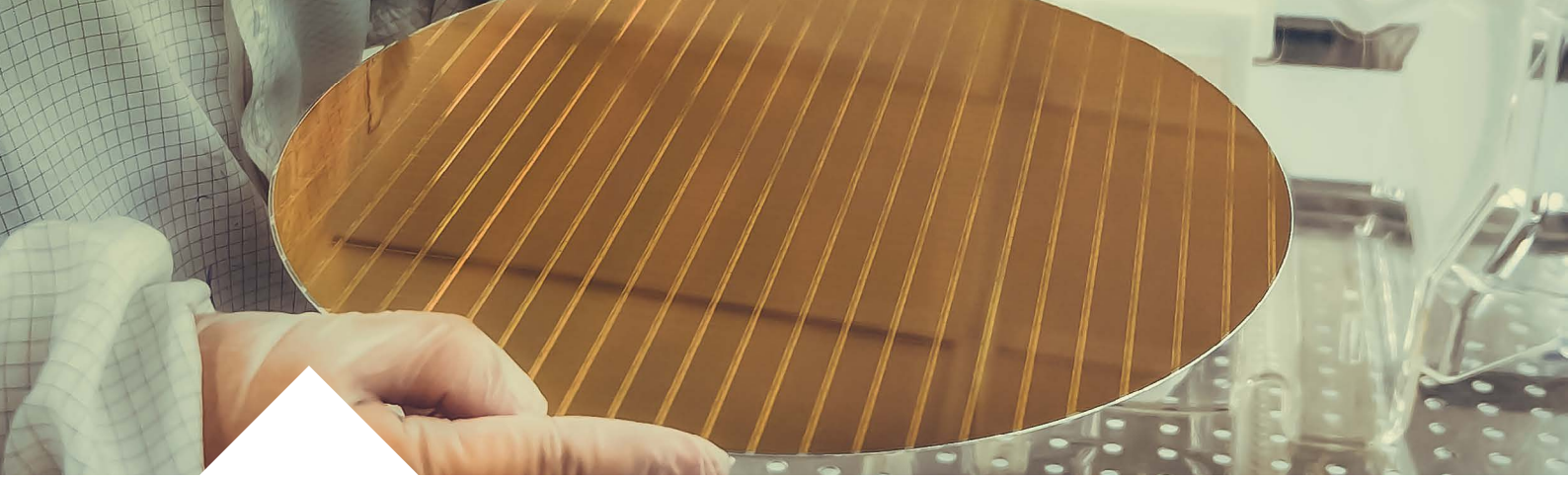
MPT Series
High-Purity PFA Pressure Sensor

PSG a DOVER company

MALEMA

Where Innovation Flows



Malema MPT Series

High-Purity PFA Pressure Sensor

Engineered to accurately monitor fluid pressure and temperatures from a single device with minimal dead volume, the Malema™ MPT Series High-Purity PFA Pressure Sensor ensures safe, reliable, and efficient flow control in critical semiconductor applications.

The MPT Series comes in two versions of the sensor the MPT-750 with a cable connection, and the MPT-751 with a Hirose connector. MPT versions are available in single port and flow-through designs, both offer a standard pressure output and an optional temperature analog output. This versatility allows operators to adapt to diverse conditions, ensuring a reliable product yield.

Key Features

- **Dual Functionality:** Economical fluid pressure and temperature sensing from a single device
- **High-Purity Materials:** Wetted materials made from PFA and FFKM to help ensure compatibility with high-purity applications
- **Temperature Range:** Suitable for single-phase fluids from 0°C to 70°C
- **Design Flexibility:** Available in both single port and flow-through designs

Applications

- Wet Etch
- Wet Clean
- CMP
- ECD
- Electroless Deposition
- Wet Process / Chemical Distribution Systems
- Chemical and Slurry Blend Systems

Available Models & Performance Specifications

Available Models, Sizes and Connections

Models	Pressure Sensor Only (MPT-750-P and MPT-751-P)
	Pressure and Temperature Sensor (MPT-750-T and MPT-751-T)

Sizes	1/4"	3/8"	1/2"	3/4"	1"
Single Port	✓	✓	✓		
Flow-Through	✓	✓	✓	✓	✓

Fluid Connections: Tube, Pillar, and Flare

Performance Specifications

Accuracy	±1% FS
Repeatability	±0.5% FS
Ambient Temperature	0-50°C
Media Operating Temperature	-5-70°C (non-phase changing)
Measurable Fluids	Gases or non-phase changing Liquids
Maximum Operating Pressure	Depends on pressure range; typically, 2 bar over max pressure
Ingress Protection Class	IP64
Output Options	Analog 4-20 mA or 0-10 V DC
Power Supply	24 V DC ±10%
Digital Communication	RS-485 Malema Addressable Sensor Network (ASN)

Electrical Specifications & Connector Specifications

Electrical Specifications

Output Options	Analog Output	Dual Passive 4-20 mA Current Loops, or Dual 0-10 V DC
	Digital Output	Dual Open Collectors Max 30 mA @ 60 V DC
Power Supply	24 V DC ±10%	
Power Consumption	Max 30 mA @ 24 V DC	
Digital Communication	RS-485	Malema Addressable Sensor Network (ASN)
Connector	Connector (MPT-751 sensors only)	2-pin HR-30 Series Hirose Connector
Cable	1 meter, 3 meter or custom length avaialble for MPT-750-P and MPT-750-T	

Connector Specifications (MPT-750 Cable Version)

P/N Code	Cable	
F	8 wire cable (Power, 2 passive analog o/p, RS-485 connection)	Sensor with Pressure and Temperature Option Only
G	8 wire cable (Power, 1 active analog 4-20mA o/p, 2 digital o/ps, RS-485 connection)	Pressure Sensor Option only
H	8 wire cable (Power, 1 analog 0-10VDC o/p, 2 digital o/ps, RS-485 connection)	Pressure Sensor Option only
I	6 wire cable (Power, 1 active analog 4-20mA o/p and RS-485 connection)	Pressure Sensor Option only
J	6 wire cable (Power, 1 analog 0-10VDC o/p and RS-485 connection)	Pressure Sensor Option only

Option F		Option G		Option H		Option I		Option J	
Color	Description	Color	Description	Color	Description	Color	Description	Color	Description
Red	24 Vdc	Red	24 Vdc	Red	24 Vdc	Red	24 Vdc	Red	24 Vdc
Black	Ground	Black	Ground	Black	Ground	Black	Ground	Black	Ground
Violet	-Analog (4-20 mA) PRESS, Passive	Violet	-Analog (4-20 mA) PRESS, Active	Violet	-Analog (4-20 mA) PRESS, Active	Violet	-Analog (4-20 mA) PRESS, Active	Violet	-Analog (0-10 Vdc) PRESS, Active
Blue	+Analog (4-20 mA) PRESS, Passive	Blue	+Analog (4-20 mA) PRESS, Active	Blue	+Analog (4-20 mA) PRESS, Active	Blue	+Analog (4-20 mA) PRESS, Avtive	Blue	+Analog (0-10 Vdc) PRESS, Active
Green	RS-485 A (+)	Green	RS-485 A (+)	Green	RS-485 A (+)	Green	RS-485 A (+)	Green	RS-485 A (+)
Orange	RS-485 B (-)	Orange	RS-485 B (-)	Orange	RS-485 B (-)	Orange	RS-485 B (-)	Orange	RS-485 B (-)
Yellow	-Analog (4-20 mA) Temp, Passive	Yellow	DO1 (Open Collector) PRESS- High	Yellow	DO1 (Open Collector) PRESS- High				
White	+Analog (4-20 mA) Temp, Passive	White	DO2 (Open Collector) PRESS- Low	White	DO2 (Open Collector) PRESS- Low				

Connector Specifications (MPT-751 Hirose)

P/N Code	Cable	
A	12 PIN HR-30 Series Hirose Connector (Power, 2 x passive 4-20mA analog output, 2 x digital o/ps, RS-485 connection)	Sensor with Pressure and Temperature Option Only
B	12 PIN HR-30 Series Hirose Connector (Power, 1 x active 4-20mA analog output, 1 x digital o/ps, RS-485 connection)	Pressure Sensor Option only
C	12 PIN HR-30 Series Hirose Connector (Power, 1 x 0-10 VDC analog output, 1 x digital o/ps, RS 485 connection)	Pressure Sensor Option only
D	6 PIN HR-30 Series Hirose Connector (Power, 1 active analog 4-20mA o/p and RS-485 connection)	Pressure Sensor Option only
E	6 PIN HR-30 Series Hirose Connector (Power, 1 analog 0-10VDC o/p and RS-485 connection)	Pressure Sensor Option only

Option A		Option B		Option C		Option D		Option E	
Pins	Description	Pins	Description	Pins	Description	Pins	Description	Pins	Description
1	24 Vdc	1	24 Vdc	1	24 Vdc	1	24 Vdc	1	24 Vdc
2	Ground	2	Ground	2	Ground	2	Ground	2	Ground
3	-Analog (4-20 mA) PRESS, Passive	3	-Analog (4-20 mA) PRESS, Active	3	-Analog (0-10 Vdc) PRESS, Active	3	-Analog (4-20 mA) PRESS, Active	3	-Analog (4-20 mA) PRESS, Active
4	+Analog (4-20 mA) PRESS, Passive	4	+Analog (4-20 mA) PRESS, Active	4	+Analog (0-10 Vdc) PRESS, Active	4	+Analog (4-20 mA) PRESS, Avtive	4	+Analog (4-20 mA) PRESS, Avtive
5	-Analog (4-20 mA) Temp, Passive	5	RS-485 A (+)	5	RS-485 A (+)	5	RS-485 A (+)	5	RS-485 A (+)
6	+Analog (4-20 mA) Temp, Passive	6	RS-485 B (-)	6	RS-485 B (-)	6	RS-485 B (-)	6	RS-485 B (-)
7	RS-485 A (+)	7	DO1 (Open Collector) PRESS- High	7	DO1 (Open Collector) PRESS- High	7		7	
8	RS-485 B (-)	8	DO2 (Open Collector) PRESS- Low	8	DO2 (Open Collector) PRESS- Low	8		8	
9	DO1 (Open Collector) PRESS- High	9	NA	9	NA	9		9	
10	DO2 (Open Collector) PRESS- Low	10	NA	10	NA	10		10	
11	NA	11	NA	11	NA	11		11	
12	NA	12	NA	12	NA	12		12	

Sensor Dimensions

Sizes for both MPT-750 & MPT-751 Models

MPT-750 Size	A	MPT-750 Size	B
Flow Through Design (Female Flare) - 1/4"	101.7 mm	Single Port Design (Female Flare) - 1/4"	32.2 mm
Flow Through Design (Female Flare) - 3/8"	106.9 mm	Single Port Design (Female Flare) - 3/8"	33.4 mm
Flow Through Design (Female Flare) - 1/2"	127 mm	Single Port Design (Female Flare) - 1/2"	35.4 mm
Flow Through Design (Female Flare) - 3/4"	143 mm	Single Port Design (Female S300 Pillar) - 1/4"	21.5 mm
Flow Through Design (Female Flare) - 1.0"	160.3 mm	Single Port Design (Female S300 Pillar) - 3/8"	27.1 mm
Flow Through Design (Female S300 Pillar) - 1/4"	81.78 mm	Single Port Design (Female S300 Pillar) - 1/2"	31.3 mm
Flow Through Design (Female S300 Pillar) - 3/8"	92.2 mm		
Flow Through Design (Female S300 Pillar) - 1/2"	117.4 mm		
Flow Through Design (Female S300 Pillar) - 3/4"	133.9 mm		
Flow Through Design (Female S300 Pillar) - 1.0"	146.2 mm		

Figure 1: MPT with Flow Through Design

Figure 2: MPT with Single Port Design

Ordering Information

Part Number for Scheme for Sensor with Cable Version

Model	***	*	*	*	*	**	-	***	Description
MPT-750-P									Pressure Sensing Only
MPT-750-T									Pressure and Temperature Sensing
Range	030								0-30 psig
	100								0-100 psig
	ZZZ								Custom Range
Configuration		S							Single Port
		F							Flow Through
Size			2						1/4"
			3						3/8"
			4						1/2"
			6						3/4" (Not available in single port design)
			8						1" (Not available in single port design)
Fluid Connection				0					20 mm length Tube stub
				1					Female Flare
				2					Female Pillar
Electrical Connection		Pressure and Temperature Sensor MPT-750-T Only			F				8 wire cable (Power, 2 passive analog o/p, RS-485 connection)
		Pressure Sensor MPT-750-P Only			G				8 wire cable (Power, 1 active analog 4-20mA o/p, 2 digital o/ps, RS-485 connection)
					H				8 wire cable (Power, 1 analog 0-10VDC o/p, 2 digital o/ps, RS-485 connection)
					I				6 wire cable (Power, 1 active analog 4-20mA o/p and RS-485 connection)
					J				6 wire cable (Power, 1 analog 0-10VDC o/p and RS-485 connection)
Cable Length						01			1 meter
						03			3 meter
						ZZ			Custom length
Ordering Extension (Standard and Custom Options)							-	S01	Standard Version
							-	XXX	For any Custom options, factory will assign 3 digit unique ID in place of XXX

Ordering Information

Part Number for Scheme for Sensor with Connector Version

Model	***	*	*	*	*	**	-	***	Description
MPT-751-P									Pressure Sensing Only
MPT-751-T									Pressure and Temperature Sensing
Range	100								0-100 psig
Configuration		S							Single Port
		F							Flow Through
Size			2						1/4"
			3						3/8"
			4						1/2"
			6						3/4" (Not available in single port design)
			8						1" (Not available in single port design)
Fluid Connection				0					20 mm length Tube stub
				1					Female Flare
				2					Female Pillar
Electrical Connection		Pressure and Temperature Sensor MPT-751-T Only			A				12 PIN HR-30 Series Hirose Connector (Power, 2 x passive 4-20mA analog output, 2 x digital o/ps, RS-485 connection)
		Pressure Sensor MPT-751-P Only			B				12 PIN HR-30 Series Hirose Connector (Power, 1 x active 4-20mA analog output, 1 x digital o/ps, RS-485 connection)
					C				12 PIN HR-30 Series Hirose Connector (Power, 1 x 0-10 VDC analog output, 1 x digital o/ps, RS-485 connection)
					D				6 PIN HR-30 Series Hirose Connector (Power, 1 active analog 4-20mA o/p and RS-485 connection)
					E				6 PIN HR-30 Series Hirose Connector (Power, 1 analog 0-10VDC o/p and RS-485 connection)
Reserved						XX			Reserved
Ordering Extension (Standard and Custom Options)							-	S01	Standard Version
							-	XXX	Custom options, factory will assign 3 digit unique ID in place of XXX

MALEMA

PSG
Malema
1060 S Rogers Circle
Boca Raton, FL 33487
USA
P: +1 (800) 637-6418
psgdover.com/malema

PSG a DOVER company

Where Innovation Flows

DS-MPT750-42021151

Authorized PSG® Partner:

Copyright 2024 PSG®, a Dover company

PSG® reserves the right to modify the information and illustrations contained in this document without prior notice. This is a non-contractual document. 12-2024