

DX³ RCD add on module with measurement & metering



DX³ time switches



4106 57

Technical characteristics **p. 51**

Conform to IEC 60947-2
 Hpi type: detect faults with AC and DC components, increased Immunity to false tripping
 Inbuilt measurement/metering option
 Measurement - V, A, F, PF, kWh, KVA, KVA_r, THD
 Metering - V, A, F, kWh
 RS 485 port for remote reading
 Di-electric test button inbuilt
 Ergonomic test button
 Scroll button for easy readings
 RLCD display on front facia
 For mounting on the right-hand side of 1.5 module per pole DX³ MCBs
 Easy & fast association mechanism
 70 sq mm terminals

Pack	Cat.Nos	Adjustable metering, 4 pole 415 V [~]	
		Nominal rating I _n (A)	Number of modules
1	4106 57	63 A	7
1	4106 58	125 A	7

Pack	Cat.Nos	Adjustable measurement	
		Nominal rating I _n (A)	Number of modules
1	4106 59	125 A	7



4126 41



4126 54



4126 57



4126 29

Technical characteristics **p. 54-58**

Daily and weekly time switch
 Quick and easy programming due to the option to select day blocks, day blocks can be individually set or selected from the blocks Mon-Sun, Mon-Fri or Sat-Sun
 Programming with precision to the second
 Switch times visible in weekly overview on display

Pack	Cat.Nos	AlphaRex ³ digital time switches
1	4126 31	AlphaRex ³ D21, 1 channel
1	4126 41	AlphaRex ³ D22, 2 channels
1	4126 34	AlphaRex ³ D21s, 1 channel, with control input

Pack	Cat.Nos	AlphaRex ³ digital time switches - Astro
1	4126 54	AlphaRex ³ D21 astro, 1 channel
1	4126 57	AlphaRex ³ D22 astro, 2 channels

- For switching on/off lights and other electric devices according to the rising/setting of the sun
- With combination function for creating switching programs in which the devices are switched according to astronomical time and/or fixed preset times
- Daily astronomical calculation of the sunrise/sunset times based on the entered location or location coordinates

Pack	Cat.Nos	AlphaRex ³ yearly time switch
1	4126 29	AlphaRex ³ DY21, 1 channel
1	4126 30	AlphaRex ³ DY22, 2 channels

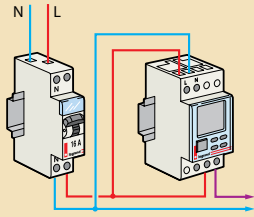
- Yearly and weekly time switch with additional astronomical function for all channels
- 84 switching programs per channel, comprising:
 - 28 weekly programs
 - 28 yearly programs
 - 28 special programs (priority program)

Pack	Cat.Nos	Programming accessories
1	4128 72	Data key
1	4128 73	PC adapter for USB port

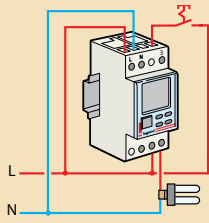
programmable time switches with analogue and digital dial

Diagrams

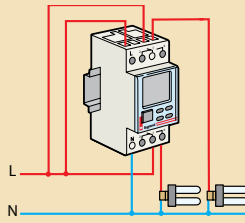
Cat.No 4126 31



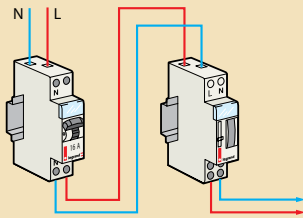
Cat.Nos 4126 54/34/29



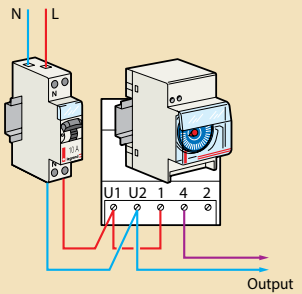
Cat.Nos 4126 57/41/30



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

AlphaRex³ digital time switches

■ Technical specifications

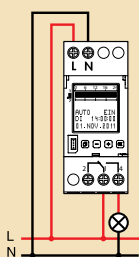
Type	AlphaRex ³ D21	AlphaRex ³ D22	AlphaRex ³ D21s	AlphaRex ³ D21 astro	AlphaRex ³ D22 astro	AlphaRex ³ DY21	AlphaRex ³ DY22
Nominal voltage	230 V 50/60 Hz						
Number of modules of 17.5 mm each	2	2	2	2	2	2	2
Number of channels	1	2	1	1	2	1	2
Switch output	1 changeover contact	2 changeover contacts	1 changeover contact	1 changeover contact	2 changeover contacts	1 changeover contact	2 changeover contacts
Zero-crossing switching	✓	✓	✓	✓	✓	✓	✓
Switching capacity							
• Ohmic 250 V± cos φ = 1	16 A ±	16 A ±	16 A ±	16 A ±	16 A ±	16 A ±	16 A ±
• Inductive 230 V± cos φ = 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"

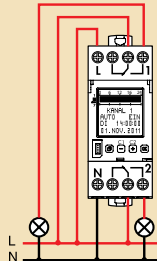
²⁾ Can be set to mains-synchronous operation

■ Connection diagram

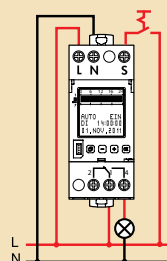
AlphaRex³ D21



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
- 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]

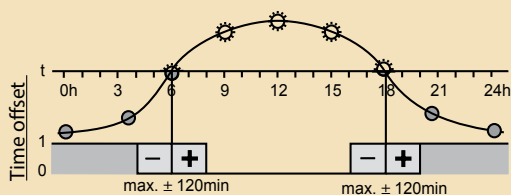
The sunrise/sunset times, which change daily, are calculated for the location programmed in the AlphaRex. The unit is delivered with the location set to "GERMANY – SOEST" by default. Enter the actual location for optimal operation. This can be done in two ways. Select "MENU", "SET" and "ASTRO" to access 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 arcminutes²⁾ (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.

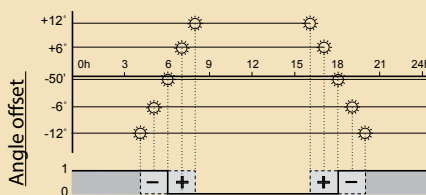
In angle offset²⁾, a value can be entered in degrees and arcminutes to shift the switch time by up to +/- 12° 00' relative to the sunrise/sunset times. The time differentials are set separately for sunrise and sunset using the menu items "SUNSET" (opens the screen for setting the sunset offset) and "SUNRISE" (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 function²⁾

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

AlphaRex ³ digital time switches

■ 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 command.

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.

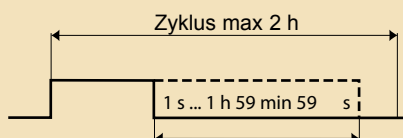
Pulse function

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

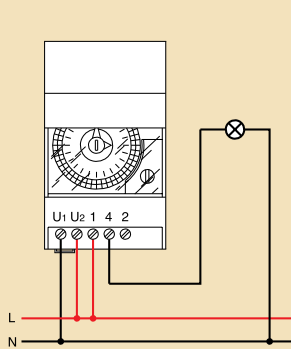
daily/weekly time switches

Technical specifications

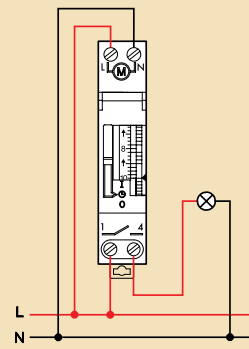
Type	MicroRex T31	MicroRex QT31	MicroRex W31	MicroRex QT11	MicroRex QW11
Number of modules of 17.5 mm each	3	1			
Number of channels	1	1	1	1	1
Drive type	synchronous	quartz	synchronous	quartz	quartz
Switching dial	24 h	24 h	7 days	24 h	7 days
Running reserve	none	100 h	none	100 h	100 h
Switching increment	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
Switching capacity	synchronised				
• Ohmic 230 V± cos φ = 1	16 A ±				
• Incandescent lamp 230 V±	4 A ±				
• Inductive 230 V± cos φ = 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

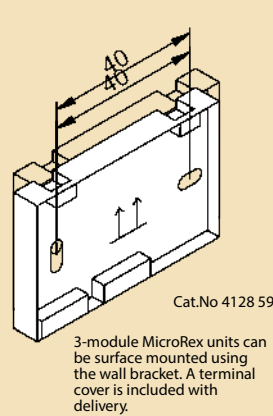
MicroRex - 3 modules



MicroRex - 1 module

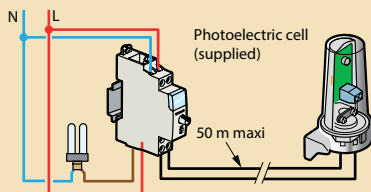


Wall bracket - 3 modules



Standard light sensitive switch (Cat.No 4126 23)

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

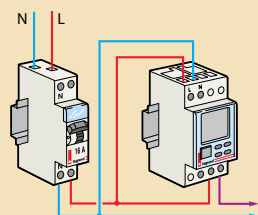


programmable time switches

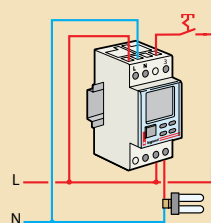
with analogue and digital dial

■ Diagrams

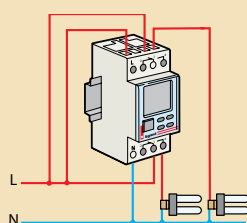
Cat.No 4126 31



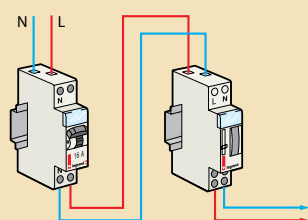
Cat.Nos 4126 54/34/29



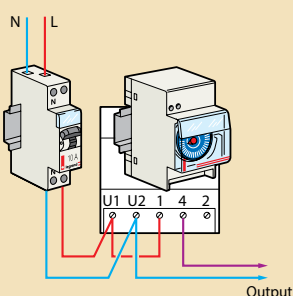
Cat.Nos 4126 57/41/30



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