

Flow switch for monitoring of mass flow in hygienic design

Flowphant T DTT35



€ 252.-
11-35 pcs.

- On-site display
- High reproducibility and long-term stability
- Large turndown

i Specs at a glance:

- **Medium:**
Liquids
- **Measuring range:**
0.03 to 3 m/s
(0.1 to 9.84 ft/s)
- **Medium temperature:**
-20 to +85 °C (-4 to +185 °F)
- **Process pressure:**
0 to +100 bar (at 20 °C)
(0 to 1450 psi)

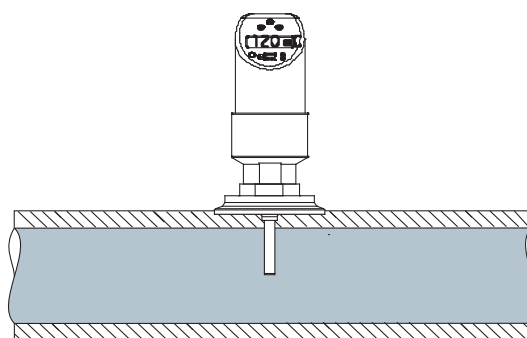
Application The Flowphant T DTT35 is a flow switch (surface quality $R_a \leq 0.8 \mu\text{m}$) for monitoring, displaying and measuring relative mass flow rates of liquid media in the range from 0.03 to 3 m/s (0.1 to 9.84 ft/s). Application examples include: Monitoring cooling water circulation systems of pumps, turbines, compressors and heat exchangers and filter monitoring in the beverage industry.

Function The device measures the mass flow of a liquid medium with the calorimetric measurement method. The calorimetric measuring principle is based on cooling a heated temperature sensor. Heat is removed from the sensor by forced convection due to medium flowing by. The extent of this heat transfer depends on the medium velocity and the difference in temperature between the sensor and medium (King's law). The higher the velocity or the mass flow of the medium, the greater the temperature sensor cooling.



Complete product information:
www.e-direct.endress.com/dtt35

Application example

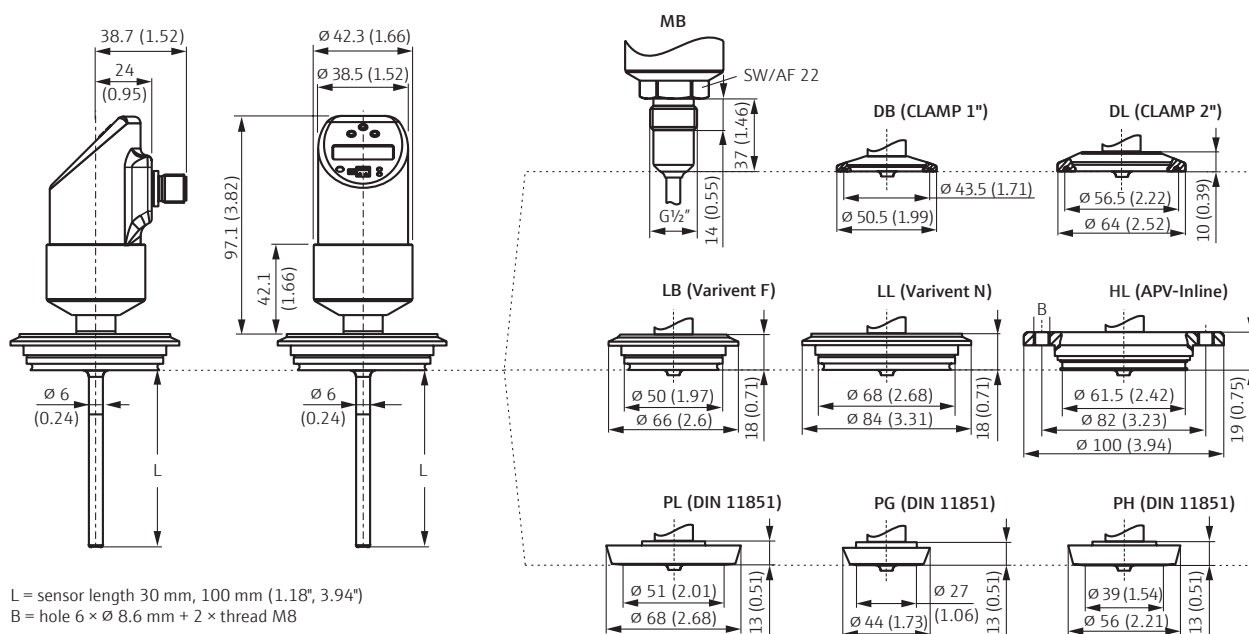


The Flowphant monitors the flow in a cooling circuit and signals when flow drops below a minimum flow rate.

Technical data

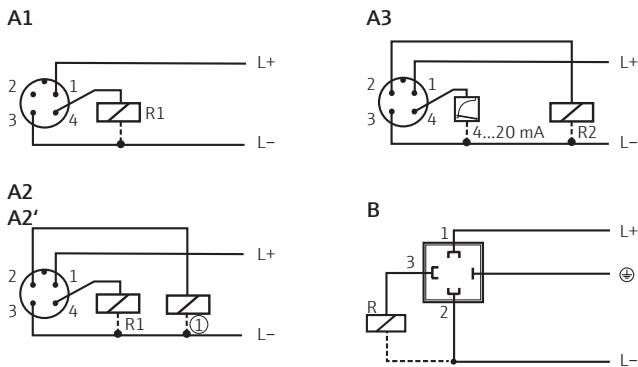
Input		Power supply	
Measurement range	0 to 100 %; resol. 1 %; 0.03 to 3 m/s (0.1 to 9.84 ft/s) for liquids	Supply voltage U_b	18 to 30 V DC, reverse polarity protection
		Current consumption	Without load <100 mA at 24 V DC
Output		General	
Output signal	1 × PNP, 2 × PNP or 1 × PNP with analog output for flow and temperature	EMC	Interference emiss. as per IEC 61326 Series, class B electrical equipment, interference immunity as per IEC 61326 Series, app. A (industrial use) and NAMUR Recomm. NE 21
Voltage drop PNP	≤2 V	Operating elements	3 buttons or PC and ReadWin® 2000
Overload protection	Automatic testing	Materials	316L (process connection, protection tube, housing)
Performance characteristics		Surface quality	$R_a \leq 0.8 \mu\text{m}$
Reference conditions	According to DIN IEC 60770/61003	Approvals	
Measured error	Switch point and display 0.2 %	Desina compliant, 3-A	
Long-term drift	≤0.5 % per year under reference operating conditions		
Sensor reaction time	6 to 12 s		
Response time	switch output 100 ms		
Operating conditions			
Medium temperature	-20 to +85 °C (-4 to +185 °F), 130 °C (266 °F) max. 1h (no measuring at temperatures >85 °C (185 °F))		
Ambient temperature	-40 to +85 °C (-40 to +185 °F)		
Degree of protection	IP 65 (complete housing)		

Dimensions in mm (inches)



Installation according to instruction manual.

Electrical connection



DC voltage version with M12×1 connector

- A1: 1 × PNP switch output
- A2: 2 × PNP switch outputs R1 and (1) (diagnosis/break contact with adjustment „DESINA“)
- A2': 2 × PNP switch outputs R1 and (1)
- A3: PNP switch output, additional analog output

DC voltage version with valve plug M16×1.5

- B: 1 × PNP switch output

Price table

Process connections

Code	TRI-CLAMP® / Metal to metal Connections
DB	Clamp ISO 2852 DN 25-38, 1 to 1½", 316L, 3-A DIN 32676 DN 25-40
DL	Clamp ISO 2852 DN 40-51, 2", 316L, 3-A, DIN 32676 DN 50
MB	Conical metal-metal G½", 316L

Code	Hygienic connections
HL	APV-Inline DN50, PN40, 316L, 3-A
LB	Varivent® F pipe DN25-32, PN40, 316L, 3-A
LL	Varivent® N pipe DN40-162, PN40, 316L, 3-A
PG	DIN 11851, DN25, PN40, 316L, 3-A
PH	DIN 11851, DN40, PN40, 316L, 3-A
PL	DIN 11851, DN50, PN40, 316L, 3-A

More process connections on request

Flowphant T DTT35		Order no.	Price/pcs. in €			
Process connection	Connector	Output		1 to 3	4 to 10	11 to 35
TRI-CLAMP® 30 mm (DB, DL)	M12×1**	1 × PNP	DTT35-A1A111 □ 2AAB	286.-	266.-	252.-
		2 × PNP	DTT35-A1B111 □ 2AAB	302.-	281.-	266.-
		1 × PNP+ analog	DTT35-A1C111 □ 2AAB	340.-	316.-	299.-
	Valve plug	1 × PNP	DTT35-A2A111 □ 2AAB	302.-	281.-	266.-
		1 × PNP	DTT35-A1A111 □ 2CAB	319.-	296.-	280.-
		2 × PNP	DTT35-A1B111 □ 2CAB	335.-	311.-	294.-
Hygienic connections 30 mm (HL, LB, LL, MB, PG, PH, PL)	M12×1**	1 × PNP+ analog	DTT35-A1C111 □ 2AAB	372.-	346.-	327.-
		1 × PNP	DTT35-A2A111 □ 2AAB	335.-	311.-	294.-
		1 × PNP	DTT35-A1A111 □ 2CAB	286.-	266.-	252.-
	Valve plug	2 × PNP	DTT35-A1B111 □ 2CAB	302.-	281.-	266.-
		1 × PNP+ analog	DTT35-A1C111 □ 2CAB	340.-	316.-	299.-
		1 × PNP	DTT35-A2A111 □ 2CAB	302.-	281.-	266.-
TRI-CLAMP® 100 mm (DB, DL)	M12×1**	1 × PNP	DTT35-A1A111 □ 2CAB	319.-	296.-	280.-
		2 × PNP	DTT35-A1B111 □ 2CAB	335.-	311.-	294.-
		1 × PNP+ analog	DTT35-A1C111 □ 2CAB	372.-	346.-	327.-
	Valve plug	1 × PNP	DTT35-A2A111 □ 2CAB	335.-	311.-	294.-
		1 × PNP	DTT35-A1A111 □ 2CAB	319.-	296.-	280.-
		2 × PNP	DTT35-A1B111 □ 2CAB	335.-	311.-	294.-
Hygienic connections 100 mm (HL, LB, LL, MB, PG, PH, PL)	M12×1**	1 × PNP+ analog	DTT35-A1C111 □ 2CAB	372.-	346.-	327.-
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		1 × PNP	DTT35-A2A111 □ 2CAB	335.-	311.-	294.-

* Please add code for process connection.

** Please order cable and plug separately.

Accessories	Order no.	Price/pcs. in €
5 m cable with M12×1 counter connector	51005148	9.80
Straight plug, without cable (self wired)	52006263	15.55
Configuration kit, USB connection	TXU10-AA	101.72
Angled plug, without cable (self wired)	51006327	10.36
Welding boss with sealing taper (metal-metal) for G½" thread	71424800	27.06
Power supply 24 V DC, for DIN rail	RNB130-A1A	138.89

Prices are applicable for Malta until 30/06/2020, in euro per unit, net excluding value added tax (VAT), cost of packing and dispatch.

Endress+Hauser retains the right to change or modify pricing at any time. The terms of sales and delivery of Endress+Hauser are applicable.

Current prices and delivery times can be verified prior to ordering on www.e-direct.endress.com.

Complete product information:
www.e-direct.endress.com/dtt35

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