legrand

Programmable time switches
with digital display

0 037 05   4 126 31   4 126 30   0 047 70
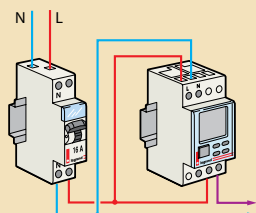
📱 Dimensions **see e-catalogue**

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	
		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	
1	0 037 05 🌱	**Power supply 120/230 V∿ - 50/60 Hz**
1 output 16 A - 250 V∿
μ cos φ = 1 per 1 inverter contact
Low consumption: 0.1 W	Number of modules: 1
		Multiple functions - daily or weekly programme - 5 years clock working reserve	
		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	
1	4 126 31 🌱	**Power supply 230 V∿ - 50/60 Hz**
1 output 16 A - 250 V∿
56 programmes
μ cos φ = 1 per 1 inverter contact	Number of modules: 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	2
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	
		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	
1	4 126 30 🌱	**Power supply 230 V∿ - 50/60 Hz**
2 outputs - 230 V∿ - 50/60 Hz
Astronomical function
2 x 3 x 28 = 168 programmes	Number of modules: 2
		4 outputs multiple functions annual programme - 5 years clock working reserve	
		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	
1	0 047 70 🌱	**Annual programme**
4 outputs - 120/230 V∿ - 50/60 Hz
Astronomical function	Number of modules: 6
1	0 047 82	**Battery**
Working reserve 5 years for Cat.No 0 047 70	
		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)	
		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
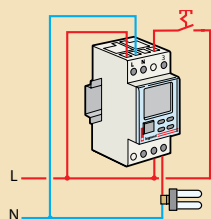Windows XP, Windows 7, Windows 8 compatible	

programmable time switches
with analogue and digital dial

■ **Diagrams**

Cat.No 4126 31

N   L

Cat.Nos 4126 54/34/29

L

N

Cat.Nos 4126 57/41/30

L

N

Cat.Nos 4127 90/94

N   L

Cat.Nos 4128 12/13/14

N   L

U1 U2 1   4   2

Output

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± $\cos\phi$ = 1	16 A ±	16 A ±	16 A ±	16 A ±	16 A ±	16 A ±	16 A ±
• Inductive 230 V± $\cos\phi$ = 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 ℃						
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"

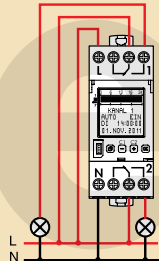[2] Can be set to mains-synchronous operation
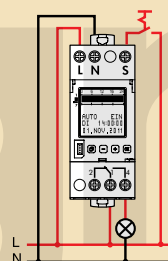
■ Connection diagram

AlphaRex³ D21
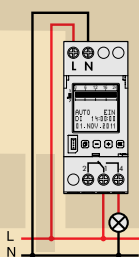
AlphaRex³ D22
AlphaRex³ D22 astro
AlphaRex³ DY22

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).
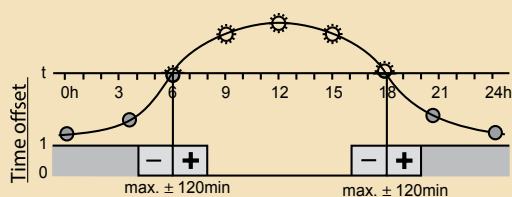
Example:
For a time differential of +30 min, the time switch switches 30 min. after sunrise and 30 min. after sunset.
For a time differential of -30 min, the time switch switches 30 min. before sunrise and 30 min. before sunset.
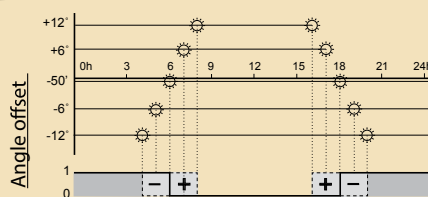
Note:
If the offset is set in degrees, the time switch always switches at points when the brightness is the same, despite the fact that the twilight duration changes over the course of the year. Sunrise and sunset correspond to -50' for the centre of the sun (the edge of the sun is visible on the horizon).

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 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

Zyklus max 2 h

1 s ... 1 h 59 min 59 s
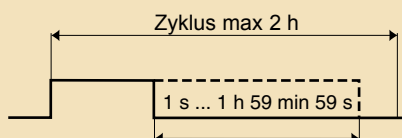
Random function
If the random function is activated, set switch times are randomly shifted within a range of +/- 15 minutes.

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

■ 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				

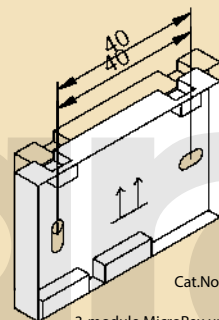## ■ Connection diagram

MicroRex - 3 modules
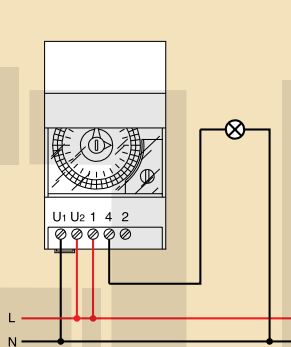
MicroRex - 1 module
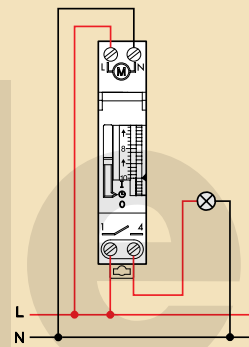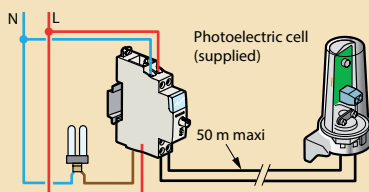

Wall bracket - 3 modules

Cat.No 4128 59

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

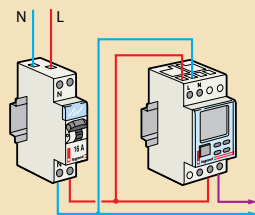## ■ Standard light sensitive switch (Cat.No 4126 23)

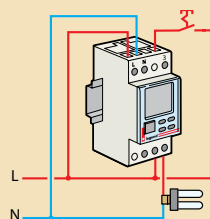Switch "ON" and "OFF" defined by a light level threshold

Photoelectric cell (supplied)

50 m maxi

L: legrand ®

programmable time switches
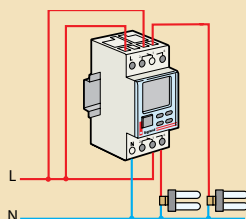**with analogue and digital dial**

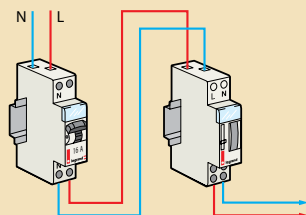■ **Diagrams**

Cat.No 4126 31
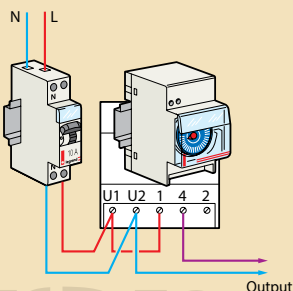

Cat.Nos 4126 54/34/29

Cat.Nos 4126 57/41/30

Cat.Nos 4127 90/94

Cat.Nos 4128 12/13/14

Output

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