



# THERMAL DISPERSION FLOW / LEVEL / TEMPERATURE SWITCH STANDARD RESPONSE

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**Model TX**

## FEATURES

- For Liquids, Gases & Small Granular Solids
- One Switch for Gas or Liquid Flow, Liquid Level, Interface Level or Temperature
- 316L Stainless Steel All Welded Construction Standard
- Explosion Proof, No Moving Parts
- Temperature Range -50 to 350°F / -46 to 177°C Standard
- Pressure to 4000 psig / 275 bar Standard



## OPTIONS:

- Exotic Alloys for Corrosive Applications
- Temperatures from -320 to 900°F / -195 to 482°C
- Pressure to 10,000 psig / 689 bar
- Extended Sensor
- Remote Mounting
- Flange Mounting
- Ceramic Glass To Metal Feedthrough Provides Secondary Pressure Boundry

## SPECIFICATIONS

### Sensor

Materials of Construction	316L Stainless Steel Standard, Exotic Alloys Optional
Response Time	No Flow to Flow: From 3 Seconds; Flow to No Flow: From 8 Seconds Level: +/- 1/8"; Temperature: From 1 second
Operating Temperature	-50 to 350°F / -46 to 177°C <b>Standard</b> Options: -320 to 500°F / -196 to 260°C -100 to 900°F / -73 to 482°C
Operating Pressure	Full Vacuum to 4000 psig / 275 bar <b>Standard</b> Option: 10,000 psig / 689 bar maximum
Repeatability	Flow: 0.5% of maximum flow rating at Constant Conditions <b>Standard</b> ; Level: +/- 1/8"; Temperature: +/- 1°C
Process Connection	3/4" MNPT <b>Standard</b> Options: 1", 1-1/4", 1-1/2", 2" MNPT, Flanges, Retractable Probes
Insertion Length	1.8" / 45.7mm <b>Standard</b> Option: 1.2" / 30.5mm; Customer Specified (1.2" / 30.5mm minimum)

### Electronics

Housing	Powder Coated Aluminum <b>Standard</b> Optional: Dual Compartment Aluminum; Dual Compartment 316L SS
Operating Temperature	-50 to 140°F/-46 to 60°C Ambient Option: Remote Mounting of Electronics Up to 2000 ft. / 609 meters
Power Input	90-132 VAC, 50/60 Hz, 5.5 watts max Options: 24 VDC, 24 VAC, 208-240 VAC
Relay Output	DPDT 8 amps @ 250 VAC
Conduit Entry	3/4" FNPT <b>Standard</b>
Approvals	FM (Dual Compartment): XP / I / I / ABCD; DIP / II,III / 1 / EFG / T3A @ 60°C; Type 4X FM (Single Compartment): XP / I / I / 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

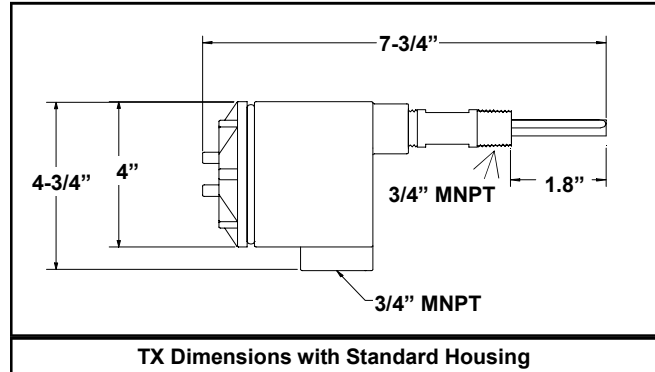
**ORDERING INFORMATION:**

**TX/a/b/c/d/eff/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 Stainless Steel **Standard**
  - /HB Hastelloy B-3
  - /HC Hastelloy C-276
  - /AM Monel
  - /T2 Titanium GR. 2
  - /T7 Titanium GR. 7
  - /A20 Carpenter 20
  - /NB Nickel Brazed 316L Stainless Steel

- /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

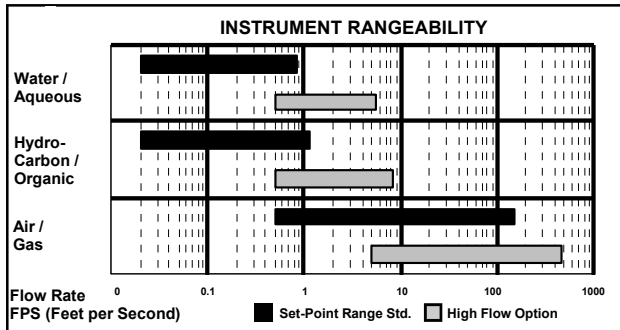
- /d Insertion Length**
  - /1.8 1.8" / 45.7 mm Insertion Length **Standard**
  - /1.2 1.2" / 30.5 mm Insertion Length
  - /length Customer Specified Length in Inches or Millimeters (1.2" / 30.5 mm minimum)

- /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**
  - /H1 -320 to 500°F / -196 to 260°C (Requires remote mounting of electronics)
  - /H2 -100 to 900°F / -73 to 482°C (Requires remote mounting of electronics)

- /g Approvals**
  - /FMX Factory Mutual Research Corp (FMRC) **Standard**
  - /CSX CSA Canadian Standard Association
  - /CEX Cenelec Eex d IIC Testing Requirements (**Pending**)
  - /X Not FMRC, CSA or Cenelec Approved

- /h Options (leave blank if no options required)**
  - /DS Dual Switch Point Electronics with Millivolt Output
  - /RJxx Remote Electronics with PVC Cable (200°F / 93.3°C) Specify cable length "xx"
  - /RFxx Remote Electronics with Teflon Cable (500°F / 260°C) Specify cable length "xx"
  - /HF High Flow Option (Requires 1" MNPT or 1-1/2" Flange or larger; for clean liquids only)
  - /HP High Pressure Option (10,000 psig / 689 bar)
  - /G1 Packing Gland for Retractable Probe, 50 psig / 3.4 bar Maximum
  - /G2 Packing Gland for Retractable Probe, 500 psig / 34.5 bar Maximum
  - /HS Hermetically Sealed Probe (probe hermetically sealed at connection to enclosure)



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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