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Temperature transmitter / switch HTK30

- **Compact robust temperature switch/transmitter for use in food industry**
- **No moving parts in medium**
- **Only one material in contact with medium**
- **Simple to use**
- **Very low pressure loss**
- **Cable outlet step-less rotatable**
- **Very small installation width, therefore very narrow pipework is possible**

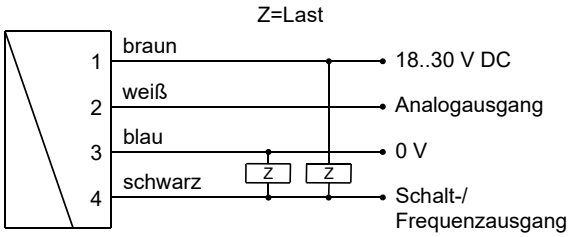
Characteristic

The HTK30 temperature sensor monitors fluid media. Its compact form combines the built-in sensor and the evaluation electronics. The integrated transducer has an analog output (4..20 mA or 0..10 V) and one switching output, which can be configured as a limit switch for monitoring minima or maxima, or as a frequency output. The switching output is designed as a push-pull driver, and can therefore be used both as a PNP or an NPN output. The state of the switching output is signaled with a yellow LED in the switching outlet; the LED has all-round visibility.
The sensor is configured in the factory, or alternatively this can be done with the aid of the optionally available ECI-3 device configurator (USB interface for PC). A selectable parameter can be modified on the device, with the aid of the magnet clip provided. In this case, the current measured value is saved as the parameter value. Examples of these parameters are the switching value or the fullscale value.
The stainless steel electronics housing is rotatable, so it is possible to orient the cable outlet after installation.

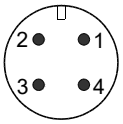
Specifications

Measuring range	0..100 °C, 0..140 °C on request
Accuracy	±1 % FS
Repeatability	±0.1 % FS
Process pressure	PN 50
CIP- / SIP temperature	140 °C, < 30 min. max.
Ambient temperature	-20..+70 °C
Storage temp.	-20..+80 °C
Teach-In / configuration	by means of magnet
Weight	ca. 200 g (standard version)
Supply voltage	24 V DC ± 10%
Current consumption	max. 100 mA
Switching output	transistor output "Push-Pull" (resistant to short circuits and reversed polarity protected) I_{out} = 100 mA max.
Switching hysteresis	2 °C (others available on request)
Display (only with switching output)	yellow LED (on = OK / out = alarm)
Analog output	4..20 mA /load 500 Ohm max. or 0..10 V /load min. 1 kOhm
Connection	for round plug connector M12x1, 4-pole
Materials in contact with media	sensor: 1.4435, FDA compliant
Materials not in contact with media	housing: 1.4305 plug: PA6.6 clip: PA6.6
Protection class	IP 67
Weight	CE FDA

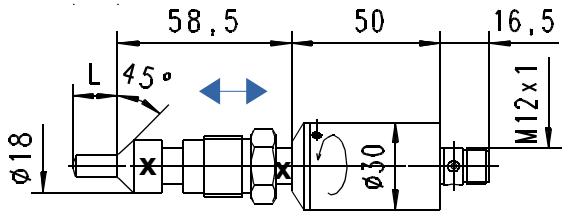
Wiring



Anschlussbeispiel: PNP NPN



Dimensions

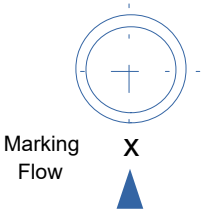


For compatible T-pieces and weld-in sockets of the GHMadapt series, see “Accessories”.

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.

Programming

The electronics contain a magnetic contact, with the aid of which different parameters can be programmed. Programming takes place when a magnet clip is applied for a period between 0.5 and 2 seconds to the marking located on the label. If the contact time is longer or shorter than this, no programming takes place (protection against external magnetic fields).

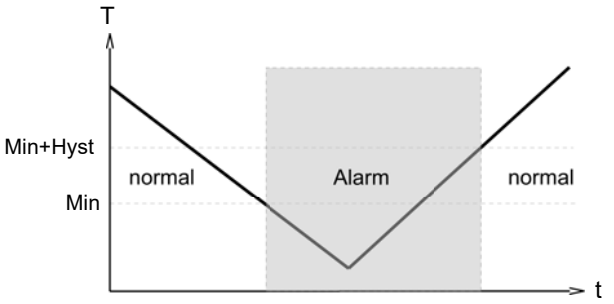
After the programming ("Teach-In"), the clip can either be left on the device, or removed to protect data.
The device has a yellow LED which flashes during the programming pulse. During operation, the LED serves as a status display for the switching output.
In order to avoid the need to transit to an undesired operating status during "teaching", the device can be provided ex-works with a "teach-offset". The "teach-offset" value is added to the currently measured value before saving (or is subtracted if a negative value is entered).

Example: The switching value is to be set to 70 % of the metering range, because at this flow rate a critical process status is to be notified. However, only 50% can be achieved without danger. In this case, the device would be ordered with a "teach-offset" of +20 %. At 50 % in the process, a switching value of 70 % would then be stored during "Teach-In".

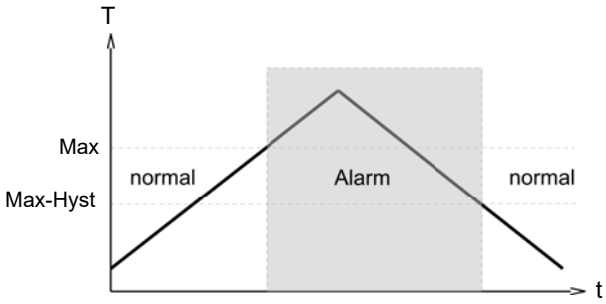
Normally, programming is used to set the limit switch. However, if desired, other parameters such as the end value of the analog or frequency output may also be set.

The limit switch can be used to monitor minima or maxima.

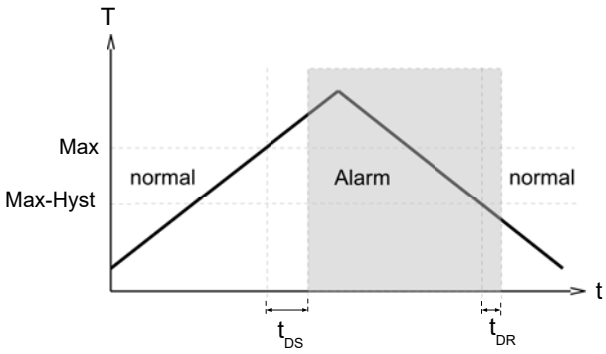
With a minimum-switch, falling below the limit value causes a switchover to the alarm state. Return to the normal state occurs when the limit value plus the set hysteresis is again exceeded.



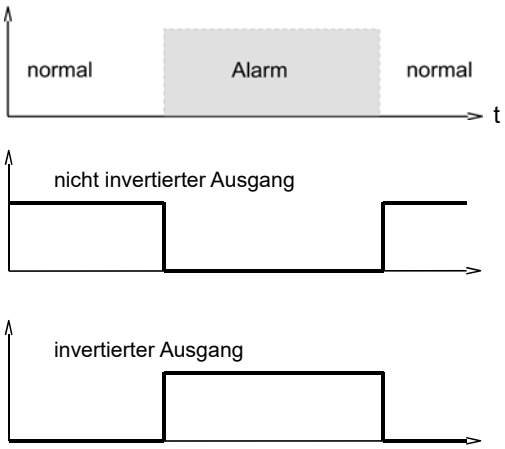
With a maximum-switch, exceeding the limit value causes a switchover to the alarm state. Return to the normal state occurs when the measured value once more falls below the limit value minus the set hysteresis.



A switchover delay time (t_{DS}) can be applied to the switchover to the alarm state. Equally, one switch-back delay time (t_{DR}) of several can be applied to switching back to the normal state.



In the normal state the integrated LED is on, in the alarm state it is off, and this corresponds to its status when there is no auxiliary voltage.
In the non-inverted (standard) model, while in the normal state the switching output is at the level of the auxiliary voltage; in the alarm state it is at 0 V, so that a wire break would also display as an alarm state at the signal receiver. Optionally, an inverted switching output can also be provided, i.e. in the normal state the output is at 0 V, and in the alarm state it is at the level of the supply voltage.



A Power-On-Delay function (ordered as a separate option) makes it possible to maintain the switching output in the normal state for a defined period after application of the supply voltage.

Product key

	1.	2.	3.	4.	5.	6.	7.
HTK30-	**015**	**K1**					

❍ = Option

1.	**Sensor tip length**	
	015	L = 15 mm
2.	**Materials**	
	K1	stainless steel 1.4571
3.	**Analog output**	
	I	current output 4..20 mA
	U	voltage output 0..10 V
	K	no analog output
4.	**Switching output**	
	T	transistor output “push-pull”
	M ❍	NPN (open collector)
	K	no switching output
5.	**Functioning of switching output**	
	L	minimum-switch
	H	maximum-switch
	R	frequency output
	K	no switching output
6.	**Switching signal**	
	O	non-inverted output
	I ❍	inverted output
7.	**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)

Options

Special measuring range for temperature:

Maximum 140 °C (standard = 100 °C) °C

Minimum -20 °C (standard = 0 °C) °C

Special range for analog output: °C

<= meas. range (standard = meas. range)

Special range for frequency output: °C

<= meas. range (standard = meas. range)

End frequency (max. 2000 Hz) Hz

Switch-on delay (from OK to Alarm) s

Switch-off delay (from OK to Alarm) s

Power-On-Delay period (0..99 s) s

(Time after power on, during which the outputs are not actuated)

Switching output fixed at °C

Special hysteresis °C

For not specified fields the standard settings are selected automatically.

Accessories

- Device configurator ECI-3 (USB programming adapter)
- Process adapter
- Round plug connector / cable (KH...)

Further information at “Accessories”