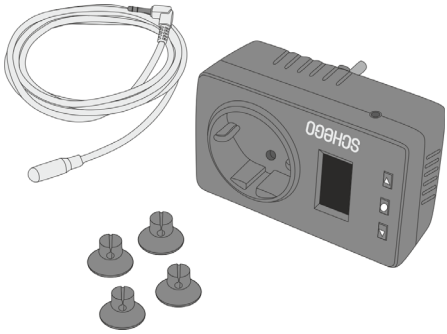
Overview/package contents



- Sensor cable with sensor
- 4 suction cups
- Thermostat

Technical data

Electrical connection values

Operating voltage	230 V AC/50 – 60 Hz
Output voltage	230 V/50 Hz/10 A
Power consumption, approx.	0.3 VA (standby)
Connected load, max.	230 V AC/2,000 VA/10 A
Sensor cable length	2 m

Device data

Casing size	60 x 98 x 40 mm
Sensor size	30 x 9 mm
Weight including sensor	190 g
Ambient temperature	-10 – +40°C
Casing protection rating	IP20
Sensor protection rating	IP68

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Performance limits

Sensor measuring range	-55.0 – +125.0°C
Measuring accuracy:	
in range from -55 to -10°C	+/-2.0°C
in range from -10 to +85°C	+/-0.5°C
in range from +85 to +125°C	+/-2.0°C
Switching temperature	-55.0 to +125.0°C (in increments of 0.1°C)
Switching accuracy (hysteresis)	0.1 to +10.0°C

- Display can be flipped 180° with buttons
- Min/max display
- Sensor monitored for short-circuit
- Sensor monitored for open circuit
- Output cuts out when sensor malfunctions
- Runs without requiring operator input or attendance
- Setups for heating or cooling
- LC display shows temperature settings, relay (power socket) on, sensor fault, heating, cooling
- Programmed switching thresholds kept even if mains power fails
- Automatically restarts after power failure

Manufacturer's address

SCHEGO®

Schemel & Goetz GmbH & Co KG
Elektrogerätebau
Schreberstraße 14
D-63069 Offenbach am Main
Phone: +49 69 835748
Fax: +49 69 847181
email: info@schego.de
www.schego.de

Thank you!

Thank you for choosing our TR2 thermostat.
It is designed to control connected devices according to temperature. Temporary deactivation of devices will also help you save electricity.

What's in this manual?
Please read this operating manual completely before using the thermostat. The manual contains information essential to operating and running it.
Keep the operating manual in a safe place. If you pass on the thermostat to another party, give them the operating manual, too.
The manual is considered a component of the thermostat. Failure to heed the instructions in this manual may put people in danger or cause damage to property. We cannot accept any liability for injury or damage that occurs as a result of failure to heed this operating manual.

Symbols

Symbols used in this operating manual
Important notes concerning your safety and how to avoid damage to the thermostat are marked correspondingly. Observe these notes at all times:

⚠ WARNING:
Warns of any health risks and shows possible injury risks.

⚠ ATTENTION:
Refers to possible dangers the thermostat or other objects are exposed to.

NOTE:
Highlights tips and information for you.

Symbols on the thermostat
The thermostat bears the following symbol:

CE Confirms full compliance with fundamental safety requirements as laid down in EU directives.

Intended use

The TR2 thermostat is designed for use in a sufficiently ventilated location away from direct sunlight.
The thermostat is intended for temperature-dependent switching of electrical (household) appliances used for non-critical applications. The receiver may only be operated in dry indoor areas.
The thermostat is capable of switching on or off a connected consumer (230 V~/50 Hz; max. 10 A; 2,000 VA) according to temperature.
Within a range from -55°C to +125°C, you can set switch-on and switch-off temperature freely in increments of 0.1°C.
Only use the thermostat on a power socket that matches the voltage values specified in the technical data.
Use the thermostat only in conjunction with a residual-current device rated at no more than 30 mA.

NOTE:
Intended use further includes heeding all information contained in these instructions and the accompanying documents.

Foreseeable misuse

Any use beyond the intended is deemed misuse.
Foreseeable misuse includes:

- Tampering or converting the device or performing repairs incorrectly
- Running the device in direct sunlight or where ventilation is insufficient
- Running appliances that pose a fire hazard unattended
- Use with appliances that perform a critical function in machinery or other devices
- Use in adverse ambient conditions (ambient temperatures below -10°C or above +40°C, in flammable gases, solvents, vapour, dust, relative humidity above 80%, areas subject to water spray, or wet surroundings)
- Connected appliance has a power of more than 2,000 VA. Overloading can damage the thermostat, which may cause malfunctions or electric shock.
- Using a damaged thermostat
- Opening the thermostat's casing
- Using the thermostat on a power socket that **does not** match the voltage values specified in the technical data
- Using the thermostat with heaters that **do not** match the voltage values specified in the technical data
- Using the thermostat without a residual-current device
- Using the thermostat with a residual-current device rated at more than 30 mA

- Extreme damp. Bringing a cold appliance into considerably warmer surroundings may result in inadmissible levels of condensation forming on the thermostat. Such condensation may cause electrical contacts to short circuit. To avoid this, allow the thermostat to acclimatise at room temperature for two hours before plugging it into the mains.
- Connecting several thermostats in series

NOTE:
If you have any doubts or questions concerning use or electrical connections, always consult a skilled professional or the manufacturer.

NOTE:
Only authorised skilled professionals are permitted to service or repair the device.

Skilled professional
Skilled professionals have been trained, possess the required experience in their field and know the applicable health and safety and accident prevention rules, directives and generally accepted engineering standards (like DIN standards, VDE provisions, technical standards) sufficiently to judge whether a facility is safe to operate.

People at particular risk
- Do not leave the thermostat unsupervised if there are children or persons who cannot assess risks nearby.
- The thermostat is not designed for use by persons (including children) with limited physical, sensory or mental capabilities, or who lack the required experience or knowledge, unless a person legally responsible for their safety is supervising them or has instructed them on how to use the thermostat.
- Supervise children to ensure that they do not play with the thermostat.

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Residual risk

Failure to observe the safety notes can lead to dangerous situations that may not only cause considerable damage but may even cause extreme or fatal injury.

⚠ WARNING:

Lethal danger from electric shock when handled improperly!

The thermostat runs on electricity. If not handled properly, there is a danger of death by electric shock.

- Never touch damaged cables.
- Do not work on the thermostat or connect or disconnect power lines during a thunderstorm.
- Regularly check power cables, connecting cables and appliances for damage and replace them if defective.
- Only authorised skilled electricians are permitted to repair the device.

User's duties

- The user is responsible for ensuring compliance with the rules and provisions applicable in the country in which the thermostat is used. This applies equally to the application into which the thermostat is integrated.
- Even regular use entails a risk of unexpected malfunction resulting from failure or a faulty output or signal transmission. The use is responsible for ensuring that malfunctions or undefined switching states do not cause further damage.
- This product is not approved for use in critical applications! Always comply with all specific safety requirements!
- Observe the applicable accident prevention provisions for electrical systems and equipment issued by the respective trade associations when using the thermostat in a commercial environment.
- Use of thermostats in schools, training facilities, amateur and freely accessible workshops must be supervised by trained personnel.

Spare parts

⚠ ATTENTION:
Damage and injury from incorrect spare parts!
Using unapproved spare parts can cause considerable damage or serious injury.
- Use genuine spare parts only.
- Obtain spare parts only through customer service.

You can order spare parts from our service department at any time ⇨Page 21.

Article no.	Description	Data
1112	Sensor cable	2 m
1115	Sensor cable	5 m
115	Spare suction cup	4 pcs.

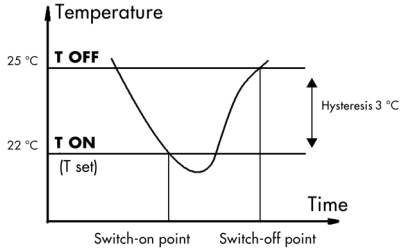
How the thermostat works

The TR2 thermostat measures the current ambient temperature and automatically switches the connected appliance on or off at specific temperatures.
You can set the desired temperature and switching accuracy in the display. The thermostat will then automatically control the connected appliance's switching times according to the temperature measured by its sensor.
Example:
When water temperature drops below 24°C, the aquarium heater activates automatically, heating the water to the temperature set. The thermostat then switches the aquarium heater off again.

The thermostat can generally be used anywhere where you wish to stay in control of the temperature.
Examples:
- aquariums
- terrariums
- greenhouses for keeping plants in winter
- cellar rooms without permanently installed heating
- and more

The thermostat is suitable for application anywhere where the temperature needs to be adjusted by a heater or chiller. The thermostat can be used by itself, for example as a temperature watchdog to alert you to frost, or even as a substitute for broken mechanical thermostats or faulty digital thermometers.

Heat function



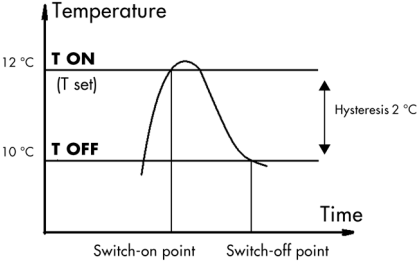
Abbreviations:

- T ON = T set
- T OFF = T set + hyst

Example:

You are controlling the temperature in a room using a fan heater. You want to keep the temperature between 22°C and 25°C.
The fan heater should come on when the temperature drops below 22°C (T ON = T set = 22) and turn off once again at 25°C. In this case, you would set the hysteresis to 3°C (T set + hyst = 22 + 3 = 25).
The power socket is energised when the measured temperature is lower than or equal to T ON. The relay (power socket) is switched off when the measured temperature is greater than or equal to T OFF.

Cool function



Abbreviations:

- T ON = T set
- T OFF = T set - hyst

Example:
You want to control a chiller. The desired temperature is 12°C.
You want the chiller to come on when the temperature rises above 12°C (T ON = T set = 12) and turn off once again at 10°C. In this case, you would set the hysteresis to 2°C (T set - hyst = 12 - 2 = 10).

The power socket is energised when the measured temperature is greater than or equal to T ON. The relay (power socket) is switched off when the measured temperature is lower than or equal to T OFF.

NOTE:
The relay will not switch on if the actual temperature already lies in the desired temperature range when you have set the switch-on and switch-off temperature. (For example, you want the power socket to switch on when the temperature drops below 20°C and to switch off again at 25°C and the current temperature is 23°C. The relay will only switch on once the temperature drops below 20°C and switch back off when it reaches 25°C. This applies correspondingly to the cooling function.)

Packaging

WARNING:
Risk of suffocation from packaging material!
- Do not leave the packaging materials lying about unattended. Children may play with them, putting themselves at risk.
- Dispose of packaging if you no longer require it, or keep it out of reach of children.

Observe all applicable laws governing pollution and waste disposal when disposing of packaging.
The packaging can be disposed of with together with regular household waste. If you need to dispose of system components yourself, observe all applicable laws governing the disposal of electrical waste.

1. Unpack the full package contents and check that everything is there and intact. See “Overview/package contents” on page 20.
2. Always transport/ship the thermostat in its original packaging to avoid damage. Keep the packaging for this purpose.
3. Dispose of packaging material no longer needed in accordance with the applicable regulations.
4. If you detect any transport damage, immediately contact the dealer from whom you acquired the thermostat.

Description of the thermostat

Buttons

- ▶ button: increase desired value
- ◀ button: reduce desired value
- 'Set' button: change or confirm settings

Mode menu item



This is where you set the mode:

- 'Off' mode: the thermostat will act as a simple thermometer. The control function is disabled, the thermostat only displays the current temperature.
- 'Cooling' mode: cool function.
- 'Heating' mode: heat function.

T set menu item

This is where you set the target value for desired temperature.
Setting range: -55.0 to +125.0°C

Hyst menu item

This is where you set the temperature hysteresis (switching accuracy).
Setting range: 0.1 to 10.0°C (in 0.1°C increments)

REL Dly menu item

This is where you set the relay's (power socket's) switch-on delay.
This setting can be very useful of the switch-on and switch-off temperature value is almost identical. It will prevent frequent switching where the temperature varies rapidly.
Setting range: 0 to 999.9 s

Scr Flip menu item

This is where you set display orientation:

- 'Normal'
- 'Flipped 180°'

You can plug the thermostat into a power socket with the buttons either above or below the display.

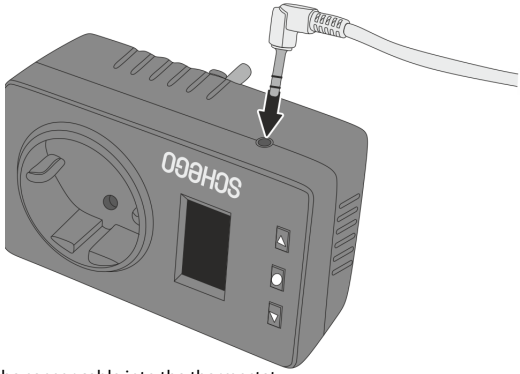
Scr TO menu item
This is where you activate timed switch-off of the display. After the display has switched off, it switches back on again when you press a button. This will not execute the pressed button's regular function.

Exit menu item
This is for exiting the settings menu.

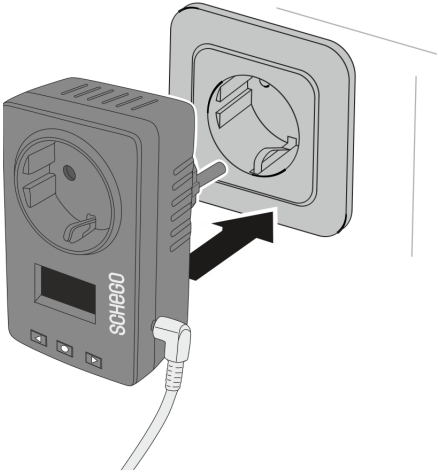
How to connect your thermostat

Requirements:
- There is a 230-volts power socket available for running your thermostat.
- The appliance you wish to connect is suitable for your desired application.
- The appliance you want to connect is switched off while you are connecting it to the thermostat.
- The thermostat is not damaged.

NOTE:
If you have any doubts or questions, always consult a skilled professional or the thermostat's manufacturer.



1. Plug the sensor cable into the thermostat.



2. Plug the thermostat into an easily accessible power socket.
   - After plugging it in, the display will first show the device type and firmware version, then the set parameters and the current temperature.
3. Clean the surface to which you want to attach the sensor. Make sure to use a cleaning agent that will not damage the surface.

⚠ WARNING:
Risk of fire from overheating sensor.
- Make sure that the sensor does not touch the heat source.

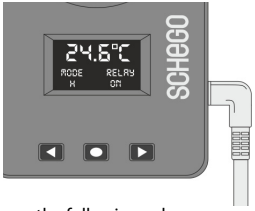
4. Use the suction cups to fix the sensor in place where it can easily measure the temperature of the emitted heat. Make sure that the sensor is **kept away** from direct sunlight.

NOTE:
Direct sunlight can lead to incorrect temperature measurements.

5. Route the sensor cable where it is protected from physical damage and nobody will trip over it.
   - You have connected the thermostat.

How to set values

Thermostat main display
After connecting the thermostat, you will see the main display.



The thermostat's display shows the following values:
- Temperature
- Current mode
- Status of switching relay

1. To view the MIN and MAX values of measured temperature data, press ◀ and ▶.
2. To delete the MIN and MAX values of measured temperatures, press 'Set'.

NOTE:
If the thermostat has no current temperature data, it will display 'NO DATA'.

Thermostat menu items
1. To access setting mode, press 'Set'.
   - You will see the following menu items:
- Mode ('Mode menu item' on page 29)
- T set ('T set menu item' on page 29)
- Hyst ('Hyst menu item' on page 29)
- REL Dly ('REL Dly menu item' on page 29)
- Scr Flip ('Scr Flip menu item' on page 29)
- Scr TO ('Scr TO menu item' on page 30)
- Exit ('Exit menu item' on page 30)

2. Use ◀ and ▶ to navigate the menu.
3. To change a setting under a menu item, press 'Set' to confirm your choice.
4. To increase a value, press ▶.
5. To reduce a value, press ◀.

6. Confirm your changes by pressing 'Set'.

NOTE:

A menu item showing the symbol (▪) or (✓) is what is known as a checkbox. A checkbox can have one of two settings:

- (▪) : OFF
- (✓) : ON

7. To exit setting mode, choose the menu item 'Exit' and press 'Set' to confirm.

NOTE:

When the thermostat is in setting mode and no button is pressed for more than ten seconds, the thermostat automatically exits setting mode and reverts to display mode. Any changes made in setting mode will be saved when this happens.

How to start the connected appliance and thermostat

1. Set the desired target temperature and switching accuracy ('T set menu item' on page 29).
2. Plug the power plug of the appliance you are connecting into the power socket in the thermostat and switch on the connected appliance if it has a separate power switch.

How to shut down your thermostat

1. Make sure that the connected appliance has been switched off if it has a separate power switch.
2. Unplug the power plug of the connected appliance from the thermostat's power socket.
3. Remove the sensor from the surface onto which it is attached.
4. Pull the thermostat out of the power socket.
   - You have shut down your thermostat.

Faults

Before complaining about damage to the thermostat, check this table to see if you can remedy the fault yourself.

Fault	Cause	Remedy
Heat source fails to heat	Specified temperature is set too low	Increase the specified temperature
	Current temperature is measured incorrectly	Ensure that the sensor is not placed too close to the heat source and is not exposed to direct sunlight.
		Ensure that the sensor is positioned so that it correctly measures the temperature of the medium.
	Sensor or sensor cable defective	Replace sensor cable.
	Thermostat defective	Replace the thermostat.
Heat source heats permanently	Specified temperature is set too high.	Reduce the specified temperature.
	Sensor or sensor cable defective	Replace sensor cable.
	Sensor not positioned in medium	Ensure that the sensor is position in the medium.
Display is not lit	The building's power supply has been interrupted	Check the building's power supply.
	Thermostat defective	Replace the thermostat.

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Fault messages

The following fault messages may be shown:

Fault N1		Short circuit detected in temperature sensor. Temporary faults in sensor line.
Fault N2		No sensor connected.
Fault N3		The data fed by the sensor are faulty. Cable is lying on interference field. When routing the cables, make sure that they are kept separate from signal lines and other wiring that produces interference, such as mains power lines.
Fault N4		The sensor has been unexpectedly reset. Possible faults: interference along cable, impaired plug connector contact, impaired power socket contact.
Fault N5		Switching relay overheated. Note: When a fault occurs, the thermostat will always shut off the power socket.

Disposal



Do not dispose of this product with regular household waste once it reaches the end of its service life. This product must be submitted to a collection point for recycling electrical and electronic waste.
The materials can be recycled according to their markings.

Please check your local services for information on the respective collection systems for electrical and electronic waste. By reusing, recycling materials or otherwise recycling end-of-life devices, you are making a major contribution to protecting your environment.

CE marking and conformity

The thermostat complies with the fundamental requirements and other applicable provisions as laid out in Directives 2014/30/EU, 2014/35/EU and 2011/65/EU. The corresponding declarations and documents are available from the manufacturer.