theben	Designation: Module TR top2	Change:	Created: EuKPE hst/ml	Data sheet no. 3 01 255 00
Data sheet	General data sheet	Status: 00		
	Distribution:	Valid from: 04.09.14	Release:	Device no.:

Data sheet

TR 671 top2
TR 672 top2
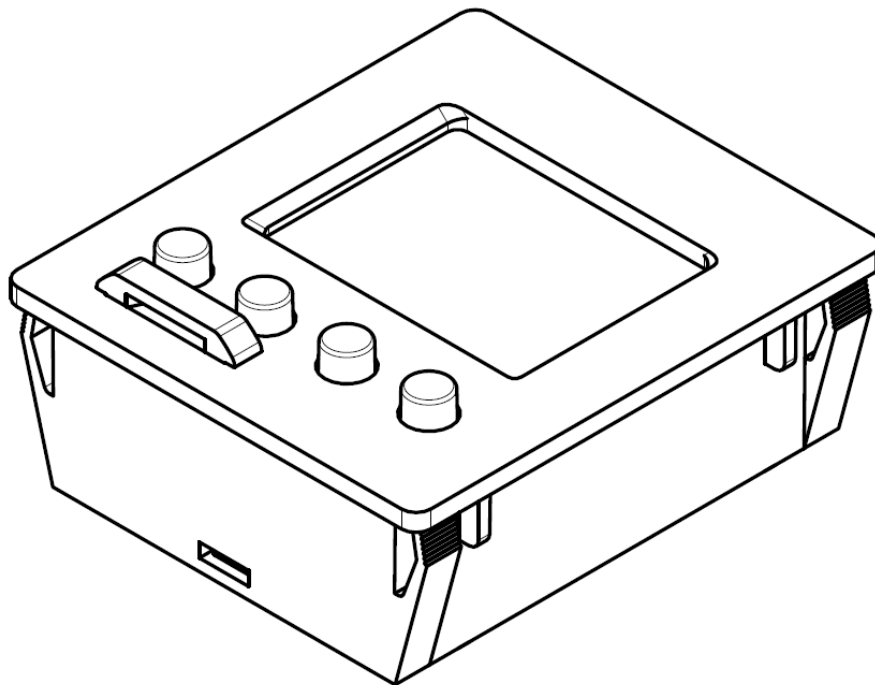
theben	Designation: Module TR top2	Change:	Created: EuKPE	Data sheet no. 3 01 255 00
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Device characteristics

Device type	1 or 2-channel digital time switch with weekly program
Memory slots	84 memory slots with free block formation for both channels and separate programming for on and off switch times. Cycle switch time requires 2 memory slots
Operation	4 buttons, reset by simultaneously pressing all buttons
User guidance	In the LCD display running text in the text line, changing button functions are superimposed on the display.
Display lighting	Optional, permanent ON or for 1 minute duration after last operation.
Program display	The programmed switch times are shown graphically via a bar display on the LCD display.
Summer/Winter time	Factory-set summer/winter time changeover. The following options can be set: no WI-SU changeover, rule for EUROPE, GB/IRL/P, FIN/GR/TR, CANADA, USA, IRAN, open rule, fixed date.
Copy	Copy switching times to other days of the week (free block formation)
Time format	Time format 12 hrs or 24 hrs selectable
Date format	Different selectable date formats: dd mm yy; mm/dd/yy; yy-mm-dd
First weekday	First weekday selectable (Europe default setting: Monday = 1)
Language selection	The selection of 6 + 1 languages is possible
Sorting	Automatic sorting of switch times in memory according to days of week
Error detection times	Automatic detection of conflicting programming of cycle and impulse switch
Manual switching	Manual switching pre-selection through simultaneous pressing of both buttons marked with the hand symbol in Auto mode (HAND ON/HAND OFF) or in the MANUAL menu
Period switching	Manual period switching via long pressing of both buttons marked with the hand symbol in Auto mode (Period ON, Period OFF) or in the MANUAL menu
Please note:	**The module does not contain a power failure detection!** **Continuous current of about 1 mA**

Subject to alteration

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Switching programs

Switch times   Daily and weekly program
                          separate programming of ON and OFF switch times

Impulse switch times Impulse program Impulse ON or OFF with precise-to-the-second start and a
                          duration of 1 s to 59 min/59 s

Cycle program   Cycle with programmable pulse and pause time, each settable from 1 s to 17
                          h/59 min/59 s. Start and end precise to the minute with end or endless.
                          Combinations of cycle, impulse switch times and switch times are possible

Random programs   2 different random programs selectable
                          Program 1: Random switching during ON times, random time varies
                                    between 10 and 120 mins
                          Program 2: Switch times ON or OFF will be randomly shifted by 0 to +20
                                    mins. Impulse and cycle switch times cancel the randomness.

Holiday program   Switch state ON, OFF or random settable during holidays.
                          Input start and end of holidays with year, month, day, hour
                          Impulse and cycle switch times will not be implemented during randomness.

Operating hours counter   max. 199999, 9 hrs. with reset option and service function for
                          monitoring of maintenance intervals with service screen display
                          Limit value setting Service from 000001 to 199999 h; 000000 h =
                          inactive

Info menü   Info about version, manufacturer's date, network hours and network
                          connection date.

Accuracy

Time accuracy   ±0.5 s/day at +25 °C

Program backup copying

Obelisk memory card   Obelisk top2 memory card

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Interface	Obelisk interface for easy obelisk programming via PC software. Programmable via the device types **TR 611 top2** (corresponds to 6719100) and **TR 622 top2** (corresponds to 6729100). When unused, interface can be sealed with a dummy cap to protect it from dirt.
Obelisk functions	a) Save or secure program to obelisk, b) Copy program from obelisk to the timer switch, query the saved data c) Implementation of the obelisk switch times as alternative 2nd switch program, d) Program exchange between individual timers through the obelisk. e) An additional language on language obelisk.

Data security

Security	EEPROM for data storage
PIN	PIN code to prevent unauthorised operation
Super-PIN	If the PIN is lost, a Super-Pin can be calculated by Theben. Calculation tools (web application) can be made available to OEM customers on request.

Electrical functional area

Temperature range	Temperature range -10 °C ... +55 °C
Autom. switch state	Switch state detection, time adjustment, date adjustment or program change

Technical support

Applications available
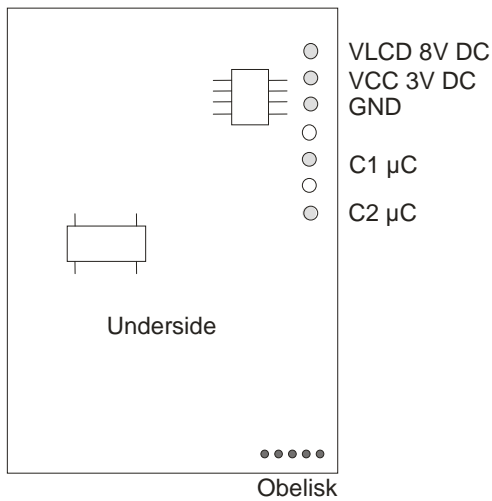
Installation instructions

Subject to alteration

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Despite internal safety measures, unusually strong interference fields can exceptionally interfere with the microprocessor-controlled timer. Interference can be prevented by taking the following actions during installation:

- Avoid installing modules in the immediate vicinity of inductive consumers

- Lay separate cable for voltage supply

- Shield inductive consumers (Varistor, RC link)
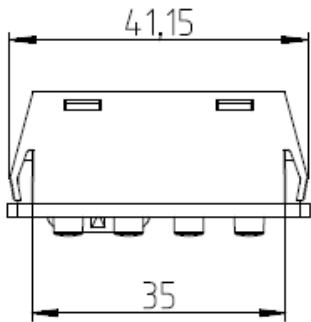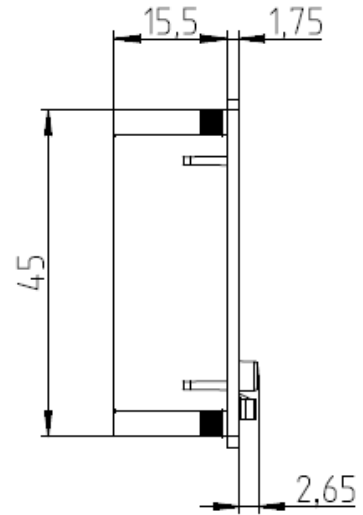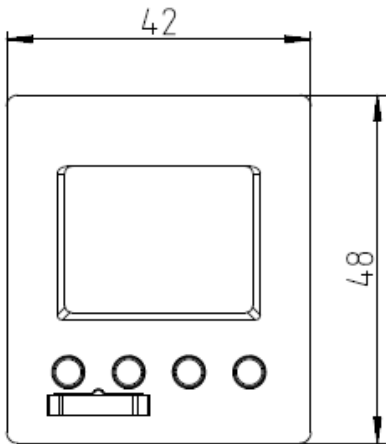
Plans and diagrams

Connecting diagram

VLCD 8V DC
VCC 3V DC
GND

C1 µC

C2 µC

Underside

Obelisk

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Technical data

Operating voltage	V_{CC}	3,0 V_{DC} (SELV)	
Operating voltage Backlighting	V_{LCD}	8,0 V_{DC} (SELV)	
Power consumption	I_{VCC}	at V_{CC} = 3.0 V_{DC}	approx. 1 mA
	I_{VLCD}	At V_{LCD} = 8.0 V_{DC} During operation	approx. 11.22 mA
Additional power consumption With obelisk	I_{VCC}	at V_{CC} = 3.0 V_{DC} Obelisk inserted	add. approx. 10 µA
		during writing cycle approx. 15 seconds	add. approx. 1.4 mA

Time basis
Quartz

Time accuracy
$\leq$ 0.5 secs/day at 25 °C

Ageing quartz
±3 ppm/year = ±0.26 sec./day in a year

Shortest switching time
1 second

Switching accuracy
to the second

Language group
8   D / F / GB / I / E / NL + 1 downloadable   or
12   S / DK / D / GB / NL / FIN + 1 downloadable

Su/Wi rule can be preset
EU, GB/IRL/P, FIN/GR/TR, CAN, USA, IRAN, freely programmable switching rule or fixed switching rule, alternatively can be switched off

Operating temperature
-10 °C ... +65 °C

Switch output   C1, C2
Processor outputs
2,5 mA – 0,5 V von V_{CC}
10 mA – 2,0 V von V_{CC}

Connection
e. B. 5-strand cable, length approx. 125 mm, without plug

Protection class
III (SELV) subject to designated installation

Mode of operation
Typ 1 TU

Pollution degree
2

Safety mat
Colour   blue PANTONE 286C

Front frame
Colour   grey RAL 7035

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Housing drawings

Panel cut out

39,1 mm (+/-0.1)

45,2 mm (+/-0.1)

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Circuit reference C1, C2