

M-10000-T PTFE Paddle Wheel Flow Meter

Feature rich flow meter and switch with in-line flow



Where Innovation Flows



Tangential turbine flow meters continue to be the most common way to measure flow electronically in a wide range of industries. Enhancements to tangential turbine flow meter systems are producing a flow sensing device that is smaller, easier to install and more accurate than ever before.

Operation

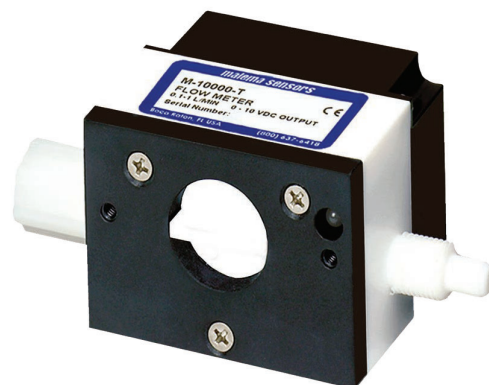
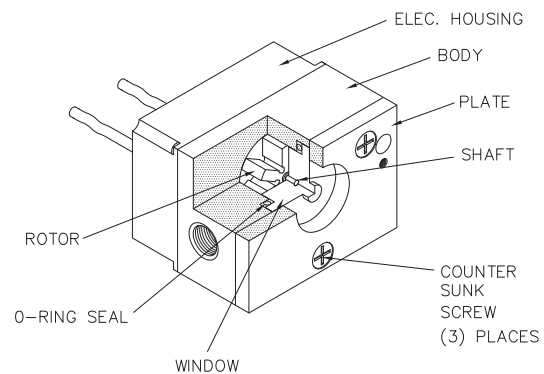
The rotational velocity of the rotary wheel varies linearly with the average velocity of the fluid flowing through the flow meter. Producing a square wave pulse from magnets embedded in the vanes of the rotor wheel. Depending on the output version of the M-10000, the pulse signal is relayed directly, converted to a 0-10 VDC (voltage) output or a 4-20 mA (current) output. The voltage and current models are span adjustable over the flow range of the unit.

Applications

- Cooling systems
- Laser equipment
- Wet process systems
- CVD, CMP, and lithography tools
- Corrosive chemical distribution

Key Features

- Wide flow rangeability
- Outstanding accuracy
- State-of-the-art electronics - high reliability
- 4-20 mA, 0-10 VDC, or pulse output
- Visual indication
- Adjustable flow switch - built in
- Small footprint
- All-PTFE model (except sapphire shaft)
- Flare Tube Connection



M-10000 in PTFE

Installation

The M-10000 Rotary Flow meter may be installed horizontally or vertically, but axis of the rotor should be parallel to the ground.

Specifications

M-10000 Operating Ranges	1/4" Flare	0.1 - 1 l/min
	3/8" Flare	0.5 - 10 l/min
	1/2" Flare	1 - 30 l/min
	3/4" Flare	4 - 50 l/min
Set Point Accuracy	± 5% maximum	
Repeatability	0.5%	
Mounting	Horizontal or vertical mounting; axis of rotor should be parallel to the ground	
Material Versions	PTFE	

Standard Component Materials

Body	PTFE
Rotor	PTFE
Shaft	Zirconium Ceramic
Window	PTFE
Bushings	Rulon®
O-Ring	FKM
FacePlate	PPS

Physical Specifications

Body	PTFE	
Maximum Operating pressure (for standard units)*	100 psi	
Weight	1/4" and 1/2" ports	~0.9 lbs
	3/4" and 1" ports	~2.3 lbs
Viscosity	Up to 120 centistokes (~ 30 weight oil)	
Pressure Drop	Contact Factory	
Fluid temperature	Upto 60 Deg C	

Electrical Specification

Power Supply	Voltage Version	12 to 24 VDC+10%	
	Current Version	24 VDC+10%	
	Pulse Train	3.8 VD C to 24 VDC	
Current Draw	50 mA maximum		
Temperature	60 Deg C*		
Electrical Connection	2 Belden Cables(2-wire and 5-wire cables)		
	Voltage Version	2-wire cable	Red:12 to 24 VDC Black: ground
		5-wire cable	Green: Normally open Brown: Normally closed White: Relay common Red: Analog signal output Black: Signal ground (power and signal ground are common)
	Current Version	2-wire cable	Red: 24 VDC +10% Black: Ground
		5-wire cable	Green: Normally open Brown: Normally closed White: Relay common Red: 4 - 20 mA analog output signal Black: 4 - 20 mA signal ground (power and singal ground are NOT common)
	1 Belden Cable (3 - wire cables)		
	Pulse Train	3-wire cable	Red: 3.8 VD C to 24 VDC Black: Ground (power and signal ground are comm on) Green:Signal
SPDT Relay (Available with Current or Voltage Output version only)	<p>* Contacts rated at 30 VDC, 2 amps resistive load.</p> <p>* Nominal switching capacity (resistive): 2A, 30 VDC</p> <p>* UL/CSA rating (up to 24 V coil type): 2A, 20 VDC; 0.3A, 110 VDC; or 0.5A, 125 VAC</p>		

* Select Remote electronics for fluid temperature beyond 60° C

Signal Outputs

Voltage Version	0 - 10 VDC analog output.
Current Version:	4 - 20 mA maximum external load: 1K ohm.
Pulse Version:	0 - 120 Hz square wave pulse train. Signal amplitude is equal to supply voltage.

Flare tube Range Combination

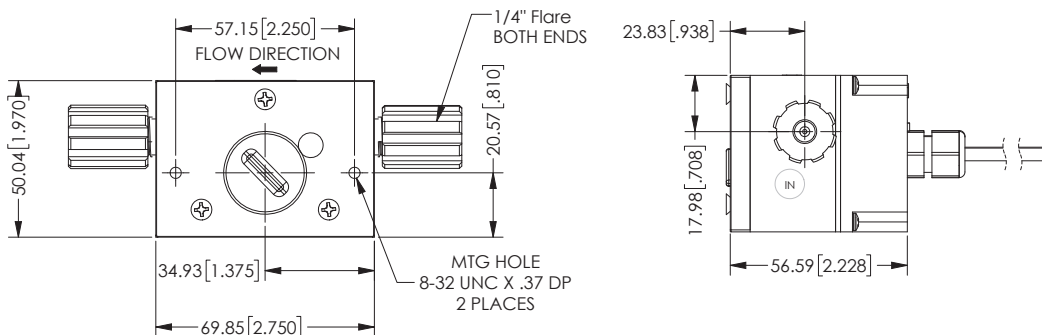
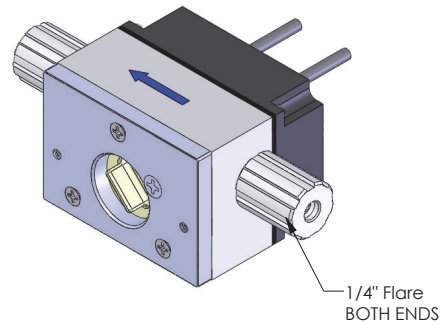
Port Size	Range code for LPM	Range LPM	Range code for GPM	Range GPM
1/4"	01	0.1 - 1.0	11	0.026 - 0.26
3/8"	02	05 - 5.0	12	0.8 - 8.0
3/8"	03	1.0 - 10.0	13	0.13 - 1.3
1/2"	04	1.0 - 10.0	14	0.26 - 2.6
1/2"	05	2.0 - 20.0	15	0.52 - 5.2
1/2"	06	3.0 - 30.0	16	0.8 - 8.0
3/4"	07	4.0 - 40.0	17	1.0 - 10.0
3/4"	08	5.0 - 50.0	18	1.3 - 13.0

Certifications

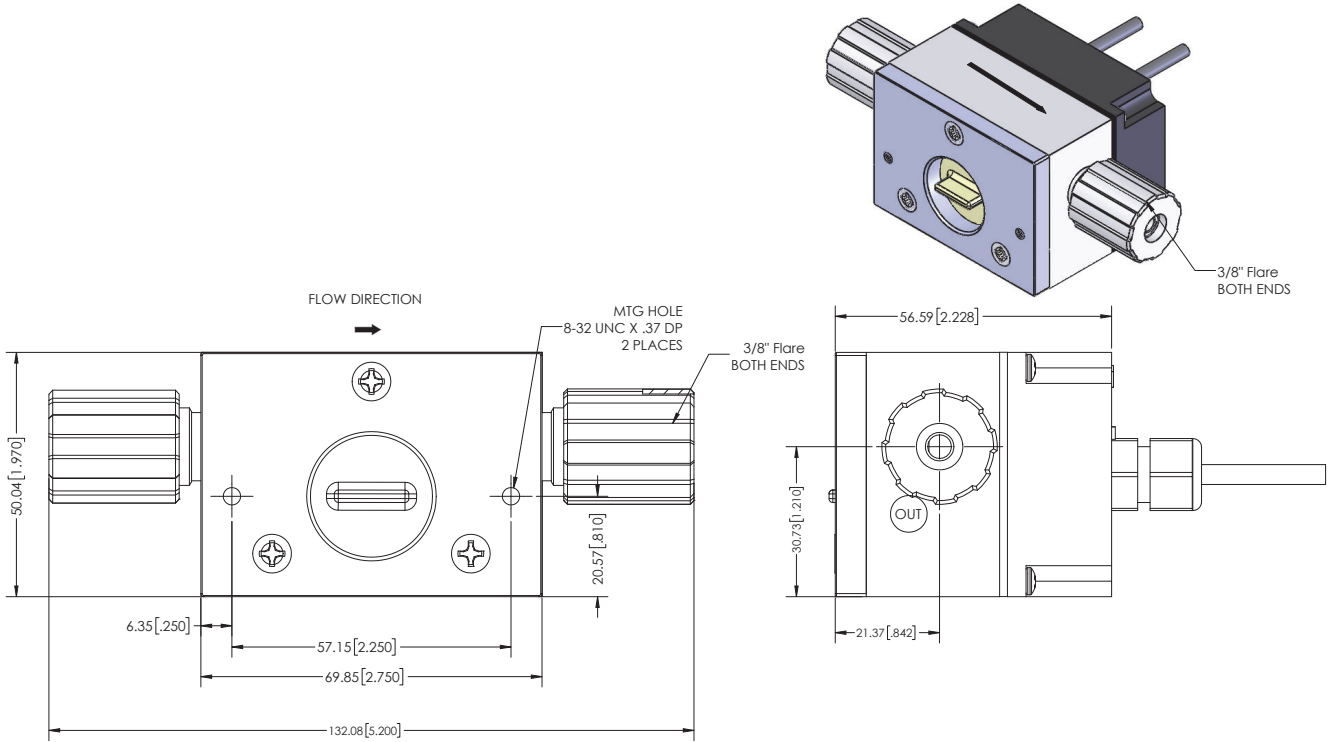
CE Compliance
As per EU directive 2014/30/EU

Dimensional Drawings

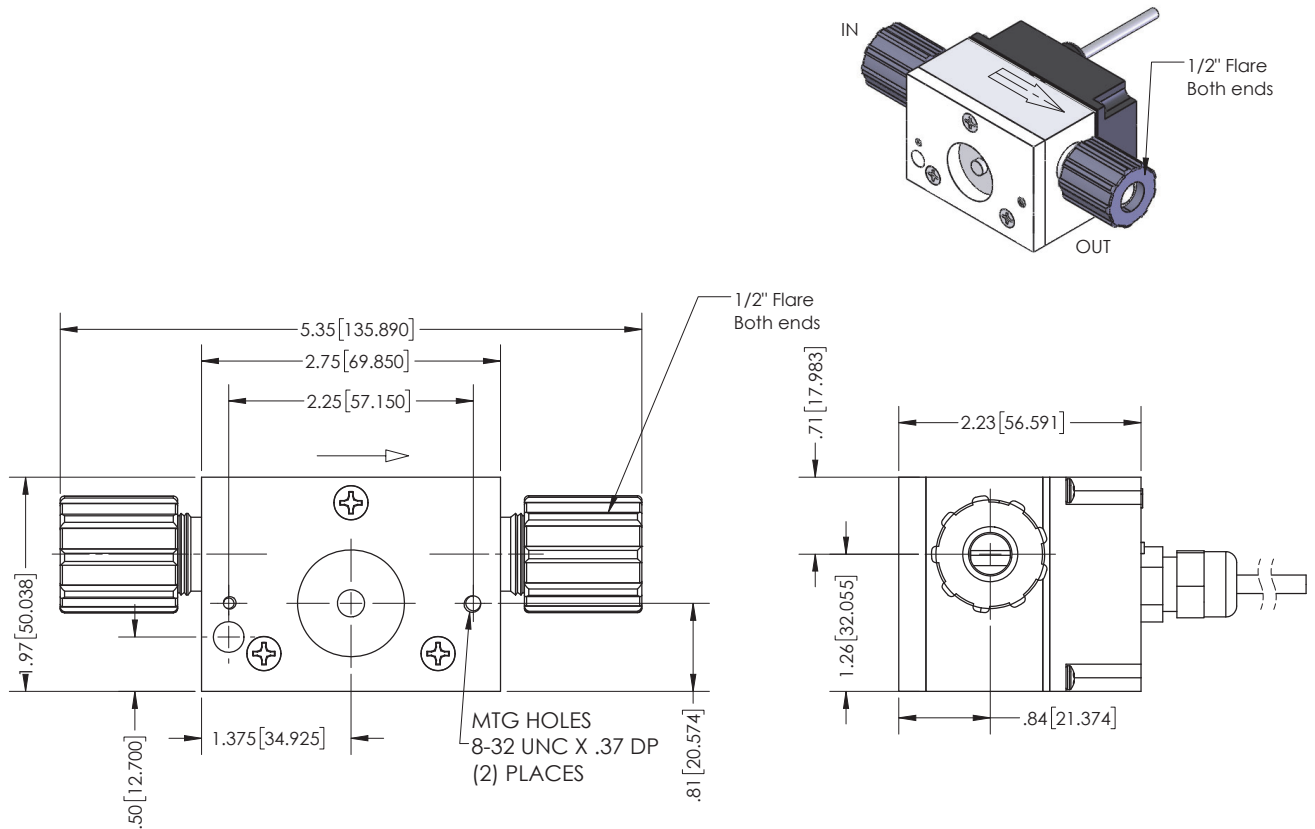
Illustrated is the M-10000 PTFE with 1/4" ports



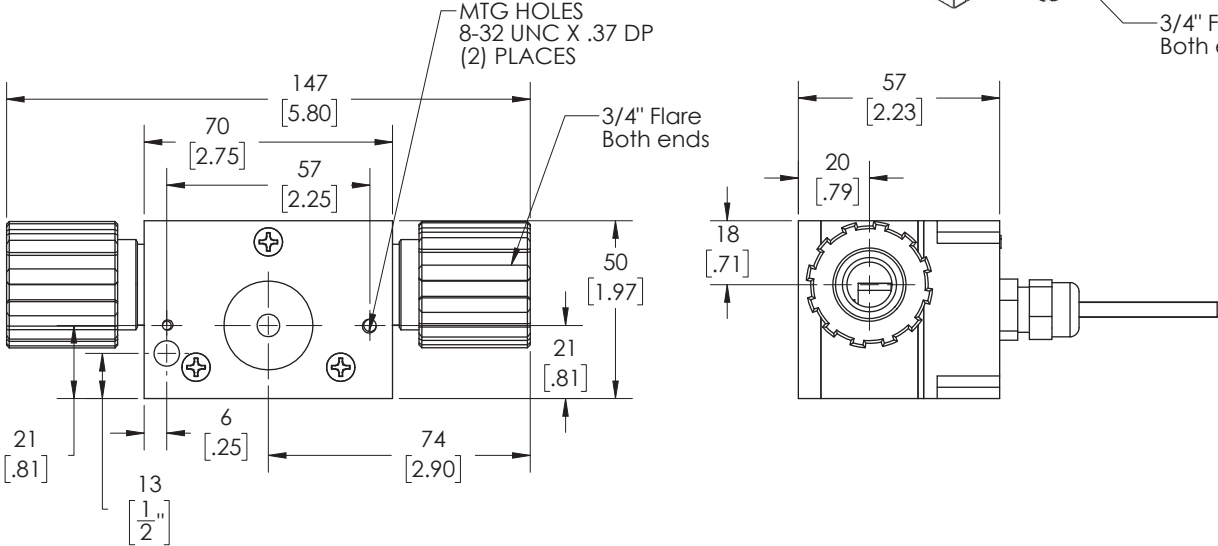
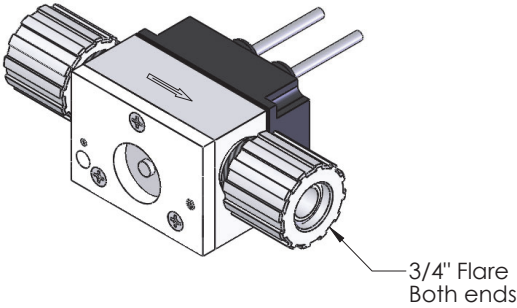
Illustrated is the M-10000 PTFE with 3/8" ports



Illustrated is the M-10000 PTFE with 1/2" ports



Illustrated is the M-10000 PTFE with 3/4" ports



Ordering Information

Part numbers for SS and Celcon M-10000													
M	-	10000	-	Body	Fluid Connection	Range Code, Flow Range and Connection	Output	-	Window	O-ring	Rotor	Shaft	Faceplate
M	-	10000	-										
				T-PTFE	2 - 1/4" Flare								
					3 - 3/8" Flare								
					4 - 1/2" Flare								
					6 - 3/4" Flare								
						01 - 0.1-1 l/m (1/4" Flare)							
						02 - 0.5-5 l/m (3/8" Flare)							
						03 - 1-10 l/m (3/8" Flare)							
						04 - 1-10 l/m (1/2" Flare)							
						05 - 2-20 l/m (1/2" Flare)							
						06 - 3-30 l/m (1/2" Flare)							
						07 - 4-40 l/m (3/4" Flare)							
						08 - 5-50 l/m (3/4" Flare)							
						11 - 0.026-0.26 GPM (1/4" Flare)							
						12 - 0.13-1.3 GPM (3/8" Flare)							
						13 - 0.8- 8 GPM (3/8" Flare)							
						14 - 0.26-2.6 GPM (1/2" Flare)							
						15 - 0.52-5.2 GPM (1/2" Flare)							
						16 - 0.8-8.0 GPM (1/2" Flare)							
						17 - 1.0-10.0 GPM (3/4" Flare)							
						18 - 1.3- 13.0 GPM (3/4" Flare)							
							1- Voltage (0-10Vdc)+ Relay O/P						
							2-Current (4-20mA)+ Relay O/P						
							3- Pulse O/P						
									T- PTFE				
										V- FKM			
										K- FFKM			
											T-PTFE		
												Z-Zirconium	
												S- Sapphire	
													P- PPS
Example: Part number for M-10000 with PTFE Body, 1/4" Flare connection, 0.1-1 l/m range, Current output, PTFE window, FKM O-ring, PTFE rotor, Sapphire shaft, and PPS faceplate is: M-10000-T2012-TVTSP													
M	-	10000	-	T	2	01	2	-	T	V	T	S	P

- Note:
- Pressure and temperature rating mentioned in the datasheet is for M-10000 with PTFE Body, PTFE Window and PPS face plate
 - For flow meter with 4-20mA output, 4mA will always be 0 flow and 20mA will be the maximum flow listed in the above table. Example for the flow meter with 0.1-1 L/M range 4mA=0 L/M and 20mA = 1 L/M
 - For flow meter with 0-10V output, 0V will always be 0 flow and 10V will be the maximum flow listed in the above table. Example for the flow meter with 0.1-1 L/M range 0V=0 L/M and 10V = 1 L/M
 - For the flow meter with Pulse output, the pulse rate corresponding to the flow will be printed on the label of the flow meter
 - Please contact the factory for any special requirements.



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