

# OPERATING INSTRUCTIONS

## TEMPERATURE SWITCH

### TS 125

Item no. 111 48 25

Version: 1.0 from 08/10/2025

Translated from German



# HTRONIC

For proper and safe use, follow these operating instructions.  
Keep them for future reference.



# H-TRONIC GmbH

Dienhof 11 • 92242 Hirschau • Germany  
Tel: 09622/70200 • Fax: 09622/702020  
[www.h-tronic.de](http://www.h-tronic.de) • [kontakt@h-tronic.de](mailto:kontakt@h-tronic.de)

## Notations used

Notation of instructions for action:

1. Do this.
- ➡ This results in this interim result.
2. Do that.
- ✓ You have carried out the action.

Notation of hazard classes and tips:

 <b>WARNING</b>	Serious injury / death
<b>NOTICE</b>	Property damage
 Tip	Useful information

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# 1 Safety

## 1.1 Intended use

The temperature switch is used in the private and commercial sector in dry rooms.

The temperature switch can be used wherever heating or cooling operation must be controlled, e.g.:

- in heating, air conditioning, incubators,
- for greenhouses, hobby rooms, outdoor saunas, terrariums,
- to replace defective mechanical thermostats.

## 1.2 Incorrect use

Any use of the temperature switch other or beyond the one described in chapter "1.1 Intended use" on page 5 is considered **IMPROPER** and therefore inappropriate.

The temperature switch is **NOT** designed for safety-related applications.

### 1.3 Warning signs and mandatory signs



Danger point



Electrical voltage



Slipping



Tripping



Application tips and other useful information



Read manual

## 1.4 Target group

### Qualification

These operating instructions address a target group with the following qualifications:

**Users** have read these operating instructions and are aware of the possible dangers associated with improper behaviour.

**Qualified electricians** are trained for the specific scope of their work and know the relevant standards and regulations. They can perform work on electrical systems and independently recognise and avoid potential dangers based on their training and experience.

## 1.5 Limited abilities

Persons with limited physical, sensory or mental abilities or persons with insufficient experience or knowledge must **NOT** use the temperature switch.

Unless these handicapped persons have been instructed in the safe and correct use of the temperature switch by another person who is responsible for their safety.

There is a risk of choking through plastic bags and if swallowed. Keep children away from the packaging material (e.g. foils, polystyrene).

Children may use the temperature switch **ONLY WHEN SUPERVISED** so that they do not injure themselves and do not play with the temperature switch.



Children underestimate the danger of electrical appliances. **NEVER** leave children unsupervised with the temperature switch.



## 1.6 Basic safety

Special safety regulations may apply to certain activities. Safety and warning instructions for this can be found in the respective chapters of these operating instructions.

Ensure that the safety instructions in these operating instructions are followed. Before using the temperature switch, the user must have read and understood these operating instructions, especially the safety-relevant information.

**ONLY** persons who can be expected to perform work reliably are permitted as users. Persons whose ability to react is influenced, e.g. by drugs, alcohol or medication, are **NOT** permitted.

## 1.7 Working with potential risks in mind

Carry out all work with or on the temperature switch carefully.

Use the temperature switch only:

- ▶ in accordance with the intended use, while keeping the potential risks in mind and in compliance with these operating instructions,
- ▶ With all safety devices installed, functional and active,
- ▶ if the temperature switch is in technically perfect condition.

This includes:

- ▶ **ONLY** carry out set-up and/or maintenance work when the temperature switch has been disconnected from the mains.
- ▶ Clean the work area from dirt and pollution on a basis.

## 1.8 Modifications

Modifications to the temperature switch are strictly prohibited.

If modifications are required, be sure to consult with H-TRONIC GmbH in advance and obtain written confirmation of permission.

## 1.9 Risks and dangers

### **Possibility of electric shock due to improper use.**



- ▶ When operating the temperature switch, adhere to basic safety principles for handling electrical current, e.g. the 5 safety rules of electrical engineering.
- ▶ Work on electronic parts of the temperature switch may **ONLY** be performed by qualified electricians.



**Possibility of slight injuries due to slippery surfaces or tripping hazards.**



- ▶ Lay all cables so that there are **NO** trip hazards (e.g. cable duct).
- ▶ Remove loose cables and objects from the floor of the work area.
- ▶ Always keep the work area clean and dry.



**Possibility of slight injuries due to contamination.**

- ▶ Do **not** use the temperature sensor directly in food.

**Possibility of property damage to the temperature sensor.**

- ▶ Do **not** use the temperature sensor in aggressive, chemical or reactive liquids.

## **1.10 Behaviour in case of an emergency**

Disconnect the temperature switch from the power supply (e.g. switch off the circuit breaker),

- ▶ if there is a risk of injury,
- ▶ if there is a risk of damage to the temperature switch or a connected device.

In case of an accident, take immediate action and call the local emergency number.

In case of fire, extinguish the temperature switch only with carbon dioxide extinguishers or only with non-conductive extinguishing agents.

## 2 Description

### 2.1 Functional description

Product name / designation	Temperature switch TS 125
Item number	111 48 25
Conformity to regulations and standards	2014/30/EU 2014/35/EU 2011/65/EU  EN IEC 63044-5-1 EN IEC 63044-5-2 EN 60730-1+A2 EN IEC 60730-2-9+A2 DIN VDE 0620-1+A1 DIN VDE 0620-2-1+A1 DIN VDE 0620-2-1 Section 10.5

Table 1 Identification features

The temperature switch detects the ambient temperature via an external, plug-in temperature sensor and switches the connected load on or off depending on this.

You operate the temperature switch via three buttons and a display.

## 2.2 Scope of delivery



Figure 1 Standard scope of delivery

Item	Designation
1	Temperature switch TS 125
2	Temperature sensor TS 1 metal (DS18B20)
	Operating instructions (DE and EN)

## Optional accessories:

- Temperature sensor TS 2-2 plastic (item no. 111 44 42)  
for temperature measurement in mild, non-reactive liquids



Figure 2      Temperature sensor TS 2-2

**TIP**

- ▶ Do **NOT** use the temperature sensor directly in food.



## 2.3 Technical data

### Ambient conditions

Ambient temperature	[°C]	-15 ... +50
Storage temperature	[°C]	-15 ... +55
Relative humidity (non-condensing)	[%]	< 80

Table 2      Ambient conditions

The conditions at the place of use of the temperature switch must at least correspond to the conditions listed in these operating instructions as permissible ambient conditions. Permissible are e.g.:

- Environments without corrosive substances (acids, etc.), flammable gases and flammable, evaporating liquids or dusts.
- No direct sunlight.

Any use under other conditions must be agreed in writing with H-TRONIC GmbH.

## Dimensions

Length	[mm]	165
Width	[mm]	66.5
Height	[mm]	88
Weight	[g]	600
Length of mains cable	[m]	1.8
Length of sensor cable	[m]	2

Table 3 Dimensions

### TEMPERATURE SENSOR

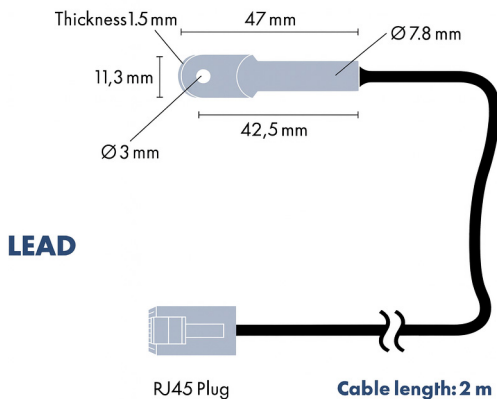


Figure 3 Temperature sensor dimensions

## Electrical data

### Temperature switch

Operating voltage	[V AC]	230
Frequency	[Hz]	50
Output voltage	[V AC]	230
Frequency	[Hz]	50
Amperage	[A]	13
Power consumption (standby)	[W]	1
max. switching capacity (resistive load)	[W]	3000
Resolution (display and setting)	[°C]	0.1
Temperature measuring range	[°C]	-55 ... +125
Measuring accuracy [°C]	-55 ... -10	+/- 2
	-9 ... +85	+/- 0.5
	+86 ... +125	+/- 2
Housing protection class		IP20

Table 4      Electrical data

## PIN assignment

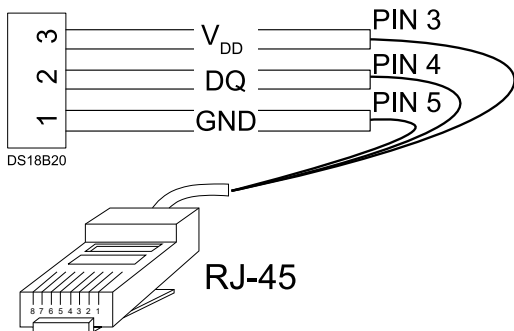


Figure 4 PIN assignment

The sensor can be extended by up to 50 metres using a network cable and an RJ45 coupling.

## 2.4 Display and buttons

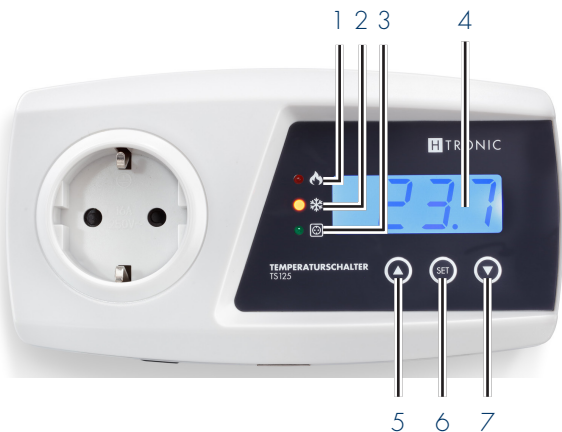


Figure 5 Display and buttons TS 125

Item	Designation
1	LED - The "Heating" function is active.
2	LED - The "Cooling" function is active.
3	LED - The socket (relay) is switched on.
4	Display
5	UP key
6	SET key
7	DOWN key

### 3 Installation and commissioning



#### **WARNING**

#### **Possibility of electric shock due to incorrect connection.**

- ▶ When installing the temperature switch, adhere to basic safety principles for handling electrical current, e.g. the 5 safety rules of electrical engineering.
- ▶ As a rule, work on electronic parts of the temperature switch may **ONLY** be performed by qualified electricians.

**Requirements:**

- The operating location of the temperature switch must be protected from moisture, dust, and direct sunlight.
- A free, easily accessible 230 V protective contact socket is available.
- There is **NO** load connected to the temperature switch.
- You have given the temperature switch at least 2 hours to adjust to the operating site.
- Turn off the load that the temperature switch is to control before connecting it.

Install the temperature switch as follows:

1. **Caution! Risk of tripping due to loosely laid cables possible.**



Lay the cables so that there are no trip hazards (e.g. in a cable duct).

If you lay the sensor line in a cable duct, **NEVER** do so together with mains or high-voltage lines.

Lay the sensor cable to the place of use of the temperature sensor.

2. Fasten the temperature sensor, e.g. with cable ties.

3. Connect the temperature sensor to the temperature switch.
4. Plug the temperature switch into a 230 V protective contact socket.

**TIP**

- ▶ **NEVER** connect several temperature switches in series.
- 

5. Plug the load to be regulated into the socket of the temperature switch.
- ✓ You have installed the temperature switch.



## **4    Navigation**

Each menu item consists of two displays that appear one after the other:

- The first display shows the name of the menu item (approx. 0.5 seconds).
- The second display shows the value of the menu item.

For the position of the buttons, see chapter “2.4 Display and buttons” on page 21.

- Navigate in the menu with UP / DOWN.
- Select a menu item with SET.
- With UP you can increase the values elsewhere.
- With DOWN you can decrease the values elsewhere.
- Confirm changes to a menu item with SET.
- You can only choose between UP (On) and DOWN (Off) for settings with two selection options.

## 4.1 Settings menu



### TIP

- ▶ Press SET to call up the settings menu.
- ▶ If you confirm a setting with SET, the next menu item opens.

---

The settings menu of the temperature switch shows 5 menu items:

- Switch-on temperature,
- Switch-off temperature,
- Switch-on delay (Delay),
- Display of the highest measured temperature,
- Display of the lowest measured temperature.

End



If no new temperature measurements are available, a blank display appears.

## Switch-on temperature



Set the switch-on temperature as follows:

1. Set the switch-on temperature in steps of 0.1 °C.
  2. Press SET.
- ✓ You have set the switch-on temperature.

## Switch-off temperature



Set the switch-off temperature as follows:

1. Set the switch-off temperature in steps of 0.1 °C.
  2. Press SET.
- ✓ You have set the switch-off temperature.

## Switch-on delay (Delay)



### TIP

- ▶ Use the switch-on delay if the switch-on and switch-off temperatures are very close to each other.
- ▶ The switch-on delay prevents frequent switching when temperatures fluctuate slightly.



Set the switch-on delay as follows:

1. Set the switch-on delay between 0 ... 999.9 seconds.
  2. Press SET.
- ✓ You have set the switch-on delay.

## Highest measured temperature



The highest measured temperature is displayed.

Delete the value as follows:

1. Press UP and DOWN simultaneously.
  2. Press SET.
- ✓ You have deleted the value.

## Lowest measured temperature



The lowest measured temperature is displayed.

1. Press UP and DOWN simultaneously.
  2. Press SET.
- ➡ The display mode is opened.
- ✓ You have deleted the value.


## Backlight

Switch the backlight off or on as follows:

1. Press SET and DOWN simultaneously.
    - ➔ The backlight is switched off.
  2. Press any button.
    - ➔ The backlight is switched on.
- ✓ You have switched the backlight off or on.

## Reset to factory settings

Reset the temperature switch to factory settings as follows:

1. Press and hold SET while inserting the temperature switch.
    - ➔  appears on the display.
- ✓ You have reset the temperature switch to factory settings.

## 5 Operation

### TIP

- ▶ If the current temperature after setting is between the switch-on and switch-off temperature, the relay does not switch immediately.
  - ▶ The relay switches when the switch-on temperature is reached.
- 

### 5.1 Thermometer

#### Requirements:

- The temperature switch has been mounted and successfully put into operation.
- The power supply is switched on.

Set the "Thermometer" function as follows:

1. Press SET.
  - ➡ The settings menu opens.
2. Set the same switch-on temperature and switch-off temperature, see chapter "4.1 Settings menu" on page 26.
  - ➡ All LEDs are switched off.
  - ✓ You have set the "Thermometer" function.

## 5.2 Heating

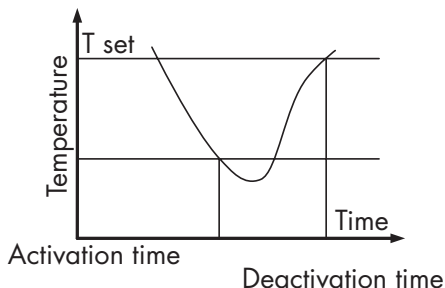


Figure 6 "Heating" diagram

### Requirements:

- The temperature switch has been mounted and put into operation.
- The power supply is switched on.

Set the "Heating" function as follows:

1. Press SET.
- ➡ The settings menu opens.
2. Set the switch-on temperature.



3. Set the switch-off temperature higher than the switch-on temperature.
  - ➡ The "Heating" LED lights up.
  - ➡ The relay is switched on when the measured temperature is less than or equal to "T ON".
  - ➡ The "Socket" LED lights up.
  - ➡ The relay is switched off when the measured temperature is higher than or equal to "T OFF".
  - ➡ The "Socket" LED goes out.
- ✓ You have set the "Heating" function.

## 5.3 Cooling

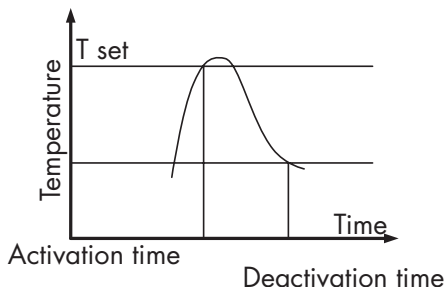


Figure 7 "Cooling" diagram

### Requirements:

- The temperature switch has been mounted and put into operation.
- The power supply is switched on.

Set the "Cooling" function as follows:

1. Press SET.
- ➡ The settings menu opens.
2. Set the switch-on temperature.

3. Set the switch-off temperature lower than the switch-on temperature.
  - ➔ The "Cooling" LED lights up.
  - ➔ The relay is switched on when the measured temperature is higher than or equal to "T ON".
  - ➔ The "Socket" LED lights up.
  - ➔ The relay is switched off when the measured temperature is lower than or equal to "T OFF".
  - ➔ The "Socket" LED goes out.
- ✓ You have set the "Cooling" function.

## 5.4 Procedure in case of malfunctions



### TIP

- ▶ If an error occurs, the relay is automatically switched off.
- 

Always correct malfunctions as follows:

1. Make sure that there is **NO** danger to persons or objects.
  2. If there is any danger, disconnect the temperature switch and all connected devices from the mains (power supply).
  3. Determine the cause of the malfunction.
  4. If required, contact H-TRONIC GmbH.
  5. Check whether you can correct the malfunction by yourself or whether you must instruct authorised specialist personnel to do so.
- ✓ You have corrected the malfunction.

## 5.5 Error messages





Display	Meaning
	<ul style="list-style-type: none"><li>▪ Short circuit in the thermal sensor</li><li>▪ Short-term malfunctions on the sensor line</li></ul>
	<ul style="list-style-type: none"><li>▪ No thermal sensor is connected.</li></ul>
	<ul style="list-style-type: none"><li>▪ The data read from the thermal sensor is incorrect.</li><li>▪ The line of the thermal sensor is in an interference field. When laying the cables, make sure to keep signal lines and interfering external lines physically separate.</li></ul>
	<ul style="list-style-type: none"><li>▪ The thermal sensor was reset unexpectedly.</li><li>▪ Possible cause:<ul style="list-style-type: none"><li>• Line fault,</li><li>• Plug connector or socket have poor contact.</li></ul></li></ul>

Table 5 Error messages

## 6 Maintenance and servicing

### 6.1 Regular inspection

Interval	Component	Inspection / activity	Measures
Before each installation	Temperature switch, associated cables and connections	Visual inspection for wear or loose fit of connections.	Connect the connections, establish connection, contact H-TRONIC in case of defect.
If required	Labelling	Visual inspection	Clean, renew illegible labelling
	Temperature switch	Clean	

Table 6      Inspection plan

## 6.2 Cleaning

### NOTICE

#### **Possibility of property damage due to improper cleaning.**

- ▶ Do **NOT** clean the temperature switch or any connected or associated equipment with solvents.
  - ▶ If required, clean the temperature switch with a cloth moistened with water mist.
- 

#### **Requirements:**

- The power supply is switched off.

Clean the temperature switch as follows:

1. Clean the outer surfaces of the temperature switch with a dry or damp cloth.
- ✓ You have cleaned the temperature switch.

## 7 Decommissioning and disposal

### 7.1 Decommissioning



#### **WARNING**

#### **Possibility of electric shock due to incorrect connection.**

- ▶ When disassembling the temperature switch, adhere to basic safety principles for handling electrical current, e.g. the 5 safety rules of electrical engineering.
- ▶ As a rule, work on electronic parts of the temperature switch may **ONLY** be performed by qualified electricians.

---

Disassemble the temperature switch as follows:

1. Switch off the load.
  2. Unplug the load from the socket of the temperature switch.
  3. Unplug the temperature switch from the mains socket.
  4. Disconnect the temperature sensor and its cable from their mounting.
- ✓ You have dismantled the temperature switch.



## 7.2 Disposal and recycling

The temperature switch must **NOT** be disposed of with household waste.

Disposal of the temperature switch, including operating materials and any cleaning fluids, is governed by local disposal regulations and environmental laws.

Waste equipment from private households can be handed in at municipal collection points or at retail take-back points. For more information please contact your local municipal authority.

Please dispose of materials that can be recycled in a correct and environmentally friendly way.



# **H-TRONIC GmbH**

Dienhof 11 • DE-92242 Hirschau • [www.h-tronic.de](http://www.h-tronic.de)



4 260003 174351