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Temperature switch HTK12-S

- **Temperature sensor with limit switch for food industries in 12 mm housing**
- **User-configurable via plug pins (Teach-In)**
- **Identical mechanical design available as temperature transmitter, flow transmitter/switch or level switch**

Characteristic

The sensors of the HTK12 family can be used for measuring and monitoring temperatures in flowing media. They provide multiple configuration options combined with low space requirements. The mechanical construction makes them suitable for use in the food-stuffs industry.

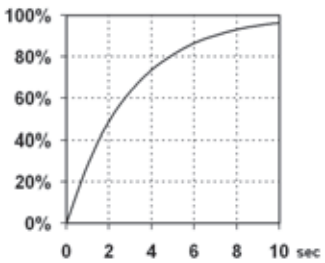
The electronics of the HTK12-S are a flexibly configurable limit switch.

The switching value can be set by the user via teaching (see Handling and operation). All other values have been preset at the factory, but can be modified by the user with the aid of the optionally available ECI1 interface and a PC.

The adjustable parameters are:

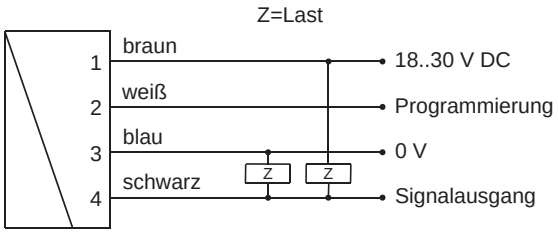
- switching value
- hysteresis
- Min / max monitoring
- Switching delay
- Switchback delay
- Power-On delay
- Teach-Offset

Specifications

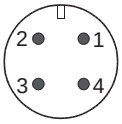
Switching range	-20..+100 °C
Process connection	Sealing cone screw fitting, compatible with G $^1/_2$ GHM*adapt*
Medium temperature	-20..+100 °C
Ambient temperature	0..60 °C
CIP- / SIP temperature	140 °C, 30 min max.
Dynamic (t)	3 sec. 
Process pressure	PN 50

Accuracy	±1 °C	
Repeatability	±0.5 °C	
Supply voltage	18..30 V DC (controlled)	
Current consumption at rest	< 60 mA	
Switching output	transistor output "Push-Pull" compatible with PNP and NPN, (resistant to short circuits and reversed polarity protected) I_{out} = 100 mA max.	
Protection class	IP 67	
Connection	for round plug connector M12x1, 4-pole	
Materials in contact with media	sensor tip	1.4435, FDA compliant
Materials not in contact with media	housing	1.4571
	pressure screw	1.4404
	plug	PA
	contacts	gold-plated
Weight	approx. 100 g incl. pressure screw	
Conformity	CE, EHEDG	

Wiring

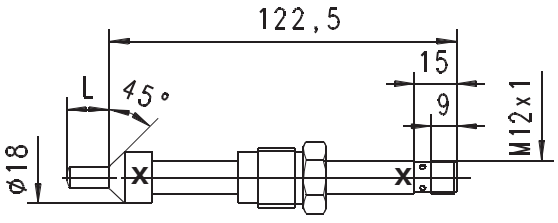


Anschlussbeispiel: PNP NPN



The use of shielded cabling is recommended.

Dimensions



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

Handling or operation

Operation and programming

If desired, the metering range end can be set by the user by means of Teach-In.
For this, proceed as follows:

- The temperature which is to be set is applied to the device
- Apply a pulse of at least 0.5 seconds and max. 2 seconds duration to pin 2 (e.g. via a bridge to the auxiliary voltage or a pulse from the PLC), in order to accept the measured value
- When the teaching is complete, pin 2 should be connected to 0 V, so as to prevent unintended programming.

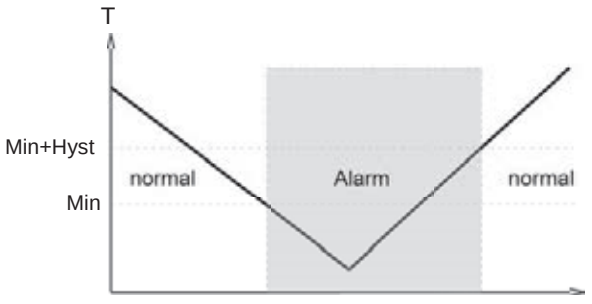
The devices have a yellow LED which flashes during the programming pulse. During operation, the LED acts as a display for the operating voltage.

In order to avoid the need to transit to an undesired operating status during the teach-in, the device can be provided ex-works with a teach-offset. The Teach-In-offset point is added to the currently measured value before saving.

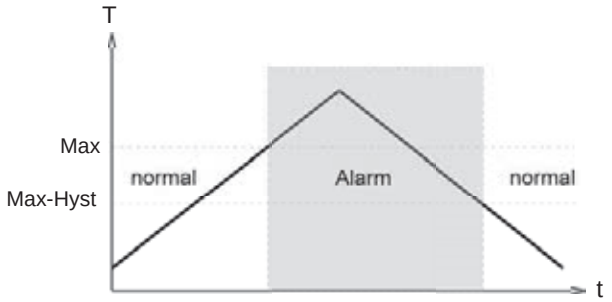
Example: The switching value is to be set to 80 °C, because at this temperature a critical process status is to be notified. However, only 60 °C can be achieved without danger. In this case, the device would be ordered with a "teach-offset" of +20 °C. At 60 °C in the process, a switching value of 80 °C would then be stored during "Teach-In".

The HTK12-S limit switch can be used to monitor minimal or maximal.

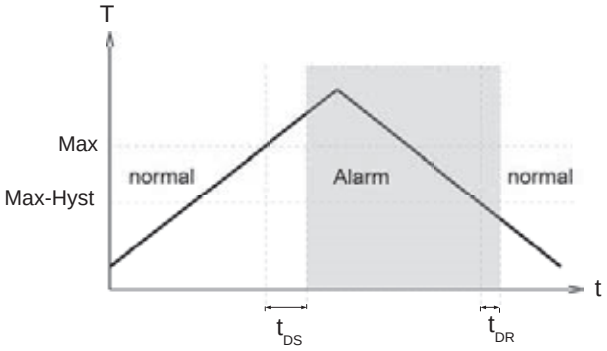
With a minimum-switch, falling below the limit value causes a switchover to the alarm state. Return to the normal state occurs when the limit value plus the set hysteresis is once more exceeded.



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.

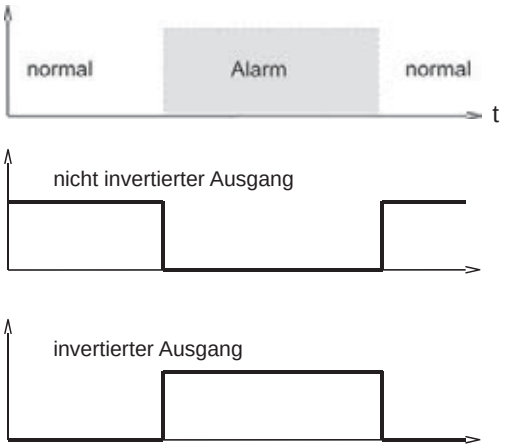


A switchover delay time (t_{DS}) can be applied to the switchover to the alarm state. Equally, one switch-back delay time (t_{DR}) of several can be applied to switching back to the normal state.



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.

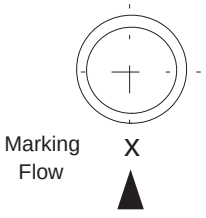
In the non-inverted (standard) model, while in the normal state the switching output is at the level of the auxiliary voltage; in the alarm state it is at 0 V, so that a wire break would also display as an alarm state at the signal receiver. Optionally, an inverted switching output can also be provided, 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.

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.

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Product key

	1.	2.	3.	4.	5.	6.	7.
HTK12-	**S**	**-** **015**	**-**	**-**	**-**	**-** **H**	**-**

Option = ❍

1.	**Switching output**	
	S	transistor output “push-pull”
2.	**Sensor tip length**	
	015	L = 15 mm
3.	**Programming**	
	N	cannot be programmed (no Teach-In)
	P ❍	programmable(Teach-In possible)
4.	**Functioning of switching output**	
	L	minimum-switch
	H	maximum-switch
5.	**Switching signal**	
	O	non-inverted output
	I ❍	inverted output
6.	**Option**	
	H	CIP- / SIP- version, 140 °C, 30 min. max.
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

Switching delay period (0.0..99.9 s) ___.___ s
(from Normal to Alarm)
Switch-back delay period (0.0..99.9 s) ___.___ s
(from Alarm to Normal)
Power-On-Delay period (0..99 s) ___ s
(Time after power on, during which the outputs are not actuated)
Switching output fixed at ___ °C
Switching hysteresis ___ %
Standard = 2 % of measuring range
Teach-Offset (-100..+100 °C) ___ °C
Standard = 0 °C

Further options available on request.

Accessories

- Device configurator ECI-1 (USB programming adapter)
- Process adapter
- Round plug connector / cable (KH...)

Further information at “Accessories”