

B.E.G. CHRONOLUX



Time switches Catalogue





B.E.G. Brück Electronic GmbH – a company with a tradition

Since 40 years, the family company founded in 1975 with its headquarters in Lindlar (near Cologne) stands for quality and innovation with customer satisfaction at its heart. The foundation stone of the products within the comprehensive range was the development and production of emergency lights. Shortly thereafter the production of emergency lighting systems followed.

B.E.G. was one of the first companies in Germany to commence the production of motion detectors and automatic lights in 1986. Since then, B.E.G. has produced several generations of motion detectors mainly for outdoor use on buildings that help increase security. The growth in automated systems for buildings and the resulting increase in the demand for intelligent control led to an expansion in our range of daylight- and presence-dependent occupancy detection. The cost reduction through energy saving and the protection of the environment plus the additional comfort factor are strong arguments for the use of occupancy detectors.

The purpose-built distribution and logistics centre with an attached production and development unit in Lindlar was commissioned in 2007.

In 2014, the administration building has been built next to the distribution and production centre. Naturally, the new centre's building services are equipped with devices from the B.E.G. range: all rooms and passages are fitted with KNX occupancy detectors. For controlling DALI lights, occupancy detectors, blinds and light switches, the self-developed KNX Room Controller RCT is used. The market for energy-efficient products, such as B.E.G.'s occupancy detectors, has been growing strongly for years. The new administration centre and its location next to the logistics centre offer the possibility to continue B.E.G.'s expansion.

In order to offer the customers a clear product structure, the product range has been divided into six product lines (CHRONOLUX, LUXOMATIC®, CHRONOLUX net, SAFETYLUX®, CHRONOLUX and B.E.G. SMARTHOME®). They emphasise B.E.G.'s strengths: a broad product range, individual solutions, outstanding quality, and personal service.

B.E.G. has an excellent reputation all over Germany and internationally with a steadily increasing number of offices and representatives in many countries around the world. B.E.G. – The lighting control professionals.



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PRECISE TIME ON VIEW

Fast and comfortable programming thanks to text controlled LCD-Menu and easy control panels for direct use.



TRAVEL THROUGH PRESENT TIME

Simple installation of a date based holiday program as well as an automatic changeover of summer and winter periods according to GMT.



TIME MEASUREMENT WITH STRUCTURE

Flexible creation of new switching times with gradually and targeted menu driving for individual query, change and deleting.



EFFECTIVE SECURITY EVERY TIME

Possibility to enter a PIN-Code for an optimal protection against unauthorized operation and program changing.



OPTIMIZED TIME MANAGEMENT

Copy other week-days with equal switching times by means of copy function for a quick adaptation of daily and weekly programs.

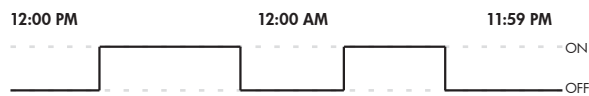


SWITCHING ALWAYS ON TIME

Accurate control of pulse times as well as fast installation of periodical switching times with a cycle function.

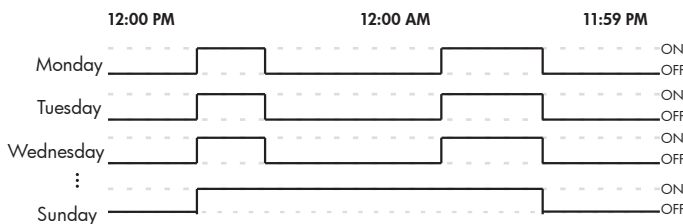
▪ **Daily program 24h^{prog}**

Irrespective of the day of the week the same switching program is carried out each day. Multiple switching functions can be programmed within 24 h.



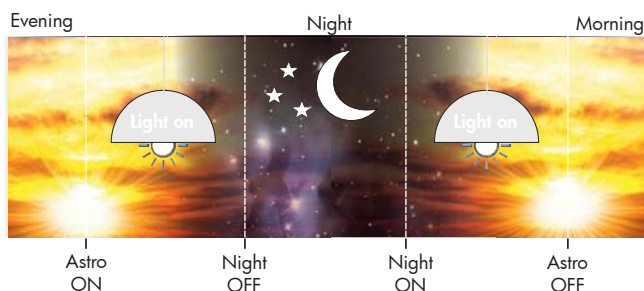
▪ **Weekly program week^{prog}**

Depending on the day of the week (Mo - Su) different daily programs can be configured. Unrestricted block programming allows a free choice of days of the week within one switching function. The choice of switching functions is the following: ON, OFF, permanent by date (holiday), pulse (pulse not available in astro time switches).



▪ **Astro program / Solar program astr-☉**

Astronomical or solar time switches can be used as an alternative to twilight switches (also known as photoelectric or day/night switch). When using an astro time switch NO light sensor is needed. By means of "astro switching times" (Astro ON / Astro OFF) the time switch automatically calculates the start of dusk in the evening or the beginning of dawn in the morning and calculates the time for sunset and sunrise respectively. This calculation is updated each day throughout the whole year. Additionally, conventional switching functions of a weekly time switch can be programmed (ON, OFF, (holiday) permanent by date).



Offset: A chronological offset can be entered. This offset customises the astro switching times. Therefore the time switch can execute an astro switching time either before or after sunset/sunrise or, if the offset is left at zero, exactly at sunrise/sunset.

Position/location: To guarantee exact calculation of local sunset and sunrise times, you can easily enter your approximate geographical coordinates (longitude and latitude).

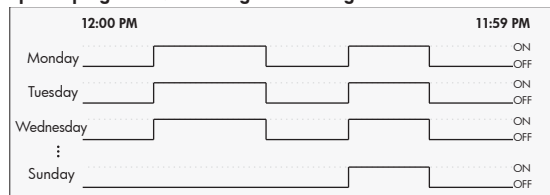
▪ **Yearly program year^{prog}**

Yearly time switches are suitable to achieve more sophisticated time controls compared to standard weekly programs. By means of special (weekly) programs different weekly programs can be carried out within different periods during the year (from start date to end date).

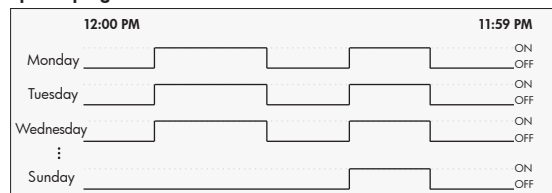
Easter function: One additional function when carrying out a special weekly program is the Easter function. If you selected it for a period with start date and end date, these dates, are shifted by the shift of Easter holiday for successive years (Gaussian Easter formula). This function is applicable for holidays e.g. Ash Wednesday, Palm Sunday, Maundy Thursday, Good Friday, Easter Day, Pentecost, Feast of Corpus Christi, Carnival.

Extra switching time: A further feature is the extra switching times. Single switching times can be programmed for a specific date (e.g. Anniversary). The residual switching program remains unaffected. A helpful add-on is the option "weekday function". If you assign this to your extra switching time the shift of this weekday of the month will be taken into account for successive years. E.g.: A switching time that should be carried out every 2nd saturday of february every year.

Special program 1 ▶ 01. August - 21. August



Special program 1 ▶ Start date - 21. End date



Special program 1 ▶ Start date - 21. End date



ENERGY SAVINGS YEARLY TIME SWITCH

| Power density | Configuration | ON-Switching of the light | Consumption |
|--|---|---|------------------------|
| max. power density 10 W/m ² | Typical open-plan office 300 m ² | 11 hours 260 days 1 weekends 1 nights in a month | 11244 kWh / year |
| max. power density 10 W/m ² | Typical open-plan office 300 m ² | 11 hours 260 days | 8580 kWh / year |
| | | | 2664 kWh / year |
| | | | 25 % savings |

▪ Permanent by date (holiday function)

You have the possibility to switch a channel during a period (from start date to end date) permanently ON or OFF.

▪ Pulse function pulse

The pulse function is a function for a switching time with defined pulse length ranging from 00:01 to 59:59 mm:ss.

▪ Timer function timer

(only for manual and external trigger signals)

The timer function can only be started by an external signal (external input) or by the channel buttons of the time switch. The switching performance is identical to the pulse function. The pulse length is greater and ranges from 0:00:01 h:mm:ss to 9:59:59 h:mm:ss. The timer function is also known under following terms: On-pulse or Single shot.

▪ Cycle function cycle

The cycle function can be used to program a continuous ON-OFF-ON-OFF... switching time. The time switch operates then as an asymmetrical recycler (pulse/pause). The independently adjustable max pulse/pause lengths are 9:59:59 h:mm:ss. 4 different memory locations are reserved for 4 different cycles.

▪ Channel button

You can assign different switching functions to each single channel. This function is carried out when either pressing the corresponding channel button of the time switch or optionally by addressing the channel from the external input. The different switching functions are the following: ON/OFF (predefined setting, see also "manual override"), cycle, timer, permanent.

▪ External input extern

The external input can be used as external trigger for different functions (ON/OFF, cycle, timer, permanent). The signal connected to the external input can be of type "switch" or "push-button".

Staircase lighting timer: When using the timer function and advanced warning function.

Glow lamp load of the external input: Max. 75 mA (Used to supply the glow lamp in suitable light switches; not available in 70 mm versions.)

▪ Advance warning function

A useful function for lighting applications according DIN 18015-2. Two-fold flashing warns of darkness.

▪ Radio controlled clock dcf

Some time switches can be controlled by radio receiver (Part number 92683). The time switch is then synchronised to the time standard signal DCF77.

The transmitter is located close to Frankfurt/Main (Mainflingen). The range is approx. 15000 km.

▪ Data key function data

Time switches with this function can be programmed by data key TS-ACC-DS1 (accessory).

The functions are as follows:

- Data back-up of the time switch
- Programming the time switch with the pre-programmed key program
- Time switch executes only the key program

Programming package TS-ACC-DS2:

A useful accessory for the data key TS-ACC-DS1 is the programming package TS-ACC-DS2. You can easily program your switching program with the PC and transfer it to the time with the data key switch.

Removable programming module: data

The data key function is included within the removable module of the time switches TS-DW1 and TS-ASTRO1. In addition to manual programming these modules are also programmable with a programming package. The modules plug into the PC interface (no data key needed).

▪ PIN-Code pin

Security by PIN-coding.

▪ Display with back light lcd

For a better contrast of displayed symbols, digits and letters.

▪ Permanently ON and OFF (manual)

By pressing the corresponding channel button for more than 3 sec. the channel is permanently switched ON or OFF.

▪ Manual override

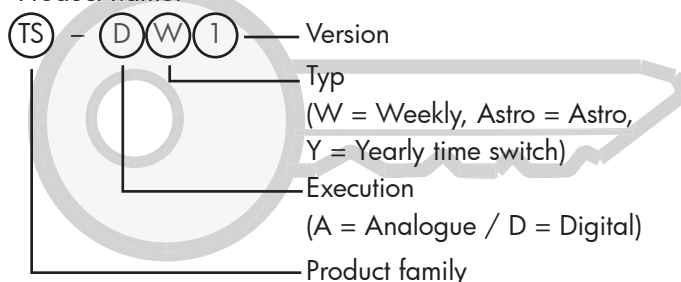
By pushing the channel button the corresponding channel will change its status.

▪ Time counter h

Time switches with integrated time counter are counting operation hours and the number of switchings of each channel as well as the operation hours of the time switch.

▪ Decoding of the type designations

Product name:





WEEKLY TIME SWITCHES

| Digital time switch | Part nr. | DIN-rail mounting | Front dimensions in mm | Memory location | Relay / Channel | Data key | Pulse / Timer | Cycle | Add-ons |
|---------------------|----------|-------------------|------------------------|-----------------|-----------------|----------|---------------|-------|---------|
| TS-DW1 | 92656 | ▪ | 17.5 x 45 | 46 | 1 channel | data | pulse | - | - |
| TS-DW2 | 92658 | ▪ | 35 x 45 | 46 | 1 channel | data | pulse | - | - |
| TS-DW3 | 92659 | ▪ | 35 x 45 | 46 | 2 channels | data | pulse | - | - |

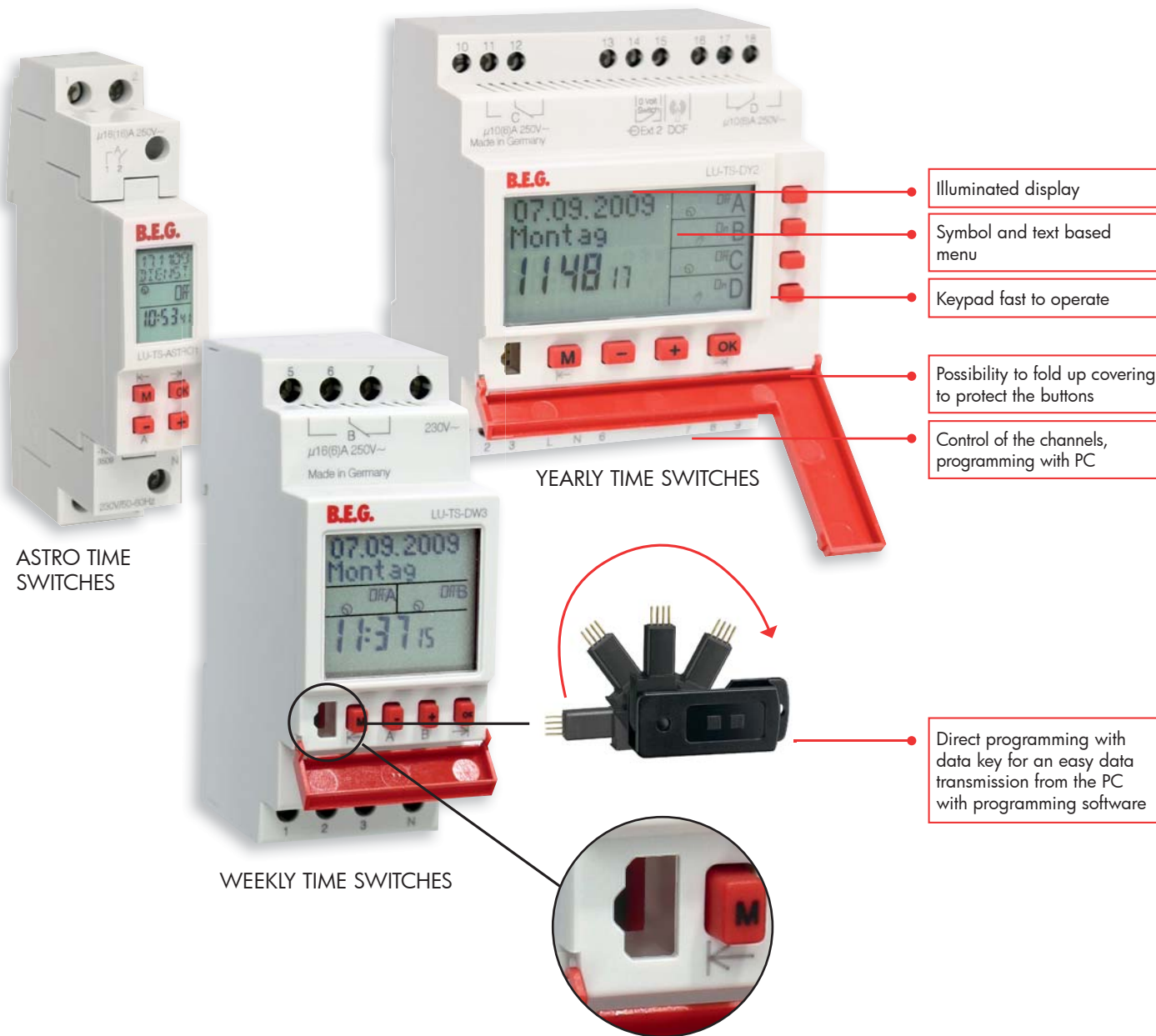
ASTRO TIME SWITCHES

| Digital time switch | Part nr. | DIN-rail mounting | Front dimensions in mm | Memory location | Relay / Channel | Data key | Pulse / Timer | Cycle | Add-ons |
|---------------------|----------|-------------------|------------------------|-----------------|-----------------|----------|---------------|-------|---------|
| TS-ASTRO1 | 92669 | ▪ | 17.5 x 45 | 60 | 1 channel | - | - | - | - |
| TS-ASTRO2 | 92671 | ▪ | 35 x 45 | 100 | 1 channel | data | | - | Extern* |
| TS-ASTRO3 | 92673 | ▪ | 35 x 45 | 100 | 2 channels | data | | - | - |

* one channel time switch

YEARLY TIME SWITCHES

| Digital time switch | Part nr. | DIN-rail mounting | Front dimensions in mm | Memory location | Relay / Channel | Data key | Pulse / Timer | Cycle | Add-ons |
|---------------------|----------|-------------------|------------------------|-----------------|-----------------|----------|---------------|-------|---------------|
| TS-DY1 | 92674 | ▪ | 35 x 45 | 300 | 1 channel | data | pulse | cycle | dcf) |
| TS-DY2 | 92675 | ▪ | 71.5 x 45 | 300 | 4 channels | data | pulse | cycle | Extern / dcf) |



ASTRO TIME SWITCHES

WEEKLY TIME SWITCHES

YEARLY TIME SWITCHES

Illuminated display

Symbol and text based menu

Keypad fast to operate

Possibility to fold up covering to protect the buttons

Control of the channels, programming with PC

Direct programming with data key for an easy data transmission from the PC with programming software

PROGRAMMING WITH A PC

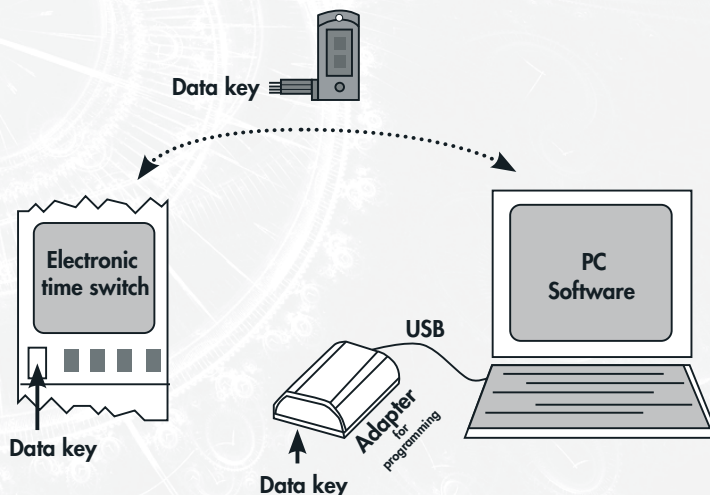
It is possible to generate a print-out of the program as a recording for later reference.

Holidays/permanent program and ON/OFF periods can also be programmed.

The switching program can be back-up easily on a PC or transferred to the data key to copy a switching program from one digital time switch to another.

In connection to the data key, the programming package is a useful extension for the time switch. You are able to comfortably program a switching time from your PC and save switching times on your data key via USB-interface.

Program on CD see page 22!





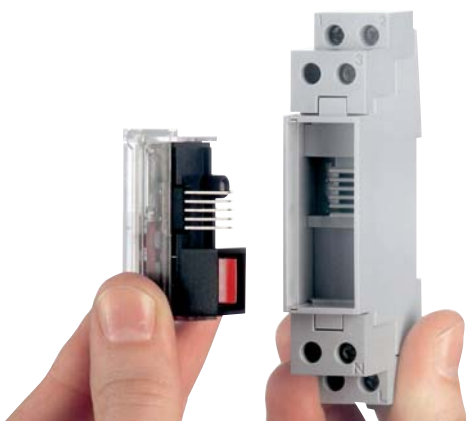
i **PRODUCT INFORMATION**

- 1 channel
- Daily and weekly program
- 46 memory locations
- Minimum interval 1 min.
- Switching capacity 16 A
- Permanent by date / holiday function
- Manual permanent mode
- Manual override
- Automatic sorting of switching times on readout
- Unrestricted block programming
- Fully automatic daylight saving time
- Elapsed time and pulse counter
- Pulse function
- Security by PIN-Code

CHRONOLUX TS-DW1

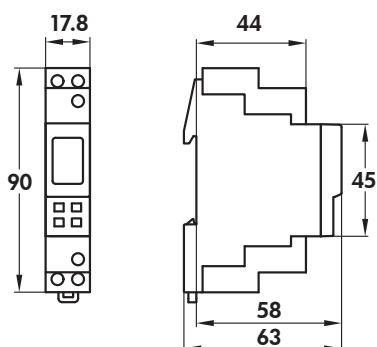
FURTHER INFORMATION

Removable programming module



HIGHLIGHTS

- Text based menu and self-explanatory symbols
- Display with two text lines
- Easy handling. Quick and intuitive programmable time switch
- Can be programmed with supply disconnected (6 years battery-reserve)
- Unlimited program security by EEPROM
- Removeable programming module



■ TECHNICAL DATA

| | |
|---|--|
| Supply voltage | 230 V, 50 – 60 Hz |
| Power consumption (real power) | 0.7 W |
| Channel (potential-free) | Change-over, contact gap < 3 mm (μ) |
| Contact material | AgNi |
| Switching capacity | 16 A / 250 V~ at cosφ= 1 6 A with inductive load cosφ=0.6 |
| Min. switching power | 300 mW (5 V / 5 mA) |
| Max. starting current | 30 A |
| Filament Lamp | 400 W |
| Halogen Lamp | 400 W |
| Fluorescent Lamp electron. lamp ballast | 100 W |
| Fluorescent Lamp convent. lamp ballast | 100 W |
| Mercury Discharge Lamp uncompensated | 1 x 125 W |
| Mercury Discharge Lamp parallel compensated | 1 x 50 W (7 μF) |
| Sodium Discharge Lamp uncompensated | – |
| Compact Fluorescent Lamp | 50 W |
| LED 230 V AC | 50 W |
| Switching functions | ON, OFF, pulse |
| Pulse length pulse function (switching time) | 00:01 up to 59:59 mm:ss |
| Memory locations | 46 |
| Minimum interval | 1 min. |
| Time base | Quartz |
| Power back-up (at 20°C) | approx. 6 years |
| Program security | unlimited by EEPROM |
| Quartz crystal accuracy (at 20°C) | ≤ ±0.5 sec. / day |
| Display | high resolution LCD |
| Permitted ambient temperature | -30°C to +50°C |
| Enclosure | self-extinguishing thermoplastic |
| Dimensions | 45 x 17.5 x 58 mm |
| Distribution board mounting | 35 mm DIN-rail (DIN EN 60715) |
| Type of connection | Screw terminals (pull-up type) |
| Type of protection | IP20 to DIN EN 60529 |
| Class of protection | II when installed according to regulations |
| Certification mark | VDE |

■ OVERVIEW TIME SWITCH FUNCTIONS

| | Switching time | Channel-key |
|-------------------|----------------|-------------|
| ON/OFF | ✓ | ✓ |
| Permanent | ✓ | ✓ |
| Pulse | ✓ | |
| Timer | | |
| Cycle | | |
| Astro | | |
| Permanent by date | ✓ | |
| Yearly program | | |

| Description | Channels | Time base | Part nr. |
|-----------------------------------|----------|-----------|----------|
| Digital weekly time switch TS-DW1 | 1 | Quartz | 92656 |



i **PRODUCT INFORMATION**

- 1 or 2 channels
- Daily and weekly program
- 46 memory locations
- Minimum interval 1 min.
- Switching capacity 16 A per channel
- Permanent by date / holiday function
- Manual permanent mode
- Manual override
- Automatic sorting of switching times on readout
- Unrestricted block programming
- Fully automatic daylight saving time
- Elapsed time and pulse counter
- Pulse function
- Security by PIN-Code
- Illuminated display
- Data key function

CHRONOLUX TS-DW3/2

ACCESSORIES

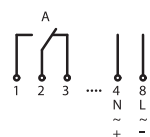
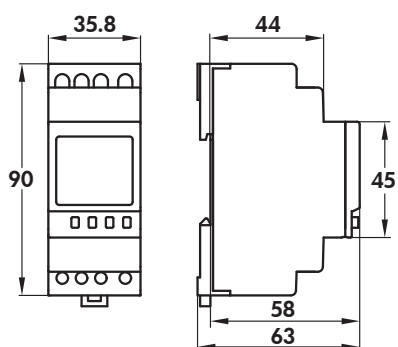
Data key TS-ACC-DS1
(not included in delivery of the time switch)

Programming package TS-ACC-DS2
(not included in delivery of the time switch)

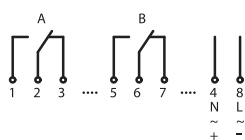


HIGHLIGHTS

- Text based menu and self-explanatory symbols
- Display with a large dot matrix area to provide two high resolution text lines
- Easy handling. Quick and intuitive programmable time switch
- Can be programmed with supply disconnected (6 years battery-reserve)
- Unlimited program security by EEPROM
- Data key TS-ACC-DS1 – programmable with PC-Programming package TS-ACC-DS2 (not included in delivery of the time switch)



Digital weekly time switch 92658 (1 channel)



Digital weekly time switch 92659 (2 channels)

■ TECHNICAL DATA

| | |
|---|---|
| Supply voltage | 230 V, 50 – 60 Hz |
| Power consumption (real power) | 0.8 – 1.8 W (depending on the switching status) |
| Channel (potential-free) | Change-over, contact gap < 3 mm (μ) |
| Contact material | AgCdO |
| Switching capacity per channel | 16 A / 250 V~ at cosφ=1 6 A with inductive load cosφ=0.6 |
| Min. switching power | 500 mW (10 V / 5 mA) |
| Max. starting current | 30 A |
| Filament Lamp | 1.000 W |
| Halogen Lamp | 1.000 W |
| Fluorescent Lamp electron. lamp ballast | 500 W |
| Fluorescent Lamp convent. lamp ballast | 400 W |
| Mercury Discharge Lamp uncompensated | 2 x 125 W, 1 x 250 W |
| Mercury Discharge Lamp parallel compensated | 3 x 50 W (7 μF), 2 x 125 W (10 μF), 1 x 250 W (18 μF) |
| Sodium Discharge Lamp uncompensated | 1 x 150 W |
| Compact Fluorescent Lamp LED 230 V AC | 300 W |
| Switching functions | ON, OFF, pulse |
| Pulse length pulse function (switching time) | 00:01 up to 59:59 mm:ss |
| Memory locations | 46 |
| Minimum interval | 1 min. |
| Time base | Quartz crystal |
| Quartz crystal accuracy (at 20°C) | ± 0.5 sec. / day |
| Power back-up (at 20°C) | approx. 10 years |
| Program security | unlimited by EEPROM |
| Display | high resolution LCD (visible area 7.5 cm ²) |
| Permitted ambient temperature | -30°C to +55°C |
| Enclosure | self-extinguishing thermoplastic |
| Dimensions | 45 x 35 x 58 mm |
| Distribution board mounting | 35 mm DIN-rail |
| Type of connection | Screw terminals (pull-up type) |
| Type of protection | IP20 to DIN EN 60529 |
| Class of protection | II when installed according to regulations |
| Certification mark | VDE |

■ OVERVIEW TIME SWITCH FUNCTIONS

| | Switching time | Channel-key |
|-------------------|----------------|-------------|
| ON/OFF | ✓ | ✓ |
| Permanent | ✓ | ✓ |
| Pulse | ✓ | |
| Timer | | |
| Cycle | | |
| Astro | | |
| Permanent by date | ✓ | |
| Yearly program | | |

| Description | Channels | Time base | Part nr. |
|-----------------------------------|----------|-----------|----------|
| Digital weekly time switch TS-DW2 | 1 | Quartz | 92658 |
| Digital weekly time switch TS-DW3 | 2 | Quartz | 92659 |



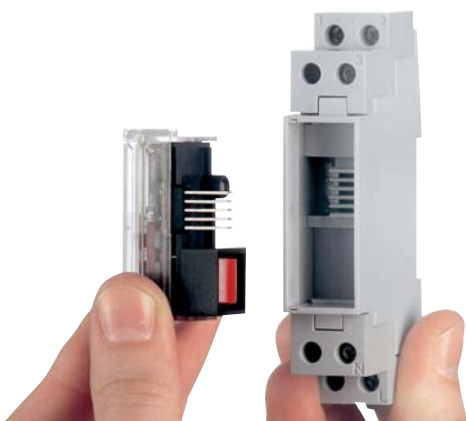
i **PRODUCT INFORMATION**

- 1 channel
- Daily and weekly program
- Astro program
- 60 memory locations
- Minimum interval 1 min.
- Switching capacity 16 A
- Permanent by date / holiday function
- Manual permanent mode
- Manual override
- Automatic sorting of switching times on readout
- Unrestricted block programming
- Fully automatic daylight saving time
- Elapsed time and pulse counter
- Security by PIN-Code

CHRONOLUX TS-ASTRO1

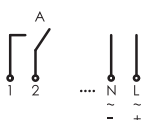
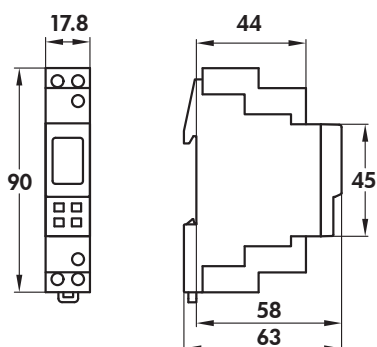
FURTHER INFORMATION

Removable programming module



HIGHLIGHTS

- Astro program
- Text based menu and self-explanatory symbols
- Display with two text lines
- Easy handling. Quick and intuitive programmable time switch
- Can be programmed with supply disconnected (6 years battery-reserve)
- Unlimited program security by EEPROM
- Removeable programming module



■ TECHNICAL DATA

| | |
|--|---|
| Supply voltage | 230 V, 50 – 60 Hz |
| Power consumption (real power) | 1.0 W |
| Channel (potential-free) | Normally open, contact gap < 3 mm (μ) |
| Contact material | AgSnO ₂ + W pre-make contact |
| Switching capacity | 16 A / 250 V~ at cosφ= 1 16 A with inductive load cosφ=0.6 |
| Min. switching power | 1000 mW (10 V / 10 mA) |
| Max. starting current | 165 A / 20 ms (filament lamp) 800 A / 200 μs (fluorescent lamp) |
| Filament Lamp | 2.000 W |
| Halogen Lamp | 2.000 W |
| Fluorescent Lamp uncompensated | 1.000 VA |
| Fluorescent Lamp series compensated | 1.000 VA |
| Fluorescent Lamp parallel compensated | 550 VA |
| Fluorescent Lamp double switch | 1.000 VA |
| Mercury Discharge Lamp uncompensated | 4 x 125 W, 2 x 250 W, 1 x 400 W, 1 x 700 W |
| Mercury Discharge Lamp parallel compensated | 6 x 50 W (7 μF), 4 x 125 W (10 μF), 2 x 250 W (18 μF), 1 x 400 W (25 μF), 1 x 700 W (40 μF) |
| Sodium Discharge Lamp uncompensated | 2 x 250 W, 1 x 400 W |
| Sodium Discharge Lamp parallel compensated | 2 x 150 W (20 μF), 1 x 250 W (32 μF), 1 x 400 W (45 μF) |
| Compact Fluorescent Lamp | 400 W |
| LED 230 V AC | 400 W |
| Switching functions | Astro ON/OFF; Night ON/OFF; Extra ON/OFF |
| Offset Astro switching time | +/- 90 min. |
| Memory locations | 60 |
| Minimum interval | 1 min. |
| Time base | Quartz |
| Power back-up (at 20°C) | approx. 6 years |
| Program security | unlimited by EEPROM |
| Quartz crystal accuracy (at 20°C) | ≤ ±0.5 sec. / day |
| Display | high resolution LCD |
| Permitted ambient temperature | -30°C to +50°C |
| Enclosure | self-extinguishing thermoplastic |
| Dimensions | 45 x 17.5 x 58 mm |
| Distribution board mounting | 35 mm DIN-rail (DIN EN 60715) |
| Type of connection | Screw terminals (pull-up type) |
| Type of protection | IP20 to DIN EN 60529 |
| Class of protection | II when installed according to regulations |
| Certification mark | VDE |

■ OVERVIEW TIME SWITCH FUNCTIONS

| | Switching time | Channel-key |
|-------------------|----------------|-------------|
| ON/OFF | ✓ | ✓ |
| Permanent | ✓ | ✓ |
| Pulse | | |
| Timer | | |
| Cycle | | |
| Astro | ✓ | |
| Permanent by date | ✓ | |
| Yearly program | | |

| Description | Channels | Time base | Part nr. |
|-------------------------------------|----------|-----------|----------|
| Digital astro time switch TS-ASTRO1 | 1 | Quartz | 92669 |



i PRODUCT INFORMATION

- 1 or 2 channels
- Daily and weekly program
- Astro program
- 100 memory locations
- Minimum interval 1 min.
- Switching capacity 16 A per channel
- Permanent by date / holiday function
- Manual permanent mode
- Manual override
- Automatic sorting of switching times on readout
- Unrestricted block programming
- Fully automatic daylight saving time
- Elapsed time and pulse counter
- Timer function
- Advanced warning function
- External input function (only 1-channel-versions)
- Channel button function
- Security by PIN-Code
- Illuminated display
- Data key function

CHRONOLUX TS-ASTRO3/2

ACCESSORIES

Data key TS-ACC-DS1
(not included in delivery of the time switch)

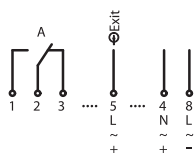
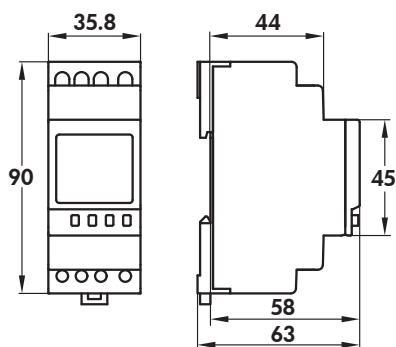


Programming package TS-ACC-DS2
(not included in delivery of the time switch)

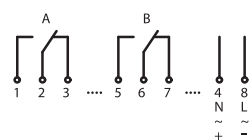


HIGHLIGHTS

- Astro program
- Text based menu and self-explanatory symbols
- Display with a large dot matrix area to provide two high resolution text lines
- Easy handling. Quick and intuitive programmable time switch
- Can be programmed with supply disconnected (10 years battery-reserve)
- Unlimited program security by EEPROM
- Data key TS-ACC-DS1 – programmable with PC-Programming package TS-ACC-DS2 (not included in delivery of the time switch)



Digital astro time switch 92658 (1 channel)



Digital astro time switch 92659 (2 channels)

■ TECHNICAL DATA

| | |
|--|--|
| Supply voltage | 230 V, 50 – 60 Hz |
| Power consumption (real power) | 0.8 – 1.8 W (depending on the switching status) |
| Channel (potential-free) | Change-over, contact gap < 3 mm (μ) |
| Contact material | AgSnO ₂ |
| Switching capacity per channel | 16 A / 250 V~ at cosφ= 1 10 A with inductive load cosφ=0.6 |
| Min. switching power | 1000 mW (10 V / 10 mA) |
| Max. starting current | 50 A |
| Filament Lamp | 2.000 W |
| Halogen Lamp | 2.000 W |
| Fluorescent Lamp electron. lamp ballast | 1.000 W |
| Fluorescent Lamp convent. lamp ballast | 750 W |
| Mercury Discharge Lamp uncompensated | 4 x 125 W, 2 x 250 W, 1 x 400 W, 1 x 700 W |
| Mercury Discharge Lamp parallel compensated | 6 x 50 W (7 μF), 4 x 125 W (10 μF), 2 x 250 W (18 μF), 1 x 400 W (25 μF), 1 x 700 W (40 μF) |
| Sodium Discharge Lamp uncompensated | 2 x 250 W, 1 x 400 W |
| Sodium Discharge Lamp parallel compensated | 2 x 150 W (20 μF), 1 x 250 W (32 μF), 1 x 400 W (45 μF) |
| Compact Fluorescent Lamp | 400 W |
| LED 230 V AC | 400 W |
| Switching functions | Astro ON/OFF; Astro PULSE, Night ON/OFF; Extra ON/OFF |
| Offset Astro switching time | +/- 90 min. |
| Pulse length Timer (man. switching) | 0:00:01 up to 9:59:59 mm:ss |
| Memory locations | 100 |
| Minimum interval | 1 min. |
| Time base | Quartz |
| Power back-up (at 20°C) | approx. 10 years |
| Program security | unlimited by EEPROM |
| Quartz crystal accuracy (at 20°C) | ≤ ±0.5 sec. / day |
| Display | high resolution LCD (visible area 7.5 cm ²) |
| Permitted ambient temperature | -30°C to +55°C |
| Enclosure | self-extinguishing thermoplastic |
| Dimensions | 45 x 35 x 58 mm |
| Distribution board mounting | 35 mm DIN-rail (DIN EN 60715) |
| Type of connection | Screw terminals (pull-up type) |
| Type of protection | IP20 to DIN EN 60529 |
| Class of protection | II when installed according to regulations |
| Certification mark | VDE |

■ OVERVIEW TIME SWITCH FUNCTIONS

| | Switching time | Channel-key |
|-------------------|----------------|-------------|
| ON/OFF | ✓ | ✓ |
| Permanent | ✓ | ✓ |
| Pulse | | |
| Timer | | ✓ |
| Cycle | | |
| Astro | ✓ | |
| Permanent by date | ✓ | |
| Yearly program | | |

| Description | Channels | Time base | Part nr. |
|-------------------------------------|----------|-----------|----------|
| Digital astro time switch TS-ASTRO2 | 1 | Quartz | 92671 |
| Digital astro time switch TS-ASTRO3 | 2 | Quartz | 92673 |



i PRODUCT INFORMATION

- 1 channel
- Daily, weekly and yearly program
- 300 memory locations
- Minimum interval 1 min.
- Switching capacity 16 A
- Permanent by date / holiday function
- Manual permanent mode
- Manual override
- Automatic sorting of switching times on readout
- Unrestricted block programming
- Fully automatic daylight saving time
- Elapsed time and pulse counter
- Pulse function
- Cycle function
- Timer function
- Channel button function
- DCF function
- Security by PIN-Code
- Illuminated display
- Compact 35 mm wide housing
- Data key function

CHRONOLUX TS-DY1

ACCESSORIES

Data key TS-ACC-DS1
(not included in delivery of the time switch)

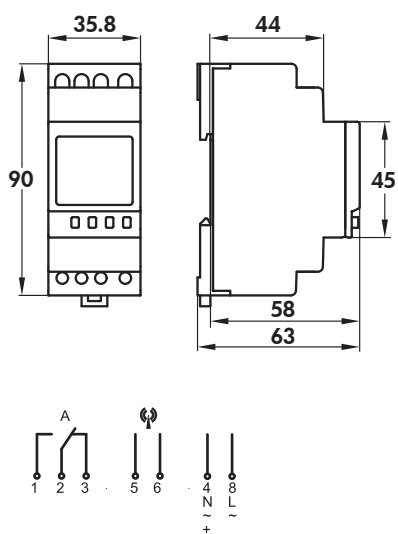
Programming package TS-ACC-DS2
(not included in delivery of the time switch)

DCF radio receiver TS-ACC-FE
(not included in delivery of the time switch)



HIGHLIGHTS

- Yearly program with Easter function, Weekday function and Extra-switchingtime function
- Text based menu and self-explanatory symbols
- Display with a large dot matrix area to provide two high resolution text lines
- Easy handling. Quick and intuitive programmable time switch
- Can be programmed with supply disconnected (10 years battery-reserve)
- Unlimited program security by EEPROM
- Data key TS-ACC-DS1 – programmable with PC-Programming package TS-ACC-DS2 (not included in delivery of the time switch)



■ TECHNICAL DATA

| | |
|---|---|
| Supply voltage | 230 V, 50 – 60 Hz |
| Power consumption (real power) | 1.4 – 1.9 W (depending on the switching status) |
| Channel (potential-free) | Change-over, contact gap < 3 mm (μ) |
| Contact material | AgSnO ₂ |
| Switching capacity | 16 A / 250 V~ at cosφ= 1 10 A with inductive load cosφ=0.6 |
| Min. switching power | 1000 mW (10 V / 10 mA) |
| Max. starting current | 50 A |
| Filament Lamp | 2.000 W |
| Halogen Lamp | 2.000 W |
| Fluorescent Lamp uncompensated | 1.000 VA |
| Fluorescent Lamp series compensated | 1.000 VA |
| Fluorescent Lamp parallel compensated | 550 VA |
| Fluorescent Lamp double switch | 1.000 VA |
| Mercury Discharge Lamp uncompensated | 4 x 125 W, 2 x 250 W, 1 x 400 W, 1 x 700 W |
| Mercury Discharge Lamp parallel compensated | 6 x 50 W (7 μF), 4 x 125 W (10 μF), 2 x 250 W (18 μF), 1 x 400 W (25 μF), 1 x 700 W (40 μF) |
| Sodium Discharge Lamp uncompensated | 2 x 250 W, 1 x 400 W |
| Sodium Discharge Lamp parallel compensated | 2 x 150 W (20 μF), 1 x 250 W (32 μF), 1 x 400 W (45 μF) |
| Compact Fluorescent Lamp | 200 W |
| LED 230 V AC | 200 W |
| Switching functions | ON, OFF, pulse, cycle, yearly program |
| Pulse length Pulse function (switching time) | 00:01 up to 59:59 mm:ss |
| Pulse length Timer (man. switching) | 0:00:01 up to 9:59:59 h:mm:ss |
| Pulse/Pause length Cycle | 0:00:01 up to 9:59:59 h:mm:ss |
| Memory locations | 300 |
| Minimum interval | 1 min. |
| Time base | Quartz crystal or DCF 77 (Part nr. 92683) |
| Power back-up (at 20°C) | approx. 10 years |
| Program security | unlimited by EEPROM |
| Quartz crystal accuracy (at 20°C) | ≤ ±0.5 sec. / day |
| Display | high resolution LCD (visible area 7.5 cm ²) |
| Permitted ambient temperature | -30°C to +55°C |
| Enclosure | self-extinguishing thermoplastic |
| Dimensions | 45 x 35 x 58 mm |
| Distribution board mounting | 35 mm DIN-rail (DIN EN 60715) |
| Type of connection | Screw terminals (pull-up type) |
| Type of protection | IP20 to DIN EN 60529 |
| Class of protection | II when installed according to regulations |
| Certification mark | VDE |

■ OVERVIEW TIME SWITCH FUNCTIONS

| | Switching time | Channel-key |
|-------------------|----------------|-------------|
| ON/OFF | ✓ | ✓ |
| Permanent | ✓ | ✓ |
| Pulse | ✓ | |
| Timer | | ✓ |
| Cycle | ✓ | ✓ |
| Astro | | |
| Permanent by date | ✓ | |
| Yearly program | ✓ | |

| Description | Channels | Time base | Part nr. |
|-----------------------------------|----------|------------|----------|
| Digital yearly time switch TS-DY1 | 1 | Quartz/DCF | 92674 |



i PRODUCT INFORMATION

- 4 Channels
- Daily, weekly and yearly program
- 300 memory locations
- Minimum interval 1 min.
- Switching capacity 16 A per channel
- Permanent by date / holiday function
- Manual permanent mode
- Manual override
- Automatic sorting of switching times on readout
- Unrestricted block programming
- Fully automatic daylight saving time
- Elapsed time and pulse counter
- Pulse function
- Cycle function
- Timer function
- External input function
- Channel button function
- DCF function
- Security by PIN-Code
- Illuminated display
- Data key function

CHRONOLUX TS-DY2

ACCESSORIES

Data key TS-ACC-DS1
(not included in delivery of the time switch)

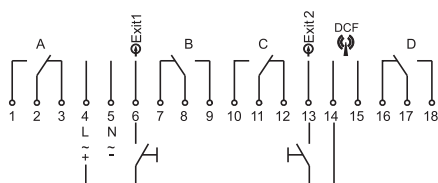
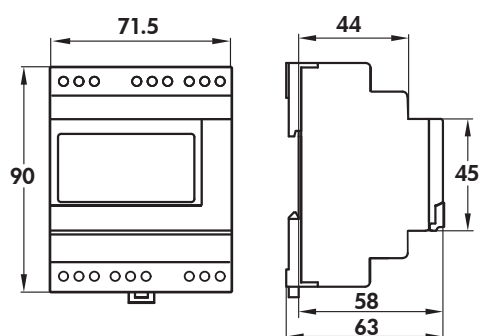
Programming package TS-ACC-DS2
(not included in delivery of the time switch)

DCF radio receiver TS-ACC-FE
(not included in delivery of the time switch)



HIGHLIGHTS

- Yearly program with Easter function, Weekday function and Extra-switchingtime function
- Text based menu and self-explanatory symbols
- Display with a large dot matrix area to provide two high resolution text lines
- Easy handling. Quick and intuitive programmable time switch
- Can be programmed with supply disconnected (10 years battery-reserve)
- Unlimited program security by EEPROM
- Data key TS-ACC-DS1 – programmable with PC-Programming package TS-ACC-DS2 (not included in delivery of the time switch)



■ TECHNICAL DATA

| | |
|---|---|
| Supply voltage | 230 V, 50 – 60 Hz |
| Power consumption (real power) | 1.2 – 3.2 W (depending on the switching status) |
| Channel (potential-free) | Change-over, contact gap < 3 mm (μ) |
| Contact material | AgSnO ₂ |
| Switching capacity per channel | 16 A / 250 V~ at cosφ= 1 10 A with inductive load cosφ=0.6 |
| Min. switching power | 1000 mW (10 V / 10 mA) |
| Max. starting current | 50 A |
| Compact Fluorescent Lamp | 200 W |
| LED 230 V AC | 200 W |
| Switching functions | ON, OFF, pulse, cycle, yearly program |
| Pulse length pulse function (switching time) | 00:01 up to 59:59 mm:ss |
| Pulse length Timer (man. switching) | 00:00:01 up to 9:59:59 h:mm:ss |
| Pulse/Pause length Cycle | 00:00:01 up to 9:59:59 h:mm:ss |
| Memory locations | 300 |
| Minimum interval | 1 min. |
| Time base | Quartz crystal or DCF 77 (Part nr. 92683) |
| Power back-up (at 20°C) | approx. 10 years |
| Program security | unlimited by EEPROM |
| Quartz crystal accuracy (at 20°C) | ≤ ±0.5 sec. / day |
| Display | high resolution LCD (visible area 12.8 cm ²) |
| Permitted ambient temperature | -30°C to +55°C |
| Enclosure | self-extinguishing thermoplastic |
| Dimensions | 45 x 71.5 x 58 mm |
| Distribution board mounting | 35 mm DIN-rail (DIN EN 60715) |
| Type of connection | Screw terminals (pull-up type) |
| Type of protection | IP20 to DIN EN 60529 |
| Class of protection | II when installed according to regulations |
| Certification mark | VDE |

■ OVERVIEW TIME SWITCH FUNCTIONS

| | Switching time | Channel-key |
|-------------------|----------------|-------------|
| ON/OFF | ✓ | ✓ |
| Permanent | ✓ | ✓ |
| Pulse | ✓ | |
| Timer | | ✓ |
| Cycle | ✓ | ✓ |
| Astro | | |
| Permanent by date | ✓ | |
| Yearly program | ✓ | |

| Description | Channels | Time base | Part nr. |
|-----------------------------------|----------|------------|----------|
| Digital yearly time switch TS-DY2 | 4 | Quartz/DCF | 92675 |



i **PRODUCT INFORMATION**

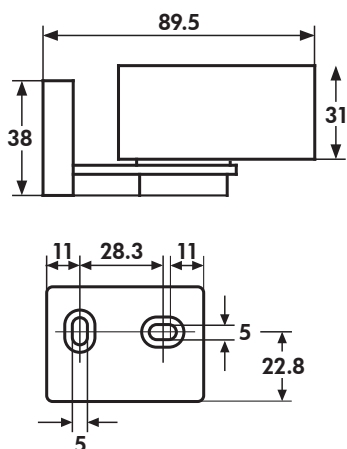
- DCF 77 radio link with TS-ACC-FE
- One receiver can connect to 10 time switches
- Time and date are automatically transferred to the clock
- Fully automatic summertime (European standard)
- Operation indicator: flashing LED on receiving
- Compact housing
- Simple mounting with fastening angle, receiver is rotatable
- Max. length of wire between receiver TS-ACC-FE and time switch 200 m

CHRONOLUX TS-ACC-FE

Range of the signal approx. 1500 km



■ TECHNICAL DATA



Power Supply

via time switch (without battery);
no separate power supply necessary

Output

DCF-protocol

Receiver

narrowband-heterodyne receiver

Operation indicator

flashing LED on receiving

Consequence of an interference with reception

time switches use their quartz as time base

Antenna

built-in ferrite rod

Permitted ambient temperature

-20°C to +50°C

Enclosure

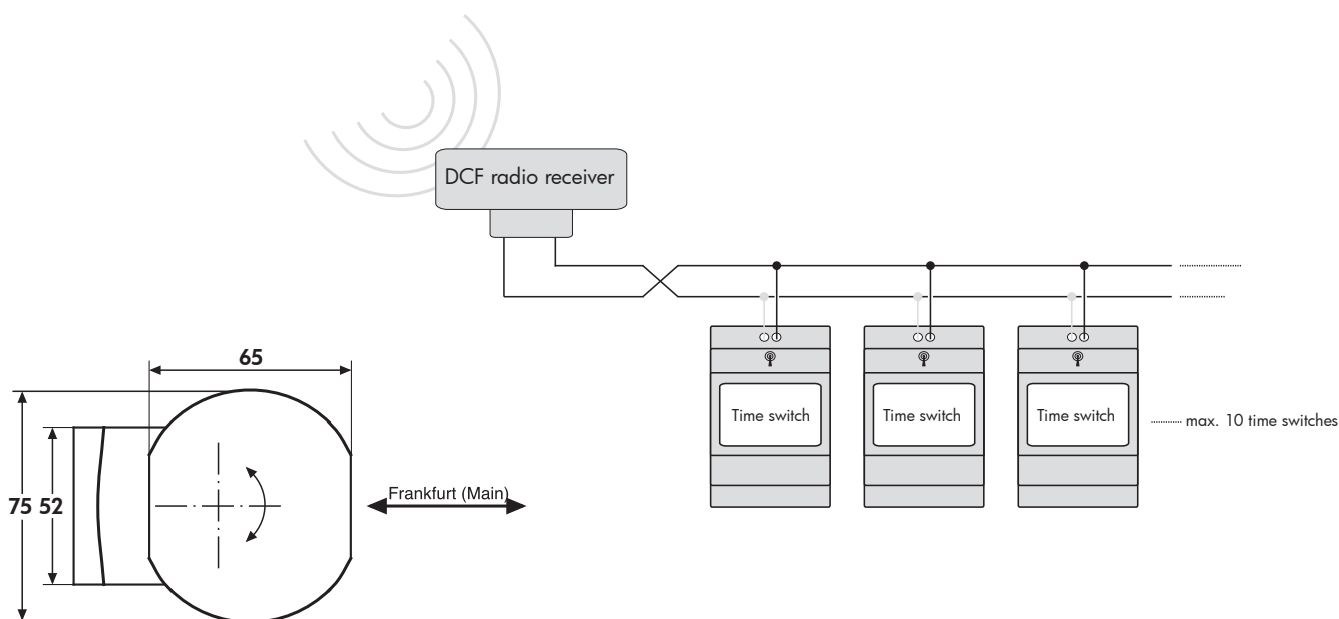
self-extinguishing thermoplastic
fastening angle for wall mounting

Mounting

(receiver is rotatable)

Type of protection

IP54 to DIN EN 60529



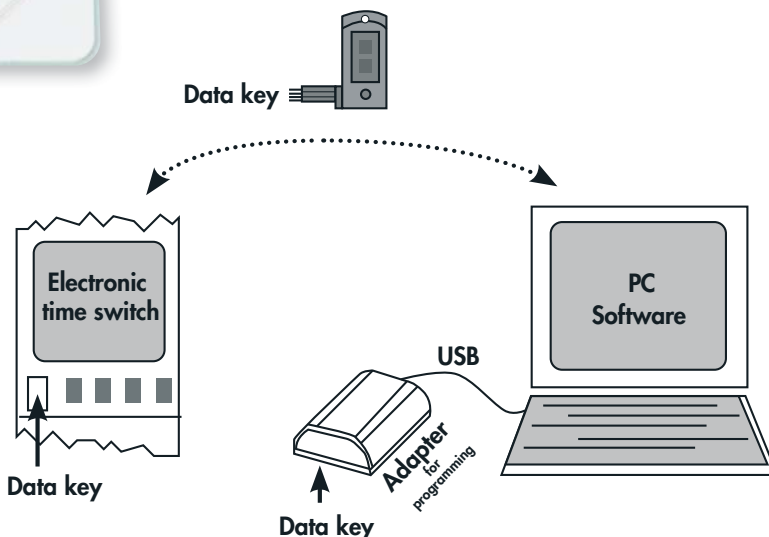
| Description | Version | Part nr. |
|------------------------------|---|----------|
| DCF radio receiver TS-ACC-FE | for wall mounting (receiver is rotatable) | 92683 |



i PRODUCT INFORMATION

- Programming package for easily programming of switching times at your PC
- Simple and logical
- The PC-software allows data download from key to PC, modification of data and upload to data key
- Switching programs can be saved to your PC

CHRONOLUX TS-ACC-DS2



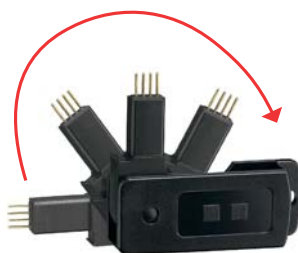
ACCESSORIES

Data key TS-ACC-DS1
(not included in delivery of the time switch)

FURTHER INFORMATION

How can you save a switching program?
How can you copy a switching program from one time switch to the other?

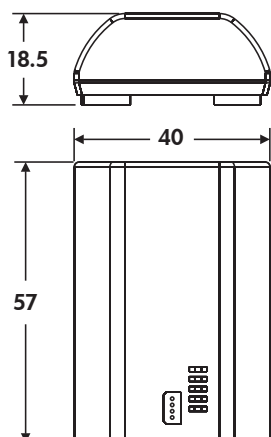
Questions with an easy answer: TS-ACC-DS2!



PROGRAMMING PACKAGE TS-ACC-DS2

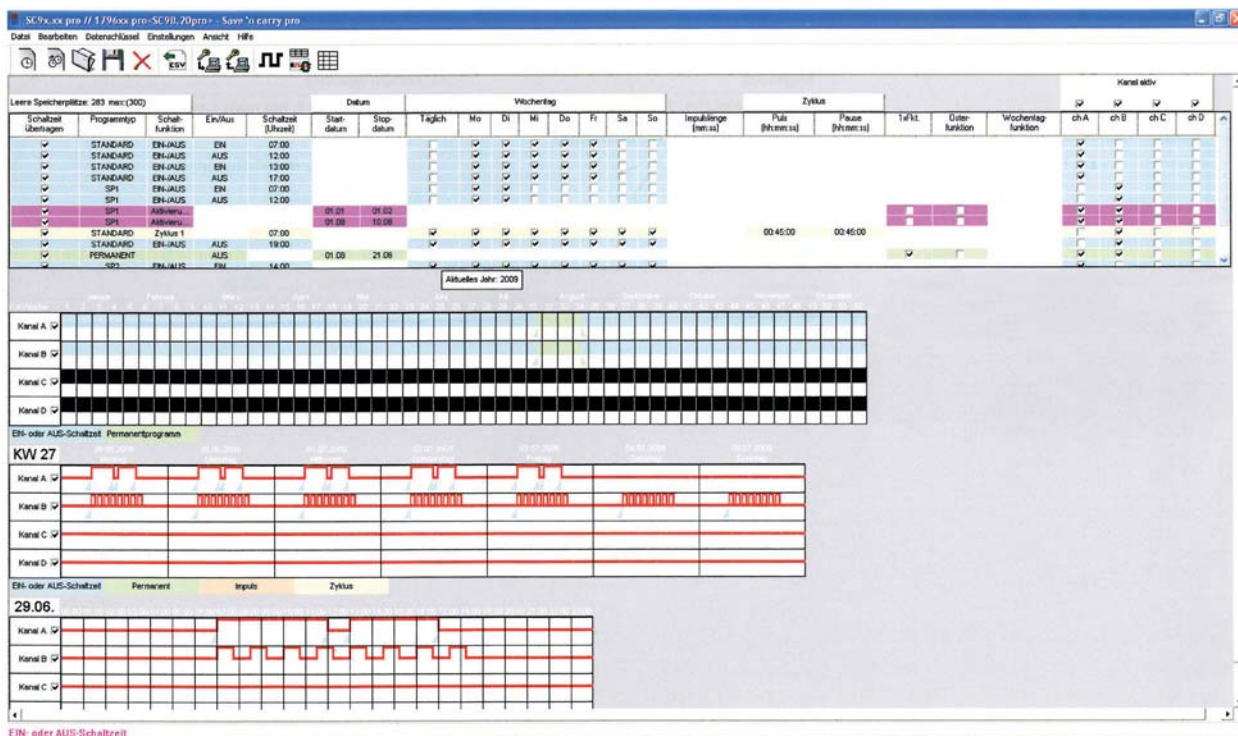
The save and carry programming package (TS-ACC-DS2), together with the data key (TS-ACC-DS1) make programming much easier. Program your time switches easily at your PC and save the switching program via USB-device on the datakey.

■ TECHNICAL DATA



| | |
|-------------------------------|------------------------------------|
| Supply | USB |
| Output | 1 socket for data key |
| Permitted ambient temperature | +5°C to +35°C |
| Storage temperature | -5°C to +45°C |
| Enclosure | POM; PC |
| Contents | Adapter, USB cable, software on CD |

Application sample:



| Description | Delivery contents | Part nr. |
|--------------------------------|------------------------------------|----------|
| Data key TS-ACC-DS1 | - | 92684 |
| Programming package TS-ACC-DS2 | Adapter, USB cable, software on CD | 92685 |

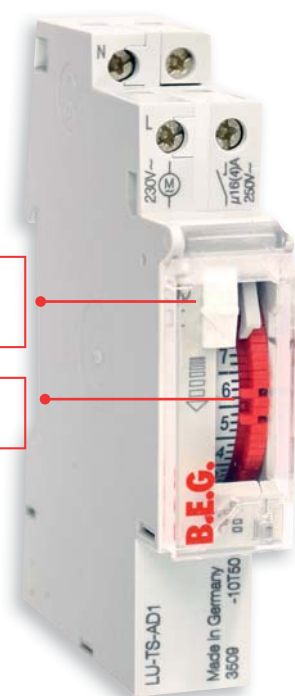


DAILY TIME SWITCHES

| Digital time switch | Part nr. | DIN-rail mounting | Front dimensions in mm | Power back-up | Minimum interval | Power supply 230 V | Time base Quartz crystal | Accuracy | Add-ons |
|---------------------|----------|-------------------|------------------------|---------------|------------------|--------------------|--------------------------|---------------|--------------|
| TS-AD1 | 92676 | ▪ | 17.5 x 45 | – | 15 min. | ▪ | ▪ | ±1.0 sec./day | – |
| TS-AD2 | 92677 | ▪ | 17.5 x 45 | ▪ | 15 min. | ▪ | ▪ | ±1.0 sec./day | – |
| TS-AD3 | 92678 | ▪ | 52.5 x 45 | – | 30 min. | ▪ | ▪ | ±1.0 sec./day | Minute hands |
| TS-AD4 | 92680 | ▪ | 52.5 x 45 | ▪ | 30 min. | ▪ | ▪ | ±1.0 sec./day | Minute hands |

WEEKLY TIME SWITCHES

| Digital time switch | Part nr. | DIN-rail mounting | Front dimensions in mm | Power back-up | Minimum interval | Power supply 230 V | Time base Quartz crystal | Accuracy | Add-ons |
|---------------------|----------|-------------------|------------------------|---------------|------------------|--------------------|--------------------------|---------------|--------------|
| TS-AW1 | 92679 | ▪ | 52.5 x 45 | – | 2 h | ▪ | ▪ | ±1.0 sec./day | Minute hands |
| TS-AW2 | 92657 | ▪ | 52.5 x 45 | ▪ | 2 h | ▪ | ▪ | ±1.0 sec./day | Minute hands |



Manual override switch permanently ON/OFF / AUTO

Easy to read switching program

DAILY TIME SWITCHES



Easy programming with captive setting keys

Mechanical display (clock hands)

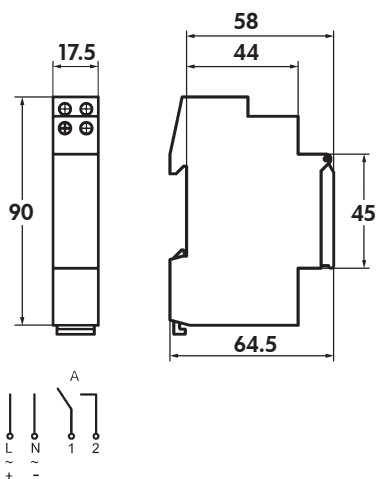
WEEKLY TIME SWITCHES



■ TECHNICAL DATA

| | |
|---------------------------------------|--|
| Supply voltage | 230 V, 50 – 60 Hz |
| Power consumption (real power) | 0.4 W |
| Switch (potential-free) | Normally open, contact gap < 3 mm (μ) |
| Contact material | AgCdO |
| Switching capacity | 16 A / 250 V~ at $\cos\varphi=1$ 2.5 A with inductive load $\cos\varphi=0.6$ max. filament lamp load 2000 W |
| Min. switching power | 120 mW (12 V / 100 mA) |
| Minimum switching interval | 15 min. |
| Time base | Quartz |
| Power back-up (at 20°C) | approx. 100 h |
| Accuracy (at 20°C) | $\leq \pm 1.0$ sec. / day |
| Permitted ambient temperature | -5°C to +50°C |
| Enclosure | self-extinguishing thermoplastic |
| Dimensions | 45 x 17.5 x 58 mm |
| Distribution board mounting | 35 mm DIN-rail (DIN EN 60715) |
| Type of connection | Screw terminals |
| Type of protection | IP20 to DIN EN 60529 |
| Class of protection | II when installed according to regulations |

..... | CHRONOLUX TS-AD1/2



i PRODUCT INFORMATION

- Daily program
- Slim format 17.5 mm
- Captive setting keys
- Manual override switch permanently ON / AUTO

HIGHLIGHTS

- Easy programming with captive setting keys
- Easy to read switching program

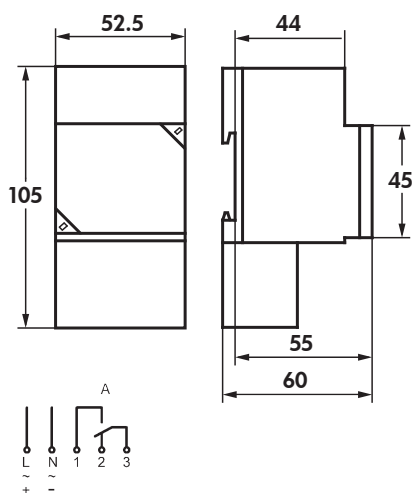
| Description | Version | Part nr. |
|-----------------------------|---------------------|----------|
| Analogue time switch TS-AD1 | Day without reserve | 92676 |
| Analogue time switch TS-AD2 | Day with reserve | 92677 |



■ **TECHNICAL DATA**

| | |
|---------------------------------------|---|
| Supply voltage | 230 V, 50 – 60 Hz |
| Power consumption (real power) | 0.4 W |
| Switch (potential-free) | Change-over, contact gap < 3 mm (μ) |
| Contact material | AgCdO |
| Switching capacity | 16 A / 250 V~ at cosφ=1 2.5 A with inductive load cosφ=0.6 max. filament lamp load 2000 W |
| Minimum switching interval | 30 min. |
| Time base | Quartz |
| Power back-up (at 20°C) | approx. 100 h |
| Accuracy (at 20°C) | ≤ ±1.0 sec. / day |
| Permitted ambient temperature | -5°C to +50°C |
| Enclosure | self-extinguishing thermoplastic |
| Dimensions | 45 x 52.5 x 55 mm |
| Distribution board mounting | 35 mm DIN-rail (DIN EN 60715) |
| Surface mounting | Wall mounting with terminal cover, may be lead-sealed |
| Type of connection | Screw terminals |
| Type of protection | IP20 to DIN EN 60529 |
| Class of protection | II when installed according to regulations |

..... | **CHRONOLUX TS-AD3/4**



i **PRODUCT INFORMATION**

- Daily program
- Slim format 52.5 mm
- Captive setting keys
- Manual override switch permanently ON / AUTO

HIGHLIGHTS

- Easy programming with captive setting keys
- Easy to read switching program
- Analogue display (clock hands)

| Description | Version | Part nr. |
|-----------------------------|---------------------|----------|
| Analogue time switch TS-AD3 | Day without reserve | 92678 |
| Analogue time switch TS-AD4 | Day with reserve | 92680 |

MECHANICAL TIME SWITCH FOR DIN-RAIL MOUNTING AND WALL MOUNTING TS-AW1 AND TS-AW2

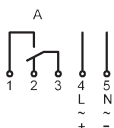
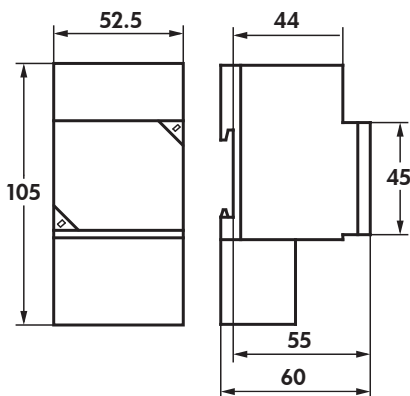
B.E.G.



■ TECHNICAL DATA

| | |
|---------------------------------------|--|
| Supply voltage | 230 V, 50 – 60 Hz |
| Power consumption (real power) | 0.4 W |
| Switch (potential-free) | Change-over, contact gap < 3 mm (μ) |
| Contact material | AgCdO |
| Switching capacity | 16 A / 250 V at $\cos\phi=1$ 2.5 A with inductive load $\cos\phi=0.6$ max. filament lamp load 2000 W |
| Minimum switching interval | 2 h |
| Time base | Quartz |
| Power back-up (at 20°C) | approx. 100 h |
| Accuracy (at 20°C) | $\leq \pm 1.0$ sec. / day |
| Permitted ambient temperature | -5°C to +50°C |
| Enclosure | self-extinguishing thermoplastic |
| Dimensions | 45 x 52.5 x 55 mm |
| Distribution board mounting | 35 mm DIN-rail (DIN EN 60715) |
| Surface mounting | Wall mounting with terminal cover, may be lead-sealed |
| Type of connection | Screw terminals |
| Type of protection | IP20 to DIN EN 60529 |
| Class of protection | II when installed according to regulations |

..... | CHRONOLUX TS-AW1/2



i PRODUCT INFORMATION

- Daily and weekly program
- Slim format 52.5 mm
- Captive setting keys
- Manual override switch
Permanent-ON / Permanent-OFF / Automatic

HIGHLIGHTS

- Easy programming with captive setting keys
- Easy to read switching program
- Analogue display (clock hands)

| Description | Version | Part nr. |
|-----------------------------|----------------------|----------|
| Analogue time switch TS-AW1 | Week without reserve | 92679 |
| Analogue time switch TS-AW2 | Week with reserve | 92657 |



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