sauermann®

DATA SHEET

TST

Thermostats

Range from 0 to 50°C [1], from -20 to +80°C [2] and from -100 to 400°C [3]

Visual and audible alarm, red led in front

Features

- RCR relay output 3A/240 Vac (NC), power supply 24 Vac/Vdc
- ABS V0 IP65 housing (remote model) or IP20 (ambient model)
- "¼ turn" system mounting with wall-mount plate
- Housing with simplified mounting system

Measured parameters

Parameter	Accuracy[4]	Measuring range	Resolution
Temperature	**Pt100:** ±0.5% of reading ±0.5°C **NTC:** ±0.3°C (from -40°C to 70°C); ±0.5°C beyond	**Ambient model:** from 0 to 50°C **Duct model:** from -20 to +80°C **Model with terminal block:** from -100 to +400°C	0.1°C

Part number

TST — A — I — 6 — 100

Type of housing
B: Terminal block
A : Duct
S: Ambient

Type of probe
I: stainless steel probe (only for duct models)*

Stainless steel probe diameter*
6: Ø6 mm

Probe length*
100: 100 mm
150: 150 mm
200: 200 mm
250: 250 mm
300: 300 mm

Example: TST-AI-100
Thermostat with stainless steel duct probe of 100 mm length

***Stainless steel probe technical specifications (duct model):** Ø6 mm contact tip; available lengths: 100 mm, 150 mm, 200 mm, 250 mm or 300 mm.

Technical specifications

Output	1 RCR relay 3 A / 230 Vac. NO (normally opened): 5A / NC (normally closed): 3A / 240 Vac. Common mode voltage <30 Vac.
Power supply	24 Vac/Vdc ±10%
Consumption	3 VA
Relay and alarm status	Red led in front and internal buzzer (70 dB at 10 cm)
European directives	2014/30/EU EMC; 2014/35/EU Low Voltage; 2011/65/EU RoHS II; 2012/19/EU WEEE
Electrical connection	Terminal block for cables Ø0.05 to 2.5 mm². Carried out according to the code of good practice
PC communication	USB-mini Din cable
Environment	Air and neutral gases

[1] Ambient model / [2] Duct model / [3] Pt100 terminal block model

[4] All the accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

General features

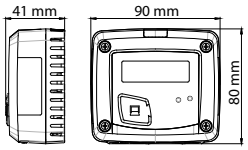
Units of measurement	°C, °F
Response time	1/e (63%) 5 sec. (ambient) 1/e (63%) 20 sec. (airtight)
Type of sensor	Pt100 (model with terminal block and stainless steel duct model) NTC (ambient model and duct model)
Type of fluid	Air and neutral gas
Conditions of use (°C/%RH/m)	From 0 to +50°C. In non-condensing condition. From 0 to 2000 m.
Storage temperature	From -10 to +70°C

Features of the housing

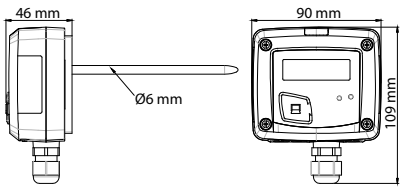
Material	ABS V0 as per UL94
Protection	Duct model and model with terminal block: IP65 Ambient model: IP20
Display	LCD 10 digits. Size: 50 x 17 mm Height of digits: Values: 10 mm; Units: 5 mm
Weight	162 g
Cable gland (duct and terminal block models)	For cables of Ø8 mm maximum
Cable of remote probe	2 m length, Ø4.8 mm in PVC

Dimensions

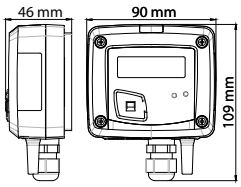
Ambient model



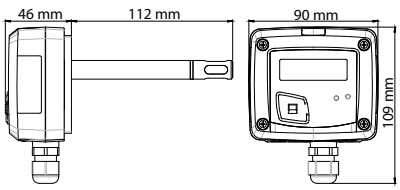
Duct model, stainless steel probe*



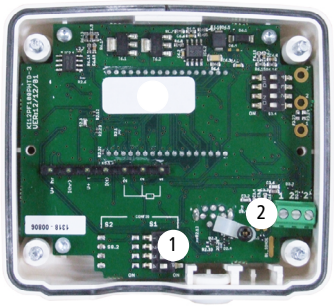
Model with terminal block*



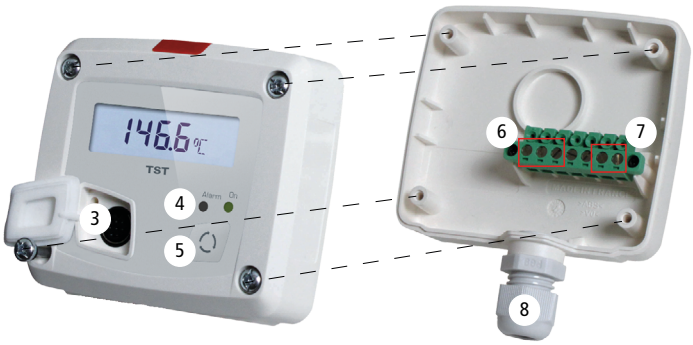
Duct model*



Connections



Inside the front housing

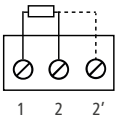


Removable front face

Fixed back housing

Connection of a Pt100 probe on terminal block:

Measuring probe



1. Switch
2. Terminal block (only on model with terminal block)
3. LCC-S software connection
4. Alarm led
5. Button for settings
6. Relay terminal block
7. Power supply terminal block
8. Cable gland

Symbols used

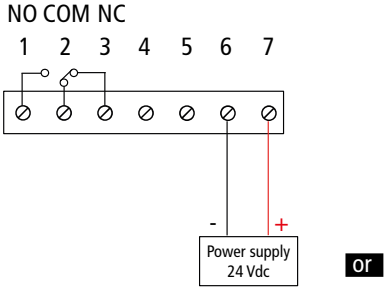
For your safety and in order to avoid any damage of the device, please follow the procedure described in this document and read carefully the notes preceded by the following symbol:

The following symbol will also be used in this document, please read carefully the information notes indicated after this symbol:

Electrical connections as per NFC15-100 standard

This connection must be performed by a qualified and trained technician. To make the connection, the transmitter must not be energized.

NO: normally opened
COM: common
NC: normally closed

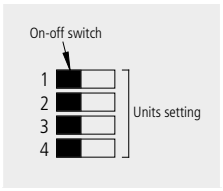


*Different probes available as option. Stainless steel probe technical specifications (duct model): Ø6 mm contact tip; available lengths: 100 mm, 150 mm, 200 mm, 250 mm or 300 mm.

Settings and use of the transmitter

- **Configuration**

CAUTION: to configure the transmitter, it must not be energized. Then, you can make the settings required, with the DIP switches (as shown on the drawing below). When the transmitter is configured, you can power it up.



To configure the transmitter, unscrew the 4 screws of the casing then open it.
The switches allowing the different settings are accessible.

- **Units setting**

To set a unit of measurement, put the on-off switch 4 of the units as shown beside.

Configurations	° C	° F
Combinations		

- **Thresholds configuration**

The button allows to activate or not an alarm (threshold), to set the action of the alarm (edge), to set the threshold(s) value, to set the time-delay and to acknowledge the alarm.

Working principle:

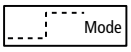
- By pressing the button more than 3 seconds, you can validate the setting and go to the next setting.
- By pressing quickly the button, you can increment a value and scroll down the different option or values.

- **Activate or deactivate an alarm**

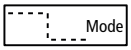
- Press the button for 3 seconds, **"CONF"** is displayed then **"NEG"**, meaning that the relay is in negative security, it is excited during an alarm condition.
- If needed, press quickly the button to switch the relay in positive security, the relay is de-energized during an alarm condition or a current breaking, **"POS"** is displayed.
- Press 3 seconds the button, **"Buzz"** screen is displayed with **"ON"** or **"OFF"** blinking. Briefly press on the button to activate (**"ON"**) or deactivate (**"OFF"**) (according to the last saved configuration) the buzzer during an alarm condition.
- Press the button for 3 seconds, **"Alarm"** screen is displayed with **"On"** or **"Off"** blinking (according to the last saved configuration).
- Press quickly the button, the display changes from **"On"** (activated alarm) to **"Off"** (deactivated alarm).
- Press the button for 3 seconds to confirm the setting. If the alarm is deactivated, the instrument displays the measurement; if the alarm is activated, the instrument displays the following setting.

- **Set the action of the alarm (rising edge or falling edge)**

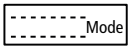
The edge determines the action of the alarm according to the trespassing direction of the threshold(s).



Rising edge (1 threshold): the alarm goes off when the measurement exceeds the threshold and stops when it is below the threshold.

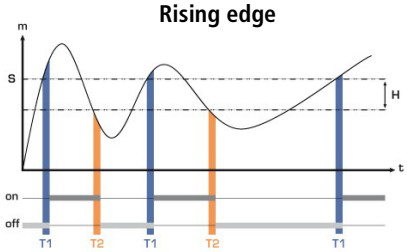


Falling edge (1 threshold): the alarm goes off when the measurement is below the threshold and stops when it exceeds the threshold.



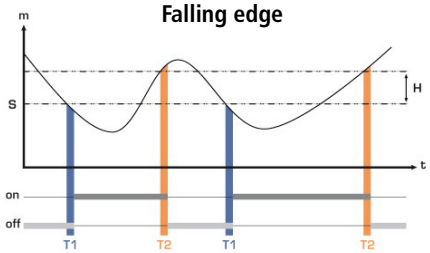
Monitoring (2 thresholds): the alarm goes off when the measurement is outside the defined low and high thresholds.

Rising edge



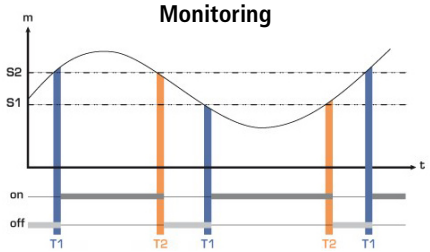
Measurement (m) > Threshold (S) during the time-delay T1: alarm activation.
Measurement (m) < Threshold (S) - Hysteresis (H) during the time-delay T2: alarm deactivation.

Falling edge



Measurement (m) < Threshold (S) during the time-delay T1: alarm activation.
Measurement (m) > Threshold (S) + Hysteresis (H) during time-delay T2: alarm deactivation.

Monitoring



The alarm goes off when the measurement is outside the low and high thresholds.

- Press briefly the button to select the trespassing direction then press the button more than 3 seconds to validate this direction and set the thresholds.

- **Set the threshold(s) value**

The first digit blinks, it corresponds to the positive (0) or negative (-) setting of the threshold value. Press briefly the button to select the sign for the threshold value. Press the button more than 3 seconds to validate.
The second digit blinks, press briefly the button to scroll the numbers. Press the button more than 3 seconds to validate.
Repeat the process until the last digit to configure the threshold value, validate the threshold and go to the following setting.
If the monitoring edge has been selected, the transmitter displays the setting of the second threshold.

- **Set the hysteresis**

The hysteresis only concerns the rising edge and the falling edge modes.
In rising edge mode, the hysteresis allows to the transmitter to stay in alarm when the measurement is between the threshold and the threshold minus the hysteresis.

Example: for a 70°C threshold and a 10°C hysteresis, the instrument will stay in alarm when the measurement will be between 70 and 60°C.

In falling edge mode, the hysteresis allows to the transmitter to stay in alarm when the measurement is between the threshold and the threshold plus the hysteresis.

Example: for a 70°C threshold and a 10°C hysteresis, the instrument will stay in alarm when the measurement will be between 70 and 80°C.

The first digit blinks, set it by pressing the button briefly several times then press on the button more than 3 seconds to set the following digit.
Once the hysteresis is set, press the button more than 3 seconds to validate and set the time-delays.

- **Set the time-delay 1 and the time-delay 2 (600 seconds maximum)**

- In rising edge mode, the time-delay 1 corresponds to the time lag before the alarm goes off when the threshold has been reached. The time-delay 2 corresponds to the time lag before the alarm stops when the measurement is lower than the threshold minus the hysteresis.

Setting procedure: "Time 1" for the time-delay 1 is displayed then the time in second. The first digit blinks, press briefly on the button and scroll the figures. Press on the button more than 3 seconds to validate. Repeat the process until the last digit to set the time-delay 1 value (from 0 to 600 s) and validate. **"Time 2"** is displayed the time in second. Repeat the process to set the time-delay 2.

- In falling edge mode, the time-delay 1 corresponds to the time lag before the alarm goes off when the threshold has been reached. The time-delay 2, corresponds to the time lag before the alarm stops when the measurement is lower than the threshold plus the hysteresis.

The setting procedure is the same as the rising edge procedure.

- In monitoring mode, the alarm of the transmitter goes off when the measurement is below the lower threshold and higher the high threshold. The time-delay 1 corresponds to the time lag before the alarm goes off when the measurement is below the lower threshold and higher the high threshold. The time-delay 2 corresponds to the time lag before the alarm stops when the measurement is between the lower and higher thresholds.

The setting procedure is the same as the rising edge procedure.

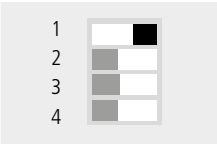
The setting of time delays is done, the measurement is displayed.

Configuration via LCC-S software (optional)

The software allows to set the alarms, the thresholds, and the time-delay of the transmitter.

- To access the configuration via software:
  - Set the DIP switches as shown beside.
  - Connect the cable of the LCC-S to the connection of the transmitter. Please refer to the user manual of the LCC-S software to make the configuration.
- Please refer to the user manual of the LCC-S software to make the configuration.

⚠ **The configuration of the parameters can be done either with the DIP switch or the software (combining both solutions is not possible). SWITCH OFF THE SENSOR before settings process.**

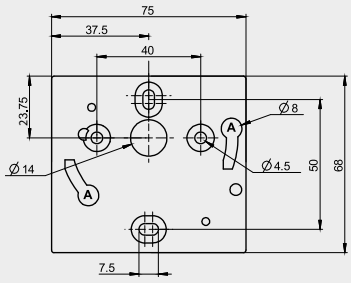


Active switch

Mounting

To mount the transmitter, mount the ABS plate on the wall (drilling: Ø6 mm, screws and pins are supplied). Insert the transmitter on the fixing plate (see A on the drawing beside). Rotate the housing in clockwise direction until you hear a "click" which confirms that the transmitter is correctly installed.

⚠ **No fixing plate is available for ambient model. 4 fixing holes are inside the back housing. Use them to install the transmitter on the required location.**



Maintenance: please avoid any aggressive solvent. Please protect the transmitter and its probes from any cleaning product containing formalin, that may be used for cleaning rooms or ducts.

Precautions for use: please always use the device in accordance with its intended use and within parameters described in the technical features in order not to compromise the protection ensured by the device.

Accessories

Name	Reference
Power supply class 2, 230 Vac input, 24 Vac output	KIAL-100A
Configuration software with USB cable	LCC-S
Stainless steel Pt100 2 or 3 wires probes or NTC probes for duct models and remote models available on request	-

ⓘ Only the accessories supplied with the device must be used.

Hitma Instrumentatie
www.hitma-instrumentatie.nl
info@hitma-instrumentatie.nl
+31 (0)297 - 514 833

België / Belgique
www.hitma-instrumentatie.be
info@hitma-instrumentatie.be
+32 (0)2 - 387 28 64