ASTRONOMISKT SKYMNINGSRELÄ

DVA

Astronomical twilight switches: User Manual

$C \epsilon$

GARO®

Index

English

English

- Electronic digital programmable switch that combines in the relay 1 the function of a weekly digital time switch and in the relay 2 those of an astronomical twilight switch.

- Large display with text guide to facilitate programming

- Seable cover and possibility to lock keypad through password

- IR remote control (available as an accessory) for transferring programmes from and to the instrument

- Possibility of a programmes archive (up to 126) always available

- Cover on the back of the instrument for replacing the battery
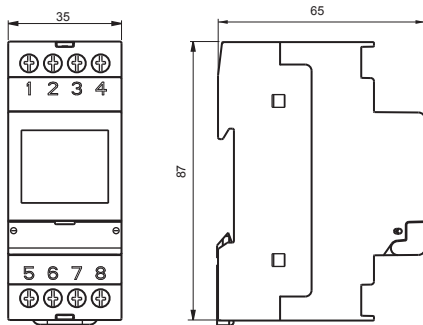
SAFETY WARNINGS

During installation and operation of the product, it is necessary to comply with the following instructions:

1) *The instrument must be installed and activated by qualified personnel, following the connection diagrams provided in this manual scrupulously.*
2) *After installation, it must be made impossible to access the terminals without specific tools*
3) *Before accessing the connection terminals, verify that the leads are not live*
4) *Do not connect or power the instrument if any part of it is damaged*
5) *The instrument must be installed and activated in compliance with current electric systems standards.*
6) *Do not use the instrument for purposes other than those indicated*
7) *The instrument executes 1B type actions and is suitable for environments with a pollution degree of 2 and overvoltage category III (EN 60730-1)*

TECHNICAL CHARACTERISTICS

- Power supply: 230Vac ± 10% 50/60Hz
- Absorption: 8VA (2W)
- Replaceable battery
- Output:
  - 2 relay with monostable change-over contact 16(10)A / 250Vac
- Type of action: 1B
- Storable programs: - 30 events ON/OFF or PULSE (relay1 only)
  - 6 pre-set programs (relay2 only)
  - 4 holiday periods + 20 holiday days
- Backlit LCD display
- Integrated IR interface with 0.5m capacity with direct sun light (2m when dark)
- IR transmission frequency: 31.25kHz
- Software class: A
- Mounting: DIN rail to backplane
- Container: 2 DIN modules
- Operating temperature: -20°C ÷ +40°C
- Operating humidity: 20% ÷ 90% noncondensing
- Storage temperature -10°C ÷ +70°C
- Pollution level: 2
- Rated impulse voltage: 4kV
- Degree of protection: at the terminals IP20

English

DIMENSIONS

CONNECTION DIAGRAMS

35

65

87

DVA

5 6 7 8

1 2 3 4

230 V~
50-60 Hz

1 2 3 4

OUT2

OUT1

5 6 7 8
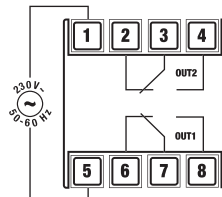
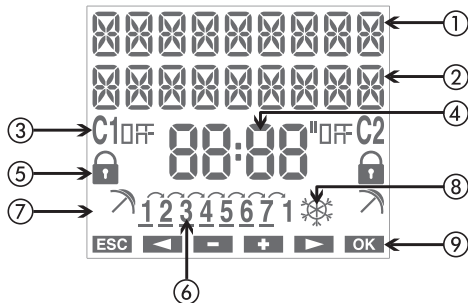## DISPLAY AND KEYPAD DESCRIPTION

⑦ Field **"holiday program"**
⑧ Field **"CET/DST"**
⑨ Field **"key functions"**

① Field **"text1 / day"**
② Field **"text2 / date"**
③ Field **"relay status"**
④ Field **"time"**
⑤ Field **"lock"** (relay switching lock)
⑥ Field **"day of the week"**

Key **"↵"**: menu/esc/check battery activation
Key **"Ok"**: confirm value/activation IR transmission
Key **"C1"**: decreases the value/menu back/
switching relay 1/lock relay 1
Key **"C2"**: increases the value/menu forward
switching relay 2/ lock relay 2
Key **"R"**: resets settings

English

INSTALLATION

- The instrument is supplied with the battery not installed to prevent useless consumption. Remove the battery from its package and insert it in the housing on the back of the instrument **so that the (+) pole is visible as shown in the "Battery replacement" box**. Then secure the cover, turning it clockwise.
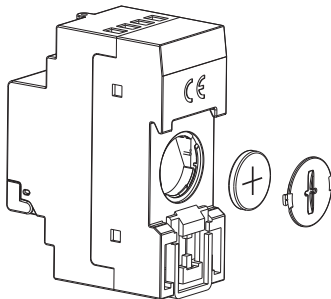
- Connect the load and the power supply as illustrated in the "Connection diagrams" chapter.

- Use a pointed object to press the **"R"** key to reset it. The display segments will turn on for a few seconds, then the instrument will switch to IR reception mode.

*Note: in the case of a mains power failure, IR reception is not activated.*
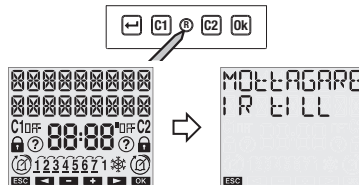
- Press the **"↵"** key to exit the IR reception mode (if you want to transfer programs from the remote control, see the "**IR Interface**" page 31)
- At this point, the parameters required for correct instrument operation can be entered:
  - language, date format, date, time and the city where the instrument is installed.

Setting the language

3 languages are available: Swedish, Norwegian, English.

➢ Select the language with **"C1"** and **"C2"**.

➢ Confirm with **"Ok"**.

```
LANGUAGE
SVENSKA          C2

LANGUAGE
NORSKA           C2

LANGUAGE
ENGLISH
◄        ►  OK
```
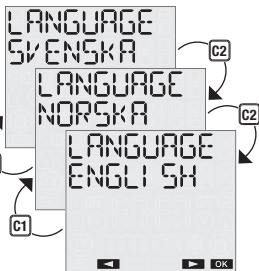
Setting the date format

It is possible to select between the dd-mm-aa and yy-mm-dd formats.

➢ Select the format with **"C1"** and **"C2"**.

➢ Confirm with **"Ok"**.

```
FORMAT
dd-MM-yy         C2

FORMAT
yy-MM-dd
◄           OK
```
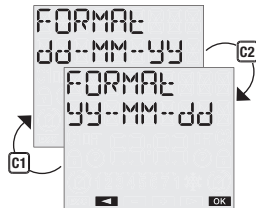
Setting the date

The parameter (year, month, day) being changed will flash.

➢ Select the desired value with **"C1"** and **"C2"**.

➢ Press **"Ok"** to confirm and continue with the next parameter
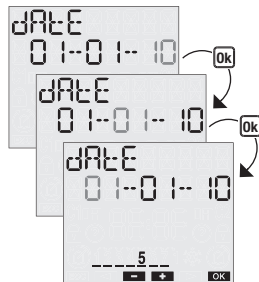
The insertion sequence is year → month → day

```
dAtE
01-01-10         Ok

dAtE
01-01-10         Ok

dAtE
01-01-10
__  5  __
-   +      OK
```

English

When the day is being entered, the display will show
a bar with the corresponding day of the week
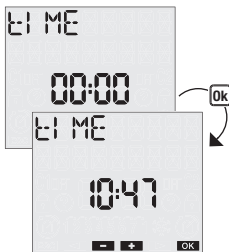(1→ Monday, 7→ Sunday).

Setting the time

The parameter (hours, minutes) being changed will flash.

➢ Select the desired value with with **"C1"** and **"C2"**.

➢ Press **"0k"** to confirm and continue with the next parameter

The insertion sequence is hours → minutes

Setting the city capital

Set the city capital where the instrument is installed so sunrise and sunset times are automatically calculated for each day during the year.

The list of the city depends of the language selected:
- swedish -> main cities of Sweden
- norwegian -> main cities of Norway
- english -> main cities of Ireland.

➢ Select the city with **"C1"** and **"C2"**.

➢ Press **"0k"** to confirm

Note: if your city is not listed, choose the closest city.
After setting all the parameters you can set the exact coordinates of the installation place
(see Setting menu - Position page 25)

At this point, the instrument will switch to the normal operating status (main page). The display will show the date, time, relay status, day of the week (in letters on the top row, in numbers at the bottom) and the CET / DST symbol.

Note: if the instrument is not powered by the mains, instead of the day the following message will appear on the top row NO SUPPLY.
In this condition backlighting is not active and the relay will remain off.

Main page

Switching on/off manually

Press the **"C1"** (**"C2"**) key briefly to switch the output relay 1 (relay 2).
The status that is reached will be maintained until the next program event.

Switch lock

Activating the lock function, all switches are ignored. The relay remains in the status in which it was found when the lock was set.

➢ Press and hold **"C1"** (**"C2"**) for 3 seconds to activate/deactivate the relay 1 (relay 2)

If the function is active, the 🔒 symbol will appear.

**English**

DAILY / WEEKLY PROGRAMMING (Relay 1)

Events ON/OFF

ON and OFF events consist of switching the relay to the on or off position.

They may be daily (every day at the same time), weekly (one or more days during the week, each week) monthly (one day a month, every month), yearly (one day a year, every year).

IMPULSE event

An impulse event can be an on or off type and may last for a maximum of 59 seconds:
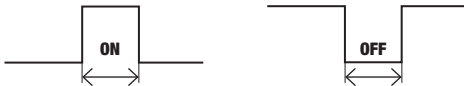
At the end of the on impulse the relay will always be in the off status; at the end of an off impulse the relay will always be in the on status.
An impulsive event can be interrupted following a manual operation or IR transmission activation.

HOLIDAY events

A holiday event allows you to enter individual days or holiday periods during which all the set programmes shall not be carried out and the relay shall be in the off position.

Holiday events always start at 00:00 on the starting day and end at 23:59 on the last day of the holiday.

Holiday events are interrupted in the case of manual operations on output.

Programming priority

In automatic function mode the instrument behaves as foreseen by the entered programmes. Should there be conflict between programmes (different events starting at the same moment) the instrument will only run the one with the highest priority, according to the following table (1 maximum priority, 5 minimum):

Event	Weekly	Daily
Holiday	1	-
Impulse	2	3
ON or OFF	4	5

Programmed events which starting during an event already in progress (holiday) are ignored.
In the case of non-instantaneous (holiday, impulse) the device always completed the started programme before managing the next.
Exceptions to this are cases in which:
- a holiday event occurs while executing a non-instantaneous programme
- there is a change to manual operation while executing a non-instantaneous programme. In this case all the programmes running are interrupted and if there is a lock or random on the channel, execution of all programmes is disabled until manual procedure is deactivated
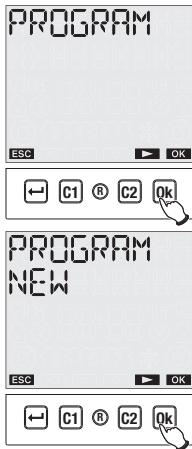- IR transmission is activated while executing the programme

Programmes that are active when one of these exceptions occurs are interrupted and will not be restored. When execution is interrupted, the relays still maintain status unless entering a holiday day (or period) or if IR transmission is activated (relay set to off).

English

1. Creation of a new programme

1.1 Programmes ON / OFF

Press key " ↵ " to enter the menu, choose the PROGRAM option using keys **"C1"** and **"C2"** and press **"Ok"** to confirm.

Choose the channel C1 to set a Daily or Weekly program. Press **"Ok"** to confirm.

Choose option NEW using keys **"C1"** and **"C2"** and press **"Ok"** to confirm.
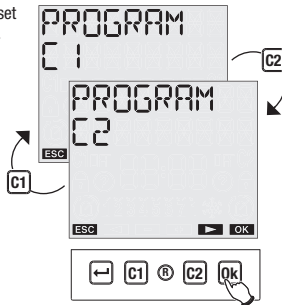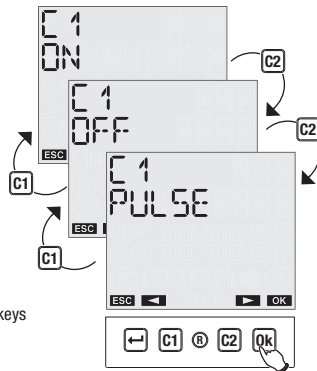
Using keys **"C1"** and **"C2"** choose the frequency of the event from:

DAILY,
WEEKLY.
Press **"Ok"**
to confirm.

PROGRAM
dAILY

PROGRAM
WEEKLY

ESC ◄   ► OK

⊟ C1 ® C2 Ok
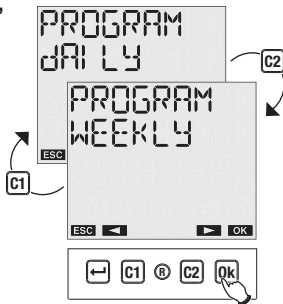
Choose between
ON,
OFF,
PULSE
event.
For PULSE event
choose between
ON or OFF event.

Press **"Ok"**
to confirm.

C 1
ON

C 1
OFF

C 1
PULSE

ESC ◄   ► OK

⊟ C1 ® C2 Ok

Insert the date using keys
"C1" and **"C2"**.
(not required for daily
events)
For weekly events it is
possible to set more than
one day of the week. By
pressing key **"Ok"** you
select/deselect the day in
question while using key
"C2" you scroll through

dAY
tUESdAY
C1

12_____

ESC ▬ ➕   OK
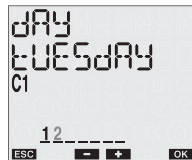
the days until Sunday. By pressing **"C2"** again, CONFIRM appears: press **"Ok"** to confirm.

For ON or OFF events, enter the hours and minutes for the switching using keys **"C1"** and **"C2"**.
Press **"Ok"** to confirm.

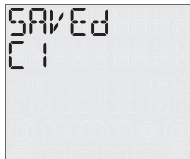For PULSE event, enter the starting time and the duration of the pulse (max 59 seconds).

During normal operation, the eventual execution of an impulse programme is shown by symbol $\bigcap$ on field (8) of the display.

Confirmation of programming is shown by the words SAVEd on the display with the concerned channel.

Note: recursive function (ON/OFF events only)
At this point the instrument activates the recursive function which allows several on-off events to be programmed in succession <u>on the same day</u>.
Thereby once an activation (deactivation) event has been programmed, it is possible to enter the time of a deactivation (activation) event on the same day.
If you do not wish to enter an off (on) time, press key "↵" to terminate programming.
There is no control of the correlation between on/off events programmed using the recursive function: such function is therefore to be intended as facilitated programming.

The instrument's internal memory allows up to 30 events.

Once maximum capacity is reached, attempts to memorise another programme causes the display to show the message MEMORY FULL. In this case it is necessary to delete a programme in the memory in order to enter a new one(in the case of contemporary programming on two channels, at least one position in the memory must be available for each channel).

The message ERROR is shown on the display whenever there is an attempt to save a programme overwriting a pre-existent programme of the same type (for example trying to enter a daily off event at 08:00 if there is already a daily on event at the same time).

2. Checking a programme

Through this menu it is possible to display, amend or delete a programme saved in the instrument.
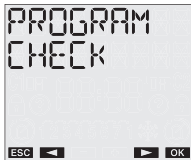
2.1 Displaying a programme

Press key **"↵"** to enter the menu, and using keys **"C1"** and **"C2"** choose the PROGRAM option.

Press **"Ok"** to confirm.

PROGRAM

ESC ▶ OK

Using keys **"C1"** and **"C2"** choose CHECK

Press **"Ok"** to confirm.

PROGRAM
CHECK

ESC ◀ ▶ OK

Choose the channel C1 to check a daily or weekly program.
And then choose the frequency (daily or weekly)

PROGRAM
C1

C2

PROGRAM
C2

ESC

C1

ESC ▶ OK

↵ C1 ® C2 Ok
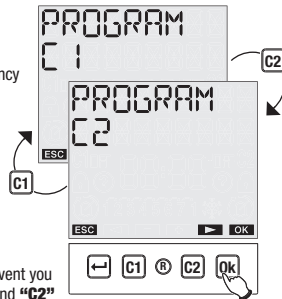
Finally, choose the type of event you wish to check using **"C1"** and **"C2"** (ON-OFF, PULSE).

At this point the first programme pertaining to the specified type is displayed.
If more than one programme is present, it is possible to scroll forwards and backwards through them by using keys **"C1"** and **"C2"**

If no programme of that particular type is present, on the display appear the words EMPLY.

2.2 Modifying a programme

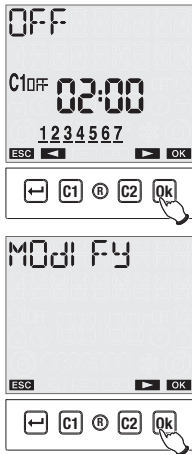It is possible to access programme modification from the programme display status.

Choose the programme to be modified and press key **"Ok"**

Choose the MODIFY option using keys **"C1"** and **"C2"** and press **"Ok"** to confirm.

At this point it is possible to insert the new programme parameters. The parameter under modification flashes. Use keys **"C1"** and **"C2"** to set the values and **"Ok"** to confirm or the key **"↵"** to exit without modifications.

At the end of the modification the words SAVEd are displayed with the channel concerned (C1 or C2) and the instrument returns to the normal operational status once again.

2.3 Deleting a programme

It is possible to access programme deletion from the programme display status.

Choose the programme to be deleted and press key **"Ok"**
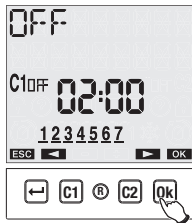
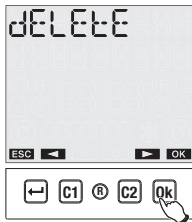Choose, using keys **"C1"** and **"C2"** the DELETE option and press **"Ok"** to confirm or key **"↵"** to exit without deletion.

On the display appear the words dELEtEd followed by the channel concerned (C1 or C2) and the instrument returns to normal operational status once again.

3. Reset programmes

To delete all the programmes saved on the instrument:

Press key **"↵"** to enter the menu, choose the PROGRAM option using keys **"C1"** and **"C2"** and press **"Ok"** to confirm.

Choose option RESET PROGRAM using keys **"C1"** and **"C2"** and press **"Ok"** to confirm.

Choose CONFIRM and press **"Ok"**. All the programmes will be cancelled.

Alternatively it is possible to reset programmes by accessing the reset menu (see Reset menu page 30)
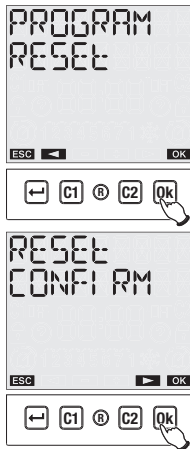
ASTRONOMICAL PROGRAMMING (Relay 2)

The instrument is equipped with 6 pre-set programs that allow you to program the instrument's night behaviour.

P1 program

This program sets switch on at sunset and switch off at dawn.

P2 program

This program keeps the relay in the off position throughout the night.
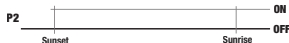
P3 program

This program sets switch on at sunset and switch off at dawn, with a night-time interruption in which the relay is temporarily in the off position.

P4 program

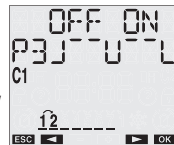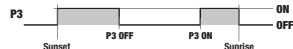This program sets switch on at sunset and switch off during the night, at a programmable time (before dawn).
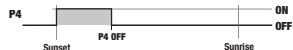
P5 program

This program sets switch on at a programmable time (after sunset) and switch off at dawn.
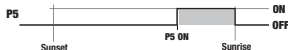
P6 program

This program sets an on impulse during the night with programmable initial time and duration of the impulse. The impulse's maximum duration is 59 seconds.
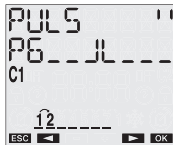
Note: the dawn and sunset times are automatically calculated by the instrument on the basis of the astronomical coordinates entered and of any time adjustments (see chapter "Settings").

The default settings are as follows:

• Running program P1 on relay 2

It is possible to program the behaviour of relay 2, by assigning a different program for each day of the week.

Should you wish to change the program assigned to a specific day of the week, follow these steps.

Modify the astronomical programming

From the normal operating status:

➢ Press key **"↵"**

➢ Select PROGRAM with **"C1"** and **"C2"** and confirm with **"Ok"**

➢ Select PROGRAM NEW with **"C1"** and **"C2"** and confirm with **"Ok"**

➢ Select PROGRAM C2 with **"C1"** and "**C2"** and confirm with **"Ok"**

➢ The display shows the set program for the first night of the week (in the P1 example in the night between days 1 and 2, i.e. between Monday and Tuesday). Press **"C1"** and **"C2"** to cycle through the nights of the week and display which program is set for each night

Note: the display of the P3 program is divided into two screen shots, the first one showing the switch off time and the second time the switch back on time.
To go from one screen to the other, press keys "C1" and "C2".
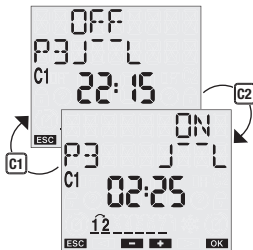
➢ Press **"Ok"** to enter into modification

➢ The display shows the currently set program, flashing: press **"C1"** and

"C2" to choose which program (P1… P6) to set and confirm with **"Ok"**

➢ Enter the parameters relative to the selected program:
  P1: no parameter
  P2: no parameter
  P3: night switch off time, night switch on time
  P4: night switch off time
  P5: night switch on time
  P6: initial time of the impulse, duration of impulse

➢ Press **"Ok"** to confirm. The display will show the words SAVEd C1 and the instrument shall enter normal operation.

At this point, the instrument offers the ability to copy programming done for all other days of the week.

➢ Press **"Ok"** to assign the selected program to other days of the week or **"↵"** to return to the choice of the day of the week
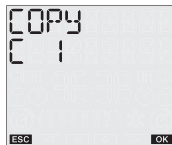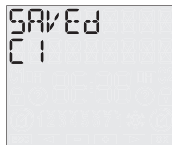
HOLIDAY MENU ↗

2.1 Creating a HOLIDAY program

From the normal operating status:

➢ Press **"↵"**

➢ Select HOLIDAY with **"C1"** and **"C2"** and confirm with **"Ok"**

➢ Select HOLIDAY NEW and confirm with **"Ok"**

➢ Choose the relay onto which to carry out the programming (C1, C2, C1+C2)

➢ Select between HOLIDAY ONE DAY (single day) or HOLIDAY PERIOD (multiple contiguous days) with **"C1"** and **"C2"**

➢ Enter the date (holiday day) or the holiday day interval (holiday period).
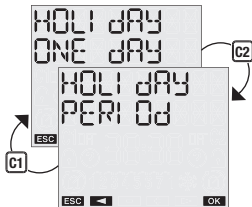
Note: the first and last date are to be considered included in the holiday period

➢ Press **"Ok"** to confirm

Once the programming is confirmed, the following message will appear on the display SAVEd.
During normal operation, the possible execution of a holiday programme is signalled by the symbol ↗ in field (7) on the display.

Note: recursive function
At this point, the instrument activates the recursive function that makes is possible to program multiple holiday days in series (or holiday periods).
If you do not want to enter another holiday day (or period) press "↵" to end programming.
The correlation of the programmed holiday events is not controlled with the recursive function: the function must therefore be considered as facilitated programming.

The instrument's memory makes it possible to store up to 4 holiday periods + 20 holiday days.
Once the maximum capacity is reached, an attempt to store an additional program will cause the following message to be displayed MEMORY FULL. In this case, a program stored in the memory must be deleted before entering a new one.

The message ERROR appears on the display if you try to enter a holiday period that overlaps with a period that was already entered, or if the last holiday date is before the start date.

2.2 Checking a HOLIDAY program

This menu can be used to display, modify or delete a holiday program saved in the instrument.

2.2.1 Displaying a HOLIDAY program

From the normal operating status:

➢ Press **"↵"** to access the menu, select HOLIDAY and press **"Ok"** to confirm

➢ Select HOLIDAY CHECK and press **"Ok"** to confirm

```
HOLI dAY
CHECK
```
ESC ◄   OK
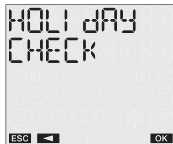
➢ Choose the relay onto which to visualize the program holiday with **"C1"** and **"C2"**
➢ Select between HOLIDAY ONE DAY and HOLIDAY PERIOD and press **"Ok"** to confirm

```
HOLI dAY
ONE dAY
```
```
HOLI dAY
PERI Od
```
ESC ◄   OK
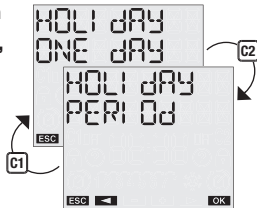
In case of HOLIDAY ONE DAY it is possible scrool the programs using **"C1"** and **"C2"** keys. In case of HOLIDAY PERIOD the instrument shows the start day of the first holiday period, press **"C2"** to visualize the end of the period.
At this point, pressing **"Ok"** it is possibile access to options of modify, delete or next holiday period.

2.2.2 Changing a HOLIDAY program

A program can be changed from the program display status.

➢ Select the holiday program to change and press **"Ok"**
➢ Select MODIFY with **"C1"** and **"C2"** and press **"Ok"** to confirm

➢ At this point, new program parameters can be entered. The parameter being changed will flash. Use the keys **"C1"** and **"C2"** to set the values and press **"Ok"** to confirm or **"↵"** to exit without changes.

```
MOdI FY

ESC            ▶ OK
```

When done with the change, the message SAVEd is displayed and the instrument will return to normal operation.

2.2.3 Deleting a HOLIDAY program

A program can be deleted from the program display status.

➢ Select the holiday program to delete and press **"Ok"**
➢ Select DELETE with **"C1"** and **"C2"** and press **"Ok"** to confirm or **"↵"** to exit without deleting.

```
dELEtE

ESC ◀          ▶ OK
```

The message dELEtEd will appear on the display and the instrument will return to normal operation.

2.3 Programs reset

Program reset make it possibile to delete all holiday events saved in the instrument.

From the normal operating status:

➢ Press **"↵"**
➢ Select HOLIDAY with **"C1"** and **"C2"** and confirm with **"Ok"**
➢ Select HOLIDAY RESET with **"C1"** and **"C2"** and press **"Ok"** to confirm

```
HOLI dAY
RESEt

ESC ◀          OK
```

➢ Confirm with **"Ok"** or press **"↵"** to exit without resetting
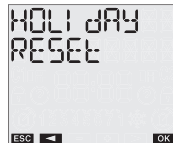
Note: the program reset function can also be accessed from the Reset menu (see **"Reset menu"**) chapter.

```
RESEt
CONFI RM

ESC            ▶ OK
```

SETTINGS MENU

This menu is used to display and change the instrument's general configuration parameters.
These are: language, date, time, automatic CET / DST, position, correction, pin reset.

From the normal operating status:

➢ press **"↵"**

➢ select SETTINGS with **"C1"** and **"C2"**

➢ confirm with **"Ok"**.

SEttiNGS

ESC ◄ ► OK

LANGUAGE menu

The options are:
Swedish, Norwegian, English.

➢ select SETTINGS LANGUAGE with **"C1"** and **"C2"**
➢ confirm with **"Ok"**.
The currently set language will be displayed.

LANGUAGE
ENGLISH

ESC OK

➢ press **"Ok"** twice to access the change mode or **"↵"** to exit without changing
➢ select the language with **"C1"** and **"C2"**
➢ confirm with **"Ok"**.
➢ The following message will appear on the display SAVEd.

DATE menu

➢ Select SETTINGS DATE with **"C1"** and **"C2"**
➢ confirm with **"Ok"**. The current date is displayed.
➢ Press **"Ok"** twice to access the change mode or **"↵"** to exit without changing
➢ select the format with **"C1"** and **"C2"** (dd-mm-yy or yy-mm-dd)
➢ confirm with **"Ok"**
➢ enter the year, month, day with **"C1"** and **"C2"** and press **"Ok"** to confirm
➢ The following message will appear on the display SAVEd.

FORMAt
dd-MM-YY

ESC ◄ ► OK

TIME menu

➢ Select SETTINGS TIME with **"C1"** and **"C2"**
➢ confirm with **"Ok"**. The current time is displayed
➢ Press **"Ok"** twice to access the change mode or **"↵"** to exit without changing

English

➢ enter the time, minutes with
  "C1" and **"C2"**
  and press **"Ok"** to confirm
➢ The following message will appear
  on the display SAVEd.

```
TIME

15:54

ESC    -  +    OK
```

DAYL SAVE CET / DST CHANGE menu

The instrument makes it possible to automatically manage the CET/DST change and vice vers.

To activate/deactivate the function:

➢ select SETTINGS DST with **"C1"** and **"C2"**
➢ confirm with **"Ok"**. The current status
  will appear on the display
  (AUTO OFF or AUTO ON)
➢ press **"Ok"** twice to access the
  change mode
➢ select SET AUTO ON or SET AUTO OFF
  with **"C1"** and **"C2"**
➢ press **"Ok"** to confirm.

```
AUTO ON

ESC        ▶  OK
```

```
⏎  C1  ®  C2  Ok
```

If the function is deactivated (AUTO OFF) then the following message

SAVEd will appear on the display and the instrument will return to the main page; if the function is active, press **"C2"** to view/change the DST → CET change.

➢ Press **"Ok"** twice to change the
  parameters or **"C2"** again to
  display the parameters relative
  to the DST → CET change

The following parameters
must be entered
(for both changes):

- week of the change
  (1ST first, 2ND second,
  3RD third, 4TH fourth,
  LAST last of the month)
- month of the change
- day of the week
  (Monday, Tuesday,…)
- time of the change

```
SUMMER
LAST    03
02:00
------7  ☼
ESC          C2
```

```
WINTER
LAST    10
03:00
------7  ❄
ESC  ◀      OK
```
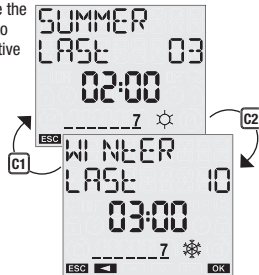
When all parameters are set, press **"⏎"** to exit.

The default values for the time change are:
- winter → summer change: last Sunday in March, 2:00 am
- summer → winter change: last Sunday in October 3:00 am

During normal operation, the symbol ❆ will appear on the display during the CET period (winter) and the symbol ☼ will appear during the DST period (summer).

POSITION menu

This menu is used to change the geographical coordinates (latitude, longitude, time zone) that were set during the installation phase.

To change a parameter:

➢ Select SETTINGS POSITION with **"C1"** and **"C2"** and press **"Ok"** to confirm

➢ It is possible to select to change only the city or make a change using the geographical coordinates:

  - if you want to change the city, select
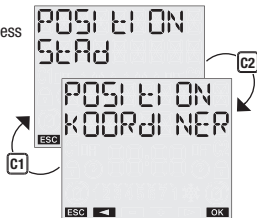
CAPITAL POSITION and press **"Ok"**. The currently set city will be displayed: press **"Ok"** to access the change mode and select the new city with **"C1"** and **"C2"** and confirm with "Ok". At this point the message SAVEd will be displayed to indicate the change that was made.

➢ Select the parameter to change from among latitude, longitude or time zone and press **"Ok"** to confirm

➢ The parameter value is displayed: press **"Ok"** to access the change mode

➢ Set the new value with **"C1"** and **"C2"** and press **"Ok"** to confirm.

➢ The following message will appear on the display SAVEd.

English
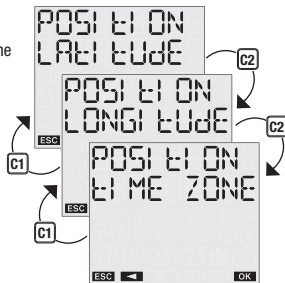
## OFFSET menu

This function is used to change the sunrise and sunset time that is automatically calculated by the system (maximum correction ±120 minutes).

To display the calculated sunrise and sunset times:

➢ From the main page, press **"Ok"**.
   The currently calculated sunrise and sunset times will be displayed in sequence.

To change the sunrise and sunset time:

➢ Select SETTINGS CORRECTION and confirm with **"Ok"**
➢ Select the time to correct **"C1"** and **"C2"** l'orario da correggere (sunrise or sunset)
➢ Confirm with **"Ok"**. The currently set correction is displayed. Press **"Ok"** again to change the value.
➢ Set the correction with **"C1"** and **"C2"** and press **"Ok"** to confirm (use negative values to advance the event, positive values to delay the event).

OFFSET
SUNRISE

OFFSET
SUNSET
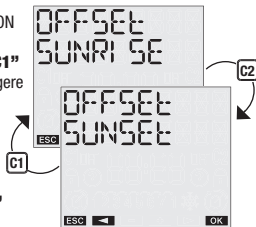
➢ The message SAVEd appears on the display to indicate the change that was made

At this point, pressing **"Ok"** on the main page, the corrected sunrise and sunset times are displayed again.

PIN menu

A protection code can be set to prevent anyone from using the instrument.
The PIN code is a 4 digit number that has values between 1 and 4.

To set the pin code:

➢ select SETTINGS PIN with the keys **"C1"** and **"C2"**
➢ confirm with **"Ok"**
➢ the four digits that make up the current PIN code are displayed (0000 corresponds to pin inactive)
➢ confirm with **"Ok"**
   – select CHANGE and press **"Ok"** to enter the new PIN code. Use the keys **"C1"** and **"C2"** to enter the numbers one by one that make up the code and press **"Ok"** to confirm them
   – select RESET to deactivate the PIN code request
➢ press **"Ok"** to confirm.

➢ The following message appears on the display SAVEd (dELEtEd in the case of reset).

If the PIN code request is active, the keypad will be locked approx. 3 minutes after the keypad was last pressed. At this point, when pressed again, a request to enter the PIN code will appear.

```
PIN

- - - -
```
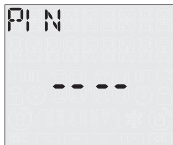
To unlock the instrument, enter the PIN code, according to this rule:

- key **"↵"**: 1
- key **"C1"**: 2
- key **"C2"**: 3
- key **"Ok"**: 4

For example, pin: 3411   **"C2" "Ok" "↵" "↵"**

SETTINGS RESET

This menu is used to reset all settings that were made, restoring the factory values:

Date format	yy--mm--dd
CET / DST change	automatic
- summer time change	Last Sunday in March 2:00 am
- winter time change	Last Sunday in October 3:00 am
Correction	
- sunrise	0 minutes
- sunset	0 minutes
PIN request	0000 - deactivated
Programming relay 2	P1 every day

To reset the settings
➢ select RESET SETTINGS with the **"C1"** and **"C2"** keys
➢ confirm with **"Ok"**
➢ confirm again with **"Ok"**
➢ the following message appears on the display dELEtEd .

HOUR METER MENU

The hour meter function indicates the total time in which the output remained in the on status.
The hour meter range is between 0 and 99999 hours, when the maximum limit is reached, it is automatically reset.

To display the hour meter value:

➢ from the main page, press **"↵"**
➢ select HOUR CNT with **"C1"** and **"C2"**
➢ press **"Ok"** to confirm
➢ choose with **"C1"** and **"C2"** the output concerned
➢ press **"Ok"**. The total use is displayed
➢ press **"Ok"** again to access the hour meter reset option. Press **"Ok"** again to confirm or **"↵"** to exit without resetting.
➢ The message dELEtEd appears on the display to indicate the change that was made.

```
WORKEd
000 10 H
C1

ESC            OK
```

RESET MENU

The instrument's default status can be reset with the reset function.
There are 5 different resets available:
- reset settings: deletes all settings that were made
- reset HOLIDAY: deletes all holisay programs
- reset programmes: deletes all saved programs
- reset hour meter: resets the operating time hour meter
- reset all: reset settings + reset programs + reset hour meter

To perform the reset:
➢ press **"↵"** to access the menu
➢ select RESET with the keys **"C1"** and **"C2"** and press **"Ok"**
➢ use the keys **"C1"** and **"C2"** to select one of the above listed resets and press **"Ok"**
➢ press **"Ok"** to confirm.

*To perform a complete instrument reset, restoring the factory settings, use a sharp instrument to press the **"R"** key. This deletes all the settings that were made and restores the default conditions.*

IR INTERFACE

The **DVA** model have an IR interface that makes it easy to exchange programs between the instrument and its remote control.
Attention: the IR interface can only be activated if **DVA** is powered by the mains network.
In this way, an instrument can be programmed, then the program can be copied to a remote control and then duplicated in other instruments, without having to repeat the programming step by step.

The program exchange remote control is not provided with the instrument but can be purchased separately as an accessory.

There are two basic functions in this operating mode:

- **COPY**: consists in transferring the programs from a **DVA** to the remote control
- **PASTE**: consists in transferring the programs from a remote control to one or more than one **DVA** instruments at the same time.

Copy function

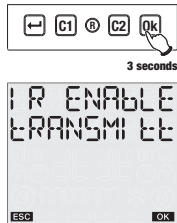To transfer a program from **DVA** to the remote control, first:

➢ generate a program with the traditional method onl **DVA** (see "Automatic programming")

➢ activate the reception mode on the remote control (see the relative instruction sheet)

➢ activate the transmission on **DVA**, holding down the **"Ok"** key for **3 seconds**
The following message will appear on the display
I R ENAbLE trANSMI tt

➢ press the **"Ok"** key again to confirm the start of transmission or **"↵"** to cancel the transmission
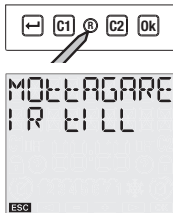
➢ during the transmission, the following message will appear on the display
dAtA Out (dAtA I N on the remote control display) and the remote control will emit "bips". When completed, the following message is displayed
trANSMI tt dONE.

Paste function

To transfer a program from the remote control to one or more **DVA**, first:

➢ connect the **DVA** clock to the mains network

➢ press the **"R"** key to reset
the instrument and activate
the reception mode. The following
message will appear on the
display MOLLAGARE IR tILL

➢ activate the transmission on the
remote control and select which
program to send (see the instructions
for the remote control)

➢ during the transmission, the following
message will appear on the display
dAtA IN (dAtA OUt on the remote
control display) and the remote control will emit "bips".
When completed, the following message is displayed
tRANSMItt dONE.

*Note: during transmission, point the remote control towards the
front of the instrument to facilitate the transmission. A possible
problem with the transmission is signalled with the message*

RECEIvEd FAILEd *on the clock's display.*

At this point, the programs and date
and time settings are transferred to the
instrument and it is ready to operate with
the transferred parameters.

BATTERY REPLACEMENT

The battery charge level can be checked:
- automatically by the instrument once a week
- manually, hold down the **"↵"** key on the main page for 3 seconds.
If the battery charge level is lower than the specific threshold,
the following message will appear on the first row of the display
ᒪᗩᎢᎢᎬᏒY. In this case, replace the battery as soon as possible.

To replace the battery:
- disconnect the power supply
- remove the cover from the battery compartment, turning it
  anticlockwise
- replace the battery and replace the cover, turning it clockwise
- connect the power supply

In order to retain the programming and settings, the time that passes
between removing the old battery and inserting the new one must not
exceed 60 seconds.

Use CR-2032 batteries only.
Throw away the run down batteries in
compliance with current regulations on the
disposal of harmful waste.

REFERENCE STANDARDS

Compliance with Community Directives
2006/95/EC (low voltage)
2004/108/EC (E.M.C.)
is declared in reference to the harmonized standard:
• **EN 60730-2-7**

English