Time Switch

16 channel

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	Ref.-No.
KNX year time switch, 16 channel	**2156 REG**
ETS-product family:	Time switch
Product type:	Timer
Series embodiment (SE)-device (6 units)	

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Depending on the time of day, the programmed switching times and the parameterization of the application program, the 16-channel year time switch transmits telegrams to the KNX for up to 16 independent channels. These can be switching, value transmission, forced control or HVAC operating mode switch-over telegrams in accordance with KNX.
Moreover, up to 8 scenes with 6 scene objects each and 4 disable objects can be implemented.

Master/Slave time synchronization / DCF77 synchronization
Depending on parameterization, the time can be transmitted to or received from the bus and therefore be synchronized.
As an alternative, the time can be synchronized by means of a DCF77 antenna.

Display
The display shows the channel status, operating mode, date, day of the week and time of day.

Time switch keypad
The keypad permits entering the date, the time of day and the switching programs as well as the direct selection of individual channels.

Obelisk PC programming tool, Obelisk memory chip
The Obelisk programming tool permits easy compilation of switching event times on a PC and interchange between time switch and PC by means of a data interface. The storage device in this case is the Obelisk memory chip.

Scope of functions for programming of switching times
- Day programs/week programs and year programs
- Random switching programs
- Pulse function
- Weekday and channel groups facility
- “1 x” function (switching command is executed only once)
- Public holiday program (annual adaptation of movable holidays)
- Automatic summer/winter time change-over adaptable for international purposes
- Astro program
- Manual permanently ON/permanently OFF switching (via timer switch)
- Priority assignment
- Switching time simulation (only via Obelisk programming software)

4 Technical data

KNX Supply	
Voltage:	21 – 32 V DC (SELV)
Power consumption:	< 150 mW
Connection:	KNX connecting and branch terminal
External supply:	only required in case of DCF77 antenna connection
Voltage:	230 V ± 10 %
Power consumption:	< 150 mW
Connection:	Screw terminals
Type of protection:	IP 20
Safety class:	II
Mark of approval:	KNX
Ambient temperature:	–5°C ... +45°C
Storage/transport temperature:	–25°C ... +70°C (storage above +45°C reduces the lifetime)
Mounting position:	any
Minimum distances:	none
Fastening:	Snap-fastening on DIN rail (data rail not required)
Memory locations:	500 (free grouping)
Shortest switching interval:	1 second/minute
Shortest pulse:	1 second
Switching accuracy:	precise to the second
Accuracy:	± 1 s/day at 20°C or radio time signal precision (with DCF77)
Running reserve:	Lithium cell approx. 1.5 years (20°C), CR2450, 3 V/560 mA
DCF77 antenna	
Type of protection:	IP 54
Ambient temperature:	–20°C ... +70°C
Mounting position:	orientation as shown in wiring diagram
Receiving range:	1000 km from Frankfurt a.M., Germany
Connection:	max. 1.5 mm^2
Max. distance of antenna:	200 m
Max. loading:	10 devices
Fastening:	Holes in enclosure for fastening screws Fastening with brackets supplied with the device
Response at mains failure	
Bus voltage only:	software-dependent (see software information)
Mains voltage only:	DCF77 reception not possible, if so equipped
Bus and mains voltage:	–
Response on return of supply	
Bus voltage only:	software-dependent (see software information)
Mains voltage only:	DCF77 reception not possible, if so equipped
Bus and mains voltage:	–

Battery

In the event of bus failure, the battery is activated automatically to supply the time switch (not the BCU). In this case, the application module is fully operational (display dark). The switching time programs remain stored in the internal EEPROM.
Current is drawn from the battery only in the event of bus failure (running reserve = approx. 1.5 years).
The battery has a lifetime of approx. 10 years. Observe the polarity when inserting the battery.

DCF77

The internal power supply unit for the DCF77 antenna is connected to the L and N terminals.
Connection to the mains is not required if the device is operated without DCF77.
The KNX bus (the battery in case of bus failure) supplies the operating voltage for the timer clock (incl. date and time-of day). Make sure to connect first the mains and then the bus voltage.
The antenna signal consists of safety extra-low voltage (SELV) with a level of 9 V.
The LED antenna flashes once every second to indicate that the antenna is properly aligned.

- Commissioning of a single time switch
  In the event of only one time switch being in operation, the polarity of the antenna line is irrelevant.

- Commissioning of several time switches (with common antenna)
  1. If several time switches are operated together, the polarity of the antenna cable must be the same for all devices:
     – Connect the antenna cable to all year time switches.
     – Connect the mains voltage only to one time switch.
     – The false-polarity LED indicates an incorrect connection of the antenna cable to a time switch.
  2. Connect the mains voltage to all other time switches.

4 Obelisk memory chip

For the transfer of data, only the Obelisk memory card 64K (supplied with the 16-channel year time switch) can be used.
Data transfer with the Obelisk memory card (2154 EEPROM) for the old KNX 4-channel year time switch REG is not possible!

Requirements: Programming software Obelisk **2.1** + Obelisk interface box **V2.0** + Obelisk memory card 64K.

The “Obelisk” memory chip has the following functions:

1. Keypad lock
   The access to the time switch by means of the built-in keypad can be disabled and re-enabled with the help of the Obelisk memory chip.
   The activation and deactivation procedure is described in the operating instructions.
   Exception:
   Re-initialization with the reset key is possible. If the automatic re-synchronization is interrupted, the date can be changed manually.
   During the next synchronization cycle, the device will, however, be automatically reset to the actual time.
   The keypad lock remains active after an operating voltage failure.
2. Storage device
   The memory chip is the storage device for switching programs.

5 Scope of functions:

- Transmission of telegrams on 16 channels depending on time switch programming with the following functions: switching, value transmitter (1 byte), forced control or HVAC operating mode switch-over (KNX).
- Use of 8 scenes with 6 output objects each (accessible via each channel) with the following functions: switching value transmitter (1 byte), forced control or HVAC operating mode switch-over (KNX) or temperature value transmitter.
- Cyclical transmission parameterizable for each channel object.
- Up to 4 disable objects for disabling of parameterizable channels.
- Use as time and date transmitter (Master) with transfer of the information to the bus after optional addition of the DCF77 receiver.
  Alternative use as time and date receiver (Slave) with reception of the information from the bus. In the master mode, a time request via a trigger object is possible.
- Cyclical transmission of time and date information to the bus in the master mode.