

ASTRO-30 / ASTRO-31

Astronomical Time Relay



Area of Usage:

- Park, garden and farm irrigation
- Street, park, garden illuminations
- ATM ,store window, billboard illuminations

General:

ASTRO is a digital time switch that calculates the sunset and sunrise times by using coordinates and real time clock. It operates according to the program setting and it has no need for a photocell sensor. Device could be used as astronomical or digital time switch.

ASTRO has two reserves to protect the real time clock and calendar against power outage.

For long term reserve there is CR2032 battery. If the device is powered, battery life is approx. 5 years. When the battery life is expired, the user is able to replace the battery easily.

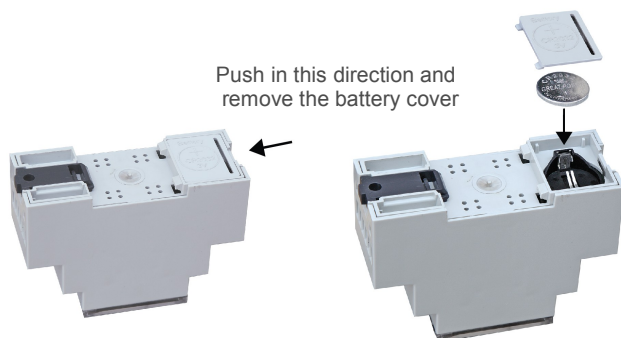
Super capacitor is used for short time power failures. It supplies the device for 3-7 hours. In this case battery is not used, so battery level is conserved.

NOTE1: Before commissioning the device, please insert the battery into the battery compartment .

NOTE2: If the device is not powered, ASTRO automatically enters power save mode to conserve the battery life. When the device is in this mode LCD screen is turned off. The screen would turn on when pressing any button and so the user would be able to change the settings and programming the device manually. After 15 seconds of inactivity, the screen would be turned off again.

NOTE3: 4 preset programs are available on the device.

Program 1 : Relay A	Astro	Sunset	ON
Program 2 : Relay A	Astro	Sunrise	OFF
Program 3 : Relay B	Astro	Sunset	ON
Program 4 : Relay B	Time	00:00	OFF



Insert the battery with the positive(+) side facing up as shown in the figure.

Make sure the battery is seated correctly in the battery slot. Replace the battery cover.

User replaceable battery

ASTRO-30 2 Relay Output (8A)

ASTRO-31 2 Relay Output (16A)

Easy to use with English menu

Real time clock and calendar

24 programs

Astronomical and/or time switching function

Automatic or manual summer/winter time option

ON/OFF switching times

Automatic sunrise/sunset calculation using coordinates and time

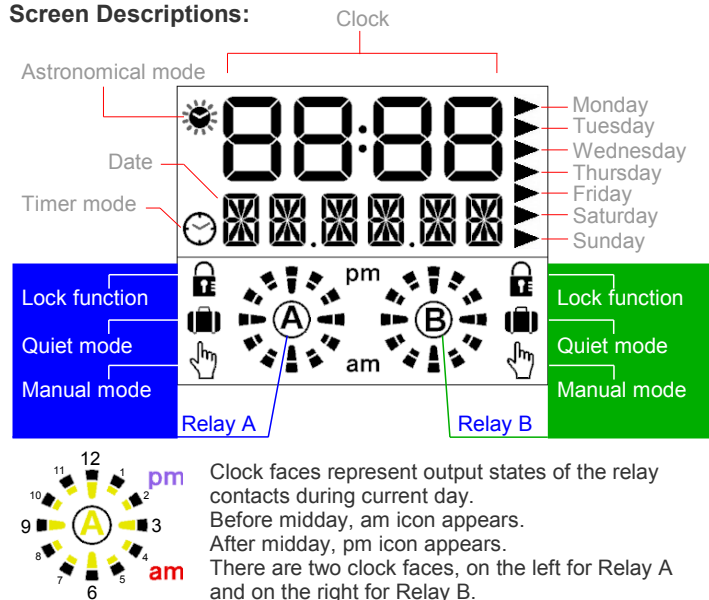
Offset for adjustable programming of sunrise/sunset times

Quiet mode

2 Manual modes

PIN code protection

Screen Descriptions:



Warnings:

- The connection of device must be done by authorized technical service staff according to the wiring diagram.
 - Before making the connections to device's terminals, please be sure that there is no voltage across the cables or terminals. Also be sure that the panel is de-energized.
 - Before cleaning the device, please be sure that it is de-energized and use only dry tissue-paper to clean it. Water or any other chemicals used for cleaning may harm the device
 - Before commissioning the device, please be sure that the terminal connections are made exactly the same as in the connection diagram
 - To protect the device, please mount it on DIN rail in a panel.
 - Contact your authorized dealer, if a problem occurs with your device.
- Following the precautions is to prevent the users from physically and spiritual damage. The manufacturer is not responsible for any injuries or damages due to violation of the warnings.

Button Functions:

ASTRO is an easy to use device with 3 buttons.

▼ : Press to move between menus or decrease the related parameter.

▲ : Press to move between menus or increase the related parameter.

SET : Press to go into the menu or save the related parameter.

▼ ▲ : Press two buttons at the same time to go back to the pre-menu screen
Press two buttons long at the same time to return to the main screen.



MANUAL MODE

Manual mode is used for setting or testing the desired relay output, or deactivating the program operation. This mode could be activated for both of the relays separately. If output A is locked it can't be switched to manual mode for output A, but it can be switched for output B. For blocking the activation of manual mode, the related output should be locked. Lock function is described on page 7. There are two different manual modes.

1-TEMPORARY MODE : When the subsequent program steps in, temporary manual mode would be deactivated.

Temporary manual mode for Relay A :

Push ▼ button until the flashing hand icon appears on the left of the screen.

Throughout the manual mode, for changing Relay A output, it is necessary to push and release ▼ button.

In this mode, if the subsequent program for Relay A changes the output, manual mode would be deactivated automatically and ASTRO operates the program. Otherwise manual mode would continue to be active for Relay A.

To deactivate this mode for Relay A as an option, push ▼ button until the flashing hand icon disappears.

Temporary manual mode for Relay B :

Push ▲ button until the flashing hand icon appears on the right of the screen.

Throughout the manual mode, for changing Relay B output, it is necessary to push and release ▲ button.

In this mode, if the subsequent program for Relay B changes the output, manual mode would be deactivated automatically and ASTRO operates the program. Otherwise manual mode would continue to be active for Relay B.

To deactivate this mode for Relay B as an option, push ▲ button until the flashing hand icon disappears.

2- PERMANENT MODE : It is only possible to deactivate permanent mode as manually.

Permanent manual mode for Relay A:

Push ▼ and SET buttons at the same time until the hand icon appears on the left of the screen.

Permanent manual mode is not deactivated automatically. The only way to deactivate this mode is manually.

Throughout the manual mode, for changing Relay A output, it is necessary to push and release ▼ button.

To deactivate this mode for Relay A, push ▼ button until the hand icon disappears.

Permanent manual mode for Relay B:

Push ▲ and SET buttons at the same time until the hand icon appears on the right of the screen.

Permanent manual mode is not deactivated automatically. The only way to deactivate this mode is manually.

Throughout the manual mode, for changing Relay B output, it is necessary to push and release ▲ button.

To deactivate this mode for Relay B, push ▲ button until the hand icon disappears.

MENUS:

Press SET button on the main screen to access the menus. If the lock function is deactivated, PROG menu appears on the screen. Use the direction buttons to see ADJUST,DISPLY and EXIT

information :

In this menu, program and device settings could be monitored without making changes. Use the direction buttons to see information about sunrise, sunset, programs, memory status, season (summer-winter), latitude, longitude,quiet mode status.

PROGRAM:

All program settings could be done. Creating new program, changing or deleting an existing program.

ADJUST:

Device settings could be done.

PROGRAM MENU:

Press SET button on PROG screen to access the Program Menu. Use the direction buttons to see NEW,CHANGE,DELETE and EXIT menus.

NEW : New programs are created.

CHANGE : Existing programs could be changed.

DELETE : Existing programs could be deleted. It is possible to delete all of them or the selected one.

ADJUST MENU:

In this menu, device settings could be done.

TIME Real Time Clock and Calender could be set in TIME menu

SEASON In this menu, daylight saving time settings could be done. If AUTO is chosen, device determines beginning dates of the summer and winter automatically.

LOCATE Coordinates and time zone settings of the location could be done in this menu.

LOCK Lock function could be activated to prevent unauthorized persons from using the device. This mode could be activated for both of the relays separately.

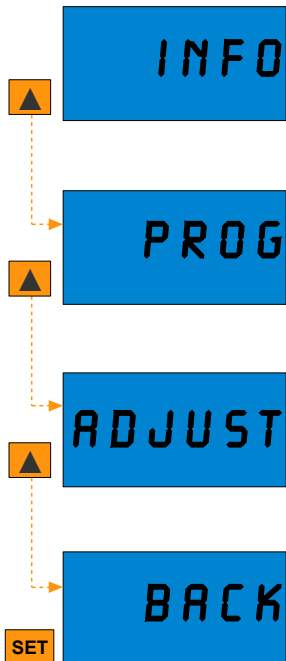
QUIET Quiet mode could be activated to stop the program operation for a certain period.

PIN In this menu, PIN code could be changed. PIN code is a 4 digit number.

LANGUA Language could be changed to turkish or english

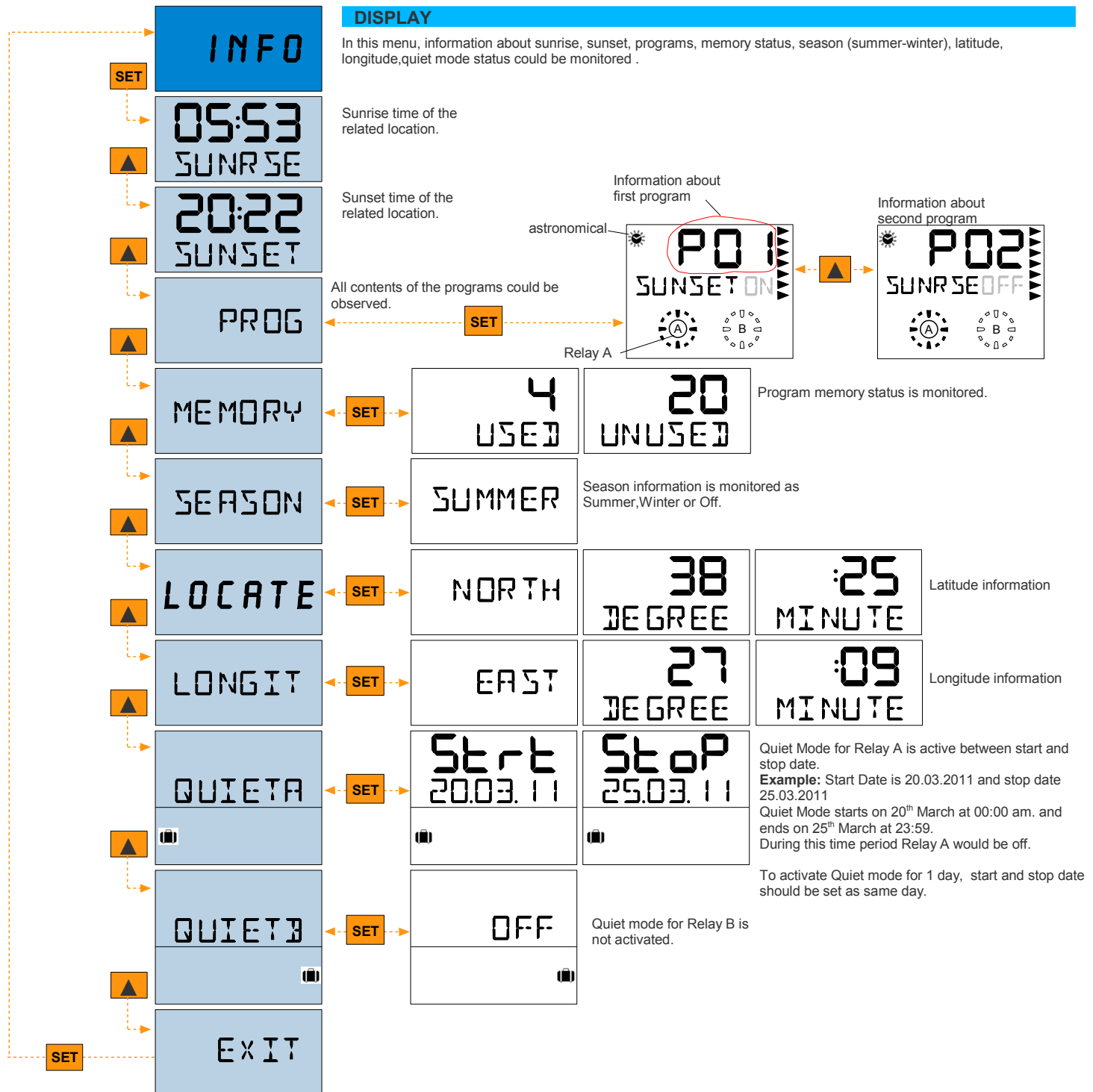
DEFAULT All device settings except time and date are set to default.

RESET The device could be restarted time and date Settings would be cleared.



DISPLAY

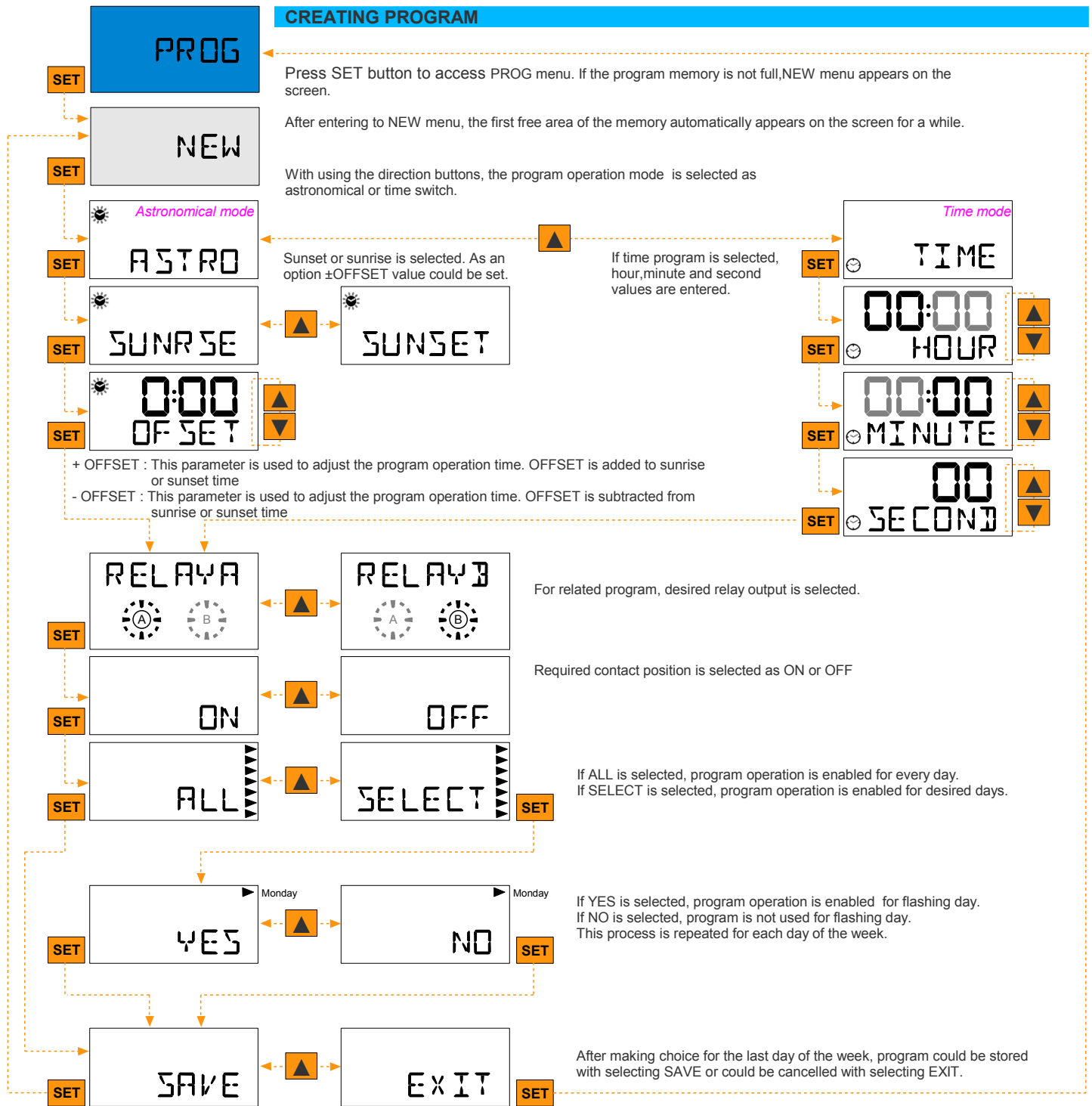
In this menu, information about sunrise, sunset, programs, memory status, season (summer-winter), latitude, longitude, quiet mode status could be monitored.



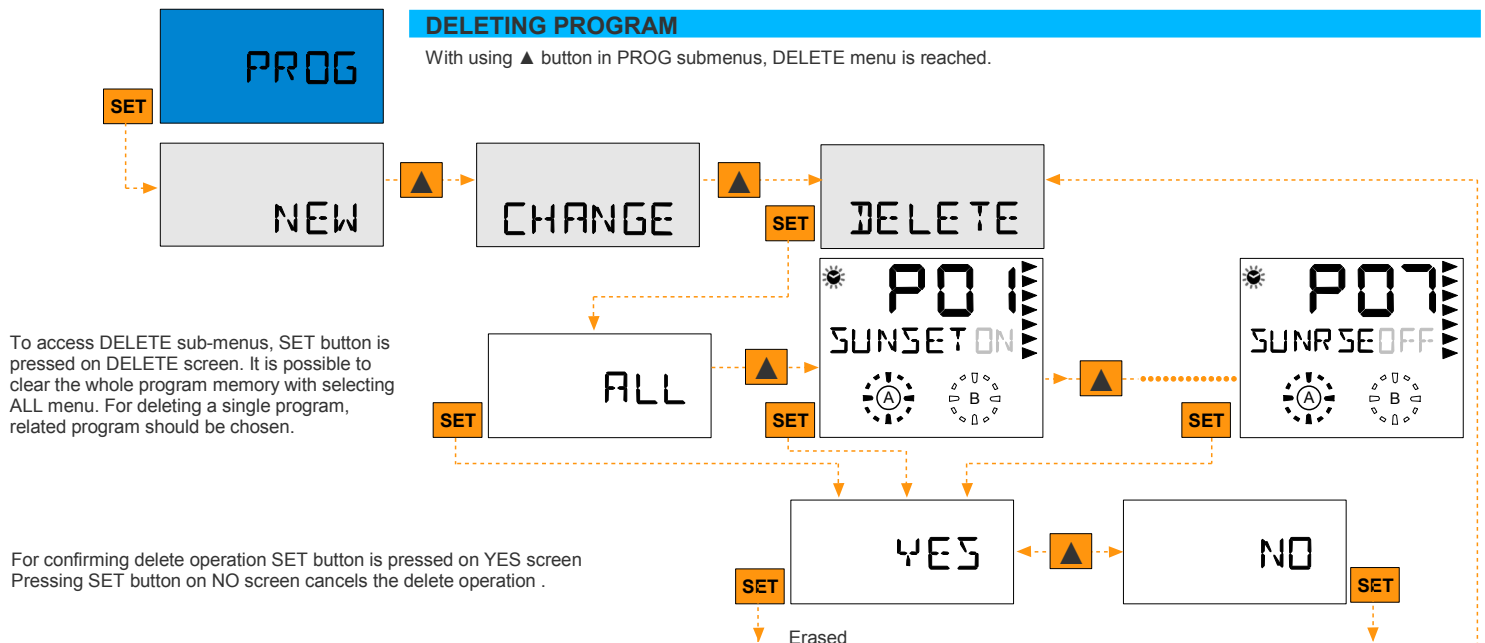
ABBREVIATIONS

ADJUST	adjust	LOCK	lock	QUIETA	quiet mode for relay A	STRT-M	start of quiet mode(month)
ALL	entire week	LOCKA	lock function for relay A	QUIETB	quiet mode for relay B	STRT-Y	start of quiet mode(year)
ASTRO	astronomical mode	LOCKB	lock function for relay B	RELAYA	relay A	SUMMER	summer
AUTO	automatic	LONGIT	longitude	RELAYB	relay B	SUNRSE	sunrise
CHANGE	change	MANUAL	manual	REPEAT	repeat	SUNSET	sunset
COORD	coordinates	MINUTE	minute	RESET	reset	T-ZONE	time zone
CUSTOM	custom	MONTH	month	S-DAY	summer beginning(day)	TIME	time
DAY	day	NEW	new	S-HOUR	summer beginning(hour)	UNUSED	unused
DEFAULT	factory defaults	NO	no	S-MIN	summer beginning(minute)	USED	used
DEGREE	degree	NORTH	north	S-MON	summer beginning(month)	UTC	coordinated universal time
DELETD	deleted	OFF	off	S-WEEK	summer beginning(week)	W-DAY	winter beginning(day)
DELETE	delete	OFF	relay is off	SAVE	save	W-HOUR	winter beginning(hour)
INFO	display	OFSET	offset	SEASON	season	W-MIN	winter beginning(minute)
EAST	east	OK	okay	SECOND	second	W-MON	winter beginning(month)
ERR2	PIN code error	OLD	old	SELECT	select the day	W-WEEK	winter beginning(week)
ERR5	Program overload error	ON	on	SOUTH	south	WEST	west
EXIT	exit	ON	relay is on	STOP-D	end of quiet mode(day)	WINTER	winter
HOURL	hour	P1 OK	program1 is saved.	STOP-M	end of quiet mode(month)	WRONG	wrong
LANGUA	language	PIN	pin code	STOP-Y	end of quiet mode(year)	YEAR	year
LATITU	latitude	PROG	program	STRT-D	start of quiet mode(day)	YES	yes
LOCATE	locate	QUIET	quiet mode				

CREATING PROGRAM

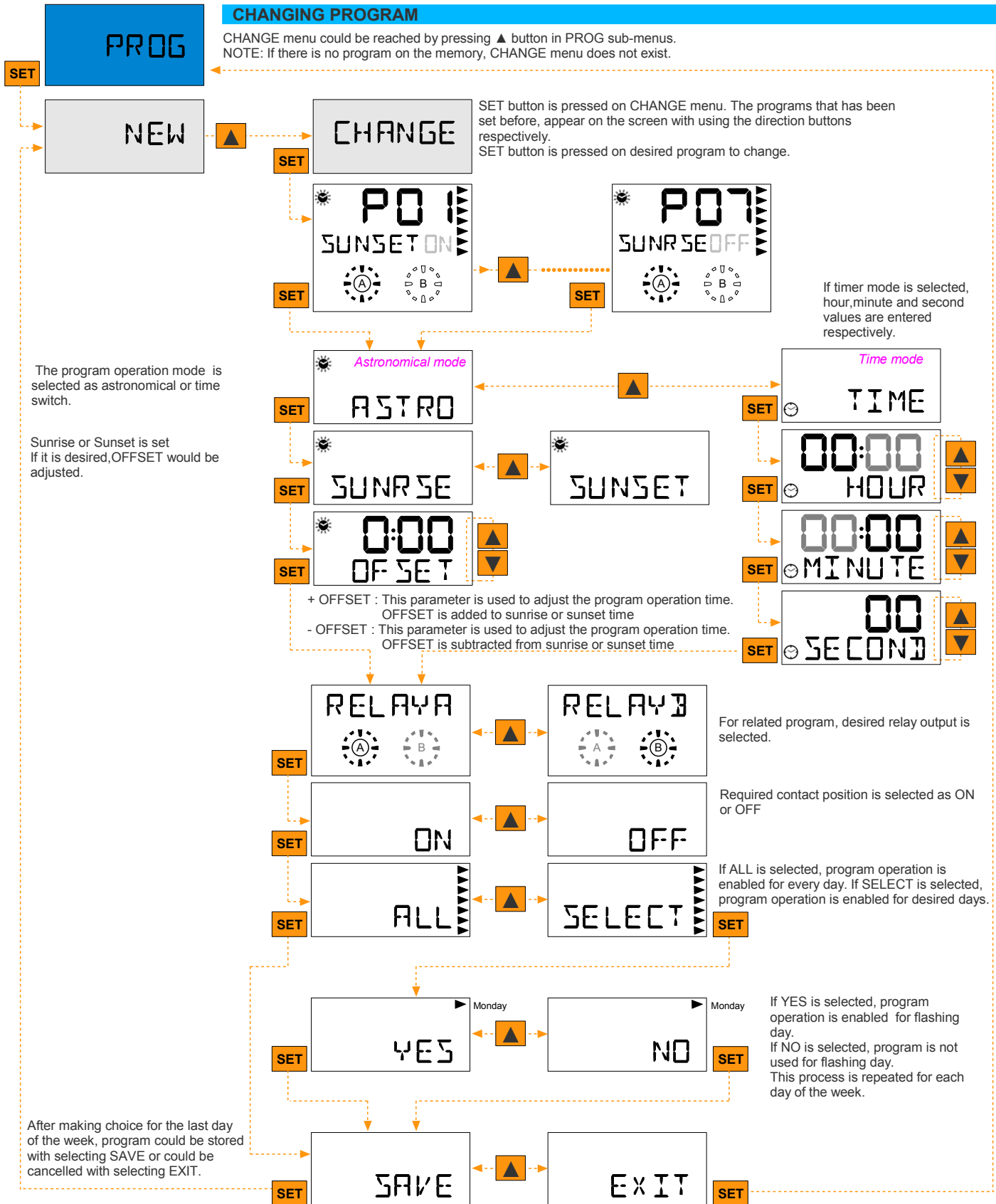


DELETING PROGRAM



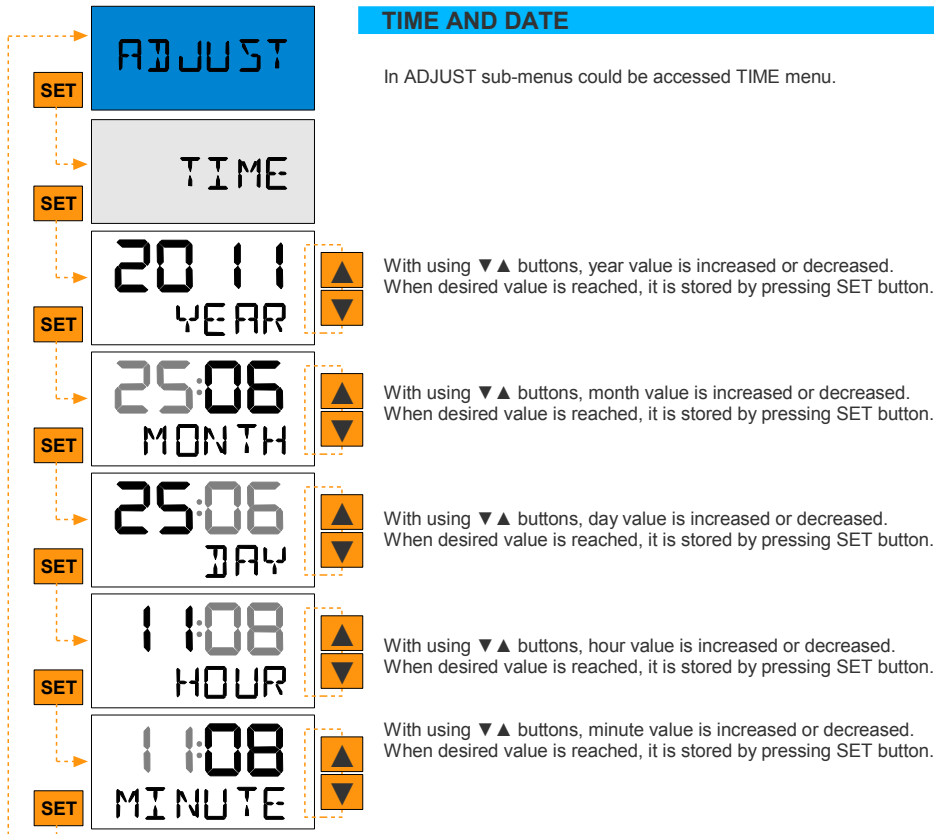
CHANGING PROGRAM

CHANGE menu could be reached by pressing ▲ button in PROG sub-menus.
NOTE: If there is no program on the memory, CHANGE menu does not exist.



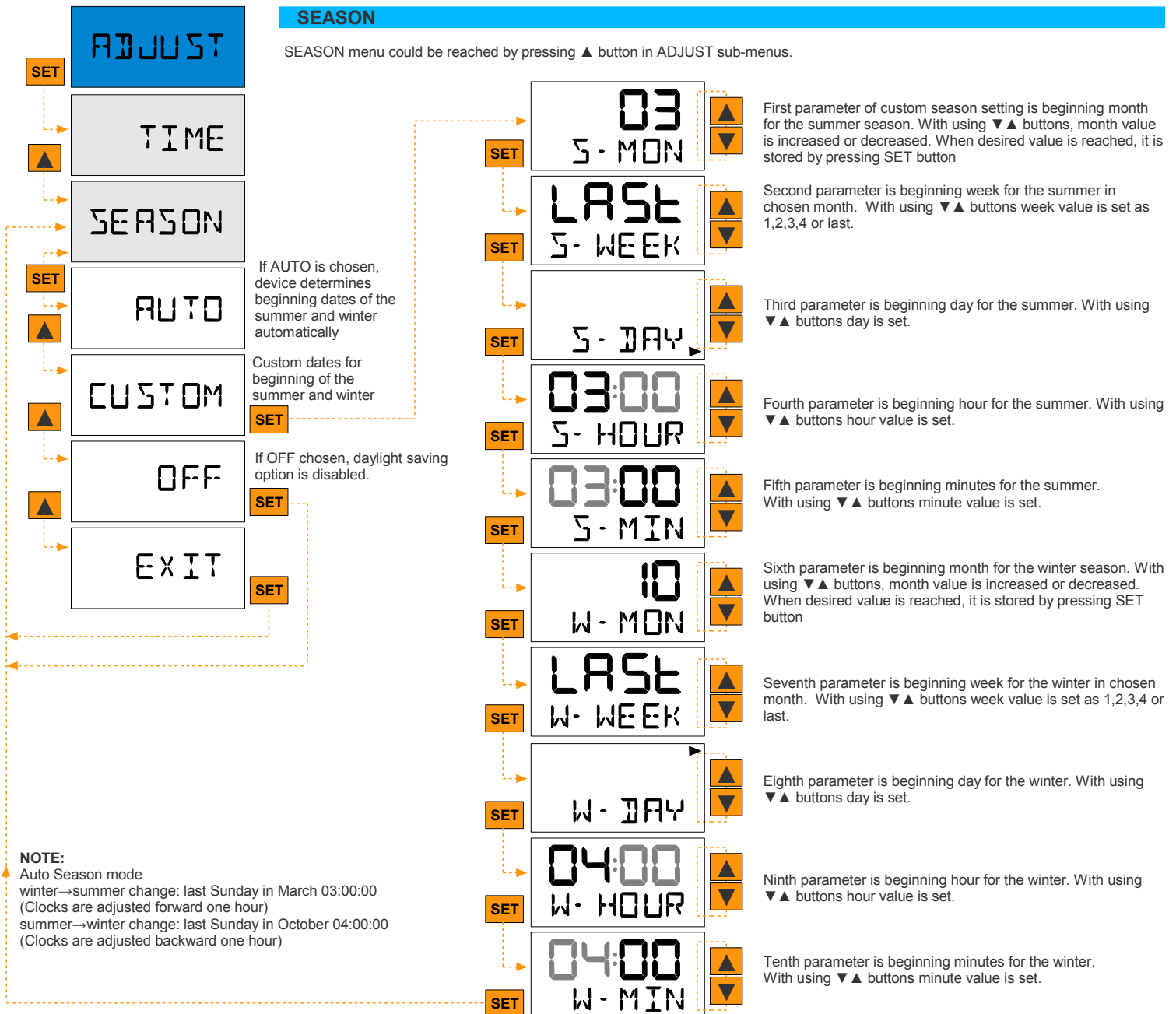
TIME AND DATE

In ADJUST sub-menus could be accessed TIME menu.



SEASON

SEASON menu could be reached by pressing ▲ button in ADJUST sub-menus.

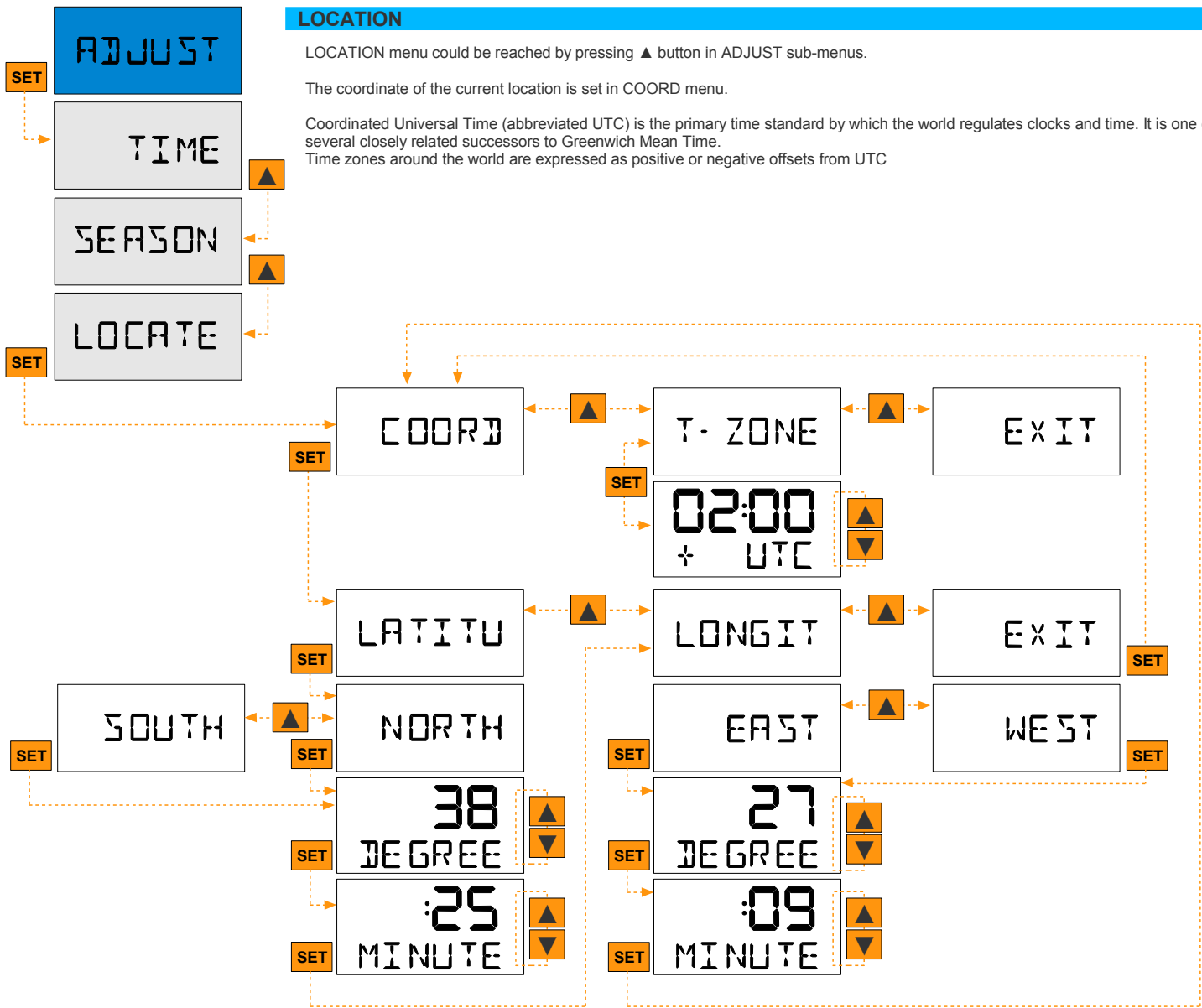


LOCATION

LOCATION menu could be reached by pressing ▲ button in ADJUST sub-menus.

The coordinate of the current location is set in COORD menu.

Coordinated Universal Time (abbreviated UTC) is the primary time standard by which the world regulates clocks and time. It is one of several closely related successors to Greenwich Mean Time.
Time zones around the world are expressed as positive or negative offsets from UTC

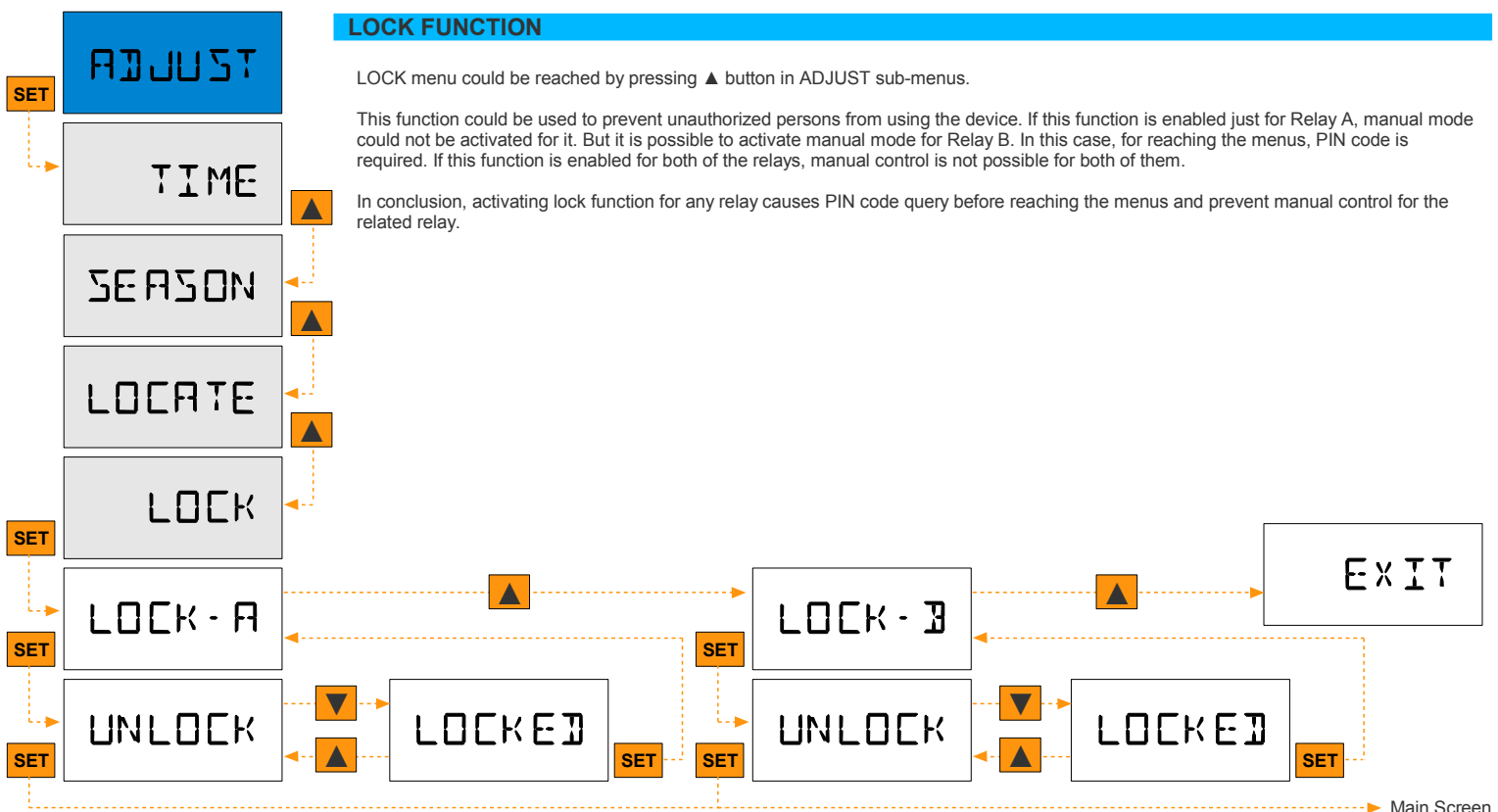


LOCK FUNCTION

LOCK menu could be reached by pressing ▲ button in ADJUST sub-menus.

This function could be used to prevent unauthorized persons from using the device. If this function is enabled just for Relay A, manual mode could not be activated for it. But it is possible to activate manual mode for Relay B. In this case, for reaching the menus, PIN code is required. If this function is enabled for both of the relays, manual control is not possible for both of them.

In conclusion, activating lock function for any relay causes PIN code query before reaching the menus and prevent manual control for the related relay.



Main Screen

QUIET MODE

QUIET menu could be reached by pressing ▲ button in ADJUST sub-menus.

Quiet mode allows forcing of the OFF output for a time period.

This mode could be activated for Relay A and/or Relay B.

Firstly, the time interval is set for related relay.

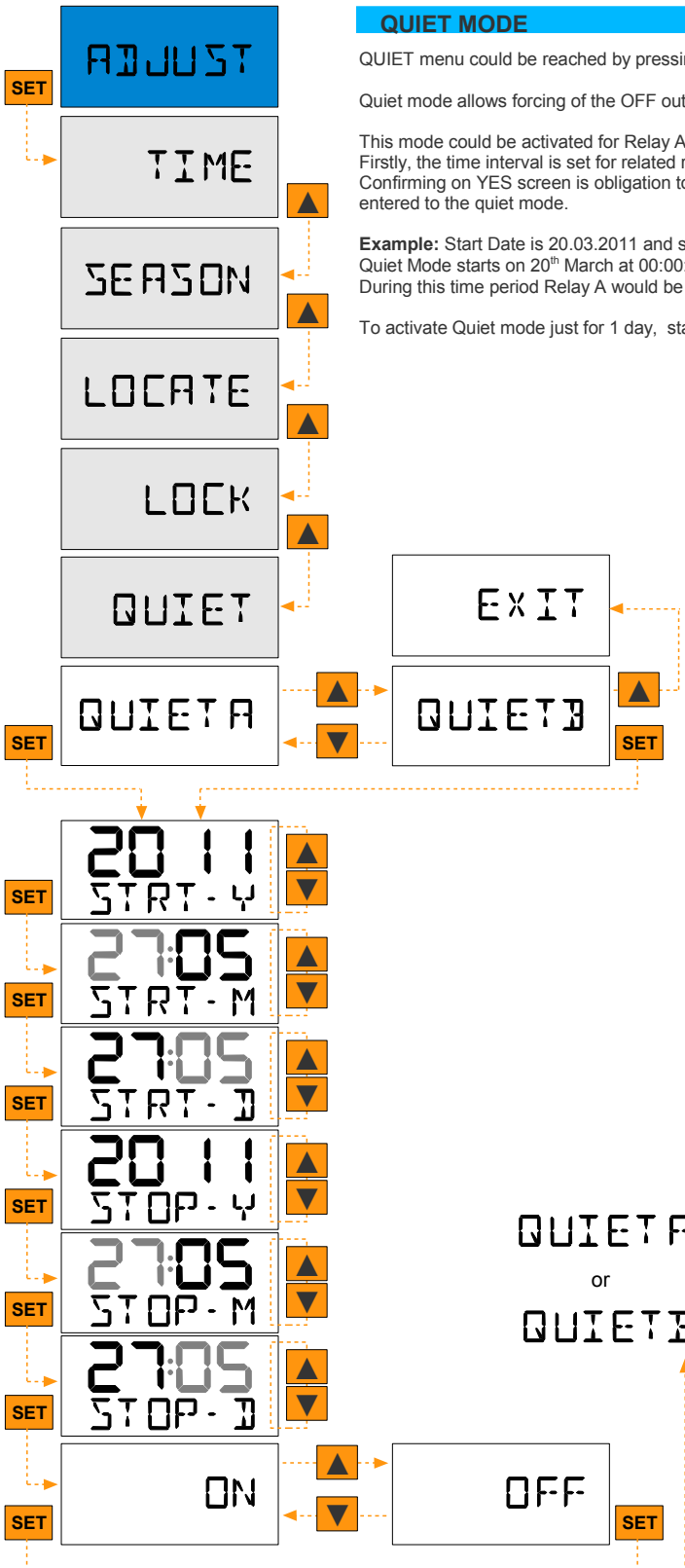
Confirming on YES screen is obligation to activate this mode. If the time period is set but not confirmed, related relay would not be entered to the quiet mode.

Example: Start Date is 20.03.2011 and stop date 25.03.2011

Quiet Mode starts on 20th March at 00:00:00 am. and ends on 25th March at 23:59:59.

During this time period Relay A would be off.

To activate Quiet mode just for 1 day, start and stop date should be set as same day.



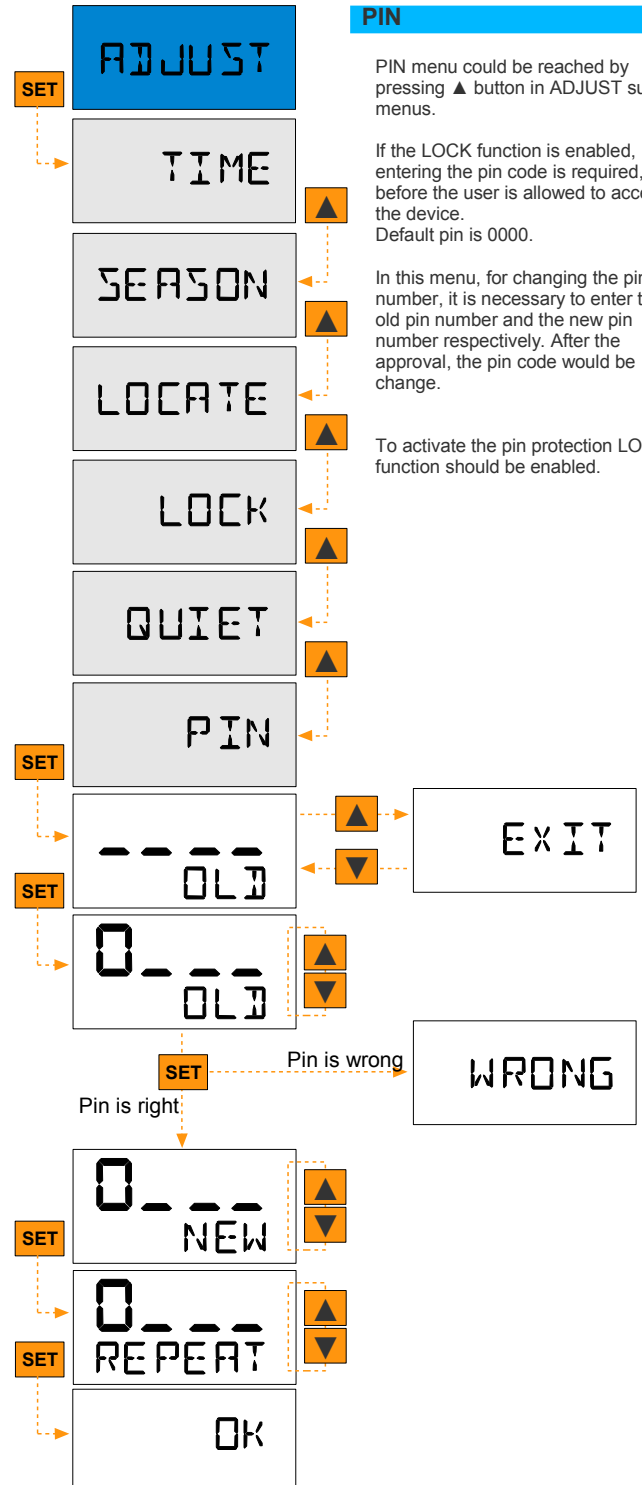
PIN

PIN menu could be reached by pressing ▲ button in ADJUST sub-menus.

If the LOCK function is enabled, entering the pin code is required, before the user is allowed to access the device. Default pin is 0000.

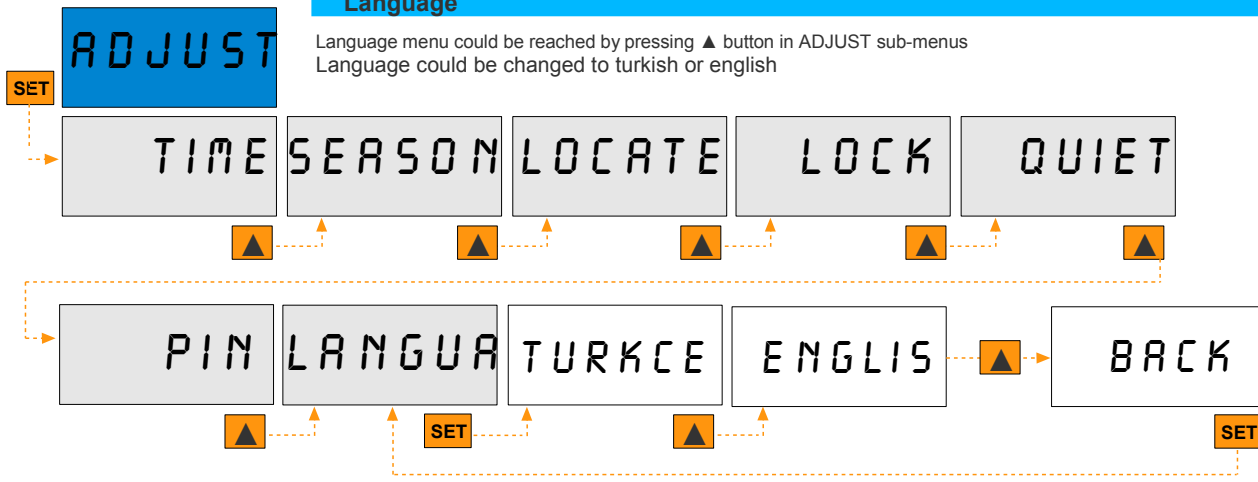
In this menu, for changing the pin number, it is necessary to enter the old pin number and the new pin number respectively. After the approval, the pin code would be change.

To activate the pin protection LOCK function should be enabled.



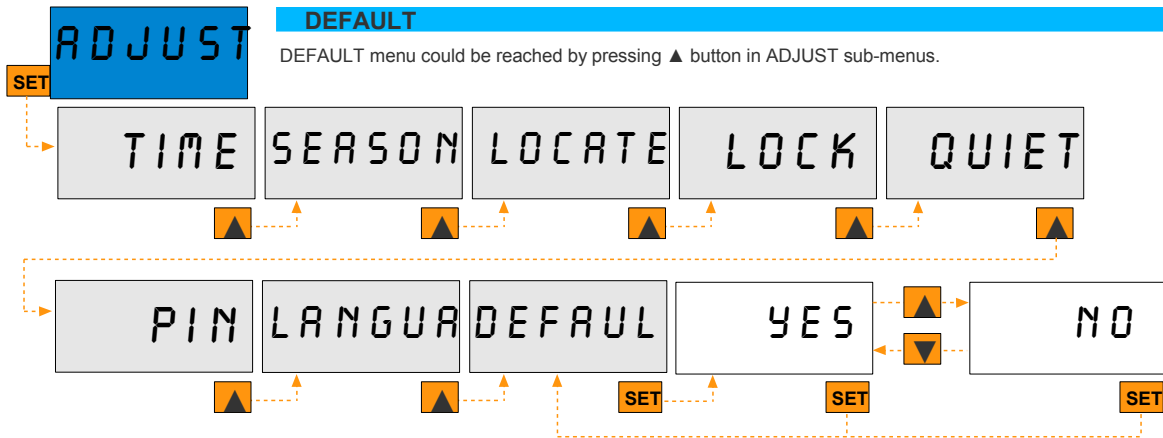
Language

Language menu could be reached by pressing ▲ button in ADJUST sub-menus
Language could be changed to turkish or english



DEFAULT

DEFAULT menu could be reached by pressing ▲ button in ADJUST sub-menus.



By restoring an ASTRO to factory defaults, following settings are installed.

Programs : 4 preset programs
 Lock A-B : Off
 Quiet A-B : Off
 Manual A-B : Off
 Season : Auto
 Location : !!!!!!!
 Contrast : 7

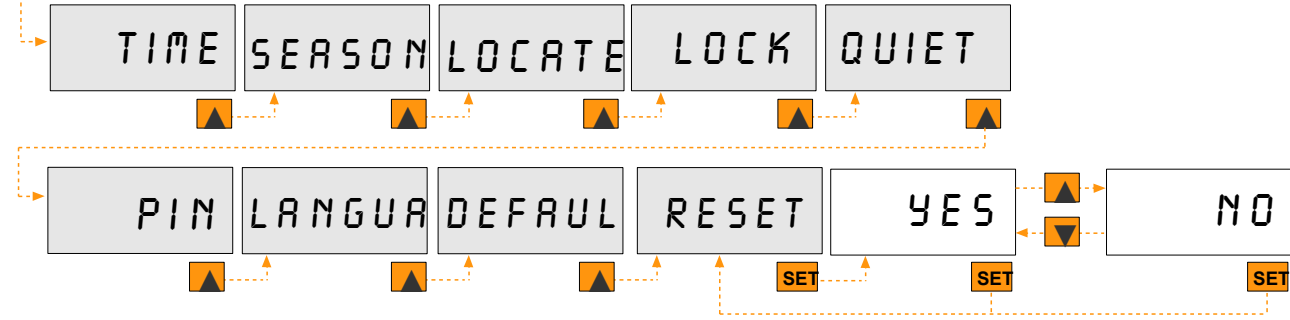
NOTE:

Reset an ASTRO to factory defaults does not change the pin code and the real time.

RESET

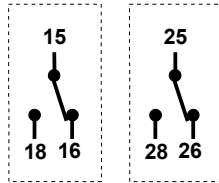
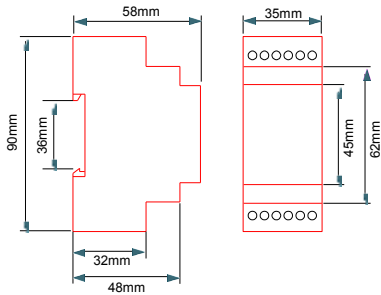
ADJUST

DEFAULT menu could be reached by pressing ▲ button in ADJUST sub-menus.
The device could be restarted time and date settings would be cleared.



TECHNICAL DATA

Rated Voltage (Un)	: 230Vac
Operation Range	: Un x (0,85 – 1,10)
Contact Current(15-18)(25-28)	: max. 8 A / 250Vac (N.O); ASTRO-01 & ASTRO-03
Contact Current(15-18)(25-28)	: max. 16 A / 250Vac (N.O); ASTRO-11 & ASTRO-13
Supply Power Consumption	: < 3VA
Clock Precision	: ± 1 sec/day
Programming Resolution	: 1 sec
Number of Programs	: ASTRO-01 / ASTRO-11 24 programs ASTRO-03 / ASTRO-13 100 programs
Memory	: EEPROM
Battery	: CR2032 (Replacable)
Battery Life	: 5 year (not inserted in device)
Additional Reserv Time	: 3 - 7 hour
Screen	: LCD
Language	: English - Turkish
Programming with InfraRed	: No
Mounting	: To connection rail in electrical panel
Storage Temperature	: -10 °C +70 °C
Ambient Temperature	: 0 °C +50 °C
Device Protection Class	: IP 20
Connector Protection Class	: IP 00
Dimensions	: 2 x DIN modules



CONNECTION

