



THERMAL DISPERSION FLOW / LEVEL / TEMPERATURE SWITCH SANITARY



Model TS

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ISO9001 Certified

FEATURES

- One Switch for Gas or Liquid Flow, Liquid Level, Interface Level or Temperature
- No Moving Parts
- Designed to 3A Standards
- 316L Stainless Steel All Welded Construction Standard
- Explosion Proof
- Temperature Range -50 to 350°F / -46 to 177°C Standard
- Pressure to 500 psig / 34.5 bar Standard

OPTIONS:

- Electropolished Wetted Parts
- Extended Sensor
- Remote Mounting
- Ceramic Glass to Metal Feedthrough Provides Secondary Pressure Boundry



SPECIFICATIONS

Sensor

Materials of Construction	316L Stainless Steel 240 Grit Polish Standard
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 Standard
Operating Pressure	Full Vacuum to 500 psig / 34.5 bar Standard
Repeatability	Flow: 0.5% of maximum flow rating at Constant Conditions Standard Level: ±1/8"; Temperature: ±1°C
Process Connection	1-1/2" Tri-Clamp Sanitary Fitting for Short Leg Tee Mounting Options: 2" Tri-Clamp, Flanges, Customer Specified Connections
Insertion Length	1.8" / 45.7mm Standard Option: 1.2" / 30.5mm Insertion Length; Customer Specified Insertion Length

Electronics

Housing	Powder Coated Aluminum Standard Optional: Dual Compartment Aluminum; 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. / 609 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	Factory Mutual, CSA Canadian Standard Association XP / I / 1 / CD DIP / II,III / 1 / EFG NEMA 4X Cenelec EEx d IIC (Pending)
Shipping Weight	5 lbs standard

ORDERING INFORMATION:

TS / 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 Stainless Steel 240 Grit Mechanical Polish **Standard**
- /EP 316L Stainless Steel 240 Grit and Electropolish

/c A) Process Connection

- /1005 1" / 1-1/2" Tri-Clamp **Standard** **500 psig @ 70°F / 34 bar @ 21°C** **300 psig @ 250°F / 20 bar @ 121°C**
- /2005 2" Tri-Clamp **450 psig @ 70°F / 31 bar @ 21°C** **300 psig @ 250°F / 20 bar @ 121°C**

/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

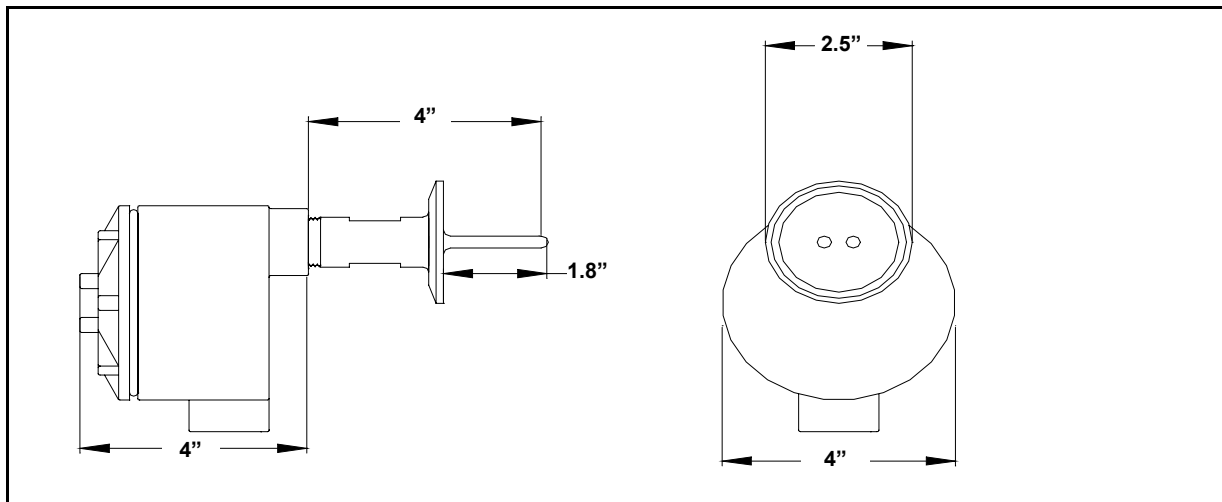
- /H0 -50 to 350°F / -46 to 177°C **Standard**

/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 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"
- /HS Hermetically Sealed Probe (probe hermetically sealed at connection to enclosure)



TS Dimensions with Standard Housing

INSTRUMENT RANGEABILITY		VOLUMETRIC (GPM OR CFM) TO VELOCITY (FPS) Conversion Chart							
		Velocity (FPS) = multiplier below x GPM or CFM							
Water / Aqueous		1/8"	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	
Hydro-Carbon / Organic		Liquid Multiplier	5.65	3.08	1.68	0.5	0.602	0.371	0.215
Air / Gas		Gas Multiplier	42.19	23.06	12.57	0.5	4.5	2.776	1.61
		Line Size	2"	2-1/2"	3"	3-1/2"	4"	5"	6"
		Liquid Multiplier	0.0956	0.067	0.0434	0.0325	0.0252	0.016	0.0111
		Gas Multiplier	0.7161	0.519	0.3248	0.2427	0.1884	0.12	0.083
		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

K-TEK
 18321 Swamp Road
 Prairieville, Louisiana 70769
 USA
 Telephone: (1) 225-673-6100
 Fax: (1) 225-673-2525



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Email: sales@ktekcorp.com
 Website: www.ktekcorp.com