



Digital time switch clock

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SHT-1
SHT-1/2
SHT-3
SHT-3/2



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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.

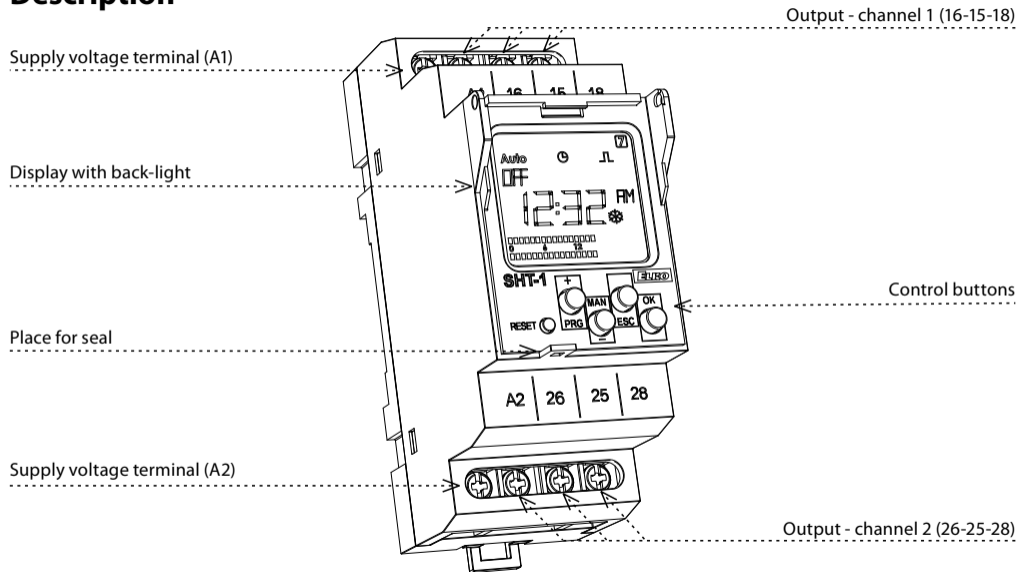
Characteristics

- Serves for controlling of various types of appliances in dependence 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, SHT-3: 1-channel version.
- SHT-1/2, SHT-3/2: 2-channel version (to each channel can be assigned an individual program).
- Possibility to control two independent circuits.
- By SHT-3, SHT-3/2 is not possible to integrate daily and night mode on one channel. By SHT-3/2 is possible to set a different mode on each channel.
- Setting of switching by:
 - program (*PRDG*) - 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 manually .
- 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 and SHT-3/2 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 GMT+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.

Technical parameters

Supply terminals:	A1 - A2	Pulse output:	1-99s
Supply voltage:	AC/DC 12-240V (AC 50-60Hz)	<u>Program circuit</u>	
Consumption:	AC 0.5 - 2VA / DC 0.4 - 2W	Number of memory places:	100
Supply voltage:	AC 230V / 50 - 60Hz	Program (SHT-1, SHT-1/2):	daily, weekly
Consumption:	AC max. 14VA / 2W	Program(SHT-3, SHT-3/2):	daily, weekly, monthly, yearly (up to year 2095)
Supply voltage tolerance:	-15 %; +10 %	Data readout:	LCD display, with back light
Real time back-up:	yes	<u>Other information</u>	
Summer/winter time:	automatic	Operating temperature:	-20.. +55 °C
<u>Output:</u>		Storage temperature:	-30.. +70 °C
Number of contacts:		Electrical strength:	4 kV (supply - output)
- SHT-1, SHT-3:	1 x changeover (AgSnO ₂)	Operating position:	any
- SHT-1/2, SHT-3/2:	2 x changeover (AgSnO ₂)	Mounting:	DIN rail EN 60715
Rated current:	16A / AC1	Protection degree:	IP10 clips, IP40 from front panel
Switching capacity:	4000 VA / AC1, 384W / DC	Overvoltage category:	III.
Peak current:	30A / <3s	Pollution degree:	2
Switching voltage:	250V AC1 / 24V DC	Max. cable size (mm ²):	solid wire max. 2x 2.5 or 1x 4 with sleeve max. 1x 2.5 or 2x 1.5
Mechanical life:	> 3x10 ⁷	Dimensions:	90 x 35.6 x 64 mm
Electrical life (AC1):	> 0.7x10 ⁵	Weight	
<u>Time circuit</u>		- SHT-1, SHT-3:	(UNI)-130 g, (230)-110 g
Real time back-up when de-energi.:	up to 3 years	- SHT-1/2, SHT-3/2:	(UNI)-143 g, (230)-125 g
Accuracy:	max. ±1s/ day at 23°C	Standards:	EN 61812-1, EN 61010-1
Minimum interval:	1 min.		
Data stored for:	min. 10 years		
Cyclic output:	1-99s		

Description



Indicates the day in the week

Operating modes indication

Indication (1st channel)

Indication of time/date/setting menu

Bargraf

Control button PRG / +

Reset

Control button MAN1 / -

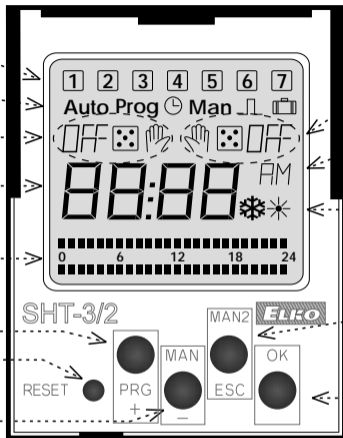
Indication (2nd channel)

Indicates 12 / 24 mode

Indicates summer / winter mode

Control button MAN2 / ESC

Control button OK



CONTROL OF A DISPLAY WITH BACKLIGHT

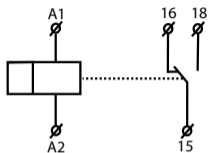
Display is illuminated with a back-light for 10 s from last button press.

Permanent on / off is activated by synchronic press of buttons MAN, ESC, OK.

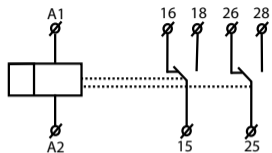
After permanent on/off activation, display will flash shortly.

Symbol

SHT-1
SHT-3

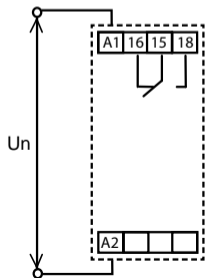


SHT-1/2
SHT-3/2

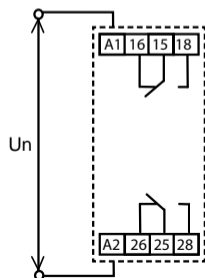


Connection

SHT-1
SHT-3





















SHT-1/2
SHT-3/2








Versions of time switches

Type of product	output		time program			
	1 channel	2 channels	day	week	month	year
SHT-1	•		•	•		
SHT-1/2		•	•	•		
SHT-3	•		•	•	•	•
SHT-3/2		•	•	•	•	•

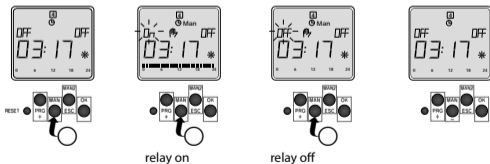
Load

Type of load	 cos φ ≥ 0.95 AC1	 AC2	 AC3	 AC5a Uncompensated	 AC5a Compensated	 AC5b
Contact material AgSnO ₂ , Contact 16A	250V / 16A	250V / 5A	250V / 3A	230V / 3A (690VA)	230V / 3A (690VA) max. input C=14uF	1000W
Type of load	 AC6a	 AC7b	 AC12	 AC13	 AC14	 AC15
Contact material AgSnO ₂ , Contact 16A	x	250V / 3A	x	x	250V / 6A	250V / 6A
Type of load	 DC1	 DC3	 DC5	 DC12	 DC13	 DC14
Contact material AgSnO ₂ , Contact 16A	24V / 10A	24V / 3A	24V / 2A	24V / 6A	24V / 2A	x

Mode precedence

Precedence 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



relay on

relay off

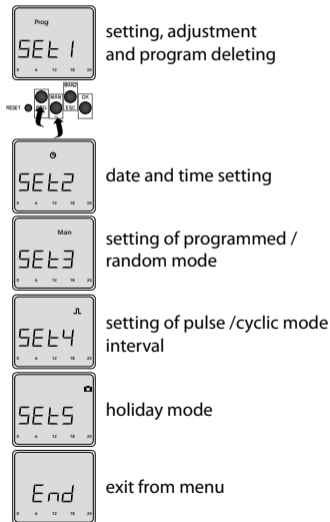


- controls channel 1



- controls channel 2
(by SHT-1/2 and SHT-3/2)

Control

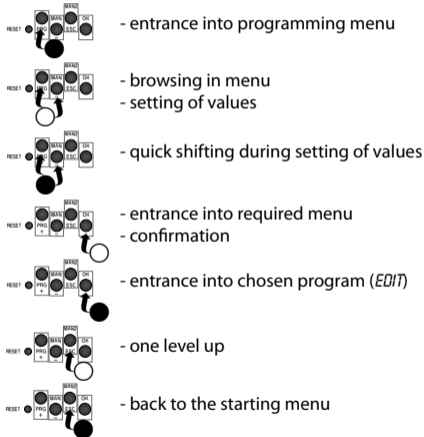


Device differs short and long button press. In the manual marked as:

○ - short button press (<1s)

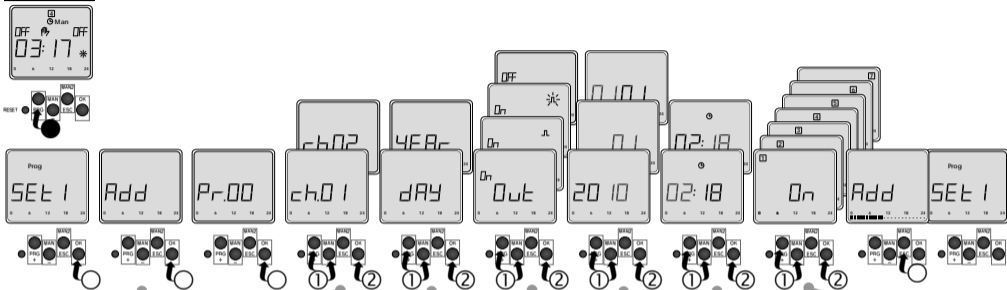
● - long button press (>1s)

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



ADD - add a new program

by SHT1/2 and SHT3/2 - selection of channel

by SHT-3 and SHT-3/2 - selection of daily / night mode

OUT - setting of switching mode
 - OUT ON - normal
 - OUT ON ☀ - cyclic
 - OUT ON □ - pulse
 - OUT OFF - turn off the switching mode

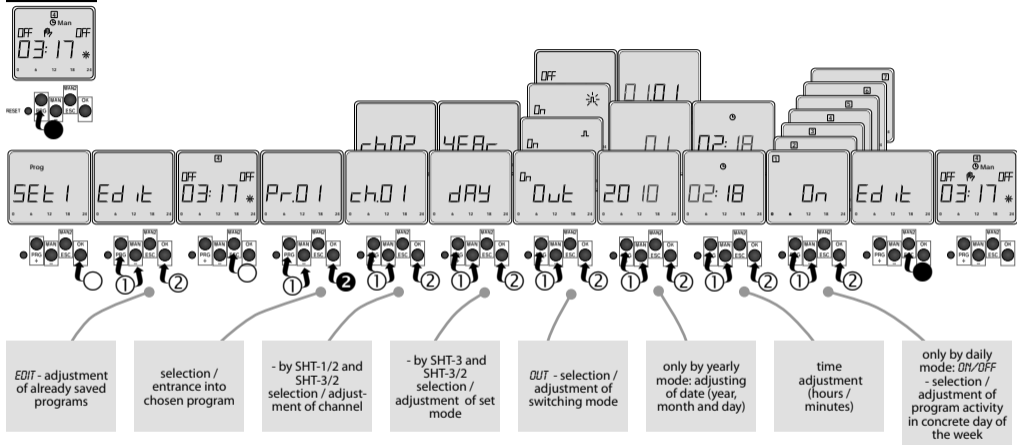
only by yearly mode: setting of year, month and day

setting of hour and minute of program start / end

only by daily mode: ON/OFF - setting of the program activity in concrete day of the week

If the program memory is full, display announces it by notice FULL.

SET 1 Program adjustment



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

SET 1

Program deleting



dEL - deleting of individual programs

program selection
- long press **OK** -
deleting of chosen program

Deleting of all programs

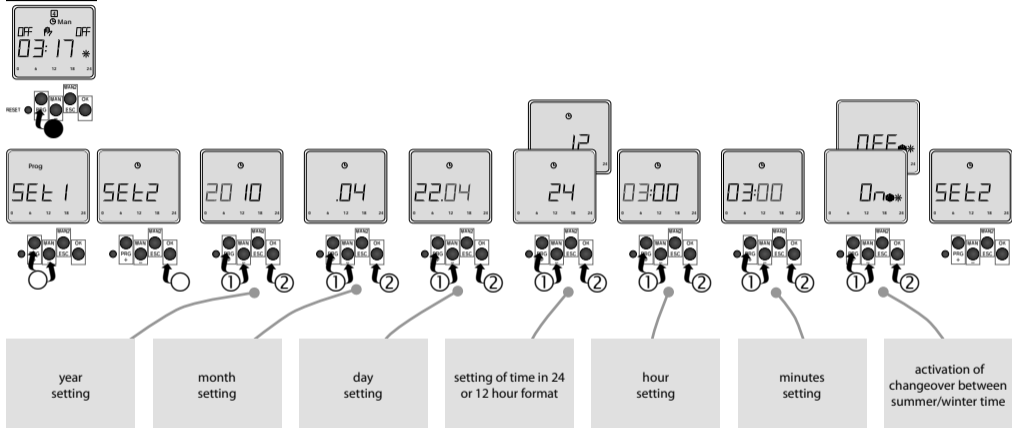


in starting menu
(time is shown on display) - press simultaneously button **PRG** and **OK** and display announces a notice
ALL



press button **OK** to complete the deleting of all set programs

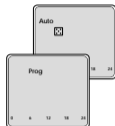
SET 2 Date and time setting



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


SET 3

Setting of programmed / random mode



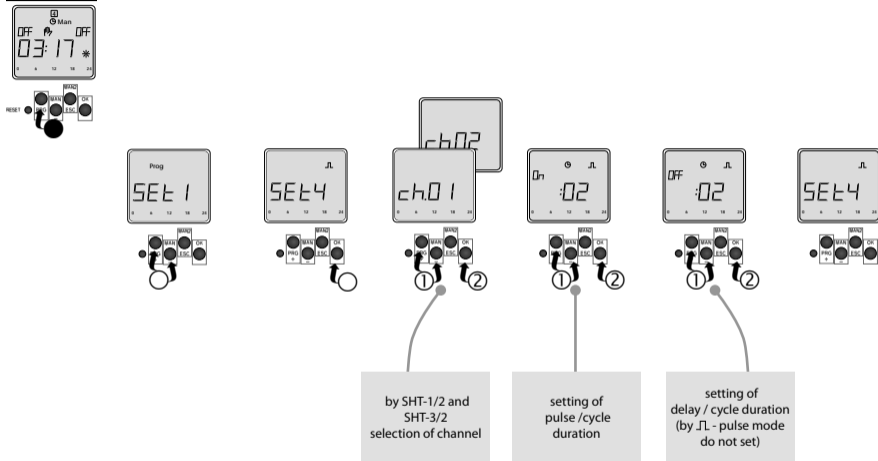
- by SHT-1/2 and SHT-3/2 - selection of channel

PROG
- relay is switching according programs set in menu **SET 1**

AUTO 
- relay is switching randomly in 10-120 min interval

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

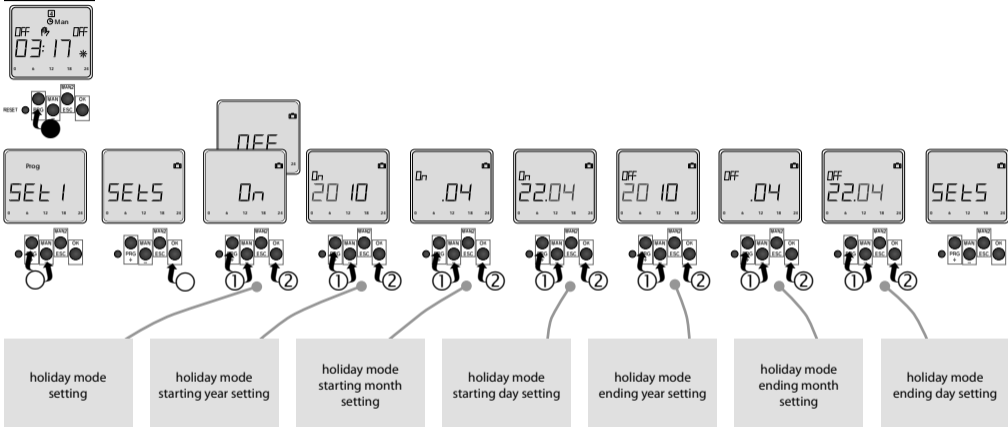
SET 4 Setting of pulse / cyclic mode interval




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

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

SET 5 Holiday mode



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

END

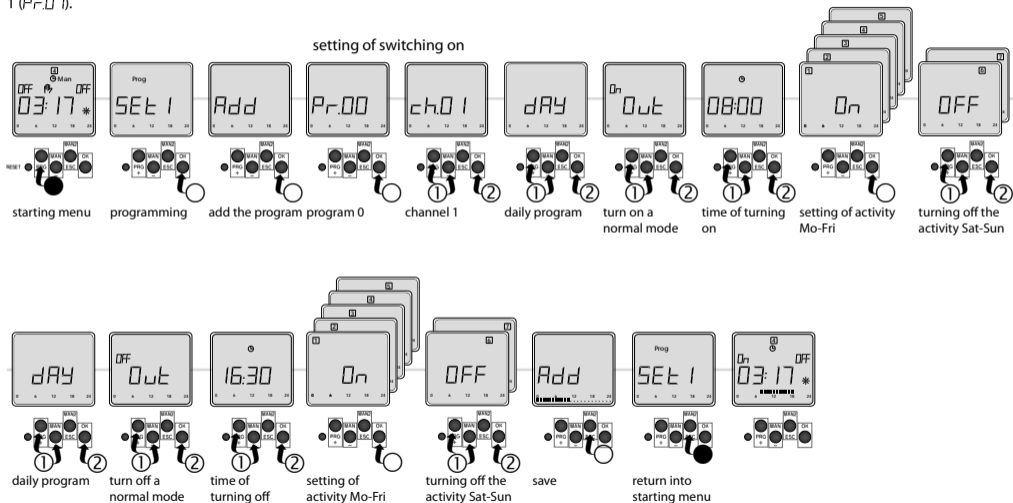
Exit from menu - return to the starting mode



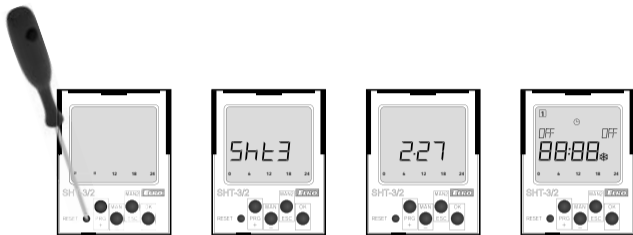
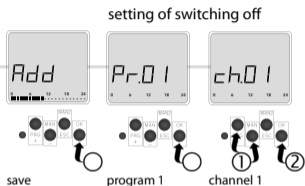
- - long press (>1s)
- - short press (<1s)
- ①/② - press sequence

Example of programming

Setting of SHT-3/2 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).



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.

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

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