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Industries Pvt. Ltd.**
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MG Toshniwal Group

PORTABLE ULTRASONIC FLOWMETER

TDFM6100-EP Series



Features

- It is suitable for pipe sizes ranging from 65 to 6000mm
- For dirty liquids, a certain amount of air bubbles or suspended solids shall be contained
- Excellent low flow rate measurement ability, low to 0.05m/s
- A wide range of flow measurement, high flow rate can reach 12m/s
- High-temperature transducer is suitable to liquids of (-) 35 ~ 200 Deg C
- Do not need to shut down the pipe flow when installing the transducers
- User-friendly configuration
- 4-20mA, Relay and OCT output



- Accuracy: 2.0% Calibrated span
- Rechargeable batteries can work up to 50 hours.

Product Overview

Series TDFM6100-EP Doppler Portable Ultrasonic Flow Meter is designed to measure volumetric flow within closed conduit, the pipe line must be full of liquids, and there must be a certain amount of air bubbles or suspended solids in liquid.

The Doppler ultrasonic flow meter can display flow rate and flow totalizer, etc., and is configured with 4-20mA, OCT outputs

Applications

- Raw sewage
- Activated sludge
- Ground water
- Pulp and paper slurries
- Chemical slurries
- Drainage
- Mining recirculation

Technical Specifications : Transmitter

Parameters	Description
Measurement principle	Doppler Ultrasonic
Resolution	0.25mm/s
Repeatability	0.2% of reading
Accuracy	0.5% ~ 2.0% F.S.
Response Time	2 - 60s for optional
Flow Velocity Range	0.05- 12 m/s
Liquid Types Supported	Liquids containing 100ppm of reflectors and at least 20% of the reflectors are larger than 100 micron.
Power Supply	AC: 85-265V
Enclosure Type	Portable
Degree of Protection	IP65 according to EN60529
Operating Temperature	(-)20°C to +60°C

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Housing Material	Fiberglass
Measurement Channels	1
Display	2 line × 8 characters LCD, 8-digit rate or 8-digit total (resettable)
Units	User Configured (English and Metric)
Rate	Rate and Velocity Display
Totalized	Gallons, ft3, barrels, lbs, liters, m3, kg
Communication	4-20mA, Relay and OCT output
Keypad	6pcs buttons
Size	244(h)x196(w)x114(d)mm
Weight	3 kg

Technical Specifications : Transducer

Parameters	Description
Transducers Type	Clamp-On
Degree of Protection	IP65. IP67 or IP68 according to EN60529
Suited Liquid Temperature	Std. Temp.: (-)35°C ~ 85°C for short periods up to 120°C High Temp.: (-)5°C ~ 200°C for short periods up to 250°C
Pipe Diameter Range	40 ~ 4000 mm
Transducer Size	60(h)x34(w)x32(d)mm
Material of Transducer	Aluminum for standard temp. sensor and peek for high temp. sensor
Cable Length	Std: 5m



Images



Transmitter



Transducer



S-S Belt



Couplant

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Soft Case

Ordering Table

Codes	Description
TDFM6100-EP	Portable Ultrasonic Flow Meter
10	Power supply
A	110 VAC
B	220 VAC
D	24 VDC
S	Solar Supply
20	Output Selection 1
1	4-20mA
2	OCT
3	Relay Output (Totalizer or Alarm)
30	Output Selection 2
N	Not Applicable
1	4-20mA
2	OCT
3	Relay Output (Totalizer or Alarm)
40	Transducer Type

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A	DN40--DN4000
B	DN65--DN6000
50	Transducer Temperature
S	-35~85°C (for short periods up to 120°C)
H	-35~150°C
H	-35~200°C
80	Pipeline Diameter
S	e.g.DN40—40mm, DN4000—4000mm
90	Cable Length
-5m	5m
-10m	10m
Xm	Common cable Max 300m (standard 10m)
Ym	High temp. cable Max 300m



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WALL-MOUNTED ULTRASONIC FLOWMETER

TUFM-1100BW Series



Features

- Better than 1% accuracy
- 2% of repeatability
- 2×20 English letters LCD display
- 4×4 key tactile-feedback membrane keypad
- 85~264VAC or 24VDC power supply
- Pipe diameters from 15mm to 6000mm
- Operate with clamp-on, insertion and flow-cell transducer
- Five-channel analog 4-20mA input. (version 7)
- One channel programmable 4-20mA output



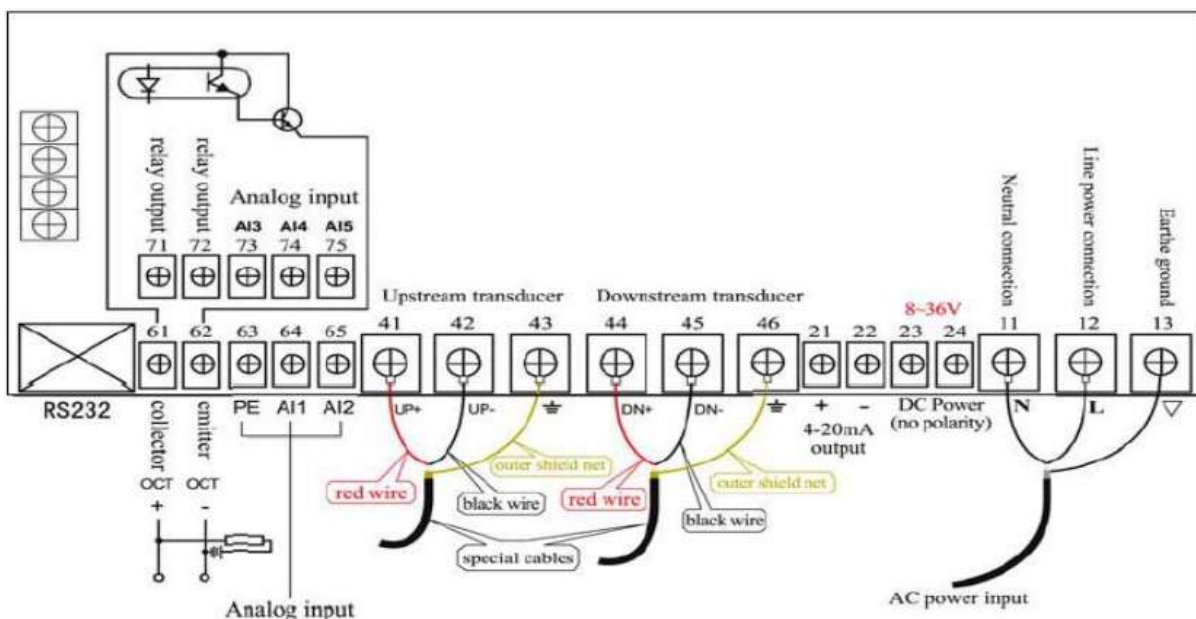
- Two-channel programmable digital out (isolated OCT and Relay)
- Frequency output
- IP65

TUFM-1100BW is a fixed mounted ultrasonic flow meter, and can operate with all our instruments transducer. Their electronic enclosures are rated as IP65, thus, can be installed both indoors and outdoor.

Transducer Options



Wiring Diagram



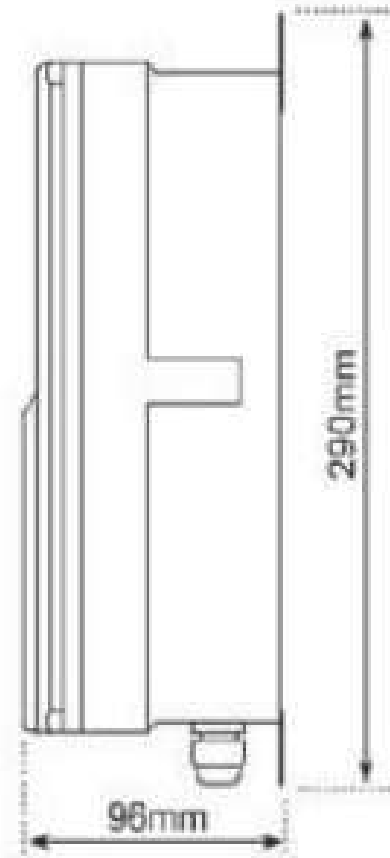
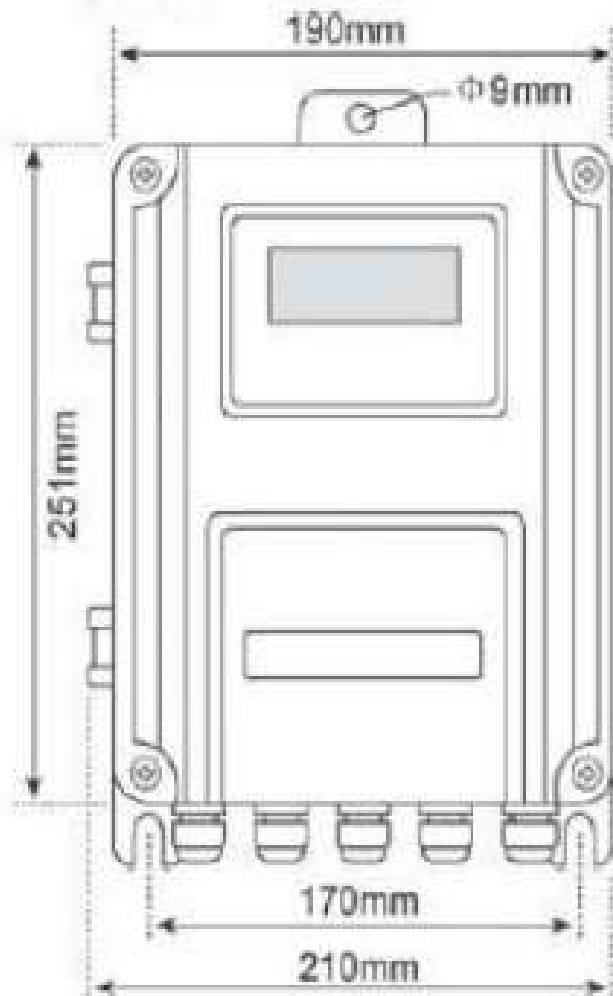
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TUFM-1100BW (Wall- mount)



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FEATURES

- Hot-tapped installation, no pipe line flow interrupted.
- No moving parts, no pressure drop, no maintenance.
- Spool-piece transducer for best accuracy and better long-term stability.
- High temp. Insertion transducers are suitable for high temperature of (-) 35°C ~ 150°C.
- Wide bi-directional Flow range of 0.03 to 36 m/s, and wide range of pipe sizes from DN65 to DN6000.
- Data logger function.
- The heat measurement function by configuring with paired temperature sensors.



INTRODUCTION

TF1100-EI transit-time Insertion ultrasonic flowmeter provides abundant capabilities for accurate liquid flow measurement from outside of a pipe. It utilizes state-of-the-art technologies on ultrasonic transmission /receiving, digital signal processing and transit-time measurement. The proprietary signal quality tracking and self-adapting technologies allow system to optimally adapt to different pipe materials automatically. Due to hot-tapped mounting of insertion transducers, there is no ultrasonic compound and coupling problem; Even though the transducers are inserted into pipe wall, they do not intrude into the flow, thus, do not generate disturbance or pressure drop to the flow. The insertion (wetted) type has the advantage of long-term stability and better accuracy.

APPLICATIONS

- Service and maintenance
- Replacement of defective devices
- Support of commissioning process and installation
- Performance and efficiency measurement
 - Evaluation and assessments
 - Capacity measurement of pumps
 - Monitoring of regulating valves
- Energy efficiency audits
- Water and waste water industry - hot water, cooling water, potable water, sea water etc.)
- Petrochemical industry
- Chemical industry -chlorine, alcohol, acids, thermal oils.etc
- Refrigeration and air conditioning systems
- Food, beverage and pharmaceutical industry
- Power supply- nuclear power plants, thermal & hydropower plants), heat energy boiler feed water.etc
- Metallurgy and mining applications
- Mechanical engineering and plant engineering-pipeline leak detection, inspection, tracking and collection.





SPECIFICATIONS: TRANSMITTER

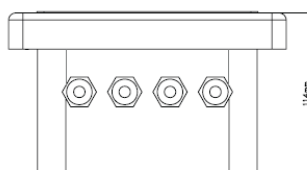
Measurement principle	Ultrasonic transit-time difference correlation principle
Flow velocity range	0.01 to 12 m/s, bi-directional
Resolution	0.25mm/s
Repeatability	0.2% of reading
Accuracy	±1.0% of reading at rates >0.3 m/s; ±0.003 m/s of reading at rates <0.3 m/s
Response time	0.5s
Sensitivity	0.003m/s
Damping of displayed value	0-99s(selectable by user)
Liquid Types Supported	Both clean and somewhat dirty liquids with turbidity <10000 ppm
Power Supply	AC: 85-265V DC: 24V/500mA
Enclosure type	Wall-mounted
Degree of protection	IP66 according to EN60529
Operating temperature	(-) 10°C ~ 60°C
Housing material	Fiberglass
Display	4 line×16 English letters LCD graphic display, backlit
Units	User Configured (English and Metric)
Rate	Rate and Velocity Display
Totalized	Gallons, ft ³ , barrels, lbs, liters, m ³ , kg
Thermal energy	Unit GJ, KWh can be optional
Communication	4 ~ 20mA(accuracy 0.1%), OCT, Relay, RS232, RS485 (Modbus), datalogger
Security	Keypad lockout, system lockout
Size	244x196x144mm
Weight	2.4kg

SPECIFICATIONS: TRANSDUCER

Degree of protection	IP67 or IP68 according to EN60529
Suited Liquid Temperature	Std. Temp.: (-) 35°C ~ 85°C High Temp.: (-) 35°C ~ 150°C
Pipe diameter range	DN65-6000
Transducer Size	Type S ø58*199mm
Material of transducer	Stainless Steel
Cable Length	Std: 10m
Temperature Sensor	PT1000, 0 to 200°C, Clamp-on and Insertion type Accuracy: ±0.1%

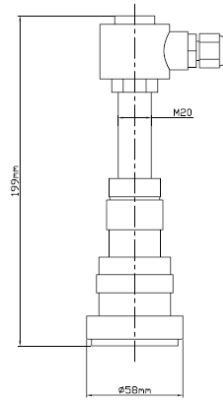
DIMENSIONAL SKETCHES

Transmitter:





Transducer:



IMAGES



Transmitter



Transducer



Drilling Rod and Drill Bit





CONFIGURATION CODE

TUFM1100-EI		Wall Mounted Doppler Transit Time Series Flowmeter							
Power Supply									
85 ~ 265 VAC	A								
24VDC	D								
65W Solar supply (including solar board)	S								
Output Selection 1									
N/A		n							
4 ~ 20 mA (Accuracy 0.1%)		1							
OCT		2							
Relay Output (Totalizer or alarm)		3							
RS232 Output		4							
RS485 Output (Modbus-RTU Protocol)		5							
Data storage function		6							
GPRS (GPRS Software needs extra \$1000)		7							
Output Selection 2									
Same as above									
Transducer Type									
Standard Insertion for pipe DN65-DN6000					S				
Transducer Temperature									
(-)35 ~ 85°C						S			
(-)35 ~ 200°C						H			
Temperature Input Sensor									
None							N		
PT1000							T		
Pipeline Diameter									
eg. DN65-65mm, DNI400-1400mm								DNX	
Cable Length									
10m (standard 10m)									10m
Common cable Max. 300m (standard 10m)									Xm
High temp. cable Max 300m									XmH

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