

# Gas Turbine Flow meter

## Model: MDTFG2

### Applications

- Universal measuring principle for gas
- Compressor and air systems
- Pneumatic systems
- Suitable for custody transfer gas measurement of all non-corrosive gases such as natural gas, propane, butane, air, nitrogen, hydrogen, etc. for low and high operating pressures. Special constructions can be supplied for using under the extreme condition like high temperatures or corrosive gases.

### Special features

- Temperature and pressure compensatoin
- Flow measurement up to 8000 m<sup>3</sup>/h
- Process pressures up to 100 bar
- Fluid temperature up to 80°C
- Pulse output linear with flow rate and 10:1 rangeability(4-20 mA output) (turndown) ensure custody transfer accuracy
- Communication: HART, PROFIBUS DP/PA, FOUNDATION Fieldbus, MODBUS RS485
- Turbine materials: Plastic ABS, 316 L, Hastelloy C hastelloy B, Titanium, Tantalum

### Description

- |                              |   |
|------------------------------|---|
| ■ <b>Accuracy class</b>      | 1.5% - 1% of rate   |
| ■ <b>Flow unite</b>          | liter, m <sup>3</sup> , metric Ton or USG per second, minute or hour (the user should specify the required flow unit while ordering)  |
| ■ <b>Ambient Temperature</b> | Sensor: -10...55°C, Converter: -15... 50°C  |
| ■ <b>Turbine materials</b>   | Plastic ABS, Aluminum alloy, 316L, Hastelloy C, Hastelloy B, Ti, Ta, Pt/Iridium alloy, 304 Stainless steel, painting tungsten carbide |
| ■ <b>Nominal diameter</b>    | DN 20 mm to DN 400 mm   |
| ■ <b>Communication</b>       | Rs485 (Modbus protocol), HART, PROFIBUS DP/PA, FOUNDATION Fieldbus, MODBUS Rs485  |
| ■ <b>Output signal</b>       | 4 - 20 mA, Pulse or alarm (option)  |
| ■ <b>Frequency output</b>    | 1...5000 Hz, 36 VDC max. & 250 mA max.  |
| ■ <b>Baud rate</b>           | 1200...19600 Hz   |
| ■ <b>Pulse Output</b>        | 1...3000 Hz   |
| ■ <b>Pulse Output Width</b>  | Can be set by the user  |
| ■ <b>Alarm Outputs</b>       | High & Low limits, Transistor output, maximum 250 mA @ 36 VDC   |
| ■ <b>Load resistance</b>     | 4 - 20 mA, 0 - 500Ω   |
| ■ <b>LCD diplay</b>          | Instantaneous flow  |
| ■ <b>Damping Type</b>        | 1...10 second   |
| ■ <b>Total flow</b>          | 6 digit display + 2 decimal point   |
| ■ <b>Fluid temp.</b>         | -20 ...80°C   |
| ■ <b>Rotor material</b>      | Plastic ABS, Aluminum alloy   |



- **Body material**                            304 stainless steel, 316 stainless steel (option)
- **Bearing material**                        304 stainless steel
- **Protection**                                IP 65

## MDTFG2 Series

This type designed from DN 20 mm to 400 mm in size with a flow range of 2.5 m<sup>3</sup>/h to 8000 m<sup>3</sup>/h, these meters are factory-configured and calibrated according to the international standards to provide the user with assurance of both quality and performance of the meter. A calibration certificate is included with each flow meter which shipped to the users.

## Pressure Class Selection

Code	Pressure Class	Code	Pressure Class	Code	Pressure Class
P2	1 MPa	P4	1.6 MPa	P8	2.5 MPa

## Diameter selection

Model	Tube Diameter (mm)	Connection NPT or BSP	Rated Pressure (Bar)	Minimum / Maximum Flow (m <sup>3</sup> /h)		Model	Tube Diameter (mm)	Connection DIN	Rated Pressure (Bar)	Minimum / Maximum Flow (m <sup>3</sup> /h)	
				Standard	Extended					Standard	Extended
M1	20	3/4	10	2.5...25	4...40	M10	125	5	10	25...700	20...800
M2	25	1	10	2.5...25	4...40	M11	150	6	10	32...650	80...1600
M3	40	1 1/2	10	5...50	6...60	M12	150	6	10	50...1000	80...1600
M4	50	2	10	6...65	5...70	M13	200	8	10	80...1600	50...1000
M5	50	2	10	10...100	8...100	M14	200	8	10	130...2500	50...1000
M6	65	2 1/2	10	15...200	10...200	M15	250	10	10	130...2500	80...1600
M7	80	3	10	15...300	10...160	M16	250	10	10	200...4000	80...1600
M8	80	3	10	20...400	10...160	M17	300	12	10	200...4000	130...2500
M0	100	4	10	20...400	13...250	M18	300	12	10	200...4000	320...6500
M9	100	4	10	32...650	13...250	M19	400	16	10	400...8000	260...8000



## MDTFG 2 Gas Turbine Flow meter

ORDERING CODE	Example:	MDTFG 2	M6	S	F	150	L	L	A	B	N	M	D	I
Nominal Diameter	please see the diameter selection table													
Please specify														M6
Flow Range														
S - Standard														S
E - Extended														
C - Customer														
Process Connection														
F - Flange														F
S - Sanitary														
T - Thread														
W - Wafer														
O - Other														
Flang Type														
D - DIN Please specify PN NO.														
A - ASME Please specify class														150
C - Customer														
Converter - Indicator														
L - Local indication														L
W - Wall - Mounting box converter - Indicator														
Body Material														
B1 - Carbon steel														
B2 - 304 Stainless steel														
B3 - 316 Stainless steel														
Wet Part Material														
L - 316L Stainless steel														
H - Hastelloy C														L
B - Hastelloy B														
T - Titanium														
L - Tantalum														
M - Monel														
P - Pt / Iridium alloy														
O - Other														
Accuracy														
A - 1%														
B - 1.5%														B
C - Customer														
Output														
N - Not required only totalizer														N
U - 4 ~ 20 mA. Frequency / pulse														
M - Modbus RS485														
P - Pulse with EX case														
D - Pulse with DIN conector														
C - Customer														
Digital Communication														
N - No Communication														
M - Modbus RS485														M
H - Hart														
F - Foundation fieldbus														
P - Profibus DP/PA														
G - GPRS														
Power Supply														
A - 85 ~ 250 VAC														
D - 20 ~ 36 VDC														D
B - Battery power														
Z - Dual power ( battery and 24 VDC )														
Protection Grade														
I - IP 65														I
P - IP 68														
E - IP 68 Explosion - proof														





<b>ORDERING CODE</b>	<b>Example: MDTFG2</b>	<b>T1</b>	<b>N</b>
Temperature Rating			
T1 - (-20...80°C)		<b>T1</b>	
T2 - (-20...120°C)			
Infrared Remote Control			
N - Not required			
R - Required			

### ■ PLEASE SPECIFY THE FOLLOWING INFORMATION WITH YOUR INQUIREY.

(Fill in the form below to the extent possible. Further details will be finalized in later consultation.)

- Fill in the blanks. Tick the boxes  that apply.

<b>1. Sensor unit</b>	
<b>2. Process fluid</b>	Name: _____ SP. gr : _____ Viscosity : _____ Concentration : _____ %
<b>3. Flow range</b>	Maximum _____ Normal _____ Full scale _____ <input type="checkbox"/> kg/h <input type="checkbox"/> Others _____
<b>4. Fluid temperature</b>	Maximum _____ °C Normal _____ °C Min. _____ °C
<b>5. Operating pressure</b>	Maximum _____ MPa Normal _____ MPa Min. _____ MPa
<b>6. Ambient temperature</b>	Maximum _____ °C Min. _____ °C
<b>7. Fluid flow direction</b>	<input type="checkbox"/> Left→Right <input type="checkbox"/> Right→Left <input type="checkbox"/> Bottom→Top ( <input type="checkbox"/> Top →Bottom)
<b>8. Nominal size</b>	_____ mm or _____ inch
<b>9. Required accuracy</b>	± _____ % of reading ± _____ % of full scale
<b>10. Process connection</b>	<input type="checkbox"/> Flanged connection (Flange rating) <input type="checkbox"/> Ferrule connection <input type="checkbox"/> Screw connection
<b>11. Explosion proof</b>	<input type="checkbox"/> Not required <input type="checkbox"/> TIIS <input type="checkbox"/> ATEX <input type="checkbox"/> IECEx <input type="checkbox"/> KCS <input type="checkbox"/> CSA <input type="checkbox"/> EAC <input type="checkbox"/> NEPSI <input type="checkbox"/> ITRI
<b>12. Power supply</b>	V <input type="checkbox"/> AC <input type="checkbox"/> DC
<b>13. Output specifications</b>	Pulse output
	<input type="checkbox"/> Volt. pulse: [0]: 1.5V [1]: 13VDC min. Out. impedance: 2.2kΩ <input type="checkbox"/> Open drain output (equivalent to open collector output ) [Min.10V to Maximum 30V, 50mADC, ON resisatance 0.6Ω or less]
	<input type="checkbox"/> Output frequency: Any point from 0.1 to 10000Hz at full scale Two outputs from flow rate (mass or volume).
	Analog output
	4 to 20mADC Maximum load: 500Ω 2 outputs from instant. flow rate (mass, volume), temp. or density (option)
Additional damping	0 to 200s. (variable)
Alarm output	Slug flow High _____ g/mL Low _____ g/mL
<b>14. Communication protocol</b>	<input type="checkbox"/> HART <input type="checkbox"/> FOUNDATION fieldbus <input type="checkbox"/> PROFIBUS <input type="checkbox"/> Modbus
<b>15. Transmission length</b>	Sensor unit ( _____ ) m Transmitter ( _____ ) m Receiving instrument
<b>16. Receiver</b>	<input type="checkbox"/> Totalizer <input type="checkbox"/> Indicator <input type="checkbox"/> Recorder <input type="checkbox"/> Flow controller <input type="checkbox"/> Batch controller <input type="checkbox"/> Density computer <input type="checkbox"/> Computer <input type="checkbox"/> Others
<b>17. Dedicated cable length</b>	In case of Remote-mount type _____ m
<b>18. In case of separate type transmitter</b>	<input type="checkbox"/> Stanchion type w/bracket and 2" U bolt
<b>19. No. of units required</b>	
<b>20. Application</b>	
<b>21. Other considerations</b>	
<b>22. Cable gland</b>	<input type="checkbox"/> Standard <input type="checkbox"/> ATEX directive compliant <input type="checkbox"/> ATEX directive compliant for earthed cable
<b>23. Maritime certification</b>	





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