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Made in Czech Republic

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EN

SHT-1, SHT-1/2

Digital time switches with weekly/yearly program

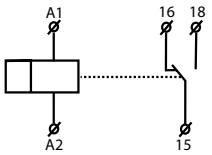
Characteristics

- Serves for controlling of various types of appliances in dependance on real time (automation-switching of heating, pumps, ventilation etc.). Appliances can be operated in concrete periodic time cycles or according a pre-set program (depends on type, see the chart Versions of time switches).
- SHT-1: 1-channel version.
- SHT-1/2: 2-channel version (to each channel can be assigned an individual program). Possibility to control two independent circuits.
- Setting of switching by:
  - program (*PROG*) - switching according programs set in **SET 1**. Possibility to set the repeat every minute or every hour.
  - random (*AUTO* ⚄) - random switching in 10-120 min interval.
  - permanently manualy ✋.
- Switching modes (*OUT*):
  - *OUT ON* - normal - 2 positions in memory (close /open), shortest time of closing is 1 min.
  - *OUT ON* ✳ - cyclic - 2 positions in memory (pulse/delay), range 1-99s.
  - *OUT ON* ⎍ - pulse - 1 position in memory, range 1-99s.
  - *OUT OFF* - turn off the switching mode.
- Set time of pulse/delay is on one channel the same for all programs (it is not possible to set more pulses with different durations on one channel).
- "Holiday mode 🧳" - possibility to choose the period, when the device will be not switching according a standard program and will be blocked for the pre-set time.
- 100 memory positions (by SHT-1/2 are those 100 positions common for both channels).
- Programming of device can be realize even under voltage and also even in back-up mode.
- Output relays operates only under voltage.
- Automatic change-over between summer/winter time (setting is for time zone GTM+1:00).
- Back-lighted LCD display.
- Easy and quick setting by 4 control buttons.
- Sealable transparent cover of the front panel.
- Time switch is back-up with in-built lithium element, which saves data during voltage failure. Back-up time reserve - up to 3 years.
- Supply voltage: AC 230V or AC/DC 12-240V.
- 2-Module, DIN rail mounting, saddle terminals.

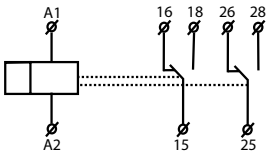
- Device is delivered with pre-programmed actual time, which is permanently displayed also in back-up mode.
- The device contains a CR2032 backup battery. In the event of a discharge, we recommend that it be replaced by an ELKO EP service center due to the necessary intervention in the product.

Symbol

SHT-1

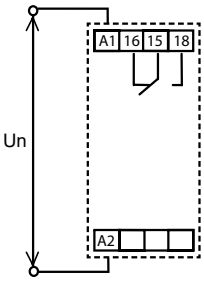


SHT-1/2

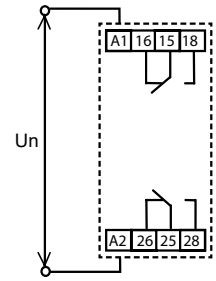


Connection

SHT-1

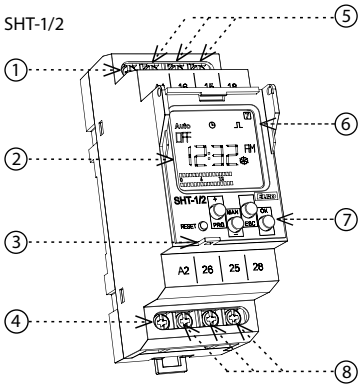


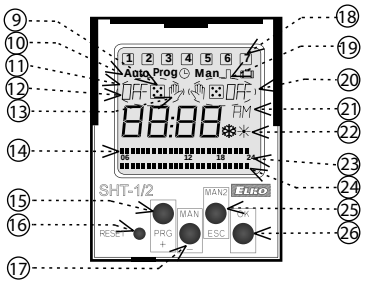
SHT-1/2



Description

SHT-1/2





1. Supply terminals (A1)
2. Display
3. Sealing spot
4. Supply terminals (A2)
5. Output - channel 1 (16-15-18)
6. Transparent cover
7. Controlling buttons
8. Output - channel 2 (26-25-28) only SHT-1/2
9. Random switching mode
10. The choice of switching mode
11. Indication (1st channel)
12. Output ON/OFF
13. Manual switching mode
14. Channel 1 (bargraph)
15. Control button PRG / +
16. Reset
17. Control button MAN / -
18. Shows the day in the week
19. Indication of the pulse/cyclic output
20. Indication (2nd channel)
21. AM/PM indication in 12h format
22. Shows summer/winter mode
23. Indication of switching hour of the day
24. Channel 2 (bargraph)
25. Control button MAN2 / ESC
26. Control button OK

CONTROL OF A DISPLAY WITH BACKLIGHT
Display is illuminated with a back-light for 10 s from last button press.
Permanent on / off is activated by synchronic press of buttons MAN, ESC, OK. After permanent on/off activation, display will flash shortly.

Type of load	cos φ ≥ 0.95 AC1	AC2	AC3	AC5a uncompensated	AC5a compensated	HAL.230V AC5b	AC6a	AC7b	AC12
Contact material $AgSnO_2$, 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	AC13	AC14	AC15	DC1	DC3	DC5	DC12	DC13	DC14
Contact material $AgSnO_2$, 16A	x	250V / 6A	250V / 6A	24V / 16A	24V / 3A	24V / 2A	24V / 16A	24V / 2A	x

Technical parameters

		SHT-1	SHT-1/2
Supply terminals:		A1 - A2	
Voltage range:	UNI	AC/DC 12 – 240 V (AC 50-60 Hz)	
Burden (max.):	UNI	AC 0.5 – 2 VA/DC 0.4 – 2 W	
Voltage range:	230V	AC 230 V (50-60 Hz)	
Burden:	230V	AC max. 14 VA/2 W	
Max. dissipated power (Un + terminals):		3.5 W	5 W
Supply voltage tolerance:		–15 %; +10 %	
Back-up supply:		yes	
Summer/winter time:		automatic	

Output

Contact type:	1× changeover/SPDT ($AgSnO_2$)	2× changeover/SPDT ($AgSnO_2$)
Current rating:	16 A/AC1	
Breaking capacity:	4000 VA/AC1, 384 W/DC	
Inrush current:	30 A/< 3 s	
Switching voltage:	250 V AC/24 V DC	
Mechanical life:	30.000.000 ops.	
Electrical life (AC1):	100.000 ops.	

Time circuit

Power back-up:	up to 3 years
Accuracy:	max. ±1s/day at 23 °C (73.4 °F)
Minimum interval:	1 min
Data stored for:	min. 10 years
Cyclic output:	1 – 99 s
Pulse output:	1 – 99 s

Program circuit

Number of memory places:	100
Program:	daily, weekly, monthly, yearly
Data readout:	LCD display, with back light

Other information

Operating temperature:	–20 .. +55 °C (–4 .. 131 °F)	
Storage temperature:	–30 .. +70 °C (–22 .. 158 °F)	
Dielectric strength:	AC 4 kV (supply - output)	
Operating position:	any	
Mounting:	DIN rail EN 60715	
Protection degree:	IP10 clips, IP40 from front panel	
Overvoltage category:	III.	
Polution degree:	2	
Cross-wire section – solid/ stranded with ferrule (mm^2):	max. 2× 2.5 or 1× 4/ max. 1× 2.5 or 2× 1.5 (AWG 12)	
Dimensions:	90 × 35 × 64 mm (3.5˝ × 1.4˝ × 2.5˝)	
Weight:	(UNI) – 117 g (4.13 oz), (230) – 115 g (4.06 oz)	(UNI) – 132 g (4.7 oz), (230) – 128 g (4.5 oz)
Standards:	EN 61812-1	

Warning

This device is constructed for connection in 1-phase network AC/DC 12 – 240 V or AC 230 V (according to the type) and must be installed according to norms valid in the state of an application. Installation, connection, setting and servicing must be carried out by qualified electrician staff only, which have perfectly understood the instructions and functions of the device. This device contains protection against overvoltage peaks and disturbing impulses in the power supply network. For the correct function of the protection of this device, there must be suitable protections of higher degrees (A,B,C) installed in front of them and according to the standards, interference of switching devices must be securely eliminated (contactors, motors, inductive loads, etc.). Before installation, make sure that the device is de-energized and the main switch is in the "OFF" position. Don't install the device to sources of excessive electromagnetic interference. Ensure correct installation by perfect air circulation so that during continuous operation and a higher ambient temperature, the device does not exceed the maximum allowed operating temperature. For installation and setting use a screwdriver with a width of approx 2 mm. Keep in mind that this is a fully electronic device and approach accordingly with the installation. Non-problematic function of the device is also dependent on the previous method of transportation, storage, and handling. In case of any signs of damage, deformation, malfunction, or missing parts, don't install this device and claim it at the dealer. The product must be treated as electronic waste at the end of its life.

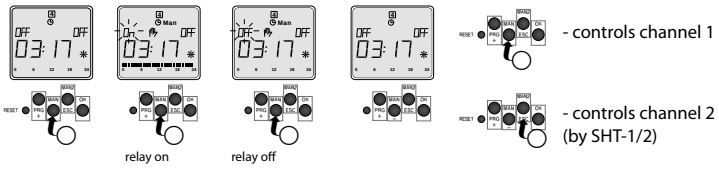
Versions of time switches

Type of product	output		time program		
	1 channel	2 channels	daily	weekly	yearly
SHT-1	●		●	●	●
SHT-1/2		●	●	●	●

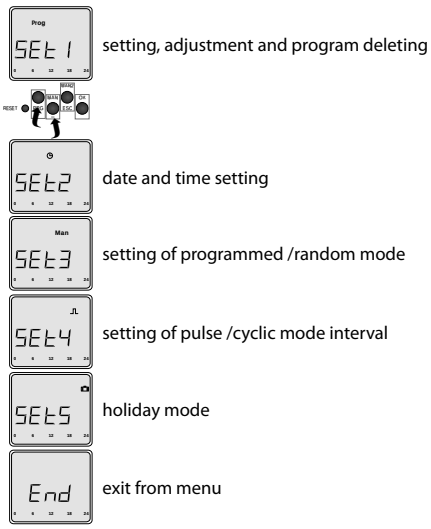
Mode precedence

Precendence of controlling modes	Display	Output mode
highest priority of controlling mode ➤➤➤➤➤	ON / OFF	manual control
➤➤➤➤	ON / OFF	holiday mode
➤➤➤	ON / OFF AUTO	random mode for switching
➤➤	ON / OFF	pulse-cyclic mode
lowest priority of controlling mode ➤	ON / OFF	normal mode Prog

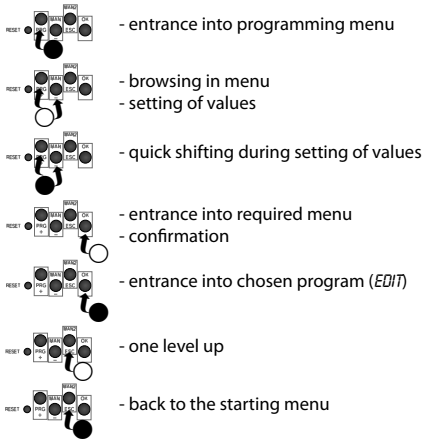
Manual output control - is superior to other set modes



Control

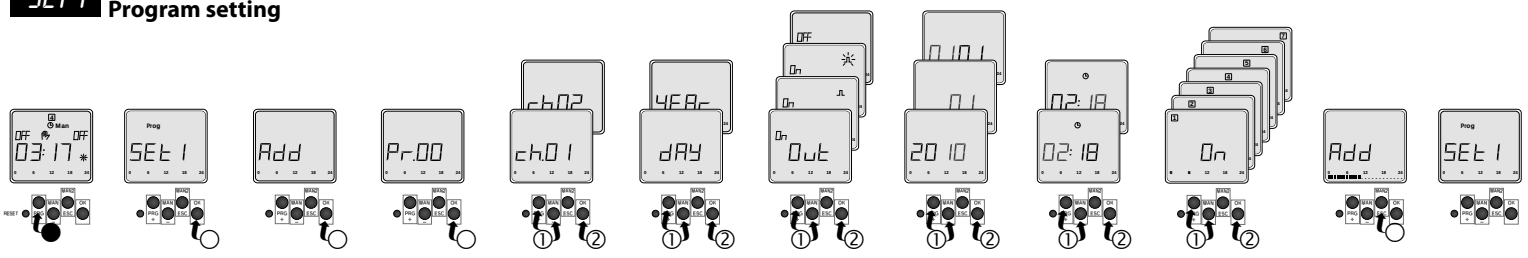


Device differs short and long button press. In the manual marked as:
○ - short button press (<1s)
● - long button press (>1s)
①/② - number indicates button press sequence



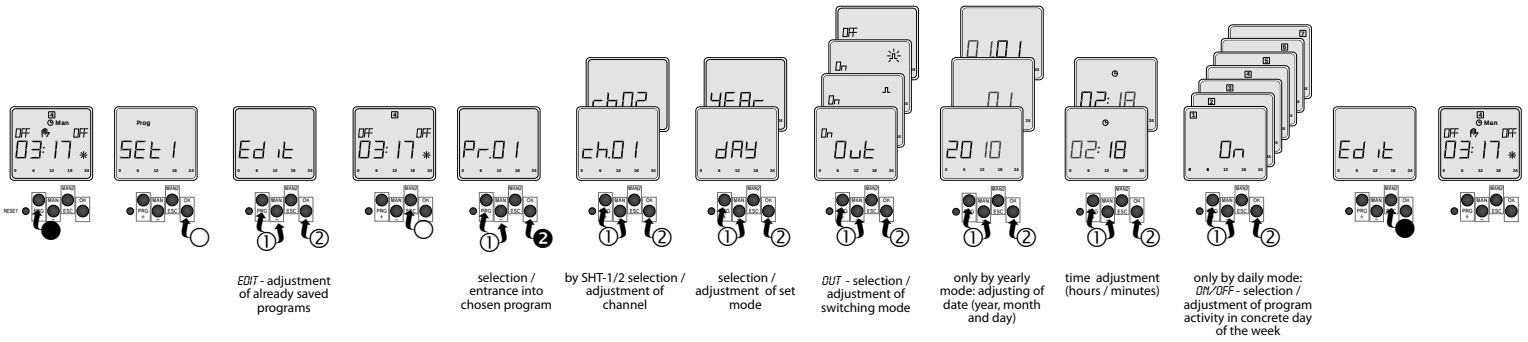
After 30s of inactivity (from the last press of any button) will device automatically returns into starting menu.

SET 1 Program setting

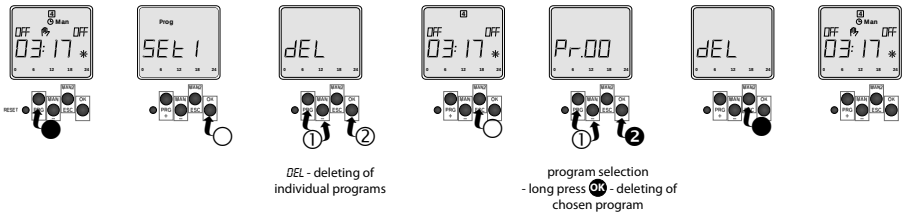


If the program memory is full, display announces it by notice *FULL*.
* If "- -" (2 dashes) is set as the hour or minute value instead of a numerical value, the start / end of the program will be repeated every hour or every minute.

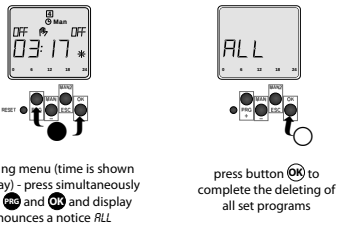
Program adjustment



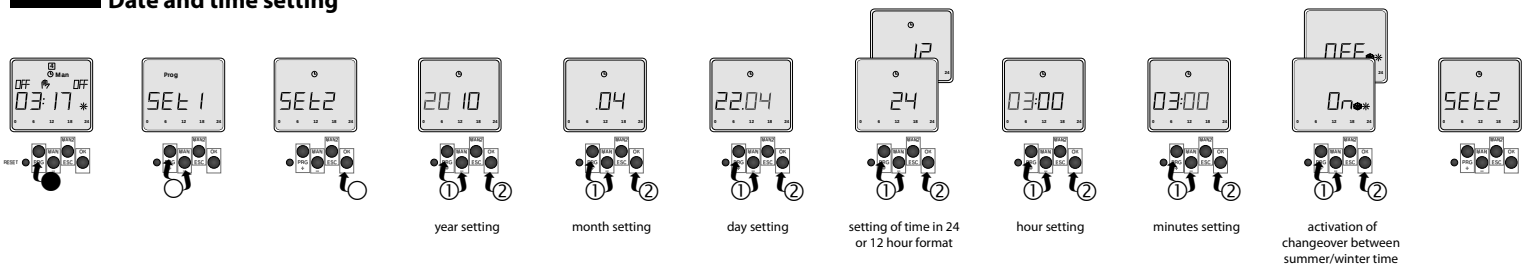
Program deleting



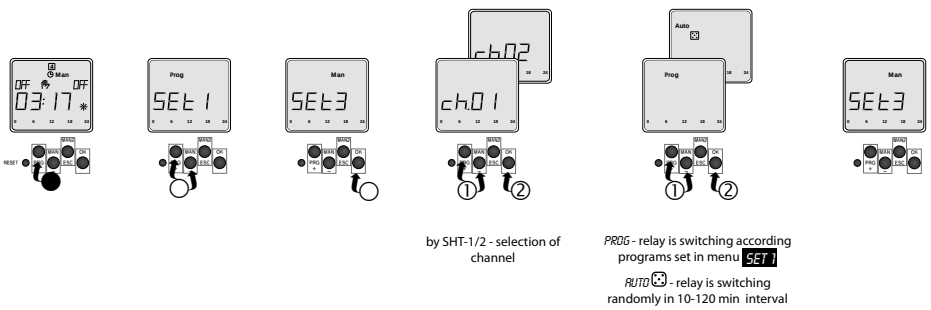
Deleting of all programs



SET 2 Date and time setting



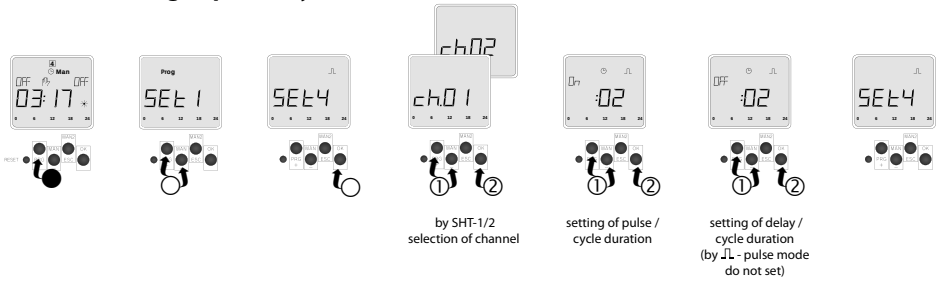
SET 3 Setting of programmed / random mode



In starting mode by chosen channel flashs symbol Prog or on display (automatically preset switching according *PROG*).

● - long press (>1s)
○ - short press (<1s)
①/② - press sequence

SET 4 Setting of pulse / cyclic mode interval



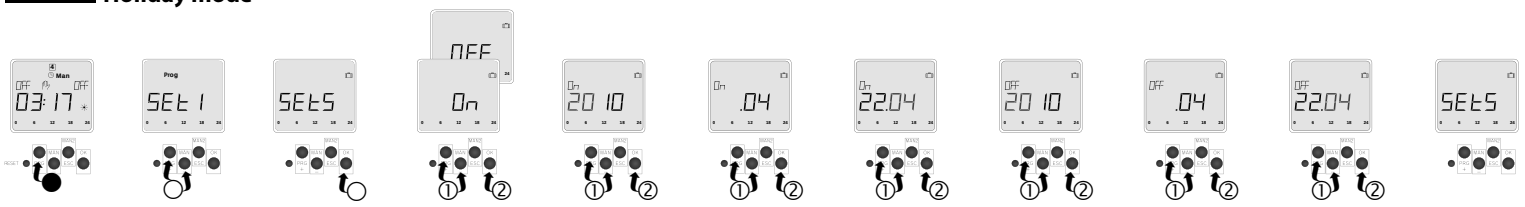
by SHT-1/2 selection of channel

setting of pulse / cycle duration

setting of delay / cycle duration (by ⎍ - pulse mode do not set)

Setting of time of pulse / cyclic mode switching is realized by SET 1.

SET 5 Holiday mode



holiday mode setting

holiday mode starting year setting

holiday mode starting month setting

holiday mode starting day setting

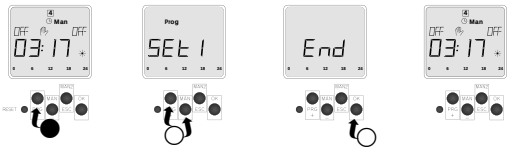
holiday mode ending year setting

holiday mode ending month setting

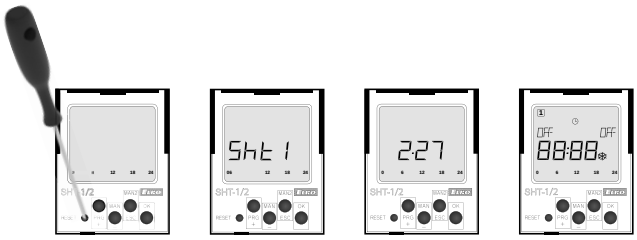
holiday mode ending day setting

In the starting mode during the activation of holiday mode, flashs symbol 🧳 on display.

END Exit from menu - return to the starting mode



Reset



Activated by, covered RESET button, short press with blunt spike (with max. 2 mm diameter).

After press, information about type of device and firmware version will displayed for 3 s and then device performs in starting mode.

Reset will delete an actual time, set time of pulse/cyclic mode and all temporary functions (manual or random switch output).

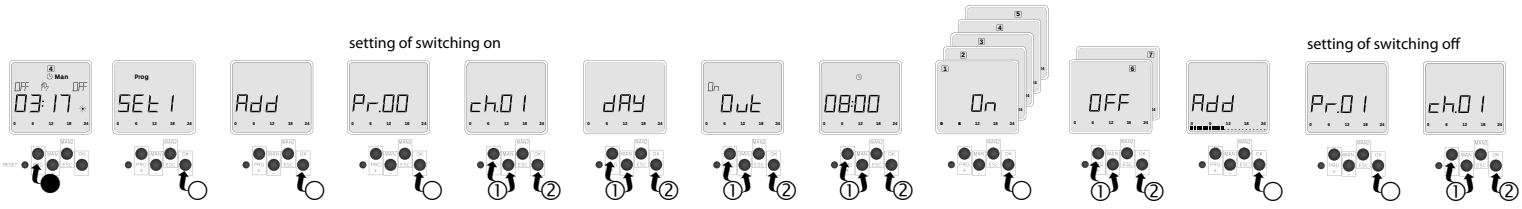
Reset will save all set programs.

Example of programming

Setting of SHT-1/2 to be activated from Monday till Friday at 8:00 by program 0 (Pr.00) , and deactivated from Monday till Friday at 16:30 by program 1 (Pr.01).

setting of switching on

setting of switching off



starting menu

programming

add the program

program 0

channel 1

daily program

turn on a normal mode

time of turning on

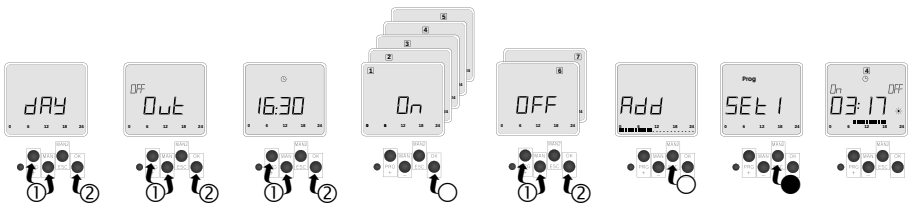
setting of activity Mo-Fri

turning off the activity Sat-Sun

save

program 1

channel 1



daily program

turn off a normal mode

time of turning off

setting of activity Mo-Fri

turning off the activity Sat-Sun

save

return into starting menu

● - long press (>1s)
○ - short press (<1s)
①/② - press sequence