

TS2000-TFM

TURBINE FLOW METER - SWITCH



Features

- Backlit LCD display
- Suitable for Conductive and Non-Conductive Liquids
- SS-316 enclosure with high corrosion resistance
- IP-68 protection for harsh environments
- RS-485 (MODBUS RTU) communication



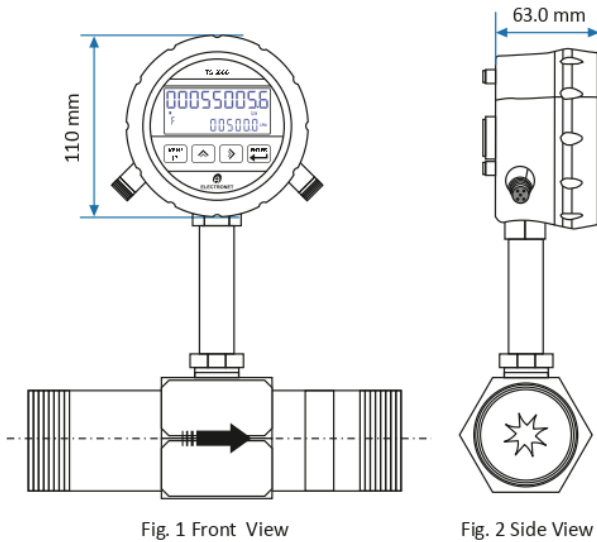
Technical Specifications

Performance Characteristics	
Measuring principle	Turbine flow measurement
Media	Liquid
Viscosity	100 cp max
Line Size	15 NB to 200 NB
Mounting Type	Inline Horizontal / Vertical
Linearity	+/- 0.5% of F. S
Repeatability	+/- 0.5% of F. S.
Response Time	1 Sec
Accuracy	< ± 0.5% of F. S. ± 5mm /sec for Velocity Range 0.3 m/s to 6 or 12 m/s
Display	Backlight LCD - 6 Digit for Flow Rate, 8 Digit for Flow Totalizer
Process temperature	200°C max
Process pressure	16 kg/cm ² max
Process Connection	1) Flanged (15 to 200 NB) 2) Threaded (15 to 50 NB) 3) SS Tri-Clover (15 to 100 NB) 4) SMS Union (25 to 100 NB)
Power Supply	24V DC
Power consumption	< 5W
Output 1	4 to 20mA
Output 2	Pulse - Open Collector Type (Optional)
Alarm or Relay Output	1 Relay Output (Optional)
Communication Output	RS-485 MODBUS RTU (Optional)
Electronic Protection	Weather Proof IP-68
Electronics Location	Integral / Remote
Remote Cable Length	5 mtr.
Flow Tube Protection	Weather Proof IP-68
Connector	M12 Connector
Material of Construction	1) Bearings - Tungsten Carbide Sleeve / V Jewel 2) Rotor - SS 410 / 17.4 PH / Plastoferite 3) Shaft - Tungsten Carbide 4) Body / Support / Flange - SS
Electronics Enclosure	SS-316
Ambient Temperature	20°C to 75°C
Ambient Humidity	5 to 95% non-condensing
Temperature Coefficient	+/- 0.01% Per °C

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Assembly Overview



Connection Details

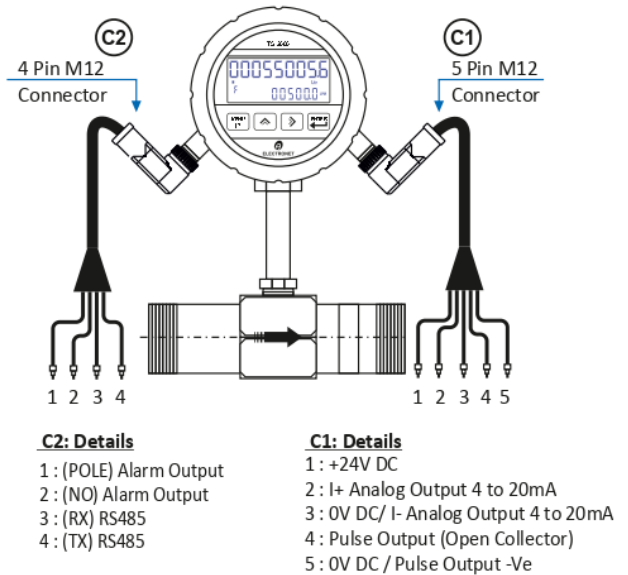


Fig. 3 Front View

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

Note : Flange to flange distance (FD) Tolerance : 1) 1/2"(50NB) to 6"(150NB) : +/-3mm 2) 8"(200NB) : +/-5mm

- All dimensions are in 'mm'
- For dimensions of line size above 200NB, 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 Transmitter

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

Parameter		Code	Description
A	Alarm or Relay Output	A1	1 Relay Output
		A2	NA
B	Communication Output	B1	RS-485 MODBUS RTU
		B2	NA

Parameter		Code	Description
C	Output 1	C1	Pulse Output
		CX	NA

Ordering Information for Flow Tube

Sample Order Code : TS 2000-TFM-FT15-N1-O1-P1-Q1-R1-S1-T1-U1-V1

Parameter		Code	Description	Code	Description
FT	Flow Tube	FT 15	15 NB	FT 65	65 NB
		FT 20	20 NB	FT 80	80 NB
		FT 25	25 NB	FT 100	100 NB
		FT 32	32 NB	FT 125	125 NB
		FT 40	40 NB	FT 150	150 NB
		FT 50	50 NB	FT 200	200 NB
N	MOC of Flange	N1	MS		
		N2	SS-304		
		N3	SS-316		
		NX	NA		
O	Electronics Location	O1	Integral (Local)		
		O2	Remote		
P	Remote Cable Length	P1	5 Meter		
		P2	10 Meter		
		P3	15 Meter		
		PX	NA		
Q	Flow Tube Protection Class	Q1	IP-67 (In Case of Integral)		
		Q2	IP-68 (In Case of Remote)		
R	Process Connection	R1	Threaded (15 to 50 NB)		
		R2	Flanged (15 To 200 NB)		
		R3	Triclover (15 to 100 NB)		
		R4	SMS Union (25 to 100 NB)		
		RY	Other		

Parameter		Code	Description
S	Material of construction Flow Tube	S1	SS-304
		S2	SS-316
		SY	Other
T	Flange Standard and Rating	T1	ANSI 150 B16.5
		T2	ANSI 300 B16.5
		T3	ANSI 600 B 16.5
		T4	DIN PN 10 EN 1092-1
		T5	DIN PN 16 EN 1092-1
		T6	DIN PN 25 EN 1092-1
		T7	DIN PN 40 EN 1092-1
		TY	Other
		TX	NA
U	MOC Rotor	U1	SS410
		U2	17.4 PH
		UY	Other
V	Bearings Type	V1	Tungsten Carbide Sleeve Bearing
		V2	V Jewel Bearing
		VY	Other

Note :

- Due to our continuous product revisions, design specification & model numbers are subject to change without notice.
- To be used for industrial applications.
- Accuracy defined at Lab Conditions.
- For other requirement please consult factory.
- This product is meant for laboratory/Process application only & not for custody transfer application.

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