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Characteristics

- All programs in one device (daily, weekly, yearly and astronomical).
- UNIversal supply voltage in range of AC/DC 24 240 V (AC 50-60 Hz).
- Simple setting after the first start-up.
- User replaceable battery to back up the set time.
- Built-in web server for setup and control via Wi-Fi connection.
- Time synchronization through NTP server (require internet connection).
- New well-arranged display with white backlight.
- ASTROnomic program: manual entry of coordinates or selecting one of the preset cities.
- One/two channel design (each with an operating hours counter).
- Pulse/cycle output mode.
- Transition of summer/winter time AUTO or OFF.
- Lead-sealing transparent front panel cover.
- PIN code protection against unauthorized changes.
- Wireless firmware update.

A first setup wizard will guide you through the initial configuration after inserting the battery or after connecting to the power supply.

Each channel can be assigned a different program or operating switching mode, this allows control of two independent circuits. In the event of a mains power failure, the device will retain all the set values required for reliable switching after the power is restored. After installation, it does not require any special service or maintenance.

The astronomical program does not need any optical sensors or other external devices to function. Its operating principle is that during the year every day, based on an algorithm and real-time (set in the time switch), automatically controls switching on and off times of e.g. public lighting. This is because the sunrise and sunset times change throughout the year. With the offset (deviation) function, the turning ON and switching OFF times can be corrected within \pm 120 minutes. The delay is fixed for each day but can be adjusted for each channel separately.

- Operation modes of switching: (configurable for each channel separately)
- TIME PROGRAM (switches according to set time programs)
- HOLIDRYS / TIME PROGRAM (switches according to set holidays and time programs
- RSTR0 / TIME PROGRAM (switches according to the set astronomical and time program)
- HDLIDRYS / RSTRD / TIME PROGRAM (switches according to set holidays, astronomical and time program)
- RANDOM PROGRAM (switches randomly in an interval of 10-120 min)
- LOCKED MRNURL (fixed output state that cannot be changed other than through settings)
- Possibility to manually control the output contacts at any time (outside the operation mode, LOCKED – MRNURL).
- · 200 memory locations for time programs (common for both channels).
- Up to 30 memory locations for holidays
- Programming can be done under power and in backup mode.
- Optional languages CZ / EN
- Selection of summer/winter time transition:
 - AUTO (changes automatically according to the entered time zone)
 - OFF (permanently switched off winter/summer time transition)
- The time switch is backed up by a battery, which enables it to operate in backup mode in the event of a power failure. All settings and programs are saved in memory in the event of a power failure they can thus be restored even in the event of a power failure and a discharged battery. However, a time correction will need to be made.

SHT-13, SHT-13/2

Multifuntion digital time switch with Wi-Fi connection

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Connection



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15. Summer time

18. Davs in week

19. Manual control

21. Time program

22. Time

23. AM/PM

24. Text line

27. Bargraph

16. Battery indication

17. Sunrise indication

20. Random program

25. Wi-Fi connection

26. Sunset indication

Prescribed minimum output protection: class B circuit breaker 16A.

Description





- 2. Backlight display
- 3. Reset
- 4. Sealing spot
- 5. Supply terminal (A2)
- 6. Output 1. channel (16-15-18)
- 7. Transparent cover
- 8. Control buttons
- 9. Output 2. channel (26-25-28)
- Holiday program
 Output indication
- 12. Pulse/cycle mode
- 13. Astro program
- 14. Manual control locked
- 14. Marida control locked
- DISPLAY BACKLIGHT CONTROL

Powered: By default, the display is backlit for 90 seconds from the time of the last press of any button. The display still shows: the date, time, day of the week, state of contacts, and battery or the type of program in progress. The backlight is permanently switched on/off by long press of MAN1, MAN2, and OK buttons at the same time. When activating / deactivating the permanent backlight, the display will briefly flash twice.

Backup mode: In the event of a power failure, the display will automatically switch to sleep mode, during which time only the following will flash on the display: the date, time, day of the week, and battery state. The time switch can then be woken up at any time by pressing the OK button to the standard mode, e.g. for setting (without working Wi-Fi or output contacts) - however, take into account that in this case the <u>consumption from the</u> <u>battery is significantly increased, which affects its service life.</u> It will return to sleep mode if no buttons are pressed for 20 seconds.

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Technical parameters

	SHT-13	SHT-13/2	
Supply terminals:	A1	-A2	
Supply voltage:	AC/DC 24 – 240 V (AC 50-60 Hz)		
Consumption (max.):	Wi-Fi "OFF" 0.5 W/2 VA "ON" 1 W/3 VA		
Supply voltage tolerance:	-15 %	; +10 %	
Output			
Contact type:	1× changeover (AgSnO ₂)	2× changeover (AgSnO ₂)	
Rated current:	16 A	/AC1*	
Switched power:	4000 VA/AC	1, 384 W/DC1	
Inrush current:	30 A	/< 3 s	
Switching voltage:	250 V AC	C/24 V DC	
Power dissipation (max.):	1.2 W	2.4 W	
Mechanical life:	30.000.	000 ops.	
Electrical life (AC1):	100.00	00 ops.	
Time circuit			
Accuracy:	max. ±0.5 s/day	at 23°C (73.4 °F)	
Min. switching interval:	1	S	
Data retention time:	min. 1	0 years	
Set time backup:	up to 120 days	s (CR 2032 - 3V)	
Program circuit			
Number of memory locations:	20	00	
Program type:	daily, weekly	r, yearly, astro	
Displayed data:	LCD display with white backlight		
Settings via website:	by Wi-Fi	(2.4 GHz)	
Other information			
Operating temperature:	−20 +55 °C	C (–4 131 °F)	
Storage temperature:	−30 +70 °C	(–22 158 °F)	
Dielectric strength:			
supply – output	AC 4 kV		
output 1 – output 2	AC	4 kV	
Operating position:	a	ny	
Mounting:	DIN rail EN 60715		
Protection degree:	IP40 front panel / IP20 terminals		
Overvoltage category:			
Pollution degree:	2		
Cross-wire section – solid/	max. 1× 2.5, 2× 1.5/		
stranded with ferrule (mm ²):	max. 1× 2.5 (AWG 14)		
Dimensions:	90 × 35 × 64 mm (3.5" × 1.4" × 2.5")		
Weight:	122 g (4.3 oz) 135 g (4.8 oz)		
Standards:	EN 61812-1		

* With a permanent maximum load on the relay contacts of 16 A/AC1 and ambient temperature of +55 °C, the manufacturer recommends using a supply wire with insulation temperature resistance (min.) up to +105 °C.

Warning

This device is constructed for connection in 1-phase network AC/DC 24 – 240 V 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.

Control description

		entrance into programming menu	
	÷⁄-	browsing in menu	
8 _		setting of values	
	%	quick shifting during setting of values	
82221	Œ	entrance into required menu	
		confirmation	
•0		Wi-Fi activation/deactivation (on main screen)	
	69	a step back	
	8	back to the main screen	

Device differs short and long button press.

In the manual marked as:

short button press (< 1s)
 long button press (> 1s)

After 120s of inactivity (from the last press of any button) the device will automatically return into the main screen.

Manual output control



We have two types of manual controls available:

Permanent 🖑 (symbol glows)

The second highest priority of all control modes. The state of the output cannot then be changed other than by manual change (e.g. by switching to temporary manual control or by activating mode LOCKED - MRMURL, which has a higher priority). The last option is to deactivate this control mode.

• Temporary : 🖑 (symbol flashing)

Temporary manual control has the same priority as the previous, permanent one. However, it can be changed in the future, unlike permanent manual control, by one of the programs with a lower priority (if configured in the time switch). With power supply disconnection, temporary manual control is deactivated.

Modes priority

	symbol	mode/program
highest priority >>>>>	A 🖓	locked - manual control
>>>>	m M	manual control (temporary permanent)
>>>	$\overline{\mathbf{x}}$	random
>>>		holidays
	Θ	time
lowest phonty	-sule	astronomic

· パー (symbol flashes on the display)

R5TR0 and TIME PROGRAM can work at the same time on a single channel.

Type of load	 cos φ ≥ 0.95 AC1	-(M)- AC2	-(M)- AC3	ع AC5a uncompensated	「一」」 「」」 AC5a compensated	AC5b	AC6a	 Ас7ь	 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	х
Type of load	AC13	 AC14	 		-M- DC3	-M- DC5		 DC13	 DC14
Contact material AgSnO ₂ , 16A	x	250V / 6A	250V / 6A	24V / 16A	24V / 3A	24V / 2A	24V / 16A	24V / 2A	x

Display indication

<u>)</u> (time program is active time program is planned for future		
<u>*</u>	astro program is active astro program is planned for future		
- - - -	random program is active		
	holiday is active holiday is planned for future		
	temporary permanent manual control		

)) (pulse program is active cycle program is active	
•))	the device is connected via Wi-Fi to the configuration PC/ phone/	
-1))	the device has active Wi-Fi but is not connected to the confi- guration PC/phone/	
	battery is discharged 50% of capacity not inserted	
* (sunrise sunset phase of astronomic program	

A pictogram with side lines indicates the flashing of the corresponding symbol on the SHT-13 display. A pictogram without side lines indicates a constant glow of the symbol.

THE BAR GRAPH reflects only time programs or permanent manual control! If the segment of the given time is lit, it means that there is a scheduled time program for switching the output for at least 1 s at the given hour. If the segment of the given time is not lit, it means that no time program for switching the output is scheduled at the given hour.

First setup

To set up the time switch you have two options (including canceling it), please follow the steps below. Now connect your configuration device (PC/Mobile/Tablet/....) to Wi-Fi (2.4 GHz) of the time switch. ENGLISH SHT-13 Wi-Fi access data (default): SSID hostname: SHT-13_barcode number Password: elkoep13 Web address for configuration: 192.168.1.1 (OK) FIRST SET Setup wizard will guide you through each step after opening (OK) If you need advice on the individual steps, follow the instruc-tions below in the Wi-Fi connection headline. 00:00 00:00 START-ON OFF TIME ON TIME[USE WEB IN 🕅 CONNECT TO Ŧ € -%-\$⁄⊡) CYCLE set impulse time set pause time set offset for sunrise set offset for sunset set starting with impulse or pause set you time sv witch + set the output type using Wi-Fi **ASTRO SETTINGS :** 1 00:00 SUNSET-ON 00:00 CHRNNEL TIME PROGR CHENNEL TIME RNURLLY D ASTRO MODE PULSE PULSE INSE @6 Ð ⊕ + set the output starts with 1st channel & follows with 2nd (depends 96 starts with 1st channel, follows with 2nd (SHT-13/2) 06 out type set astro mode set your time swit manually pulse length set offset for sunrise set offset for sunset . vitch set operation select astro mode on previous configuration) ON / OFF 00:00 00:00 00:00 CANCEL SET TO Ø6 set offset for sunrise set offset for sunset cancel setup (you can set up the device later on) CESKA REP RAHA COUNTRY €} €⁄6 2023 **ASTRO SETTINGS:** 01.01 רם.ו ס setting the country setting the city COORDINATE [®] IRTE Menus for ASTRO settings (mode, output type, offset, location) LOCATION will pop up only if you have selected one of the ASTRO programs Øo ⊕ Ð €) setting the location 49 LATITUDE setting the date as operation mode for 1st or 2nd channel. If you have selected ® LONGITUJE setting the yea setting the month setting the day the ASTRO program for both channels you will need to set up the select an option € 96mode, output type and offset for both since each channel can have a different setup. setting the latitude setting the longitude ASTRO MODES: SUNSET-ON/SUNRISE-OFF (the output of the selected channel closes 18:52 18:52 24н MONTRY ©K FIRST ⊒RY TIME IME FORM at sunset and opens at sunrise) SUNSET-OFF/SUNRISE-ON (the output of the selected channel opens T Øo € time format setting the time setting the first day of the week ₹ at sunset and closes at sunrise) setting the hour setting the minutes SUNSET-ON/SUNRISE-ON (the output of the selected channel closes select the day select format at sunset and sunrise) SUNSET-OFF/SUNRISE-OFF (the output of the selected channel , 18:5Z RUTO SUMMER/WIN OK OK TIME 70NE RRAGUE opens at sunset and sunrise) -%-Ø6 summer/winter time switching setting the time zone ⊕⁄_ AUTO: automatically according to selected time zone OFF: permanently deactivated select region select city - long press (>1s)
 - short press (<1s) **Wi-Fi connection**

First, make sure that you have a configuration device (PC/phone/...) with Wi-Fi of 2.4 GHz band that supports a web browser and is close enough to SHT-13 that you want to connect. The time switch does not support a 5 GHz band.

It is possible to connect directly to the web server for configuration via the Wi-Fi generated by the SHT-13 (no router or internet connection required). If the time is to be synchronized, an internet connection via a Wi-Fi router is necessary.

Activating the Wi-Fi of time switch:

After connecting the SHT-13 to the power supply, it is possible to activate/deactivate Wi-Fi by briefly pressing the OK button. If Wi-Fi is active and the configuration device is not connected, it will automatically turn off after 90 seconds.

NOTE .: Wi-Fi can be activated permanently through the settings, once the setup wizard is complete

18:52 18:52 22

active Wi-Fi is indicated by an icon on the display Now connect your configuration device to the Wi-Fi of the time switch (follow the instructions provided by the manufacturer of the configuration device).

SHT-13 Wi-Fi access data (default): SSID hostname: SHT-13_barcode number Password: elkoep13

After the connection is established, the Wi-Fi symbol starts flashing on the display.

Open the web browser of the configuration device and enter the IP address in the address bar: 192.168.1.1



Date and time setting





Delete all (programs/holidays)



To delete all time programs/holidays on a time switch simply press and hold the buttons as shown in the pictures above and follow the options.

Location - preset locations

RUSTRIR		LATVIA	
	INNSBRUCK		RIGR
	WIEN	LITHURNIR	
BELARUS			VILNIUS
	MINSK	NORWRY	
LESKH REP	UBLIKK		USLU
		PULHIU	CUDNCK
			RBRUN
	HRBDEC KRBLOVE		WBR528WB
	CESKE BUDEJOVICE	ROMANIA	2,,,(22),(2),(2),(2),(2),(2),(2),(2),(2)
ESTONIR			RRRD
	TALLINN		BUCHRREST
FRANCE		RUSSIR	
	PRRIS		MAGADAN
GERMANY	850) <i>(k)</i>		MOSCOW
сосот орг	TUTTLA TON		
UKLITI UKI	EDINBURGH		7
	LONDON	52002000	BRNSKA BYSTRICA
			BRATISLAVA
HOLLAND			KOSICE
	RMSTERDAM	SPRIN	
HUNGARY			MADRID
	BUDRPEST	SWITZERLR	ND
	DEBRELEN		ZURILH
ומבי מאח	PELS	UNRHINE	DONETCK
IRELAIID			KIEU
ITRI 4	000201		NNE SSB
	ROMR		0000000

Battery change



You can replace the battery in a user-friendly way, without disassembling the device, with the mains voltage on or off.

When replacing the battery, note that terminal A2, 26, 25, 28 may be under voltage.

When replacing the battery, the following three situations may occur:

a. The timer is connected to the mains supply = proceed according to steps #3 - 6.

b. The timer is not connected to the mains supply (battery supply) = proceed according to steps #1 – 6

c. The timer is connected to the mains supply with a discharged battery = proceed according to steps #2 - 6

- 1. Wake up the timer from the backup mode by short press of OK button, the main screen will appear.
- 2. Press and hold the PRG button on the main screen, use +/- to navigate to OPTIONS, short press OK, use +/- to navigate to BRITERY CHRNGE (305), short press OK to confirm, this will bring you to the START option.
- If you are doing the replacement according to situation b., confirm the above START option again with the OK button. The display will show CHBMGE. Time data has now been saved for the 30 seconds during which you replace the battery, continue with step #3.
- If you are doing the replacement according to situation c., confirm the above START option again with the OK button. The display will show CHRMSE. You can disconnect in the next 2 minutes supply voltage from the mains. When the supply voltage is disconnected, time data are saved for 30 seconds, during which you replace the battery, continue with step #3.

NOTE: It is good to physically insert a new battery when the 30 second replacement interval is running out, in order to minimize the deviation of the set time.

- 3. slide out the plug-in module with the battery
- 4. remove the original battery
- 5. insert the new battery so that the upper edge of the battery (+) is aligned with the plug-in module
- 6. insert the plug-in module as far as it will go into the device pay attention to the polarity (+ (gu

If you did it right, the battery symbol on the display will go out after the replacement (if the battery is fully charged) and there will be no or only a minimal deviation in the time data. To achieve repeated and long-term running accuracy, use time synchronization via a Wi-Fi connection - see the Wi-Fi connection section.

Time program/holiday setting



Firmware update / factory reset / restart





• Firmware update:

The web interface itself will guide you through the update process. After connecting to Wi-Fi SHT-13 and opening the configurator in the browser, go to the Service menu, select the file with the new firmware and click the update button.

The hidden RESET button has two functions depending on the length of the press:

• Factory reset:

It is performed by long pressing <5 with a blunt tip of the hidden RESET button (e.g. a pen or a screwdriver with a diameter of max. 2 mm).

The display briefly shows all display segments, then the device type and firmware version. The following is a setup guide - i.e. the same state in which you received the timer from the factory. Settings and all configured programs/holidays are erased by this step.

Restart:

It is done by briefly pressing <1 with the blunt tip of the hidden RESET button. The display briefly shows all display segments, then the device type and firmware version. This is followed by a transition to the main screen - date, time, program activity, contact status, etc. This step will not result in the loss of settings or configured programs/holidays.

SHT-13 programming example

Setting 1st channel to switch ON from the sunset to the sunrise with an offset (deviation) of +20 minutes for the sunrise and -10 minutes for the sunset with turning OFF from 11 p.m. to 3 a.m. every MONDAY - FRIDAY.

