

Display of text messages, graphic objects and mimics
Control and configuration of data
Control function IEC 1131-2

Touch screen Advanced Panels + control function **Advanced Panels with keypad + control function**



Monochrome or colour STN LCD, back-lit colour TFT LCD (320 x 240 pixels to 1024 x 708 pixels) (1)	Monochrome STN LCD or colour TFT LCD (320 x 240 pixels or 640 x 480 pixels) (1)
5.7" (monochrome or colour) 7.5", 10.4", 12.1" or 15" (colour) (1)	5.7" (monochrome or colour) or 10.4" (colour) (1)
Via touch screen	Via keypad and/or touch screen (configurable) and/or by industrial pointer
–	10 or 12 (1)
–	14 or 18 (1)
–	8
–	12
16 MB Flash EPROM or 32 MB Flash EPROM (1)	
By 128 MB to 4 GB CF card (1)	
Limited by internal Flash EPROM memory capacity	
Unlimited (8000 variables max.)	
5 languages according to IEC 1131-2 (LD, ST, FBD, SFC, IL)	
–	
Yes	
Alphanumeric, bitmap, bargraph, gauge, tank, tank level indicator, curves, polygon, button, indicator	
32 groups of 64 recipes comprising 1024 ingredients max.	
Yes, with log	
Yes	
Built-in	
–	
–	
Uni-TE, Modbus, Modbus TCP/IP (1) and for PLC brands: Mitsubishi, Omron, Allen-Bradley and Siemens	
RS 232C/RS 422/485 (COM1) and RS 485 (COM2)	
1 or 2 (1)	
1 CANopen master with external module (XBT ZG CANM) which is mandatory for the control function	
Ethernet TCP/IP (10BASE-T/100BASE-TX) (1)	
USB port for parallel printer	
SoMachine, with Windows XP and Vista (see page 5/5)	
Magelis (CPU 131 MHz RISC or 266 MHz RISC) (1)	Magelis (CPU 266 MHz RISC)

XBT GT 2●/4●/5●/63/73 + XBT ZG CANM **XBT GK 2●/53 + XBT ZG CANM**

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(1) Depending on model

Hardware control platforms

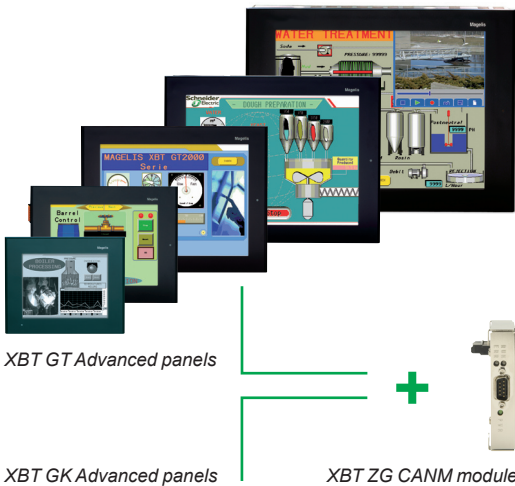
HMI Controllers

Magelis XBT GC HMI Controller, Magelis XBT GT/GK Advanced Panels + control function

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Magelis XBT GC HMI Controller



XBT GT Advanced panels

XBT GK Advanced panels

XBT ZG CANM module



HMI function: Magelis XBT GT/GK Advanced Panels
+
Control function: XBT ZG CANM CANOpen master module

Presentation

The Magelis HMI Controller offer forms a part of Flexible Machine Control approach, a key component of MachineStruxure™, which brings you maximum flexibility and ensures the most optimised control solution.

The Magelis HMI Controller offer brings together HMI and control functions within in a single product. This reduces the amount of equipment required and the associated costs throughout the life cycle of the machine.

This offer comprises two ranges:

- The compact range: Magelis XBT GC HMI Controller
- The modular range: Magelis XBT GT/GK Advanced Panels + XBT ZG CANM CANOpen module

Magelis XBT GC HMI Controllers (compact range)

Magelis XBT GC HMI Controllers optimize setup due to their compact design.

This range comprises 6 touch screen terminals, with the following, depending on the model:

- 3.8" monochrome screen, 12 integrated inputs/6 integrated outputs (sink or source)
- 5.7" monochrome or colour screen, 16 integrated inputs/16 integrated outputs (sink or source)
- A wide choice of communication interfaces: USB, serial link, CANOpen and Ethernet

In order to adapt easily to different configurations, it is possible to add discrete I/O expansion modules at the rear of the Controller.

Magelis XBT GT/GK Advanced Panels + XBT ZG CANM CANOpen module (modular range)

This range comprises complete Magelis XBT GT or Magelis XBT GK Advanced Panel offers to which a control part is added with the CANOpen module XBT ZG CANM. During operation, this module controls the I/O and the peripherals distributed via the CANOpen bus.

The combination with Magelis XBT GT or Magelis XBT GK Advanced Panels gives a wide choice of screen sizes and types of data entry, depending on the model:

- 17 XBT GT touch screen terminals:
 - 5.7" monochrome or colour screens
 - 7.5", 10.4", 12.1" and 15" colour screens
- 3 XBT GK terminals with keypad and/or touch screen:
 - 5.7" monochrome or colour screens
 - 10.4" colour screens

This combination also offers numerous advanced functions such as video, data management (sharing of data, log), etc.

Operation

With their fast, multitasking processors, all the HMI Controllers combine HMI and control functions and share the same screen and communication features and dimensions.

The internal memory can be freely used by both the HMI function and the control function.

Processing is split 75% on the HMI part and 25% on the control part. The processing can be configured for 3 tasks, including 1 master task.

XBT GC HMI Controllers also have the same I/O modules, the same Telefast pre-wired system and the same peripherals on the CANOpen bus as the M238 logic controller.

Hardware control platforms

HMI Controllers

Magelis XBT GC HMI Controller, Magelis XBT GT/GK Advanced Panels + control function



SoMachine



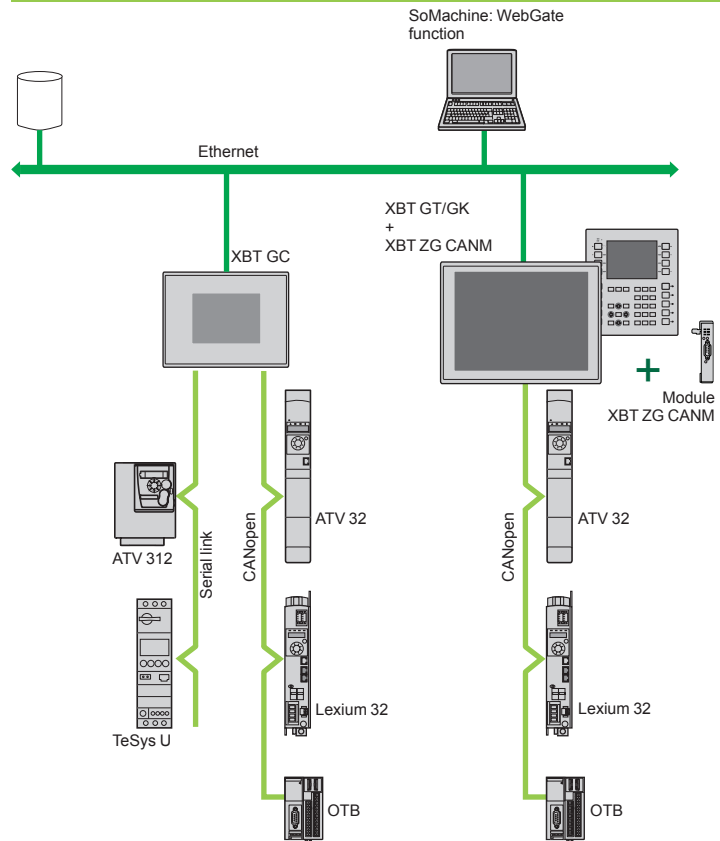
Vijeo Designer (included in SoMachine)

Configuration

Magelis XBT GC HMI Controllers and Magelis XBT GT/GK Advanced Panels can be configured with Schneider Electric's unique machine automation software: SoMachine. (See page 5/2)

This software, combining both HMI and control functions, is based on the Vijeo Designer software in the Windows XP and Windows Vista environment. The SoMachine software boasts an advanced user interface with many configurable windows, enabling unique projects to be developed quickly and easily.

Communication



Examples of communication architectures

Depending on the model, Magelis XBT GC HMI Controllers and Magelis XBT GT/GK Advanced Panels communicate with automation equipment via 1 or 2 integrated serial links, based on communication protocols:

- Schneider Electric (Uni-TE, Modbus)
- Third party: Mitsubishi Electric, Omron, Allen-Bradley and Siemens

Depending on the model, they can be connected to Ethernet TCP/IP networks with the Modbus TCP protocol or a third-party protocol, and can be used as the CANopen master to control all the peripherals which can be connected on this bus.

Hardware control platforms

HMI Controllers

Magelis XBT GC HMI Controller, Magelis XBT GT/GK Advanced Panels + control function

Functions

Magelis XBT GC HMI Controllers and Magelis XBT GT/GK Advanced Panels offer the following HMI functions:

- Display of animated mimics with 8 types of animation (pressing the touch panel, colour changes, filling, movement, rotation, size, visibility and value display)
- Control, modification of numeric and alphanumeric values
- Display of current date and time
- Real-time curves and trend curves with log
- Alarm display, alarm log and management of alarm groups
- Multi-window management
- Page calls initiated by the operator
- Multilingual application management (10 languages simultaneously)
- Recipe management
- Data processing via Java script
- Application support and USB key external memory logs
- Management of serial printers and barcode readers

Magelis XBT GC HMI Controllers and Magelis XBT GT/GK Advanced Panels ⁽¹⁾ have been designed for Transparent Ready architectures and equipment (combination of web and Ethernet TCP/IP technologies).

With the WebGate function, it is possible to control or carry out maintenance remotely.

They offer the following control functions:

- Execution of programmed logic sequences with the 5 IEC 1131-2 languages (LD, ST, FBD, SFC, IL)
 - Management of equipment on the CANopen fieldbus
- In addition to these functions, Magelis XBT GC HMI Controllers can manage:
- Discrete I/O on integrated or remote expansion modules
 - Analog I/O on remote expansion modules

⁽¹⁾ Depending on model

Hardware control platforms

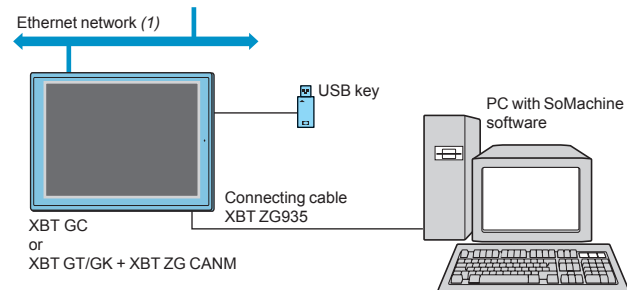
HMI Controllers

Magelis XBT GC HMI Controller, Magelis XBT GT/GK Advanced Panels + control function

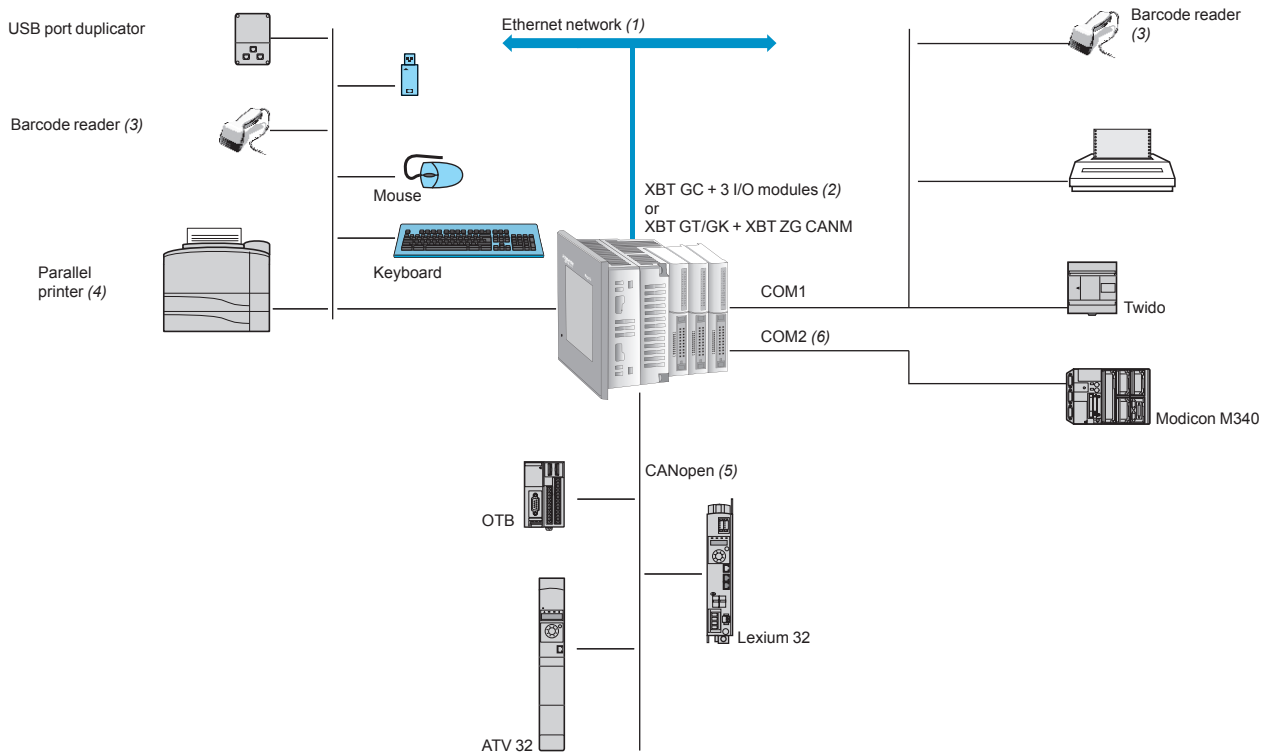
Operating modes for the terminals

The illustrations below show which equipment can be connected to XBT terminals based on their two operating modes.

Edit mode



Run mode



(1) With XBT GC 2230T/U, XBT GT●●30, XBT GT●●40, XBT GK●●30

(2) With XBT GC ●●●●T/U

(3) Should be a DataLogic Gryphon barcode reader

(4) Should be a Hewlett Packard printer via a USB/PIO converter

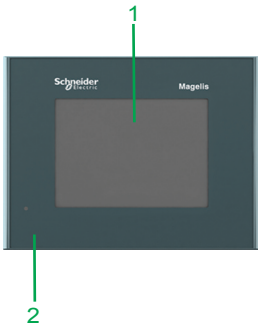
(5) Requires:

- For XBT GC: XBT ZGC CAN CANopen master module

- For XBT GT/GK: XBT ZG CANM CANopen master module

(6) With XBT GT/GK

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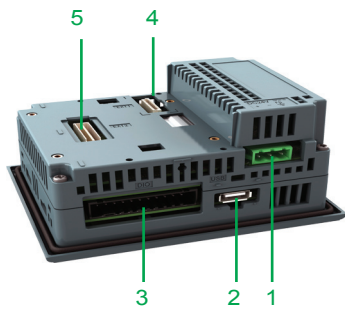


Description

Magelis XBT GC1100 T/U HMI Controller

The front panel comprises:

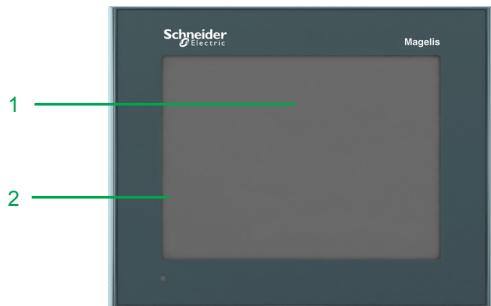
- 1 A touch screen for displaying mimics (3.8" amber or red mode monochrome)
- 2 A control indicator showing the terminal's operating mode



The rear panel comprises:

- 1 A removable screw terminal block for the 24 V $\bar{\text{---}}$ power supply
- 2 A type A USB master connector for peripheral connection and application transfer
- 3 A removable terminal block for 12 discrete inputs and 6 discrete outputs
- 4 An interface for connecting M238 logic controller I/O expansion modules
- 5 An interface for connecting the CANopen bus master module (see page 4/13)
- 6 Discrete I/O expansion module (TM2 D●●). To be ordered separately (see page 2/50)



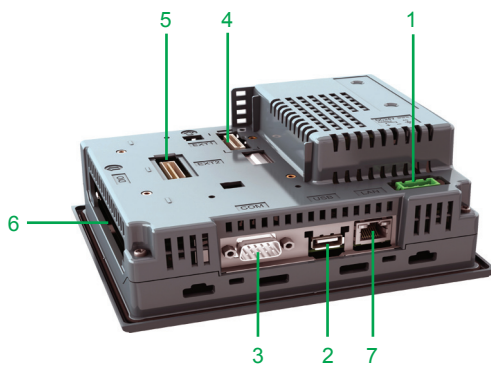


Description

Magelis XBT GC2●20 and XBT GC2●30 HMI Controller

The front panel comprises:

- 1 A touch screen for displaying mimics (5.7" monochrome or colour)
- 2 A multicolour indicator (green, orange and red) showing the terminal's operating mode

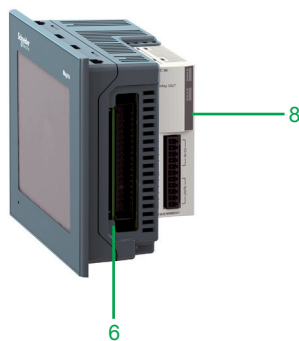


The rear panel comprises:

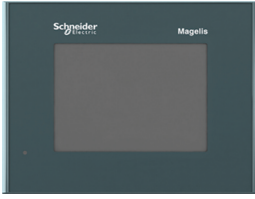
- 1 A removable screw terminal block for 24 V $\overline{\text{---}}$ supply
- 2 A type A USB master connector for peripheral connection and application transfer
- 3 A 9-way male SUB-D connector for RS 232C or RS 422/485 serial link to PLCs (COM1)
- 4 An interface for connecting the M238 logic controller I/O expansion module
- 5 An interface for connecting the CANopen bus master module (see page 4/13)
- 6 A removable terminal block for 16 discrete inputs and 16 discrete outputs

On XBT GC2330 only:

- 7 An RJ45 connector for Ethernet TCP/IP, 10BASE-T/100BASE-TX connection
- 8 Discrete I/O expansion module (TM2 D●●). To be ordered separately (see page 2/50)



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XBT GC1100●



XBT GC2●●●



XBT ZGUSB

Magelis XBT GC HMI Controller (1)

Type of screen	No. of ports	Application memory capacity	Compact Flash memory	Integrated I/O	No. of Ethernet ports	Reference	Weight kg
3.8" screen							
STN amber or red	1 USB	16 MB	No	12 I/6 O source	-	XBT GC1100T	0.400
				12 I/6 O sink	-	XBT GC1100U	0.400
5.7" screen							
STN black and white mode	1 COM1 1 USB	16 MB	No	16 I/16 O source	-	XBT GC2120T	1.000
				16 I/16 O sink	-	XBT GC2120U	1.000
5.7" screen							
STN colour	1 COM1 1 USB	16 MB	No	16 I/16 O source	1	XBT GC2230T	1.000
				16 I/16 O sink	1	XBT GC2230U	1.000

Separate parts

Designation	Compatibility	Size	Reference	Weight kg
Protective sheets (5 peel-off sheets)	XBT GC 1100	-	XBT ZG60	
	XBT GC2●●0	-	XBT ZG62	0.200
Designation	Description	Length	Reference	Weight kg
Remote USB port location for type A XBT terminal	Enables the USB port to be located remotely on the rear of the XBT terminal on a panel or cabinet door (Ø 21 mm fixing device)	1 m	XBT ZGUSB	-
Remote USB port location for mini type B XBT terminal		-	XBT ZGUSBB	-
XBT GC connection to CANopen master fieldbus	Connection via card on expansion bus	-	XBT ZGCCAN	-
Cable for transferring application to PC	USB connector, type TTL	2 m	XBT ZG 935	-

Replacement parts

Designation	Use for	Reference	Weight kg
Installation gaskets	XBT GC1100	XBT ZG51	0.030
	XBT GT21●0	XBT ZG52	0.030
USB spring clip	XBT GC 1100	XBT ZGCLP2	-
	XBT GC 2●●0	XBT ZGCLP4	-
Mounting kit	4 clips and screws (max. tightening torque: 0.5 Nm), supplied with all XBT GC terminals	XBT ZG FIX	0.100
Spring clip for expansion modules on XBT GC	XBT GC2●●0 terminals	XBT ZGCHOK	0.030
Power supply connector	XBT GC1●●●/GC2●●●	XBT ZGPWS1	0.030
Direct I/O connector	XBT GC1000	XBT ZG DIO1	-
	XBT GC2000	XBT ZG DIO2	-

(1) Terminals supplied with fixing kit (clips with screws), locking catch for USB connectors, spring clip for expansion modules (except XBT GC 1100) and instruction sheets. The setup documentation for XBT GC terminals is supplied in electronic format with the SoMachine software (see page 5/5).



XBT GC1●●● Combining two TM2 expansion modules (1)

Combinations	Type	Type	Total thickness (mm)	Combination
A	A	A	35.2	Authorized
A	A	B	41.1	
B	B	B	47.0	
A	A	C	47.3	
B	B	C	53.2	
A	A	D	56.7	
C	C	C	59.4	
B	B	D	62.6	Prohibited
C	C	D	68.8	
D	D	D	78.2	



XBT GC2●●● Combining two TM2 expansion modules (1)

Combinations	Type	Type	Total thickness (mm)	Combination
A	A	A	35.2	Authorized
A	A	B	41.1	
B	B	B	47.0	
A	A	C	47.3	
B	B	C	53.2	
A	A	D	56.7	
C	C	C	59.4	
B	B	D	62.6	Prohibited
C	C	D	68.8	
D	D	D	78.2	

Combining three TM2 expansion modules (1)

Combinations	Type	Type	Type	Total thickness (mm)	Combination
A	A	A	A	52.8	Authorized with hook (2)
A	A	A	B	58.7	
A	A	B	B	64.6	
B	B	B	B	70.5	
Any other combination					Prohibited

(1) Modicon TM2 expansion modules: see page 3/6.

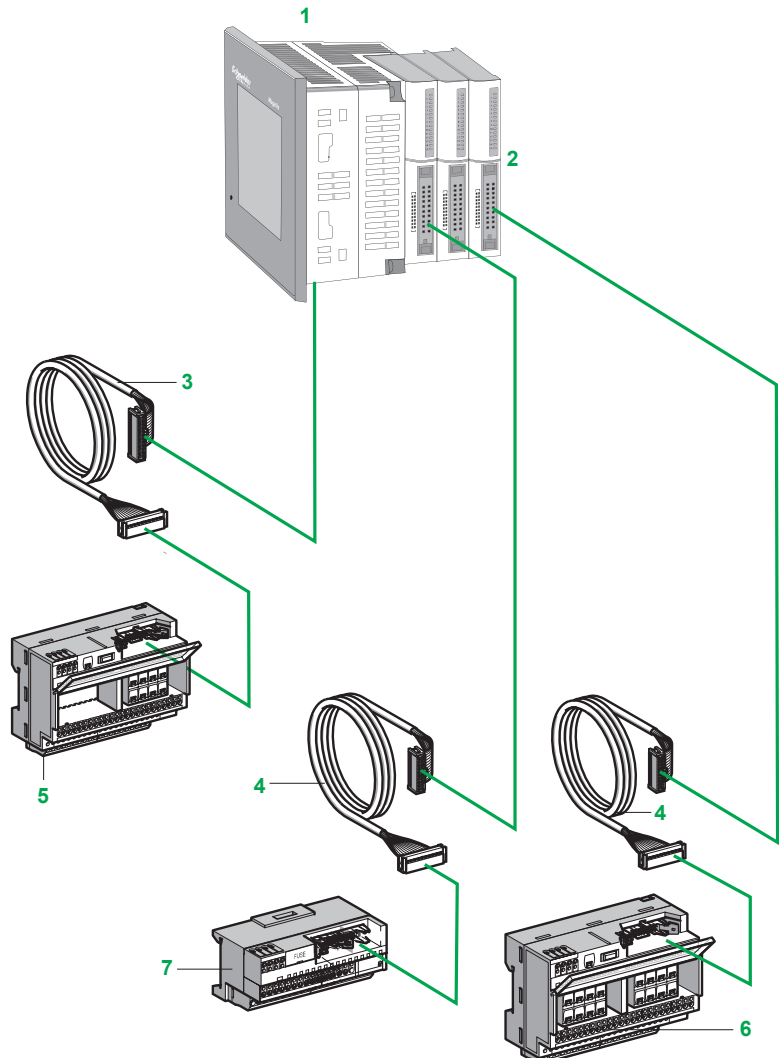
(2) Hook supplied with the product

Hardware control platforms

HMI Controllers

Modicon Telefast ABE 7 pre-wired system for Magelis XBT GC HMI Controller

Presentation



- 1 XBT GC equipped with direct I/O 22 or 38-way connectors. The modularity options offered have 18 or 32 I/O.
- 2 Input and output modules equipped with 20-way HE 10 connectors. The modularity options offered have 16 or 32 I/O.
- 3 2 m AWG 28/0.08 mm² cables, depending on the model:
 - For **XBT GC 1100T/U**: **XBT ZG ABE1** cable equipped with a 26-way HE 10 connector and a 22-way direct I/O-XBT GC connector at each end.
 - For **XBT GC 2●●●T/U**: **XBT ZG ABE2** cable equipped with two 20-way HE10 connectors and a 38-way direct I/O-XBT GC connector.
- 4 **ABF T20E●●0** cable equipped with a 20-way HE 10 connector at each end. This cable is available in 0.5, 1, 2 and 3 metre lengths (AWG 28/0.08 mm²).
- 5 Depending on model:
 - For **XBT GC1100T**: **ABE 7B20MPN2●** or **ABE 7B20MRM20** 20 channel sub-base for bases.
 - For **XBT GC 2●●●T**: **ABE 7E16EPN20** or **ABE 7E16SPN2●** 16-channel sub-base.
- 6 **ABE 7E16SPN22** or **ABE 7E16SRM20** 16-channel sub-base for output expansion modules.
- 7 **ABE 7E16EPN20** or **ABE 7E16SPN20** 16-channel sub-base for input or output expansion modules.

Combinations involving modular bases and I/O expansion modules						
	XBT GC				Discrete I/O expansion modules	
	Integrated I/O				Inputs	Outputs (source)
	XBT GC 1100T		XBT GC 2●●●T		TM2 DDI 16DK (16 I) TM2 DDI 32DK (32 I)	TM2 DDO 16TK (16 O) TM2 DDO 32TK (32 O)
Integrated in Twido programmable controllers	12 I	6 O source	16 I	16 O source		
Types of connection terminal block	Direct I/O, 22-way		Direct I/O, 38-way		HE 10, 20-way	
Connection to XBT GC HMI programmable controller	XBT ZG ABE1		XBT ZG ABE2		ABF T20E●●0 (HE 10, 20-way)	
Passive connection sub-bases						
20 channels	ABE 7B20MPN2●		(1)			
16 channels	ABE 7E16EPN20					
	ABE 7E16SPN2●					
Output adaptor sub-bases						
20 channels	ABE 7B20MRM20		(2)			
16 channels	ABE 7E16SRM20					

 Compatible
 Not compatible

Note: Telefast cables and modules are not compatible with XBT GC which have sink outputs (suffix U).

(1) 6 channels used out of 8 available

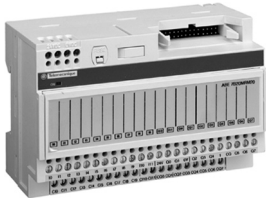
(2) 6 channels used out of 8 available with 2 transistor outputs and 4 relay outputs

Hardware control platforms

HMI Controllers

Modicon Telefast ABE 7 pre-wired system for Magelis XBT GC HMI Controller

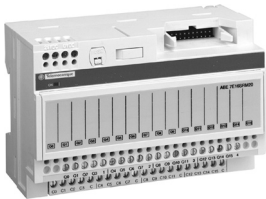
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ABE 7B20MPN20



ABE 7E16EPN20



ABE 7E16SRM20

References

For XBT GC 1100T bases

Number of I/O	No./ type of input	No./ type of output	Compatibility	LED per channel	Fuse	Reference	Weight kg
20	12, sink 24 V $\overline{\text{---}}$	6, source 24 V $\overline{\text{---}}$	XBT GC1100T	No	No	ABE 7B20MPN20	0.430
				Yes	Yes	ABE 7B20MPN22	0.430
	12, sink 24 V $\overline{\text{---}}$	2, source 24 V $\overline{\text{---}}$, 2 A and 4, relay 24/250 V $\overline{\text{---}}$ \sim , 3 A	XBT GC1100T	No	No	ABE 7B20MRM20	0.430

For expansion modules or for XBT GC 2000T bases

Number of inputs	Type of input	Compatibility	LED per channel	Fuse	Reference	Weight kg
16	Sink 24 V $\overline{\text{---}}$	TM2 DDI16DK/ DDI32K and XBT GC2000T	No	No	ABE 7E16EPN20	0.430

Number of outputs	Type of output	Compatibility	LED per channel	Fuse	Reference	Weight kg
16	Source 24 V $\overline{\text{---}}$	TM2 DDO16TK/ DDO32TK and XBT GC2000T	No	No	ABE 7E16SPN20	0.450
			Yes	Yes	ABE 7E16SPN22	0.450
	Relay 24/250 V $\overline{\text{---}}$ \sim , 3 A		No	No	ABE 7E16SRM20	0.430

Connection cables for XBT GC

Type of signal	Compatibility	Connection type		Gauge Cross-sect.	Length (1)	Reference	Weight kg
		XBT GC side	Telefast side				
Discrete I/O	XBT GC 1100T	Direct I/O	HE 10 26-way	AWG 28 0.08 mm ²	2.0 m	XBT ZG ABE1	0.180
		22-way	2 x HE 10 20-way				
	XBT GC 2000T	Direct I/O	38-way	20-way	2.0 m	XBT ZG ABE2	0.180
	TM2 DDI16DK/ DDI32DK/ DDO16TK/ DDO32TK	HE 10 20-way	HE 10 20-way	AWG 28 0.08 mm ²	0.5 m	ABF T20E050	0.060
1 m					ABF T20E100	0.080	
2 m					ABF T20E200	0.140	

Accessories

Designation	Number of shunted terminals	Characteristics	Sold in lots of	Unit reference	Weight kg
Optional snap-on terminal blocks	20	–	5	ABE 7BV20	0.060
	12+8	–	5	ABE 7BV20TB	0.060
Quick-blow fuses 5 x 20, 250 V, UL	–	0.125 A	10	ABE 7FU012	0.010
		0.315 A	10	ABE 7FU030	0.010
		1 A	10	ABE 7FU100	0.010
		2 A	10	ABE 7FU200	0.010

(1) Please contact us for lengths > 2 m

Hardware control platforms

HMI Controllers

Modicon Telefast ABE 7 pre-wired system for
Magelis XBT GC HMI Controller

References (continued)							
Separate parts							
Description	Type	Compatibility		Reference	Weight kg		
Connectors Sold in lots of 5	HE 10 female 26-way	TWD LMDA20DTK/ LMDA40DTK		TWD FCN2K26	-		
	HE 10 female 20-way	TM2 DDI16DK/ DDI32DK/ DDO16TK/ DDO32TK		TWD FCN2K20	-		
Screw terminals Sold in lots of 5	10-way	TM2 DDI16DT/DAI8DT/ DDO8T/DRA8RT		TWD FTB2T10	-		
	11-way	TM2 DMM8DRT/ AMI8T/ARI8HT		TWD FTB2T11	-		
Designation	Compatibility	Connection type		Gauge/ Cross-sect.	Length	Reference	Weight kg
Cables for discrete I/O	TM2 DDI16DK/ DDI32DK/ DDO16TK/ DDO32TK	HE 10	Flying leads	AWG 22	3 m	TWD FCW30K	0.405
		20-way		0.035 mm ²	5 m	TWD FCW50K	0.670
Rolled ribbon cable	20 conductors	-	-	AWG 28 0.08 mm ²	20 m	ABF C20R200	1.310

