Programmable time switches

with digital display


0 037 05


4 126 31


4 126 30


0 047 70

Dimensions **see e-catalogue**

For switching an electric circuit (lighting, heating) ON or OFF at selected times during a pre-programmed time period
Temporary (automatic return) or permanent (forced switching ON or OFF) override on output

Pack	Cat.Nos	Standard - daily or weekly programme with 6 years clock working reserve	Number of modules
		Compatible with alternative renewable energy systems such as photovoltaic panels Automatic summer/winter changeover Clock precision: ± 1 sec per day Minimum programme setting: 1 min 28 programmes	
		Power supply 120/230 V∿ - 50/60 Hz	
1	0 037 05	1 output 16 A - 250 V∿ μ cos φ = 1 per 1 inverter contact Low consumption: 0.1 W	1

Pack	Cat.Nos	Multiple functions - daily or weekly programme - 5 years clock working reserve	Number of modules
		Programme settings: on daily or weekly basis 15 languages A programme consists of a on and off time and their assignement to certain days Option to suspend the programme for a specific period to set-up with start and date Minimum programme setting: 1 s. High precision clock: ± 0.1 sec per day Particularly suited to irregular cycles: - security installations (access point, alarms, etc.), - industrial installations (pump stations, etc.) Programmed directly on keypad, or using program transfer key Cat.No 4 128 72 Additional functions including random (irregular cycles), hour counters	
		Power supply 230 V∿ - 50/60 Hz	
1	4 126 31	1 output 16 A - 250 V∿ 56 programmes μ cos φ = 1 per 1 inverter contact	2
1	4 126 41	2 output 16 A - 250 V∿ 2 x 28 programmes μ cos φ = 1 per 2 inverters contacts	2
1	4 126 54	1 output 16 A - 250 V∿ Astronomical function 56 programmes μ cos φ = 1 per 1 inverter contact	2
1	4 126 57	2 outputs 16 A - 250 V∿ Astronomical function 2 x 28 programmes μ cos φ = 1 per 2 inverter contacts	
1	4 126 32	1 output 16 A - 120 V∿ 56 programmes μ cos φ = 1 per 1 inverter contact	2
		Power supply 24 V∿ - 50/60 Hz and ⎓	
1	4 126 33	1 output 16 A - 24 V∿ 56 programmes μ cos φ = 1 per 1 inverter contact	2

Pack	Cat.Nos	2 outputs multiple functions annual programme - 5 years clock working reserve	Number of modules
		Programme settings: on daily, weekly or yearly basis 15 languages A programme consists of a on and off time and their assignement to certain days Option to suspend the programme for a specific period to set-up with start and date Minimum programme setting: 1 s. High precision clock: ± 0.1 sec per day Programmed directly on keypad, or using program transfer key Cat.No 4 128 72	
		Power supply 230 V∿ - 50/60 Hz	
1	4 126 30	2 outputs - 230 V∿ - 50/60 Hz Astronomical function 2 x 3 x 28 = 168 programmes	2

Pack	Cat.Nos	4 outputs multiple functions annual programme - 5 years clock working reserve	Number of modules
		15 languages High precision clock: ± 0.2 sec per day For programming periods throughout the year 28 programmes per channel possible: - daily - weekly / astronomical programmes - yearly programmes - exceptional programmes Manual override (switch on and off) for every channel on the front of the switch Programmed directly on keypad, or using programme transfer key supplied	
		Annual programme	
1	0 047 70	4 outputs - 120/230 V∿ - 50/60 Hz Astronomical function	6
		Battery	
1	0 047 82	Working reserve 5 years for Cat.No 0 047 70	

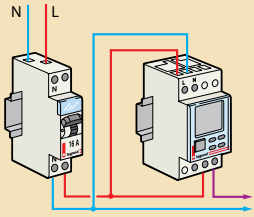
Pack	Cat.Nos	Programming transfer key
10	4 128 72	Can be used to store programme settings made: - Directly on a multifunction and multi-programme time switch Cat.Nos 4 126 30/31/32/33/41/54/57 (loading on device) - with the programming software installe d on a PC running Windows (loading on data loader)

Pack	Cat.Nos	Programming software
1	4 128 73	Can be used to create, save and transfer program settings for multifunction and multi-program time switches, Cat.Nos 0 047 70, 4 126 30/31/32/33/41/54/57 Data is transferred to the program transfer key Cat.No 4 128 72, using the data loader connected to the USB port of the PC Kit comprising software on CD-ROM, data loader and transfer key Windows XP, Windows 7, Windows 8 compatible

programmable time switches
with analogue and digital dial

■ Diagrams

Cat.No 4126 31



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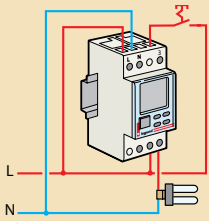

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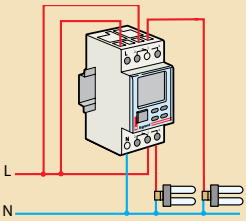

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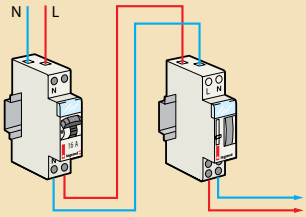
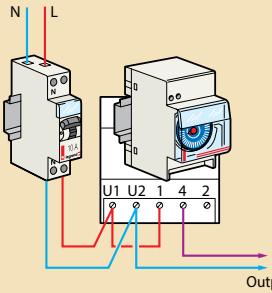


Cat.Nos 4128 12/13/14



Output closing and breaking times are calculated based on the date, the actual time when the device was switched and on geographical coordinates of the actual location

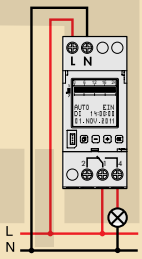
Technical specifications

Type	AlphaRex³ D21	AlphaRex³ D22	AlphaRex³ D21s	AlphaRex³ D21 astro	AlphaRex³ D22 astro	AlphaRex³ DY21	AlphaRex³ DY22
Nominal voltage 230 V 50/60 Hz	4126 31	4126 41	4126 34	4126 54	4126 57	4126 29	4126 30
Number of modules of 17.5 mm each	2	2	2	2	2	2	2
Number of channels	1	2	1	1	2	1	2
Switch output	1 changeover contact	2 changeover contacts	1 changeover contact	1 changeover contact	2 changeover contacts	1 changeover contact	2 changeover contacts
Zero-crossing switching	✓	✓	✓	✓	✓	✓	✓
Switching capacity							
· **Ohmic 250 V± cos⊠ = 1**	16 A ±	16 A ±	16 A ±	16 A ±	16 A ±	16 A ±	16 A ±
· **Inductive 230 V± cos⊠ = 0.6**	10 A ±	10 A ±	10 A ±	10 A ±	10 A ±	10 A ±	10 A ±
· **Incandescent lamp load**	2000 W	2000 W	2000 W	2000 W	2000 W	2000 W	2000 W
· **Fluorescent lamp, series compensated**	2000 VA	2000 VA	2000 VA	2000 VA	2000 VA	2000 VA	2000 VA
· **Energy-saving lamp**	1000 W	1000 W	1000 W	1000 W	1000 W	1000 W	1000 W
Programs[1]	56	28 per channel	56	56	28 per channel	84	84 per channel
Control input with switch-off delay 0 s to 23 h 59 min 59 s			✓	✓		✓	
Cycle function (pulse time) min. 1 s, max. 1 h 59 min 59 s	✓	✓	✓	✓	✓	✓	✓
Clock precision (typical)	± 0.1 s/day [2]						
Running reserve	5 years						
Shortest switching step	1 s						
Operating temperature	–20 to +55 °C						
Degree of protection	IP20						

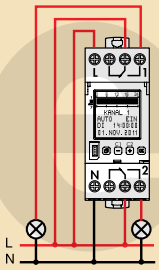
[1] A program consists of a switch-on time, a switch-off time as well as days or day blocks which are assigned as "switched-on" or "switched-off"
[2] Can be set to mains-synchronous operation

Connection diagram

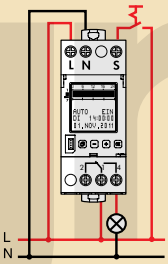
AlphaRex³ D21



AlphaRex³ D22
AlphaRex³ D22 astro
AlphaRex³ DY22



AlphaRex³ D21s
AlphaRex³ D21 astro
AlphaRex³ DY21



Functions

Select menu, go back while in menu
Press > 1 sec. = operating display

OK Confirm the selection or accept the parameter

\- Select the menu item or set the parameter;
\+ for 2-channel time switches, can be used to select the channel (channel 1 – channel 2)

Brief description of programming functions

Text guidance

Guides the user through programming and setup with plain text prompts. Each step can be read on the screen, and the function that is currently active flashes. An integrated display and button light makes operation easy even in poorly lit environments.

Set language

The language selection function can be accessed using the "MENU" button. The language is set to English by default.
The following languages can be selected: German, English, French, Italian, Spanish, Dutch, Portuguese*, Swedish*, Norwegian*, Finnish*, Danish*, Polish*, Czech*, Russian*, Turkish*.
*) Excluding AstroRex DY64

Time, date, summer time (daylight saving time)

The time switch is preset at the factory to the current time and date. The time can be changed by selecting "MENU" + "SET".

Reset

Simultaneously pressing all buttons for more than 2 seconds deletes all data. Language, date/time, summer time (daylight saving time) and switch times must be set again.

Data key

If the supply voltage is switched on, the "KEY – READ – WRITE" menu item is automatically opened when a data key is inserted. "WRITE": Program data is written from the time switch to the key. Caution: Any data present on the key will be overwritten. "READ": Program data is written from the key to the time switch; any switching programs on the time switch are overwritten. Only one master switching program, which consists of multiple switching programs, can be saved on the time switch or on the key at a time. If the supply voltage is not connected, the "KEY – READ – WRITE" menu item is not automatically opened when a data key is inserted. The "KEY" function can still be selected from the menu even if the supply voltage is not connected.

PC programming

In addition to the easy, text-guided programming directly on the time switch, switching programs can also be created on a PC with the software program from Legrand and transferred to the time switch using a data key. A data transfer device (Cat.No : 4128 73) is required to transfer switching programs created on a PC to the data key. The device is connected to the PC using the USB plug. In addition to the data transfer device, we also offer a CD with the software and the necessary drivers. PC system requirements: USB port; Windows® XP, Windows® Vista, Windows® 7; approx. 40 MB of free memory.

■ Brief description of programming functions

Weekly programs

To create a weekly program, select "MENU", "PROGRAM", and then "CREATE" to easily enter programs which are repeated on a weekly basis. A weekly program consists of a switch-on/switch-off times and days which are assigned as "switched-on" or "switched-off". The following predefined blocks can be selected: "MONDAY – SUNDAY", "MONDAY – FRIDAY" [1] or "SATURDAY – SUNDAY", [1]; the assigned days of the week are fixed. The switch-on/switch-off times must be entered. The user can also set custom day blocks. By selecting "CUSTOM", switch times can be freely assigned to any days of the week. This option also allows the user to set switch times at midnight.

[1] Excluding AlphaRex³ DY, AstroRex DY64

Yearly programs [AlphaRex³ DY21, AlphaRex³ DY22]

This menu item allows the user to enter (additional) yearly programs, which are only executed within a defined validity period. They can overlap with one another and with the weekly programs on the same channel based on an "OR" connective. The validity period is defined by entering the start date (at 00:00:00) and the end date (at 24:00:00). The start date must be entered before the end date. With the "EVERY YEAR" option, the additional switch times have the same validity period each year (Christmas, national holidays, birthdays, etc.) Select the "ONCE" option when additional switch times are needed within a validity period (e.g. during holidays), but the start/end dates of the holiday period change from year to year.

Special programs (priority program) [AlphaRex³ DY21, AlphaRex³ DY22]

Weekly and yearly programs on the same channel are not executed during the validity period of a special program. However, other special programs can be executed during the validity period. Different special programs can overlap with each other based on an "OR" connective. With the "EVERY YEAR" option, the additional switch times have the same validity period each year (Christmas, national holidays, birthdays, etc.). Select the "ONCE" option when additional switch times are needed within a validity period (e.g. during holidays), but the start/end dates of the holiday period change from year to year. Additional options include "MON TO SUN"/"CUSTOM": the respective channel only switches according to the special program; "PROG ON"/"PROG OFF": the respective channel is switched on/off during this time period.

■ Basic functions for "astro"

Location (astro) [AlphaRex³ D21 astro, AlphaRex³ D22 astro, AlphaRex³ DY21, AlphaRex³ DY22]

The sunrise/sunset times, which change daily, are calculated for the location programmed in the AlphaRex. The unit is delivered with the location set to "GERMANY – SOEST" by default. Enter the actual location for optimal operation. This can be done in two ways. Select "MENU", "SET" and "ASTRO" to access the two options "LOCATION" and "COORDINATES". "LOCATION": With this menu item, the user can select the country and city which is closest to the site of operation. "COORDINATES": Alternatively, the user can select this menu item to set the geographical coordinates of the location. The longitude and latitude values are entered in degrees or degrees and arcminutes [2] (precision can be set in expert mode). Information on coordinates and time zones can be found in the time zone map included with every time switch.

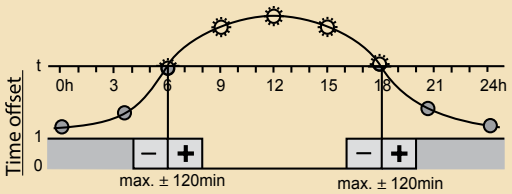
Offset

By selecting "MENU", "SET", "ASTRO" and "OFFSET", time differentials can be set for the calculated switch times. This can be done in two ways: time offset or angle offset.

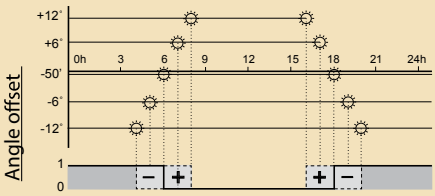
In time offset, a time differential can be entered to shift the switch time by up to +/- 120 min relative to the sunrise/sunset times.

In angle offset [2], a value can be entered in degrees and arcminutes to shift the switch time by up to +/- 12° 00´ relative to the sunrise/sunset times.

The time differentials are set separately for sunrise and sunset using the menu items "SUNSET" (opens the screen for setting the sunset offset) and "SUNRISE" (opens the screen for setting the sunrise offset).



Example:
For a time differential of +30 min, the time switch switches 30 min. after sunrise and 30 min. after sunset.
For a time differential of -30 min, the time switch switches 30 min. before sunrise and 30 min. before sunset.



Note:
If the offset is set in degrees, the time switch always switches at points when the brightness is the same, despite the fact that the twilight duration changes over the course of the year. Sunrise and sunset correspond to -50' for the centre of the sun (the edge of the sun is visible on the horizon).

Offset correction function [2]

Select "MENU", "SET", "ASTRO" and "CORRECTION" to set a time correction for the 6-month periods surrounding summer and winter. The time correction is set to 0 min. by default and can be set from 1 min. up to 30 min. The time correction for sunset is entered in the "SUNSET" menu item. The time correction for sunrise is set in the "SUNRISE" menu item. The correction function overlaps with the calculated astronomical switch times, including the offset settings.

Example:

Setting a time correction extends the daily switched-on time by up to 60 min. in the middle of the six winter months (switches off up to 30 min. later in the morning and switches on up to 30 min. earlier in the evening). In the middle of the six summer months, the time correction reduces the daily switched-on time by up to 60 min. (switches off up to 30 min. earlier in the morning and switches on up to 30 min. later in the evening). The time correction varies continuously between the two max. values during the rest of the year.

Basic settings using a PC and day key

All of the basic settings described above, with the exception of the current time and date, can be set up using the AlphaSoft software from Legrand and imported to the time switch using the data key. [2] Excluding AstroRex DY64

■ Additional functions

Relay function
The relay state can be changed by selecting “MENU” and “FUNCTIONS”. The relay is preset to the “AUTO” function; the time switch switches at the programmed times. The following can also be selected: “ALWAYS ON”, “ALWAYS OFF” and “EXTRA”. If “EXTRA” is selected, the switching status specified by the program is inverted. The time switch resumes switching according to the programmed switch times after the next switch com mand.

Holiday program
In holiday program, the holiday period is set with a start and an end date. It can be activated with the “ACTIVE” program item and deactivated with “PASSIVE”. If the holiday program is activated, the time switch does not carry out any programmed switch commands during this time period. Instead, it remains “ALWAYS OFF” or “ALWAYS ON” during the holiday period, as requested. When the holiday period has ended, the time switch resumes switching according to the programmed switch times.

1 h test
The “1 h TEST” function can be used for a switching simulation. If “1 h TEST” is activated, the switch outputs are switched for one hour. After the time has ended, the time switch resumes switching according to the programmed switch times.

PIN code
Input and programming can be locked using a four-digit “PIN CODE”. The time switch can be unlocked using the “PIN CODE”. The time switch can also be unlocked using the “RESET” function, which also deletes all settings and programs.

Operating hours counter
This function displays the time for which the relay has been switched on and the date of the last reset. Counting range: 65,535 h.

Contrast adjustment
This function allows the user to adjust the display contrast.

Expert mode*
Expert mode is activated by selecting “OPTIONS” and “EXPERT”. After expert mode is activated, the following additional functions can be used: control input “extra” [1], control input “out” [1], cycle function, channel-switching function (2-channel time switches), mains-synchronous operation, offset correction function [2], geographical coordinates in degrees and arcminutes [2].
[1] AlphaRex ³ D21s, AlphaRex ³ D21 astro, AlphaRex ³ DY21 [2] AlphaRex ³ astro, AlphaRex ³ DY

Control input with switch-off delay
Adjustable switch-off delay via control input. The control input enables an additional switching of the relay, parallel to the switching program. The switch-off delay can be set from 0 s to 23 h 59 min 59 s. The switch-off delay begins as soon as the voltage is removed from the control input.

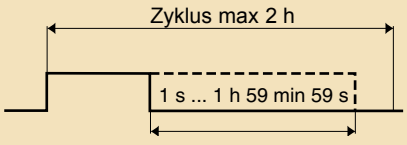
Control input “extra”*
Override of switching state via control input. If the “EXTRA” function is activated, the switching state specified by the program is inverted. The time switch resumes switching according to the programmed switch times after the next switch command. The “EXTRA” function is ended prematurely if the button is pressed again or if a pulse is received at the control input.

Control input “off”*
Switch off via control input. Activating the “OFF” function causes the time switch to be switched off via the control input. The “OFF” function is ended if the button is pressed again or if a pulse is received at the control input. The time switch resumes switching on/off according to the programmed switch times.

Pulse function
Programmable with precision to the second.

Cycle function
Function for cyclical switching. With this function, the time switch is switched on once within a defined time period and for a defined duration. The cycle time can be set between 2 s and 2 h. The switch-on time can be set between 1 s and 1 h 59 min 59 s.

	Min.	Max.
Cycle	2 s	2 h
Switch-on time	1 s	1 h 59 min 59 s



Random function
If the random function is activated, set switch times are randomly shifted within a range of +/- 15 minutes.

Channel-switching function*
With 2-channel time switches, this function can be activated so that the time switch regularly switches between the outputs assigned to the channels, in order to protect connected devices (for example lights/lamps) or so that two devices can be used simultaneously. The channel-switching function is activated by selecting “MENU”, “OPTIONS” and “CHANNEL 1<>2”. The time switch switches between the outputs according to whether the menu item “DAILY” (once per day at 12:00 p.m.) or “WEEKLY” (once per week on Sunday at 12:00 p.m.) is selected.

Mains-synchronous operation
Mains-synchronised clock precision. By activating the “SYNC” function and then “ACTIVE”, the quartz-controlled time switch becomes a synchronous time switch.
*) Excluding AstroRex DY64

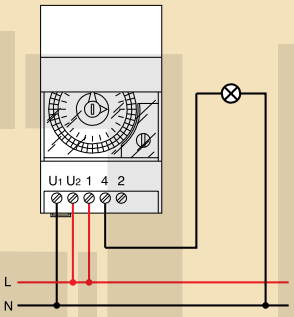
Rex analogue time switches
daily/weekly time switches

Technical specifications

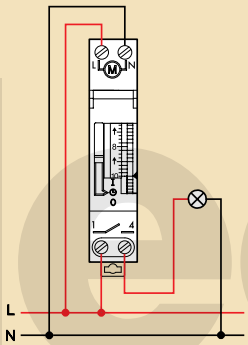
Type	MicroRex T31	MicroRex QT31	MicroRex W31	MicroRex QT11	MicroRex QW11
Number of modules of 17.5 mm each	3	1			
Number of channels	1	1	1	1	1
Drive type	synchronous	quartz	synchronous	quartz	quartz
Switching dial	24 h	24 h	7 days	24 h	7 days
Running reserve	none	100 h	none	100 h	100 h
Switching increment	15 min	15 min	2 h	15 min	2 h
Shortest switching step	30 min	30 min	4 h	15 min	2 h
Switching step	+/- 5 min	+/- 5 min	+/- 30 min	+/- 5 min	+/- 30 min
Clock precision	mains	2.5 s/day	mains	2.5 s/day	2.5 s/day
	synchronised			synchronised	
Switching capacity					
• Ohmic 230 V± cos ⍰ = 1	16 A ±				
• Incandescent lamp 230 V±	4 A ±				
• Inductive 230 V± cos ⍰ = 0.6	12 A ±				
Switch output	1 changeover contact	1 changeover contact	1 changeover contact	1 normally open contact	1 normally open contact
Operating temperature	-10 to +55 °C				
Degree of protection	IP20				

Connection diagram

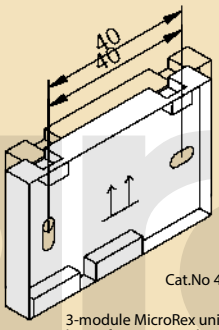
MicroRex - 3 modules



MicroRex - 1 module



Wall bracket - 3 modules

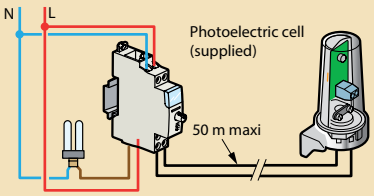


Cat.No 4128 59

3-module MicroRex units can be surface mounted using the wall bracket. A terminal cover is included with delivery.

Standard light sensitive switch (Cat.No 4126 23)

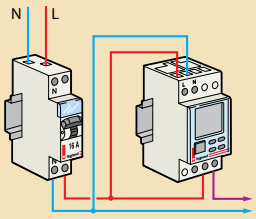
Switch "ON" and "OFF" defined by a light level threshold



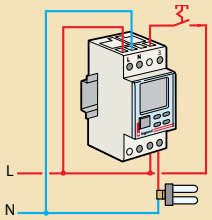
programmable time switches
with analogue and digital dial

■ Diagrams

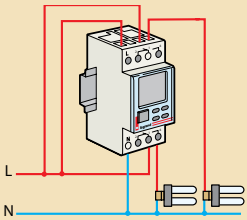
Cat.No 4126 31



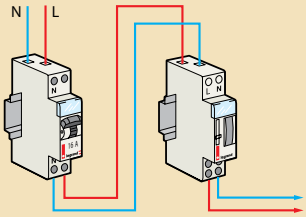
Cat.Nos 4126 54/34/29



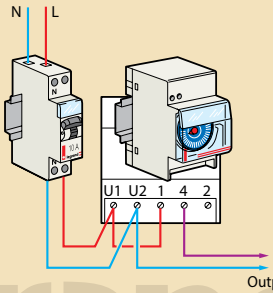
Cat.Nos 4126 57/41/30



Cat.Nos 4127 90/94

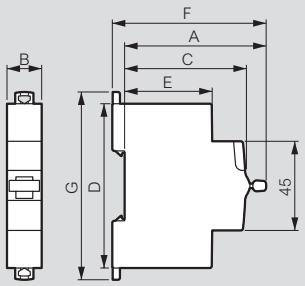


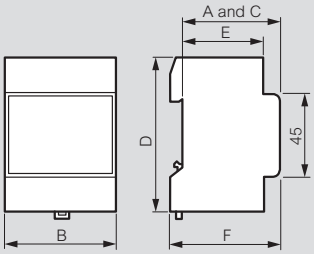
Cat.Nos 4128 12/13/14



Output closing and breaking times are calculated based on the date, the actual time when the device was switched and on geographical coordinates of the actual location

Dimensions of din-rail equipment





Product	A	B					C	D	E	F	G
		1P	1P+ N	2P	3P	4P					
RX³ MCBs	71.7	17.7	35.4	35.4	53.1	70.8	61	83	44	77.8	88.9
RX³ RCCBs	71.7			35.6		71.2	61	83	44	77.8	88.9
TX³ MCBs	71.7	17.7	35.4	35.4	53.1	70.8	61	83	44	77.8	88.9
TX³ RCCBs	71.7			35.6		71.2	61	83	44	77.8	88.9
Isolating switches DX³	71.7	17.8		17.8/ 35.4	35.6/ 53.1	35.6/ 70.8	61	83	44	77.8	94.8
Remote trip head isolating switches DX³ up to 63A - 1 mod/pole	71.7			35.4	53.1	70.8	61	83	44	77.9	94.8
Remote trip head isolating switches DX³ 100/125A - 1.5 mod/pole	73				80.1	106.8	61	96	47	79	104.3
DX³ RCCBs	71.7			35.6		71.2	61	83	44	77.8	94.8
1P DX³ RCBOs (up to 45A)	68	17.7					60	115	48	74	126.8
1P+N DX³ RCBOs (up to 40A) & 4P (up to 32A)	71.7		35.6			71.2	61	83	44	77.8	94.8
2P & 4P DX³ RCBOs (40A to 63A)	72			71.2		124.6	61	96	44	78.2	107.8
1P+N DX³ MCBs 1 mod	71.7		17.8				61	83	44	77.8	94.8
DX³ MCBs - 1 mod/pole	71.7	17.7	35.4	35.4	53.1	70.8	61	83	44	77.8	94.8
DX³ MCBs - 1,5 mod/pole	73.1	26.7		53.4	80.1	106.8	61	100	47	79	104.3
DX³ add-on modules up to 63A - 1 mod/pole	72			35.6	53.4	53.4	61	96	44	78.2	107.8
DX³ add-on modules up to 63A - 1.5 mod/pole	72			35.6	53.4	53.4	61	96	47	78.2	116.7
DX³ add-on modules 80 to 125A - 1.5 mod/pole	72			71.2	106.8	106.8	61	114	47	78.2	129
DX³ auxiliaries	71.5	8.8 / 17.7					61	83	44	77.7	84.5
DX³ remote control	74.3	17.7 / 35.4					61	83	44	80.5	98.8
DX³ Stop&Go automatic resetting	74.3	35.4					61	83	44	80.5	113.7
Change-over switches	68	17.7		35.6			60	83	44	74	94
CX³ latching relays	64	17.8		17.8	35.6	35.6	61	84.5	44	70.2	94.8
CX³ contactors up to 25A	66.3/ 61	17.8		17.8	35.6	35.6	61	84.5	44	72.6/ 67.3	94.8
CX³ contactors 40A & 63A	62			35.6	53.4	53.4	60	83	44	68	94
Auxiliaries for CX³ contactors and latching relays	61	9/17.8					61	84.5	44	67	84.5
Push-buttons / control switches	68	17.7					60	83	44	74	94
Indicators	68	17.7					60	83	44	69	94
Bells and buzzers	60	17.7					60	76	44	66	85
Light sensitive switches											
Cat.Nos 0 037 21, 4 126 23	60	35.6					60	85	37.5	66	70
Socket outlets	60	44.5					60	83	44	66	92
Time delay relays	60	17.7					60	83	44	66	94
Remote control dimmers											
Cat.No 0 036 58	60	36					60	83	44	66	94
Cat.No 0 036 60	60	72					60	83	44	66	94
Cat.No 0 036 71	60	108					60	83	44	66	94

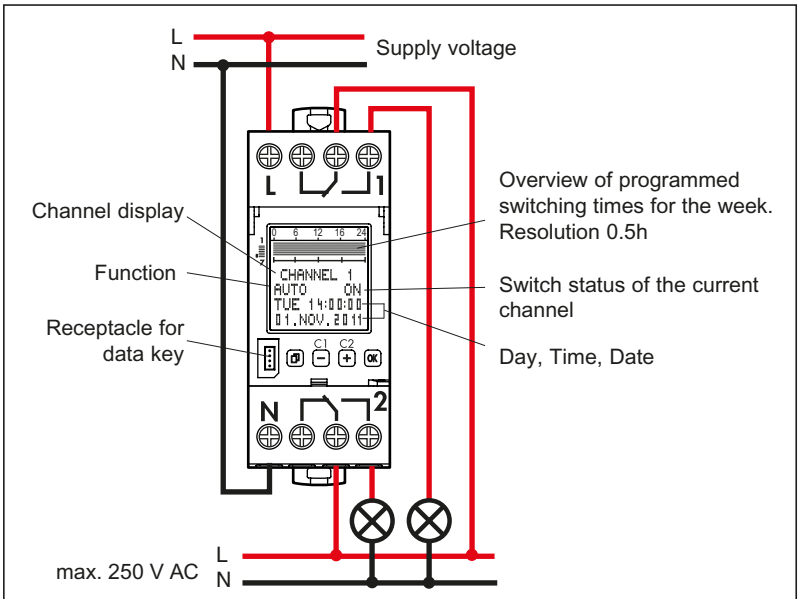
Description		A	B	C	D	E	F
Programmable time switches	0 037 05	60	17.8	60	83	44	66
	4 127 80/90/94	60	17.8	60	83	44	66
	4 127 95, 4 128 12/13	60	53	60	83	44	66
	4 126 31/33/41	60	35.6	60	83	44	66
	4 126 54/57	60	35.6	60	83	44	66
	0 047 70	60	90	60	83	44	66
Transformers and power supplies							
	0 042 10/30/31	60	72	60	83	44	66
	4 130 91	60	35.8	60	83.5	44	66
	4 130 92/93/96	60	71.5	60	83.5	44	66
	4 130 98	60	89	60	94	44	66
	0 047 91/92	60	105	60	95	44	66
	4 131 05/06/07/08	60	89	60	95	44	66
	0 047 93	60	70	60	95	44	66
Residual current relay							
	0 260 88	60	35.5	60	89	44	66

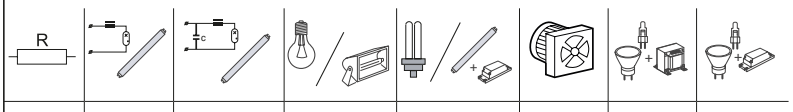
Annual time switch
AlphaRex³ DY22 - 2-channel
4 126 30 - 047 60

Safety notes

GB

This product should be installed in line with installation rules, preferably by a qualified elec-trician. Incorrect installation and use can lead to risk of electric shock or fire.Before carrying out the installation, read the instructions and take account of the product's specific mounting location.Do not open up, dismantle, alter or modify the device except where specifically required to do so by the instructions. All Legrand products must be opened and repaired exclusively by personnel trained and approved by Legrand. Any unauthorised opening or repair completely cancels all liabilities and the rights to replacement and guarantees. Use only Legrand brand accessories.
The device contains a $LiMnO_2$ primary cell. When the product reaches the end of its life, this cell must be correctly removed and disposed of in accordance with national legislation and the requirements of environmental protection.





R							
4000W	2000VA	600W max. 70µF	2000W	1000W	2000VA	2000VA	2000VA

Operating principle: Typ 1.B. S. T.
IEC/EN 60730-1, IEC/EN 60730-2-7
Operation in a normal environment
Montage: in distribution panel, Degree of contamination: 2
Switch output, potential-free
Rated impulse voltage: 4 kV

General information

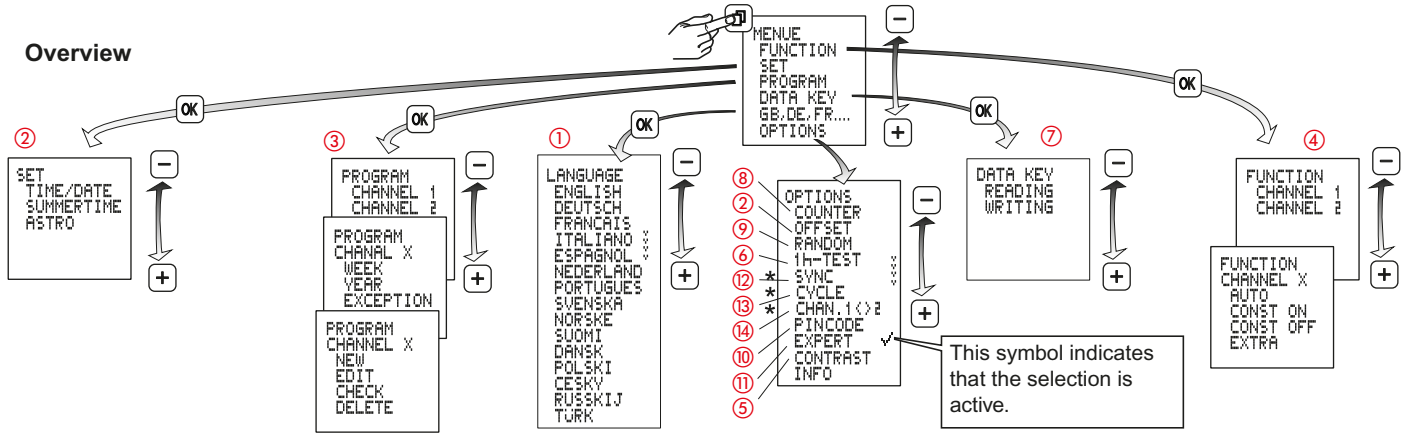
- Start-up: after applying the supply voltage, the time switch starts automatically with the last selected function. The relay position is set by the current program.
- Battery backup
  - Backlighting not active
  - Data key READ/WRITE only via the menu
- For saftety, when the time switch is connected to the mains supply the contact should not be used on an isolated low voltage supply and when the time switch is connected to the isolated voltage supply the contact should not be used on the mains supply.

Select menu, back to main menu,
Hold down > 1s = operating display

OK Confirm selection or load parameters

C1 (−) C2 (+)
- Select menu options or set parameters
- Channel selection

Overview



* Only available in EXPERT mode

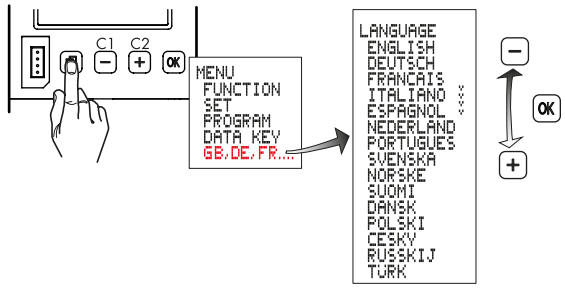
Technical data

Supply voltage:	230V 50/60Hz	
Power consumption:	approx. 1,5 W	
Relay outputs:	2 changeover contact 16A 250V~µ cos φ = 1	
Accuracy:	~ 0,1 s/day	
	single-strand	multi-strand
Wire cross-sections:	1,5...4 mm²	1,5...2,5 mm²
Programs	2 channels x 3 program types x 28 programs	

Local coordinates:	Resolution 1° / 1' in EXPERT-Mode
Battery reserve:	5 years
Storage temperature:	- 20°C to +60°C
Operating temperature:	-20°C to +55°C

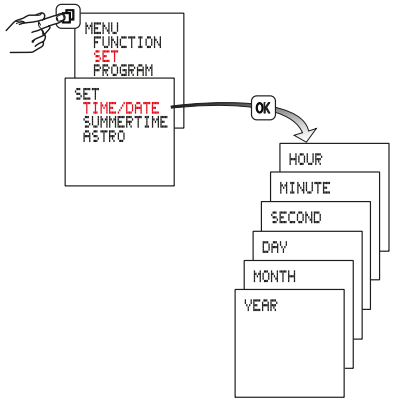
N 292573/02

1 Set language

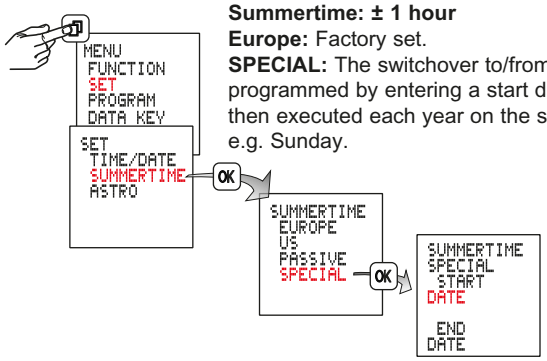


2 Set

Ⓐ Set time/date

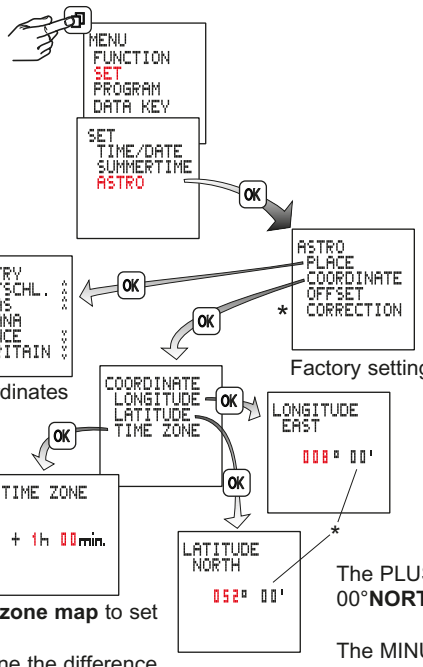


Ⓑ Summertime



Summertime: ± 1 hour
Europe: Factory set.
SPECIAL: The switchover to/from summertime can be freely programmed by entering a start date and end date and is then executed each year on the same day of the week, e.g. Sunday.

Ⓒ Astro



Select country.
Select the city closest to the planned location for use.

* Only available in EXPERT mode

Factory setting: 8°E 52°N

You can adjust the coordinates more precisely with LONGITUDE and LATITUDE.

The MINUS key is used to adjust the westward longitude value in the range from 000°**EAST/WEST** to 180°**WEST**.

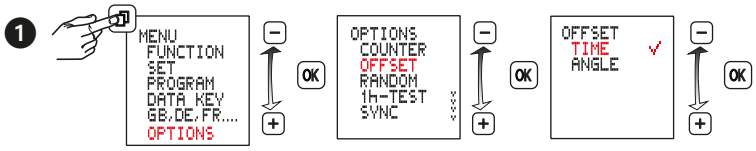
The PLUS key is used to adjust the eastward longitude value in the range from 000°**EAST/WEST** to 180°**EAST**.

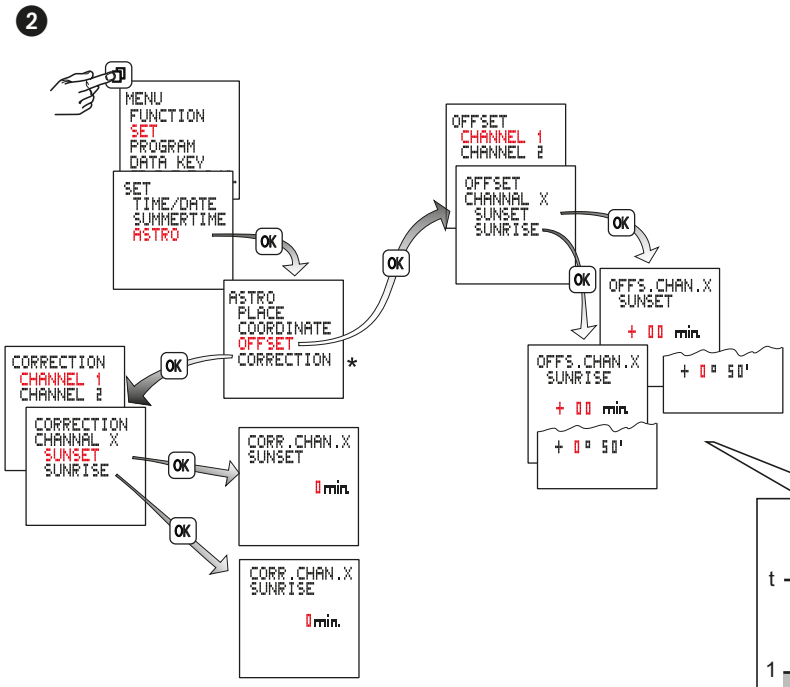
The PLUS key is used to adjust the northward latitude value in the range from 00°**NORTH/SOUTH** to 90°**NORTH**.

The MINUS key is used to adjust the southward latitude value in the range from 00°**NORTH/SOUTH** to 90°**SOUTH**.

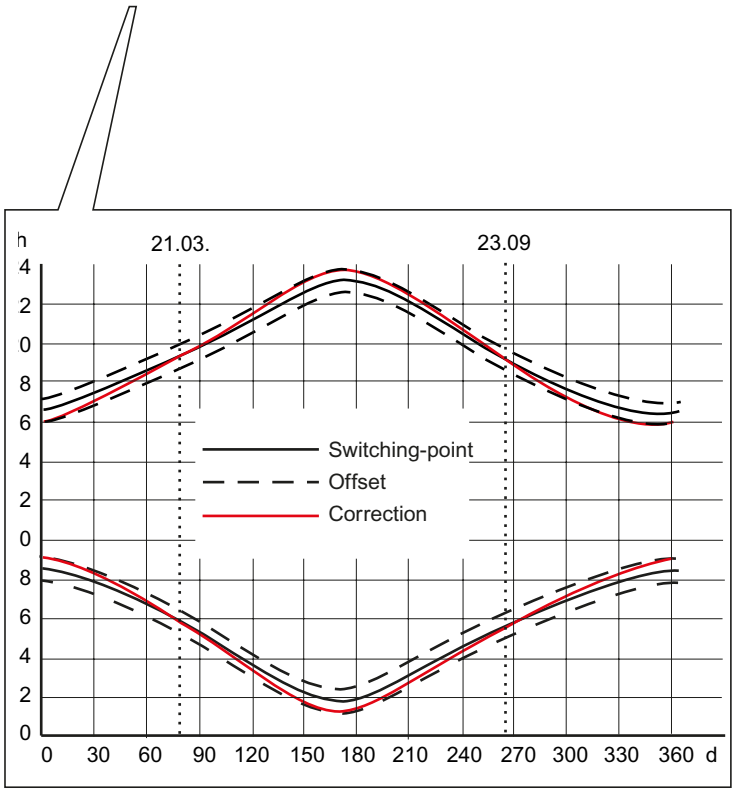
Use the enclosed **time-zone map** to set the correct time zone.
From this map, determine the difference between local time and UTC (**U**niversal **T**ime **C**oordinated) and set this value.

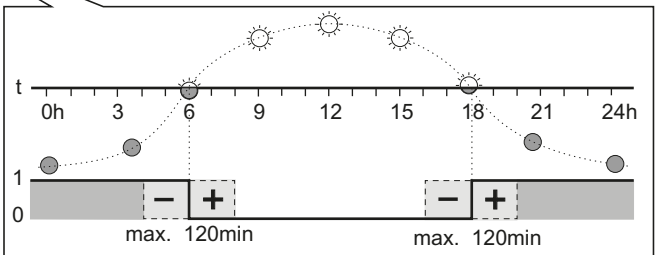
Ⓓ Offset





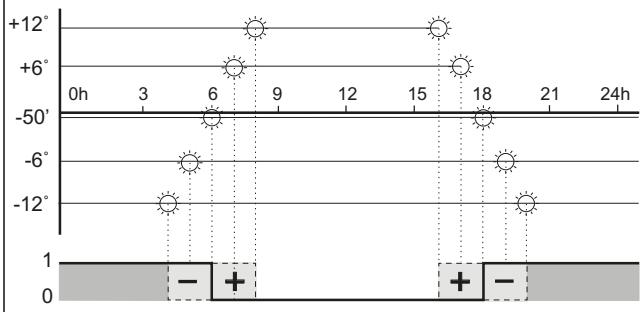
* This function is available in Expert mode.
Setting the correction value (1...30 min.) extends the daily ON period in the middle of the winter season by up to 60 minutes (OFF up to 30 min. later in the morning, ON up to 30 min. earlier in the evening).
In the middle of the summer season, the correction setting reduces the daily ON period by up to 60 minutes (OFF up to 30 min. earlier in the morning, ON up to 30 min. later in the evening).





The time switch switches on at the calculated sunset time and off at the calculated sunrise time.
By setting an offset, you can shift the switching times by up to ±120 minutes with respect to the calculated sunrise and sunset times.

Example: If you set the offset to +30 minutes, the time switch will switch 30 minutes after sunrise and 30 minutes after sunset. If you set the offset to -30 minutes, the time switch will switch 30 minutes before sunrise and 30 minutes before sunset.



If the offset setting is in degrees the time switch switches on and off at times of equal brightness, despite the differences in twilight time lengths over the course of the year.
Sunrise and sunset correspond to -50' for the centre of the sun (the edge of the sun is visible on the horizon).

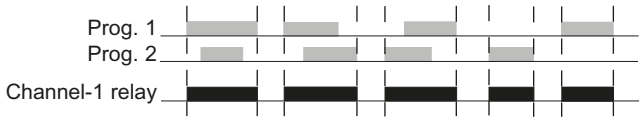
3A PROGRAM / **WEEK**

This menu item is provided for the simple input of programs which are to be repeated weekly (such as switching of lights and boilers).
A weekly program consists of an ON time, an OFF time and the associated ON and OFF days.

- MON TO SUN: the days of the week are already assigned and you only need to set the ON and OFF times.
  This is used where the same program is to be executed on every day of the week.
- INDIVIDUAL: you can assign the ON and OFF times to any desired days. This is used where the same program is to be executed only on certain days of the week or different programs are to be executed on the various days.

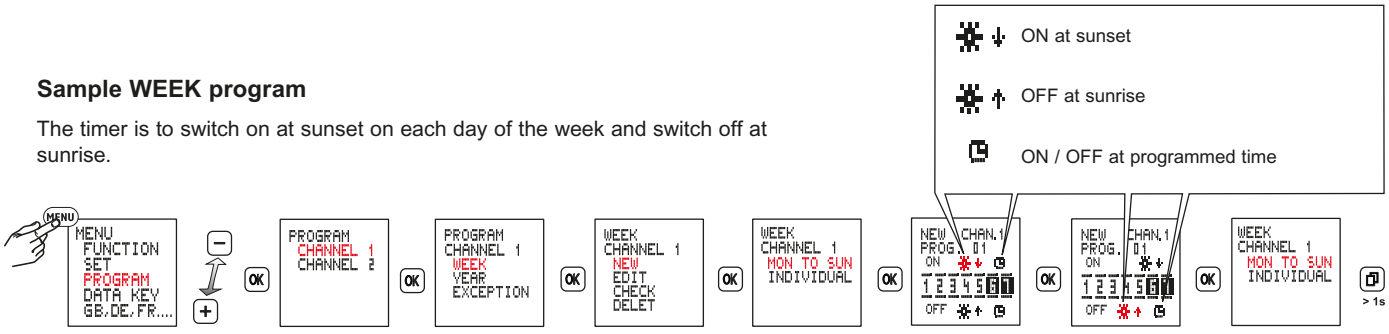
OR function

The programs defined for each channel are ORed together. In other words, the output will be active if this is defined in any of the programs.
Example: channel 1



Sample WEEK program

The timer is to switch on at sunset on each day of the week and switch off at sunrise.



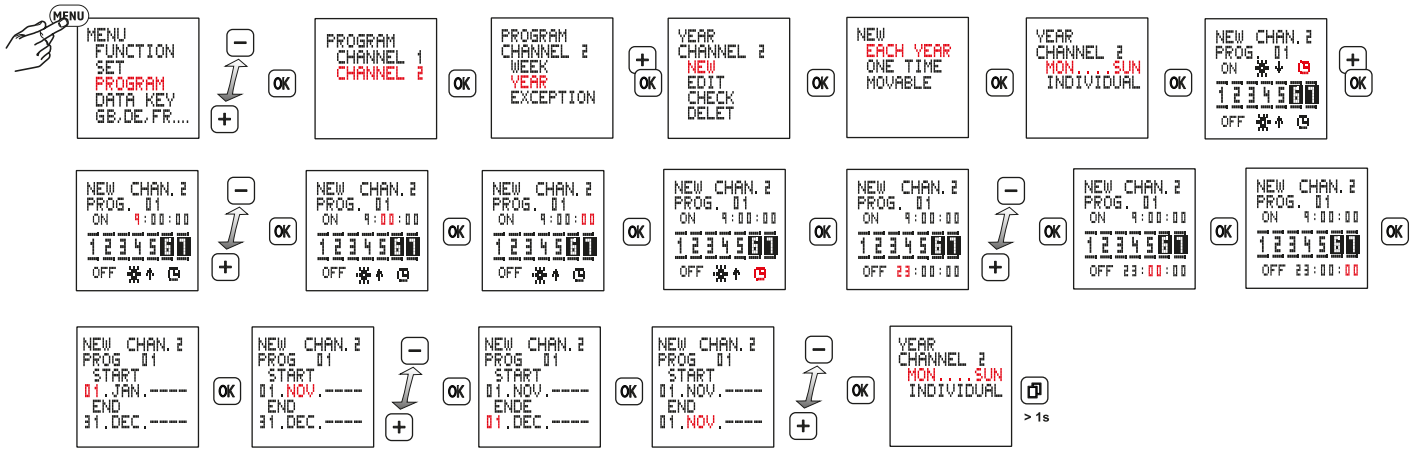
3B PROGRAM / **YEAR**

This menu item permits the input of (additional) annual programs which are to be executed only during a specified period. These programs and the weekly programs of the same channel are ORed together as described above.
The period during which a program is to be executed is defined by entering a start date and an end date.

- The option EVERY YEAR should be selected if the additional program is to be executed during the same period of each year (e.g. Christmas, national holidays, birthdays, etc.).
- The option ONCE should be selected if the additional program is to be executed only during a single period (e.g. vacation period), but the start and end dates of this period are different in each year.
- The option MOVABLE should be selected if additional switching times are to be performed on movable public holidays/special days. (e.g. Easter, Whitsun, etc.). Entry is always for the current year. In the years that follow, the switch always takes place on the selected movable public holidays/special days. Default is Easter Sunday of the current year. → 3D

Sample YEAR program

Activate each year on at 09:00 hours on 01.11. and deactivate at 23:00 hours.



3C PROGRAM / **EXCEPTION**

The weekly and annual programs defined are not executed as long as an extra program is active.
However, other exception programs will be executed while an exception program is active.
The various exception programs are ORed together as described above. (see OR function 3a)

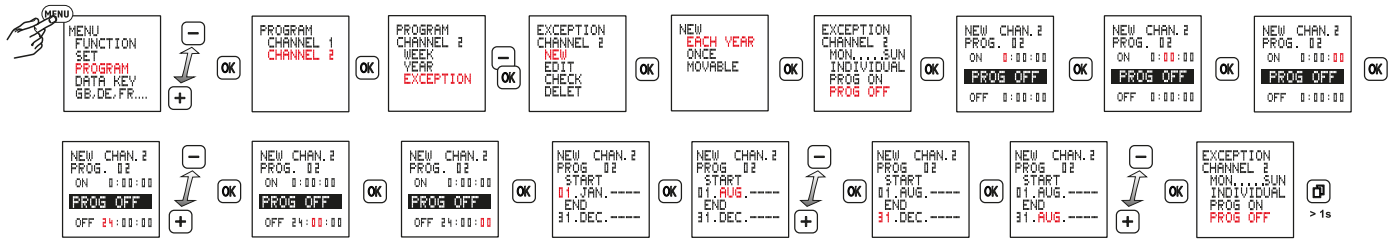
- The option EVERY YEAR should be selected if the exception program is to be activated for the same period in each year (e.g. Christmas, national holidays, birthdays, etc.).
- The option ONCE should be selected if the exception program is to be activated only during a single period (e.g. vacation period), but the start and end dates of this period are different in each year.

The option MOVABLE should be selected if additional switching times are to be performed on movable public holidays/special days. (e.g. Easter, Whitsun, etc.). Entry is always for the current year. In the years that follow, the switch always takes place on the selected movable public holidays/special days. Default is Easter Sunday of the current year. → 3D

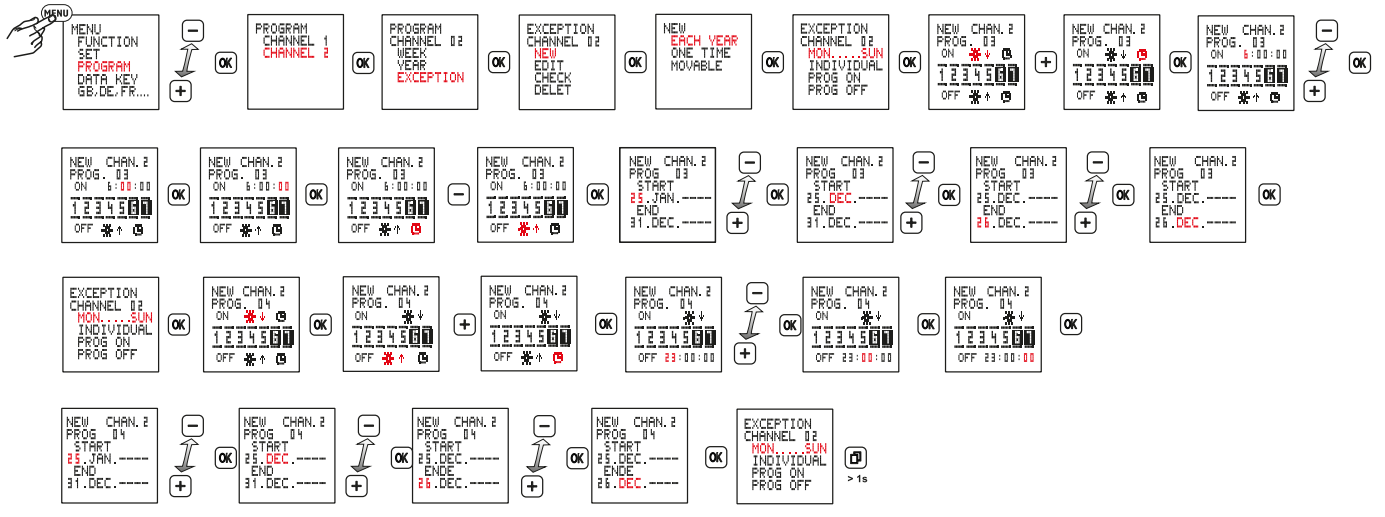
- Option MON TO SUN: the exception program is active from 00:00 hours on the start date to 24:00 hours on the end date. During this period, the time switch switches only as defined in the exception program.
- Option INDIVIDUAL: the exception program is active from 00:00 hours on the start date to 24:00 hours on the end date. During this period, the switching is only as only as defined in the exception program.
- Option PROG ON: the exception program is active from the ON time on the start date to OFF time on the end date. During this period, the output is permanently on.
- Option PROG OFF: the exception program is active from the ON time on the start date to OFF time on the end date. During this period, the output is permanently off.

Sample EXCEPTION programs

① The output is to be switched off each year for the entire period 01.08. to 31.08.



② Each year from 25.12. to 26.12., the output is to be switched on at 6:00 hours, switched off at sunrise, switched on at sunset and switched off at 23:00 hours. For this, two programs are needed:
Program 1: ON at 6:00 and OFF at sunrise
Program 2: ON at sunset and OFF at 23:00



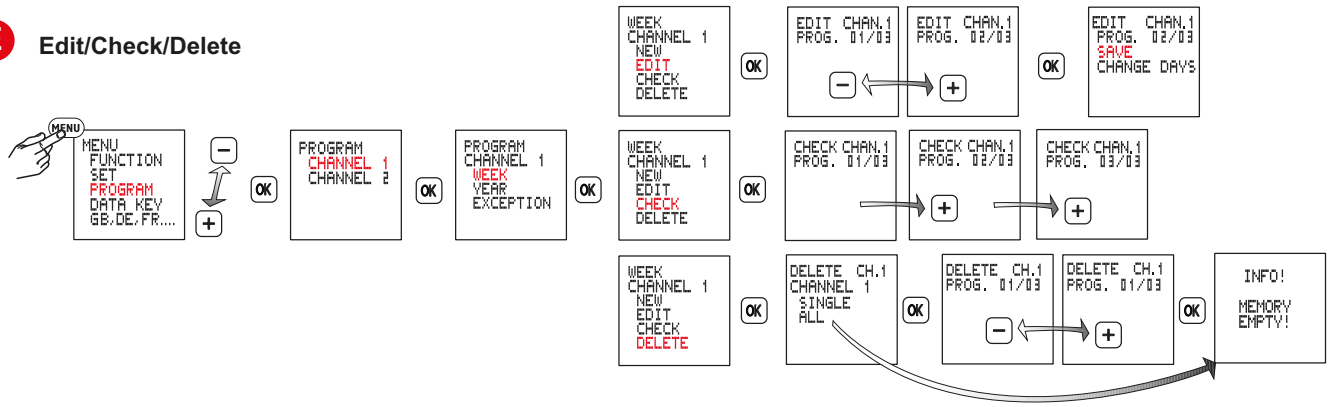
3D Movable public holidays/special days

The clock calculates movable public holidays which are dependent on the liturgical* Easter date according to the rule of Gauß and therefore takes into account the annual shift of the Easter date. The movable public holidays align with the shift; they are always realised with a certain number of differential days to Easter.

* Note: In some years, there is a difference between the liturgical and orthodox Easter date.

Name of public holiday	Time to Easter Sunday
Maundy Thursday	- 3 days
Good Friday	- 2 days
Easter Sunday	0
Easter Monday	+1 day
Ascension Day	+ 39 days
Whit Sunday	+ 49 days
Whit Monday	+ 50 days
Corpus Christi	+ 60 days

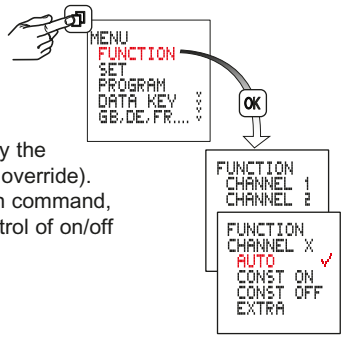
3E Edit/Check/Delete



4 Modes

- **Auto** - Automatic operation
- **Constant ON**
- **Constant OFF**
- **Extra**

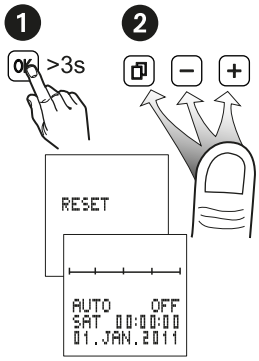
The switch status imposed by the program is inverted (manual override). With the next effective switch command, the time switch resumes control of on/off switching.



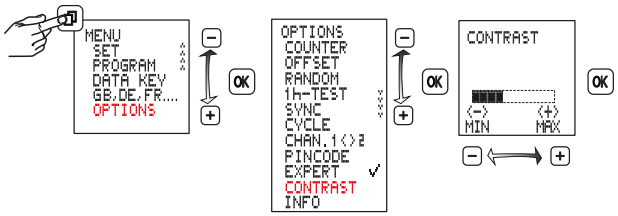
Reset

Warning!
The memory will be cleared, and all set data will be lost.

Hold down OK for more than 3 seconds and at the same time press and release ⧉ − +.
The language, time, date, summertime/ wintertime and switching times will have to be reentered.

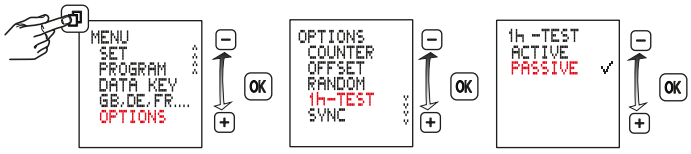


5 Contrast adjustment



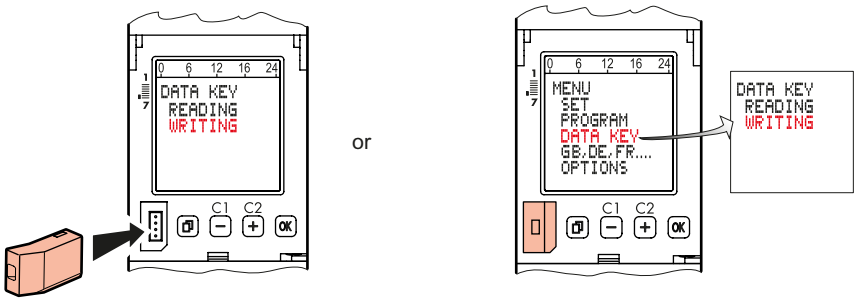
6 1 h-Test

When this function is activated, the outputs are switched on for one hour.

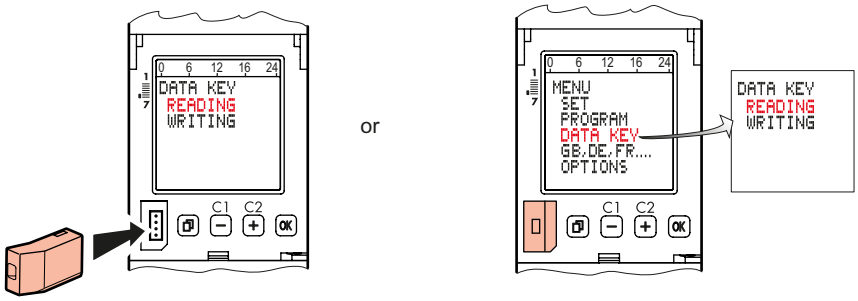


After one hour, the time switch returns automatically to the programmed mode.

7 Data key



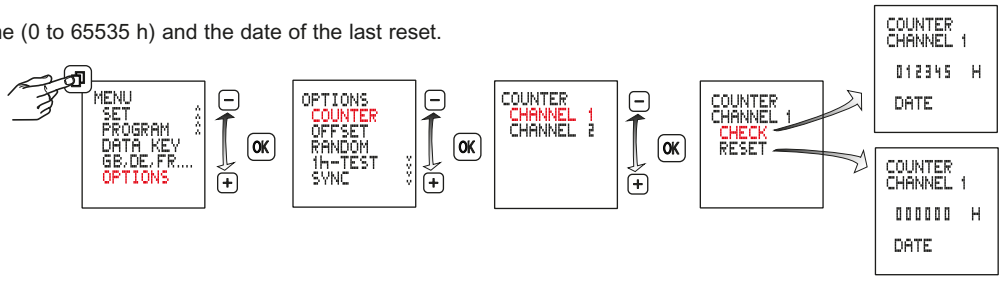
Load the programs of the time switch on to a data key (WRITE KEY)
Warning! all programs stored on the data key will be overwritten.



Load the programs from the data key to the time switch (READ KEY)
Warning! all programs stored in the time switch will be overwritten.

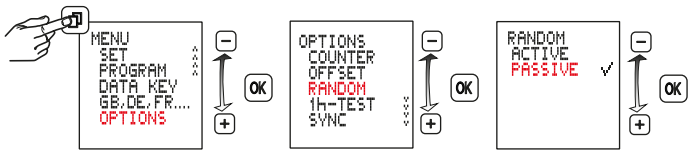
8 Hour counter

Displays the total relay ON time (0 to 65535 h) and the date of the last reset.



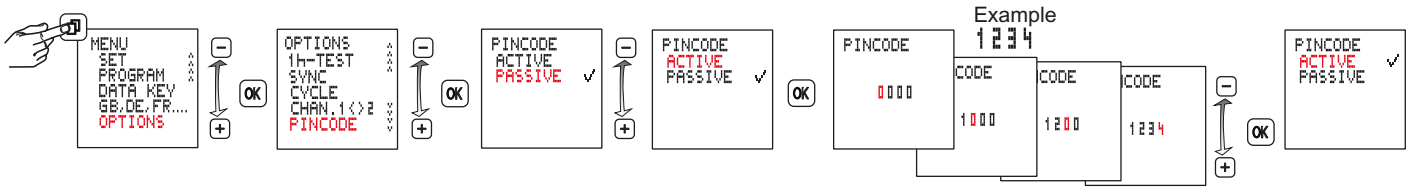
9 Random function

Function to simulate presence.
Function active: the programmed switching cycles are shifted at random within the range of ± 15 minutes.



10 Pincode

PIN CODE active: The menus of the time switch will not be accessible unless the PIN CODE has been entered. When the pin code is active, access to the button and key functions is disabled 1 minute after the last button press.
PIN free access can be re-enabled by selecting PASSIVE or by resetting the device.



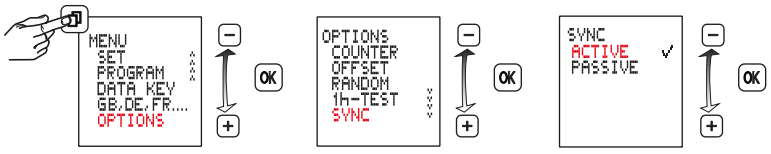
11 Expert mode

Some additional functions are available in Expert mode:
- Power grid synchronisation to improve the accuracy
- Cycle function
- Summer / winter seasonal correction
- Automatic channel switching

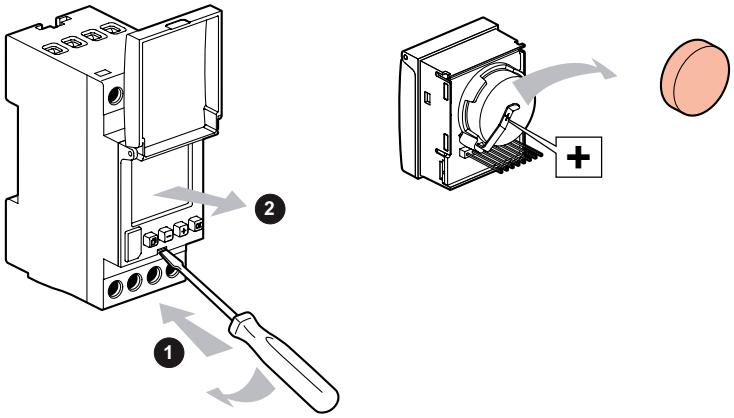
Note: Upon switching from ACTIVE to PASSIVE the additional menu items are hidden again and all the Expert mode settings are cancelled.
After re-activating, Expert mode will operate again with the basic settings.

12 Activating and deactivating grid synchronisation

Only available in EXPERT mode.
The default setting is PASSIVE. In order to improve the long-term accuracy, it is advisable to activate synchronisation if the time switch is supplied from a on 50/60 Hz grid with frequency adjustment.



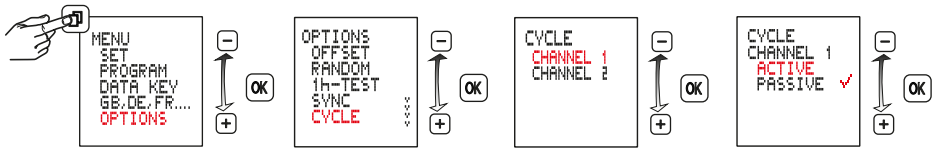
Warning: Elektrical shock - Disconnect all power from the device before dismantling the module and replacing the battery. Always use a Li cell type battery ($LiMnO_2$) CR2477, 3V high temperature type min +85 °C

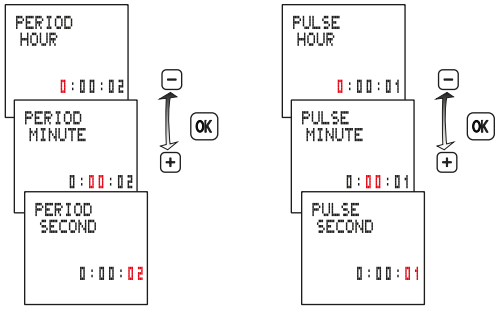


13 Cycle function

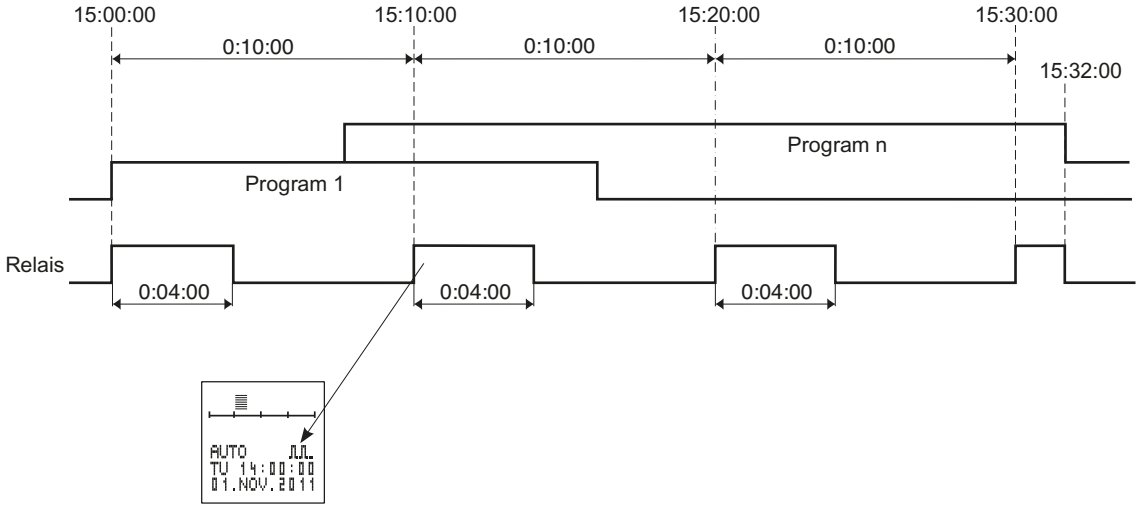
Only available in EXPERT mode

For cyclical switch commands the switching on time is set by logical “OR“ of programs of all types. A fixed cycle of ON and OFF time then operates within those limits. The cycle always starts with the ON time.
The cycle duration and the ON time within the cycle have the same length for all switching times. The cycle duration and the ON time can be set independently in one-second increments. If the switching time is shorter than the cycle duration, the cycle will be shortened accordingly. The ON time will remain unchanged. If the switching time is actually shorter than the ON time, the ON time will be shortened accordingly.





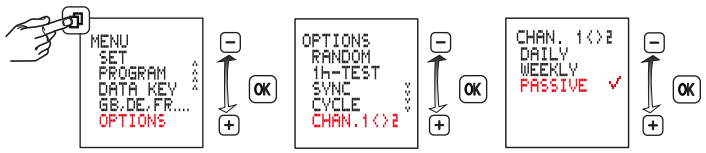
	min	max
Period	2s	2h
Pulse	1s	1h 59min 59s



14 Automatic channel switching

Only available in EXPERT mode

On two-channel time switches a cyclic switch between channels can be set to conserve and/or ensure even use of connected equipment such as lamps and lights.
For example, with two sets of lights, one can be used all night long and the other for part of the night only. However, cyclical inversion of the outputs ensures that the lamps are on for the same length of time on average.
The outputs are automatically swapped over once a day (12 noon) or once a week (Sunday at 12 noon).



Required inputs, depending on the program type and menu options.

Program type	Execution	Characteristics	ON/OFF times	Weekday assignments	Active period START date	Active period END date	Application, objectives, examples
WEEK	Repeated weekly	MON TO SUN	●	○	○	○	The same switching cycle is to be executed on every day of each week. Example: switch lights on at sunset and off at 22:30:00 hours each day.
		INDI-VIDUAL	●	●	○	○	A switching cycle is to be executed only on specific days of each week. Example: switch lights on at sunset and off at 22:30:00 hours on Monday to Friday of each week.
YEAR	EVERY YEAR	MON TO SUN	●	○	Day, month, - - - -	Day, month, - - - -	• A switching cycle is to be executed on each day within a specified period of each year. Example: switch on the outside lights of a church from 17:00:00 to 24:00:00 in the period 1 December to 31 December. • An existing weekly program is to be supplemented with additional switching times on each day during a specific period of each year.
		INDI-VIDUAL	●	●	Day, month, - - - -	Day, month, - - - -	• A switching cycle is to be executed on certain days of the week within a specified period of each year. Example: switch on the outside lights of a church from 17:00:00 to 24:00:00 on each Sunday in the period 1 December to 31 December. • An existing weekly program is to be supplemented with additional switching times on certain days of the week during a specific period of each year.
	ONCE	MON TO SUN	●	○	Day, month, year	Day, month, year	• A switching cycle is to be executed on each day of a specified period in a specified year. Example: in the year 2012, the heating in a holiday chalet is to be switched on from 07:30:00 to 23:00:00 on each day during the Easter holidays (25 March to 28 March 2012). • An existing weekly program is to be supplemented with additional switching times on each day during a specific period of a specific year.
		INDI-VIDUAL	●	●	Day, month, year	Day, month, year	• A switching cycle is to be executed on certain days of a specified period in a specified year. Example: in the current year, the lights in a sports hall are to be switched on from 19:00:00 to 22:00:00 on each Tuesday and Friday during the period from 10 .January to 23 March. • An existing weekly program is to be supplemented with additional switching times on certain days of the week during a specific period of a specific each year.
	MOVABLE	MON TO SUN	●	○	Day, month, year	Day, month, year	An annual program is to perform a switching cycle every year at Easter. e.g. In 2014 and in subsequent years, the heating in a holiday home is to be switched on every day from 07:30:00 to 23:00:00 during the week before and after Easter.
		NDI-VIDUAL	●	●	Day, month, year	Day, month, year	An annual program is to perform a switching cycle every year on Ascension Day. e.g. Every year on Ascension Day, the outside lighting at a bakery is to be switched on from 07:00:00 to 11:00:00.

Program-type	Execution	Charac-teris-tics	ON/OFF times	Weekday assignments	Active period START date	Active period END date	Application, objectives, examples
EX-CEP-TION	EVERY YEAR	MON TO SUN	●	○	Day, month, - - - - from 0:00:00 hours	Day, month, - - - - to 24:00:00 hours	An exception program is to completely replace any existing weekly or annual program on each day during a specific period of each year. Example: the irrigation pump of an orchard is to be switched on from 17:00:00 to 18:00:00 on each day in the period from 20 March ---- to 10 April ----.
		INDI-VIDUAL	●	●	Day, month, - - - - from 0:00:00 hours	Day, month, - - - - to 24:00:00 hours	An exception program is to completely replace any existing weekly or annual program on certain days during a specific period of each year. Example: the irrigation pump of an orchard is to be switched on from 17:00:00 to 18:00:00 on each Monday and Friday in the period from 11 April ---- to 15 May ----.
		PROG ON	●	○	Day, month, - - - - from ON time	Day, month, - - - - to OFF time	A channel is to be switched on continuously from the ON time on the START date to the OFF time on the END date every year. This exception program is to completely replace any existing weekly or annual program for this channel. Example: instead of the normal times for illumination of a public building, the illumination is to be switched on from 17:00:00 on the national holiday ---- until 07:00:00 the next morning 4 October ----.
		PROG OFF	●	○	Day, month, - - - - from ON time	Day, month, - - - - to OFF time	An output is to be switched off continuously from the ON time on the START date to the OFF time on the END date every year. This exception program is to completely replace any existing weekly or annual program for this channel. Example: in order to save power, certain equipment in a factory is to be switched off during the Christmas holiday period of each year. i.e. from 18:00:00 on 23 December ---- to 6:00:00 on 27 December ----.
	ONCE	MON TO SUN	●	○	Day, month, year from 0:00:00 hours	Day, month, year to 24:00:00 hours	On each day during a specific period of a specified year, an exception program is to completely replace any existing weekly or annual program. Example: during the Christmas holidays of the year 2012, the heating in an apartment is to be switched each day from 7:00:00 to 23:00:00, instead of in the normal cycle. This exception period is to begin on 24 December 2012 and end on 06 January 2013.
		INDI-VIDUAL	●	●	Day, month, year from 0:00:00 hours	Day, month, year to 24:00:00 hours	On certain weekdays during a specific period of a specific year, an exception program is to completely replace any existing weekly or annual program. Example: in December 2012, the heating system of a department store is to be switched on from 8:00:00 to 18:00:00 each Sunday, because the store opens on Sundays in the period 4 December 2012 to 18 December 2012.
		PROG ON	●	○	Day, month, year from ON time	Day, month, year to OFF time	A channel is to be switched on continuously from the ON time on the START date to the OFF time on the END date of a specific year. This exception program is to completely replace any existing weekly or annual program for this channel. Example: the alarm system of an office building is to be switched on continuously during the vacation period 19:00:00 on 15 July 2012 to 06:00:00 on 7 August 2012.
		PROG OFF	●	○	Day, month, year from ON time	Day, month, year to OFF time	A channel is to be switched off continuously from the ON time on the START date to the OFF time on the END date of a specific year. This exception program is to completely replace any existing weekly or annual program for this channel. Example: in 2012, the normal recess gong in a school is to be switched off during the summer holidays 00:00:00 on 28 July 2012 to 24:00:00 on 10 September 2012.

Program-type	Execution	Charac-teris-tics	ON/OFF times	Weekday assignments	Active period START date	Active period END date	Application, objectives, examples
EX-CEP-TION	MOVABLE	MON TO SUN	●	○	Day, month, - - - - from 0:00:00 hours	Day, month, - - - - to 24:00:00 hours	An exception program is to replace an existing annual program every year on a movable public holiday. e.g. The lights in a church are to be switched from the daily switch program on the liturgical public holidays.
		INDI-VIDUAL	●	●	Day, month, - - - - from 0:00:00 hours	Day, month, - - - - to 24:00:00 hours	An exception program is to perform a switching cycle every year on the Tuesday after Whitsun. e.g. Every year on the Tuesday after Whitsun, gate access to the factory site is not to be opened.
		PROG ON	●	○	Day, month, - - - - from ON time	Day, month, - - - - to OFF time	To be switched on permanently at Easter every year. This exception program is to fully replace other possible existing weekly or annual programs. e.g. In contrast to the normal daily lighting times of a church, to be switched on every year at Easter from 17:00:00 to 24:00:00.
		PROG OFF	●	○	Day, month, - - - - from ON time	Day, month, - - - - to OFF time	To be switched off permanently every year from the start date of the switch-on time to the end date of the switch-off time. This exception program is to fully replace other possible existing weekly or annual programs within the date interval. e.g. In contrast to the normal sequence in a business, the energy supply of certain systems is to be switched off at 6:00:00 on the Easter public holidays every year due to rest days.

Select the option PROGRAM / WEEK for a program which is to be executed a on specific days of the week and is to be repeated weekly.

Select the option PROGRAM / YEAR for a program which is to be executed each year or only in a specific year. The execution period within the year can be defined by entering start and end dates.

Select the option PROGRAM / EXCEPTION for a program which is to completely replace existing weekly or annual programs during a specified period.

Priorities of the various program types within the same channel:

	WEEK program	YEAR program	EXCEPTION program
WEEK program	The various weekly programs are ORed together	The various weekly and annual programs are ORed together	The exception program is overri-ding within its defined period of activity.
YEAR program	The various weekly and annual programs are ORed together	The various annual programs are ORed together	The exception program is overri-ding within its defined period of activity.
EXCEPTION program	The exception program is overri-ding within its defined period of activity.	The exception program is overri-ding within its defined period of activity.	The various exception programs are ORed together

- Zeitzonenkarte
- Carte des fuseaux horaires
- Time-of-day map
- Tijdszone kaart
- Carta dei fusi allegata
- Carta de husos horarios
- Time-of-day oversigt
- Aikavyöhykekarttaa
- Tidssonenkortet
- Tidzons kartan
- Carta de fusos horários
- ήώτα υώιαΏυμ ατώήξτυμ
- Ajavööndite kaart
- Laika zonu karte
- Laiko juostų žemėlapis
- Mapa stref czasowych
- Mapa ss časovými pásmami
- Karta časovnih pasov
- Mapa časových pásem
- Időzóna térkép
- Zaman dilimleri kartı
- 时区图
- خريطة مناطق التوقيت