Manual

HEA•THOR IoT: Operation Manual

Last update: 19.11.2026, 06:53

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1. Introduction

These operating instructions contains important information on operating and maintaining the product.
Please be sure to observe the safety instructions and carefully read the assembly instructions and the quick start guide supplied with the device.

The current version of the assembly instructions and the quick start guide can be found here.

1.1. Explanation of the safety instructions



Warning!
Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.



Caution!
Indicates a hazard with low risk which, if not avoided, may result in minor or moderate injury.



Note!
Indicates information that is considered important but is not related to hazards

2. Intended use

The HEA•THOR IoT is an electronic heating rod for heating drinking water and heating water. The device is intended exclusively for heating water in closed, pressure-resistant hot water tanks or buffer tanks.
The HEA•THOR IoT is intended for stationary use in domestic technical systems and may only be operated in suitable containers with sufficient water content and tested pressure resistance.
The device is designed for operation with electrical energy in accordance with the nominal values specified on the type plate.

2.1. Disclaimer and warranty exclusion

The information in this manual has been carefully researched and checked. However, the manufacturer does not guarantee the accuracy, completeness or actuality of the information provided. Any use of the product described in this manual is at your own risk. The manufacturer is not liable for any damage caused by improper handling, installation or use of the product.

Always follow the safety instructions given in this manual to avoid injury or damage.

Changes or modifications to the products without the express approval of the manufacturer can affect safety and performance and will void the warranty.

Please be sure to read the safety instructions and information on how to assemble the device correctly in the assembly instructions provided with the device!

The product complies with legal, national and European requirements.
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3. Safety instructions

The device is intended exclusively for heating drinking water and heating water in accordance with (VDI 2035) in a closed or open metal storage tank.

During operation, the heating element must be completely immersed in the medium to be heated on all sides. The thermally induced flow must not be impeded.

The installation position must be horizontal or vertical. A sleeve with a suitable thread size (G1 ½") must be available. Alternatively, installation can be carried out using a lock nut, which is not included in the scope of delivery. In front of the installation sleeve, "installation length +150 mm" must be kept free for installation and servicing.

The housing must not become damp or wet; it is only suitable for dry indoor areas. There is a risk of fatal electric shock!

Do not install the device in an environment contaminated with ammonia.

Do not install the device in dusty environments.

The ventilation slots on the housing must not be covered under any circumstances.

The device housing may become warm during operation.

Avoid exposure to extreme heat, cold or direct sunlight during storage and operation.

This device can be used by children aged 8 years and above and by persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been supervised or instructed in the safe use of the device and understand the resulting dangers. Children must not play with the device. Cleaning and user maintenance must not be carried out by children without supervision.

The heating output must be adapted to the volume of the medium to be heated. The user is responsible for making the correct selection. The specified surface load must be observed. If necessary, consult the manufacturer before putting the device into operation.

A fixed electric potential equalisation must be established for the hot water tank.

The maximum operating pressure is 10 bar.

⚠ WARNING!

- Electrical connection, installation, commissioning and servicing must only be carried out by a qualified specialist.
- The power supply plug must never be disconnected while the device is under voltage!
- The SELV relay is a potential-free switching contact for safety extra-low voltage. There is a risk of death if mains voltage is connected.

4. Assembly

Information on installing the HEA•THOR IoT can be found in the assembly instructions supplied with the device.
The current version of the assembly instructions can be found here.

5. Technical Data

Product	Heating capacity
HEA•THOR IoT 3.5 kW	3.500 W
HEA•THOR IoT 9 kW	9.000 W

Product	Mains connection
HEA•THOR IoT 3.5 kW	Single-phase, 230 V, 50 Hz

HEA•THOR IoT 9 kW	Three-phase 3 x 230 V, 50 Hz
Product	Standby consumption
HEA•THOR IoT 3.5 kW	<1,5 W
HEA•THOR IoT 9 kW	<1,5 W
Product	Adjustment options
HEA•THOR IoT 3.5 kW	via rotary knob, my-PV Websetup or my-PV Cloud
HEA•THOR IoT 9 kW	via rotary knob, my-PV Websetup or my-PV Cloud
Product	Interfaces
HEA•THOR IoT 3.5 kW	Ethernet RJ45, WLAN, RS485, potential-free switching output
HEA•THOR IoT 9 kW	Ethernet RJ45, WLAN, RS485, potential-free switching output
Product	Operating temperature range
HEA•THOR IoT 3.5 kW	The ambient temperature at the housing must not exceed 40°C
HEA•THOR IoT 9 kW	The ambient temperature at the housing must not exceed 40°C
Product	Protection class
HEA•THOR IoT 3.5 kW	IP 21
HEA•THOR IoT 9 kW	IP 21

Product	Dimensions (L x H x W)
HEA•THOR IoT 3.5 kW	580 x 133 x 117 mm (with heating element)
HEA•THOR IoT 9 kW	865 x 133 x 117 mm (with heating element)

Product	Heating rod length
HEA•THOR IoT 3.5 kW	460 mm (from sealing level)
HEA•THOR IoT 9 kW	740 mm (from sealing level)

Product	Heating rod thread dimension
HEA•THOR IoT 3.5 kW	G 1 1/2 inch
HEA•THOR IoT 9 kW	G 1 1/2 inch

Product	Heating-free zone
HEA•THOR IoT 3.5 kW	140 mm from seal surface
HEA•THOR IoT 9 kW	140 mm from seal surface

Product	Warranty
HEA•THOR IoT 3.5 kW	2 years (except calcification)
HEA•THOR IoT 9 kW	2 years (except calcification)

Product	Tightening torque

HEA•THOR IoT 3.5 kW	50 Nm
HEA•THOR IoT 9 kW	50 Nm

Product	Max. operating pressure
HEA•THOR IoT 3.5 kW	10 bar
HEA•THOR IoT 9 kW	10 bar

Product	Mounting position
HEA•THOR IoT 3.5 kW	horizontal / vertically standing
HEA•THOR IoT 9 kW	horizontal / vertically standing

Product	my-PV item number
HEA•THOR IoT 3.5 kW	21-0300
HEA•THOR IoT 9 kW	21-0900

6. Device description

The HEA•THOR IoT can be controlled via Modbus TCP/RTU, HTTP or API.
In combination with a dynamic electricity tariff, the HEA•THOR IoT can be controlled via the my-PV DTO to automatically heat the water at the most favourable electricity prices.

6.1. Control and display elements



1. Rotary knob
2. Temperature display
3. Fault display
4. LAN connection display
5. WLAN connection display

6.2. Possible Settings with the rotary knob

6.2.1. Set the target temperature

1. Press and hold the rotary knob for at least one second
2. The current target temperature flashes
3. Turn the rotary knob to the desired target temperature.
4. To save the setting, press the rotary knob once
5. The current storage temperature is displayed again

6.2.2. Resetting the STL (safety temperature limiter)

The STL is factory-set to trigger at temperatures above 98°C. Before you can reset the STL, the temperature must have dropped by at least 10°C.
To reset the STL, press the rotary knob for at least 5 seconds.

6.2.3. Reset to factory settings

You can reset the HEA•THOR IoT to factory settings at any time using the rotary knob.
To do this, press the rotary knob and hold it down for at least 10 seconds.
Once the factory reset has been completed, the HEA•THOR IoT will restart.

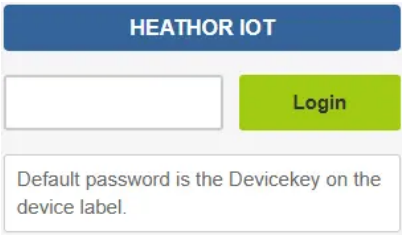
7. Local web interface

The web interface connects to the device within the local network to make settings on the HEA•THOR IoT. Remote access, my-PV DTO, API and historical data are only available in the my-PV cloud.

> ⚠ **Note**
>
> The local web interface must be distinguished from the data cloud https://live.my-pv.com/

7.1. Open the local web interface

For the first login you need the device key and the serial number. You can find both on the device label.

1. Enter https://my-pv-heathor-iot-*your HEA•THOR IoT serial number*.local/ in the address line of the web browser.
   This will open the login window of the webinterface.
2. 

3. Type in the device key or your password if you changed it.
4. Click the "Login" Button to access the webinterface

⚠ Note

- The devicekey is only the password if it's the first login or when you reset the device to default settings
- my-PV recommends not making the HEA•THOR IoT accessible to the Internet via port forwarding!
- Please note that the setting options may change with more recent firmware versions.

7.2. Device settings

7.2.1. Hot Water

You can set the target temperature and configure the "Boost Mode" in the "Hot Water" menu.
It is also possible to heat to the maximum temperature with three timeframes for two different weekday configurations.
The start and end time can be specified in full hours.

Boost Mode "On":
When this function is activated, the connected heating element is supplied with maximum power.

Boost Mode “Relay”:
Alternatively, the minimum temperature can be maintained by activating an external heat source. Details on the wiring of the potential-free contacts can be found in the assembly instructions.

There are two time slots available for ensuring the minimum temperature is maintained. The start and end time can be specified in full hours.

Tip

If you only want to use the BOOST button, enter 0 in all fields of the two time windows.

Note

- The start hour and end hour refer to the same calendar day. If a time window is defined over midnight, there is no hot water boost!
- If the set start hour is after the end hour, there is no hot water boost!

7.2.2. Legionella Protection

To ensure drinking water hygiene, a time period can be specified by which a defined minimum temperature must be reached again after the last time this value was reached at the internal sensor T1. The number of days of this period can be set between 1 and 14. It is possible to specify a time for the start of the legionella programme. The factory setting is for a period of seven days, the legionella programme starts at 8 p.m., the target temperature is 60 °C and the programme is deactivated. The HEA•THOR IoT is supplied with maximum power until the target temperature set for the legionella mode at sensor T1 is reached.

7.2.3. Hysteresis

Here, you can set the hysteresis for both the maximum target temperature and the minimum boost temperature. The HEA•THOR IoT will only start heating again when the temperature has fallen by the set value from the maximum or boost temperature.

7.2.4. Time

The region and location can be selected in the Time menu. A time server or NTP server (NTP = Network Time Protocol) can be defined in the web setup using a domain name.

7.2.5. IP Settings

In the IP Settings menu, you can read the current network data of the HEA•THOR IoT, set the type of connection (Ethernet.Mode) and specify whether the HEA•THOR IoT connects to the network with a static IP address.

7.2.6. Change Password

In this menu you can change the login password for the webinterface

7.2.7. Cloud Mode

In this menu item, you can activate or deactivate Cloud Mode.

7.2.8. Advanced Security Settings

- **Runtime Data Encryption**
  Here you can set whether the data.jsn file can only be accessed in encrypted form
- **Encryption http control**
  You can set how the control via http is handled

7.2.9. Version Firmware

In the Firmware version menu, you can view the current firmware version, check for updates and perform updates. It is also possible to restart the HEA•THOR IoT or perform a factory reset.

8. Control options

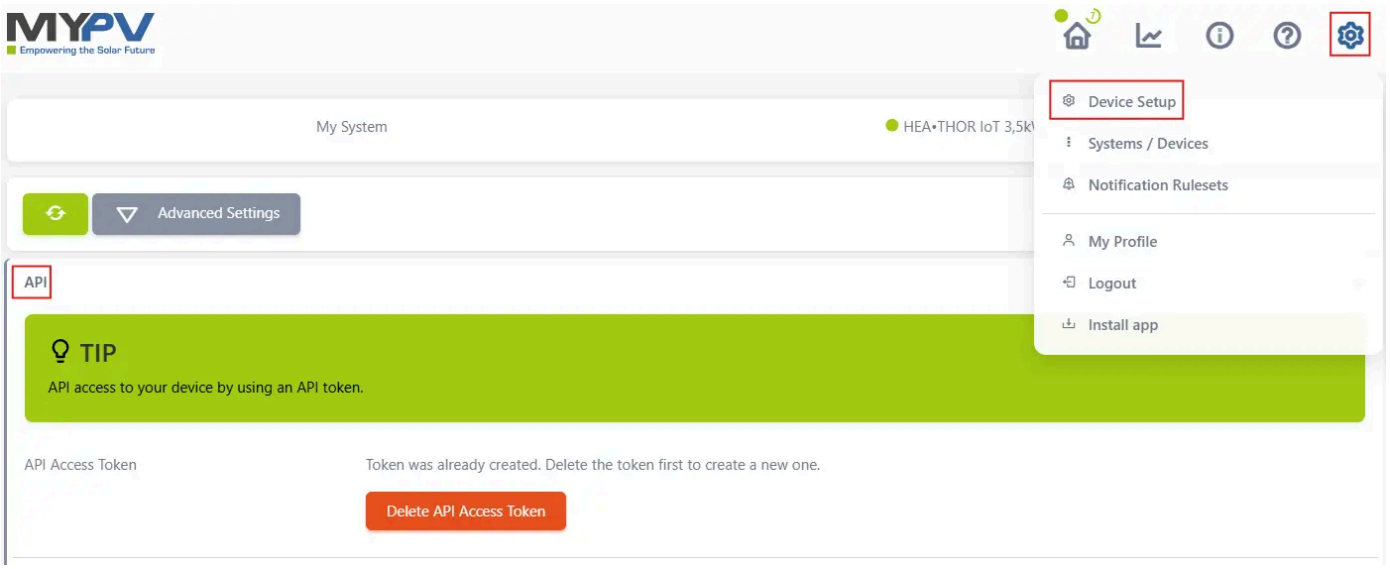
8.1. Modbus TCP/ RTU, http

No further settings are required for Modbus TCP/RTU and http. These interfaces are already activated by default.

A detailed description of the listed controls can be found in the HEA•THOR IoT Documentation Control.

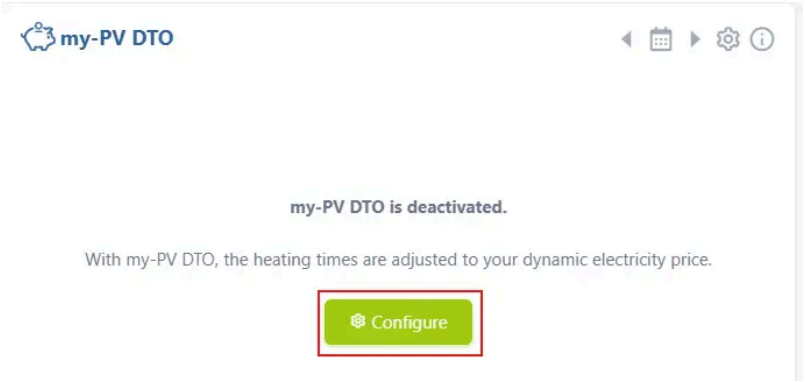
8.2. API

The my-PV Cloud is required to use the API interface. Under Settings --> Device settings --> API, you will find the option to generate an API token in order to use the API interface.



8.3. my-PV DTO

The my-PV DTO can be activated in the cloud via the relevant widget.



9. Error table

error category	Temperature
Description	STL (safety temperature limiter) has triggered
LEDs	2&9
troubleshooting	Wait until the temperature has dropped by 10 °C and reset the STB as described in section 6.2.

error category	Temperature
Description	The standard temperature sensor T1 is missing.
LEDs	2&10
troubleshooting	Check if the 3-pin plug on the back of the HEA•THOR IoT is properly inserted.

error category	Temperature
Description	STL (safety temperature limiter) temperature sensor missing
LEDs	2&11
troubleshooting	Check if the 3-pin plug on the back of the HEA•THOR IoT is properly inserted.

error category	Temperature

Description	Power unit overheating
LEDs	2&12
troubleshooting	The power stage has an excessive temperature (>85°C). Power can only be supplied again once the device has cooled down to 50°C.
error category	Relay open
Description	N relay does not close
LEDs	4&9
troubleshooting	Check whether the heating rod plug is correctly connected to the rear of the HEA•THOR IoT.
error category	Relay open
Description	L1 relay does not close or no heating element is connected
LEDs	4&10
troubleshooting	Check whether the heating rod plug is correctly connected to the rear of the HEA•THOR IoT.
error category	Relay open
Description	L2 relay does not close or no heating element is connected
LEDs	4&11
troubleshooting	Check whether the heating rod plug is correctly connected to the rear of the HEA•THOR IoT.
error category	Relay open
Description	L3 relay does not close or no heating element is connected

LEDs	4&12
troubleshooting	Check whether the heating rod plug is correctly connected to the rear of the HEA•THOR IoT.