



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

Digital time switch



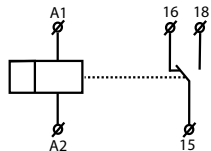
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Content

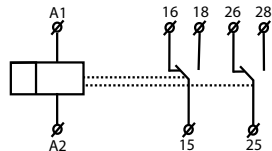
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Symbol

SHT-1
SHT-3

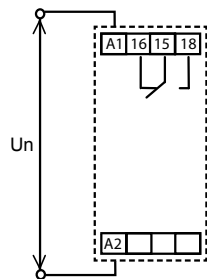


SHT-1/2
SHT-3/2

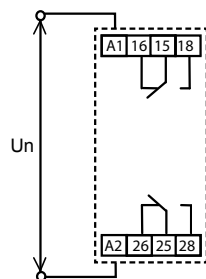


Connection

SHT-1
SHT-3



SHT-1/2
SHT-3/2








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 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, 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 (*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 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 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.

Technical parameters

Supply terminals:	A1 - A2
Supply voltage:	AC/DC 12-240V (AC 50-60Hz)
Consumption:	230 UNI AC 0.5 - 2VA / DC 0.4 - 2W
Supply voltage:	AC 230V / 50 - 60Hz
Consumption:	AC max. 14VA / 2W
Supply voltage tolerance:	-15 %; +10 %
Real time back-up:	yes
Summer/winter time:	automatic

Output:

Number of contacts:	
- SHT-1, SHT-3:	1 x changeover (AgSnO ₂)
- SHT-1/2, SHT-3/2:	2 x changeover (AgSnO ₂)
Rated current:	16A / AC1
Switching capacity:	4000 VA / AC1, 384W / DC
Peak current:	30A / <3s
Switching voltage:	250V AC1 / 24V DC
Min. switching capacity DC:	500 mW
Mechanical life:	> 3x10 ⁷
Electrical life (AC1):	> 0.7x10 ⁵

Time circuit

Real time back-up when de-energi.:	up to 3 years
Accuracy:	max. ±1s/ day at 23°C
Minimum interval:	1 min.
Data stored for:	min. 10 years
Cyclic output:	1-99s
Pulse output:	1-99s

Program circuit

Number of memory places:	100
Program (SHT-1; SHT-1/2):	daily, weekly
Program(SHT-3, SHT-3/2):	daily, weekly, monthly, yearly (up to year 2095)
Data readout:	LCD display, with back light

Other information

Operating temperature:	-20.. +55 °C
Storage temperature:	-30.. +70 °C
Electrical strength:	4 kV (supply - output)
Operating position:	any
Mounting:	DIN rail EN 60715
Protection degree:	IP10 clips, IP40 from front panel
Overvoltage category:	III.
Pollution degree:	2
Max. cable size (mm ²):	solid wire max. 2x2.5 or 1x4 with sleeve max. 1x2.5 or 2x1.5
Dimensions:	90 x 35.6 x 64 mm

Weight



















- SHT-1, SHT-3:	(UNI)-130 g, (230)-110 g
- SHT-1/2, SHT-3/2:	(UNI)-143 g, (230)-125 g
Standards:	EN 61812-1, EN 61010-1

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		•	•	•	•	•

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Load

Type of load	 cos φ ≥ 0.95 AC1	 AC2	 AC3	 AC5a Uncompensated	 AC5a Compensated	 HAL230V ACSb
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

Description

Supply voltage terminal (A1)

Output - channel 1 (16-15-18)

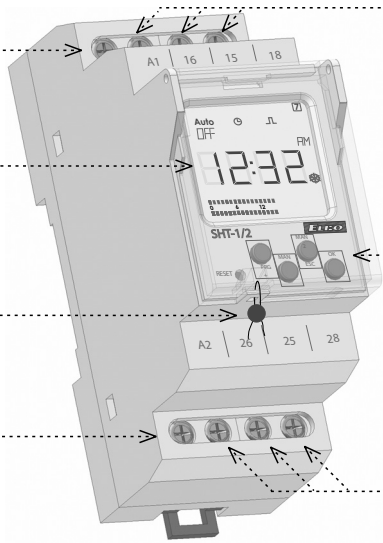
Display with back-light

Place for seal

Supply voltage terminal (A2)

Control buttons

Output - channel 2 (26-25-28)



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 / -

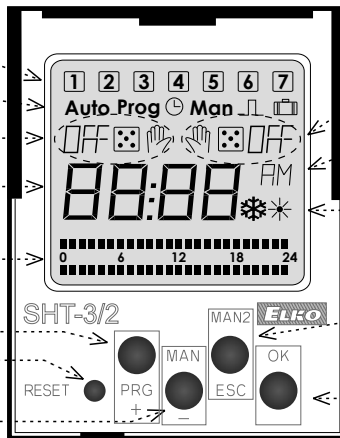
Indication (2nd channel)

Indicates 12 / 24 mode

Indicates summer / winter mode

Control button MAN2 / ESC

Control button OK

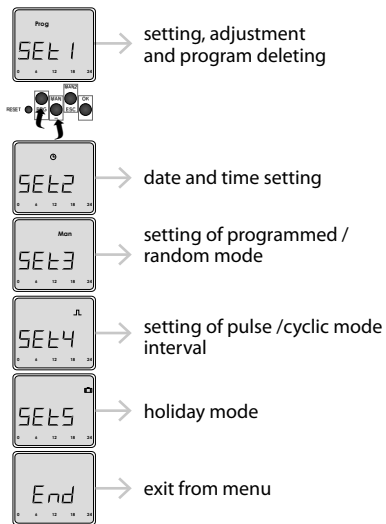


CONTROL OF A DISPLAY WITH BACKLIGHT

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.

Control

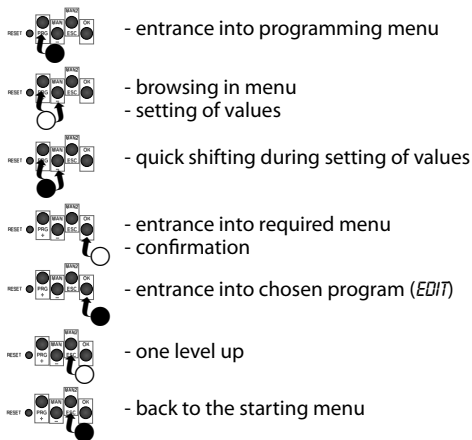


Device differs short and long button press. In the manual marked as:

○ - short button press (<1s)






● - long button press (>1s)

①/② - number indicates button press sequence

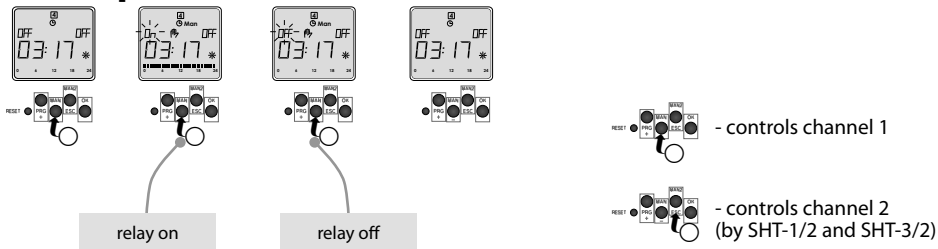


After 30s of inactivity (from the last press of any button) will device automatically returns into starting menu.

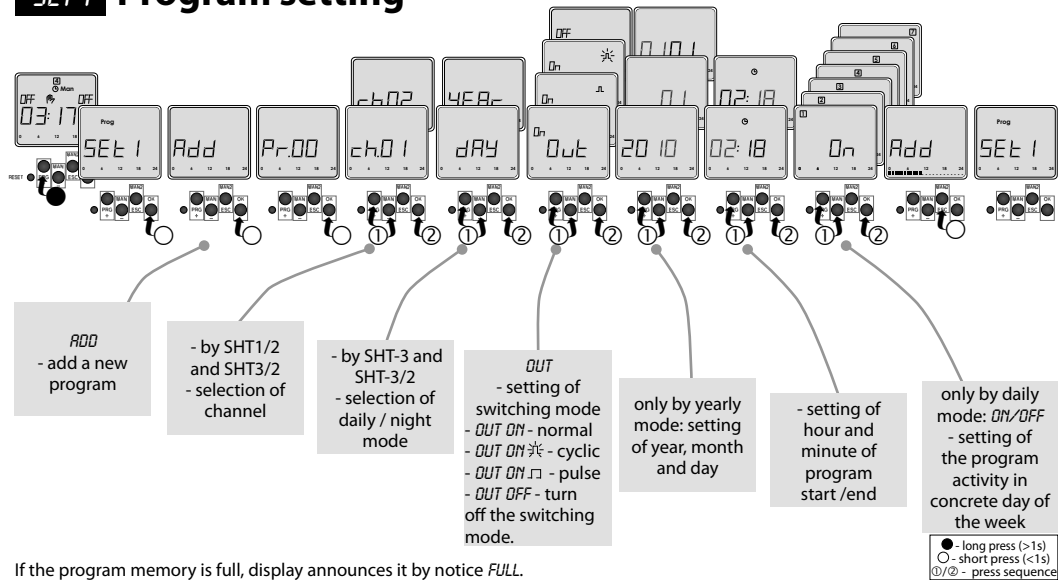
Mode precedence

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

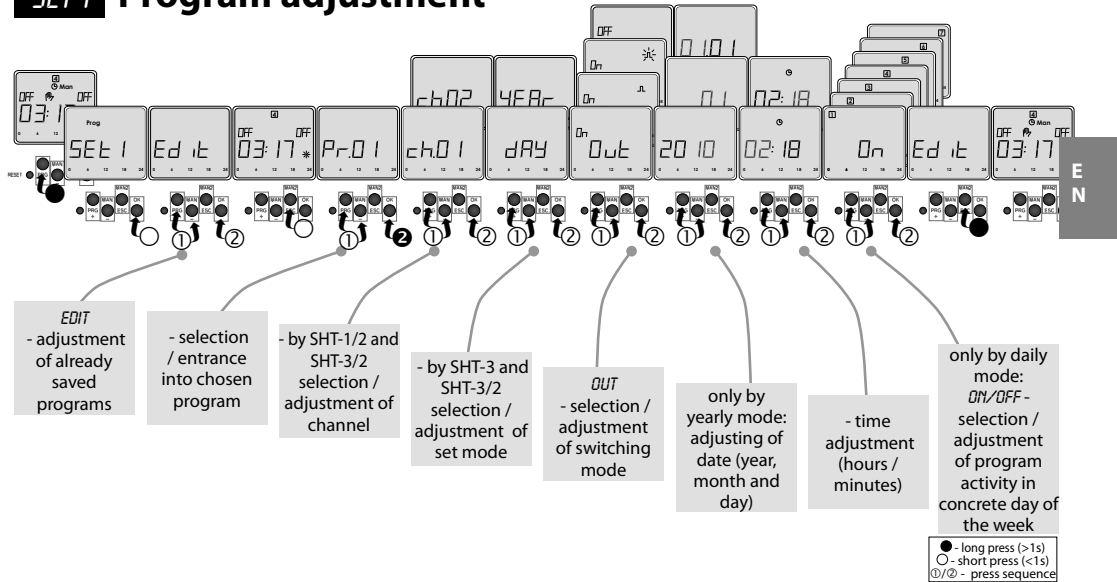


SET 1 Program setting

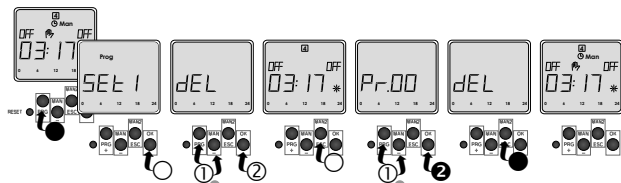


If the program memory is full, display announces it by notice *FULL*.

SET 1 Program adjustment



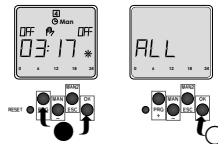
SET 1 Program deleting



dEL - deleting of individual programs

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

Deleting of all programs

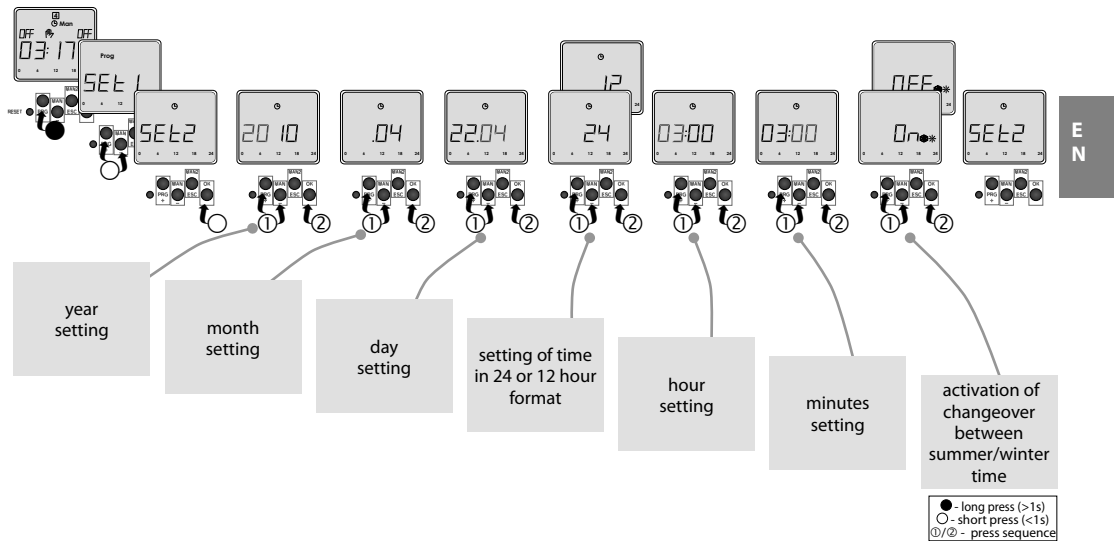


- in starting menu (time is shown on display) - press simultaneously button **PRO** and **OK** and display announces a notice *ALL*

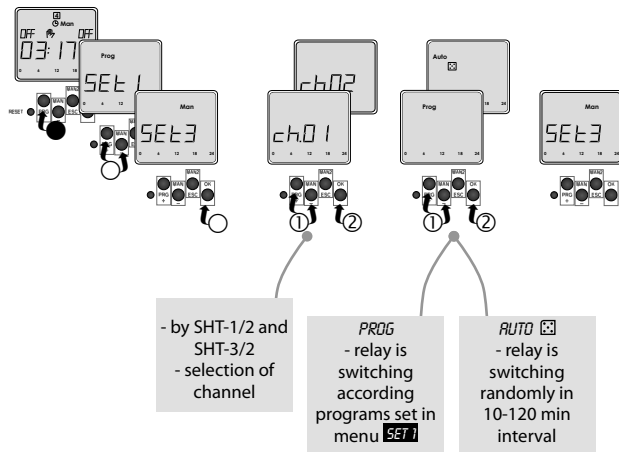
- press button **OK** to complete the deleting of all set programs

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

SET 2 Date and time setting



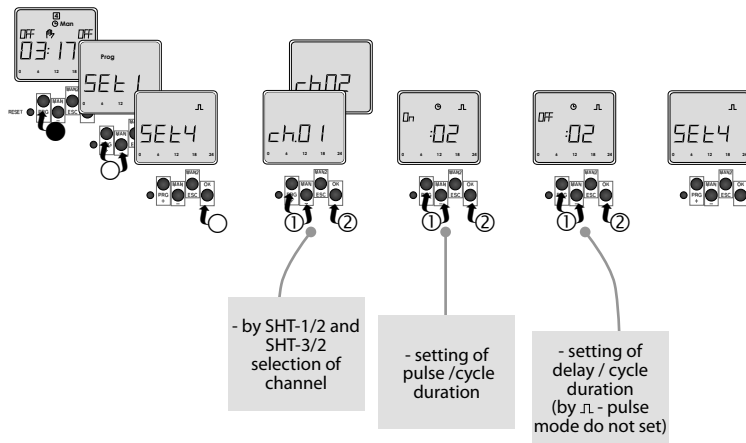
SET 3 Setting of programmed / random mode



In starting mode by chosen channel flashes 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

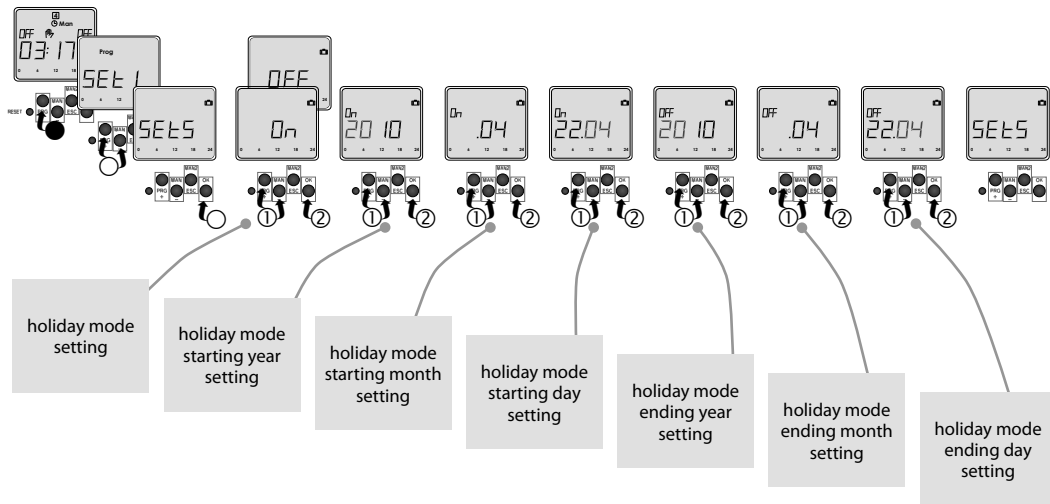



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Setting of time of pulse / cyclic mode switching is realized by **SET 1**.

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

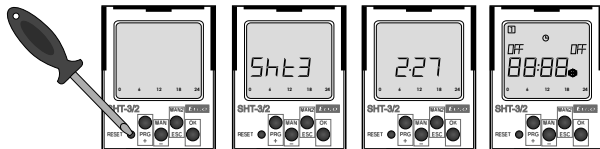
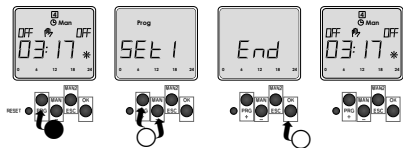
SET 5 Holiday mode



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

END Exit from menu

- return to the starting mode



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

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

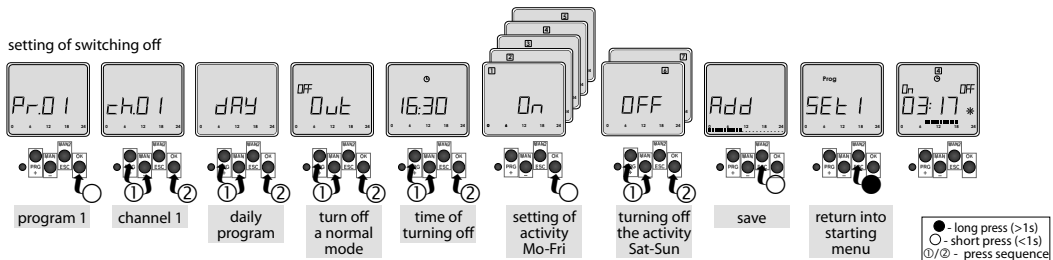
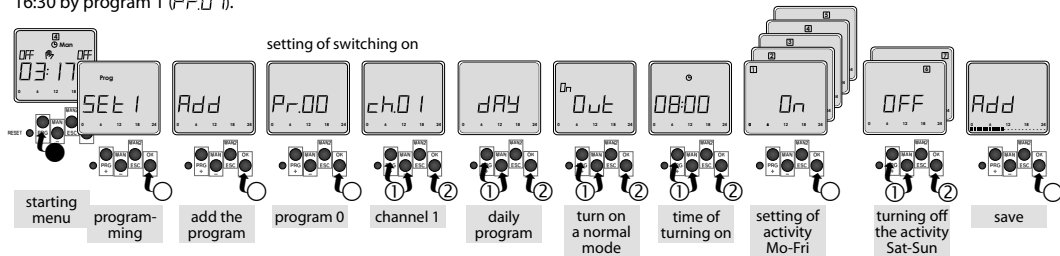
Reset will delete an actual time, set time of pulse/cyclic mode and all temporary functions (manual or random switch output).

Reset will save all set programs.

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

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).



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





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3042, 3043, 3041, 3040, 3676, 3675, 2901, 2904
-02VJ-26/2014 Rev.: 4