat rail IEC/EN 60715, 35 mm or screw fixing using fixing brackets ZB4-101-GF1 (accessories).
Terminal capacity			
Solid		mm^2	0.2 - 4 (AWG 22 - 12)
Flexible with ferrule		mm^2	0.2 - 2.5 (AWG 22 - 12)
Flat-blade screwdriver		mm	3.5 x 0.8
Max. tightening torque		Nm	0.6
Ambient climatic conditions			
Operating ambient temperature		°C	-25…55, low temperatures to IEC 60068-2-1, high temperatures to IEC 60068-2-2
Condensation			Prevent condensation by means of suitable measures
Storage		°C	-40 - 70
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95
Air pressure (in operation)		hPa	795 - 1080
Ambient mechanical conditions			
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20
Vibrations (IEC/EN 60068-2-6)			
Constant amplitude 3.5 mm		Hz	10 - 57
Constant acceleration, 1 g		Hz	57 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Shocks	18
Drop to IEC/EN 60068-2-31	Drop height	mm	50
Free fall, packaged (IEC/EN 60068-2-32)		m	1
Mounted position			Vertical or horizontal
Electromagnetic compatibility (EMC)			
Overvoltage category/pollution degree			II/2
Electrostatic discharge (IEC/EN 61000-4-2, Level 3, ESD)			
Air discharge		kV	8
Contact discharge		kV	6
Electromagnetic fields (RFI), to IEC EN 61000-4-2		V/m	10
Radio interference suppression			EN 55011 Class B, EN 55022 Class B
Burst pulses (IEC/EN 61000-4-4, Level 3)			
Supply cables		kV	2
Signal cables		kV	2
Surge pulses (IEC/EN 61000-4-5, Level 2)		kV	0.5 (supply cables, symmetrical, EASY…DC)
Line-conducted interference (IEC/EN 61000-4-6)		V	10
Insulation resistance			
Clearance in air and creepage distances			EN 50178, UL 508, CSA C22.2, No. 142
Insulation resistance			EN 50178

Notes Technical data for the expansion units EASY... → Chapter 12

				EC4E-221-…
Power supply				
Rated operational voltage		U_e	V	24 DC (-15/+20%)
Permissible range				
	Permissible range min.		V DC	20.4
	Permissible range max.		V DC	28.8
Ripple			%	≦ 5
Input current				
	At rated operating voltage without load		mA	Normally 150
	At rated operating voltage with load		A	–
Voltage dips (IEC/EN 61131-2)			ms	10
Heat dissipation			W	Normally 3.5
Interfaces				
CANopen				
	Data transfer rate/distance			500 kBit/s, 25 m 250 kBit/s, 40 m 125 kBit/s, 125 m 50 kBit/s, 300 m 20 kBit/s, 700 m 10 kBit/s, 1000 m
	Potential isolation			No
	Bus termination (first and last station)			Through integrated Dip switch
	Connections			2 x terminals (see terminal capacity)
CANopen operating mode				
	Stations		Number	Max. 62
	PDO type			Asynchronous, cyclic, acyclic
	Device profile			To DS 301 V4
Digital inputs 24 V DC				
Number				6
Potential isolation				
	From power supply			No
	Between digital inputs			No
	From the outputs			Yes
Rated operating voltage		U_e	V DC	24
	At state "0"	U_e	V DC	< 5 (R1 - R6)
	At state "1"	U_e	V DC	> 15 (R1 - R6)
Input current at state "1"				
	R1 - R6 (R12)		mA	3.3 (at 24 V DC)
	R1		mA	–
	R2, R3		mA	–
Delay time from 0 to 1				
	Debounce ON		ms	20
	Debounce OFF		ms	Normally 0.25 (R1 - R12)
Delay time from 1 to 0			ms	20
Cable length (unshielded)			m	100

Notes Technical data for the expansion units EASY... → Chapter 12

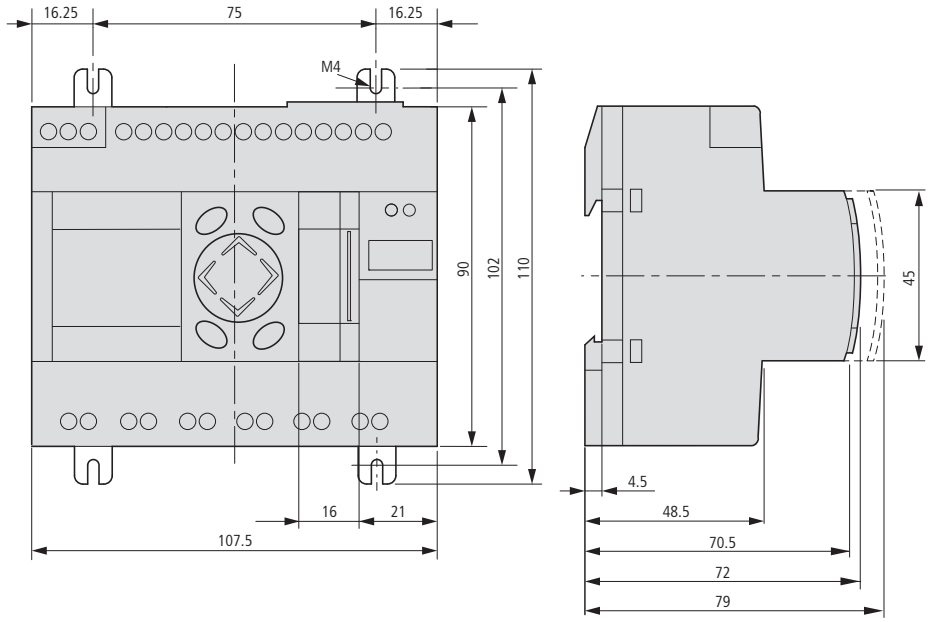
				EC4E-221-6D4R1
Relay outputs				
Number				4
Outputs in groups of				1
Parallel switching of outputs to increase performance				Not permissible
Protection of an output relay				Miniature circuit-breakers B16 or fuse 8 A (T)
Potential isolation				
From power supply				Yes
From the inputs				Yes
From PC interface, memory card, network NET, easyLink				Yes
Safe isolation According to EN 50178			V AC	300
Basic insulation			V AC	600
Lifespan, mechanical		Operations	x 10^6	10
Contacts				
Conventional thermal current (10 A UL)			A	8
Recommended for 12 V AC/DC load			mA	> 500
Short-circuit proof p.f. = 1, characteristic B16 at 600 A			A	16
Short-circuit proof p.f. = 0.5 - 0.7; characteristic B16 at 900 A			A	16
Rated impulse withstand voltage U_{imp} contact coil			kV	6
Rated operating voltage		U_e	V AC	250
Rated insulation voltage		U_i	V AC	250
Safe isolation to EN 50178 between coil and contact			V AC	300
Safe isolation to EN 50178 between two contacts			V AC	300
Making capacity				
AC-15, 230 V AC, 3 A		Operations		300000
DC-13, 24 V DC, 0.1 Hz		Operations		200000
Breaking capacity				
AC-15, 250 V AC, 3 A (600 ops./h)		Operations		300000
DC-13, L/R ≦ 150 ms, 24 V DC, 1 A (500 ops./h)		Operations		200000
Filament bulb load				
1000 W at 230/240 V AC		Operations		25000
500 W at 115/120 V AC		Operations		25000
Fluorescent lamp load				
Fluorescent lamp load 10 x 58 W at 230/240 V AC				
	With series-connected electrical device	Operations		25000
	Uncompensated	Operations		25000
Fluorescent lamp load 1 x 58 W at 230/240 V AC, conventionally compensated		Operations		25000
Switching frequency				
Mechanical operations			x 10^6	10
Switching frequency			Hz	10
Resistive load/lamp load			Hz	2
Inductive load			Hz	0.5
UL/CSA				
Continuous current at 240 V AC			A	10
Continuous current at 24 V DC			A	8
AC				
	Control circuit rating codes (utilization category)			B 300 Light Pilot Duty
	Max. rated operational voltage		V AC	300
	Max. thermal continuous current p.f. = 1 at B 300		A	5
	Max. make/break capacity p.f. ≠ 1 at B 300		VA	3600/360
DC				
	Control circuit rating codes (utilization category)			R 300 Light Pilot Duty
	Max. rated operational voltage		V DC	300
	Max. thermal continuous current p.f. at R 300		A	1
	Max. make/break capacity at R 300		VA	28/28

				EC4E-221-6D4T1
Transistor outputs				
Number				4
Rated operating voltage		U_e	V DC	24
Permissible range		U_e	V DC	20.4 - 28.8
Ripple			%	≦ 5
Supply current				
	At state "0"	Normally/ max.	mA	9/16
	At state "1"	Normally/ max.	mA	12/22
Protection against polarity reversal				Yes (Caution: A short circuit will result if 0 V or GND is applied to the outputs if that the supply voltage is connected to the wrong poles.)
Potential isolation				
	From power supply			Yes
	From PC interface, memory card, network NET, easyLink			Yes
Rated operational current at state "1" DC for channel		I_e	A	Max. 0.5
Lamp load without R_v for channel			W	5
Residual current at state "0" for channel			mA	< 0.1
Max. output voltage				
	At state "0" with external load < 10 MΩ		V	2.5
	At state "1" at I_e = 0.5 A		V	$U = U_e$ -1 V
Short-circuit protection				Yes, thermal (analysis via diagnostics input R16)
Short-circuit tripping current for R_a ≦ 10 mΩ			A	0.7 ≦ I_e ≦ 2 for output
Total short-circuit current			A	8
Peak short-circuit current			A	16
Thermal cutout				Yes
Max. operating frequency at constant resistive load R_L < 100 kΩ (dependent on program and load)			Ops/h	40000
Parallel connection of outputs				
	With resistive load, inductive load with external suppressor circuit, combination within a group			Group 1: Q1 to Q4
	Number of outputs	Max.		4
	Max. total current		A	2 (Caution! Outputs must be activated simultaneously and for the same duration)

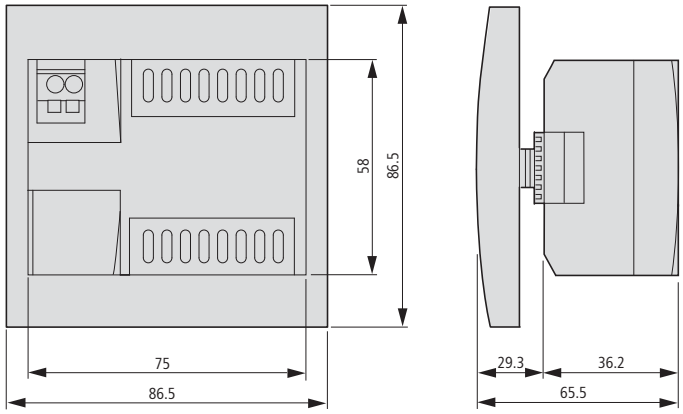
			MFD-CP4-CO
General			
Standards			EN 61000-6-1/-2/-3/-4, IEC 60068-2-6, IEC 60068-2-27
Dimensions (W x H x D)		mm	75 x 58 x 36.2
Weight		kg	0.16
Mounting			Plug-fitted to the display fixing shaft
Terminal capacity			
Power supply			
Solid		mm^2	0.5 - 2.5 (AWG 20 - 14)
Flexible with ferrule		mm^2	0.5 - 1.5 (AWG 20 - 16)
Flat-blade screwdriver		mm	3.5 x 0.6
Data cable			
Solid		mm^2	0.2 - 0.5 (AWG 24 - 20)
Ambient climatic conditions			
Operating ambient temperature		°C	-25 - 55, low temperatures to IEC 60068-2-1, high temperatures to IEC 60068-2-2
Condensation			Prevent condensation by means of suitable measures
Storage		°C	-40 - 70
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95
Air pressure (in operation)		hPa	795 - 1080
Ambient mechanical conditions			
Pollution degree			2
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20
Vibrations (IEC/EN 60068-2-6)			
Constant amplitude 0.15 mm		Hz	10 - 57
Constant acceleration, 2 g		Hz	57 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Shocks	18
Drop to IEC/EN 60068-2-31	Drop height	mm	50
Free fall, packaged (IEC/EN 60068-2-32)		m	1
Mounted position			Vertical or horizontal
Electromagnetic compatibility (EMC)			
Overvoltage category/pollution degree			–
Electrostatic discharge (IEC/EN 61000-4-2, Level 3, ESD)			
Air discharge		kV	8
Contact discharge		kV	6
Electromagnetic fields (RFI), to IEC EN 61000-4-2		V/m	10
Radio interference suppression			EN 55011 Class B, EN 55022 Class B
Burst pulses (IEC/EN 61000-4-4, Level 3)			
Supply cables		kV	2
Signal cables		kV	2
Surge pulses (IEC/EN 61000-4-5, Level 2)		kV	0.5
Line-conducted interference (IEC/EN 61000-4-6)		V	10
Insulation resistance			
Clearance in air and creepage distances			EN 50178, UL 508, CSA C22.2, No. 142
Insulation resistance			EN 50178
Power supply			
Rated operational voltage	U_e	V	24 DC (-15/+20 %)
Permissible range		V DC	20.4 - 28.8
Ripple		%	≦ 5
Input current			
At 24 V DC		mA	Normally 185
Voltage dips (IEC/EN 61131-2)		ms	10
Heat dissipation at 24 V DC		W	1.5
Interfaces			
CANopen			
Device profile			To DS301V4
PDO type			Asynchronous (event controlled)
Addresses			1 to 63 can be set through display
Baud rate/length		kBd	10 kByte up to 1 MByte, Automatic detection Manual setting via display possible.
Connections			6 pole spring-cage terminal
Terminal resistor		Ω	External 120

Dimensions

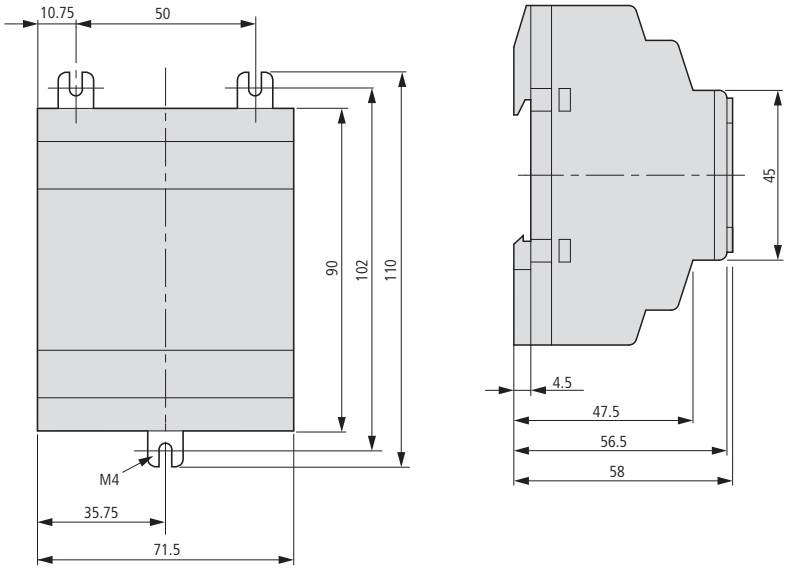
EC4P…



MFD-CP4-CO

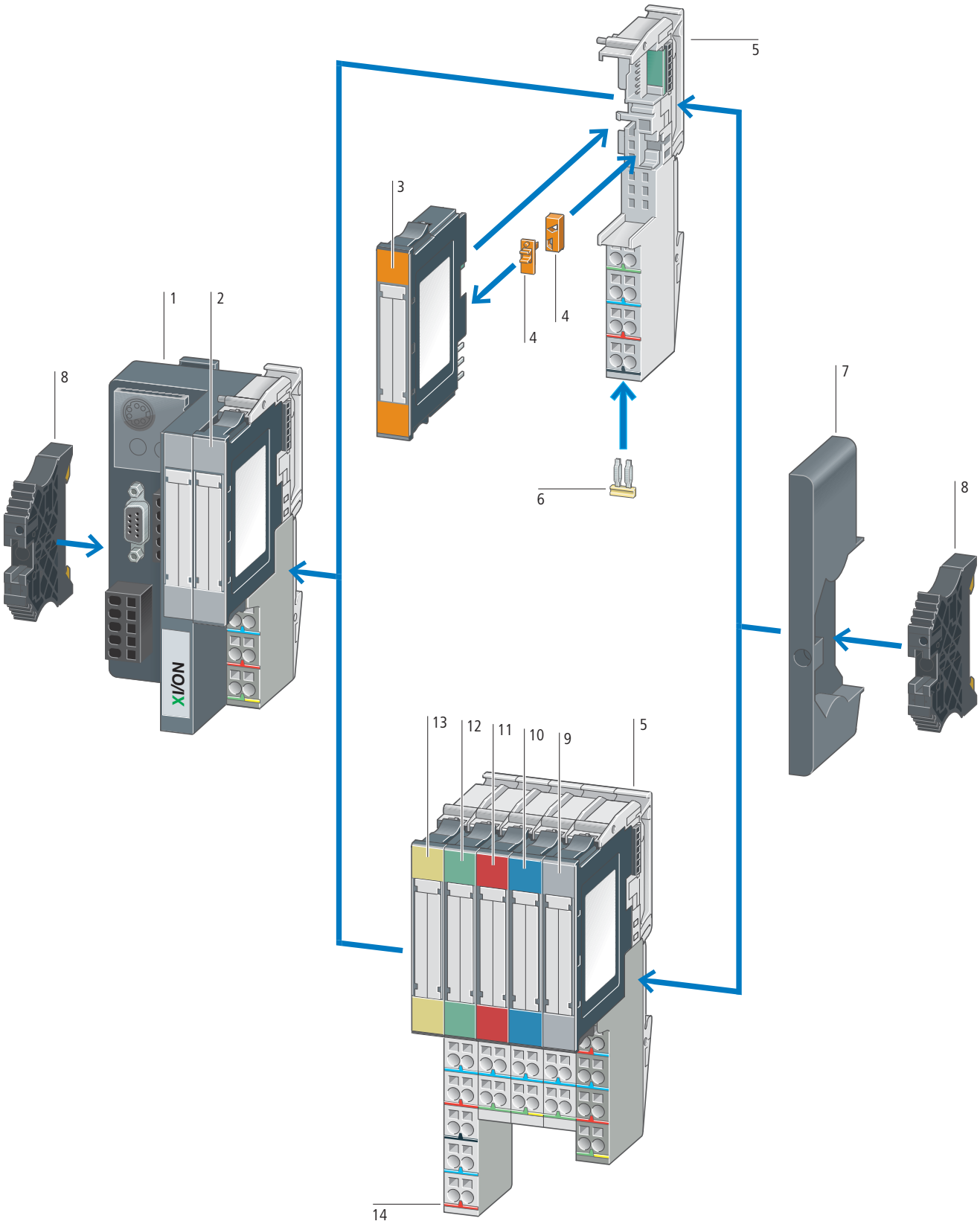


EC4E…

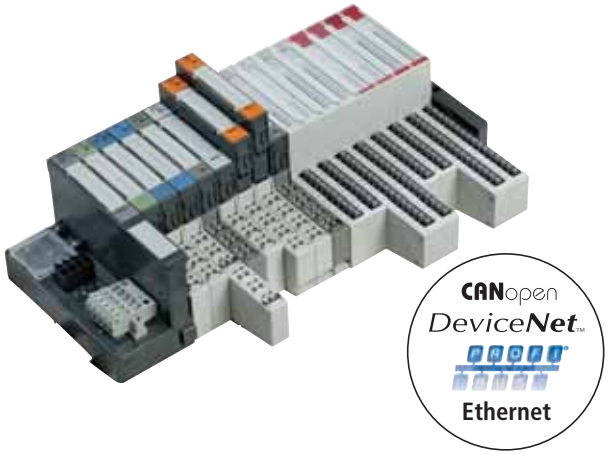


Notes Further dimensions for EASY... and MFD... devices → Chapter 12

System overview



Description



As much as necessary, as little as possible - is the design principle of the modular I/O system XI/ON, which provides a comprehensive range of digital and analog I/Os and technology modules. The gateway products are available for fieldbus systems CANopen, PROFIBUS-DP, DeviceNet and Ethernet.

XI/ON standard gateways and modules

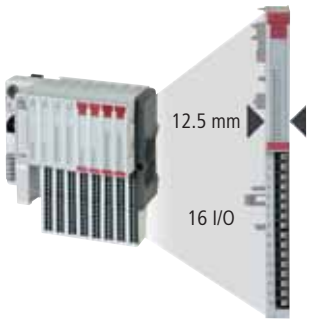
In the standard version, the pluggable I/O modules are wired to base modules.

- Bus-independent modules
- Hot-swapping of modules
- Screw or spring-cage terminals
- Mechanical coding of modules prevents incorrect connection
- Serial interface modules allow connection of various peripherals, such as printers, scanners and bar code readers
- Programmable CANopen gateway for decentralizing automation tasks or reducing the burden on higher-level PLCs.

XI/ON ECO gateways and modules

XI/ON ECO adds cost- and space-optimized I/O modules and gateways to the XI/ON I/O system.

- High channel density: up to 16 DI/DO over 12.5 mm
- No base modules required
- Cost saving through electronics with built-in connection level
- Connection through “push-in” spring-cage terminal saves mounting time
- Can be combined with XI/ON standard
- Multi-function modules reduce the number of required slices
- ECO gateways with built-in bus termination resistors/auto-baud function.



Configuration tool I/Oassistant

With the free software I/Oassistant XI/ON stations can be planned simply and conveniently.

- I/Oassistant automatically generates a complete parts list for your order. With the “Check surface mounting” function, you can easily check the configured station design.
- Commissioning the I/O level without connected controller possible; Servicing interface
- EPLAN support
- I/Oassistant can be integrated with XSOFT-CODESYS-2.

CANopen expansion modules

The EC4E modules can be connected to all control systems with CANopen master. The modules can be expanded with a digital or analog easy expansion module.

SWD gateways

Gateways for connecting to field busses PROFIBUS-DP and CANopen and for power supply of the SmartWire-Darwin nodes and switchgear.

SWD I/O modules

SmartWire-Darwin station for the connecting digital I/O.

Configuration tool SWD-Assistant

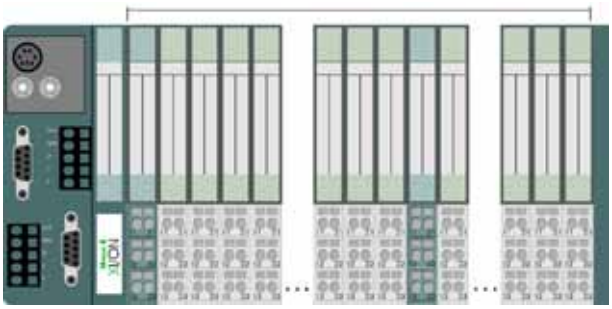
The software SWD-Assist helps you easily and quickly plan SmartWire-Darwin lines.
Free download at
http://downloadcenter.moeller.net

Electronics modules / Basic modules	XN-S3...-SBB	XN-S3...-SBC	XN-S4...-SBBC	XN-S4...-SBBS	XN-S4...-SBCS	XN-S4...-SBBS-CJ	XN-S6...-SBBSBB	XN-S6...-SBCSBC	XN-B3...-SBB	XN-B3...-SBC	XN-B4...-SBBC	XN-B6...-SBBSBB	XN-B6...-SBCSBC	XN-P3...-SBB	XN-P3...-SBB-B	XN-P4...-SBBC	XN-P4...-SBBC-B
Digital input modules																	
XN-2DI-24VDC-P	●		●														
XN-2DI-24VDC-N	●		●														
XN-2DI-120/230VAC	●		●														
XN-4DI-24VDC-P				●			●										
XN-4DI-24VDC-N				●			●										
XN-16DI-24VDC-P									●		●						
XN-32DI-24VDC-P												●					
XNE-8DI-24VDC-P[1]																	
XNE-16DI-24VDC-P[1]																	
Digital output modules																	
XN-2DO-24VDC-0.5A-P		●			●												
XN-2DO-24VDC-0.5A-N		●			●												
XN-2DO-24VDC-2A-P		●			●												
XN-2DO-120/230VAC-0.5A		●			●												
XN-4DO-24VDC-0.5A-P					●			●									
XN-16DO-24VDC-0.5A-P										●							
XN-32DO-24VDC-0.5A-P													●				
XNE-8DO-24VDC-0.5A-P[1]																	
XNE-16DO-24VDC-0.5A-P[1]																	
Relay modules																	
XN-2DO-R-NC				●	●												
XN-2DO-R-NO				●	●												
XN-2DO-R-CO				●													
Analog input modules																	
XN-1AI-I(0/4...20MA)	●			●													
XN-2AI-I(0/4...20MA)	●			●													
XN-1AI-U(-10/0...+10VDC)	●			●													
XN-2AI-U(-10/0...+10VDC)	●			●													
XN-2AI-Pt/Ni-2/3	●			●													
XN-2AI-THERMO-PI						●											
XN-4AI-U/I								●									
XNE-8AI-U/I-4Pt/Ni[1]																	
Analog output modules																	
XN-1AO-I(0/4...20MA)	●																
XN-2AO-I(0/4...20MA)	●																
XN-2AO-U(-10/0...+10VDC)	●																
XNE-4AO-U/I[1]																	
Technology modules																	
XN-1CNT-24VDC				●													
XN-1RS232				●													
XN-1RS485/422				●													
XN-1SSI				●													
XNE-1SWIRE[1]																	
XNE-2CNT-2PWM[1]																	
Supply modules																	
XN-BR-24VDC-D														●[2]	●[3]	●[2]	●[3]
XN-PF-24VDC-D														●		●	
XN-PF-120/230VAC-D														●		●	

Notes

1) No base modules required
2) Base module for gateway supply
3) Base module for bus refreshing within the station

Max. 74 XI/ON modules in slice design



Plan your XI/ON station with the software ""I/Oassistant""
(free download at www.microinnovation.com).
Advantage 1:
Automatically generates a full parts list for your order.
Advantage 2:
Generates an error message as soon as the system limits are exceeded.

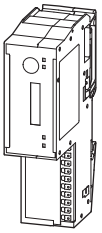
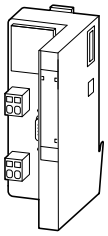
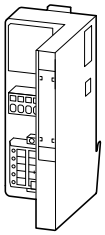
Notes:
When extending your system, make sure that you have a sufficient number of bus refresh or power feed modules.

	Max. number/ station	Part no. 140045 **XNE-GWBR-PBDP**		Part no. 140044 **XNE-GWBR-CANOPEN**		Part no. 140047 **XNE-GWBR-2ETH-IP**		Part no. 140154 **XN-GWBR-PBDP**		Part no. 140055 **XN-GWBR-CANOPEN**	
		Channels	Modules	Channels	Modules	Channels	Modules	Channels	Modules	Channels	Modules
Modules											
XN-4DI-24VDC-P		136	34	244	61	288	72	288	72	288	72
XN-4DI-24VDC-N		136	34	244	61	288	72	288	72	288	72
XN-16DI-24VDC-P		128	8	128	8	128	8	128	8	128	8
XN-32DI-24VDC-P		256	8	256	8	256	8	256	8	256	8
XNE-8DI-24VDC-P		384	48	512	64	512	64	592	74	512	64
XNE-16DI-24VDC-P		768	48	512	32	512	32	1184	74	512	32
XN-4DO-24VDC-0.5A-P		132	33	244	61	288	72	288	72	288	72
XN-16DO-24VDC-0.5A-P		128	8	128	8	128	8	128	8	128	8
XN-32DO-24VDC-0.5A-P		256	8	256	8	256	8	256	8	256	8
XNE-8DO-24VDC-0.5A-P		384	48	488	61	512	64	592	74	512	64
XNE-16DO-24VDC-0.5A-P		640	40	512	32	512	32	1168	73	512	32
XN-2DO-R-…		70	35	122	61	144	72	144	72	144	72
XN-2AI-I(0/4…20MA)		56	28	100	50	126	63	78	39	144	72
XN-2AI-U(-10/0…+10VDC)		56	28	100	50	126	63	78	39	144	72
XN-2AI-Pt/Ni-2/3		44	22	98	49	126	63	46	23	144	72
XN-2AI-THERMO-PI		44	22	98	49	126	63	58 (76)	29 (38)	144	72
XN-4AI-U/I		64 (132)	16 (33)	108	27	124	31	112	28	144	36
XNE-8AI-U/I-4Pt/Ni		72 (120)	9 (15)	144	18	128	16	88	11	144	18
XN-2AO-I(0/4…20MA)		50	25	70	35	126	63	38	19	144	72
XN-2AO-U(-10/0…+10VDC)		46	23	70	35	126	63	38	19	144	72
XNE-4AO-U/I		64 (76)	16 (19)	108	27	64	16	36	9	144	36
XN-1CNT-24VDC		13	13	27	27	31	31	7	7	72	72
XN-1RS232		7	7	27	27	31	31	22	22	68	68
XN-1RS485/422		16	16	27	27	31	31	22	22	72	72
XN-1SSI		20	20	27	27	31	31	22	22	72	72

Notes
Numeric values in brackets: max. number when diagnostic alarm disabled.
The supply module XN-BR-24VDC-D must be mounted immediately next to the gateway XN-GW-... to provide power for the gateways.

Part no. 140156 **XN-GWBR-DNET**		Part no. 140162 **XN-GWBR-MODBUS-TCP**		Part no. 140049 **XN-GW-PBDP-1.5MB**		Part no. 140048 **XN-GW-PBDP-12MB**		Part no. 140050 **XN-GW-CANOPEN**		Part no. 140051 **XN-GW-DNET**	
Channels	Modules	Channels	Modules	Channels	Modules	Channels	Modules	Channels	Modules	Channels	Modules
288	72	288	72	288	72	288	72	288	72	288	72
288	72	288	72	288	72	288	72	288	72	288	72
128	8	128	8	128	8	128	8	128	8	128	8
256	8	256	8	256	8	256	8	256	8	256	8
576	72	512	64								
1152	72	512	32								
128	32	288	72	288	72	288	72	288	72	288	72
128	8	128	8	128	8	128	8	128	8	128	8
256	8	256	8	256	8	256	8	256	8	256	8
256	32	512	64								
512	32	512	32								
64	32	144	72	144	72	144	72	144	72	144	72
32	16	144	72	78	39	78	39	144	72	126	63
32	16	144	72	78	39	78	39	144	72	126	63
32	16	144	72	46	23	46	23	142	71	126	63
32	16	144	72	58 (76)	29 (38)	58 (76)	29 (38)	142	71	126	63
64	16	144	36	112	28	112	28	144	36	124	31
128	16	144	18								
32	16	144	72	38	19	38	19	142	71	126	63
32	16	144	72	38	19	38	19	142	71	126	63
64	16	124	31								
16	16	72	72	7	7	7	7	71	71	31	31
8	8	68	68	22	22	22	22	67	67	31	31
8	8	72	72	22	22	22	22	70	70	31	31
8	8	72	72	22	22	22	22	71	71	31	31

Ordering

	Fieldbus connection	Terminal capacity (field bus/supply voltage)	Servicing interface	Transfer rate	Part no. Article no.	Price See price list	Std. pack
Gateway XNE with integrated supply							
	• Supports up to 48 slice-type modules (XN, XNE) • Address setting through DIP switch • Address range: 1 – 125 (dec.)						
	PROFIBUS-DP (DPV0/DPV1 protocol)	Push-in spring-cage terminals	PS/2 socket	9.6 kbit/s to 12 Mbit/s	**XNE-GWBR-PBDP** [1)2)] 140045		1 off
	• Supports up to 62 disc type modules (XN, XNE) • Address set with DIP switch • Address range: 1 – 63 (dec.)						
	CANopen	Push-in spring-cage terminals	PS/2 socket	1000 kbit/s 800 kbit/s 500 kbit/s 250 kbit/s 125 kbit/s 50 kbit/s 20 kbit/s	**XNE-GWBR-CANOPEN** [1)2)] 140044		1 off
	• Supports up to 74 disc type modules (XN, XNE) • 2 x RJ45 socket • Address set with decimal rotary coding switches, BootP, DHCP or I/Oassistant • Address range: 1 – 254 (dec.)						
	Ethernet (Ethernet-IP protocol)	Push-in spring-cage terminals	Mini USB	10/100 MBit/s	**XNE-GWBR-2ETH-IP** [1)3)] 140047		1 off
XN-Gateway with integrated supply							
	• Supports up to 74 disc type modules (XN, XNE) • 1 x D-sub 9-pin socket • Address set with two decimal rotary coding switches • Address range: 1 – 99 (dec.)						
	PROFIBUS-DP (DPV0 protocol)	Screw terminals	PS/2 socket	9.6 kbit/s to 12 Mbit/s	**XN-GWBR-PBDP** [1)4)] 140154		1 off
	• Supports up to 74 disc type modules (XN, XNE) • 1 x open-style connector • Address set with two decimal rotary coding switches • Address range: 1 – 99 (dec.)						
	CANopen	Screw terminals	PS/2 socket	1000 kbit/s 800 kbit/s 500 kbit/s 250 kbit/s 125 kbit/s 50 kbit/s 20 kbit/s 10 kbit/s	**XN-GWBR-CANOPEN** [1)4)] 140155		1 off
	• Supports up to 74 disc type modules (XN, XNE) • 1 x open-style connector • Address set with two decimal rotary coding switches • Address range: 0 – 63 (dec.)						
	DeviceNet	Screw terminals	PS/2 socket	500 kbit/s 250 kbit/s 125 kbit/s	**XN-GWBR-DNET** [1)4)] 140156		1 off

Notes

[1)] Bus refreshing modules is already integrated.

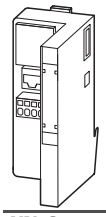
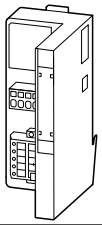
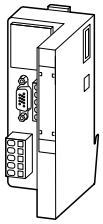
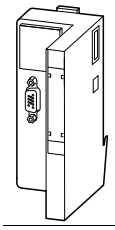
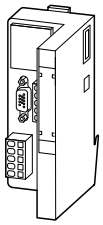
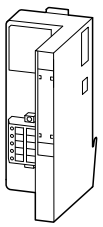
The following are included as standard with all gateways:
2 x end bracket XN-WEW-32/2-SW,
1 x end plate XN-ABPL

Information relevant for export to North America

[2)]
Product Standards	IEC/EN 6113-2; CE marking
NA Certification	Request filed for UL and CSA
Degree of Protection	IEC: IP20, UL/CSA Type: -

[3)]
Product Standards	IEC/EN 6113-2; CE marking
NA Certification	Planned for UL and CSA
Degree of Protection	IEC: IP20, UL/CSA Type: -

[4)]
Product Standards	UL 508; cUL IEC/EN 6113-2; CE marking
UL File No.	E205091
UL CCN	NRAQ, NRAQ7
CSA File No.	UL report applies to both US and Canada
CSA Class No.	-
NA Certification	UL Recognized, certified by UL for use in Canada
Degree of Protection	IEC: IP20, UL/CSA Type: -

	Fieldbus connection	Terminal capacity (field bus/supply voltage)	Servicing interface	Transfer rate	Part no. Article no.	Price See price list	Std. pack
	• Supports up to 74 disc type modules (XN, XNE) • 1 x RJ45 socket • Address set with decimal rotary coding switches, BootP, DHCP or I/Oassistant • Address range: 1…254 (dec.)						
	Ethernet (Modbus-TCP protocol)	Screw terminals	PS/2 socket	10/100 MBit/s	**XN-GWBR-MODBUS-TCP**[1) 3)] 140162		1 off
XN-Gateway with integrated supply, programmable							
	• Supports up to 74 disc type modules (XN, XNE to limited extent) • 1 x open-style connector • Operating mode and address setting with two hexadecimal rotary coding switches • Address range: 1 – 99 (dec.)						
	CANopen	Screw terminals	PS/2 socket	Adjustable up to 1 Mbit/s	**XN-PLC-CANOPEN**[1) 4)] 140157		1 off
XN gateway without integrated supply							
	• Supports up to 74 disc type modules (XN) • 2 x D-sub 9-pin sockets • Address setting with two hexadecimal rotary coding switches • Address range: 1– 125 (dec.)						
	PROFIBUS-DP (DPV0 protocol)	2 × spring-cage terminal strips for direct wiring	PS/2 socket	9.6 Kbits/s to 1.5 MBit/s	**XN-GW-PBDP-1.5MB**[2) 4)] 140049		1 off
	• Supports up to 74 disc type modules (XN) • 1 x D-sub 9-pin socket • Address setting with two hexadecimal rotary coding switches • Address range: 1– 125 (dec.)						
	PROFIBUS-DP (DPV0 protocol)	–	PS/2 socket	9.6 kbit/s to 12 Mbit/s	**XN-GW-PBDP-12MB**[2) 4)] 140048		1 off
	• Supports up to 74 disc type modules (XN) • 1 x 9 pole SUB-D socket, 1 × D-sub 9-pin • Address setting with two hexadecimal rotary coding switches • Address range: 1– 127 (dec.)						
	CANopen	2 × spring-cage terminals for direct wiring	PS/2 socket	1000 kbit/s 800 kbit/s 500 kbit/s 250 kbit/s 125 kbit/s 50 kbit/s 20 kbit/s 10 kbit/s	**XN-GW-CANOPEN**[2) 4)] 140050		1 off
	• Supports up to 64 disc type modules (XN) • 1 x open-style connector • Address set with two decimal rotary coding switches • Address range: 0…63 (dec)						
	DeviceNet	–	PS/2 socket	500 kbit/s 250 kbit/s 125 kbit/s	**XN-GW-DNET**[2) 4)] 140051		1 off

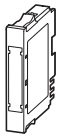
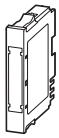
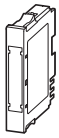
Notes

[1)] Bus refreshing modules is already integrated.
[2)] The supply module XN-BR-24VDC-D must be mounted immediately next to the gateway to provide the supply for the gateways.

The following are included as standard with all gateways:
2 x end bracket XN-WEW-32/2-SW,
1 x end plate XN-ABPL

Information relevant for export to North America

[3)]	Product Standards	IEC/EN 6113-2; CE marking
	Degree of Protection	IEC: IP20, UL/CSA Type: -
[4)]	Product Standards	UL 508; cUL; IEC/EN 6113-2; CE marking
	UL File No.	E205091
	UL CCN	NRAQ, NRAQ7
	CSA File No.	UL report applies to both US and Canada
	CSA Class No.	-
	NA Certification	UL Recognized, certified by UL for use in Canada
	Degree of Protection	IEC: IP20, UL/CSA Type: -

	Description	For use with	Part no. Article no.	Price See price list	Std. pack
Bus refreshing modules					
Slice modules XN 	Provides system and field power System power supply 24 V DC for generation of power for module bus and gateway (XN-GW-...) Field power supply at a rated voltage of 24 V DC	XN-P3T-SBB XN-P3S-SBB XN-P4T-SBBC XN-P4S-SBBC XN-P3T-SBB-B XN-P3S-SBB-B XN-P4T-SBBC-B XN-P4S-SBBC-B	**XN-BR-24VDC-D** 140071		1 off
Power feeding modules					
Slice modules XN 	Field power supply at a rated voltage of 24 V DC	XN-P3T-SBB XN-P3S-SBB XN-P4T-SBBC XN-P4S-SBBC	**XN-PF-24VDC-D** 140070		1 off
	Field power supply at a rated voltage of 120/230 V AC nominal voltage	XN-P3T-SBB XN-P3S-SBB XN-P4T-SBBC XN-P4S-SBBC	**XN-PF-120/230VAC-D** 140072		
Digital input modules					
Slice modules XN 	2 digital inputs, 24 V DC Positive switching	XN-S3T-SBB XN-S3S-SBB XN-S4T-SBBC XN-S4S-SBBC	**XN-2DI-24VDC-P** 140056		1 off
	2 digital inputs, 24 V DC Negative switching		**XN-2DI-24VDC-N** 140057		
	2 digital inputs, 120/230 V AC		**XN-2DI-120/230VAC** 140058		
	4 digital inputs, 24 V DC Positive switching	XN-S4T-SBBS XN-S4S-SBBS XN-S6T-SBBSBB XN-S6S-SBBSBB	**XN-4DI-24VDC-P** 140052		
	4 digital inputs, 24 V DC Negative switching		**XN-4DI-24VDC-N** 140059		
Block modules XN 	16 digital inputs, 24 V DC Positive switching	XN-B3T-SBB XN-B3S-SBB XN-B4T-SBBC XN-B4S-SBBC	**XN-16DI-24VDC-P** 140142		
	32 digital inputs, 24 V DC Positive switching	XN-B6T-SBBSBB XN-B6S-SBBSBB	**XN-32DI-24VDC-P** 140147		
Slice modules XNE 	8 digital inputs, 24 V DC Positive switching	–	**XNE-8DI-24VDC-P** 140035		
	16 digital inputs, 24 V DC Positive switching	–	**XNE-16DI-24VDC-P** 140040		

Information relevant for export to North America

Product Standards	UL 508; cUL; IEC/EN 6113-2; CE marking
UL File No.	E205091
UL CCN	NRAQ, NRAQ7
CSA File No.	UL report applies to both US and Canada
CSA Class No.	-
NA Certification	UL Recognized, certified by UL for use in Canada
Degree of Protection	IEC: IP20, UL/CSA Type: -

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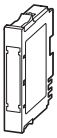
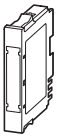
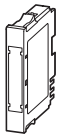
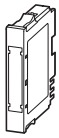
	Description	For use with	Part no. Article no.	Price See price list	Std. pack
Digital output modules					
Slice modules XN 	2 digital outputs, 24 V DC/0.5 A Positive switching	XN-S3T-SBC XN-S3S-SBC XN-S4T-SBCS XN-S4S-SBCS	**XN-2DO-24VDC-0.5A-P** 140053		1 off
	2 digital outputs, 24 V DC/0.5 A Negative switching		**XN-2DO-24VDC-0.5A-N** 140060		
	2 digital outputs, 24 V DC/2 A Positive switching		**XN-2DO-24VDC-2A-P** 140055		
	2 digital outputs, 120/230 V AC/0.5 A		**XN-2DO-120/230VAC-0.5A** 140150		
	4 digital outputs, 24 V DC/0.5 A Positive switching	XN-S4T-SBCS XN-S4S-SBCS XN-S6T-SBCSBC XN-S6S-SBCSBC	**XN-4DO-24VDC-0.5A-P** 140148		
Block modules XN 	16 digital outputs, 24 V DC/0.5 A Positive switching	XN-B3T-SBC XN-B3S-SBC	**XN-16DO-24VDC-0.5A-P** 140141		
	32 digital outputs, 24 V DC/0.5 A Positive switching	XN-B6T-SBCSBC XN-B6S-SBCSBC	**XN-32DO-24VDC-0.5A-P** 140161		
Slice modules XNE 	8 digital outputs, 24 V DC/0.5 A Positive switching	–	**XNE-8DO-24VDC-0.5A-P** 140036		
	16 digital outputs, 24 V DC/0.5 A Positive switching	–	**XNE-16DO-24VDC-0.5A-P** 140039		
Relay modules					
Slice modules XN 	2 changeover contacts, isolated 230 V AC / 30 V DC	XN-S4T-SBBS XN-S4S-SBBS	**XN-2DO-R-CO** 140054		1 off
	2 NC 230 V AC / 30 V DC	XN-S4T-SBBS XN-S4S-SBBS XN-S4T-SBCS XN-S4S-SBCS	**XN-2DO-R-NC** 140061		
	2 N/O 230 V AC / 30 V DC		**XN-2DO-R-NO** 140062		

Information relevant for export to North America

Product Standards	UL 508; cUL; IEC/EN 6113-2; CE marking
UL File No.	E205091
UL CCN	NRAQ, NRAQ7
CSA File No.	UL report applies to both US and Canada
CSA Class No.	-
NA Certification	UL Recognized, certified by UL for use in Canada
Degree of Protection	IEC: IP20, UL/CSA Type: -

	Description	For use with	Part no. Article no.	Price See price list	Std. pack
Analog input modules					
Slice modules XN 	1 analog input 0/4 to 20 mA	XN-S3T-SBB XN-S3S-SBB XN-S4T-SBBS XN-S4S-SBBS	**XN-1AI-I(0/4...20MA)**[1] 140063		1 off
	2 analog inputs 0/4 to 20 mA		**XN-2AI-I(0/4...20MA)**[1] 140144		
	1 analog input -10/0 to +10 V DC		**XN-1AI-U(-10/0...+10VDC)**[1] 140064		
	2 analog inputs -10/0 to +10 V DC		**XN-2AI-U(-10/0...+10VDC)**[1] 140145		
	2 analog inputs Reading of standardized signals for temperature measurement Connection of RTDs Pt100, Pt200, Pt500, Pt1000, Ni100, Ni1000, and Ni1000TK5000 in 2- or 3-wire circuit		**XN-2AI-Pt/Ni-2/3**[1] 140067		
	2 analog inputs Acquisition of normalized signals for measuring temperatures or voltages up to ± 1 V Connection of thermocouples of types B, E, J, K, N, R, S, T	XN-S4T-SBBS-CJ XN-S4S-SBBS-CJ	**XN-2AI-THERMO-PI**[1] 140068		
	4 analog inputs -10/0 to +10 V DC, 0/4 to 20 mA Selectable for channel	XN-S6T-SBCSBC XN-S6S-SBCSBC	**XN-4AI-U/I**[1] 140158		
Slice modules XNE 	8 analog inputs U/I or 4 analog inputs Pt/Ni -10/0 to +10 V DC, 0/4 to 20 mA Reading of standardized signals for temperature measurement Connection of RTDs Pt100, Pt200, Pt500, Pt1000, Ni100, Ni1000, and Ni1000TK5000, Ni1000TK5000 in 2- or 3-wire circuit Selectable for channel	–	**XNE-8AI-U/I-4Pt/Ni**[2] 140037		
Analog output modules					
Slice modules XN 	1 analog output 0/4 to 20 mA	XN-S3T-SBB XN-S3S-SBB	**XN-1AO-I(0/4...20MA)**[3] 140065		1 off
	2 analog outputs 0/4 to 20 mA		**XN-2AO-I(0/4...20MA)**[3] 140146		
	2 analog outputs -10/0 to +10 V DC		**XN-2AO-U(-10/0...+10VDC)**[3] 140066		
Slice modules XNE 	4 analog outputs -10/0 to +10 V DC, 0/4 to 20 mA Selectable for channel	–	**XNE-4AO-U/I**[4] 140034		

Information relevant for export to North America

1)

Product Standards	UL 508; cUL; IEC/EN 6113-2; CE marking
UL File No.	E205091
UL CCN	NRAQ, NRAQ7
CSA File No.	UL report applies to both US and Canada
CSA Class No.	-
NA Certification	UL Recognized, certified by UL for use in Canada
Degree of Protection	IEC: IP20, UL/CSA Type: -

2)

Product Standards	IEC/EN 6113-2; CE marking
NA Certification	Request filed for UL and CSA
Degree of Protection	IEC: IP20, UL/CSA Type: -

3)

Product Standards	UL 508; cUL; IEC/EN 6113-2; CE marking
UL File No.	E205091
UL CCN	NRAQ, NRAQ7
CSA File No.	UL report applies to both US and Canada
CSA Class No.	-
NA Certification	UL Recognized, certified by UL for use in Canada
Degree of Protection	IEC: IP20, UL/CSA Type: -

4)

Product Standards	IEC/EN 6113-2; CE marking
NA Certification	Request filed for UL and CSA
Degree of Protection	IEC: IP20, UL/CSA Type: -

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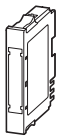
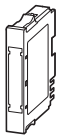
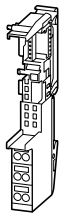
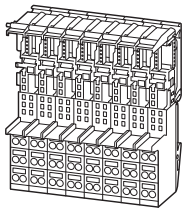
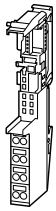
	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America	
Counter modules							
Slice modules XN 	1 digital input/24 V DC 1 digital output/24 V DC Counting modes: infinite, once only or periodic count Frequency, rotational speed or period duration count Reading signals from rotary encoders (track A/B)	XN-S4T-SBBS XN-S4S-SBBS	**XN-1CNT-24VDC** 140069		1 off	Product Standards UL File No. UL CCN CSA File No. CSA Class No. NA Certification Degree of Protection	UL 508; cUL; IEC/EN 6113-2; CE marking E205091 NRAQ, NRAQ7 UL report applies to both US and Canada - UL Recognized, certified by UL for use in Canada IEC: IP20, UL/CSA Type: -
Serial interfaces							
Slice modules XN 	Data transfer rate adjustable up to 115200 bit/s	XN-S4T-SBBS XN-S4S-SBBS	**XN-1RS232** 140151		1 off	Product Standards UL File No. UL CCN CSA File No. CSA Class No. NA Certification Degree of Protection	UL 508; cUL; IEC/EN 6113-2; CE marking E205091 NRAQ, NRAQ7 UL report applies to both US and Canada - UL Recognized, certified by UL for use in Canada IEC: IP20, UL/CSA Type: -
	Data transfer rate adjustable up to 115200 bit/s		**XN-1RS485/422** 140152				
	Connection of SSI encoders up to 32-bit. Data transfer rate adjustable up to 1 bit/s		**XN-1SSI** 140153				
SmartWire-Darwin Interface							
Slice modules XNE 	Connection of up to 16 motor starters (Eaton) Up to 3 XNE-1SWIRE for XI/ON node	–	**XNE-1SWIRE** 140043		1 off	Product Standards NA Certification Degree of Protection	IEC/EN 6113-2; CE marking Request filed for UL and CSA IEC: IP20, UL/CSA Type: -
Counter/PWM modules							
Slice modules XNE 	2 counter channels and 2 PWM channels Counting modes: infinite, once only or periodic count Frequency, rotational speed or period duration count Reading signals from rotary encoders (track A/B) Output of a defined digital signal Output of a defined number of pulses	–	**XNE-2CNT-2PWM** 140038		1 off	Product Standards NA Certification Degree of Protection	IEC/EN 6113-2; CE marking Planned for UL and CSA IEC: IP20, UL/CSA Type: -

	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Basic modules						
Spring-cage terminals • 3 connection levels						
Slice modules 	Base module for field power supply Base module for the gateway supply (with XN-BR-24VDC-D)	XN-BR-24VDC-D XN-PF-24VDC-D XN-PF-120/230VAC-D	**XN-P3T-SBB** 140074		1 off	Product Standards: UL 508; cUL; IEC/EN 6113-2; CE marking UL File No.: E205091 UL CCN: NRAQ, NRAQ7 CSA File No.: UL report applies to both US and Canada CSA Class No.: - NA Certification: UL Recognized, certified by UL for use in Canada Degree of Protection: IEC: IP20, UL/CSA Type: -
	Base module for bus refresh within the station	XN-BR-24VDC-D	**XN-P3T-SBB-B** 140073			
	–	XN-2DI-... XN-1AI-... XN-2AI-I(0/4...20MA) XN-2AI-U(-10/0...+10VDC) XN-2AI-Pt/Ni-2/3 XN-1AO-I(0/4...20MA) XN-2AO-...	**XN-S3T-SBB** 140077			
	Connection to C rail	XN-2DO-24VDC-... XN-2DO-120/230VAC-0.5A	**XN-S3T-SBC** 140079			
Block modules 	–	XN-16DI-24VDC-P	**XN-B3T-SBB** 140133			
	Connection to C rail	XN-16DO-24VDC-0.5-P	**XN-B3T-SBC** 140134			
• 4 connection levels						
Slice modules 	Base module for field power supply Base module for the gateway supply (with XN-BR-24VDC-D) Connection to C rail	XN-BR-24VDC-D XN-PF-24VDC-D XN-PF-120/230VAC-D	**XN-P4T-SBBC** 140076		1 off	Product Standards: UL 508; cUL; IEC/EN 6113-2; CE marking UL File No.: E205091 UL CCN: NRAQ, NRAQ7 CSA File No.: UL report applies to both US and Canada CSA Class No.: - NA Certification: UL Recognized, certified by UL for use in Canada Degree of Protection: IEC: IP20, UL/CSA Type: -
	Base module for bus refresh within the station Connection to C rail	XN-BR-24VDC-D	**XN-P4T-SBBC-B** 140075			
	Connection to C rail	XN-2DI-24VDC-P XN-2DI-24VDC-N XN-2DI-120/230VAC	**XN-S4T-SBBC** 140078			
	Connection to C rail	XN-2DO-24VDC-... XN-2DO-120/230VAC-0.5A XN-4DO-24VDC-0.5A-P XN-2DO-R-NO XN-2DO-R-NC	**XN-S4T-SBCS** 140080			
	–	XN-4DI-... XN-2DO-R-... XN-1AI-... XN-2AI-I(0/4...20MA) XN-2AI-U(-10/0...+10VDC) XN-2AI-Pt/Ni-2/3 XN-1CNT-24VDC XN-1RS...	**XN-S4T-SBBS** 140081		
	Base module with temperature sensors for cold-junction compensation	XN-2AI-THERMO-PI	**XN-S4T-SBBS-CJ** 140084			

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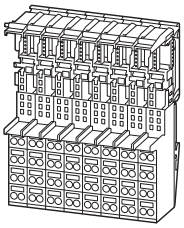
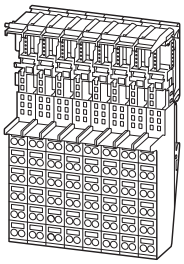
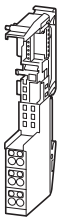
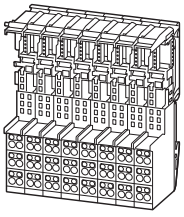
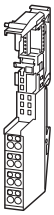
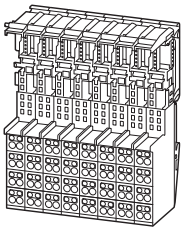
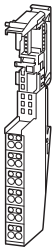
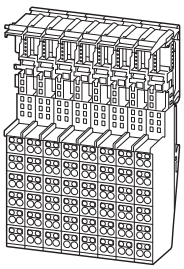
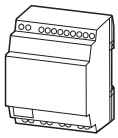
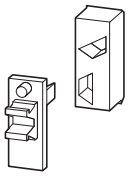
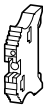
	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
• 4 connection levels						
Block modules 	Connection to C rail	XN-16DI-24VDC-P	**XN-B4T-SBBC** 140135		1 off	Product Standards: UL 508; cUL; IEC/EN 6113-2; CE marking UL File No.: E205091 UL CCN: NRAQ, NRAQ7 CSA File No.: UL report applies to both US and Canada CSA Class No.: - NA Certification: UL Recognized, certified by UL for use in Canada Degree of Protection: IEC: IP20, UL/CSA Type: -
• 6 connection levels						
Slice modules 	–	XN-4DI-24VDC-P XN-4DI-24VDC-N	**XN-S6T-SBBSBB** 140082		1 off	
	Connection to C rail	XN-4DO-24VDC-0.5A-P XN-4AI-U/I	**XN-S6T-SBCSBC** 140083			
Block modules 	–	XN-32DI-24VDC-P	**XN-B6T-SBBSBB** 140136			
	Connection to C rail	XN-32DO-24VDC-0.5A-P	**XN-B6T-SBCSBC** 140159			
Screw terminals • 3 connection levels						
Slice modules 	Base module for field power supply Base module for the gateway supply (with XN-BR-24VDC-D)	XN-BR-24VDC-D XN-PF-24VDC-D XN-PF-120/230VAC-D	**XN-P3S-SBB** 140085		1 off	Product Standards: UL 508; cUL; IEC/EN 6113-2; CE marking UL File No.: E205091 UL CCN: NRAQ, NRAQ7 CSA File No.: UL report applies to both US and Canada CSA Class No.: - NA Certification: UL Recognized, certified by UL for use in Canada Degree of Protection: IEC: IP20, UL/CSA Type: -
	–	XN-2DI-24VDC-P XN-2DI-24VDC-N XN-2DI-120/230VAC XN-1AI-... XN-2AI-I(0/4...20MA) XN-2AI-U(-10/0...+10VDC) XN-2AI-Pt/Ni-2/3 XN-1AO-I(0/4...20MA) XN-2AO-...	**XN-S3S-SBB** 140088			
	Connection to C rail	XN-2DO-24VDC-... XN-2DO-120/230VAC-0.5A	**XN-S3S-SBC** 140090			
Block modules 	–	XN-16DI-24VDC-P	**XN-B3S-SBB** 140137			
	Connection to C rail	XN-16DO-24VDC-0.5A-P	**XN-B3S-SBC** 140138			
• 4 connection levels						
Slice modules 	Base module for field power supply Base module for the gateway supply (with XN-BR-24VDC-D) Connection to C rail	XN-BR-24VDC-D XN-PF-24VDC-D XN-PF-120/230VAC-D	**XN-P4S-SBBC** 140087		1 off	

	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Screw terminals • 4 connection levels						
Slice modules 	Base module for bus refresh within the station Connection to C rail	XN-BR-24VDC-D	**XN-P4S-SBBC-B** 140086		1 off	Product Standards: UL 508; cUL; IEC/EN 6113-2; CE marking UL File No.: E205091 UL CCN: NRAQ, NRAQ7 CSA File No.: UL report applies to both US and Canada CSA Class No.: - NA Certification: UL Recognized, certified by UL for use in Canada Degree of Protection: IEC: IP20, UL/CSA Type: -
	Connection to C rail	XN-2DI-24VDC-P XN-2DI-24VDC-N XN-2DI-120/230VAC	**XN-S4S-SBBC** 140089			
	Connection to C rail	XN-2DO-24VDC-... XN-2DO-120/230VAC-0.5A XN-4DO-24VDC-0.5A-P XN-2DO-R-NO XN-2DO-R-NC	**XN-S4S-SBCS** 140091			
	–	XN-4DI-... XN-2DO-R-... XN-1AI-... XN-2AI-I(0/4...20MA) XN-2AI-U(-10/0...+10VDC) XN-2AI-Pt/Ni-2/3 XN-1CNT-24VDC XN-1RS... XN-1SSI	**XN-S4S-SBBS** 140092		
	Base module with temperature sensors for cold-junction compensation	XN-2AI-THERMO-PI	**XN-S4S-SBBS-CJ** 140095			
Block modules 	Connection to C rail	XN-16DI-24VDC-P	**XN-B4S-SBBC** 140139			
• 6 connection levels						
Slice modules 	–	XN-4DI-24VDC-P XN-4DI-24VDC-N	**XN-S6S-SBBSBB** 140093			
	Connection to C rail	XN-4DO-24VDC-0.5A-P XN-4AI-U/I	**XN-S6S-SBCSBC** 140094			
Block modules 	–	XN-32DI-24VDC-P	**XN-B6S-SBBSBB** 140140		1 off	
	Connection to C rail	XN-32DO-24VDC-0.5A-P	**XN-B6S-SBCSBC** 140160			

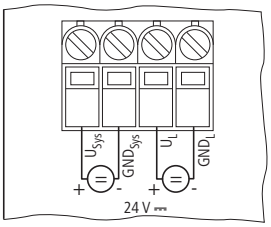
	Inputs			Outputs			Supply voltage connection	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America	
	Digital	Analog	Of which usable as digital	Relay 10 A (UL)	Tran-sistor	Analog						
I/O expansion modules												
Can be used through CANopen for: XC100/200, EC4P, MFD4												
	6	–	–	4	–	–	24 V DC	**EC4E-221-6D4R1** 114296		1 off	NA Certification	Requestfiled for UL and CSA
	6	–	–	–	4	–	24 V DC	**EC4E-221-6D4T1** 114297		1 off	Degree of Protection	IEC: IP20, UL/ CSA Type: -
Notes	Technical data for the EASY...expansion units → Chapter 12											
SWD gateways												
Gateway for connecting to the fieldbus and for supplying the SmartWire-Darwin (SWD) slaves and switchgear.												
	Connection to PROFIBUS-DP as slave. Automatic baud rate detection from 9.6 kbit/s to 12 Mbit/s. Address range 1 - 126. D-sub 9-pin socket. Connection of up to 58 SWD slaves.							**EU5C-SWD-DP** 116308		1 off	NA Certification	Requestfiled for UL and CSA
	Connection to CANopen as slave. Automatic baud rate detection from 10 kbit/s to 1 Mbit/s. Address range 1 - 32. D-sub 9-pin plug. Connection of up to 99 SWD slaves.							**EU5C-SWD-CAN** 116307				
SWD I/O modules												
SmartWire-Darwin slaves for the connecting digital I/O.												
	Digital module with 8 digital inputs 24 V DC							**EU5E-SWD-8DX** 116381		1 off	NA Certification	Requestfiled for UL and CSA
	Digital module with 4 digital inputs 24 V DC and 4 transistor outputs 24 V DC/0.5 A							**EU5E-SWD-4D4D** 116382				
	Digital module with 4 digital inputs 24 V DC and 2 relay outputs 250 V AC							**EU5E-SWD-4D2R** 116383				
Coding elements												
	Included as standard with every electronics module. Prevents incorrect connection of the electronics modules.	For use with XN-...DI-24VDC…						**XN-KO/2** 140114		1 off	UL/CSA certification not required	
		XN-2DI-120/230VAC						**XN-KO/5** 140117				
		XN-xDO-24VDC…						**XN-KO/6** 140118				
		XN-2DO-R-NO						**XN-KO/8** 140119				
		XN-2DO-R-NC						**XN-KO/9** 140120				
		XN-2DO-R-CO						**XN-KO/10** 140121				
		XN-1AI-I(0/4…20MA) XN-2AI-I(0/4…20MA)						**XN-KO/11** 140122				
		XN-1AI-U(-10/0...+10VDC) XN-2AI-U(-10/0...+10VDC) XN-2AI-Pt/Ni-2/3 XN-2AI-THERMO-PI XN-4AI-U/I						**XN-KO/12** 140123				
		XN-1AO-I(0/4...20MA) XN-2AO-I(0/4...20MA)						**XN-KO/13** 140124				
		XN-2AO-U(-10/0...+10VDC)						**XN-KO/14** 140125				
		XN-1CNT-24VDC XN-1RS232 XN-1RS485/422 XN-1SSI						**XN-KO/15** 140126				
		XN-BR-24VDC-D XN-PF-24VDC-D						**XN-KO/16** 140127				
		XN-PF-120/230VAC-D						**XN-KO/17** 140128				

	Description	For use with	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Relay jumpers						
	1-grid	–	**XN-QV/1** 140097		1 off	UL/CSA certification not required
	2-grid	–	**XN-QV/2** 140098			
	3-grid	–	**XN-QV/3** 140099			
	4-grid	–	**XN-QV/4** 140100			
	5-grid	–	**XN-QV/5** 140101			
	6-grid	–	**XN-QV/6** 140102			
	7-grid	–	**XN-QV/7** 140103			
	8-grid	–	**XN-QV/8** 140104			
End bracket						
	For fixing the XI/ON station on the top-hat rail. 2 end brackets are supplied as standard with the gateways.	–	**XN-WEW-35/2-SW** 140130		1 off	UL/CSA certification not required
End cover						
	For covering an XI/ON station. An end cover is supplied with the gateway as standard	–	**XN-ABPL** 140129		1 off	UL/CSA certification not required
Connection level labels						
	Blue	–	**XN-ANBZ-BL** 140105		1 off	UL/CSA certification not required
	Red	–	**XN-ANBZ-RT** 140106			
	Green	–	**XN-ANBZ-GN** 140107			
	Black	–	**XN-ANBZ-SW** 140108			
	Brown	–	**XN-ANBZ-BR** 140109			
	Red/blue	–	**XN-ANBZ-RT/BL-BED** 140110			
	Yellow/green	–	**XN-ANBZ-GN/GE-BED** 140111			
	White	–	**XN-ANBZ-WS** 140112			
Shield connection for gateway						
–	Shield connection for direct bus connection. Can be used only for XI/ON gateways XN-GW-PBDP-1.5MB and XN-GW-CANOPEN.	–	**SCH-1-WINBLOC** 140236		1 off	UL/CSA certification not required
Servicing cable						
–	Establishes the connection between I/O assistant and the service interface at the gateway.	–	**XN-PS2-CABLE** 140096		1 off	UL/CSA certification not required
Labels						
–	A5 sheet, perforated, 1 x 57 labels	–	**XN-LABEL/SCHEIBE** 140131		1 off	UL/CSA certification not required
–	A5 sheet, perforated, 1 x 6 labels	–	**XN-LABEL/BLOCK** 140132			

Engineering

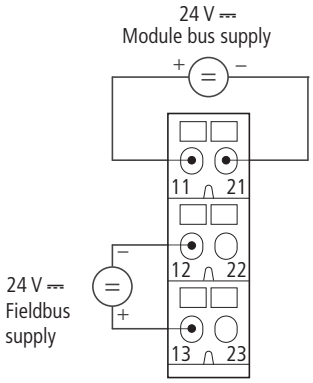
Gateway XN...GWBR...

24 V supply from gateway (U_L) and system bus (U_{sys})

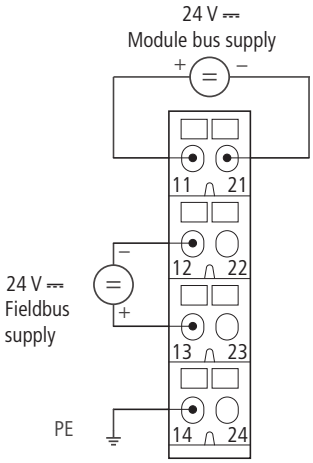


Bus refreshing modules

XN-P3x-SBB with gateway power supply
XN-P3…-SBB-B without gateway power supply

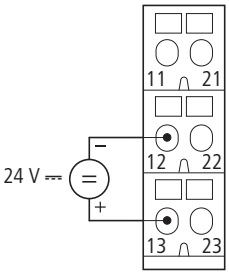


XN-P4…-SBBC with gateway power supply
XN-P4…-SBBC-B without gateway power supply

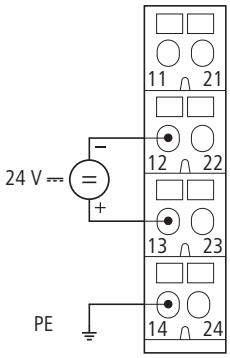


Power feeding modules

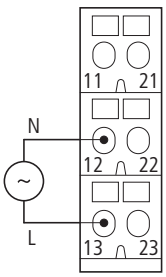
XN-P3…-SBB for XN-PF-24VDC-D



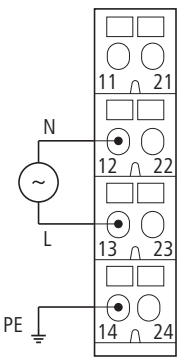
XN-P4…-SBBC for XN-PF-24VDC-D



XN-P3...-SBB for XN-PF-120/230VAC-D

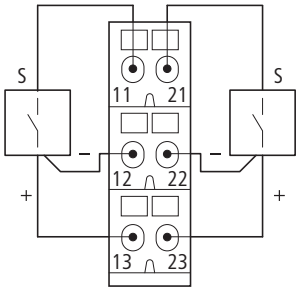


XN-P4...-SBB for XN-PF-120/230VAC-D

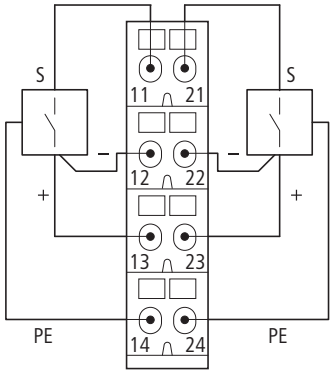


Digital input modules

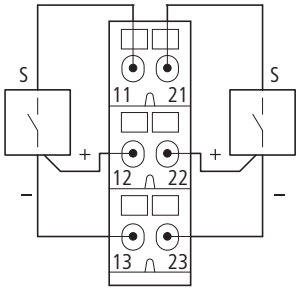
XN-S3...-SBB for XN-2DI-24VDC-P



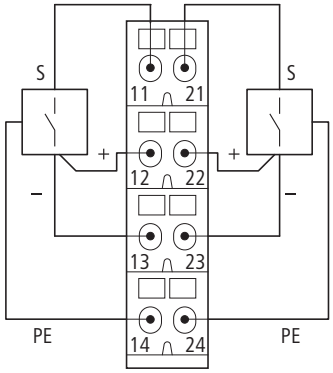
XN-S4...-SBBC for XN-2DI-24VDC-P



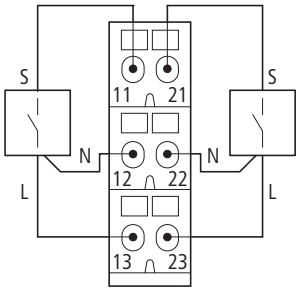
XN-S3...-SBB for XN-2DI-24VDC-N



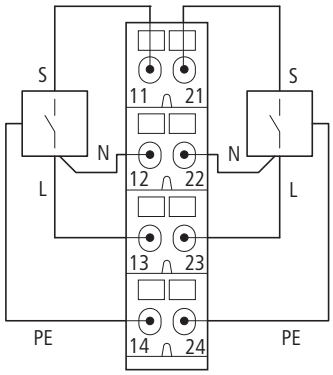
XN-S4...-SBBC for XN-2DI-24VDC-N



XN-S3...-SBB for XN-2DI-120/230VAC

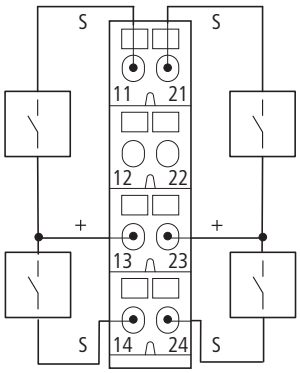


XN-S4...-SBBC for XN-2DI-120/230VAC

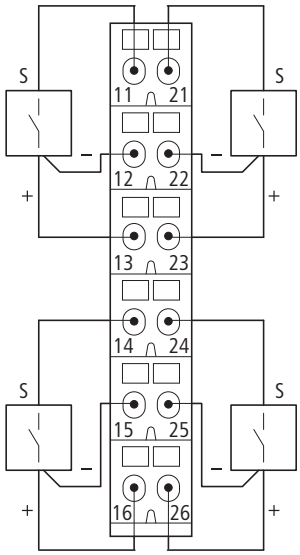


Digital input modules

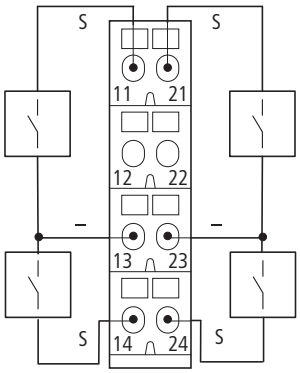
XN-S4...-SBBS for XN-4DI-24VDC-P



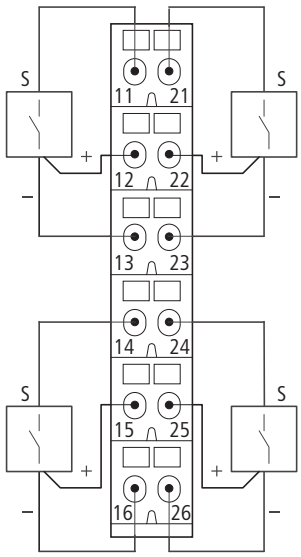
XN-S6...-SBBSBB for XN-4DI-24VDC-P



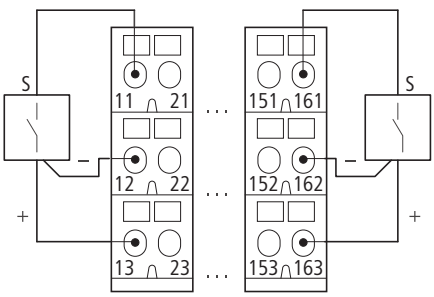
XN-S4...-SBBS for XN-4DI-24VDC-N



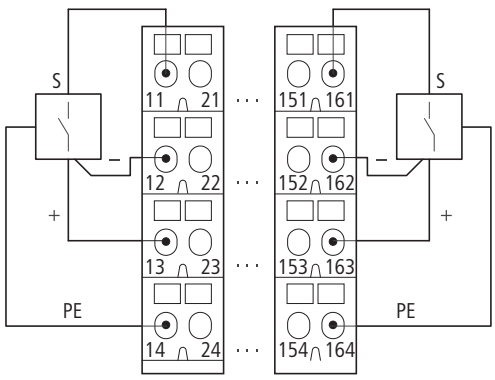
XN-S6...-SBBSBB for XN-4DI-24VDC-N



XN-B3...-SBB for XN-16DI-24VDC-P

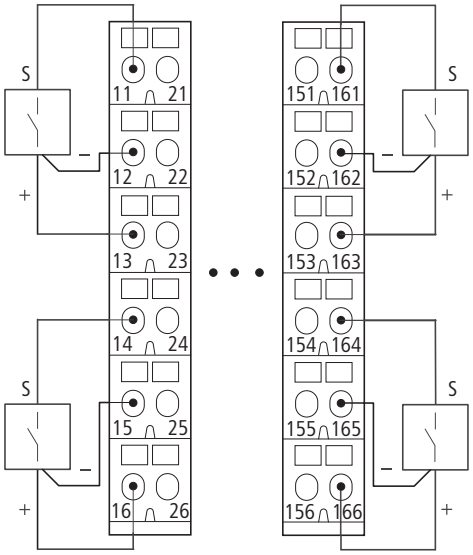


XN-B4...-SBBC for XN-16DI-24VDC-P

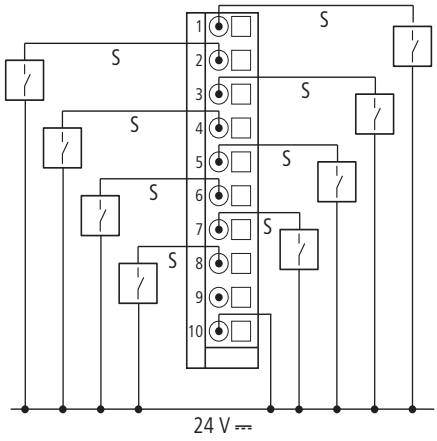


Digital input modules

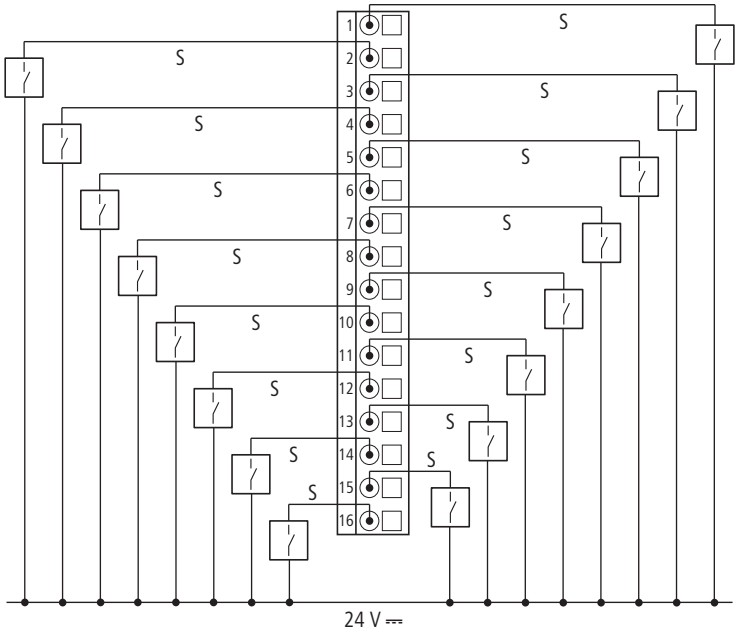
XN-B6...-SBBSBB for XN-32DI-24VDC-P



XNE-8DI-24VDC-P

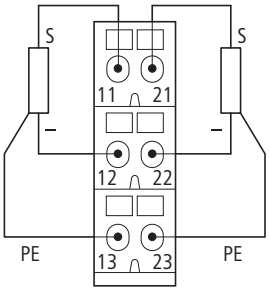


XNE-16DI-24VDC-P

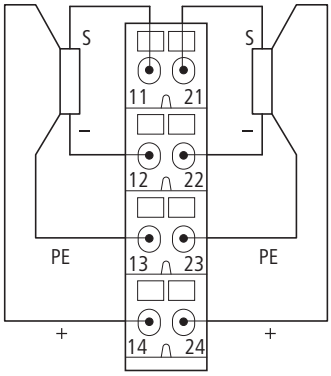


Digital output modules

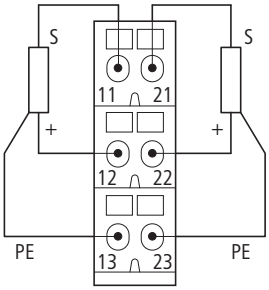
XN-S3…-SBC for
XN-2DO-24VDC-0.5A-P
XN-2DO-24VDC-2A-P



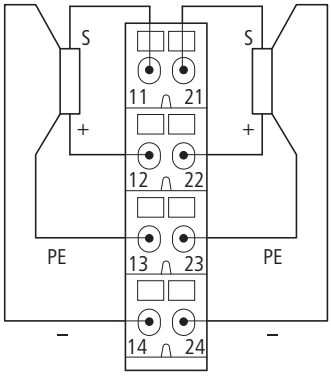
XN-S4…-SBCS for
XN-2DO-24VDC-0.5A-P
XN-2DO-24VDC-2A-P



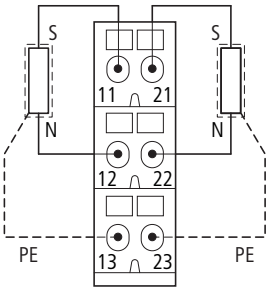
XN-S3…-SBC for XN-2DO-24VDC-0.5A-N



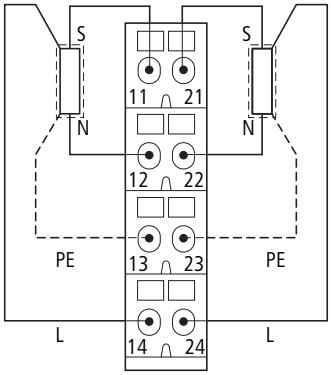
XN-S4…-SBCS for XN-2DO-24VDC-0.5A-N



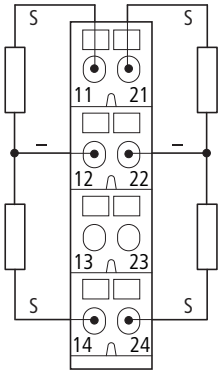
XN-S3…-SBC for XN-2DO-120/230VAC-0.5A



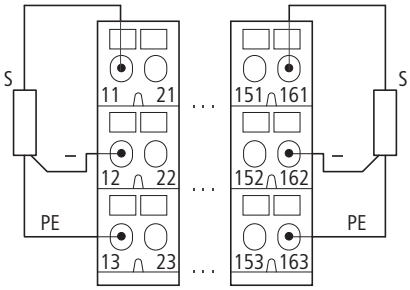
XN-S4…-SBCS for XN-2DO-120/230VAC-0.5A



XN-S4…-SBCS for XN-4DO-24VDC-0.5A-P

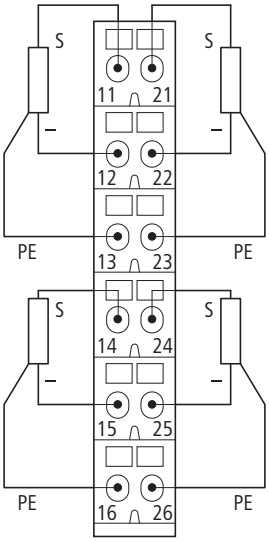


XN-B3…-SBC for XN-16DO-24VDC-0.5A-P

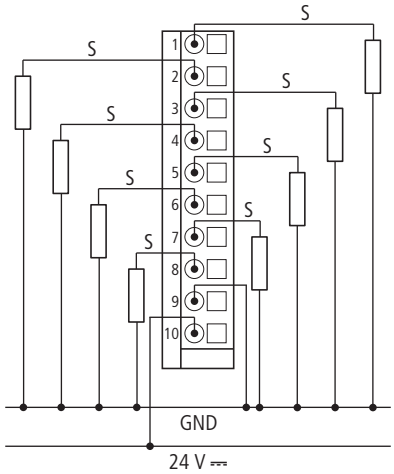


Digital output modules

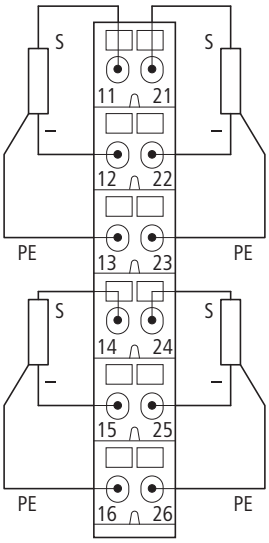
XN-S6…-SBCSBC for XN-4DO-24VDC-0.5A-P



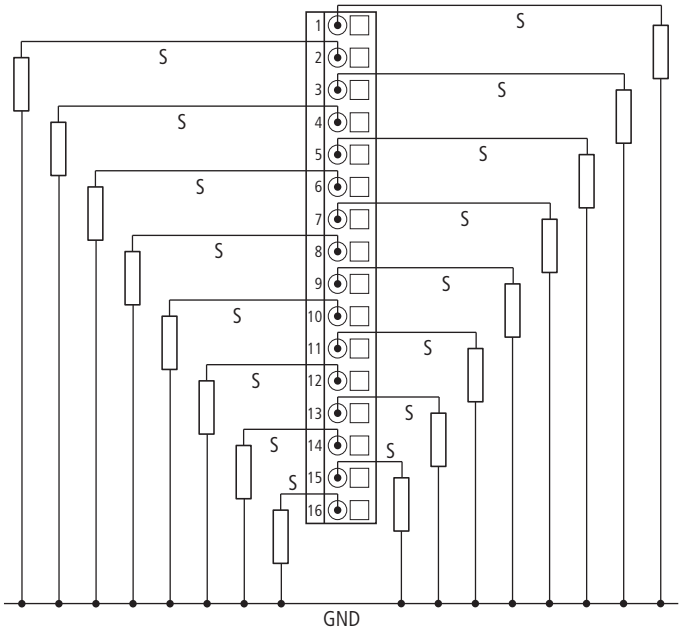
XNE-8DO-24VDC-0.5A-P



XN-B6…-SBCSBC for XN-32DO-24VDC-0.5A-P

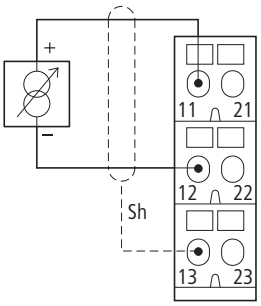


XNE-16DO-24VDC-0.5A-P

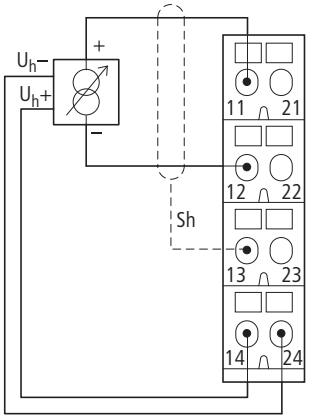


Analog input modules

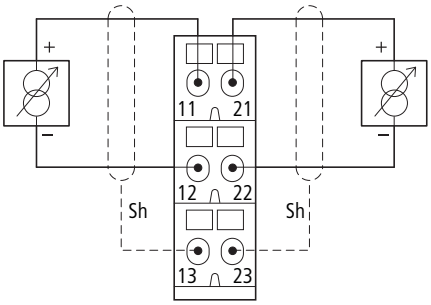
XN-S3…-SBB for XN-1AI-I(0/4...20MA)
XN-S3…-SBB for XN-1AI-U(-10/0...+10VDC)
Analog sensor/transmitter, without transmitter supply



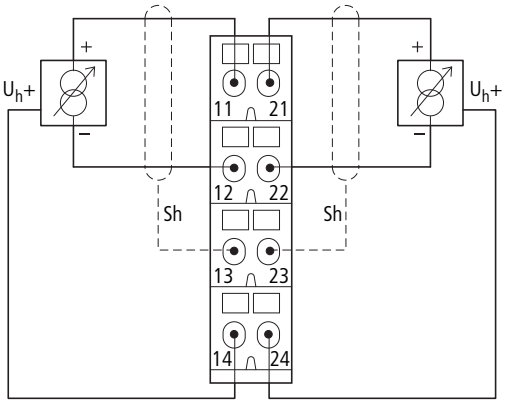
XN-S4…-SBBS for XN-1AI-I(0/4...20MA)
XN-S4…-SBBS for XN-1AI-U(-10/0...+10VDC)
Analog transmitter with non-isolated transmitter supply



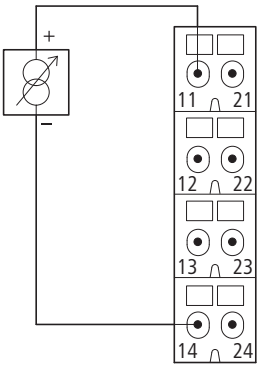
XN-S3…-SBB for XN-2AI-I(0/4...20MA), XN-2AI-U(-10/0...+10VDC)
Analog sensor/transmitter, without transmitter supply



XN-S4…-SBBS for XN-2AI-I(0/4...20MA), XN-2AI-U(-10/0...+10VDC),
Analog transmitter with non-isolated transmitter supply

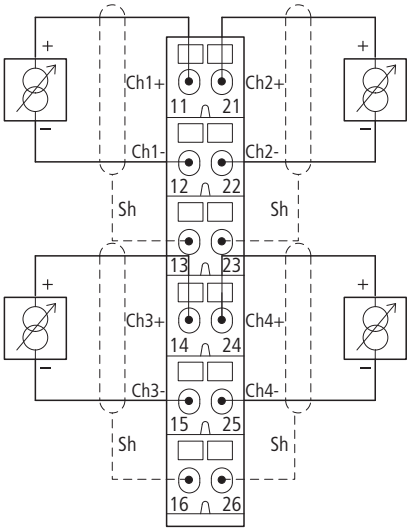


XN-S4...-SBBS for XN-2AI-I(0/4...20MA)
Two-conductor connection without external transmitter supply

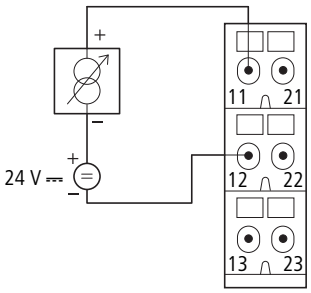


Analog input modules

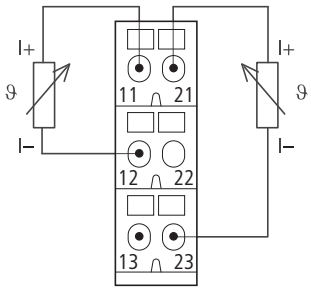
XN-S6…-SBCSBC for XN-4AI-U/I
Analog sensor/transmitter, without transmitter supply



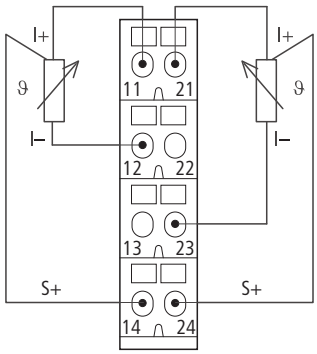
XN-S3...-SSB for XN-AI-U/I
2-conductor connection without external transmitter supply



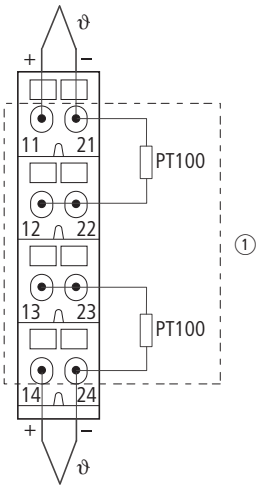
XN-S3…-SBB for XN-2AI-Pt/Ni-2/3
2-conductor connection



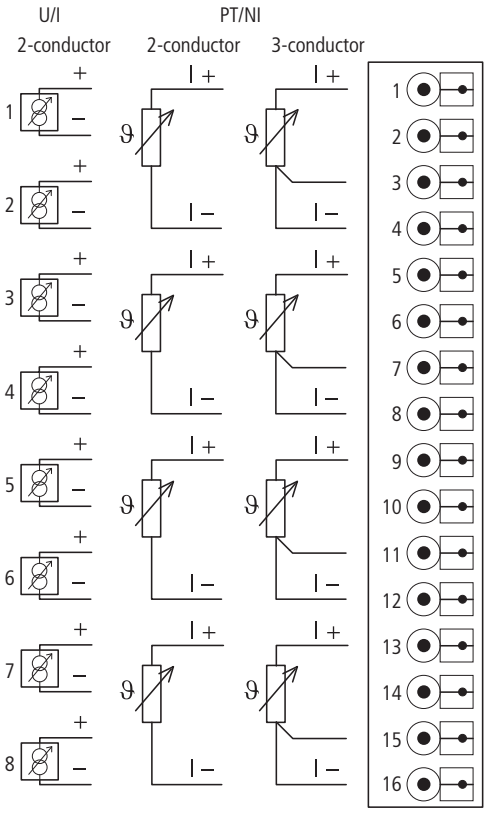
XN-S4…-SBBS for XN-2AI-Pt/Ni-2/3
3-conductor connection



XN-S4…-SBBS-CJ for XN-2AI-THERMO-PI



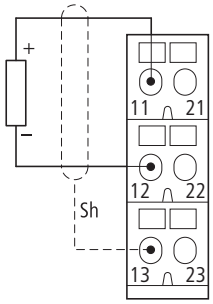
XNE-8AI-U/I-4Pt/Ni



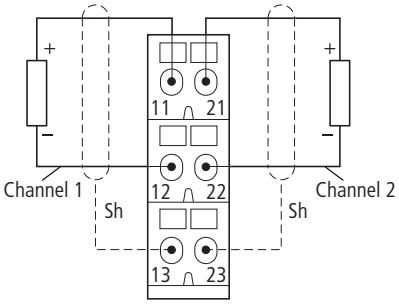
① Cold-junction compensation in base module

Analog output modules

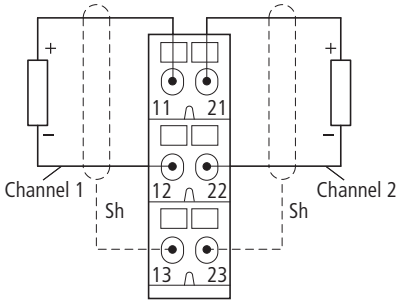
XN-S3...-SSB for XN-1AO-I(0/4...20MA)



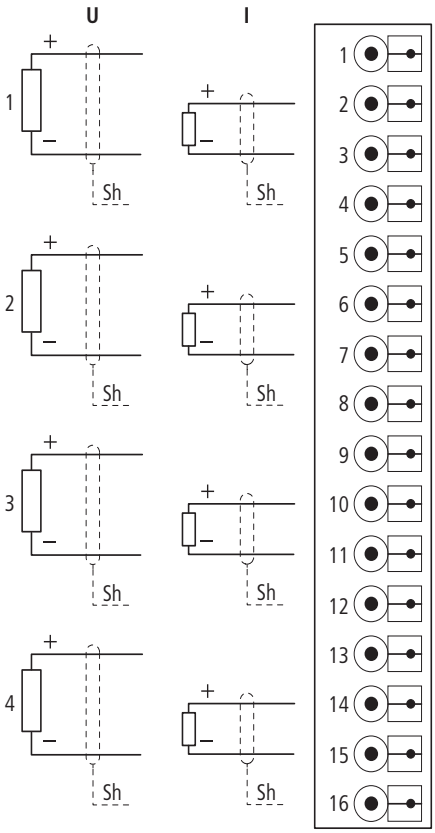
XN-S3...-SBB for XN-2AO-I(0/4...20MA)



XN-S3...-SBB for XN-2AO-U(-10/0...+10VDC)

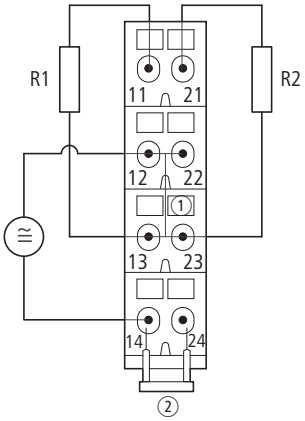


XNE-4AO-U/I

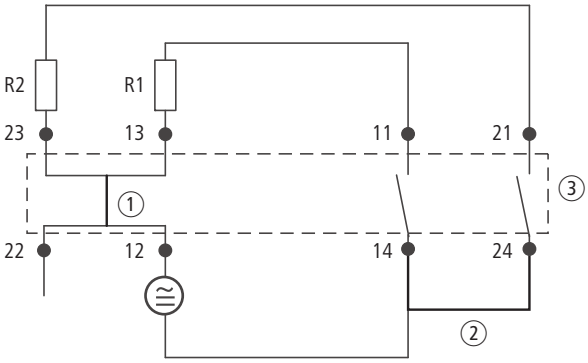


Relay modules

XN-S4x...-SBBS with externally applied supply and common potential link for XN-2DO-R-NC

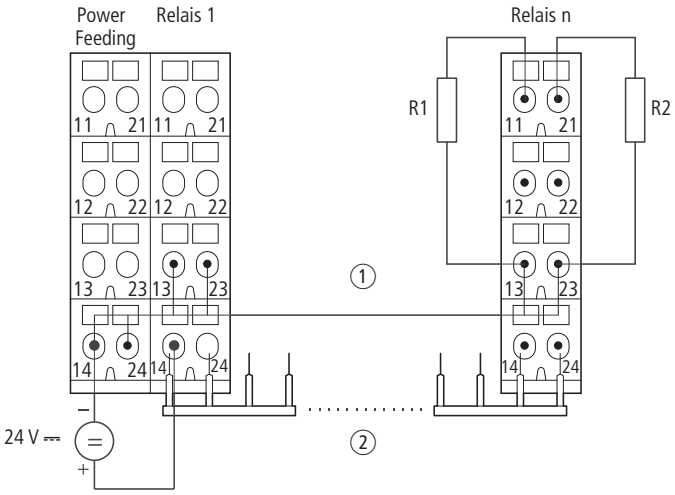


Module circuit XN-S4x...SBBS for XN-2DO-R-NC



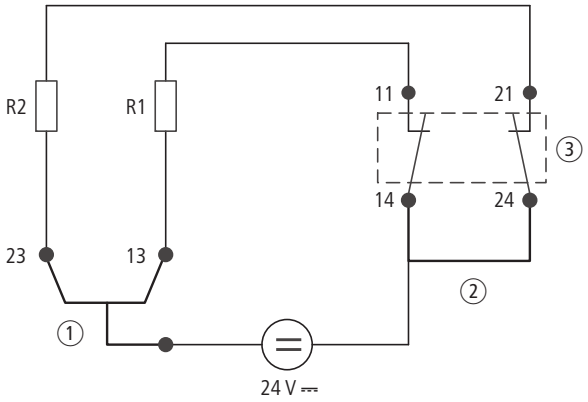
1 Linked in the electronics
2 Cross-link via QVR in the base module
3 Electronics module

XN-S4x...-SBCS supply via C-rail and common potential link for XN-2DO-R-NC



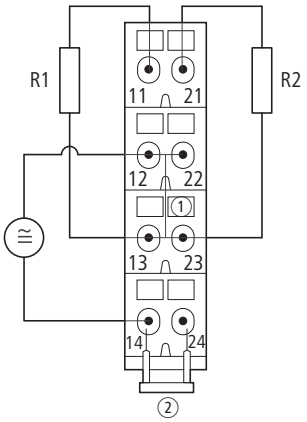
1 Supply via C-rail
2 Max. 8 relay modules

Module circuit XN-S4x...-SBCS for XN-2DO-R-NC

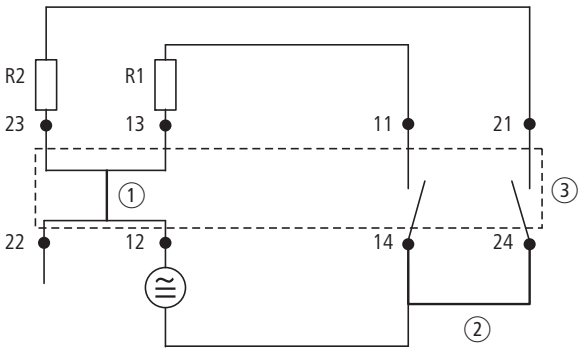


1 Linked in the electronics
2 Cross-link via QVR in the base module
3 Electronics module

XN-S4x...-SBBS with externally applied supply and common potential link for XN-2DO-R-NO



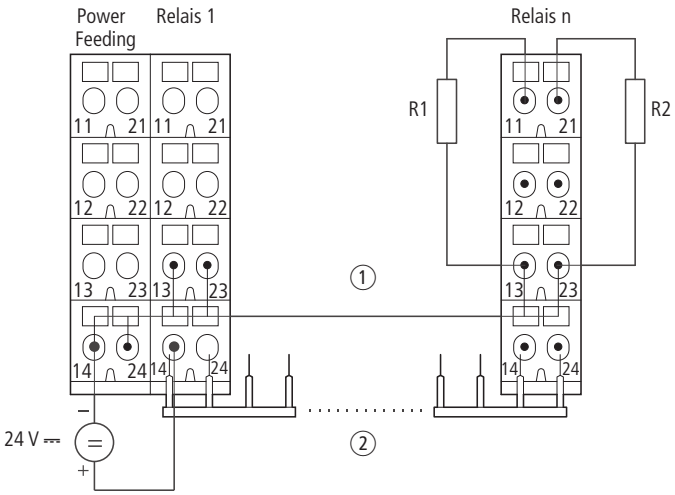
Module circuit XN-S4x...-SBBS for XN-2DO-R-NO



1 Linked in the electronics
2 Cross-link via QVR in the base module
3 Electronics module

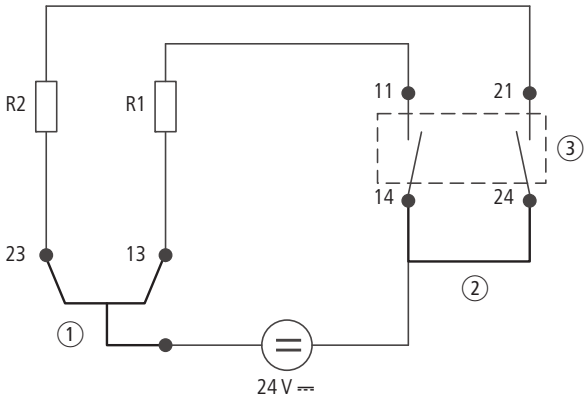
Relay modules

XN-S4x...-SBCS supply via C-rail and common potential link for XN-2DO-R-NO



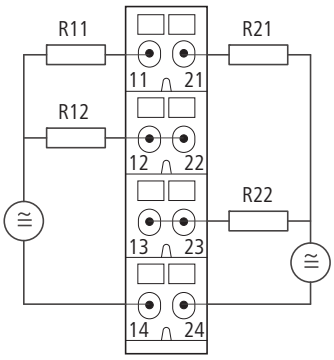
① Supply via C-rail
② Max. 8 relay modules

Module circuit XN-S4x...SBCS for XN-2DO-R-NO

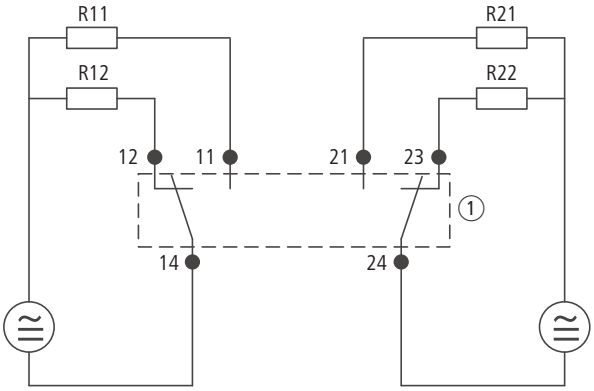


① Top-hat rail
② Cross-link via QVR in the base module
③ Electronics module

XN-S4x...-SBBS for XN-2DO-R-CO



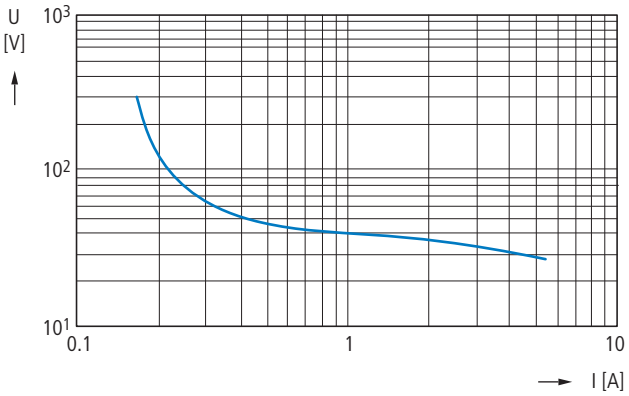
Module circuit XN-S4x...-SBBS for XN-2DO-R-CO



① Electronics module

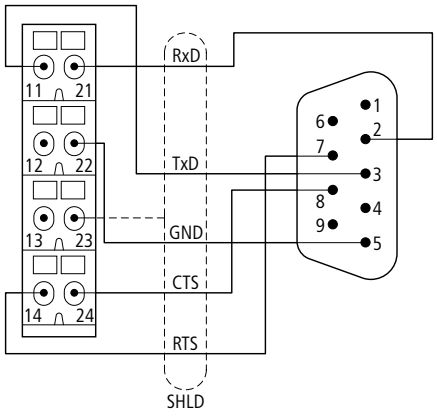
Definition
At 1000 operations, no arc with a duration > 10 ms must occur.

Load limit curve

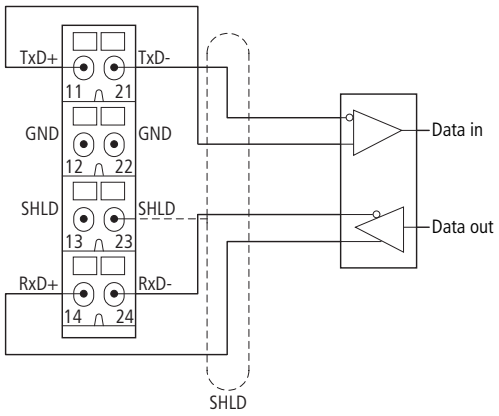


Serial interfaces

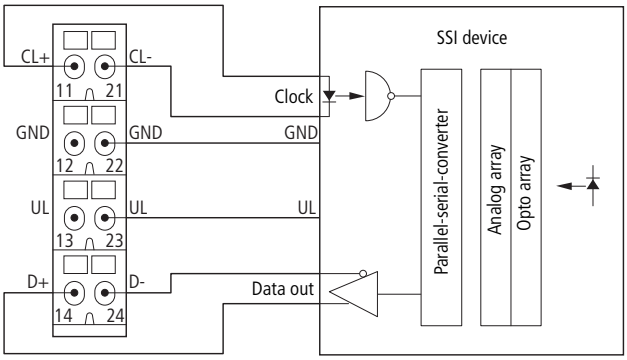
XN-S4x...-SBBS for XN-1RS232 and D-Sub plug



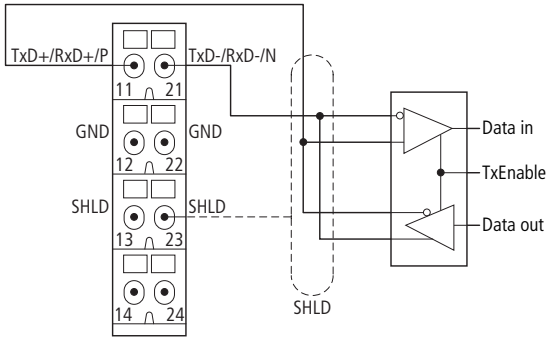
XN-S4x...SBBS for XN-1RS485/422 in RS422 mode



XN-S4x...-SBBS for XN-1SSI on an SSI rotary encoder

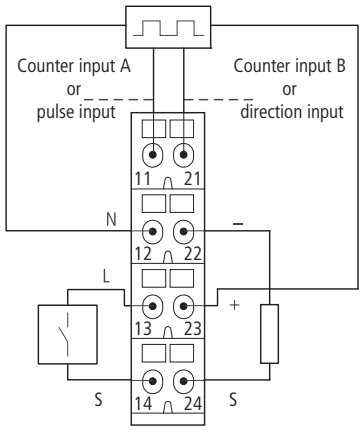


XN-S4...-SBBS for XN-1RS485/422 in RS485 mode

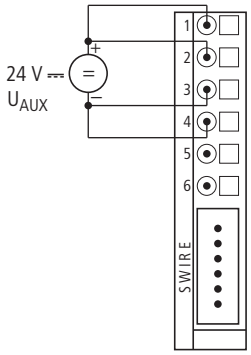


Technology modules / counter

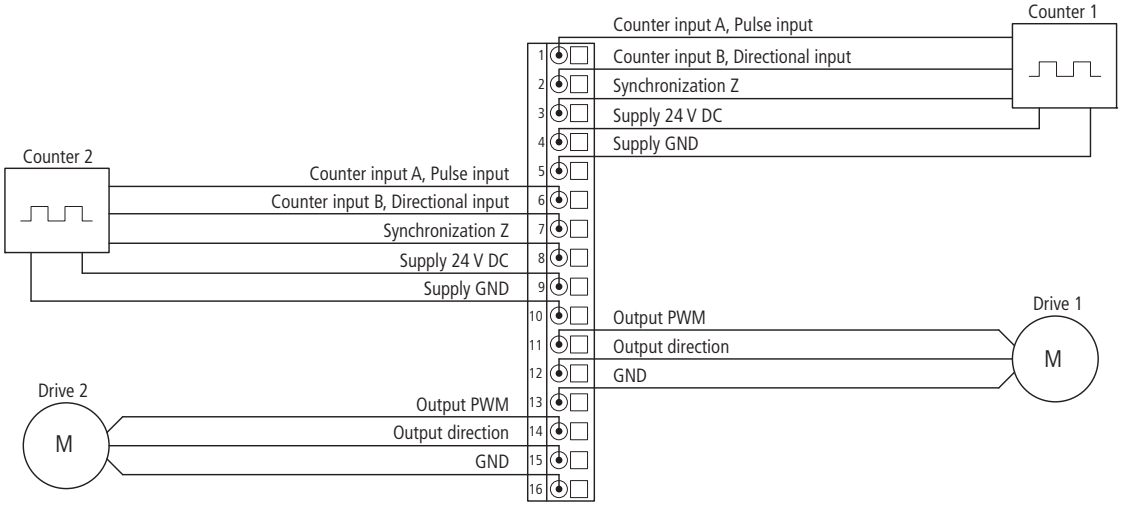
XN-S4...-SBBS for XN-1CNT-24VDC



XNE-1SWIRE



XNE-2CNT-2PWM



Technical data

General		
Standards		EN 61000-6-2, EN 61000-6-4, EN 61131-2
Supported fieldbus systems		PROFIBUS-DP, CANopen, DeviceNet, Ethernet (depending on gateway)
Potential isolation		Yes, through optocoupler
Ambient temperature	°C	0 - 55
Ambient temperature, storage	°C	-25 - +85
Relative humidity	%	5 – 95 (indoor), Level RH-2, non-condensing (for storage at 45°C)
Harmful gases		
SO_2	ppm	10 (rel. humidity < 75%, non-condensing)
H_2S	ppm	1.0 (rel. humidity < 75%, non-condensing)
Vibration resistance, operating conditions		According to IEC 60068-2-6
Mechanical shock resistance		According to IEC 60068-2-27
Repetitive shock resistance		According to IEC 60068-2-29
Drop and free fall		According to IEC 60068-2-31, free fall to IEC 60068-2-32
Protection type		IP20
Electromagnetic compatibility (EMC)		
ESD		EN 61000-4-2
Electromagnetic fields		EN 61000-4-3
Burst		EN 61000-4-4
Surge		EN 61000-4-5
HF, asymmetric		EN 61000-4-6
Radiated interference (RFI)		EN 55016-2-3
Voltage fluctuations		EN 61131-2
Type test		To EN 61131-2
Approvals		CE, cUL (may be in preparation)

		Gateways XN, basic modules	**Gateways XNE, electronics modules XNE**
Terminals			
Dimensional data		To VDE 0611 Part 1/8.92 / IEC/EN 60947-7-1	To VDE 0611 Part 1/8.92 / IEC/EN 60947-7-1
Connection from above		Spring-loaded/screw terminals	Push-in spring-cage terminals
Cable stripped length	mm	8	8
Max. terminal capacity	mm^2	0.5 - 2.5	0.14 - 1.5
Connectable conductors			
"e" solid H07V-U	mm^2	0.5 - 2.5	0.25 - 1.5
"f" flexible H 07V-K	mm^2	0.5 - 1.5	0.25 - 1.5
"f" with ferrule without plastic collar to DIN 46228-1 (ferrules gas-tight)	mm^2	0.5 - 1.5	0.25 - 1.5
"f" with ferrule with plastic collar to DIN 46228-1 (ferrules gas-tight)	mm^2	0.5 - 1.5	0.25 - 0.75
Gage pin IEC/EN 60947-1		A1	A1

			XNE-GWBR-PBDP	XNE-GWBR-CANOPEN	XNE-GWBR-2ETH-IP
Gateways XNE					
Fieldbus			PROFIBUS-DP	CANopen	Ethernet
Protocol			PROFIBUS-DPV0 and PROFIBUS-DPV1	CANopen	EtherNet-IP
Maximum number of stations			48 modules (XN, XNE) of slice design or max. length of station: 1 m	62 modules (XN, XNE) of slice design or max. length of station: 1 m	74 modules (XN, XNE) of slice design or max. length of station: 1 m
System supply	U_{SYS}	V DC	24 V DC/5 V DC	24 V DC/5 V DC	24 V DC/5 V DC
Permissible range, 5 V DC	U_{SYS}	V DC	4.7 - 5.3	4.7 - 5.3	4.7 - 5.3
Permissible range, 24 V DC	U_{SYS}	V DC	18 - 30	18 - 30	18 - 30
Field voltage	U_L	V DC	24	24	24
Permissible range	U_L	V DC	18 - 30	18 - 30	18 - 30
Ripple		%	< 5 (to EN 61131-2)	< 5 (to EN 61131-2)	< 5 (to EN 61131-2)
Servicing interface			PS/2 socket	PS/2 socket	Mini USB
Fieldbus terminals			Push-in spring-cage terminals	Push-in spring-cage terminals	2x RJ45 socket
Transfer rate		kBit/s	9.6 - 12000	20, 50, 125, 250, 500, 800, 1000	10000, 100000
Data transfer rate setting			Automatic	Through DIP switch or automatically	Automatic
Address assignment			Through DIP switch	Through DIP switch	Through DIP switch, BootP, DHCP or PGM
Fieldbus termination			Through DIP switch	Through DIP switch	-
Number of parameter bytes			2	-	-
Number of diagnosis bytes			2	-	-
Address range			1 - 125 decimal	1 - 63 decimal	1 - 254 decimal

			XN-GWBR-PBDP	XN-GWBR-CANOPEN	XN-GWBR-DNET	XN-GWBR-MODBUS-TCP	XN-PLC-CANOPEN
Gateways XN with built-in supply module							
Fieldbus			PROFIBUS-DP	CANopen	DeviceNet	Ethernet	CANopen
Protocol			PROFIBUS-DPV0	CANopen	DeviceNet	Modbus-TCP	CANopen
Maximum number of stations			74 modules (XN, XNE) of slice design or max. length of station: 1 m	74 modules (XN, XNE) of slice design or max. length of station: 1 m	74 modules (XN) of slice design or max. length of station: 1 m	74 modules (XN, XNE) of slice design or max. length of station: 1 m	74 modules (XN, XNE with limitations) of slice design or max. length of station: 1 m
System supply	U_{SYS}	V DC	24 V DC/5 V DC	24 V DC/5 V DC	24 V DC/5 V DC	24 V DC/5 V DC	24 V DC/5 V DC
Permissible range, 5 V DC	U_{SYS}	V DC	4.7 - 5.3	4.7 - 5.3	4.7 - 5.3	4.7 - 5.3	4.7 - 5.3
Permissible range, 24 V DC	U_{SYS}	V DC	18 - 30	18 - 30	18 - 30	18 - 30	18 - 30
Field voltage	U_L		24	24	24	24	24
Permissible range	U_L	V DC	18 - 30	18 - 30	18 - 30	18 - 30	18 - 30
Ripple		%	< 5 (to EN 61131-2)				
Servicing interface			PS/2 socket	PS/2 socket	PS/2 socket	PS/2 socket	PS/2 socket
Fieldbus terminals			1x D-sub 9-pin socket	Open style connector	Open style connector	RJ45 bus	Open style connector
Transfer rate		kBit/s	9.6 - 12000	10, 20, 50, 125, 250, 500, 800, 1000	125, 250, 500	10000, 100000	10, 20, 50, 125, 250, 500, 800, 1000
Data transfer rate setting				Through DIP switch	Through DIP switch	Automatic	Software
Address assignment			2 decimal rotary coding switches	2 decimal rotary coding switches	2 decimal rotary coding switches	Decimal rotary coding switch, BootP, DHCP or I/Oassistant	Software
Fieldbus termination			External	External	External		External
Number of parameter bytes			5				
Number of diagnosis bytes			3				
Address range			1 - 99 decimal	1 - 99 decimal	1 - 63 decimal	1 - 254 decimal	1 - 127 decimal
Program data		kByte	-	-	-	-	128
Program code		kByte	-	-	-	-	128
Cycle time for 1 k of instructions (bits, bytes)		ms	-	-	-	-	0.5
Real-time clock			-	-	-	-	Yes

			XN-GW-PBDP-1.5MB	XN-GW-PBDP-12MB	XN-GW-CANOPEN	XN-GW-DNET
XN gateways without built-in supply module						
Fieldbus			PROFIBUS-DP	PROFIBUS-DP	CANopen	DeviceNet
Protocol			PROFIBUS-DPV0	PROFIBUS-DPV0	CANopen	DeviceNet
Maximum number of stations			74 modules (XN) of slice design or max. length of station: 1 m	74 modules (XN) of slice design or max. length of station: 1 m	74 modules (XN) of slice design or max. length of station: 1 m	74 modules (XN) of slice design or max. length of station: 1 m
Operating voltage		V DC	5 (from bus refreshing module)	5 (from bus refreshing module)	5 (from bus refreshing module)	5 (from bus refreshing module)
Permissible range		V DC	4.7 - 5.3	4.7 - 5.3	4.7 - 5.3	4.7 - 5.3
Ripple		%	< 5 (to EN 61131-2)	< 5 (to EN 61131-2)	< 5 (to EN 61131-2)	< 5 (to EN 61131-2)
Rated current drawn from module bus	I_{MB}	mA	≦ 430	≦ 430	≦ 350	≦ 250
Servicing interface			PS/2 socket	PS/2 socket	PS/2 socket	PS/2 socket
Fieldbus terminals			2 x D-sub 9-pin sockets; 2 x spring-loaded terminal strips for direct wiring	1x D-sub 9-pin socket	1 x D-sub 9-pin socket; 1 x D-sub 9-pin plug; 2 x spring-loaded terminal strips for direct wiring, 5 -pin	Open style connector
Transfer rate		kBit/s	9.6 - 1500	9.6 - 12000	10, 20, 50, 125, 250, 500, 800, 1000	125, 250, 500
Data transfer rate setting			-	-	Through DIP switch	Through DIP switch
Address assignment			Through two hex rotary coding switches	Through two hex rotary coding switches	Through two hex rotary coding switches	Through two decimal rotary coding switches
Fieldbus termination			Through D-sub plug	Through D-sub plug	Through D-sub plug	Through DIP switch
Number of parameter bytes			5	5	-	-
Number of diagnosis bytes			3	3	-	-
Address range			1 - 125 decimal	1 - 125 decimal	1 - 127 decimal	0 - 63 decimal

			XN-BR-24VDC-D	XN-PF-24VDC-D	XN-PF-120/230VAC-D
Supply modules					
Operating voltage			24 V DC	24 V DC	120/230 V AC
System supply	U_{SYS}	V DC	24	-	-
Permissible range, 24 V DC	U_{SYS}	V DC	18 - 30[1)]	-	-
Permissible range, 5 V DC	U_{MB} (built into system)	V DC	4.7 - 5.3	-	-
Field voltage	U_L		24 V DC	24 V DC	120/230 V AC
Permissible range	U_L		18 - 30 V DC	18 - 30 V DC[2)]	102 - 132 V AC (120 V AC) 195.5 - 253 V AC (230 V AC) [3)]
Rated current drawn from module bus	I_{MB}	mA	-	≦ 28	≦ 25
Insulation test	U_i	V AC	500	500	1500
Ripple		%	< 5 (to EN 61131-2)	< 5 (to EN 61131-2)	< 5 (to EN 61131-2)
Maximum operating current	I_L	A	10	10	10
Maximum system supply current	I_{MB}	A	1.5	-	-
Number of diagnostic bits			4	4	4
Base module without gateway power supply					
Without C connection			XN-P3...-SBB XN-P3...-SBB-B	XN-P3...-SBB	XN-P3...-SBB
With C connection			XN-P4...-SBBC XN-P4...-SBBC-B	XN-P4...-SBBC	XN-P4...-SBBC

Notes

1) Permissible range for system supply:
for U_{SYS} = 24 V DC: 18 to 30 V DC (to EN 61131-2)

2) Permissible range for field voltage U_L: to EN 61131-2 (18 to 30 V DC)

3) Permissible range for rated voltage and field voltage U_L: to EN 61131-2

			XN-2DI-24VDC-P	XN-2DI-24VDC-N	XN-2DI-120/230VAC
Digital input modules					
Channels		Number	2	2	2
Rated voltage at supply terminal	U_L		24 V DC	24 V DC	120/230 V AC
Rated current drawn from supply terminal[1), 2)]	I_L	mA	≦ 20	≦ 20	≦ 20
Rated current drawn from module bus[2)]	I_{MB}	mA	≦ 28	≦ 28	≦ 28
Insulation test	U_i	V AC	500	500	1500
Heat dissipation		W	0.7	0.7	1
Input voltage					
Input voltage, rated value			24 V DC	24 V DC	120/230 V AC
Low level			-30 V - +5 V	30 V - (U_L - 11 V)	0 - 20 V AC
High level			11 - 30 V	0 - 5 V	79 V AC - 265 V AC[3)]
Frequency range		Hz	-	-	48 - 63
Input current					
Low level/active level			0 mA - 1.5 mA	0 mA - 1.7 mA	0 mA - 1 mA
High level/active level			2 mA - 10 mA	1.8 mA - 10 mA	3 mA - 10 mA
Input delay					
$t_{rising\ edge}$		µs	< 200	< 200	< 20000
$t_{falling\ edge}$		µs	< 200	< 200	< 20000
Basic modules					
Without C connection			XN-S3...-SBB 2-conductor proximity switches (Bero®) can be connected, with a permissible quiescent current of up 1.5 mA.	XN-S3...-SBB 2-conductor proximity switches (Bero®) can be connected, with a permissible quiescent current of up 1.5 mA.	XN-S3...-SBB
With C connection			XN-S4...-SBBC	XN-S4...-SBBC	XN-S4...-SBBC

Notes

1) The supply terminal (U_L) provides power for the module electronics and for the sensors at the inputs. The total current required for each module consists of the sum of all partial currents.

2) Part of the XI/ON module's electronics is supplied with module bus voltage (5 V DC), the other part through the supply terminal (U_L).

3) Max. permissible capacity: 141 nF at 79 V AC/50 Hz; 23 nF at 265 V AC/50 Hz

XN-4DI-24VDC-P	XN-4DI-24VDC-N	XN-16DI-24VDC-P	XN-32DI-24VDC-P	XNE-8DI-24VDC-P	XNE-16DI-24VDC-P
4	4	16	32	8	16
24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
≦ 40	≦ 40	≦ 40	≦ 30	≦ 1.5	≦ 3
≦ 29	≦ 28	≦ 45	≦ 30	≦ 15	≦ 15
500	500	500	500	500	500
1	1	2.5	4.2	< 1.5	< 2.5
24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
-30 V - +5 V	30 V - (U_L - 11 V)	-30 V - +5 V	-30 V - +5 V	-U_L - +5 V	-U_L - +5 V
15 V - 30 V	0 - 5 V	15 V - 30 V	15 V - 30 V	11 V - U_L	11 V -U_L
0 mA - 1.5 mA	0 mA - 1.2 mA	0 mA - 1.5 mA	0 mA - 1.5 mA	-1 mA - 1.5 mA	-1 mA - 1.5 mA
2 mA - 10 mA	1.3 mA - 6 mA	2 mA - 10 mA	2 mA - 10 mA	2 mA - 5 mA	2 mA - 5 mA
< 200	< 200	< 200	< 200	< 100	< 150
< 200	< 200	< 200	< 200	< 200	< 300
XN-S4...-SBBS XN-S6...-SBBSBB	XN-S4...-SBBS XN-S6...-SBBSBB	XN-B3...-SBB	XN-B6...-SBBSBB	Already built in	Already built in
		XN-B4...-SBBC			

			XN-2DO-24VDC-0.5A-P	XN-2DO-24VDC-0.5A-N	XN-2DO-120/230VAC-0.5A
Digital output modules					
Channels		Number	2	2	2
Rated voltage at supply terminal	U_L		24 V DC	24 V DC	120/230 V AC (45 - 65 Hz)
Rated current drawn from supply terminal (for 0 mA load current)[1]	I_L	mA	≦ 20	≦ 20	
Rated current drawn from module bus[2]	I_{MB}	mA	≦ 32	≦ 32	≦ 35
Insulation test	U_i	V AC	500	500	1500
Heat dissipation		W	Normally 1	Normally 1	Normally 1
Output voltage					
High level			> U_L - 1 V DC	< GND_L + 1 V DC	> U_L - 2 V AC, (zero-point switching triac)
Output current		A			
High level (rated)		A	0.5	0.5	0.5[3]
High level (permissible range)		A	< 0.6	< 0.6	0.02 - 0.5
Low level		mA			< 1.5
Back-up fuse					500 mA FF
Surge current	I_S	A			8 (1 period at 60 Hz)
Number of parallel-switchable outputs	max.				
Total module current		A	1	1	1
Delay for signal changeover, resistive load					
From Low to High level		µs	< 100	< 100	< T/2 + 1 ms
From High to Low level		µs	< 100	< 100	< T/2 + 1 ms
Load resistance range			> 48 Ω		At 120 V AC: 240 Ω - 6 kΩ At 230 V AC: 460 Ω - 11.5 kΩ
Utilization factor	%	g	100	100	100 (observe derating)
The following can be connected:			Resistive loads Inductive loads Lamp loads	Resistive loads Inductive loads Lamp loads	Resistive loads Inductive loads Lamp loads
Resistive load		Ω	> 48	> 48	
Inductive load		H	< 1.2	< 1.2	
Lamp load	R_{LL}	W	< 3	< 12	
Switching frequency					
For resistive load	f	Hz	< 5000 (R_{LO} < 1 kΩ)	< 100 (R_{LO} < 1 kΩ)	
For inductive load		Hz	< 2	< 2	
For lamps		Hz	< 10	< 10	
Number of diagnostic bits			2	2	
Diagnostics			Yes	Yes	No
Outputs to EN 61131-1			Protected	Protected	
Retriggering after elimination of short circuit	I_i		Self-acting	Self-acting	
Basic modules					
With C connection			XN-S3...-SBC XN-S4...-SBCS	XN-S3...-SBC XN-S4...-SBCS	XN-S3...-SBC XN-S4...-SBCS

Notes

1) The supply terminal (U_L) provides power for the module electronics and for the consumers at the outputs. The total current required for each module consists of the sum of all partial currents.

2) Part of the XI/ON module's electronics is supplied with module bus voltage (5 V DC), the other part through the supply terminal (U_L).

3) To increase the maximum output current to up to 1 A, two outputs can be connected in parallel.

XN-2DO-24VDC-2A-P	XN-4DO-24VDC-0.5A-P	XN-16DO-24VDC-0.5A-P	XN-32DO-24VDC-0.5A-P	XNE-8DO-24VDC-0.5A-P	XNE-16DO-24VDC-0.5A-P
2	4	16	32	8	16
24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
≦ 50	≦ 25	≦ 30	≦ 50	≦ 3 mA (all outputs OFF)	≦ 3 mA (all outputs OFF)
≦ 33	≦ 30	≦ 120	≦ 30	≦ 15 mA	≦ 25 mA
500	500	500	500	500	500
Normally 1	Normally 1	Normally 4	Normally 5	Normally 1.5	Normally 2.5
> U_L - 1 V DC	> U_L - 1 V DC	> U_L - 1 V DC	> U_L - 1 V DC	> U_L - 1 V DC	> U_L - 1 V DC
2	0.5	0.5	0.5	0.5[3)]	0.5[3)]
< 2.4	< 0.6	< 0.6	< 1.0	< 1.0	< 1.0
	4		2		
4	2	8	10		
< 100	< 250	< 100	< 300	< 300	< 300
< 100	< 250	< 100	< 300	< 300	< 300
< 12 Ω	> 48 Ω	> 48 Ω	> 48 Ω		
100	100	100	See total module current	100	50%, max. 4 A
Resistive loads Inductive loads Lamp loads	Resistive loads Inductive loads Lamp loads	Resistive loads Inductive loads Lamp loads	Resistive loads Inductive loads Lamp loads	Resistive loads Inductive loads Lamp loads	Resistive loads Inductive loads Lamp loads
> 12	> 48	> 48	> 48	> 48	> 48
< 1.2	< 1.2	< 1.2	< 1.2	As for DC13 to IEC 60947-5-1	As for DC13 to IEC 60947-5-1
< 6	< 6	< 3	< 6	< 6	< 6
< 5000 (R_{LO} < 1 kΩ)	< 1000 (R_{LO} < 1 kΩ)	< 100 (R_{LO} < 1 kΩ)	< 100(R_{LO} < 1 kΩ)	< 100	< 100
< 2	< 2			As for DC13 to IEC 60947-5-1	As for DC13 to IEC 60947-5-1
< 10	< 10			< 10	< 10
2	1	4	8		
Yes	Yes	Yes	Yes		
Protected	Short-circuit proof	Short-circuit proof	Short-circuit proof	Short-circuit proof	Short-circuit proof
Self-acting	Self-acting	Self-acting	Self-acting	Self-acting	Self-acting
				Already built in	Already built in
XN-S3...-SBC XN-S4...-SBCS	XN-S4...-SBCS XN-S4...-SBCSBC	XN-B3...-SBC	XN-B6...-SBCSBC		

				XN-1AI-I(0/4...20MA)	XN-2AI-I(0/4...20MA)	XN-1AI-U(-10/0...+10VDC)
Analog input modules						
Measured variables				Current	Current	Voltage
Channels			Number	1	2	1
Rated voltage at supply terminal		U_L		24 V DC	24 V DC	24 V DC
Rated current drawn from supply terminal[1), 2)]		I_L	mA	≦ 50	≦ 12	≦ 50
Rated current drawn from module bus[2)]		I_{MB}	mA	≦ 41	≦ 35	≦ 41
Heat dissipation			W	< 1	< 1	< 1
Sensor/transmitter supply				Bridged with U_L and GND_L of incoming unit; not protected	≦ 250 mA; bridged with U_L and GND_L of incoming unit; not protected	Bridged with U_L and GND_L of incoming unit; not protected
Voltage measurement						
Measurement ranges				-	-	-10 - 10 V DC/0 - 10 V DC
Value representation				-	-	Standard, 16 bit/12 bit left-aligned
The following can be connected:				-	-	2-/3-/4-conductor + shield
Maximum input voltage		$U_{max.}$	V DC	-	-	35
Input resistance		R_L	kΩ	-	-	≧ 98.5 kΩ
Limiting frequency		f_G	Hz	-	-	200
Basic error limit at 23 °C			%	-	-	< 0.2
Temperature coefficient				-	-	≦ 300 ppm/°C of full-scale value
Current measurement						
Measurement ranges			mA	0 - 20 mA/4 - 20 mA	0 - 20 mA/4 - 20 mA	-
Value representation				Standard, 16 bit/12 bit left-aligned	Standard, 16 bit/12 bit left-aligned	-
The following can be connected:				2-/3-/4-conductor + shield	2-/3-conductor + shield	-
Maximum input current		$I_{max.}$	mA	50	50	-
Input resistance		R_L	Ω	< 125 Ω	< 125 Ω	-
Limiting frequency		f_G	Hz	200	50	-
Basic error limit at 23 °C			%	< 0.2	< 0.2	-
Temperature coefficient				≦ 300 ppm/°C of full-scale value		-
Temperature measurement						
Connectable sensors				-	-	-
Measurement ranges				-	-	-
Value representation				-	-	-
The following can be connected:				-	-	-
Measuring current		I_{mess}		-	-	-
Destruction limit		$U_{max.}$	V DC	-	-	-
Basic error limit at 23 °C			%	-	-	-
Temperature coefficient				-	-	-
R (resistance measurement)						
Measurement ranges				-	-	-
Value representation				-	-	-
The following can be connected:				-	-	-
Destruction limit		$U_{max.}$	V DC	-	-	-
Limiting frequency		f_G	Hz	-	-	-
Basic error limit at 23 °C			%	-	-	-
Temperature coefficient				-	-	-
Basic modules						
Without C connection				XN-S3...-SBB	XN-S3...-SBB	XN-S3...-SBB
Without C connection, for sensor supply				XN-S4...-SBBS	XN-S4...-SBBS	XN-S4...-SBBS

Notes

1) The supply terminal (U_L) provides power for the module electronics and for the analog transmitters at the inputs. The total current required for each module consists of the sum of all partial currents.

2) Part of the XI/ON module's electronics is supplied with module bus voltage (5 V DC), the other part through the supply terminal (U_L).

XN-2AI-U(-10/0...+10VDC)	XN-4AI-U/I	XN-2AI-THERMO-PI	XN-2AI-Pt/Ni-2/3	XNE-8AI-U/I-4Pt/Ni
Voltage	Voltage, current	Temperature (thermo-couples)	Temperature Pt, Ni resistance R	Voltage, current, temperature Pt, Ni resistance R
2	4	2	2	8 (U/I)/4 (Pt/Ni/R)
24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
≦ 12	≦ 20	≦ 30	≦ 30	Normally 35
≦ 35	≦ 50	≦ 45	≦ 45	≦ 30
< 1	< 1	< 1	< 1	< 1.5
≦ 250 mA; bridged with U_L and GND_L of incoming unit; not protected	-	-	-	-
-10 - 10 V DC/0 - 10 V DC	-10 - 10 V DC/0 - 10 V DC	-50 - 50 mV, -100 - 100 mV -500 - 500 mV, -1000 - 1000 mV	-	-10 - 10 VDC/0 - 10 V DC
Standard, 16 bit/12 bit left-aligned	Standard, 16 bit/12 bit left-aligned	Standard, 16 bit/12 bit left-aligned	-	Standard, 16-bit/12-bit (left-aligned) Extended range, 16-bit/12-bit (left-aligned) PA (NE43), 16-bit/12-bit (left-aligned)
2-/3-conductor + shield	2-conductor + shield	2-conductor	-	2-conductor
35	30	10	-	±20
≧ 98.5 kΩ	≧ 98.5 kΩ	-	-	≧ 200 kΩ
50	20	-	-	1.5
< 0.2	< 0.3	< 0.2 (normally)	-	< 0.2
≦ 150 ppm/°C of full-scale value	≦ 300 ppm/°C of full-scale value	≦ 300 ppm/°C of full-scale value	-	≦ 200 ppm/°C of full-scale value
-	0 - 20 mA/4 - 20 mA	-	-	0 - 20 mA/4 - 20 mA
-	Standard, 16 bit/ 12 bit left-aligned	-	-	Standard, 16-bit/12-bit (left-aligned) Extended range, 16-bit/12-bit (left-aligned) PA (NE43), 16-bit/12-bit (left-aligned)
-	2-conductor + shield	-	-	2-conductor
-	50	-	-	40 (Max. input voltage: < 17 V)
-	< 62 Ω	-	-	< 52 Ω
-	20	-	-	1.5
-	< 0.3	-	-	< 0.2
-	≦ 300 ppm/°C of full-scale value	-	-	≦ 200 ppm/°C of full-scale value
-	-	Thermocouple type B, E, J, K, N, R, S, T to IEC 584, Class 1, 2, 3	Pt100 RTD, Pt200, Pt500, Pt100 RTD0 (EN 60751) Ni100, Ni1000 (DIN 43760)	Pt100 RTD, Pt200, Pt500, Pt100 RTD0 (all: EN 60751) Ni100, Ni1000 (DIN 43760), Ni1000TK5000
-	-	Type B: 100 - 1820 °C Type E: -270 - 1000 °C Type J: -210 - 1200 °C Type K: -270 - 1370 °C Type N: -270 - 1300 °C Type R: -50 - 1760 °C Type S: -50 - 1540 °C Type T: -270 - 400 °C	Platinum RTDs: -200 – 850 °C/-200 – 150 °C Nickel RTDs: -60 – 250 °C/-60 – 150 °C	Platinum RTDs: -200 – 850 °C/-200 – 150 °C Nickel RTDs: -60 – 250 °C/-60 – 150 °C
-	-	Standard, 16 bit/12 bit left-aligned		
-	-	2-conductor (cold-junction compensation in base module)	2-conductor/3-conductor	2-conductor/3-conductor
-	-		< 1 mA	< 0.5 mA
-	-		> 30	> 30
-	-	< 0.2 (type T, -200 - 0 °C: 0.6%)	< 0.2	Pt100 RTD, Ni100: 0.35%, Pt200, Pt500, Pt100 RTD0, Ni1000, Ni1000TK5000: 0.2%
-	-	≦ 300 ppm/°C of full-scale value	≦ 300 ppm/°C of full-scale value	≦ 200 ppm/°C of full-scale value
-	-	-	0 - 100 Ω, 0 - 200 Ω, 0 - 400 Ω, 0 - 1000 Ω	0 - 250 Ω, 0 - 400 Ω, 0 - 800 Ω, 0 - 2000 Ω, 0 - 4000 Ω
-	-	-	Standard, 16 bit/12 bit left-aligned	
-	-	-	2-conductor/3-conductor	2-conductor/3-conductor
-	-	-	> 30	> 30
-	-	-		1.5
-	-	-	< 0.2	< 0.2
-	-	-	≦ 300 ppm/°C of full-scale value	≦ 200 ppm/°C of full-scale value
		-		
XN-S3...-SBB	XN-S6...-SBCSBC	-	XN-S3...-SBB	Already built in
XN-S4...-SBBS	-	With integrated cold-junction compensation XN-S4...-SBBS-CJ	XN-S4...-SBBS	-

			XN-1AO-I(0/4...20MA)	XN-2AO-I(0/4...20MA)	XN-2AO-U(-10/0...+10VDC)	XNE-4AO-U/I
Analog output modules						
Measured variables			Current	Current	Voltage	Voltage, current
Channels		Number	1	2	2	4
Rated voltage at supply terminal	U_L		24 V DC	24 V DC	24 V DC	24 V DC
Rated current drawn from supply terminal[1]	I_L	mA	≦ 50	≦ 50	≦ 50	≦ 150
Rated current drawn from module bus[1]	I_{MB}	mA	≦ 39	≦ 40	≦ 43	≦ 40
Heat dissipation		W	Normally 1	Normally 1	Normally 1	< 3
Output value, Voltage						
Output voltage		V DC	-	-	-10 - 10 V DC/ 0 - 10 V DC	-10 - 10 V DC/ 0 - 10 V DC
Value representation			-	-	Standard, 16 bit/12 bit left-aligned	Standard, 16-bit/12-bit (left-aligned) Extended range, 16-bit/ 12-bit (left-aligned) PA (NE43), 16-bit/12-bit (left-aligned)
The following can be connected:			-	-	2-conductor + shield	2-conductor
Load resistor			-	-		
Resistive load		Ω	-	-	> 1000	> 1000
Capacitive load		µF	-	-	< 1	< 1
Transfer frequency		Hz	-	-	< 100	< 20
Recovery time			-	-		
Resistive load		ms	-	-	< 0.1	< 1
Inductive load		ms	-	-	< 0.5	< 2
Capacitive load		ms	-	-	< 0.5	< 2
Short-circuit current		mA	-	-	≦ 40	≦ 40
Basic error limit at 23 °C		%	-	-	< 0.2	< 0.2
Temperature coefficient			-	-	≦ 300 ppm/°C of full-scale value	≦ 200 ppm/°C of full-scale value
Output value, current						
Output current		mA	0 - 20 mA/4 - 20 mA	0 - 20 mA/4 - 20 mA	-	0 - 20 mA/4 - 20 mA
Value representation			Standard, 16 bit/12 bit left-aligned	Standard, 16 bit/12 bit left-aligned	-	Standard, 16-bit/12-bit (left-aligned) Extended range, 16-bit/ 12-bit (left-aligned) PA (NE43), 16-bit/12-bit (left-aligned)
The following can be connected:			2-conductor + shield	2-conductor + shield	-	2-conductor
Load resistor						
Resistive load		Ω	< 550	< 450	-	< 450
Inductive load		µH	< 1	< 1	-	< 1
Transfer frequency		Hz	< 200	< 200	-	< 20
Recovery time						
Resistive load		ms	< 0.1	< 2	-	< 1
Inductive load		ms	< 0.5	< 2	-	< 2
Capacitive load		ms	< 0.5	-	-	< 2
Short-circuit current		mA				≦ 40
Basic error limit at 23 °C		%	< 0.2	< 0.2	-	< 0.2
Temperature coefficient			≦ 300 ppm/°C of full-scale value	≦ 300 ppm/°C of full-scale value		≦ 200 ppm/°C of full-scale value
Basic modules						
Without C connection			XN-S3...-SBB	XN-S3...-SBB	XN-S3...-SBB	Already built in

[1] Part of the XI/ON module's electronics is supplied with module bus voltage (5 V DC), the other part through the supply terminal (U_L).

			XN-2DO-R-NC	XN-2DO-R-NO	XN-2DO-R-CO
Relay modules					
Contact type			2 NC	2 N/O	2 change-over contacts
Rated voltage at supply terminal	U_L		24 V DC	24 V DC	24 V DC
Rated current drawn from supply terminal	I_L	mA	≦ 20	≦ 20	≦ 20
Rated current drawn from module bus	I_{MB}	mA	≦ 28	≦ 28	≦ 28
Insulation test	U_i	V AC	1500, 500	1500, 500	1500, 500
Heat dissipation		W	Normally 1	Normally 1	Normally 1
The following can be connected:			Resistive loads Inductive loads Lamp loads	Resistive loads Inductive loads Lamp loads	Resistive loads Inductive loads Lamp loads
Nominal load voltage			230 V AC, 30 V DC	230 V AC, 30 V DC	230 V AC, 30 V DC
Output current for channel / 230 V AC					
Maximum continuous current		A	2	2	2
Maximum continuous current, resistive load			5 A, load-dependent	5 A, load-dependent	5 A, load-dependent
Minimum load current		mA	100 mA at 12 V DC	100 mA at 12 V DC	100 mA at 12 V DC
Output current for DC voltage (resistive)			Load limit curve → Page 14/109	Load limit curve → Page 14/109	Load limit curve → Page 14/109
Utilization factor	g	%	100	100	100
Lifespan at 230 V AC					
At 5 A	Operations	x 10^6	> 0.1	> 0.1	> 0.1
At 0.5 A	Operations	x 10^6	> 1	> 1	> 1
Basic modules					
Without C connection			XN-S4...-SBBS	XN-S4...-SBBS	XN-S4...-SBBS
With C connection			XN-S4...-SBCS	XN-S4...-SBCS	

			XN-1CNT-24VDC	XNE-2CNT-2PWM
Rated voltage at supply terminal	U_L		24 V DC	24 V DC
Rated current drawn from supply terminal	I_L	mA	≦ 50[1)]	≦ 20
Rated current drawn from module bus	I_{MB}	mA	≦ 40	≦ 50
Heat dissipation		W	< 1.3	< 3
Power supply of encoders			Output voltage U_L (-0.8 V) Output current ≦ 0.5 A, short-circuit proof	Output voltage U_L, GND_L Output current 0.5 A, not protectedt
Digital inputs				
Input voltage				
Input voltage, rated value		V DC	24	24
Low level			-30 V DC - 5 V DC	-30 V DC - 5 V DC
High level			11 V DC - 30 V DC	11 V DC - 30 V DC
Input current				
Low level		mA	-8 mA - 1.5 mA	-1 mA - 1.5 mA
High level		mA	2 mA - 10 mA	2 mA - 10 mA
Minimum pulse width		µs	Filter on: > 25 µs (20 kHz) Filter off: < 2.5 µs (200 kHz)	Filter on: > 25 µs (20 kHz) Filter off: < 2.5 µs (200 kHz)
Counter modules				
Channels		Number	1	2
Resolution		bit	32	32
Measurement ranges				
Frequency			0.1 Hz - 200 kHz	0.01 Hz – 200 kHz (scaleable)
Rotational speed			1 rpm- 25000 rpm	Scaleable
Period duration			5 ms - 120 s	5 ms – 120 s (scaleable)
Counter modes				
Signal evaluation A, B			Pulse and direction, rotary encoder: single/double/quadruple	Pulse and direction, rotary encoder: single/double/quadruple
Operating Mode			Endless count, count once, count periodically	Endless count, count once, count periodically
Hysteresis			8 bit	32 bit
Pulse duration			8 bit / max. 0.51 s	32 bit / max. 120 s
Synchronization			Once/periodic	Once/periodic
Counter limits			Upper count limit: 0 - 7FFF FFFF Lower count limit: 8000 0000 - FFFF FFFF	Upper count limit: 0 - 7FFF FFFF Lower count limit: 8000 0000 - FFFF FFFF
Measurement modes				
Signal evaluation A, B			Pulse and direction, single rotary encoder	Pulse and direction, single rotary encoder
Digital outputs				
Output voltage				
Output voltage, nominal value		V DC	24	24
Low level			≦ 3 V DC	≦ 3 V DC
High level			≧ U_L (-1 V)	≧ U_L (-1 V)
Output current				
High level (permissible range)			5 mA - 2 A	5 mA - 0.6 A
High level (nominal)			≦ 0.5 A (55° C)	0.5 A (55° C)
Switching frequency				
For resistive load		Hz	100	20000 / 100
For inductive load		Hz	2	
For lamps		Hz	≦ 10	
Lamp load	R_{LL}	W	≦ 10	
Output delay			100 µs (resistive load)	25 µs (resistive load)
Short-circuit rating			Yes	Yes
PWM module				
Channels		Number	-	2
PWM			-	0.01Hz - 20 kHz
Period duration/duty cycle			-	32-bit at 41.6 ns/bit
Pulse duration			-	32-bit at 41.6 ns/bit
Pause time			-	32-bit at 41.6 ns/bit
Output, number of pulses			-	32-bit Counter
Pulse output modes			-	Once, endless
General data				
Diagnostics			1 bit	4 Byte
Parameters			15 bit	16 Byte
Basic modules				
No C-connection for sensor/transmitter supply			XN-S4...-SBBS	Already built in

Notes

1) The figures for rated operational current from the supply terminal apply for load current = 0 mA.

			XN-1RS232	XN-1RS485/422	XN-1SSI
Interfaces					
Type			RS232	RS485/RS422	SSI
Rated voltage at supply terminal	U_L		24 V DC	24 V DC	24 V DC
Rated current drawn from supply terminal	I_L	mA	0	≦ 25	≦ 25[1]
Rated current drawn from module bus	I_{MB}	mA	≦ 140	≦ 60	≦ 50
Heat dissipation		W	Normally 1	Normally 1	Normally 1
Transfer channels			RxD, TxD, RTS, CTS	RxD, TxD	CL, D
Data buffer					
Receive		Byte	128	128	-
Send		Byte	64	64	-
Connection type					
RS 232			Full-duplex	-	-
RS 485			-	2-wire, half-duplex	-
RS422			-	2-conductor, half-duplex or 4-conductor, full-duplex	4-conductor, full-duplex (clock output/signal input)
Bit transfer rate			Max. 115200 bits/s (parameterizable), Standard: 9600 bits/s, 7 data bits, odd parity and 2 stop bits		Max. 1 MHz (parameterizable), default settings: 500 kBit/s
Insulation test	U_i				
Between interface and module bus/system voltage		V_{eff}	500	500	500
Between interface and field voltage		V_{eff}	500	500	500
Common-mode range		V DC	-7 - 12		
Cable impedance		Ω	-	120	120
Bus termination		Ω	-	120 (external)	internal
Cable length		m	Max. 15	Max. 30	Max. 30
Number of diagnosis bytes			1	1	1
Number of parameter bytes			4	4	4
Basic modules					
No C-connection for sensor/transmitter supply			XN-S4...-SBBS	XN-S4...-SBBS	XN-S4...-SBBS

Notes

1) The figures for rated operational current From the supply terminal apply when there is no sensor/transmitter current.

			XNE-1SWIRE
Supply			
Rated voltage at supply terminal	U_L		24 V DC
Rated current drawn from supply terminal	I_L	mA	0
Rated current drawn from module bus	I_{MB}	mA	60
Supply voltage connection SWIRE	U_{SW}		24 V DC
Supply current SWIRE (LIN line at full load)		mA	≦ 600
Contactor supply	U_{AUX}		24 V DC
Contactor supply current		A	3
SWIRE connection			
SWIRE lines		Number	1
XNE-1SWIRE modules for XI/ON station		Number	≦ 3
SWIRE nodes for line		Number	≦ 16
Diagnostic bits		Number	4
Data for SWIRE node			max. 4I / 4Ω
Supply of SWIRE nodes (short-circuit proof)			17 V DC
Supply current for all LIN nodes (short-circuit proof)		mA	≦ 500
Insulation			
Potential isolation (module bus ↔ U_{SW}/ U_{AUX} ↔ U_L)	V_{rms}		500
Potential isolation (U_{SW} ↔ U_{AUX})	V_{rms}		None
Climatic requirements			
Ambient temperature		°C	0 - 55
Storage temperature		°C	-25 - 85
Humidity (non-condensing)		%	5 - 95
Protection type			IP20

Dimensions

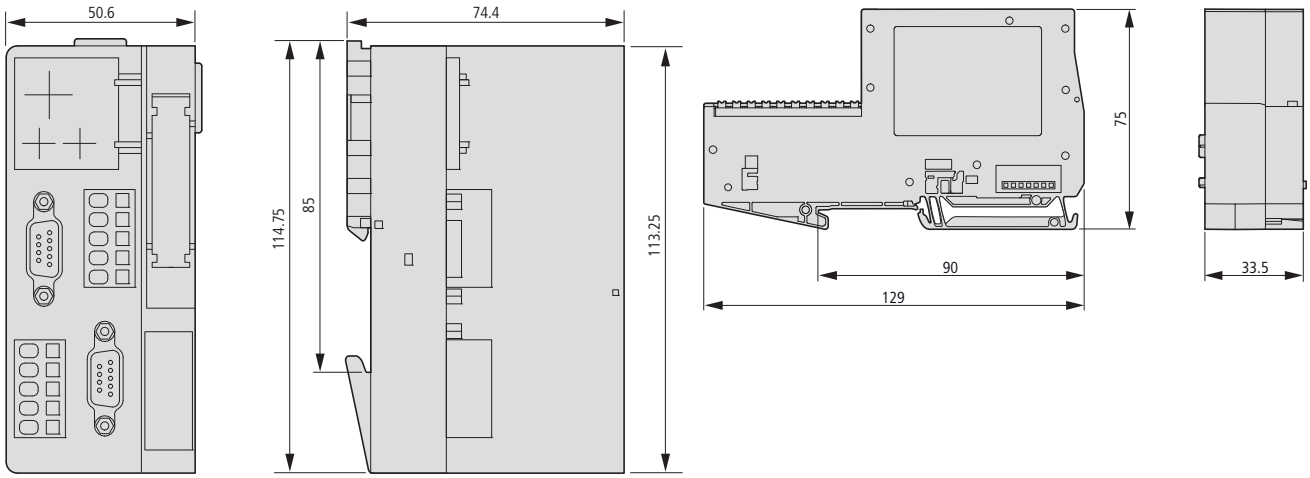
Gateways

Gateways XN

XN-GWBR-PBDP
XN-GWBR-CANOPEN
XN-GWBR-DNET
XN-GWBR-MODBUS-TCP
XN-GW-PDBP-1.5MB
XN-GW-PDBP-12MB
XN-GW-CANOPEN
XN-GW-DNET
XN-PLC-CANOPEN

Gateways XNE

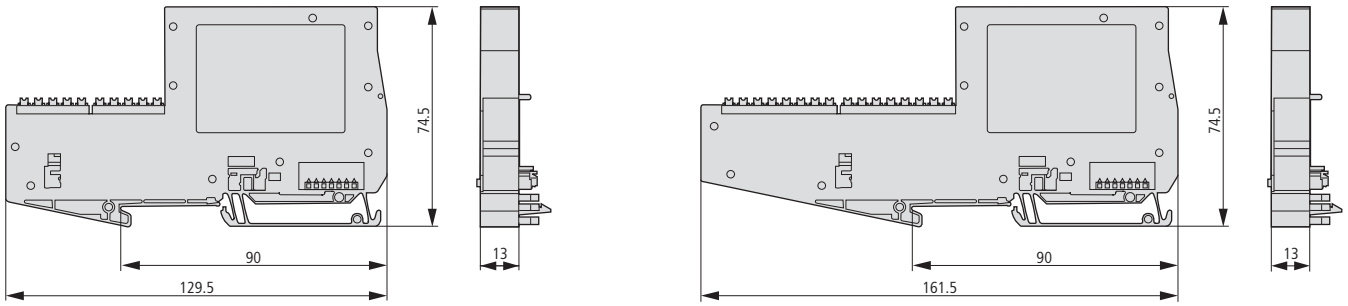
XNE-GWBR-PBDP
XNE-GWBR-CANOPEN
XNE-GWBR-2ETH-IP



Note:
The plugs/connectors used depend on the version.

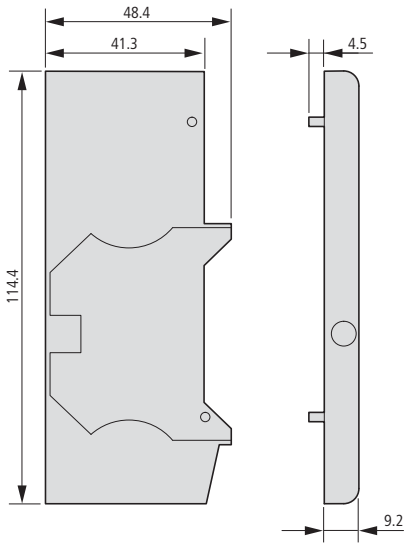
Electronics modules XNE

XNE-8DO-24VDC-0.5A-P
XNE-8DI-24VDC-P
XNE-1SWIRE
XNE-16DI-24VDC-P
XNE-16DO-24VDC-0.5A-P
XNE-8AI-U/I/4Pt/Ni
XNE-4AO-U/I
XNE-2CNT-2PWM



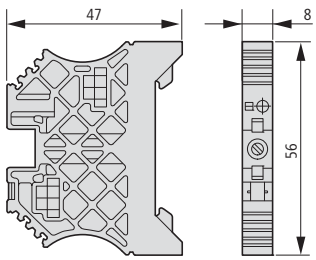
End cover

XN-ABPL



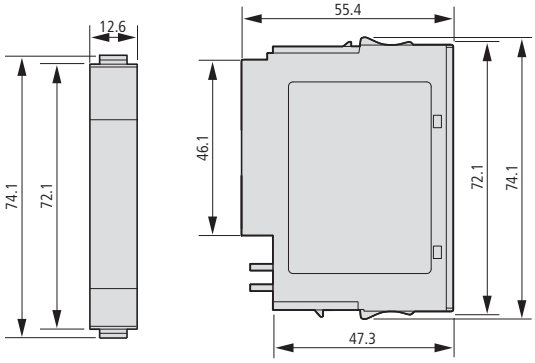
End bracket

XN-WEW-35/2-SW



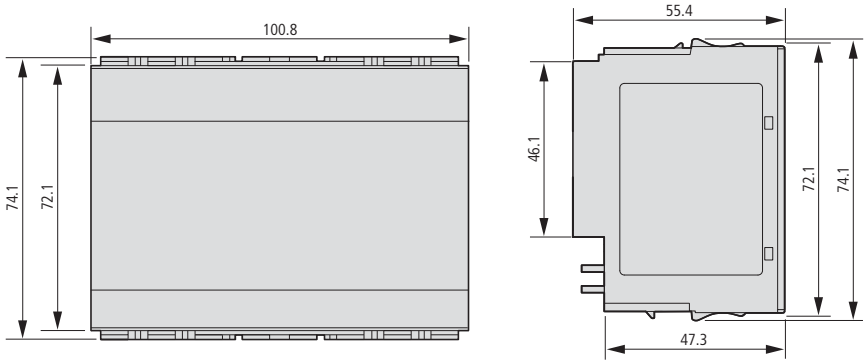
Electronics modules XN in slice design

XN-BR-24VDC-D	XN-2DI-24VDC-P	XN-1AI-I(0/4...20MA)	XN-1CNT-24VDC
XN-PF-24VDC-D	XN-2DI-24VDC-N	XN-2AI-I(0/4...20MA)	XN-1RS232
XN-PF-120/230VAC-D	XN-2DI-120/230VAC	XN-1AI-U(-10/0...+10VDC)	XN-1RS485/422
	XN-4DI-24VDC-P	XN-2AI-U(-10/0...+10VDC)	XN-1SSI
	XN-4DI-24VDC-N	XN-2AI-Pt/Ni-2/3	
	XN-2DO-24VDC-2A-P	XN-2AI-THERMO-PI	
	XN-2DO-24VDC-0.5A-P	XN-4AI-U/I	
	XN-2DO-24VDC-0.5A-N	XN-1AO-I(0/4...20MA)	
	XN-2DO-120/230VAC-0.5A	XN-2AO-I(0/4...20MA)	
	XN-4DO-24VDC-0.5A-P	XN-2AO-U(-10/0...+10VDC)	
	XN-2DO-R-CO		
	XN-2DO-R-NC		
	XN-2DO-R-NO		

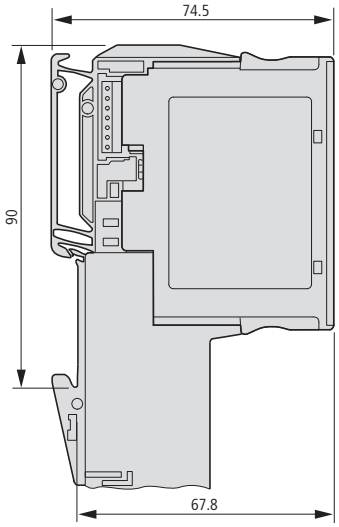


Electronics modules XN in block design

XN-16DI-24VDC-P
XN-32DI-24VDC-P
XN-16DO-24VDC-0.5A-P
XN-32DO-24VDC-0.5A-P

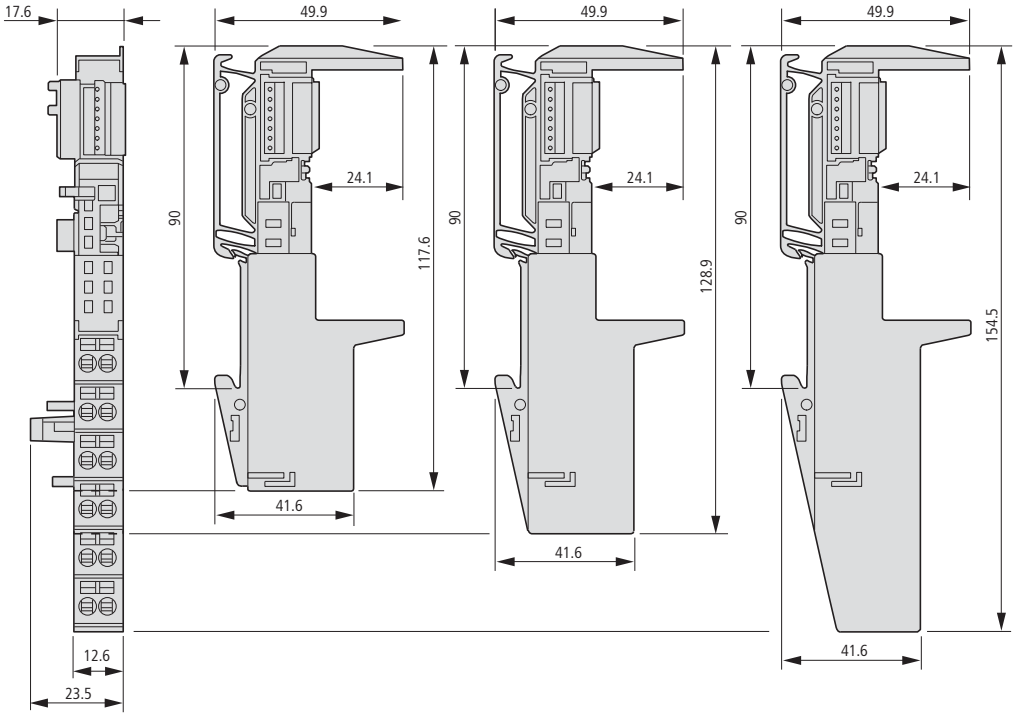


Electronics modules XN completed with base module

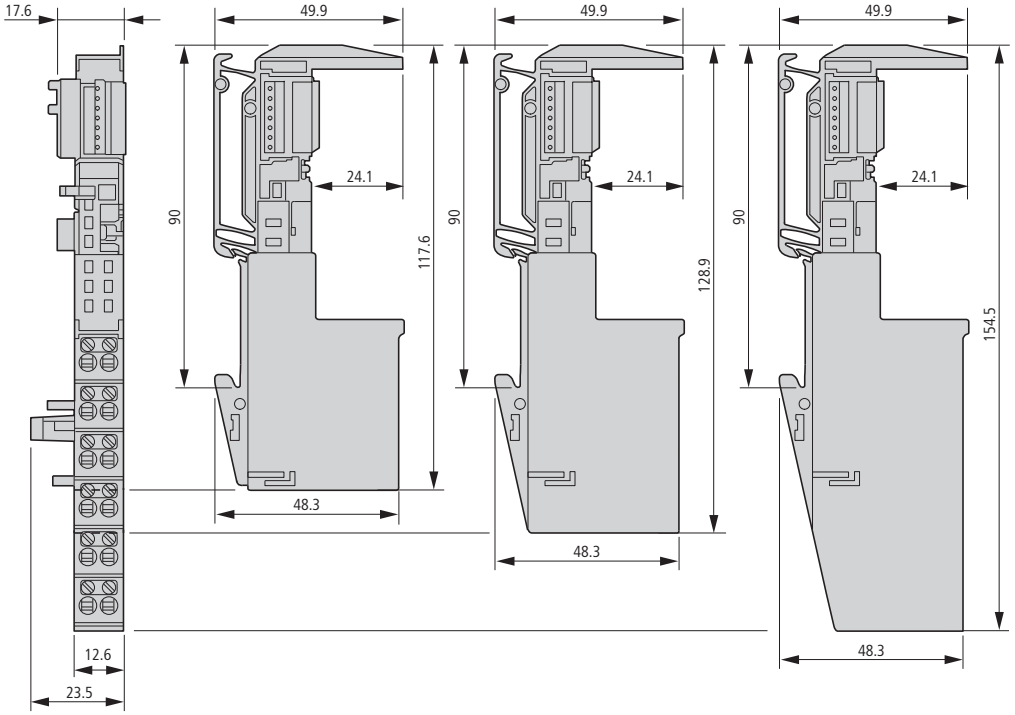


Basic modules in slice design

Spring-cage terminals	3 connection levels	4 connection levels	6 connection levels
	XN-S3T-SBB	XN-S4T-SBBC	XN-S6T-SBBSBB
	XN-S3T-SBC	XN-S4T-SBBS	XN-S6T-SBCSBC
	XN-P3T-SBB	XN-S4T-SBBS-CJ	
	XN-P3T-SBB-B	XN-S4T-SBCS	
		XN-P4T-SBBC	
		XN-P4T-SBBC-B	



Screw terminals	3 connection levels	4 connection levels	6 connection levels
	XN-S3S-SBB	XN-S4S-SBBC	XN-S6S-SBBSBB
	XN-S3S-SBC	XN-S4S-SBBS	XN-S6S-SBCSBC
	XN-P3S-SBB	XN-S4S-SBBS-CJ	
	XN-P3S-SBB-B	XN-S4S-SBCS	
		XN-P4S-SBBC	
		XN-P4S-SBBC-B	



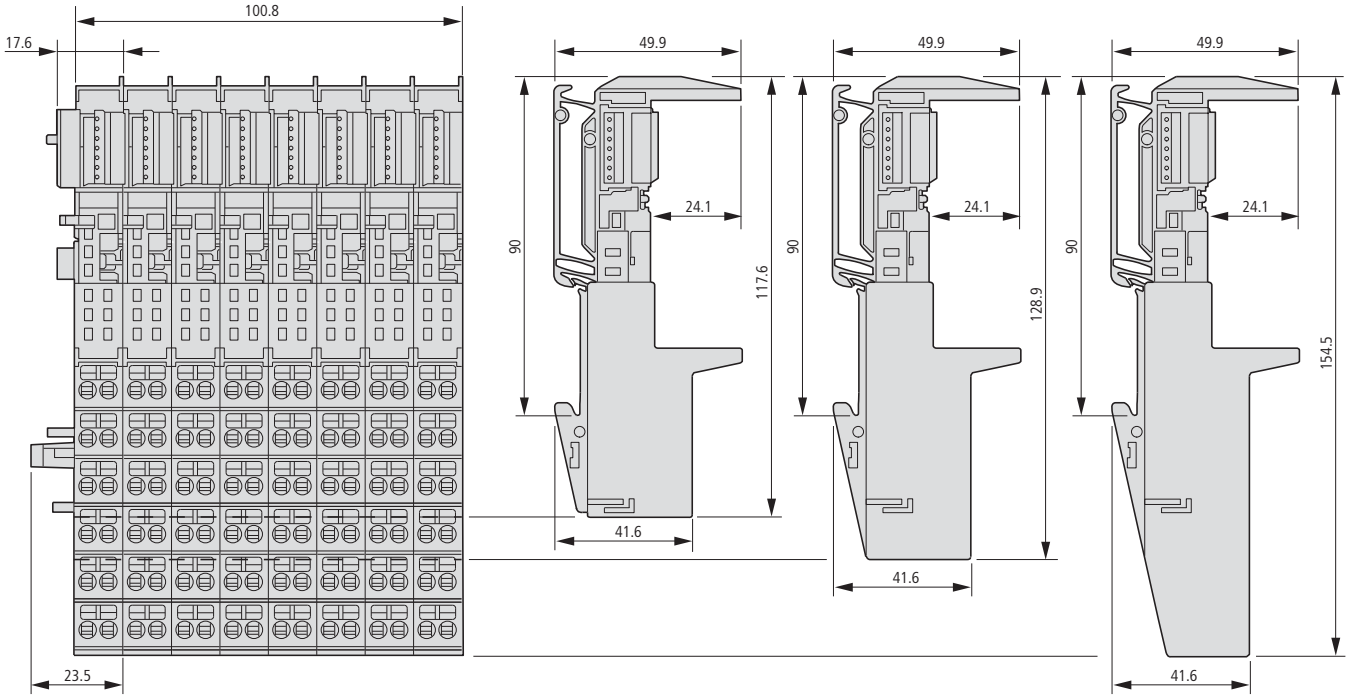
Basic modules in block design

Spring-cage terminals

3 connection levels
XN-B3T-SBB
XN-B3T-SBC

4 connection levels
XN-B4T-SBBC

6 connection levels
XN-B6T-SBBSBB
XN-B6T-SBCSBC

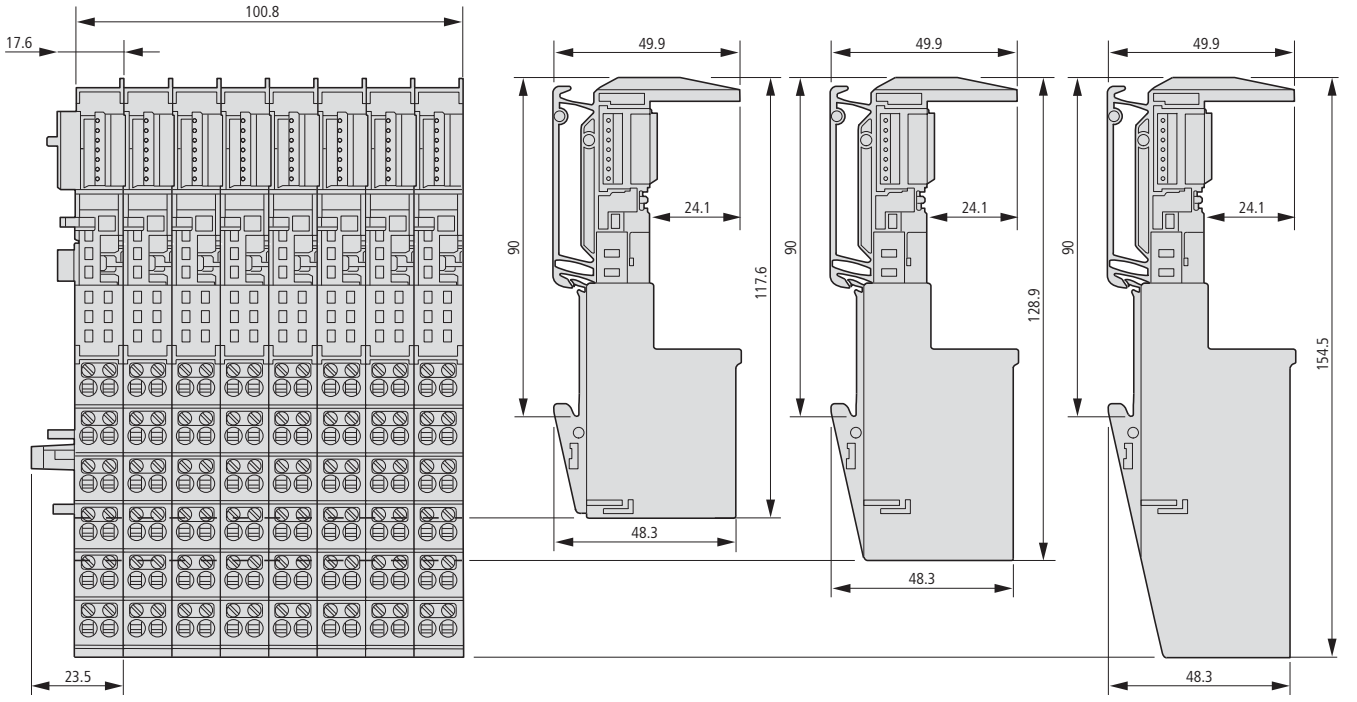


Screw terminals

3 connection levels
XN-B3S-SBB
XN-B3S-SBC

4 connection levels
XN-B4S-SBBC

6 connection levels
XN-B6S-SBBSBB
XN-B6S-SBCSBC



Description

Visualization software Galileo

The powerful, comprehensive engineering platform Galileo is ideal for use in all machine- and process-related applications in plant and machine construction.

- Fast engineering with project simulation on development PC.
- Easy-to-learn, intuitive graphical user interface with project overview window.
- Range of interface styles.
- Object placement with drag & drop WYSIWYG (what you see is what you get).
- Easy object parameterization.
- Object properties table, simple and quick attribute assignment with copy & paste.
- Pointer object.
- Extended password handling with complex password and ageing.
- Comprehensive recipe handling.
- Alarm handling with time stamp, history and diagnostics support with image display.
- Convenient batch definition of texts and graphics for variables.
- Many graphical objects, such as bar graph, scroll bar, graph plotter, line graph, and camera.
- Object parameter list, any number of data objects for template.
- Dynamic measurement unit selection (e.g. °C <-> °F, inches <-> mm).
- Many specific objects and functions.
- Direct printing at panel (reports, forms).
- Brilliant image reproduction with up to 65536 colors.
- Import of 15 different graphic formats.
- Easy import of PLC variables.
- Online language selection.
- Unicode support (including Asian character sets).
- Text import/export in XML format, e.g. Excel.
- Full functionality always available; no performance grading.
- Dynamic objects.

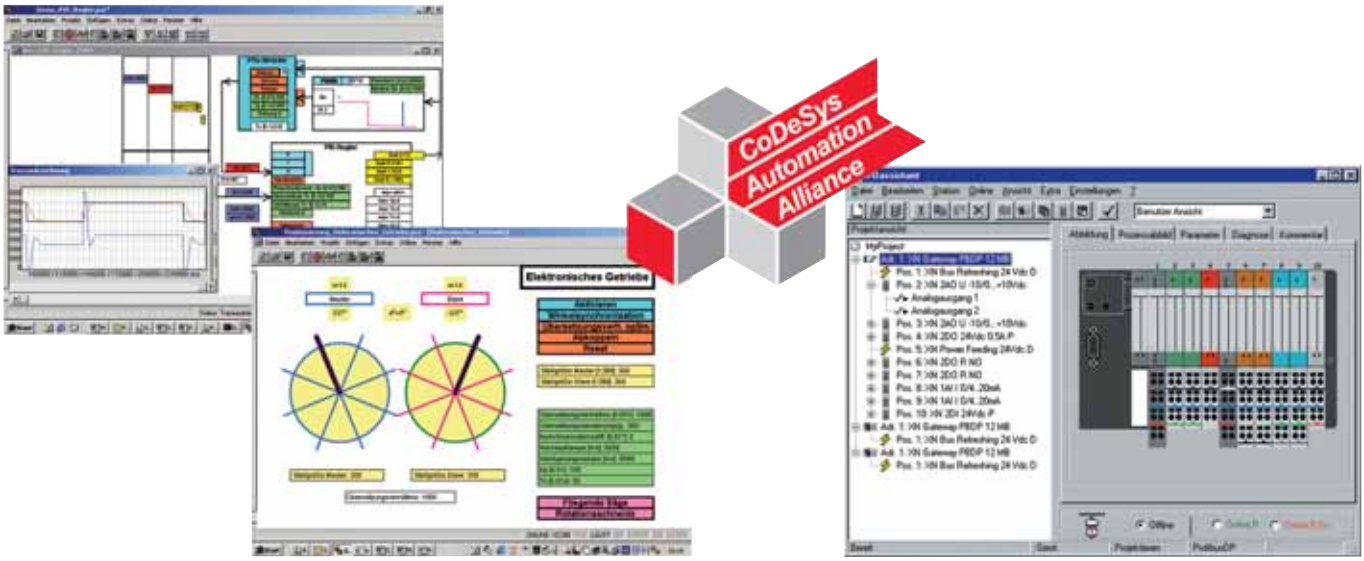
Useful add-on tools

S7 PG router: Programming S7 PLCs connected to the panel through the Ethernet interface.
CE Telediag: Convenient remote maintenance through a modem connection with dial assistant and device call-back.
CAN monitor: Observing and tracing CAN messages with relative time stamp for COB-ID and data directly on the panel.

EPAM: visualization tool for Microsoft Office

Designed as an open visualization tool for OEM machine vendors, EPAM can be expanded with custom funtions programmed in Visual Basic at any time.

- The visualization is configured in Microsoft Excel.
- Every visualization created with EPAM is web-capable, allowing remote plant operation from any standard PC without having to install additional Software.



PLC programming with XSOFT-CODESYS-2

The CoDeSys-based software XSOFT-CODESYS-2 offers matured technical features and easy operation. CoDeSys is one of the most powerful IEC 61131-3 PLC programming tools. All five programming languages of the standard are supported.

- SMS/e-mail library for alarm message notifications.
- UDP/TCP library for powerful Ethernet communication with PC-based applications.
- FTP server/client.

Web visualization (XV100, XVS400 and XV400 only):
Optionally XSOFT-CODESYS-2 can generate an XML description from the visualization information, which is saved to the PLC together with a Java applet and can be displayed in a web browser through TCP/IP to make the visualization data available online on a wide range of platforms.

Target visualization (XV100, XVS400 and XV400 only):
The programming system can convert visualization information into IEC 61131-3 code and translate it for the respective target system with the code generator.

Closed-loop control toolbox:
The closed-loop control toolbox contains about 120 function blocks. The standard function blocks provide leverage of the implemented closed-loop control know-how. Being combinable and cascadable, the function blocks allow the creation of special application solutions.

Motion control toolbox:
The motion control toolbox contains about 40 function blocks that can be individually incorporated and optimally adapted to the automation task.

I/O configuration tool I/Oassistant for XI/ON

The free software I/Oassistant is a universal tool that provides interactive support in planning and implementing your XI/ON system. Just select the gateways, electronics, base modules and accessories, and the program configures your stations either online or offline. Once designed, the system can go into operation. Integrated in XSOFT-CODESYS-2, the I/Oassistant engineering tool for XI/ON is also available within the PLC programming software. Without having to quit XSOFT-CODESYS-2, you have access to the full functionality of I/Oassistant to interactively plan and implement your remote XI/ON station.

- I/Oassistant automatically generates a full parts list for your order.
- With the [Check station design] function, you can easily check the configured station design.
- Commissioning the I/O level without connected controller possible; servicing interface
- EPLAN support.

Planning and ordering help (SWD?Assist)

Planning a SmartWire-Darwin line is quick and easy with the SWD-Assist software. Generate applications easily and quickly with the system SmartWire-Darwin.

- Built-in function for generating ordering lists.
- Built-in validity check.

Free download from
http://downloadcenter.moeller.net

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Ordering

	Description	Part no. Article no.	Price See price list	Std. pack	Information relevant for export to North America
Visualization software					
GALILEO	Microsoft Windows™-based, intelligent and interactive visualization tool. For creating projects to operate and visualize machines, plants and buildings. Comprehensive help and documentation.	**SW-GALILEO** 140379		1 off	UL/CSA certification not required
GALILEO OPEN	For continuous, unrestricted operation of the GALILEO runtime systems on a standard PC. The runtime system software is part of the development software GALILEO.	**LIC-GALILEO-OPEN-PC** 140385			
EPAM	Open visualization system Easy Page Machine (EPAM) An add-in for Microsoft Excel.	**SW-EPAM** 140380			
PLC programming software					
Programming to IEC 61131-1 with IL, ST, LAD, FBD, AS, CFC Supports XV, XC, XN, EC4P Bus configuration CAN, PROFIBUS-DP, XI/ON. Menu selection in 5 languages Operating systems: Win NT 4.0 SP6, Win 2000 SP3, Win XP SP2, Windows Vista OPC configurator Comprehensive help and documentation.				
XSOFT-CODESYS-2	Single-user license	**SW-XSOFT-CODESYS-2-S**[1] 142582		1 off	UL/CSA certification not required
XSOFT-CODESYS-2	Multi-user license	**SW-XSOFT-CODESYS-2-M**[2] 142583		1 off	
Add-on software					
S7-PG router	For programming S7 PLCs through the panel's Ethernet interface. Suitable for XV100, XV200, and XVS400 devices with on-board PROFIBUS and Ethernet Interface. 80 license points required on the device → Page 14/14. Including software with documentation and license product certificate with 80 points for licensing one device.	**SW-S7-PG-ROUTER** 140381		1 off	UL/CSA certification not required
CE Telediag	For remote maintenance through a modem connection with dial assistant and device call-back. Suitable for XV100, XV200, XVS400, XV400 and XVH300 devices on-board RS232 interface 40 license points required on the device → Page 14/14. Including software with documentation and license product certificate with 40 points for licensing one device.	**SW-CE-TELEDIAG** 140383			
CAN monitor	For observing and tracing CAN messages with relative time stamp, COB-ID and data. Error frames are not detected. Suitable for XV100, XV200, XV400 and XVH300 devices with on-board CAN interface. No licence points required. Includes software with documentation.	**SW-CAN-MONITOR** 140382			
Domain server	Connection of a Micro Panel with GALILEO project to the central user management of a Windows 2003 Server domain.	**SW-DOMAIN-SERVER** 140384			

Notes

[1] Replaces ECP-Soft

[2] Replaces MXPRO

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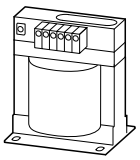
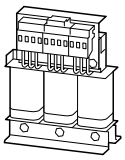
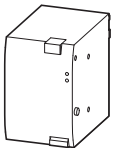
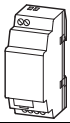
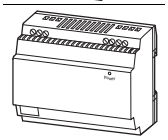
Ordering

	Rated input voltage 50/60 Hz V AC	Rated output voltage (residual ripple) V DC	Input voltage range V	Rated output current A	**Part no.** Article no.	**Price** See price list	Std. pack
Power supply units GW4, GD4							
Unregulated, smoothed							
Single-phase 	230	24 (± 5 %)	–	3	**GW4-030-BA3** 200016		1 off
	230	24 (± 5 %)	–	5	**GW4-050-BA3** 200017		
	230	24 (± 5 %)	–	8	**GW4-080-BA3** 200018		
	230	24 (± 5 %)	–	10	**GW4-100-BA3** 200019		
Three-phase 	400 (± 5 %)	24 (± 3 %)	–	5	**GD4-050-BD3** 200007		
	400 (± 5 %)	24 (± 3 %)	–	10	**GD4-100-BD3** 200009		
	400 (± 5 %)	24 (± 3 %)	–	15	**GD4-150-BD3** 200011		
	400 (± 5 %)	24 (± 3 %)	–	20	**GD4-200-BD3** 200012		
	400 (± 5 %)	24 (± 3 %)	–	30	**GD4-300-BD3** 200014		
Switched-mode power supply units SN3							
Primary switched-mode power supply unit, power reserve of up to 50 %, Up to 5 devices can be connected in parallel increase power and for redundancy							
	110 - 240 AC	24 V DC (fixed) (20 MHz normally < 50 mV_{ss})	85 - 264 AC 100 - 350 DC[1)]	5	**SN3-050-BU8** 100640		1 off
	110 - 120 AC 220 - 240 AC	24 V DC (fixed) (20 MHz normally < 50 mV_{ss})	85 - 132 AC 184 - 264 AC 220 - 350 DC[1)]	10	**SN3-100-BV8** 100641		
	110 - 120 AC 220 - 240 AC	24 V DC (fixed) (20 MHz normally < 50 mV_{ss})	85 - 132 AC 184 - 264 AC 220 - 350 DC[1)]	20	**SN3-200-BV8** 100642		
	110 - 240 AC/DC	22 - 28 V DC (adjustable) (20 MHz normally < 50 mV_{ss})	85 - 264 AC 100 - 350 DC[1)]	5	**SN3-050-EU8** 100643		
	110 - 240 AC/DC	22 - 28 V DC (adjustable) (20 MHz normally < 50 mV_{ss})	85 - 264 AC 100 - 350 DC[1)]	10	**SN3-100-EU8** 100644		
	110 - 240 AC/DC	22 - 28 V DC (adjustable) (20 MHz normally < 50 mV_{ss})	85 - 264 AC 100 - 350 DC[1)]	20	**SN3-200-EU8** 100645		
Switched-mode power supply units easyPOW							
Primary-switched mode, regulated							
	100 - 240	24/12	–	0.35 0.02	**EASY200-POW** 229424		1 off
	100 - 240	24 (± 3%)	–	1.25	**EASY400-POW** 212319		
	100 - 240	24 (± 3%)	–	1.25	**EASY430-POW** 110940		
	100 - 240	24 (± 3%)	–	2.5	**EASY500-POW** 110941		
	100 - 240	24 (± 3%)	–	4.2	**EASY600-POW** 262399		
Signal module for power supply units SN3-...-EU8							
	LED display: Input OK LED display: Output OK LED display: Remote off Relay output 1 changeover: Input OK Relay output 1 changeover: Output OK Remote On/Off function for external switching	For use with SN3-50-EU8 SN3-100-EU8 SN3-200-EU8			**SN3-000-MMEU8** 100646		1 off

Notes

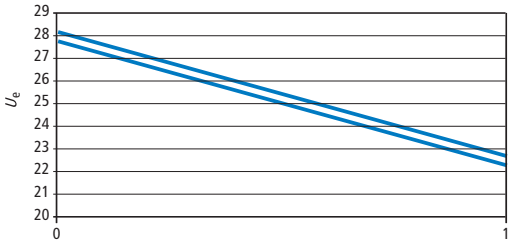
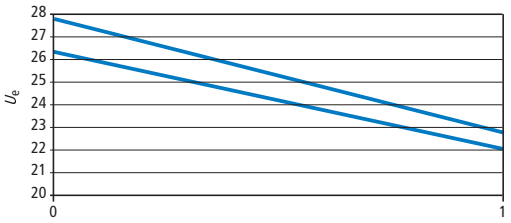
[1)] At U ≧ 264 V DC, use suitable external fuse in addition

[2)] For UL/CSA information, technical data and dimensions see Chapter 12.

			Power supply units GD4				
			GD4-050-BD3	GD4-100-BD3	GD4-150-BD3	GD4-200-BD3	GD4-300-BD3
General							
Protection class			1				
Potential isolation			Yes, VDE 0551, IEC/EN 60742, SELV				
Mains frequency							
Rated value		Hz	50/60				
Range		Hz	50…60				
Electromagnetic compatibility (EMC)							
Emitted interference			Class B (EN 55011, 22)				
ESD			6 kV contact (Level 3), 8 kV air (Level 3), IEC/EN 61000-4-2				
RFI			10 V/m, modulated, IEC/EN 61000 4-2				
Burst			2 kV (Level 3) IEC/EN 61000-4-4				
Surge			2 kV (Inst. Class 3), IEC/EN 61000-4-5				
Impulse voltage			4.9 kV, IEC EN 60947				
Environmental data							
Ambient temperature		°C	-25 - 55				
Ambient temperature, storage		°C	-25 - 85				
Pollution degree			2, EN 50178				
Vibration			0.075 mm (10 - 57 Hz), 10 cycles, IEC 60068-2-6				
Shock resistance, shock duration 11 ms		g	15, IEC 60068-2-27 (3 shocks)				
Installation altitude		m	Max. 2000 m a.m.s.l., observe derating above this[1)]				
Protection type			IP20				
Fixing			Screw-on				
Mounted position			Any				
Input voltage							
Rated value		V AC	400	400	400	400	400
Range		V AC	Taps ± 5% 380, 400, 420				
Rated input current for phase		A	0.24	0.46	0.65	0.9	1.8
No-load losses		W	5	14.2	13.9	25.5	38.2
Short-circuit losses		W	19.6	28.6	44.2	59	55.5
Output voltage							
Rated value		V DC	24	24	24	24	24
Tolerance							
Tolerance			See current/voltage characteristic				
			–	–	–	–	–
Ripple		%	≦ 3	≦ 3	≦ 3	≦ 3	≦ 3
Output current (rated value)		A	5	10	15	20	30
Output current range at 55 °C		A	0 - 5	0 - 10	0 - 15	0 - 20	0 - 30
Terminal capacity							
Solid		mm^2	0.5 - 4	0.5 - 4	0.5 - 4	0.5 - 4	0.5 - 4
Flexible with ferrule		mm^2	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5
Connections			Screw terminals	Screw terminals	Screw terminals	Screw terminals	Screw terminals
Dimensions							
Width		mm	125	155	155	190	190
Height		mm	73	82	97	105	115
Depth		mm	140	170	170	225	240
Weight		kg	2.4	4.4	5.8	7.6	11.2
Protection							
Input voltage	u_1	V	3 x 400	3 x 400	3 x 400	3 x 400	3 x 400
Input current	I_1	A	0.24	0.46	0.65	0.9	1.8
Circuit-breaker							
PKZ			PKZM0-0,25	PKZM0-0,63	PKZM0-1	PKZM0-1	PKZM0-2,5
Current setting		A	0.24	0.46	0.65	0.9	1.8
Miniature circuit-breaker (MCB)							
FAZ			FAZ-S1/1	FAZ-S1/1	FAZ-S1/1	FAZ-S1/1	FAZ-S2/1
Short-circuit protection only			●	●	–	–	–

Notes

[1)] Derating
From +44 to +55 °C: linear derating
from 100 % to 93 %

Power supply units GW4				Notes
GW4-030-BA3	GW4-050-BA3	GW4-080-BA3	GW4-100-BA3	
				Current-voltage characteristic
1				At 230 V or 3 x 400 V AC (primary side) and a load current of I = 0 A up to the rated operational current 1x Iq
Yes, VDE 0551, IEC/EN 60742, SELV				**GD4... with transformer**
				
50/60				
Class B (EN 55011, 22)				
6 kV contact (Level 3), 8 kV air (Level 3), IEC/EN 61000-4-2				
10 V/m, modulated, IEC/EN 61000 4-2				
2 kV (Level 3) IEC/EN 61000-4-4				
2 kV (Inst. Class 3), IEC/EN 61000-4-5				
4.9 kV, IEC EN 60947				
				GW4... with transformer
-25 - 55				
-25 - 85				
2, EN 50178				
0.075 mm (10 - 57 Hz), 10 cycles, IEC 60068-2-6				
15, IEC 60068-2-27 (3 shocks)				
Max. 2000 m a.m.s.l., observe derating above this[1)]				
IP20				
Screw-on				
Any				
230	230	230	230	
230	230	230	230	
0.45	0.8	1.2	1.4	
7.6	9	12.8	10.2	
15.5	29.7	32.7	35	
24	24	24	24	
See current/voltage characteristic				
–	–	–	–	
≦ 5	≦ 5	≦ 5	≦ 5	
3	5	8	10	
0 - 3	0 - 5	0 - 8	0 - 10	
0.5 - 4	0.5 - 4	0.5 - 4	0.5 - 4	
0.5 - 2.5	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5	
Screw terminals	Screw terminals	Screw terminals	Screw terminals	
85	85	106	121	
90	98	100	105	
122	135	151	169	
2	2.5	3.65	4.45	
230	230	230	230	
0.45	0.8	1.2	1.4	
PKZM0-0,63	PKZM0-1	PKZM0-1,6	PKZM0-1,6	
0.45	0.8	1.2	1.4	
FAZ-S1/1	FAZ-S1/1	FAZ-S2/1	FAZ-S2/1	
●	–	–	–	

		SN3-050-BU8	SN3-100-BV8	SN3-200-BV8	SN3-050-EU8	SN3-100-EU8	SN3-200-EU8
General							
Standards		EN 61204, 73/23/EWG, 89/336/EWG, EN 50178, EN 60950, UL 60950, UL 508, SELV (EN 60950)					
Protection type							
Enclosure		IP20	IP20	IP20	IP20	IP20	IP20
Terminals		IP20	IP20	IP20	IP20	IP20	IP20
Protection class		According to EN 61140, Class 1					
Mounting		DIN rail (IEC/EN 60715), snap fixing					
Mounted position		Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Heat dissipation	W	Normally ≦ 15	Normally ≦ 29	Normally ≦ 58	Normally ≦ 15	Normally ≦ 29	Normally ≦ 58
Efficiency	%	≧ 88	≧ 88	≧ 88	≧ 88	≧ 88	≧ 88
Dimensions							
Width	mm	57	90	200	57	90	200
Height	mm	130	130	130	130	130	130
Depth	mm	130	130	130	130	130	130
Weight	kg	0.96	1.07	2.83	0.96	1.07	2.83
Minimum distance to adjacent devices	mm	Horizontal 10, vertical 80					
Terminal capacity							
		Only operate plug-in terminals off load.					
Input circuit							
Flexible with ferrule	mm^2	0.2…2.5 (22…14 AWG)		2.5 … 10 (14 … 8 AWG)	0.2…2.5 (22…14 AWG)		2.5 … 10 (14 … 8 AWG)
Flexible without ferrule	mm^2	0.2…2.5 (22…14 AWG)		0.5 … 10 (20 … 8 AWG)	0.2…2.5 (22…14 AWG)		0.5 … 10 (20 … 8 AWG)
Solid	mm^2	0.2…2.5 (22…14 AWG)		0.5 … 16 (22 … 6 AWG)	0.2…2.5 (22…14 AWG)		0.5 … 16 (22 … 6 AWG)
Output circuit							
Flexible with ferrule	mm^2	0.12…2.5 (26…14 AWG)		2.5 … 10 (14 … 8 AWG)	0.12…2.5 (26…14 AWG)		2.5 … 10 (14 … 8 AWG)
Flexible without ferrule	mm^2	0.12…2.5 (26…14 AWG)		0.5 … 10 (20 … 8 AWG)	0.12…2.5 (26…14 AWG)		0.5 … 10 (20 … 8 AWG)
Solid	mm^2	0.12…2.5 (26…14 AWG)		0.5 … 16 (22 … 6 AWG)	0.12…2.5 (26…14 AWG)		0.5 … 16 (22 … 6 AWG)
Environmental data							
Ambient temperature, operation	°C	-25 - +70	-25 - +70	-25 - +70	-25 - +70	-25 - +70	-25 - +70
Ambient temperature, full load	°C	0 - +60 (without derating)					
Ambient temperature, storage	°C	-40 - +85	-40 - +85	-40 - +85	-40 - +85	-40 - +85	-40 - +85
Climatic proofing		According to IEC 60068-2-3, 93% at +40 °C, non-condensing					
Pollution degree		According to EN 50178; 2					
Climate class (IEC)		According to EN 60721; 3K3					
Vibration resistance (IEC/EN 60068-2-6)		1…57 Hz, amplitude ±0.075 mm; 57…100 Hz, 5 g					
Shock resistance (IEC 60068-2-27)		30 g all directions					
Insulation voltage							
Inputs/outputs		3 kV AC (type test), 1.2 kV AC (routine test)					
Input		1.5 kV AC (type test), 1.2 kV AC (routine test)					
Output		350 V AC (routine test)					
Electromagnetic compatibility (EMC)							
Interference immunity		EN 61000-6-2					
ESD		According to EN 61000-4-2, Level 4-8 kV/15 kV					
RFI		According to EN 61000-4-3, Level 3-10 V/m					
Burst		According to EN 61000-4-4, Level 4-4 kV					
Surge		According to EN 61000-4-5, Level 4-2 kV symmetrical, level 3-3 kV asymmetrical					
Conducted HF		According to EN 61000-4-6, Level 3-10 V					
Emitted interference		EN 61000-6-3					
Electromagnetic fields		According to EN 55022, Class B					
Conducted HF		According to EN 55022, Class B					

		SN3-050-BU8	SN3-100-BV8	SN3-200-BV8	SN3-050-EU8	SN3-100-EU8	SN3-200-EU8
Input circuit							
Rated input voltage	V	110 …240 AC	–	–	110 …240 AC	110 …240 AC	110 …240 AC
Switch position 110	V	–	110 … 120 AC	110 … 120 AC	–	–	–
Switch position 230	V	–	220 … 240 AC	220 … 240 AC	–	–	–
Primary voltage range	V	85 … 264 AC	–	–	85 …264 AC	85 …264 AC	85 …264 AC
Input voltage range[1)]	V	100 … 350 DC	–	–	100 … 350 DC	100 … 350 DC	100 … 350 DC
Switch position 110 V AC	V	–	85 … 132 AC	85 … 132 AC	–	–	–
Switch position 230 V AC	V	–	184 … 264 AC	184 … 264 AC	–	–	–
Switch position 230 V DC	V	–	220 … 350 DC	220 … 350 DC	–	–	–
Mains frequency							
Rated value	Hz	50/60	50/60	50/60	50/60	50/60	50/60
Range	Hz	47…63	47…63	47…63	47…63	47…63	47…63
Current consumption							
At 110 … 240 V AC	A	Approx. 2.2 …1.2	–	–	Approx. 2.2 …1.2	Approx. 3.5 …1.6	Approx. 5.5 …2.5
At switch position 110 V AC	A	–	Approx. 4.2…4.0	Approx. 9.0…8.0	–	–	–
At switch position 230 V AC	A	–	Approx. 2.4…2.2	Approx. 4.4…4.0	–	–	–
Input power	W	Normally 135	Normally 269	Normally 538	Normally 135	Normally 269	Normally 538
Inrush current limiter/i^2t (cold start)		≦ 23 A / ca. 0.9 A^2s	≦ 40 A / ca. 1.8 A^2s	≦ 70 A / ca. 8 A^2s	≦ 23 A / ca. 0.9 A^2s	≦ 33 A / ca. 0.2 A^2s	≦ 40 A / ca. 1.9 A^2s
Mains failure bridging duration	ms	Normally ≧ 100	Normally ≧ 50	Normally ≧ 50	Normally ≧ 100	Normally ≧ 40	Normally ≧ 40
Start-up after mains voltage applied	ms	Normally ≧ 100	Normally ≧ 10	Normally ≧ 20	Normally ≧ 100	Normally ≧ 5	Normally ≧ 370
Transient overvoltage protection		Varistors	Varistors	Varistors	Varistors	Varistors	Varistors
Internal input fuse (device protection, not accessible)		4 AT	6.3 AT	12 AF	4 AT	6.3 AT	12 AF
Leakage current to PE	mA	< 3.5 mA	< 3.5 mA	< 3.5 mA	< 3.5 mA	< 3.5 mA	< 3.5 mA
Output circuit							
L+, L+, L-, L-		Proof against short-circuit, no-load and overload					
Rated output voltage	V	24 DC	24 DC	24 DC	24 DC	24 DC	24 DC
Tolerance		-1…+5 %	-1…+5 %	-1…+5 %	-1…+5 %	-1…+5 %	-1…+5 %
Output voltage setting range		Fixed 24 V DC			22…28 V DC; default setting 24 V ±0.5%		
Rated output power	W	120	240	480	120	240	480
Rated output current T_u ≦ 60 °C	A	5	10	20	5	10	20
Peak output current (power reserves) Tu ≦ 40 °C	A	Normally ≦ 7.25	Normally ≦ 12.25	Normally ≦ 22.5	Normally ≦ 7.25	Normally ≦ 12.25	Normally ≦ 22.5
Derating 60 °C ≦ T_u ≦ 70 °C		2.5 % for Kelvin temperature increase					
Control deviation at							
Load change 10…90 %, static	Normally	±0.1 %	±0.1 %	±0.1 %	±0.05 %	±0.05 %	±0.05 %
Load change 10…90 %, dynamic	Normally	±3 %	±3 %	±3 %	±3 %	±3 %	±3 %
Controller acting time	ms	Normally 1	Normally 1	Normally 1	Normally 1	Normally 1	Normally 1
Input voltage deviation ±10 %		Normally ±0.05 %	Normally ±0.05 %	Normally ±0.05 %	Normally ±0.05 %	Normally ±0.05 %	Normally ±0.05 %
Rise time 10…90 %	ms	Normally ≦ 30	Normally ≦ 5	Normally ≦ 15	Normally ≦ 30	Normally ≦ 4	Normally ≦ 12
Residual ripple and switching peaks		20 MHz normally < 50 mV_{ss}					
Parallel connection capability		Yes, up to 5 devices for redundancy and for power increase, non symetrical current					
Series connection capability		Yes, for voltage increase (max. 2 off)					
Resistance to reverse feed		Yes, limited to Approx. 35 V AC					
Power factor correction (PFC)		No			Yes		
Status indication		OUTPUT OK: LED green					
Overload characteristics		Thermal protection			Thermal protection		
Response to short-circuit		Continuously with current limitation					
Current limitation at short-circuit	A	Approx. 11	Approx. 19	Approx. 25	Approx. 11	Approx. 19	Approx. 25
Short-circuit protection		Proof against sustained short circuit					
Overload protection		Thermal protection					
Capacitive load starting		Not restricted					

Notes [1)] At ≧ 264 V DC, use suitable external fuse in addition

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General			
Standards			IEC 61204 73/23/EEC 89/336/EEC EN 50178, EN 60950, UL 60950, UL 508
Duty factor		%	100
Dimensions (W x H x D)		mm	56.25 × 54 × 24 (in fitted state)
Weight		kg	0.065
Terminal capacity			
Flexible with ferrule		mm^2	0.2…2.5 (22…14 AWG)
Flexible without ferrule		mm^2	0.2…2.5 (22…14 AWG)
Solid		mm^2	0.2…4 (22…14 AWG)
Protection type			
Enclosure			IP20
Terminals			IP20
Protection class			2
Mounting			Snap-fitted to power supply unit
Fixing			Snap-fitting, tool-less
Vibration resistance (IEC/EN 60068-2-6)			1…57 Hz, amplitude ±0.075 mm, 57…100 Hz, 5 g
Shock resistance (IEC 60068-2-27)			5 g all directions
Environmental data			
Ambient temperature			
Operation		°C	-25… +70
Storage		°C	-40 - +85
Climatic proofing			93% at +40°C According to IEC 60068-2-3, non-condensing
Climate class (IEC)			3K3 According to EN 60721
Insulation voltage			
Rated insulation voltage	U_i	V AC	250 According to IEC 60974-1, EN 50178, VDE 0160
Power supply/measuring circuit/relay outputs			Safe isolation According to EN 50178, EN 60950
Rated impulse withstand voltage between all insulated circuits	U_{imp}	kV	4 According to IEC 664, VDE 0110
Test voltage between all circuits		kV	2.5 AC (routine test)
Overvoltage category/pollution degree			According to EN 60950, Class 2
Input circuit			
Rated input voltage		V	110…240 AC / 100…350 DC (supplied From the input circuit of the power supply)
Primary voltage range		V	70…264 AC
Primary voltage range		V	80 … 350 DC
Input power		VA	2.5
Input power		W	1.5
REMOTE-OFF input			
			Floating
Switching off			R ≦ 1 kΩ
Switching on			R ≧ 10 kΩ
Input current		mA	Normally 1 (200 mA for 200 µs)
Cable length		m	25
Measuring circuits			
INPUT			
Monitoring function			Undervoltage monitoring
Threshold values			85 V AC / 90 V DC
Accuracy/tolerance		%	-5 % for AC and DC
Hysteresis relative to the threshold value			Normally -8 % for AC and -30 % for DC
Measuring cycle, max.		ms	Normally ≦ 50
OUTPUT			
Monitoring function			Undervoltage monitoring
Threshold values			20 V DC
Accuracy/tolerance		%	±1
Hysteresis relative to the threshold value		%	Normally 5
Measuring cycle, max.		ms	Normally ≦ 10

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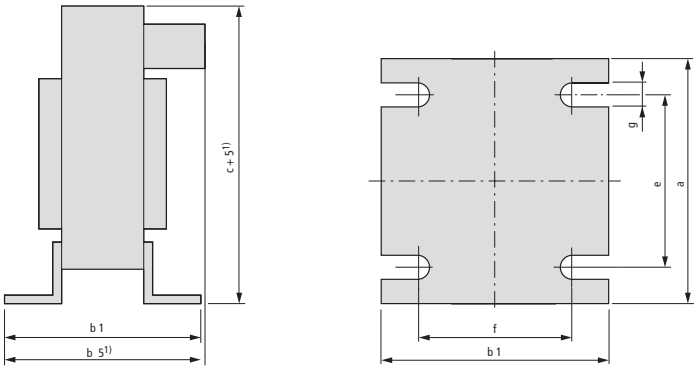
Output circuit			
			11-12/14, 21-22/24
Contacts		Number	2 x 1 relay (changeover contact)
Operating principle			Quiescent current principle
Contact material			AgNi
Rated voltage		V	250 According to VDE 0110, IEC 60947-1
Minimum switching voltage		V	24
Maximum switching voltage		V	250
Minimum switching voltage		mA	10
Maximum switching current		A	1
Rated operational current			
AC-12 (resistive) 230 V			1 A
AC-15 (inductive) 230 V			1 A
DC-12 (resistive) 24 V			1 A
DC-13 (inductive) 24 V			1 A
Durability			
Mechanical			30 x 10^6 operations
Electrical			0.1 x 10^6 operations
Short-circuit rating			
NC contacts	A	gL	2
N/O contacts	A	gL	2
Operating state display			
Input OK			LED lit green when relay “Input OK” picked up
Output OK			LED lit green when relay “Output OK” picked up
Remote OFF			LED lit green when relay “Remote OFF” input R ≦ 1kΩ
Notes			Data at T_u = 25 °C, U_{IN} = 230 V AC and nominal values, when no others are given

Dimensions

GW4-...



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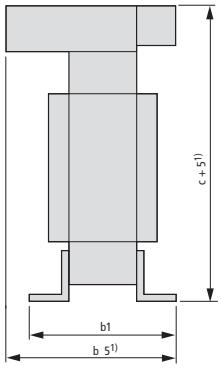
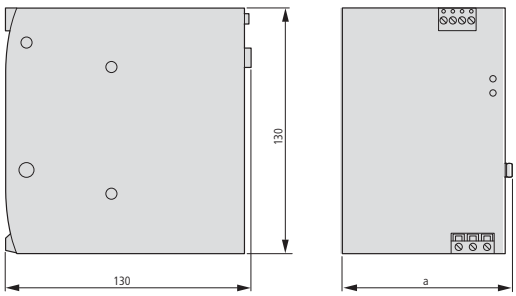


SN3-050
SN3-100
SN3-200



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