POOL-THERMOMETER

ENGLISH:

Operation manual:

WiFi solar control for swimming pool - Tasmota (Sonoff TH Elite)

Version: 1.04 from April 8, 2023

Lread these instructions carefully before you put this switching actuator into operation. Keep the instructions for future reference! If you let other people use the device, also pass on these instructions.

Safety instructions:

Caution: Work and repairs on electrical devices or on cables, sockets, switches should only be carried out by a qualified electrician. Working on the 90 - 230V network is dangerous and can lead to fatal accidents.

Also observe the safety instructions in the instructions included with the Sonoff TH Elite and the instructions for the device to be switched.

Hazard warnings:

- Do not open the device. It contains no user-serviceable parts. Opening involves the risk of electric shock. In the event of a fault, have the device checked by a specialist.
- For safety and approval reasons (CE), unauthorized conversion and/or modification of the device is not permitted.
- The device is not suitable for unlocking.
- Do not use the device if there is externally visible damage, e.g. B. on the housing, on the controls or on the connection sockets. If in doubt, have the device checked by a specialist.
- Only operate the device in a dry and dust-free environment, do not expose it to moisture, vibrations, constant exposure to the sun or other heat radiation, cold and no mechanical loads.
- The device is not a toy! Do not allow children to play with it. Do not leave the packaging material lying around. Plastic films/bags, styrofoam parts, etc. can become dangerous toys for children.
- We assume no liability for damage to property or personal injury caused by improper handling or non-observance of the hazard warnings. In such cases, any warranty claim expires! For further damages we do not accept liability!
- The device may only be used for fixed installations. The device must be securely fixed within a fixed installation.
- The actuator is part of the building installation. During planning and construction, the relevant national standards and guidelines must be observed.
- The device may only be operated on a 100-240 V/50/60 Hz AC mains.
- Work on the 230 V network may only be carried out by a qualified electrician (according to VDE 0100in Germany. Comply with the laws of your country) take place. Observe the applicable accident prevention regulations. Disconnect the mains voltage (switch off the circuit breaker) to avoid an electric shock to the device. Failure to follow the installation instructions can result in fire or other hazards.
- When connecting to the device terminals, observe the permissible cables and cable cross-sections.
- The consumers connected to the relay outputs must have adequate insulation.
- Before connecting a consumer, observe the technical data, in particular the maximum permissible switching capacity of the relay and the type of consumer to be connected. Only load the actuator up to the specified performance limit.
- Overloading can destroy the device, cause a fire, or cause an electric shock.
- The circuit to which the device and the load are connected must be protected with a circuit breaker according to EN60898-1 (tripping characteristic B or C, max. 16 A rated current, min. 6 kA breaking capacity, energy limitation class 3). Installation regulations according to VDE 0100 or HD384 or IEC 60364 must be observed. The circuit breaker must be easily accessible for the user and must be marked as the disconnect device for the device.
- Before connecting the switch actuator, the fuse in the fuse box must be removed.
- The device is only suitable for use in apartment-like environments and technical rooms.
- Any use other than that described in these operating instructions is not in accordance with the intended purpose and leads to the exclusion of warranty and liability.

1. Connection

Observe the safety instructions and hazard warnings. Before beginning the installation, turn off the power supply in the circuit. Please note that all assembly work is only to be carried out when the supply voltage is switched off (switch off fuse/pull out mains plug).

1.1. Connection to the power supply line

Connect the device to a power supply line according to the instructions included with the Sonoff TH Elite.

1.1. Connection of the device to be switched

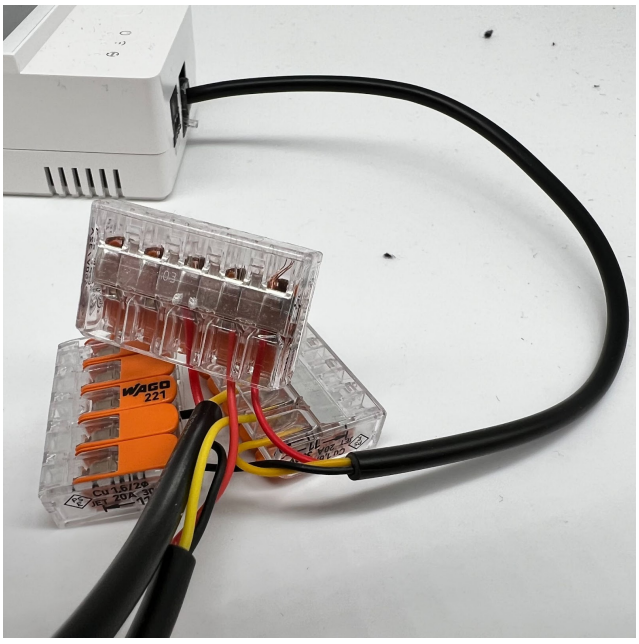
The device has two switching actuators:

- Output: 100-240V~50/60Hz 20A max
- Potential-free output: 5-30V, 1A Max

The solar control always switches both variants as soon as the respective requirements are met. Read the specifications and manual of the device to be switched. Connect the device to be switched according to the instructions included with the Sonoff TH Elite.

1.2. Connection of the temperature probes

a) Strip probe cables. Wires should be exposed about 5mm for the supplied connector clips to grip.
b) Take the RJ11 4P4C adapter. Connect the three cables with the colors yellow, red and black each with a connection clamp.
c) Now connect the exposed cables with the colors yellow, red and black of the probes to the connection clamps. Connect the yellow cables of the two probes to the connection terminal to which you have already connected the yellow cable of the RJ11 adapter. Connect the blue cables of the probes to the connection terminal to which you have already connected the blue cable of the RJ11 adapter. Connect the black cables of the probes to the connection terminal to which you have already connected the black cable of the RJ11 adapter.
d) Now connect the RJ11 plug of the adapter cable to the corresponding socket of the Sonoff TH Elite.

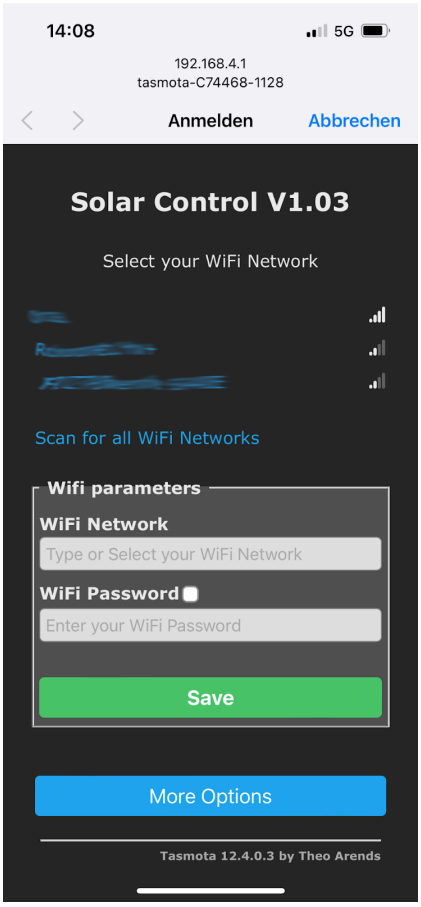


2. Installation

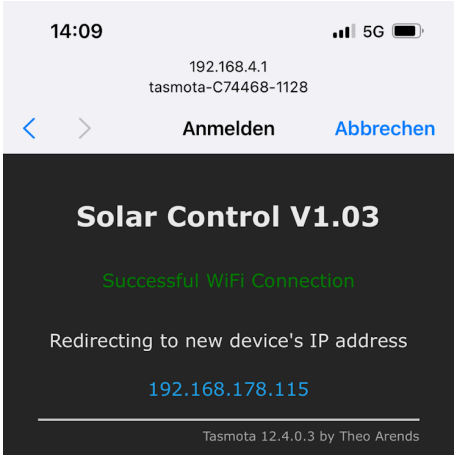
2.1. Connect controller to network

a) If you have wired the device correctly, connect the controller to the power supply.
b) Wait about a minute for the system to boot up.
c) Open the WiFi setting on your smartphone. Connect your smartphone to the “Tasmota-XXXXX-XXXX” network within the range of available WiFi networks.

d) When your smartphone has connected to the controller network (Tasmota-XXXXX-XXXX), a login screen opens. Here you select the WLAN network with which the controller should connect. Enter the appropriate WiFi password in the “WIFI Password” field and press “Save”.



e) When the controller has successfully connected to your WiFi network, the message “Successful WiFi Connection. The IP address with which the device can be called up via your browser is also displayed.Make a note of the IP address.



f) Open your browser on your computer, smartphone or tablet and enter the IP address you just noted in the address field. In the example shown above, this would be http://192.168.178.115. Now the user interface of the control is opened.
If you don't know the IP address, you can find it in your router's user interface. Read the manual for your router for this.

2.2. Check and set the time

By default, the time should be set to the Europe/ Berlin time zone. To check if the time is correct, click on “Consoles” in the main menu and then on “Console” to bring up the console.

The time is displayed in the first column of the console. If the time is not correct or the device is in a different time zone, go to the following website:

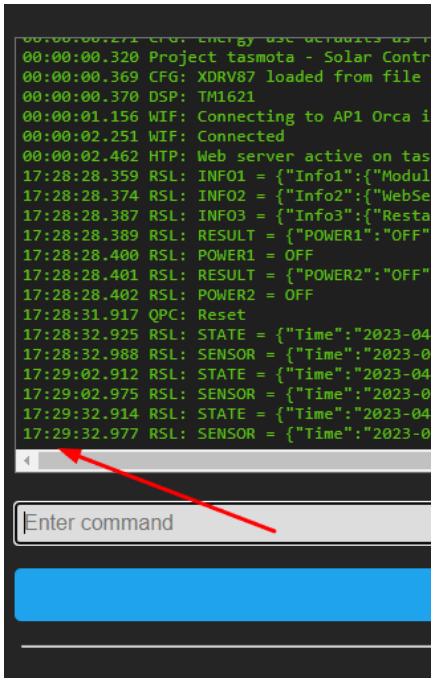
https://tasmota.github.io/docs/Timezone-Table/

Search there for the desired time zone and copy the corresponding area of the time zone with a gray background.

Example: If you want to set the time to Europe/London copy:

Backlog0 Timezone 99; TimeStd 0,0,10,1,2,0; TimeDst 0,0,3,1,1,60

Paste the copied text into the “Enter command” input field and confirm with ENTER.



2.3. Identification of the solar collector probe

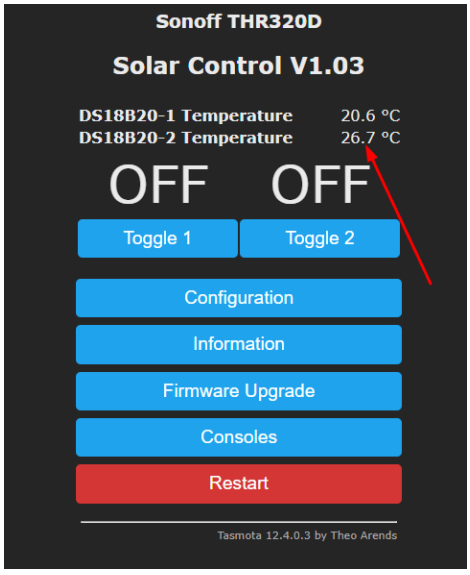
If you have connected the probes correctly, they will appear as DS18B20-1 and DS18B20-2 in the

Tasmota user interface. Since the numbering of the probes cannot be changed in Tasmota, you must identify the solar collector probe in this step and store this in the controller. To do this, proceed as follows.

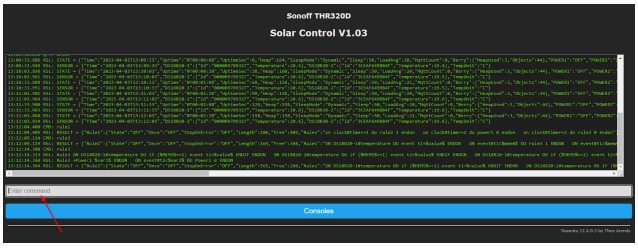
a) Open the start screen of the Tasmota web interface.

b) Place the temperature sensor of the collector probe (usually the probe with the longer line) in a container with warm water (warmer than the ambient temperature). The displayed temperature of the collector probe should now increase. Note

which of the displayed probes (DS18B20-1 or DS18B20-2) is the collector probe.



c) Open the console. You can access the console by clicking on the start screen"Consoles" and then click on “Console”. Enter "Enter command", "mem5=1" or "mem5=2" in the field and press ENTER. The result is, for example, the following: "14:25:44.542 RSL: RESULT = {"Mem5":"2 "}".



Condition	Enter the command in the console and press ENTER
If solar collector probe = DS18B20-1	mem5 1
If solar collector probe = DS18B20-2	mem5 2

2.4. Entering the variables

In order for your solar controller to work properly, you must enter a few variables in the controller via the console.

To do this, navigate to

Variable values:

mem4	The maximum water temperature that can be reached. Command to be entered: **mem5 x** The x must be replaced by a number (example: 27°C = 27) Example: If the water in your pool should not exceed 27 °C, “mem5=27” is entered in the console and confirmed with ENTER. If the water temperature is 27 °C or higher, the device to be switched (pump or 3-way valve) is switched off. If the water temperature is below 27 °C, the control is activated.
mem3	Minimum temperature of the solar collector at which the control should be activated. Command to be entered: **mem3 x** The x must be replaced by a number (example: 26°C = 26) Example: If the minimum temperature, measured at the solar collector, should be at least 26 °C before the control becomes active, "mem3=26" is entered in the console and confirmed with ENTER. If the measured value on the solar collector is 26 °C or above, the control is activated (provided that the maximum water temperature that can be reached has not yet been reached).
mem1	Switching hysteresis: The device to be switched should be switched on when the temperature on the solar collector is more than x °C (mem1) warmer than the water temperature in the pool. Command to be entered: **mem1 x** The x must be replaced by a number (example: 2°C = 2) Example: see mem2
mem2	Switching hysteresis: The device to be switched should be switched off when the temperature on the solar collector is less than x °C warmer than the water temperature in the pool. Command to be entered: **mem2 x** The x must be replaced by a number (example: 3°C = 3) Example: • mem1=2 (corresponds to 2°C)

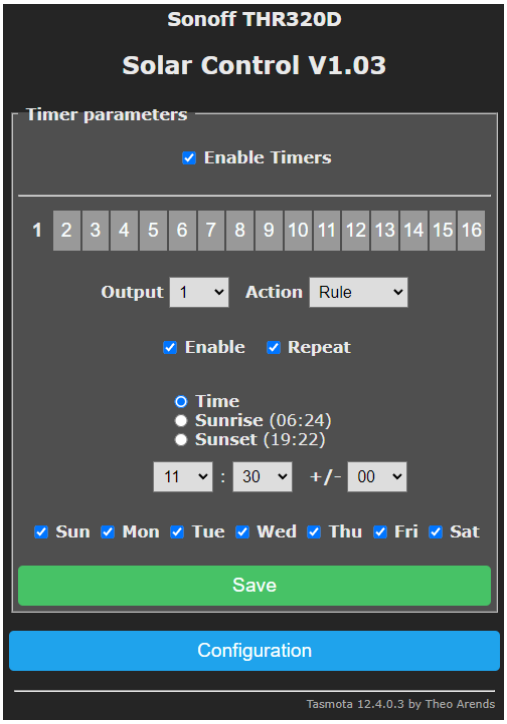
	and mem2=3 (corresponds to 3°C) As soon as the difference between the solar collector temperature and the water temperature is greater than 2 °C, the connected pump is switched on. As soon as the difference between the solar collector temperature and the water temperature is less than 3 °C, the connected pump is switched off (provided that the maximum water temperature that can be reached has not yet been reached and the minimum temperature on the solar collector has been reached).

2.5. Create schedules

In order for your control to work, you must enter the times at which you want your control to be activated and deactivated. You can create four schedules for this. Timers 1 and 3 activate the solar control. Timers 2 and 4 deactivate the control and switch off the devices to be switched.

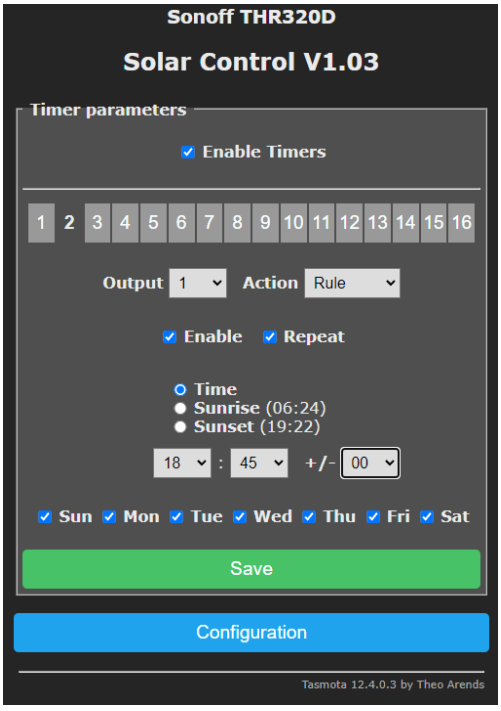
To do this, create schedules as follows:

a) On the start screen, click on “Configuration” and then on “Configure Timer”.
b) To activate schedules click on “Enable Timers”.
c) Now create the schedule on which the controller should be activated, according to the following example:



To save the entry, click on “Save”.
Example: In this example, the controller is activated at 11:30 am every day. If "Sunrise" is selected, the control will be activated at sunrise, and if "Sunset" at sunset. By clicking the options Sun (Sunday), Mon (Monday), Tue (Tuesday), Wed (Wednesday); Thu (Thursday), Fri (Friday), Sat (Saturday), you can select the days of the week on which the schedule should take effect.

d) Now, according to the following example, create the schedule on which the control is to be deactivated and the device to be switched is to be switched off:



To save the entry, click on “Save”.
Example: In this example, the controller is deactivated at 18:45 every day. If "Sunrise" is selected, the control is deactivated at sunrise and at "Sunset" at sunset and the device to be switched is switched off. By clicking on the options Sun (Sunday), Mon (Monday), Tue (Tuesday), Wed (Wednesday).); Thu (Thursday), Fri (Friday), Sat (Saturday), you can select the days of the week on which the schedule should take effect.

Important: In both schedules (1, 2, 3 and 4) click on “Output: 1” and select “Rule” in “Action”. That's the only way the controller will work. Without schedules, the controller remains idle.

2.6. Activate and deactivate controls

a) Activate control

The controller is not active during commissioning. Enable control in the console. You can find out how to get there under point 2.3..

Command to be entered in the console:

rule1 1

Confirm your entry with Enter.

Do you want to check if the control has been activated. Enter the command "rule1" in the console and confirm the entry with ENTER.

The following should now be displayed:

15:58:44.553 RSL: RESULT = {"Rule1":{"State":"ON",.....

If there is an “ON” after “State”, the control is active. If there is an “OFF” after “State”, the controller is not active.

b) Disable control

Apply analogously to 2.3. a) enter the following command in the console:

rule1 0

(Confirm your entry with ENTER)

rule2 0

(Confirm your entry with ENTER)

rule30

(Confirm your entry with ENTER)

The control is only activated again by the command "rule1 1". rule2 and rule3 must not be activated separately because they are controlled by “rule1”.

2.7. Control without a schedule

If you want to do without schedules and the control should remain active at all times, proceed as follows:

Enter the following commands in the console:

rule1 0

(Confirm your entry with ENTER)

rule2 1

(Confirm your entry with ENTER)

Go to “Configuration” / “Configure Timer” and uncheck “Enable Timers”.

2.8. Reset to factory settings

a) Full factory reset:
From the main menu, click “Configuration” and then click “Reset Configuration”. The device is restored to factory settings and must be set up again.

b) Factory reset, but keep WiFi settings:
Open the console by clicking on “Consoles” in the main menu and then on “Console”.
Enter the following command in the input field of the console and confirm this with ENTER:
reset 6
This will erase all settings. TheWiFi settings but remain intact.

2.9. change language

By defaultis the firmware is in English, as we deliver throughout Europe. This manual therefore uses the English terms of the respective menu items and setting options. If you change the language, these instructions will therefore only be of limited help. We therefore recommend that you use the operating system in English. If you still want to use Tasmota in your language, this is possible.To do this, download the firmware in the desired language from our support center and install it according to the “Firmware Upgrade” section in this manual.

2.10. Firmware Upgrade

Current firmwares can be found in our support center here:

https://support.pool-thermometer.eu/de/wissensdatenbank/wlan-solarsteuerung-fuer-swimming-pool-tasmota-sonoff-th-elite/firmware-und-downloads

a) Download the current firmware to your computer.
b) Click on “Firmware Upgrade” in the main menu.
c) In the “Upgrade by file upload” section, click “Choose file” and select the appropriate firmware that you want to install.
d) If the upgrade was successful, you will see “Upgrade Successful” and go to the main menu.
e) You must reset the device for the upgrade to take effect. To do this, call up the console (Consoles > Console) and enter the following command:
reset 6
Confirm this with ENTER. The device will restart. Update the browser.
This resets all settings except for the WiFi settings.
f) Please re-enter from the console.

3. Notes:

Write down your settings in this table. The commands are entered in the console in the scheme:

mem<no><space><number>

<number> can be a temperature value (input without °C) or a variable (e.g. with mem5).

Variable	function	your opinion
mem5	If solar panel = DS18B20-1 mem5 1 IfSolar collector = DS18B20-2 mem5 2	
mem4	Maximum water temperature that can be reached in the pool.	
mem3	Minimum temperature of the solar collector	
mem1	Switching hysteresis: The device to be switched should be switched on when the temperature on the solar collector is more than x °C (mem1) warmer than the water temperature in the pool.	
mem2	Switching hysteresis: The device to be switched should be switched off when the temperature on the solar collector is less than x °C warmer than the water temperature in the pool.	

