

## XP5 Miniature pressure sensor



- Absolute, sealed and gauge ranges 1 to 350 bar [15 psi to 5 000 psi]
- Titanium construction
- Amplified output available
- For static and dynamic applications
- Linearity up to  $\pm 0.25\%$  FSO



### DESCRIPTION

The **XP5** miniature pressure sensor features Measurement-Specialties' cutting edge SanShift™ technology which eliminates zero shifts caused by installation torque. This rugged sensor is constructed of titanium to enable reliable operation including harsh environments. The **XP5's** core sensing technology consists of a temperature compensated Wheatstone bridge composed of high stability micro-machined silicon strain gauges. Available in gauge, absolute and sealed configurations, the **XP5** is offered in ranges from 1 to 350 bar [15 to 5,000 psi].

An on-board amplifier is optionally available (**A1**) for ranges from 5 to 350 bar [75 to 5,000 psi].

A **PT1000** temperature probe is optionally available for all ranges as a custom design.

### CHARACTERISTICS

- Flush diaphragm
- M5x0.8 or 10-32UNF-2A thread
- Cable or integral connector
- Many options available

### APPLICATIONS

- Corrosive liquids and gases
- Braking system pressure
- Onboard equipment monitoring
- Mil-Aero

### STANDARD RANGES

Full Scale (FS)		Pressure Reference			Linearity (%FS)	Hysteresis (%FS)
bar	psi	Absolute	Gauge	Sealed		
1	15	•	•	•	$\pm 0.5\%$	$\pm 0.5\%$
2	30	•	•	•	$\pm 0.5\%$	$\pm 0.5\%$
5	75	•	•	•	$\pm 0.25\%$	$\pm 0.25\%$
10	150	•	•	•	$\pm 0.25\%$	$\pm 0.25\%$
20	300	•	•	•	$\pm 0.25\%$	$\pm 0.25\%$
35	500	•	•	•	$\pm 0.25\%$	$\pm 0.25\%$
50	750	•	•	•	$\pm 0.25\%$	$\pm 0.25\%$
70	1K	•	•	•	$\pm 0.25\%$	$\pm 0.25\%$
100	1.5K			•	$\pm 0.25\%$	$\pm 0.25\%$
200	3K			•	$\pm 0.25\%$	$\pm 0.25\%$
350	5K			•	$\pm 0.25\%$	$\pm 0.25\%$

The **psi** range models are only supplied with imperial thread design.

The **bar** range models are only supplied with metric thread design.

Models with improved accuracy available upon request as custom designs.

# XP5 Miniature pressure sensor

## TEMPERATURE CHARACTERISTICS

Full Scale (FS)		Operating Temperature Range (OTR)		Compensated Temperature Range (CTR)		ZeroShift in CTR	Sensitivity Shift in CTR
bar	psi	Celsius	Fahrenheit	Celsius	Fahrenheit	/50°C	/50°C
1	15	-40 to 120°C	-40 to 250°F	0 to 60°C	32 to 140°F	< ±6%FS	< ±4%
2	30					< ±4%FS	< ±4%
5	75					< ±2%FS	< ±2%
10	150					< ±2%FS	< ±2%
20	300					< ±2%FS	< ±2%
35	500					< ±2%FS	< ±2%
50	750					< ±2%FS	< ±2%
70	1K					< ±2%FS	< ±2%
100	1.5K					< ±2%FS	< ±2%
200	3K					< ±2%FS	< ±2%
350	5K					< ±2%FS	< ±2%

### Temperature restriction notes

For sensor which integrated the A1 amplifier, the OTR is limited from -40°C to 85°C [-40°F to 185°F] maximum due to internal components.

## MECHANICAL CHARACTERISTICS

Full Scale (FS)		Pressure limit		Tightening Torque	
bar	psi	Without damage	Without destruction	N.m	lbf.in
1	15	2x FS	5x FS	1	8.8
2	30			1	8.8
5	75			1.8	16
10	150			1.8	16
20	300			1.8	16
35	500			1.8	16
50	750			1.8	16
70	1K			1.8	16
100	1.5K			1.8	16
200	3K			1.8	16
350	5K			1.8	16

### Notes

1. Material: Body and flush diaphragm in Titanium; laser welded.
2. One Self-centred "FKM" sealing ring Ø 10x1 is supplied with the sensor. Operating temperature is -30°C to 150°C [-20°F to 300°F] static; down to -40°C to 150°C [-40°F to 300°F] for short durations.
3. Specific thread length on request.
4. Protection Index: IP50
5. Electrical Termination: Shielded cable Ø3 mm with 4 wires (AWG30)

## XP5 Miniature pressure sensor

### ELECTRICAL CHARACTERISTICS

#### NON AMPLIFIED VERSION

Full Scale (FS)		Frequency response	Power supply	Full Scale Output (FSO)	Offset	Input Impedance Ze	Output Impédance Zs
bar	Psi						
1	15	108 kHz	10 Vdc	20 mV	< ±10mV	1500 Ω	500 Ω
2	30	150 kHz		30 mV		1500 Ω	500 Ω
5	75	150 kHz		75 mV		1500 Ω	500 Ω
10	150	150 kHz		100 mV		1000 Ω	1 000 Ω
20	300	180 kHz		100 mV		1000 Ω	1 000 Ω
35	500	240 kHz		100 mV		1000 Ω	1 000 Ω
50	750	290 kHz		100 mV		1000 Ω	1 000 Ω
70	1K	320 kHz		100 mV		1000 Ω	1 000 Ω
100	1.5K	360 kHz		100 mV		1000 Ω	1 000 Ω
200	3K	510 kHz		100 mV		1000 Ω	1 000 Ω
350	5K	700 kHz		100 mV		1000 Ω	1 000 Ω

#### AMPLIFIED VERSION A1

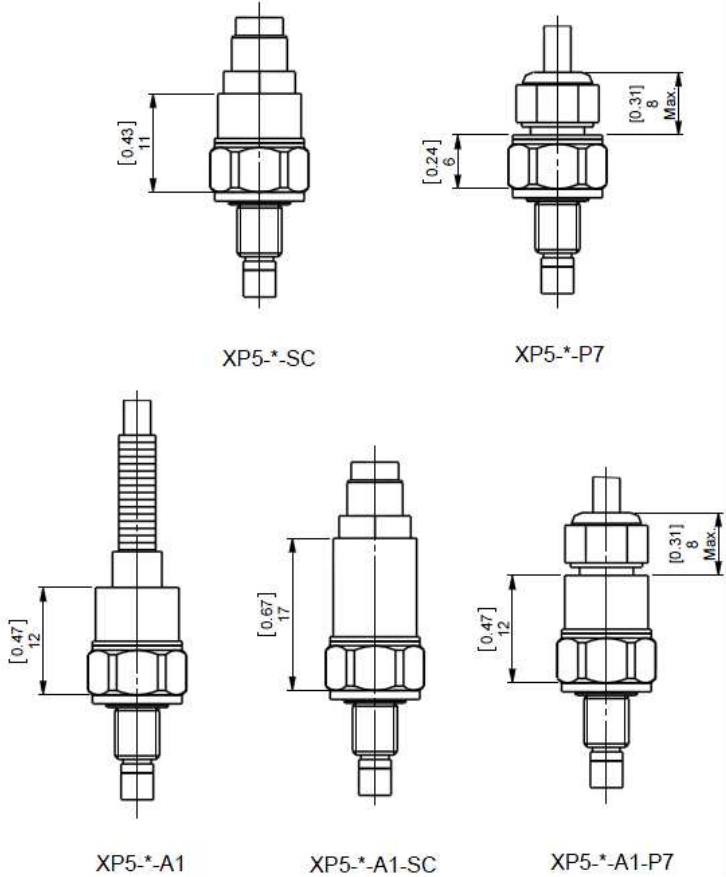
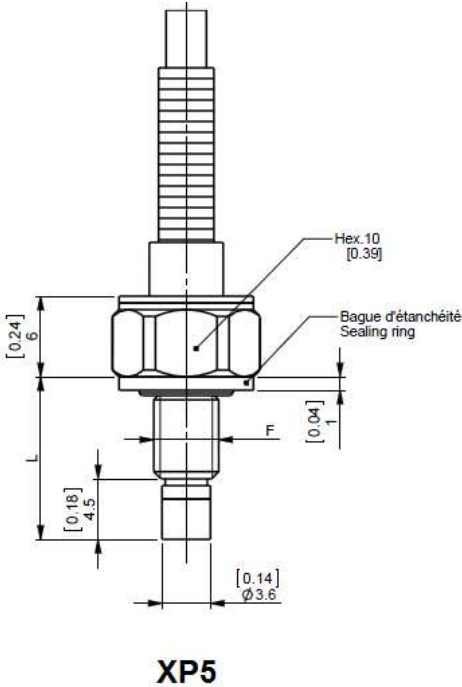
Full Span (FS)		Bandwidth	Power supply	Full Scale Output (2) (FSO)	Offset	Consumption	Output Impédance Zs (5)
bar	Psi						
5	75	3 kHz	10 à 30 Vdc	4 ±0.2V	0.5 ±0.2V	< 30 mA	1 000 Ω
10	150						
20	300						
35	500						
50	750						
70	1K						
100	1.5K						
200	3K						
350	5K						

#### Notes

1. All values are typical at temperature 20±1°C.
2. Output signal from 0.5 to 4.5V for A1 option.
3. Standard output signal, custom outputs available on request.
4. Insulation under 50Vdc ≥100MΩ
5. Output impedance standard 1kΩ, available <100Ω on request.
6. CE conformance according to EN 61010-1, EN 50081-1, EN 50082-1.

# XP5 Miniature pressure sensor

## DIMENSIONS & WIRING SCHEMATIC



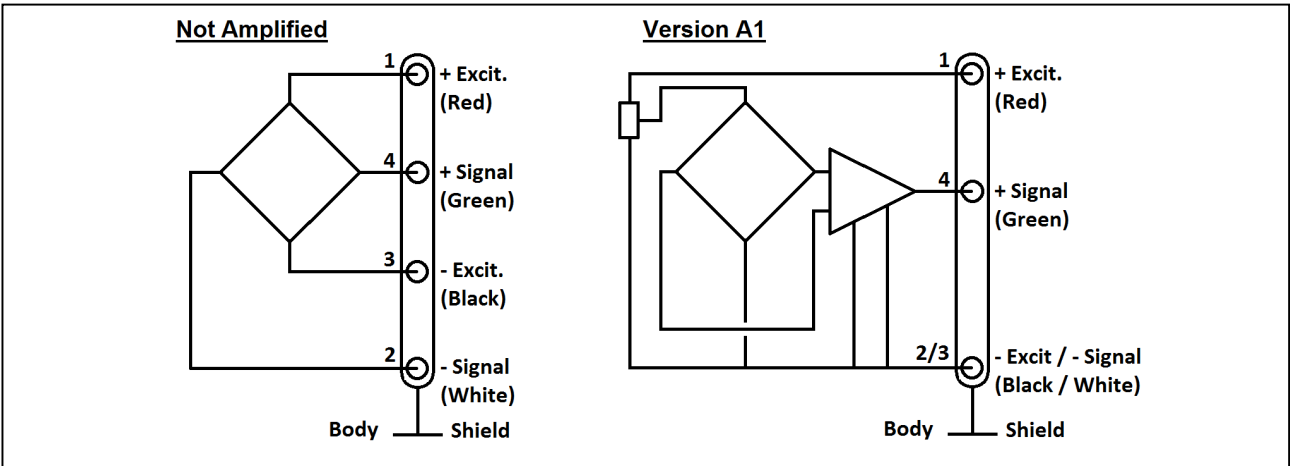
**Dimensions XP5-M & XP5-X**

	XP5-M	XP5-X
<b>F (filetage)</b>	M5x0.8-6g	10-32UNF-2A
<b>L (mm)</b>	11.7	12.1
<b>L (in)</b>	[0.46]	[0.48]

**Integral connector (SC option):**

Base ref. **CMR-02D-04P**

Supplied Accessories: mating plug **CMR-02-B-04S** with 2m cable ref. **FMC-COM-4B-L2M**

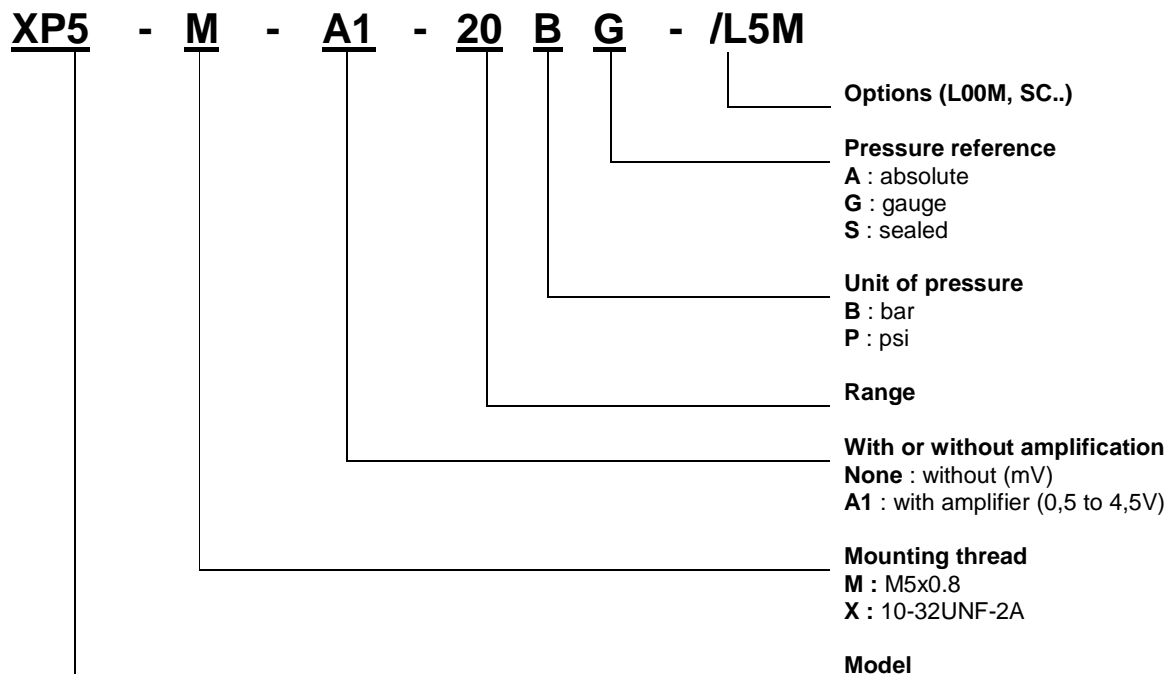


# XP5 Miniature pressure sensor

## OPTIONS

<b>Z0</b> : Compensation Temperature Range -40 to 20°C [-40 to 70°F]
<b>Z02</b> : Compensation Temperature Range -40 to 60°C [-40 to 140°F]
<b>Z35</b> : Compensation Temperature Range 20 to 120°C [70 to 250°F] (not compatible with A1 option)
<b>Z36</b> : Compensation Temperature Range 20 to 150°C [70 to 300°F] CTR=OTR (not compatible with A1 and P7 options)
<b>SC</b> : Connector output, mating plug supplied with 2 m cable [6.6 ft], temperature limit -20°C to 120°C [0°F to 250°F]
<b>P7</b> : IP67 protection / -20°C to 120°C [0°F to 250°F ] (not compatible with gauge model)
<b>L00M</b> : special cable length, replace "00" with total length in meters (standard length 2 m [6.6 ft])

## ORDERING INFORMATION



### NORTH AMERICA

Measurement Specialties, Inc.  
 Vibration Design Center  
 32 Journey - Suite 150  
 Aliso Viejo, CA 92656  
 United States USA  
 Tel: 1-949-716-0877  
[t&m@meas-spec.com](mailto:t&m@meas-spec.com)

### EUROPE

Measurement Specialties  
 (Europe), Ltd.  
 26 Rue des Dames  
 78340 Les Clayes-Sous-Bois,  
 France  
 Tel: +33 (0) 130 79 33 00  
[cs.lcsb@meas-spec.com](mailto:cs.lcsb@meas-spec.com)

### ASIA

Measurement Specialties  
 (China), Ltd.  
 No. 26 Langshan Road  
 Shenzhen High-Tech Park (North)  
 Nanshan District, Shenzhen  
 518057  
 China  
 Tel: +86 755 3330 5088  
[pfg.cs.asia@meas-spec.com](mailto:pfg.cs.asia@meas-spec.com)

The information in this sheet has been carefully reviewed and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Furthermore, this information does not convey to the purchaser of such devices any license under the patent rights to the manufacturer. Measurement Specialties, Inc. reserves the right to make changes without further notice to any product herein. Measurement Specialties, Inc. makes no warranty, representation or guarantee regarding the suitability of its product for any particular purpose, nor does Measurement Specialties, Inc. assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Typical parameters can and do vary in different applications. All operating parameters must be validated for each customer application by customer's technical experts. Measurement Specialties, Inc. does not convey any license under its patent rights nor the rights of others.