

ELKO EP, s.r.o.
 Palackého 493
 769 01 Holešov, Vsetuly
 Czech Republic
 Tel.: +420 573 514 211
 e-mail: elko@elkoep.com
 www.elkoep.com

Made in Czech Republic

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SHT-6

Time switch with DCF control



Characteristics

Time switch with DCF control is used for the automatic real-time controlling of appliances. The timer operates all year round without the need for continuous maintenance, with minimum operating costs and maximum savings of electrical energy (for example for turning on heating, pumps, ventilators, public lighting etc.). Appliances can be controlled in regular time cycles or based on a pre-set programme.

Time switch SHT-6 is synchronized by a DCF77 signal using external receiver DCFR-1. Time switch can operate independently without a DCF receiver. In the case of a power supply interruption, the timer retains all set values required for its reliable activation after power is restored.

- Switching modes:

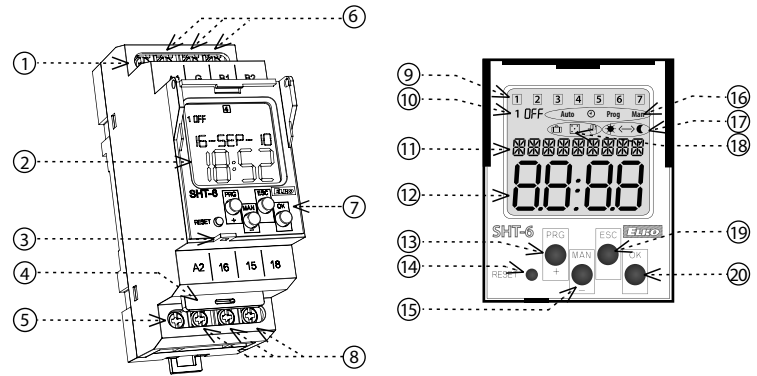
- **AUTO** - automatic switching mode:
 - **PROGRAMME** ☉ - switching based on a programme (astro or time).
 - **RANDOM** 🎲 - switches randomly in a 10-120 minute interval.
 - **HOLIDAY** 🏠 - holiday mode - option of setting up a period for which the timer will be blocked, i.e. will not switch based on the set programmes.
 - **MANUAL** 🖱️ - manual mode - option of controlling the individual output relay manually
- Options of the automatic switching programme:
 - **TIME PROGRAMME** - switching based on a pre-set time programme
- Memory capacity for 100 time programmes.
- Programming can be performed both when power is on or in backup mode.
- Output relays only operate with a supply voltage of AC 230 V.
- Menu display selection - CZ / SK / EN / ES / PL / HU / RU (default factory setting EN).
- Selection of automatic switching between summer / winter time based on location.
- Backlit LCD display.
- Simple and easy setup using 4 control buttons.
- Sealable transparent cover on the front panel.
- The timer has a backup battery that preserves data in case of a power supply failure (reserve backup time up to 3 years).
- Supply voltage: AC 230 V.
- 2-module, mounted onto a DIN rail, clamping terminals.

- After plugging the timer in for the first time, the current time, date and geographic location must be set for correct operation of the clock.

Settings can be done:

- manually: only if the DCF signal is disabled
- automatically: if the receiver DCFR-1 is connected and DCF signal is enabled.

Description



1. Supply voltage terminal (A1)
2. Display with back-light
3. Place for seal
4. Plug-In with battery backup
5. Supply voltage terminal (A2)
6. Connectors for the DCFR-1 receiver
7. Control buttons
8. Output - channel (16-15-18)
9. Indicates the day in the week
10. Indication
11. Indication of date / setting menu *
12. Time display **
13. Control button PRG / +
14. Reset
15. Control button MAN1 / -
16. Operating modes indication
17. 12/24 hours format / sunset - sunrise
18. Indication of the switch program
19. Control button MAN2 / ESC
20. Control button OK

CONTROL OF A DISPLAY WITH BACKLIGHT

Power on: Display is illuminated with a backlight for 10 seconds from the last button press. The display continuously shows the settings - date, time, day of the week, contact state and programme. Permanent on / off is activated by simultaneous presses of the MAN, ESC, OK buttons. After activating the permanent on/off, the display will flash briefly.

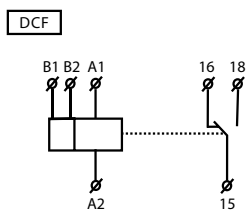
Backup mode: After 2 minutes, the display switches to the sleep mode, i.e. shows no information. The display can be activated by pressing any button.

* Displaying the date or status of DCF signal (switches after 4 s) status of DCF signal:

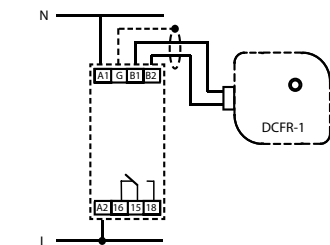
- Prohibited DCF reception: DCF Flashes OFF
- Allow DCF reception: good signal - DCF OK
 bad or no signal - DCF BAD

** If the time is not set, the time indication is flashing. If the time is set (manually or automatically), the time indication lights permanently.

Symbol



Connection



⚠ Sensing sensor on potential network mains supply voltage.

Mode precedence

Mode precedence	Display	Output mode
mode with the highest priority >>>	ON / OFF 🖱️	manual control
>>>	ON / OFF 🏠	holiday mode
>	ON / OFF 📅	time program Prog

Type of load	$\cos \varphi \geq 0.95$								
Mat. contacts AgSnO ₂ contact 16A	250V / 16A	250V / 5A	250V / 3A	230V / 3A (690VA)	230V / 3A (690VA) to max. input C=14uF	1000W	x	250V / 3A	x
Type of load									
Mat. contacts AgSnO ₂ contact 16A	x	250V / 6A	250V / 6A	24V / 10A	24V / 3A	24V / 2A	24V / 6A	24V / 2A	x

SHT-6

Supply terminals:	A1 - A2
Supply voltage:	AC 230 V / 50 - 60 Hz
Burden (max.):	8 VA / 0.7 W
Max. dissipated power (Un + terminals):	3.5 W
Supply voltage tolerance:	-15 %; +10 %

Output

Number of contacts:	1x changeover (AgSnO ₂)
Rated current:	16 A / AC1
Switching capacity:	4000 VA / AC1, 384 W / DC
Peak current:	30 A / < 3 s
Switching voltage:	250 V AC / 24 V DC
Mechanical life:	> 3x10 ⁷
Electrical life (AC1):	> 0.7x10 ⁵

Time circuit

Real time back-up:	up to 3 years
Accuracy	
- without DCF receiver:	max. ± 1 s / day at 23 °C (73 °F)
Minimum interval:	1 min.
Data stored for:	min. 10 years

Program circuit

Number of memory places:	100
Program:	daily, yearly (up to year 2099)
Data readout:	LCD display, with back light

Other information

Operating temperature:	-10.. +55 °C (14 to 131 °F)
Storage temperature:	-30.. +70 °C (-22 °F to 158 °F)
Electrical strength:	4 kV (supply - output)
Operating position:	any
Mounting:	DIN rail EN 60715
Protection degree:	IP10 terminals, IP40 from the front panel
Overvoltage category:	III.
Pollution degree:	2
Max. cable size (mm ²):	max. 2x 2.5, max. 1x 4 with sleeve max. 1x 2.5, max. 2x 1.5 (AWG 12)
Dimensions:	90 x 35 x 64 mm (3.5" x 1.4" x 2.5")
Weight	114 g (4 oz.) - without battery
Standards:	EN 61812-1, EN 61010-1

Warning

Device is constructed for connection in 1-phase main alternating current voltage and must be installed according to norms valid in the state of application. Connection according to the details in this direction. Installation, connection, setting and servicing should be installed by qualified electrician staff only, who has learnt these instruction and functions of the device. This device contains protection against overvoltage peaks and disturbances in supply. For correct function of the protection of this device there must be suitable protections of higher degree (A, B, C) installed in front of them. According to standards elimination of disturbances must be ensured. Before installation the main switch must be in position "OFF" and the device should be de-energized. Don't install the device to sources of excessive electro-magnetic interference. By correct installation ensure ideal air circulation so in case of permanent operation and higher ambient temperature the maximal operating temperature of the device is not exceeded. For installation and setting use screw-driver cca 2 mm. The device is fully-electronic - installation should be carried out according to this fact. Non-problematic function depends also on the way of transportation, storing and handling. In case of any signs of destruction, deformation, non-function or missing part, don't install and claim at your seller it is possible to dismount the device after its lifetime, recycle, or store in protective dump.

Internal circuits and sensor circuits are not galvanically isolated from the mains. No product circuits, including sensor circuits, can be considered as ELVs. Cable shield to the sensor, fulfills a functional purpose in terms of EMC does not fulfill any protection or safety function and it is not associated with any EP protection. It is not possible to touch the shield as well as the other product wiring circuits! Security against electric shock is ensured by reinforced insulation product, cable, sensors and their correct and professional installation. The cable must be of a suitable dimension to meet the parameters to provide protection in the area of the over-voltage category III.

	entrance into programming menu
	browsing in menu
	setting of values
	quick shifting during setting of values
	entrance into required menu
	confirmation
	one level up
	a step back
	back to the starting menu

Device differs short and long button press.

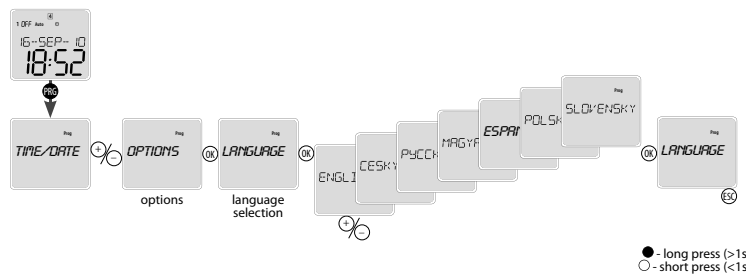
In the manual marked as:

○ - short button press (< 1s)

● - long button press (> 1s)

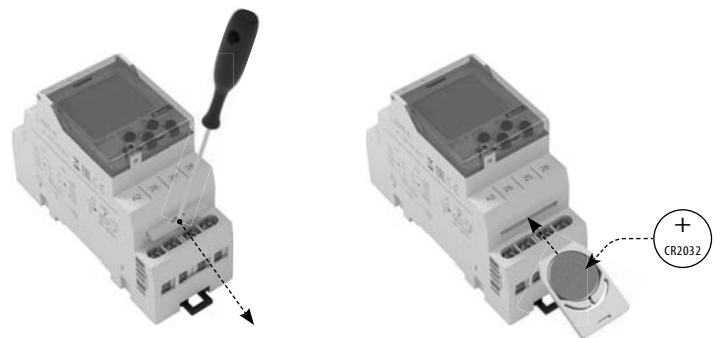
After 30s of inactivity (from the last press of any button) will device automatically returns into starting menu.

Language settings



● - long press (>1s)
○ - short press (<1s)

Battery replacement

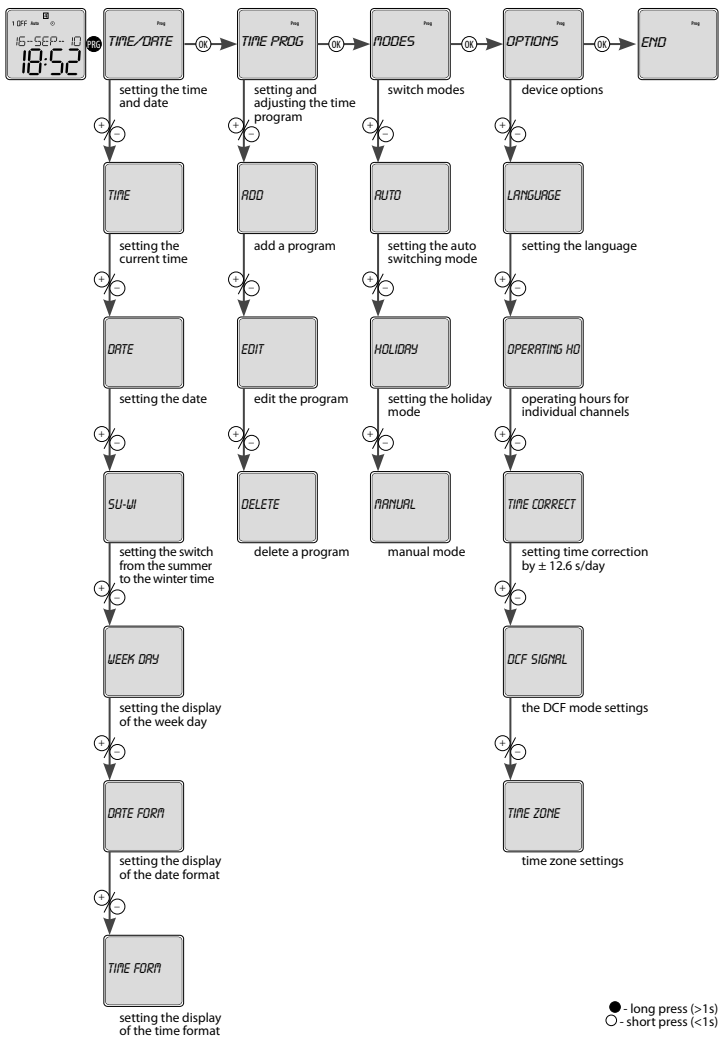


You can change the battery without disassembling the device.

CAUTION

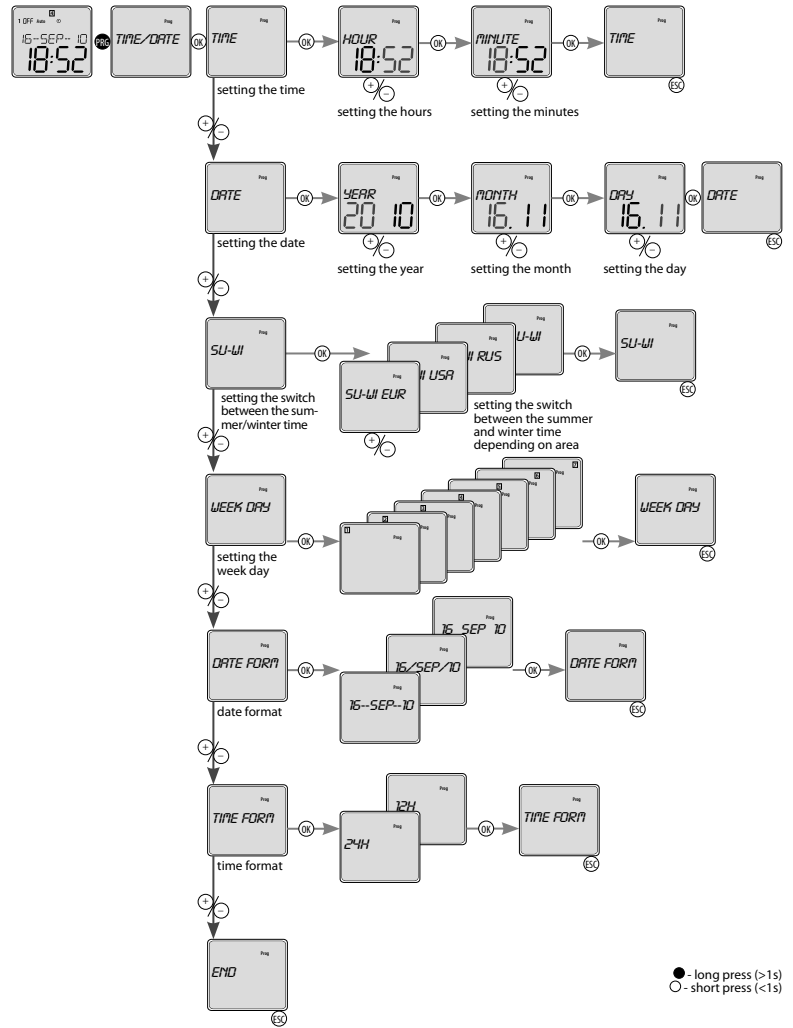
- only change the battery when the device is disconnected from power supply!!!
- the date and time must be reset after changing the battery!!!
- remove the plug-in module with the battery
- replace the original battery
- enter a new battery so that its upper edge (+) lines up with the plug-in module
- slide the plug-in module in the device and pay attention to polarity (+ up) - for roughlyly 1 s, the display will show the name and the software version
- you can connect the device to power supply

Menu overview

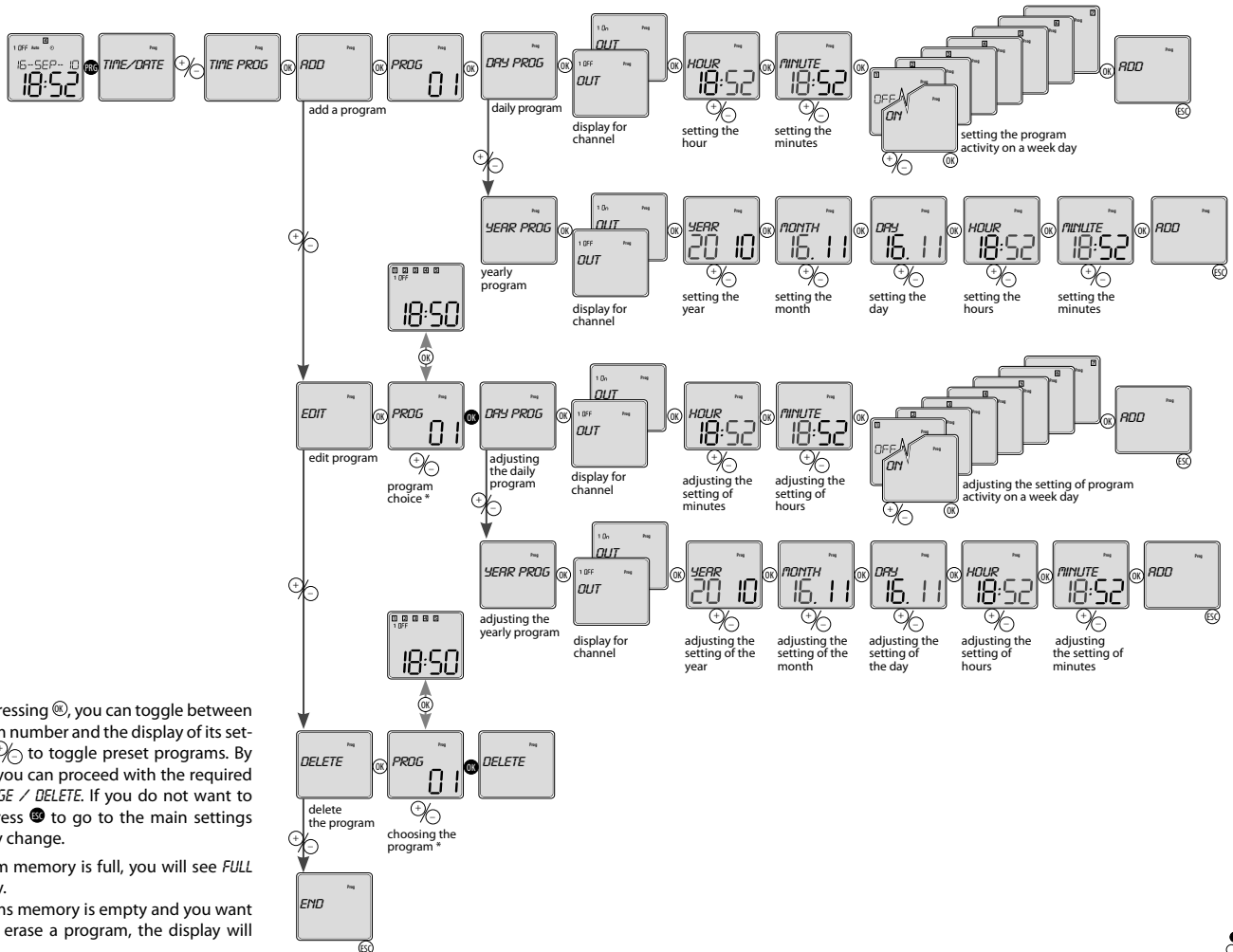


Time and date setting

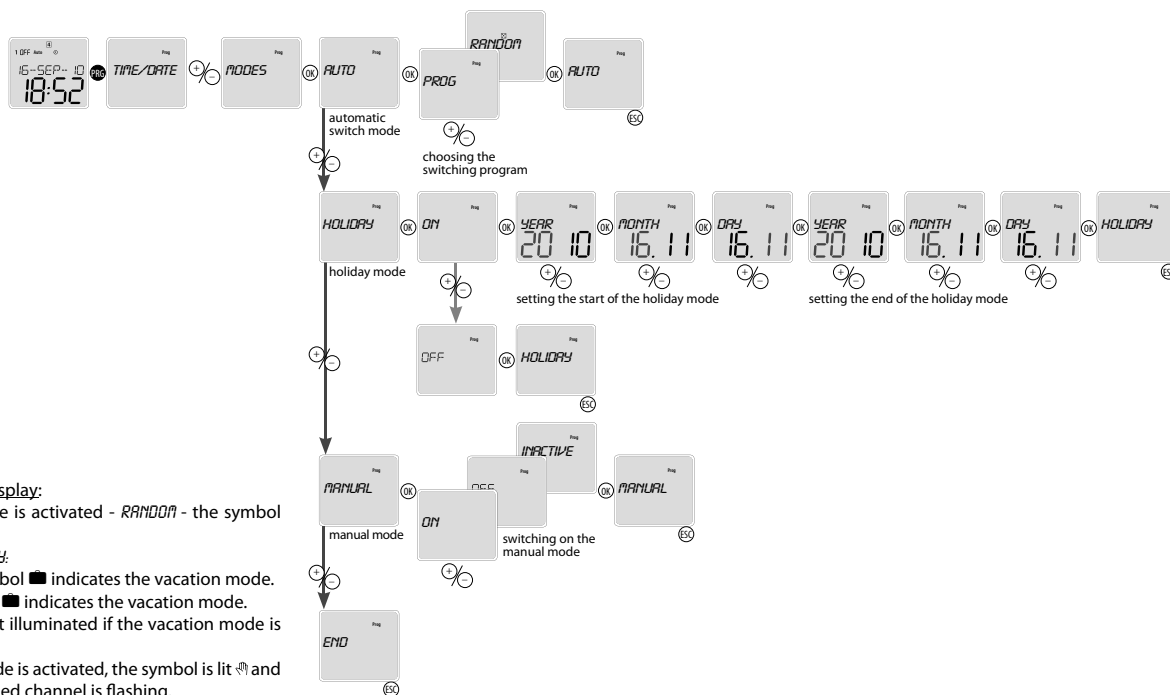
It is possible only if DCF signal is not enabled (in the menu **OPTIONS** set - DCF signal **ENABLED**).



Time program



Setting the switching modes

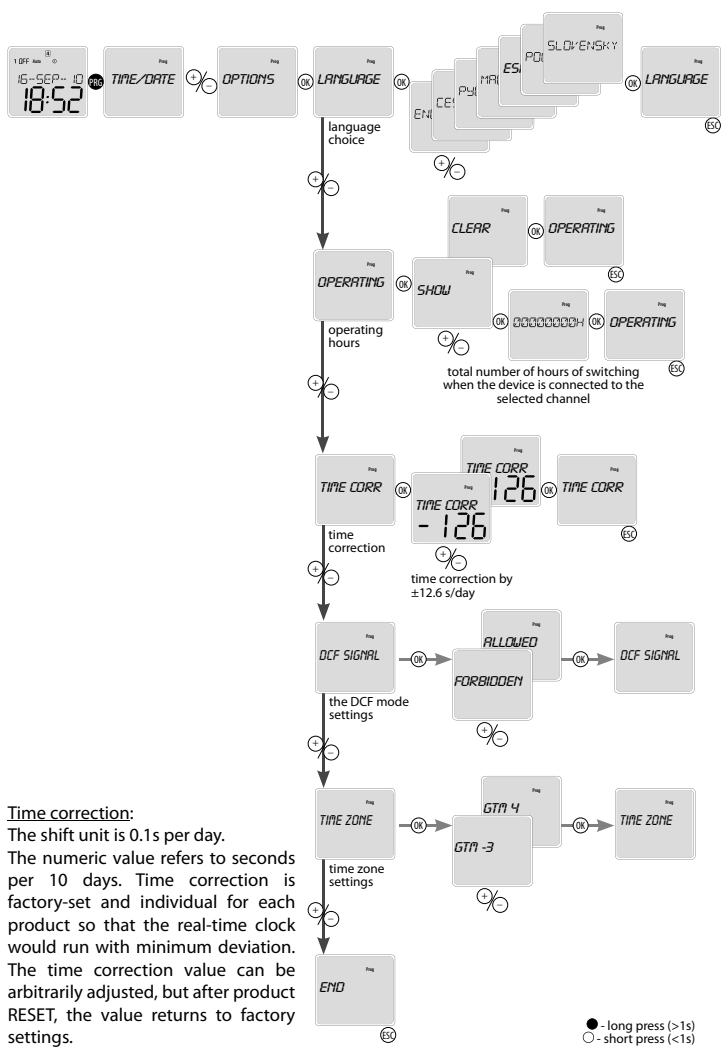


What you see on the display:

- when a random mode is activated - **RANDOM** - the symbol is lit
- vacation mode **HOLIDAY**:
 - the illuminated symbol indicates the vacation mode.
 - the flashing symbol indicates the vacation mode.
 - the symbol is not illuminated if the vacation mode is not set or has.
- when the manual mode is activated, the symbol is lit and the manually controlled channel is flashing.

● - long press (>1s)
○ - short press (<1s)

Setting options

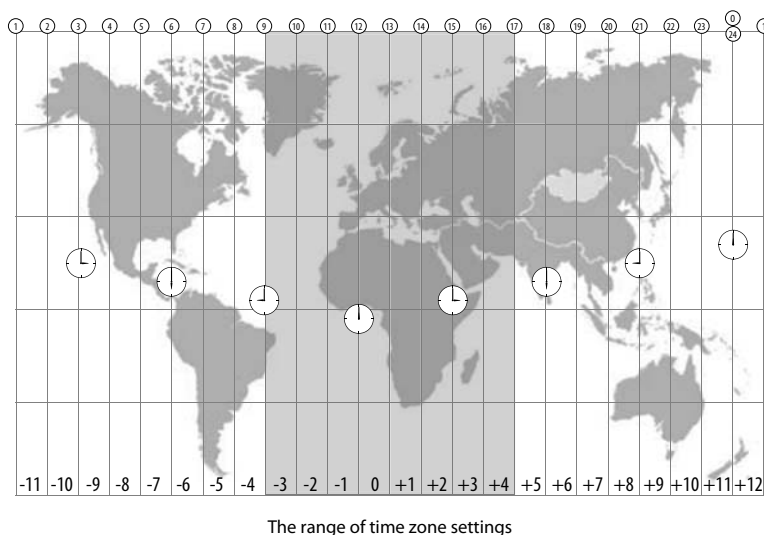


Time correction:

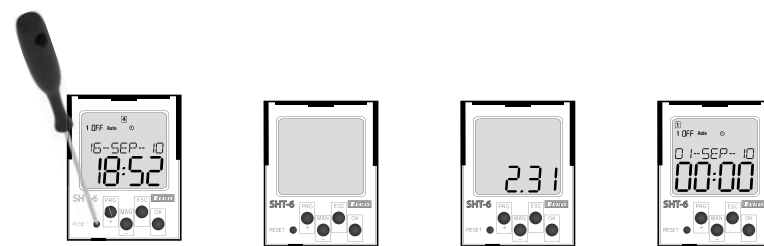
The shift unit is 0.1s per day. The numeric value refers to seconds per 10 days. Time correction is factory-set and individual for each product so that the real-time clock would run with minimum deviation. The time correction value can be arbitrarily adjusted, but after product RESET, the value returns to factory settings.

● - long press (>1s)
○ - short press (<1s)

Overview of time zones



Reset

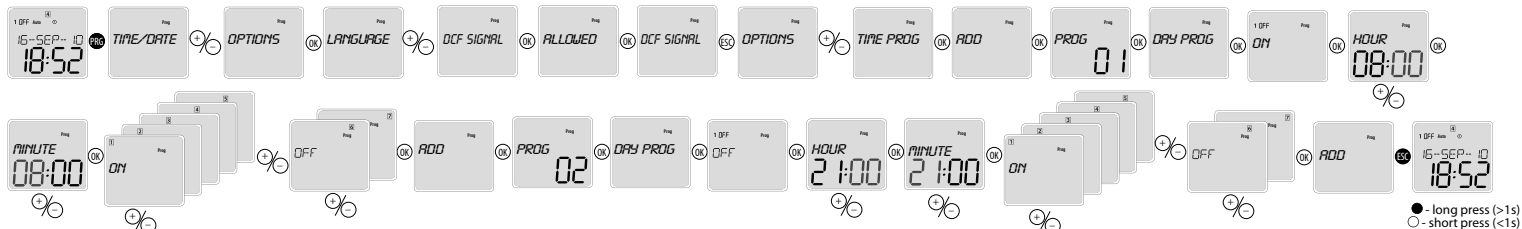


Performed by shortly pressing the hidden RESET button with a blunt-pointed object (e.g. a pencil or screw-driver with a diameter of at most 2 mm).

The type of device and software version will be displayed for 1 second, then the device will enter default mode. This means that the language is set to EN, all data is zeroed (time / date, user programs, device options function).

An example of SHT-6 programming

Set-up the relay switch on at 8 AM and the relay switch off at 9 PM for days Mo - Fri.



● - long press (>1s)
○ - short press (<1s)