

DTH04

Calorimetric Flow transmitter and switch in Ø12mm housing

- for liquids
- very compact
- no moving parts
- short response time
- negligible pressure drop
- high temperature gradient
for high temperature transient
handling capability
- works independent of pipe diameter
- reliable monitoring in
two measuring ranges of
2 to 150 cm/s &
3 to 300 cm/s, in wide turndown
ratios of 1:75 and 1:100 respectively
- Robust all stainless steel construction
with integrated transmitter design



Description:

The calorimetric measuring technology is based on the fact, that heat energy is transferred from the surface of the probe to the medium. The higher the velocity of the medium, the more heat energy is taken away by the medium. An unheated Pt100 resistance temperature detector (RTD) embedded in the stainless steel sensor tip serves to record the medium temperature. A second RTD is electrically heated and exposed to the flow. The temperature difference of these two RTDs is proportional to the flow velocity and therefore to the flow volume. For range two, when a value of about 300 cm/s is reached there is so much heat absorbed by the medium that both RTDs have almost the same temperature, and hence the upper limit of the measuring range. is reached. The DTH04 is a compact device and consists of a stainless steel sensor and an integral electrical unit as standard. This can be configured as a switch-, voltage-, electrical-, frequency- or counting pulse output version.

Typical Applications:

The DTH04 units are designed for effective monitoring of liquid media. Because of the low flow resistance and their relative insensitivity to contamination by solids they offer a good alternative to paddle type devices. Because of their structural shape the flow switches are suitable for every pipe diameter. Just a minimal flow velocity is required at the sensor tip. Calorimetric flow switches are widely used in the steel and metal working industries. As well as throughout the chemical and beverage sector. Typical applications are coolant monitoring for welding robots, plasma-pumps or cooling units, dry run protection for pumps, and water monitoring in sprinkler systems.

Models:

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Process connection:

The universally popular and versatile compression fitting has been adopted as standard. The connection is available in brass or stainless steel. It is equipped with a metal ferrule or PTFE compression gland. It is also possible to deliver the devices ready mounted in a T-piece made of brass or stainless steel (P1N10 with GFR POM seal). In this case the calibration in l/min can be done directly. As an option there is also an integrated inlet and outlet pipe available. The calibration can be done in l/min directly, too.

Sensors:

The sensors are integrated into the complete device, available lengths are: 123, 175 and 223 mm.

Output:

In the switch, frequency- and pulse output versions, the devices are equipped with a push-pull transistor output. The analogue output version provides 0...10 V, or 4...20 mA signals. The switch output is programmable through a "teach-in" function on site.

Electrical connection:

The DTH04 is equipped with an M12 x 1, 4-pole plug system.

Electrical Data:

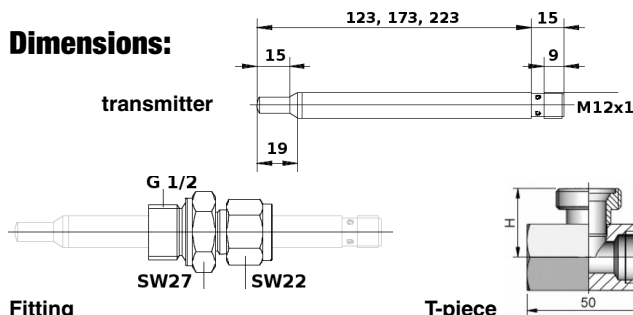
Voltage supply:	24 VDC ± 10 %
Power consumption:	50 mA no-load condition
Connection:	M12 x 1, 4-pole plug
Protection system:	IP67, reverse polarity protected, and short-circuit proof
Output:	switch, frequency, pulse output: push-pull transistor, max 50 mA analogue output: 0...10 V, min 1 kOhm 4...20 mA, max 500 Ohm

With an analogue or pulse output signal, the nominal pipe bore has to be specified.

Technical Data:

Max. pressure:	40 bar (580 psi) for st.st. compression fitting VV 10 bar otherwise
Media temp. range:	-20 °C to 70 °C (-4 °F to 158 °F)
Ambient temperature:	0 °C to 70 °C (32 °F to 158 °F)
Housing:	stainless steel 1.4571 T-piece st.st. or brass, POM seal
Connection:	G1/2 male thread compression fitting
Measuring ranges:	2 to 150 cm/s and 3 to 300 cm/s
Accuracy:	+/- 10% F.S., when calibrated in T-piece: 5%, repeatability: 1% temperature gradient: +/- 0,01 %/K < 3 seconds
Response time:	about 50 g without fittings

Dimensions:



Fitting

Size	G 1/2	G 3/4	G 1	G 1 1/4	G 1 1/2	G 2
H [mm]	28	29	33	37	40	49

T-piece

Model Code – Sensor

Order Number:	DTH04.	1.	S.	1.	00.	1
Options for Calorimetric Flow Transmitter and Switch in Ø12 mm housing						
Measuring range:	1 = 2...150 cm/s 3 = 3...300 cm/s					
Output signal for flow:	S = 1 output I = 4...20 mA analogue output U = 0...10 V analogue output F = frequency output*, please specify desired fmax value (2000 Hz max) Z = counting pulse*, please specify desired pulse value					
	* only in connection with T-piece or inlet pipe					
Electrical connection:	1 = M12 x 1 plug, 4 pole					
Sensor length:	1 = 123 mm 2 = 173 mm 3 = 223 mm					
Options:	0 = None					

Model Code – Process connection

Order Number:	DTH04-Z.	VV.	15.	0.
Options for Calorimetric Flow Transmitter and Switch in Ø12 mm housing				
Process connection:	MM = brass compression fitting G 1/2 AG with brass ferrule MP = brass compression fitting G 1/2 AG with PTFE compression gland VV = stainless steel compression fitting G 1/2 AG with stainless steel ferrule VP = stainless steel compression fitting G 1/2 AG, with PTFE compression gland TM = brass T-piece, calibration in l/min TV = stainless steel T-piece, calibration in l/min			
Connection size:	15 = G 1/2 for compression fitting or T-piece 20 = G 3/4 for T-piece 25 = G 1 for T-piece 32 = G 1 1/4 for T-piece 40 = G 1 1/2 for T-piece 50 = G 2 for T-piece			
Options:	0 = None 1 = with calibrated inlet and outlet pipe on request			

Model Code – Electrical Supply Connection

Ordering Number:	DTH04-Z.	K2M
Options for Calorimetric Flow Transmitter and Switch in Ø12 mm housing		
Electrical connection:	K2M = M12 x 1 socket with 2 m cable K5M = M12 x 1 socket with 5 m cable K10M = M12 x 1 socket with 10 m cable K0M = M12 x 1 user rewirable socket	



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