

Product Information

Temperature transmitter / switch HTK35



- Compact robust temperature transmitter for use in food industry
- Only one material in contact with medium
- Analog output 4..20 mA or 0..10 V
- Two programmable switches (push-pull)
- Graphical LCD display, background illuminated (transreflective) can be read in sunlight and in the dark
- Programmable parameters via rotatable, removable ring (programming protection)
- Full metal housing with non-scratch, chemically resistant glass
- Rotatable electronic head for best reading position
- Small, compact housing
- Simple installation

Characteristic


The sensors of the HTK35 range can be used for measuring and monitoring temperatures in flowing media, and are specially designed for use in the foodstuffs industry.

The integrated transducer has a backlit graphics LCD display which is very easy to read both in the dark and in bright sunlight. The graphics display allows the presentation of measured values and parameters in a clearly understandable form. The measured values are displayed to 4 places, together with their physical unit, which may also be modified by the user. The electronics have an analog output (4..20 mA or 0..10 V) and two switching outputs, which can be used as limit switches for monitoring minima or maxima, or as two-point controllers. The switching outputs are designed as push-pull drivers, and can therefore be used both as PNP and NPN outputs. Exceeding limit values is signaled by a red LED which is visible over a long distance, and by a clear-text in the display. The stainless steel case has a hardened non-scratch mineral glass pane. It is operated by a programming ring fitted with a magnet, so there is no need to open the operating ring controls housing, and its leakproofness is permanently ensured.

By turning the ring to right or left, it is simple to modify the parameters (e.g. switching point, hysteresis...). To protect from unintended programming, it can be removed, turned through 180° and replaced, or completely removed, thus acting as a key.

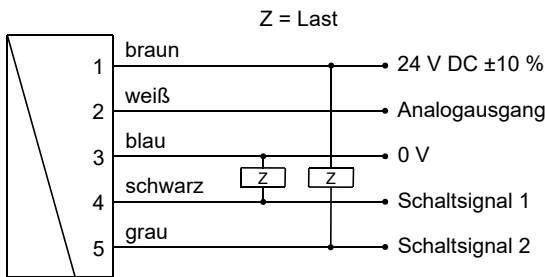


Specifications

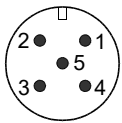
Measuring range	0..100 °C 0..130 °C on request															
Accuracy	±1 % FS															
Repeatability	±0.1 % FS															
Process pressure	PN 50															
Ambient temperature	-20..+70 °C															
Storage temp.	-20..+80 °C															
CIP- / SIP temperature	140 °C, < 30 min. max.															
Supply voltage	24 V DC ± 10%															
Current consumption	< 1 W															
Dynamic (τ)	3 sec.															
Analog output	4..20 mA or 0..10 V															
Switching outputs S1 and S2	transistor output "Push-Pull" compatible with PNP and NPN, (resistant to short circuits and reversed polarity protected) I _{out} = 100 mA max. each output															
Hysteresis	adjustable, position of the hysteresis depends on minimum or maximum switching value															
Display	backlit graphical LCD display (transreflective), extended temperature range -20..+70 °C, 32 x 16 pixels, background illumination, displays value and unit, flashing LED signal lamp with simultaneous message on the display.															
Connection	for round plug connector M12x1, 4-pole															
Protection class	IP 67															
Materials	<table border="0"> <tr> <td>medium contact</td> <td>sensor</td> <td>1.4435, FDA compliant</td> </tr> <tr> <td>electronics housing</td> <td>housing</td> <td>stainless steel 1.4305</td> </tr> <tr> <td></td> <td>glass</td> <td>mineral glass, hardened</td> </tr> <tr> <td></td> <td>magnet</td> <td>Samarium-Cobalt</td> </tr> <tr> <td></td> <td>ring</td> <td>POM</td> </tr> </table>	medium contact	sensor	1.4435, FDA compliant	electronics housing	housing	stainless steel 1.4305		glass	mineral glass, hardened		magnet	Samarium-Cobalt		ring	POM
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Conformity	CE 															

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Wiring



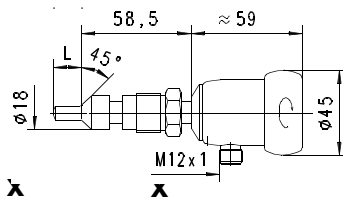
Anschlussbeispiel: PNP NPN



Before the electrical installation, it must be ensured that the auxiliary voltage corresponds to the data sheet.

The switching outputs are self-configuring, depending on whether they are connected as PNP or NPN switches (push-pull). It is recommended to use shielded wiring.

Dimensions

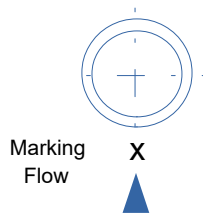


Handling and operation

Installation

The sensor is inserted into the boring with a sealing cone, oriented, and fastened in place with a pressure screw.

When a flow is present, this should impinge on the side of the sensor marked with an X, in order to achieve a short response time.



The torque on the pressure screw should be between 5..10 Nm.

Avoid bubbles or deposits on the sensor. It is therefore best to install at the side.

For T-pieces or welded-on nozzles, see Accessories.

Programming

The annular gap of the programming ring can be turned to positions 1 and 2. The following actions are possible:



**Set to 1 = continue (STEP)
 Set to 2 = modify (PROG)**

Neutral position between 1 and 2

The ring can be removed to act as a key, or turned through 180° and replaced to create a programming protector.

Operation is by dialog with the display messages, which makes its use very simple.

Starting from the normal display (present value and unit), if 1 (STEP) is repeatedly selected, then the display shows the following information in this order:

Display of the parameters, using position 1

- Switching value S1 (switching point 1 in the selected unit)
- Switching characteristic of S1
 - MIN = Monitoring of minimum value
 - MAX = Monitoring of maximum value
- Hysteresis 1 (hysteresis value of S1 in the set unit)
- Switching value S2
- Switching characteristic of S2
- Hysteresis 2
- Code
 - After entering the **code 111**, further parameters can be defined:
- Filter (settling time of the display and output)
- Physical unit (Units)
- Output: 0..20 mA or 4..20 mA
- 0/4 mA (measured value corresponding to 0/4 mA)
- 20 mA (measured value corresponding to 20 mA)

For models with a voltage output, replace 20 mA accordingly with 10 V.

Edit, using position 2

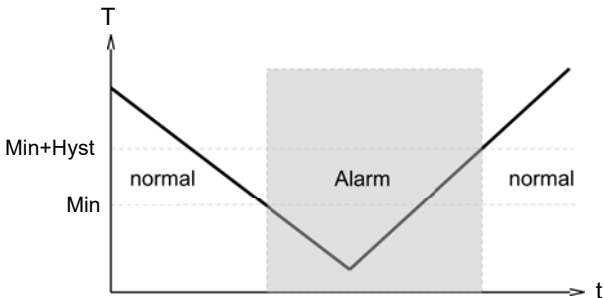
If the currently visible parameter is to be modified:

- Turn the annular gap to position 2, so that a flashing cursor appears which displays the position which can be modified.
- By repeatedly turning to position 2, values are increased; by turning to position 1, the cursor moves to the next digit.
- Leave the parameter by turning to position 1 (until the cursor leaves the row); this accepts the modification.
- If there is no action within 30 seconds, the device returns to the normal display range without accepting the modification.

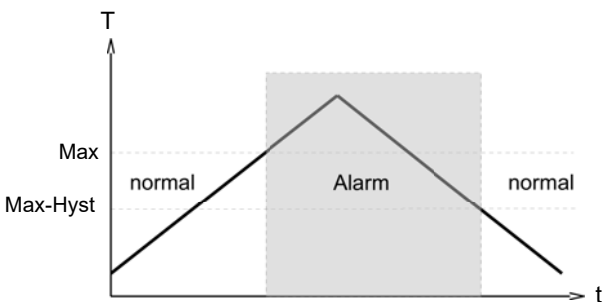
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The limit switches S1 and S2 can be used to monitor minima or maxima.

With a minimum-switch, falling below the limit value causes a switchover to the alarm state. Return to the normal state occurs when the limit value plus the set hysteresis is once more exceeded.



With a maximum-switch, exceeding the limit value causes a switchover to the alarm state. Return to the normal state occurs when the measured value once more falls below the limit value minus the set hysteresis.



The change to the alarm state is indicated by the integrated red LED and a cleartext in the display. While in the normal state the switching outputs are at the level of the supply voltage; in the alarm state they are at 0 V, so that a wire break would also display as an alarm state at the signal receiver.

Overload display

Overload of a switching output is detected and indicated on the display ("Check S1 / S2"), and the switching output is switched off.

Simulation mode

To simplify commissioning, the sensor provides a simulation mode for the analog output. It is possible to create a programmable value in the range 0..26.0 mA at the output (without modifying the process variable). This allows the wiring run between the sensor and the downstream electronics to be tested during commissioning. This mode is accessed by means of **Code 311**.

Factory settings

After modifying the configuration parameters, it is possible to reset them to the factory settings at any time using **Code 989**.

Product key

HTK35- 1. 015 2. K1 3. 4. S 5.

○ = Option

1. Sensor tip length	015	L = 15 mm
2. Medium-contact material	K1	stainless steel 1.4435
3. Analog output	I	4..20 mA
	U	○ 0..10 V
4. Electrical connection	S	for round plug connector M12x1, 5-pole
5. Certificate DIN EN 10204 (indicate only when required, multiple responses possible)	WZ2.2	factory certification 2.2
	APZMAT	acceptance test certificate 3.1 for material (in contact with products)

Accessories

- Round plug connector / cable (KH...)

Further information at "Accessories"