



THERMAL DISPERSION FLOW / LEVEL / TEMPERATURE SWITCH FAST RESPONSE



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Model TQ

FEATURES

- For Liquids and Small Granular Solids
- Response Time From 1 Second
- One Switch for Either Flow or Level Applications
- No Moving Parts
- 316L Stainless Steel Nickel Brazed Construction
- Explosion Proof Enclosure
- Temperature Range -50 to 350°F / -46 to 177°C Standard
- Pressure to 2000 psig / 138 bar Standard

OPTIONS:

- Extended Sensor
- Remote or Flange Mounting
- Ceramic Glass to Metal Feedthrough Provides Secondary Pressure Boundry



SPECIFICATIONS

Sensor

Materials of Construction	316L Stainless Steel Nickel Brazed per AMS 4777 Special brazing compounds optional, contact manufacturer
Response Time	No Flow to Flow: From 0.5 Second; Flow to No Flow: From 1.5 Seconds; Level: $\pm 1/8"$; Temperature from 1 Second
Operating Temperature	-50 to 350°F / -46 to 177°C Standard
Operating Pressure	Full Vacuum to 2000 psig / 138 bar
Repeatability	0.5% of Range at Constant Conditions Standard
Process Connection	3/4" MNPT Standard Options: 1", 1-1/4", 1-1/2", 2" MNPT, Flanges, Retractable Probes
Insertion Length	2.3" / 58.4 mm Standard Option: 1.6" / 40.6 mm; Customer Specified (1.6" / 40.6 mm minimum)

Electronics

Housing	Powder Coated Aluminum Standard Options: Dual Compartment Aluminum Housing; Dual Compartment 316L SS
Operating Temperature	-50 to 140°F/-46 to 60°C Ambient Standard Option: Remote Mounting of Electronics Up to 2000 ft. / 610 meters
Power Input	90-132 VAC, 50/60 Hz, 5.5 watts max Standard Options: 24 VDC, 24 VAC, 208-240 VAC
Relay Output	DPDT 8 amps @ 250 VAC
Conduit Entry	3/4" FNPT Standard
Approvals	FM (Dual Compartment): XP / I / 1 / ABCD; DIP / II,III / 1 / EFG / T3A @ 60°C; Type 4X FM (Single Compartment): XP / I / 1 / CD; DIP / II,III / 1 / EFG / T3A @ 60°C; Type 4X CSA (Dual Compartment): Class I / ABCD; Class II / EFG; Class III; T3C @ 60°C; NEMA 4X CSA (Single Compartment): Class I / CD; Class II / EFG; Class III; T3C @ 60°C; NEMA 4X
Shipping Weight	5 lbs standard

ORDERING INFORMATION:

TQ / a / b / c / d / e / f / g / h :

/a Housing

- /A1 Single Compartment Aluminum Housing **Standard**
- /A Dual Compartment Aluminum Housing
- /AW Dual Compartment Aluminum Housing with Glass Viewing Window
- /S Dual Compartment 316L Stainless Steel Housing
- /SW Dual Compartment 316L Stainless Steel Housing with Glass Viewing Window

/b Material Type

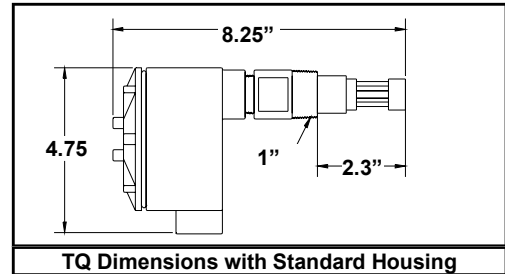
- /S6 316L SS w/ Nickel Braze **Standard**

/c A) Process Connection – Threaded

- /0750 3/4" MNPT **Standard**
- /1000 1" MNPT
- /1250 1-1/4" MNPT
- /1500 1-1/2" MNPT
- /2000 2" MNPT

B) Process Connection – Flanged

- | | | | |
|--------------|------------------|----------|-----------------------------|
| /AABC | AA | B | C |
| | 10 1" Flange | 1 150# | 1 Raised Face, 316L SS |
| | 15 1-1/2" Flange | 2 300# | 2 Raised Face, Carbon Steel |
| | 20 2" Flange | 3 600# | 3 Flat Face, 316L SS |
| | 30 3" Flange | 4 900# | 4 Flat Face, Carbon Steel |
| | 40 4" Flange | 5 1500# | 6 Special |
| | 60 6" Flange | | |



/d Insertion Length

- /2.3 2.3" / 58.4 mm Insertion Length **Standard**
- /1.6 1.6" / 40.6 mm Minimum Insertion Length
- /length Customer Specified Length in Inches or Millimeters (1.6"/40.6 mm min., 240"/6096 mm max)

/e Power Input

- /1 90-132 VAC **Standard**
- /2 24 VDC or VAC (22.8 - 28.8 VDC; 20 VAC - 25 VAC)
- /3 200-240 VAC

/f Process Temperature

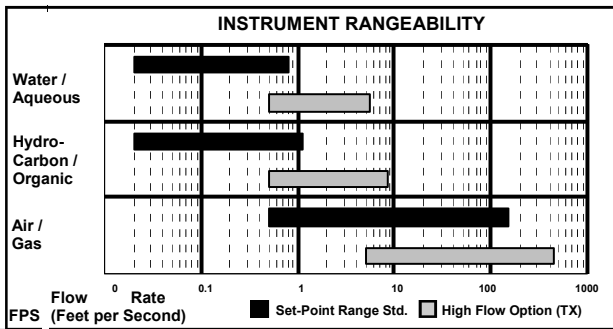
- /H0 -50 to 350°F / -46 to 177°C **Standard**

/g Approvals

- /FMX Factory Mutual Research Corp. (FMRC) Explosion Proof **Standard**
- /CSX CSA Canadian Standard Association Explosion Proof
- /CEX Cenelec Eex d IIC (**Pending**)
- /X Not FMRC, CSA or Cenelec Approved

/h Options (leave blank if no options required)

- /DS Dual Switch Point Electronics with Millivolt Output
- /RJxxxx Remote Electronics with PVC Cable (200°F / 93.3°C) Specify cable length "xxxx"
- /RFxxxx Remote Electronics with Teflon Cable (350°F / 177°C) Specify cable length "xxxx"
- /HF High Flow Option (Requires 1" MNPT or 1-1/2" Flange or larger; for clean liquids only)
- /HP High Pressure Option (4,000 psig / 462 bar)
- /HS Hermetically Sealed Probe (probe hermetically sealed at connection to enclosure)
- /G1 Packing Gland for Retractable Probe, 50 psig / 3.4 bar Maximum (Not Approved)
- /G2 Packing Gland for Retractable Probe, 500 psig / 34.5 bar Maximum (Not Approved)



LINE SIZE	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"
Liquid Multiplier	5.65	3.08	1.68	1.06	0.602	0.371	0.215	0.158
Gas Multiplier	42.19	23.06	12.57	7.909	4.5	2.776	1.61	1.18
Line Size	2"	2-1/2"	3"	3-1/2"	4"	5"	6"	8"
Liquid Multiplier	0.0956	0.067	0.0434	0.0325	0.0252	0.016	0.0111	0.006
Gas Multiplier	0.7161	0.519	0.3248	0.2427	0.1884	0.12	0.083	0.048
Line Size	10"	12"	14"	16"	18"	20"	24"	
Liquid Multiplier	0.00407	0.00287	0.00237	0.001815	0.001434	0.001154	0.000798	
Gas Multiplier	0.0304	0.0209	0.0177	0.0136	0.0107	0.00863	0.00597	

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