

english

theben®

Catalogue 2008



SYSTEMS FOR
TIME, LIGHT, CLIMATE



Perfect Light Control



Light is as vital for us as the air we breathe. But artificial light, as well as natural daylight, plays an important role in our daily lives. However, lighting must always be controlled securely, reliably and with a certain degree of well-being. Theben is therefore developing efficient and easy-to-use solutions.

Theben has provided lighting control products for decades. And 2008 is Theben's year of the "LIGHT". This year we will introduce a number of new and innovative products under the motto "Perfect Light Control" from Theben for even better lighting control.

These innovative products include our new range of twilight switches and astronomical timers with the usual easy-to-use Theben text-based programming function. Plus dimmers and presence detectors and further products during the course of 2008.

In short, comprehensive lighting control solutions from Theben.

Our priorities are comfort, security and saving energy. All products feature have a high degree of functionality and uniform operation. Because you can expect the best from Theben – the specialist for specialists.

This catalogue also contains practical solutions for all applications. And our brand stands for quality, innovation and high value. Make your own contribution to saving energy by using Theben devices and systems.

Let Theben, the specialist for specialists, inspire and impress you.
We are here to help you.

Thomas Goes
Chairman of the Board





TIME

Analogue timers

Digital timers

Socket timers

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LIGHT

Staircase time switch

Twilight switches

Astronomic timers

Presence detectors **thobenHTS**

Time lag relays

Runtime meters

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CLIMATE

Analogue clock thermostats

Digital clock thermostats

Zonal control/clock thermostats

Room thermostats

Actuators for individual room control

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Solar controller

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SYSTEMS

LUXOR living comfort control devices

PHARAO/PHARAO-II small control units

and auxiliary equipment

KNX actuators

KNX thermostats, fan coil

KNX motorised actuators

KNX weather station, sensors

KNX movement/presence detectors

KNX secondary clocks

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LUNA

ELPA

SELEKTA



TERMINA

SYNCHRONA/SULEIKA



RAMSES



LUXOR

PLUG-IN TIMER

RUNTIME METERS/ TIME LAG RELAYS

CONTROL LIGHT CONTROL LIGHT CONTROL LIGHT CONTROL LIGHT CONTROL



thebenHTS PRESENCE DETECTORS

KNX LIGHT CONTROL/BLIND CONTROL

TIME CONTROL TIME CONTROL TIME CONTROL TIME CONTROL TIME CONTROL TIME CONTROL TIME CONTROL TIME CONTROL TIME CONTROL TIME CONTROL



KNX OSIRIA

HEATING CONTROL HEATING CONTROL



KNX SINGLE-ROOM CONTROL

CONTROL UNITS CONTROL UNITS



PHARAO

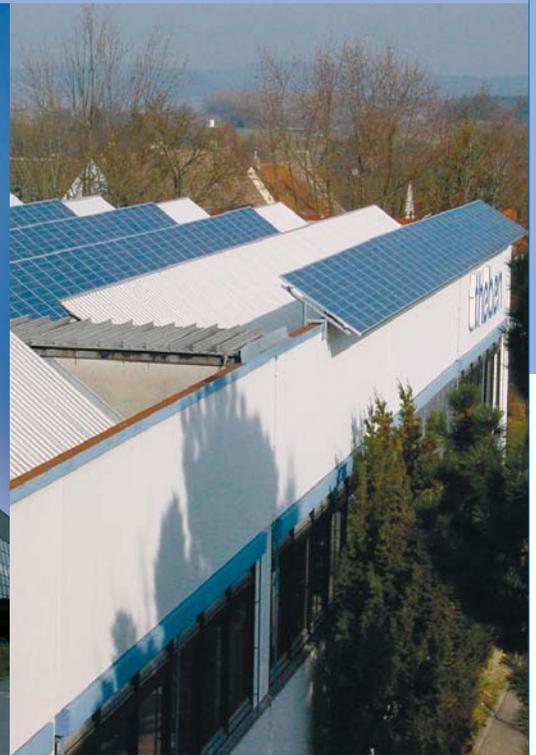
CALL SYSTEM

MODULES MODULES MODULES MODULES MODULES MODULES MODULES MODULES MODULES MODULES



TIME SWITCH COMPONENTS

WEATHERSAFE OUTDOOR POWER



Theben

The abilities of Theben AG lies in solutions for time, lighting and climate control. Within time switching devices, modules or bus-systems, Theben produces the highest quality products in every range. Theben offers not only time switches in analog and digital technology with classical switch tappets or segments, but also microprocessor-controlled digital devices that offer hours, days, weeks and years programs and an extensive program of sensors and actuators for the KNX bus technology. On top of this Theben is well known for its stair light and twilight switches and for its clock thermostats that allow a power-saving heating control.

Theben offers its clients a tailored solution for all applications and situations. Theben AG has branches in Germany, Great Britain, France, Italy and Switzerland and is one of the leading producers of time switching devices and systems.

A worldwide presence in more than 53 countries with market leading high-quality products form the basis for continual growth. Theben products are very well-known for their user-friendly operation, a high product quality and a first rate design.

The company is certified according to the international DIN ISO 9001 standardisation.



REG. NR. 1688-01

The philosophy

We are an autonomous, independent, internationally operating company with a high potential of innovation and a great many profitable ideas and concepts for the future.

Our core competency encompasses the control and regulation of time, light and climate.

We are recognized specialists, especially when it comes to timer devices and other intelligent systems.

Our goals are innovation, high functionality, best quality, dependability, continuity and calculability.

We are a dependable and competent partner to our customers, offering competitive products and services.

The Theben company aims to serve, and conscientiously supports the personal as well as the occupational qualification and development of its staff members.

theben[®]

T.O.P. Service!

Theben is T.O.P.

Tino Schlaich



Sabine Fauler



...because we have a comprehensive dealership network

...because we stand for highest quality

Guaranteed by a 100 % final test.
We use exclusively the best and most reliable components.

...because even low quantities are not more expensive

No supplements for low quantities.

...because technical experts are at your service

Quick assistance by our specialists as well by fax +49(0)7474/692-207 and eMail: tino.schlaich@theben.de christof.armbruster@theben.de or at regional offices please see pages 192/193

...because we offer a quick service

Service department offering competitive prices for repairs after the expiry of the warranty period or sending you the requested spare parts – even for units we do not have in our present range any more – to satisfy your customer's needs as quickly as possible. If you have any problem, please do not hesitate to contact us, we are pleased to assist you.

...because we provide you with information all around the clock

All around the clock you can find operating instructions and other information free of charge on the internet with the possibility for printout – www.theben.de

...because a constantly updated product data base is available for you on the internet

KNX product database for free downloading and on CD ROM

...because you can find all important information within seconds on CD ROM

CD ROM with product datas, leaflets, operating instructions, KNX manuals, demo software and learning software for OBELISK and PHARAO programs.
Available free of charge – Order No. 907 0 183

...because texts for tenders are available digitally as well

Texts for tenders in different file formats on CD ROM and in the internet:
www.theben.de/downloadseite.htm

...because we offer trainings near your facilities

Central trainings by our own specialists and peripherally at our partners near your facilities upon request.

...because at the trade fairs you learn everything about Theben-innovations



What would shopping be like without illuminated shop windows? Theben weekly and yearly timers help to present goods and hoardings in their best light and for exactly the desired amount of time. But Theben time controls are there for everyday processes as well as for the world of dreams: from pump controls through heating and ventilation control to complete light provision for buildings.

TIME

SYNCHRONA, SULEIKA, TEMPORA, MEMPHIS analogue timers

with day pins or segments	DIN rail program	Pages 10–13
with 72 x 72 mm front frame	Front panel/wall mounting	Pages 14–18
with 3 point mounting	Wall mounting/at electricity meter	Page 19

TERMINA digital timers

with automatic summer/winter time	DIN rail program	Pages 20–28
with 72 x 72 mm front frame	Front panel/wall mounting	Page 29
with 3 point mounting	Wall mounting/at electricity meter	Page 30
with flush-mounted frame	Flush-mounting	Page 31

theben-eltimo, theben-timer plug-in time switches

digital, radio-controlled	Page 32
analogue theben timer	Page 33



SYN 160 a
SUL 180 a



Function:

- Time switches with 24-hour or 7-day segmented index ring
- Programming via 15-minute segments during the daily program
- Programming via 2-hour segments during the weekly program
- 3-position manual switch: ON/OFF/AUTO
- 16 A/250 V~ NO contact
- Switching state display

SYN 160 a SYNCHRONA

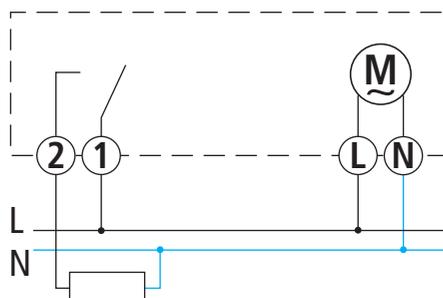
- Synchronous with mains
- Without power reserve
- Day program

SUL 180 a SULEIKA

- Quartz time base
- With power reserve
- Power reserve cell replaceable
- Day program

MEM 190 a MEMPHIS

- Quartz time base
- With power reserve
- Power reserve cell replaceable
- Week program



Common technical data:

Nominal voltage: 230 V~, +10 %/–15 %
Special voltages: see appendix
Frequency: 45–60 Hz, 50 Hz bei SYN 160 a
Contact type: NO contact
Contact: potential-free
Opening width: < 3 mm (μ)
Contact material: Hard silver
Switching capacity:
 16 A, 250 V~, cos φ = 1
 4 A, 250 V~, cos φ = 0,6

Power consumption: approx. 2.5 VA

Housing- and insulation material:
 self-extinguishing thermoplasts of high temperature resistance

Protection class:

II according to EN 60 730-1 subject to correct installation

Degree of protection: IP 20 according to EN 60 529

Weight: approx. 120 g

Test approvals: national and international depending on device type

Time switches with power reserve

Drive: quartz-controlled stepping motor

Frequency: 45–60 Hz

Accuracy: ≤ ± 1 s/day at 20 °C

Power reserve: 3 days (full power reserve approx. 3 days after connection to operating voltage)

Admissible ambient temperature: –10 °C...+50 °C

Time switches without power reserve

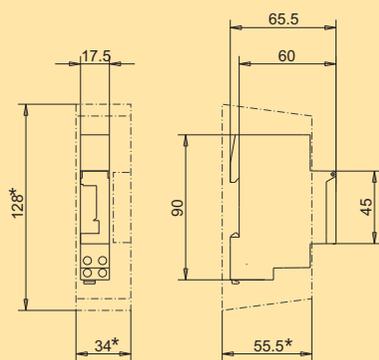
Drive: synchronous motor

Frequency: 50 Hz

Power reserve: depends on mains frequency

Admissible ambient temperature: –25 °C...+50 °C

Dimension drawings DIN 43 880



*with terminal cover

Terminal cover



Design:

- Standard housing 45 x 17.5 x 60 mm
- Snap-on fixing for 35 mm top-hat rail (EN 50022)
- Shock protection in accordance with accident prevention regulation BGV A3
- Surface mounting with additional terminal cover, tamper proofing
- Control panel installation using mounting kit no. 907 0 001
- Undetachable hinged cover, sealable

Type	Program dial	Power reserve approx.	Programmable every...	Minimum switching interval	Switching segments	Switching contacts	Nominal current at 250 V~	Order No.
SYN 160 a	24 h	–	15 min	15 min	96	1 NO contact	16 (4) A	160 0 001
SUL 180 a	24 h	3 days	15 min	15 min	96	1 NO contact	16 (4) A	180 0 001
MEM 190 a	7 days	3 days	2 h	2 h	84	1 NO contact	16 (4) A	190 0 001
Terminal cover for surface mounting, tamper proofing								907 0 065



SYN 161 h/SUL 181 h



Function:

- Time switches with or without power reserve
- 24 hour dial with 30 min segments or 60 min dial with 75 s segments
- Switching preselection (override) for ON and OFF without influencing the subsequent program sequence
- Permanent ON/OFF switch
- Switching status indication
- Fine adjustment for time setting accurate to the minute
- Summer/Winter time correction ± 1 hour by the bi-directional fine time adjustment with rotary knob
- Operating indication

TM 171 h TEMPORA

- Without power reserve
- Short-time program

SYN 161 h SYNCHRONA

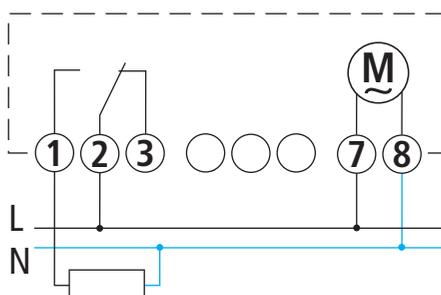
- Without power reserve
- Day program

SUL 181 h SULEIKA

- With power reserve
- Day program



TM 171 h



Common technical data:

- Nominal voltage:** 230 V~, +10 %/–15 %
- Special voltages:** see appendix
- Contact type:** changeover switch
- Contact:** potential-free
- Opening width:** < 3 mm (μ)
- Contact material:** Hard silver
- Power consumption:** approx. 2.5 VA
- Admissible ambient temperature:** –20 °C...+50 °C
- Housing- and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Protection class:** II according to EN 60 730-1 subject to correct installation
- Degree of protection:** IP 20 according to EN 60 529
- Test approvals:** national and international depending on device type  

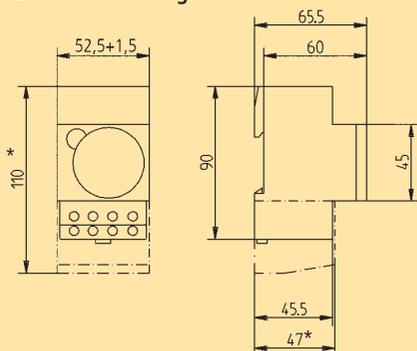
Time switches with power reserve

- Drive:** quartz-controlled stepping motor
- Frequency:** 45–60 Hz
- Accuracy:** $\leq \pm 1$ s/day at 20 °C
- Power reserve:** 3 days (full power reserve approx. 3 days after connection to operating voltage)
- Weight:** approx. 150 g

Time switches without power reserve

- Drive:** synchronous motor
- Frequency:** 50 Hz
- Power reserve:** depends on mains frequency
- Weight:** approx. 135 g

Dimension drawings DIN 43 880



*with terminal cover

Terminal cover



Design:

- Standard housing 45 x 54 x 60 mm
- Snap-on fixing for 35 mm top-hat rail (EN 50 022)
- Shock protection in accordance with accident prevention regulation BGV A3
- Surface mounting with additional terminal cover, tamper proofing
- Control panel installation using mounting kit no. 907 0 001
- Undetachable hinged cover, sealable

Type	Program dial approx.	Power reserve every ...	Programmable switching interval	Minimum segments	Switching contacts	Switching at 250 V~	Nominal current	Order No.
TM 171 h	60 min	–	75 s	75 s	48	1 changeover switch	10 (4) A	171 0 008
SYN 161 h	24 h	–	30 min	30 min	48	1 changeover switch	16 (4) A	161 0 008
SUL 181 h	24 h	3 days	30 min	30 min	48	1 changeover switch	16 (4) A	181 0 008
Terminal cover for surface mounting, tamper proofing								907 0 061



SYN 168 h/SUL 188 h



Function:

- Time switches with or without power reserve
- Day, week or short-time programs
- Switching preselection (override) for ON and OFF without influencing the subsequent program sequence for device type "h"
- Switching status indication
- Permanent ON/OFF switch for device type "h"
- Fine adjustment for time setting accurate to the minute
- Summer/winter time adjustment ± 1 hour by the bi-directional fine time adjustment with rotary knob for device type "h"
- Operating indication

TM 178 TEMPORA

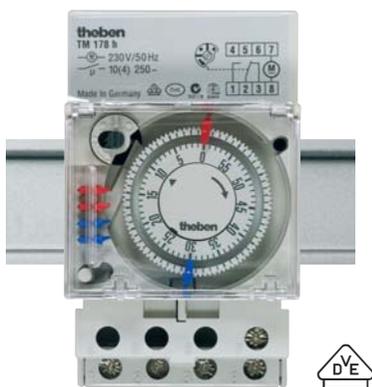
- Without power reserve
- Short-time program

SYN 168 SYNCHRONA

- Without power reserve
- Day program

SUL 188 SULEIKA

- With power reserve
- Day program



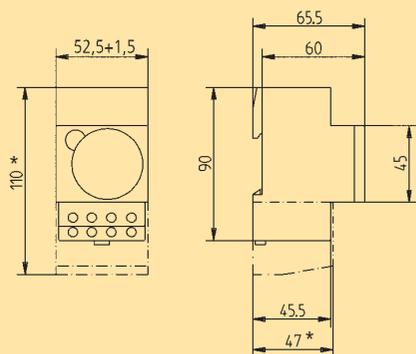
TM 178 h



SUL 188 hw



Dimension drawings DIN 43 880



* with terminal cover

Terminal cover



Common technical data:

Nominal voltage: 230 V~, +10 %/-15 %

Special voltages: see appendix

Contact type: changeover switch

Contact: potential-free

Opening width: < 3 mm (μ)

Contact material: Hard silver

Switching capacity: see page 19

in brackets: $\cos \varphi = 0.6$

Power consumption: approx. 2.5 VA

Admissible ambient temperature: $-20\text{ }^{\circ}\text{C} \dots +55\text{ }^{\circ}\text{C}$

Housing- and insulation material:

self-extinguishing thermoplasts of high temperature resistance

Protection class:

II according to EN 60 730-1 subject to correct installation

Degree of protection: IP 20 according to EN 60 529

Test approvals: national and international depending on device type  

Time switches with power reserve

Drive: quartz-controlled stepping motor

Frequency: 45–60 Hz

Accuracy: $\leq \pm 1$ s/day at $20\text{ }^{\circ}\text{C}$

Power reserve: 3 days (full power reserve

approx. 3 days after connection to operating voltage)

Weight: approx. 175 g

Time switches without power reserve

Drive: synchronous motor

Frequency: 50 Hz

Power reserve: depends on mains frequency

Weight: approx. 150 g

Design:

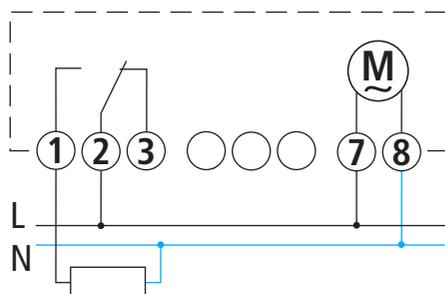
- Standard housing 45 x 54 x 60 mm
- Snap-on fixing for 35 mm top-hat rail (DIN EN 50 022)
- Shock protection in accordance with accident prevention regulation BGV A3
- Surface mounting with additional terminal cover, tamper proofing
- Control panel installation using mounting kit no. 907 0 001
- Undetachable hinged cover, sealable



MEM 198 h

MEM 198 h MEMPHIS

- With power reserve
- Week program



TM 178 h, SYN 168 h, SUL 188 h, MEM 198 h

red
Order No. 934 3 260

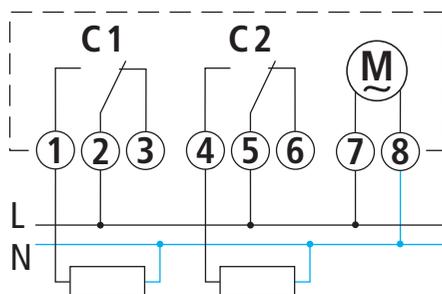


① ② on
② ③ off

blue
Order No. 934 3 280



② ③ on
① ② off



SUL 188 g

red
Order No. 934 3 260



④ ⑤ and ⑤ ⑥
alternately
on – off

blue
Order No. 934 3 280



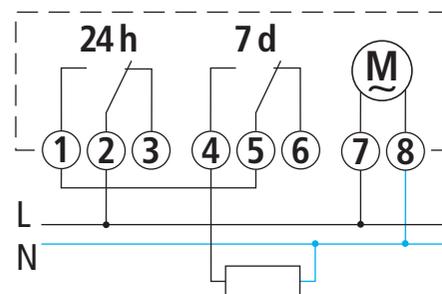
① ② and ② ③
alternately
on – off

white
Order No. 934 3 262



① ② – ② ③ and ④ ⑤
and ⑤ ⑥
jointly* or
alternately on – off

*Switching differences (moment of switching) of up to 5 min are possible for the 24 h dial in the event of simultaneous actuation of the 2 contacts by the white tappet.



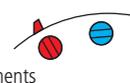
SUL 188 hw

yellow
Order No. 934 3 287



① ② and ② ③
alternately
on – off

segments
④ ⑤ and ⑤ ⑥
alternately
on – off



Type	Program dial	Power reserve approx.	Programmable every ...	Minimum switching interval	Tappet-complement	Switching contacts	Nominal current at 250 V~	Order No.
TM 178 h	60 min	–	37,5 s	ca. 2 min	3 x blue 3 x red	1 changeover switch	10 (4) A	178 0 008
SYN 168 h	24 h	–	15 min	30 min	3 x blue 3 x red	1 changeover switch	16 (4) A	168 0 008
SUL 188 h	24 h	3 days	15 min	30 min	4 x blue 4 x red	1 changeover switch	16 (4) A	188 0 008
SUL 188 g	24 h	3 days	15 min	30 min	4 x blue 4 x red 2 x white	2 changeover switches	10 (4) A	188 0 033
MEM 198 h	7 days	3 days	1 h	4 h	7 x blue 7 x red	1 changeover switch	16 (4) A	198 0 008
SUL 188 hw	24 h 7 days	3 days	15 min 12 h	45 min 12 h	6 x yellow 14 fixed segments	2 changeover switches (24 h/7 d)	10 (4) A	188 0 108

Terminal cover for surface mounting, tamper proofing

907 0 061



SYN 269 h/SUL 289 h



SYN 269 g/SUL 289 g

Function:

- Can be switched to day and week program
- Switching preselection (override) for ON and OFF without influencing the subsequent program sequence on device type "h".
- Permanent ON/OFF switch, e.g. for holidays, on device type "h"
- Switching status indication
- Clock hands can be set forward and reverse for quick summer/winter time changeover on device type "h"

SYN 269 SYNCHRONA

- Without power reserve
- Day or week program selectable

SUL 289 SULEIKA

- With power reserve
- Day or week program selectable

Common technical data:

- Nominal voltage:** 230 V~, +10 %/–15 %
- Special voltages:** see appendix
- Contact type:** changeover switch
- Contact:** potential-free
- Opening width:** < 3 mm (μ)
- Contact material:** Hard silver, gold-plated
- Time setting:** analog with clock hands, also possible anti-clockwise
- Switching time setting:** with tappets
- Switching capacity:**
 - Type "h": 10 A/250 V~, cos φ = 1
 - 2 A/250 V~, cos φ = 0.6
 - Type "g": 10 A/250 V~, cos φ = 1
 - 2 A/250 V~, cos φ = 0.6
- Power consumption:** approx. 2.5 VA
- Admissible ambient temperature:** –10 °C...+55 °C
- Housing- and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Electrical connection:** screw terminal or 4.8 mm tab connectors
- Protection class:** II according to EN 60 730-1 subject to correct installation
- Degree of protection:** IP 20 according to EN 60 529

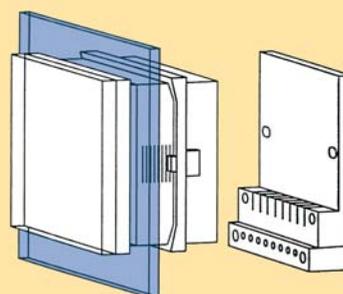
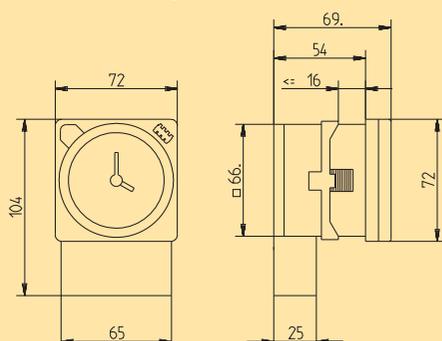
Time switches with power reserve

- Drive:** quartz-controlled stepping motor
- Frequency:** 45–60 Hz
- Accuracy:** ≤ ± 1 s/day at 20 °C
- Power reserve:** 3 days (full power reserve approx. 3 days after connection to operating voltage)
- Weight:** approx. 260 g

Time switches without power reserve

- Drive:** synchronous motor
- Frequency:** 50 Hz
- Power reserve:** depends on mains frequency
- Weight:** approx. 300 g

Dimension drawings



Mounting possibilities, see page 18.

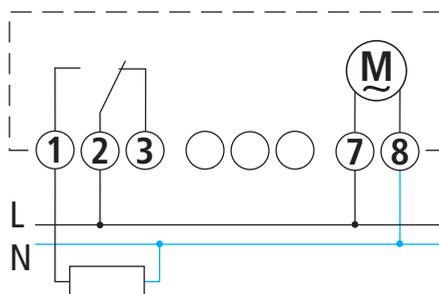
Design:

- Front frame 72 x 72 mm (DIN 43 700)
- Switch panel mounting with clip fastening. Connection either with tab connectors (4.8 mm) or with screw terminals using the plug-in base.
- Surface mounting with Softline housing tube and plug-in base.
- Can also be mounted on a 35 mm top-hat rail with additional parts or on PC board with plug connector.
- Transparent cover protects against dirt and unintentional adjustment



Changing the program 24 hours/7 days

1. Remove the dial.
2. Adjust the time until groove in yellow ring and groove in green ring coincide.
3. Slide the drive pin outwards to position "7 d".
4. Turn the dial over and refit it with the week scale facing outwards.
5. Single and double channel versions available.



SYN 269 h/SUL 289 h

red
Order No. 934 3 236

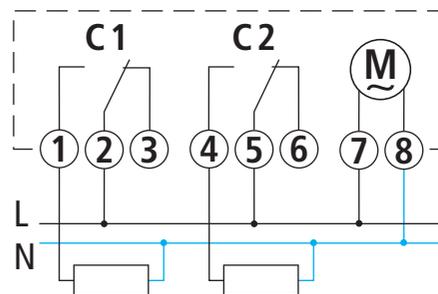


① ② on
② ③ off

blue
Order No. 934 3 111



② ③ on
① ② off



SYN 269 g/SUL 289 g

red
Order No. 934 3 236



④ ⑤ and ⑤ ⑥
alternately
on – off

blue
Order No. 934 3 111



① ② and ② ③
alternately
on – off

white
Order No. 934 3 235



① ② – ② ③ and ④ ⑤
and ⑤ ⑥ jointly*
or alternately
on – off

*Switching differences (moment of switching) of up to 5 minutes are possible for the 24 h dial and up to 30 min. for the 7 day dial in the event of simultaneous actuation of the 2 contacts by the white tappets.

Type	Program dial	Power reserve approx.	Programmable every ...	Minimum switching interval	Tappet complement	Switching contacts	Nominal current at 250 V~	Order No.
SYN 269 h	24 h 7 days	–	5 min/ 30 min	20 min/ 2 h	16 x blue 16 x red	1 changeover switch	10 (2) A	269 0 008
SYN 269 g	24 h 7 days	–	5 min/ 30 min	20 min/ 2 h	17 x blue 17 x red 15 x white	2 changeover switches	10 (2) A	269 0 033
SUL 289 h	24 h 7 days	3 days	5 min/ 30 min	20 min/ 2 h	16 x blue 16 x red	1 changeover switch	10 (2) A	289 0 008
SUL 289 g	24 h 7 days	3 days	5 min/ 30 min	20 min/ 2 h	17 x blue 17 x red 15 x white	2 changeover switches	10 (2) A	289 0 033



SYN 169 s



SUL 189 s

Function:

- 24 hour dial with segments of 15 min switching time each
- Switching preselection (override) for ON and OFF without influencing the subsequent program sequence
- Easy programming by folding down the segments e.g. for the desired duty cycle
- Permanent ON/OFF switching, e.g. for holidays
- Changeover contact 10 A/250 V~
- Switching status indication
- Clock hands can be set forward and reverse for quick summer/winter time changeover

SYN 169 s SYNCHRONA

- Without power reserve
- Day program

SUL 189 s SULEIKA

- With power reserve
- Day program

Common technical data:

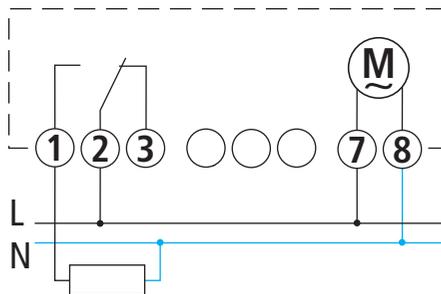
- Nominal voltage:** 230 V~, +10 %/-15 %
- Contact type:** changeover switch
- Contact:** potential-free
- Opening width:** < 3 mm (μ)
- Contact material:** Hard silver, gold-plated
- Time setting:** analog with clock hands, also possible anti-clockwise
- Switching capacity:** 10 A/250 V~, cos φ = 1
2 A/250 V~, cos φ = 0.6
- Power consumption:** approx. 2.5 VA
- Admissible ambient temperature:** -10 °C...+55 °C
- Housing- and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Electrical connection:** screw terminal or 4.8 mm tab connectors
- Protection class:** II according to EN 60 730-1 subject to correct installation
- Degree of protection:** IP 20 according to EN 60 529
- Test approvals:**

Time switches with power reserve

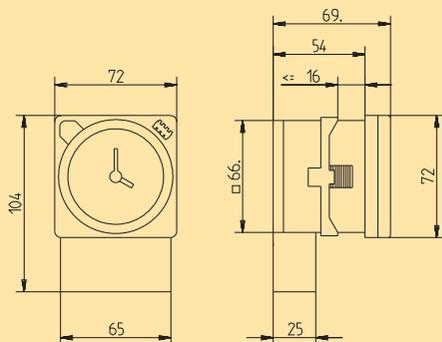
- Drive:** quartz-controlled stepping motor
- Frequency:** 45-60 Hz
- Accuracy:** ≤ ± 1 s/day at 20 °C
- Power reserve:** 3 days (full power reserve approx. 3 days after connection to operating voltage)
- Weight:** approx. 260 g

Time switches without power reserve

- Drive:** synchronous motor
- Frequency:** 50 Hz
- Power reserve:** depends on mains frequency
- Weight:** approx. 225 g



Dimension drawings



Design:

- Front frame 72 x 72 mm
- Switch panel mounting with clip fastening. Connection either with tab connectors (4.8 mm) or with screw terminals using the plug-in base
- Surface mounting with plug-in base and terminal cover
- Can also be mounted on a 35 mm top-hat rail with additional parts or on PC boards with plug connector
- Transparent cover protects against dirt and unintentional adjustment.

Type	Program dial	Power reserve	Programmable every ...	Minimum switching interval	Switching segments	Switching contacts	Nominal current at 250 V~	Order No.
SYN 169 s	24 h	-	15 min	15 min	96	1 changeover switch	10 (2) A	169 0 801
SUL 189 s	24 h	3 days	15 min	15 min	96	1 changeover switch	10 (2) A	189 0 801



SUL 189 hw



TM 179 h

TM 179 h

red ① ② on
Order No. 934 3 260 ② ③ off

blue ② ③ on
Order No. 934 3 280 ① ② off

Function:

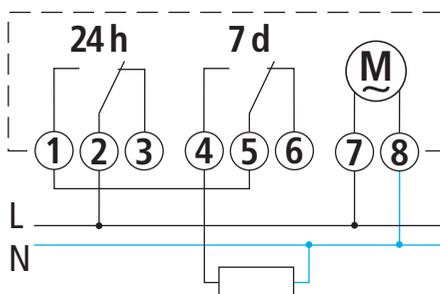
- Day, week or short-time program
- Override switching for ON/OFF, without influencing the subsequent program sequence on device type "h"
- Switching status indicator
- Operating indication

TM 179 h TEMPORA

- Without power reserve
- Short-time program

SUL 189 hw SULEIKA

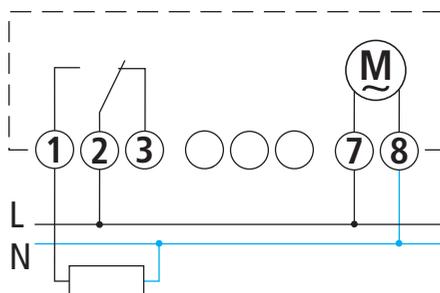
- With power reserve
- Day program with weekday selection



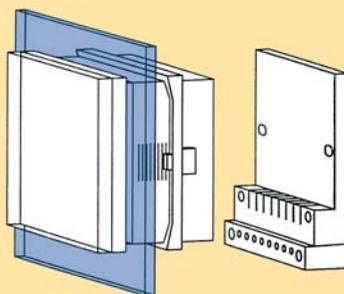
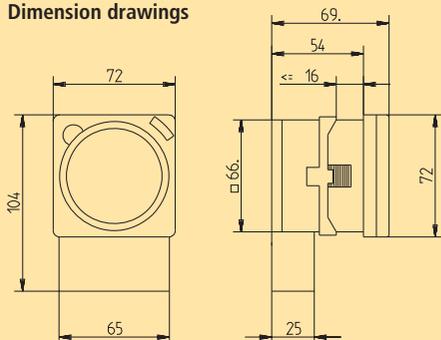
SUL 189 hw

red ① ② on blue ② ③ on
Order No. 934 3 311 ② ③ off Order No. 934 3 035 ① ② off

④ ⑤ and ⑥ alternately on – off



Dimension drawings



For mounting possibilities, see page 18.

Common technical data:

- Nominal voltage:** 230 V~, +10 %/–15 %
- Special voltages:** see appendix
- Contact type:** changeover switch
- Contact:** potential-free
- Opening width:** < 3 mm (μ)
- Contact material:** Hard silver, gold-plated
- Time setting:** analog with clock hands, also possible anti-clockwise
- Switching time setting:** with tappets
- Switching capacity:** 10 A/250 V~, cos φ = 1
2 A/250 V~, cos φ = 0.6
- Power consumption:** approx. 2.5 VA
- Admissible ambient temperature:** –10 °C...+55 °C
- Housing- and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Electrical connection:** screw terminal or 4.8 mm tab connectors
- Protection class:** II according to EN 60 730-1 subject to correct installation
- Degree of protection:** IP 20 according to EN 60 529
- Test approvals:** national and international depending on device type

Time switches with power reserve

- Drive:** quartz-controlled stepping motor
- Frequency:** 45–60 Hz
- Accuracy:** ± 1 s/day at 20 °C
- Power reserve:** 3 days (full power reserve approx. 3 days after connection to operating voltage)
- Weight:** approx. 205 g

Time switches without power reserve

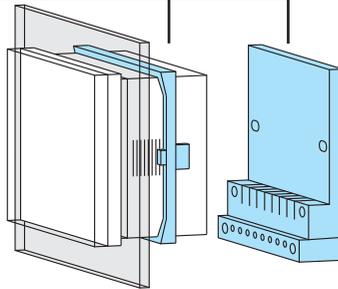
- Drive:** synchronous motor
- Frequency:** 50 Hz
- Power reserve:** depends on mains frequency
- Weight:** approx. 180 g

Design:

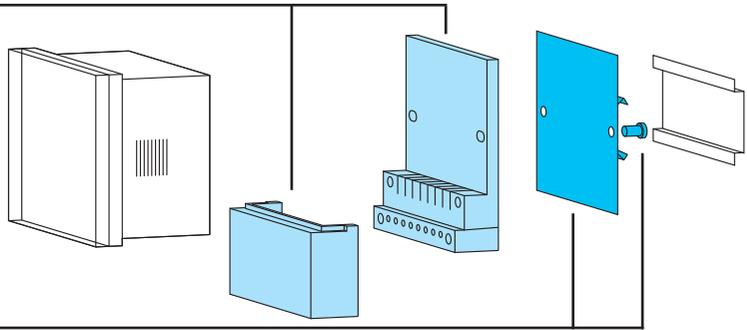
- Front frame 72 x 72 mm
- Switch panel mounting with clip fastening. Connection either with tab connectors (4.8 mm) or with screw terminals using the plug-in base.
- Surface mounting with plug-in base and terminal cover
- Can be mounted on a 35 mm top-hat rail with additional parts or on PC boards with plug connector.
- Transparent cover protects against dirt and unintentional adjustment

Type	Program dial	Power reserve	Programmable every ...	Minimum switching interval	Tappet complement	Switching contacts	Nominal current at 250 V~	Order No.
SUL 189 hw	24 h 7 days	3 days	15 min/ 12 h (segments)	30 min/ 12 h	3 x blue 3 x red 14 fixed segments	2 changeover switches (24 h/7 days)	10 (2) A	189 0 108
TM 179 h	60 min	–	18.5 s	1.25 min	3 x blue 3 x red	1 changeover switch	10 (2) A	179 0 008

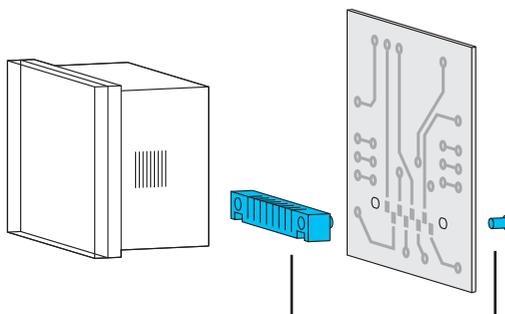
Front panel installation



Wall mounting



Distribution panel installation
possible with accessory:
snap-on mounting for
35 mm top-hat rail
Order No. 907 0 071



PC board installation
possible with accessory:
multiple connector for PC board
Order No. 907 0 066



SUL 285

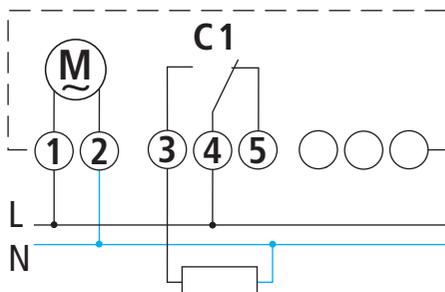
SUL 285 SULEIKA

Function:

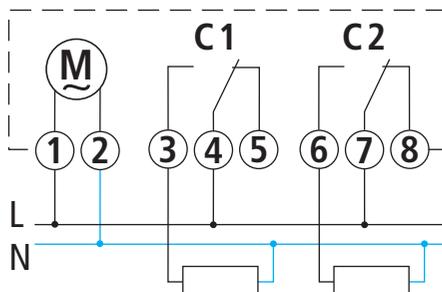
- Day program
- Minimum switching interval 20 min
- Programmable every 5 min
- Or can be switched to day and week program
- Week program with minimum switching interval 2 hours
- Programmable every 30 min
- Switching status indication
- Clock hands can be set forward and reverse for quick summer/winter time changeover

Common technical data:

- Nominal voltage:** 110–230 V~, ± 10 %
- Frequency:** 45–60 Hz
- Contact type:** changeover switch
- Contact:** potential-free
- Opening width:** < 3 mm (μ)
- Contact material:** Hard silver, gold-plated
- Time setting:** analog with clock hands, also possible anti-clockwise
- Switching time setting:** with tappets
- Switching capacity:** 6 A/250 V~, cos φ = 1
2 A/250 V~, cos φ = 0.6
- Power consumption:** max. 2.5 VA
- Drive:** quartz-controlled stepping motor
- Accuracy:** ≤ ± 1 s/day at 20 °C
- Power reserve:** 3 days (full power reserve approx. 3 days after connection to operating voltage)
- Admissible ambient temperature:** –10 °C...+55 °C
- Housing- and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Electrical connection:** screw terminals
- Protection class:** II according to EN 62 054-21 subject to correct installation
- Degree of protection:** IP 54 according to EN 60 529
- Weight:** approx. 475 g

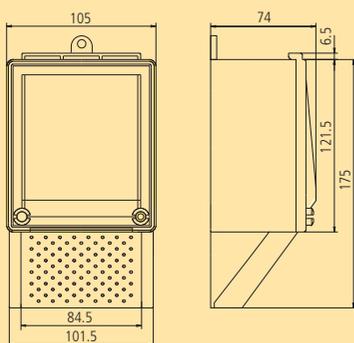


SUL 285/1 T, SUL 285/1 TW



SUL 285/2 T, SUL 285/2 TW

Dimension drawings



Design:

- Front frame 175 x 105 x 74 mm
- Housing with 3-point fixing for wall mounting and terminal cover mounting
- Screw clamps for 1 x 2.5 mm² or 2 x 1.5 mm²
- Tamper proof transparent cover
- Accumulator exchangeable from front side (pluggable)
- Space for power supplier's reference

Type	Program dial	Power reserve	Programmable every ...	Minimum switching interval	Tappet complement	Switching contact	Nominal current at 250 V~	Order No.
SUL 285/1 T	24 h	150 h	5 min	20 min	16 x blue 16 x red	1 changeover switch	6 (2) A	285 0 008
SUL 285/2 T	24 h	150 h	5 min	20 min	16 x blue 16 x red	2 changeover switches	6 (2) A	285 0 033
SUL 285/1 TW	24 h 7 days	150 h	5 min/ 30 min	20 min/ 2 h	16 x blue 16 x red	1 changeover switch	6 (2) A	285 0 108
SUL 285/2 TW	24 h 7 days	150 h	5 min/ 30 min	20 min/ 2 h	16 x blue 16 x red	2 changeover switches	6 (2) A	285 0 133



TR 608 top



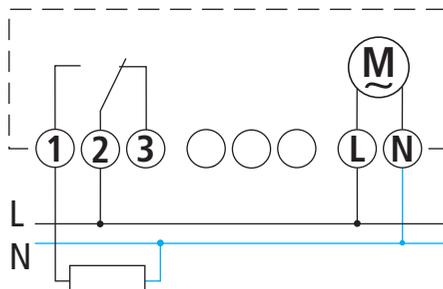
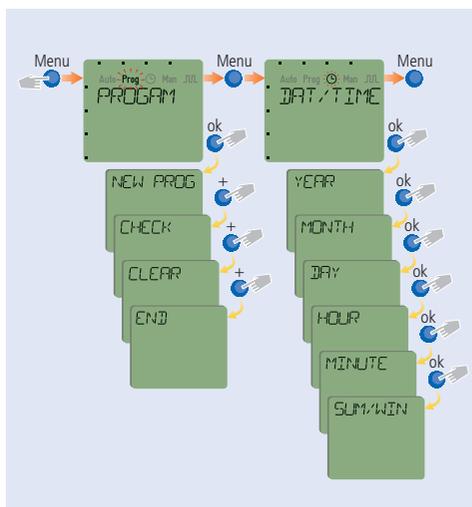
TR 608 top TERMINA®

Function:

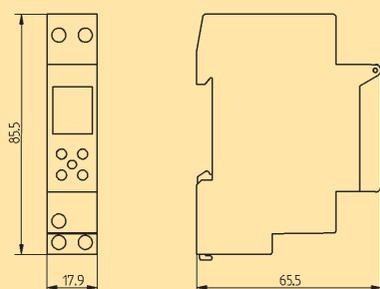
- Step by step operator guidance by an integrated text line on the LCD display
- Week program
- 28 memory locations with free block formation and separate programming of the switching on and off times
- Easy handling by 4 keys and step by step operator guidance by an integrated text line on the LCD display (see scheme)
- Guided copying of the switching times to other days of the week
- Switching preselection
- Permanent switching ON/OFF
- Automatic summer/winter time changeover can be alternatively switched off or randomly programmed (MEZ, GB, USA changeover norm selectable)
- Lithium cell easily replaceable
- PIN code

Technical data:

- Nominal voltage:** 230 V~, +10 %/–15 %
- Special voltages:** on request
- Frequency:** 50–60 Hz
- Type of contact:** changeover switch
- Contact:** potential-free
- Opening width:** < 3 mm (μ)
- Contact material:** AgSnO₂
- Switching capacity:** 16 A, 250 V~, cos φ = 1
6 A, 250 V~, cos φ = 0,6
- Power consumption:** ca. 2,5 VA
- Incandescent lamp load:** 1000 W
- Halogen lamp load:** 1000 W
- Fluorescent lamps:** non compensated, series compensated 800 VA, parallel compensated 200 VA (18 μF)
- Compact fluorescent lamps:** 7 x 7 W, 6 x 11 W, 5 x 15 W, 5 x 20 W, 5 x 23 W
- Time basis:** Quartz
- Accuracy:** ≤ ± 1 s/day at +20 °C
- Shortest switching time:** 1 min
- Switching precision:** exact to the second
- Display:** LCD display (text line, time, weekday, holiday program, switching status, manual switching)
- Operating control elements:** 4 touch keys and 1 reset key
- Power reserve:** 3 years with display and full controllability (temp. 20 °C) by means of an environmentally friendly lithium battery
- Admissible ambient temperature:** –10 °C...+55 °C
- Housing- and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Protection class:** II according to EN 60 730-1 subject to correct installation
- Degree of protection:** IP 20 according to EN 60 529
- Weight:** approx. 85 g
- Test approvals:**



Dimension drawings DIN 43 880



Terminal cover



Design:

- Standard housing 45 x 17.5 x 60 mm
- Snap-on fixing for 35 mm top-hat rail (DIN EN 50022)
- Shock protection in accordance with accident prevention regulation BGV A3
- Surface mounting with additional terminal cover, tamper proofing
- Control panel installation using mounting kit no. 907 0 001
- Undetachable hinged cover, sealable

Type	Program	Memory locations	Power reserve	Programmable every ...	Switching contacts	Nominal current at 250 V~	Order No.
TR 608 top 1 channel	24 h 7 days	28	3 years	1 min	1 changeover switch	16 (6) A	608 0 002
Terminal cover for wall mounting, sealable							907 0 065



TR 610 top2



TR 612 top2



Digital time switches with text-oriented user guidance in the display, OBELISK interface and DuoFix plug-in terminals.

Functions:

- Daily and weekly program
- Operating by means of 4 keys arranged in one row
- Integrated running-time meter for max. 500.000 hours with reset option and service function for monitoring of maintenance intervals and „Service“ display, separately for each channel
- Plug-in spring terminals, each one accepting 2 conductors, wires or strands
- Display illumination (can be switched off)
- Interface for OBELISK top2 memory card for PC programming, 2nd switching program to be plugged in, copying of programs and safe storage of the program
- Date-controlled holiday program
- Automatic summer/winter time changeover can be alternatively switched off or randomly programmed (MEZ, GB, USA changeover norm selectable)
- Preset ex factory of date, time and summer/winter changeover
- Extended temperature range –30 °C ... +55 °C
- High accuracy: ± 0,5 s/day
- 10 years power reserve by lithium cell
- Zero cross switching for relay-saving switching and high lamp loads
- Switching preselection
- Permanent switching ON/OFF
- PIN encoding

TR 610 top2 TERMINA®

- 1 channel with 56 memory locations, EEPROM

TR 612 top2 TERMINA®

- 2 channels with 56 memory locations, EEPROM

Common technical data:

- Nominal voltage:** 230–240 V~, +10 %/–15 %
- Frequency:** 50–60 Hz
- Type of contact:** changeover switch
- Contact:** independent of mains phase (zero cross switching)
- Opening width:** < 3 mm
- Contact material:** AgSnO₂
- Max. switching capacity:** 16 A, 250 V~, cos φ = 1
10 A, 250 V~, cos φ = 0.6
- Min. switching capacity:** 10 mA at 230 V AC
100 mA at 12 V AC/DC

- Power consumption:** typ. 3 VA
- Incandescent lamp load:** 2600 W
- Halogen lamp load:** 2600 W
- Fluorescent lamps:** non compensated, series compensated 1000 VA, parallel compensated 730 VA (80 µF)

- Compact fluorescent lamps:** 22 x 7 W, 18 x 11 W, 16 x 15 W, 16 x 20 W, 14 x 23 W

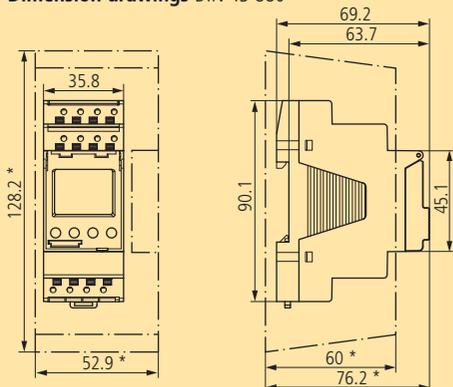
- Time basis:** Quartz
- Accuracy:** ≤ ± 0,5 s/day at +20 °C
- Shortest switching time:** 1 minute (pulse/cycle 1 s)
- Switching precision:** exact to the second
- Display:** backlight LCD display with text line
- Operating control elements:** 4 touch keys
- Power reserve:** about 10 years with autosleep allowing full operation (temperature +20 °C) by non-polluting lithium cell
- Admissible ambient temperature:** –30 °C...+55 °C

- Housing- and insulation material:** self-extinguishing thermoplasts of high temperature resistance

- Protection class:** II according to EN 60 730-1 subject to correct installation
- Degree of protection:** IP 20 according to EN 60 529
- Weight:** approx. 170 g
- Test approvals:**

Wiring diagrams, see page 23.

Dimension drawings DIN 43 880



*with terminal cover

Terminal cover



Design

- Standardized housing 45 x 35 x 60 mm according to DIN 43880
- Quick fastening for 35 mm profile rail (DIN EN 50.022)
- Contact protection according to accident prevention regulation BGV A3
- Top mounting with additional terminal cover, sealable
- Control panel installation using mounting kit No. 907 0 001
- Undetachable hinged cover with possibility of keeping the memory card OBELISK top2, sealable

Type	Program	Memory locations	Programmable every ...	Control inputs	Memory card OBELISK top2 included in the delivery	Switching contacts	Nominal current at 250 V~	Order No.
TR 610 top2 1 channel	24 h/7 d, runtime meter, holiday program	56	1 min	–	–	1 changeover switch	16 (10) A	610 0 100
TR 612 top2 2 channels	24 h/7 d, runtime meter, holiday program	56	1 min	–	–	2 changeover switches	16 (10) A	612 0 100
OBELISK top2 programming kit (memory card, plug-in adapter, software) for Windows 2000/XP								907 0 409
OBELISK top2 memory card (single)								907 0 404
Terminal cover for wall mounting, sealable								907 0 064



TR 611 top2



TR 622 top2



Antenna top2 RC-DCF

Digital time switches with text-oriented user guidance in the display, OBELISK interface and DuoFix plug-in terminals.

Functions:

- Daily and weekly program
- Operating by means of 4 keys arranged in one row
- Integrated running-time meter for max. 500.000 hours with reset option and service function for monitoring of maintenance intervals and „Service“ display, separately for each channel
- Plug-in spring terminals, each one accepting 2 conductors, wires or strands
- Display illumination (can be switched off)
- Interface for OBELISK top2 memory card for PC programming, 2nd switching program to be plugged in, copying of programs and safe storage of the program
- Date-controlled holiday program
- Automatic summer/winter time changeover can be alternatively switched off or randomly programmed (MEZ, GB, USA changeover norm selectable)
- Preset ex factory of date, time and summer/winter changeover
- Extended temperature range $-30\text{ °C} \dots +55\text{ °C}$
- High accuracy: $\pm 0,5\text{ s/day}$
- 10 years power reserve by lithium cell
- Zero cross switching for relay-saving switching and high lamp loads
- Switching preselection
- Permanent switching ON/OFF
- PIN encoding

TR 611 top2 TERMINA®

- 1 channel with 84 memory locations, EEPROM
- Puls program, cycle program, countdown timer
- Selection of 2 different random programs
- External control input (diff. functions can be selected)
- OBELISK top2 memory card included in the delivery

TR 611 top2 RC TERMINA®

- identical with TR 611 top2, however
- DCF77 radio-controlled via an external antenna
- Power supply unit for antenna integrated in the device
- Antenna connection with safety extra low voltage, protection class III
- OBELISK top2 memory card included in the delivery

TR 622 top2 TERMINA®

- 2 channels with 84 memory locations, EEPROM
- Puls program, cycle program, countdown timer
- Selection of 2 different random programs
- 2 external control inputs (diff. functions can be selected)
- OBELISK top2 memory card included in the delivery

Common technical data:

- Nominal voltage:** 230–240 V~, +10 %/–15 %
- Frequency:** 50–60 Hz
- Type of contact:** changeover switch
- Contact:** independent of mains phase (zero cross switching)
- Opening width:** < 3 mm
- Contact material:** AgSnO₂
- Max. switching capacity:** 16 A, 250 V~, $\cos \varphi = 1$
10 A, 250 V~, $\cos \varphi = 0.6$
- Min. switching capacity:** 10 mA at 230 V AC
100 mA at 12 V AC/DC
- Power consumption:** typ. 3 VA
- Incandescent lamp load:** 2600 W
- Halogen lamp load:** 2600 W
- Fluorescent lamps:** non compensated, series compensated 1000 VA, parallel compensated 730 VA (80 µF)
- Compact fluorescent lamps:** 22 x 7 W, 18 x 11 W, 16 x 15 W, 16 x 20 W, 14 x 23 W
- Time basis:** Quartz
- Accuracy:** $\pm \pm 0,5\text{ s/day}$ at +20 °C
- Shortest switching time:** 1 minute (pulse/cycle 1 s)
- Switching precision:** exact to the second
- Display:** backlight LCD display with text line
- Operating control elements:** 4 touch keys
- Power reserve:** about 10 years with autosleep allowing full operation (temperature +20 °C) by non-polluting lithium cell
- Admissible ambient temperature:** $-30\text{ °C} \dots +55\text{ °C}$
- Housing- and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Protection class:** II according to EN 60 730-1 subject to correct installation
- Degree of protection:** IP 20 according to EN 60 529
- Weight:** approx. 170 g
- Test approvals:**

Dimension drawings, see page 21.

Type	Program	Memory locations	Programmable every ...	Control inputs	Memory card OBELISK top2 included in the delivery	Switching contacts	Nominal current at 250 V~	Order No.
TR 611 top2 1 channel	24 h/7 d, runtime meter,	84	1 s	1	yes	1 changeover switch	16 (10) A	611 0 100
TR 622 top2 2 channels	holiday, pulse and cycle program, countdown timer,	84	1 s	2	yes	2 changeover switches	16 (10) A	622 0 100
TR 611 top2 RC 1 channel	2 random programs	84	1 s	1	yes	1 changeover switch	16 (10) A	611 0 300 Available August 2008
Antenna top2 RC-DCF max. 10 TERMINA top2 devices can be connected, for dimensional diagram see page 28								907 0 410
OBELISK top2 programming kit (memory card, plug-in adapter, software) for Windows 2000/XP								907 0 409
OBELISK top2 memory card (single)								907 0 404
Terminal cover for wall mounting, sealable								907 0 064

Din rail program

Digital time switches 1–2 channels (2 modules)



Plug-in spring terminals



DuoFix

- Quicker and simpler wiring, safe connection
- For each terminal, 2 conductors, wire or strand can be connected, strand with or without cable end sleeves
- Connection cross-section 0.5–2.5 mm²
- Actuator button for disconnecting the plug-in connection available
- Test point for simple voltage check
- Easy wire entry thanks to 45° entry angle



OBELISK top2 interface



- Dual programming which allows you to run a second program as long as the OBELISK top2 is plugged in.
- It is possible to copy the program from the time switch to the memory and vice versa, which allows you to create program copies for additional time switches.
- Polling of the plugged-in memory card possible, without changing the program memorized in the time switch.
- Archiving of the memory card in the sealed cover possible.



External 230 V AC control input



- For each channel, it is possible to connect a switch or several buttons to the external control input of the time switch. The control input allows the following five functions to be called: Permanently ON/OFF, switching preselection, countdown timer (hour glass function) and channel release (activation of the time switch).
- For corridor or stairway lighting with time-controlled permanent light phase, a button-controlled short-time lighting may be activated outside of this permanent light phase. In the stairwell, several buttons can be connected in parallel to the input.
- The circulation pump for the household water is programmed in accordance with its use in the morning, at lunchtime and in the evening. Outside of these periods, warm water circulation can be activated for some minutes by means of a button in the kitchen and bathroom. This allows to save energy and increases comfort.

PC software



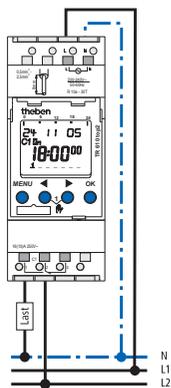
- Clearly structured and easy to understand: The additional OBELISK top2 PC software allows you to create switching programs comfortably on your own computer. Even complicated programs can be created within minutes by mouse click.

The switch-on phases are clearly displayed in a chart and automatically recorded in a table. Thus it is possible to save, print or export the programs to Excel for the individual customers.

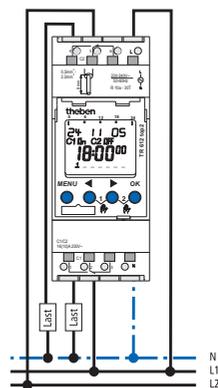
OBELISK top2 programming kit



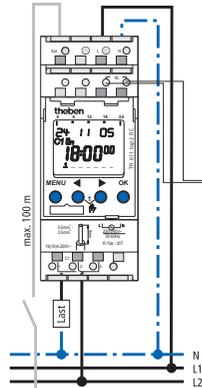
- A program created on the PC by means of the convenient OBELISK top2 software can be transferred via USB interface to the OBELISK top2 memory card and from the card to the time switch and vice versa. Thus no PC or laptop is required on-site. Programming and the program printout can thus be done comfortably from the desk.



TR 610 top2

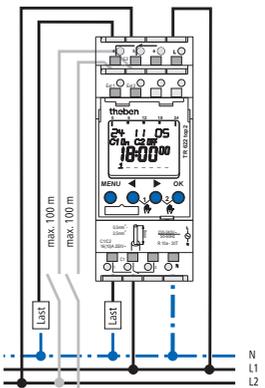


TR 612 top2



TR 611 top2

* TR 611 top2 RC with additional Antenna top2 RC-DCF



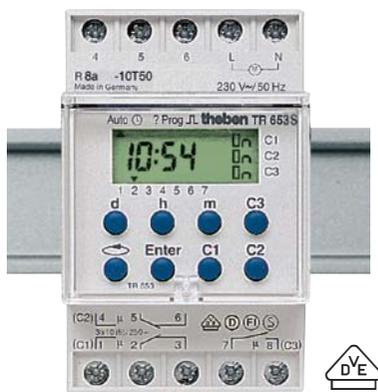
TR 622 top2



TR 651 S



TR 652 S



TR 653 S

TR 651 S, TR 652 S, TR 653 S Termina®

Function:

- Installation friendly digital time switch with times set at the factory (Central European Time) and programmed automatic Summer/Winter time change.
- Day, week and short program 1–59 s
- 140 memory locations with free block formation of weekdays
- The pulse program can also be combined with day and week program, e.g. for response time 7 h, 59 min, 37 s or a switching interval of 7 min, 23 s for signal switching
- Fully automatic summer/winter time adjustment in accordance with central european, GB or USA switching rules.
- The holiday program for interruption of the automatic program during 1...45 days can be programmed up to 3 weeks in advance.
- Operator prompting by means of flashing symbols on the display.
- Early manual over-ride switching for on and off. The next contradictory program command cancels the manual switching.

Common technical data:

Nominal voltage:

TR 651 S/652 S: 230–240 V~, +10 %/–15 %,
TR 653 S: 230 V~, +10 %/–15 % or
240 V~, +6 %/–15 %

Nominal voltage: see appendix

Frequency:

TR 651 S/652 S: 50–60 Hz

TR 653 S: 50 Hz or 60 Hz

Type of contact: changeover contact

Contact: potential-free

Opening width: < 3 mm (μ)

Contact material: AgSnO₂

Switching capacity:

TR 651 S/652 S: 16 A, 250 V~, cos φ = 1
10 A, 250 V~, cos φ = 0.6

TR 653 S: 10 A, 250 V~, cos φ = 1
6 A, 250 V~, cos φ = 0.6

Power consumption:

approx. 7 VA (TR 653 S approx. 14 VA)

Time base: Quartz

Memory locations: 140

Accuracy: ± 1 s/day at 20 °C

Minimum switching time: 1 min/1 s

Switching precision: exact to the second

Display: LCD display (time, weekday, pulse time, 1 x switching times, holiday program, switching status and permanent control)

Power reserve: approx. 8 years with display in full operation (temperature 20 °C) by means of an environmentally friendly lithium battery

Admissible ambient temperature: –10 °C...+50 °C

Housing- and insulation material:

self-extinguishing thermoplasts of high temperature resistance

Protection class:

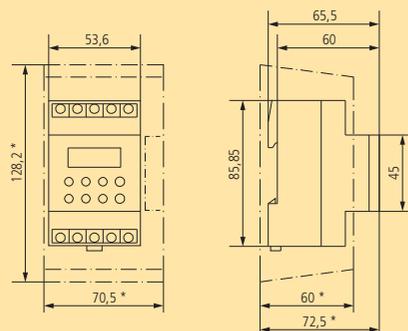
II according to EN 60 730-1 subject to correct installation

Degree of protection: IP 20 according to EN 60 529

Weight: approx. 250 g

Test approvals: national and international depending on device type

Dimension drawings DIN 43 880



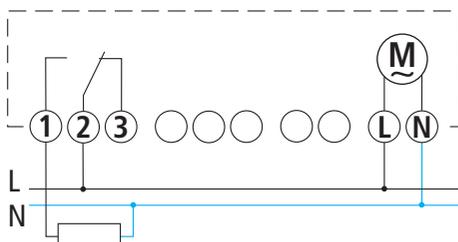
*with terminal cover

Terminal cover

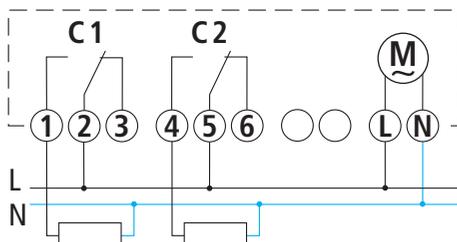


Design:

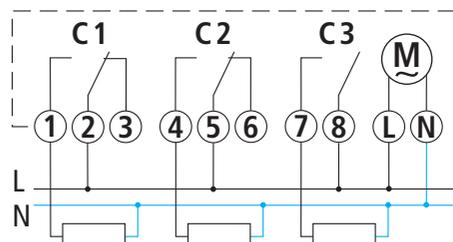
- Standard housing 45 x 54 x 60 mm
- Quick fastening facility for 35 mm DIN rail (EN 50 022)
- Shock protection in accordance with accident prevention regulation BGV A3
- Built-on installation with an additional terminal cover which can be fitted with a leadable seal
- Switch panel installation complete with installation kit no. 907 0 001
- Captive hinged cover which can be fitted with a leadable seal



TR 651 S (1 channel)
Time set at factory



TR 652 S (2 channels)
Time set at factory



TR 653 S (3 channels)
Time set at factory

Program TR 651–653 S:

Day, week and pulse program:

Switching times can be set accurate to the second. Thanks to the pulse program, it is also suitable for pause signals or controlling solenoid valves etc.

Memory locations:

140 memory locations can be distributed as required over 1, 2 or 3 channels, in addition to day, week or pulse commands.

Blocking:

Free blocking of the days of the week (even in the case of pulse commands) permits the possible switching configurations to be duplicated.

Pulse program:

In the case of pulse commands for a duration of 1–59 seconds, the start of the pulse is entered as with normal switching commands, and then the pulse duration in seconds is added, e.g.: Mon–Fri 7:05 am signalling for 15 seconds.

Pulse commands can be programmed as ON or OFF switching pulses and have priority over normal commands. This offers the following additional possibilities:

Switching times which can be set accurate to the second.

Prolonged switching times:

Switching times can be prolonged by 1–59 seconds with an additional ON pulse command, e.g. switching duration 7 min 25 s

Delayed switch-on:

Switch-on can be delayed by 1–59 seconds with an additional OFF pulse command, e.g. 35 s ON at 7 am or for staggered switch-on of channels.

Interrupting switch-on phases:

OFF pulse commands permit brief interruptions of switch-on phases.

1x switching commands:

For public holidays for instance, switching commands can be entered as a one-time switching operation, and this operation is executed only once and then deleted automatically. Switch-on commands on holidays or public holidays can be suppressed once for instance. One-time switching commands can be entered a maximum of 7 days in advance.

Type	Program	Memory locations	Power reserve (Lithium)	Programmable every ...	Special functions	Switching contacts	Nominal current at 250 V~	Order No.
TR 651 S 1 channel	24 h 7 days 1–59 s pulse	140	8 years	1 min/ 1 s	1x switching 1...7 days for holiday setting	1 changeover switch	16 (10) A	651 0 001 –phasedown–
TR 652 S 2 channels	24 h 7 days 1–59 s pulse	140	8 years	1 min/ 1 s	1x switching 1...7 days for holiday setting	2 changeover switches	16 (10) A	652 0 001 –phasedown–
TR 653 S 3 channels	24 h 7 days 1–59 s pulse	140	8 years	1 min/ 1 s	1x switching 1...7 days for holiday setting	2 changeover switches 1 NO contact	10 (6) A	653 0 001 –phasedown–
Terminal cover for wall mounting, sealable								907 0 050



TR 641 S



TR 644 S



TR 644 S DCF, radio controlled



Antenna for DCF77 radio signal, see page 28

Programming and simulation on the PC by means of the OBELISK programming set is possible as well as programming manually on the device by keyboard.

Function:

- 10 standard week programs with ascending priority e.g. for different programs (public holidays, holidays, seasons)
- The software has a database available containing holidays that can be loaded as appropriate
- With date correction for holidays in succeeding years. Integrated calendar until 2070.
- Permanent function ON/OFF programmable for each channel and date
- Free block formation of channels and weekdays
- Simple programming possible by means of ten key keyboard or PC
- New simulation of the program on PC with an overview for the entire year for all channels
- Overview by wiring diagram in the zoom window exactly to the minute for every channel
- Manual switching is possible by means of override and permanent switching
- Activatable random program
- Programming possible even without power supply
- High battery reserve with lithium cell, easily replaceable from the front

TR 641 S TERMINA[®]

- 1 channel
- Calendar controlled automatic summer/winter time adjustment

TR 641 S DCF TERMINA[®], radio controlled

- 1 channel
- Automatic time synchronisation and summer/winter time adjustment
- Mains supply unit and Aerial DCF77 required additionally

TR 642 S TERMINA[®]

- as TR 641 S, but with 2 channels

TR 642 S DCF TERMINA[®], radio controlled

- as TR 641 S DCF, but with 2 channels

TR 644 S TERMINA[®]

- as TR 641 S, but with 4 channels

TR 644 S DCF TERMINA[®], radio controlled

- as TR 641 S DCF, but with 4 channels

Common technical data:

Nominal voltage: 230–240 V~, +10%/–15%

Special voltages: see appendix

Frequency: 50–60 Hz

Type of contact: changeover contact

Contact: potential-free

Opening width: < 3 mm (μ)

Contact material: AgSnO₂

Switching capacity: 16 A, 250 V~, cos φ = 1
10 A, 250 V~, cos φ = 0.6

Power consumption: approx. 8 VA

Time base:

TR 641 S/642 S/644 S: Quartz

TR 641 S/642 S/644 S DCF: Quartz/DCF 77 time signals

Accuracy: ≤ ± 1 s/day at 20 °C or DCF77 synchronous

Shortest switching time: 1 minute/1 second

Switching precision: exact to the second

Display: LCD-display

Operating control elements: 15 touch keys

Power reserve:

1.5 years at full operation (temp. 20 °C) by means of an environmentally friendly lithium cell. Data security, when switched off, approx. 10 years by means of EEPROM.

Admissible ambient temperature:

Time switch: –10 °C... +55 °C

Antenna: –10 °C... +70 °C

Max. antenna distance: 200 m

Housing- and insulation material: self-extinguishing thermoplasts of high temperature resistance

Protection class:

II according to EN 60 730-1 subject to correct installation

Degree of protection: IP 20 according to EN 60 529

Weight: time switch approx. 500 g

Test approvals: (TR 644 S/TR 644 S DCF)

PC programming kit OBELISK



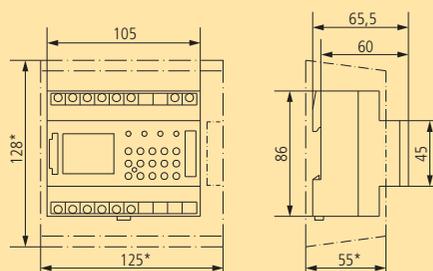
OBELISK memory card with EEPROM for program transfer between PC and time switch



standard plug-in adapter



Dimension drawings DIN 43 880



*with terminal cover

Terminal cover



Design:

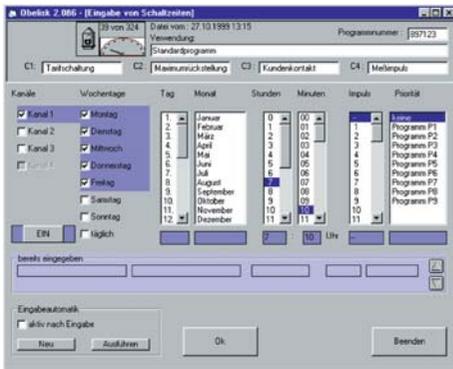
- Standard housing 45 x 105 x 60 mm
- Snap-on fixing for 35 mm top-hat-rail (EN 50022)
- Shock protection in accordance with accident prevention regulation BGV A3
- Surface mounting with additional terminal cover, tamper proofing
- Panel mounting with installation kit No. 907 0 001
- Transparent cover, tamper proofing

Din rail program

Yearly time switches 1–4 channels (6 modules)



Programming with OBELISK 2.1



Easy programming

By choice, with both versions, the whole switching program can be effected at your desk with WINDOWS on the PC by using the additional OBELISK 2.1 program kit. The complete time program can be printed in tabular form.

Programming with the mouse

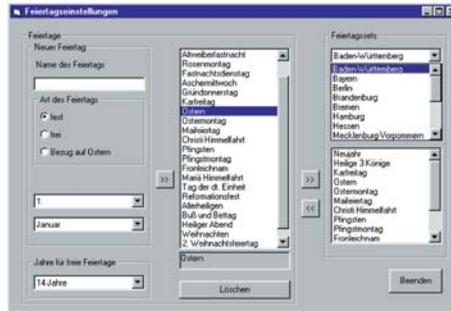
Bring up on the screen with the mouse the required fields e.g. channel 2 and 3, ON, on Tuesday. By scrolling the hours and minutes, set the switching time to the exact minute and confirm with OK – ready.

Standard week programs

In addition to the standard program, additional programs for public holidays, holidays, varying seasons or "Open Day" can be created. Each program is allotted a precedence rating. The higher precedence rating has priority. The priority program is filed in the memory and can be activated, when required, by entering the start and end date.

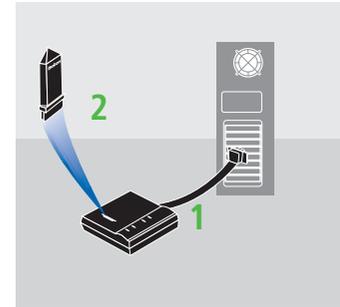
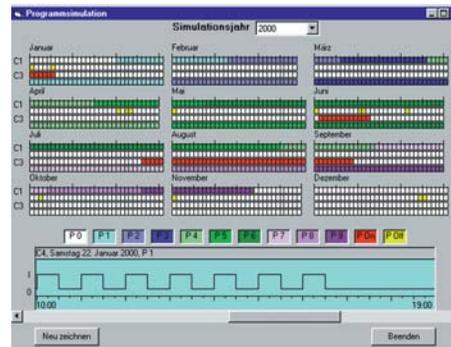
Public holidays

Simple and individual programming with the help of the holiday data base. Also variable holidays only need to be programmed once, since the date adjustment for the subsequent years takes place automatically via the time switch. Integrated calendar until 2070.



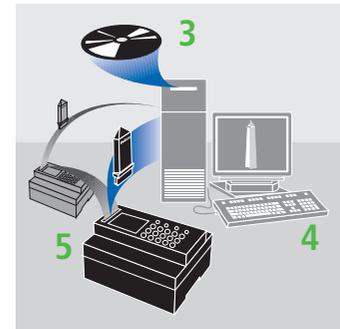
Simulation of the time program

To obtain a quick overview, an entered switching program can be displayed in the form of a graph. You first receive an overview for the entire year for all channels. By clicking the desired day and channel, you receive an overview in the zoom window exactly to the minute.



Easy installation:

- 1 Plug the interface of the OBELISK-plug adaptor into the serial part of your PC.
- 2 Push on the OBELISK memory card.
- 3 Install the OBELISK software on the PC.
- 4 Necessary PC 486 or PENTIUM with WINDOWS 95/98/2000/NT/XP. Available capacity on two hard discs about 4 MB.
- 5 Program can be read from PC into the memory card OBELISK and from there be transferred into the time switch. The OBELISK memory card may now serve as back-up or for program transfer from time switch to time switch.



Type	Program	Memory locations	Power reserve	Programmable every ...	Special functions	Switching contacts	Nominal current at 250 V~	Order No.
TR 641 S 1 channel	24 h/7 d/year 1–59 s pulse	324	1.5 years	1 s	1x switching 1...7 days for holiday setting	1 changeover switch	16 (10) A	641 0 001
TR 641 S DCF 1 channel	radio controlled 24 h/7 d/year 1–59 s pulse	324	1.5 years	1 s	1x switching 1...7 days for holiday setting	1 changeover switch	16 (10) A	641 0 301 (without antenna + power unit)
TR 642 S 2 channels	24 h/7 d/year 1–59 s pulse	324	1.5 years	1 s	1x switching 1...7 days for holiday setting	2 changeover switches	16 (10) A	642 0 001
TR 642 S DCF 2 channels	radio controlled 24 h/7 d/year 1–59 s pulse	324	1.5 years	1 s	1x switching 1...7 days for holiday setting	2 changeover switches	16 (10) A	642 0 301 (without antenna + power unit)
TR 644 S 4 channels	24 h/7 d/year 1–59 s pulse	324	1.5 years	1 s	1x switching 1...7 days for holiday setting	4 changeover switches	16 (10) A	644 0 001
TR 644 S DCF 4 channels	radio controlled 24 h/7 d/year 1–59 s pulse	324	1.5 years	1 s	1x switching 1...7 days for holiday setting	4 changeover switches	16 (10) A	644 0 301 (without antenna + power unit)
Power unit for Antenna DCF77, standard housing 45 x 35 x 60 mm according to DIN 43880								907 0 182
Terminal cover TR 644 S for wall mounting, sealable								907 0 053
Programmierset OBELISK (memory card, intermediate plug for PC interface, software)								907 0 230
OBELISK memory card (single)								907 0 165
Antenna for DCF77 radio control , required for radio controlled devices. Max. 5 devices can be connected per antenna. No power supply required.								907 0 243

Din rail program

Front kit plate for products installed in distribution panels



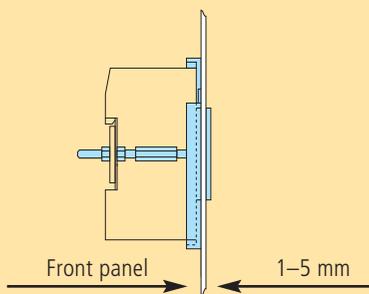
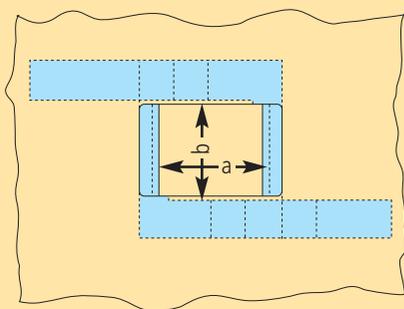
Front plate kit

Function:

- The front plate kit is suitable for Theben products installed in distribution panels with overall width of 17.5 to 107.5 mm
- Wall thickness of 1 to 5 mm.
- Easy installation.

Installation:

- Prepare switch panel cut-out dimensionally, see the accompanying table.
- Shorten fixing components to the housing width.
- Install fixing components in the front plate cut-out, insert product and fix with 2 clamping screws.



Front panel cut-out	Product width	Width a	Height b
	17.5 +0.5	23.5 +0.5	46 ±0.2
	35 +1	41.1 ±0.2	46 ±0.2
	52.5 +1.5	59 ±0.2	46 ±0.2
	70 +2	77.1 ±0.2	46 ±0.2
	105 +3	113.5 ±0.2	46 ±0.2

Type

Front plate kit for devices of 1–6 TE according to DIN 43880

Order No.

907 0 001

Wall mounting

DCF77 Antenna for DCF time switches



DCF77 Antenna

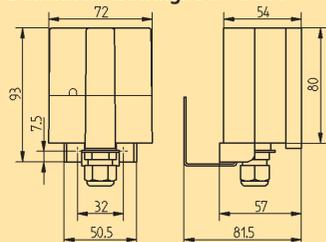
Radio control unit with antenna module for RC devices of the top2 series, TR 641 DCF–TR 648 DCF, SEL 173 DCF

The THEBEN radio time switch is synchronized automatically to the time standard of the most accurate clock of the world. The built-in longwave receiver receives the time telegrams sent every minute by the official time signal radio station DCF77. The synchronization of the time takes place after about 2 to 3 as soon as two equally coded signals are received one after the other. Daily synchronization takes place overnight. The range of the radio station DCF77 in

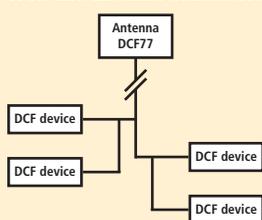
Mainflingen near Frankfurt on the Main is approx. 1000 km. For good reception, the antenna should not be mounted in the cellar or in the distribution.

It is connected via a separate 2-wire unshielded high-voltage line (max. 100 m), up to five Theben DCF devices can be connected to. As mounting aid, polarity reversal, short circuit and interruption of the antenna line are each displayed optically.

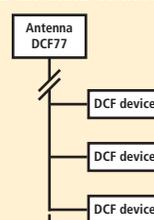
Dimension drawings DIN 43 880



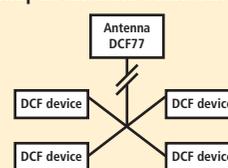
Tree-like antenna connection



Linear antenna connection



Star-shaped antenna connection



Type

Antenna for DCF77 radio signal, TR 641 DCF–TR 648 DCF, SEL 173 DCF, max. 5 devices

Antenna top2 RC-DCF for DCF77 radio signal, max. 10 devices

Order No.

907 0 243

907 0 410



TR 635 top



TR 636 top



The text-oriented programming gives you a step by step instruction through the entire programme.

Function:

- Week program
- Operator guidance by an integrated text line on the LCD display
- Programming is shown graphically by a means of a bar chart on the LCD display
- Preset ex factory of date, time and summer/winter changeover
- Automatic summer/winter time changeover can be alternatively switched off or randomly programmed (MEZ, GB, USA changeover norm selectable)
- High number of memory locations
- Guided copying of the switching times to other days of the week (random block formation)
- Sorting of the switching times in memory by the day of the week
- Switching preselection
- Permanent switching
- Lithium battery and EEPROM
- PIN encoding

TR 635 top TERMINA®

- 1 channel with 42 memory locations
- Holiday switching and random function
- Pulse and cycle program

TR 636 top TERMINA®

- 2 channels with 42 memory locations
- With holiday, random and pulse program separate for each channel
- Cycle program for channel 1

Common technical specifications:

Nominal voltage: 230–240 V~, +10 %/–15 %
Frequency: 50–60 Hz
Type of contact: changeover switch
Contact: potential-free
Opening width: < 3 mm (μ)
Contact material: AgSnO₂
Switching capacity:
 TERMINA 635 top: 16 A, 250 V~, cos φ = 1
 10 A, 250 V~, cos φ = 0.6
 TERMINA 636 top: 6 A, 250 V~, cos φ = 1
 6 A, 250 V~, cos φ = 0.6

Power consumption:

TERMINA 635 top: max. 6 VA
 TERMINA 636 top: max. 8 VA

Incandescent lamp load TR 635 top: 2300 W

Halogen lamp load TR 635 top: 2300 W

Fluorescent lamps TR 635 top:

non compensated, series compensated 1000 VA, parallel compensated 400 VA (42 μF)

Compact fluorescent lamps TR 635 top:

9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W

Time basis: Quartz

Accuracy: ≤ ± 1 s/day at 20 °C

Shortest switching time: 1 min (pulse/cycle 1 s)

Switching precision: exact to the second

Display: LCD display with text line

Operating control elements:

4 touch keys and 1 reset key

Power reserve: approx. 10 years with display with full controllability (temp. 20 °C) by means of an environmentally friendly lithium battery

Admissible ambient temperature: –10 °C...+55 °C

Housing- and insulation material:

self-extinguishing thermoplasts of high temperature resistance

Protection class:

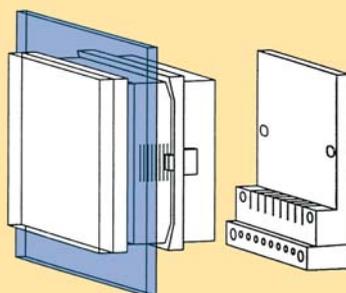
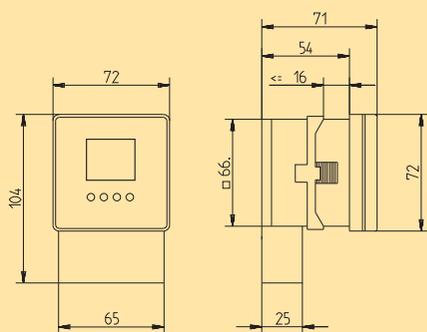
II according to EN 60 730-1 subject to correct installation

Degree of protection: IP 20 according to EN 60 529

Weight: approx. 170 g

Test approvals:

Dimension drawings



For mounting possibilities, see page 18.

Design:

- Front frame 72 x 72 mm (DIN 43 700)
- Switch panel installation with clamp fixture. Optional connection with flat plug (4.8 mm) or with screw terminals when using the plug-in base.
- With additional parts, mounting is possible on a 35 mm profile rail or with connector strip on PCB.
- Transparent cover

Type	Program	Memory locations	Power reserve (Lithium)	Programmable every ...	Switching contacts	Nominal current at 250 V~	Order No.
TR 635 top 1 channel	24 h/7 days, random switching, holiday program, pulse and cycle programm	42	10 years	1 min	1 changeover switch	16 (10) A	635 0 002
TR 636 top 2 channels	24 h/7 days, random switching, holiday program, pulse and cycle programm	42	10 years	1 min	2 changeover switches	6 (6) A	636 0 002



TR 685/2 top

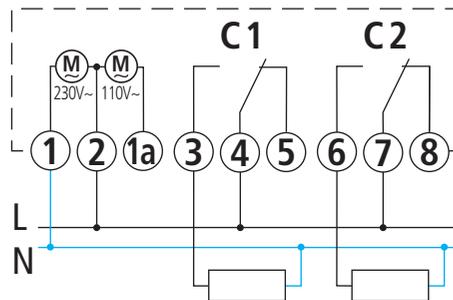
TR 685/2 top TERMINA®

Function:

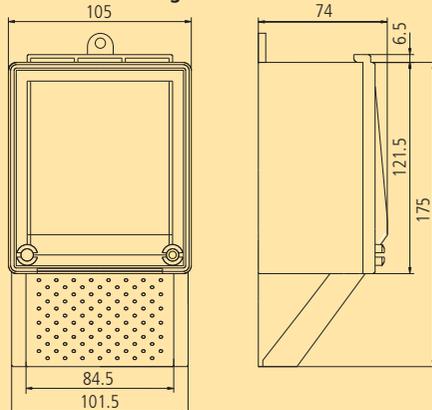
- Installation-friendly tariff time switch with factory preset time (central European time) and programmed automatic summer/winter time adjustment
- 2 channels with 42 memory locations which due to free block formation can be programmed on one, several or all weekdays. Thanks to EEPROM, maximum fail-safe operation of the program memory.
- Power reserve approx. 6 years thanks for environmental-friendly lithium battery
- Control LED for battery change
- Day and week program with minimum switching time of 1 minute
- Simple programming by means of text-oriented operator
- Display and control panel with 90° rotation
- Autosleep
- PIN code
- Switching preselection
- Permanent ON/OFF switching
- Fully automatic summer/winter time adjustment in accordance with central european, GB or USA switching rules
- Programming possible even without power supply

Common technical specifications:

- Nominal voltage:** 110 V~, ±10 %
230 V~, +10 %/–15 %
- Frequency:** 50–60 Hz
- Type of contact:** changeover switch
- Contact:** potential-free
- Opening width:** < 3 mm (μ)
- Contact material:** AgSnO₂
- Switching capacity:** 8 A/250 V~, cos φ = 1
2 A/250 V~, cos φ = 0.6
- Power consumption:** max. 10 VA
- Time basis:** Quartz
- Accuracy:** ≤ ±0.25 s/day at 23 °C
- Shortest switching time:** 1 min
- Switching precision:** exact to the second
- Display:** LCD display
- Operating control elements:** 4 touch keys and 1 reset key
- Power reserve:** approx. 6 years at full operation (temperature 20 °C)
- Admissible ambient temperature:** –25 °C...+55 °C
- Housing- and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Protection class:** II according to EN 62 054-21 subject to correct installation
- Degree of protection:** IP 54 according to EN 60 529
- Weight:** approx. 475 g



Dimension drawings



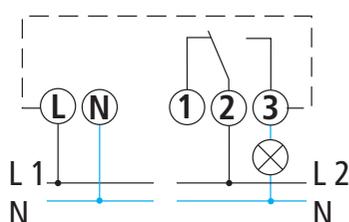
Design:

- Front frame 175 x 105 x 74 mm
- Housing with 3-point fixing for wall mounting and terminal cover mounting
- Screw clamps for 1 x 2.5 mm² or 2 x 1.5 mm²
- Tamper proof transparent cover
- Accumulator exchangeable from front side (pluggable)
- Stackable housing
- Space for power supplier's reference

Type	Program	Memory locations	Power reserve (Lithium)	Programmable every ...	Switching contacts	Nominal current at 250 V~	Order No.
TR 685/2 top	24 h 7 days	42	6 years	1 min	2 changeover switches	8 (2) A	685 0 012



TR 030 top



TR 030 top TERMINA®

Function:

- The new flush mounted digital time switch is perfect for modernising and new buildings
- Very easy programming by text oriented user guidance in the display, leading step by step through the programming
- Day and week programming with 42 memory locations adjustable to the minute
- Guided copying of the switching times to other days of the week (free block formation)
- Programming is shown graphically by means of a bar chart on the LCD display
- Holiday program programmable via date
- Pulse and cycle program
- Random switching can be activated by pressing of any key
- Automatic summer/winter time changeover can be alternatively switched off or randomly programmed (MEZ, GB, USA changeover norm selectable)
- Switching preselection and permanent switching (permanent)
- Power reserve approx. 10 years by Lithium battery
- Program saving by EEPROM
- PIN code

Technical data:

Nominal voltage: 230 V~, +10 %/-15 %

Frequency: 50 Hz

Type of contact: changeover switch

Contact: potential-free

Opening width: < 3 mm (μ)

Contact material: AgSnO₂

Switching capacity:

10 A, 250 V~, cos φ = 1

10 A, 250 V~, cos φ = 0.6

Power consumption: max. 6 VA

Incandescent lamp load: 2300 W

Halogen lamp load: 2300 W

Fluorescent lamps:

non compensated, series compensated 1000 VA,

parallel compensated 400 VA (42 μF)

Compact fluorescent lamps:

9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W

Timing base: Quartz

Accuracy: ± ± 1 s/day at 20 °C

Shortest switching time: 1 min (pulse/cycle 1 s)

Switching precision: exact to the second

Display: LCD display with text line

Operating control elements:

4 touch keys and 1 reset key

Power reserve:

approx. 10 years with display and full controllability (temp. 20 °C) by means of an environmentally friendly lithium battery

Permissible ambient temperature:

-10 °C...+35 °C

Housing- and insulation material:

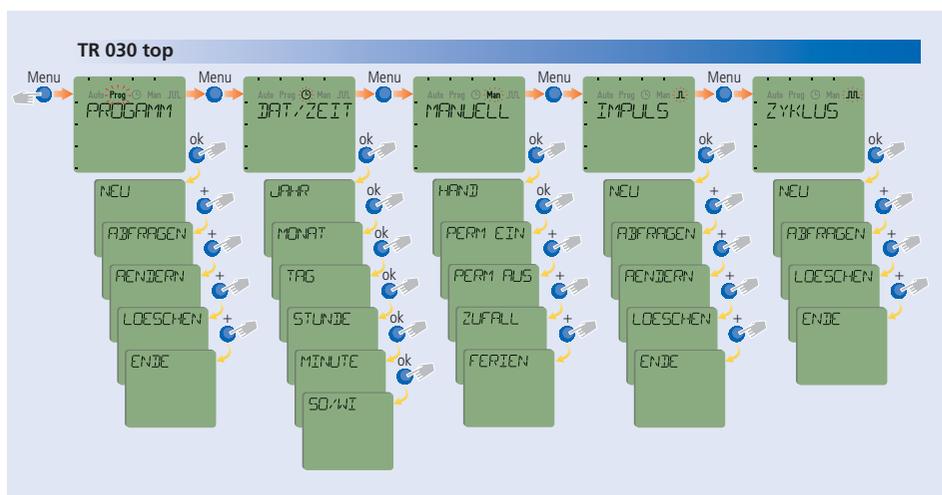
self-extinguishing thermoplasts of high temperature resistance

Protection class: II according to EN 60 730-1 subject to correct installation

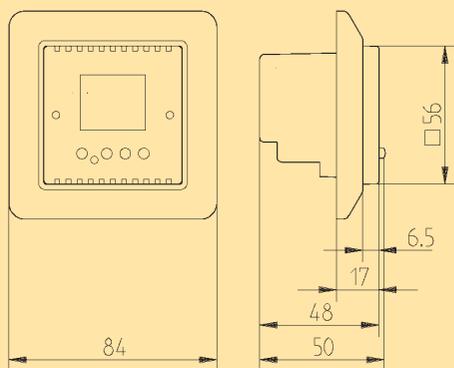
Degree of protection: IP 20 according to EN 60 529

Weight: approx. 170 g

Test approvals:



Dimension drawings



Type	Program	Memory locations	Power reserve (Lithium)	Programmable every ...	Switching contacts	Nominal current at 250 V~	Order No.
TR 030 top pure white	24 h/7 days, random switching, holiday program, pulse and cycle program	42	10 years	1 min/1 s	1 changeover switch	10 (10) A	030 0 002



theben-eltimo 020 S



theben-eltimo 020 S DCF

eltimo 020 S

- Electronic security time switch of contemporary functional design
- Day- and week program with 36 individually programmable switching times and free block formation for week days
- Automatical summer/winter time changeover
- Easy handling by buttons for weekdays (d), hours (h) and minute (m) as well as buttons for time setting (⌚), and programming (Prog), random switching (⊞) and manual switching (👉)
- Random switching: by the press of the "dye" button the random switching is defined running during the programmed switching time. The switching on intervals vary between 10 to 120 minutes.
- Manual switch for premature switching ON or OFF or permanent switching
- Switching status indication
- Net independent programming
- Time function and programming by NiMH accumulator
- Switching capacity 3500 W

eltimo 020 S DCF

- Same as above, but with DCF 77 signal receiver
- Automatic time setting
- Automatic summer/winter time changeover
- 33 memory locations

Technical data:

Nominal voltage: 230 V~, ± 10 %

Frequency: 50 Hz

Type of contact: NO contact

Opening width: < 3 mm (μ)

Contact material: AgSnO₂

Switching capacity:

16 A, 230 V~, cos φ = 1

2 A, 230 V~, cos φ = 0.6

Power consumption: max. 5 VA

Time basis: Quartz/DCF-synchron

Accuracy:

≤ ± 1 s/day at +20 °C (Quartz)

Switching precision:

- exact to the second

- DCF77 radio controlled

Display: LCD display for time, switching time, switching status, manual switching and random switching

Admissible ambient temperature:

-10 °C...+40 °C

Protection class:

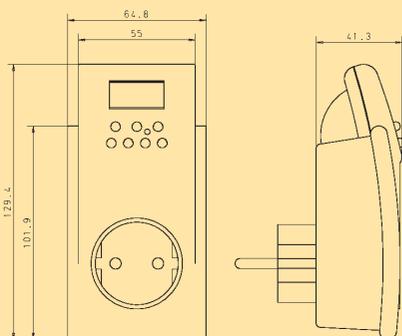
Housing: II according to EN 60 730-1

Plug system: I

Degree of protection: IP 20 according to EN 60 529

Weight: approx. 170 g

Dimension drawings



Type	Program	Memory locations	Net independent programming	Programmable every ...	Switching times	Housing colour	Nominal current at 230 V~	Order No.
theben-eltimo 020 S	24 h/7 days random switching	36	500 h NiMH-Akku	1 minute	from 1 min to 24 h ∕. 1 min, random switching	light blue	16 (2) A	020 0 000
theben-eltimo 020 S DCF	24 h/7 days random switching	33	500 h NiMH-Akku	1 minute	from 1 min to 24 h ∕. 1 min, random switching	light blue	16 (2) A	020 0 300



theben-timer 26 day



theben-timer 27 week



theben-timer 26 IP 44



Function:

- Compact plug-in time switch for house, hobby and work
- Without connection cable plugs straight into the socket outlet
- Normal household electrical appliances, lights etc. can be switched on or off automatically at the required time
- Simple programming by segments
- Manual over-ride switch for switching on or off the connected electrical appliance without influencing the subsequent program sequence
- ON/OFF switching status indication

theben-timer 26 with segments

- Day program programmable by 15 min segments

theben-timer 27 with segments

- Week program programmable by 2 hour segments

theben-timer 26 IP 44 with segments

- Day program programmable by 15 min segments
- Weatherproof protection for damp locations and outdoor areas
- Permissible ambient temperature: $-40\text{ }^{\circ}\text{C} \dots +55\text{ }^{\circ}\text{C}$
- Transparent cover

Technische Daten:

Nominal voltage: 230 V~, +10 %/-15 %

Frequency: 50 Hz

Type of contact: NO contact

Opening width: < 3 mm (μ)

Contact material: hard silver

Switching capacity:

16 A, 230 V~, $\cos \varphi = 1$

4 A, 230 V~, $\cos \varphi = 0.6$

Power consumption: max. 0.8 VA

Accuracy:

corresponds to the mains frequency

Admissible ambient temperature:

$-10\text{ }^{\circ}\text{C} \dots +55\text{ }^{\circ}\text{C}$,

theben-timer 26 IP 44: $-40\text{ }^{\circ}\text{C} \dots +55\text{ }^{\circ}\text{C}$

Housing- and insulation material:

self-extinguishing thermoplasts of high temperature resistance

Protection class: I according to EN 60 730-1

Degree of protection: IP 20 according to EN 60 529

theben-timer 26: IP 44 according to EN 60 529

Test approvals: national and international

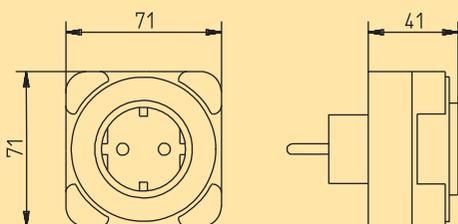
depending on device type

Weight: approx. 160 g

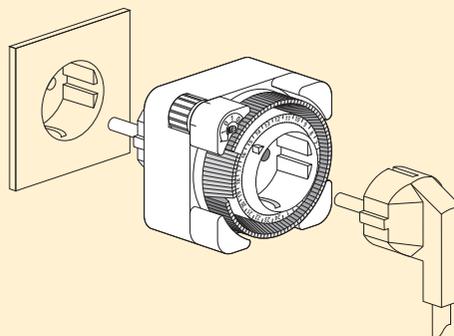


Other plug-in versions on request.

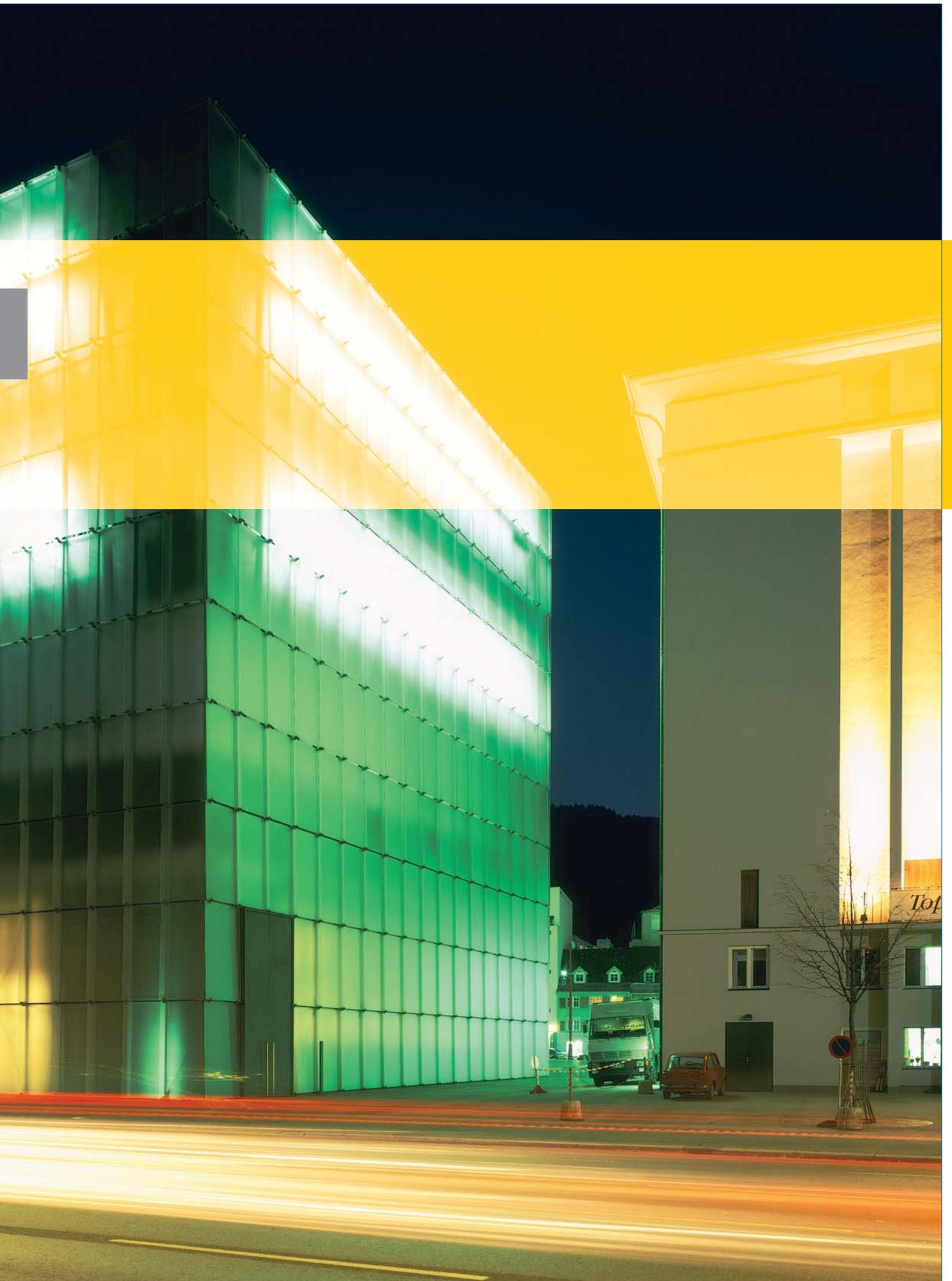
Dimension drawings



theben-timer are also available for foreign plug systems.



Type	Program dial	Special functions	Programmable every ...	Minimum switching interval	Switching segments	Housing colour	Nominal current at 230 V~	Order No.
theben-timer 26	24 h	switching preselection	15 min	15 min	96	white	16 (4) A	026 0 030
theben-timer 26 IP 44	24 h	switching preselection	15 min	15 min	96	white	16 (4) A	026 0 855
theben-timer 27	7 days	switching preselection	2 h	2 h	84	white	16 (4) A	027 0 930



Good lighting makes public places safer. And that needs to be efficiently controlled. It stands to reason: Lights don't have to be on all the time. Professional lighting control with twilight switches and astronomic digital timers from Theben make things particularly easy. Whether in the public or private sphere, Theben ensures efficient use of light; user-friendly, economic and safe.

LIGHT

ELPA staircase time switch

for flush-mounted sockets
mechanical
electronic

Flush-mounted installation
DIN rail program
DIN rail program

Pages 36–37
Pages 38–39
Pages 40–42

LUNA twilight switch

with mounted or integrated sensor
with integrated sensor

DIN rail program
Wall-mounted

Pages 43–53
Pages 54–55

SELEKTA astronomic timers

with astro and time programs

DIN rail program

Pages 56–57
Pages 60–61

OBELISK top2 programming set

Pages 58–59

Presence detectors thebenHTS

for 230 V
for 24 V
Accessories:

Wall/ceiling installation
Wall/ceiling installation

Pages 62–75
Pages 76–83
Pages 84–85

TEMPORA time relay

with analogue time setting

DIN rail program

Pages 86–87

BZ runtime meters

analogue
digital

Front panel/DIN rail program
Front panel/DIN rail program

Page 88
Pages 89–90



0.5–20 min

Input
8–230 V AC/DC

60 min



ELPA 041



ELPA 047



ELPA 041 switch-off pre-warning



This switching power is achieved by an electronically controlled connection of the load in the crossover of the mains alternating voltage. Through the permanent optimization of the switch-on time in the continuous test, more than 40,000 switching cycles were carried out without problems under full load.

■ **ELPA 041** ELPA®, with multifunction, multi-voltage input, crossover circuit

Function:

- Electronic staircase time switch for flush mounting
- Suitable for retrofitting and new installation
- Switching duration infinitely adjustable from 0.5–20 min
- High accuracy
- Immediately resettable or disconnectable prematurely
- Switches or buttons can be connected, i.e., existing switches can be used (e.g. for retrofitting)
- Crossover circuit for the protection of the relay contact
- In addition, the crossover circuit protects the luminous medium, i.e., the life of the luminous medium is increased
- Multifunction device with selectable functions, to be set on the device front

- DIP switch 1:
ON = connection for switch
OFF = connection for button
- DIP switch 2:
ON = Current pulse switch function with release delay (disconnectable prematurely)
OFF = stairway-light function (immediately resettable)
- DIP switch 3:
ON = 60 min long-term function can be activated via long button press
OFF = without long-term function
- DIP switch 4:
ON = switch-off pre-warning (double flashing twice) according to DIN 18015-2 to avoid sudden darkness
OFF = without switch-off pre-warning

- Button input with max. 30 mA glow lamp load and electronic overload protection
- Connection for 3 or 4 wires (4 wires with connection for floor lighting)
- Automatic 3-/4-wire recognition
- Additional control input (only buttons can be connected) galvanically separated for AC/DC 8...230 V, e.g. for intercoms

■ **ELPA 047** ELPA®

- Electronic stairway-light time switch for flush mounting
- Suitable for retrofitting and new installation
- Switching duration infinitely adjustable from 0.5–20 min
- High accuracy
- Immediately resettable
- Crossover circuit for the protection of the relay contact
- In addition, the crossover circuit protects the luminous medium, i.e., the life of the luminous medium is increased
- Button input with max. 30 mA glow lamp load and electronic overload protection
- Connection for 3 or 4 wires (4 wires with connection for floor lighting)
- Automatic 3-/4-wire recognition

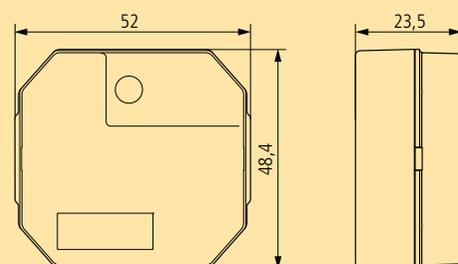
Technical data:

- Rated voltage:** 230 V~, +10 %/–15 %
- Frequency:** 50/60 Hz
- Power consumption:** 2 VA
- Glow-lamp load:** max. 30 mA
- Setting range:** 0.5 to 20 min, infinitely adjustable
- 3/4 wire setting:** automatic
- Resettable:** immediately
- Duty cycle:** 100 %
- Contact:** NO contact
- Switching output:** not potential-free
- Opening width:** < 3 mm (μ)
- Contact material:** AgSnO₂
- Switching capacity at 230 V~, cos φ = 1:** 10 A
- Switching capacity (fluorescent lamps):** 6 AX
- Incandescent lamp load:** 1800 W
- Halogen lamp load:** 1800 W
- Fluorescent lamps (VVG)^a uncompensated:** 1200 VA*
- Fluorescent lamps (VVG)^a series compensated:** 1200 VA*
- Fluorescent lamps (VVG)^a shunt compensated:** 580 VA* (54 μF)
- Fluorescent lamps (VVG)^a Dual circuit:** 1200 VA*
- Fluorescent lamps (EVG):^b** 200 VA
- Compact fluorescent lamps (EVG):** 13 x 7 W, 7 x 11 W, 5 x 15 W, 5 x 20 W, 4 x 23 W
- Housing and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Admissible ambient temperature:** –25 °C... +45 °C
- Degree of protection:** IP 20 according to EN 60 529
- Protection class:** II subject to correct installation
- Test approvals:**

*With marked lamp loads, a switch-off pre-warning (functions 2, 4, 6, 8, 10, 12) is not possible!

- a Conventional ballast
- b Electronic ballast

Dimension drawings:



Type	Time range	Connection type	Function	Rated current at 230 V~	Order No.
ELPA 041	0.5–20 min	3- or 4-wire	12 functions, multi-voltage input	10 A (6 AX)	041 0 002
ELPA 047	0.5–20 min	3- or 4-wire	–	10 A (6 AX)	047 0 002

Flush mounting

Staircase time switch, electronic



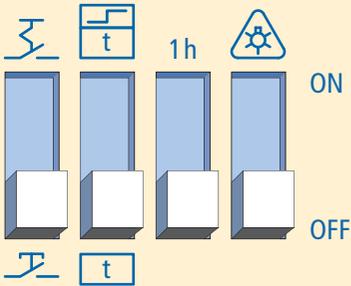
0.5–20 min

Input
8–230 V AC/DC

60 min



ELPA 041



DIP switch 1:

ON = connection for switch
OFF = connection for button

DIP switch 2:

ON = Current pulse switch function with release delay (disconnectable prematurely)
OFF = staircase-light function (immediately resettable)

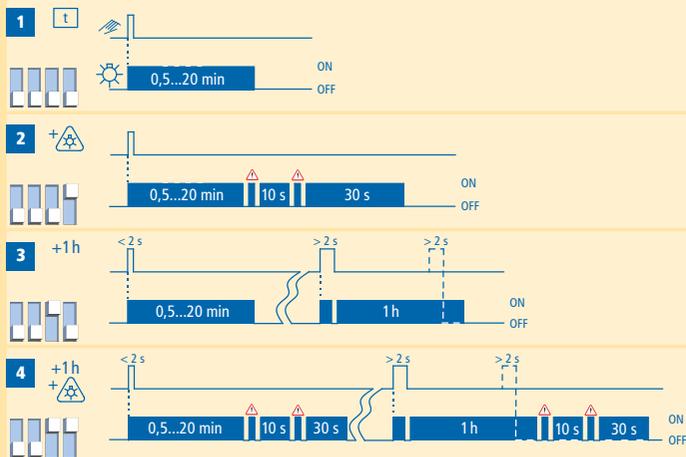
DIP switch 3:

ON = 60 min long-term function can be activated via long button press
OFF = without long-term function

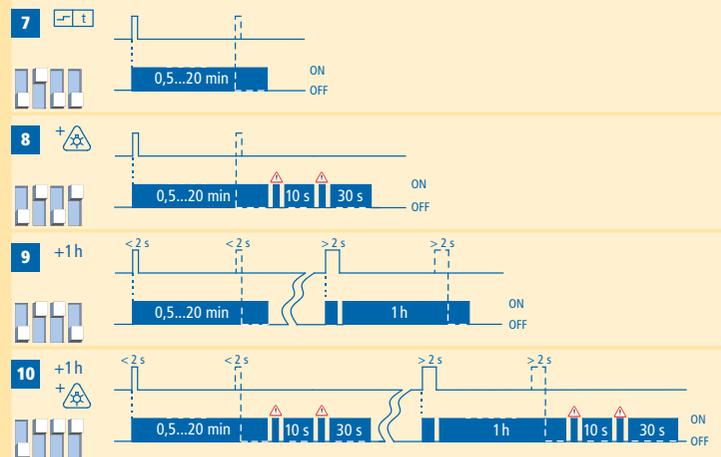
DIP switch 4:

ON = switch-off pre-warning (double flashes twice) according to DIN 18015-2 to avoid sudden darkness
OFF = without switch-off pre-warning

Button functions: Staircase time switch



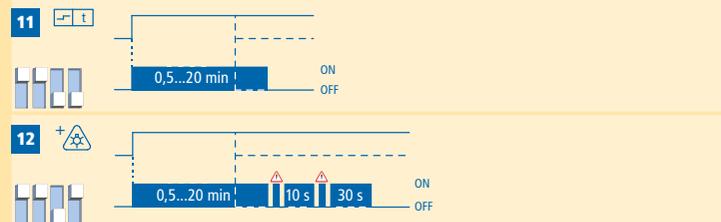
Button functions: Current pulse switch with release delay



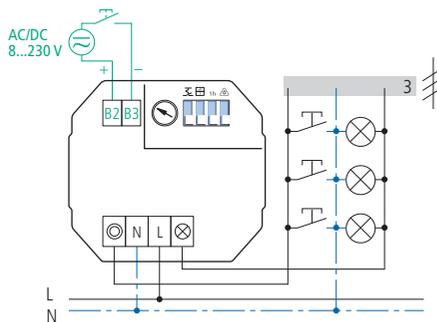
Switch functions*: Staircase time switch



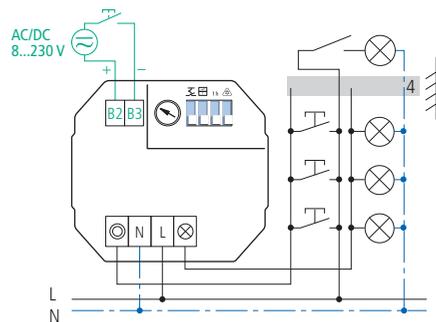
Switch functions*: Current pulse switch with release delay



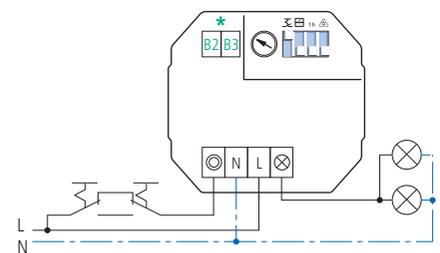
*Long-term function not switchable



ELPA 041 3-wire

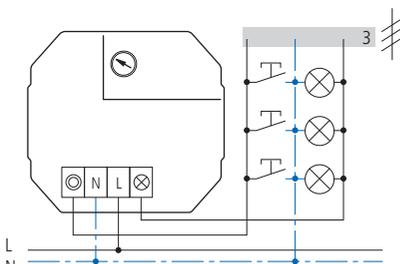


ELPA 041 4-wire

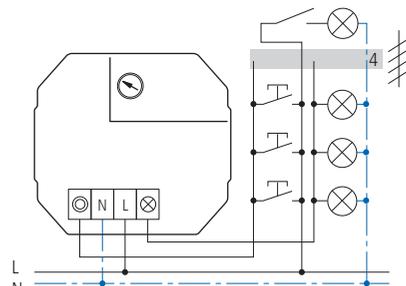


ELPA 041 with switch (two-way wiring)

* When a switch is connected, the multi-voltage input cannot be used



ELPA 047 3-wire



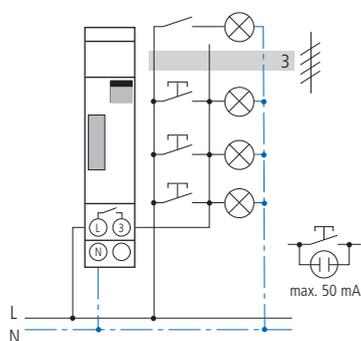
ELPA 047 4-wire



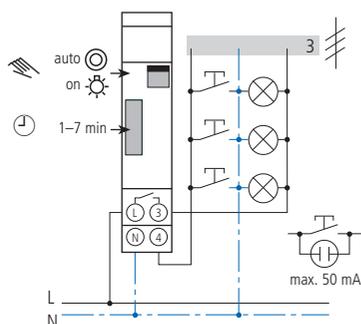
ELPA 8



ELPA 9



ELPA 9 3-wire



ELPA 8 3-wire

Function:

- Electromechanical time delay
- Maximum reliability thanks to synchronous motor drive
- Switching period adjustable from 1–7 min
- Tumbler switch for permanent light or minute light
- Tastereingang mit max. 50 mA Glimmlampenlast
- Extremely simple time setting and direct indication of the delay time on an absolute scale
- Precision mechanics and by that exact switching period
- Not sensitive to faults
- Low device consumption

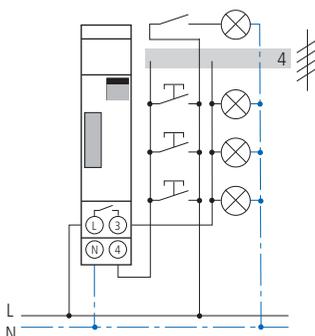
ELPA 8 ELPA®

- Preselection switch for 3-wire and 4-wire connection
- 4-wire rising main with connection for loft illumination
- 3-wire rising main without loft illumination



ELPA 9 ELPA®, for retrofitting in already existing systems

- With 3-wire rising main and ground illumination, but without resetting. Device is no longer permitted for new systems.



ELPA 8 4-wire

Technical data:

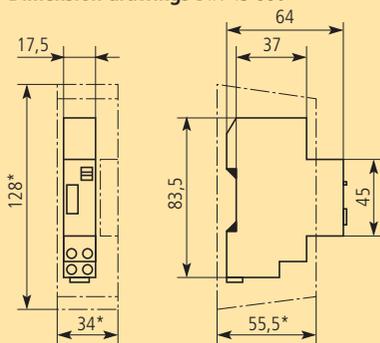
- Rated voltage:** 230 V~, +10 %/–15 %
- Frequency:** 50 Hz
- Device consumption:** max. 1 VA
- Glow-lamp load:** max. 50 mA
- Setting range:** 1 to 7 min
- 3/4 wire setting ELPA 8:** yes (rotary switch)
- 3/4 wire setting ELPA 9:** only 3-wire
- Resettable ELPA 8:** after 30 s
- Resettable ELPA 9:** no
- Switch for permanent light:** toggle switch
- Contact:** NO contact
- Switching output:** not potential-free
- Opening width:** > 3 mm
- Contact material:** AgSnO₂
- Switching power at 230 V~, cos φ = 1:** 16 A
- Switching power (fluorescent lamps):** 10 AX
- Incandescent lamp load:** 2300 W
- Halogen lamp load:** 2300 W
- Fluorescent lamps (VVG)^a uncompensated:** 2300 VA
- Fluorescent lamps (VVG)^a series compensated:** 2300 VA
- Fluorescent lamps (VVG)^a shunt compensated:** 1300 VA (70 μF)
- Fluorescent lamps (VVG)^a Dual circuit:** 2300 VA
- Fluorescent lamps (EVG):^b** 300 VA
- Compact fluorescent lamps (EVG):^b** 9 x 7 W, 6 x 11 W, 5 x 15 W, 5 x 20 W
- Housing and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Admissible ambient temperature:** –10 °C... +50 °C
- Degree of protection:** IP 20 according to EN 60 529
- Protection class:** II subject to correct installation
- Test approvals:**

Stairway-light time switch with integrated switch-off pre-warning according to DIN 18015-2 see page 40.

Additional device switch-off pre-warning according to DIN 18015-2 see page 39.

- a Conventional ballast
- b Electronic ballast

Dimension drawings DIN 43 880



*with terminal cover

Terminal cover



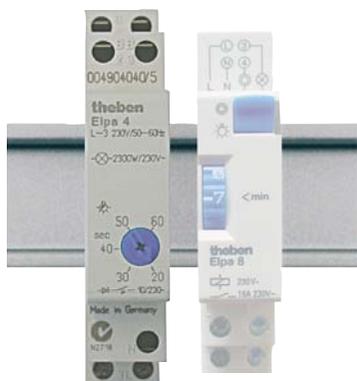
Design:

- Standard housing 45 x 17.5 x 60 mm
- Snap-on mounting facility for 35 mm top-hat rail (EN 50 022)
- Surface-mounted installation with additional terminal cover, sealable
- Switch panel installation complete with installation kit No. 907 0 001
- Contact protection in accordance with the accident prevention regulation BGV A3
- Large captive terminal screws

Type	Time range	Connection type	Switching function	Nominal current at 230 V~	Order No.
ELPA 8	1–7 min	switchable 3- or 4-wire	resettable, 3-wire or 4-wire rising main withloft lighting	16 A (10 AX)	008 0 002
ELPA 9	1–7 min	3-wire	not resettable, retrofit model, rising main withloft lighting	16 A (10 AX)	009 0 001

Terminal cover for top mounting, sealable
Installation kit for switch panel installation

907 0 065
907 0 001



ELPA 4 combined with ELPA 8

ELPA 4 ELPA®

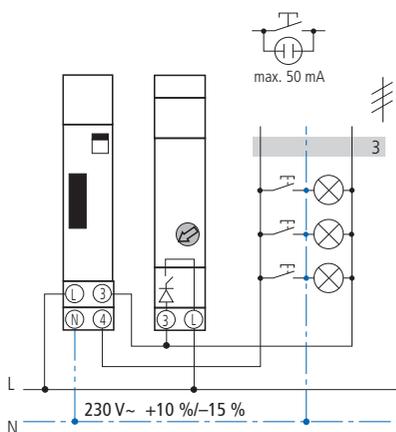
Function:

- ELPA 4 add-on device for staircase light time switch ELPA 3/ELPA 8 or other makes
- At the end of the lighting period set with the staircase light time switch ELPA 3/ELPA 8, ELPA 4 changes to reduced brightness
- Setting range 20–60 s
- Suitable only for switching incandescent lamps and 230 V~ halogen lamps

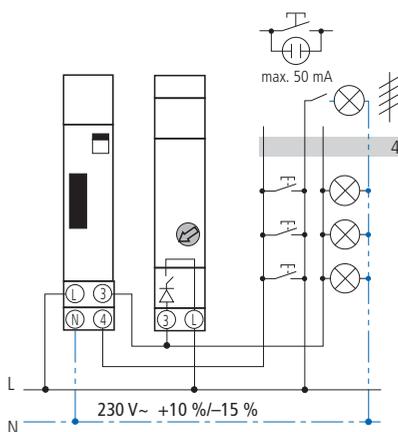
For design, dimension drawings and terminal cover, see page 41.

Technical data:

- Rated voltage:** 230 V~, +10 %/–15 %
- Frequency:** 50–60 Hz
- Power consumption:** 1 VA
- Setting range:** 20–60 s
- Resettable:** immediately
- Duty cycle:** 100 %
- Contact:** NO contact
- Switching output:** not potential-free
- Opening width:** < 3 mm
- Contact material:** AgSnO₂
- Switching power at 230 V~, cos φ = 1:** 10 A
- Incandescent lamp load:** 2300 W
- Halogen lamp load:** 2300 W
- Housing and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Admissible ambient temperature:** –10 °C... +50 °C
- Degree of protection:** IP 20 according to EN 60 529
- Protection class:** II subject to correct installation



ELPA 8 + ELPA 4 3-wire



ELPA 8 + ELPA 4 4-wire

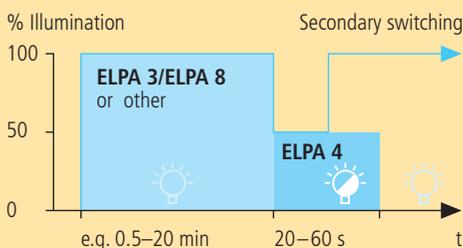
DIN 18015-2

recommends the type and minimum equipment of electrical systems in housing facilities.

Extract from section 4.2:

In lighting with adjustable automatic switch-off system, the automatic switch-off system must be provided with a warning function, e.g. dimming down, in order to avoid sudden darkness.

Reduced brightness warning function



Type	Time range	Connection type	Switching function	Nominal current at 230 V~	Order No.
ELPA 4	20–60 s	3- or 4-wire	cutout warning by reduced brightness	10 A	004 0 001
Terminal cover for top mounting for ELPA 4, sealable					907 0 065
Terminal cover for top mounting for ELPA 4 + e.g. ELPA 8, sealable					907 0 064



ELPA 1



ELPA 6

- ELPA 1** ELPA®, with multifunction, multi-voltage input, crossover circuit
Function:
- Switching duration infinitely adjustable from 0.5–20 min
 - High accuracy
 - Immediately resettable
 - Crossover circuit for the protection of the relay contact
 - In addition, the crossover circuit protects the luminous medium, i. e. the life of the luminous medium is increased
 - By means of the crossover circuit very high lamp loads are possible (e. g. 3600 W glow lamp load or a higher number of energy saving lamps)
 - Multifunction device with 10 selectable functions, adjustable on the device front
 - switch-off pre-warning (double flashing twice) The function can be connected and disconnected on the device front.
 - 60 min long-term function activatable by long button press. The function can be connected and disconnected on the device front.
 - Immediately resettable (stairway light switch) or disconnectable prematurely (current pulse switch, current pulse switch with release delay). The function can be selected on the device front.
 - Permanent light
 - Button input with max. 150 mA glow lamp load and electronic overload protection
 - Connection for 3 or 4 wires (4 wires with connection for floor lighting)
 - Automatic 3-/4-wire recognition
 - Additional control input galvanically separated for AC/DC 8...240 V, e. g. for intercoms
 - Terminal assignment as ELPA 8
 - Operational safety by very high switching power (e. g. 3600 W glow lamp load)

- ELPA 6** ELPA®, with multifunction, crossover circuit
- as ELPA 1, but without multi-voltage input

Technical data:

- Rated voltage:** 220–240 V~, +10 %/–15 %
- Frequency:** 50/60 Hz
- Power consumption:** 6 VA
- Glow-lamp load:** max. 150 mA
- Setting range:** 0.5 to 20 min, infinitely adjustable
- 3/4 wire setting:** automatic
- Resettable:** immediately
- Duty cycle:** 100 %
- Switch for permanent light:** rotary switch
- Contact:** NO contact
- Switching output:** not potential-free
- Opening width:** < 3 mm (μ)
- Contact material:** AgSnO₂
- Switching power at 230 V~, cos φ = 1:** 16 A
- Switching power (fluorescent lamps):** 16 AX
- Incandescent lamp load:** 3600 W
- Halogen lamp load:** 3600 W
- Fluorescent lamps (VVG)^a uncompensated:** 3600 VA*
- Fluorescent lamps (VVG)^a series compensated:** 3600 VA*
- Fluorescent lamps (VVG)^a shunt compensated:** 1200 VA (120 μF)*
- Fluorescent lamps (VVG)^a Dual circuit:** 3600 VA*
- Fluorescent lamps (EVG):^b** 1000 VA
- Compact fluorescent lamps (EVG):** 34 x 7 W, 27 x 11 W, 24 x 15 W, 22 x 23 W
- Housing and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Admissible ambient temperature:** –25 °C... +50 °C
- Degree of protection:** IP 20 according to EN 60 529
- Protection class:** II subject to correct installation
- Test approvals:** 

*With marked lamp loads, a switch-off pre-warning (switch position 2, 4, 7, 9) is not possible!

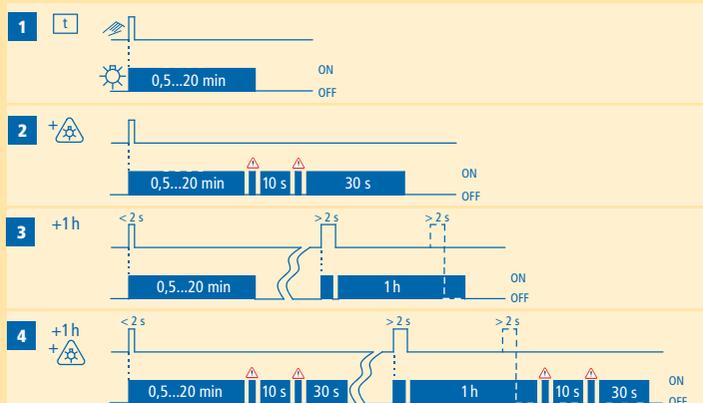
a Conventional ballast

b Electronic ballast

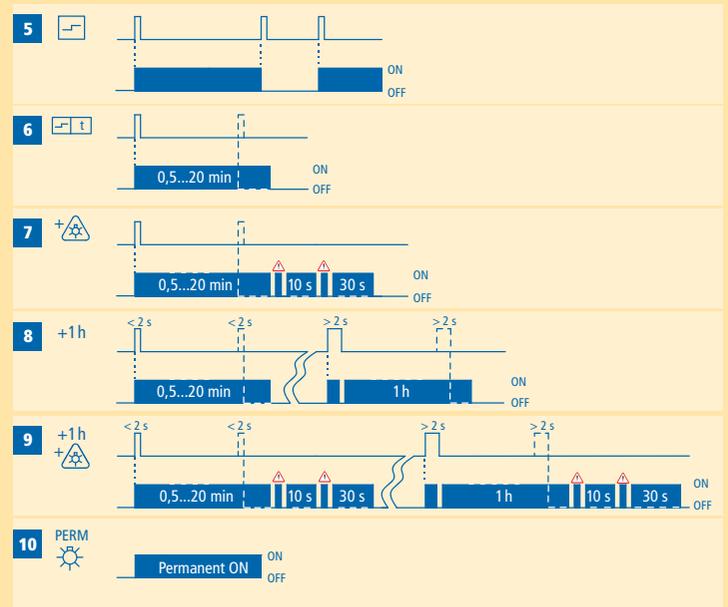
For design, dimensional drawing and terminal cover, see page 42.

ELPA 1/ELPA 6

Functions: Stairway-light timer



Functions: Current pulse switch, pulse switch with release delay



Din rail program

Staircase time switch, electronic (1 module)

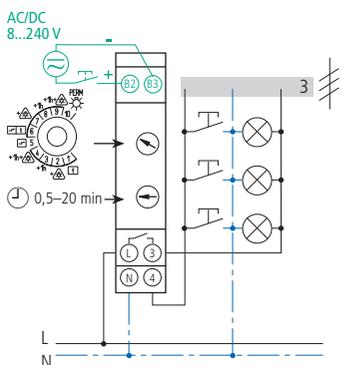


0.5–20 min

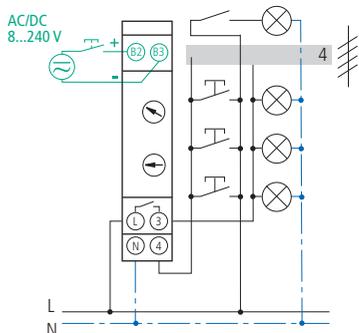
Input
8–240 V AC/DC

60 min

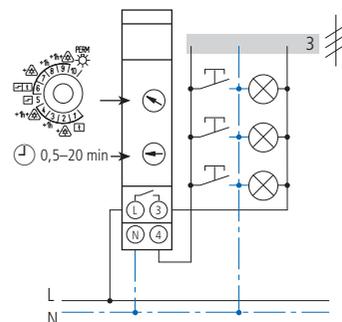
3600 W



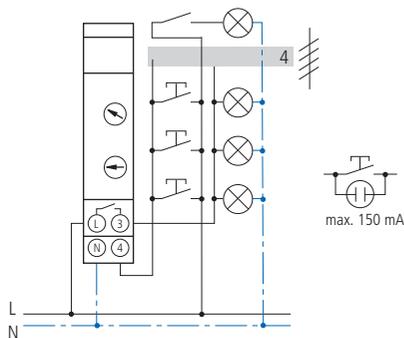
ELPA 1 3-wire



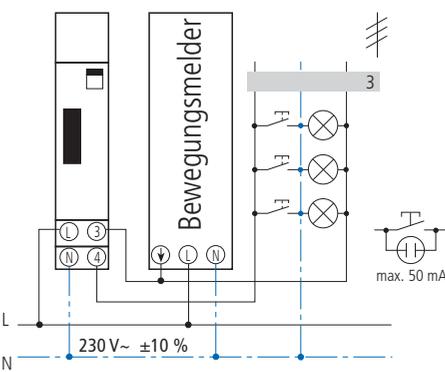
ELPA 1 4-wire



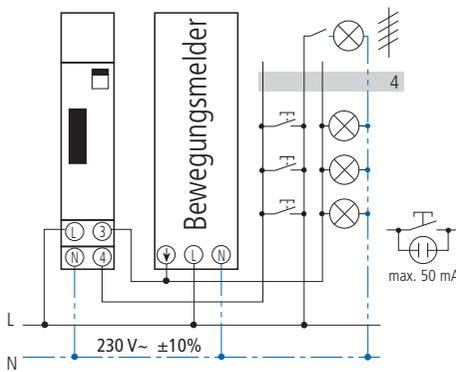
ELPA 6 3-wire



ELPA 6 4-wire



ELPA 1/ELPA 3/ELPA 6/ELPA 8 3-wire



ELPA 1/ELPA 3/ELPA 6/ELPA 8 4-wire

ELPA 1/ELPA 6 switch-off pre-warning



This switching power is achieved by an electronically controlled connection of the load in the crossover of the mains alternating voltage.

Through the permanent optimization of the switch-on time in the continuous test, more than 40,000 switching cycles were carried out without problems under full load.

Selection table ELPA series installation devices:

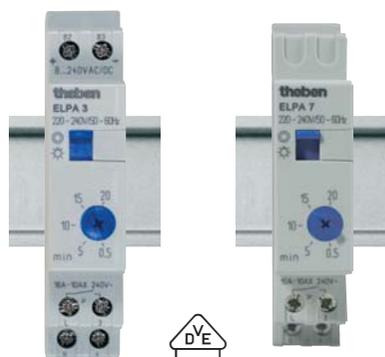
Device type	ELPA 8	ELPA 9	ELPA 4 (Pre-warning)	ELPA 7	ELPA 3	ELPA 6	ELPA 1
Order No.	008 0 002	009 0 001	004 0 001	007 0 002	003 0 002	006 0 002	001 0 002
Design	electro-mechanical	electro-mechanical	electronic additional device	electronic	electronic	electronic	electronic
Time setting	1–7 min	1–7 min	20–60 s	0.5–20 min	0.5–20 min	0.5–20 min	0.5–20 min
Switching power	16 A	16 A	not relevant	16 A	16 A	16 A	16 A
Incandescent lamp load	2300 W	2300 W	2300 W	2300 W	2300 W	3600 W	3600 W
Cross over circuit	–	–	–	–	–	•	•
Glow lamp load	50 mA	50 mA	not relevant	150 mA	150 mA	150 mA	150 mA
3-/4-wire	selector switch	only 3-wire	not relevant	automatic	automatic	automatic	automatic
Resettable	after 30 s	–	not relevant	immediately	immediately	immediately	immediately
Multi-voltage input	–	–	not relevant	–	8–240 V AC/DC	–	8–240 V AC/DC
Multifunction	–	–	not relevant	–	–	•	•
Switch-off pre-warning	–	–	50 % dimming	–	–	selectable	selectable
60 min long-term function	–	–	not relevant	–	–	selectable	selectable
Current pulse switching function	–	–	–	–	–	selectable	selectable

Type	Time range	Connection type	Function	Nominal current at 230 V~	Order No.
ELPA 1	0.5–20 min	3- or 4-wire	10 functions, multi-voltage input	16 A (16 AX)	001 0 002
ELPA 6	0.5–20 min	3- or 4-wire	10 functions	16 A (16 AX)	006 0 002
Terminal cover for surface mounting for ELPA, sealable					907 0 065
Installation kit for control panel installation					907 0 001



Input
8–240 V AC/DC

0.5–20 min



ELPA 3

ELPA 7



ELPA 7 ELPA®

Function:

- Electronic time delay
- Switching duration infinitely adjustable from 0.5–20 min
- High accuracy
- Immediately resettable
- Slide switch for permanent light or minute light
- Button input with max. 150 mA glow lamp load and electronic overload protection
- Connection for 3 or 4 wires (4 wires with connection for floor lighting)
- Automatic 3-/4-wire recognition
- Additional control input galvanically separated for AC/DC 8...240 V, e.g. for intercoms
- Terminal assignment as ELPA 8
- Operational safety through high switching performance

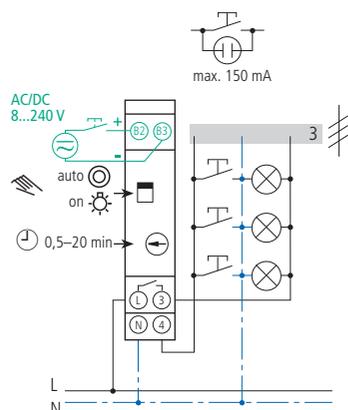
ELPA 3 ELPA®, as ELPA 7 but

- With multi-voltage input

Technical data:

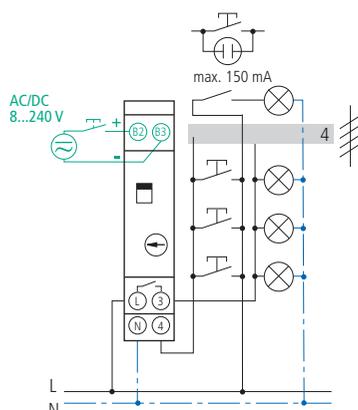
- Rated voltage:** 220–240 V~, +10 %/–15 %
- Frequency:** 50–60 Hz
- Device consumption:** 6 VA
- Glow-lamp load:** max. 150 mA
- Setting range:** 0.5 to 20 min, infinitely adjustable
- 3/4 wire setting:** automatic
- Resettable:** immediately
- Duty cycle:** 100 %
- Switch for permanent light:** slide switch
- Contact:** NO contact
- Switching output:** not potential-free
- Opening width:** < 3 mm (μ)
- Contact material:** AgSnO₂
- Switching power at 230 V~, cos φ = 1:** 16 A
- Switching power (fluorescent lamps):** 10 AX
- Incandescent lamp load:** 2300 W
- Halogen lamp load:** 2300 W
- Fluorescent lamps (VVG)^a uncompensated:** 2300 VA
- Fluorescent lamps (VVG)^a series compensated:** 2300 VA
- Fluorescent lamps (VVG)^a shunt compensated:** 400 VA (42 μF)
- Fluorescent lamps (VVG)^a Dual circuit:** 2300 VA
- Fluorescent lamps (EVG)^b:** 300 VA
- Compact fluorescent lamps (EVG)^b:** 9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W
- Housing and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Admissible ambient temperature:** –25 °C... +50 °C
- Degree of protection:** IP 20 according to EN 60 529
- Protection class:** II subject to correct installation
- Test approvals:**

- a Conventional ballast
- b Electronic ballast



ELPA 3 3-wire

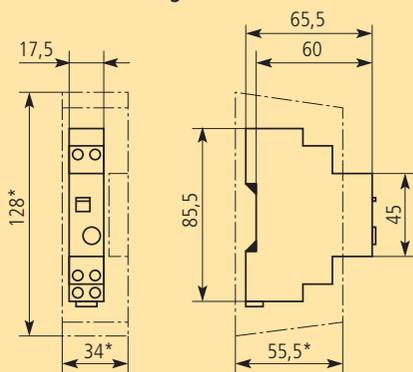
Multi-voltage input only at ELPA 3



ELPA 3 4-wire

Multi-voltage input only at ELPA 3

Dimension drawings DIN 43 880



*with terminal cover

Terminal cover



Design

- Standard housing 45 x 17.5 x 60 mm (DIN 43 880)
- Snap-on fixing for 35 mm profile rail (DIN EN 50 022)
- Top mounting with additional terminal box cover plate (907 0 065), sealable
- Switch panel installation with installation kit No. 907 0 001
- Contact protection to comply with accident prevention regulation BGV A3
- Large captive terminal screws

Type	Time range	Connection type	Switching function	Nominal current at 240 V~	Order No.
ELPA 3	0.5–20 min	3- or 4-wire	resettable, 3- or 4-wire rising main with loft lighting	16 A (10 AX)	003 0 002
ELPA 7	0.5–20 min	3- or 4-wire automatic	resettable, 3- or 4-wire rising main with loft lighting	16 A (10 AX)	007 0 002
Terminal cover for top mounting, sealable					907 0 065
Installation kit for switch panel installation					907 0 001



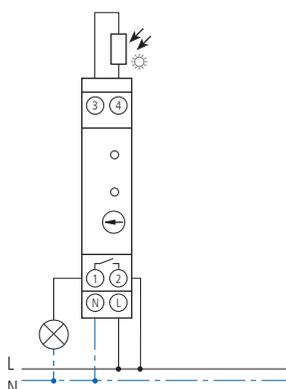
LUNA 108



For controlling the lighting facilities of streets, external stairways, shop windows, entrances, etc. Automatic On/Off switching depending on the level of the Lux value set by the twilight switch.

LUNA 108 LUNA®

- Space-saving dimming switch for distribution cabinet installation
- 17.5 mm width
- Separate flush-mounted light sensor or surface-mounted light sensor
- Brightness infinitely variable between 2–100 Lux on the adjusting screw
- Immediate display of the switched condition by means of a red LED
- Display of channel condition by means of a green LED
- Operational safety through high switching performance

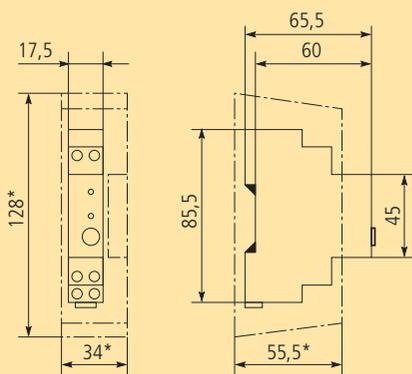


LUNA 108

Technical data:

Rated voltage: 220–240 V~, +10 %/–15 %
Frequency: 50–60 Hz
Device consumption: approx. 6 VA
Brightness range: 2–100 lx
Switching delay ON: about 20 s
Switching delay OFF: about 80 s
Switching state display (without delay): red LED
Display of channel status: green LED
Contact: NO contact
Switching output: potential-free
Opening width: < 3 mm (μ)
Contact material: AgSnO₂
Switching power at 250 V~, cos φ = 1: 16 A
Switching power (fluorescent lamps): 10 AX
Incandescent lamp load: 2300 W
Halogen lamps: 2300 W
Fluorescent lamps (VVG)^a uncompensated: 2300 VA
Fluorescent lamps (VVG)^a series compensated: 2300 VA
Fluorescent lamps (VVG)^a shunt comp.: 400 VA (42 μF)
Fluorescent lamps (VVG)^a Dual circuit: 2300 VA
Fluorescent lamps (EVG):^b 300 VA
Mercury discharge lamp uncompensated: 1000 VA
Mercury discharge lamp shunt comp.: 400 VA (42 μF)
Sodium discharge lamp uncompensated: 1000 VA
Sodium discharge lamp shunt comp.: 400 VA (42 μF)
Compact fluorescent lamps (EVG):^b
 9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W
Housing and insulation material: self-extinguishing thermoplasts of high temperature resistance
Admissible ambient temperature:
 Control unit: –25 °C...+50 °C
 Light sensor: –40 °C...+70 °C
Degree of protection according to DIN EN 60 529:
 Control unit: IP 20
 Surface-mounted sensor: IP 54 with cable connection at the bottom
 Built-in sensor: IP 65
Protection class if installed as directed:
 Control unit: II
 Light sensor: II
Test approvals: 
 a Conventional ballast
 b Electronic ballast

Dimension drawings DIN 43 880



*with terminal cover

Terminal cover



Accessories



Surface-mounted light sensor Flush-mounted light sensor

Type	Brightness range	Adjustment	Light sensor (included in the delivery)	Switching delay ON/OFF	Switching contacts	Nominal current bei 250 V~	Order No.
LUNA 108	2–100 lx	1 brightness range	Surface-mounted light sensor (IP 54) with screw terminals	20/80 s	1 NO contact	16 A (10 AX)	108 0 710
LUNA 108	2–100 lx	1 brightness range	Flush-mounted light sensor (IP 65) with 1.5 m cable	20/80 s	1 NO contact	16 A (10 AX)	108 0 700
Flush-mounted light sensor, 1.5 m connecting cable, Type of protection IP 65 (spare part)							907 0 011
Surface-mounted light sensor including fastening bracket and screw-type terminals (spare part)							907 0 008



New

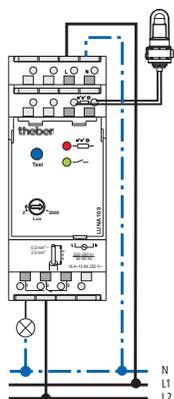
LUNA 109

LUNA 109 LUNA®

- 1 channel twilight switch for distributor installation for brightness-dependent control of lighting systems for streets, external staircases, display windows, entrances, etc.
- External light sensor included in delivery (mounted light sensor or integrated light sensor)
- Switching brightness (lux) is set on the potentiometer of 2–2000 lux
- Channel status display via green LEDs
- Instantaneous display of switching status via red LEDs
- Approx. 60 s ON/OFF switch delay to avoid faulty operation caused by car headlights and lightning
- Test button to check the installation independent of set brightness value
- DuoFix screwless terminals for 2 wires per connection terminal
- 35 mm installation width (2 modules)

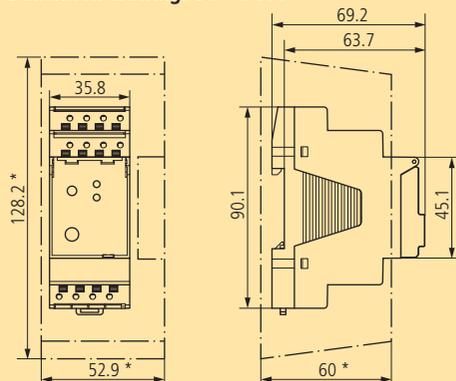
Technical data:

Operating voltage: 220–240 V~, +10 %/–15 %
Frequency: 50–60 Hz
Power consumption: typically 3 VA
Brightness ranges: 1 analogue range, 2–2000 lx
ON switch delay: approx. 60 s
OFF switch delay: approx. 60 s
Switching status display (instantaneous): Red LED
Channel status display: Green LED
Control elements: 1 x potentiometer, 1 x test button
Contact: change-over contact (μ)
Switching output: potential-free
Contact material: AgSnO₂
Switching capacity at 250 V~ cos φ = 1: 16 A
Switching capacity (fluorescent lamps): 10 AX
Incandescent lamp load: 2300 W
Halogen lamp load: 2300 W
Fluorescent lamps (VVG)^a uncompensated: 2300 VA
Fluorescent lamps (VVG)^a series comp.: 2300 VA
Fluo. lamps (VVG)^a shunt comp.: 400 VA (42 μF)
Fluorescent lamps (VVG)^a Dual circuit: 2300 VA
Fluorescent lamps (EVG)^b: 300 VA
Mercury discharge lamp uncompensated: 1000 VA
Mercury discharge lamp shunt comp.: 400 VA (42 μF)
Sodium discharge lamp uncompensated: 1000 VA
Sodium discharge lamp shunt comp.: 400 VA (42 μF)
Compact fluorescent lamps (EVG)^b:
 9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W
Housing and insulation material: High-temperature resistant, self-extinguishing thermoplastic
Permissible ambient temperature:
 Control device: –30 °C to +55 °C
 Sensor: –40 °C to +70 °C
Degree of protection in accordance with EN 60529:
 Control device: IP 20
 Mounted sensor: IP 55
 Integrated sensor: IP 65
Protection class if correctly installed:
 Control device: II
 Light sensor: III
Test approvals: 
 a Conventional ballast
 b Electronic ballast



LUNA 109 with analogue surface-mounted light sensor

Dimension drawings DIN 43 880



Terminal cover



* with terminal cover



Surface-mounted light sensor, analogue

Flush-mounted light sensor, analogue

Type	Brightness ranges	Setting	Light sensor (included in delivery)	Switching delay ON/OFF	Contact	Nominal current at 250 V~	Order No.
LUNA 109	2–2000 lx	1 brightness range	Surface-mounted light sensor (IP 55) with screwless terminals	60 s/60 s	1 change-over contact	16 A (10 AX)	109 0 100
LUNA 109	2–2000 lx	1 brightness range	Flush-mounted light sensor (IP 65) with 1.5 m cable	60 s/60 s	1 change-over contact	16 A (10 AX)	109 0 200
Analogue flush-mounted light sensor, 1.5 m connecting cable, IP 65 protection rating (spare part)							907 0 011
Analogue surface-mounted light sensor with mounting bracket and terminal screws							907 0 416
Terminal cover for top mounting, sealable							907 0 064

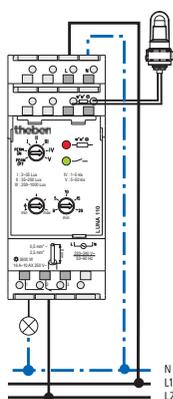


New

LUNA 110

LUNA 110 LUNA®

- 1 channel twilight switch for distributor installation with extended brightness range up to 50,000 lux and adjustable delay time.
- For brightness dependent control of lighting systems for streets, external staircases, display windows, entrances and shading systems.
- External light sensor included in delivery (mounted light sensor or integrated light sensor)
- Five adjustable brightness ranges for simple setting of lux value
- Channel status display via green LEDs
- Instantaneous display of switching status via red LEDs
- Adjustable on/off switch delay of 0–20 min to avoid faulty operation caused by car headlights and lightning
- Permanent off and permanent on function set on the potentiometer
- Test function (permanent on) to check the installation independent of set brightness value
- Zero-crossing switch without relays and high lamp loads (e.g. 3600 W incandescent lamp load)
- DuoFix screwless terminals for 2 wires per connection terminal
- 35 mm installation width (2 modules)

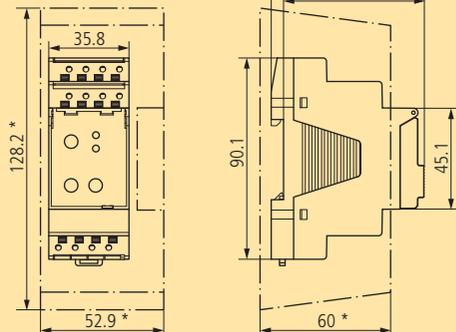


LUNA 110 with analogue surface-mounted light sensor

Technical data:

Operating voltage: 220–240 V~, +10 %/–15 %
Frequency: 50–60 Hz
Power consumption: typically 3 VA
Brightness ranges: 5 ranges 2–35 lx, 35–200 lx, 200–1000 lx, 1–5 klx, 5–50 klx
ON/OFF switch delay: 0–20 min
Switching status display (instantaneous): Red LED
Channel status display: Green LED
Control elements: 3 x potentiometer
Contact: change-over contact (μ)
Switching output: potential-free (zero-crossing switch), not for SELV
Contact material: AgSnO₂
Switching capacity at 250 V~ cos ϕ = 1: 16 A
Switching capacity (fluorescent lamps): 16 AX
Min. switching capacity at 230 V~: 10 mA
Min. switching capacity at 24 V DC: 100 mA
Incandescent lamp load: 3600 W
Halogen lamp load: 3600 W
Fluorescent lamps (VVG)^a uncompensated: 3600 VA
Fluorescent lamps (VVG)^a series comp.: 3600 VA
Fluo. lamps (VVG)^a shunt comp.: 1200 VA (130 μ F)
Fluorescent lamps (VVG)^a Dual circuit: 3600 VA
Fluorescent lamps (EVG)^b: 1000 VA
Mercury discharge lamp uncompensated: 1000 VA
Mercury discharge lamp shunt comp.: 1200 VA (130 μ F)
Sodium discharge lamp uncompensated: 1000 VA
Sodium discharge lamp shunt comp.: 1200 VA (130 μ F)
Compact fluorescent lamps (EVG)^b: 34 x 7 W, 27 x 11 W, 24 x 15 W, 22 x 23 W
Housing and insulation material: High-temperature resistant, self-extinguishing thermoplastic
Permissible ambient temperature:
 Control device: –30 °C to +55 °C
 Sensor: –40 °C to +70 °C
Degree of protection in accordance with EN 60 529:
 Control device: IP 20
 Mounted sensor: IP 55
 Integrated sensor: IP 65
Protection class if correctly installed:
 Control device: II
 Light sensor: III a Conventional ballast
Test approvals:  b Electronic ballast

Dimension drawings DIN 43 880



Terminal cover



* with terminal cover

Design

- Standard housing in accordance with DIN 43880
- Quick fastening for 35 mm profile rail (DIN EN 50022)
- Contact protection to comply with accident prevention regulation BGV A2
- Top mounting with additional terminal box cover plate, sealable
- Control panel installation with assembly kit (No. 907 0 001)
- Sealable transparent cover

Type	Brightness ranges	Setting	Light sensor (included in delivery)	Switching delay ON/OFF	Contact	Nominal current at 250 V~	Order No.
LUNA 110	2–50,000 lx	5 brightness ranges	Surface-mounted light sensor (IP 55) with screwless terminals	0–20 min	1 change-over contact	16 A (16 AX)	110 0 100
LUNA 110	2–50,000 lx	5 brightness ranges	Flush-mounted light sensor (IP 65) with 1.5 m cable	0–20 min	1 change-over contact	16 A (16 AX)	110 0 200
Analogue flush-mounted light sensor, 1.5 m connecting cable, IP 65 protection rating (spare part)							907 0 011
Analogue surface-mounted light sensor with mounting bracket and terminal screws							907 0 416
Terminal cover for top mounting, sealable							907 0 064



1–99,000 Lux



PC

New



LUNA 111 top2



LUNA 112 top2

New

LUNA 111 top2 LUNA®

- 1 channel twilight switch and light control device for distributor installation with digital setting options
- For brightness-dependent control of lighting systems for external and internal lighting, light control and shading
- External digital light sensor included in delivery (mounted light sensor or integrated light sensor)
- Brightness is digitally adjustable between 1–99,000 lux (pre-programmed at 15 Lux)
- Brightness can be set separately for switching on and switching off
- Delay time is digitally adjustable from 0–59 min (to avoid faulty operation caused by car headlights, lightning,...) and is preset at 1 minute
- Delay time can be set separately for switching on and switching off
- Channel status display (ON/OFF) and instantaneous display of on-screen switching status
- On-screen display of current lux value
- DuoFix screwless terminals for 2 wires per connection terminal
- Display illumination (can be shut down)
- The interface for the OBELISK top2 memory card enables a second insertable program (lux values) and the copying and saving of programs and/or settings
- Integrated elapsed-time counter
- Configurable service interval, e.g. for regular changing of lamps/lights according to set operating time
- Extended temperature range –30 °C ... +55 °C (LUNA) and –40 °C ... +70 °C (light sensor)
- 10 year power reserve via lithium cells
- Zero-cross switching without relays and high lamp loads
- Switching pre-selection
- Permanent ON and permanent OFF function
- PIN code
- External control input for switches or buttons with numerous configurable functions: Permanent ON, permanent OFF, switching pre-selection, timer function for ON and OFF and staircase light function
- 35 mm installation width (2 modules)

LUNA 112 top2 LUNA®, as LUNA 111 top2, but with

- 2 channel twilight switch and light control device for distributor installation with digital setting options
- 2 external control inputs for switches or buttons with numerous configurable functions: Permanent ON, permanent OFF, switching pre-selection, timer function for ON and OFF and staircase light function
- 54 mm installation width (3 modules)

Technical data:

Operating voltage:

LUNA 111 top2: 230–240 V~, +10 %/–15 %

LUNA 112 top2: 100–240 V~, +10 %/–15 %

Frequency: 50–60 Hz

Power consumption: typically 3 VA

Brightness ranges: 1–99,000 lx, digital

Preset brightness value: 15 Lux

ON/OFF switch delay: 0–59 min

Switching status display (instantaneous): via LCD

Channel status display: via LCD

Indicating: LCD with text line

Control elements: 4 x touch buttons

Nominal voltage of external input "Ext":

LUNA 111 top2: 230–240 V~, +10 %/–15 %

LUNA 112 top2: 100–240 V~, +10 %/–15 %

Nominal frequency of external input "Ext": 50–60 Hz

Line length of external input "Ext": 100 m

Contact: LUNA 111 top2: 1 change-over contact (μ)

LUNA 112 top2: 2 change-over contacts (μ)

Switching output: potential-free, not for SELV

Contact material: AgSnO₂

Switching capacity at 250 V~ cos φ = 1: 16 A

Switching capacity at 250 V~ cos φ = 0.6: 10 A

Switching capacity (fluorescent lamps): 10 AX

Min. switching capacity at 230 V~: 10 mA

Min. switching capacity at 24 V AC/DC: 100 mA

Incandescent/halogen lamp load: 2600 W

Fluorescent lamps (KVG)^a uncompensated: 2300 VA

Fluorescent lamps (KVG)^a series comp.: 2300 VA

Fluorescent lamps (KVG)^a shunt compensated:

800 VA (80 μF)

Fluorescent lamps (KVG)^a Dual circuit: 2300 VA

Fluorescent lamps (EVG)^b: 650 VA

Compact fluorescent lamps (EVG)^b:

22 x 7 W, 18 x 11 W, 16 x 15 W, 16 x 20 W, 14 x 23 W

Housing and insulation material: High-temperature resistant, self-extinguishing thermoplastic

Permissible ambient temperature:

Control device: –30 °C to +55 °C

Sensor: –40 °C to +70 °C

Degree of protection in accordance with EN 60 529:

Control device: IP 20

Mounted sensor: IP 55

Integrated sensor: IP 66

Protection class if correctly installed:

Control device: II

Light sensor: III

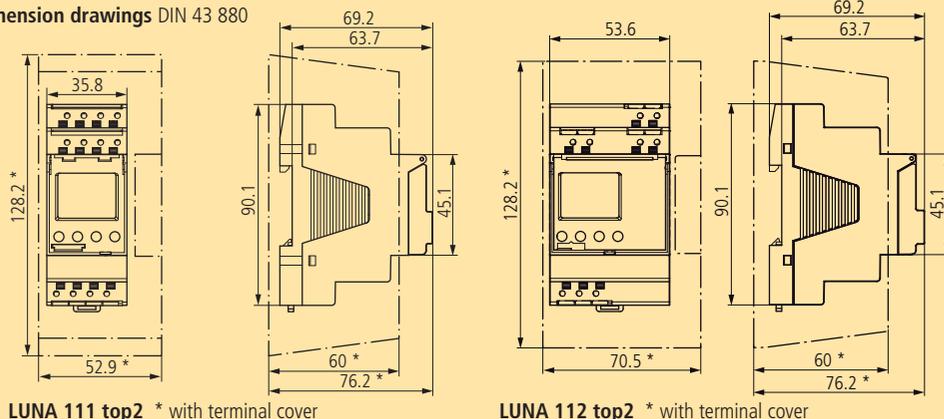
Test approvals:

a Conventional ballast

b Electronic ballast

See page 45 for design.

Dimension drawings DIN 43 880



LUNA 111 top2 * with terminal cover

LUNA 112 top2 * with terminal cover



Surface-mounted light sensor, digital



Flush-mounted light sensor, digital



Can be configured for single or double use



DuoFix

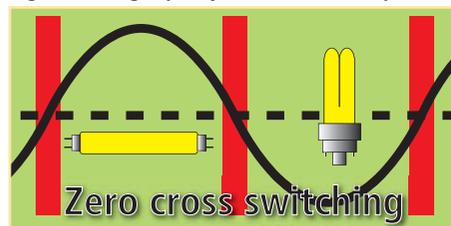
2 wires can be connected per terminal. In this case, each wire is held by its own DuoFix screwless terminals.

Dual programming



If the memory card is inserted an alternative configuration can be set, e. g. for events. The configuration set in the twilight switch will be restored once the card is removed.

High switching capacity with LUNA 111 top2



Zero cross switching enables high lamp loads—preserves the relay and the light source.

Adaptable to individual settings



The devices are preset to the usual lux values and delay times and can be put into service immediately. If required, these values can, of course, be adapted to meet individual requirements. And, indeed, for switching ON and OFF separately and independently of each other!

External control input

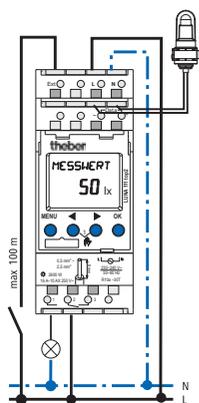


One switch or several buttons per channel can be connected to the twilight switch's external control input. The following functions can be called up via the control input: Permanently ON, permanently OFF, switching pre-selection, sequence timer and channel allocation (activation of the twilight switch).

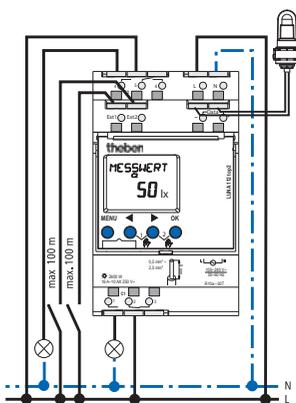
Service interval monitoring



The integrated elapsed-time counter measures, by channel, the switch-on time of connected consumers. Additional "Service" display after completion of set service interval.



LUNA 111 top2
with digital surface-mounted light sensor



LUNA 112 top2
with digital surface-mounted light sensor

Type	Brightness range	Special function	Light sensor (included in delivery)	Switching delay ON/OFF	Contact	Nominal current at 250 V~	Order No.
LUNA 111 top2	1–99,000 lx	1 external input, 1 elapsed-time counter	Surface-mounted light sensor (IP 55) with screwless terminals	0–59 min	1 change-over contact	16 A (10 AX)	111 0 100
LUNA 111 top2	1–99,000 lx	1 external input, 1 elapsed-time counters	Flush-mounted light sensor (IP 66) with screwless terminals	0–59 min	1 change-over contact	16 A (10 AX)	111 0 200
LUNA 112 top2	1–99,000 lx	2 external inputs, 2 elapsed-time counters	Surface-mounted light sensor (IP 55) with screwless terminals	0–59 min	2 change-over	16 A (10 AX)	112 0 100 Available August 2008
LUNA 112 top2	1–99,000 lx	2 external inputs, 2 elapsed-time counters	Flush-mounted light sensor (IP 66) with screwless terminals	0–59 min	2 change-over contact	16 A (10 AX)	112 0 200 Available August 2008
OBELISK top2 programming kit (memory card, plug adapter, software) for Windows 2000/XP/Vista							907 0 409
OBELISK top2 memory card (single)							907 0 404
Digital flush-mounted light sensor, screwless terminals, IP 66 protection rating (spare part)							907 0 456
Digital surface-mounted light sensor with mounting bracket and terminal screws							907 0 415
Terminal cover for top mounting of LUNA 111 top2, sealable							907 0 064
Terminal cover for top mounting of LUNA 112 top2, sealable							907 0 050



1–99,000 Lux



10:54

7d

24 h

±1h
auto

DCF77

PC



LUNA 120 top2

New



LUNA 121 top2 RC

New



LUNA 122 top2 RC

New

Common functions

- Weekly program
- 10 year power reserve
- LCD backlighting
- 16 A relay with zero-cross switching
- Programmable via OBELISK top2 programming software or via OBELISK top2 memory card (not included in delivery)
- DuoFix screwless terminals for 2 wires per connection terminal

LUNA 120 top2 LUNA®

- Analogue light control device with integrated weekly timer (1 channel)
- 54 mm installation width (3 modules)
- Brightness range: 2–2000 lux
- ON and OFF switching delay: 0–59 min (digital)
- Red LED for the instantaneous display of switching status

LUNA 121 top2 RC LUNA®

- Digital light control device with integrated weekly timer (1 channel) with holiday and bank holiday program
- 35 mm installation width (2 modules)
- Digital brightness range: 1–99,000 lux (digital, separate)
- ON and OFF switching delay: 0–59 min (digital, separate)
- Different values can be set for switching ON and OFF (lux values, delay times)
- External input for switches or buttons for a wide variety of configurable functions (continuous ON, continuous OFF, timer, staircase light function,...)
- Up to 4 sensors can be attached to a LUNA 121 top2 RC
- Up to 10 LUNA 121 top2 RC devices can be connected to a digital sensor
- Variable lux values can be set each day of the week
- Preset at 15 lux for each day
- OFF times (e. g. night time interruption: 23.30 to 04.15) can be set independent of brightness
- ON times (e. g. 13.30 to 14.30 h) can be set independent of brightness
- In the absence of set switching times, LUNA 121 top2 RC functions as a light control device/twilight switch without integrated timer (no sensor activation times required)
- 2 special programs
 - Variable lux values and switching times can be set for each special program
 - Scope of special programs can be set (e. g. 24.12.2007 to 6.1.2008)
- DCF77 radio controlled via external antenna

LUNA 122 top2 RC LUNA®

- as LUNA 121 top2 RC, but with
- 2 channel twilight switch and light control device for distributor installation with integrated 2 channel timer
- 2 external control inputs for switches or buttons with numerous configurable functions; e. g. staircase light function etc.
- 54 mm installation width (3 modules)
- 2 special programs per channel
- Accessories: OBELISK programming set, memory card and DCF antenna

Technical data:

Operating voltage:

LUNA 120 top2: 220–240 V~, +10 %/–15 %
LUNA 121 top2 RC: 230–240 V~, +10 %/–15 %
LUNA 122 top2 RC: 100–240 V~, +10 %/–15 %

Frequency: 50–60 Hz

Power consumption: typically 3 VA

Brightness range:

LUNA 120 top2: 2–2,000 lx, 1 analogue range
LUNA 121 top2 RC: 1–99,000 lx, digital
LUNA 122 top2 RC: 1–99,000 lx, digital

Preset brightness value:

LUNA 121 top2 RC/LUNA 122 top2 RC: 15 Lux

ON/OFF switch delay: 0–59 min

Switching status display (instantaneous):

LUNA 120 top2: red LED

LUNA 121 top2 RC/LUNA 122 top2 RC: via LCD

Channel status display: via LCD

Power reserve: approx. 10 years at 20 °C

Time basis:

LUNA 120 top2: Quartz

LUNA 121 top2 RC/LUNA 122 top2 RC: Quartz/DCF

Time accuracy: $\leq \pm 0.5$ s/day

Shortest switching interval: 1 min

Switching accuracy: to the second

Memory cells (EEPROM):

LUNA 120 top2: 54

LUNA 121 top2 RC/LUNA 122 top2 RC: 84

Indicating: LCD with text line

Control elements:

LUNA 120 top2: 4 x touch buttons, 1 x potentiometer

LUNA 121 top2 RC/LUNA 122 top2 RC: 4 x touch buttons

Nominal voltage of external input "Ext":

LUNA 121 top2 RC: 230–240 V~, +10 %/–15 %

LUNA 122 top2 RC: 100–240 V~, +10 %/–15 %

Line length of external input "Ext":

LUNA 121 top2 RC/LUNA 122 top2 RC: 100 m

Contact:

LUNA 120 top2/LUNA 121 top2 RC: change-over contact (μ)

LUNA 122 top2 RC: 2 change-over contacts (μ)

Switching output: potential-free, not for SELV

Contact material: AgSnO₂

Switching capacity at 250 V~ cos $\varphi = 1$: 16 A

Switching capacity at 250 V~ cos $\varphi = 0.6$: 10 A

Switching capacity (fluorescent lamps): 10 AX

Min. switching capacity at 230 V~: 10 mA

Min. switching capacity at 24 V AC/DC: 100 mA

Incandescent/halogen lamp load: 2600 W

Fluorescent lamps (VVG)^a uncompensated: 2300 VA

Fluorescent lamps (VVG)^a series comp.: 2300 VA

Fluorescent lamps (VVG)^a shunt compensated: 800 VA (80 μ F)

Fluorescent lamps (VVG)^a Dual circuit: 2300 VA

Fluorescent lamps (EVG)^b: 650 VA

Compact fluorescent lamps (EVG)^b:

22 x 7 W, 18 x 11 W, 16 x 15 W, 16 x 20 W, 14 x 23 W

Housing and insulation material: High-temperature resistant, self-extinguishing thermoplastic

Permissible ambient temperature:

Control device: –30 °C to +55 °C

Sensor: –40 °C to +70 °C

Degree of protection in accordance with EN 60529:

Control device: IP 20

Mounted sensor: IP 55

Integrated sensor: IP 66

Protection class if correctly installed:

Control device: II

Light sensor: III

Test approvals:

a Conventional ballast

b Electronic ballast

Din rail program

Digital twilight switch (2–3 modules) with time program



1–99,000 Lux



10:54

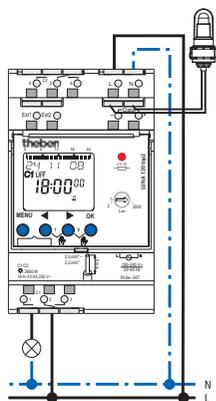
7d

24 h

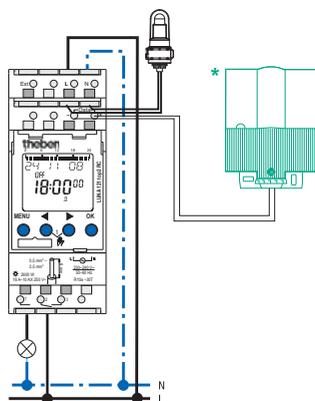
±1h
auto

DCF77

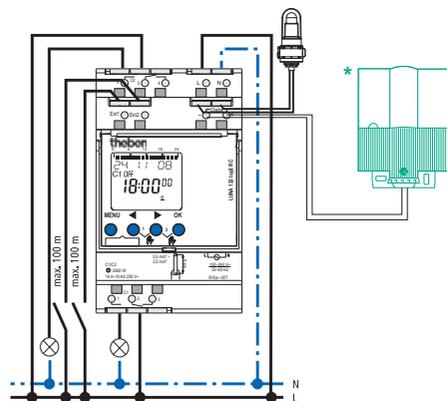
PC



LUNA 120 top2
with analogue surface-mounted light sensor

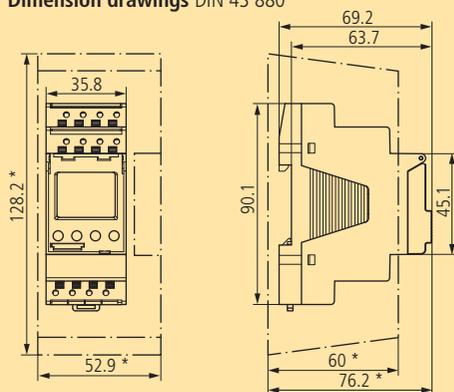


LUNA 121 top2 RC
with digital surface-mounted light sensor and
* optional Antenna top2 RC-DCF

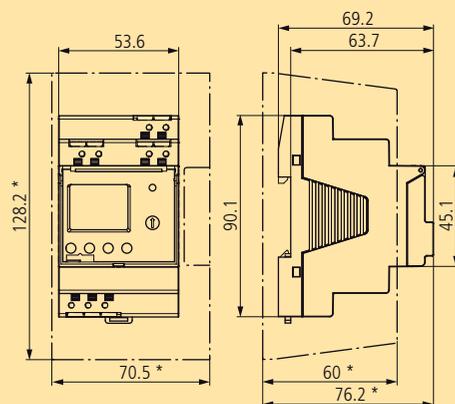


LUNA 122 top2 RC
with digital surface-mounted light sensor and
* optional Antenna top2 RC-DCF

Dimension drawings DIN 43 880



LUNA 121 top2
* with terminal cover



LUNA 120 top2/LUNA 122 top2 RC

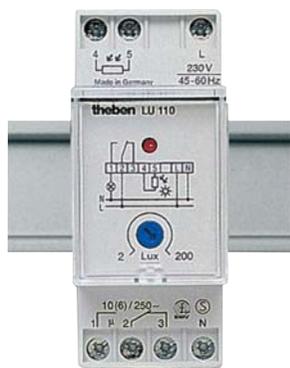


Surface-mounted light sensor, digital



Flush-mounted light sensor, digital

Type	Brightness ranges	Setting	Light sensor (included in delivery)	Switching delay ON/OFF	Contact	Nominal current at 250 V~	Order No.
LUNA 120 top2	2–2,000 lx	analogue/digital (clock)	Analogue surface-mounted light sensor (IP 55) with screwless terminals	0–59 min	1 change-over contact	16 A (10 AX)	120 0 100
LUNA 120 top2	2–2,000 lx	analogue/digital (clock)	Digital flush-mounted light sensor (IP 65) with 1.5 m cable	0–59 min	1 change-over contact	16 A (10 AX)	120 0 200
LUNA 121 top2 RC (without antenna)	1–99,000 lx	digital	Digital surface-mounted light sensor (IP 55) with screwless terminals	0–59 min	1 change-over contact	16 A (10 AX)	121 0 100
LUNA 121 top2 RC (without antenna)	1–99,000 lx	digital	Digital flush-mounted light sensor (IP 66) with screwless terminals	0–59 min	1 change-over contact	16 A (10 AX)	121 0 200
LUNA 122 top2 RC (without antenna)	1–99,000 lx	digital	Digital surface-mounted light sensor (IP 55) with screwless terminals	0–59 min	2 change-over contacts	16 A (10 AX)	122 0 100 Available August 2008
LUNA 122 top2 RC (without antenna)	1–99,000 lx	digital	Digital flush-mounted light sensor (IP 66) with screwless terminals	0–59 min	2 change-over contacts	16 A (10 AX)	122 0 200 Available August 2008
OBELISK top2 programming kit (memory card, plug adapter, software) for Windows 2000/XP/Vista							907 0 409
OBELISK top2 memory card (single)							907 0 404
Antenna top2 RC-DCF max. 10 top2 devices can be connected, see page 28 for dimension diagram							907 0 410
Analogue flush-mounted light sensor for LUNA 120 top2, 1.5 m connecting cable, IP 65 protection rating (spare part)							907 0 011
Analogue surface-mounted light sensor for LUNA 120 top2, with mounting bracket and terminal screws							907 0 416
Digital flush-mounted light sensor for LUNA 121 top2 RC/LUNA 122 top2 RC, screwless terminals, IP 66 protection rating (spare part)							907 0 456
Digital surface-mounted light sensor for LUNA 121 top2 RC/LUNA 122 top2 RC, with mounting bracket and terminal screws							907 0 415
Terminal cover for top mounting of LUNA 121 top2 RC, sealable							907 0 064
Terminal cover for top mounting of LUNA 120 top2/LUNA 122 top2 RC, sealable							907 0 050



LUNA 110

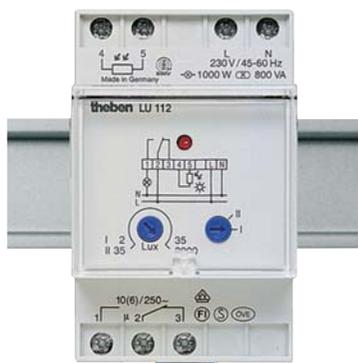


For controlling lighting systems for streets, outside staircases, shop windows, entrances etc. Automatic switch-on and off according to the set lux value via the twilight switch.

LUNA 110 LUNA®

- Twilight switch for distribution panel installation with separate surface-mounted or flush-mounted light sensor.
- Switching brightness can be adjusted continuously between approx. 2–200 lux with the adjusting screw
- Immediate indication of the switching status by LED
- Approx. 40 s switch-ON/switch-OFF delay in order to avoid switching errors owing to lightning flashes or car headlamps etc.

For design and terminal cover, see page 24.



LUNA 112



LUNA 112 LUNA®

- Twilight switch for distribution panel installation with separate light sensor as above, but:
- Control unit with range selector switch for 2 brightness ranges:
Range 1: approx. 2–35 lux
Range 2: approx. 35–2000 lux
- Approx. 80 s switch-ON/switch-OFF delay in order to avoid switching errors owing to lightning flashes or car headlamps etc.

For design and terminal cover, see Page 26.



LUNA 113



LUNA 113 LUNA®

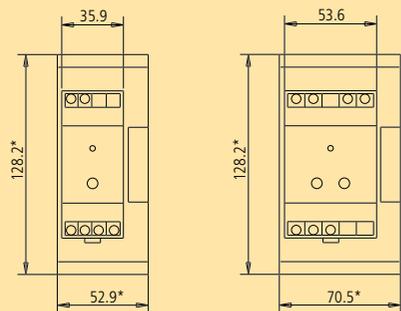
- 2 channel twilight switch with separate surface-mounted light sensor.
- Control unit with range selector switch for 2 brightness ranges per channel
Range 1: approx. 2–150 lux
Range 2: approx. 150–7500 lux
- Approx. 40 s switch-ON/switch-OFF delay
- Up to 10 devices can be connected to one light sensor

For dimension drawing, see Page 46.

Technical data:

Rated voltage: 230 V~, ±10 %
Special voltages: see appendix
Frequency: 45–60 Hz, LUNA 113: 50 Hz
Device consumption: approx. 5 VA
Overall brightness range: LU 110: 2–200 lx, LU 112: 2–2000 lx, LU 113: 2–7500 lx
Switching delay ON: about 40 s, LUNA 112: 80 s
Switching delay OFF: about 40 s, LUNA 112: 80 s
Switching state display (without delay): red LED
Contact: change-over contact, LUNA 113: 2 change-over contacts
Switching output: potential-free
Opening width: < 3 mm (μ)
Contact material: AgSnO₂
Switching power at 250 V~, cos φ = 1: 10 A
Switching power (fluorescent lamps): 6 AX
Incandescent lamp load: 2300 W
Halogen lamps: 2300 W
Fluorescent lamps (KVG)^a uncompensated: 2300 VA
Fluorescent lamps (KVG)^a series comp.: 2300 VA
Fluorescent lamps (KVG)^a shunt comp.: 400 VA (42 μF)
Fluorescent lamps (KVG)^a Dual circuit: 2300 VA
Fluorescent lamps (EVG)^b: 300 VA
Mercury discharge lamp uncompensated: 4 x 125 W, 2 x 250 W, 1 x 400 W, 1 x 700 W
Mercury discharge lamp series compensated: 4 x 125 W, 2 x 250 W, 1 x 400 W, 1 x 700 W
Mercury discharge lamp shunt 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 series compensated: 2 x 250 W, 1 x 400 W
Sodium discharge lamp shunt compensated: 2 x 150 W (20 μF), 1 x 250 W (32 μF)
Compact fluorescent lamps (KVG)^a: 1000 VA
Compact fluorescent lamps (EVG)^b: 9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W
Housing and insulation material: self-extinguishing thermoplasts of high temperature resistance
Admissible ambient temperature:
 Control unit: –10 °C...+50 °C
 Light sensor: –40 °C ... +70 °C
Types of protection according to DIN EN 60 529:
 Control unit: IP 20
 Surface-mounted sensor: IP 54 with cable connection at the bottom
 Built-in sensor: IP 65
Protection class if installed as directed:
 Control unit: II
 Light sensor: III
Test approvals: depending on device type
 a Conventional ballast b Electronic ballast

Dimension drawings DIN 43 880



LUNA 110

LUNA 112

* with terminal cover

Terminal cover e.g. LUNA 112



Accessories



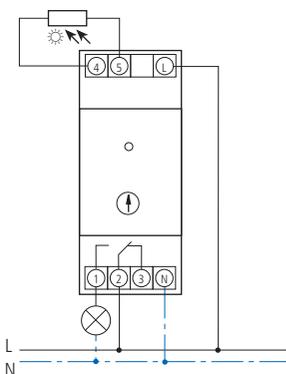
Surface-mounted light sensor Flush-mounted light sensor



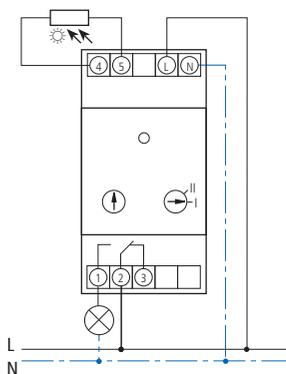
2–200 Lux

2–2000 Lux

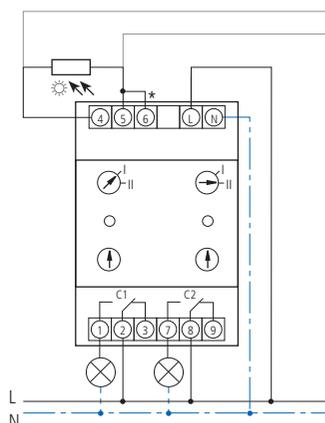
2–7500 Lux



LUNA 110 (1 channel)



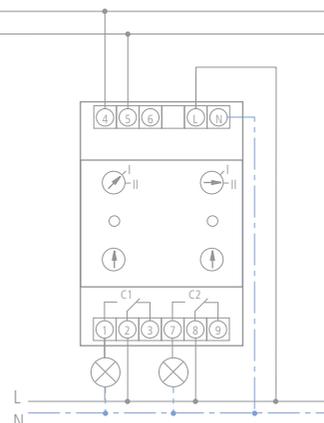
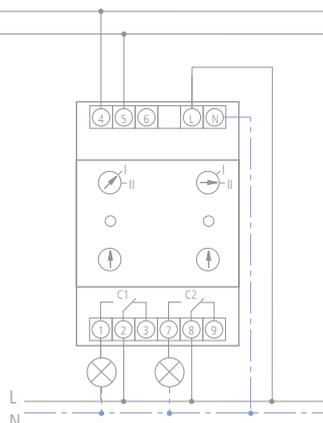
LUNA 112 (1 channel)



LUNA 113 (2 channels)

max. 10 devices LUNA 113 connectable to one light sensor.

* bridge from ⑤ to ⑥ is not applicable for subsequent devices



Type	Brightness range	Adjustment	Light sensor (included in the delivery)	Switching delay ON/OFF	Switching contacts	Nominal current at 250 V~	Order No.
LUNA 110	2–200 lx	1 brightness range	Surface-mounted light sensor (IP 54) with screw terminals	40/40 s	1 change-over contact	10 A (6 AX)	110 0 710 –phasedown–
LUNA 110	2–200 lx	1 brightness range	Flush-mounted light sensor (IP 65) with 1.5 m cable	40/40 s	1 change-over contact	10 A (6 AX)	110 0 700 –phasedown–
Terminal cover for top mounting LUNA 110, sealable							907 0 064
LUNA 112	2–35 lx 35–2000 lx	2 brightness ranges	Surface-mounted light sensor (IP 54) with screw terminals	80/80 s	1 change-over contact	10 A (6 AX)	112 0 700 –phasedown–
LUNA 112	2–35 lx 35–2000 lx	2 brightness ranges	Flush-mounted light sensor (IP 65) with 1.5 m cable	80/80 s	1 change-over contact	10 A (6 AX)	112 0 711 –phasedown–
Terminal cover for top mounting LUNA 112, sealable							907 0 050
LUNA 113	2–150 lx 150–7500 lx	2 brightness ranges 2 channels	Surface-mounted light sensor (IP 54) with screw terminals max. 10 devices attachable	40/40 s	2 change-over contacts	10 A (6 AX)	113 0 700 –phasedown–
Terminal cover for top mounting LUNA 113, sealable							907 0 049
Flush-mounted light sensor, connection cable 1.5 m, degree of protection IP 65 (spare part), (except LUNA 113)							907 0 011
Surface-mounted light sensor with fastening square and screw terminals, (except LUNA 113)							907 0 008
Surface-mounted light sensor with fastening square and screw terminals, (only for LUNA 113)							907 0 031



LUNA 118 top



LUNA 119 top

Twilight switch e.g. for road and street lighting with time-controlled night switch-off.

Common functions:

- User guidance through integrated text line in the LCD display
- Weekly program including 42 memory locations, adjustable to the nearest minute
- Guided copying of the switching times to other weekdays (free block formation)
- Automatic summertime/wintertime change, can be switched off or freely programmed as desired (Europe, GB, USA/CAN rule of change can be selected)
- Programming is displayed graphically through a bar display in the LCD display
- Control unit equipped with range switch for 2 brightness ranges:
range 1: about 2–35 lux
range 2: about 35–2000 lux
- Holiday program programmable via date
- Switching pre-selection and permanent switching ON/OFF
- Program backup by EEPROM
- PIN encoding

LUNA 118 top LUNA®

- with digital time switch
- Like LUNA 112, but combined with digital timer TR 610 top
- Dimming switch e.g. for road and street lighting with time-controlled nighttime switch-off, outside of working hours or at weekends

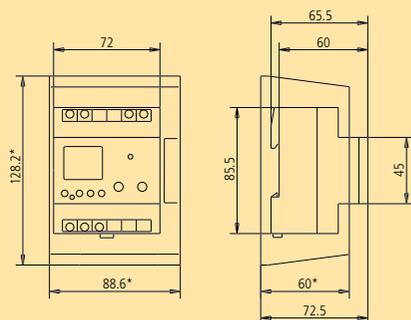
LUNA 119 top LUNA®

- with 2-channel digital time switch
- Twilight switch with 2-channel digital time switch e.g. for brightness-dependent shop windows and shop lighting as a function of the opening hours
- Channel 1 has a pure time switch function
- In channel 2, the twilight switch and timer are connected in series

Technical data:

- Rated voltage:** 230 V~, ±10 %
- Frequency:** 50 Hz
- Device consumption:** max. 5 VA
- Overall brightness range:** 2–2000 lx
- Switching delay ON:** about 80 s
- Switching delay OFF:** about 80 s
- Switching state display (without delay):** red LED
- Display of channel status:** via LCD
- Power reserve at 20 °C:** 10 years
- Time basis:** Quartz
- Accuracy at 20 °C:** ≤ ± 1 s/d
- Shortest switching interval:** 1 min
- Switching accuracy:** to the nearest second
- Contact:** 1 change-over contact, LUNA 119 top: 2 change-over contacts
- Switching output:** potential-free
- Opening width:** < 3 mm (μ)
- Contact material:** AgSnO₂
- Switching power at 250 V~, cos φ = 1:** 10 A
- Switching power (fluorescent lamps):** 6 AX
- Incandescent lamp load:** 2300 W
- Halogen lamps:** 2300 W
- Fluorescent lamps (KVG) uncompensated:** 2300 VA
- Fluorescent lamps (KVG) series comp.:** 2300 VA
- Fluorescent lamps (KVG) shunt comp.:** 400 VA (42 μF)
- Fluorescent lamps (KVG) Dual circuit:** 2300 VA
- Fluorescent lamps (EVG):** 300 VA
- Mercury discharge lamp uncompensated:** 4 x 125 W, 2 x 250 W, 1 x 400 W, 1 x 700 W
- Mercury discharge lamp series compensated:** 4 x 125 W, 2 x 250 W, 1 x 400 W, 1 x 700 W
- Mercury discharge lamp shunt 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 uncomp.:** 2 x 250 W, 1 x 400 W
- Sodium discharge lamp series compensated:** 2 x 250 W, 1 x 400 W
- Sodium discharge lamp shunt compensated:** 2 x 150 W (20 μF), 1 x 250 W (32 μF)
- Compact fluorescent lamps (KVG):** 1000 VA
- Compact fluorescent lamps (EVG):** 9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W
- Housing and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Admissible ambient temperature:** Control unit: –10 °C...+50 °C
Light sensor: –40 °C ... +70 °C
- Degree of protection according to DIN EN 60 529:** Control unit: IP 20
Surface-mounted sensor: IP 54 with cable connection at the bottom
Built-in sensor: IP 65
- Protection class if installed as directed:** Control unit: II
Light sensor: III

Dimension drawings DIN 43 880



* with terminal cover

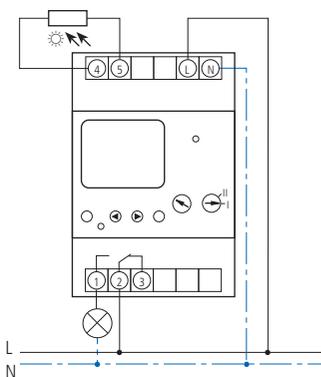
Terminal cover



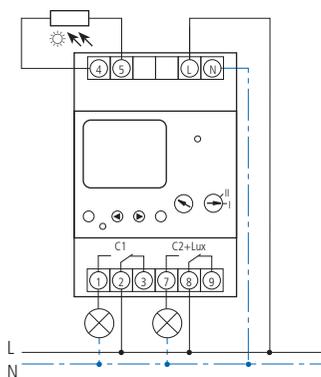
Accessories



Surface-mounted light sensor Flush-mounted light sensor

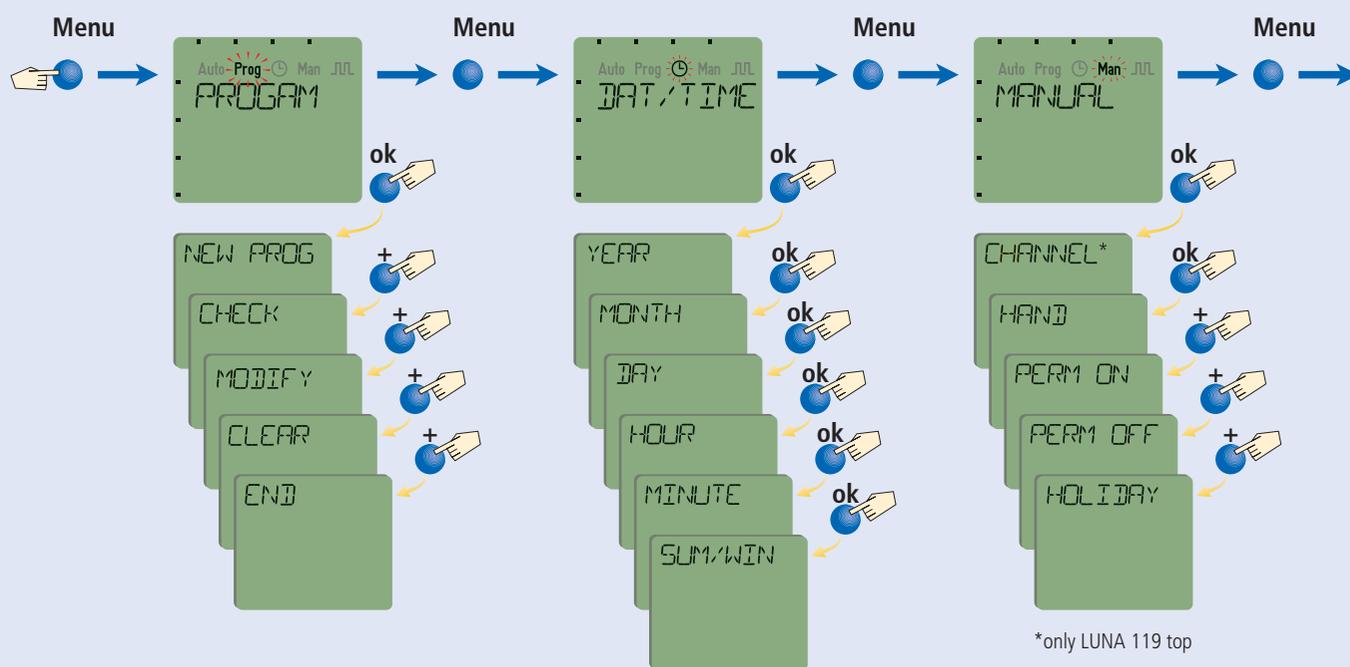


LUNA 118 top (1 channel)



LUNA 119 top (2 channels)

Programming of LUNA 118 top/LUNA 119 top



Type	Brightness range	Adjustment	Light sensor (included in the delivery)	Switching contacts	Nominal current at 250 V~	Order No.
LUNA 118 top	2–2000 lx	2 brightness ranges	Surface-mounted light sensor (IP 54) with screw terminals	1 change-over contact	10 A (6 AX)	118 0 702 –phasedown–
LUNA 118 top	2–2000 lx	2 brightness ranges	Flush-mounted light sensor (IP 65) with 1.5 m cable	1 change-over contact	10 A (6 AX)	118 0 752 –phasedown–
LUNA 119 top	2–2000 lx	2 brightness ranges	Surface-mounted light sensor (IP 54) with screw terminals	2 change-over contacts	10 A (6 AX)	119 0 702 –phasedown–
Terminal cover for top mounting, sealable						907 0 049



LUNA 126 star
LUNA 127 star
LUNA 128 star



LUNA 129 star-time



Adapter plate

LUNA star series LUNA®

Common functions:

- Twilight switches in modern and innovative design
- Integrated light sensor with very large light reception angle (approx. 180 degrees) and specially shaped lens
- Instantaneous display of switching status via LED
- Adjustable on/off switch delay of approx. 2–100 s, LUNA 126 star: 40 s fixed
- Test button to check the installation independent of set brightness value (except for LUNA 126 star)
- Infinitely adjustable brightness range of approx. 2–2000 lux (depending on model)
- Cable feed from behind and below
- Preset brightness value of approx. 15 lux in delivery status with LUNA 127 star and LUNA 129 star-time
- High value relay for secure switching of lamp loads

LUNA 129 star-time LUNA®

(Functions as above, but also with)

- Digital twilight switch with integrated time function (daily program)
- LCD screen and 3 control buttons
- Easy programming via TR top similar operating philosophy
- Brightness switching threshold for switch-on and switch-off separately and digitally adjustable via keypad between 2–200 lux
- Separate digital setting of on and off switch delay from 0–10 min
- Time function can be switched off
- Automatic summer/winter time correction
- Integrated exchangeable lithium cell (power reserve minimum of 1.5 years) enables pre-installation programming
- Preset night switch-off (23.00 OFF/ 5.00 ON), lux values and switch delay
- Semi-automatic function (e.g. light on during evenings, night switch off at 23.00)

Adapter plate for LUNA star devices

The adapter plate simplifies the replacement of faulty twilight switches from e.g. Eberle, ESYLUX, Legrand, Grässlin, Hager, Merten, Senmatic, Theben. As the plate has standard fixing holes, no further holes have to be drilled in the facade.

Technical data:

Operating voltage: 220–230 V~, +10 %/–15 %

Frequency: 50 Hz–60 Hz

Power consumption: LUNA 126 star: approx. 3.5 VA

LUNA 127/128 star: approx. 4.5 VA

LUNA 129 star-time: approx. 2 VA

Switching status display (instantaneous): red LED

LUNA 129 star-time channel status display : via LCD

LUNA 129 star-time power reserve at 20 °C:

approx. 1.5 years at full operability through environmentally friendly lithium cell

Contact: NO contact

Switching output: potential-free

Opening width: < 3 mm (μ)

Contact material: AgSnO₂

Switching capacity at 230 V~ cos φ = 1:

16 A; LUNA 126 star: 10 A

Switching capacity (fluorescent lamps) :

10 AX; LUNA 126 star: 6 AX

Incandescent lamp load: 2300 W

(LUNA 126 star: 1000 W)

Halogen lamp load: 2300 W (LUNA 126 star: 1000 W)

Fluorescent lamp (VVG) uncorrected:

2300 VA; LUNA 126 star: 1000 VA

Fluorescent lamp (VVG) series-corrected:

2300 VA; LUNA 126 star: 1000 VA

Fluorescent lamp (VVG) parallel-corrected:

400 VA (42 μF); LUNA 126 star: 120 W (18 μF)

Fluorescent lamp (VVG) lead-lag circuit:

2300 VA; LUNA 126 star: 1000 VA

Uncorrected mercury discharge lamp:

1000 VA; LUNA 126 star: Use switching protection

Parallel-corrected mercury discharge lamp:

250 VA (40 μF); LUNA 126 star: Use switching protection

Uncorrected sodium discharge lamp:

1000 VA; LUNA 126 star: Use switching protection

Parallel compensated sodium discharge lamp:

250 VA (40 μF); LUNA 126 star: Use switching protection

Compact fluorescent lamps (EVG): 9 x 7 W, 7 x 11 W,

7 x 15 W, 7 x 20 W, 7 x 23 W; LUNA 126 star: 4 x 7 W,

3 x 11 W, 3 x 15 W, 3 x 20 W, 3 x 23 W

Housing and insulation material: high-temperature

resistant, self-extinguishing thermoplastic

Permissible ambient temperature: –35 °C... +55 °C

Degree of protection: IP 55 in accordance with EN

60529 for with bottom connection

Protection class: II subject to correct installation

Test approvals:

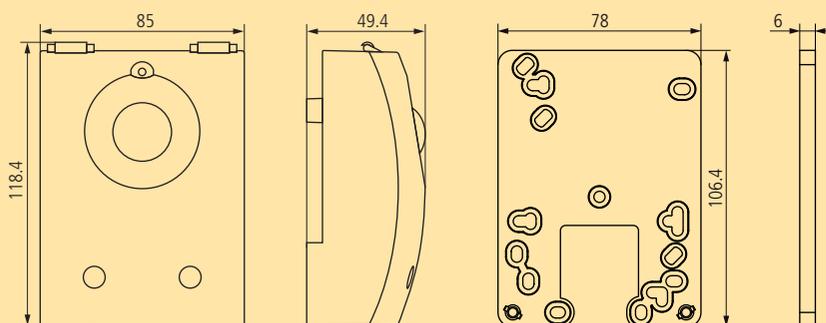
Technical data for adapter plate:

Colour: pure white (RAL 9010)

Dimensions: 106.4 x 78 x 6 mm

Material: high-temperature resistant, self-extinguishing thermoplastic

Dimension drawings



Design

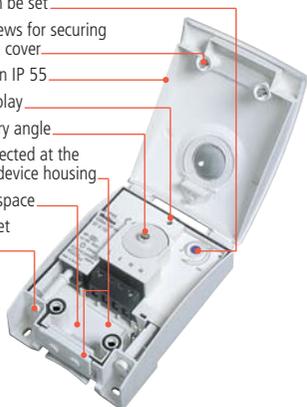
- Large connection area enables easy connection and relay of the connection line
- 5 connecting terminals incl. additional polyethylene support terminal (except for LUNA® 126 star)
- Compact and hardwearing housing for external installation
- Hose proof (IP 55)
- Mast bracket with standard pipe clip (not included in delivery)
- Cable feed either from bottom or rear housing with two cables each
- Quick release clamp screw for locking the collapsible upper part of housing
- 4 mm² connection cross-section
- Housing colour: white

Wall mounting Twilight switch

 **Lux digital** **2–2000 Lux** **24 h** **±1h**
auto

Easy to install and simple putting into operation by...

- ...switching delay can be set
- ...quick-clamping screws for securing the hinged housing cover
- ...degree of protection IP 55
- ...immediate LED display
- ...very large light-entry angle
- ...cabels can be connected at the bottom or back of device housing
- ...generous terminal space
- ...lux values can be set from outside



LUNA® 127 star/LUNA® 128 star



LUX setting

Test button



Mast mounting of all devices possible with a standard tubing clamp. No extra mounting bracket needed.

LUNA 129 star-time programming sequence



Standard view



Start of night-time switch OFF



Programming the ON switching delay



Setting the switching brightness value ON (evenings)



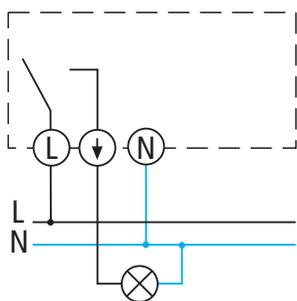
End of night-time switch OFF



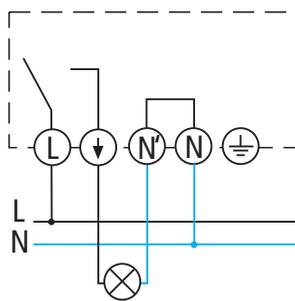
Programming the OFF switching delay



Setting the switching brightness value OFF (mornings)



LUNA® 126 star



LUNA® 127 star/LUNA® 128 star/LUNA® 129 star-time

Type	Brightness range	Installation	Switching delay ON/OFF	Switching contacts	Nominal current at 230 V~	Order No.
LUNA® 126 star (Adapter plate incl. *)	5–200 Lux infinitely adjustable	wall mounting or mast mounting	approx. 40 s fixed	1 NO contact	10 A (6 AX)	126 0 700 (126 0 701*)
LUNA® 127 star	2–200 Lux infinitely adjustable	wall mounting or mast mounting	2–100 s (potentiometer) infinitely adjustable	1 NO contact	16 A (10 AX)	127 0 700
LUNA® 128 star	2–2000 Lux infinitely adjustable	wall mounting or mast mounting	2–100 s (potentiometer) infinitely adjustable	1 NO contact	16 A (10 AX)	128 0 700
LUNA® 129 star-time	2–200 Lux infinitely digital adjustable	wall mounting or mast mounting	0–10 min digital adjustable	1 NO contact	16 A (10 AX)	129 0 700
LUNA star Adapter plate 2 screws for installation of LUNA star included						907 0 486

New



SELEKTA 170 top2



SELEKTA 171 top2 RC

New



SELEKTA 172 top2

New



Antenna top2 RC-DCF

Common functions

- Astronomic timer with weekly program
- 35 mm installation width (2 modules)
- Offset function for adjusting sunrise and sunset times (+/- 120 min)
- Extended country/city list and additional towns/cities is available
- Programmable via OBELISK top2 programming software or via OBELISK top2 memory card (not included in delivery)
- LCD backlighting
- 10 year power reserve
- Several night interruptions per day can be set
- Several day interruptions per day can be set
- Simulation for quickly running through the astro switching times and the set switching times (complete simulation)
- Elapsed-time counter (with service intervals, e. g. after 5,000 hours operation)
- DuoFix screwless terminals for 2 lines (wire, strand, wire end sleeves) per connection terminal

SELEKTA 170 top2 SELEKTA®

- Astronomic timer (1 channel)
- 16 A relay with zero-cross switching
- Selectable astronomic mode:
 - Mode 1: Evenings ON, mornings OFF (e. g. street lighting)
 - Mode 2: Evenings OFF, mornings ON (e. g. terrarium)
 - Mode 3: Astronomic function deactivated; switch function only

SELEKTA 171 top2 RC SELEKTA®

- Astronomic timer (1 channel)
- 16 A relay with zero-cross switching
- External input with many configurable functions (continuous ON, continuous OFF, timer, staircase light function, ...)
- Selectable astronomic mode per channel:
 - Mode 1: Evenings ON, mornings OFF (e. g. street lighting)
 - Mode 2: Evenings OFF, mornings ON (e. g. terrarium)
 - Mode 3: Astronomic function deactivated; switch function only
- 3 special programs per channel
 - Special 1: Astronomical times with another night time interruption or another daytime switch-on
 - Special 2: Permanent On
 - Special 3: Permanently Off
- The 3 special programs can be set to different date ranges:
 - e. g. permanent Off from 24.12.2007 to 6.1.2008
 - e. g. permanent On on a fixed date (1 May every year)
 - e. g. astronomic switching time with another night switch off on Good Friday or Shrove Monday (set via "Easter rule")
- DCF77 radio controlled via external antenna

SELEKTA 172 top2 SELEKTA®

- Astronomic timer similar to SELEKTA 171 top2 RC, with 2 channels, but without DCF77 input
- 2 external inputs
- Channel 1 or channel 2 can also be used purely as timer channels

Technical data:

Operating voltage: 230–240 V~, +10 %/–15 %

Frequency: 50–60 Hz

Power consumption:

SELEKTA 170 top2/SELEKTA 172 top2: typically 6 VA

SELEKTA 171 top2 RC: typically 3 VA

Power reserve: approx. 10 years at 20 °C

Time basis:

SELEKTA 170 top2/SELEKTA 172 top2: Quartz

SELEKTA 171 top2 RC: Quartz/DCF77

Time accuracy: ≤ ± 0.5 s/day

Shortest switching interval: 1 min

Switching accuracy: to the second

Memory cells (EEPROM):

SELEKTA 170 top2: 54

SELEKTA 171 top2 RC/SELEKTA 172 top2: 84

Indicating: LCD with text line

Control elements: 4 x touch buttons

External input:

SELEKTA 171 top2 RC: 1 x

SELEKTA 172 top2: 2 x

Nominal voltage of external input "Ext":

SELEKTA 171 top2 RC/SELEKTA 172 top2:

230–240 V~, +10 %/–15 %

Nominal voltage of external input "Ext":

SELEKTA 171 top2 RC/SELEKTA 172 top2: 50–60 Hz

Line length of external input "Ext":

SELEKTA 171 top2 RC/SELEKTA 172 top2: max. 100 m

Contact:

SELEKTA 170 top2/SELEKTA 171 top2 RC:

1 change-over contact (μ)

SELEKTA 172 top2: 2 change-over contacts (μ)

Switching output: potential-free, not for SELV

Contact material: AgSnO₂

Switching capacity at 250 V~ cos φ = 1: 16 A

Switching capacity at 250 V~ cos φ = 0.6: 10 A

Min. switching capacity at 230 V~: 10 mA

Min. switching capacity at 24 V AC/DC: 100 mA

Incandescent/halogen lamp load: 2600 W

Fluorescent lamp (VVG) uncorrected:

SELEKTA 170 top2/SELEKTA 172 top2: 1000 VA

SELEKTA 171 top2 RC: 2300 VA

Fluorescent lamp (VVG) series-corrected:

SELEKTA 170 top2/SELEKTA 172 top2: 1000 VA

SELEKTA 171 top2 RC: 2300 VA

Fluorescent lamp (VVG) parallel corrected:

730 VA (80 μF)

Fluorescent lamp (VVG) lead-lag circuit:

SELEKTA 170 top2/SELEKTA 172 top2: 1000 VA

SELEKTA 171 top2 RC: 2300 VA

Fluorescent lamps (EVG):

SELEKTA 170 top2/SELEKTA 172 top2: 400 VA

SELEKTA 171 top2 RC: 650 VA

Parallel-corrected mercury discharge lamp:

730 VA (80 μF)

Parallel compensated sodium discharge lamp:

730 VA (80 μF)

Compact fluorescent tubes (EVG):

SELEKTA 170 top2/SELEKTA 171 top2 RC:

9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W

SELEKTA 172 top2:

34 x 7 W, 27 x 11 W, 24 x 15 W, 22 x 23 W

Housing and insulation material: High-temperature

resistant, self-extinguishing thermoplastic

Permissible ambient temperature: –30 °C to + 55 °C

Degree of protection in accordance with EN 60529:

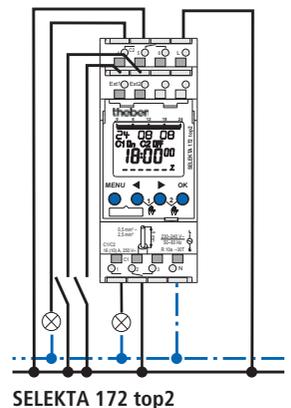
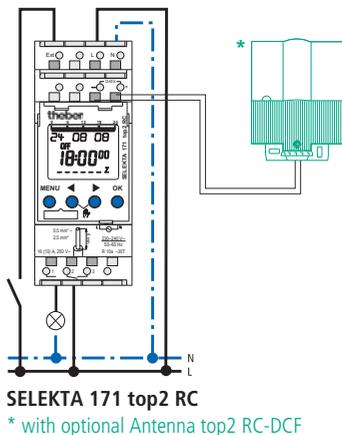
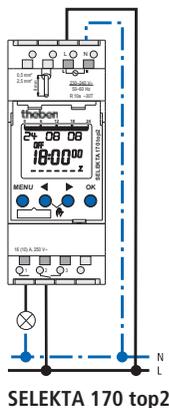
IP 20

Protection class if correctly installed: II

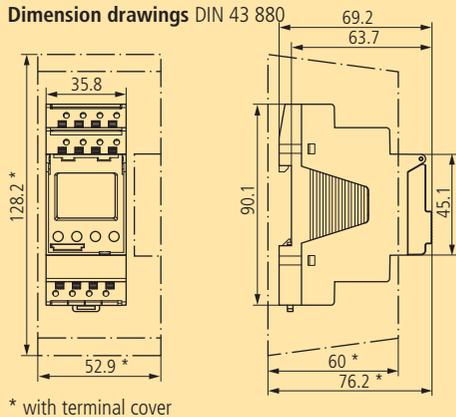
Test approvals: 

Din rail program

Astronomic digital timer (2 modules)



Dimension drawings DIN 43 880



* with terminal cover

Terminal cover



Design

- Standard housing 45 x 35 x 60 mm in accordance with DIN 43 880
- Quick fastening for 35 mm profile rails (DIN EN 50 022)
- Contact protection to comply with accident prevention regulation BGV A3
- Mounted installation with additional terminal box cover plate, sealable (no. 907 0 064)
- Control panel installation with assembly kit (no. 907 0 001)
- Captive cover flap, sealable

Type	Program	Power reserve (lithium)	Special functions	Contact	Nominal current at 250 V~	Order No.
SELEKTA 170 top2	Astro program, Weekly program	10 years	Local database	1 change-over contacts	16 (10) A	170 0 100
SELEKTA 171 top2 RC (without antenna)	Astro program, Weekly program	10 years	Local database, 3 special programs, date-controlled, 1 external input,	1 change-over contacts	16 (10) A	171 0 100
SELEKTA 172 top2	Astro program, Weekly program	10 years	Local database, 3 special programs, date-controlled, 2 external inputs,	2 change-over contacts	16 (10) A	172 0 100
Antenna top2 RC-DCF max. 10 top2 devices can be connected, see page 28 for dimension diagram (for use with SELEKTA 171 top2 RC)						907 0 410
OBELISK top2 programming kit (memory card, plug adapter, software) for Windows 2000/XP/Vista						907 0 409
OBELISK top2 memory card (single)						907 0 404
Terminal cover for top mounting, sealable						907 0 064
Installation kit for switch panel installation						907 0 001

Programming

OBELISK top2 programming kit



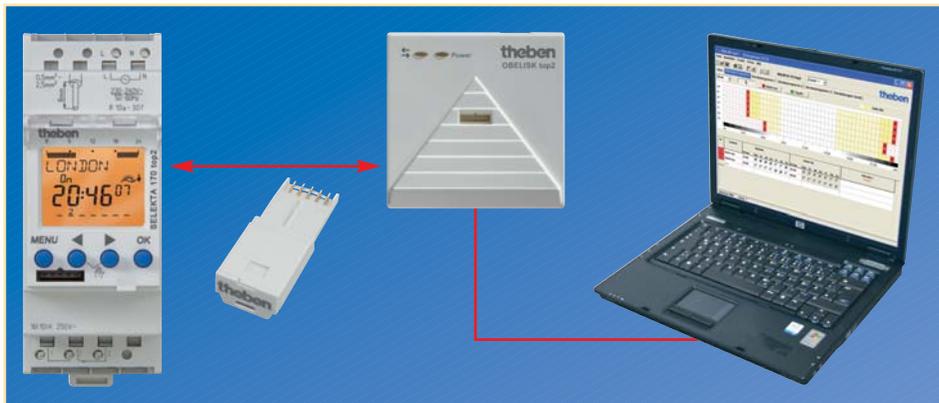
OBELISK top2 programming kit

- Consisting of:
 - memory card
 - USB plug adapter
 - software (for Windows 2000/XP/Vista)
 - OBELISK top2 software for:
 - TERMINA top2: – TERMINA 610 top2
 - TERMINA 611 top2
 - TERMINA 611 top2 RC
 - TERMINA 612 top2
 - TERMINA 622 top2
 - LUNA top2: – LUNA 111 top2
 - LUNA 112 top2
 - LUNA 120 top2
 - LUNA 121 top2 RC
 - LUNA 122 top2 RC
 - SELEKTA top2: – SELEKTA 170 top2
 - SELEKTA 171 top2 RC
 - SELEKTA 172 top2
- updates of current OBELISK top2 software are available as free downloads at www.theben.de.

Technical data:

- Operating voltage:** USB
- USB cable length:** 1.8 m
- Storage space required on the hard drive:** 25 MB
- Plug adapter dimensions:** 74 x 74 x 30 mm

Program transfer from PC to device and vice versa



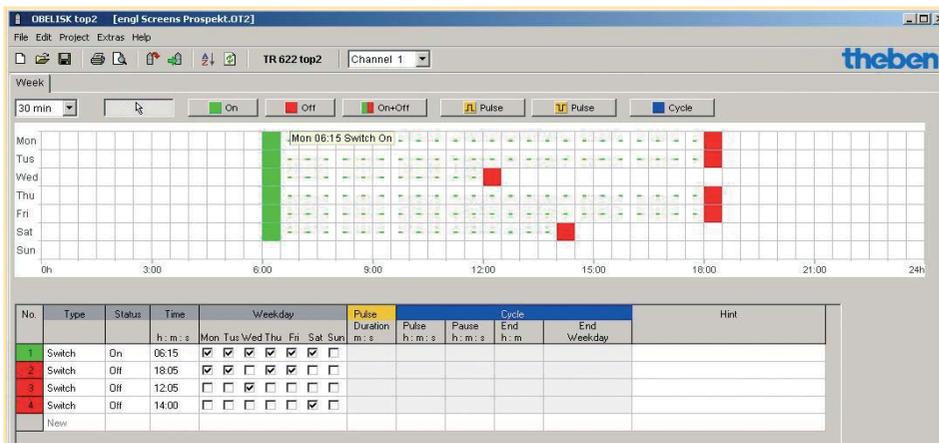
A program produced on a PC with the easy to use OBELISK top2 software, can be transferred to the OBELISK top2 memory card via the USB interface and from there to the clock and vice versa. This means there is no need for a PC or laptop on site.

Copying from device to device



If a program is produced directly on a device, can easily be transferred from one device to another via the OBELISK top2 memory card.

PC software



Clear and easy to understand: Switching programs can be easily be entered on your own computer using the additional OBELISK top2 PC software. Even complicated programs can be created by a few clicks of the mouse button in next to no time.

Switch-on phases are clearly shown in diagram form and automatically listed in a table. This allows programs for individual customers to be saved, printed off or exported in Excel format.

Corridor and playground lighting



Corridor and playground lighting should be switched off on holidays and weekends to save costs. Holidays and bank holidays can easily be selected via a special program.

Lighting on bank holidays and weekends



Lighting is on longer on bank holidays and weekends. This just requires a simple one-off entry as the update of movable holidays for the following years follows automatically.

Lighting control and pump control



Switching on underwater lights from sunset to 22.00 via channel 1. The pump is switched on at 07.00 and switched off at 22.00 on channel 2.

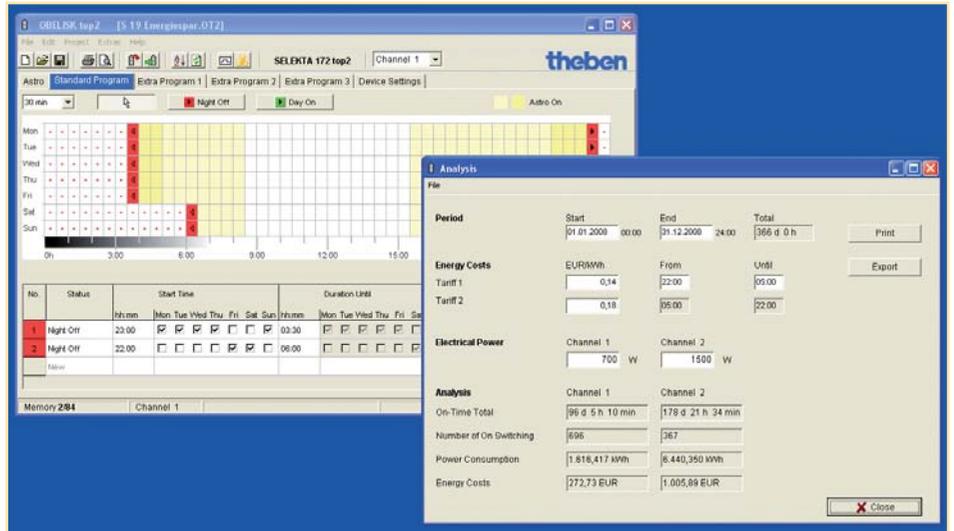
SELEKTA timers with straight forward location entry and city selection

Integrated database with approx. 1000 international and national towns and cities



Entering latitudes and longitudes is possible but not essential. Entering a city also automatically brings up the relevant latitudes and longitudes as well as the selection of the appropriate time zone.

Programming software with energy saving calculation

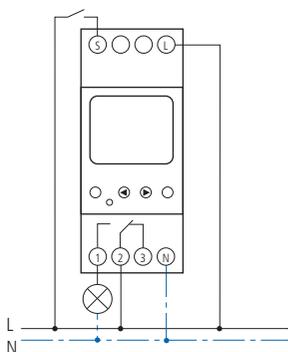


With SELEKTA top2 devices, selecting the program allows the energy costs to be calculated for a chosen timescale, e. g. per financial year. Savings through night time switch-off, bank holiday and special programs can easily be shown and printed off.

The program calculates the exact power-on time for each day of the year. Entering the kWh price (peak/off-peak tariff), as well as light source consumption in W, enables the exact calculation of lighting costs.



SELEKTA 170 top



SELEKTA 170 top (1 channel)

SELEKTA 170 top SELEKTA

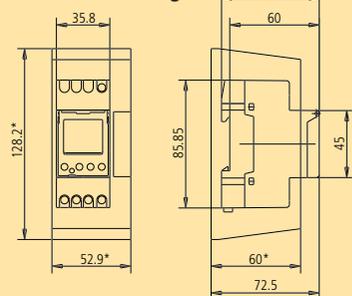
Function:

- Solar 1-channel weekly clock with “top” operating philosophy, i.e. simplest possible operation through text-oriented programming
- Precise calculation of sunrise and sunset times through inputting date, time and location coordinates (longitude and latitude)
- Alternatively, the location coordinates can be specified via a country-specific and pre-programmed list of cities.
- The switching on and off of the connected consumer depends on the sunrise and sunset times and can be offset forwards or backwards for fine adjustment by up to 120 minutes
- Factory-set date and time
- Text-based programming in 4 easy steps, supported by self-explanatory symbols.
- Energy-saving night switch-off with simple programmable weekly program
- Semi-automatic function (e.g. light on during evenings, night switch-off at 2300 hrs)
- Guided copying of switching times to other weekdays (block formation)
- The daily switching times are graphically illustrated by a segment bar in the LCD
- Date-controlled holiday program
- Continuous switching (continuous on or continuous off)
- Switching pre-selection
- An external input “S” enables the output to be switched via a control signal (e.g. manual switch)
- PIN code, 10 year power reserve
- Automatic summer/winter time correction, can be disabled or freely selected (Europe, GB, USA/CAN changeover rule also selectable)
- Flexible alternative to twilight switch (brightness sensor does not need to be wired)
- Switching times guaranteed through EEPROM
- Space-saving housing, width 35 mm

Technical data:

- Rated voltage:** 230–240 V~, +10 %/–15 %
- Special voltage:** see appendix
- Frequency:** 50–60 Hz
- Device consumption:** max. 6 VA
- Power reserve at 20 °C:** about 10 years allowing full operation by non-polluting lithium cell
- Time basis:** Quartz
- Accuracy at 20 °C:** $\leq \pm 1$ s/d
- Shortest switching interval:** 1 minute
- Switching accuracy:** exact to the second
- Display:** LCD display with text line
- Operating elements:** 4 touch keys/1 reset key
- Rated voltage external input “S”:** 230–240 V~, +10 %/–15 %
- Rated frequency external input “S”:** 50–60 Hz
- Input current external input “S”:** max. 0.5 mA
- Device consumption external input “S”:** max. 130 mW
- Cable length external input “S”:** max. 50 m
- Contact:** change-over contact
- Switching output:** potential-free
- Opening width:** < 3 mm (μ)
- Contact material:** AgSnO₂
- Switching power at 250 V~, cos ϕ = 1:** 16 A
- Switching power at 250 V~, cos ϕ = 0.6:** 10 A
- Incandescent lamp load:** 2300 W
- Halogen lamp load:** 2300 W
- Fluorescent lamps (KVG) uncompensated:** 1000 VA
- Fluorescent lamps (KVG) series comp.:** 1000 VA
- Fluorescent lamps (KVG) shunt comp.:** 400 VA (42 μ F)
- Fluorescent lamps (KVG) Dual circuit:** 1000 VA
- Mercury discharge lamp uncompensated:** 4 x 125 W, 2 x 250 W, 1 x 400 W, 1 x 700 W
- Mercury discharge lamp shunt compensated:** 6 x 50 W (7 μ F), 4 x 125 W (10 μ F), 2 x 250 W (18 μ F), 1 x 400 W (25 μ F), 1 x 700 W (40 μ F)
- Sodium discharge lamp uncomp.:** 2 x 250 W, 1 x 400 W
- Sodium discharge lamp shunt compensated:** 2 x 150 W (20 μ F), 1 x 250 W (32 μ F), 1 x 400 W (45 μ F)
- Compact fluorescent lamps (KVG):** 1000 VA
- Compact fluorescent lamps (EVG):** 9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W
- Housing and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Admissible ambient temperature:** –30 °C... +55 °C
- Degree of protection:** IP 20 according to DIN EN 60 529
- Protection class:** II according to EN 60 730-1 subject to correct installation
- Test approvals:**

Dimension drawings



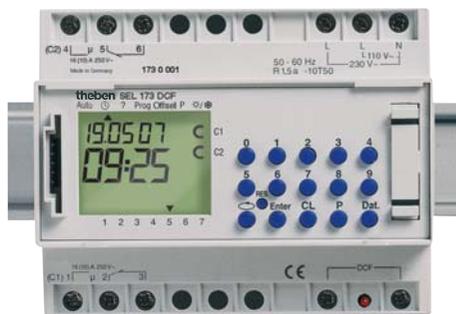
Terminal cover



Design:

- Standard housing 45 x 35 x 60 mm to DIN 43 880
- Quick fastening for 35 mm profile rail (DIN EN 50 022)
- Contact protection to comply with accident prevention regulation BVG A3
- Top mounting with additional terminal box cover plate, sealable (No. 907 0 064)
- Control panel installation with assembly kit (No. 907 0 001)
- Captive cover flap, sealable

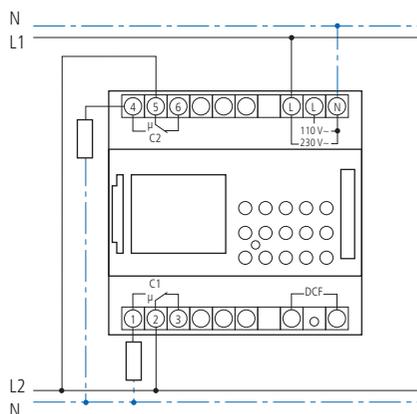
Type	Program	Power reserve (Lithium)	Programmable every...	Special functions	Switching contacts	Nominal current at 250 V~	Order No.
SELEKTA 170 top	astro program, weekly program	10 years	1 minute	Local database	1 change-over contact	16 (10) A	170 0 002 –phasedown–
	Terminal cover for top mounting, sealable						907 0 064
	Installation kit for switch panel installation						907 0 001



SELEKTA 173 DCF



DCF77 Antenna



SELEKTA 173 DCF (2 channels)

SELEKTA 173 DCF SELEKTA

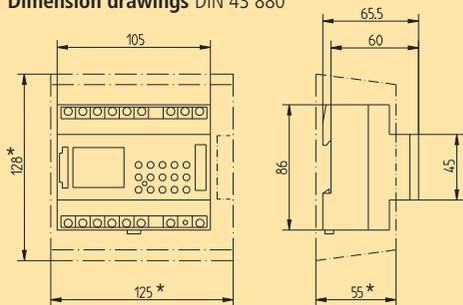
2-channel digital time switch with astronomical program specially for light control. The device has astronomical channels which can be superimposed by varying programs for night switch-off, e.g. for half-light switching. Channel 2 can alternately be used as a time switch only with easy-to-use yearly program.

- The device calculates the sun rising and setting times for the entered geographical location for every day of the year exactly to the minute
- Automatic summer/winter time adjustment
- Individual setting of energy-saving night switch-off or half-light switching due to superimposed yearly program for weekends, public holidays or holidays
- Channel 2 can be occupied by an astronomical program or with a time switch program only
- 120 switching times with weekday block formation are available for both channels
- Geographical adaptation possible with degree of longitude and latitude to 1 degree exactly
- Separate time correction possibility of ±120 minutes for the astronomical ON and OFF switching intervals
- Astronomical program for 1 or 2 output channels. Both channels can be superimposed by varying time-controlled night switch-off, e.g. for half-light switching
- To achieve the same operating hours of 2 connected light fixtures, the time switch enables the night switch-off program to be periodically changed from one channel to the other
- Encoding of the program against unauthorized access
- Manual early override switching for both channels
- Particularly suitable for communal street lighting
- Easy program printouts possible
- Copying of the program from device to device possible by means of OBELISK

Technical data:

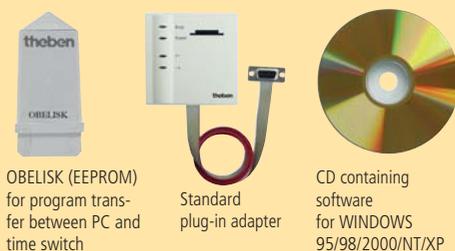
- Rated voltage:** 230–240 V~, +6 %/–10 %, 110 V~, ±10 %
- Special voltage:** see appendix
- Frequency:** 50–60 Hz
- Device consumption:** approx. 8 VA
- Power reserve at 20 °C:** about 1.5 years allowing full operation by non-polluting lithium cell Data backup in the switch-off state about 10 years by EEPROM
- Time basis:** Quartz
- Accuracy at 20 °C:** ≤ ± 1 s/d, synchronous with DCF77 antenna
- Shortest switching interval:** 1 minute
- Switching accuracy:** exact to the second
- Display:** LCD display
- Operating elements:** 15 touch keys/1 reset key
- Contact:** 2 change-over contacts
- Switching output:** potential-free
- Opening width:** < 3 mm (μ)
- Contact material:** AgSnO₂
- Switching power at 250 V~, cos φ = 1:** 16 A
- Switching power at 250 V~, cos φ = 0.6:** 10 A
- Incandescent lamp load:** 2300 W
- Halogen lamp load:** 2300 W
- Fluorescent lamps (KVG) uncompensated:** 1000 VA
- Fluorescent lamps (KVG) series comp.:** 1000 VA
- Fluorescent lamps (KVG) shunt comp.:** 400 VA (42 μF)
- Fluorescent lamps (KVG) Dual circuit:** 1000 VA
- Mercury discharge lamp uncompensated:** 4 x 125 W, 2 x 250 W, 1 x 400 W, 1 x 700 W
- Mercury discharge lamp shunt 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 uncomp.:** 2 x 250 W, 1 x 400 W
- Sodium discharge lamp shunt compensated:** 2 x 150 W (20 μF), 1 x 250 W (32 μF), 1 x 400 W (45 μF)
- Compact fluorescent lamps (KVG):** 1000 VA
- Compact fluorescent lamps (EVG):** 9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W
- Housing and insulation material:** self-extinguishing thermoplasts of high temperature resistance
- Admissible ambient temperature:** Timer: –10 °C...+50 °C
DCF antenna: –20 °C... +70 °C
- Degree of protection:** IP 20 according to DIN EN 60529
- Protection class:** II according to EN 60730-1 subject to correct installation

Dimension drawings DIN 43 880



SELEKTA 173 DCF * with terminal cover

PC programming kit OBELISK



Design:

- Standard housing 45 x 105 x 60 mm
- Snap-on fixing for 35 mm top-hat rail EN 50 022
- Surface mounting with additional terminal cover, tamper proof
- Switchboard installation with mounting set No. 907 0 001)
- Contact protection to comply with accident prevention regulation BVG A3
- Captive terminal screws
- Captive hinged cover, tamper proof

Type	Program	Power reserve	Programmable	Special functions	Switching contacts	Nominal current at 250 V~	Order No.
SELEKTA 173 DCF	astronomical year program, 24 h/7 days/year	1.5 years	1 min	holiday or weekend, switching channel change	2 change-over contacts	16 (10) A	173 0 001
Antenna for DCF77radio signal, makes DCF77 time synchronisation possible. Power supply is integrated in the device SELEKTA 173 DCF.							907 0 243
OBELISK programming kit (memory card, intermediate plug for PC interface, software)							907 0 230
OBELISK memory card (separately)							907 0 165



PresenceLight 180



PresenceLight 360

PresenceLight 180

- Passive infrared presence detector for wall mounting
- Detection range 180°

PresenceLight 360

- Passive infrared presence detector for ceiling mounting
- Square detection range, 360°

Common product features

- Automatic lighting control
- Mixed light measurement
- Degree of protection IP 54 for installation in damp zones
- Switched output for light (relay, 230 V)
Lighting control with brightness threshold value and self-learning switch off delay time
- Pulse function for staircase lighting timer
- Service remote control QuickSet plus (option)
- User remote control clic (option)

Technical data PresenceLight 180:

Detection range PresenceLight 180: horizontal 180°

Recommended mounting height:

approx. 1.6 m–2.2 m

Maximum range: < 10 m

Technical data PresenceLight 360:

Detection range: horizontal 360°, vertical 120°

Recommended mounting height: 2.0 m–3.0 m

Maximum range: max. 6 x 6 m (Mh 2.5 m)

max. 8 x 8 m (Mh 3.5 m)

Common specifications:

Rated voltage: 230 V ± 10 %, 50 Hz

Mixed light measurement: approx. 10–1500 Lux, deactivatable

Switch off delay time: 10 s–20 min, Short pulse

Relay output A for light: Relay 230 V

Max. switching capacity: ohmic 1400 VA

Incandescent lamps, halogen 1200 W

Max. number of electronic ballasts:

10 x (1 x 58 W), 5 x (2 x 58 W), 16 x (1 x 36 W),

8 x (2 x 36 W), 16 x (less than 36 W)

Mounting plate: 70 x 70 mm

Screw terminals: max. 2 x 2.5 mm²

Size of concealed housing: Size 1, (NIS,PMI)

Ambient temperature: –20 °C...+50 °C

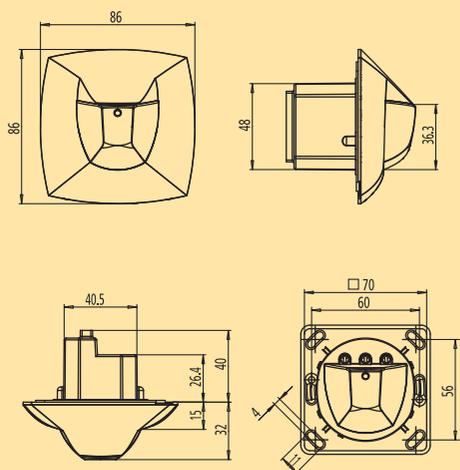
Degree of protection: IP 54

Housing colour: RAL 9010

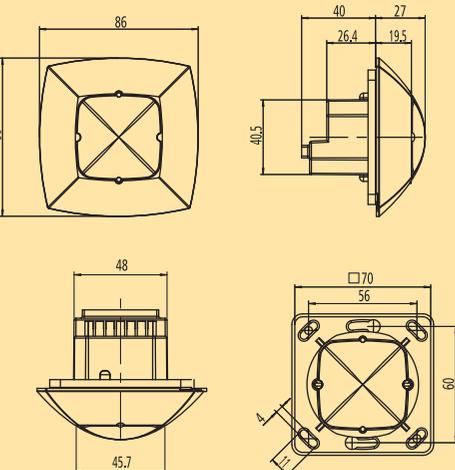
Detection range PresenceLight 360

M'height	seated persons	walking persons
2.0 m	3.0 m x 3.0 m	4.5 m x 4.5 m ± 0.5 m
2.5 m	4.0 m x 4.0 m	6.0 m x 6.0 m ± 0.5 m
3.0 m	4.5 m x 4.5 m	7.0 m x 7.0 m ± 1 m
3.5 m	–	8.0 m x 8.0 m ± 1 m

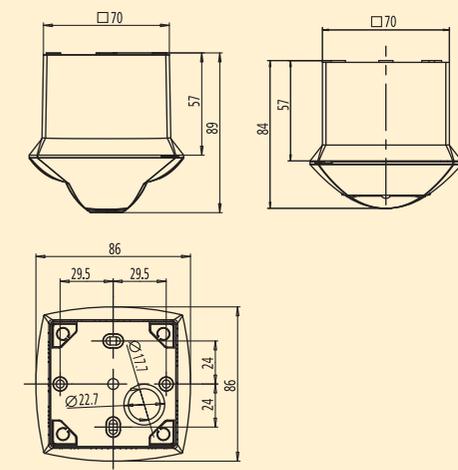
Dimension drawings: PresenceLight 180



Dimension drawings: PresenceLight 360



Dimension drawings: PresenceLight 180/360 mounted onto PresenceLight surface frame (Accessories)





compact passage

compact passage

- Passive infrared presence detector for ceiling mounting
- Rectangular detection range for corridors, 360°
- Automatic HVAC and lighting control as well as room surveillance
- Mixed light measurement
- Switched output for light (relay, 230 V)
- Lighting control with brightness threshold value and self-learning switch off delay time
- Fully or semi-automatic operation switch-selectable
- Push button or switch connection for manual control
- Pulse function for staircase lighting timer
- Switched output for presence (potential-free relay)
- HVAC control with switch on delay and switch off delay time
- Reduced response characteristic for room surveillance
- Service remote control QuickSet plus (option)
- User remote control clic (option)

Technical data:

Rated voltage: 230 V ± 10 %, 50 Hz

Detection range: horizontal 360°, vertical 160°

Recommended mounting height: 2.0 m–3.0 m

Maximum range: max. 30 x 4 m (Mh 2.5 m)
max. 30 x 5 m (Mh 3.5 m)

Mixed light measurement:

approx. 10–1500 Lux, deactivatable

Switch off delay time: 10 s–20 min, Short pulse

Switch off delay time for presence: 10 s–120 min

Switch on delay for presence: 0 s–10 min,
Room surveillance

Relay output A for light: Relay 230 V

Max. switching capacity: ohmic 1400 VA
Incandescent lamps, halogen 1200 W

Max. number of electronic ballasts:

10 x (1 x 58 W), 5 x (2 x 58 W), 16 x (1 x 36 W),
8 x (2 x 36 W), 16 x (less than 36 W)

Relay output B for presence: Relay, free of potential

Switching power: 50 W (220 V DC), 50 VA (250 V AC),
minimal 0.5 mV/10 mA

Mounting plate: 70 x 70 mm

Screw terminals: max. 2 x 2.5 mm²

Size of concealed housing: Size 1 (NIS, PMI)

Ambient temperature: 0 °C... +50 °C

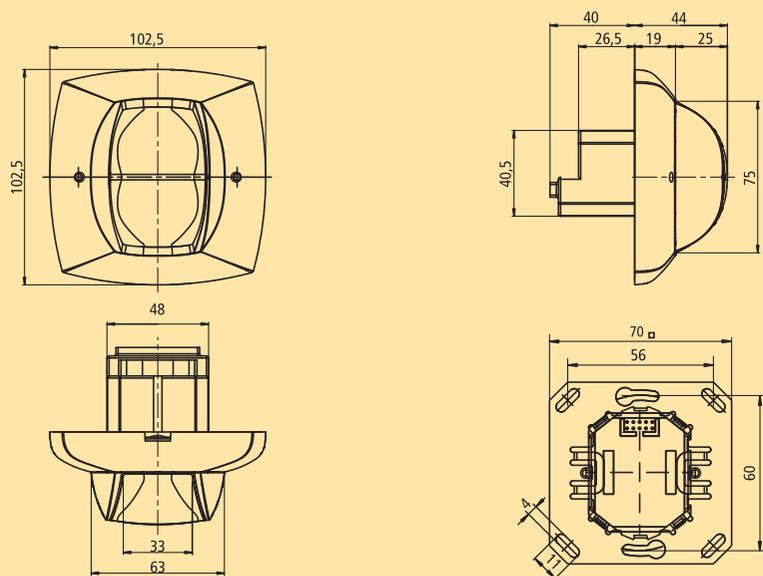
Degree of protection: IP 40

Housing colour: RAL 9010

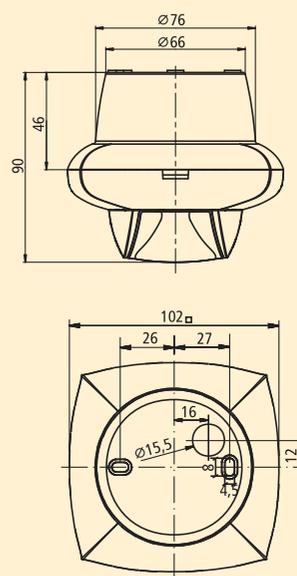
Detection range compact passage

M'height	radial motion	tangential motion
2.0 m	16 m x 3.5 m ± 1 m	30 m x 3.5 m ± 1 m
2.5 m	18 m x 4.0 m ± 1 m	30 m x 4.0 m ± 1 m
3.0 m	20 m x 4.5 m ± 1 m	30 m x 4.5 m ± 1 m
3.5 m	20 m (± 1 m) x 5.0 m	30 m (± 1 m) x 5.0 m

Dimension drawings: compact passage



Dimension drawings: compact passage mounted onto compact surface frame (Accessories)





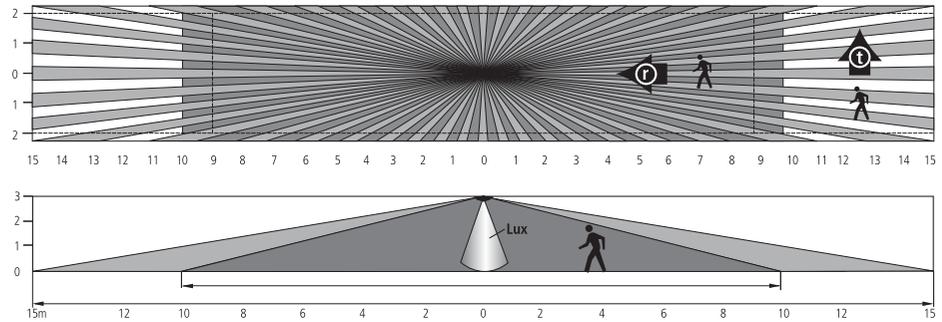
Function

- The switching behaviour is controlled by presence and brightness.
- The self-learning switch off delay time automatically adapts to the occupant's behaviour.
- Fully or semi-automatic operation: in the "fully automatic" operation mode, the lighting is switched on and off automatically depending on presence and brightness. In the "semi-automatic" operation mode, the light must always be switched on manually; switching off is done automatically.
- Manual control: The lighting can always be switched on and off manually with push button or switch.
- Push button function room/corridor: in the „corridor“ position, the detector is used as staircase lighting timer, i.e. the light cannot be switched off manually.
- Pulse function: in order to control existing staircase lighting timers.
- The presence detector is equipped with a mixed light measurement and is designed for use with fluorescent lights (FL/PL) as well as halogen/incandescent lights.
- The rectangular detection range ensures reliable detection in corridors and traffic areas of up to 30 m in length.
- Switched output for presence, used for HVAC control: the switching behaviour of the potential-free contact is only affected by presence.
- The switch on delay prevents that the system is switched on immediately. The contact does not close before the switch on delay time has elapsed.
- Room Surveillance: the sensitivity of the switched output for presence is reduced. The contact reliably indicates the presence of persons.
- Master-Slave parallel circuit operation: up to 10 detectors can be connected in parallel to enlarge the detection zone. The entire load is switched by the Master. Any further detectors, the Slaves, supply the presence information.
- Master-Master parallel circuit operation: up to 10 detectors can be connected in parallel to control multiple lighting groups. Each master switches his lighting group according to its own brightness measurement. The presence continues to be detected by all detectors together.
- The device can be connected as Master or Slave.
- The test mode serves to check the presence detection and the wiring.

Accessories

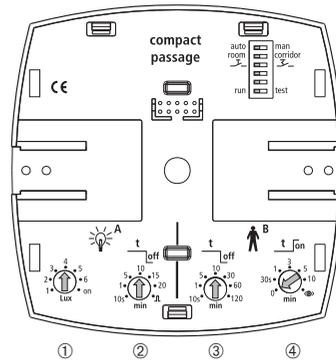
- Adjustment of the parameters is done with potentiometers or with the service remote control QuickSet plus (optionally, Order No. 907 0 532).
- The clic user remote control (Order No. 907 0 515) is optionally available for individual switching of up to two lighting groups.
- A suitable frame for surface mounting is available separately (Order No. 907 0 514).

Detection range (mounting height 3.0 m)



Top view and bottom view of the detection range

Sensor Module – rear side



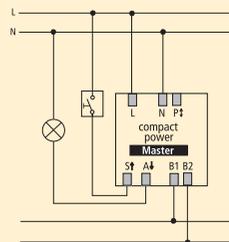
Settings on the compact office

DIP Switches:

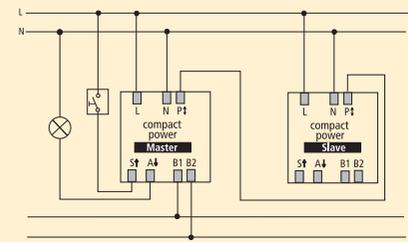
- DIP1 lighting control: fully/semi-automatic
- DIP2 Push button function: Room/Corridor
- DIP3 Push button/switch control
- DIP6 Operation mode: normal operation/test

- ① Brightness threshold (Lux)
- ② Switch off delay for light/activation of pulse function
- ③ Switch off delay for presence (HVAC/surveillance)
- ④ Switch on delay for HVAC/activation of room surveillance-function

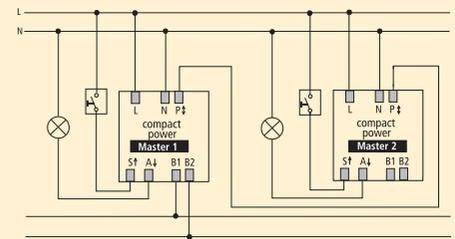
Wiring diagrams for power modules:



Single unit operation



Master-Slave parallel circuit operation



Master-Master parallel circuit operation

Type	Detection range	Maximum range	Switch off delay time	Outputs	Order No.
compact passage	360°	30 x 5 m at 3.5 m height	10 s–20 min (light) 10 s–120 min (HVAC)	1400 VA (light) 50 W (presence)	201 0 090
Accessories: Surface frame compact, white					907 0 514



compact office

compact office

- Passive infrared presence detector for ceiling mounting
- Square detection range, 360°
- Automatic HVAC and lighting control as well as room surveillance
- Mixed light measurement
- Switched output for light (relay, 230 V)
- Lighting control with brightness threshold value and self-learning switch off delay time
- Fully or semi-automatic operation switch-selectable
- Push button or switch connection for manual control
- Pulse function for staircase lighting timer
- Switched output for presence (potential-free relay)
- HVAC control with switch on delay and switch off delay time
- Reduced response characteristic for room surveillance
- Service remote control QuickSet plus (option)
- User remote control clic (option)

Technical data:

Rated voltage: 230 V ± 10 %, 50 Hz

Detection range: horizontal 360°, vertical 120°

Recommended mounting height: 2.0 m–3.0 m

Maximum range: max. 6 x 6 m (Mh 2.5 m)
max. 8 x 8 m (Mh 3.5 m)

Mixed light measurement: approx. 10–1500 Lux, deactivatable

Switch off delay time: 10 s–20 min, Short pulse

Switch off delay time for presence: 10 s–120 min

Switch on delay for presence: 0 s–10 min, Room surveillance

Relay output A for light: Relay 230 V

Max. switching capacity: ohmic 1400 VA
Incandescent lamps, halogen 1200 W

Max. number of electronic ballasts:

10 x (1 x 58 W), 5 x (2 x 58 W), 16 x (1 x 36 W),
8 x (2 x 36 W), 16 x (less than 36 W)

Relay output B for presence: Relay, free of potential

Switching power: 50 W (220 V DC), 50 VA (250 V AC)
minmal 0.5 mV/10 mA

Mounting plate: 70 x 70 mm

Screw terminals: max. 2 x 2.5 mm²

Size of concealed housing: Size 1 (NIS, PMI)

Ambient temperature: 0 °C...+50 °C

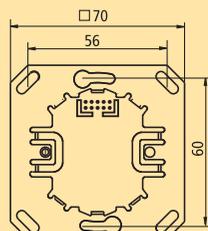
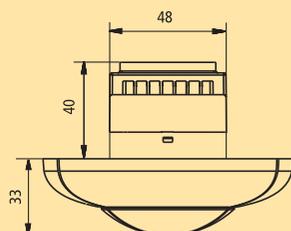
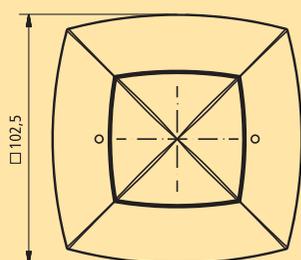
Degree of protection: IP 40

Housing colour: RAL 9010

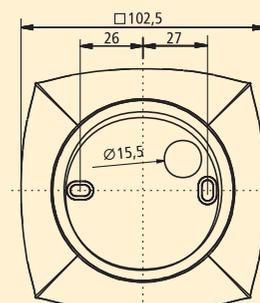
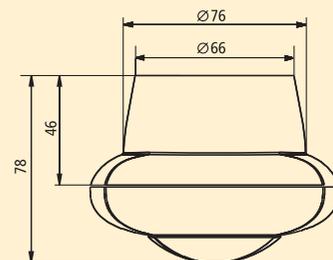
Detection range compact office

M'height	seated persons	walking persons
2.0 m	3.0 m x 3.0 m	4.5 m x 4.5 m ± 0.5 m
2.5 m	4.0 m x 4.0 m	6.0 m x 6.0 m ± 0.5 m
3.0 m	4.5 m x 4.5 m	7.0 m x 7.0 m ± 1 m
3.5 m	–	8.0 m x 8.0 m ± 1 m

Dimension drawings: compact office



Dimension drawings: compact office mounted onto compact surface frame (Accessories)





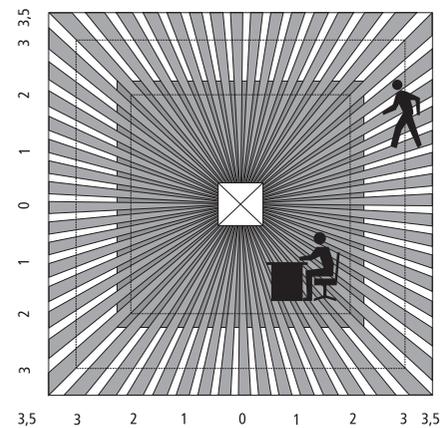
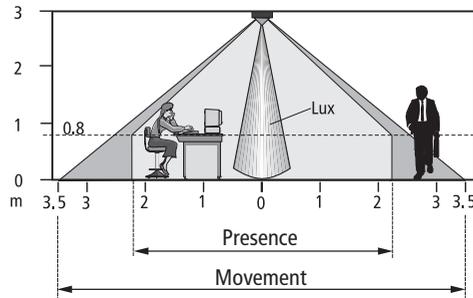
Function

- The switching behaviour is controlled by presence and brightness.
- The self-learning switch off delay time automatically adapts to the occupant's behaviour.
- Fully or semi-automatic operation: in the "fully automatic" operation mode, the lighting is switched on and off automatically depending on the presence and brightness. In the "semi-automatic" operation mode, the light must always be switched on manually; switching off is done automatically.
- Manual control: The lighting can always be switched on and off manually with push button or switch.
- Push button function room/corridor: in the „corridor“ position, the detector is used as staircase lighting timer, i.e. the light cannot be switched off manually.
- Pulse function: in order to control existing staircase lighting timers.
- The presence detector is equipped with a mixed light measurement and is designed for use with fluorescent lights (FL/PL) as well as halogen/incandescent lights.
- The square detection range ensures a safe and simple planning.
- Switched output for presence, used for HVAC control: the switching behaviour of the potential-free contact is only affected by presence.
- The switch on delay prevents that the system is switched on immediately. The contact does not close before the switch on delay time has elapsed.
- Room Surveillance: the sensitivity of the switched output for presence is reduced. The contact reliably indicates the presence of persons.
- Master-Slave parallel circuit operation: up to 10 detectors can be connected in parallel to enlarge the detection zone. The entire load is switched by the Master. Any further detectors, the Slaves, supply the presence information.
- Master-Master parallel circuit operation: up to 10 detectors can be connected in parallel to control multiple lighting groups. Each master switches his lighting group according to its own brightness measurement. The presence continues to be detected by all detectors together.
- The device can be connected as Master or Slave.
- The test mode serves to check the presence detection and the wiring.

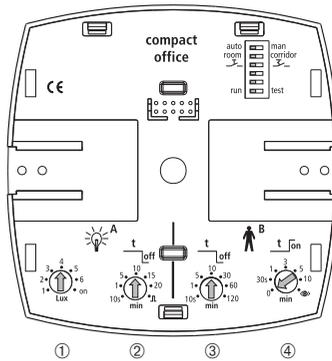
Accessories

- Adjustment of the parameters is done with potentiometers or with the service remote control QuickSet plus (optionally, Order No. 907 0 532).
- The clic user remote control (Order No. 907 0 515) is optionally available for individual switching of up to two lighting groups.
- A suitable frame for surface mounting is available separately (Order No.. 907 0 514).

Detection range (Mounting height 3.0 m)



Sensor Module – rear side



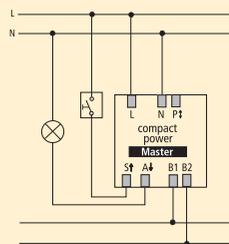
Settings on the compact office

DIP Switches:

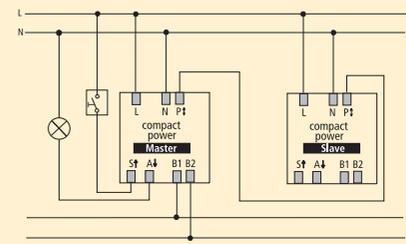
- DIP1 lighting control: fully/semi-automatic
- DIP2 Push button function: Room/Corridor
- DIP3 Push button/switch control
- DIP6 Operation mode: normal operation/test

- ① Brightness threshold (Lux)
- ② Switch off delay for light/activation of pulse function
- ③ Switch off delay for presence (HVAC/surveillance)
- ④ Switch on delay for HVAC/activation of room surveillance-function

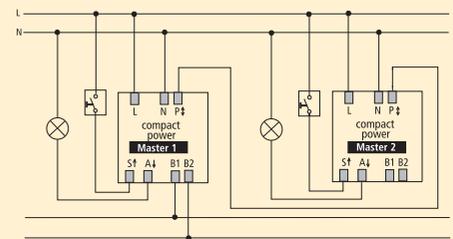
Wiring diagrams for power modules:



Single unit operation



Master-Slave parallel circuit operation



Master-Master parallel circuit operation

Type	Detection range	Maximum range	Switch off delay time Switch off delay time presence	Outputs	Order No.
compact office	360°	8 x 8 m at 3.5 m height	10 s–20 min (light) 10 s–120 min (HVAC)	1400 VA (light) 50 W (presence)	201 0 000
Accessories: Surface frame compact, white					907 0 514



ECO-IR 180A



ECO-IR 360A

ECO-IR 180A

- Passive infrared presence detector for wall mounting
- Detection range 180°

ECO-IR 360A

- Passive infrared presence detector for ceiling mounting
- Square detection range, 360°

Gemeinsame Merkmale

- Automatic HVAC and lighting control
- Real daylight measurement
- Switched output for light (relay, 230 V)
Lighting control with brightness threshold value and self-learning switch off delay time
- Switched output for presence (potential-free relay)
- HVAC control with switch off delay time

Technical data ECO-IR 180A:

Detection range: horizontal 180°

Recommended mounting height: approx. 1.6 m–2.2 m

Maximum range: < 10 m

Technical data ECO-IR 360A:

Detection range: horizontal 360°, vertical 120°

Recommended mounting height: 2.0 m–3.5 m

Maximum range: max. 8 x 8 m (Mh 2.5 m)

max. 10 x 10 m (Mh 3.5 m)

Common specifications:

Rated voltage: 230 V ± 10 %, 50 Hz

Real daylight measurement:

approx. 50–1600 Lux, deactivatable

Switch off delay time for light: 2 min–15 min

Switch off delay time for presence: 10 min–60 min

Relay output A for light: Relay 230 V

Max. switching capacity: 1400 VA

Max. number of electronic ballasts:

12 x (1 x 58 W), 6 x (2 x 58 W), 18 x (1 x 36 W),

9 x (2 x 36 W), 18 x (less than 36 W)

Relay output B for presence: Relay, free of potential

Switching power:

100 W (24 V DC), 460 VA (230 V AC), μ

Mounting plate: 70 x 70 mm

Terminals without screws: max. 1.5 mm²

Size of concealed housing: Size 1 (NIS, PMI)

Ambient temperature: 0 °C...+50 °C

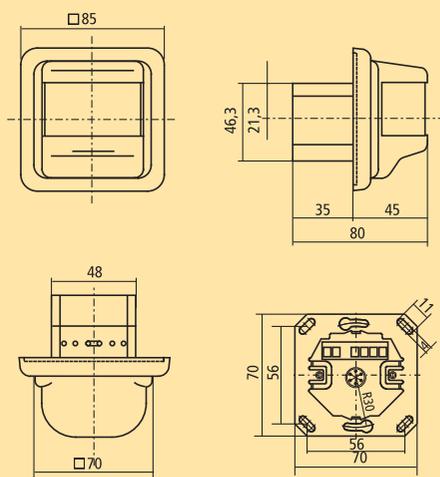
Protection class II: EN 60730-1

Housing colour: RAL 9010

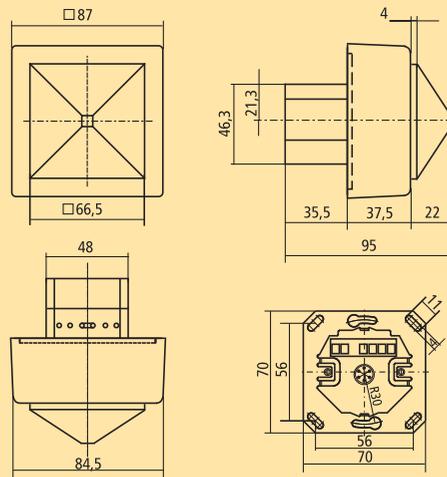
Detection range ECO-IR 360A

M'height	seated persons	walking persons
2.0 m	4.5 m x 4.5 m	6.0 m x 6.0 m ± 0.5 m
2.5 m	6.0 m x 6.0 m	8.0 m x 8.0 m ± 0.5 m
3.0 m	7.0 m x 7.0 m	9.0 m x 9.0 m ± 0.5 m
3.5 m	8.0 m x 8.0 m	10 m x 10 m ± 1 m
4.0 m	–	11 m x 11 m ± 1 m

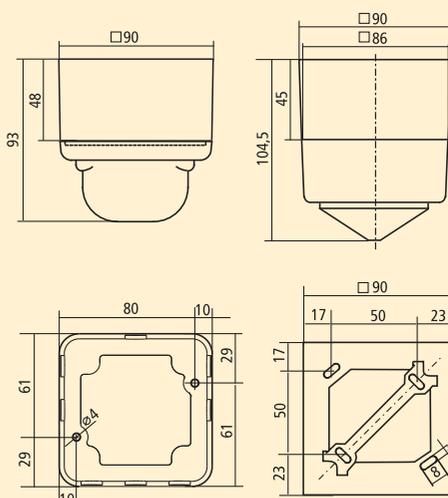
Dimension drawings: ECO-IR 180A



Dimension drawings: ECO-IR 360A



Dimension drawings: ECO-IR 180A/360A mounted onto ECO-IR 180/360 surface frame (Accessories)





Function

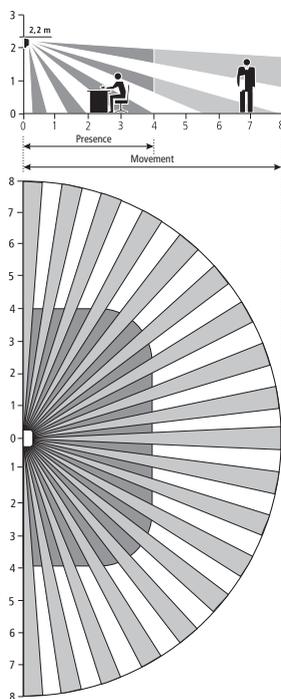
- The switching behaviour is controlled by presence and brightness.
- The self-learning switch off delay time automatically adapts to the occupant's behaviour.
- The presence detector is equipped with real daylight measurement and is designed for use with fluorescent lights (FL/PL) only.
- The square detection range of ECO-IR 360A ensures a safe and simple planning.
- ECO-IR 180A: walking persons are detected reliably in a range with radius of 8m. Seated persons are reliably detected within a range of 8 m x 4 m. The recommended mounting height is 2.2 m.
- Switched output for presence, used for HVAC control: the switching behaviour of the potential-free contact is only affected by presence.
- Adjustment of the parameters is done with potentiometers.

Accessories

- A suitable frame for surface mounting is available separately (Order No. 907 0 512 for ECO-IR 360 and Order No. 907 0 511 for ECO-IR 180) respectively.
- The unit can be flush-mounted into suspended ceilings using the QuickFix mounting kit (see page 84).

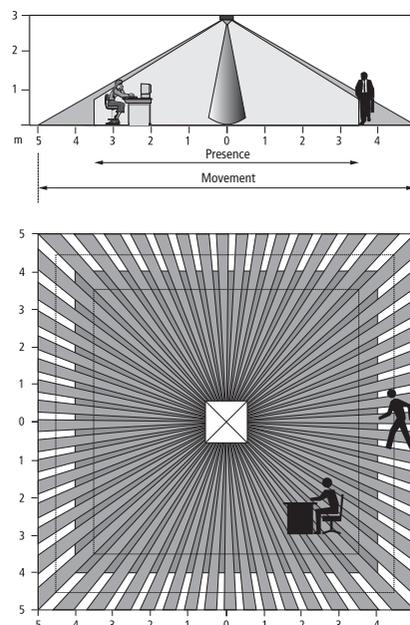
Type: ECO-IR 180A

Detection range

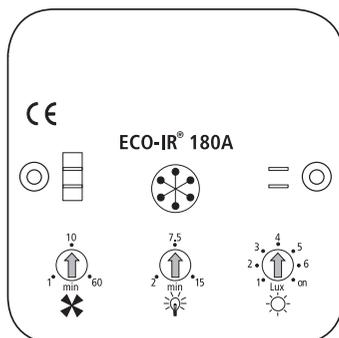


Type: ECO-IR 360A

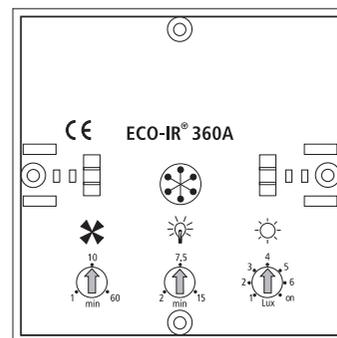
Detection range



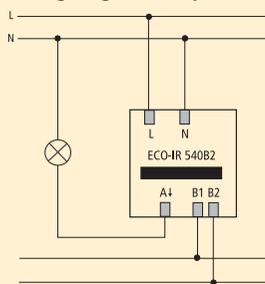
Sensor Module – rear side ECO-IR 180A



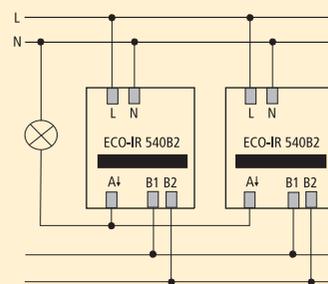
Sensor Module – rear side ECO-IR 360A



Wiring diagrams for power modules: ECO-IR 180A, ECO-IR 360A

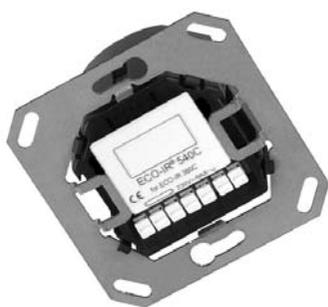


Single unit operation



Parallel circuit operation

Type	Detection range	Maximum range	Switch off delay time Switch off delay time presence	Outputs	Order No.
ECO-IR 180A	180°	< 10 m	2 min–15 min (light)	1400 VA (light), 100 W (presence)	202 0 050
ECO-IR 360A	360°	10 x 10 m at 3,5 m height	10 min–60 min (HVAC)	1400 VA (light), 100 W (presence)	202 0 000
Accessories: Surface frame ECO-IR 180, white					907 0 511
Accessories: Surface frame ECO-IR 360, white					907 0 512



ECO-IR 360C NT

ECO-IR 360C NT

- Passive infrared presence detector for ceiling mounting
- Square detection range, 360°
- Automatic HVAC and lighting control as well as room surveillance
- Real daylight measurement
- Switched output for light (relay, 230 V)
- Lighting control with brightness threshold value and self-learning switch off delay time
- Fully or semi-automatic operation switch-selectable
- Push button or switch connection for manual control
- Pulse function for staircase lighting timer
- Inrush current limitation for electronic ballasts
- Switched output for presence (potential-free relay)
- HVAC control with switch on delay and switch off delay time
- Reduced response characteristic for room surveillance
- Service remote control QuickSet plus (option)
- User remote control clic (option)

Technical data:

Rated voltage: 230 V ± 10 %, 50 Hz

Detection range: horizontal 360°, vertical 120°

Recommended mounting height: 2.0 m–3.5 m

Maximum range: max. 8 x 8 m (Mh 2.5 m)
max. 10 x 10 m (Mh 3.5 m)

Real daylight measurement:

approx. 10–1500 Lux, deactivatable

Switch off delay time for light:

10 s–20 min, Short pulse

Switch off delay time for presence: 10 s–120 min

Switch on delay for presence:

0 s–10 min, Room surveillance

Relay output A for light:

Relay 230 V, Inrush current limitation

Max. switching capacity: 1400 VA

Max. number of electronic ballasts:

16 x (1 x 58 W), 8 x (2 x 58 W), 24 x (1 x 36 W),

12 x (2 x 36 W), 24 x (less than 36 W)

Relay output B for presence: Relay, free of potential

Rated voltage: 100 W (50 V DC), 460 VA (230 V AC),
minimal 10 V/100 mA

Mounting plate: 70 x 70 mm

Terminals without screws: max. 1.5 mm²

Size of concealed housing: Size 1 (NIS, PMI)

Ambient temperature: 0 °C...+50 °C

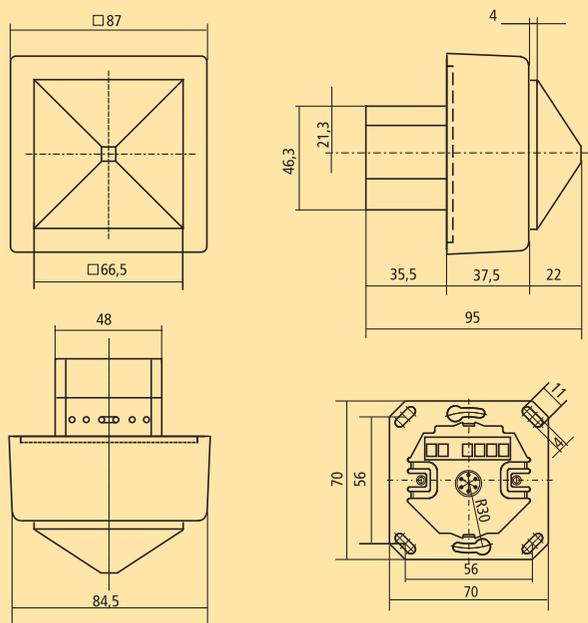
Degree of protection: IP 40

Housing colour: RAL 9010

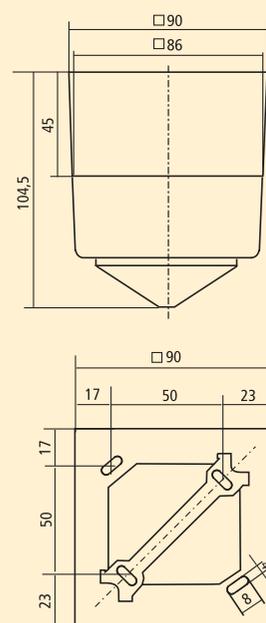
Detection range ECO-IR 360C NT

M'height	seated persons	walking persons
2.0 m	4.5 m x 4.5 m	6.0 m x 6.0 m ± 0.5 m
2.5 m	6.0 m x 6.0 m	8.0 m x 8.0 m ± 0.5 m
3.0 m	7.0 m x 7.0 m	9.0 m x 9.0 m ± 0.5 m
3.5 m	8.0 m x 8.0 m	10 m x 10 m ± 1 m
4.0 m	–	11 m x 11 m ± 1 m
9.0 m (sports hall)	–	19 m x 19 m

Dimension drawings: ECO-IR 360C NT



Dimension drawings: ECO-IR 360C NT mounted onto ECO-IR 360 surface frame (Accessories)





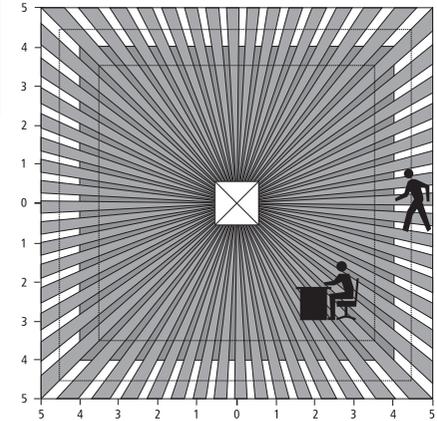
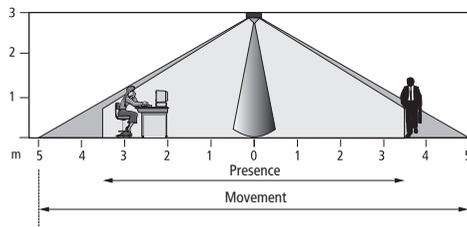
Function

- The switching behaviour is controlled by presence and brightness.
- The self-learning switch off delay time automatically adapts to the occupant's behaviour.
- Fully or semi-automatic operation: in the "fully automatic" operation mode, the lighting is switched on and off automatically depending on presence and brightness. In the "semi-automatic" operation mode, the light must always be switched on manually; switching off is done automatically.
- Manual control: The lighting can always be switched on and off manually with push button or switch.
- Push button function room/corridor: in the „corridor“ position, the detector is used as staircase lighting timer, i.e. the light cannot be switched off manually.
- Pulse function: in order to control existing staircase lighting timers.
- The inrush current limitation ensures the presence detector is especially suitable for switching of electronic ballasts.
- The presence detector is equipped with real daylight measurement and is designed for use with fluorescent lights (FL/PL) only.
- The square detection range ensures a safe and simple planning.
- Switched output for presence, used for HVAC control: the switching behaviour of the potential-free contact is only affected by presence.
- The switch on delay prevents that the system is switched on immediately. The contact does not close before the switch on delay time has elapsed.
- Room Surveillance: the sensitivity of the switched output for presence is reduced. The contact reliably indicates the presence of persons.
- Master-Slave parallel circuit operation: up to 10 detectors can be connected in parallel to enlarge the detection zone. The entire load is switched by the Master. Any further detectors, the Slaves, supply the presence information.
- The device can be connected as Master or Slave.
- The test mode serves to check the presence detection and the wiring.

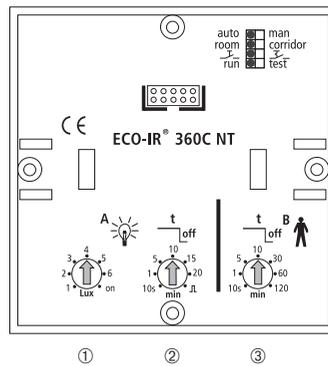
Accessories

- Adjustment of the parameters is done with potentiometers or with the service remote control QuickSet plus (optionally, Order No. 907 0 532).
- The clic user remote control (Order No. 907 0 515) is optionally available for individual switching of up to two lighting groups.
- A suitable frame for surface mounting is available separately (Order No. 907 0 512).
- The unit can be flush-mounted into suspended ceilings using the QuickFix mounting kit (see page 84).

Detection range (Mounting height 3.0 m)



Sensor Module – rear side



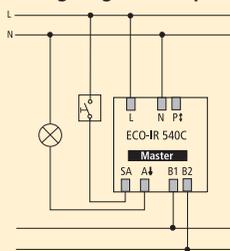
Settings on the ECO-IR 360C NT

DIP Switches:

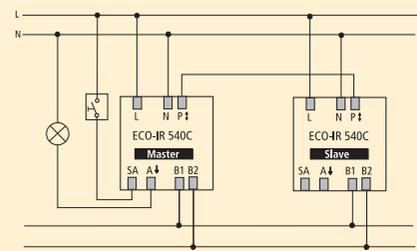
- DIP1 lighting control: fully/semi-automatic
- DIP2 Push button function: Room/Corridor
- DIP3 Push button/switch control
- DIP4 Operation mode: normal operation/test

- ① Brightness threshold (Lux)
- ② Switch off delay for light/activation of pulse function
- ③ Switch off delay for presence (HVAC/surveillance)

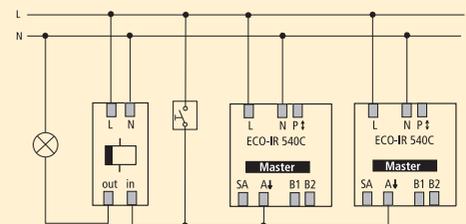
Wiring diagrams for power modules:



Single unit operation

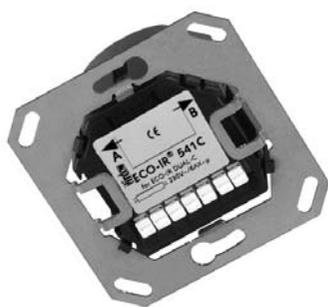


Master-Slave parallel circuit operation



Stairway-light time switch parallel circuit operation

Type	Detection range	Maximum range	Switch off delay time	Outputs	Order No.
ECO-IR 360C NT	360°	10 x 10 m at 3,5 m height	10 s–20 min (light) 10 s–120 min (HVAC)	1400 VA (light) 100 W (presence)	202 0 400
Accessories: Surface frame ECO-IR 360, white					907 0 512
QuickSafe ball guard protective cage for ECO-IR/ compact office..., white, metal					907 0 531



ECO-IR DUAL-C NT

ECO-IR DUAL-C NT

- Passive infrared presence detector for ceiling mounting
- Square detection range, 360°
- Automatic control of two lighting groups
- Dual real daylight measurement
- Two switched outputs for light (relays, 230 V)
- Lighting control with two brightness threshold values and self-learning switch off delay time
- Fully or semi-automatic operation switch-selectable
- Push button or switch connection for manual control
- Inrush current limitation for electronic ballasts
- Service remote control QuickSet plus (option)
- User remote control clic (option)

Technical data:

Rated voltage: 230 V ± 10 %, 50 Hz

Detection range: horizontal 360°, vertical 120°

Recommended mounting height: 2.0 m–3.5 m

Maximum range: max. 8 x 8 m (Mh 2.5 m)

max. 10 x 10 m (Mh 3.5 m)

Real daylight measurement:

approx. 10–1500 Lux, deactivatable

Switch off delay time: 10 s–20 min, Short pulse

Relay outputs A,B for light:

Relay 230 V, Inrush current limitation

Max. switching capacity, total of both contacts:

1400 VA

Max. number of electronic ballasts for each relay:

16 x (1 x 58 W), 8 x (2 x 58 W), 24 x (1 x 36 W),

12 x (2 x 36 W), 24 x (less than 36 W)

Mounting plate: 70 x 70 mm

Terminals without screws: max. 1.5 mm²

Size of concealed housing: Size 1 (NIS, PMI)

Ambient temperature: 0 °C...+50 °C

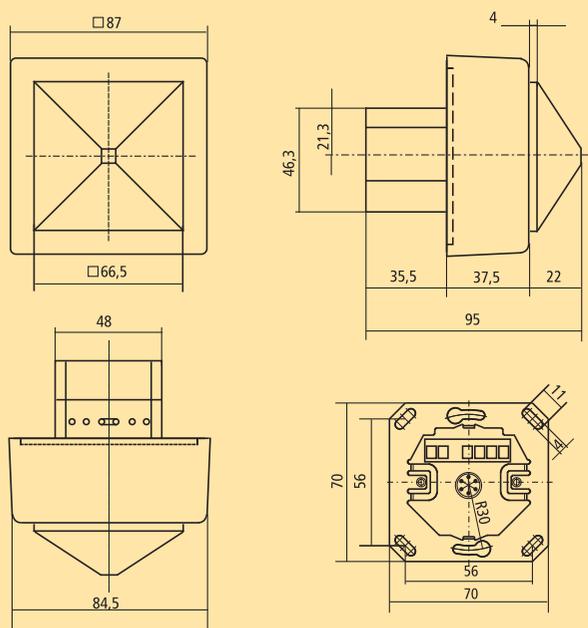
Degree of protection: IP 40

Housing colour: RAL 9010

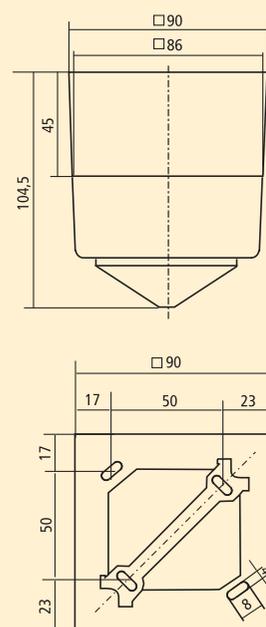
Detection range ECO-IR DUAL-C NT

M'height	seated persons	walking persons
2.0 m	4.5 m x 4.5 m	6.0 m x 6.0 m ± 0.5 m
2.5 m	6.0 m x 6.0 m	8.0 m x 8.0 m ± 0.5 m
3.0 m	7.0 m x 7.0 m	9.0 m x 9.0 m ± 0.5 m
3.5 m	8.0 m x 8.0m	10 m x 10 m ± 1 m
4.0 m	–	11 m x 11 m ± 1 m

Dimension drawings: ECO-IR DUAL-C NT



Dimension drawings: ECO-IR DUAL-C NT mounted onto ECO-IR 360 surface frame (Accessories)

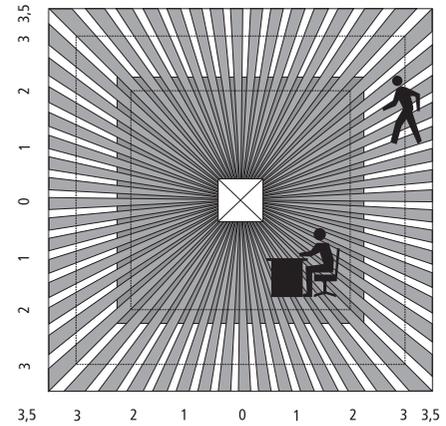
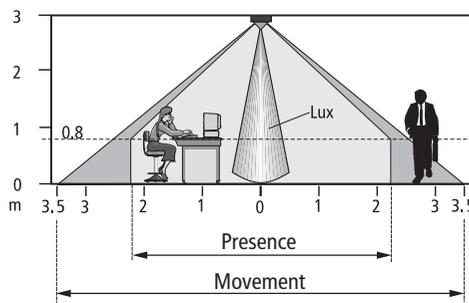




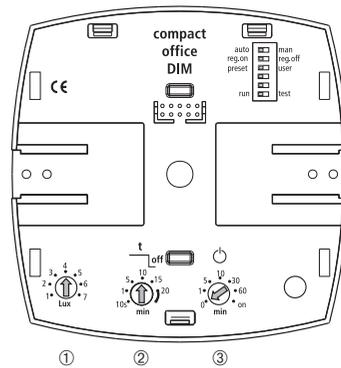
Function

- The switching behaviour is controlled by presence and brightness. The contact closes in case of darkness and presence. The 1–10 V interface controls the artificial light to a constant brightness level. The contact opens in case of sufficient daylight or absence.
- The self-learning switch off delay time automatically adapts to the occupant's behaviour.
- Fully or semi-automatic operation: in the "fully automatic" operation mode, the lighting is switched on and off automatically depending on presence and brightness. In the "semi-automatic" operation mode, the light must always be switched on manually; switching off is done automatically.
- Manual control: The lighting can always be switched or dimmed manually with push buttons.
- The Stand-by time ensures a minimal brightness and provides a safety feeling in hospital and care applications by remaining in the stand-by mode for the preset time.
- The presence detector is equipped with a mixed light measurement and is designed for use with fluorescent lights (FL/PL) as well as halogen/incandescent lights.
- The square detection range ensures a safe and simple planning.
- Master-Slave parallel circuit operation: up to 10 detectors can be connected in parallel to enlarge the detection zone. The entire load is switched by the Master. Any further detectors, the Slaves, supply the presence information.
- Master-Master parallel circuit operation: up to 10 detectors can be connected in parallel to control multiple lighting groups. Each master switches his lighting group according to its own brightness measurement. The presence continues to be detected by all detectors together.
- Master or slave operating mode is selected via configuration.
- The test mode serves to check the presence detection and the wiring.

Detection range (mounting height 3.0 m)



Sensor Module – rear side



Settings on the compact office DIM

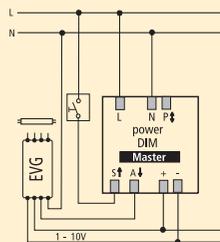
- DIP Switches:
- DIP1 Lighting control: fully/semi-automatic
 - DIP2: Constant light control on/off
 - DIP3: Desired value adjustment preset/user
 - DIP6 Operation mode: normal operation/test

- ① Brightness threshold (Lux)
- ② Switch off delay for light
- ③ Stand-by time

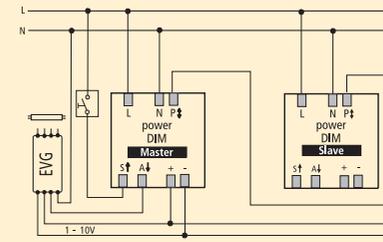
Accessories

- Adjustment of the parameters is done with potentiometers or with the service remote control QuickSet plus (optionally, Order No. 907 0 532).
- The clic user remote control (Order No. 907 0 515) is optionally available for individual switching and dimming of up to two lighting groups.
- A suitable frame for surface mounting is available separately (Order No. 907 0 514).

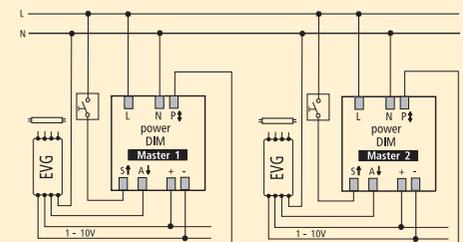
Wiring diagrams for power modules:



Single unit operation



Master-Slave parallel circuit operation

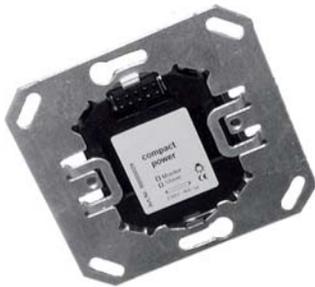


Master-Master parallel circuit operation

Type	Detection range	Maximum range	Switch off delay time	Outputs	Order No.
compact office DIM	360°	8 x 8 m at 3,5 m height	10 s–20 min (light)	1400 VA (light) 1–10 V	201 0 001
Accessories: Surface frame compact, white					907 0 514



New



compact passage 24 V

compact passage 24 V

- Passive infra-red presence detector for ceiling installation
- Square detection area for corridors, 360°
- Automatic control of lighting and HVAC as well as room monitoring function
- Mixed light measurement
- Light switch output (relay, floating)
- Lighting control with light threshold value and self-learning run-on time
- Pulse function for staircase light timer
- Presence switch output (relay, floating)
- HVAC control with switch on delay and run-on time
- Room monitoring with selective movement detection
- QuickSet plus service remote control (optional)
- clic user remote control (optional)

Technical data:

Nominal voltage: 24 V AC/DC $\pm 20\%$

Detection range: 360° horizontal , 160° vertical
Recommended installation height: 2.0 m–3.5 m
Maximal range: max. 30 x 4 m at a height of 2.5 m
 max. 30 x 5 m at a height of 3.5 m

Mixed light measurement:
 approx. 10–1500 lux, can be deactivated
Light run-on time: 10 s–20 mins, short pulse

Presence run-on time: 10 s–120 min
Presence switch on delay: 0 s–10 min
 Room monitoring

Switch contact A, light: Floating relay
Switching capacity: 50 W (24 V AC/DC)
 460 VA (230 V AC), μ , minimum 1 V/1 mA

Switch contact B, presence: Floating relay
Switching capacity: 50 W (24 V AC/DC)
 460 VA (230 V AC), μ , minimum 1 V/1 mA

Assembly plate: 70 x 70 mm
Terminal screws: max. 2 x 2.5 mm²

Size of flush-mounted socket:
 Socket \varnothing 55 mm (NIS, PMI)

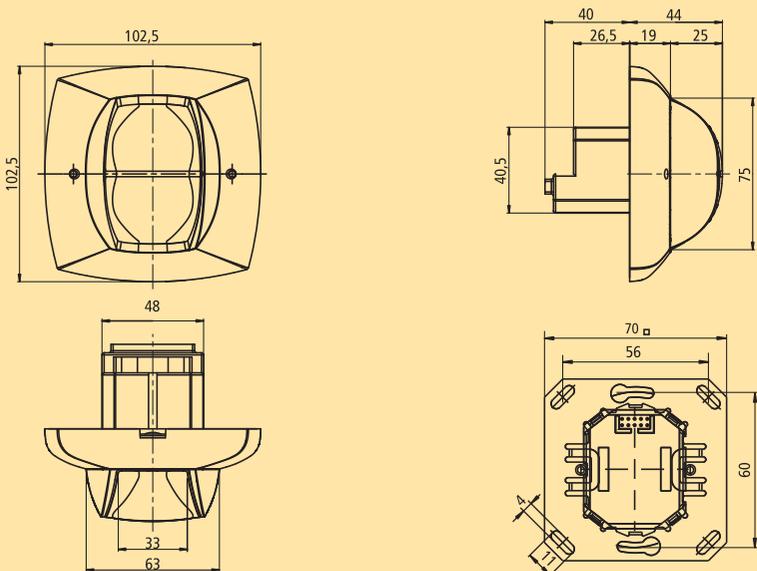
Ambient temperature: 0 °C... +50 °C
Protection rating: IP 40

Housing colour: RAL 9010

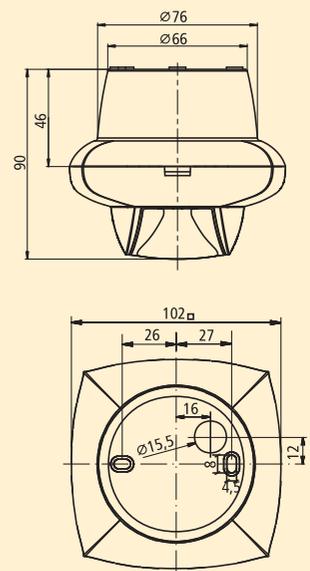
compact passage 24 V detection range

M'height	radial movement	tangential movement
2.0 m	16 m x 3.5 m ± 1 m	30 m x 3.5 m ± 1 m
2.5 m	18 m x 4.0 m ± 1 m	30 m x 4.0 m ± 1 m
3.0 m	20 m x 4.5 m ± 1 m	30 m x 4.5 m ± 1 m
3.5 m	20 m (± 1 m) x 5.0 m	30 m (± 1 m) x 5.0 m

Dimension drawings: compact passage 24 V



Dimension drawings: compact passage 24 V mounted onto compact surface frame (Accessories)



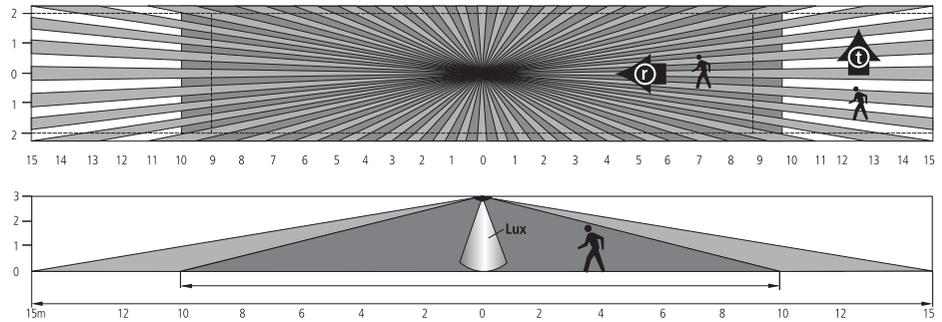
Function

- The switching behaviour of the presence detector is controlled by presence and light.
- The self-learning run-on time adjusts to user behaviour.
- The pulse function is for controlling a staircase light switch.
- The presence detector is equipped with a mixed light measurement and is designed for use with fluorescent lights (FL/PL) as well as halogen/incandescent lights.
- The square detection range allows accurate and simple planning.
- Switch contact for HVAC control: The switching behaviour of the floating contact is only controlled by presence.
- The switch-on delay prevents instantaneous switch on. The contact only closes on completion of the switch-on delay.
- Master/master parallel switching: Up to ten detectors can be connected with each other to control several lighting groups. Each master controls its lighting group according to its own light measurements. Presence is detected by all the detectors.
- The sensitivity of the presence switch output is reduced in the "monitoring" position. The contact indicates the presence of people with a high degree of certainty.
- Test operating mode checks the detection range and installation.

Accessories

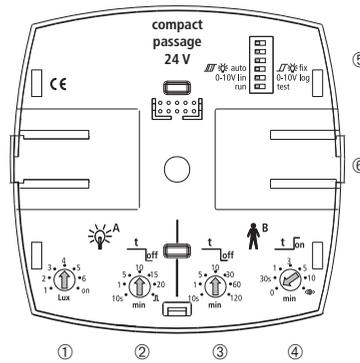
- The configuration can be set either via the potentiometer or via the optional service remote control QuickSet plus (Order no. 907 0 532).
- The user remote control clic (order no. 907 0 515) allows the individual switching of up to two lighting groups.
- A suitable surface frame (order no. 907 514) is available for surface-mounted installation.

Detection range (Mounting height 3.0 m)



Top view and bottom view of the detection range

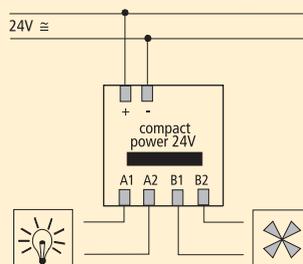
Back of sensor part



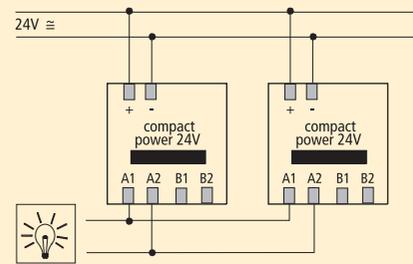
Settings on compact passage 24 V

- ① Brightness switching value (lux)
- ② Light run-on time, pulse function
- ③ Presence run-on time (HVAC/monitoring)
- ④ HVAC switch on delay, room monitoring
- ⑤ DIP switch:
 - DIP4: Automatic or fixed light reading
 - DIP6: Operating mode: Normal operation/test
- ⑥ Mechanical safety lock for safe fixing of sensor part to power unit

Power unit connection diagrams:



Individual switching



Parallel switching

Type	Detection range	Maximum range	Switch off delay time	Outputs	Order No.
compact passage 24 V	360°	30 x 5 m at 3,5 m height	10 s–20 min (light) 10 s–120 min (HVAC)	50 W (24 V AC/DC) 460 W (230 V AC/DC)	201 4 090
Accessories: Surface frame compact, white					907 0 514



compact office 24V

compact office 24V

- Passive infrared presence detector for ceiling mounting
- Square detection range, 360°
- Automatic HVAC and lighting control as well as room surveillance
- Mixed light measurement
- Voltage supply 24 V AC/DC
- Switched output for light (potential-free relay)
- Lighting control with brightness threshold value and self-learning switch off delay time
- Pulse function for staircase lighting timer
- Switched output for presence (potential-free relay)
- HVAC control with switch on delay and switch off delay time
- Reduced response characteristic for room surveillance
- Service remote control QuickSet plus (option)
- User remote control clic (option)

Technical data:

Rated voltage: 24 V AC/DC ±20 %

Detection range: horizontal 360°, vertical 120°

Recommended mounting height: 2.0 m–3.0 m

Maximum range: max. 6 x 6 m (Mh 2.5 m)
max. 8 x 8 m (Mh 3.5 m)

Mixed light measurement:

approx. 10–1500 Lux, deactivatable

Switch off delay time: 10 s–20 min, Short pulse

Switch off delay time for presence: 10 s–120 min

Switch on delay for presence:

0 s–10 min, room surveillance

Relay output A for light: Relay free of potential

Switching power: 50 W (24 V AC/DC)

460 VA (230 V AC), μ , minimal 1 V/1 mA

Relay output B for presence: Relay, free of potential

Switching power: 50 W (24 V AC/DC)

460 VA (230 V AC), μ , minimal 1 V/1 mA

Mounting plate: 70 x 70 mm

Screw terminals: max. 2 x 2.5 mm²

Size of concealed housing: Size 1 (NIS, PMI)

Ambient temperature: 0 °C...50 °C

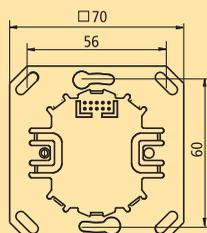
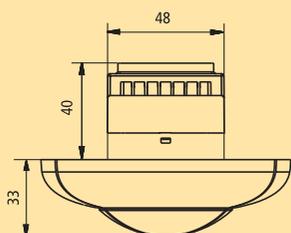
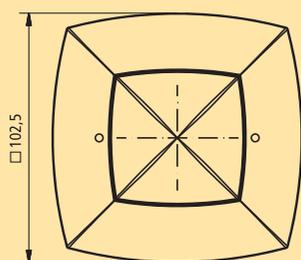
Degree of protection: IP 40

Housing colour: RAL 9010

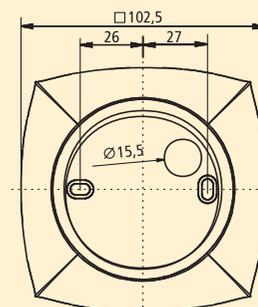
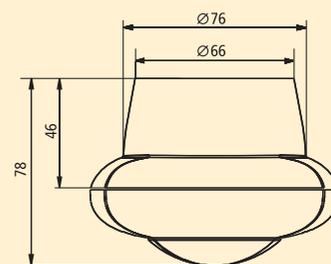
Detection range compact office 24V

M ^h height	seated persons	walking persons
2.0 m	3.0 m x 3.0 m	4.5 m x 4.5 m ± 0.5 m
2.5 m	4.0 m x 4.0 m	6.0 m x 6.0 m ± 0.5 m
3.0 m	4.5 m x 4.5 m	7.0 m x 7.0 m ± 1 m
3.5 m	–	8.0 m x 8.0 m ± 1 m

Dimension drawings: compact office 24V



Dimension drawings: compact office 24V mounted onto compact surface frame (Accessories)





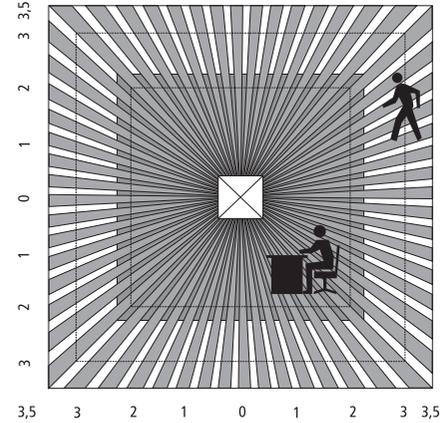
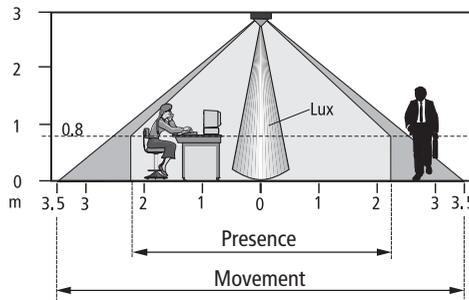
Function

- The switching behaviour is controlled by presence and brightness.
- The self-learning switch off delay time automatically adapts to the occupant's behaviour.
- Pulse function: in order to control existing staircase lighting timers.
- The presence detector is equipped with a mixed light measurement and is designed for use with fluorescent lights (FL/PL) as well as halogen/incandescent lights.
- The square detection range ensures a safe and simple planning.
- Switched output for presence, used for HVAC control: the switching behaviour of the potential-free contact is only affected by presence.
- The switch on delay prevents that the system is switched on immediately. The contact does not close before the switch on delay time has elapsed.
- Room Surveillance: the sensitivity of the switched output for presence is reduced. The contact reliably indicates the presence of persons.
- The test mode serves to check the presence detection and the wiring.

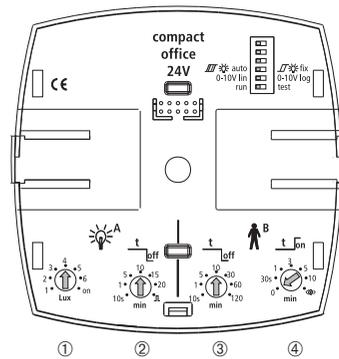
Accessories

- Adjustment of the parameters is done with potentiometers or with the service remote control QuickSet plus (optionally, Order No. 907 0 532).
- The clic user remote control (Order No. 907 0 515) is optionally available for individual switching of up to two lighting groups.
- A suitable frame for surface mounting is available separately (Order No. 907 0 514).

Detection range (Mounting height 3.0 m)



Sensor Module – rear side



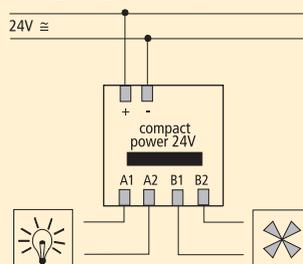
Settings on the compact office 24V

DIP Switches:

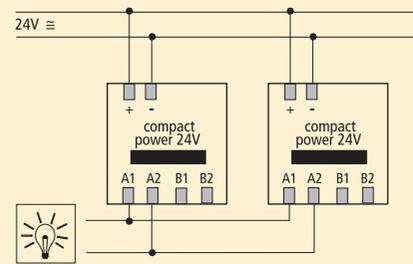
- DIP4: Automatic or fixed lighting measurement
- DIP5: No function with the compact office 24V
- DIP6: Operation mode: normal operation/test

- ① Brightness threshold (Lux)
- ② Switch off delay for light/activation of pulse function
- ③ Switch off delay for presence (HVAC/surveillance)
- ④ Switch on delay for HVAC/activation of room surveillance-function

Wiring diagrams for power modules:



Single unit operation



Parallel circuit operation

Type	Detection range	Maximum range	Switch off delay time	Outputs	Order No.
compact office 24V	360°	8 x 8 m at 3,5 m height	10 s–20 min (light) 10 s–120 min (HVAC)	50 W (24 V AC/DC) 460 VA (230 V AC)	201 4 000
Accessories: Surface frame compact, white					907 0 514



compact office 24V Lux

- compact office 24V Lux**
- Passive infrared presence detector for ceiling mounting
 - Square detection range, 360°
 - Automatic HVAC and lighting control as well as room surveillance
 - Mixed light measurement
 - Voltage supply 24 V AC/DC
 - Switched output for light (potential-free relay)
 - Lighting control with brightness threshold value and self-learning switch off delay time
 - Pulse function for staircase lighting timer
 - Analogue output 0–10 V for brightness
 - Linear or logarithmic output of brightness
 - May be used as a light sensor for PLC controls
 - Service remote control QuickSet plus (option)
 - User remote control clic (option)

Technical data:

Rated voltage: 24 V AC/DC ± 20 %

Detection range: horizontal 360°, vertical 120°

Recommended mounting height: 2.0 m–3.0 m

Maximum range: max. 6 x 6 m (Mh 2.5 m)
max. 8 x 8 m (Mh 3.5 m)

Mixed light measurement:

approx. 10–1500 Lux, deactivatable

Switch off delay time: 10 s–20 min, Short pulse

Relay output A for light: Relay free of potential

Switching power: 50 W (24 V AC/DC)

460 VA (230 V AC), μ , minimal 1 V/1 mA

Analogue output: Output voltage 0–10 V DC

Load resistor: > 10 k Ω

Mixed light measurement: linear approx. 10–1500 Lux,
logarithmic approx. 10–5000 Lux

Mounting plate: 70 x 70 mm

Screw terminals: max. 2 x 2.5 mm²

Size of concealed housing: Size 1 (NIS, PMI)

Ambient temperature: 0 °C...50 °C

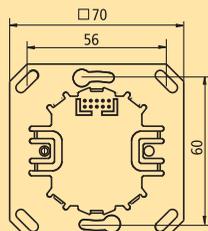
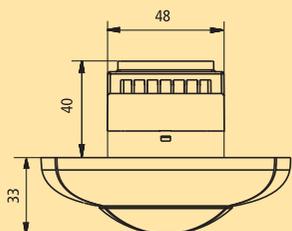
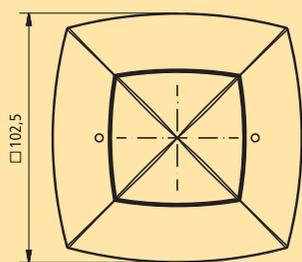
Degree of protection: IP 40

Housing colour: RAL 9010

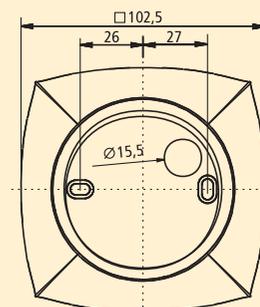
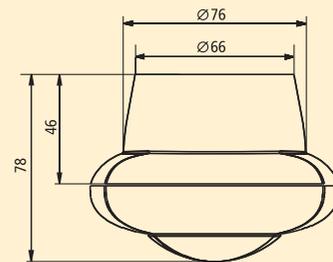
Detection range compact office 24V Lux

M ^h height	seated persons	walking persons
2.0 m	3.0 m x 3.0 m	4.5 m x 4.5 m ± 0.5 m
2.5 m	4.0 m x 4.0 m	6.0 m x 6.0 m ± 0.5 m
3.0 m	4.5 m x 4.5 m	7.0 m x 7.0 m ± 1 m
3.5 m	–	8.0 m x 8.0 m ± 1 m

Dimension drawings: compact office 24V Lux



Dimension drawings: compact office 24V Lux mounted onto compact surface frame (Accessories)





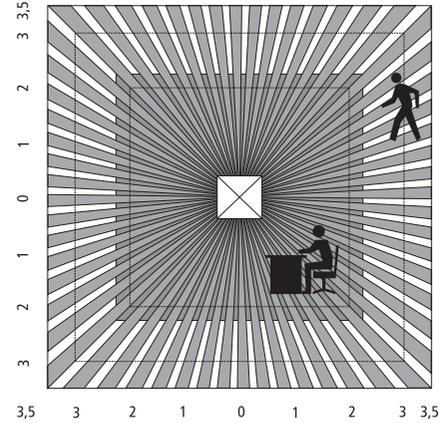
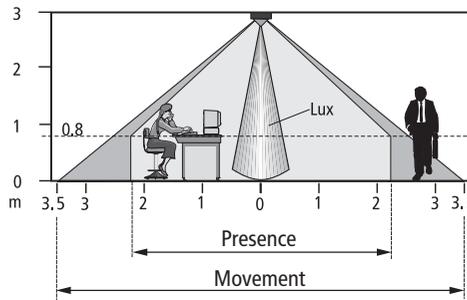
Function

- The switching behaviour is controlled by presence and brightness.
- The self-learning switch off delay time automatically adapts to the occupant's behaviour.
- Pulse function: in order to control existing staircase lighting timers.
- The presence detector is equipped with a mixed light measurement and is designed for use with fluorescent lights (FL/PL) as well as halogen/incandescent lights.
- The square detection range ensures a safe and simple planning.
- The 0–10 V analogue output provides the brightness measured by the detector's light sensor as an analogue signal. The analogue signal output can be provided either linearly or logarithmically in relation to the measured brightness. The output works independently from the presence detector.
- The test mode serves to check the presence detection and the wiring.

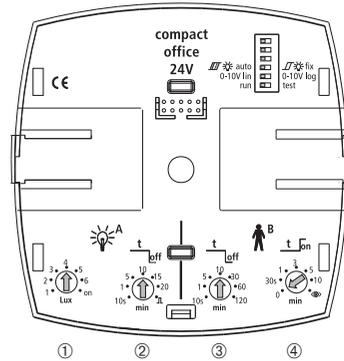
Accessories

- Adjustment of the parameters is done with potentiometers or with the service remote control QuickSet plus (optionally, Order No. 907 0 532).
- The clic user remote control (Order No. 907 0 515) is optionally available for individual switching of up to two lighting groups.
- A suitable frame for surface mounting is available separately (Order No. 907 0 514).

Detection range (Mounting height 3.0 m)



Sensor Module – rear side



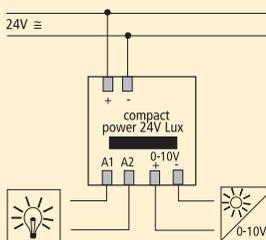
Settings on the compact office 24V Lux

DIP Switches:

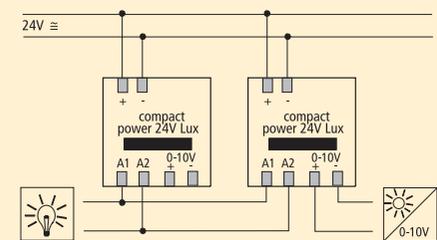
- DIP4: Automatic or fixed lighting measurement
- DIP5: Linear or logarithmic brightness output
- DIP6: Operation mode: normal operation/test

- ① Brightness threshold (Lux)
- ② Switch off delay for light/activation of pulse function
- ③ No function with the compact office 24V Lux
- ④ No function with the compact office 24V Lux

Wiring diagrams for power modules:



Single unit operation



Parallel circuit operation

Type	Detection range	Maximum range	Switch off delay time	Outputs	Order No.
compact office 24V Lux	360°	8 x 8 m at 3,5 m height	10 s–20 min, pulse function (light)	50 W (24 V AC/DC) 460 VA (230 V AC) 0–10 V (brightness)	201 4 001
Accessories: Surface frame compact, white					907 0 514



ECO-IR 180-24V



ECO-IR 360-24V

ECO-IR 180-24V

- Passive infrared presence detector for wall mounting
- Detection range 180°

ECO-IR 360-24V

- Passive infrared presence detector for ceiling mounting
- Square detection range, 360°

Common product features

- Automatic HVAC and lighting control
- Real daylight measurement
- Voltage supply 24 V AC/DC
- Switched output for light (potential-free relay)
- Lighting control with brightness threshold value and self-learning switch off delay time
- Switched output for presence (potential-free relay)
- HVAC control with switch off delay time

Technical data ECO-IR 180-24V:

Detection range: horizontal 180°
Recommended mounting height: approx. 1.6 m–2.2 m
Maximum range: < 10 m

Technical data ECO-IR 360-24V:

Detection range: horizontal 360°, vertical 120°
Recommended mounting height: 2.0 m–3.5 m
Maximum range: max. 8 x 8 m (Mh 2.5 m)
 max. 10 x 10 m (Mh 3.5 m)

Common specifications

Rated voltage: 24 V AC/DC ± 20 %
Real daylight measurement: approx. 50–1600 Lux, deactivatable
Switch off delay time: 2 min–15 min
Switch off delay time for presence: 1 min–60 min

Relay output A for light: Relay free of potential
Switching power: 50 W (24 V AC/DC)
 460 VA (230 V AC), μ, minimal 1 V/1 mA

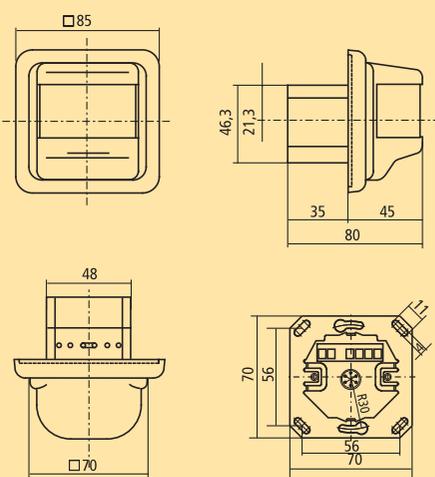
Relay output B for presence: Relay, free of potential
Switching power: 50 W (24 V AC/DC)
 460 VA (230 V AC), μ, minimal 1 V/1 mA

Mounting plate: 70 x 70 mm
Terminals without screws: max. 1.5 mm²
Size of concealed housing: Size 1 (NIS,PMI)
Ambient temperature: 0 °C...50 °C
Degree of protection: IP 40
Housing colour: RAL 9010

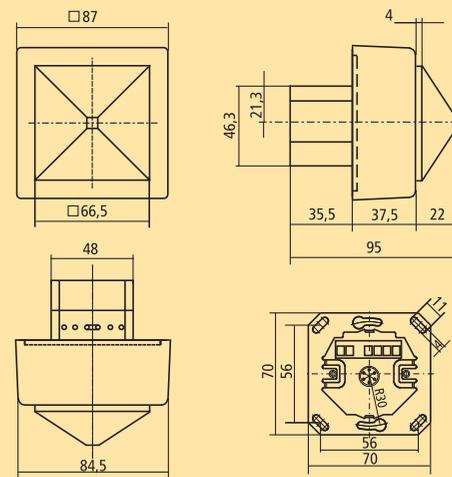
Detection range ECO-IR 360-24V

M*height	seated persons	walking persons
2.0 m	4.5 m x 4.5 m	6.0 m x 6.0 m ± 0.5 m
2.5 m	6.0 m x 6.0 m	8.0 m x 8.0 m ± 0.5 m
3.0 m	7.0 m x 7.0 m	9.0 m x 9.0 m ± 0.5 m
3.5 m	8.0 m x 8.0 m	10 m x 10 m ± 1 m
4.0 m	–	11 m x 11 m ± 1 m

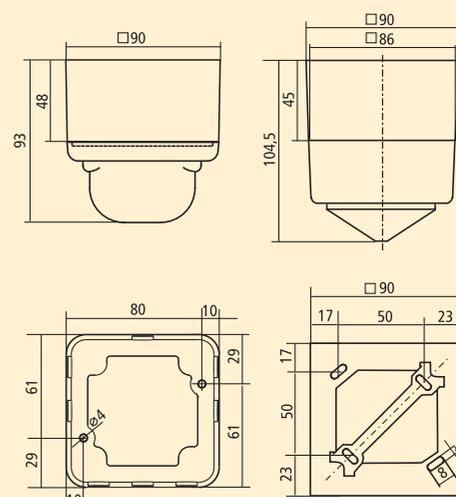
Dimension drawings: ECO-IR 180-24V



Dimension drawings: ECO-IR 360-24V



Dimension drawings: ECO-IR 180-24V/360-24V mounted onto ECO-IR 180/360 surface frame (Accessories)



Function

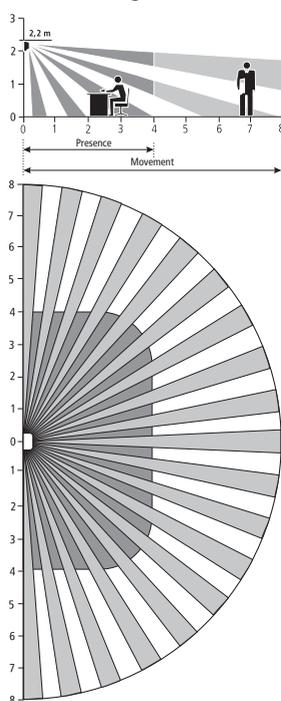
- The switching behaviour is controlled by presence and brightness.
- The self-learning switch off delay time automatically adapts to the occupant's behaviour.
- The presence detector is equipped with real daylight measurement and is designed for use with fluorescent lights (FL/PL) only.
- The square detection range of ECO-IR 360-24V ensures a safe and simple planning.
- ECO-IR180-24V: walking persons are detected reliably in a range with radius of 8 m. Seated persons are reliably detected within a range of 8 x 4 m. The recommended mounting height is 2.2 m.
- Switched output for presence, used for HVAC control: the switching behaviour of the potential-free contact is only affected by presence.
- Adjustment of the parameters is done with potentiometers.

Accessories

- A suitable frame for surface mounting is available separately (Order No. 907 0 512 for ECO-IR 360 and Order No. 907 0 511 for ECO-IR 180 respectively).
- The unit can be flush-mounted into suspended ceilings using the QuickFix mounting kit (see page 84).

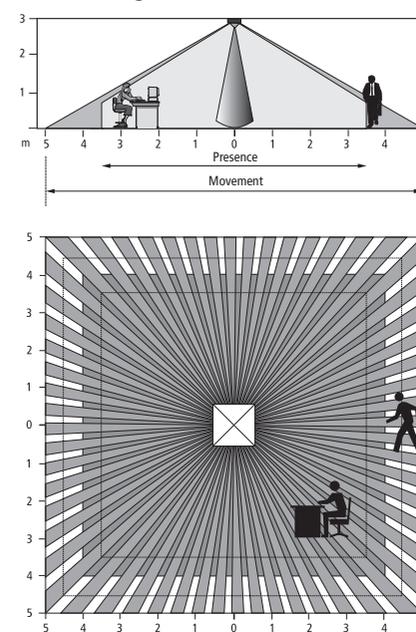
Type: ECO-IR 180-24V

Detection range

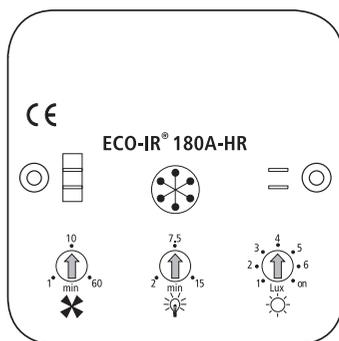


Type: ECO-IR 360-24V

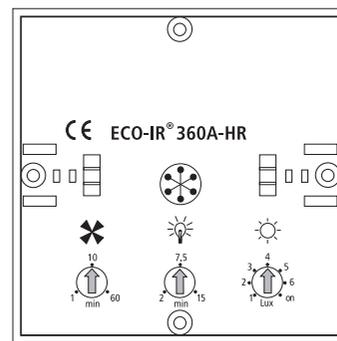
Detection range



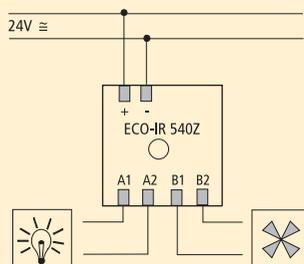
Sensor Module – rear side ECO-IR 180-24V



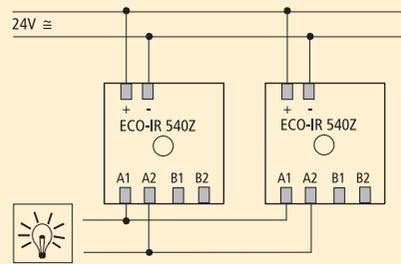
Sensor Module – rear side ECO-IR 360-24V



Wiring diagrams for power modules: ECO-IR 180-24V, ECO-IR 360-24V



Single unit operation



Parallel circuit operation

Type	Detection range	Maximum range	Switch off delay time	Outputs	Order No.
ECO-IR 180-24V	180°	< 10 m	2 min–15 min (light)	50 W (24 V AC/DC), 460 VA (230 V AC)	202 4 050
ECO-IR 360-24V	360°	10 x 10 m at 3.5 m height	1 min–60 min (HVAC)	50 W (24 V AC/DC), 460 VA (230 V AC)	202 4 000
Accessories: Surface frame ECO-IR 180, white					907 0 511
Accessories: Surface frame ECO-IR 360, white					907 0 512



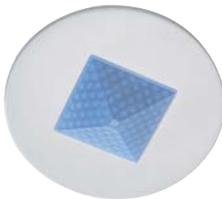
QuickFix flush-mounting kit for ECO-IR 360

QuickFix Beton flush-mounting kit for ECO-IR 360

QuickSafe ball guard protective cage for ECO-IR/compact office...



Square cover



Circular cover



QuickSafe

Ball guard protective cage

QuickFix Flush-mounting kit

- For suspended ceilings, with round or square cover
- Flush-mounting installation for presence detector ECO-IR 360
- The presence detector is inset into the suspended ceiling, only the pyramidal lens remains visible
- Easy to fit

QuickFix-Beton Flush-mounting kit

- For concrete ceilings, with round or quadratic cover
- Flush-mounting installation for presence detector ECO-IR 360
- The presence detector is fitted into the concrete ceiling using the insert, only the pyramidal lens remains visible
- Easy to fit

QuickSafe

Ball guard protective cage for ECO-IR/compact office

- Excellent protection against mechanical damage
- Robust and sturdy design
- Exceptionally impact-resistant and vandal-resistant
- Colour: RAL white 9010
- Including 6 screws, 3 ceiling plugs and 3 distance sleeves

Technical data:

- Ceiling aperture:** 139 mm
- Inset depth:** 100 mm
- Ceiling thickness:** 0.5–30 mm
- Diameter of circular cover:** 160 mm
- Dimensions of square cover:** 150 x 150 mm

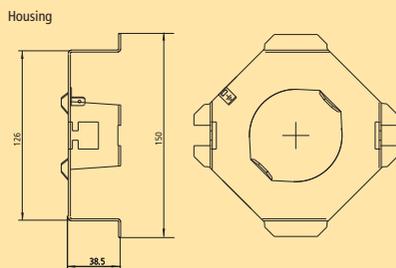
Technical data:

- Dimensions of flush-mount box:** 116 x 116 x 140 mm
- Diameter of circular cover:** 160 mm
- Dimensions of square cover:** 150 x 150 mm

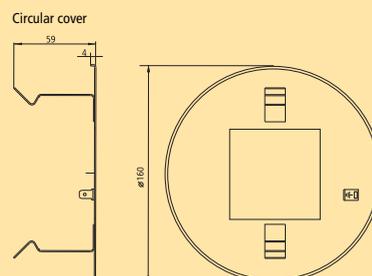
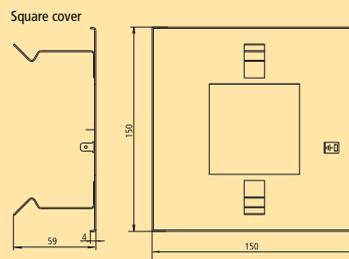
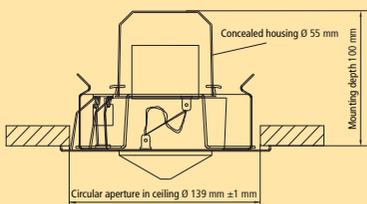
Technical data:

- Diameter:** approx. 200 mm
- Height:** approx. 70 mm or 160 mm with distance sleeves

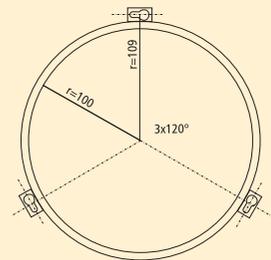
Dimension drawings: QuickFix flush-mounting kit



Flush-mounting kit with cover



Dimension drawings: Quicksafe ball guard protective cage for ECO-IR/ compact office housing



Type	Housing colour	Order No.
QuickFix flush-mounting housing for presence detector ECO-IR 360, including box	–	907 0 522
QuickFix Square cover	pure white RAL 9010	907 0 516
QuickFix Circular cover	pure white RAL 9010	907 0 517
QuickFix concrete flush-mount box for presence detector ECO-IR 360	–	907 0 521
QuickFix concrete Square cover	pure white RAL 9010	907 0 518
QuickFix concrete Circular cover	pure white RAL 9010	907 0 519
QuickSafe Ball guard protective cage for ECO-IR/compact office...	white, metal	907 0 531



QuickSet plus
Service remote control

QuickSet plus Service remote control

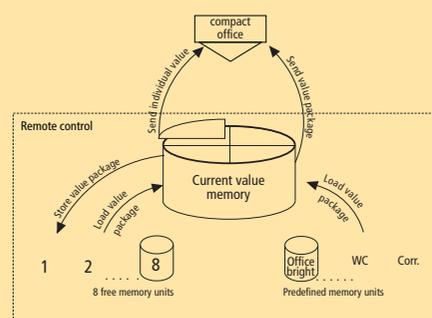
- Infrared remote control for convenient setting up of Theben HTS presence detectors
- Quick adaptation to changing service conditions without dismantling the detector
- Transmission of individual settings or complete value packages to the detector
- Retrieval of predefined value packages for typical rooms
- Storage and retrieval of 8 user-defined value packages
- Text-driven operator guidance in the display

Function

- The Service remote control QuickSet plus allows the installer an efficient setting-up of the detector and flexible adaptation to changed service conditions.
- Setting of all potentiometer values at the touch of a button.
- Call up of functions such as Test/Reset.
- The settings made with QuickSet plus are retained even in the event of electricity failure or if the detector is reset.
- Frequently used settings can be stored and, if necessary, retrieved at any time and transmitted as value packages to various detectors.
- Typical value packages are predefined in the QuickSet plus for various rooms (office, corridor, toilets, etc....).
- Self-defined settings can be stored in the QuickSet plus as a value package. Eight free memory units are available for each detector type.

Technical data:

- Voltage supply:** Batteries 9 V, 1 x Type PP3/6F22
- Transmission medium:** Infrared
- Maximum range:** approx. 4 m (compact, PresenceLight) approx. 8 m (ECO-IR)
- Transmission angle:** ± 15°
- Dimensions:** 140 x 62 x 30 mm
- Temperature range:** 0 °...50 °C
- Colour:** Black



clic
User remote control

clic User remote control

- Infrared remote control for Theben HTS presence detectors
- Switching and dimming of lighting, scene control
- 2 channels for 2 lighting groups
- 2 programmable scenes
- 5 group addresses for channel separation
- Coding switch and programming key for easy allocation of lighting groups and channels

Function

- The user remote control clic disposes of two channels for the control of two lighting groups.
- clic allows switching and dimming of up to two lighting groups.
- Define and save lighting scenes.
- Settings of the presence detector cannot be changed with clic.
- In conjunction with presence detector compact office EIB or compact passage KNX the function of the remote control's keys can be chosen, e.g. roller shutter control UP/DOWN.

Technical data:

- Voltage supply:** Batteries 2 x 1,5V, Type LR03/AAA
- Transmission medium:** Infrared
- Maximum range:** approx. 10 m
- Transmission angle:** ± 15°
- Dimensions:** 120 x 57 x 24 mm
- Temperature range:** 0 °C...50 °C
- Colour:** Light grey

Type	Order No.
QuickSet plus Service remote control with text-driven operator guidance in german, english and french	907 0 532
clic User remote control	907 0 515



TM 345 M

TM 345 B

Function:

- Electronic time lag relays, universally insertable, for the control of automatic timing on the machines, lighting, ventilation, heating, cabinets, gates etc.
- Precise analog time setting in 7 zones from 0.1 s to 100 h
- Multi-voltage input for all supply and control voltages from AC/DC 12 to 240 V (TM 345 B: AC 24–240 V, DC 24 V), no wire straps or additional terminals required
- Output with floating change-over contact
- LED for the display of the products status

TM 345 M multifunction relay

- Latchign rotary switch for the selection of the time zone, and for the following types of operation:
- Response delay, without control contact
- Wipe contact, without control contact
- Release delay, with control contact
- Pulse former, with control contact
- Response and release delay, with control contact
- Pulse output, with control contact
- Flip-flop, without control contact

TM 345 B timer relay

- Time lag relay with clock unit function
- Pulse duration and pause time are settable independently of one another

Technical data:

Supply and control voltage:

TM 345 B: AC 24...240 V, DC 24 V ± 10 %;

TM 345 M: AC/DC 12...240 V ± 10 %

Frequency: 50–60 Hz

Power consumption: ca. 1.5 W (230 V~)

Contact: change-over contact

Switching output: potential-free

Opening width: < 3 mm (μ)

Contact material: AgNi

Switching capacity:

8 A, 250 V~, cos φ = 1, 2000 VA/80 W

Maximum nominal current: 20 A < 10 ms

Minimum nominal current: 10 mA

Electrical service life: 10⁵ operation cycles

Mechanical service life:

5 x 10⁵ operation cycles

Release value of the nominal input voltage:

< 10.8 V AC/DC (according to EN 61812-1)

Repeating accuracy:

± 0.2 % with parameters constant

Permissible ambient temperature at nominal voltage: –20 °C... +60 °C

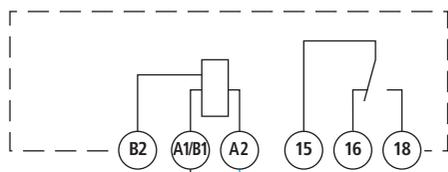
Housing- and insulation material:

self-extinguishing thermoplasts of high temperature resistance

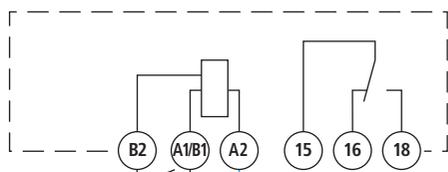
Protection class: II subject to correct installation

Degree of protection: IP 20 according to EN 60 529

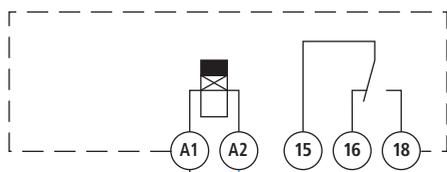
Weight: 70 g



TM 345 M connection without control contact

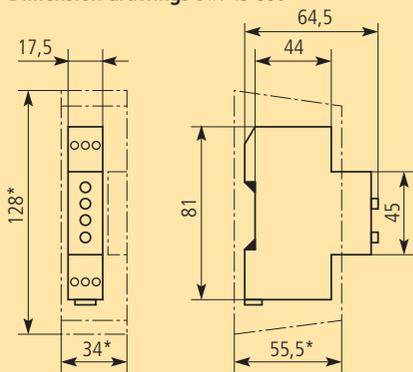


TM 345 M connection with control contact



TM 345 B

Dimension drawings DIN 43 880



*with terminal cover

Terminal cover



Design:

- Standard housing 45 x 17.5 x 60 mm
- Snap-on mounting for 35 mm top hat rail (EN 50 022)
- Surface-mounted installation with additional terminal cover, sealable
- Panel mounting with installation kit No. 907 0 001
- Shock protection in accordance with accident prevention regulation BGV A3

Type	Time range	Function	Nominal current at 250 V~	Order No.
TM 345 M	7 zones 0,1 s...100 h	response delay (AV), wipe contact (EW) and flip-flop (TG) without control contact release delay (RV), pulse former (IF), response and release delay (VZ), pulse output (WR) with control contact	8 A	345 0 731
TM 345 B	7 zones 0,1 s...100 h	pulse duration and pause time are adjustable independently of one another	8 A	345 0 730
Terminal cover for top mounting, sealable				907 0 065



TM 345 M multifunction relays

A1 – A2 Input voltage (Supply voltage)
B1 – B2 Control voltage
15 – 16 – 18 Relay contact

$T = 1\text{ s} \times 4 = 4\text{ s}$

Response delay without control contact

Additive response delay with control contact
 $T = t_1 + t_2$

Release delay with control contact

Additive wipe contact flick contactors with control contact
 $T = t_1 + t_2$

Wipe contact flick contactors without control contact

Pulse former with control contact

TM 345 B pulse generator relay

A1 – A2 Input voltage (Supply voltage)
15 – 16 – 18 Relay contact

$T = 1\text{ s} \times 4 = 4\text{ s}$

$T = 1\text{ s} \times 5 = 5\text{ s}$



BZ 142/143



BZ 142-3 with plug-in socket



BZ 145

BZ 142, BZ 143

Function:

- Runtime meter with synchronous motor drive
- For control panel installation or wall mounting
- Designs for direct voltage provided with quartz-controlled stepping motor
- Counters up to 99,999.99 hours
- Count display

Designs BZ 142-1, BZ 143-1:

- Front panel built-in devices with snap-on clamp or tension bracket up to 10 mm in wall thickness
- Terminal or flat plug connection 6.3 mm

Design BZ 142-3:

- with socket for wall mounting (terminal cover required)
- Socket with quick fastening device for 35 mm profile rail (DIN EN 50 022)
- Screw terminals
- Contact protection according to accident prevention regulation BGV A3
- Housing color anthracite

Design BZ 145:

- Standardized housing 45 x 35 x 60 mm according to DIN 43 880
- Distributor built-in device with quick fastening device for 35 mm profile rail (DIN EN 50022)
- Surface mounting with additional terminal cover, sealable
- Control panel installation using mounting kit no. 907 0 001
- Contact protection according to accident prevention regulation BGV A3
- Captive terminal screws

Technical data:

Rated voltage: 230 V~, ± 10 %

Special voltage: see appendix

Frequency: 50 Hz

Power consumption: approx. 1 VA

Admissible ambient temperature:

BZ 142/143: -20 °C... +70 °C

BZ 145: -10 °C... +70 °C

Counting range: 99,999.99 hours without zero position

Digit size: 1.5 x 3.5 mm,

white on black, decimal places black on white

Protection class: II according to EN 60335-1

when mounted in accordance with its designated use:

Types of protection for BZ 142/143:

Front frame IP 65 according to EN 60529

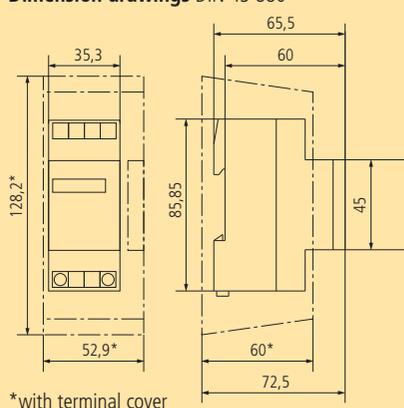
for BZ 145: IP 65 according to DIN EN 60529

Test voltage: 2500 V~ winding and contacts grounded

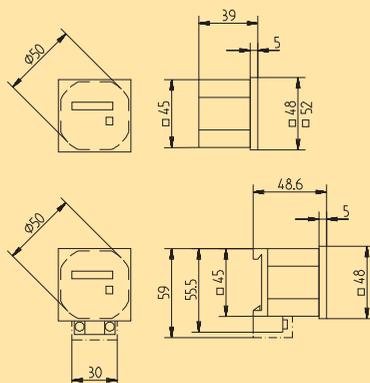
Weight for BZ 142/143: approx. 50 g

for BZ 145: approx. 70 g

Dimension drawings DIN 43 880



*with terminal cover



Type	Counting range	Mounting	Front panel mm	Mounting recess mm	Order No.
BZ 142-1	99,999.99 h	Front panel installation with snap-on fastener or tension bracket (Order No. 907 0 043)	48 x 48	46 x 46	142 0 721
		Cover 72 x 72 mm for BZ 142-1			907 0 074
		Cover 55 x 55 mm for BZ 142-1			907 0 041
BZ 142-3	99,999.99 h	Socket (Order No. 907 0 042) with quick fastening for 35 mm standardized mounting rail included	48 x 48	46 x 46	142 0 723
		For wall mounting, an additional terminal cover is required			907 0 075
BZ 143-1	99.999.99 h	Front panel installation with snap-on clamp or tension bracket fastening (Order No. 907 0 043) included	52 x 52	46 x 46 or Ø 50	143 0 721
BZ 145	99.999.9 h	Distributor installation with quick fastening for the 35 mm profile rail	35 x 45	35 x 45 (depth 60)	145 0 000
		Terminal cover for surface mounting, sealable			907 0 064



BZ 146



BZ 147



BZ 146 (BZ 147) connecting terminals

BZ 146

- Digital runtime meters with EEPROM memory ensure reliable operating time recording, even in case of power failure
- Control panel installation
- Front frame 24 mm x 48 mm
- Mounting recess 22 mm x 45 mm
- 7-digit high-contrast LCD display
- Digit height 7 mm
- Counter up to 99,999.99 hours maximum
- Terminal screws
- Count shown on the display
- Tension bracket fastening up to 5 mm in wall thickness
- Quartz-controlled design

BZ 147

- as BZ 146, but
- Front frame 48 mm x 48 mm
 - Mounting recess 45 mm x 45 mm

Technical data:

Rated voltage: 110–240 V AC, ± 10 %

Special voltage BZ 147: see appendix

Frequency: 50–60 Hz

Power consumption: 0.77–3.6 VA

Admissible ambient temperature: –30 °C... +70 °C

Counting range: 99,999.99 hours without zero position

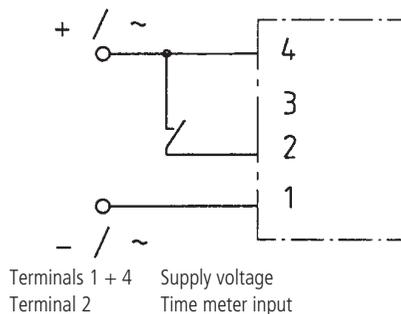
Protection class: II according to EN 610 10 when mounted in accordance with its designated use

Degree of protection: IP 65

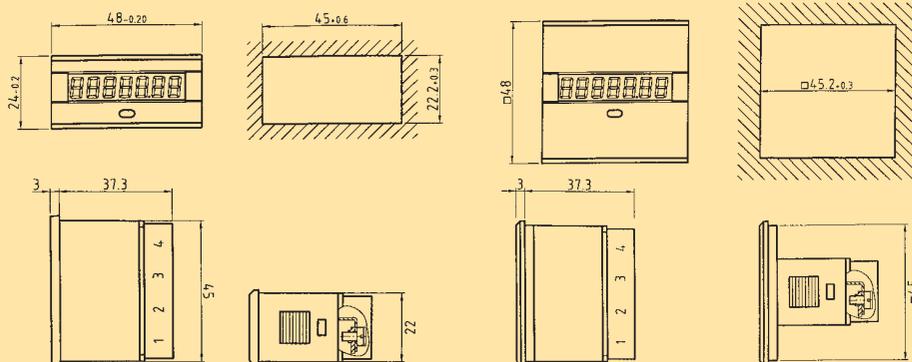
Weight:

BZ 146: approx. 39 g

BZ 147 approx. 57 g



Dimension drawings



*with terminal cover

Type	Counting range	Mounting	Front panel mm	Mounting recess mm	Order No.
BZ 146	99,999.99 h	Front panel installation with tension bracket	24 x 48	22 x 45	146 0 000
BZ 147	99,999.99 h	Front panel installation with tension bracket	48 x 48	45 x 45	147 0 000



BZ 148

BZ 148

- Digital runtime meter with EEPROM memory ensures reliable operating time recording, even in case of power failure
- Standardized housing 45 mm x 35 mm x 60 mm for series installation with quick fastening for 35 mm profile rail (DIN 50 022)
- Surface mounting with additional terminal cover possible
- 7-digit high-contrast LCD display
- Digit height 5 mm
- Captive terminal screws
- Count shown on the display
- Counter up to 999,999.9 hours maximum
- Multi-voltage inputs 12–150 V DC and 24–240 V AC, 50–60 Hz

Technical data:

Rated voltage:

12–150 V DC/24–240 V AC, ± 10 %

Frequency: 50/60 Hz

Power consumption: max. 0.8 VA

Admissible ambient temperature: –10 °C... +70 °C

Counting range: 999,999.9 hours without zero position

Electrical connection:

up to 2.5 mm² fine-wire

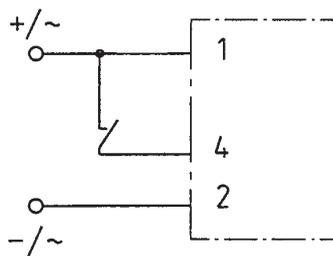
up to 4.0 mm² single-wire

Protection class: II according to EN 610 10 when

mounted in accordance with its designated use

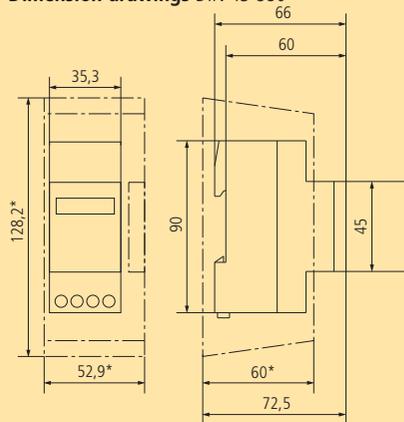
Protection type: IP 65 (front side)

Weight: approx. 75 g



Terminals 1 + 2 Supply voltage
Terminal 4 Time meter input

Dimension drawings DIN 43 880



*with terminal cover

Type	Counting range	Mounting	Front panel mm	Order No.
BZ 148	999 999.9 h (1/10 h)	Distribution cabinet installation with quick fastening for 35 mm profile rail	35 x 45 (depth 60 mm)	148 0 000
	Terminal cover for surface mounting, sealable			907 0 064





People in hotels: individual characteristics, individual requirements for temperature and light. No problem with individual room control from Theben: Flexible application, reliable technology and easy to use, Theben thermostats provide semi-public and private areas with exactly the right climatic conditions wherever they are used – and they save energy at the same time.

CLIMATE

RAMSES analogue clock thermostats for connecting 2 or 3 wires	Wall-mounted	Page 94–95
RAMSES digital clock thermostats with on-screen text guidance with radio control 2 or 3-point control	Wall/socket installation Wall-mounted Wall-mounted	Page 96–102 Page 103–105 Page 106–107
RAMSES heating controller, weather-dependent with boiler and service water control	Wall-mounted	Page 108–109
RAMSES zonal control with 1 or 2 channels	DIN rail program	Page 110
RAMSES room thermostat analogue	Wall-mounted	Page 111–113
Actuators for ALPHA individual room control for 230 V~ or 24 V~		Page 114
SOTHIS hygostat for controlling humidifying and dehumidifying	Wall-mounted	Page 115
FH electric heating mats with and without control	Floor installation	Page 116
ATON solar controller for 1 or 2 collector fields	Wall-mounted	Page 117
AMUN CO₂ sensor with PC software	Wall-mounted	Page 118
FRIGGA short time and cooling timers with defrost and fan control	Wall mounted/DIN rail program	Page 119



RAMSES 721



RAMSES 722/782/784



RAMSES 784 S

with opened hinged cover and segment program dial

Tappet program dial



Place the hands at 16.00 hr ...



... remove the graduated ring ...



... turnover and clip on with week program. Red tappet for normal temperature. Blue tappet for set-back temperature.

Function:

Flat design clock thermostat for independent monitoring and control of room temperature. Simple setting of the energy-saving night set-back on the program dial. Alternative 24 h segment or changeable tappet dial for 24 hours or 7 days. Suitable for oil or gas heating. The clock thermostat controls e.g. circulation pump, thermal actuator, magnetic valve, motorised mixer or the gas heater directly with a relay contact.

RAMSES 722 RAMSES®

Electronic clock thermostat for time-dependent monitoring and control of room temperature.

- Electronic temperature control
- Operating point and electronic feed-back adjustable from the beginning
- Normal and set-back temperature separately settable, range +10 °C ... +30 °C
- Party switch and program display
- Selection switch for operating mode:
 - permanent set-back temperature
 - permanent normal temperature
 - automatic operation
 - frost and plant protection +6 °C
- Synchronised motor drive
- Changeover contact 6 (1) A/250 V~

RAMSES 782 RAMSES® as RAM 722 but

- Quartz mechanism with approx. 3 days power reserve

RAMSES 784 RAMSES® as RAM 782 but

- For 2 or 3 lead connection
- Battery monitoring with display for battery change when necessary with flashing LED
- Jamming and pump protection function (activatable)

RAMSES 721 RAMSES® as RAM 722 but

- 24 hour tappet program dial
- Normal temperature adjustable from +10 °C...+30 °C
- Set-back temperature at approx. 5 K lower, related to set comfort temperature
- Without selection switch operating mode

RAMSES 725 RAMSES® as RAM 722 but

- Comfort temperature control by existing thermostatic valves on the radiator
- Central regulation of the set-back temperature by RAM 725 in the range +10 °C...+30 °C dependent on time program
- Selection switch for 4 operating modes

Technical data:

Clock thermostats are a combination consisting of time switch and thermostat (two point control). Tappets or segments make possible multiple reductions each day.

Segment program dial:

24 hours program, programmable every 15 min, minimum switching interval 15 min

Tappet program dial:

changeable for 24 hour and 7 day program

24 hour program:

programmable every 5 min, minimum switching interval 20 min

7 day program:

programmable every 30 min, minimum switching interval 2 hours

Setting time: by analog time display, also anticlockwise

Temperature control: two point control, adjustment range +10 °C...+30 °C, frost protection +6 °C, operating point (±4 K)

Adjustable switching differential by electronic feedback:

0.4–1.2 K (4...20 min)
Type RAM 721/725: fixed 1.5 K (20 min)

Contacts: Changeover switch, floating, gap less than 3 mm

Switching capacity: 6 (1) A/250 V~

Degree of protection:

IP 20 in accordance with EN 60 529

Protection class:

II in accordance with EN 60 730-1, if installed as directed

Test approvals: national and international depending on device type (RAM 721/722/725/782)

Housing dimensions: 90 x 150 x 35 mm

RAMSES 722/721/725 without power reserve

Operating voltage: 230 V~, ± 10 %

Frequency: 50 Hz

Accuracy: mains frequency dependent

RAMSES 782 with power reserve

Operating voltage: 230 V~, ± 10 %

Frequency: 50...60 Hz

Accuracy: ≤ ± 1 s/day at 20 °C

RAMSES 784 with battery operation

Operating voltage: 2 LR 6 alkaline cells

Accuracy: ≤ ± 1 s/day at 20 °C



Individual room control see page 114.

Tappets:

red: switches normal temperature on
Order No. 934 3 236



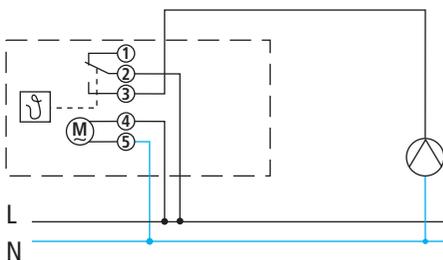
blue: switches reduction on
Order No. 934 3 111



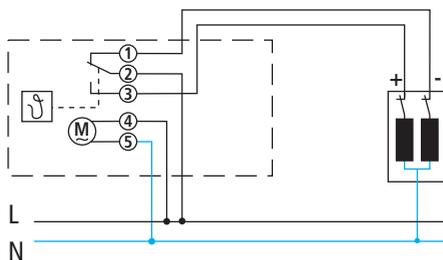
Wall mounting

Analog clock thermostats

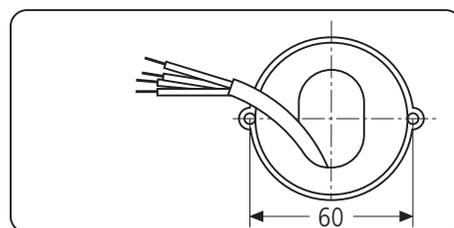
10–30 °C 7d 24 h



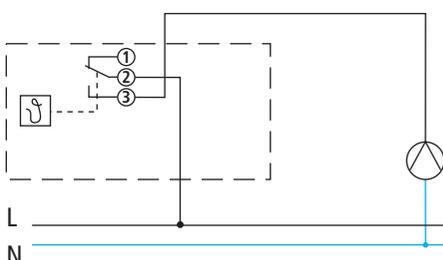
RAM 7... controls circulation pump, thermal mixing valve or oil/gas burner



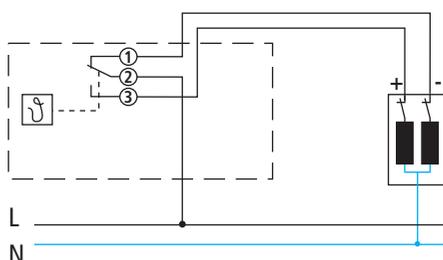
RAM 7... controls motorised mixing valves



Fixing onto flush-type box or wall mounting. Fixing dimensions as RAM 3... product types.



RAM 784 controls circulation pump, thermal mixing valve or oil/gas burner



RAM 784 controls motorised mixing valves

Functions and plug-in plinth connection RAM 722 S/782 S

Program display and party switch
for premature manual switching to normal or set-back temperature

Time display with adjustable hand forwards and back for summer/winter time correction
±1h

Adjustable switching differential

Adjustable operating point

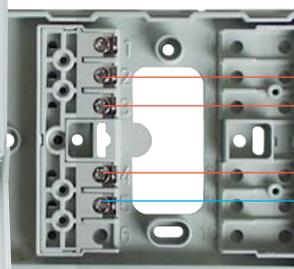
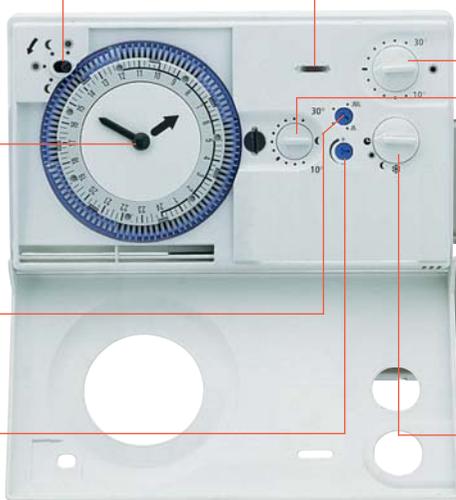
Control lamp
for heating mode

Normal temperature control
for setting a comfortable room temperature

Energie saving control for setting the set-back temperature e.g. at night

Selection switch for the operating mode

- ☀ automatic Program
- ☀ permanently normal temperature
- ☾ permanently set-back temperature
- ❄ frost and plant protection (+6 °C)



Type	Power reserve	Temperature range ☀/☾	Switching differential	Connection*	Switching contacts	Display	Program	Order No.
RAM 722	–	+10 °C to +30 °C	adjustable 0.4–1.2 K	3- or 4-wire	1 changeover switch	1 LED heating mode	24 h/7 days tappets	722 0 030
RAM 722 S	–	+10 °C to +30 °C	adjustable 0.4–1.2 K	3- or 4-wire	1 changeover switch	1 LED heating mode	24 h segments	722 0 801
RAM 782	3 days	+10 °C to +30 °C	adjustable 0.4–1.2 K	3- or 4-wire	1 changeover switch	1 LED heating mode	24 h/7 days tappets	782 0 030
RAM 782 S	3 days	+10 °C to +30 °C	adjustable 0.4–1.2 K	3- or 4-wire	1 changeover switch	1 LED heating mode	24 h segments	782 0 801
RAM 784	1 year	+10 °C to +30 °C	adjustable 0.4–1.2 K	2- or 3-wire	1 changeover switch	1 LED battery monitoring	24 h/7 days tappets	784 0 030
RAM 784 S	1 year	+10 °C to +30 °C	adjustable 0.4–1.2 K	2- or 3-wire	1 changeover switch	1 LED battery monitoring	24 h segments	784 0 801
RAM 721	–	+10 °C to +30 °C ☀ –Δ 5 K ☾	fixed 1.5 K	3- or 4-wire	1 changeover switch	–	24 h tappets	721 0 030
RAM 725	–	Set-back range +10 °C to +30 °C	fixed 1,5 K	3- or 4-wire	1 changeover switch	1 LED heating mode	24 h/7 days tappets	725 0 030

Wallpaper/wall cover plate when exchanging RAM 3... devices for new clock thermostats, e.g. RAM 722...

907 0 245

Frame for surface wiring

938 4 263

* only if a 3 wire cable is installed, terminals 2 and 4 can be bridged, in this case the clock of the clock thermostat stops, when the heating system is switched off in summer.

If more than 3 leads are installed, it is possible to supply a separate voltage to the clock thermostat from another phase.



RAMSES 822 top, white (mains version)
RAMSES 820 top, white (battery version)



RAMSES 823 top, white (mains version)
RAMSES 821 top, white (battery version)

- RAMSES 822 top** RAMSES®, mains version
 - Digital timer thermostat with an elegant, flush fitting design, which can be installed into any living room
 - Suitable for energy-saving room temperature control in houses, apartments, offices, doctor's practices, holiday homes
 - The day-to-day main functions are quick and simple to use
 - INFO key for the display of important settings in plain text
 - Text line in the display guides the user step-by-step through the simple programming
 - A technically knowledgeable user can individually adjust different control types
 - Can be optimally set: adjustable operating point and switching differential
 - Quick startup through 2 basic programs with individually adjustable comfort temperature/lowering temperature
 - Individual program with 22 programmable time phases also allows lowering phases during the day, e.g. when working away from home
 - Comfort temperature and lowering temperature adjustable between +10 °C and +30 °C
 - Protection against frost adjustable between +6 °C and +10 °C
 - Party/ECO program with adjustable duration for comfort temperature or lowering temperature without changing standard program
 - Fully automatic summer/winter switchover
 - Text display available in 5 languages
 - Holiday program with frost protection or datecontrolled heating program e.g. for holiday homes
 - Easy upgrade of existing system
 - Plug-in socket for flush-mounted box required with 2- or 3-wire connection
- RAMSES 820 top** RAMSES®, battery version as RAM 822 top but
 - Digital timer thermostat with 2- or 3-wire connection, power supply by 2 batteries 1.5 V AAA included
 - Battery monitoring with display for battery change
- RAMSES 823 top** RAMSES®, mains version as RAM 822 top but
 - Housing for wall mounting
- RAMSES 821 top** RAMSES®, battery version as RAM 820 top but
 - Housing for wall mounting

Technical data:

Contact rating:
max. 6 (1) A 250 V~, mind. 1 mA 5 V~
Contact material: AgSnO₂
Accuracy: 1 s/day at 20 °C
Time basis: Quartz
Control accuracy: ≤ ± 0,2 °C
Temperature display: to the nearest 0.1 °C
Temperature setting range:
+6 °C... +30 °C in steps of 0.2 degrees
Possible control types:
Pulse width modulation or hysteresis controller
Control period: 5...30 min
Control capture range: ± 0,2 K...5 K
Protection class: II according to EN 60730-1
Degree of protection: IP 20 according to EN 60529
Housing colour: pure white RAL 9010

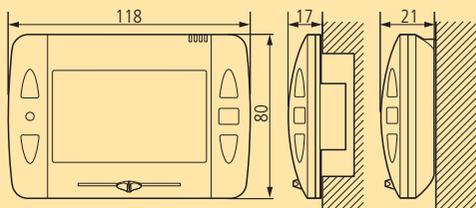
RAMSES 822 top

Operating voltage: 230 V~, +10 %/–15 %
Frequency: 50 Hz
Power reserve:
about 5 hours of permanent heating operation in case of power failure
Contact:
change-over contact, potential-free, not for SELV

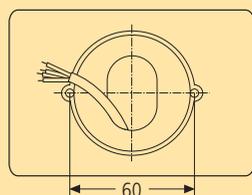
RAMSES 820 top

Operating voltage: Battery operation, 2 x 1.5 V (AAA) alkaline batteries
Service life of battery:
about 1 year depending on frequency of switching
Battery replacement time:
max. 10 min without losing time
Contact:
change-over contact, potential-free, suitable for SELV

Dimension drawings



Installation



Flush box mounted

INDIVIDUAL ROOM CONTROL

By combining the above clock thermostats with THEBEN actuators creates a convenient, needs-driven individual room control. The actuators are simply screwed onto the individual radiators or into the heating circuit distributor in underfloor heating systems.

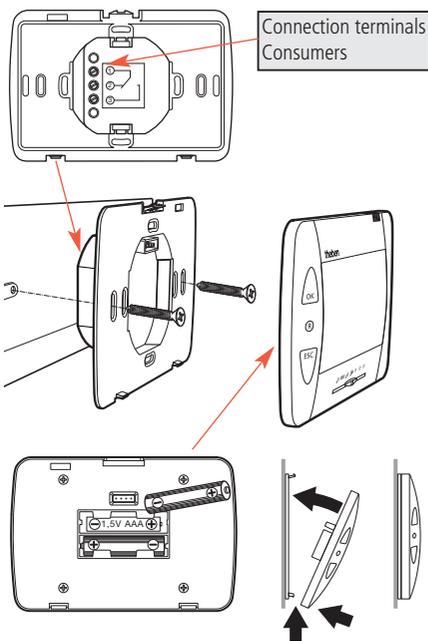


See Page 114 for a detailed description.

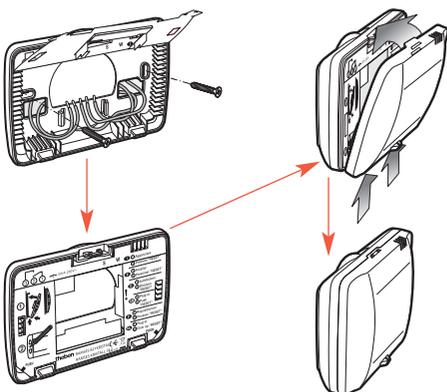
Type	Installation	Program	Voltage supply	Temperature range ☀/☾	Switching contacts	Nominal current at 250 V~	Order No.
RAMSES 822 top	Flush mounting	24 h/7 d	230/240 V	+10 °C...+30 °C	1 change-over contact	6 (1) A	822 0 031
RAMSES 823 top	Wall mounting	Holiday program	50/60 Hz	+6 °C...+10 °C Frost protection			823 0 031
RAMSES 820 top	Flush mounting	24 h/7 d	2 x 1.5 V AAA	+10 °C...+30 °C	1 change-over contact	6 (1) A	820 9 011
RAMSES 821 top	Wall mounting	Holiday program		+6 °C...+10 °C Frost protection			821 9 011



Installation and electrical connection RAMSES 820 top and RAMSES 822 top

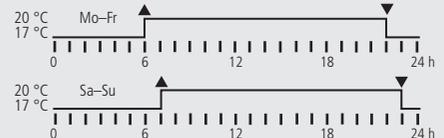


Installation and electrical connection RAMSES 821 top and RAMSES 823 top



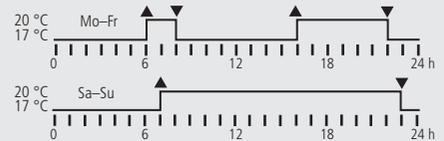
P1 Basic program*

A standard energy-saving program is pre-configured, thereby reducing installation time.
Daytime comfort temperature 20 °C, reduced temperature 17 °C at night.



P2 Basic program*

Comfort temperature on workdays, mornings and evenings. Reduced temperature while at work and at night. Comfort temperature all day at weekends.

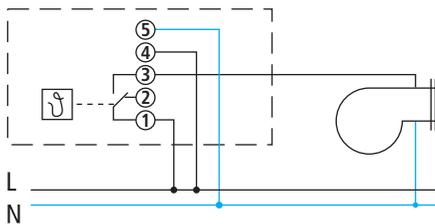


P3 Individualised program (weekly program)*

The comfort program can be adapted to suit individual requirements (e.g. free Wednesday afternoons). There are 23 memory locations with comfort and reduced phases available.

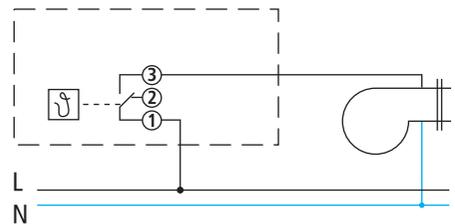
* The program temperatures can be changed.
(Comfort and reduced temperature)

Connection examples for RAMSES® 822 top

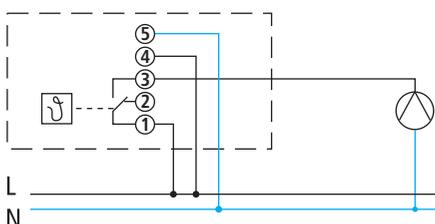


Control of a burner

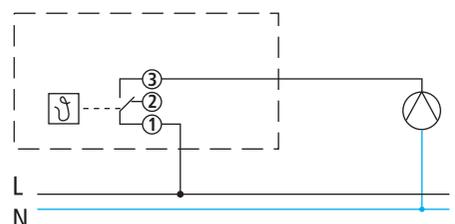
Connection examples for RAMSES® 820 top



Control of a burner



Control via the recirculation pump or storage/hot air heating



Control via the recirculation pump or storage/hot air heating



6–30 °C

7d

24 h

holidays

±1h
auto



RAMSES 812 top (mains version)



RAMSES 811 top (battery version)



red dot design award

RAMSES 812 top RAMSES®, mains version

- Digital clock thermostat in extremely flat, attractive design that can easily be integrated into any living room
- The external design can be suit to the personal taste or trends by changing the coloured covers
- Suitable for energy-saving room temperature control in single-family houses, apartments, heated areas, offices, sales rooms, workshops, professional practices, holiday homes
- Quick and easy operation for setting general daily functions
- INFO button for querying important settings in plain text
- Text line in the display guides the user step-by-step through the simple programming
- A technically knowledgeable user can individually adjust different control types
- Can be optimally set: adjustable operating point and switching differential
- Easy setup and startup with 2 pre-programmed basic programs, each having individual settings for comfort and set-back temperatures
- Individual program with 22 programmable time-periods allows setting of daily set-back phases, such as when a house/office is temporarily unoccupied
- Comfort and set-back setting ranges from +10 °C to +30 °C
- Frost protection setting ranges from +6 °C to +10 °C
- "Party" and "Eco" mode buttons for temporarily setting an overriding comfort or set-back temperature for specific periods without changing your standard program.
- Fully automatic switchover to and from daylight savings time (DST).
- Power reserve (approx. 5 hours) during power outages
- Vacation program with set-back temperature or date-controlled heating phase, such as for holiday homes
- 3-wire or 4-wire connection in mounting base
- Plug-in base for wall or flush-mount boxes

RAMSES 811 top RAMSES®, battery version

- Digital clock thermostat with same features as the RAM 812 top, except with 2-wire or 3-wire connection
- Power supply: 2 x 1.5 V LR 6 alkaline cells
- Battery monitoring with display indicating need for battery replacement

Technical data:

Contact rating:

max. 6 (1) A 250 V~, mind. 1 mA 5 V~

Contact material: AgSnO₂

Accuracy: 1 s/day at 20 °C

Time basis: Quartz

Control accuracy: ≤ ± 0,2 °C

Temperature display: to the nearest 0.1 °C

Temperature setting range:

+6 °C... +30 °C in steps of 0.2 degrees

Possible control types:

Pulse width modulation or hysteresis controller

Control period: 5...30 min

Control capture range: ± 0,2 K...5 K

Protection class: II according to EN 60730-1

Degree of protection: IP 20 according to EN 60529

RAMSES 812 top

Operating voltage: 230 V~, ±10 %

Frequency: 50 Hz

Power reserve:

about 5 hours of permanent heating operation in case of power failure

Contact:

change-over contact, potential-free, not for SELV

RAMSES 811 top

Operating voltage: Battery operation,

2 x 1.5 V (AAA) alkaline batteries

Service life of battery:

about 1 year depending on frequency of switching

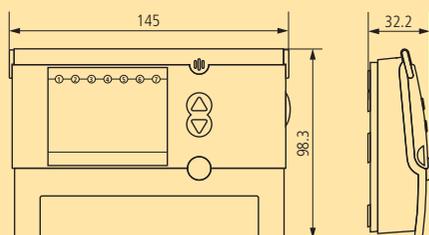
Battery replacement time:

max. 10 min without losing time

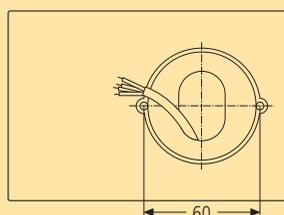
Contact:

change-over contact, potential-free, suitable for SELV

Dimension drawings



Installation



Fixing onto flush-type box or wall mounting.

INDIVIDUAL ROOM CONTROL

By combining the above clock thermostats with THEBEN actuators creates a convenient, needs-driven individual room control.

The actuators are simply screwed onto the individual radiators or into the heating circuit distributor in underfloor heating systems.



See Page 114 for a detailed description.

i Info button shows customers the most important settings in sequence: room temperature → set temperature → date and time → program display → display indicator

24-hours temperature program display: standard comfort temperature and set-back phases

Battery monitor (RAM 811 top)

Manual switching: Party mode setting (holds override comfort setting for 10 min–23 h 50 min)
ECO switching (hold override set-back setting for 10 min–23 h 50 min)

Text information and text-driven operator guidance

Settings menu bar: standard comfort temperature, set-back temperature, frost-protection temperature time, date, custom program (P3), vacation/summer program, control settings, etc.

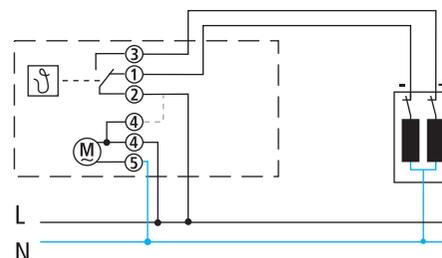
Weekday display

Heating status display

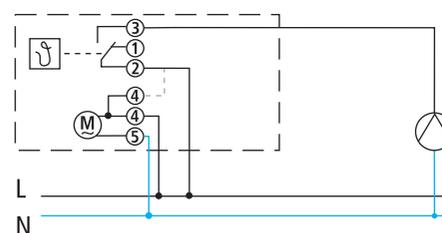


Setting buttons +/- for manual temperature change in the current program phase

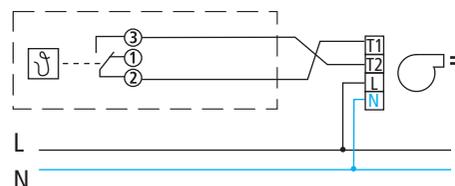
Operating mode selector switch



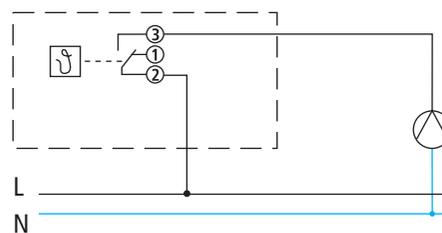
RAMSES 812 top controls motorized mixing valves



RAMSES 812 top controls circulation pump or actuator



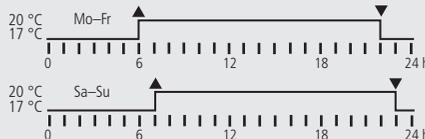
RAMSES 811 top controls oil or gas burners



RAMSES 811 top controls circulation pump or actuator

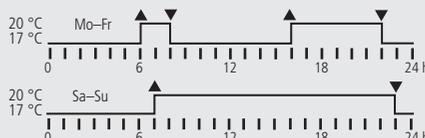
P1 Basic program*

A standard energy-savings program is already pre-programmed, thus reducing installation time
Daily comfort temperature: 20 °C
Set-back temperature (night): 17 °C



P2 Basic program*

Comfort temperature: mornings and evenings on workdays,
Set-back temperature: during working hours and at night,
Comfort temperature: all day on weekends.



P3 Custom program (week program)*

This comfort program can be customized to meet individual requirements (such as with different settings for Wednesday afternoons, etc.) 22 memory settings are available for comfort and set-back phases

* Program temperatures can be changed (comfort and set-back temperatures)

Type	Program	Nominal voltage	Temperature range	Control accuracy	Switching contacts	Nominal current at 250 V~	Order No.
RAMSES 812 top pure white RAL 9010	24 h/7 d Holiday program	230 V/50 Hz	+10 °C...+30 °C +6 °C...+10 °C Frost protection	≤ ± 0.2 K	1 change-over contact	6 (1) A	812 0 032
RAMSES 811 top pure white RAL 9010	24 h/7 d Holiday program	2 x 1.5 V AA	+10 °C...+30 °C +6 °C...+10 °C Frost protection	≤ ± 0.2 K	1 change-over contact	6 (1) A	811 9 032



RAMSES 832 top (mains version)



RAMSES 831 top (battery version)



reddot design award

RAMSES 832 top RAMSES®, mains version

- Suitable for energy-saving room temperature control in single-family houses, apartments, heating zones, offices, sales rooms, workshops, doctor's practices, holiday homes
- Ideal device for shift workers since 3 different weekly programs can be programmed for early and late shifts and non-working days. When required, one of the three programs can be selected by simply using the rotary switch.
- The day-to-day main functions are quick and simple to use
- INFO key for the inquiry of important settings in plain text
- Text line in the display guides the user step-by-step through the programming
- A technically knowledgeable user can individually adjust different control types
- Optimum adjustment through the possibility of adjusting working point and switching difference
- Quick startup via 2 basic programs. Comfort and lowering phases can be correctly individually in terms of time. 3 comfort and 2 lowering temperatures can be assigned to each phase.
- Individual program with 32 programmable time phases also allows lowering phases during the day, e.g. when working away from home
- Comfort temperature and lowering temperature adjustable between +6 °C and +30 °C
- Optimization function for the automatic correction of the start of heating, allowing the comfort temperature to be reached earlier
- Protection against frost adjustable between +6 °C and +10 °C
- Party/ECO program with adjustable duration for comfort temperature or lowering temperature without changing standard program
- Fully automatic summer/winter time correction
- Power reserve approx. 5 h in case of power failure
- Holiday program with lowering temperature or date-controlled heating phase programmable, e.g. for holiday homes
- Temperature shock detection saves heating costs during short ventilation periods. (function can be switched off)
- Pump safety function prevents recirculating pumps from seizing outside the heating period by regular short switch-on periods. (function can be switched off)
- Runtime meter for recording the relay switching times e.g. burner running time
- 3- or 4-wire connection in socket
- Socket for wall or flush-mounted box

RAMSES 831 top RAMSES®, battery version

- Digital clock thermostat as before, but 2- or 3-wire connection, power supply by 2 batteries 1.5 V AA alkaline
- Battery monitoring with display for battery change

Technical data:

- Contact rating:** max. 6 (1) A 250 V~, mind. 1 mA 5 V---
- Contact material:** AgSnO₂
- Accuracy:** 1 s/day at 20 °C
- Time basis:** Quartz
- Control accuracy:** ≤ ± 0,2 °C
- Temperature display:** to the nearest 0.1 °C
- Temperature setting range:** +6 °C... +30 °C in steps of 0.2 degrees
- Possible control types:** Pulse width modulation or hysteresis controller
- Control period:** 5...30 min
- Control capture range:** ± 0,2 K...5 K
- Protection class:** II according to EN 60730-1
- Degree of protection:** IP 20 according to EN 60529

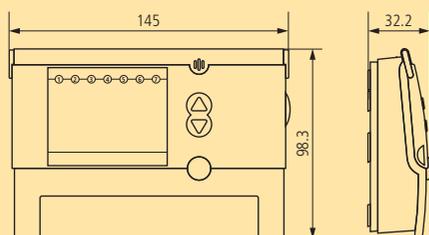
RAMSES 832 top

- Operating voltage:** 230 V~, ±10 %
- Frequency:** 50 Hz
- Power reserve:** about 5 hours of permanent heating operation in case of power failure
- Contact:** change-over contact, potential-free, not for SELV

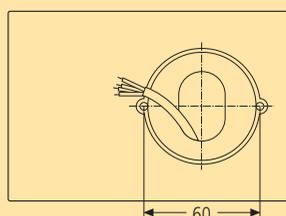
RAMSES 831 top

- Operating voltage:** Battery operation, 2 x 1.5 V (AAA) alkaline batteries
- Service life of battery:** about 1 year depending on frequency of switching
- Battery replacement time:** max. 10 min without losing time
- Contact:** change-over contact, potential-free, suitable for SELV

Dimension drawings



Installation



Fixing onto flush-type box or wall mounting.

INDIVIDUAL ROOM CONTROL

By combining the above clock thermostats with THEBEN actuators creates a convenient, needs-driven individual room control. The actuators are simply screwed onto the individual radiators or into the heating circuit distributor in underfloor heating systems.

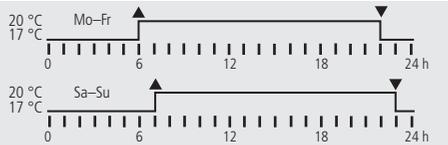


See Page 114 for a detailed description.

Programs set in-factory

P1 Basic program*

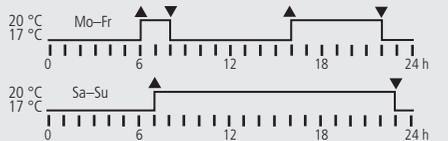
A standard energy saving program has already been pre-programmed, thus shortening installation. During the day comfort temperature 20 °C, lowering temperature 17 °C overnight.



Basic programs can be supplemented with further comfort phases (comfort levels 1, 2, 3) and lowering phases (lowering levels 1, 2) of different temperatures.

P2 Basic program*

Weekdays, in the morning and evening comfort temperature. Lowering temperature during working hours and at night. At weekends, comfort temperature the entire day.

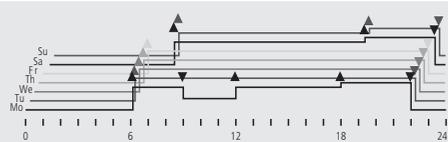


The basic programs P1 and P2 can also be deleted, allowing the individual weekdays to be programmed individually

* Program times and temperatures can be changed (comfort and set-back temperatures)

P3 Separate weekly program with 5 temperature levels

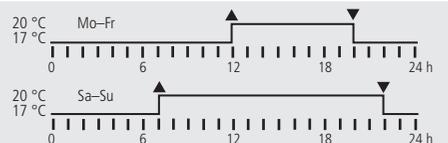
The comfort program can be adapted to the individual requirements (e.g. Wednesday afternoon off). 22 memory locations for comfort and lowering phases are available



Separate programs for early shift and late shift

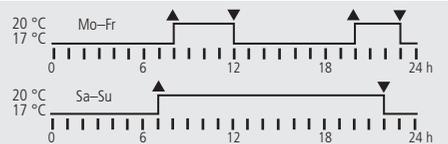
P2 Early shift

The lowering phases are programmed on the individual weekdays in accordance with the shift hours. On weekends, comfort is programmed during the day and lowering at night.



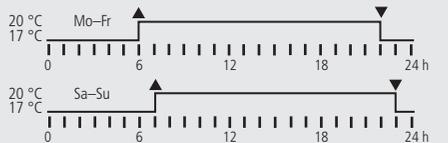
P3 Late shift

The lowering phases are programmed according to the late shift. On weekends, comfort is programmed during the day and lowering at night.

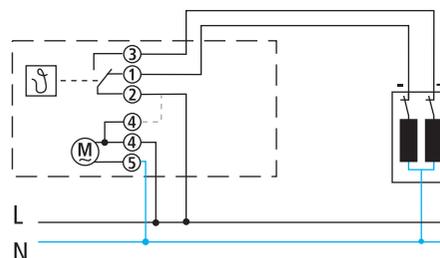


P1 Non-working days

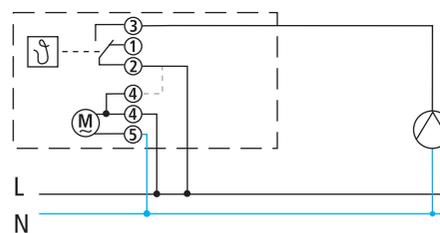
Comfort program during the day during presence in the house and lowering at night on all weekdays. If you are absent during holidays, the date and time for the start and end of holidays are entered, so that you will come back to the comfortably warm apartment after the holidays.



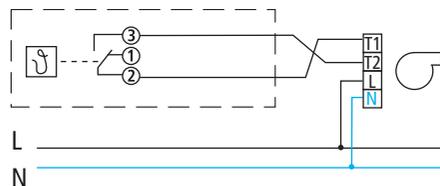
The large rotary switch lets you select the desired program at any time. If the basic programs are deleted, a total of 32 memory locations are available for all 3 programs.



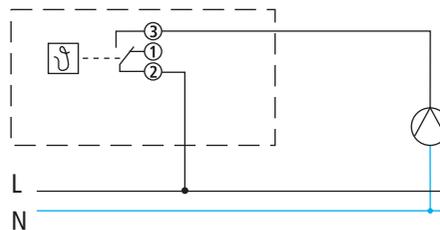
RAMSES 832 top controls motorized mixing valves



RAMSES 832 top controls circulation pump or actuator



RAMSES 831 top controls oil or gas burners



RAMSES 831 top controls circulation pump or actuator

Type	Program	Nominal voltage	Temperature range	Control accuracy	Switching contacts	Nominal current at 250 V~	Order No.
RAMSES 832 top pure white RAL 9010	24 h/7 d Holiday program	230 V/50 Hz	+6 °C...+30 °C +6 °C...+10 °C Frost protection	≤ ± 0.2 K	1 change-over contact	6 (1) A	832 0 032
RAMSES 831 top pure white RAL 9010	24 h/7 d Holiday program	2 x 1.5 V AA	+6 °C...+30 °C +6 °C...+10 °C Frost protection	≤ ± 0.2 K	1 change-over contact	6 (1) A	831 9 032



RAMSES 818 top



reddot design award

RAMSES 818 top 6/16 A RAMSES®

- Clock thermostat for floor heating, suitable for energy-saving control of:
 - electric additional floor heating systems
 - quickly reacting floor heating systems
 - high-speed heating for 1 h by a long key press of the Info key
- Runtime meter for recording the duty cycle
- Equipped with selectable underfloor heating temperature limits 40 °C (tiles) or 30 °C (laminates, wood, cork)
- 3 different weekly programs can be selected using the rotary switch
- Ideal device for shift workers since 3 different weekly programs can be programmed for early and late shifts and non-working days.
- The day-to-day functions can be quickly started and are simple to use through 2 basic programs
- 3 comfort and 2 lowering temperatures can be assigned to 32 programmable time phases.
- Info key for the inquiry of important settings
- Text line in the display guides the user step-by-step through the programming
- Different control types can be set individually
- Optimum adjustment through the possibility of adjusting working point and switching difference
- Comfort and lowering phases can be adjusted between +6 °C and +30 °C, thus setting a pleasant floor surface temperature
- Optimizing function for the automatic correction of the start of heating
- Protection against frost adjustable between +6 °C and +10 °C
- Party/ECO program with adjustable duration for comfort temperature or lowering temperature
- Power reserve approx. 3 h in case of power failure
- Easy to mount through socket for flush-mounted box
- Special encapsulated temperature sensor (IP 65) including a 4 m connecting cable for mounting in empty pipes

Technical data:

- Operating voltage:** 230 V–240 V, ±10 %
- Rated frequency:** 50–60 Hz
- Power reserve:** 3 hours
- Accuracy:** ±1 s/d at 20 °C
- Contact:** switchover contact, potential-free max. 6 A/250 V~, min.1 mA/5 V
- Control accuracy:** ≤ ± 0.2 K
- Temperature display:** to the nearest 0.1 °C
- Temperature meas. range:** 0 °C... +50 °C
- Temperature setting range:** +6 °C... +30 °C in steps of 0.2 degrees
- Control period:** 5...30 min (PD controller)
- Control catch range:** ±0.2 K... ±5 K (PD controller)
- Switching hysteresis:** ±0.2 K... ±1.0 K (hysteresis controller)
- Memory locations:** 32 temperature changes, programmable for Mo–Fr, Sa–Su, each day or for individual days
- Protection class:** II according to EN 60 730-1 when mounted in accordance with its designated use
- Protection type:** IP 21 according to EN 60 529-1

RAM 818 top 16 A

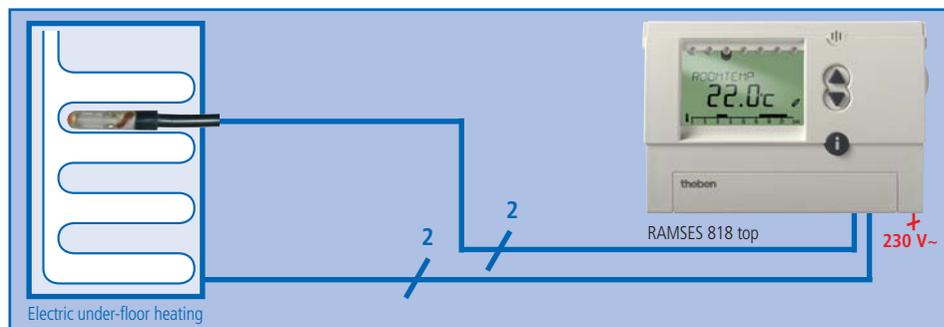
- Control type:** RS type 1 B according to EN 60 730-1:1991
- Contact:** NO contact, max. 16 A/250 V~
- Protection class:** II according to EN 60 730-1 when mounted on a flush-mounted box in accordance with its designated use

Basic programs:

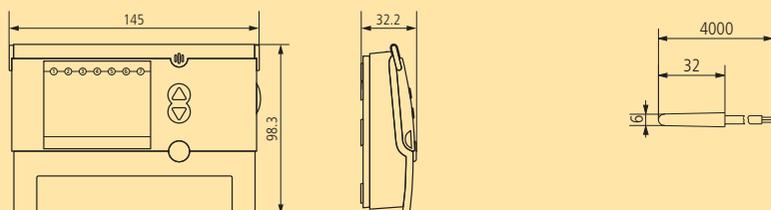
Program 1:
 Mo–Fr Comfort 5.30– 9.00 am and 9.00–11.00 pm
 Sa/Su Comfort 7.30–10.30 am and 9.00–11.00 pm

Program 2:
 Mo–Fr Comfort 6.00– 8.00 am and 4.00–10.00 pm
 Sa/Su Comfort 6.00– 8.00 am and 4.00–11.00 pm

Program 3: Freely programmable



Dimension drawings



Type	Program	Nominal voltage	Temperature range ☀/☾/❄	Connection	Switching contacts	Nominal current at 250 V~	Order No.
RAMSES 818 top 6 A	24 h/7 days Holiday program	230 V/50 Hz	+6 °C...+30 °C +6 °C...+10 °C Frost protection	3- or 4-wire + 2-wire sensor	1 change-over contact	6 (1) A	818 0 035
RAMSES 818 top 16 A	24 h/7 days Holiday program	230 V/50 Hz	+6 °C...+30 °C +6 °C...+10 °C Frost protection	3- or 4-wire + 2-wire sensor	1 NO contact	16 (2) A	818 0 036



RAMSES 813 top HF (radio control)



Receiver REC 11 for top mounting (Set A)



Receiver REC 21 as earthed intermediate connector (Set S)

Function:
THEBEN offers an innovative system for room temperature control in combination with under-floor and radiator heating. Cost-efficient and convenient retrofitting for all systems through radio-controlled communication. This creates completely new opportunities, not only for new-build but predominantly in habited flats, apartments and functional buildings. Each system comprises a clock thermostat per room with integrated radio transmitter and a receiver. For control over several rooms/heating circuits, several sets can be operated in parallel.

- RAMSES 813 top HF, the new radio system enables optimal energy saving while ensuring an individual pleasant, comfortable room climate
- The sets can be upgraded with further modules for operation over several heating zones without mutual interference
- Operation is especially simple thanks to step-by-step user guidance through text lines in the display
- A rotary switch can be set to one of 3 different programs (2 pre-programmed basic and one individualised program with a max. of 22 temperature phases)
- Further comfort functions include Party and ECO program, date-controlled holiday program and automatic summer/wintertime changeover.
- The highly-modern radio system is digitally-coded and protected against interference from other radio systems
- The central control unit reliably receives the radio signals of the battery-powered room transmitter in the building through walls and ceilings
- High interference immunity through repeated transmission of coded ON and OFF signals for each channel, ensuring zero failure even in large buildings with individual room control
- Level display with 5 LEDs for checking reception quality and detecting interference fields at the installation location
- Extremely reliable thanks to battery monitoring and battery replacement indicator
- Simple battery replacement without loss of time of program
- Emergency receiver function, in the event of transmitter failing or radio receiver being defective over a prolonged period

RAMSES 813 top HF, Set A, RAMSES® 1 zone controller
• Comprising a RAM 813 top HF clock thermostat and a REC 11 receiver with a NO contact, 16 (2) A/250 V for wall-mounting

RAMSES 813 top HF, Set S, RAMSES® 1 zone controller
• Comprising a RAM 813 top HF clock thermostat and a REC 21 receiver as earthed intermediate connector (16 (2) A), e.g. for heated towel rail or fan heater

Technical data:

- Control accuracy:** $\leq \pm 0.2$ K
- Control period:** 5...30 min
- Transmission frequency:** 868 MHz
- Transmission power:** < 10 mW
- Supply voltage:** 2 x 1.5 V AA alkaline batteries
- Battery life:** approx. 2 years, depending on switching frequency
- Range:** approx. 25–30 m in buildings, depending on type

REC 11/21 receiver

- Operating voltage:** 230 V, ± 10 %, 50/60 Hz
- Switching capacity:** 16 (2) A/250 V~ (Set A)
16 (2) A/230 V~ (Set S)

Coding: 65536 Codes

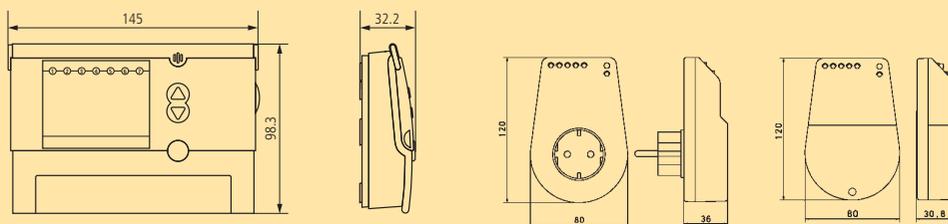
Field strength display: 5 LED's

Relay status display: 1 LED

Protection class: II to EN 60730-1
subject to designated installation

Protection rating: IP 20 to EN 60529

Dimension drawings



INDIVIDUAL ROOM CONTROL

By combining the above clock thermostats with THEBEN actuators creates a convenient, needs-driven individual room control. The actuators are simply screwed onto the individual radiators or into the heating circuit distributor in underfloor heating systems. See Page 114 for a detailed description.



Type	Clock thermostat			Connection	Receiver		Order No.
	Programs	Temperature range 	Switching differential		Nominal voltage	Switching contacts	
RAMSES 813 top HF Set A	24 h/7 days Holiday program	+6 °C to +30 °C Frost protection	$\pm 0,2$ K	wireless	230 V 50/60 Hz	1 NO contact	16 (2) A/250 V~ 813 9 403
RAMSES 813 top HF Set S	24 h/7 days Holiday program	+6 °C to +30 °C Frost protection	$\pm 0,2$ K	wireless	230 V 50/60 Hz	1 NO contact	16 (2) A/230 V~ 813 9 405



RAMSES 813 top HF (radio control)



reddot design award

Function:

THEBEN offers an innovative system for room temperature control in combination with under-floor and radiator heating. Cost-efficient and convenient retrofitting for all systems through radio-controlled communication. This creates completely new opportunities, not only for new-build but predominantly in habited flats, apartments and functional buildings. Each system comprises a clock thermostat per room with integrated radio transmitter and a receiver. For control over several rooms, several sets can be operated in parallel.

- RAMSES 813 top HF, the new radio system enables optimal energy saving while ensuring an individual pleasant, comfortable living climate
- The sets for 1/2 heating zones can be upgraded with further modules for operation over several heating zones without mutual interference
- Operation is especially simple thanks to step-by-step user guidance through text lines in the display
- A rotary switch can be set at any time to one of 3 different programs (2 pre-programmed basic and one individualised program with a max. of 22 temperature phases)
- Further comfort functions include Party and ECOprogram, date-controlled holiday program and automatic summer/wintertime changeover.
- The highly-modern radio system is digitally-coded and protected against interference from other radio systems
- The central control unit reliably receives the radio signals of the battery-powered room transmitter in the building through walls and ceilings
- High interference immunity through repeated transmission of coded ON and OFF signals for each channel, ensuring zero failure even in large buildings with individual room control
- Level display with 5 LEDs for checking reception quality and detecting interference fields at the installation location
- Projection antenna for optimising reception quality
- Extremely reliable thanks to battery monitoring and battery replacement indicator
- Simple battery replacement without loss of time of program
- Control unit with floating change-over switch 6 (1) A/250 V
- Emergency receiver function, in the event of transmitter failing or radio receiver being defective over a prolonged period

Technical data:

Control accuracy: $\leq \pm 0.2$ K
Control period: 5...30 min
Transmission frequency: 868 MHz
Transmission power: < 10 mW
Supply voltage:
 2 x 1.5 V AA alkaline batteries
Battery life:
 approx. 2 years, depending on switching frequency
Range:
 approx. 20–30 m in buildings, depending on type
 If the standard projection antenna proves inadequate in unfavourable reception conditions, a **rod antenna** can be used to improve reception quality
Order No. 907 0 334

REC receiver

Operating voltage: 230 V~, +10 %/–15 %, 50/60 Hz
Switching capacity:
 6 (1) A/250 V~, potential-free, not for SELV
Antenna system: Projection antenna
Field strength display: 5 LED's
Relay status display: 1 LED per channel
Protection class: II to EN 60730-1 subject to designated installation
Protection rating: IP 20 to EN 60529



REC 1 (1-channel receiver, 868 MHz)



REC 2 (2-channel receiver, 868 MHz)

RAMSES 813 top HF, Set 1, RAMSES® 1 zone controller

- Comprising a RAM 813 top HF clock thermostat and a receiver with a change-over switch, 6 (1) A/250 V and wall-mounting set

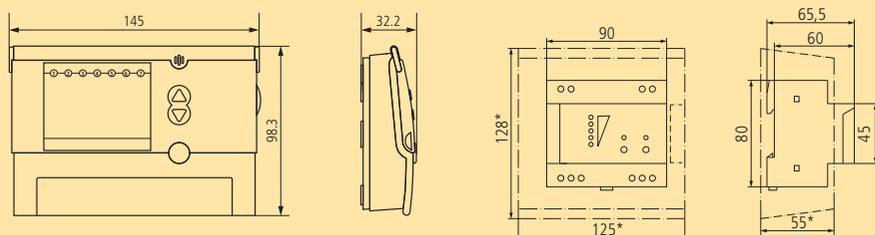
RAMSES 813 top HF, Set 2, RAMSES® 2 zone controllers

- Comprising two RAM 813 top HF clock thermostats and a 2-channel receiver with 2 change-over switches, 6 (1) A/250 V and wall-mounting set

RAMSES 813 top HF, Set 4, RAMSES® 4 zone regulations

- Comprising four clock thermostats RAM 813 top HF and two 2-channel receivers with 4 change-over contacts

Dimension drawings

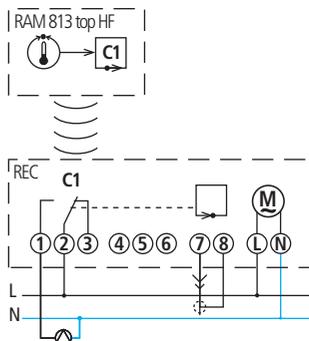


INDIVIDUAL ROOM CONTROL

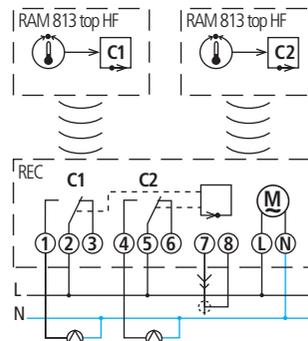
By combining the above clock thermostats with THEBEN actuators creates a convenient, needs-driven individual room control. The actuators are simply screwed onto the individual radiators or into the heating circuit distributor in underfloor heating systems.



See Page 114 for a detailed description.



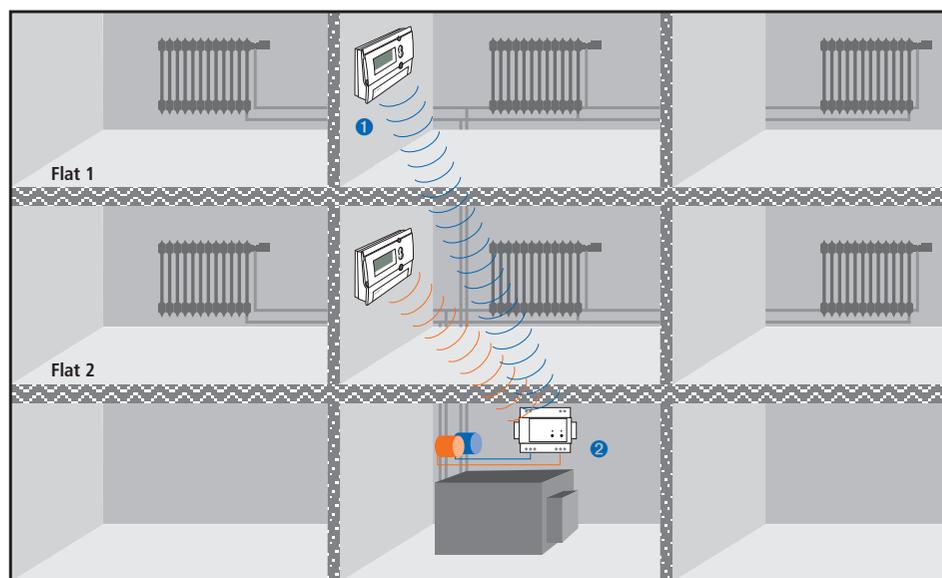
RAMSES 813 top HF, Set 1, REC receiver
REC receiver controls thermal actuator for hot water heating or radiator valve and/or recirculation pump or electric heating



RAMSES 813 top HF, Set 2, REC receiver
REC receiver controls e.g. two heating circuits with actuator for hot water heating or radiator valve and/or recirculation pump or electric heating

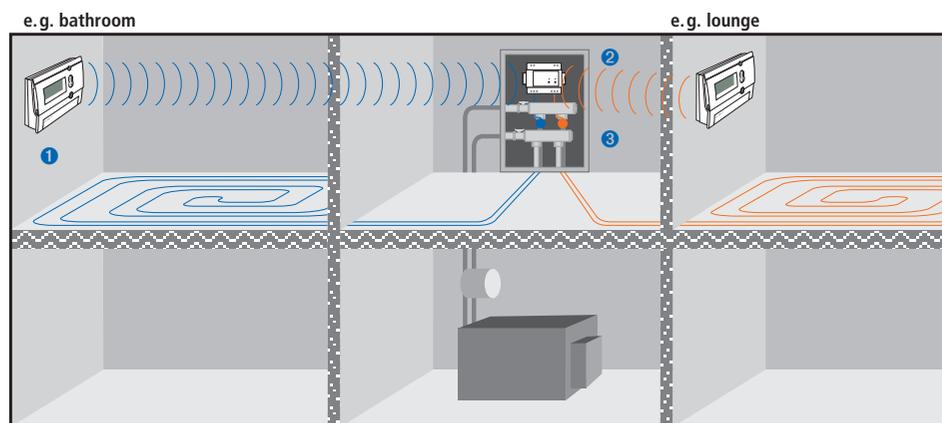
Radio pilot room controller, e.g. for 2 flats (2 zone controller)

- RAM 813 top HF clock thermostat per flat with transmitter in the mostly used room (pilot room), no connection wires required.
- Receiver with 2 channels controls the heat supply to the two flats via the respective recirculation pump.



Individual radio room control for 2 and more rooms with under-floor heating

- RAM 813 top HF clock thermostat with transmitter in each living room or office.
- Receiver in heating circuit distributor switches the THEBEN actuator drives that control the heat supply to the individual heating circuits.
- Actuators can be screwed onto existing valves in heating circuit distributor.



Type	Clock thermostat				Receiver			Order No.
	Programs	Temperature range	Switching differential	Connection	Nominal voltage	Switching contacts	Nominal current	
RAMSES 813 top HF Set 1	24 h/7 days Holiday program	+6 °C to 30 °C Frost protection	± 0.2 K	wireless	230 V 50/60 Hz	1 change-over contact	6 (1) A	813 9 401
RAMSES 813 top HF Set 2	24 h/7 days Holiday program	+6 °C to 30 °C Frost protection	± 0.2 K	wireless	230 V 50/60 Hz	2 change-over contacts	6 (1) A	813 9 402
RAMSES 813 top HF Set 4	24 h/7 days Holiday program	+6 °C to 30 °C Frost protection	± 0.2 K	wireless	230 V 50/60 Hz	4 change-over contacts	6 (1) A	813 9 404

UHF rod antenna for 868 MHz with wall holder and 2 m screened connection cable (required only for unfavourable reception quality). **907 0 334**
Terminal box cover plate for receiver is included in delivery.

Wall mounting

Open Therm – Digital clock thermostat for 2- or 3-point control



RAMSES 816 top



red dot design award



OT-Box RAMSES 816 top

Function:

Clock thermostat as RAMSES 812 top, except with modem interface for telephone remote control. Switchable for 2 or 3-point control or 2-stage control with sequence-controlled contact.

RAMSES 816 top RAMSES®

- Clock thermostat for universal application
- Simple retrofitting through 2-wire connection in lounge, no battery operation
- Telephone remote switching option for comfort and reduced temperature with additional voice modem
- Switchable for 2 or 3-point control with 8 A/250 V switching outputs.
- 2. Switching step controllable by adjustable switching differential temperature
- Suitable for 2-phase burners, blowers, convectors, additional heaters for under-floor heating etc.
- An additional feed sensor is required for mixer control
- 2-wire BUS connection from room thermostat to control unit with power pack and 2 output relays
- Both units with plug-in base and large terminal area
- Simple connection through short-circuit proof and non-reversible 2-wire BUS (protection class III)

Technical data:

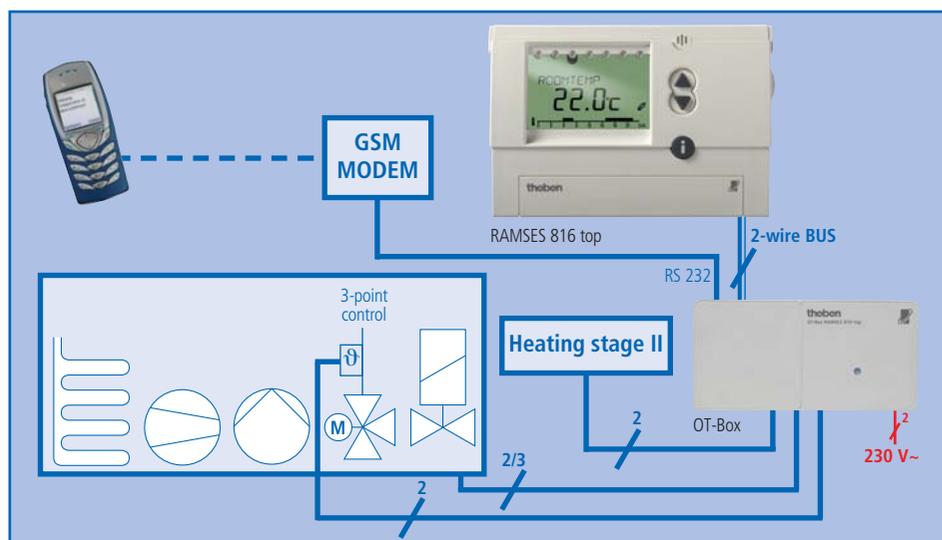
Operating voltage: 230 V~, +10 %/–15 %
Nominal frequency: 50–60 Hz
Power reserve: approx. 4 h after 3 days charging time
Switch load: max. 8 (1) A/250 V~
Contact material: AgNi
Contact: 1 change-over contact and 1 NO contact, potential-free, not for SELV
Time basis: Quartz
Control accuracy: $\leq \pm 0.2$ K
Temperature display: accurate to 0.1 °C
Temperature measuring range: 0 °C... +50 °C
Temperature setting range: +10 °C... +30 °C in 0.2 degree increments
 +6 °C... +10 °C frost protection
Memory locations: 32 freely programmable memory locations with free weekday block formation
Protection class: II to EN 60730-1
Protection rating: IP 20 to EN 60529

Accessories:

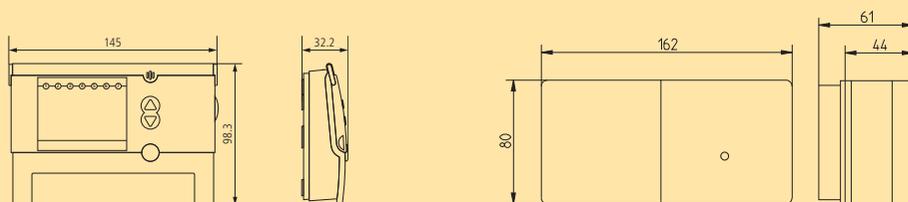


Flow temperature sensor required for mixer control

Connection diagrams see page 120.



Dimension drawings



GSM modem

Type	Program	Nominal voltage	Temperature range	Temperature differential for sequence-controlled contact	Connection control unit	Switching contacts	Nominal current at 250 V~	Order No.
RAMSES 816 top	24 h/7 days Holiday program	230 V/50 Hz	+6 °C to +30 °C	0.5 to 2.5 K	2-wire	1 NO contact 1 change-over contact	8 (1) A	816 9 032
Flow temperature sensor required for mixer control with RAMSES 816/817 top								907 0 371
GSM modem incl. aerial, power supply and connection cables								907 0 396

Wall mounting

Open Therm – Digital clock thermostat with remote sensor



RAMSES 817 top



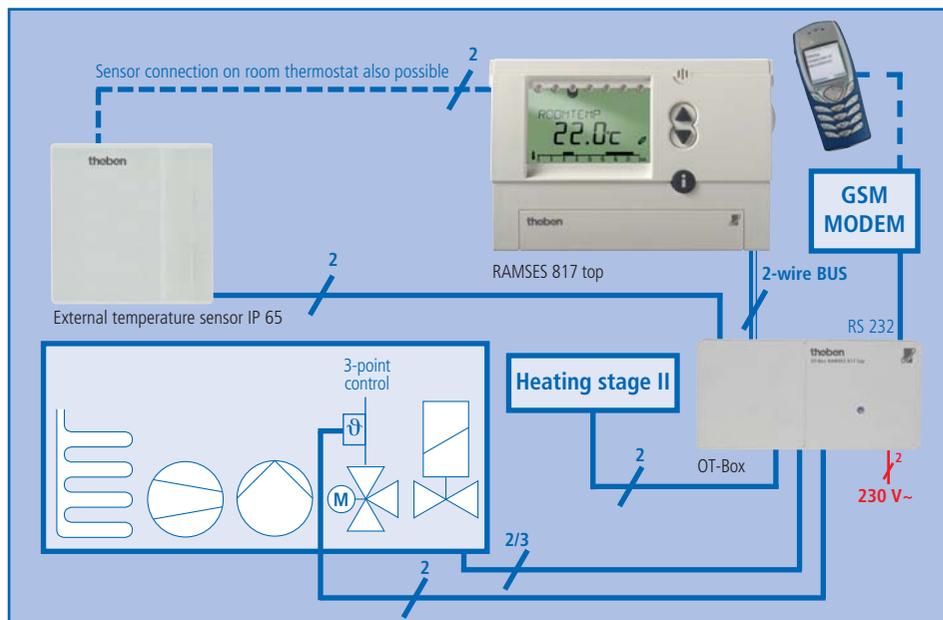
reddot design award



OT-Box RAMSES 817 top



External temperature sensor IP 65



RAMSES 817 top RAMSES®

As RAMSES 816 top, with separate temperature sensor for wall mounting (included in set)

- Also suitable for temperature control in dusty or humid rooms
- External temperature sensor in wall-mounted housing with protection rating to IP 65 and protection class III, cable length 4 m
- RAMSES 382 FA sensor can be connected to OT-Box as an option
- Maximum sensor cable length 50 m, $\varnothing > 0.75 \text{ mm}^2$
- Both units with plug-in base and large terminal area
- Simple connection through short-circuit proof and non-reversible 2-wire BUS (protection class III)
- An additional feed sensor is required for mixer control

Technical data:

Operating voltage: 230 V~, +10 %/–15 %
Nominal frequency: 50–60 Hz
Power reserve: Approx. 4 h after 3 days charging time
Switch load: max. 8 (1) A, 250 V~
Contact material: AgNi
Contact: 1 NO contact and 1 change-over contact, potential-free, not for SELV
Time basis: Quartz
Control accuracy: $\leq \pm 0.2 \text{ K}$
Temperature display: accurate to 0.1 °C
Temperature measuring range: 0 °C... +50 °C
Temperature setting range: +10 °C... +30 °C in 0.2 degree increments
 +6 °C... +10 °C frost protection
Memory locations: 32 freely programmable memory locations with free weekday block formation
Protection class: II according to EN 60730-1
Protection rating: IP 20 according to EN 60529
Temperature sensor: IP 65 according to EN 60529

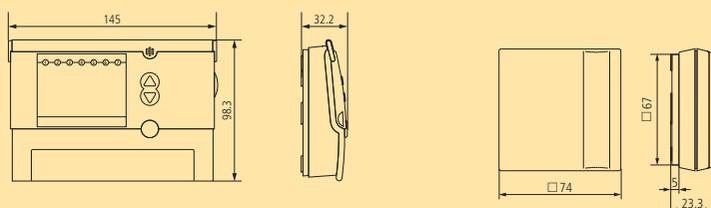
Accessories:



Flow temperature sensor required for mixer control

Connection diagrams see page 120.

Dimension drawings (For dimension drawing of OT-Box see page 106)



GSM modem

Type	Program	Nominal voltage	Temperature range	Temperature differential for sequence-controlled contact	Connection control unit	Switching contacts	Nominal current at 250 V~	Order No.
RAMSES 817 top	24 h/7 days Holiday program	230 V/50 Hz	+6 °C to +30 °C	0.5 to 2.5 K	2-wire	1 NO contact 1 change-over switch	8 (1) A	817 9 032
Flow temperature sensor required for mixer control with RAMSES 816/817 top								907 0 371
GSM modem incl. aerial, power supply and connection cables								907 0 396

Wall mounting

Open Therm heating controller for 2- or 3-point control, weather-dependent, service water and circulation control



RAMSES 855 top

Installation in living areas or in boiler rooms



OT-Box RAMSES 855 top

Installation in boiler room



OT-Center

Installation in boiler room

New

RAMSES 855 top RAMSES®

Universal digital heating controller with 4-channel digital control, complete room operation and monitoring. Additional modem interface (RS 232) for remote temperature setting by phone or SMS. Extremely simple operation through text guidance display and pre-configured programs for families and working people. Fast installation through 2-wire control device to controller connection in the boiler room.

- Boiler/feed temperature (control circuit 1) controlled by switching the burner
- Feed temperature (control circuit 2) controlled via pump or mechanically-adjustable mixer
- 3-point controller with feed sensor
- Mixer control with feed temperature limit
- Hot water controlled by switching load pump
- Highly economical control of hot water circulation pump, as time and temperature dependent
- Simple to operate via selector switch for 8 different connection /function types.
- Automatic sensor recognition for weather or room dependent control; can be switched manually at any time
- Simple selection of 3 room temperature time programs via rotary switch. An individual weekly program, e. g. for shift workers, 2 pre-configured programs for families and working people.
- 3 constant temperatures selectable at rotary switch: Comfort, reduced, frost-protection
- Info button for viewing key data such as date, time, program and setpoint/actual temperature and ambient temperature. Displays the switching status of the outputs.
- RS 232 interface for:
 - GSM modem setpoint temperature setting via SMS
- Additional time program for service water utilisation times
- Adjustable service water storage temperature, additional legionella protection can be configured through short-term interval based feed heating
- Party/Eco program with adjustable period for comfort or reduced temperature
- Date-controlled holiday program
- Automatic summer/winter time switchover
- Pump block protection

OT Center

- extends the RAMSES 855 top with
 - an additional mixer circuit
 - chimney sweep function
 - a relay output for error messages

Technical data:

- Operating voltage:** 230 V~, +10 %/–15 %
- Nominal frequency:** 50–60 Hz
- Power reserve:** approx. 4 hours after 3 days charging time
- Memory locations:** 32
- Switch load:** 8 (1) A, 250 V~
- Contact material:** AgNi
- Contacts:** floating not for SELV
- Switching hysteresis:** 2–20 K
- Mixer runtime:** 2–10 min
- Heating curves:** infinite, individual adjustment for radiator and under-floor heating through low end and final point adjustment
- Adjustment ranges for room-dependent control:**
 - Comfort temperature: +15 °C ... +30 °C
 - Reduced temperature: +10 °C... +29.8 °C
 - Frost protection: +6 °C ... +15 °C
- Protection class:** II in accordance with EN 60 730-1 subject to designated installation
- Protection rating:** IP 20 in accordance with EN 60 529

RAMSES 855 top

Inputs:

- External sensor (contained in set)
- Heating circuit feed sensor (contained in set)
- Feed or plunge sensor for service water
- Feed sensor for circulation

Outputs:

- 4 NO contacts

OT Center

Inputs:

- Feed sensor (included in delivery)
- "Chimney sweep" switch

Outputs:

- 3 NO contacts 5 (1) A, 250 V~
- 1 change-over contact 5 (1) A, 250 V~

Accessories:

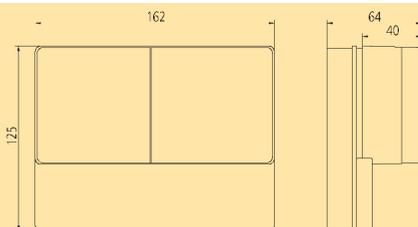
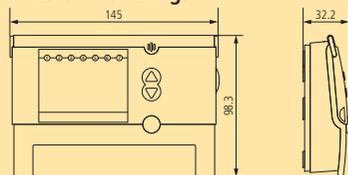


External temperature sensor



Feed temperature sensor for mixer control urgently required

Dimension drawings



GSM modem

Type	Program	Nominal voltage	Temperature range	Adjustable feed temperature limit	Connection Control unit	Contact	Nominal current at 250 V	Order No.
RAMSES 855 top incl. OT box	24 h/7 days Holiday program	230 V/50 Hz	+6 °C to +30 °C	+40 °C to +90 °C	2 wires	4 NO contact	8 (1) A	855 9 032
OT-Center		230 V/50 Hz	+6 °C to +30 °C	+30 °C to +75 °C		3 NO contact 1 change-over contact	5 (1) A	907 0 427
RAMSES 855 top + OT Center set								855 9 901
Feed temperature sensor additionally required for applications with 2 feed sensors								907 0 371
Plunge sensor (Ø 6 mm) additionally required for applications with service water control or boiler plunge sensor								907 0 379
GSM modem incl. aerial, power unit and connecting cables								907 0 396

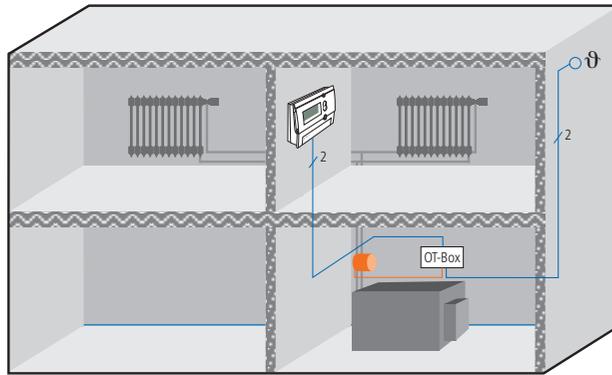
Wall mounting

Open Therm heating controller for 2- or 3-point control, weather-dependent, service water and circulation control

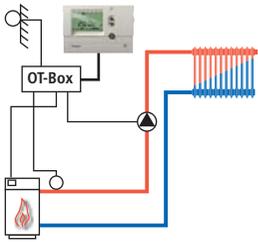


The RAM 855 enables the following control types:

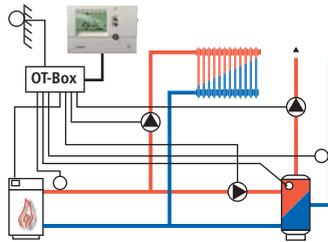
- 1.) **Weather-dependent heating control**
with outside temperature sensor. The control device can be installed in the living room or heating room. The OT-Box with power unit and relay is installed in the heating room.
- 2.) **Room-temperature driven control**
without outside temperature sensor. The control device has an integrated room temperature sensor that takes into account sunlight, fireplace and other heat sources, in conservatories for instance. A voice modem in the room-dependent controller enables remote temperature setting by telephone.



Heating control via circulation pump with boiler control

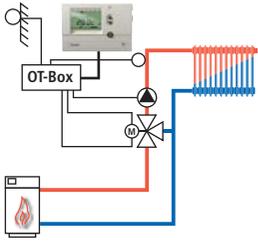


Flow temperature control via burner control

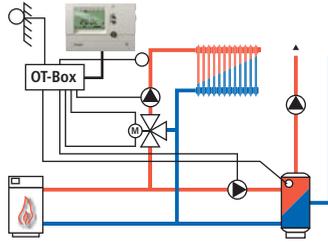


Flow temperature control via burner control with service water and circulation control (connection diagram 1)

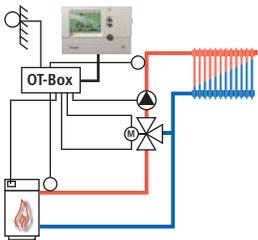
Heating control via motor mixer



Flow temperature control via mixer control

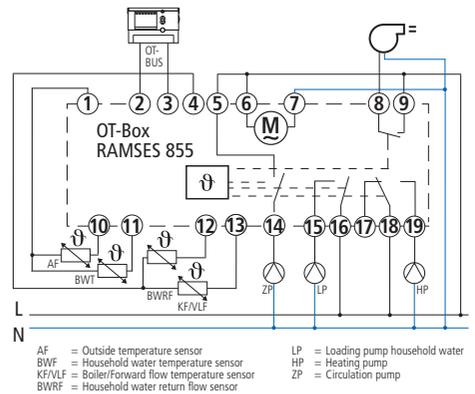


Flow temperature control via mixer control with service water control (connection diagram 2)



Flow temperature control via mixer and burner control

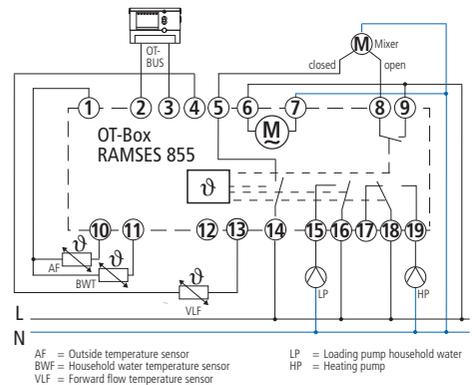
Connection diagram 1



RAMSES 855 top

weather-dependent or room-dependent heating control, mixer control and service water temperature control

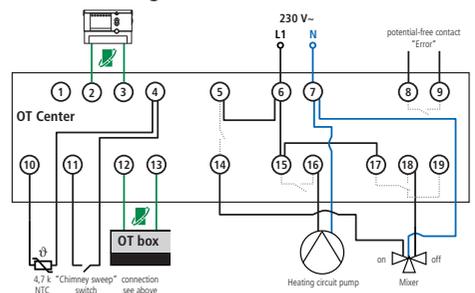
Connection diagram 2



RAMSES 855 top

weather-dependent or room-dependent heating control, mixer control and service water temperature control

Connection diagram 3



RAMSES 855 top + OT-Center

Extension of the RAMSES 855 top with an additional mixing valve

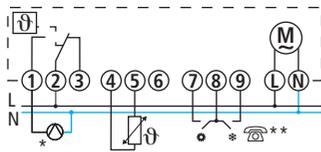


RAMSES 366/1 top

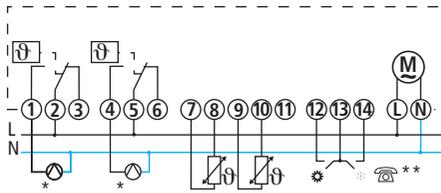


RAMSES 366/2 top

RAMSES 366/1 top



RAMSES 366/2 top



* Control of circulating pump, electronic actuating drive, thermal mixing valve or oil/gas burner

Function

Clock thermostat for installation to remote temperature control. Protection against unauthorized adjustment, therefore suitable for shops, school and conference room.

RAMSES 366/1 top RAMSES®, 1 zone

- Digital time switch with day, week and holiday program for programming normal and set-back temperature phases.
- Day temperature settable in the range +6 °C...+30 °C and night temperature in the range +6 °C...+26 °C
- Day and week program adjustable exactly to the minute
- 42 memory locations holiday program programmable via date
- User guidance by integrated text line in the LCD display (see page 21)
- Programming is shown graphically by means of a bar chart on the LCD display
- Automatic summer/winter time changeover can be alternatively switched off or randomly programmed (MEZ, GB, USA changeover norm selectable)
- Guided copying of the switching times to other days of the week (free block formation)
- Power reserve 10 years
- Manual over-ride switching and mode select switch for: automatic, comfort, set-back, frost protection
- Connection for remote telephone switch to switch to comfort mode or frost protection by telephone
- LED display for the active operating condition and the relay condition
- Remote temperature sensors necessary, see "accessory"
- Change-over contact, floating 10 (2) A/250 V~
- Terminal cover for wall mounting, sealable ref. 907 0 053
- Flush mounting with installation kit No. 907 0 001
- Program saving by EEPROM
- PIN code

RAMSES 366/2 top RAMSES®, 2 zones

- Clock thermostat as before, but with variable time temperature phases.
- 42 memory locations
- 2 remote temperature sensors required, see "accessory"
- 2 change-over contacts, floating 10 (2) A/250 V~

Common technical data:

- Nominal voltage:** 230 V~, +10 %/-15 %
- Frequency:** 50-60 Hz
- Power consumption:** max. 3 VA
- Time base:** Quarz
- Ganggenauigkeit:** ≤ ±1 s/day at 20 °C
- Shortest switching time:** 1 min
- Power reserve:** 10 years by means of lithium battery (20 °C)
- Connection voltage at the sensor:** protective low voltage
- Contact:** gap less than 3 mm (μ), potential-free, not for SELV
- Contact material:** AgCdO
- Permissible ambient temperature:** -10 °C... +50 °C
- Housing and insulating material:** high temperature-resistant, self-extinguishing thermo plastic
- Max. cross section for connection:** 4 mm²
- Protection class:** II in accordance with EN 60730-1 if installed as directed, protection class III for remote temperature sensor 1 and 2
- Degree of protection:** IP 20 in accordance with EN 60529

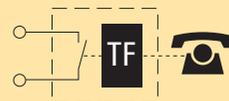
Accessories:



Remote sensor 1

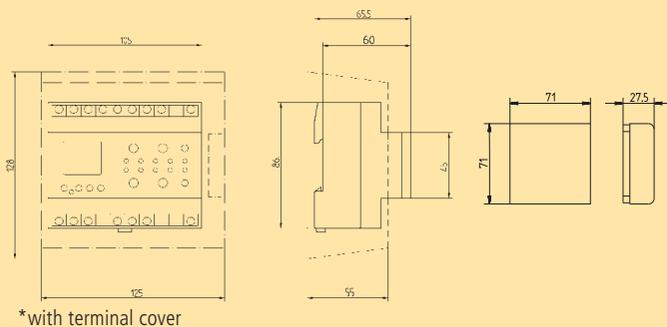


Remote sensor 2 with temperature adjustment ±3 K



** Connection for separate remote telephone switch

Dimension drawings RAM 366 top + remote sensor



*with terminal cover

Terminal cover



INDIVIDUAL ROOM CONTROL

By combining the above clock thermostats with THEBEN actuators creates a convenient, needs-driven individual room control. The actuators are simply screwed onto the individual radiators or into the heating circuit distributor in underfloor heating systems.



See Page 114 for a detailed description.

Type	Program	Power reserve ca.	Temperature range	Switching differential	Special functions	Switching contacts	Nominal current at 250 V~	Order No.
RAMSES 366/1 top	24 h/7 days Holiday program	10 years	+6 °C to +30 °C +6 °C to +26 °C	≤ 0,5 K	connection for remote telephone switch	1 change-over contact	10 A	366 0 002
RAMSES 366/2 top	24 h/7 days Holiday program	10 years	+6 °C to +30 °C +6 °C to +26 °C	≤ 0,5 K	connection for remote telephone switch	2 change-over contact	10 A	366 0 052
Remote sensor 1, suitable for RAM 366/1 top and RAM 366/2 top								907 0 191
Remote sensor 2, with temperature adjustment suitable for RAM 366/1 top and RAM 366/2 top								907 0 192



RAMSES 701



RAMSES 706



RAMSES 707

Function:

Room temperature control with thermal feedback, suitable for all types of heating, e.g. gas, water, electric heating with central/single room control.

- Setting control for +5 °C to +30 °C, including mechanical limiting device
- RAM 708/709 also suitable for air conditioning devices

RAMSES 701 RAMSES®

RAMSES 702 RAMSES®

- Integrated temp. lowering (about 4 K) through external activation (e.g. timer SYN 161 h, TR 610 top) possible

RAMSES 703 RAMSES® as RAM 702, but internal setting

- Temperature cannot be set externally. The temperature is set internally when the device is switched on

RAMSES 704 RAMSES®

- Switch for additional heating ON/OFF+ control lamp

RAMSES 705 RAMSES®

- Switch for heating ON/OFF

RAMSES 706 RAMSES®

- Integrated temperature lowering (about 4 K) through external activation (e.g. time switch) possible
- Switch for heating ON/OFF + control lamp

RAMSES 707 RAMSES®

- Switch for heating ON/OFF
- Switch for heating ON/OFF + control lamp

RAMSES 708 RAMSES®

- Changeover contact for heating or cooling

RAMSES 709 RAMSES®

- Changeover contact for heating or cooling
- 3-position selector switch for: comfort mode, lowering mode, external lowering (time-controlled via time switch)
- Control lamp

Technical data:

Operating voltage:

230–240 V~, +10 %/–15 %

Frequency: 50–60 Hz

NC contact:

10 (4) A, 230 V~

max. 10 THEBEN actuators can be activated (see page 114)

Change-over contact:

10 (4) A (heating),

max. 10 THEBEN actuators can be activated (see page 114),

5 (2) A (cooling)

Temperature range: +5 °C... +30 °C

Switching difference, dynamic:

about 1 K, thermal feedback

Protection class: II according to EN 60730-1 subject to correct installation

Type of protection: IP 30 according to EN 60529

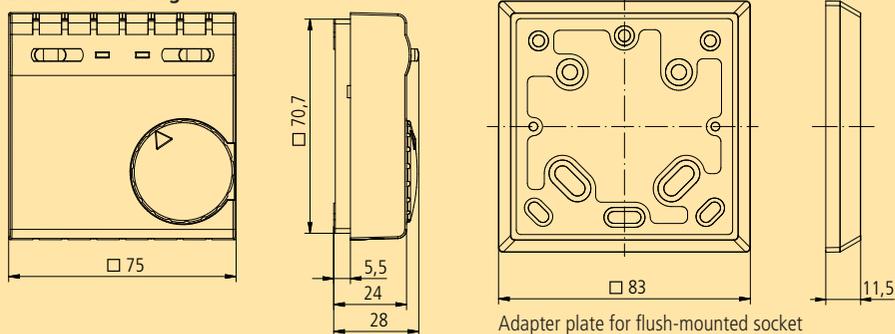
Color of housing: pure white (RAL 9010)

Test approvals: 

Weight: approx. 80 g

For the connecting diagrams, see page 121.

Dimension drawings

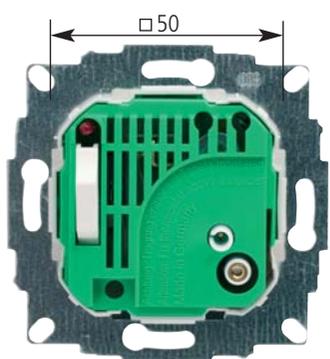


Adapter plate for flush-mounted socket

Type	Nominal voltage	Temperature range 	Switching difference dynamic about	Connection	Switching contacts	Rated current at 230 V~	Order No.
RAMSES 701	230 V/50–60 Hz	+5 °C to +30 °C	1 K	2-/3-wire	1 NC contact	10 (4) A	701 0 001
RAMSES 702	230 V/50–60 Hz	+5 °C to +30 °C	1 K	3-/4-wire	1 NC contact	10 (4) A	702 0 001
RAMSES 703	230 V/50–60 Hz	+5 °C to +30 °C	1 K	3-/4-wire	1 NC contact	10 (4) A	703 0 001
RAMSES 704	230 V/50–60 Hz	+5 °C to +30 °C	1 K	3-/4-wire	1 NC contact	10 (4) A	704 0 001
RAMSES 705	230 V/50–60 Hz	+5 °C to +30 °C	1 K	3-/4-wire	1 NC contact	10 (4) A	705 0 001
RAMSES 706	230 V/50–60 Hz	+5 °C to +30 °C	1 K	4-/5-wire	1 NC contact	10 (4) A	706 0 001
RAMSES 707	230 V/50–60 Hz	+5 °C to +30 °C	1 K	4-/5-wire	1 NC contact	10 (4) A	707 0 001
RAMSES 708	230 V/50–60 Hz	+5 °C to +30 °C	1 K	3-/4-wire	1 change-over switch	10 (4) A/5 (2) A	708 0 001
RAMSES 709	230 V/50–60 Hz	+5 °C to +30 °C	1 K	4-/5-wire	1 change-over switch	10 (4) A/5 (2) A	709 0 001
Adapter plate for flush-mounted socket 79 x 79 mm							907 0 480



RAMSES 746 RA (with frame)



RAMSES 746

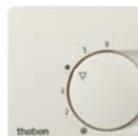
(without cover, rotary switch and frame)
replacement device for area switch programs



Frame



Central part with switch section and setting button



Central part without switch section and setting button

Function:

Room temperature with thermal recirculation for installation in UP sockets. Ideal control for modernisation and new build projects as it is easy to integrate and fits in perfectly in the domestic environment.

- Setting range +5 °C to +30 °C
- Ability to limit temperature range using the setting knob
- Simple connection via screwless terminals
- Available as replacement device without frame, cover plate and setting button, incl. protective cap
- Frame, central part and setting button available as accessories
- Central part fits nearly all frames using an adapter frame from the switch manufacturer

RAMSES 741 RAMSES®

- NC contact

RAMSES 746 RAMSES®

- NC contact
- Integrated temperature reduction (approx. 4 K) possible via external control (e.g. timer)
- Switch for heating ON/OFF + indicator lamp

RAMSES 748 RAMSES®

- Heating/cooling change-over contact

Technical data:

Operating voltage:

230–240 V~, +10 %/ –15 %, 50–60 Hz

NC contact:

10 (4) A, 230 V~

max. 10 THEBEN actuators -can be controlled (see page 114)

Change-over contact:

10 (4) A (heating),

max. 10 THEBEN actuators can be controlled (see page 114),

5 (1) A (cooling)

Temperature range: +5 °C... +30 °C

Switching differential, dynamic:

approx. 0.5 K, thermal recirculation

Electrical connection:

screwless terminals for 2 x (1.5 mm²–2.5 mm²) wire

Protection class:

II in accordance with EN 60730-1 for designated installation

Protection rating:

IP 30 in accordance with EN 60529 (with cover, installed)

Housing colours: pure white gloss (RAL 9010)

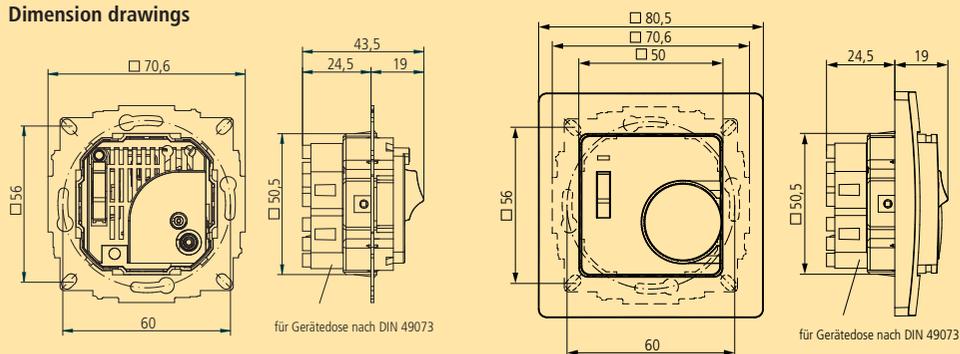
Test mark:

Weight: approx. 80 g

Flush mounted digital time switch
see page 31.

Connection diagrams see page 121.

Dimension drawings



Type	Front	Nominal voltage	Temperature range adjustable	Switching difference dynamic approx.	Connection	Switching contacts	Rated current at 230 V~	Order No.
RAMSES 741	without cover	230 V/50–60 Hz	+5 °C to +30 °C	0.5 K	2-/3-wire	1 NC contact	10 (4) A	741 0 130
RAMSES 746	without cover	230 V/50–60 Hz	+5 °C to +30 °C	0.5 K	4-/5-wire	1 NC contact	10 (4) A	746 0 130
RAMSES 748	without cover	230 V/50–60 Hz	+5 °C to +30 °C	0.5 K	3-/4-wire	1 change-over contact	10 (4) A/5 (1) A	748 0 130
RAMSES 741 RA	with cover	230 V/50–60 Hz	+5 °C to +30 °C	0.5 K	2-/3-wire	1 NC contact	10 (4) A	741 0 131
RAMSES 746 RA	with cover	230 V/50–60 Hz	+5 °C to +30 °C	0.5 K	4-/5-wire	1 NC contact	10 (4) A	746 0 131
RAMSES 748 RA	with cover	230 V/50–60 Hz	+5 °C to +30 °C	0.5 K	3-/4-wire	1 change-over contact	10 (4) A/5 (1) A	748 0 131
Central part with switch section + setting button for RAMSES 746								907 0 601
Central part without ohne switch section + setting button for RAMSES 741 and RAMSES 748								907 0 602
Frame								907 0 603



5–30 °C

10–60 °C



RAMSES 714

Function:

Modern designed electronic room thermostats can easily be exchanged for currently installed thermostats. Surface mounted or directly on a flush mounted socket; also suitable for large area switching programs. Depending on the make an adapter plate (79 x 79 mm) may be required to completely cover the flush mounted socket.

RAMSES 714 RAMSES®

- Precise electronic two point controller suitable for all types of heating, e.g. gas, water, electric heating etc.
- Individual room control is possible in combination with Theben actuators
- Exact temperature setting in the range of +5 °C...+30 °C
- Heating status display via LED
- Integrated temperature reduction (approx. 3.5 K) possible via external control (e.g. timer SYN 161 h, TR 610 top2). Temperature reduction can be cut to 2 K by opening a wire bridge



RAMSES 714 A

RAMSES 714 A RAMSES®

- Precise electronic two point controller as with RAM 714 but including
- External temperature sensor for under-floor heating (wet rooms or bathroom heating)
 - Switchable for the connection of available NTC sensors (33 K Ω /25 °C)
 - Setting range of +10 °C...+60 °C
 - Switch for heating ON/OFF
 - Sensor cable (IP 54), length 4 m



RAMSES 714 A/FH

RAMSES 714 A/FH RAMSES®

- similar to RAM 714 A but
- Equipped with selectable underfloor heating temperature limits 40 °C (tiles) or 30 °C (laminates, wood, cork)
 - No switch to available NTC sensors
 - Setting range of +5 °C...+30 °C (+40 °C)

Technical data:

Operating voltage: 230 V, +10 %/–15 %, 50 Hz

Protection class:

II in accordance with EN 60730-1 for designated installation

Protection rating: IP 20

Housing colours: pure white (RAL 9010)

RAMSES 714:

Setting range: +5 °C...+30 °C

Control accuracy: \pm 0.25 K

NC contact: 8 A/230 V~

RAMSES 714 A:

Setting range: +10 °C... +60 °C

Control accuracy: \pm 0.5 K

Sensor cable: Length 4 m, \varnothing 6 mm, (IP 54)

NC contact: 16 A/230 V~

RAMSES 714 A/FH:

Setting range: +5 °C...+30 °C (+40 °C)

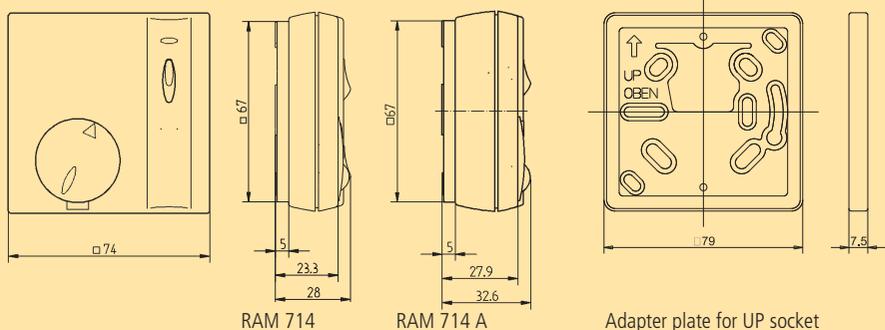
Control accuracy: \pm 0.5 K

Sensor cable: Length 4 m, \varnothing 6 mm, (IP 54)

NC contact: 16 A/230 V~

Connection diagrams see page 121.

Dimension drawings



INDIVIDUAL ROOM CONTROL

By combining the above clock thermostats with THEBEN actuators creates a convenient, needs-driven individual room control. The actuators are simply screwed onto the individual radiators or into the heating circuit distributor in underfloor heating systems.



See Page 114 for a detailed description.

Type	Nominal voltage	Temperature range	Connection	Switching contacts	Rated current at 230 V~	Order No.
RAMSES 714	230 V/50 Hz	+5 °C to +30 °C	2-/3-wire	1 NC contact	8 A	714 0 002
RAMSES 714 A	230 V/50 Hz	+10 °C to +60 °C	4-/5-wire	1 NC contact	16 A	714 0 016
RAMSES 714 A/FH	230 V/50 Hz	+5 °C to +30 °C (+40 °C)	4-/5-wire	1 NC contact	16 A	714 0 017
Adapter plate for flush mounted socket 79 x 79 mm						907 0 212



Actuator ALPHA 4



VA 78

VA 80

Valve adapter
(not included in delivery)

Individual room control with individual night set-back

For new buildings and modernisations Theben offers the elegant solution. The proven clock thermostats RAMSES, combined with an electrothermal actuator make possible the up-grading of existing systems to individual room control. Ideal for the electrician, for intervention into the heating pipes is not necessary. Electrothermal actuators can be installed on almost any room radiator with a broad range of adapter pieces. With any clock thermostat from THEBEN, a room such as a living room, bed room, kitchen or, of course, even an office can be controlled in accordance with your personal requirements, with one or more actuators. The automatic set-back of the room temperature during absence or at night makes possible the strived for energy saving of up to 20 %.

For driving the following actuator, a Theben clock thermostat is required.

Actuator ALPHA 4 230 V~

- Elegant actuator for radiators, heating circuit distributors or individual heating circuits
- "First open function" for simple mounting and heating startup
- Plug-in mounting on valve adapter
- Function and adaptation control
- Dismounting safety through removable SaveGuard
- Guaranteed overvoltage protection

Actuator ALPHA 4 24 V

- Actuator as before, but for 24 V AC/DC

Valve adapter VA 78

- Valve adapter for Danfoss RA

Valve adapter VA 80

- Valve adapter for Onda, Schlösser (from year of construction 93), Oventrop (M 30 x 1,5), Heimeier, Herb, Therm-Concept, Frank, Roth (distributor), Dinotherm (distributor)

Common technical data:

Operating voltage:

230 V AC, 50/60 Hz
24 V, 0–60 Hz

Functional principle:

Silently working expandable element

Valve currentless: closed

Switch-on current:

max. 300 mA for max. 200 ms
max. 250 mA for max. 2 min

Rated power: 1.8 W

Closing/opening times: approx. 2.5 min

Stroke: 4 mm

Spring force: 100 N, ± 5 %

Admissible ambient temperature: 0 °C... +60 °C

Storage temperature: –25 °C... +60 °C

Type of protection: IP 54 according to EN 60529

Protection class:

II according to EN 60730-1

Length of the plug-in connecting cable: 1000 mm

Color of housing: white (RAL 9003)

Housing: 60 x 44 x 61 mm (H/W/L)

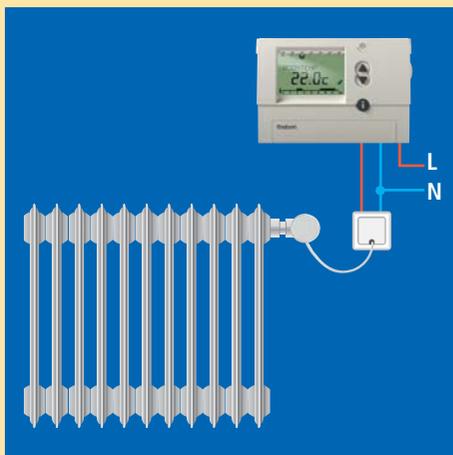


Mounting without intervention into the heating pipes!

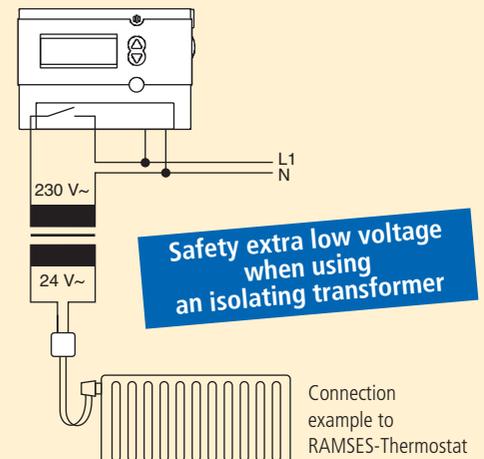
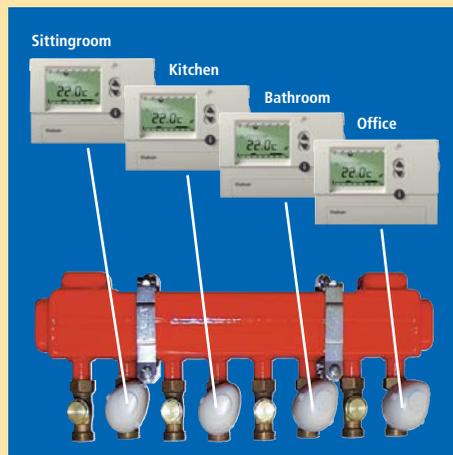
More valve adapters upon request:

VA 02	M 30 x 1,5	Velta
VA 16	M 28 x 1,5	Herz
VA 16 H	M 28 x 1,5	Poly Therm
VA 26	flange	Giacomini
VA 59		Danfoss RAVL
VA 81	M 30 x 1,5	Cosmotherm, Cosmoline (GC distributor), Strawa

Regulation of the radiator heating:



Regulation of the individual floor heating circuits:

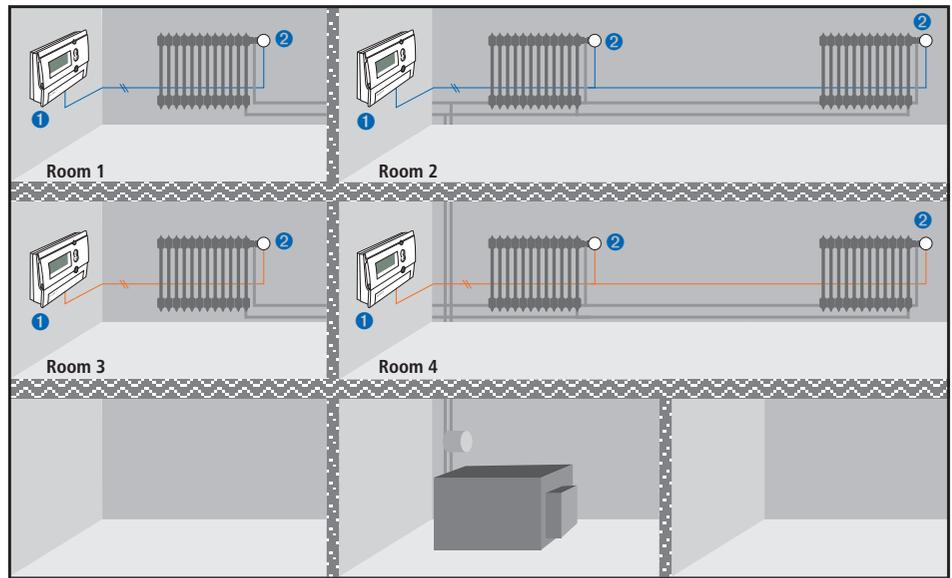


Type	Order No.
Actuator ALPHA 4 230 V~	907 0 438
Actuator ALPHA 4 24 V	907 0 439
Valve adapter VA 78	907 0 436
Valve adapter VA 80	907 0 437



Individual room control with actuators on all radiators

- 1 Clock thermostat with mains supply in each room or office.
- 2 The Theben actuators on the radiators are controlled by the clock thermostats. The Theben actuators are suitable for most of the heating valves.



Wall mounting

Humidistat, 74 x 74 mm



SOTHIS 715

SOTHIS 715

- SOTHIS 715 humidistat in an attractively shaped housing suitable for mounting
- Setting range 35...100 % rF
- Switching capacity:
humidification 2 A/250 V~
dehumidification 5 A/250 V~
- Suitable for controlling air humidification or ventilation and dehumidification systems
- Humidity of the air is measured by molecular chain changes in a synthetic polymer fiber
- Use a low protective voltage if there is a risk of water drops falling or condensation forming in the housing
- White housing, 74 x 74 mm

Dimension drawing see page 113.

Technical data:

Operating voltage: 230 V, +10 %/-15 %, 50-60 Hz

Switching capacity:
humidification 2 A/250 V~
dehumidification 5 A/250 V~

Protection class: II according to EN 60730 subject to correct installation

Degree of protection: IP 30 according to EN 60529

Colour of housing: pure white (RAL 9010)

Wiring diagram see page 121.

Type	Description	Adjustment range	Contact	Order No.
SOTHIS 715	Humidistat	35...100 % rF	2/5 A, 250 V~	715 0 002
	Adapter plate for flush-mounted socket 79 x 79 mm			907 0 212



Electrically heated mat



RAMSES 714 A/FH



RAMSES 818 top

Electrically heated mats are the ideal solution for modernisation and new build projects. They are suitable for all living areas including bathrooms, children's rooms, conservatories etc.

- Simple to install
- Adaptable to any size of room
- can be installed under floor coverings such as stone, tiles, wood, laminates, carpet, cork, PVC etc.
- Completely maintenance free and economical thanks to Theben's tried and trusted, energy saving control technology
- 2-wire heating cable with twin design of feed and return conductors plus end sleeve
- Delivered complete with 4 m connecting PTC resistor on only one side
- Both conductors are insulated in solid PTFE (Teflon). It is additionally protected by a polyester insulating layer and a very thick copper protective mesh, covered with an outer PVC coating.
- Standard conforms to EN 60335-2-96 and EN 50 366
- Mat width 50 cm, with 160 W/m² heating performance at 230 V and 4000 V test voltage
- For easy installation the conductors are woven into a self-adhesive glass fibre fabric.
- 10 year manufacturer's guarantee. Made in Germany.

Sets with control unit and heated mat

- RAM 714 A/FH electronic single room controller for wall installation suitable for all heated mats
- RAM 818 top digital clock thermostat with weekly program for the energy saving heat controller for the Theben heated mats
- The controllers are equipped with selectable temperature limits 40 °C (tiles) or 30 °C (laminates, wood, cork)
- During assembly attention should be paid to the VDE 0100 and VDE 0700-part 753 regulations
- Specially cast floor sensor with 4 m connecting cable, empty pipe and copper end sleeve

For further information on RAM 714 A/FH see page 113 and RAM 818 top see page 102.

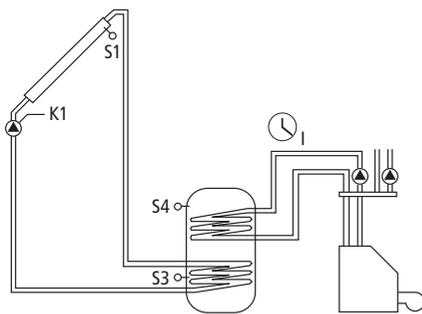
Technical data:

Operating voltage: 230 V~, ± 10 %
Nominal output: 160 W/m²
Bending radius at least 30 mm
Heating conductor distance: at least 70 mm
Assembly temperature: at least +5 °C
Standards conformity: EN 60335-2-96, EN 60335-1 und EN 50 366

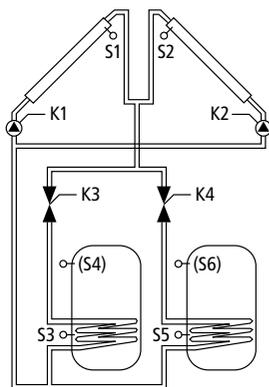
Dimensions in m	Area in sq m	Type	Order No. Individual mat	Type	Order No. Heating mat set + RAM 714 A/FH	Type	Order No. Heating mat set + RAM 818 top
0.5 x 2	1.0	FH 10	717 0 002	FH 10/714	717 0 102	FH 10/818	717 0 202
0.5 x 3	1.5	FH 15	717 0 003	FH 15/714	717 0 103	FH 15/818	717 0 203
0.5 x 4	2.0	FH 20	717 0 004	FH 20/714	717 0 104	FH 20/818	717 0 204
0.5 x 5	2.5	FH 25	717 0 005	FH 25/714	717 0 105	FH 25/818	717 0 205
0.5 x 6	3.0	FH 30	717 0 006	FH 30/714	717 0 106	FH 30/818	717 0 206
0.5 x 7	3.5	FH 35	717 0 007	FH 35/714	717 0 107	FH 35/818	717 0 207
0.5 x 8	4.0	FH 40	717 0 008	FH 40/714	717 0 108	FH 40/818	717 0 208
0.5 x 9	4.5	FH 45	717 0 009	FH 45/714	717 0 109	FH 45/818	717 0 209
0.5 x 10	5.0	FH 50	717 0 010	FH 50/714	717 0 110	FH 50/818	717 0 210
0.5 x 12	6.0	FH 60	717 0 012				
0.5 x 14	7.0	FH 70	717 0 014				
0.5 x 16	8.0	FH 80	717 0 016				
0.5 x 18	9.0	FH 90	717 0 018				
0.5 x 20	10.0	FH 100	717 0 020				



ATON 840/ATON 841/ATON 842



ATON 841 (example)



ATON 842 (example)

ATON 840

Universal solar controller for a collector field

- Display screen shows all system data at a glance
- Backlit display
- Easy to use via 4 buttons on the front of the device
- For simple hot water solar power device with a collector field and a memory
- Temperature differentiation control
- Inputs: max. 4 temperature sensors
- 2 outputs with relays
- Pump blocking protection ensures greater operational safety
- Wall and control panel installation possible
- Easy connection via large terminal area

ATON 841

Universal solar controller for a maximum of 2 collector fields and for control of backup heating.

- Such as ATON 840, however:
- Control of max. 2 collector fields or max. 2 solar storage tanks
 - Control of additional heating (boiler or electrical radiators) via low voltage relay
 - Timer with automatic summer/winter changeover for optimal use of system
 - 2 outputs with semi-conductor relays

ATON 842

Universal solar controller for control of several solar fields and external heat provider and control of auxiliary heating.

7 system configurations, parameterization and visualisation via E-Bus interface are possible.

- Such as ATON 841, however:
- Control of max. 2 collector fields and max. 2 solar storage tanks
 - 7 predefined device settings
 - Storage priority with thrust charge
 - Low voltage relay for additional heating
 - Auxiliary heating
 - 6 channel timer with automatic summer/winter changeover for optimal use of system
 - E-Bus for data logger + visualisation
 - Measurement of heat production (solar output)
 - Inputs: max. 8 measurement inputs for temperature sensor, ammeter and solar sensor
 - 4 outputs with pump control ensures lower operating costs
 - Pump start up and blockage protection function ensures greater operational reliability

Technical data:

Operating voltage: 230 V~, ± 10 %

Frequency: 50–60 Hz

Power consumption: 2.4 VA (ATON 840/841)
3.7 VA (ATON 842)

Output:

semiconductor relay (0.5 A/250 V, minimum load 20 VA)

electromechanical relay (1 A/250 V)

Switching capacity: max. 2 A/230 V

Electrical connection: Terminal screws

Max. permissible ambient temperature: +50 °C

Protection class: II

Protection rating: IP 20

Accessories:



Collector sensor

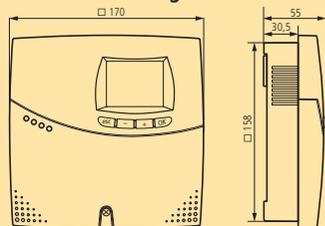


Storage sensor



E-Bus data logger

Dimension drawings



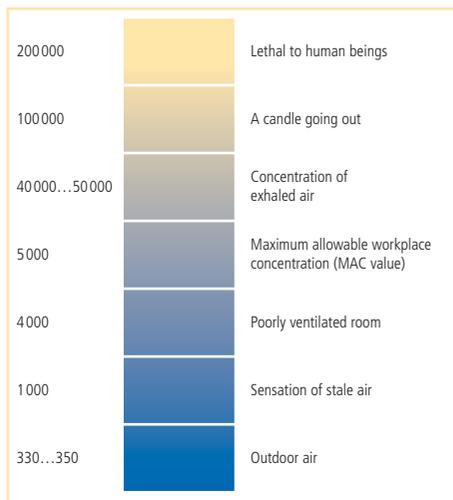
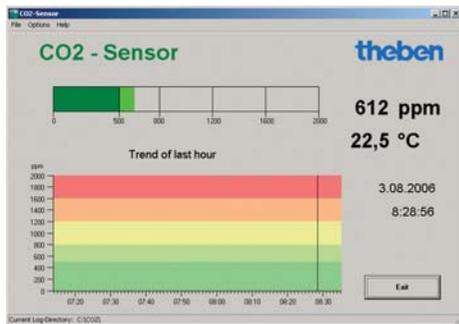
Design

- Housing 170 x 170 x 53 mm
- Housing with 3-point fastening
- Terminal screws 1 x 2.5 mm² or 2 x 1.5 mm²
- Front panel installation set on request

Type	Collector fields	Outputs max.	Inputs max.	Timer channels	Nominal current at 230 V~	Order No.
ATON 840	1	2	4	–	2 A	840 0 000
ATON 841	1	3	4	1	1 A	841 0 000
ATON 842	max. 2	5	8	6	2 A	842 0 000
Collector sensor (1 included in ATON delivery), cable length 2.20 m						907 0 490
Storage sensor (1 included in ATON delivery), cable length 2.20 m						907 0 491
eBus data logger with USB connection and software						907 0 492

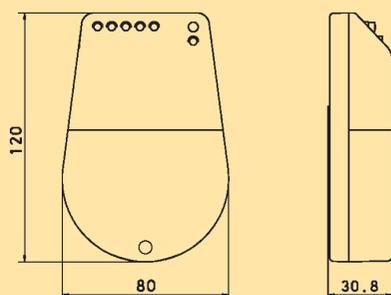


AMUN 716 USB



CO₂ concentrations

Dimension drawings



AMUN 716 USB AMUN, USB interface

When you inhale, you take up oxygen from the air and when you exhale, you give off carbon dioxide to the air. The inhaled air contains 21% of oxygen and 0.035% of carbon dioxide. The exhaled air contains 16% of oxygen and 4% of carbon dioxide. Carbon dioxide is not life-threatening until it reaches a concentration of 20%, but a person's well-being, capacity of concentration and performance are already impaired, initially without being aware of it, starting from 0,08%. DIN 1946 recommends a maximum value of 0.1%. Given today's construction stage and the high density of the building exterior, this value is often exceeded. This makes a person and lose concentration.

The CO₂ sensor for monitoring indoor air quality will display the indoor CO₂ concentration via its 5 LEDs. The measured values can be transmitted by USB interface and displayed graphically by the corresponding PC software.

Suitable for meeting or conference rooms, offices, schools/kindergartens, passive and low-energy houses and living rooms without controlled ventilation.

- Simple installation and startup at the PC via USB interface
- Software for Windows 98 SE/ME/2000/XP
- Graphic display of the CO₂ concentration at the PC
- Graph showing the change in concentration with time for the last 80 min
- Additional display of the current CO₂ concentration directly on the sensor via 5 LEDs
- Acoustic and visual warning signal upon reaching the limit value
- Adjustable acoustic alarm threshold
- Logfile on the CO₂ concentration can be saved
- Automatic saving when recording for a prolonged period
- Maintenance-free sensor by virtue of a closed measuring cell

Technical data:

- Operating voltage:** 5 V DC via USB bus voltage
- Measuring range:** 0–5000 ppm of CO₂
- Protection class:** III according to EN 60 730-1
- Schutzart:** IP 20 according to EN 60 529

Type	Description	Measuring range	Display	Data interface	Order No.
AMUN 716 USB	CO ₂ sensor including software	0–5000 ppm	5 LEDs	USB	716 9 101



FRIGGA 77



FRIGGA 77-2

- **FRIGGA 77** FRIGGA without power reserve
- Synchronous time switches without power reserve for surface-mounted installation
- Short-time switches to control for example defrosting operations in refrigerating and ventilating systems
- Sturdy clock mechanism with two separate program dials
- 24 hour program dial for preselection of the hour at which brief switching should occur.
- 60 minute program dial for adjustment of brief contacting duration.
- Type "g" allows delayed switching of the ventilator

Segments for FRI 77

- red
Order No. 934 3 246 
- green
Order No. 934 3 261 

Common technical data:

Nominal voltage: 230 V~, +10 %/-15 %

Frequency: 50 Hz

Power consumption: approx. 2.5 VA

Contact: gap less than 3 mm (μ), potential-free, not for SELV

Contact material: AgCdO

Switching capacity:

16 A, 250 V~, cos φ = 1

2.5 A, 250 V~, cos φ = 0.6

Switching accuracy: depending on the net frequency

Permissible ambient temperature: -10 °C...+50 °C

Housing and insulating material:

high temperature resistant,

selfextinguishing thermoplastics

Protection class:

IP 20 in accordance with EN 60529

Special version without housing IP 00

Degree of protection:

II in accordance with EN 60730-1

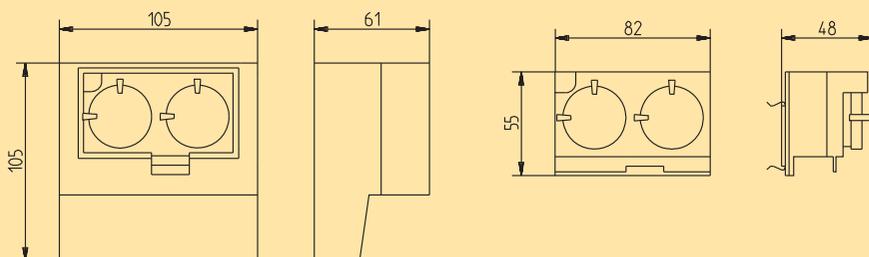
Test approvals: national and international

depending on device type  

Weight: 265 g (with housing)

Wiring diagrams see page 120.

Dimension drawings



Design:

- FRI 77: Housing for wall mounting, with transparent cover.
- FRI 77-2: Mechanism without housing with snap-on fixing for top-hat rails (35 mm, DIN EN 50022), can be attached horizontally or vertically

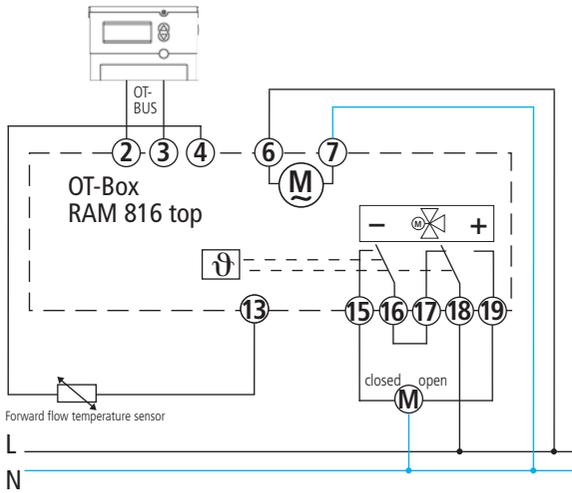
Type	Program dial	Design in mm	Programmable every ...	Minimum switching interval	Tappet complement	Switching contacts	Nominal current at 250 V~	Order No.
FRI 77 h	60 min 24 h	wall mounting 105 x 105 x 61	1 minute/ 1 hour	2 minutes/ 1 hour	2 x green 4 x red	1 change-over switch	16 (2.5) A	077 0 008
FRI 77 g	60 min 24 h	wall mounting 105 x 105 x 61	1 minute/ 1 hour	2 minutes/ 1 hour	4 x green 4 x red	2 change-over switches	16 (2.5) A	077 0 033
FRI 77 h-2	60 min 24 h	drive with rapid mounting 55 x 82 x 48	1 minute/ 1 hour	2 minutes/ 1 hour	2 x green 4 x red	1 change-over switch	16 (2.5) A	077 0 802
FRI 77 g-2	60 min 24 h	drive with rapid mounting 55 x 82 x 48	1 minute/ 1 hour	2 minutes/ 1 hour	4 x green 4 x red	2 change-over switches	16 (2.5) A	077 0 832

Wall mounting

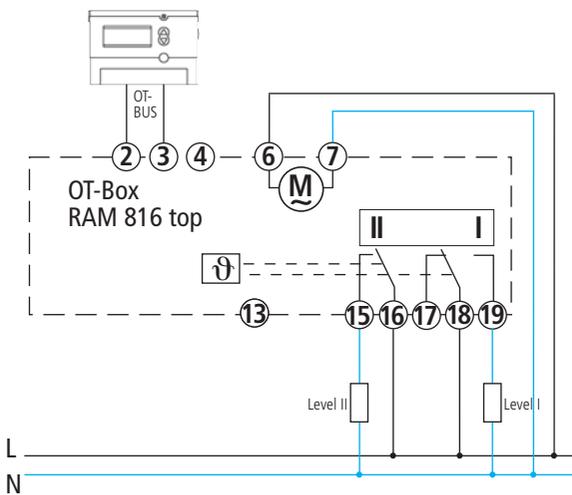
Wiring diagrams

OT-BUS: 2-wire BUS between control device and switching unit.

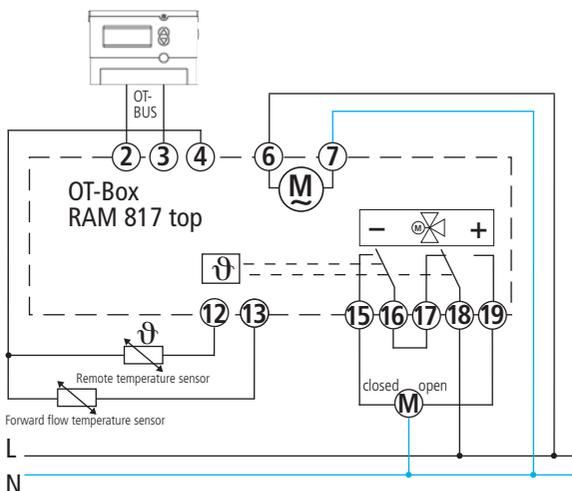
The BUS wire carries protective low voltage. Maximum BUS wire length 100 m.



RAM 816 top controls mechanical mixing valve

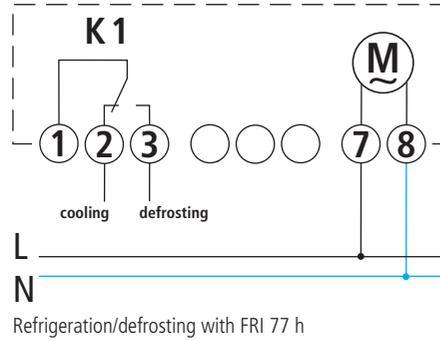


RAM 816 top controls 2 heating stages
(2-stage blower, under-floor heating, radiators etc.)

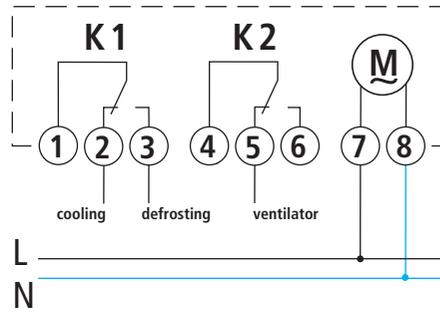
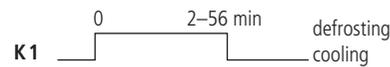


RAM 817 top controls mechanical mixing valve

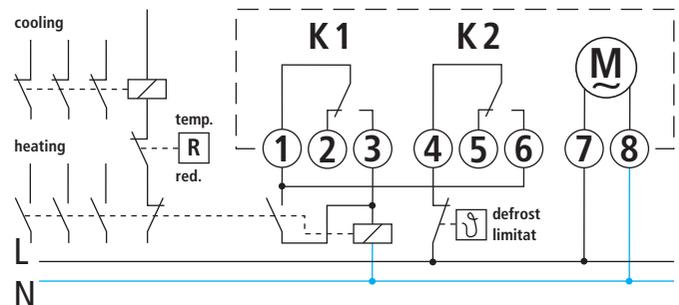
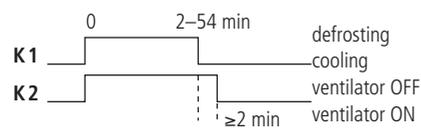
FRIGGA-switching examples with diagram:



Refrigeration/defrosting with FRI 77 h



Refrigeration/defrosting/fan delay with FRI 77 g

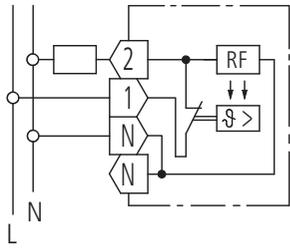


Refrigeration/defrosting with pressostat and thermostat switching with FRI 77 g

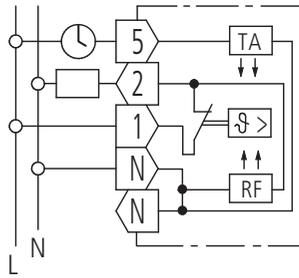


Wall mounting

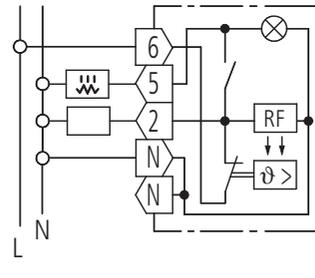
Wiring diagrams



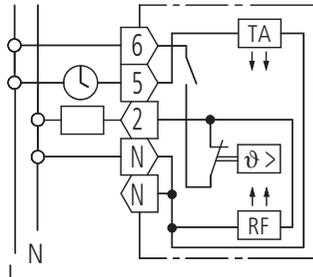
RAM 701



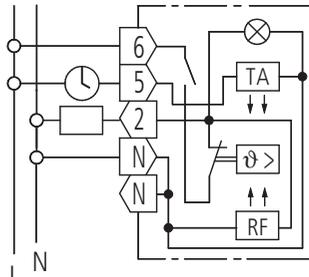
RAM 702/703



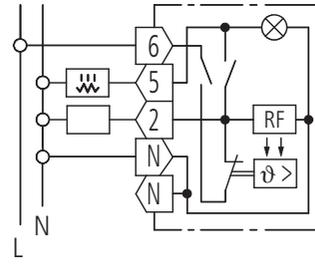
RAM 704



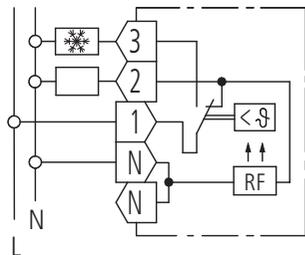
RAM 705



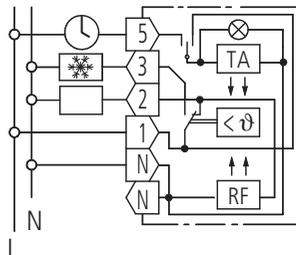
RAM 706



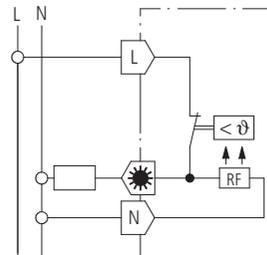
RAM 707



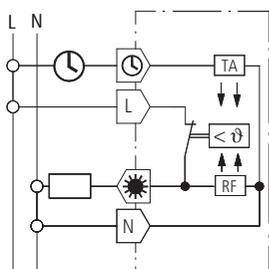
RAM 708



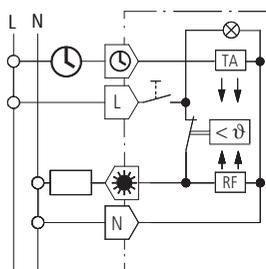
RAM 709



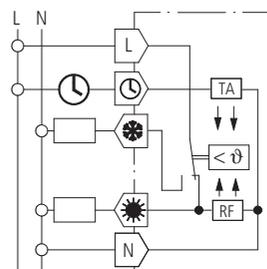
RAM 741



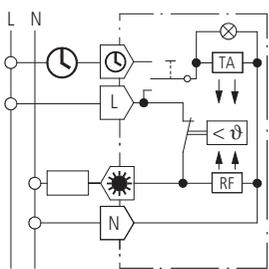
RAM 742



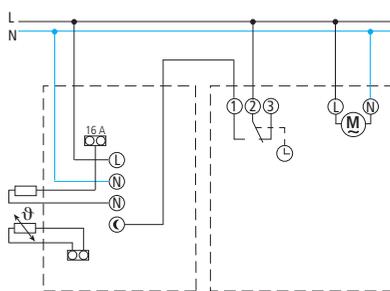
RAM 746



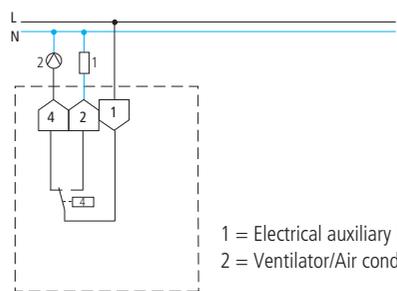
RAM 748



RAM 749



RAM 714/714 A



SOT 715

1 = Electrical auxiliary heating
2 = Ventilator/Air conditioner

⌚ Time switch/Switch for lowering temperature
❄️ Air conditioning/Fan

☐ Heating/Actuator/Solenoid valve/Burner/Circulating pump/Blower of night storage heating systems
⚡ Electric additional heating



Detached house, office or conservatory: Wherever young or older people are to feel at home it's good to know that lighting, room temperature and solar protection are reliably controlled. Central functions ensure security if the residents are out or on holiday as the Bus system eases the burden on occupiers and provides security and saves energy.

SYSTEMS

LUXOR living comfort control units with central functions	DIN rail program	Pages 124–131
PHARAO-II small control units with "drag and drop" programming	DIN rail program	Pages 132–135
KNX		
KNX actuators/binary inputs upgradeable MIX devices	DIN rail program	Pages 136–145
KNX blinds actuators for 230 V AC and 24 V DC	DIN rail program	Pages 143–144
KNX heating actuators with TRIAC control	Heating circuit distributor	Page 145
KNX thermostats, fan coil 2-point, continuous or staged control	Wall-mounted	Pages 146–149
KNX motorised actuators CHEOPS with and without control	Radiator/heating circuit distributor	Page 150
KNX thermal actuators ALPHA for 230 V AC or 24 V AC/DC	Radiator/heating circuit distributor	Page 151
KNX weather station for blinds control	Wall-mounted	Page 153
KNX movement/presence detector for lighting and HVAC control	Wall/ceiling installation	Pages 155–164
KNX time transmitters and timers for building automation	DIN rail program/wall mounted	Pages 165–168
KNX sensors for brightness and temperature	DIN rail program/wall mounted	Pages 152–169
KNX secondary clocks Single and double faced clocks	Wall-mounted	Pages 170–171
KNX system components Interfaces and power supply	DIN rail program	Pages 172–173
Call system	Wall-mounted/flush-mounted	Pages 174–175



LUXOR 400 (Basic module)



Luxury installation, simple and favorably priced!
For the first time, it is possible to realize a luxury installation in every housing facility. With LUXOR, we offer you the opportunity to satisfy the needs such as **safety, comfort and energy savings** of every home owner.

Function:
Modularly extendable system for standard living comfort installation. REG modules connected by means of a 2-wire COM interface. Expandable with up to 16 modules. Absolute functional safety by means of the "standalone" function of each module. The U and I 4 inputs are potential-free. Settings are very easy to make directly on the module.

- LUXOR 400 (base module)**
- Base module, expandable with up to 16 modules.
 - 4 x 16 A switching outputs
 - Manual switching
 - LEDs for displaying input/output signals
 - Potentiometers for adjusting the time functions
 - U1: Universal voltage input 8-48 V AC/DC
 - I 4 (L) and I 4 (N) for connecting FI (RCD) for wet rooms
 - 2-wire COM interface for communication with other modules
 - Adjustment possible for central ON/OFF, panic, and presence simulation
 - From generation*** capable of communication with LUXOR 411/412 and 414

Technical data:
Operating voltage: 230 V~, +10 %/-15 %
Mains frequency: 50 Hz
Device consumption: approx. 4 VA
Switching outputs: 16 (6) A/250 V~
Connecting cable button/switch: 230 V phase-independent supply cable
 Cable length up to 100 m
2-wire connection for COM: Cross-section as desired/length up to 100 m

Admissible ambient temperature: -10 °C ... +50 °C
Protection class: Control unit: II according to EN 60730-1 when mounted in accordance with its designated use
Protection type: Control units: IP 20 according to EN 60529

Channels:
C1: Current pulse or time function
 1...15 min with switch-off pre-warning (deselectable)/resettable and continuous function
C2: Current pulse or time function
 1...20 min with switch-off pre-warning (deselectable)/deactivatable and continuous function
C3: Current pulse function
C4: Current pulse function suitable for FI (RCD) in wet rooms

Input cable length: up to 100 m, 230 V cables single- and multi-pole (NYM cable, NYIF riser, H05/H07 PVC wires)

Use a screwdriver for programming

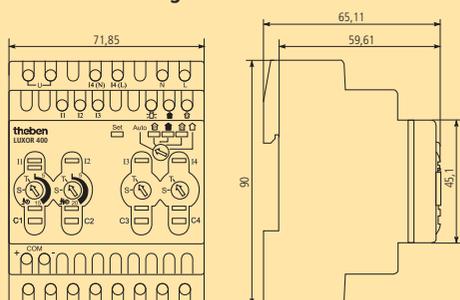
- U and I 4 inputs are potential-free
- I 4 (L) I 4 (N) special connections for FI (RCD) in wet rooms
- U1 is a universal voltage input for the activation via intercoms (8-48 V AC/DC)
- Manual operation on the device for the installation test
- Time range settings very easy to make directly on the device
- Each module operates fully independently of the others (standalone function)

For the online configurator, go to www.luxor400.com

Operator interface:

- Panic function
- Central OFF
- Presence simulation
- Central ON/Scene
- LED lights up when a signal is active.
- Selector switch input button/switch
- LED lights up when the relay is switched on.
- Channel button for ON/OFF manual switching, and programming of the central functions
- Setting the resettable time function from 1 to 20 min with switch-off pre-warning (deselectable) and continuous light
- Setting the resettable time function from 1 to 15 min with switch-off pre-warning (deselectable) and continuous light

Dimension drawings



Order No.

LUXOR 400 (Basic module)

400 0 000



LUXOR 404 (4-channel extension)



LUXOR 402 (2-channel extension)

Function:

Modular upgradeable LUXOR system for the standard living comfort installation. REG modules connected via a 2-wire COM interface. Upgradeable to max. 16 modules. Wholly reliable functionality thanks to the "stand-alone" function of each module. Completely floating and phase-independent inputs/outputs. Simplest settings on the module itself.

LUXOR 404

- 4 channel upgrade module
- 4 x 16 A switching outputs
- Manual controls
- Display LED's
- Potentiometers for setting the time function
- I 4 (N) and I 4 (L) for connecting FI (RCD) for wet rooms
- U and I 4 inputs are potential-free
- Switch-off pre-warning deselectable

LUXOR 402

- 2 channel upgrade module
- 2 x 16 A switching outputs with deactivatable time function
- Manual control
- Display LED's
- Key/switch selection option
- U and I 4 inputs are potential-free
- Switch-off pre-warning deselectable

Technical data:

Operating voltage: 230 V, +10 %/-15 %
Mains frequency: 50 Hz
Power consumption: approx. 4 VA
Switch outputs: 16 (6) A/250 V~
Contacts: floating working contact
Key/switch connection:
 230 V phase-independent supply cable
 cable length max. 100 m
2-wire connection for COM:
 Any cross-section max. length 100 m

Permissible ambient temperature:

-10 °C ... +50 °C

Protection class: Control unit: II to EN 60730-1 for mounting with terminal box cover plate

Protection rating: Control unit: IP 20 to EN 60529

Channels:

C1: Current surge or time function

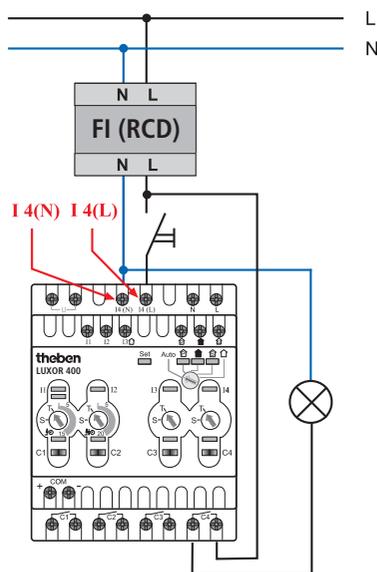
1...15 min with switch-off pre-warning (deselectable)/resettable and continuous function (immediately resettable)

C2: Current surge or time function

1...15 min with switch-off pre-warning (deselectable)/resettable and continuous function (immediately resettable)

C3: Current surge function (LUXOR 404 only)

C4: Current surge function suitable for FI (RCD) for wet rooms (LUXOR 404 only)



Terminals for FI circuit breaker (RCD)

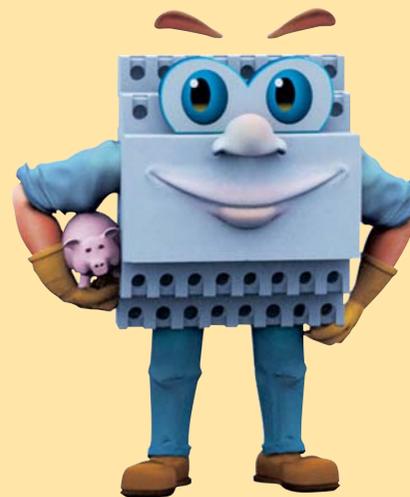
Application:

For wet rooms such as.: Bathroom

Caution!

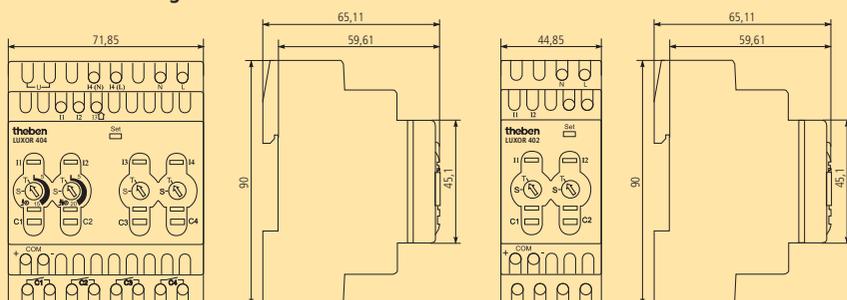
Connect the FI circuit breaker (RCD) on the I 4 (L) and I 4 (N) terminals only (see figure).

The I 4 (N) terminal must be connected with or without FI (RCD) in every type of application!



Leo Luxor
www.luxor400.com

Dimension drawings



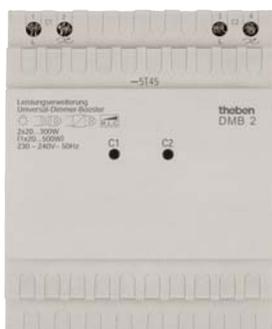
Order No.

LUXOR 404 (4-channel extension)
 LUXOR 402 (2-channel extension)

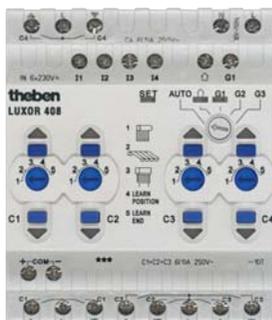
404 0 000
 402 0 000



LUXOR 405 (Dimming module)



DMB 2 (Power extension)



LUXOR 408 (Shutter basic module)



LUXOR 409 (Shutter upgrade module)

LUXOR 405 2-channel dimming module
The LUXOR 405 upgrade module is a universal dimmer for various lamp loads. It is suitable for both conventional and electronic transformers. The device is also usable without basic module.

- 2-channel universal dimmer, each with 300 VA or 1-channel universal dimmer, with 500 VA
- Any number of keys can be connected to the inputs provided
- Selection programs P1 to P4 as setting option for the dimming response
- Manual controls and display LED's
- One additional input per channel for movement indicator
- Stand-alone function
- Overcurrent display
- CLEAR key for resetting in the event of malfunction
- Setting input for 3 light settings

DMB 2 Power extension
• Power extension (for LUXOR 405) of the 2 dimming channels from 2 x 600 VA/1 x 1000 VA

LUXOR 408 Shutter basic module
Basic shutter module for controlling a maximum of four shutters, blinds or awnings. The module can be controlled by all familiar standard shutter keys. There are three groups for individual channel programming and also the central UP/DOWN function. The module can be expanded with channel upgrades and also with a time and sensor module with connectable weather station.

- Selector switch for shutters, awnings and Venetian blinds for each channel
- Separate control of 4 shutters with UP/DOWN/STOP
- Central UP/DOWN of all shutters
- Group function for one shutter group
- Storable intermediate position for shading and ventilation
- UP/DOWN panic function controllable via LUXOR 400
- Manual controls and display LED's
- 6 A switching capacity per channel
- Expandable by channel upgrade modules, time and sensor module with optional connecting weather station

LUXOR 409 Shutter upgrade module
• Separate control of 4 shutters with UP/DOWN/STOP
• Central UP/DOWN of all shutters via LUXOR 408
• Group functions for two shutter groups
• Storable intermediate position for shading and ventilation
• UP/DOWN panic function controllable via LUXOR 400
• Manual controls and display LEDs
• 6 A switching capacity per channel

Technical data for LUXOR 405:
Operating voltage: 230 V~, +10 %/-15 %
Mains frequency: 50 Hz
Power consumption: approx. 3 VA
Dimmer outputs: 2 x 300 VA or 1 x 500 VA
Suitable for filament bulbs, LV and HV halogen lamps
Connecting cable key: 230 V phase-independent supply cable, cable length max. 100 m
2-wire connection for COM:
Any cross-section/max. length 100 m

Permitted ambient temperature: -10 °C ... +50 °C
Protection class to EN 60730-1: Control units: II for mounting with terminal box cover plate
Protection rating to EN 60529: Control units: IP 20

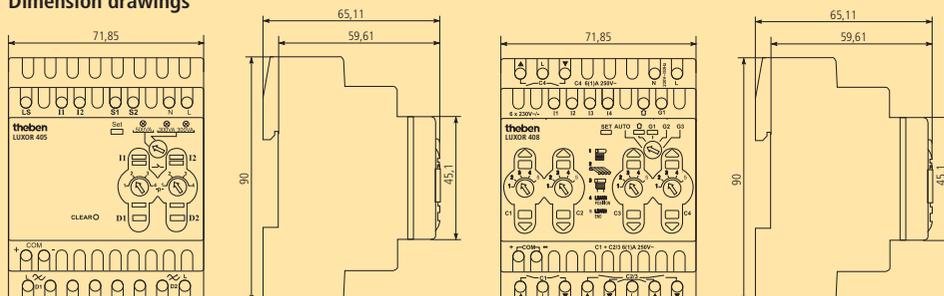
Channels:
C1: Universal dimmer with 300 VA
C2: Universal dimmer with 300 VA
C1 + C2: Universal dimmer with 500 VA

Technical data for LUXOR 408/LUXOR 409:
Operating voltage: 230 V~, +10 %/-15 %
Mains frequency: 50 Hz
Power consumption: approx. 4 VA
Switch outputs: 6 VA/250 V~
Connecting cable key: 230 V phase-independent supply cable, cable length max. 100 m
2-wire connection for COM:
Any cross-section/max. length 100 m

Permitted ambient temperature: -10 °C ... +50 °C
Protection class to EN 60730-1: Control units: II for mounting with terminal box cover plate
Protection rating to EN 60529: Control units: IP 20

Channels:
C1 to C4: for shutter, blind and awning control

Dimension drawings



Order No.

LUXOR 405 (Dimming module)	405 0 000
LUXOR 408 (Shutter basic module)	408 0 000
LUXOR 409 (Shutter upgrade module)	409 0 000
DMB 2 (Power extension)	491 0 222



LUXOR 411 (sensor module)



Surface-mounted light sensor



LUXOR 413 (wind sensor optional)

LUXOR 411 (sensor module)

+ max. 3 light sensors + wind sensor

Automatic control of shutters, Venetian blinds and awnings as a function of brightness, and automatic control of the generation 3 exterior lighting.

If required, up to 3 light sensors with wall support can be connected to the control device.

- Three groups of blinds, e.g. on 3 different façades, can be controlled separately and moved automatically to pre-defined positions (0–100 %). This requires one light sensor for each façade.
- The automatic lighting control in the LUXOR system is effected by the dimming switch channel with a setting range of 1–100 lux. This allows, for example, entrance and house number lighting to be switched automatically (from generation 3***).
- The monitoring of the wind speed by means of the additional wind sensor LUXOR 413 allows the sun protection to drive automatically to a safe position, before damage can occur.
- The wind sensor (LUXOR 413) or the weather sensors can also be retrofitted later on to the sensor module LUXOR 411 (see page 102)
- For the wind sensor LUXOR 413, an additional power supply unit is required
- Cable length of the sensor lines up to 100 m

Technical data:

Operating voltage: 230 V~, +10 %/–15 %

Mains frequency: 50 Hz

Device consumption: 5.5 VA

Inputs:

3 light sensors

1 wind sensor (LUXOR 413) **or:**

connection for weather sensors (LUXOR 412) and 2 light sensors

Wind speed: 2–20 m/s

Brightness range:

3 channels x 1000–100,000 lx (sun protection)

1 channel x 1–100 lx (twilight value)

2-wire connection for COM:

Cross-section as desired/length up to 100 m

Admissible ambient temperature:

–10 °C ... +50 °C

Protection class according to EN 60730-1 when mounted in accordance with its designated use:

Control unit: II

Sensors: III

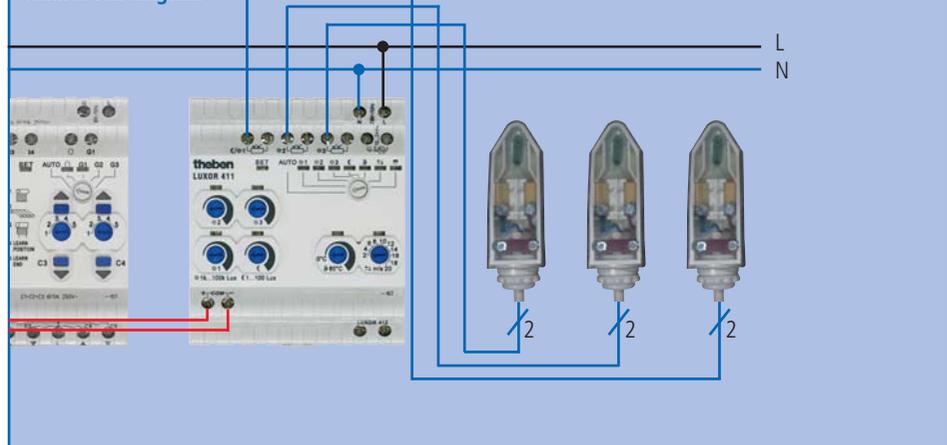
Protection type according to EN 60529:

Control units: IP 20

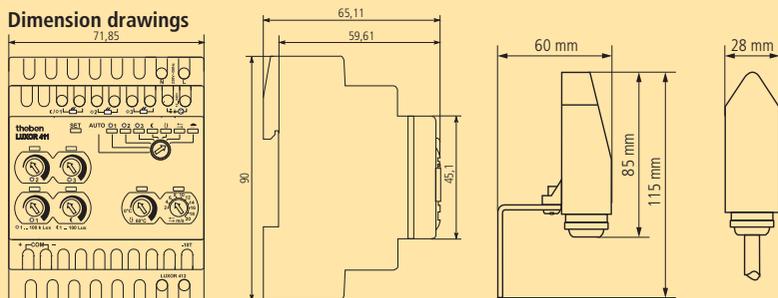
Sensors: LUXOR 413 IP 43

Mounted light sensor IP 54

Connection diagram



Dimension drawings



Accessories:



Power supply unit 24 V DC (LUXOR 413)

Order No.

LUXOR 411 (sensor module)	411 0 000
Surface-mounted light sensor (max. 3)	907 0 008
LUXOR 413 (sensor module)	413 0 000
Power supply unit required for LUXOR 413 (4 modules)	907 9 330



LUXOR 411 (sensor module)



LUXOR 412 (weather sensory system)

LUXOR 411 + LUXOR 412 weather sensors

The complete system for the reliable control of awnings, shutters and Venetian blinds – regardless of stormy, rainy or snowy weather. The weather sensory system provide reliable protection, have everything under control and tell the individual channels of the shutter modules in the LUXOR system what they have to do. For example, which slat position the blinds are to move to, depending on the sun's position.

Starting from a set lux value, the pre-selected blinds/awnings will move automatically to the pre-defined position (0–100 %). Optionally, 2 additional light sensors can be used to control a total of 3 groups of blinds differently, e. g. for 3 façades.

- The monitoring of the wind speed allows the sun protection to drive automatically to a safe position, before damage can occur.
- Shutters, exterior, entrance and house number lighting can be controlled automatically by the LUXOR system by means of the twilight value setting. (from generation 3***)
- Simple wall mounting by sensor arm that can be tilted upward
- Optional mounting to pole up to Ø 60 mm
- Cable length of the sensor lines up to 100 m
- Frost is fixed to +3 °C, for awnings only

Technical data:

Operating voltage:

LUXOR 411: 230 V~, +10 %/–15 %

LUXOR 412 is supplied by LUXOR 411

Mains frequency: 50 Hz

Device consumption: 5.5 VA

Inputs:

Connection for weather sensors including wind, rain, temperature and integrated light sensors (LUXOR 412) optional: 2 additional light sensors, 1 wind sensor (LUXOR 413)

Brightness range:

max. 3 channels: 1000–100,000 lx (sun protection)

1 channel: 1–100 lx (twilight value)

Wind speed: 2–20 m/s

Temperature range: 0 °C ... +60 °C

2-wire connection for COM:

Cross-section as desired/length up to 100 m

Admissible ambient temperature:

Control unit: –10 °C ... +50 °C

Weather sensors: –20 °C ... +55 °C

Protection class according to EN 60730-1 when mounted in accordance with its designated use:

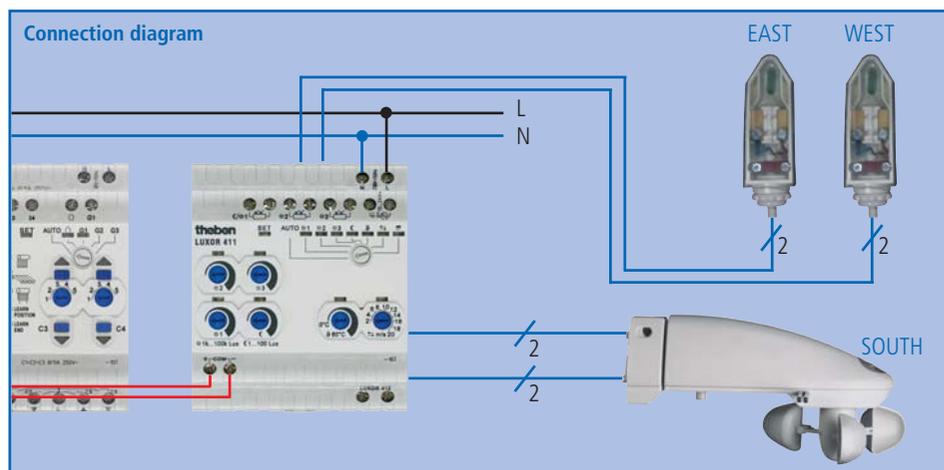
Control unit: II

Sensors: II

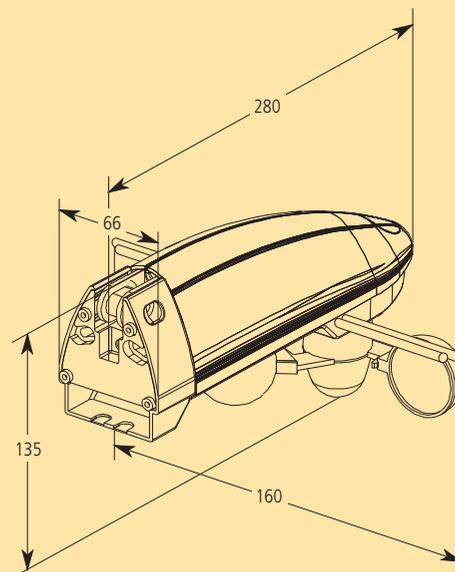
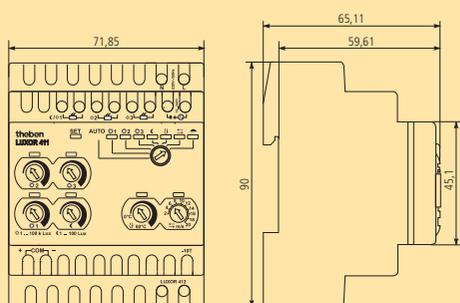
Protection type according to EN 60529:

Control units: IP 20

Sensors: IP 44



Dimension drawings



Order No.

LUXOR 411 (sensor module)	411 0 000
LUXOR 412 (weather sensory system)	412 0 000
Surface-mounted light sensor	907 0 008
Mast mounting (for LUXOR 412)	907 0 380



LUXOR 414 (clock modul)

LUXOR 414 (clock module)

8-channel system clock for controlling any outputs of the LUXOR system. The time switch provides daily and weekly programs and also includes the option of astronomical programs for switching in accordance with sunrise and sunset. These features allow blinds and shutters to be controlled and positioned comfortably and fully automatically in the range from 0 to 100 %.

Automatic lighting control at the entrance area or all around the house provides increased safety at nightfall. The automatic nighttime switch-off provides saving of energy.

- 8 channels optionally with daily, weekly or astronomic program
- 128 freely programmable switching times and 732 preprogrammed astronomic switching times
- Local database for simple entering of the location
- Individual linking of the time switch channels to the outputs by means of a selector switch
- Positioning of drives (LUXOR 408/LUXOR 409) and transmission of the dimming values (LUXOR 405) in percent values 0–100 %
- Option to set manual or automatic mode
- Off periods to suppress brightness or twilight signals from the sensor module LUXOR 411 e. g. to suppress lighting in the early morning in summer
- Astronomic off periods to change the times of the up and down movements of shutters/awnings
- Offset ± 120 min
- Automatic summertime/wintertime change
- User guidance by means of text line in the display

Technical data:

Operating voltage: 230 V~, +10 %/–15 %

Mains frequency: 50 Hz

Device consumption: approx. 4 VA

2-wire connection for COM:

Cross-section as desired/length up to 100 m

Memory locations: 128

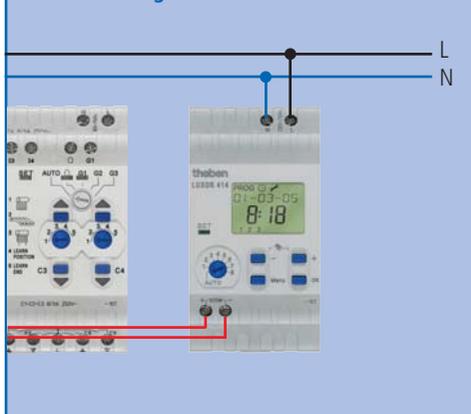
Power reserve: 5 h

Admissible ambient temperature: –10 °C ... +50 °C

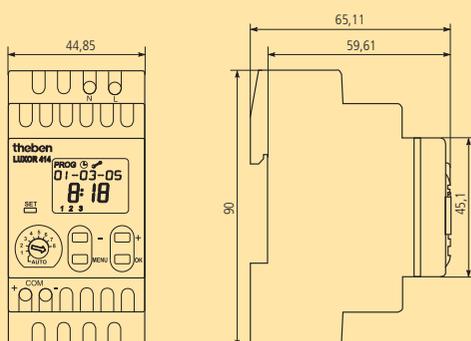
Protection class according to EN 60 730: II when mounted in accordance with its designated use

Protection type according to EN 60 529: IP 20

Connection diagram



Dimension drawings



Order No.

LUXOR 414 (clock modul)

414 0 000



LUXOR Set 2

- **Set 2:**
Convenience set for a single-family house. 8 separate lighting points with 3 central functions and 4 time functions (for hallway, basement, outside lighting etc.).

- LUXOR Set 2:**
Suitable for 8 separate lighting units, 4 x time/switch and 4 x switch
- Box
 - 1 LUXOR 400
 - 1 LUXOR 404



LUXOR Set 3

- **Set 3:**
The ideal set for a large single-family house with 10 separate lighting points and 4 time functions. Extra dimming channels for living rooms, bedrooms etc. This set also provides the advantages offered by the central functions.

- LUXOR Set 3:**
Suitable for 10 separate lighting units, 4 x time/switch and 4 x switch, 2 x dimming
- Box
 - 1 LUXOR 400
 - 1 LUXOR 404
 - 1 LUXOR 405



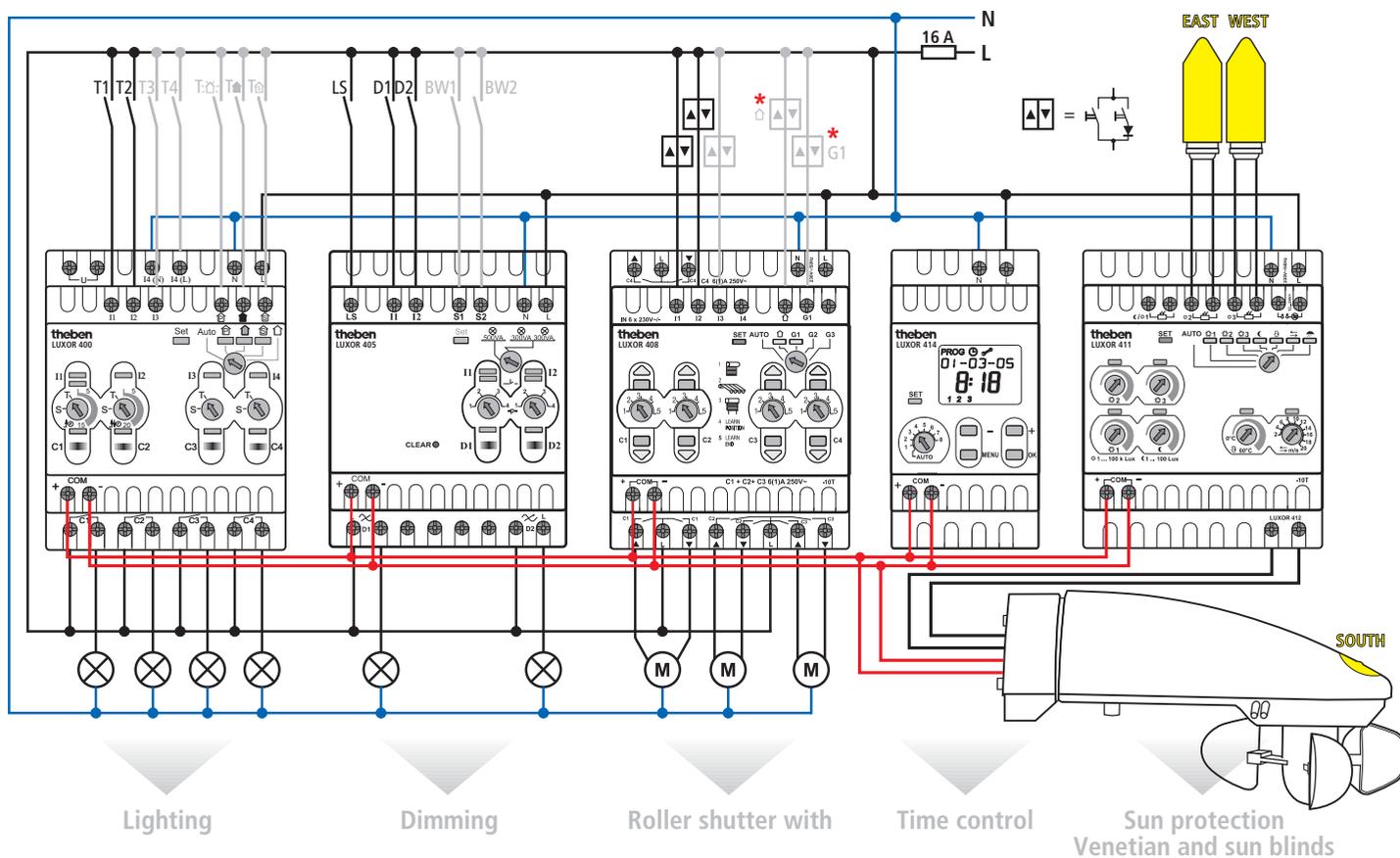
LUXOR Set 4

- **Set 4:**
The perfect set for controlling roller shutters and Venetian blinds. 8 drives can be controlled individually or in groups, as well as manually or automatically, based on a schedule or sunrise/sunset program. Blocked times allow you to prevent roller shutters and sun blinds from going up and down in early morning hours. Also with convenient central functions.

- LUXOR Set 4:**
Suitable for 8 drives for roller shutters and Venetian blinds, 8 drives and 8 time channels with week program and astronomical clock
- Box
 - 1 LUXOR 408
 - 1 LUXOR 409
 - 1 LUXOR 414

All 4 sets can be expanded as needed.

Connection of inputs/outputs and comfort functions (example)



Type	Channels	Function	Central functions in conjunction with basic modules	Outputs floating	Nominal current at 250 V~	Order No.
LUXOR 400 Basic module	4	Switch Time	Presence simulation, Central OFF, Panic function	4 NO contact	16 A	400 0 000
LUXOR 402 Upgrade module	2	Switch Time	Presence simulation, Central OFF, Panic function	2 NO contact	16 A	402 0 000
LUXOR 404 Upgrade module	4	Switch Time	Presence simulation, Central OFF, Panic function	4 NO contact	16 A	404 0 000
LUXOR 405 Dimming module	2	Dimming, Lightsetting, Nightlight	Presence simulation, Central OFF, Panic function	2 Triacs	2 x 300 W/VA (1 x 500 W/VA)	405 0 000
DMB 2 Upgrade device	2	Dimming booster	–	2 Triacs	2 x 600 W/VA (1 x 1000 W/VA)	491 0 222
LUXOR 408 Roller shutter basic module	4	Motor control	Central UP/DOWN, Panic 1 group	8 NO contact	6 A	408 0 000
LUXOR 409 Roller shutter upgrade module	4	Motor control	Central UP/DOWN, Panic 2 groups	8 NO contact	6 A	409 0 000
Diode module for special functions (group function/central function) necessary *			Set with 2 devices			907 0 367
LUXOR 411 Sensor module	–	Threshold value brightness, wind, twilight and temperature Switch	–	–	–	411 0 000
Surface-mounted light sensor for LUXOR 411						907 0 008
LUXOR 412 Weather sensor	–	Sensor for brightness, twilight, temperature, wind, rain	–	–	–	412 0 000
Mast installation for LUXOR 412/LUXOR 413, up to Ø 60 mm						907 0 380
LUXOR 413 Wind sensor	–	Wind sensor	–	–	–	413 0 000
Power supply unit needed for LUXOR 413						907 9 330
LUXOR 414 Time module	8	Daily, weekly and astronomical program	–	–	–	414 0 000
LUXOR Set 2						499 0 002
LUXOR Set 3						499 0 003
LUXOR Set 4						499 0 004



PHARAO-II 10 (AC)
PHARAO-II 11 (DC)



PHARAO-II 14 (AC)



PHARAO-II 24 (AC)

Common functions

- Programmable controller for commercial and industrial use
- 34 pre-programmed function blocks with special control functions that can be used up to 200 times
- Direct programming of even complex Boolean functions in one function module
- Programming, editing and modifying on the unit itself via 8 keys without interface cable
- Backlit LCD with operator guidance in 4 x 12 character text
- Input and output switching status display
- Process variable display (MMI function)
- Assignment of programmed functions on front keys
- Internal EEPROM memory for max. 200 function blocks (5000 bytes)
- Optional plug-in EEPROM for program transfer or dual programming of internal/plugged-in EEPROM
- 3-level password protection
- Realtime year clock with 1,000 switching times
- Graphical programming software for Windows 95/98/NT/2000/ME/XP with detailed online Help documentation
- Programming of the function blocks via "drag and drop"
- Online/offline program simulation on screen
- Remote control/remote monitoring possible via modem or GSM modem
- Transmission of SMS, email or fax

PHARAO-II 10 (AC)

- Rated voltage 100–240 V~
- 6 digital inputs e.g. for buttons, brightness and temperature switches
- 4 Relay outputs 8 A/250 V~

PHARAO-II 11 (DC) as before, but

- Rated voltage 24 V DC
- 6 inputs digital/analog selectable

PHARAO-II 14 (AC)

- Nominal voltage 100–240 V~
- 8 digital inputs e.g. for keys, brightness and temperature switches
- 6 relay outputs 8 A/250 V~

PHARAO-II 24 (AC)

- Nominal voltage 100–240 V~
- 15 digital inputs e.g. for keys, brightness and temperature switches
- 9 relay outputs: 4 x 8 A/250 V~, 5 x 2 A/250 V~

Common technical data

LCD display:

4 x 12 character lines, run mode, password protection, input/output status, time, date, process variables, function block overview during programming

Capacity loss:

PHARAO-II 14: ≤ 5.5 W, PHARAO-II 15: ≤ 7.5 W
PHARAO-II 24: ≤ 7 W, PHARAO-II 25: ≤ 9 W

PHARAO-II 10/11/14/15 switching power:

8 A/250 V AC, cos φ = 1, inductive load max. 373 VA (service life of the relay contacts 100,000 switching cycles at rated current)

PHARAO-II 24/25 switching power:

4 x 8 A/250 V AC, cos φ = 1, inductive load max. 373 VA
5 A/250 V AC, cos φ = 1, inductive load max. 373 VA (service life of the relay contacts 100,000 switching cycles at rated current)

Time accuracy of realtime clock: ±5 s/day

Power reserve of realtime clock and operands:

20 days at 25 °C (Goldcap)

Permissible ambient temperature: –25 °C...+55 °C

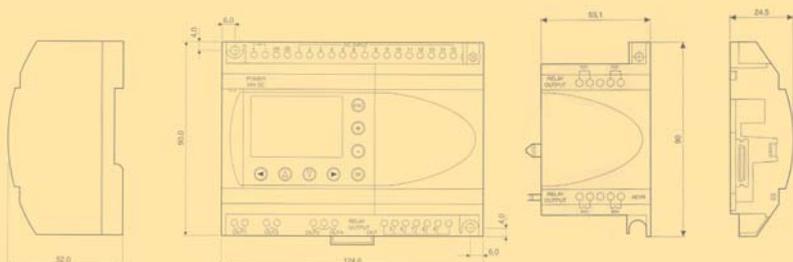
Permissible storage temperature: –30 °C...+70 °C

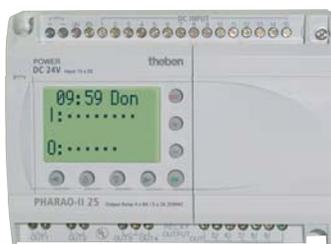
Protection rating: IP 20 to EN 60 529

Protection class: II subject to correct installation

Weight: 300 g

Dimension drawings DIN 43 880





PHARAO-II 25 (DC)

PHARAO-II 15 (DC)

- Nominal voltage 24 V DC
- 8 inputs digital/analogue selectable
- 6 relay outputs 8 A/250 V~

PHARAO-II 25 (DC)

- Nominal voltage 24 V DC
- 15 inputs, including 8 digital/analogue selectable
- 9 relay outputs: 4 x 8 A/250 V~, 5 x 2 A/250 V~



PHARAO-II 4EDA (DC)



PHARAO-II 4ED (AC)

PHARAO-II 4EDA (DC)

- Upgrade by 4 digital (24 V DC) inputs 2 x 1 kHz counter inputs

PHARAO-II 4ED (AC)

- Upgrade by 4 digital inputs (220 V AC–240 V AC)



PHARAO-II 4AR (AC)

PHARAO-II 4AR (AC)

- 4-channel relay output upgrade with 2 A/250 V AC



24 V DC power supply

24 V DC power supply

Power pack for supply voltage from PHARAO controllers and sensors (LUNA 131 DDC).

Power pack adequate for 5 controllers PHARAO-II 15 or PHARAO-II 21/25 and/or 12 x PHARAO-II 11/12 controllers

Technical data:

Nominal output voltage: 24 V DC

Nominal output: 36 W

Nominal current: 1.5 A

Protection class: II subject to correct installation

Permissible humidity range: ≤ 95 %

Permissible ambient temperature: –5 °C ...+55 °C

Protection rating: IP 20 to EN 60 950

Dimensions: 71 x 90 x 58 mm

Type	Outputs	Nominal voltage range	Inputs frequency	Input	Order No.
PHARAO-II 10 (AC)	4 relays (NO contact) à 8 A/250 V~	100–240 V AC, +10 %/–15 %, 50–60 Hz	6 digital inputs	max. 5 Hz	575 0 210
PHARAO-II 11 (DC)	4 relays (NO contact) à 8 A/250 V~	24 V DC, +20 %/–15 %	6 analogue/digital eligible inputs	max. 20 Hz	575 9 211
PHARAO-II 14 (AC)	6 relays (NO contact) à 8 A/250 V~	100–240 V AC, +10 %/–15 %, 50–60 Hz	8 digital inputs	max. 20 Hz	575 0 014
PHARAO-II 15 (DC)	6 relays (NO contact) à 8 A/250 V~	24 V DC, +20 %/–15 %	8 analogue/digital eligible inputs	max. 20 Hz	575 9 015
PHARAO-II 24 (AC)	4 relays à 8 A/250 V~ 5 relays à 2 A/250 V~	100–240 V AC, +10 %/–15 %, 50–60 Hz	15 digital inputs	max. 20 Hz	575 0 024
PHARAO-II 25 (DC)	4 relays à 8 A/250 V~ 5 relays à 2 A/250 V~	24 V DC, +20 %/–15 %	15 inputs, 8 of them analogue/digital eligible inputs	max. 20 Hz	575 9 025
PHARAO-II Upgrade 4ED (AC)		220–240 V AC 50–60 Hz	4 digital inputs	max. 5 Hz	575 9 100
PHARAO-II Upgrade 4EDA (DC)		24 V DC, +20 %/–15 %	4 digital inputs	2 x 1 kHz	575 9 101
PHARAO-II Upgrade 4AR (AC)		220–240 V AC 50–60 Hz	4 relay outputs	–	575 9 102
PHARAO programming software CD for Windows 95/98/NT/2000/ME/XP, software for PHARAO and PHARAO-II generation					907 0 251
Power supply 24 V DC, 36 W (4 modules)					907 9 330
Front panel installation kit, only for PHARAO-II 10, 11					907 0 001



LUNA 131 DDC



LUXOR 413 (wind sensor)



SUD 228



PHARAO-II-EEPROM

LUNA 131 DDC combination sensor with analog outputsignal 0–10 V

The combination sensor LU 131 DDC records the brightness and temperature. The unit has two separate outputs 0–10 V. The sensor can be connected for example with the analog inputs of the PHARAO devices (24 V DC). The function blocks signal converter, range comparison and Schmitt trigger allow control units and controllers to be programmed.

LUXOR 413 wind sensor with pulse output

The wind sensor can be used to protect blinds and awnings from excessively high wind speeds. The sensor can be connected, for example, directly to a digital input of a PHARAO device (24 V DC).

SUD 228 Charging switch for electric storage heating units

- Charging switch with adjustable charging time and backward charge control
- When the ripple control receiver or the rate time switch enables the "low rate night", the device will start the charging program for the storage heater
- Depending on design, the charging time can be set to 0–8 or 0–9 hours by key press, depending on the heating required
- The display shows the charging time, which is repeated every 24 hours
- The backward charging control will end the charging when the light load period ends.
- Manual switch can be connected for charging during the day

PHARAO/PHARAO-II programming cable

For series connection (RS 232) to enable control programs to be configured and parameterised. This cable is used to connect an analogue model for remote maintenance and remote control.

PHARAO-II GSM interface cable

The GSM interface cable enables a connection to be established and SMS data to be transmitted to mobile telephone, email address or Fax machine. The interface for connecting the GSM cable is located below the plug-in upgrade modules.

Plug-in EEPROM memory module

External memory module for transferring and/or downloading the program from or to the internal EEPROM system memory. Internal program is deactivated as long as the external memory module is plugged in (dual programming). PHARAO-II-EEPROM (5 kByte)

Technical data:

Operating voltage: 24 V DC/< 25 mA

Brightness range selectable: 1. 0–200 Lux
2. 0–10,000 Lux
3. 0–50,000 Lux

Sensor characteristic: linear, temperature, brightness

Temperature range: –30 °C... +70 °C

Output: 0–10 V DC

Degree of protection: IP 54

Housing: 110 x 72 x 54 mm

Technical data:

Operating voltage: 24 V DC

Wind speed: 0–20 m/s

Output: 4 pulses per revolution

Type of protection: IP 43

Technical data:

Operating voltage: 100–240 V~, +10 %, –15 %

Frequency: 50–60 Hz

Switching power: 8 A/250 V~

Contact: NO contact, potential-free

Type of protection: IP 20 according to EN 60 529

Protection class: II when mounted in accordance with its designated use

Label: VDE

Housing: 90 x 71 x 57 mm

Type	Order No.
LUNA 131 DDC combination sensor, temperature- and brightness sensor for analogue inputs on PHARAO units, 0–10 V DC	131 9 700
LUXOR 413	413 0 000
SUD 228 (8 h) charging switch for electric storage heaters, output 8 A, input for ripple control receiver/rate time switch and manual switch	228 0 575
SUD 228 (9 h) charging switch for electric storage heaters, output 8 A, input for ripple control receiver/rate time switch and manual switch	228 0 576
Programming cable, PC/PHARAO	907 0 252
PHARAO-II GSM cable	907 0 329
Plug-in PHARAO-II EEPROM	907 0 328

Din rail program

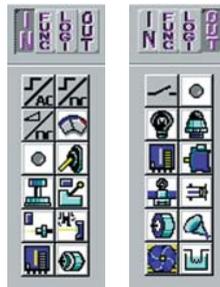
Programmable logic controller – Programming

Easy-to-use programming and wiring of function blocks at the PC

Control unit and operator control terminal in one device

Comment texts and on-line values from the PHARAO control unit's program can be displayed on the LCD via the newly developed display function. Several 4-line display with different values can be called up by scrolling.

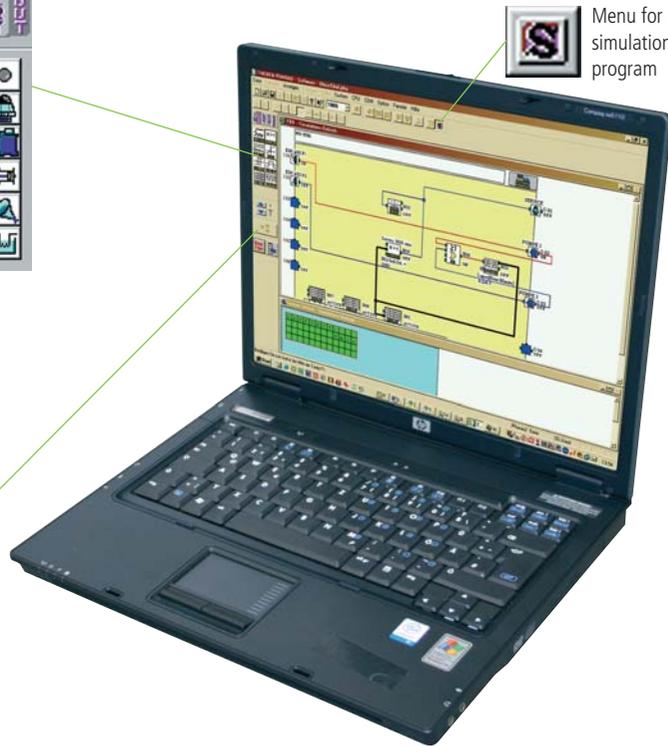
The LCD is therefore not used just for program input, but also for displaying information texts, switching statuses, time, count values, analog values, operating hours etc. Values and switch statuses can be altered via the control keys which can be used in the program as additional control inputs.



Tool rail inputs and outputs (extracts)



Tool for wiring the circuit path



Menu for animated simulation of the program

Communication in all directions

Cost efficient remote control and monitoring. Because PHARAO software 2.0 contains the entire set of communication tools, the PC requires only a modem to enable remote configuration, monitoring and programming.



Error messages or threshold values in the text can be sent by SMS from controller to mobile telephone.

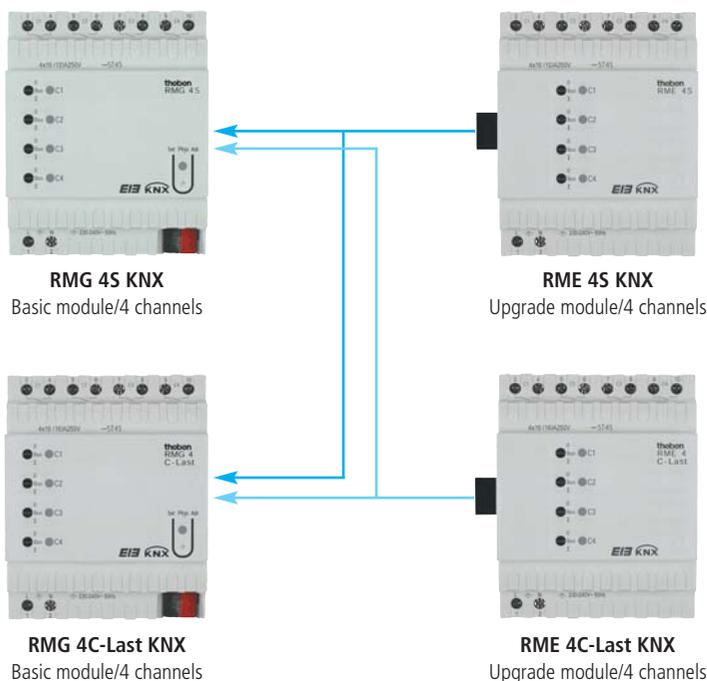


Analogue modem



Error messages or threshold values in the text can be sent from controller to Fax machine.





- **RMG 4S KNX** (Basic module)
 - 4-way basic module with 16 A switching capacity
- **RME 4S KNX** (Upgrade module)
 - 4-way upgrade module 16 A (for upgrading to max. 12 channels)

Description
 Every channel of these switching actuators has an LED for displaying what state the switch is in and a hand switch with the On/Off/bus positions. The switching actuators can adopt a parameterized state within 1 second after the return of mains power and are therefore suited for use in units in accordance with VDE 0108. The properties of the basic functions of switching, delay switching and pulse function can be set by means of parameters.

- **RMG 4C-Last KNX** (Basic module)
 - 4-way basic module with 16 A switching capacity for higher lamp loads
- **RME 4C-Last KNX** (upgrade module)
 - 4-way upgrade module 16 A (for upgrading to max. 12 channels)

Characteristics

- Switching power 16 A, extendable to 12 channels
- Feedback object for each channel
- Central objects with and without priority
- Switching functions: ON/OFF, pulse, ON/OFF-delay, stairway light with pre-warning in accordance with DIN 18015-2
- Logical operations: Disable, AND, Enable, OR
- Calling and storing scenes
- Adjustable reaction to bus failure
- Adjustable reaction to the return of bus or mains activity
- Hand switch with ON, OFF, bus, switching also without bus voltage

Advantages

- The free combination of switching, dimming, control of blinds and heating, as well as binary inputs, all increase flexibility and reduce system costs
- There are even hand switches for dimming modules; they make the installation easier
- Extensions reduce the channel price considerably

Technical data:
Mains supply
Voltage: 230 V AC, ± 10 %, 50 Hz
Power consumption: 2.5 VA

Supply from the bus
EIB power supply: max. 10 mA (incl. 2 extensions)
Connection: Bus terminals

Output
Number: 4
Contact type: NO contact, potential-free
Contact opening: ≤ 3 mm
Mechanical operating cycles: > 1 x 10⁶
Rated voltage: 230 V AC, 50 to 60 Hz (L1, L2 or L3)
Switching of different outer conductors: possible
Switching of SELV: possible, if all 4 channels of an SELV module will switch

Switching power RMG 4S/RME 4S:
Rated current: 16 A (250 V AC, cos φ = 1) and 10 A (250 V AC, cos φ = 0.6) and
Resistive load: 3680 W
Capacitive load: max. 42 µF
Incandescent lamps: 2300 W
HV halogen lamps: 2300 W
Fluorescent lamps (KVG) uncompensated: 26 x 40 W, 20 x 58 W, 10 x 100 W
Fluorescent lamps (KVG) shunt compensated: 10 x 40 W (4.7 µF), 20 x 58 W (7 µF), 2 x 100 W (18 µF)
Fluorescent lamps (KVG) Dual circuit: 10 x (2 x 58 W), 5 x (2 x 100 W)

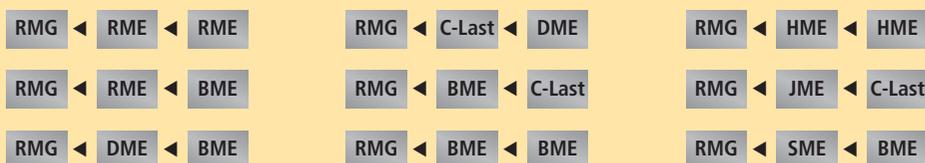
Switching power RMG 4C load/RME 4C load:
Rated current: 16 A (250 V AC, cos φ = 1) and 16 A (250 V AC, cos φ = 0.6) and
Resistive load: 3680 W
Capacitive load: max. 200 µF
Incandescent lamps: 3680 W
HV halogen lamps: 3680 W

Connection cross-sections:
 solid 0.5 mm² (Ø 0.8) up to 4 mm² strand with cable end sleeve 0.5 mm² up to 2.5 mm²

Admissible ambient temperature: –5 °C ... +45 °C
Protection class: II when mounted in accordance with its designated use
Type of protection: IP 20 according to EN 60 529
Housing: 45 x 72 x 60 mm (4 modules)

Product database and manual
 see www.theben.de

Combination options for dimming/switching actuators (examples):



Type	Order No.
RMG 4S KNX	491 0 204
RME 4S KNX	491 0 205
RMG 4C-Last KNX	491 0 206
RME 4C-Last KNX	491 0 207

MX series
 can be combined with devices on pages 136–141



DMG 2 KNX
Dimmer basic module/2 channels



DME 2 KNX
Dimmer upgrade module/2 channels



DMB 2 KNX
„Dimm booster“/2 channels

DMG 2 KNX (Basic device)

- 2-way dimming module 2 x 300 W/VA or 1 x 500 W/VA

DME 2 KNX (upgrade device)

- 2-way upgrade module 2 x 300 W/VA or 1 x 500 W/VA (for upgrading to max. 6 dimming channels)

DMB 2 KNX (performance upgrade)

- Dimming output upgrade “Dimm Booster”

Description

The universal dimmer DMG 2 is a device for serial installation. By means of both outputs, it can dim or switch a group of electrical devices such as, e. g. incandescent lights, high-voltage halogen lamps as well as low-voltage halogen lamps with conventional or electronic transformers connected upstream.

If a dimming channel of a base or upgrade unit is connected in parallel with a DMB 2 channel the power doubles.

Characteristics

- Dimming power each base and upgrade unit: 2 x 300 W/VA or 1 x 500 W/VA with the following combination options:
6 x 300 W/VA
4 x 300 W/VA + 1 x 500 W/VA
2 x 300 W/VA + 2 x 500 W/VA
3 x 500 W/VA
- By using the dimming booster DMB 2, the dimming power of each device can be doubled to:
2 x 600 W/VA or 1 x 1.000 W/VA

- Central objects with and without priority
- Automatic load detection
- Diagnosis and feedback objects
- Adjustable reaction to bus failure
- Adjustable reaction to the return of bus remains activity
- Hand switch for On, Off, bus, switching also without bus voltage
- Dimming extensions can be combined with the switching base module any way you want

Advantages

- Allowing for any combination of switching and dimming helps in attaining a very convenient channel price
- Up to 6 x dimming through extensions
- There are hand switches even for dimming modules; they make the installation easier

Technical data:

Mains power supply
Voltage: 230 V AC, 50 Hz
Required device power: < 0.5 W
EIB power supply: < 10 mA (incl. 2 extensions)
Minimal load: 10 W/VA

Output

Channels per module: 2
Lamp types: Filament bulbs, low-volt and high-volt halogen lamps

Maximum load

Symmetrical: 2 x 300 W/VA
Asymmetrical: 1 x 500 W/VA
Example of asymmetrical load:
1 x 400 and 1 x 100 W/VA
Cable length, dimmer load: max. 100 m
Fusing: Automatic Cut-out-Characteristic B 16 A

Terminal cross-sections:

solid 0.5 mm² (Ø 0.8) to 4 mm²
Strand with wire end sleeve 0.5 mm² to 2.5 mm²

Permissible ambient temperature: –5 °C... +45 °C

Protection class: II subject to correct installation

Protection rating: IP 20 to EN 60529

Equipment standard: EN 60669

Housing: 45 x 72 x 60 mm (4 modules)

Combination options for dimming/switching actuators (examples):



Product database and manual
see www.theben.de

Type	Order No.
DMG 2 KNX	491 0 220
DME 2 KNX	491 0 221
DMB 2 KNX	491 0 222

MX series
can be combined with devices
on pages 136–141



SMG 2 KNX

Basic control unit device, 2 channels

New



SME 2 KNX

Upgrade control unit device, 2 channels

New

SMG 2 KNX (Basic control unit device)

- 2 channel control unit

SMG 2 KNX (Upgrade control unit device)

- 2 channel upgrade module (for upgrading to max.12 heating channels)

Description

The SMG 2 control device is a DIN rail mounted device. In combination with electronic upstream devices (EVGs) it enables the switching and dimming of lighting circuits. The SMG 2 is a 2 channel device and can be upgraded to 6 channels using upgrade modules. They have one switch output (relay contact) per channel for switching the electronic series devices and the corresponding 1–10 V control inputs.

Characteristics

- 2 channels per basic and upgrade module.
- 2 switch outputs (relay contacts) for 230 V (resistive load) and one 1–10 V output per channel.
- Zero-crossing switch without relays.
- Central objects with and without priority
- Diagnosis and feedback objects
- Response to bus failure can be configured
- Response to power restoration can be configured
- Manual switch for ON, OFF, Bus, switching without bus voltage
- Dimmer upgrades can also be combined with basic switch module as required.

Advantages

- The free combination of switching, dimming, control of blinds and heating, as well as binary inputs, all increase flexibility and reduce system costs.
- Via upgrade to 6-way dimming
- With manual operation and, thereby, easy installation

Technical data:

Mains power supply

Voltage: 230 V AC, ± 10 %, 50 Hz

Power take up: < 1.5 VA

Power supply from the bus (basic module only)

Power supply: < 10 mA (incl. 2 upgrades)

Bus connection: KNX bus terminal

Input

Signal voltage: 1–10 V

Signal current: max. 100 mA per channel

Signal duration: continuous

Length of input cable: max. 500 m at 0.5 mm

Output

Type of contact: NO contact, floating relay contacts

Nominal voltage: 230 V AC, ± 10 %, 50 Hz

Maximum current: 16 A/AC-1; 10 A/AC-3

Max. switch-on peak: 400 A (150 µs), 200 A (600 µs)

Switching capacity:

2500 W resistive load

1100 W (140 µF) capacitive load

type-dependent fluorescent lamps with EVG (due to variable switch-on peaks)

Contact: AgSnO, NO contact, floating

Maximum load: 3 A, cos φ = 1

Permitted operating temperature: –5 °C ... +45 °C

Protection class: II subject to correct installation

Protection rating: IP 20 in accordance with EN 60529

Housing: 45 x 72 x 60 mm (4 modules)

Terminal cross-sections:

Connection:

Terminal screws: 0.5–4 mm² single strand and fine strand without wire end sleeve
0.5–2.5 mm² fine strand with wire end sleeve

Product database and manual see www.theben.de

Type	Order No.
SMG 2 KNX	491 0 223
SME 2 KNX	491 0 224

MX series

can be combined with devices on pages 136–141

Heating actuator combination options (examples)

SMG ◀ SME ◀ SME	SMG ◀ RME ◀ DME	HMG ◀ HME ◀ SME
SMG ◀ SME ◀ RME	SMG ◀ C-Last ◀ DME	JMG ◀ SME ◀ RME
SMG ◀ RME ◀ RME	SMG ◀ HME ◀ BME	JMG ◀ SME ◀ BME
SMG ◀ C-Last ◀ C-Last	BMG ◀ SME ◀ SME	JMG ◀ JME ◀ SME



HMG 4 KNX
Basic module/4 channels



HME 4 KNX
Upgrade unit/4 channels

HMG 4 KNX (base unit)

- 4-channel heating actuator

HME 4 KNX (upgrade unit)

- 4-channel upgrade unit
(for extension to up to 12 heating channels)

Description

The heating actuators control thermal positioning actuators based on the control variable of the room temperature controller, and make it possible to integrate a boiler control. It is also possible to control a circulation pump directly via the actuator.

Characteristics

- Silent semiconductor switch
- 4 floating outputs 24–250 V AC
- Up to 5 positioning actuators per channel
- 4 LEDs for the status display
- 4 ON/OFF/BUS rotary switches
- Continuous or switching control variable selectable
- Compulsory object for each channel
- Emergency program in case of bus and message failure
- Summer operation (prevents unwanted heating in summer) and valve protection
- Pump control directly by the actuator
- Minimum and maximum control variables are adjustable, generating various responses to falling below or exceeding the control variables (individually selectable)
- Determining the maximum control variables for all channels to integrate the boiler control

Advantages

- The free combination of switching, dimming, control of blinds and heating, as well as binary inputs, all increase flexibility and reduce system costs
- Upgrades enable up to 12 heating channels
- Low cost upgrade units reduce channel price
- Pump control directly by the actuator
- By determining the largest control variable for all channels and sending it to the boiler control it is possible to adjust the feed temperature, thus achieving energy savings up to 30 %
- Easy start-up via manual switch

Technical data:

Operating voltage: 230 V/240 V, ± 10 %

Rated frequency: 50–60 Hz

Device consumption: max. 2.5 VA

Supply from the bus

EIB power supply: max. 10 mA

(incl. 2 extensions)

Connection: Bus terminals

Output: Triac

Number: 4

Switching power:

up to 5 thermal actuators per output

Connection cross-sections:

solid 0.5 mm² (Ø 0.8) up to 4 mm² strand with cable end sleeve 0.5 mm² up to 2.5 mm²

Admissible ambient temperature: –5 °C ... +45 °C

Protection class: II when mounted in accordance with its designated use

Type of protection: IP 20 according to EN 60529

Housing: 45 x 72 x 60 mm (4 modules)

Product database and manual
see www.theben.de

Combination options for heating actuators (examples):

HMG ◀ HME ◀ HME

HMG ◀ RME ◀ DME

HMG ◀ HME ◀ RME

HMG ◀ C-Last ◀ DME

HMG ◀ RME ◀ RME

BMG ◀ HME ◀ HME

HMG ◀ C-Last ◀ C-Last

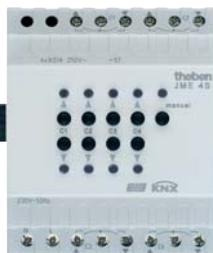
HMG ◀ JME ◀ SME

Type	Order No.
HMG 4 KNX	491 0 210
HME 4 KNX	491 0 211

MIX series
can be combined with devices on pages 136–141



JMG 4S KNX
Basic device, 4 drives



JME 4S KNX
Upgrade device, 4 drives

Technical data:

Voltage: 230 V, ± 10 %, 50 Hz
Power take up: < 2.5 VA

Power supply from the bus (basic module only)

Power supply: < 8 mA (incl. 2 upgrades)
Bus connection: KNX bus terminals

Output

Contact material: AgSnO₂
Type of contact: NO contact, floating
Switching capacity: 3 A, cos φ = 1

Permissible ambient temperature: -5 °C ... +45 °C

Protection class: II subject to correct installation

Protection rating: IP 20 in accordance with EN 60529

Housing: 45 x 72 x 60 mm (4 modules)

JMG 4S KNX (basic device)

- Relay outputs for 4 drives
- Suitable for the control of drives for blinds, shutters, awnings and skylights

JME 4S KNX (upgrade device)

- Relay outputs for 4 drives (upgrade possible for up to 12 drives)
- Mixed use of drive and switch functions possible as required
- Upgrade for RMG 4S, RMG 4 C-Last, DMG 2, BMG 6

Description

The phasesequence and runtime of motors can be controlled per channel. The manual switches operate UP/DOWN actions. The relays switching status are displayed via LEDs.

Characteristics

- Drive controls for controlling blinds, shutters and various solar and visual protective devices and for skylights as well as ventilation flaps
- 4 output channels each with a floating UP and a floating DOWN contact
- Manual UP and DOWN key for each channel
- LED UP and DOWN display for each channel

Advantages

- The free combination of blinds and heating controls, switching, dimming as well as binary inputs all increase flexibility and reduce system costs
- Modular upgrading for 4 to 12 blinds
- Copy function for fast configuration
- Manual operation on device, e.g. for installation test of drives possible without bus voltage
- LED output status display
- Simple input of runtimes
- Central UP/DOWN object
- 3 safety objects provide a façade-based response
- Flexible reaction to safety telegrams: Individually adjustable for each drive for start and end of the safety status
- Selectable response in event of bus failure as well as with the return of bus/mains voltage
- Feedback of drive positions for building visualisation

Product database and manual
see www.theben.de

Combination options for blinds/switching actuators (examples)

JMG ◀ JME ◀ JME

JMG ◀ RME ◀ DME

JMG ◀ JME ◀ RME

JMG ◀ C-Last ◀ DME

JMG ◀ RME ◀ RME

BMG ◀ JME ◀ JME

JMG ◀ C-Last ◀ C-Last

JMG ◀ BME ◀ SME

Type	Order No.
JMG 4S KNX	491 0 250
JME 4S KNX	491 0 251

MX series

can be combined with devices on pages 136–141



BMG 6 KNX
Binary input/6 channels



BME 6 KNX
Upgrade module/6 channels



BMG 6 KNX (base unit)

- 6x binary input

BME 6 KNX (upgrade unit)

- 6x upgrade unit
(for extension to up to 18 binary inputs)

Description

Each input of the binary inputs has an LED for status display on the input.
After a bus failure the inputs are polled again, which means that the current state is always displayed. Thanks to the multi-voltage input and the auxiliary supply for floating inputs the device can be used in all kinds of applications.

Characteristics

- Multi-voltage input 8–250 V AC/DC
- Auxiliary supply for floating inputs of device supplied
- All inputs can be operated with different voltages
- 6 LEDs for displaying the status at the input
- Max. cable length per input 100 m
- Up to 2 output objects per channel
- Disable object for each channel
- Adjustable response after restoration of the bus supply
- Software functions: Switch/key, dimming, blinds, valuator, counter
- Binary input modules can also be combined as desired with all switching, heating, dimming and blind actuators of the series

Advantages

- The free combination of switching, dimming, control of blinds and heating, as well as binary inputs, all increase flexibility and reduce system costs
- Upgrades enable up to 18 inputs
- Low cost upgrade modules reduce the channel price
- Multi-voltage inputs and auxiliary supply for floating inputs make it possible to solve all applications with a single device
- LEDs for status display of the outputs

Technical data:

Bus power supply (base module only)

Power consumption: < 10 mA (incl. 2 upgrades)

Connection: bus terminal

Inputs

Quantity: 6

Average current consumption of inputs:

≤ 3 mA

Voltage range: 8–250 V AC/DC

Max. line length: 100 m

Permissible ambient temperature:

–5 °C ... +45 °C

Protection class: II subject to correct installation

Protection rating: IP 20 in accordance with EN 60529

Housing: 45 x 72 x 60 mm (4 modules)

Cable cross section: solid 0.5 mm²

Ø 0.8 up to 4 mm² strand with cable end sleeve

0.5 mm² up to 2.5 mm²

Power unit for auxiliary supply

Voltage: 230 V AC, ± 10 %, 50 Hz

Power consumption: 2.5 VA

Output voltage: approx. 18 V~/20 mA

Product database and manual
see www.theben.de

Combination options for dimming/switching actuators (examples):

BMG ◀ BME ◀ BME

BMG ◀ RME ◀ DME

BMG ◀ BME ◀ RME

BMG ◀ C-Last ◀ DME

BMG ◀ RME ◀ RME

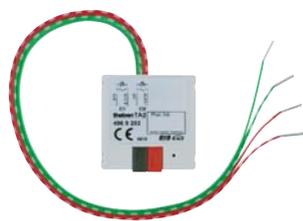
BMG ◀ HME ◀ HME

BMG ◀ C-Last ◀ C-Last

BMG ◀ SME ◀ SME

Type	Order No.
BMG 6 KNX	491 0 230
BME 6 KNX	491 0 231

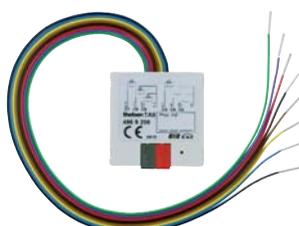
MIX series
can be combined with devices on pages 136–141



TA 2 KNX
2-way sensor interface



TA 4 KNX
4-way sensor interface



TA 6 KNX
6-way sensor interface

TA 2 KNX

- 2-way binary input

TA 4 KNX

- 4-way binary input

TA 6 KNX

- 6-way binary input

Description

The key interfaces TA 2, TA 4 and TA 6 are binary input/binary output devices. The devices can be installed in combination with conventional keys/switches in flush-mounted boxes. This allows all switching programs to be integrated in EIB systems.

- Free choice of functions:
Switch/sensor, dimming, blinds, valuator

Characteristics

TA 2 KNX

- 2-way sensor interface with two inputs for connecting to up to 2 floating contacts
- 4-pole cable connection
- Colour coding of wiring pairs
- Inputs can be reconfigured to outputs for connecting LED (with communication object) display of ON/OFF.

TA 4 KNX

- 4-way sensor interface with four inputs for connecting to up to 4 floating contacts
- 8-pole cable connection
- Colour coding of wiring pairs
- Inputs can be reconfigured to outputs for connecting LED (with communication object) display of ON/OFF

TA 6 KNX

- 6-way sensor interface with four inputs for connecting up to 6 floating contacts
- 8-pole cable connection
- Colour coding of wiring pairs
- 4 inputs can be reconfigured to outputs for connecting LED (with communication object) display of ON/OFF

Advantages

- 2, 4 to 6 way touch sensors offer optimum adaptability to the project
- Very compact design of housing
- Grooves on the side of the housing to allow more space for the switch/key clamps
- Disable objects selectable or available
- Behaviour can be selected on restoration of bus power
- Configuration similar to BMG 6 and BME 6

Technical data:

Operating voltage: Bus voltage

Permitted operating temperature:

−5 °C ... +45 °C

Power supply: <10 mA

Connection: KNX bus terminal

Protection class: II

Protection rating: IP 20

Dimensions: L x W x H 37 x 37 x 10 mm

Output with LED configuration:

Low current 1 mA (LED 1 mA types)

Contact voltage: 3.3 V

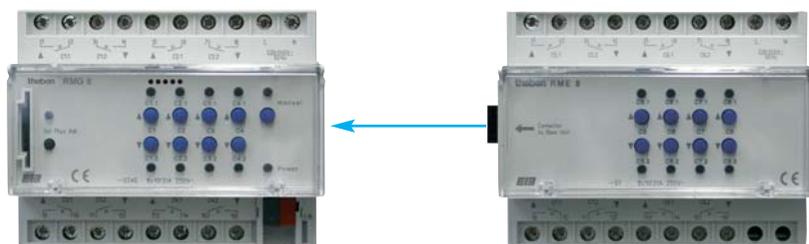
Contact current: 0.5 mA

Behaviour on restoration of bus power: adjustable

Max. interface extension: 5 m

Product database and manual
see www.theben.de

Type	Order No.
TA 2 KNX	496 9 202
TA 4 KNX	496 9 204
TA 6 KNX	496 9 206



RMG 8 KNX
Base unit/8 channels

RME 8 KNX
Upgrade unit/8 channels

RMG 8 KNX (base unit)

- Relay outputs for 4 drives or
- 8 switching channels or random mixed operation of drive and switching functions

RME 8 KNX (upgrade unit)

- Relay outputs for 4 drives or
- 8 switching channels or random mixed operation of drive and switching functions
- Expansion unit for RMG 8

Description

Flexible use means that each channel can be used selectively to switch consumers on and off (Switching function), or the phase sequence and runtime of motors can be controlled (Blinds function). The manual switches are used for Up/Down and for switching On/Off.

Characteristics

- Modular expandability from four to eight blinds or from eight to sixteen switching outputs
- Capability of addressing blind (including louver) or shutter positions directly for:
 - canvas blinds, blinds, shutters and several sun and sight protections
 - skylights and ventilation flaps
- Optimised repeatability of the programmed louver position
- The wide range of switching functions is ideal for:
 - shading, lighting and heating of greenhouses and conservatories
 - lighting of buildings, staircases
 - delayed on or off switching of groups of lights
 - short or long pulses for schoolyard bells or toilet flushing and ventilation
- In case of extensions of HMG 8 with RME 8 only switching channels are possible, no drive control

Advantages

- Manual operation on the unit without connection to a bus.
- Irrespective of where the blind is situated, the requested position is reached:
 - slip correction during travel from bottom to top
 - the end position is not exceeded
- Random combination of drive/switching action (RMG 8, RME 8).
- The drive parameters can be set independent for each channel.
- Expandability reduces channel costs.
- Behaviour adjustable for bus/main failure.
- Three safety objects (display by LED).
- Easy-to-operate product database.

Technical data:

RMG 8, RME 8

Operating voltage: 230 V/240 V, ± 10 %

Rated frequency: 50 Hz

Product consumption: max. 4 VA

Current consumption of bus (only RMG 8): ≤ 8 mA

Contact material: AgSnO₂

Type of contact: closing contact, floating

Switching capacity:

10 A 250 V AC, cos φ = 1

6 A 250 V AC, cos φ = 0.6

Incandescent lamp load: 1400 W/VA

Halogen lamp load: 1400 W/VA

Permissible ambient temperature:

–5 °C ... +45 °C

Class of protection: II after correct installation

Degree of protection: IP 20 (EN 60529)

Standard housing: 45 x 105 x 60 mm (6 modules)

Product database and manual
see www.theben.de

Type	Order No.
RMG 8 KNX	490 0 251
RME 8 KNX	490 0 252



JMG 4 24VDC KNX
Basic unit/4 drives



JME 4 24VDC KNX
Upgrade unit/4 drives

JMG 4 24VDC KNX (basic unit)

- 4 driving channels 24 V DC

JME 4 24VDC KNX (upgrade unit)

- 4 driving channels 24 V DC

Description

The blind actuators of the JMG 4 24VDC type are suited for use with interior blinds and sun roller blinds. By the use of these blind actuators, the rotational direction and running times of the motors can be switched on and off. Hand switch Up/Down.

Characteristics

- Modular expandability from four to eight blinds
- Capability of addressing blind (including louver) or shutter positions directly for:
 - canvas blinds, blinds, shutters and several sun and sight protections
 - skylights and ventilation flaps
- Optimised repeatability of the programmed louver position
- With the extra window contact module you can stop the inside blinds going up and down when the window is open.

Advantages

- Manual operation on the unit without connection to a bus
- Irrespective of where the blind is situated, the requested position is reached
- The drive parameters can be set independent for each channel
- Expandability reduces channel costs
- Behaviour adjustable for bus/main failure
- Eight safety objects (display by LED)
- Easy-to-operate product database

Technical data:

JMG 4 24VDC, JME 4 24VDC

Operating voltage: 230 V/240 V, ± 10 %

Rated frequency: 50 Hz

Product consumption: max. 4 VA

Current consumption of bus: ≤ 8 mA

Load circuit: 24 V DC

Contact material: AgNi

Type of contact: closing contact, floating

Switching capacity: 5 A (24 V DC)

5 A (12 V DC)

Permissible ambient temperature: –5 °C ... +45 °C

Protection class: II after correct installation

Protection type: IP 20 in compliance with EN 60529

Housing: 45 x 105 x 60 mm

Weight: 450 g

Product database and manual
see www.theben.de

Type	Order No.
JMG 4 24VDC KNX	490 0 253
JME 4 24VDC KNX	490 0 254



HMT 6 KNX

HMT 6 KNX

- 6 channel heating actuator for controlling of thermic actuating drives

HMT 12 KNX

- 12 channel heating actuator for controlling of thermic actuating drives

Description

The house is suitable for the mounting of heating circuit distributors with triacs enabling noiseless switching of the actuating drives.

The heating actuators (HMT 6/HMT 12) optimise the efficiency when using room temperature controllers together with thermic actuating drives and enable the integration of a boiler control.

Characteristics

- Easy wiring of the drives (24 V)
- Mounting directly on the wall or on the rail in the heating circuit distributor
- Plug at the transformer for easy installation
- Connection of up to 13 thermic actuating drives (24 V) and power supply through built-in transformer
- Continuous and switching controller output can be chosen
- Compulsory mode via object
- Summer mode omits undesired heating in summer (valve protection in the summer mode can be chosen)
- Emergency mode in case of bus or sensor failure – Behaviour in case of failure adjustable
- Cyclic checking of the controller output (for determination of the maximum controller output)
- Treating of the continuous controller output
- Automatic releasing of the thermal actuators after switching on
- Determination of the max. correcting variable to be considered by the boiler control

Advantages

- Ideal design for mounting in the heating circuit distributor
- Touchable protection low voltage (SELV)
- Convenient and uncomplicated wiring through screwless terminal block technology
- By determining the greatest correcting variables of all channels and sending them to the boiler control, the forward flow temperature can be adapted, resulting in energy savings of up to 30 %.

Technical data:

Operating voltage: 230 V AC/24 V DC

Max. power consumption: 50 W

Protection: T 2 A

Max. number of drives: 13

Heating programs optional: 2

Dimensions H/B/L: 70 x 75 x 302 mm

Weight: 1700 g

Protection class: II after correct installation

Degree of protection: IP 20 (EN 60529)

Massive power: 0.5–1.5 mm²

Flexible power*: 1.0–1.5 mm²

* Wires of the drives can be used with end sleeves for strands, mounted ex works.

Actuator ALPHA 4 KNX 24 V~

- Technical data of the actuator see page 151

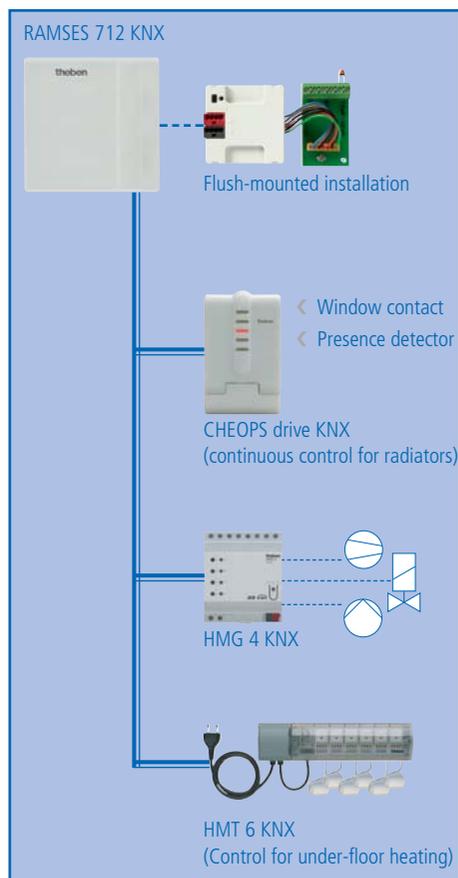
Product database and manual
see www.theben.de

Type	Order No.
HMT 6 KNX	490 0 273
HMT 12 KNX	490 0 274
Actuator ALPHA 4 KNX 24 V~	907 0 439



New

RAMSES 712 KNX



RAMSES 712 KNX

Individual room thermostat for controlling heating actuators or motorised actuators

Description

- The RAMSES 712 KNX is an individual room controller for wall installation with integrated bus coupler.
- If necessary, the temperature sensor with the electronic component can be removed from the housing and, for example, installed in flush-mounted sockets with back-ventilated cover.
- An external sensor can be connected to the sensor for floor temperature monitoring.

Characteristics

- The RAM 712 can be used as a continuous or two point control (can also be combined).
- Continuous PI control can be configured for 2 stage heating (basic and additional stage, e. g. underfloor heating and radiators) or for heating and cooling (radiators and cooling surfaces).
- Objects for night operation (only with "old" operating mode selection) presence, window/frost.
- Status LED (red) shows the user which functions are being carried out by the controller (LED only for heating). LED function is configurable:
 - always off
 - on when heating
 - always on
- With 2 binary inputs, can be reconfigured to outputs for connecting LED (with communication object) to display ON/OFF.
- Free choice of functions: Switch/key, dimming, blinds, valuator, counter, LED control
- Measurable temperature range $-20\text{ °C} \dots +60\text{ °C}$

Advantages

- A floor sensor can be connected to limit the floor temperature.
- Can be installed in flush-mounted sockets
- Behaviour can be selected on restoration of bus power
- Configuration similar to RAMSES 713 S
- 2 binary inputs can be reconfigured to outputs for connecting LED (with communication object) for displaying ON/OFF

Technical data:

- Operating voltage:** Bus voltage
- Permitted operating temperature:** $-5\text{ °C} \dots +45\text{ °C}$
- Power supply:** $< 10\text{ mA}$
- Bus connection:** KNX bus terminal
- Sensor connection:** Terminal screws
- Output with LED configuration:** Low current 1 mA (LED 1 mA types)
- Behaviour on restoration of bus power:** adjustable
- Max. interface extension:** 5 m
- Protection class:** II
- Protection rating:** IP 20
- Dimensions:** 74 x 74 x 28 mm

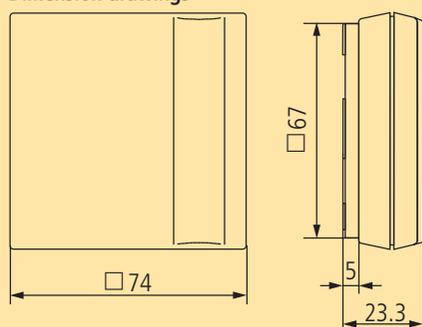


NTC temperature sensor included in delivery, can be exchanged for floor sensor (item no. 907 321).



Product database and manual see www.theben.de

Dimension drawings



Type

Order No.

RAMSES 712 KNX

712 9 200

Available July 2008



RAMSES 713 S KNX

RAMSES 713 S KNX

Individual room thermostat for controlling heating actuators or motorised actuators

Description

The RAMSES 713 KNX is an individual room controller for wall installation with integrated bus coupler.

Two rotary controls are included in delivery:

- an absolute scale (installed)
- a relative scale (enclosed)

We support the old objects for setting operating modes (comfort, night, frost protection) as well as the new objects (operating mode, presence, window status).

Characteristics

- Manual switch can be used as operating mode selector and as presence sensor.
- A status LED indicates heating (red) or cooling (blue) status or whether the desired temperature has been reached
- RAM 713 S can be used as a continuous or two point control (can also be combined)
- Continuous PI control can be configured for 2 stage heating (basic and additional stage, e.g. underfloor heating and radiators) or for heating and cooling (radiators and cooling surfaces)
- Manual switch for presence or operating modes: Comfort, standby, temperature reduction at night, frost protection
- Status LED (red/blue/off) shows the user which function is being performed by the controller
- Rotary controls can be set mechanically using tappets or via parameters. The software can be used to turn it off completely.
- 3 inputs for conventional switches/keys for the following functions: Switching, dimming, blinds
- Inputs can also be used for external temperature sensors, window contact or presence signal

Advantages

- A floor sensor can be connected to limit the floor temperature.
- A connected floor sensor prevents the floor from becoming too warm (floor damage) or too cold (bathroom).
- Binary inputs enable the customer to continue using the existing conventional switch program and still transmit telegrams on the bus. This supports:
 - Switching
 - Dimming
 - Blinds

Technical data:

Operating voltage: Bus voltage

Setting range: +10 °C... +28 °C

Measuring range: 0 °C... +40 °C

Temperature limitation: via external floor sensor +5 °C... +48 °C

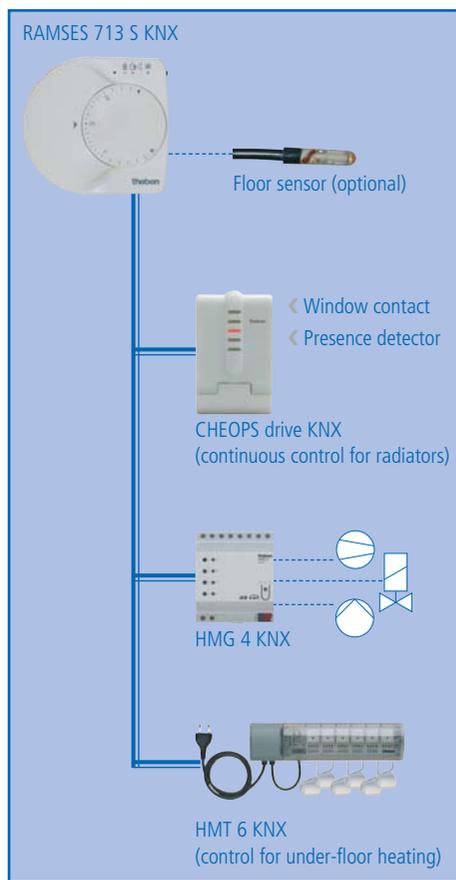
Floor sensor:

(IP 65) encapsulated with 4 m connecting cable

Power supply: ≤ 10 mA

Protection rating: IP20 in accordance with EN 60529

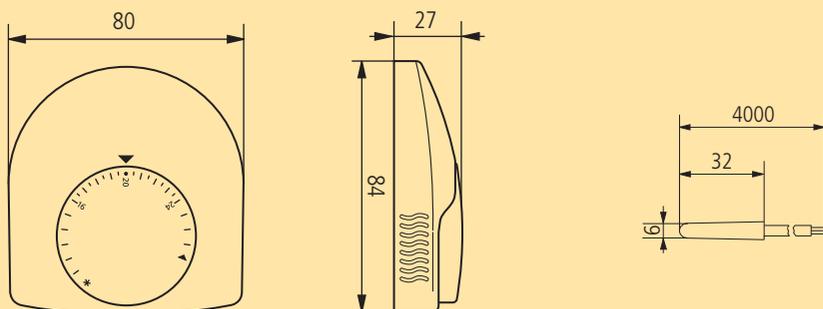
Housing: 80 x 84 x 27 mm



Floor sensor (optional)

Product database and manual
see www.theben.de

Dimension drawings



Type	Order No.
RAMSES 713 S KNX	713 9 201
Floor sensor, optional	907 0 321
Remote sensor 1	907 0 191

see RAM 366/1 top Page 110



New

RAMSES 713 FC KNX

RAM 713 FC KNX

Individual room temperature control for controlling fan coil heaters.

Description

The RAM 713 FC KNX is an individual room controller for wall installation with integrated bus coupler. Two rotary controls are included in delivery:
 – an absolute scale (installed).
 – a relative scale (enclosed).
 Objects can be configured for setting operating modes, presence as well as window status.

Characteristics

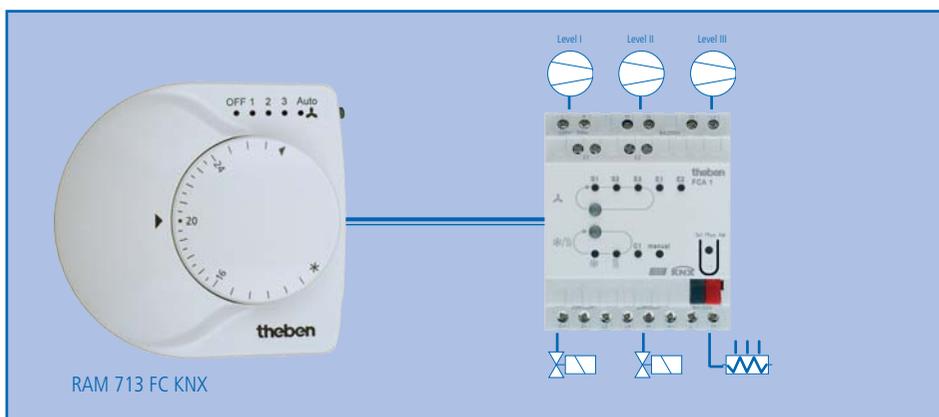
- Manual switch can be used as operating mode selector for OFF, auto or fan stages 1, 2 or 3.
- LEDs display heating (red) or cooling (blue) status or whether the desired temperature has been reached
- The manually or automatically operated fan stages can be displayed via 3 LEDs
- Continuous PI controller for heating and cooling
- Status LED (red/blue/off) shows the user which function is being performed by the controller
- Rotary controls can be set mechanically using tappets or via parameters. The software can be used to turn it off completely.
- 3 inputs for conventional switches/keys for the following functions: Switching, dimming, blinds
- Inputs can also be used for external temperature sensors, window contact or presence signal

Advantages

- Binary inputs enable the customer to continue using the existing conventional switch program and still transmit telegrams on the bus.
 This supports:
 – Switching
 – Dimming
 – Blinds

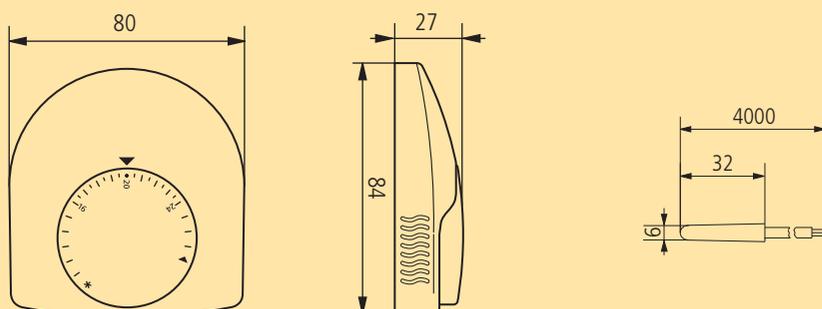
Technical data:

- Operating voltage:** Bus voltage
- Setting range:** +10 °C... +28 °C
- Measuring range:** 0 °C... +40 °C
- Temperature limitation:** through external floor sensor +5 °C... +48 °C
- Temperature sensor:** (IP 65) encapsulated with 4 m connecting cable
- Power supply:** ≤ 10 mA
- Protection rating:** IP 20 in accordance with EN 60529
- Housing:** 80 x 84 x 27 mm

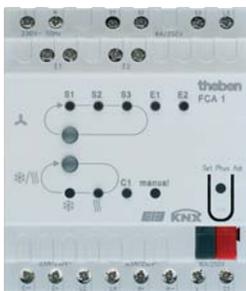


Product database and manual see www.theben.de

Dimension drawings



Type	Order No.
RAM 713 FC KNX	713 9 202



New FCA 1 KNX Fan coil actuator

FCA 1 KNX

Actuator, for 1–3-stage control of fan coils

Description

FCA1 is a fan coil actuator suitable for operation on the KNX. FCA1 controls the fan coil with up to 3 fan stages and it also controls the heating and cooling valve. 2-way and 3-way valves can be also be actuated. An additional relay enables the actuation of an electrical heater bank or alternatively an electrical cooler bank. 2-pipe systems and 4-pipe systems are supported.

Characteristics

FCA 1 has 2 free-floating inputs for window contacts and monitoring condensation. The window contact input can be reconfigured as a temperature sensor input.

The operating state is displayed via 9 LEDs:

- 3 LEDs (red) for displaying the fan stage
- 1 red LED for displaying heating mode
- 1 blue LED for displaying cooling mode
- 1 red LED for displaying additional relay ON
- 2 red LEDs for displaying input 1 and/or input 2 closed
- 1 red LED for displaying manual mode

FCA 1 has 2 keys for easier set-up. One key selects various fan stages. The other key enables toggling between heating and cooling modes.

Advantages

- On-site operation for set-up on the device
- LED output status display
- Up to max. three fan stages
- Fan motor protection by locking the fan stages
- Floating switching contact for cooler or heater bank
- For 2-way and 3-way valves
- Window contact can be connected
- Condensate detector can be connected
- Adjustable response to bus failure and restoration of the bus/mains power
- Suitable for 2 and 4-pipe heating systems
- Keys for function check during set-up
- Feedback of heating, cooling, fan stage etc.
- With emergency program
- With dew point alarm (object)
- Input E1 can be used for temperature sensor
- Adjustment of setpoint value for cooling in relation to external temperature

Technical data:

Mains power

Power supply: 230 V AC, $\pm 10\%$, 50 Hz

Nominal frequency: 50–60 Hz

Power consumption: < 3 VA

Bus

Power supply: < 10 mA

Connection: KNX bus terminal

Outputs

Valves (triacs switching capacity):

0.5 A (24–230 V AC)

Switching capacity, additional relay: 16 A

Switching capacity, ventilator relay: 8 A

Response in the event of bus failure: adjustable

Permissible ambient temperature: $-5\text{ }^{\circ}\text{C} \dots +45\text{ }^{\circ}\text{C}$

Protection class: II subject to correct installation

Protection rating: IP 20 in accordance with EN 60529

Housing: 90 x 72 x 60 mm (4 modules),

installation on DIN top hat rail

Product database and manual
see www.theben.de

Type	Order No.
FCA 1 KNX	492 0 200



CHEOPS control KNX



reddot design award



CHEOPS drive KNX

CHEOPS control

motor-driven actuating drive with independent room temperature control and integrated temperature sensor (actual value detection). Possibility for manual operation on the drive via keys.

CHEOPS drive

motor-driven actuating drive with stroke index. The setting commands are trans-mitted by room temperature sensors.

Description

The actuators have been developed for a continual valve regulation. The connection to the EIB is done directly without separate connector. The drives are provided with their supply voltage by the KNX. The integrated regulation of Cheops control with actual temperature detection makes an absolutely independent individual room temperature control possible. By means of the keys the temperature can be changed at any time.

CHEOPS control

Motor-driven actuating drive with independent regulation and temperature detection (actual value detection)

- Independent room temperature regulation, manual operation on the unit via 2 keys possible (actual value modification)
- Display via 5 LEDs (red/blue for warmer/cooler)
- Connection for remote sensor
- The following functions can be configured:
 - Heating control (continuous regulation)
 - 2-step heating
 - Heating and cooling
- CHEOPS control can additionally transmit a correcting variable for a second heating stage or for a cooling system. This correcting variable can be elaborated by the CHEOPS drive or by a heating actuator.
- On pressing both keys at once the stroke index (adjusted position) is shown by the 5 LEDs

CHEOPS drive

- Motor-driven actuating drive without regulation
- Stroke index (adjusted position) by the 5 LEDs (red)

Characteristics

- Quiet, service free drive
- Fully automatic valve stroke detection adjusting the regulating distance dynamically according to the valve used
- 2 inputs for e.g. window contact, presence detector
- Compulsory modes e.g. frost protection, regulator failure
- Protection against tampering possible by lock
- Easy mounting by snapping on valve adapter (valve adapter for all well-known makes included in the delivery)
- Can be used in the heating circuit distributor
- Valve protection in the summer mode to stop valves sticking
- Behaviour in case of telegram failure can be adjusted
- Master – slave function: The Cheops control can send the commands as well to the Cheops drive

Advantages

- Display of the valve lift
- All necessary adapters included in delivery
- Cheops control is an actuator in which the regulator has already been integrated.

Technical data:

- Operating voltage:** Bus voltage
- Behaviour in case of control signal failure:** changes to adjustable position
- Operating temperature:** 0 °C ...+50 °C
- Stock temperature:** –20 °C ...+60 °C
- Medium temperature:** +100 °C
- Degree of protection:** EN 60529
 - drive: IP 21
 - control: IP 20
- Protection class:** III, EN 60730-2-14
- Product consumption:** 240 mW (max. 350 mW)
- Max. setting stroke:** 6 mm
- Running time:** < 20 s/mm
- Stroke index:** 120 N
- Stroke index drive:** 5 LEDs (5 x red)
- Requested value display control:** 5 LEDs (2 x blue, 3 x red)
- Detection of valve limit stop:** automatically
- Valves which can be used:** Actuator with valve adapter for Danfoss RA, Heimeier, MNG, Schlösser from 3/93, Honeywell Braukmann, Dumser (heating circuit distributor), Reich (heating circuit distributor), Landis + Gyr, Oventrop, Herb, Onda
- Linearization of valve characteristics:** possible via software
- Internal/external temperature sensor:** with Cheops control
- Connection cable:** 1.0 m
- Standard housing:** 82 x 50 x 65 mm



CHEOPS with adapter for radiator valves



Remote sensor can be used as an external ACT sensor/temperature sensor (see page 110)

Product database and manual see www.theben.de

Type	Order No.
CHEOPS control KNX	732 9 201
CHEOPS drive KNX	731 9 200
Remote sensor, optional	907 0 191



Actuator ALPHA 4



VA 78

VA 80

Valve adapter
(not included in delivery)

THEBEN actuators can be replaced with the most common thermostat valve heads on radiators (for the valve adapters, see page 114). In the case of floor heating, the THEBEN actuators are mounted on the valves of the heating circuit distributor. Control takes place via the Theben heating actuators (see pages 139/145).

Actuator ALPHA 4 230 V~

- Elegant actuator for radiators, heating circuit distributors or individual heating circuits
- "First open function" for simple mounting and heating startup
- Plug-in mounting on valve adapter
- 100 % protection against leaking valves
- Function and adaptation control
- Dismounting safety through removable SaveGuard
- Guaranteed overvoltage protection

Actuator ALPHA 4 24 V

- Actuator as before, but for 24 V AC/DC

Valve adapter VA 78

- Valve adapter for Danfoss RA

Valve adapter VA 80

- Valve adapter for Onda, Schlösser (from year of construction 93), Oventrop (M 30 x 1.5), Heimeier, Herb, Therm-Concept, Frank, Roth (distributor), Dinotherm (distributor)

More valve adapters upon request:

VA 02	M 30 x 1.5	Velta
VA 16	M 28 x 1.5	Herz
VA 16 H	M 28 x 1.5	Poly Therm
VA 26	flange	Giacomini
VA 59		Danfoss RAVL
VA 81	M 30 x 1.5	Cosmotherm, Cosmoline (GC distributor), Strawa

Common technical data:

Operating voltage:

230 V AC, 50/60 Hz
24 V, 0-60 Hz

Functional principle:

Silently working expandable element

Valve currentless: closed

Switch-on current:

max. 300 mA for max. 200 ms
max. 250 mA for max. 2 min

Operating power: 1.8 W

Closing/opening times: approx. 2.5 min

Stroke: 4 mm

Spring force: 100 N, ± 5 %

Admissible ambient temperature: 0 °C... 60 °C

Storage temperature: -25 °C... 60 °C

Type of protection: IP 54 nach EN 60529

Protection class:

II according to EN 60 730-1

Length of the plug-in connecting cable: 1000 mm

Colour of housing: white (RAL 9003)

Housing: 60 x 44 x 61 mm (H/B/L)

Product database and manual
see www.theben.de

Type	Order No.
Actuator ALPHA 4 KNX 230 V~	907 0 438
Actuator ALPHA 4 KNX 24 V~	907 0 439
Valve adapter VA 78	907 0 436
Valve adapter VA 80	907 0 437



LUNA 133 KNX

LUNA 133 KNX

Brightness value transmitter, can also be combined with the Theben weather station.

Description

- LUNA 133 measures the current brightness value and transmits this value to the bus
- The brightness value is transmitted cyclically, or when there is a change
- Power supply directly from the bus

Characteristics

In combination with the Theben weather station it is possible to record and take into account the brightness on several sides of a building (up to 3). This can be used, for example, to adjust shutters and blinds individually for different brightness conditions on the various sides of the building.

Advantages

- Ideal for combination with the Theben weather station
- Unit is connected directly to the bus, meaning fewer cables are needed
- Very cost-effective solution

Technical data:

- Operating voltage:** Bus voltage
- Bus interface module:** integrated
- Brightness measuring range:** 1–100,000 Lux
- Tolerance:** ±20 % or ±5 Lux
- Power consumption:** < 150 mW
- Permissible ambient temperature:** –25 °C ... +55 °C
- Protection rating:** IP 54 in accordance with DIN EN 60529
- Housing:** 110 x 72 x 54 mm
- Weight:** approx. 140 g

Dimension drawings see page 28

Product database and manual see www.theben.de

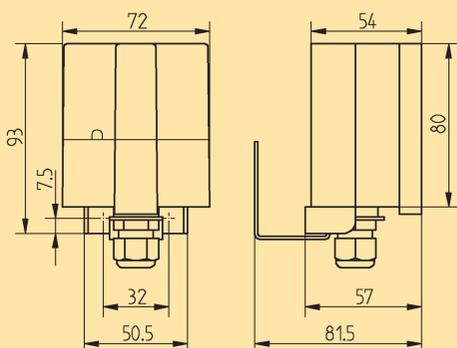
Type

Order No.

LUNA 133 KNX

133 9 200

Dimension drawings DIN 43 880





Weather station KNX

Combination device for commercial units as well as for larger family houses

Characteristics

- Recording of wind, rain, brightness and temperature
- Highly sensitive rain sensor Moreover, it is possible to set a delay time after the end of the rain, in order to avoid unnecessary raising and lowering of blinds.
- Measurement variables can be directly transmitted to the bus
- Wind, brightness, temperature are each transmitted as a 2 byte value, rain as a 1 bit value
- Optionally, wind can be transmitted in m/s or km/h
- Evaluation takes place directly in the device
- Supply from bus voltage and 230 V
- Brightness range: 1–100,000 lux
- Temperature range –20 °C ... +55 °C
- 4 universal channels
- 3 sun protection channels (especially for blinds and shutters applications)
- Integrated bus coupler
- Heater for rain sensor integrated
- Automatic sun protection device for independent control of blinds, awning, etc.

- The teach-in objects for the brightness thresholds are user-friendly, since they allow the customer to establish the thresholds later on by a simple key press. This does not require the weather station to be re-parameterized.
- The automatic sun protection controls the blinds (shutters/awnings) independently during the day, without making any intervention necessary. When a threshold is reached, two separate telegrams can be sent, e. g. for height and slat of a blind or a valve and switch telegram.
- Any parameterization of the various channels possible

Advantages

- Only one weather station in a housing that records all variables and evaluates them.
- The device is connected directly to the bus, as a result of which no other cables must be laid.
- Sun protection possible for up to three façades (ideal combination with LUNA 133 EIB/KNX, see page 152)
- All weather data can be displayed via the VARIA multifunctional display.

Technical data:

Measuring range: –20 °C... +55 °C

Brightness range: 1–100,000 Lux

Light recording angle: 150°

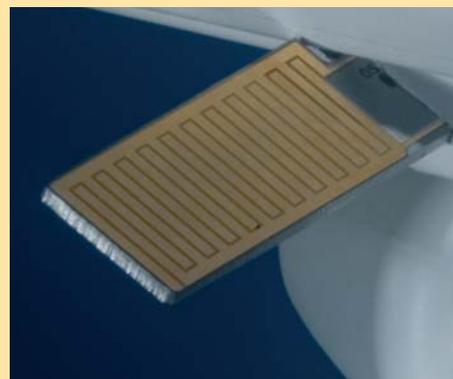
Operating voltage:

Bus voltage and 230 V are required for the heater

Power consumption: ≤ 10 mA

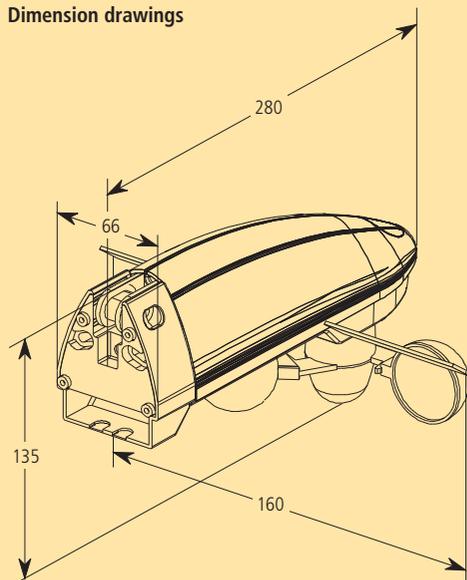
Type of protection: IP 44 according to EN 60529

Dimensions: 280 x 160 x 135 mm



High sensitive rain sensor

Dimension drawings



Mast bracket Ø 60–80 mm



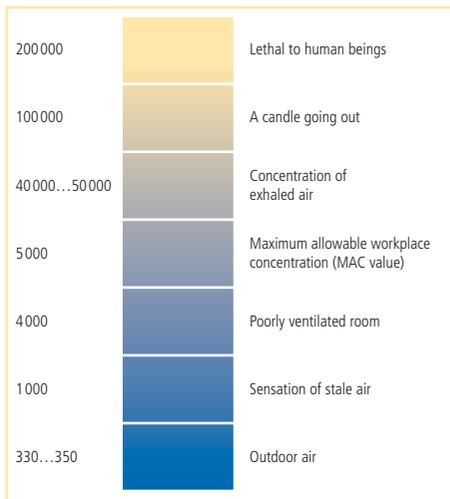
Product database and manual
see www.theben.de

Type	Order No.
Weather station KNX	132 9 201
Mast bracket for Ø 60–80 mm	907 0 380



New

AMUN 716 KNX



CO₂ concentrations

AMUN 716 KNX

CO₂ Sensor for controlling room air quality and measurement of CO₂ concentration, relative humidity and temperature.

Description

- Room air sensor for controlling CO₂ concentration, relative humidity and room temperature
- Levels of 0.08 % CO₂ and above lead to a decline in the feeling of well-being, the ability to concentrate and performance
- DIN 1946 recommends a maximum value of 0.1 % (1000 ppm)

Characteristics

- Temperature setting range of 0–40 °C
- CO₂ setting range thresholds of 500–2550 ppm
- "Physical value" object of 0–9999 ppm
- Relative humidity detection range of 20 %–100 %
- Measured variables can be transmitted directly on the bus
- Three independent thresholds for measurements with CO₂ and with relative humidity
- A threshold for the temperature reading
- Actions can be carried out if thresholds are exceeded or not reached
Actions are: Sending priority, switching and value
- Every threshold has a disable object
- Own object (1-byte) for "ventilation" dependent on set thresholds; e. g. for RPM control of ventilator motors, position indicator für ventilations etc.
- Maintenance-free CO₂ sensor.

Advantages

- Easy installation and set up
- Readings and relative humidity are displayed via multi-coloured LED on device
- For conference and meeting rooms, offices, schools/kindergartens, passive and low energy houses, conservatories etc.
- Ideal in combination with fan coil actuator (492 0 200)

Technical data:

- Operating voltage:** Bus voltage
- Power supply:** < 12 mA
- Bus connection:** KNX bus terminal
- Permitted operating temperature:** –5 °C ... +45 °C
- Protection class:** II
- Protection rating:** IP 20
- Housing:** 74 x 74 x 28 mm

Product database and manual see www.theben.de

Type

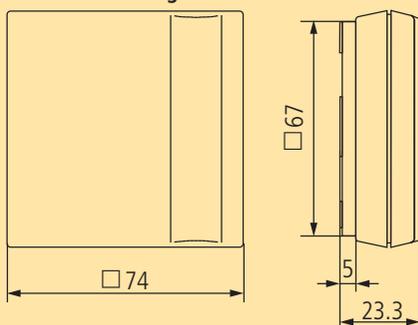
Order No.

AMUN 716 KNX

716 9 200

Available July 2008

Dimension drawings





SPHINX 331 KNX/SPHINX 332 KNX

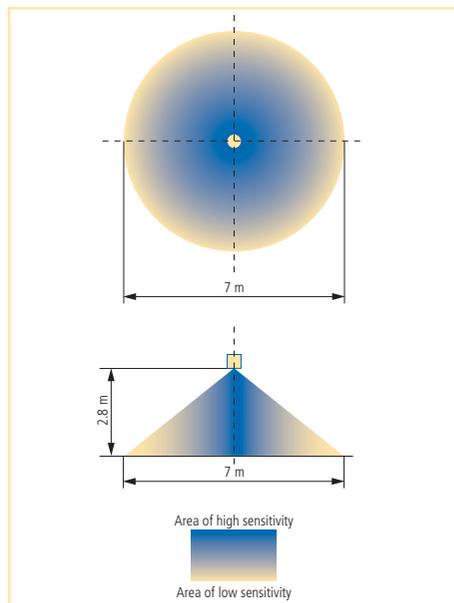
New



SPHINX 331 KNX/SPHINX 332 KNX

Detection area

SPHINX 331 KNX/SPHINX 332 KNX



SPHINX 331 KNX/SPHINX 332 KNX

Motion detector for brightness-dependent and motion-dependent control of lighting in office and hallway areas.

Characteristics

- Motion detector
- Master/Slave function
- Settings per ETS:
 - Brightness range: 0–700 lux (with correction factor of up to 5600 lux)
 - Switch-off delay: 1 s–120 min
- Detection range: 7 m diameter (2.8 m installation height)
- Very inconspicuous thanks to flat integrated housing for the ceiling
- Set-point amendment of brightness (lux value) via object
- Functions:
 - Lighting ON/OFF
 - Shutters/blinds UP/DOWN
 - Time functions (switch-off delay)
 - Locking motion sensor
 - Call up setting
 - Dimming values, dimming UP/DOWN
 - Master/Slave function
- Power supply from bus voltage

SPHINX 331 KNX

1-channel motion detector

incl. constant light control with BCU

- Exclusively motion-dependent lighting control
- Motion-dependent and brightness-dependent lighting control
- Continuous/light-dependent constant light control

SPHINX 332 KNX, as SPHINX 332 KNX but with

2 channel motion detector

Advantages

- Very flat construction (projects 5 mm from the ceiling), and thus very inconspicuous
- Low-cost solution for smaller detection areas
- Bus coupling integrated into housing

Installation frame with catch mounting



Technical data:

Operating voltage: Bus voltage

Power supply: < 10 mA

Installation opening:

Ø 64 mm or 68 mm with compensating ring

Front: Ø 76 mm

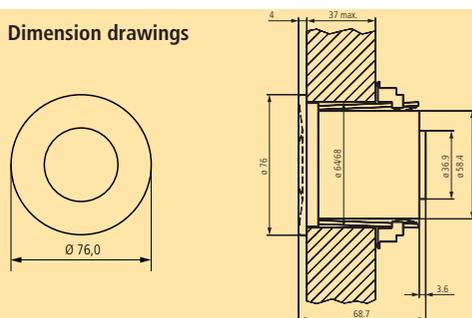
Installation height: approx. 4 mm

Installation depth: 65 mm

Ambient temperature: –5 °C... +45 °C

Protection class: II

Dimension drawings



Type

SPHINX 331 KNX 1 channel

SPHINX 332 KNX 2 channel

Order No.

107 9 211

107 9 212



New

compact passage KNX

compact passage KNX

- Passive infra-red presence detector for ceiling installation
- Square detection area for corridors, 360°
- Mixed light measurement
- Two light outputs to control two lighting groups
- Switching or constant light control
- Choice of fully or semi-automatic operation
- Presence output for HVAC control with switch on delay and run-on time
- Room monitoring with selective movement detection
- Integrated bus coupling
- QuickSet plus service remote control (optional)
- clic user remote control (optional)

Technical data:

Detection range: 360° horizontal, 120° vertical
Recommended installation height: 2.0 m–3.0 m
Maximal range: max. 30 x 4 m at a height of 2.5 m
 max. 30 x 5 m at a height of 3.5 m

Mixed light measurement: approx. 10–1500 lux, can be deactivated

Light run-on time: 30 s–20 min

Light stand-by time: 0 s–60 min/on

Presence run-on time: 30 s–120 min

Presence switch on delay: 0 s–30 min

Assembly plate: 70 x 70 mm

Screwless bus terminal: EIB

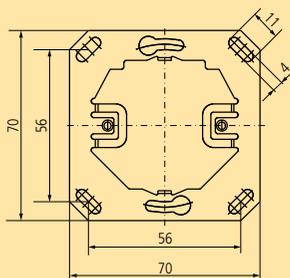
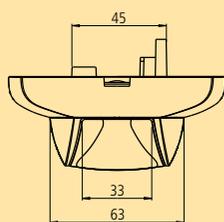
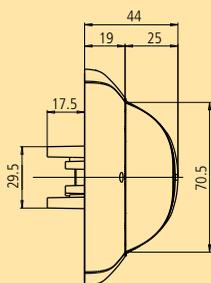
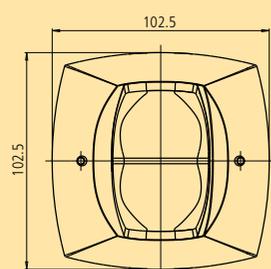
Size of flush-mounted socket: Socket Ø 55 mm (NIS, PMI)

Ambient temperature: +0 °C ... +50 °C

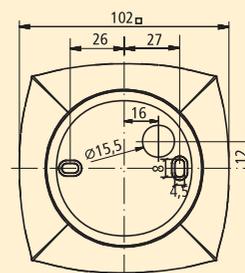
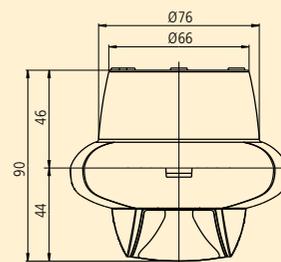
Protection rating: IP 40

Product database and manual
 see www.theben.de

Dimension drawings: compact passage KNX



Dimension drawings: compact passage KNX mounted on compact surface frame (accessory)





ECO-IR 180EIB-AC



ECO-IR 360EIB-AC

ECO-IR 180EIB-AC

- Passive infrared presence detector for wall mounting
- Detection range 180°

ECO-IR 360EIB-AC

- Passive infrared presence detector for ceiling mounting
- Square detection range, 360°

Common product characteristics

- Automatic HVAC and lighting control
- Real daylight measurement
- Output for light
- Lighting control with brightness threshold value and self-learning switch off delay time
- Fully or semi-automatic operation switch-selectable
- Output presence for HVAC control with switch off delay time

Technical data ECO-IR 180EIB-AC:

Detection range: horizontal 180°
Recommended mounting height: approx. 1.6 m–2.2 m
Maximum range: < 10 m

Technical data ECO-IR 360EIB-AC:

Detection range: horizontal 360°, vertical 120°
Recommended mounting height: 2.0 m–3.5 m
Maximum range: max. 8 x 8 m (Mh 2.5 m)
 max. 10 x 10 m (Mh 3.5 m)

Common specifications:

Real daylight measurement: approx. 100–1600 Lux, deactivatable, approx. 25–200Lux (extended)

Switch off delay time: 30 s–20 min

Switch off delay time for presence: 30 s–60 min

Mounting plate: 70 x 70 mm

Connection terminal: EIB

Size of concealed housing: Size 1 (NIS, PMI)

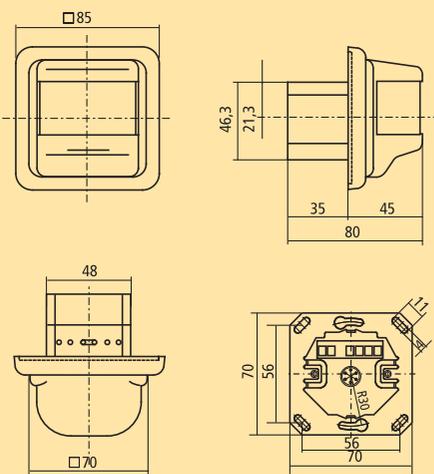
Ambient temperature: 0 °C...45 °C

Degree of protection: IP 40

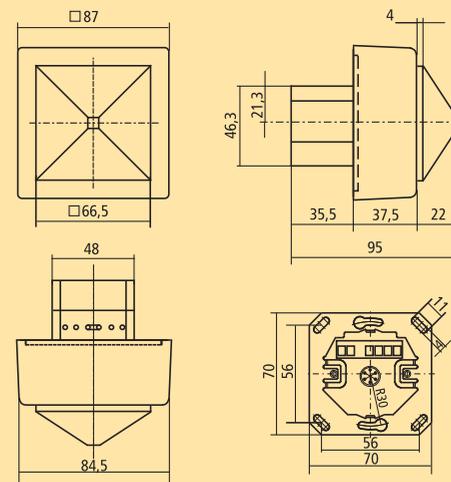
Detection range ECO-IR 360EIB-AC

M'height	seated persons	walking persons
2.0 m	4.5 m x 4.5 m	6.0 m x 6.0 m ± 0.5 m
2.5 m	6.0 m x 6.0 m	8.0 m x 8.0 m ± 0.5 m
3.0 m	7.0 m x 7.0 m	9.0 m x 9.0 m ± 0.5 m
3.5 m	8.0 m x 8.0 m	10 m x 10 m ± 1 m
4.0 m	–	11 m x 11 m ± 1 m

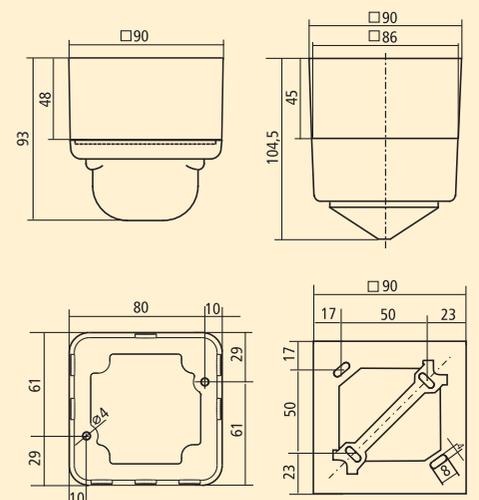
Dimension drawings: ECO-IR 180EIB-AC



Dimension drawings: ECO-IR 360EIB-AC



Dimension drawings: ECO-IR 180EIB-AC/360EIB-AC mounted onto ECO-IR 180/360 surface frame (Accessories)





Function

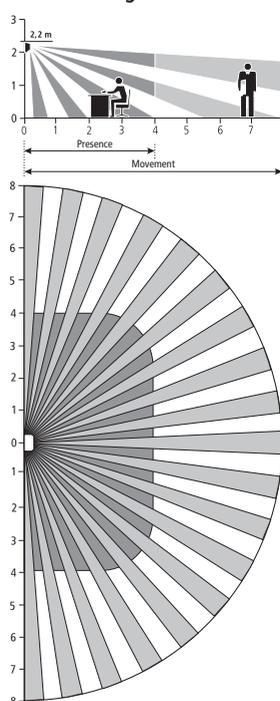
- The switching behaviour is controlled by presence and brightness.
- The lighting switches on in case of darkness and presence, and switches off in case of brightness and absence.
- The self-learning switch off delay time automatically adapts to the occupant's behaviour.
- Fully or semi-automatic operation: in the "fully automatic" operation mode, the lighting is switched on and off automatically depending on presence and brightness. In the "semi-automatic" operation mode, the light must always be switched on manually; switching off is done automatically.
- Manual control: The lighting can always be switched on and off manually.
- The presence detector is equipped with real daylight measurement and is designed for use with fluorescent lights (FL/PL) only.
- The square detection range of ECO-IR 360EIB-AC ensures a safe and simple planning.
- ECO-IR 180EIB-AC: walking persons are detected reliably in a range with radius of 8 m. Seated persons are reliably detected within a range of 8 m x 4 m. The recommended mounting height is 2.2 m.
- Output presence for HVAC control: the switching behaviour is only affected by presence.
- Master-Slave parallel circuit operation: a number of detectors can be connected in parallel to enlarge the detection zone. Lighting and HVAC is controlled by the Master. Any further detectors, the Slaves, supply the presence information.
- Master-Master parallel circuit operation: a number of detectors can be connected in parallel to control multiple lighting groups. Each master controls his lighting group according to its own brightness measurement. The presence continues to be detected by all detectors together.
- The test mode serves to check the presence detection and parameterization.
- Adjustment of the parameters is done with ETS or with potentiometers.

Accessories

- Suitable bus coupling unit HTS EIB/KNX (Order No. 907 0 524)
- A suitable frame for surface mounting is available separately (Order No. 907 0 512 for ECO-IR 360, Order No. 907 0 511 for ECO-IR 180).
- The unit can be flush-mounted into suspended ceilings using the QuickFix mounting kit (see page 84).

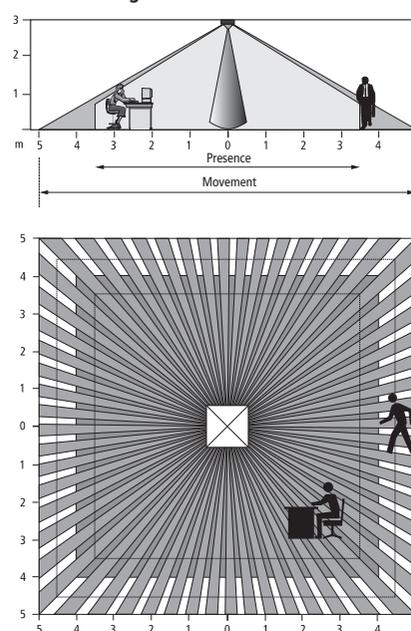
Type: ECO-IR 180EIB-AC

Detection range

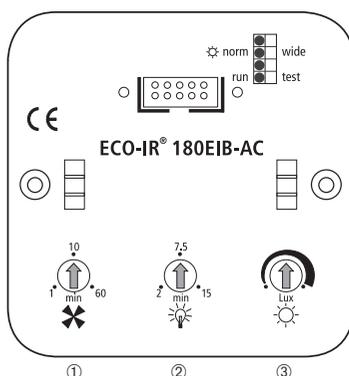


Type: ECO-IR 360EIB-AC

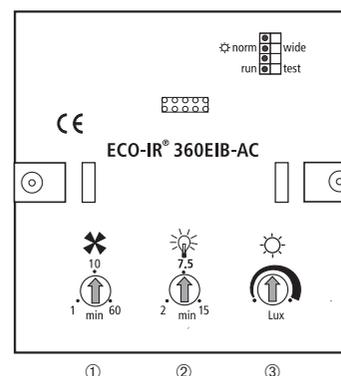
Detection range



Sensor Module – rear side ECO-IR 180EIB-AC



Sensor Module – rear side ECO-IR 360EIB-AC



Settings on the ECO-IR 180EIB-AC, ECO-IR 360EIB-AC

DIP Switches:
 DIP2 Lux scale for normal/low switch values
 DIP4 Operation mode: normal operation/test

- ① Switch off delay for HVAC
- ② Switch off delay for light
- ③ Brightness threshold (lux)

Type	Detection range	Maximum range	Switch off delay time	Outputs	Order No.
ECO-IR 180EIB-AC	180°	< 10 m	30 s–20 min	light, HVAC, bright/dark	202 9 250
ECO-IR 360EIB-AC	360°	10 x 10 m at 3.5 m height	30 s–20 min	light, HVAC, bright/dark	202 9 201
Bus coupling unit EIB/KNX for flush mounting					907 0 524
Accessories: Surface frame ECO-IR 180, white					907 0 511
Accessories: Surface frame ECO-IR 360, white					907 0 512



ECO-IR DUAL-EIB

ECO-IR DUAL-EIB

- Passive infrared presence detector for ceiling mounting
- Square detection range, 360°
- Automatic control of two lighting groups
- Dual real daylight measurement
- Two switched outputs for light
- Lighting control with two brightness threshold values and self-learning switch off delay time
- Fully or semi-automatic operation switch-selectable

Technische Daten:

Detection range: horizontal 360°, vertical 120°
Recommended mounting height: 2.0 m–3.5 m
Maximum range: max. 8 x 8 m (Mh 2.5 m)
 max. 10 x 10 m (Mh 3.5 m)

Real daylight measurement: approx. 100–1600 Lux, deactivatable, approx. 25–200 Lux (extended)

Switch off delay time: 30 s–20 min

Mounting plate: 70 x 70 mm

Connection terminal: EIB

Size of concealed housing: Size 1 (NIS, PMI)

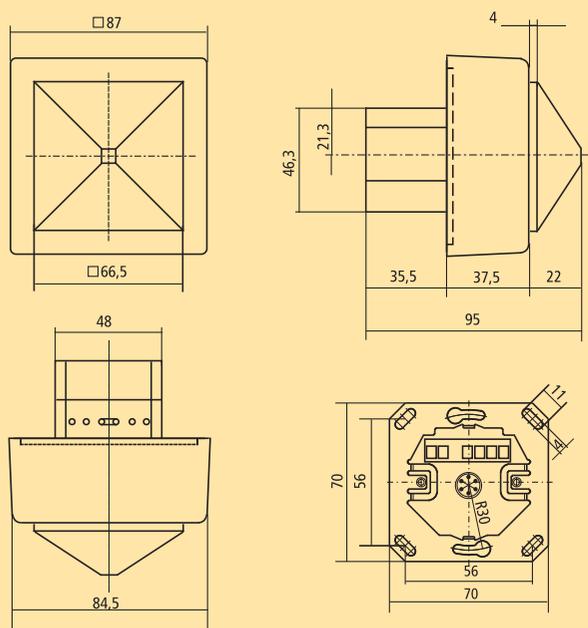
Ambient temperature: 0 °C...45 °C

Degree of protection: IP 40

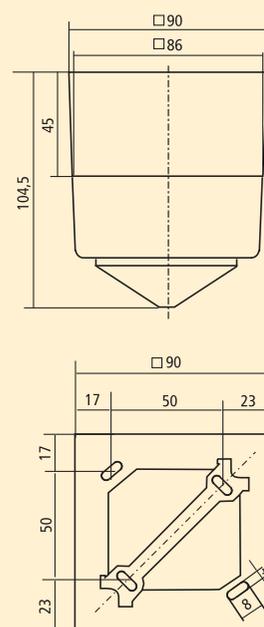
Detection range ECO-IR DUAL-EIB

M'height	seated persons	walking persons
2.0 m	4.5 m x 4.5 m	6.0 m x 6.0 m ± 0.5 m
2.5 m	6.0 m x 6.0 m	8.0 m x 8.0 m ± 0.5 m
3.0 m	7.0 m x 7.0 m	9.0 m x 9.0 m ± 0.5 m
3.5 m	8.0 m x 8.0 m	10 m x 10 m ± 1 m
4.0 m	–	11 m x 11 m ± 1 m

Dimension drawings: ECO-IR DUAL-EIB



Dimension drawings: ECO-IR DUAL-EIB mounted onto ECO-IR 360 surface frame (Accessories)

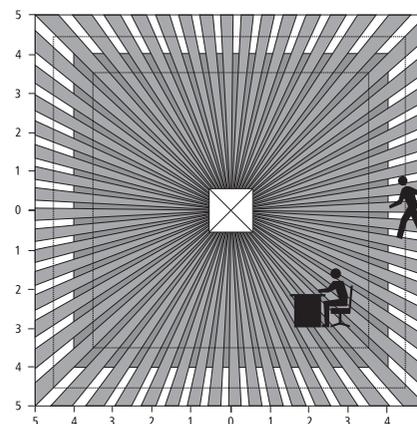
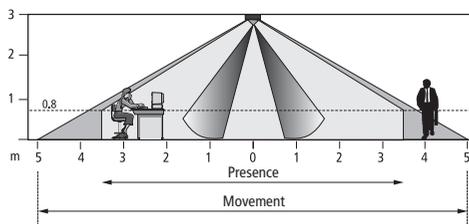




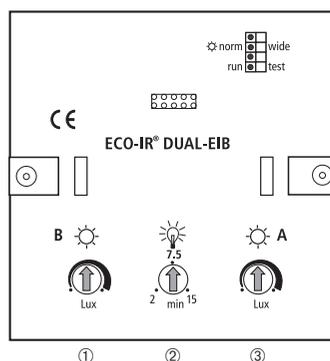
Function

- The switching behaviour is controlled by presence and brightness.
- The lighting switches on in case of darkness and presence, and switches off in case of brightness and absence.
- The self-learning switch off delay time automatically adapts to the occupant's behaviour.
- Fully or semi-automatic operation: in the "fully automatic" operation mode, the lighting is switched on and off automatically depending on presence and brightness. In the "semi-automatic" operation mode, the light must always be switched on manually; switching off is done automatically.
- Manual control: The lighting can always be switched on and off manually.
- The presence detector is equipped with a dual real daylight measurement and is designed for use with fluorescent lights (FL/PL) only.
- The square detection range ensures a safe and simple planning.
- Master-Slave parallel circuit operation: a number of detectors can be connected in parallel to enlarge the detection zone. Lighting and HVAC is controlled by the Master. Any further detectors, the Slaves, supply the presence information.
- Master-Master parallel circuit operation: a number of detectors can be connected in parallel to control multiple lighting groups. Each master controls his lighting group according to its own brightness measurement. The presence continues to be detected by all detectors together.
- The test mode serves to check the presence detection and parameterization.
- Adjustment of the parameters is done with ETS or with potentiometers.

Detection range (mounting height 3.0 m)



Sensor Module – rear side



Settings on the ECO-IR DUAL-EIB

- DIP Switches:
 DIP2 Lux scale for normal/low switch values
 DIP4 Operation mode: normal operation/test

- ① Brightness threshold (Lux B)
- ② Switch off delay for light
- ③ Brightness threshold (Lux A)

Accessories

- Suitable bus coupling unit HTS EIB/KNX (Order No. 907 0 524).
- A suitable frame for surface mounting is available separately (Order No. 907 0 512).
- The unit can be flush-mounted into suspended ceilings using the QuickFix mounting kit (see page 84).

Type	Detection range	Maximum range	Switch off delay time	Outputs	Order No.
ECO-IR DUAL-EIB	360°	10 x 10 m at 3.5 m height	30 s–20 min (light)	2 x light	202 9 200
Bus coupling unit EIB/KNX for flush mounting					907 0 524
Accessories: Surface frame ECO-IR 360, white					907 0 512



compact office EIB

compact office EIB

- Passive infrared presence detector for ceiling mounting
- Square detection range, 360°
- Mixed light measurement
- Two outputs for light for the control of two lighting groups
- Switching or constant light control
- Fully or semi-automatic operation switch-selectable
- Output presence for HVAC control with switch on delay and switch off delay time
- Reduced response characteristic for room surveillance
- Integrated bus coupling unit
- Service remote control QuickSet plus (option)
- User remote control clic (option)

Technical data:

Detection range: horizontal 360°, vertical 120°
Recommended mounting height: 2.0 m–3.0 m
Maximum range: max. 6 x 6 m (Mh 2.5 m)
 max. 8 x 8 m (Mh 3.5 m)

Mixed light measurement: approx. 10–1500 Lux, deactivatable

Switch off delay time: 30 s–20 min

Stand-by time for light: 0 s–60 min/on

Switch off delay time for presence: 30 s–120 min

Switch on delay for presence: 0 s–30 min

Mounting plate: 70 x 70 mm

Connection terminal: EIB

Size of concealed housing: Size 1 (NIS, PMI)

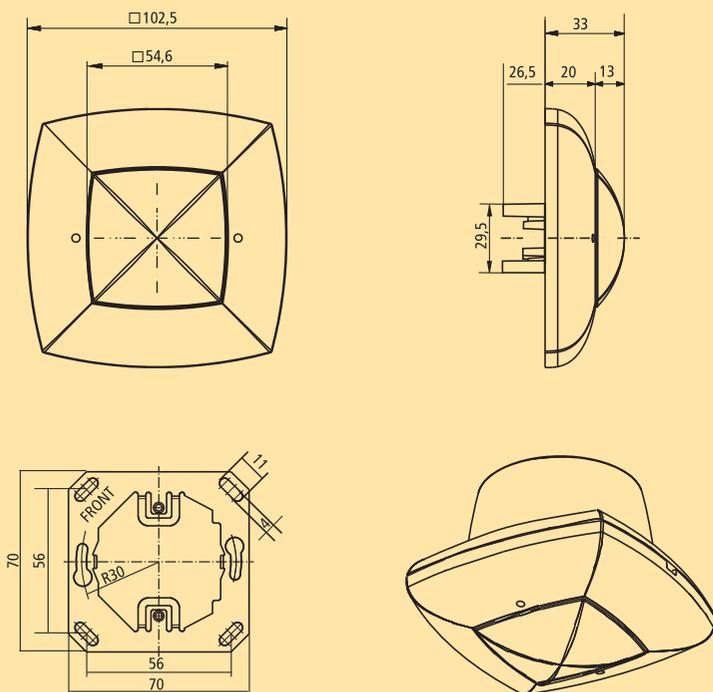
Ambient temperature: 0 °C...50 °C

Degree of protection: IP 40

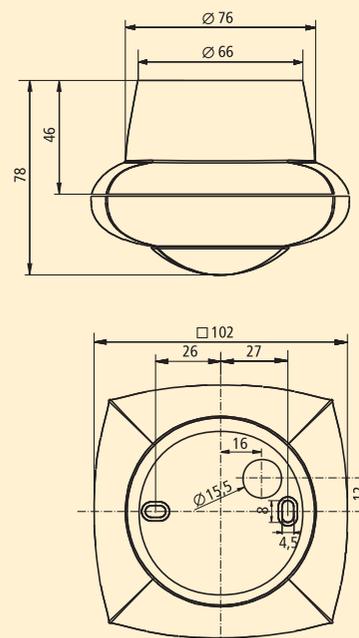
Detection range compact office EIB

M'height	seated persons	walking persons
2.0 m	3.0 m x 3.0 m	4.5 m x 4.5 m ± 0.5 m
2.5 m	4.0 m x 4.0 m	6.0 m x 6.0 m ± 0.5 m
3.0 m	4.5 m x 4.5 m	7.0 m x 7.0 m ± 1 m
3.5 m	–	8.0 m x 8.0 m ± 1 m

Dimension drawings: compact office EIB



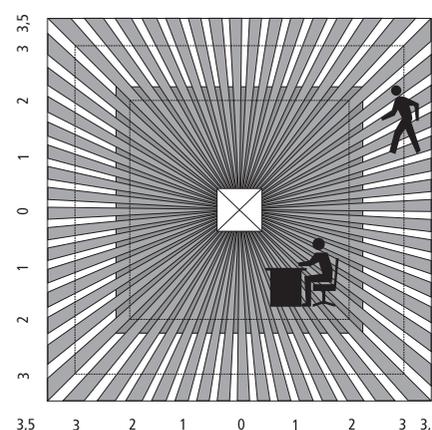
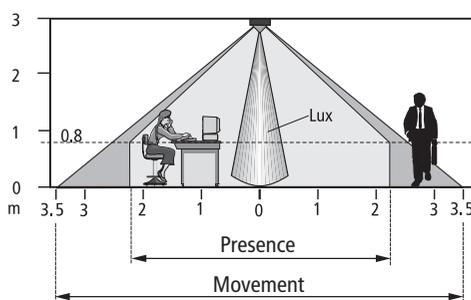
Dimension drawings: compact office EIB mounted onto compact surface frame (Accessories)



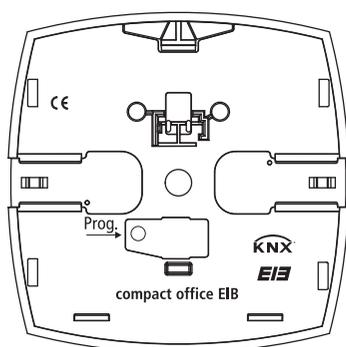
Function

- The switching behaviour is controlled by presence and brightness, alternatively switching or constant light control.
- In the switching mode, the lighting switches on in case of darkness and presence, and switches off in case of brightness and absence, respectively. In the constant light control mode, the artificial light is controlled to a constant brightness level.
- The self-learning switch off delay time automatically adapts to the occupant's behaviour.
- Fully or semi-automatic operation: in the "fully automatic" operation mode, the lighting is switched on and off automatically depending on presence and brightness. In the "semi-automatic" operation mode, the light must always be switched on manually; switching off is done automatically.
- Manual control: The lighting can always be switched or dimmed manually.
- The presence detector is equipped with a mixed light measurement and is designed for use with fluorescent lights (FL/PL) as well as halogen/incandescent lights.
- The square detection range ensures a safe and simple planning.
- Output presence for HVAC control: the switching behaviour is only affected by presence.
- The switch on delay prevents that the system is switched on immediately. The contact does not close before the switch on delay time has elapsed.
- Room Surveillance: the sensitivity of the output surveillance is reduced and thus reliably indicates the presence of persons.
- The output for brightness provides the brightness information to visualisation tools.
- Master-Slave parallel circuit operation: a number of detectors can be connected in parallel to enlarge the detection zone. Lighting and HVAC is controlled by the Master. Any further detectors, the Slaves, supply the presence information.
- Master-Master parallel circuit operation: a number of detectors can be connected in parallel to control multiple lighting groups. Each master controls his lighting group according to its own brightness measurement. The presence continues to be detected by all detectors together.
- The test mode serves to check the presence detection and parameterization.

Detection range (mounting height 3.0 m)



Sensor Module – rear side



Settings on the compact office EIB

- ⓐ Programming key

Accessories

- The service remote control QuickSet plus (Order No. 907 0 532) is optionally available as assistance for setting the brightness value.
- The clic user remote control (Order No. 907 0 515) is optionally available for individual switching and dimming of up to two lighting groups.
- A suitable frame for surface mounting is available separately (Order No. 907 0 514).

Type	Detection range	Maximum range	Switch off delay time	Outputs	Order No.
compact office EIB	360°	8 x 8 m at 3.5 m height	30 s–120 min (light)	2 x light, HVAC, surveillance, brightness switching or constant light control	201 9 200
Accessories: Surface frame compact, white					907 0 514

Service remote control QuickSet plus

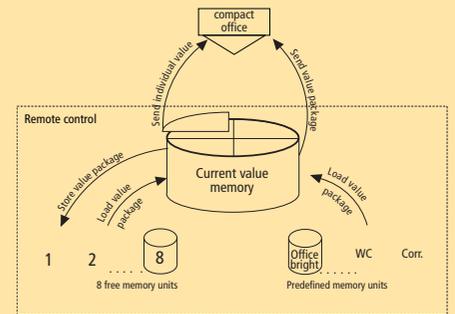


QuickSet plus
Service remote control

- QuickSet plus** Service remote control
- Infrared remote control for convenient setting up of Theben HTS presence detectors
 - Quick adaptation to changing service conditions without dismantling the detector
 - Transmission of individual settings or complete value packages to the detector
 - Retrieval of predefined value packages for typical rooms
 - Storage and retrieval of 8 user-defined value packages
 - Text-driven operator guidance in the display

- Function**
- The Service remote control QuickSet plus allows the installer an efficient setting-up of the detector and flexible adaptation to changed service conditions.
 - Setting of all potentiometer values at the touch of a button.
 - Call up of functions such as Test/Reset.
 - The settings made with QuickSet plus are retained even in the event of electricity failure or if the detector is reset.
 - Frequently used settings can be stored and, if necessary, retrieved at any time and transmitted as value packages to various detectors.
 - Typical value packages are predefined in the QuickSet plus for various rooms (office, corridor, toilets, etc...).
 - Self-defined settings can be stored in the QuickSet plus as a value package. Eight free memory units are available for each detector type.

Technical data:
Voltage supply: Batteries 9 V, 1 x Type PP3/6F22
Transmission medium: Infrared
Maximum range: approx. 4 m (compact, PresenceLight) approx. 8 m (ECO-IR)
Transmission angle: ± 15°
Dimensions: 140 x 62 x 30 mm
Temperature range: 0 °...50 °C
Colour: Black



User remote control clic



clic
User remote control

- clic** User remote control
- Infrared remote control for Theben HTS presence detectors
 - Switching and dimming of lighting, scene control
 - 2 channels for 2 lighting groups
 - 2 programmable scenes
 - 5 group addresses for channel separation
 - Coding switch and programming key for easy allocation of lighting groups and channels

- Function**
- The user remote control clic disposes of two channels for the control of two lighting groups.
 - clic allows switching and dimming of up to two lighting groups.
 - Define and save lighting scenes.
 - Settings of the presence detector cannot be changed with clic.
 - In conjunction with presence detector compact office EIB or compact passage KNX the function of the remote control's keys can be chosen, e.g. roller shutter control UP/DOWN.

Technical data:
Voltage supply: Batteries 2 x 1.5V, Type LR03/AAA
Transmission medium: Infrared
Maximum range: approx. 10 m
Transmission angle: ± 15°
Dimensions: 120 x 57 x 24 mm
Temperature range: 0 °C...50 °C
Colour: Light grey

Type	Order No.
QuickSet plus Service remote control with text-driven operator guidance in german, english and french	907 0 532
clic User remote control	907 0 515

More accessories for our presence detectors see page 78.



ZS 600 DCF KNX



DCF77 Antenna

ZS 600 DCF

Description

Time transmitter for hour and date

Characteristics

- Time transmitter sends time and date to the bus
- Synchronizes other bus devices, e.g. slave clocks
- Can be operated with and without DCF77 antenna
- LED for status display (DCF reception OK)
- Integrated voltage supply for DCF77 antenna
- Quick start-up thanks to preset date and time (CET or CEST)
- Automatic summer/winter time switchover
- Individual changeover rules can be set

Advantages

- Cost-effective solution for time and date synchronization of bus devices
- Can be used with and without DCF77 antenna
- Antenna connection in protection class III possible

DCF77 Antenna

for time synchronization, optional

- The range of the radio station DCF77 in Mainflingen near Frankfurt on the Main is approx. 1000 km.

Technical data:

Bus power supply

Power consumption: max. 10 mA

Permissible ambient temperature:

-10 °C ... +50 °C

Power reserve: 10 years

Length of line for antenna: max. 100 m

Accuracy (without antenna): 1 s/day

The application allows calibration of the time.

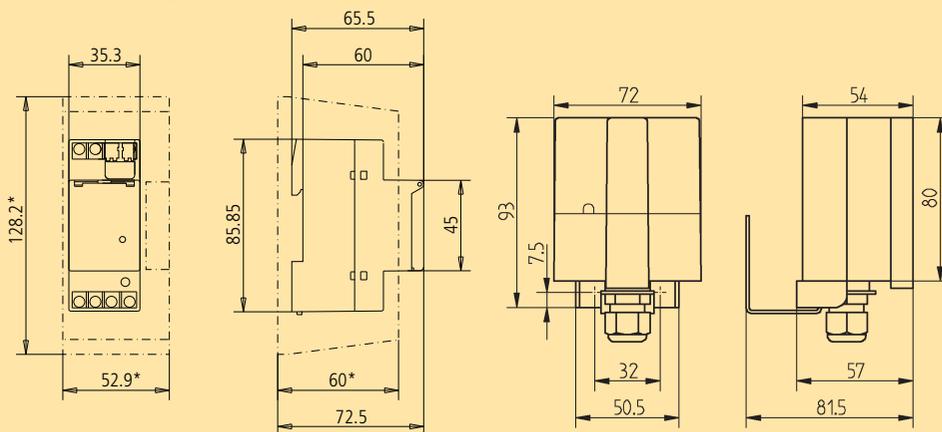
Protection class: III

Protection rating: IP 20 in accordance with

EN 60 529 subject to correct installation

Housing: 45 x 35 x 60 mm (2 modules)

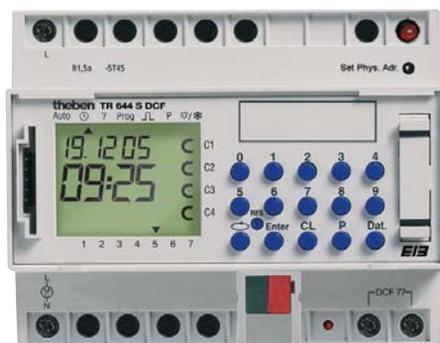
Dimension drawings DIN 43 880



*with terminal cover

Product database and manual
see www.theben.de

Type	Order No.
ZS 600 DCF KNX	600 9 200
DCF77 Antenne KNX	907 0 271



TR 644 S DCF KNX

TERMINA 644 S DCF KNX

TERMINA 644 S KNX

Quartz-controlled or DCF 77 radio-controlled with time/date transmission to the bus.

Programming at PC with programming set OBELISK 2.1 or button input at device. Bi-directional data transfer possible between PC and device.



Technical data:

Operating voltage: bus voltage, with TR 644 S DCF additional mains voltage 230 V for integrated antenna power supply unit

Channels: 4

Memory locations: 324 (free block formation)

Automatic program: Day, week, year and pulse program

Special program: 9 week programs

Summer/winter time adjustment:

automatic or by the DCF77 radio signal

Power consumption: < 10 mA

Power reserve: 1.5 years (lithium battery exchangeable)

Captive hinged cover, tamper proof

Housing: 45 x 105 x 60 mm (6 modules)

Description

Ideal KNX time switch for objects in which complex time functions are required. Simple reprogramming with easy-to-use Windows software "OBELISK 2.1".

Characteristics

Switching, valuator device, temperature, receive time and date

8 possible group addresses/8 possible associations

On each of the 4 channels, the following types of message can be selected:

- Switching message (1 bit)
- Priority message (2 bit)
- Dim and/or value message (8 bit)
- Temperature message (16 bit)
- Random message in EIS 5 format (16 bit)
- Cyclical transmission selectable
- Clock can be set via time and data messages

Scene with switching, valuator device, priority
10 possible group addresses

10 possible associations

Switching, priority, dim and/or value message can be transmitted on 4 channels. A scene with max. 4 objects can be controlled with the 4th channel.

- Via holiday object (blocked object) the switching program of the clock can be suppressed
- Cyclical transmission selectable

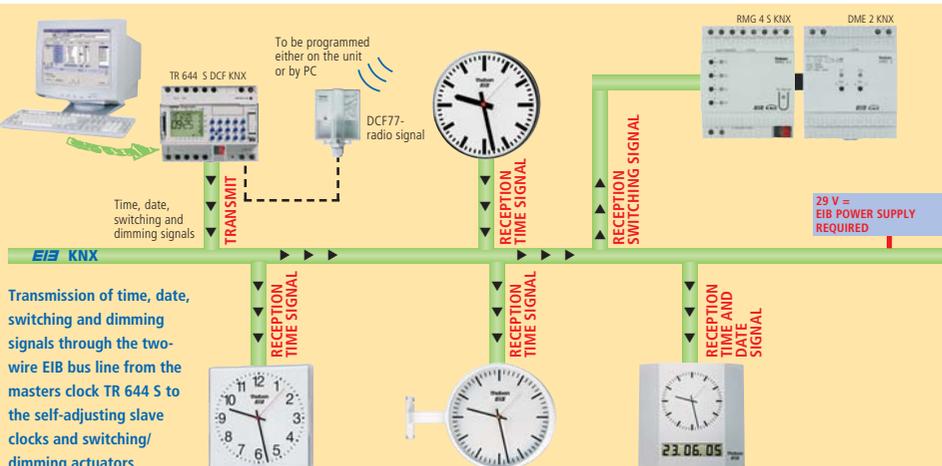
Possible applications

- Transmission of radio signal DCF77 with time and date to the entire KNX system
- Time and date synchronization of other bus users (e.g. KNX secondary clock, control systems etc.)
- Time-dependent switching of lighting, heating, blinds, alarm systems, electrical door openers, water flushing device in toilet facilities, irrigation systems, movement of water in swimming pools etc.
- Time controlled dimming of path lighting (e.g. hotels, hospitals, schools)
- Scene control of lighting with simultaneous switching and dimming (e.g. cinemas, theatre, other functional buildings)
- Time-dependent definition of different temperature stages for single-room control systems (e.g. RAM 713 S, CHEOPS control)
- Time-dependent forced control (ON and/or OFF has precedence) of consumers by priority messages
- Random switching for absence control



DCF77 Antenna KNX

Product database and manual
see www.theben.de



Type	Order No.
TR 644 S KNX DCF retrofitting not possible	644 9 203
TR 644 S DCF KNX	644 9 204
Accessories: DCF77 Antenna KNX necessary for DCF77 control	907 0 271
OBELISK programmng kit KNX	907 0 305
OBELISK memory card KNX	907 0 223



TR 648 S DCF KNX

TR 648 S DCF KNX

Quartz-controlled or DCF77 radio-controlled with time/data transmission to the bus

Description

This appliance is the ideal KNX time switch for objects in which complex time functions are required. Due to the integrated astronomical program no light sensor is necessary. Potential damage on a sensor can therefore be omitted. Up to 4 channels can be used with astronomical program. The astronomical program takes geographic differences (sunrise and sunset) into consideration. Depending on the location the daily sunrise and sunset is calculated. The programming of the astronomical program is only possible by the Obelisk 2.1 software.

PC based programming with the programming set for Obelisk 2.1 or by local keypad entry. Bi-directional data transfer between PC and devices is supported.

Possible applications

- Energy saving switch off at night option
- Time depending sending of the heating-cooling-climatization mode for individual room control systems (e.g. Theben CHEOPS control, RAM 713 S)
- Simple reprogramming with easy-to-use Windows software "OBELISK 2.1"
- Transmission of radio signal DCF77 with time and date to the entire KNX system
- Time and date synchronization of other bus users (e.g. KNX secondary clock, control systems etc.)
- Time-dependent switching of lighting, heating, roller blinds, alarm systems, electrical door openers, water flushing device in toilet facilities, irrigation systems, movement of water in swimming pools etc.
- Time controlled dimming of path lighting (e.g. hotels, hospitals, staircases)
- Scene control of lighting with simultaneous switching and dimming (e.g. cinemas, theatre, other functional buildings)
- Time-dependent definition of different temperature stages for single-room control systems (e.g. CHEOPS control, RAM 713 S)
- Time-dependent forced control (ON and/or OFF has precedence) of consumers by priority messages
- Random switching for absence control

Technical data:

Operating voltage: bus voltage; additional mains voltage 230 V AC for integrated antenna power supply unit by connection of DCF77 antenna

Channels: 16

Number of astronomical channels:

4 on C1, C2, C3, C4

Memory locations: 500 saved by EEPROM

Automatic program: Day, week, year and puls program

Possible manual operations: Preliminary manual override, permanent manual override or random switching

Inputs: Supply voltage for the DCF part, DCF77 antenna, 1 x bus

Programming: Via key pad or by PC programming software Obelisk 2.1 and memory card Obelisk (64 K)

Minimum switching interval: 1 min, via puls program 1 s

Block formation: free block formation of the week days and the switching channels

Summer/winter time adjustment: automatic or by the DCF77 radio signal

Power consumption: < 10 mA

Accuracy: ± 1 s/day or DCF77 synchronous

Power reserve: 1.5 years (replaceable lithium battery)

Captive hinged cover, tamper proof

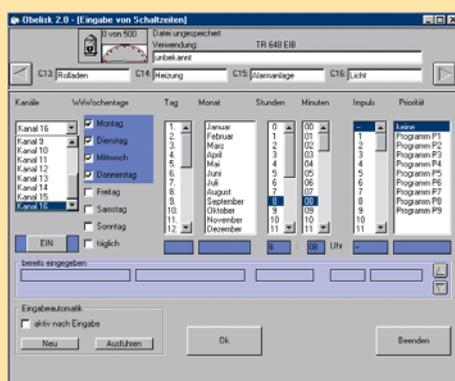
Housing: 45 x 105 x 60 mm (6 modules)

PC Programming kit OBELISK

OBELISK (EEPROM) for program transfer between PC and time switch



standard plug-in adapter



Further information see page 27

Product database and manual see www.theben.de

Type	Order No.
TR 648 S DCF KNX	648 9 201
DCF77 Antenna KNX	907 0 271
OBELISK memory card KNX	907 0 223
OBELISK programming kit KNX	907 0 305



TR 612 S KNX



TR 612 S KNX
with preset time

Description
Ideal KNX time switch for houses and smaller KNX projects.

Characteristics
2 scenes with switching, valuator device, priority. Switching, priority, dim and/or value messages can be transmitted on 2 channels. A scene with max. 4 objects can be controlled with both channels.

- Via holiday object (blocked object) the switching program of the clock can be suppressed
- On resetting the holiday object, the current state of the clock is transmitted
- With a switching interval, max. 4 messages can be transmitted to the bus via a channel (e.g. after work: switch off main lighting, lower blinds, lower room temperature, lock outside doors)

Technical data:
Operating voltage: bus voltage
Channels: 2
Memory capacity: 36 (free block formation)
Automatic program: Day and week program
Summer/winter time adjustment: automatic
Power consumption: < 3.5 mA
Minimum switching interval: 1 min
Accuracy: ≤ 1 s/day at 20 °C
Power reserve: 6 years (Lithium)
Permissible ambient temperature: -5 °C... +45 °C
Degree of protection: IP 20 (EN 60529)
Captive hinged cover, tamper proof
Housing: 45 x 35 x 60 mm (2 modules)

Type	Order No.
TR 612 S KNX	612 9 201



LUNA 130 KNX

LUNA 130 KNX
for brightness-dependent light scene control with integrated bus coupler

Description
The LUNA 130 KNX is suited excellently for applications in which a comfortable lighting control is to be created on the basis of brightness.

Characteristics

- Brightness sensor with 4 scenes
- Measuring range 1–100 lux or 100–20,000 lx (selectable)
- Measuring range can be divided into 4 areas by 3 steps
- Each subdomain can be allocated a light scene from 3 switching objects and 1 dim object
- Adjustable special scene, retrievable via the holiday object
- Brightness sensor with 3 thresholds
- 3 integrated triggers
- Adjustable threshold between 1 and 20,000 lux
- The behavior when the threshold value is not reached or and/or exceeded can be set with the following parameters: no message, ON message/OFF message, ON message/OFF message (transmit cyclically)
- Further parameters: hysteresis, delay time, cycle time
- Blocking object blocks transmission per channel

Possible applications

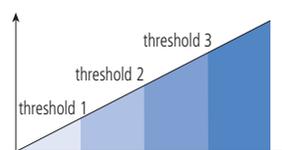
- Control of several lines of fluorescent luminaires
- With the brightness sensor max. four different brightness steps can be monitored.

Technical data:
 Threshold values, dimming stages and switching delay settable via software
Operating voltage: bus voltage
Range: 1–20,000 Lux
Switching delay: 8–240 s
Product consumption: < 10 mA
Permissible ambient temperature: -5 °C ...+45 °C (-5T45)
Degree of protection: IP 20 in accordance with EN 60529
Length of sensor line (max.): approx. 100 m
Cross-section sensor line: 2 x 0.75 mm²
Captive hinged cover, tamper proof
Housing: 45 x 35 x 60 mm (2 modules)

Type	Order No.
LUNA 130 KNX	130 9 200

Accessories:
Surface-mounted light sensor (included in delivery)
Built-in light sensor 907 0 247

	Behaviour with holiday	Brighter than threshold 1	Between threshold 1 and threshold 2	Between threshold 2 and threshold 3	Darker than threshold 3
switching object 1	OFF	OFF	ON	ON	ON
switching object 2	OFF	OFF	OFF	ON	ON
switching object 3	OFF	OFF	OFF	OFF	ON
switching object 4	0	0	80	160	255





LUNA 131 KNX

LUNA 131 KNX

Description

The KNX combination sensor LUNA 131 KNX records the brightness and temperature. These values can be transmitted to the bus.

Characteristics

- Recording brightness and temperature
- The device has 4 universal channels and 1 sun protection channel
- The measured variables can be transmitted directly on the bus.
- Brightness and temperature are each sent as 2 byte values.
- The data are evaluated in the device itself
- The universal channels can be used for sub-tasks (e.g. a pure brightness threshold) or for a combination of brightness and temperature.
- The universal channel allows linking of brightness and temperature
- Teach-in feature for brightness threshold

Possible applications

The LUNA 131 KNX is suitable for the following applications:

- Multi-stage lighting control
- Temperature control such as the control of script-type heaters in anti-freeze applications
- Control of awnings
- Conservatory control
- Greenhouse control
- Systems, in which brightness and outdoor-temperatures have to be visualised

Technical data:

Operating voltage: bus voltage

Connections: 1 bus connection (by bus port terminal)

Measuring ranges:

Brightness: 1...100.000 Lux

Temperature: -20 °C ... +55 °C

Degree of protection:

IP 54 in accordance with DIN EN 60529

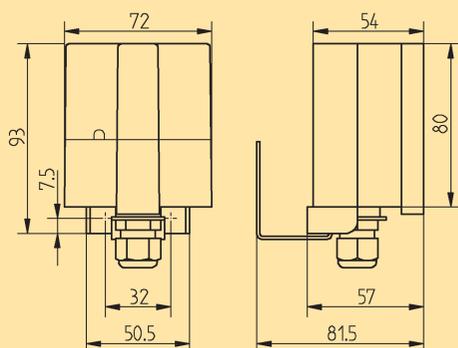
Permissible ambient temperature:

-25 °C...+55 °C

Housing: 110 x 72 x 54 mm

Weight: approx. 140 g

Dimension drawings DIN 43 880



Product database and manual
see www.theben.de

Type

Order No.

LUNA 131 KNX

131 9 201



OSIRIA 220 KNX

Single face wall clocks

- EIB indoor clock, round
- Impact-resistant plastic housing, matt border
- Flat, shock-resistant Plexiglas
- Dial Ø 250 mm
- White metallic dial with black Arabic numerals or DIN bars
- Clock face in accordance with DIN 41 091
- Black DIN bar hour and minute hands, red second hand
- Housing dimensions: Ø 265 mm, housing depth 60 mm



OSIRIA 230/240 KNX

Single face wall clocks

- EIB indoor clock, round
- Impact-resistant plastic housing, matt border
- Flat, shock-resistant Plexiglas
- Dial Ø 300 mm or 400 mm
- White metallic dial with black Arabic numerals or fine-line numerals
- Clock face in accordance with DIN 41 091
- Black bar hour and minute hands, red second hand
- Housing dimensions: Ø 315 mm, housing depth 60 mm
Ø 415 mm, housing depth 64 mm



OSIRIA 241 KNX

Single face wall clocks

- EIB indoor clock, round
- High-quality chrome-plated metallic housing
- Domed, shock-resistant Plexiglas
- Dial Ø 400 mm
- White metallic dial with black Arabic numerals or fine-line numerals
- Clock face in accordance with DIN 41 091
- Black DIN bar hour and minute hands, red second hand
- Housing dimensions: Ø 400 mm, housing depth 72 mm



OSIRIA 251 BQ KNX

Wall clocks protected against thrown balls

- e. g. for sports halls, schools, etc.
- EIB indoor clock, square (400 mm x 400 mm)
 - Single-faced, robust, white painted metallic housing (RAL 9016) for heavy-duty applications
 - Laminated safety glass
 - 3-point fastening resistant to being pried out
 - White metallic dial with black DIN bar numerals
 - Clock face in accordance with DIN 41 091
 - Black bar hour and minute hands, red second hand
 - Protected against thrown balls! (FMPTA inspection certificate in accordance with DIN 18 032 part 3 available)



OSIRIA 232 BQ KNX

Installing wall clocks

- Flush-mounted analogue clock (for operating theatres)
- Housing frame for installation flush with tiles or wall (W/H/D 301 x 301 x 60 mm), of V4A stainless steel for wall installation (flush mounting)
 - Resistant to acids, cleaning agents and disinfectants; in the installed state protected against dust and water in acc. with protection rating IP 54 (DIN 40 050)
 - 3 mm flat mineral lens
 - White metallic dial with black DIN bar numerals
 - Clock face in accordance with DIN 41 091
 - Black DIN bar hour and minute hands, red second hand

Applies to every clock:

- Power reserve of 10 days in event of bus voltage loss



OSIRIA 242 KNX



OSIRIA 280 B KNX

Two face wall clocks

- EIB indoor clock, round
- With wall or ceiling holder (150 mm)
- Robust, white painted metallic housing (RAL 9016) for heavy-duty applications
- Shock-resistant Plexiglas lenses
- Dial Ø 400 mm
- White dials with black Arabic numerals or fine-line numerals
- Clock face in accordance with DIN 41 091
- Black bar hour and minute hands, red second hand
- Housing dimensions: Ø 420 mm, housing depth 116 mm

Digital calendar clock

- Analogue clock with 1-line, 9-segment LCD digital display
- Extra flat metal housing (W/H/D 500 x 510 x 40 mm), painted metallic silver
- Analogue-mechanical time display
- Dial Ø 280 mm
- Free-wheel black bar hand, red second hand
- No glass cover
- Height of date numerals 50 mm
- Can be read from approx. 20 m

Applies to every clock:

- Power reserve of 10 days in event of bus voltage loss

	Type	Dial dimensions	housing dimensions	description	Order No.
Single face wall clocks	OSIRIA 220 AR KNX	Ø 250 mm	Ø 265 mm Depth: 60 mm	Arabic numerals impact resistant plastic housing	500 9 200
	OSIRIA 230 AR KNX	Ø 300 mm	Ø 315 mm Depth: 60 mm	Arabic numerals impact resistant plastic housing	500 9 210
	OSIRIA 230 SR KNX	Ø 300 mm	Ø 315 mm Depth: 60 mm	Fine-line numerals impact resistant plastic housing	500 9 211
	OSIRIA 240 AR KNX	Ø 400 mm	Ø 415 mm Depth: 64 mm	Arabic numerals impact resistant plastic housing	500 9 230
	OSIRIA 240 SR KNX	Ø 400 mm	Ø 415 mm Depth: 64 mm	Fine-line numerals impact resistant plastic housing	500 9 231
	OSIRIA 241 AR KNX	Ø 400 mm	Ø 400 mm Depth: 72 mm	Arabic numerals chromium-plated metal housing	500 9 240
	OSIRIA 241 BR KNX	Ø 400 mm	Ø 400 mm Depth: 72 mm	DIN bar numerals chromium-plated metal housing	500 9 241
	Two face wall clocks	OSIRIA 242 AR KNX	Ø 400 mm	Ø 420 mm Depth: 116 mm	Arabic numerals white painted metallic housing
OSIRIA 242 SR KNX		Ø 400 mm	Ø 420 mm Depth: 116 mm	Fine-line numerals white painted metallic housing	500 9 251
Wall clock protected against thrown balls	OSIRIA 251 BQ KNX		400 x 400 mm Depth: 100 mm	DIN bar numerals white painted metallic housing	500 9 252
Digital calendar clock	OSIRIA 280 B KNX	Ø 280 mm	500 x 510 mm Depth: 40 mm	Bar numerals, Height of date numerals 50 mm	500 9 280
Installing wall clock for OP areas	OSIRIA 232 BQ KNX	250 x 250 mm	301 x 301 mm Depth: 60 mm	DIN bar numerals stainless steel housing	500 9 223

Additional models on request



Interface USB KNX

Interface USB KNX

- The USB interface enables communication between a PC and the KNX system being programmed. The data transmission is indicated by the KNX LED and the USB LED. The USB can be used with ETS3 V1.0 and later.

Technical data:

Power supply: Bus

Interface: USB

Operating temperature range:

–5 °C ... +45 °C

Protection rating: IP 20 in accordance with EN 60 529

Dimensions: 90 x 35 x 64 mm

Type

Order No.

Interface USB KNX

907 0 397



Line coupler KNX

Line coupler KNX

- The line coupler is used in larger installations to connect KNX lines or areas. The lines/ areas are electrically isolated from each other. At the same time, it is possible to filter out messages in order to reduce the message traffic in a line. The line coupler has bus connection terminals for the main line and subordinate line. The line coupler can also be used within a line as a line amplifier (repeater).

Power supply: Bus

Operating voltage: Primary/secondary line 24 V DC (21 ... 31 V DC)

Temperature range:

–5 °C ... +45 °C (operation)

–25 °C ... +55 °C (transport/storage) at relative humidity (without condensation) 5 % ... 93 %

Protection rating: IP 20 in accordance with EN 60 529

Protection class: III

Connection

Electrical connection is via the bus connection terminals.

Type

Order No.

Line coupler KNX

907 0 398



Power supply 640 mA KNX



Power supply 320 mA KNX

Power supply 640 mA KNX

The KNX voltage supply generates and monitors the KNX system voltage by means of the integrated reactor. The bus line is decoupled from the KNX voltage supply. The connection to KNX is made with a bus terminal. When the reset button is pressed, a reset is triggered for 20 seconds (regardless of how long the button remains pressed). The bus line is enabled and the bus users connected to this bus line are reset to the basic status. If a longer reset is needed, the bus terminal must be disconnected from the supply voltage. A 30 V DC auxiliary voltage output is provided by an additional terminal.

Power supply 320 mA KNX

The 320 mA voltage supply generates and monitors the KNX system voltage, via the BUS output, it supplies a bus line with max. 32 instabus users without any additional KNX reactor. The 30 V DC output is without reactance and makes possible the supply of a further line (e.g., main line) by means of a separate KNX reactor, to be installed separately, as well as a line coupler. Alternatively, this output can be used for the supply of further functional devices (e.g., auxiliary voltage for binary inputs). The load can be distributed to the outputs as desired; the total nominal current must not be exceeded, however. The mounting of the REG is done on a 35 mm mounting rail.

- Connection of the bus lines via KNX terminals, no data bus required
- Switch for resetting the bus line
- Colored LED for displaying operation, overload, overvoltage and reset

Technical data:

Power supply 640 mA

Power supply: 230 V AC, 50...60 Hz

Voltage range: 195...255 V AC, 45...65 Hz

Power consumption: max. 45 VA

Dissipation: max. 6 W

Outputs:

EIB-output: 1 line with integrated reactor

EIB nominal voltage: 30 V DC ± 2 V, SELV

Auxiliary voltage output:

1 (without reactance)

Auxiliary voltage, nominal value:

30 V DC ± 2 V, SELV

Nominal current (total): 640 mA, short-circuit proof (sum of KNX and 30 V outputs)

Short-circuit current: max. 1.4 A

Mains failure ride-through interval:

min. 200 ms

Operating temperature range:

-5 °C ... +45 °C

Degree of protection: IP 20 according to EN 60 529

Housing: 90 x 108 x 64 mm

Power supply 320 mA

Nominal AC voltage: 161 to 264 V AC, 50/60 Hz

Output BUS (with reactance)

Voltage: 28 to 31 V DC

Max. bus cable length: 350 m for each output with reactance

Output 30 VDC (without reactance)

Voltage: 28 to 31 V DC

Nominal current:

max. 320 mA for both outputs (11 + 12).

Can be distributed as desired, short-circuit proof

Permissible ambient temperature:

-5 °C ... +45 °C

Degree of protection: IP 20 according to EN 60 529

Installation width: 72 mm (4 modules)



New

RUF 440 control unit



New

RUF 440 reset button



New

RUF 440 alarm unit



New

RUF 440 alarm pull cord

RUF 440 Emergency Assist System (complete set)

The percentage of the older population is expanding rapidly.

This is accompanied by an increased demand for security systems for this target group. Theben offer a universal call system, "RUF 440", for use in disabled toilets and bathrooms, residential homes for senior citizens, as well as in saunas and solariums.

The system consists of a control panel, pull cord alarm and reset button with the following functions:

- Control panel with visual LED call display and acoustic alarm display. The alarm can be cancelled using the reset button. The integrated reset button can be deactivated using a jumper so that it can only be cancelled on site. The integrated power unit provides power for the whole 2-wire bus system. An interruption on the bus connection is indicated by a LED.
- Pull cord alarm with 2.5 m cord and 2 grips for raising alarm by a seated or standing person
 - With integrated LED screen
 - Suitable for wall or ceiling installation
- Reset button with LED call display plus braille script
- Alarm indicator with clearly visible LED screen in blue plus loud electric buzzer as acoustic alarm
- The fool-proof two-wire bus system that combines the components with each other ensures straightforward installation of the call system. Installation in wet rooms is no problem as all the devices, except the control panel, are in protection class III.
- The RUF 440 system is suitable for wall installation
- For flush-mounted installation, use optional flush-mounted installation set 907 0 611

Technical data:

Operating voltage: 230 V~, +10 %/–15 %

Frequency: 50 Hz

Power consumption stand-by/alarm:

Control panel: approx. 15 mA/approx. 15 mA

Alarm pull switch: 10 µA/7 mA

Alarm push button: 18 µA/8 mA

Alarm indicator: 250 µA/20mA

Reset button: 490 µA/7 mA

Switch output: 5–8 V DC (SELV) at 470 Ω

Permissible ambient temperature: +5 °C to +40 °C

Protection rating in accordance with EN 60529:

IP 40 IP 20 in accordance with EN 60529

Protection class subject to correct installation:

Control panel: II in accordance with EN 60065

remaining devices: III in accordance with EN 60065

Housing colour: similar to RAL 9010

Dimensions L x W x H (e.g. for flush-mounted installation):

Control panel: 145 x 85 x 60 mm

(flush-mounted: 33 mm)

Alarm pull switch: Ø 82 x 20 mm

Push button alarm: 85 x 85 x 30 mm

(flush-mounted: 12 mm)

Alarm indicator: 85 x 85 x 50 mm

(flush-mounted: 24 mm)

Reset button: 85 x 85 x 30 mm

(flush-mounted: 12 mm)

RUF 440 complete to (440 0 100)

consisting of:

- Control panel (440 0 101)
- Pull cord alarm (440 0 102)
- Alarm indicator (440 0 103)
- Reset button (440 0 104)

Accessories:

- Push button alarm (440 0 105)
- Flush-mounted installation set (907 0 611)

Type	OrderNo.
RUF 440 Emergency Assist System (complete set)	440 0 100
RUF 440 push button alarm (accessory)	440 0 105
Flush-mounted installation set (accessories)	907 0 611

Wall mounting/Flush mounting

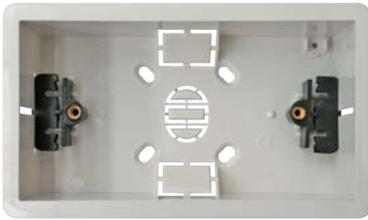
Call system



RUF 440 push button alarm

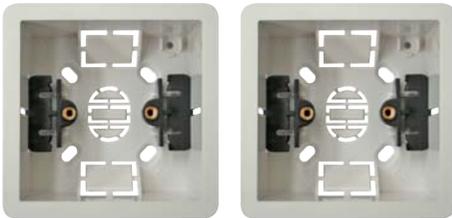
- The RUF 440 push button alarm (440 0 105) can be used as an alternative to the RUF 440 pull cord or as an additional release

New RUF 440 push button alarm



RUF 440 flush-mounted installation set

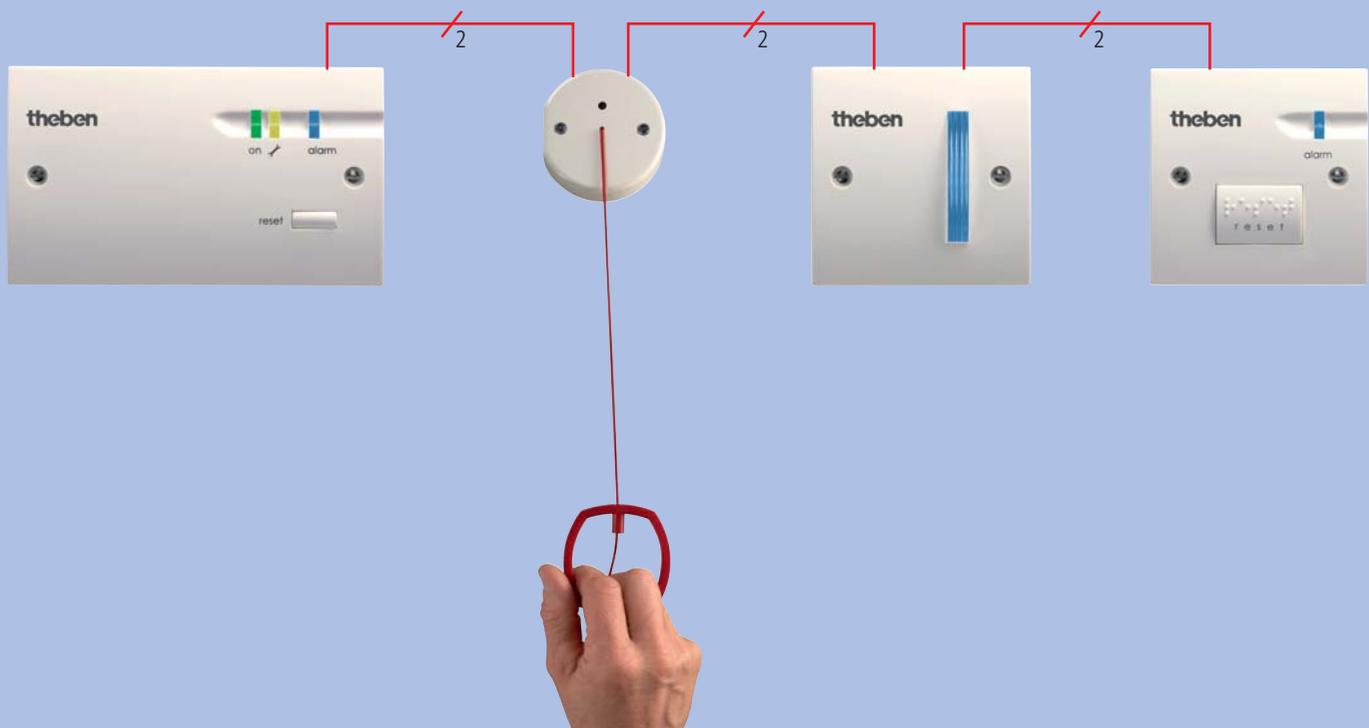
- Consisting of suitable flush-mounted sockets for control panel, reset button and alarm indicator



RUF 440 flush-mounted installation set

New

System layout of complete RUF 440 set





Timer components
analogue or digital

Front panel installation

Page 178



Weathersafe Outdoor Power
Weathersafe Sockets

Page 180

Explanation of symbols/definitions

Page 182

General Terms and Conditions

Page 186

Special voltages

Page 188

Table of timer ranges

Page 189

Discontinued models

Page 190

Agencies

Page 192

Advertising material order form

Page 195

ACCESSORIES



SYNCHRONA 164.../SULEIKA 184...

WITHOUT PLUG-IN BASE



TR 684/1... top

WITHOUT PLUG-IN BASE

If using/replacing in existing system, please indicate precise modification
Replacement devices for heating controllers, please enquire at the dealer or contact our Service Hotline

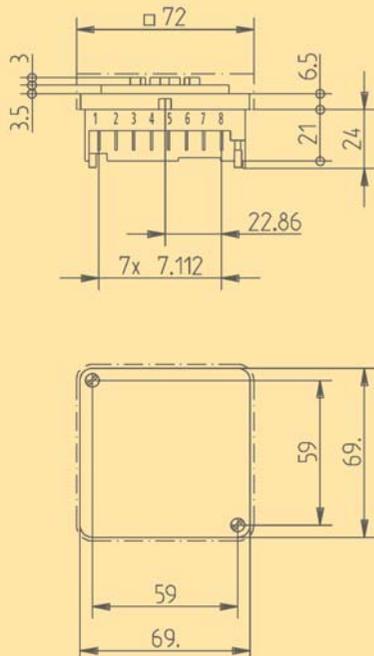
- SYNCHRONA 164.../SULEIKA 184...**
- Devices for original installations
 - Timers with or without power reserve
 - 1 or 2 separate switchover contacts
 - Switchable for daily and weekly program (Patent No. DE 3708611 C1)
 - ON/OFF switching pre-selection for premature switching without influencing the subsequent program sequence on 1-channel devices
 - ON/OFF permanent switch, e.g. for holidays, 1-channel devices
 - Switching status display
 - Time pointer resetable for summer/winter time adjustment on 1-channel devices

- TERMINA 684/1... top**
TERMINA 684/2... top TERMINA®
- Daily/weekly program
 - Operator guidance through integrated text line in the LCD
 - Programming displayed graphically by a bar arrangement in the LCD
 - Factory-set time (CET) and automatic summer/winter changeover
 - Summer/winter time changeover can be disabled or freely selected (GB, USA changeover rule also selectable)
 - High number of memory locations
 - Guided copying of switching times to other weekdays (free block formation)
 - Switching times sorted in memory according to weekdays
 - Switching pre-selection
 - Permanent switching (permanent)
 - Lithium cells and EEPROM
 - PIN coding

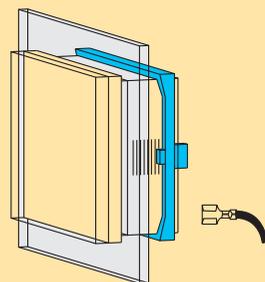
Complete device for front panel installation with mounting brackets, terminal screws, contact protection and plug-in base see page 14–17.

Complete device for front panel installation with plug-in base, contact protection, terminal screws, mounting bracket, see page 29.

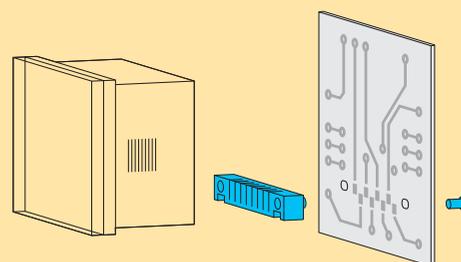
Dimension drawings



Installation



Connection with 4.8 mm flat plug



PCB installation with accessories: Multiple contact strip (for soldering to PCB), Order No. 907 5 141

Design:

- Front frame 69 x 69 mm, installation depth 21 mm
- Installation cutout 66 x 66 mm
- Control panel installation with tensioning brackets. Connection either with flat plugs (4.8 mm) or additional multiple contact strip.
- Transparent cover (external dimension 72 x 72 mm)



TR 671 top/672 top

- TERMINA 671 top** TERMINA®
TERMINA 672 top TERMINA®
**Especially for industrial use
or for first equipment series devices**

- Function:**
 - 1 channel or 2 channels
 - 42 memory locations
 - Week program
 - Step by step operator guidance by textline in the LCD display (see page 27)
 - Guided copying of the switching times to other week days (free block formation)
 - Programming is shown graphically by means of a bar chart in the LCD display
 - Holiday program pulse and cycle program
 - Operating voltage 3 VDC
 - LCD display
 - Output: 1 x NPN/2 x NPN
 - Summer-/winter time changeover can alternatively switched off or freely programmed (additionally GB, USA rule can be chosen)
 - Sorting of the switching times in the memory according to weekdays
 - Switching pre-selection
 - Permanent switching (permanent)
 - Program saving by EEPROM
 - PIN encoding
- With automatic summertime/wintertime change, EEPROM and random switching, optionally basic program**
6⁰⁰ am – 10⁰⁰ pm
- Larger quantities upon request.**
- Packaging/ordering unit 50 units**

Common technical data:

- Button switch mode preselection for premature manual switching on or off without influencing the subsequent automatic program sequence.
- Permanent ON/OFF switch
- Reset switch
- Quartz time base

Accuracy: ± 1 s/day up to 25 °C

Power reserve: by lithium cell, NiCd cell or Goldcup

Permissible ambient temperature: –10 ° C...+50 ° C

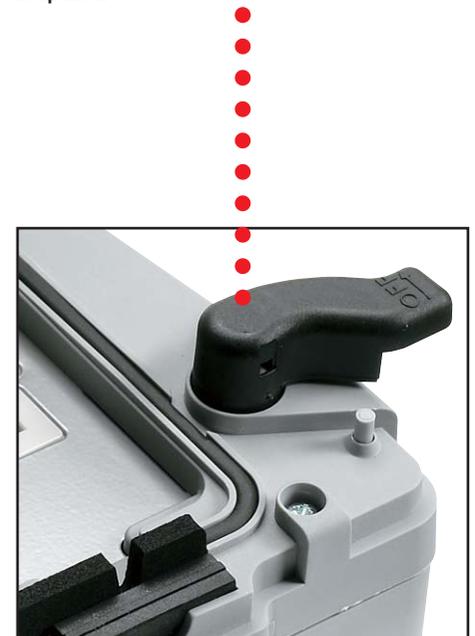
Display: LCD display (time, day of week, holiday program, switching status and manual switching).

Complete units with power supply unit see page 22.

Weathersafe Outdoor Power
Weathersafe Sockets



Timeguard insisted that unique safety features were built-in when designing Timeguard Weathersafe® range of sockets. The result is a special unique mains isolation switch **S.M.P.S.** which isolates the power supply when the housing is opened.



S.M.P.S.
Safety Isolator Mains Protection Switch

WEATHERSAFE®
IP66
R A T I N G

	Type	Operating Voltage	Rocker Switch Poles	Rocker Switch Rating	Operating Temperature	Cable Capacity	Conforms to BS	Dimensions (mm)	Order No.
		230 V AC		230 V, 13 A (3 kW)	0 °C to 40 °C	3 x 2.5 mm ²	BS1363, BS7288 (RCD)	Height x Width x Depth	
WP101	D	Unswitched	•	•	•	•		130 x 135 x 80	907 0 614
	F	Unswitched	•	•	•	•		130 x 135 x 80	907 0 613
	GB	Switched	•	2	•	•	•	130 x 135 x 80	907 0 612
WP102	D	Isolated Unswitched	•	•	•	•		130 x 135 x 80	907 0 617
	F	Isolated Unswitched	•	•	•	•		130 x 135 x 80	907 0 616
	GB	Isolated Switched	•	2	•	•	•	130 x 135 x 80	907 0 615
WP201	D	Unswitched	•	•	•	•		130 x 195 x 80	907 0 620
	F	Unswitched	•	•	•	•		130 x 195 x 80	907 0 619
	GB	Switched	•	2	•	•	•	130 x 195 x 80	907 0 618
WP202	D	Isolated Unswitched	•	•	•	•		130 x 195 x 80	907 0 623
	F	Isolated Unswitched	•	•	•	•		130 x 195 x 80	907 0 622
	GB	Isolated Switched	•	2	•	•	•	130 x 195 x 80	907 0 621
WP105		DIN Timer	•	•	•	•	BSEN60730	130 x 135 x 80	907 0 624
WP106		Solar Timer	•	•	•	•	BSEN60730	130 x 135 x 80	907 0 625

D = German standard socket version

F = French standard socket version

GB = British standard socket version (UK)

Weathersafe Outdoor Power
Weathersafe Sockets



WP101

Single Gang (Un)Switched Socket

- 13 amp single gang switched socket (only for british socket, german and french socket are unswitched).
- 4 x 20 mm cable entries.
- Earth terminal and loop terminal in back box.
- Complies with BS1363 (for the british socket).
- IP66 weatherproof rating.
- Impact resistant housing.
- Locking boss feature.



WP102

Single Gang Isolated (Un)Switched Socket

- 13 amp single gang switched socket (only for british socket, german and french socket are unswitched).
- 4 x 20 mm cable entries.
- Earth terminal and loop terminal in back box.
- Complies with BS1363 (for the british socket).
- IP66 weatherproof rating.
- Impact resistant housing.
- Locking boss feature.
- Mains isolator switch ensures supply isolation before opening lid.



WP201

Twin Gang (Un)Switched Socket

- Twin gang socket in a IP66 protective housing with multiple replaceable cable entry knock-outs. Suitable for all BS 13amp plugs, for german plugs or for french plugs.
- 13 amp twin gang switched (only for british socket, german and french socket are unswitched).
 - 6 x 20 mm cable entries.
 - Earth terminal and loop terminal in back box.
 - Complies with BS1363 (for the british socket).
 - IP66 weatherproof rating.
 - Impact resistant housing.
 - Locking boss feature.



WP202

Twin Gang Isolated (Un)Switched Socket

- 13 amp twin gang (only for british socket, german and french socket are unswitched).
- 6 x 20 mm cable entries.
- Earth terminal and loop terminal in back box.
- Complies with BS1363 (for the british socket).
- Mains isolator switch to isolate supply before lid can be opened.
- IP66 weatherproof rating.
- Impact resistant housing.
- Locking boss feature.



WP105

Single Gang TR 610 top2 DIN Timer

- Enclosed 24 h/7 d single channel (2 module size) 16 (10) A digital timeswitch.
- Text Oriented Programming.
- 14 ON/OFF programmes per week.
- ON/OFF times may be repeated over a number of days without using extra memory locations.
- Automatic Summer/Winter changeover.
- Integral Lithium cell power reserve with 4 years life.
- Manual override to next programme change and permanent ON/OFF switching.
- 4 x 20 mm cable entries.
- Earth terminal and loop terminal in back box.
- Complies with BSEN60730 (for the british socket).
- IP66 weatherproof rating.
- Impact resistant housing.
- Locking boss feature.



WP106

Single Gang SEL 170 top2 DIN Astronomic Timer

- Shares all the features of the WP105 Single Gang TR 610 top2 DIN Timer above, plus:
- Enclosed Solar Timeswitch.
 - Precise astronomic calculation of sunrise and sunset times by entering date, time and location co-ordinates (latitude/longitude or country/city).
 - Lights are switched ON and OFF according to sunrise and sunset times and can be shifted 120 minutes from these in either direction.
 - Factory set time and date.
 - 10 years battery reserve.
 - Energy saving night switching.
 - Daily switching times are presented graphically on the LCD by a bar chart.

Appendix

Explanation of symbols

	analogue or digital Time control unit		Connection for telephone remote switch
24 h	Daily program	10–30 °C	Temperature control range
7d	Weekly program	holidays	Holiday program
60 min	1 hour short time program	Optimization	Optimisation function for temperature control
±1h auto	Automatic summer/winter time		Underfloor heating control
	Text-based operator guide in display.		Controller with remote control
	Pulse program		OpenTherm BUS device
	Cycle program		Weather-dependent controller
PC	PC programming interface		Defrost timer
	Time relay		Central functions: Simulation, central ON/scene, central off, panic function
0.1 s–100 h	Time range		Shutter, blinds and awning control
AC/DC 12–240 V TM 345 M	Multi-voltage power unit		Universal dimmer
	Staircase light timers		Motor control unit
	Multi-function device		Switch-off pre-warning in accordance with DIN 18 015-2
Input 8–240 V AC/DC	Multi-voltage input	m/s	Wind sensor
3600 W	Zero voltage switching		Rain sensor
	Switch off warning		Temperature monitoring
2–100 Lux	Brightness setting range		Twilight switch and Sun protection control
Lux Digital	Digital switching point setting	%	Percentage value output
	Twilight switch/ lighting control		Schmitt trigger
Astro	Astronomic switching function		Logic functions
	Socket devices	EIB/KNX	EIB products
	Controller for thermal solar power system		Suitable products for ETS 3 starter software
	Service water control	MIX	EIB/KNX devices that can be attached to each other
99,999 h	Operating hours counter	DCF77 RC	DCF77 radio controlled synchronisation
	Room temperature control		DIP switch
Ext.	External control input		Presence detection

Appendix

Explanation of symbols

	Wall or ceiling installation
	Detection range (Observe installation height in datasheet)
	"Light" switch output reacts to presence and brightness, auto-learning
	"Light" output with with option of controlled or daylight-dependent light switching
	Light source: FL/PL/halogen lights (incandescent lights)
	Manual control with keys Fully/semi-automatic operation
	"Presence/HVAC" switch output reacts to presence
	Manual control with keys Fully/semi-automatic operation
	Operating voltage 24 V Safety extra-low voltage
	"QuickFix" for ceiling installation in false and concrete ceilings
	Current limit for EVGs reduces peaks and preserves switching contacts
	"1-10 V interface" for dimming the lighting or constant light control
	"0-10 V analogue output" in proportion to brightness (e.g. for SPS)
	"Light/dark" output Twilight switch function
	Brightness output (lux)
	"QuickSet plus" for quick and easy set-up, "clic" user remote control (switching, dimming, scene control)
	Room monitoring for high false alarm security
	Conventional parallel control, limited manual control
	Master/slave, master/master parallel switching, manual control options, uniform switching behaviour, reduced installation costs
	IP 54 protection rating for installation in wet zones
	Carbon dioxide sensor
	USB interface

Appendix

Explanation of definitions

Reduced temperature

Reduced room temperature during the night or when unoccupied saves energy. Recommended temperature e. g. 16 °C.

Connection type

Contact type for connecting cables to device.

Adjustable operating point and thermal circulation

If room thermostats are unfavourably located, e. g. on external walls, the device operating point can be changed.

Thermal circulation prevents rooms overheating.

Adjustments can be made for especially fast or slow reacting heating systems.

Working voltage

Nominal voltage and frequency required for operating device. Safe operation is guaranteed in the given tolerance range.

Power consumption

Power draw required to operate device – without switching capacity.

Suppression measures

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

- Avoid installing in the immediate vicinity of inductive consumers.
- Lay separate mains connections and use line filters if necessary.
- Shield inductive consumer with Varistor or RC link.

Frost protection

Operating mode for room thermostats for protecting the heating and water system from frost damage, e. g. +8 °C.

Power reserve

In the event of power loss, the timer continues to run for the duration of the power reserve thanks to a built-in power reserve. This removes the need to reset the timer. The power reserve details refer to the new condition and 20 °C ambient temperature. The power reserve does however diminish in relation to service life and temperature.

Manual switch

Priority switch switches output to "Permanent ON", "Permanent OFF" or to "Auto" for automatic time control. "Perm" means manual permanent switching of mechanical timers.

Channels

Number of switching outputs/inputs for timers, twilight switches, controls and actuators.

Progress display

Visual function check for mechanical timers.

Lamp loads

Energy saving lamps as well as sodium and mercury vapour lamps place a particular stress on the output contacts through high switch-on peaks. In isolated cases check whether a cut-off relay or cutout is required.

Full power reserve

If the power reserve is provided by a rechargeable battery then the power reserve is only fully available after a certain charging time.

Contact opening width

With switching contacts a distinction is made between a 3 mm greater or lesser contact distance.

Program

Time-related operational sequence dependent on preset commands.

Pulse width modulation or hysteresis controller

Thermostat with pulse width modulation clock cyclically and have varied switching periods. The cycle is adjustable. Hysteresis controllers switch on if the set hysteresis temperature range is exceeded or not achieved.

Switching capacity

is the maximum permissible loading of the switching contacts in amperes at the nominal voltage with resistive load. The details in brackets indicate the permissible inductive load at $\cos \varphi$ 0.6 (e. g. motor load). The AX supplement indicates the permissible fluorescent lamp load.

Switching pre-selection

Time limited manual change to switching period by anticipating the next switching command. E. g. OFF is manually changed to ON until the next successive OFF command in the time program. The automatic time program then resumes.

Protection class

Devices in Germany have to meet various protection classes to satisfy requirements against accidentally touching live components and against too high non-contact voltage.

- Protection class I:
All metal parts that can be touched during operation or maintenance must be connected to the earth conductor.
- Protection class II:
The devices are double or triple insulated and do not have an earth connection.
- Protection class III:
The devices are designed to be used with safety extra-low voltage and have neither internal nor external power circuits working on other voltages.

Memory locations

They are designed to store switching times made up of information on the day of week (if necessary date) switching time and switching status. EEPROM memory is not temporary storage and retains the information even without power supply for up to 10 years.

3 or 4 wire switching

With staircase light timers the 3 or 4 wire riser can be used for keys or lights from floor to floor.

Permissible ambient temperature

Temperature range that the device can function reliably in, e. g. constant ambient temperature.

Counting range

Maximum number of operating hours that can be directly read.

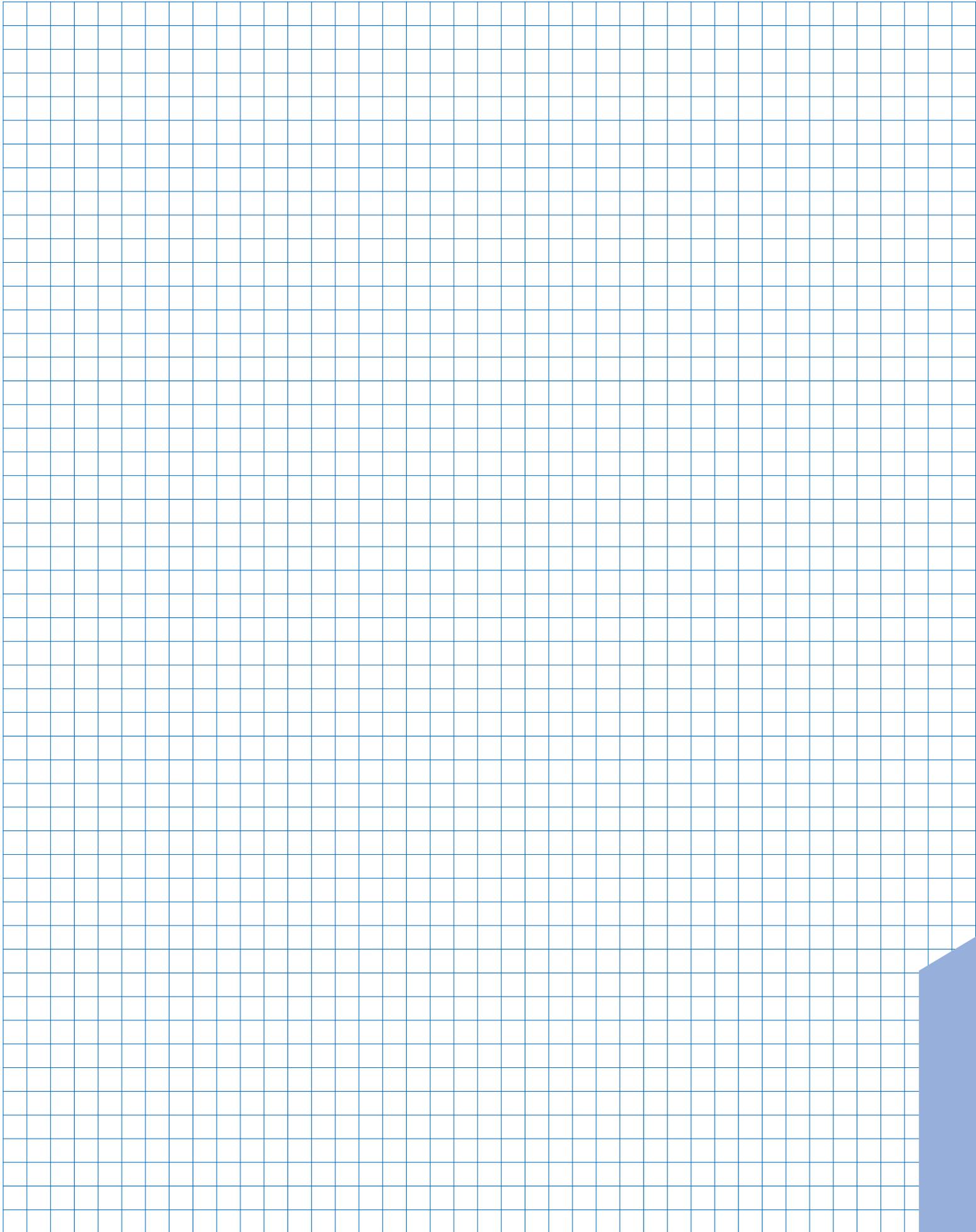
SELV (safety extra-low voltage)

Voltage that does not exceed 42 V between the wires or between the wires and the earth where the idling voltage does not exceed 50 V. If SELV is taken from the mains supply then this must be achieved via a safety transformer or a converter with separate winding with insulation that meets the requirements of double or increased insulation.

PELV (protective extra-low voltage)

An earthed electric circuit operated with SELV which is separated from other circuits by basic insulation and protective sheathing, double insulation or increased insulation.

Notes



General conditions for the supply of products and services of the electrical and electronics industry ("GL")*

for commercial transactions between businesses

I. General provisions

1. Legal relations between Supplier and Purchaser in connection with supplies and/or services of the Supplier (hereinafter referred to as "Supplies") shall be solely governed by the present GL. The Purchaser's general terms and conditions shall apply only if expressly accepted by the Supplier in writing. The scope of delivery shall be determined by the congruent mutual written declarations.
2. The Supplier herewith reserves any industrial property rights and/or copyrights pertaining to its cost estimates, drawings and other documents (hereinafter referred to as "Documents"). The Documents shall not be made accessible to third parties without the Supplier's prior consent and shall, upon request, be returned without undue delay to the Supplier if the contract is not awarded to the Supplier. Sentences 1 and 2 shall apply mutatis mutandis to the Purchaser's Documents; these may, however, be made accessible to those third parties to whom the Supplier has rightfully subcontracted Supplies.
3. The Purchaser has the non-exclusive right to use standard software and firmware, provided that it remains unchanged, is used within the agreed performance parameters, and on the agreed equipment. Without express agreement the Purchaser may make one back-up copy of standard software.
4. Partial deliveries are allowed, unless they are unreasonable to accept for the Purchaser.
5. The term „claim for damages“ used in the present GL also includes claims for indemnification for useless expenditure.

II. Prices, terms of payment, and set-off

1. Prices are ex works and excluding packaging; value added tax shall be added at the then applicable rate.
2. If the Supplier is also responsible for assembly or erection and unless otherwise agreed, the Purchaser shall pay the agreed remuneration and any incidental costs required, e. g. for traveling and transport as well as allowances.
3. Payments shall be made free Supplier's paying office.
4. The Purchaser may set off only those claims which are undisputed or nonappealable.

III. Retention of title

1. The items pertaining to the Supplies ("Retained Goods") shall remain the Supplier's property until each and every claim the Supplier has against the Purchaser on account of the business relationship has been fulfilled. If the combined value of the Supplier's security interests exceeds the value of all secured claims by more than 10 %, the Supplier shall release a corresponding part of the security interest if so requested by the Purchaser; the Supplier shall be entitled to choose which security interest it wishes to release.
2. For the duration of the retention of title, the Purchaser may not pledge the Retained Goods or use them as security, and resale shall be possible only for resellers in the ordinary course of their business and only on condition that the reseller receives payment from its customer or makes the transfer of property to the customer dependent upon the customer fulfilling its obligation to effect payment.
3. The Purchaser shall inform the Supplier forthwith of any seizure or other act of intervention by third parties.
4. Where the Purchaser fails to fulfil its duties, fails to make payment due, or otherwise violates its obligations the Supplier shall be entitled to rescind the contract and take back the Retained Goods in the case of continued failure following expiry of a reasonable remedy period set by the Supplier; the statutory provisions providing that a remedy period is not needed shall be unaffected. The Purchaser shall be obliged to return the Retained Goods. The fact that the Supplier takes back Retained Goods and/or exercises the retention of title, or has the Retained Goods seized, shall not be construed to constitute a rescission of the contract, unless the Supplier so expressly declares.

IV. Time for supplies; delay

1. Times set for Supplies shall only be binding if all Documents to be furnished by the Purchaser, necessary permits and approvals, especially concerning plans, are received in time and if agreed terms of payment and other obligations of the Purchaser are fulfilled. If these conditions are not fulfilled in time, times set shall be extended reasonably; this shall not apply if the Supplier is responsible for the delay.
2. If non-observance of the times set is due to force majeure such as mobilization, war, rebellion or similar events, e. g. strike or lockout, such time shall be extended accordingly. The same shall apply if the Supplier does not receive its own supplies in due time or in due form.
3. If the Supplier is responsible for the delay (hereinafter referred to as "Delay") and the Purchaser has demonstrably suffered a loss therefrom, the Purchaser may claim a compensation as liquidated damages of 0.5 % for every completed week of Delay, but in no case more than a total of 5 % of the price of that part of the Supplies which due to the Delay could not be put to the intended use.

4. Purchaser's claims for damages due to delayed Supplies as well as claims for damages in lieu of performance exceeding the limits specified in No. 3 above are excluded in all cases of delayed Supplies, even upon expiry of a time set to the Supplier to effect the Supplies. This shall not apply in cases of mandatory liability based on intent, gross negligence, or due to loss of life, bodily injury or damage to health. Rescission of the contract by the Purchaser based on statute is limited to cases where the Supplier is responsible for the delay. The above provisions do not imply a change in the burden of proof to the detriment of the Purchaser.
5. At the Supplier's request, the Purchaser shall declare within a reasonable period of time whether it, due to the delayed Supplies, rescinds the contract or insists on the delivery of the Supplies.
6. If dispatch or delivery, due to Purchaser's request, is delayed by more than one month after notification of the readiness for dispatch was given, the Purchaser may be charged, for every additional month commenced, storage costs of 0.5 % of the price of the items of the Supplies, but in no case more than a total of 5 %. The parties to the contract may prove that higher or, as the case may be, lower storage costs have been incurred.

V. Passing of risk

1. Even where delivery has been agreed freight free, the risk shall pass to the Purchaser as follows:
 - a) if the Supplies do not include assembly or erection, at the time when the Supplies are shipped or picked up by the carrier. Upon the Purchaser's request, the Supplier shall insure the Supplies against the usual risks of transport at the Purchaser's expense;
 - b) if the Supplies include assembly or erection, at the day of taking over in the Purchaser's own works or, if so agreed, after a fault-free trial run.
2. The risk shall pass to the Purchaser if dispatch, delivery, the start or performance of assembly or erection, the taking over in the Purchaser's own works, or the trial run is delayed for reasons for which the Purchaser is responsible or if the Purchaser has otherwise failed to accept the Supplies.

VI. Assembly and erection

Unless otherwise agreed in written form, assembly and erection shall be subject to the following provisions:

1. The Purchaser shall provide at its own expense and in due time:
 - a) all earth and construction work and other ancillary work outside the Supplier's scope, including the necessary skilled and unskilled labor, construction materials and tools,
 - b) the equipment and materials necessary for assembly and commissioning such as scaffolds, lifting equipment and other devices as well as fuels and lubricants,
 - c) energy and water at the point of use including connections, heating and lighting,
 - d) suitable dry and lockable rooms of sufficient size adjacent to the site for the storage of machine parts, apparatus, materials, tools, etc. and adequate working and recreation rooms for the erection personnel, including sanitary facilities as are appropriate in the specific circumstances; furthermore, the Purchaser shall take all measures it would take for the protection of its own possessions to protect the possessions of the Supplier and of the erection personnel at the site,
 - e) protective clothing and protective devices needed due to particular conditions prevailing on the specific site.
2. Before the erection work starts, the Purchaser shall unsolicitedly make available any information required concerning the location of concealed electric power, gas and water lines or of similar installations as well as the necessary structural data.
3. Prior to assembly or erection, the materials and equipment necessary for the work to start must be available on the site of assembly or erection and any preparatory work must have advanced to such a degree that assembly or erection can be started as agreed and carried out without interruption. Access roads and the site of assembly or erection must be level and clear.
4. If assembly, erection or commissioning is delayed due to circumstances for which the Supplier is not responsible, the Purchaser shall bear the reasonable costs incurred for idle times and any additional traveling expenditure of the Supplier or the erection personnel.
5. The Purchaser shall attest to the hours worked by the erection personnel towards the Supplier at weekly intervals and the Purchaser shall immediately confirm in written form if assembly, erection or commissioning has been completed.
6. If, after completion, the Supplier demands acceptance of the Supplies, the Purchaser shall comply therewith within a period of two weeks. In default thereof, acceptance is deemed to have taken place. Acceptance is also deemed to have been effected if the Supplies are put to use, after completion of an agreed test phase, if any.

VII. Receiving supplies

The Purchaser shall not refuse to receive Supplies due to minor defects.

VIII. Defects as to quality

The Supplier shall be liable for defects as to quality ("Sachmängel", hereinafter referred to as "Defects") as follows:

1. Defective parts or defective services shall be, at the Supplier's discretion, repaired, replaced or provided again free of charge, provided that the reason for the Defect had already existed at the time when the risk passed.
2. Claims for repair or replacement are subject to a statute of limitations of 12 months calculated from the start of the statutory statute of limitations; the same shall apply mutatis mutandis in the case of rescission and reduction. This shall not apply where longer periods are prescribed by law according to Sec. 438 para. 1 No. 2 (buildings and things used for a building), Sec. 479 para. 1 (right of recourse), and Sec. 634a para. 1 No. 2 (defects of a building) German Civil Code ("BGB"), in the case of intent, fraudulent concealment of the Defect or non-compliance with guaranteed characteristics (Beschaffheitsgarantie). The legal provisions regarding suspension of the statute of limitations ("Ablaufhemmung", "Hemmung") and recommencement of limitation periods shall be unaffected.
3. Notifications of Defect by the Purchaser shall be given in written form without undue delay.
4. In the case of notification of a Defect, the Purchaser may withhold payments to an amount that is in a reasonable proportion to the Defect. The Purchaser, however, may withhold payments only if the subject-matter of the notification of the Defect involved is justified and incontestable. The Purchaser has no right to withhold payments to the extent that its claim of a Defect is time-barred. Unjustified notifications of Defect shall entitle the Supplier to demand reimbursement of its expenses by the Purchaser.
5. The Supplier shall be given the opportunity to repair or to replace the defective good ("Nacherfüllung") within a reasonable period of time.
6. If repair or replacement is unsuccessful, the Purchaser is entitled to rescind the contract or reduce the remuneration; any claims for damages the Purchaser may have according to No. 10 shall be unaffected.
7. There shall be no claims based on Defect in cases of insignificant deviations from the agreed quality, of only minor impairment of usability, of natural wear and tear, or damage arising after the passing of risk from faulty or negligent handling, excessive strain, unsuitable equipment, defective civil works, inappropriate foundation soil, or claims based on particular external influences not assumed under the contract, or from non-reproducible software errors. Claims based on defects attributable to improper modifications or repair work carried out by the Purchaser or third parties and the consequences thereof are likewise excluded.
8. The Purchaser shall have no claim with respect to expenses incurred in the course of supplementary performance, including costs of travel, transport, labor, and material, to the extent that expenses are increased because the subject-matter of the Supplies has subsequently been brought to another location than the Purchaser's branch office, unless doing so complies with the normal use of the Supplies.
9. The Purchaser's right of recourse against the Supplier pursuant to Sec. 478 BGB is limited to cases where the Purchaser has not concluded an agreement with its customers exceeding the scope of the statutory provisions governing claims based on Defects. Moreover, No. 8 above shall apply mutatis mutandis to the scope of the right of recourse the Purchaser has against the Supplier pursuant to Sec. 478 para. 2 BGB.
10. The Purchaser shall have no claim for damages based on Defects. This shall not apply to the extent that a Defect has been fraudulently concealed, the guaranteed characteristics are not complied with, in the case of loss of life, bodily injury or damage to health, restrictions to liberty and/or intentionally or grossly negligent breach of contract on the part of the Supplier. The above provisions do not imply a change in the burden of proof to the detriment of the Purchaser. Any other or additional claims of the Purchaser exceeding the claims provided for in this Article VIII, based on a Defect, are excluded.

IX. Industrial property rights and copyright; defects in title

1. Unless otherwise agreed, the Supplier shall provide the Supplies free from third parties' industrial property rights and copyrights (hereinafter referred to as "IPR") with respect to the country of the place of delivery only. If a third party asserts a justified claim against the Purchaser based on an infringement of an IPR by the Supplies made by the Supplier and used in conformity with the contract, the Supplier shall be liable to the Purchaser within the time period stipulated in Article VIII No. 2 as follows:
 - a) The Supplier shall choose whether to acquire, at its own expense, the right to use the IPR with respect to the Supplies concerned or whether to modify the Supplies such that they no longer infringe the IPR or replace them. If this would be impossible for the Supplier under reasonable conditions, the Purchaser may rescind the contract or reduce the remuneration pursuant to the applicable statutory provisions.
 - b) The Supplier's liability to pay damages is governed by Article XI.
 - c) The above obligations of the Supplier shall apply only if the Purchaser (i) immediately notifies the Supplier of any such claim asserted by the third party in written form, (ii) does not concede the existence of an infringement and (iii) leaves any protective measures and settlement negotiations to the Supplier's discretion. If the Purchaser stops using the Supplies in order to reduce the damage or for other good reason, it shall be obliged to point out to the third party that no acknowledgement of the alleged infringement may be inferred from the fact that the use has been discontinued.

2. Claims of the Purchaser shall be excluded if it is responsible for the infringement of an IPR.
3. Claims of the Purchaser are also excluded if the infringement of the IPR is caused by specifications made by the Purchaser, by a type of use not foreseeable by the Supplier or by the Supplies being modified by the Purchaser or being used together with products not provided by the Supplier.
4. In addition, with respect to claims by the Purchaser pursuant to No. 1 a) above, Article VIII Nos. 4, 5, and 9 shall apply mutatis mutandis in the event of an infringement of an IPR.
5. Where other defects in title occur, Article VIII shall apply mutatis mutandis.
6. Any other claims of the Purchaser against the Supplier or its agents or any such claims exceeding the claims provided for in this Article IX, based on a defect in title, are excluded.

X. Impossibility of performance; adaption of contract

1. To the extent that delivery is impossible, the Purchaser is entitled to claim damages, unless the Supplier is not responsible for the impossibility. The Purchaser's claim for damages is, however, limited to an amount of 10 % of the value of the part of the Supplies which, owing to the impossibility, cannot be put to the intended use. This limitation shall not apply in the case of mandatory liability based on intent, gross negligence or loss of life, bodily injury or damage to health; this does not imply a change in the burden of proof to the detriment of the Purchaser. The Purchaser's right to rescind the contract shall be unaffected.
2. Where unforeseeable events within the meaning of Article IV No. 2 substantially change the economic importance or the contents of the Supplies or considerably affect the Supplier's business, the contract shall be adapted taking into account the principles of reasonableness and good faith. To the extent this is not justifiable for economic reasons, the Supplier shall have the right to rescind the contract. If the Supplier intends to exercise its right to rescind the contract, it shall notify the Purchaser thereof without undue delay after having realized the repercussions of the event; this shall also apply even where an extension of the delivery period has previously been agreed with the Purchaser.

XI. Other claims for damages; statute of limitations

1. The Purchaser has no claim for damages based on whatever legal reason, including infringement of duties arising in connection with the contract or tort.
2. The above shall not apply in the case of mandatory liability, e. g. under the German Product Liability Act ("Produkthaftungsgesetz"), in the case of intent, gross negligence, loss of life, bodily injury or damage to health, or breach of a condition which goes to the root of the contract ("wesentliche Vertragspflichten"). However, claims for damages arising from a breach of a condition which goes to the root of the contract shall be limited to the foreseeable damage which is intrinsic to the contract, unless caused by intent or gross negligence or based on liability for loss of life, bodily injury or damage to health. The above provision does not imply a change in the burden of proof to the detriment of the Purchaser.
3. To the extent that the Purchaser has a claim for damages, it shall be timebarred upon expiration of the statute of limitations pursuant to Article VIII No. 2. The same shall apply to the Purchaser's claims in connection with actions undertaken to avoid any damage (e. g. callback). In the case of claims for damages under the German Product Liability Act, the statutory statute of limitations shall apply.

XII. Venue and applicable law

1. If the Purchaser is a businessman, sole venue for all disputes arising directly or indirectly out of the contract shall be the Supplier's place of business. However, the Supplier may also bring an action at the Purchaser's place of business.
2. Legal relations existing in connection with this contract shall be governed by German substantive law, to the exclusion of the United Nations Convention on contracts for the International Sale of Goods (CISG).

XIII. Severability clause

The legal invalidity of one or more provisions of this Agreement in no way affects the validity of the remaining provisions. This shall not apply if it would be unreasonable for one of the parties to be obligated to continue the contract.

Appendix

Possible special voltages – please state when ordering

Nomial voltage	110 V			12 V	12 V=	24 V	24 V=
	50 Hz	60 Hz	60 Hz				
Frequency				50 Hz	–	50 Hz	–
Voltage tolerance	+10 %/–15 %			+10 %/–15 %			
Type				Extra-low voltage			
LUNA 108 (built-in light sensor)	● 108 1 760	● 108 1 760	● 108 1 760				
LUNA 108 (surface-mounted light sensor)	● 108 1 761	● 108 1 761	● 108 1 761				
LUNA 110						● 110 4 710	● 110 4 710
LUNA 112						● 112 4 700	● 112 4 700
LUNA 126 star		● 126 1 760					
LUNA 127 star		● 127 1 760					
LUNA 128 star		● 128 1 760					
LUNA 129 star-time		● 129 1 760					
SUL 181				● 181 7 008	● 181 7 008	● 181 4 008	● 181 4 008
SUL 189 S	● 189 1 801	● 189 1 801					
SUL 289 h						● 289 4 008	● 289 4 008
RAM 722						● 722 4 030	
TR 610 top	● 610 1 815	● 610 1 815	● 610 1 815	● 610 4 002	● 610 4 002	● 610 4 002	● 610 4 002
TR 611 top	● 611 1 815	● 611 1 815	● 611 1 815	● 611 4 002	● 611 4 002	● 611 4 002	● 611 4 002
TR 612 top	● 612 1 815	● 612 1 815	● 612 1 815	● 612 4 002	● 612 4 002	● 612 4 002	● 612 4 002
TR 622 top	● 622 1 815	● 622 1 815	● 622 1 815	● 622 4 002	● 622 4 002	● 622 4 002	● 622 4 002
TR 641 S				● 641 8 012	● 641 9 012		
TR 642 S				● 642 9 012			
TR 644 S			● 644 8 110	● 644 8 012	● 644 9 012	● 644 8 024	● 644 8 024

Type	110 V/50 Hz	230/240 V/60 Hz	24 V/50 Hz	48 V/50 Hz
BZ 142-1	● 142 1 721	● 142 0 621	● 142 4 721	● 142 5 721
BZ 143-1	● 143 1 721		● 143 4 721	
BZ 145	● 145 1 000		● 145 4 000	

Type	10–80 V DC	24–48 V DC
BZ 145		● 145 9 024

Type	24 V AC/DC 50–60 Hz	12–24 V DC
BZ 147	● 147 4 000	● 147 9 000

● available Other special voltages – for above mentioned and other devices of our range – on request.

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• Subject to technical alterations. •

Appendix

Selection table for digital and analogue time switches

Program	Contacts distance < 3 mm (μ)	Contacts trippable every...	Minimum switching time	Nominal current at 250 V~	Power-reserve approx.	Distributor panel installation	Wall-mounting	Switch panel install.	Flush-mounting	Type	Page		
DIGITAL	24 h + 7 days	☞	1 s	1 s	10 A	10 years	—	—	—	•	TR 030 top	31	
		☞	1 s	1 s	16 A	10 years	•	•	—	—	TR 611 top 2	22	
		☞	1 s	1 s	16 A	10 years	•	•	—	—	TR 611 top 2 RC	22	
		☞	1 s	1 s	16 A	8 years	•	•	—	—	TR 651 S	24	
		☞	1 min	1 min	16 A	3 years	•	•	—	—	TR 608 top	20	
		☞	1 min	1 min	16 A	10 years	•	•	—	—	TR 610 top 2	21	
		☞	1 min	1 min	16 A	10 years	—	•	•	—	TR 635 top	29	
		☞ ☞	1 s	1 s	16 A	10 years	•	•	—	—	TR 622 top 2	22	
		☞ ☞	1 s	1 s	16 A	8 years	•	•	—	—	TR 652 S	24	
		☞ ☞	1 min	1 min	16 A	10 years	•	•	—	—	TR 612 top 2	21	
		☞ ☞	1 min	1 min	6 A	10 years	—	•	•	—	TR 636 top	29	
		☞ ☞	1 min	1 min	6 A	10 years	•	•	—	—	TR 685/2 top	30	
		☞ ☞ ☞	1 s	1 s	10 A	8 years	•	•	—	—	TR 653 S	24	
		Year-program	☞	1 s	1 s	16 A	1.5 years	•	•	—	—	TR 641 S	26
			☞	1 s	1 s	16 A	1.5 years	•	•	—	—	TR 641 S DCF	26
☞ ☞	1 s		1 s	16 A	1.5 years	•	•	—	—	TR 642 S	26		
☞ ☞	1 s		1 s	16 A	1.5 years	•	•	—	—	TR 642 S DCF	26		
☞ ☞ ☞ ☞	1 s		1 s	16 A	1.5 years	•	•	—	—	TR 644 S	26		
☞ ☞ ☞ ☞	1 s		1 s	16 A	1.5 years	•	•	—	—	TR 644S DCF	26		

Program	Contacts distance < 3 mm (μ)	Contacts trippable every...	Minimum switching time	Nominal current at 250 V~	Power reserve approx.	Distributor panel installation	Wall mounting	Switch panel install.	Type	Page	
ANALOGUE	60 min	☞	18.5 s	1.25 min	10 A	—	•	•	TM 179 h	17	
		☞	37.5 s	2 min	10 A	—	•	—	TM 178 h	12	
		☞	75 s	75 s	10 A	—	•	—	TM 171 h	11	
	24 h	☞	15 min	15 min	16 A	—	•	•	—	SYN 160 a	10
		☞	15 min	15 min	16 A	3 days	•	•	—	SUL 180 a	10
		☞	15 min	15 min	10 A	—	•	•	—	SYN 169 s	16
		☞	15 min	15 min	10 A	3 days	—	•	•	SUL 189 s	16
		☞	15 min	30 min	16 A	—	•	•	—	SYN 168 h	12
		☞	15 min	30 min	16 A	3 days	•	•	—	SUL 188 h	12
		☞	30 min	30 min	16 A	—	•	•	—	SYN 161 h	11
		☞	30 min	30 min	16 A	3 days	•	•	—	SUL 181 h	11
		☞	5 min	20 min	6 A	150 h	•	•	—	SUL 285/1 T	19
		☞ ☞	15 min	30 min	10 A	3 days	•	•	—	SUL 188 g	12
	☞ ☞	5 min	20 min	6 A	150 h	•	•	—	SUL 285/2 T	19	
	7 days	☞	2 h	2 h	16 A	3 days	•	•	—	MEM 190 a	10
		☞	1 h	3 h	16 A	3 days	•	•	—	MEM 198 h	12
	24 h or 7 days adjustable	☞	5/30 min	20 min/2 h	10 A	—	—	•	•	SYN 269 h	14
		☞	5/30 min	20 min/2 h	10 A	3 days	—	•	•	SUL 289 h	14
		☞	5 min	20 min	6 A	150 h	—	•	—	SUL 285/1 TW	19
☞ ☞		5/30 min	20 min/2 h	6 A	—	—	•	•	SYN 269 g	14	
☞ ☞		5/30 min	20 min/2 h	6 A	3 days	—	•	•	SUL 289 g	14	
24 h + 7 days same daily program on certain weekdays	☞ ☞	5/30 min	20 min/2 h	6 A	150 h	—	•	—	SUL 285/2 TW	19	
	☞ ☞	15 min	30 min	10 A	3 days	—	•	•	SUL 189 hw	17	
☞ ☞	15 min	45 min	10 A	3 days	•	•	—	SUL 188 hw	12		

• especially suitable — suitable to a limited extent

Discontinued models

THEBEN-device type	Order No.	THEBEN-device type	Order No.
Discontinued models:		Successors	
theben-timer 26 blue edition – day	026 0 080 *	theben-timer 26 white – day	026 0 030
LUNA 110 with surface-mounted light sensor	110 0 710	LUNA 109 with surface-mounted light sensor	109 0 100
LUNA 110 with built-in light sensor	110 0 700	LUNA 109 with built-in light sensor	109 0 200
LUNA 112 with surface-mounted light sensor	112 0 700	LUNA 110 with surface-mounted light sensor	110 0 100
LUNA 112 with built-in light sensor	112 0 711	LUNA 110 with built-in light sensor	110 0 200
LUNA 113 with surface-mounted light sensor	113 0 700	LUNA 112 top2 with surface-mounted light sensor	112 0 100
LUNA 118 top with surface-mounted light sensor	118 0 702	LUNA 120 top2, LUNA 121 top2	120 0 100, 121 0 100
LUNA 118 top with built-in light sensor	118 0 752	LUNA 120 top2, LUNA 121 top2	120 0 200, 121 0 200
LUNA 119 top with surface-mounted light sensor	119 0 702	LUNA 122 top2 RC with surface-mounted light sensor	122 0 100
SYN 169 h	169 0 008 *	SYN 169 s, SYN 269 h	169 0 801, 269 0 008
SELEKTA 170 top	170 0 002	SELEKTA 170 top2/SELEKTA 171 top2 RC	170 0 100, 171 0 100
SUL 189 h	189 0 008	SUL 189 s, SUL 289 h	189 0 801, 289 0 008
SUL 189 g	189 0 033	SUL 289 g	289 0 033
MEM 199 h	199 0 008	SUL 289 h	289 0 008
RAM 382 F	382 0 033 *	RAM 816 top	816 9 032
LUXOR Set 1 (1 x 400, 1 x 402)	499 0 001 *	single items	400 0 000, 402 0 000
PHARAO 6 (AC)	575 0 006	PHARAO-II 10 AC	575 0 210
PHARAO 10 (AC)	575 0 010 *	PHARAO-II 10 AC	575 0 210
PHARAO 11 (DC)	575 9 011	PHARAO-II 11 DC	575 9 211
PHARAO 12 (DC)	575 9 012	no successor	
PHARAO 20 (AC)	575 0 020 *	PHARAO-II 24 AC	575 0 024
PHARAO 21 (DC)	575 9 021 *	PHARAO-II 25 DC	575 9 025
PHARAO 22 (DC)	575 9 022	no successor	
EEPROM memory module	907 0 253	PHARAO-II EEPROM	907 0 328
TR 610 top	610 0 002 *	TR 610 top2	610 0 100
TR 611 top	611 0 002	TR 611 top2	611 0 100
TR 611 top DCF (without aerial, with power unit)	611 0 312	TR 611 top2 RC (without aerial, with power unit)	611 0 300
Aerial (for TR 611 top DCF)	907 0 243	Aerial top2 RC-DCF	907 0 410
Voice-Modem	907 0 372	no successor	
TR 612 top	612 0 002	TR 612 top2	612 0 100
TR 617	617 0 000 *	TR 641 S	641 0 001
TR 622 top	622 0 002	TR 622 top2	622 0 100
TR 627	627 0 000 *	TR 642 S	642 0 001
RAM 701	701 0 000 *	RAM 701	701 0 001
RAM 702	702 0 000	RAM 702	702 0 001
RAM 703	703 0 000	RAM 703	703 0 001
RAM 704	704 0 000	RAM 704	704 0 001
RAM 705	705 0 000 *	RAM 705	705 0 001
RAM 706	706 0 000 *	RAM 706	706 0 001
RAM 707	707 0 000	RAM 707	707 0 001
RAM 708	708 0 000	RAM 708	708 0 001
RAM 709	709 0 000	RAM 709	709 0 001
RAM 742	742 0 130	no successor	
RAM 742 RA	742 0 131	no successor	
RAM 749	749 0 130	no successor	
RAM 749 RA	749 0 131	no successor	
RAM 815 top	815 9 032 *	RAM 816 top	816 9 032
RAM 818 top	818 0 032	RAM 818 top	818 0 035, 818 0 036
RAM 820 top silver (battery version)	820 9 013	RAM 820 top white	820 9 011
RAM 822 top silver (mains version)	822 0 033 *	RAM 822 top white	822 0 031
Cover set	907 0 290	no successor	
Surface-mounted light sensor (LUNA, LUXOR)	907 0 008	Surface-mounted lightsensor, analogue	907 0 416
Surface-mounted light sensor (LUNA 113)	907 0 031	no successor	

Discontinued models EIB/KNX see page 191

* = no longer available

Discontinued models

THEBEN-device type	Order No.	THEBEN-device type	Order No.
Discontinued models EIB/KNX:		Successors	
SPHINX 390 KNX (Presence detector)	107 9 200	no successor	
SPHINX 395 KNX (Presence detector)	107 9 201	no successor	
SPHINX 330 KNX (Motion detector)	107 9 210*	SPHINX 331 KNX	107 9 211
Aufputzbox für SPHINX (for all SPHINX except SPHINX 330)	907 0 385*	no successor	
JMG 4 KNX	490 0 250*	JMG 4S	491 0 250
HMG 8 KNX	490 0 270*	HMG 4 KNX, HME 4 KNX	491 0 210, 491 0 211
HME 8 KNX	490 0 271	HME 4 KNX	491 0 211
HMX 4 KNX	490 0 272	HME 4 KNX	491 0 211
FME 8 KNX	490 0 240	BMG 6 KNX	491 0 230
RMX 4 KNX	490 0 256*	JME 4S KNX	491 0 251
Wrench for keylock KNX	907 0 304	no successor	
Interface RS 232 KNX	907 0 363	Interface USB KNX	907 0 397
OSIRIA 220 BR KNX	500 9 201	additional models on request	
OSIRIA 230 AQ KNX	500 9 212	additional models on request	
OSIRIA 230 SQ KNX	500 9 213	additional models on request	
OSIRIA 231 AR KNX	500 9 220*	additional models on request	
OSIRIA 231 BR KNX	500 9 221*	additional models on request	
OSIRIA 240 AQ KNX	500 9 232	additional models on request	
OSIRIA 240 SQ KNX	500 9 233	additional models on request	
OSIRIA 281 B SR KNX	500 9 282	additional models on request	

Discontinued models of conventional products see page 190

* = no longer available

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