

TS2000-UFM

ULTRASONIC FLOW METER - SWITCH

Features

- Ultrasonic Measurement using Transit Time Technology
- Full Bore Type
- Empty pipe indication
- Backlit LCD display
- Durable SS-316 Enclosure offering superior
- IP-68 Protection for reliable operation in harsh and wet environments
- Optional MODBUS RTU Communication & Relay Output



Technical Specifications

Performance Characteristics	
Measuring principle	Ultrasonic flow measurement
Media	Liquid
Line Size	15 NB to 300 NB
Number Of Paths	Single
Electronics	1) Integral (Local) 2) Remote
Remote Cable Length	5 mtr.
Output 1	4 to 20 mA
Output 2	Pulse - Open Collector Type (Optional)
Alarm or Relay Output	1 Relay Output (Optional)
Communication Output	RS-485 MODBUS RTU (Optional)
Viscosity	200 cP maximum
Display	Backlight LCD - 6 Digit for Flow Rate, 8 Digit for Flow Totalizer
Accuracy	< $\pm 0.5\%$ of M.V. for Velocity Range 0.3 m/s to 6 or 12 m/s
Linearity	$\pm 0.5\%$ of M.V.
Repeatability	$\pm 0.2\%$ of M.V.
Temperature Coefficient	$\pm 0.05\%$ per $^{\circ}\text{C}$
Process Temperature	200 $^{\circ}\text{C}$ max
Process pressure	16 kg/cm ² max
Material of Construction	Flow tube: SS-316
	Electronics Enclosure: SS-316
	Sensor: SS-316 / PVC
Power Supply	24V DC
Response Time	1 Sec
Electronic Protection	Weather Proof IP-68
Sensor/Flow Tube Protection	Weather Proof IP-68
Process Connections	ASA 150 Flanged (As per table)
Electrical Connection	M12 Connector
Ambient Temperature	20 $^{\circ}\text{C}$ to 70 $^{\circ}\text{C}$
Ambient Humidity	5 to 95% non-condensing

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Assembly Overview

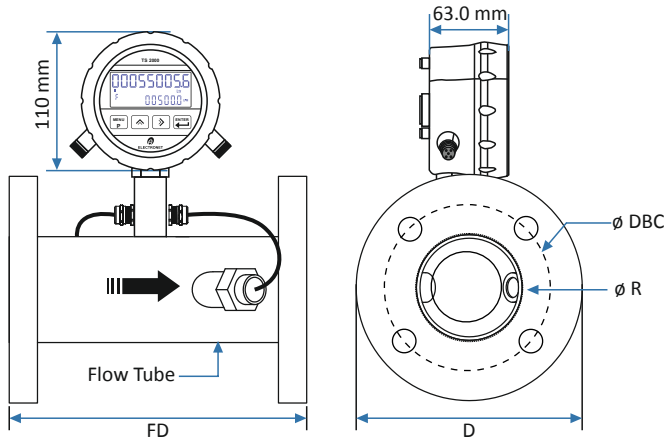


Fig. 1 Front View

Fig. 2 Side View

Connection Details

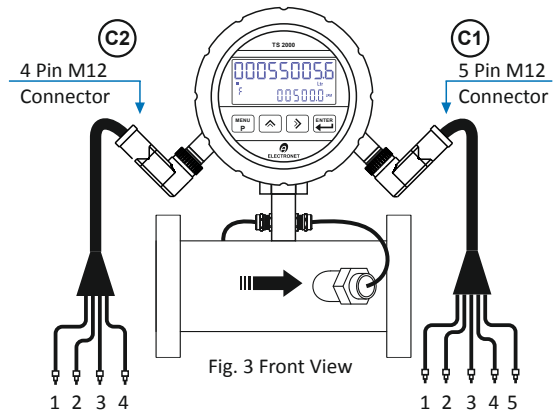


Fig. 3 Front View

C2: Details

- 1 : (POLE) Alarm Output
- 2 : (NO) Alarm Output
- 3 : (RX) RS485
- 4 : (TX) RS485

C1: Details

- 1 : +24V DC
- 2 : I+ Analog Output 4 to 20mA
- 3 : 0V DC / I- Analog Output 4 to 20mA
- 4 : Pulse Output (Open Collector)
- 5 : 0V DC / Pulse Output -Ve

TABLE : Dimensional Details Of Flange, as Per ANSI 150 # B-16.5

Refer Fig.1 & 2

Line Size		Flange To Flange Distance	Flow Range (m ³ /Hr)			
Inch	NB		Velocity 0.3m/s	Velocity 2.5m/s	Velocity 6m/s	Velocity 10m/s
½"	15	200	0.19	1.59	3.81	6.36
¾"	20	200	0.34	2.83	6.785	11.31
1"	25	200	0.53	4.42	10.602	17.67
1¼"	32	200	0.87	7.24	17.371	28.95
1½"	40	200	1.36	11.31	27.143	45.24
2"	50	200	2.12	17.67	42.4115	70.69
2½"	65	200	3.58	29.86	71.675	119.46
3"	80	200	5.43	45.24	108.573	180.96
4"	100	250	8.48	70.69	169.646	282.74
5"	125	250	13.25	110.45	265.071	441.79
6"	150	300	19.09	159.04	381.703	636.17
8"	200	350	33.93	282.74	678.584	1130.97
10"	250	450	53.01	441.79	1060.28	1767.15
12"	300	500	76.34	636.17	1526.81	2544.69

Note : Flange to flange distance (FD) Tolerance : 1) 1/2"(15NB) to 6"(150NB) : +/-3mm 2) 8"(200NB) to 12"(300NB) : +/-5mm

- All dimensions are in 'mm'
- For dimensions of line size above 300NB, please consult factory.
- Typical mounting dimensions are for reference only.

- Wet Calibrated at IEC/ISO/EN17025 Accredited Calibration Rig.
- Flow meter should be selected with the help of Nomograph (recommended full scale velocity).

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Ordering Information for Flow Transmitter

Sample Order Code : TS 2000 TX-A1-B1-C1

Parameter		Code	Description
A	Alarm or Relay Output	A1	1 Relay Output
		AX	NA
B	Communication Output 1 (Any one)	B1	RS485 (MODBUS RTU)
		BX	NA

Parameter		Code	Description
C	Electrical Output 2 (Pulse)	C1	Pulse (Open Collector)
		CX	NA

Ordering Information for Flow Tube

Sample Order Code : TS 2000-FT15-N1-O1-P1

Parameter		Code	Description	Code	Description	Parameter		Code	Description	
FT	Flow Tube	FT 15	15 NB	FT 100	100 NB	N	Insertion Flow Sensor Installation	N1	Fixed Inline	
		FT 25	25 NB	FT 125	125 NB			N2	Hot Retractable	
		FT 32	32 NB	FT 150	150 NB	O	Process Connection	O1	Threaded (15NB to 50NB)	
		FT 40	40 NB	FT 200	200 NB			O2	Flanged (15NB to 300NB)	
		FT 50	50 NB	FT 250	250 NB		P	Flange MOC	P1	MS
		FT 65	65 NB	FT 300	300 NB				P2	CS
		FT 80	80 NB						P3	SS-304
Note : ■ Due to our continuous product revisions, design specification & model numbers are subject to change without notice. ■ Accuracy defined at Lab Conditions. ■ For other requirement please consult factory. ■ This product is meant for laboratory/Process application only and not for custody transfer application.						P4			SS-316	
						PX			NA	



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