



Level



Pressure



Flow



Temperature



Liquid Analysis



Registration



Systems Components



Services



Solutions

Flow switch for safe measurement and monitoring of mass flow Flowphant T DTT31

E-direct

www.e-direct.us



- Three button on-board programming or
- Setup via ReadWin® 2000 configuration software
- High visibility digital display
- High reproducibility and long-term stability
- Large turndown
- Practically no pressure loss
- Top housing section can be rotated 310° for easy viewing

Application

Flow switch for monitoring, displaying and measuring relative mass flow rates of liquid media in the range from 0.1 to 9.84 ft/sec.

Application examples:

Monitoring cooling water circulation systems of pumps, turbines, compressors and heat exchangers, monitoring CIP cleaning processes and monitoring lubrication systems.

Measurement principle

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.

Medium: all kinds of liquids	Measuring range: 0.1 to 9.84 ft/sec
Process pressure: 0 to 1450 psi (at 68°F)	Medium temperature: -4 to +185°F

Electrical Connection

DC voltage version with M12x1 connector

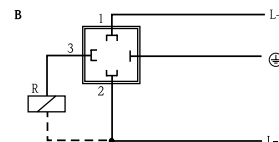
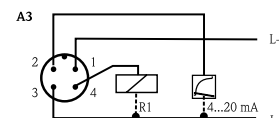
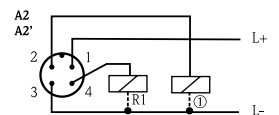
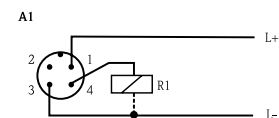
A1: 1 x PNP switch output
A2: 2 x PNP switch outputs
R1 and ○ (R2)

A2': 2 x PNP switch outputs
R1 and ○ (diagnosis/
break contact with
adjustment „DESINA“)

A3: PNP switch output
additional analog output

DC voltage version with valve plug M16x1.5

B1: 1 x PNP switch output

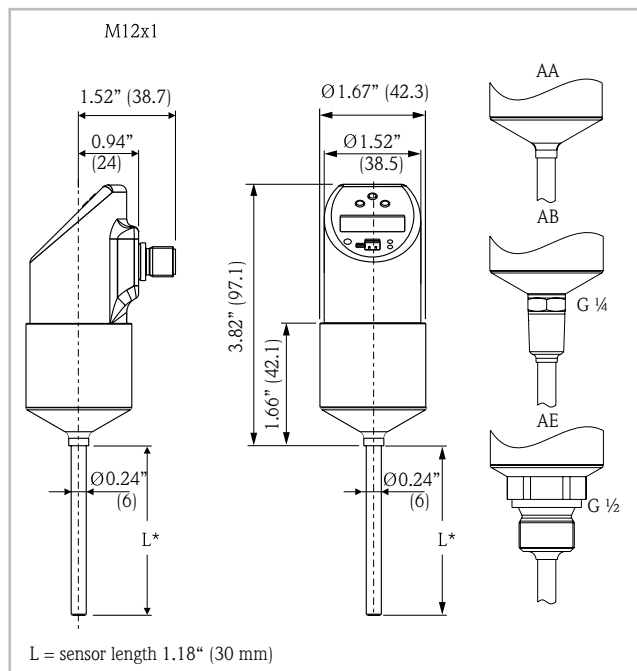


Flowphant T DTT31

Technical Data

Input	
Measurement range	0 to 100%; resolution 1% 0.1 to 9.84 ft/sec for liquids
Output	
Output signal	1 x PNP, 2 x PNP or 1 x PNP with analog output for flow and temperature
Voltage drop PNP	≤ 2 V
Overload protection	automatic testing
Performance characteristics	
Reference conditions	according to DIN IEC 60770/61003
Measured error	switch point and display 0.2%
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	-4 to 185°F
Ambient temperature	-40 to +185°F
Degree of protection	with M12x1: IP 60
Power supply	
Supply voltage U_b	18 to 30 VDC, reverse polarity protection
Current consumption without load	< 100 mA at 24 VDC
General	
EMC	interference emission as per EN 61326 class B electrical equipment, interference immunity as per EN 61326 appendix A (industrial use)
Operating elements	3 buttons or PC and ReadWin® 2000
Materials	Process connection, protecting tube and housing 316L

Dimensions in inches (mm)



Many other models, versions and options are available. Please contact Endress+Hauser for more information.

Product	Version	Order no.	Price/piece in \$			we hereby order:	total price:
			1 to 5	6 to 15	16 to 35		
DTT31	M12 plug, 1/2" NPT thread, 1 x PNP	DTT31-A1A111DE2AAB	\$383.50	\$346.00	\$312.00	pcs	\$

	Configuration kit, USB connection	TXU10-AA		\$158.00		pcs	\$
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Net excluding cost of shipping and taxes.
Acceptance per our Standard Terms and Conditions (find at www.e-direct.us).

Total price:
FOB Greenwood, IN; shipped pre-paid; shipping charges and applicable taxes added to invoice. \$ _____

E-direct catalog (free)

Shipping method Ground Priority One Day Priority Two Day

E-direct

E-direct
Endress+Hauser, Inc.
2350 Endress Place
Greenwood, IN 46143

(For customers in the USA only)

Online Shop www.e-direct.us
Order: by phone **888-EH DIRECT (343-4732)**
by fax **800-321-7754**
For special requests, e-mail us: e-direct@us.endress.com

Warranty

Should an instrument fail during the 1 year warranty period, a replacement unit will be provided.

Delivery

Shipment from receipt of order for quantities 1-3 within 2 business days.

Endress+Hauser

People for Process Automation