WEEKLY ASTRONOMICAL
TWILIGHT SWITCH WITH PROBE

DWTL1

User Manual

ABB

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English

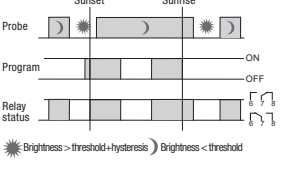
English

USER MANUAL

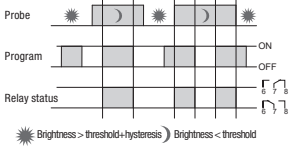
Digital electronic switch with astronomical function and with external luminosity probe particularly indicated for the management of lighting systems, luminous signs, etc.

Code	Model	Description
2CSM222491R1000	DWTL1	Digital weekly astronomical twilight switch with probe
2CSM222481R1000	DWS	External light sensor (Probe)

The device can be configured as "astronomical with probe" switch or as "programmable twilight switch". The configuration occurs with the creation of the first program (by selecting the ASTRO or TIMELY programs).
The following charts show the operation in both cases.



Astronomical operation during the night and with daytime switching on thanks to the twilight probe if the brightness falls below the threshold.



Programmable twilight operation with switching on when the brightness falls below the threshold and only if the programming requires it.

TECHNICAL FEATURES

- Power supply: 230 Vac (-15% ÷ +10%) 50/60 Hz
- Power consumption: 3.5 VA (1W)
- Output: 1 monostable relay with change-over contact from 16 (10) A / 250 Vac
- Parameters of the twilight probe:
  - threshold: 3 ÷ 500 lux
  - hysteresis: 1 ÷ 50 lux
  - delay: 1 second ÷ 30 minutes
- Minimum interval for nighttime switchings off: 30 minutes
- Summer/winter time automatic update (removable)
- Active backlighting of the display with mains power
- Replaceable backup battery of CR2032 type (duration: approx. 5 years)
- Terminals for cables with maximum cables section of 2.5 mm2
- Storable programs: 120
- Operating temperature: -20 ÷ +50 °C
- Storage temperature: +10 ÷ +70 °C
- Operating humidity: 20÷90% non condensing
- Container: 2 DIN modules
- Protection degree: IP20
- Insulation: reinforced between accessible parts (front) and all the other terminals

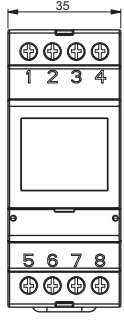
English

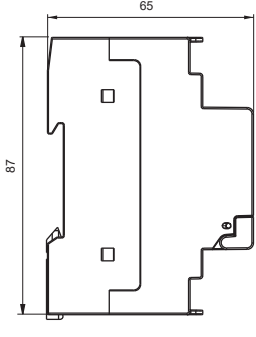
SAFETY WARNINGS

■ ***During product installation and operation it is necessary to observe the following instructions:***

1) The instrument must be installed by a qualified person, strictly in observance of the connection diagrams shown in this manual.
2) After installation inaccessibility to the terminals without using dedicated tools must be guaranteed.
3) Before accessing the connection terminals, make sure that the leads are not live.
4) Do not connect or feed the instrument if any part of it is damaged.
5) The product must be installed and activated in compliance with current electric systems standards.
6) Do not use the instrument for anything other than the indicated purpose.
7) In the electrical system upstream of the device must be installed a protection device against the overcurrents
8) The product can be used in environments with overvoltage Category III and Pollution degree 2, according to the Standard EN 60730-1

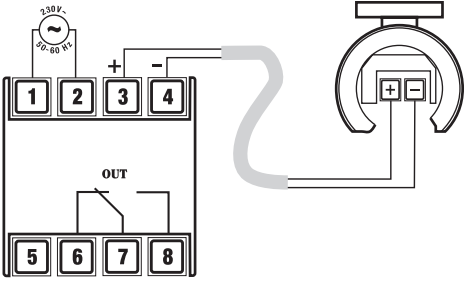
DIMENSIONS (mm)



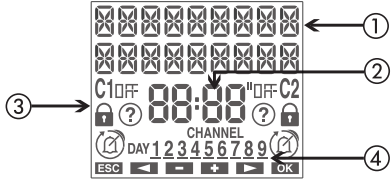


WIRING DIAGRAMS

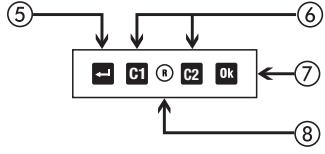
DWTL1



DISPLAY AND KEYBOARD DESCRIPTION



① General indications
② Time indication
③ Channel 1
On / OFF
: active manual program
+ : blocked switchings
+ : active random switchings
+ On / OFF (flashing) : active cycle switchings
: active holiday program
: active pulse program
④ Day of the week (DAY) indication



⑤ Turn on the display
Access the menu
ESC (one level back)
⑥ **"C1"**: decrease datum/previous menu/ switching channel 1/ lock channel 1
"C2": increase datum/next menu
⑦ Confirm selection
⑧ Hardware reset

"Ok" + **"C1"** (3 sec): active random switching on channel 1

"↵" + **"C1"** (3 sec): active cycle switching on channel 1

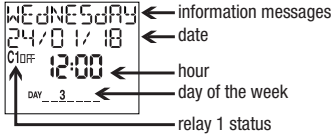
INITIAL OPERATION

- Once out of the package, DWTL1 is off: press the key ↵ and wait a moment before activating the display
- The set language is English. To change it, press the key ↵ for at least 3 seconds. Choose among: German, English, Spanish, French, Italian, Russian and confirm with Ok.
- Make connections following the diagrams on page 5 of this manual
- Power DWTL1: the backlighting turns on permanently.
- The presence of the backup battery allows the DWTL1 to have updated date and time. To make the other settings follow the following steps:

Date	- format: DD/MM/YY - 1st day of the week: Monday
Astronomical coordinates	- country: Italy - city: Agrigento - latitude: North (37° 19' 12") - longitude: East (13° 34' 12")
Daylight Saving time (DST) change: active	- start of daylight saving time (DST): last Sunday of March at 02:00 o'clock - end of daylight saving time (DST): last Sunday of October at 03:00 o'clock
Time correction:	- sunrise: +0:00 - sunset: +0:00
Time zone:	+1:00 UTC
Parameters of the twilight probe:	- threshold: 100 lux - hysteresis: 10 lux - delay: 1 second
Random switchings:	- minimum: 1 minute - maximum: 5 minutes
Cycle switchings:	- ON duration: 1 minute - OFF duration: 1 minute
PIN protection:	disabled (---)
Bluetooth:	disabled (Password: 000000)

English

START PAGE (or main)



Information messages
- day of the week
- product identification code and serial number
- battery status (only if discharged)
- NO RELAY *

* Only if DWTL1 is not powered by mains.
In this condition the backlighting is not active and the relay is in off status.

NOTE: Bluetooth interface is active only when DWTL1 displays the start page (main) and only if it's mains power supplied. Therefore, to transfer programs from and to the times witch it is necessary to respect these conditions.

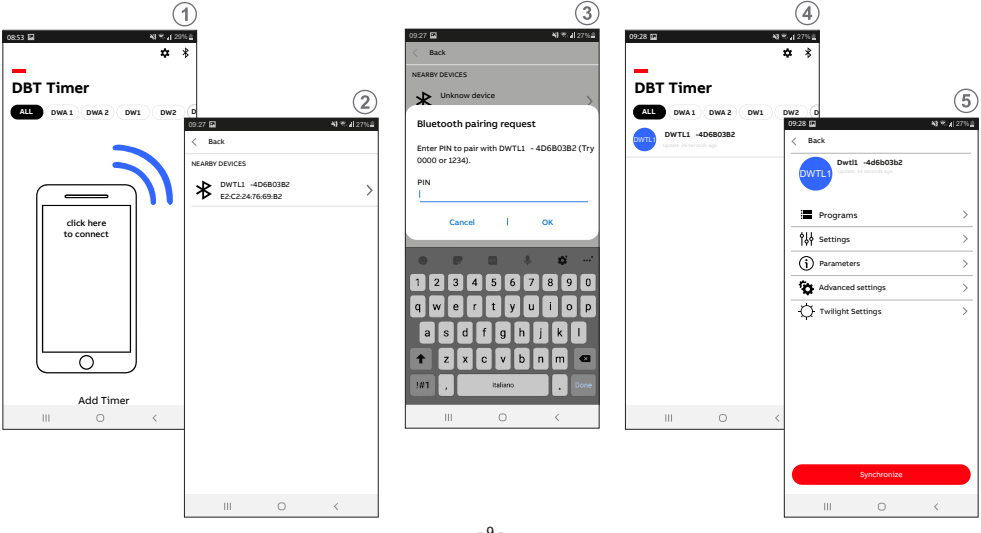
- Press the key:

↵ to access the menu of DWTL1
C1 and C2 to change channel 1
Ok to display the Bluetooth signal level or the calculated sunrise and sunset times**

** The displayed times take into account possible entered values of correction (see page 18) if the display shows _ _ _ _ means that the calculated sunrise time is after the sunset time if the display show _ _ _ _ means that the calculated sunrise time is before 00:00 or that the calculated sunset is at 23:59.

NOTE: The device is supplied with deactivated Bluetooth interface. To activate it, access Bluetooth menu (see page 47).

Access the store of your device, install and start the free app DBT TIMER



English

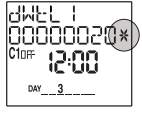
① Activate Bluetooth on DWTL1 device (see page 47).

② At the start the app displays the list of the associated DWTL1 device.
To associate a new device, press the symbol " ✱ " in the upper right corner.

③ All the Bluetooth devices detected nearby are displayed: select the device to be associated from the list.
Note: each device is identified by the product code (for example DWTL1) and by the serial number (for example 00000020).
These informations can be viewed from the main page of the DWTL1.
Warning: make sure that the DWTL1 is mains powered, Bluetooth interface and that the display shows the main page (initial).
Otherwise the Bluetooth interface is not active and the device is not visible.

④ Enter the password to associate the DWTL1 with your device.

⑤ After successfully completing the procedure, the DWTL1 is added in the list of the associated devices.
Select the DWTL1 on which you want to act from the list of the associated devices.
Note: communication between the app and the DWTL1 is point-to-point. This means that,
even in the presence of multiple DWTL1, the app can communicate with one only at a time.
The DWTL1 currently connected to the app displays the symbol * immediately after the serial number.



⑥ The app displays the initial page of the selected DWTL1. From this page you can:
a. Create new programs that will then be copied to the DWTL1
b. Change the settings of the DWTL1
c. View the parameters and associate an alias to the DWTL1
d. Manually control the relay output and activate the random switching function or cycle function.

MANUAL SWITCHING

To manually take action on the channel of DWTL1 astronomical twilight switch (activated with the combination described on page 6), carry out the operations described below:

① SWITCHING CHANNEL: press the key **C1**. If on becomes off and vice versa.
temporary **on** : the channel is set **on** until the next programmed **off** event
temporary **off** : the channel is set **off** until the next programmed **on** event

② LOCK CHANNEL: press for a long time (for 3 seconds at least) the key **C1**. The current state is locked until the unlocking (press again for a long time the key **C1**).
permanent **on** the channel is locked in **on** position until the manual unlocking
permanent **off** the channel is locked in **off** position until the manual unlocking

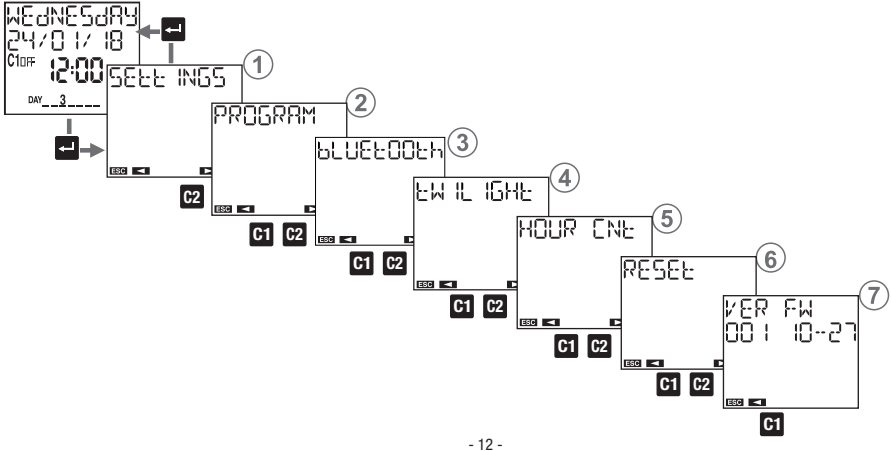
③ RANDOM SWITCHING: press contemporary and for a long time (for 3 seconds at least) the key **Ok** and **C1**
Press again simultaneously and for a long time the keys **Ok** and **C1** to disable the function.
random : the channel is set on and then will take place switching on/off at random intervals (the minimum and maximum interval can be set from "Settings → random" menu)

④ CYCLE SWITCHING: press contemporary and for a long time (for 3 seconds at least) the keys ↵ and **C1**.
Press again simultaneously and for a long time the key ↵ and **C1** to disable the function.
cycle (flashing): the selected channel is set **on** and then will take place switching **on/off** (the on and off duration can be set from "Settings → cycle" menu).

English

MENU DESCRIPTION

Press the key ↵ to access the menu



① **“Settings”** menu allows you to change: language, date, time, daylight saving time (DST), astronomical coordinates, minimum and maximum duration of the interval between two switchings with random program, ON and OFF duration of cycle switchings, PIN for keyboard lock.

② **“Programming”** menu allows you to set a new program or to check, to modify or to delete a set program.

③ **“Bluetooth”** menu allows you to configure the Bluetooth communication interface.

④ **“Twilight”** menu allows to set the operating parameters of the external probe.

⑤ **“Hour counter”** menu allows you to check the operation hours (relay on) of the loads connected to the relays.

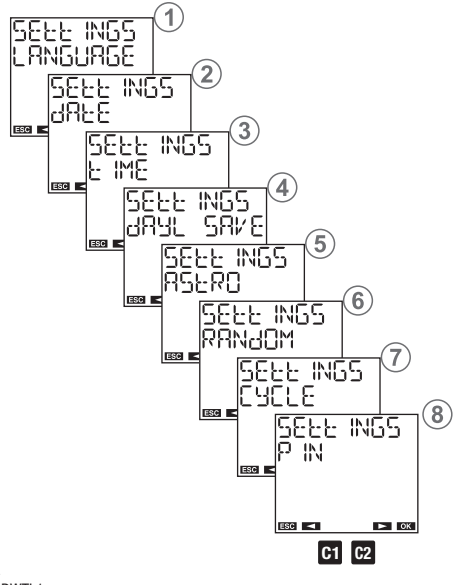
⑥ **“Reset”** menu allows you to reset settings, programmed settings, operating hour counter.

⑦ **“Ver FW”** menu allows you to check the firmware version installed on the device.

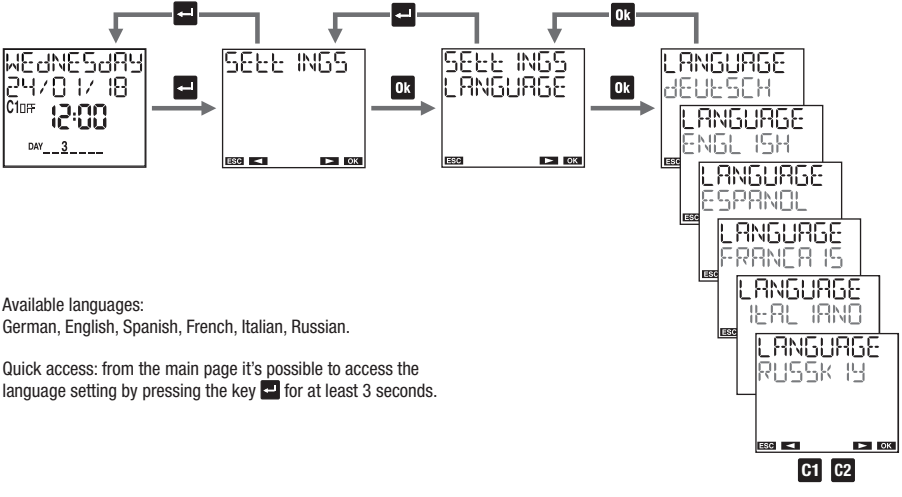
SETTINGS MENU

"Settings" menu allows you to view and eventually to modify the the general operation settings of DWTL1, such as:

① language
② date
③ time
④ automatic daylight saving time (DST) change
⑤ position (astronomical coordinates)
⑥ interval duration between two random switchings
⑦ ON and OFF time duration for cycle switchings
⑧ keys protection by PIN



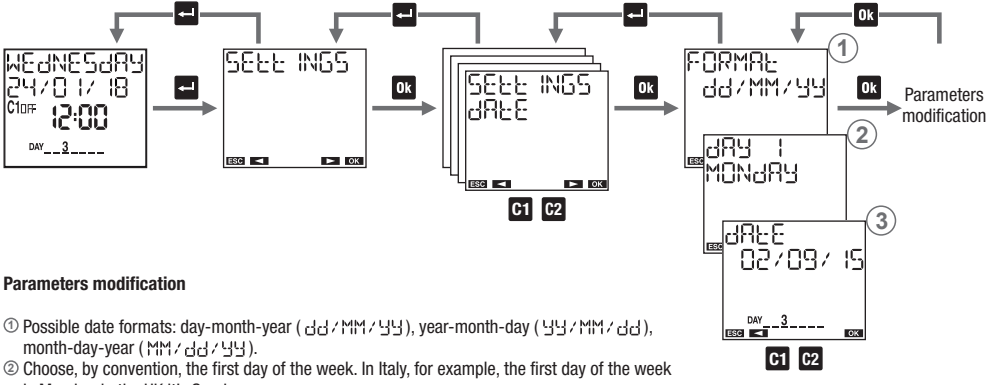
Language setting menu



Available languages:
German, English, Spanish, French, Italian, Russian.

Quick access: from the main page it's possible to access the language setting by pressing the key ↵ for at least 3 seconds.

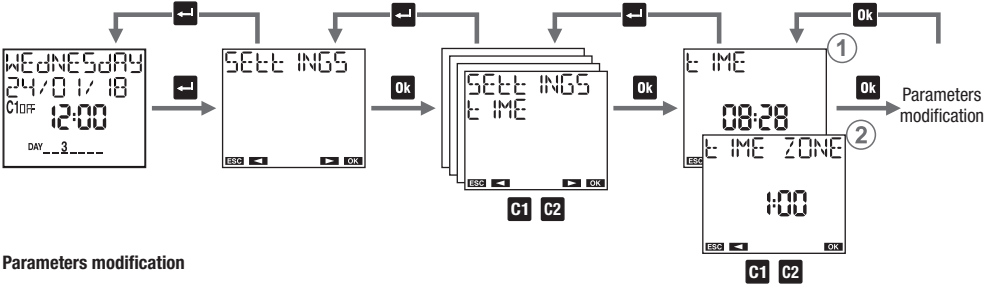
Date setting menu



Parameters modification

① Possible date formats: day-month-year (dd/MM/YY), year-month-day (YY/MM/dd), month-day-year (MM/dd/YY).
② Choose, by convention, the first day of the week. In Italy, for example, the first day of the week is Monday, in the UK it's Sunday.
③ Enter the date: day, month, year.

Time setting menu



Parameters modification

① Set the time: hours, minutes.
② Set the time zone. Range: -14:00 ÷ +14:00 at 15 minutes steps.
For Italy set +1:00.

English

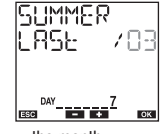
Daylight saving time (DST)/winter time (CET) change setting menu

Daylight saving time (DST)/winter time(CET) change and vice versa can occur in an automatic way. In this case, DWTL1:
- increases by an hour in the passage from winter time (CET) to daylight saving time (DST)
- decreases by an hour in the passage from daylight saving time (DST) to winter time (CET)

For every change it's necessary to specify:

the week of the month during which the time change occurs (first, second, third, fourth, last)

the day of the week (Monday: 1, Tuesday: 2, ...)

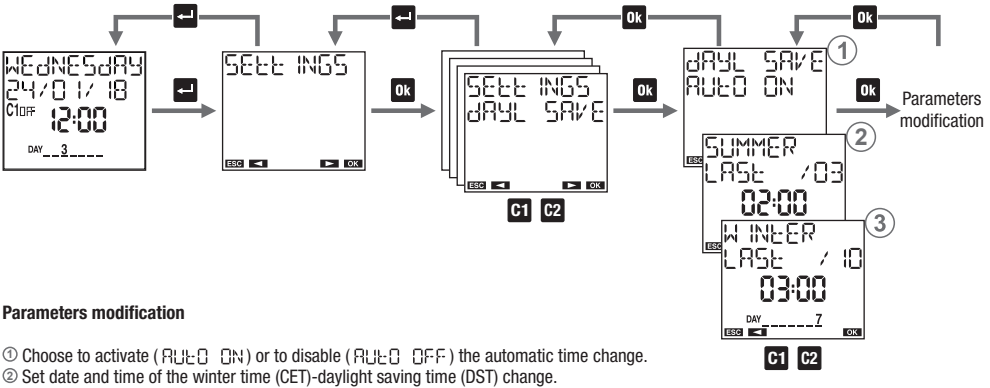


the month

the hour and the minutes

In Italy,for example, daylight saving time (DST) begins occurs the last (LAST) Sunday (**7**) of March (03) at 02:00 o'clock, and ends the last (LAST) Sunday (**7**) of October (10) at 03:00 o'clock.

English



Parameters modification

① Choose to activate (AUtO ON) or to disable (AUtO OFF) the automatic time change.
② Set date and time of the winter time (CET)-daylight saving time (DST) change.
③ Set date and time of the daylight saving time (DST)-winter time (CET) change.

English

Astronomical coordinates setting menu

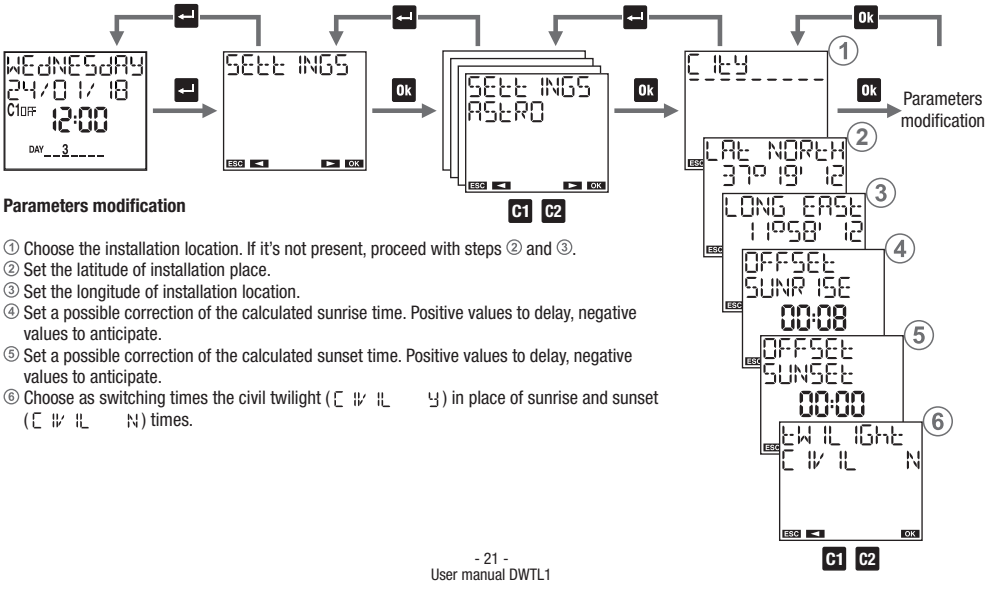
The setting of the geographical coordinates of the installation place allows DWTL1 to calculate, for each day of the year, sunrise and sunset times.
To simplify the procedure, in the DWTL1 are stored the coordinates of the locations listed below; if your location is among them you can select it from the menu ①, otherwise it's necessary to enter the coordinates of latitude and longitude (menu ② ③).

Note: the display on point ① shows "---------" if the coordinates have been entered.

Location stored in DWTL1: Major cities of France, Germany, Italy, Russia, Spain, United Kingdom
and some other major cities in the rest of the world

The correction of sunrise and sunset times is useful for applications that require the turning on of lights in particular localities. It's possible, in fact, that the presence of disturbing elements, such as the mountains, can influence actual times of sunrise and sunset, making it necessary to advance or delay of a few minutes the calculated times.

The twilight is the time interval before sunrise, or after sunset, characterized by the permanence of the light due to the spread by the atmosphere of the Sun light. During these time intervals it's possible to distinguish clearly objects and conduct outdoor activities without using additional lighting. Therefore, in some applications it is more interesting to take as times of switching on and off the twilight (civil) in place of sunrise and sunset. With DWTL1 it's possible to choose to turn on/off the loads depending on the times of sunrise and sunset or the civil twilight. The calculated time correction also applies to the times of twilight. To view the calculated switching on time (sunset) and switching off time (sunrise), from the main page press the key Ok (see page 8).

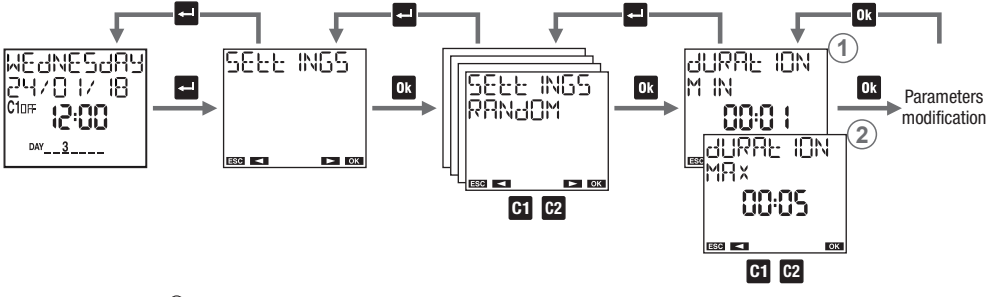


Parameters modification

① Choose the installation location. If it's not present, proceed with steps ② and ③.
② Set the latitude of installation place.
③ Set the longitude of installation location.
④ Set a possible correction of the calculated sunrise time. Positive values to delay, negative values to anticipate.
⑤ Set a possible correction of the calculated sunset time. Positive values to delay, negative values to anticipate.
⑥ Choose as switching times the civil twilight (C IV IL Y) in place of sunrise and sunset (C IV IL N) times.

English

Random switchings setting menu

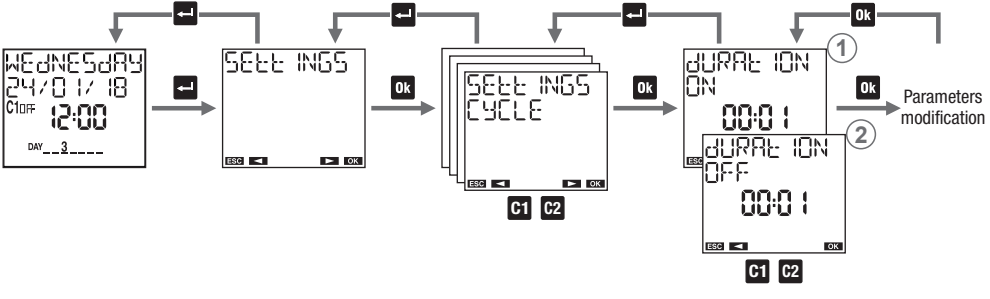


The "random switching ⑦" function (activated with the combination described on page 6) allows the channel on which it's active to automatically switch and at random time intervals.
In this menu it's possible to define the minimum and maximum duration of the time interval between two random switchings. Default minimum duration is 1 minute, maximum duration is 5 minutes.

Parameters modification

① Set the minimum duration. It's possible to set values between 1 minute and the *maximum duration.*
② Set the maximum duration. It's possible to set values between the *minimum duration* and 23:59 hours.
Note: setting the minimum duration equal to the maximum, the switchings will occur at fixed time intervals.

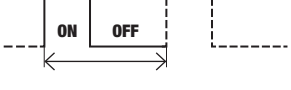
Cycle switchings setting menu



The “cycle switching” function (activated with the combination described on page 6) is a succession of on and off switching.
The cycle programme always starts from the on status. In this menu it’s possible to define the duration of on and off.
The duration of the on and off duration cannot be less than one minute.
Default on duration: 1minute, OFF duration: 1 minute

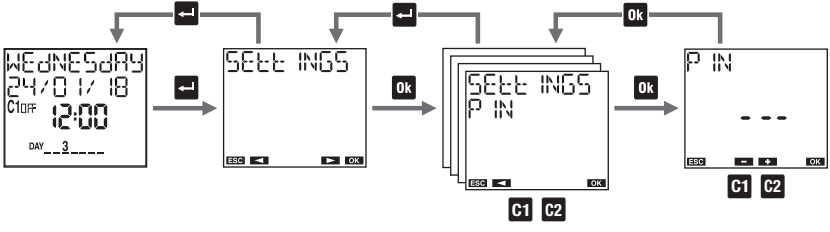
Parameters modification

① Set the ON duration. It’s possible to set values between 1 minute and 99:59 hours.
② Set the OFF duration. It’s possible to set values between 1 minute and 99:59 hours.



English

Protection PIN setting menu



The protection code (PIN) is used to lock the keyboard and prevent changes by unauthorized persons. With active PIN protection, pressing any key, it's necessary to enter the PIN: if PIN is correct the keyboard unlocks; after 3 minutes without pressing a key, the keyboard will lock automatically.

To activate PIN protection:
- set a value between 000 and 999

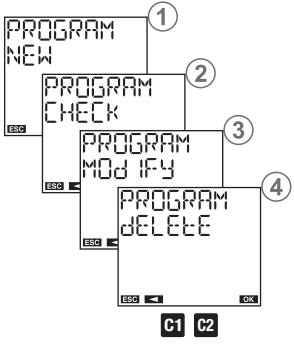
To disable PIN protection:
- set "**---**" (located before 000 or after 999)

Note: If you have forgotten your PIN code to unlock DWTL1 it's necessary to carry out a hardware reset (see page 52).

PROGRAM MENU

The menu “program” allows you to:
① create a new program
② check created programs
③ change or delete a created program
④ delete all programs of a channel

Attention: the device leaves the factory configured as “astronomical with probe” and the set program 1.
If you need the “programmable twilight” function, you need to delete the stored program before proceeding with the creation of the time program.
Otherwise the error message ERROR 012 is shown.



English

Programs types

- ON/OFF program: it consists of a relay switching to ON and one subsequent switching of the relay to OFF. It can have daily period (all days in the same way), weekly (all weeks in the same way)
- PULSE ON (OFF) program: it is a relay switching to ON (OFF) for a maximum duration of 59 seconds. It can have daily period (all days in the same way) or weekly (all weeks in the same way).
- HOLIDAYS program: it is a period of time delimited by a beginning time and by an end within which all the programmed switchings (of that channel) are disabled. The relay remains in the OFF position (holiday OFF) or in ON position (ON holiday)
- NIGHT program: program (1, 2, ... 5) running from sunset to dawn

* times of sunrise and sunset are automatically calculated by DWTL1 according to geographic coordinates set during installation. In place of sunrise and sunset times it's possible to use the times of civil twilight (see page 18).

⚠ **Important:** when an astro program is stored in the device, it is not possible to create time programs.
Likewise if in the device is stored a time program, it is not possible to create astro programs.
In the event that different programs are running at the same time, the device executes the one with the highest priority.
The priority (from the highest) is the following: holidays, night, pulse, on/off.

⚠ **Important:** pulses ON and pulses OFF can not coexist (if an ON pulse is already present, it is not possible to save an OFF pulse and vice versa). Likewise, ON holidays and OFF holidays programs can not coexist.

Programs priority

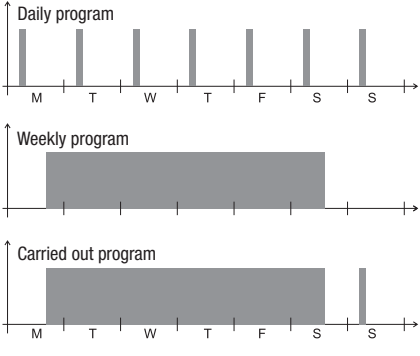
The priority programs defines how DWTL1 manages the case in which programs with different period are running at the same time (1 indicates higher priority).

Program	Date*	Weekly	Daily
Holiday	1		
Pulse		2	
On/Off		3	4

* Date: select day, month, year (program carried "only once in the life of the product"). If the month is not specified, the program is carried out all days *xx* of all months of the specified year.

Program priority on/off

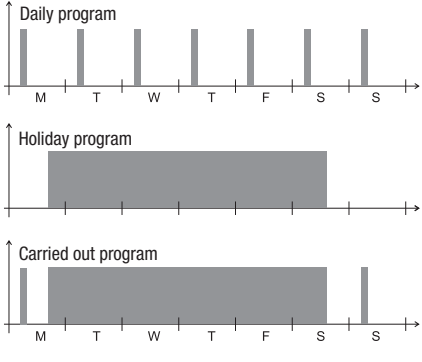
In case in which, on the same channel, on/off programs are provided with different period (daily or weekly) to carry out in the same day, only the program with the highest priority is executed.



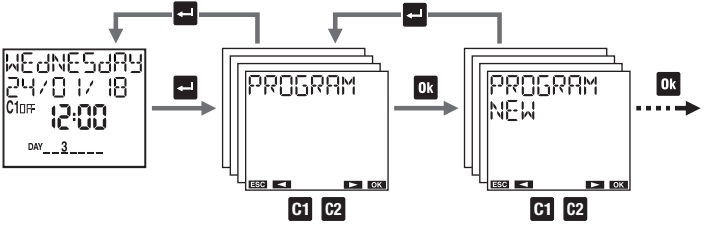
From this example it's possible to see that the daily event on Monday is not carried out because in the same day it is provided the beginning of the week program (even if the daily program of Monday begins and ends before the beginning of the weekly program). Instead, the daily program of Sunday is carried out because it's the only one running for that day.

Holiday program

The holiday program just begins and ends exactly at the specified times.



Program menu: new

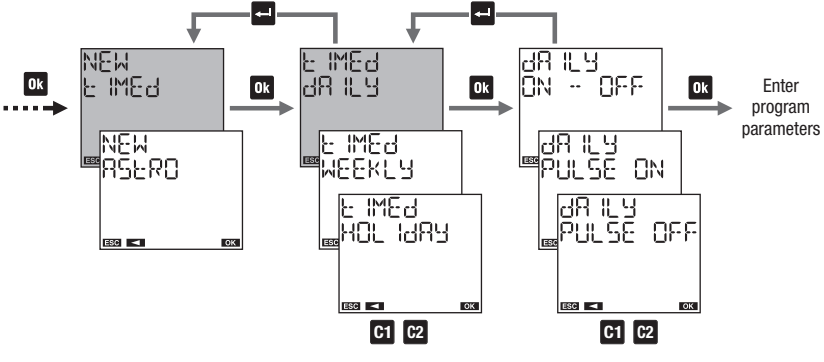


Select days

scroll through the days of the week from 1 to 7:

- by pressing the key **C2** to move to the next day without selecting the current day
- by pressing the key **Ok** to select/deselect the current day and move to the next

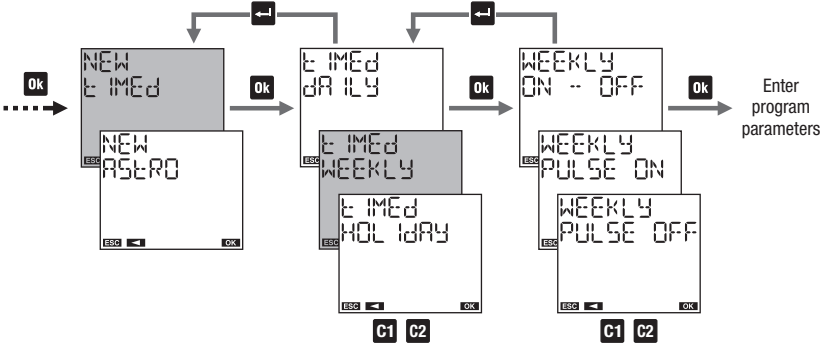
Program menu: new daily time



Program parameters

- on/off: on time and off time
- on pulse: time and pulse duration (max 59 seconds)
- off pulse: time and pulse duration (max 59 seconds)

Program menu: new weekly time

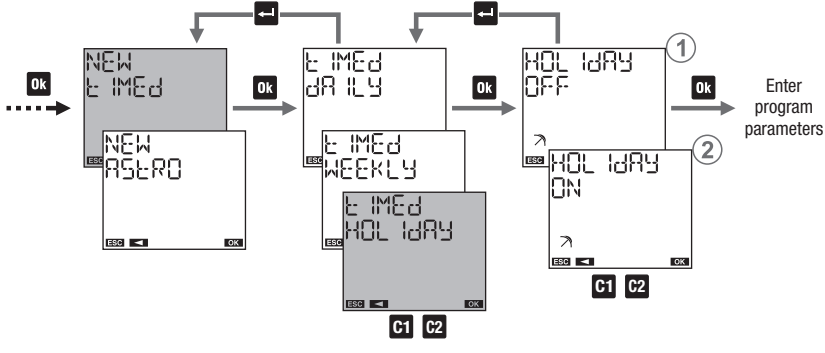


Program parameters

- on/off: day (or days)* and on time, day (or days) and off time
- on pulse: day (or days)* and pulse time, pulse duration (max 59 seconds)
- off pulse: day (or days)* and pulse time, pulse duration (max 59 seconds)

* *See "Select days" on page 27*

Program menu: new holiday time



① HOLIDAY OFF: the relay is OFF from the beginning to the end of Holiday program
② HOLIDAY ON: the relay is ON from the beginning to the end of Holiday program

Program parameters

- beginning of the program
- end of the program

How to choose the day (or days) in a holiday program

(1) to set the program:

in the first, second, third, fourth or last week of the month
in / the day/s (Monday, ...) of the week just specified
the specified month (MM for all months)
the given year (YY for all years)

Nota: in this case, the holiday program must begin and end in the same day. Otherwise ERROR 010 is signaled.

(2) to set the program on the last day:

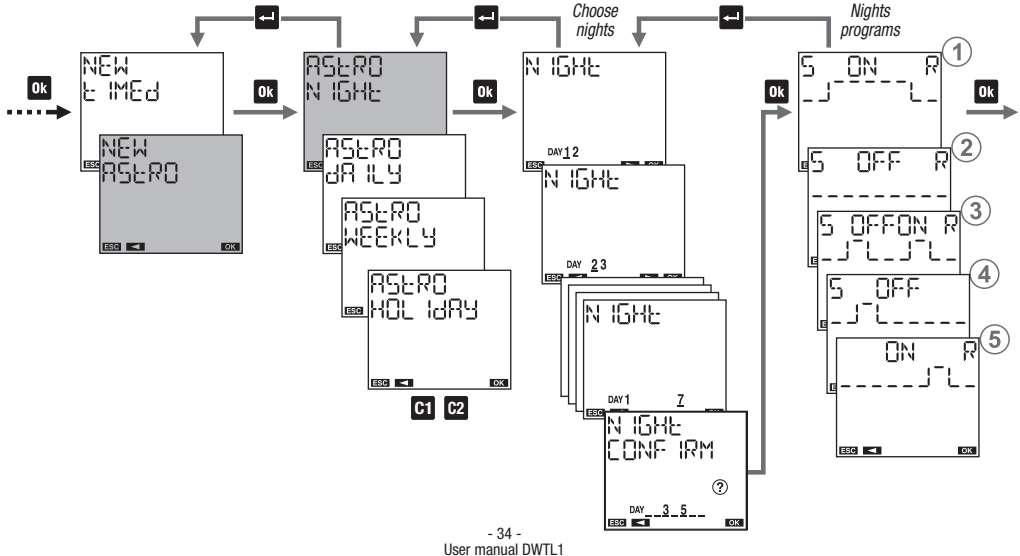
---/MM/YY of all months of all years
---/VV/YY of the specified VV month of all years
---/MM/ZZ of all months of the specified ZZ year
---/VV/ZZ of the specified VV month of the specified ZZ year

(3) to set the program on the day XX (1,2,3...):

xx/MM/YY of all months of all years
xx/VV/YY of the specified VV month of all years
xx/MM/ZZ of all months of the specified ZZ year
xx/VV/ZZ of the specified VV month of the specified ZZ year

English

Program menu: new night astro



How to select nights

scroll through the nights of the week from the first (1-2) to the last (7-1):

- by pressing the key C2 key to move to the next night without selecting the current night
- by pressing the key OK to select/deselect the current night and move to the next

How to interpret the selection

If the night between the days of A and B is selected, the day A is on and underlined while B is on (not underlined).
Examples of selection:

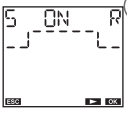
DAY 1 2 3 4 5 Selected nights: between day 1 and 2, between day 2 and 3, between day 3 and 4, between day 4 and 5

DAY 1 2 3 4 5 Selected nights: between day 1 and 2, between day 2 and 3, between day 4 and 5

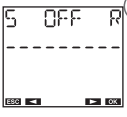
DAY 1 2 3 4 7 Selected nights: between day 1 and 2, between day 3 and 4, between day 7 and 1

English

Night programs



1 Turning on at sunset, turning off at sunrise.
No parameter required.



2 Off from sunset to sunrise.
No parameter required.

3 Turning on at sunset, turning off during the night. Turning on during the night, turning off at sunrise.
Choose one of the three following cases:

Ok

Turning on at sunset, turning off at a settable time.
Turning on at a settable time, turning off at sunrise. (*)

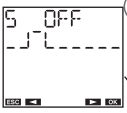
Turning on at sunset, turning off after a settable time interval.
Turning on before sunrise of a settable time interval, turning off at sunrise.

Turning on at sunset for a settable short duration (pulse, max 59 seconds).
Turning on at sunrise for a short settable duration (pulse, max 59 seconds).

* If off time is before sunset, switching is not carried out. If on time is after sunrise, switching is not carried out.

** Switching on continues for the entire set time interval (also if off time is after sunrise).

*** Switching on occurs before sunrise of the entire set time interval (also if on time is before sunset).



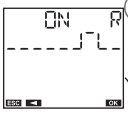
4 Turning on at sunset, turning off during the night.
Choose one of the 3 following cases:

Ok

Turning on at sunset, turning off at a settable time. (*)(**)

Turning on at sunset, turning off after a settable time interval. (**)

Turning on at sunset for a settable short duration (pulse, max 59 seconds).

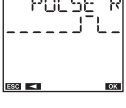


5 Turning on during the night, turning off at sunrise.
Choose one of the three following cases:

Ok

Turning on at a settable time, turning off at sunrise. (*)(***)

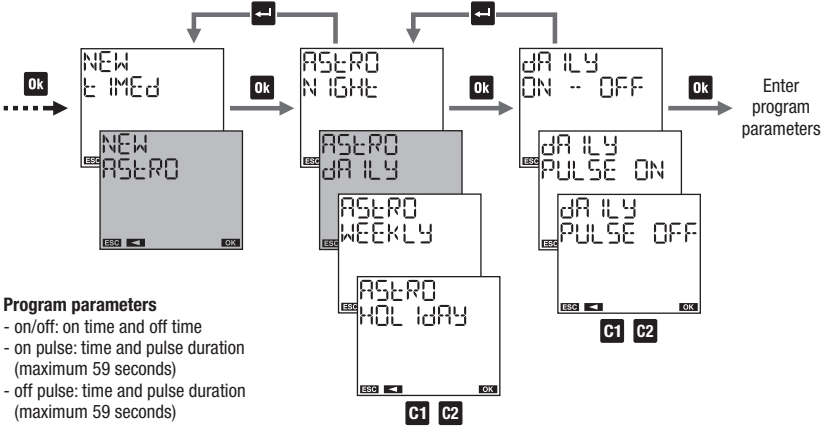
Turning on before sunrise of a settable time interval, turning off at sunrise. (***)



Turning on at sunrise for a settable short duration (pulse, max 59 seconds).

English

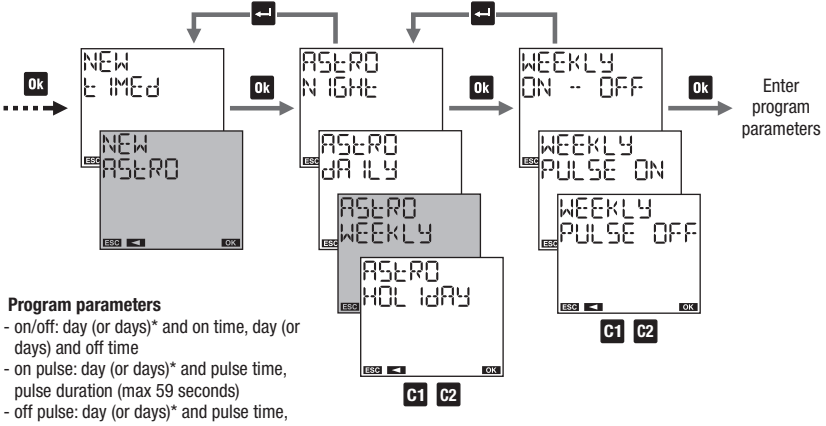
Program menu: new daily astro



Program parameters

- on/off: on time and off time
- on pulse: time and pulse duration (maximum 59 seconds)
- off pulse: time and pulse duration (maximum 59 seconds)

Program menu: new weekly astro

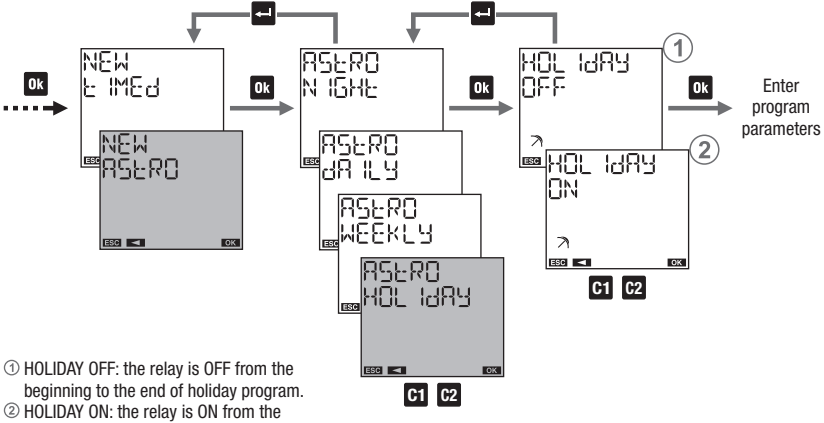


Program parameters

- on/off: day (or days)* and on time, day (or days) and off time
- on pulse: day (or days)* and pulse time, pulse duration (max 59 seconds)
- off pulse: day (or days)* and pulse time, pulse duration (max 59 seconds)

* *See "Select days" on page 27*

Program menu: new holiday astro

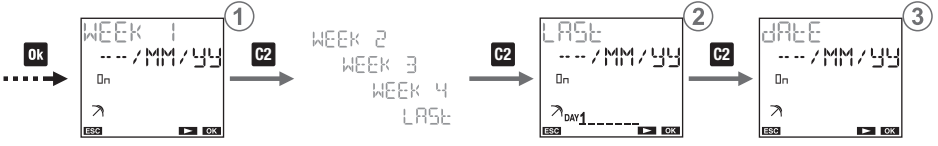


① HOLIDAY OFF: the relay is OFF from the beginning to the end of holiday program.
② HOLIDAY ON: the relay is ON from the beginning to the end of holiday program.

Program parameters

- beginning of the program
- end of the program

How to choose the day (or days) in a holiday astro program



(1) to set the program:

in the first, second, third, fourth or last week of the month
in / the day/s (Monday, ...) of the week just specified
the specified month (MM for all months)
the given year (YY for all years)

Note: in this case, the holiday program must begin and end in the same day. Otherwise ERROR 0 10 is signaled.

(2) to set the program on the last day:

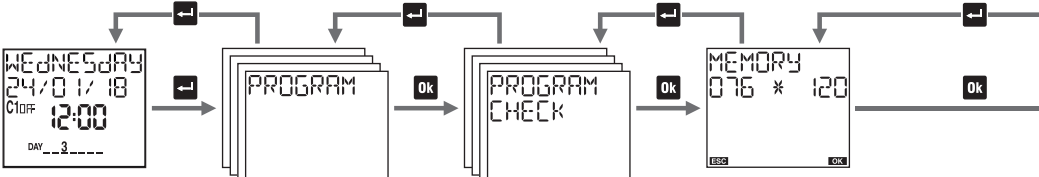
---/MM/YY of all months of all years
---/WW/YY of the specified WW month of all years
---/MM/ZZ of all months of the specified ZZ year
---/WW/ZZ of the specified WW month of the specified ZZ year

(3) to set the program on the day XX (1,2,3...):

xx/MM/YY of all months of all years
xx/WW/YY of the specified WW month of all years
xx/MM/ZZ of all months of the specified ZZ year
xx/WW/ZZ of the specified WW month of the specified ZZ year

English

Program menu: check

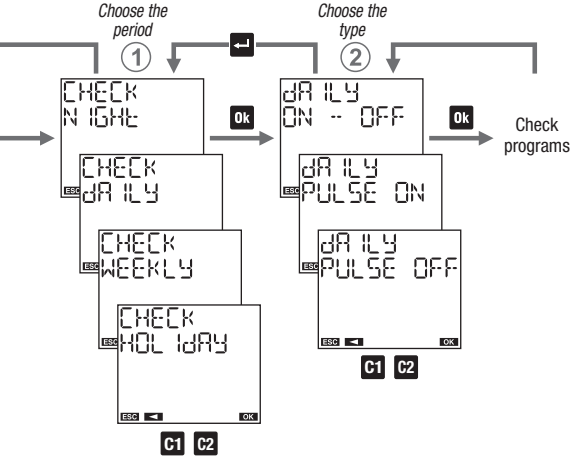


Indication of the memory space (76 of 120)

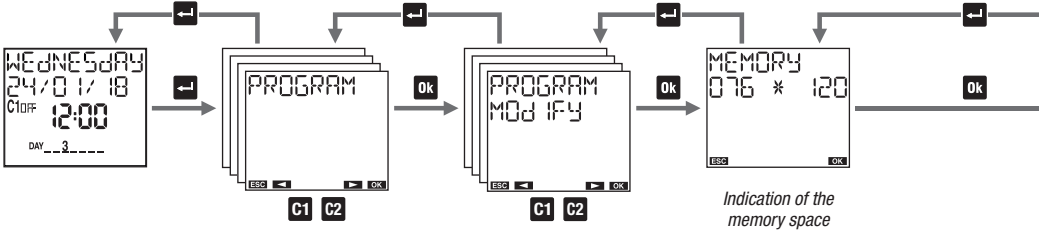
How to check a program

① Choose the period: daily, weekly, holiday or night
② Choose the type: on/off, on pulse, off pulse or a night program

Note: a program requires
more screens to be displayed:
- press the key **Ok** to move from the first to the second part of the same program
- press the keys **C1** and **C2** to switch from one program to another


Choose the period
1
Choose the type
2
CHECK NIGHt
Ok
dAILY ON - OFF
Ok
Check programs
CHECK dAILY
dAILY PULSE ON
CHECK WEEKLY
dAILY PULSE OFF
CHECK HOLIdAY
ESC
OK
C1 C2
C1 C2

Program menu: modify



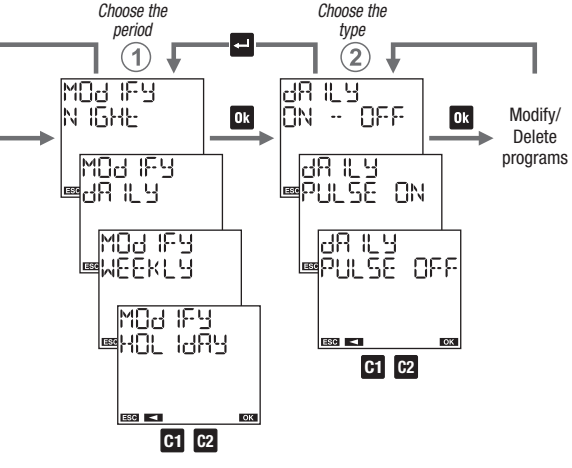
Indication of the memory space (76 of 120)

How to modify or to delete a program

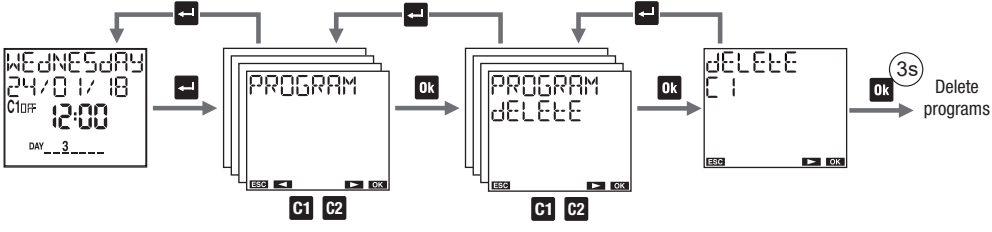
① Choose the period: daily, weekly, holiday or night
② Choose the type: on/off, on pulse, off pulse or a night program

Note: a program requires more screens to be displayed:
- press the key **Ok** to move from the first to the second part of the same program
- press the keys **C1** and **C2** to switch from one program to another

To modify: press for a long time (at least 3 seconds) the key **Ok**
To delete: press for a long time (at least 3 seconds) and simultaneously the keys **Ok** and ↵


Choose the period
1
Choose the type
2
MODIFY NIGHt
Ok
dAILY ON - OFF
Ok
Modify/ Delete programs
MODIFY dAILY
MODIFY WEEKLY
MODIFY HOLIdAY
dAILY PULSE ON
dAILY PULSE OFF
ESC
OK
C1 C2
C1 C2

Program menu: delete



"Delete" menu is used to delete all stored programs.
Note: to delete one single program see "modify" menu (see page 42).

BLUETOOTH MENU

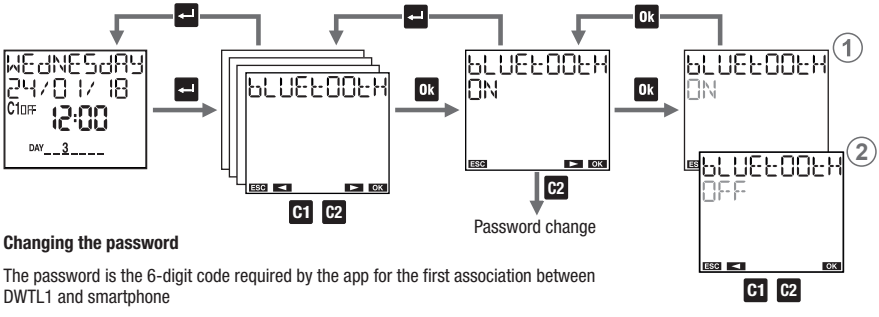
The Bluetooth menu allows you to enable or disable the Bluetooth interface and change the password used to associate your device (smartphone or tablet) to DWTL1.
The device is supplied with deactivated Bluetooth interface. To activate it, it's enough to access Bluetooth menu and set a password different from 000000. With Bluetooth menu it's possible to activate or deactivate the interface or change the password.
After changing the password the first time, it's not possible to set the value 000000.

To enable the Bluetooth interface:
① set Bluetooth ON

Warning: to make the Bluetooth interface active, the DWTL1 must be mains powered and connected to the main page (see page 8).
The Bluetooth interface is therefore not active when browsing through the DWTL1 menus.

To disable the Bluetooth interface:
② set Bluetooth OFF

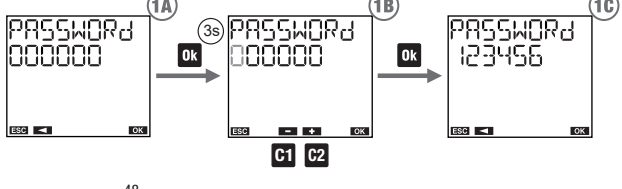
In this way no communication can take place between your device and DWTL1. DWTL1 works with the settings and programs already set; any changes or creation of new programs must be made by acting directly on the keyboard of DWTL1.



Changing the password

The password is the 6-digit code required by the app for the first association between DWTL1 and smartphone

1A Press the key **Ok** for at least 3 seconds until the first digit of the password starts to flash.
1B Set the first digit with the keys **C1** and **C2** keys and press the key **Ok** to confirm and move to the next digit.
1C Repeat step 1B to set all 6 digits.
After confirming the last digit, the display shows the new password.
Press the key ↵ to exit the menu.



TWILIGHT MENU

The “twilight” menu allows to set the operating parameters of the external probe, that is:

1. Intervention threshold: set a value between 3 lux and 500 lux (increase of 1 lux up to 100 lux, of 10 lux from 100 lux up to 200 lux, of 50 lux from 200 lux up to 500 lux), or tW IL IGHt ALWAYS ON, or tW IL IGHt ALWAYS OFF.

Set tW IL IGHt ALWAYS OFF (probe consent always denied) so that the load:
- in the case of twilight configuration never lights up
- in the case of an astronomical configuration only lights up during the night (according to the set astronomical program)

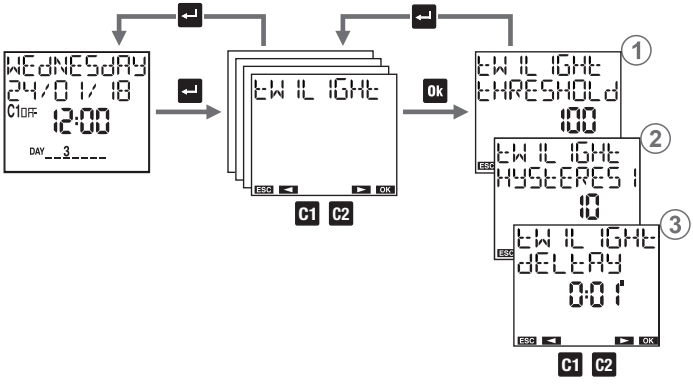
Set tW IL IGHt ALWAYS ON (permanent probe consent) so that the load:
- in the case of twilight configuration, lights up according to set program (daily or weekly)
- in the case of astronomical configuration lights up during the night (according to the set astronomical program) and is always on during the day

If the setting requires always on or always off, the screen ① shows --- instead of the threshold value.

2. Hysteresis: set a value between 1 lux and 50 lux. For the meaning of the hysteresis value, see the operating diagrams.

3. Switching delay: set a value between 1 second and 30 minutes (increase of 1s for values up to 59 seconds, 1 minute for higher values).

Note: from the main screen, press for a long time (more than 3 seconds) the key Ok to display the level of brightness measured by the probe at that moment. At this point, press for a long time the key Ok again to set the measured value as a threshold.

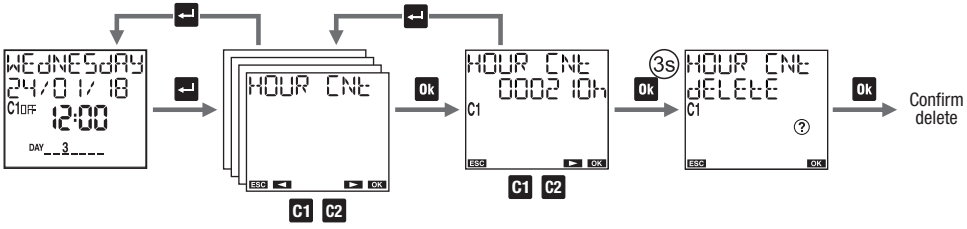

WEdNESdAY
24/01/18
C1OFF 12:00
DAY__3____
tW IL IGHt
ESC
OK
C1 C2
Ok
tW IL IGHt
tHRESHOLd
100
1
tW IL IGHt
HYSTERES I
10
2
tW IL IGHt
dELEAY
0:01
3
ESC
OK
C1 C2

HOUR COUNTER MENU

“Hour counter” menu allows you to display the hours of use (relay on) of connected loads.
The maximum value of the counter is 99999 hours (about 11 years); reached the maximum limit, the counter resets automatically.

To reset a counter:
1. press the key Ok for 3 seconds until the display shows “HOUR CNT dELEtE ?”
2. confirm by pressing Ok (press ↵ to exit without zeroing)

Note: it’s possible to reset all counters contemporary from the “Reset” menu (see page 51).


WEdNESdAY
24/01/18
C1 OFF
12:00
DAY 3
HOUR CNt
ESC
OK
C1 C2
HOUR CNt
0002 10h
C1
ESC
OK
C1 C2
Ok
3s
HOUR CNt
dELEtE
C1
?
ESC
OK
Ok
Confirm
delete

English

RESET MENU

"Reset" menu allows you to restore the initial state of the device.

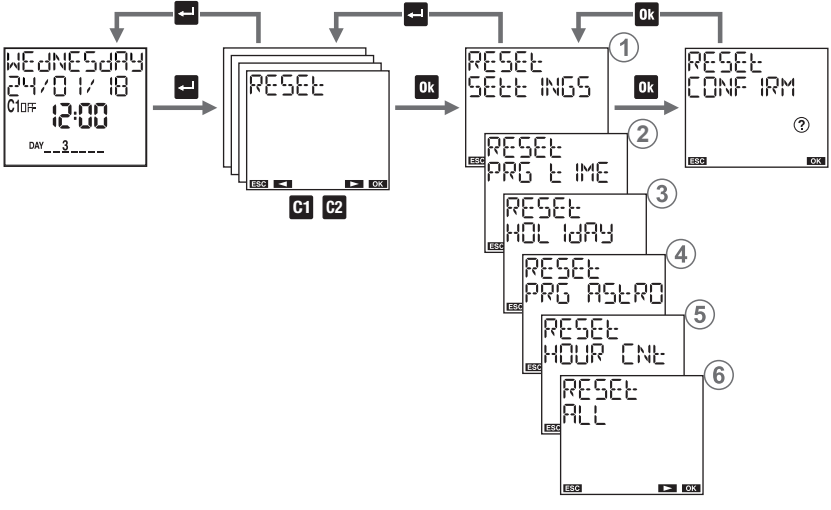
Available resets:
① Settings reset: deletes all the carried out settings (except the language and the PIN)
② Time programs reset: deletes all saved time programs
③ Holiday programs reset: deletes all saved holiday programs
④ Astro programs reset: deletes all saved astronomical programs
⑤ Counter reset: resets the counter of the channel
⑥ Reset all: carries out all the above described resets and deletes the language and PIN protection

There is also another reset, of hardware type, which allows you to reset the device in case it responds to the pressing of the keys so unexpectedly, without losing the carried out settings/programs (only the date and the time are lost).

To carry out a hardware reset:
1. press the key "R" with a sharp object

The hardware reset is also useful when you forget PIN protection. Reset, in fact, unlocks the keyboard for 3 minutes, the necessary time to access the appropriate menu and check/disable PIN.

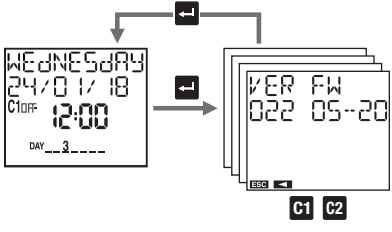
English


WEdNESdAY
24/01/18
C1OFF 12:00
DAY__3____
RESEt
ESC
OK
C1
C2
Ok
RESEt
SEtt INGS
1
RESEt
PRG t IME
2
RESEt
HOL IdAY
3
RESEt
PRG ASTRO
4
RESEt
HOUR CNt
5
RESEt
ALL
6
RESEt
CONF IRM
?

English

FIRMWARE MENU

This menu shows the firmware installed in the device, where:
022 is the revision index
05 is the month
20 is the day



English

ERROR SIGNALS

When setting up programs, in case of a discrepancy, the following error messages can occur:

- ERROR 001 on and off events with different frequency (each on event must have an off event)
- ERROR 002 on and off concomitant events of the same program
- ERROR 003 Two or more consecutive on events of the same program / Two or more consecutive off events of the same program
- ERROR 004 Invalid date
- ERROR 005 Insufficient memory
- ERROR 006 Attempt to set an on pulse when is already stored an off pulse (see page 25)
- ERROR 007 Attempt to set an off pulse when is already stored an on impulse (see page 25)
- ERROR 008 Attempt to set an on holiday program when is already stored an off holiday program (see page 25)
- ERROR 009 Attempt to set a holiday off program when a holiday on program is already stored (see page 25)
- ERROR 010 Attempt to set a holiday program of on and off events on different days of the week (see page 31)
- ERROR 011 Attempt to set an astro program when is already stored a time program (see page 25)
- ERROR 012 Attempt to set a time program when is already stored an astro program (see page 25)
- ERROR 030 Error accessing memory *

* In this case, carry out a hardware reset (see page 51).
If the error persists, contact ABB technical support mobile

BATTERY MANAGEMENT

When the battery is close to empty, on the first line of the display appears BATTERY. In this case, the battery must be replaced as soon as possible. **Use only batteries of CR2032.**

To replace the battery:
- disconnect the mains
- remove the battery slot cover, turning it anti-clockwise
- replace the battery and remount the cover, turning it clockwise
- connect the power supply

Warning: do not use metal objects (such as screwdrivers) to remove the battery becuase this may cause the power reserve to be canceled, resulting in a loss of date and time.
Warning: in order not to lose the programming steps and carried out settings, it is necessary to ensure that the time for the battery replacement doesn't exceed 60 seconds (in absence of power by means).

Dispose of the used batteries observing the laws in force in relation to the disposal of hazardous waste.

REFERENCE STANDARDS

EU CONFORMITY DECLARATION

ABB declares that the device complies with the EU directive 2014/53/EU (RED) with reference to the following standards:

- EN 60730-2-7
- ETSI EN 301 489-1
- ETSI EN 301 489-17
- ETSI EN 300 328

The complete text of EU conformity declaration is available at the Internet address ABB - www.abb.com

English

2CSM441043D0201

ABB S.p.A
V.le dell'Industria 18
20009 Vittuone (MI) - Italy
Tel. +39 02 2415 0000
https://new.abb.com/low-voltage

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