

# M5100 Pressure Sensor

Heavy Industrial - High EMI Rated



## DESCRIPTION

The **M5100 series** from Measurement Specialties sets the price / performance standard for transducers used in demanding environments.

The M5100 exceeds the latest heavy industrial CE requirements including surge protection, and is over voltage protected to 16Vdc (ratiometric versions) or 30Vdc (regular versions) in both positive and reverse polarity.

The pressure port is machined from a solid piece of 17-4PH stainless steel (316L optional). There are no O-rings, organics or welds exposed to the pressure media. This allows for a leak proof, all-metal sealed pressure system which withstands more than 10 million pressure cycles without failure.



## FEATURES

- ◆ Heavy Industrial CE Approval
- ◆ 100 V/m EMI Protection
- ◆ Reverse Polarity Protection
- ◆ Extended temperature range
- ◆ 1% Total Error Band
- ◆ Compact Outline
- ◆ -40 to 125° C Operating

## APPLICATIONS

- ◆ Advanced HVAC Controllers
- ◆ Refrigeration Systems
- ◆ Automotive Test Stands
- ◆ Gas compressors
- ◆ Industrial process control
- ◆ Pumps and Compressors
- ◆ Hydraulic/Pneumatic Systems
- ◆ Agriculture Equipment
- ◆ Energy and Water Management

## performance specifications

Pressure range	50, 100, 200, 300, 500, 1000, 3000, 5000, 10,000 psi
Accuracy	+/- 0.25% FS BFSL
Media compatibility	Fluids compatible with 17-4 PH stainless steel (316L optional)
Pressure cycles	> 10 million
Pressure overload	2 times rated pressure without calibration shift
Burst pressure	5 times rated pressure
Long Term Stability	+/- 0.25% FS typical (12 months)

Pressure Sensors Technical Support  
(510) 498-1570 ext 2509  
Fax (510) 498-1578  
pressure@meas-spec.com

**measurement**  
SPECIALTIES

# M5100 Pressure Sensor

## CE compliant per the following specifications

- EN55022 Emissions Class A & B
- IEC61000-4-2 Electrostatic Discharge Immunity (6kV contact/8kV air)
- IEC61000-4-3 EM Field Immunity (30V/m)
- IEC61000-4-4 Electrical Fast Transient Immunity (1kV)
- IEC61000-4-5 Surge Immunity(1kV)
- IEC61000-4-6 Conducted RF Immunity (10V)
- IEC61000-4-9 Magnetic Field Immunity (100A/m)
- Automotive EM field immunity 100V/m 80 MHz to 1 GHz

## environmental performance

- Operating Temp Range -40 to 125 °C
- Compensated Temp Range -20 to 85 °C
- Total Error Band +/- 1% FS over compensated range  
(+/- 1.5% typical over extended range contact factory)
- Vibration 20G at 20 to 200 Hz
- Shock 50 G / 11mS

\* Standard Cable is Rated 105°C

## ordering information

Model	Ouput	Connection	Options	Pressure Port	Pressure Range/Units	Pressure Reference
<b>M51</b>	3 = 0.5 to 4.5 V 4 = 1 to 5 V 5 = 4 to 20 mA 6 = 0 to 5 V 7 = 0 to 10 V 8 = 1 to 6 V	See Table 1	00000  W= 316L wetted material  Fill options alphabetically from left	See Table 2	PSI STD	G = Gauge
					Bar STD	S = Sealed
					Bar DIN	
					050P= 50 P	004B=4 B
					100P= 100 P	006B=6 B
					200P= 200 P	010B=10 B
					300P= 300 P	016B=16 B
					500P= 500 P	025B=25 B
					01KP= 1000 P	040B=40 B
					03KP= 3000 P	060B=60 B
					05KP= 5000 P	100B=100 B
					10KP= 10,000 P	160B=160 B
						250B=250 B
						400B=400 B
						600B=600 B
						01KB=1000 B

Consult factory for special options or non-standard part number

Example: M5131-000005-300PG = 5 V power with 0.5 to 4.5 Vout (ratiometric) and 2 ft cable. No options, 1/4 NPT pressure port rated at 100 psi gauge  
M515X-12345P-010BG = 4-20 mA current loop, with a custom pressure port to drawing 12345 (consult factory). 7/16 pressure port, 10 bar gauge

INTERMEDIATE RANGES AVAILABLE

TABLE 1

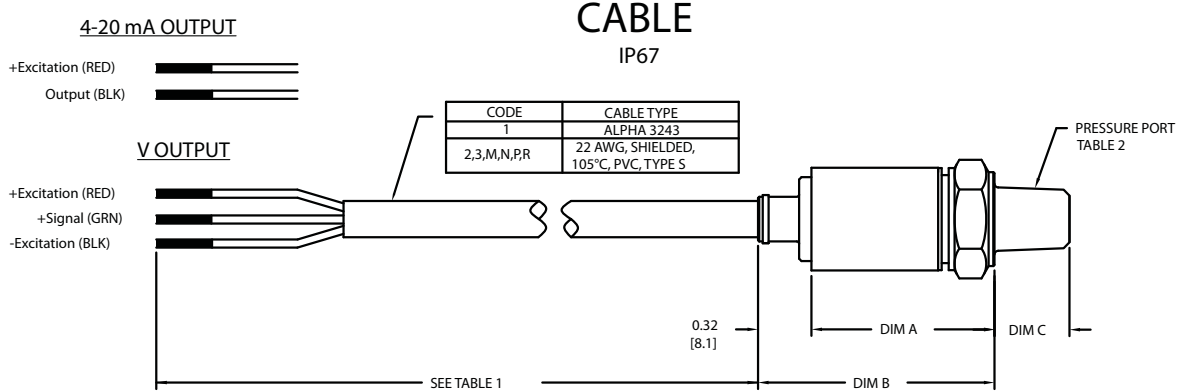
CONNECTION / PRESS RANGE / PRESS REF		PRESSURE RANGE				
CODE	CONNECTION	DIM	PG/BG PRESS REF		PS/BS PRESS REF	
			< 1000 PSI < 070 BAR	≥ 1000 PSI ≥ 070 BAR	< 1000 PSI < 070 BAR	≥ 1000 PSI ≥ 070 BAR
1	CABLE 2 FEET	DIM A	1.71 [43.43]	1.92 [48.77]	1.88 [47.75]	2.18 [55.37]
		DIM B	2.17 [54.36]	2.37 [60.20]	2.34 [59.44]	2.63 [66.80]
2	CABLE 4 FEET	DIM A	1.71 [43.43]	1.92 [48.77]	1.88 [47.75]	2.18 [55.37]
		DIM B	2.17 [54.36]	2.37 [60.20]	2.34 [59.44]	2.63 [66.80]
3	CABLE 10 FEET	DIM A	1.71 [43.43]	1.92 [48.77]	1.88 [47.75]	2.18 [55.37]
		DIM B	2.17 [54.36]	2.37 [60.20]	2.34 [59.44]	2.63 [66.80]
4	PACKARD CONNECTOR	DIM A	1.71 [43.43]	1.92 [48.77]	1.88 [47.75]	2.18 [55.37]
		DIM B	2.54 [64.52]	2.76 [70.10]	2.72 [69.09]	3.02 [76.71]
5	BENDIX CONNECTOR	DIM A	1.59 [40.39]	1.78 [45.21]	1.84 [46.74]	2.13 [54.10]
		DIM B	2.20 [55.88]	2.39 [60.71]	2.45 [62.23]	2.74 [69.59]
6	HIRSCHMANN CONNECTOR	DIM A	1.59 [40.39]	1.78 [45.21]	1.84 [46.74]	2.13 [54.10]
		DIM B	2.13 [54.10]	2.32 [58.93]	2.13 [54.10]	2.67 [67.82]
D	BINDER CONNECTOR	DIM A	1.59 [40.39]	1.78 [45.21]	1.84 [46.74]	2.13 [54.10]
		DIM B	2.10 [53.34]	2.29 [58.17]	2.35 [59.69]	2.64 [67.06]
M	CABLE 1 METRE	DIM A	1.71 [43.43]	1.92 [48.77]	1.88 [47.75]	2.18 [55.37]
		DIM B	2.17 [54.36]	2.37 [60.20]	2.34 [59.44]	2.63 [66.80]
N	CABLE 2 METRE	DIM A	1.71 [43.43]	1.92 [48.77]	1.88 [47.75]	2.18 [55.37]
		DIM B	2.17 [54.36]	2.37 [60.20]	2.34 [59.44]	2.63 [66.80]
P	CABLE 5 METRE	DIM A	1.71 [43.43]	1.92 [48.77]	1.88 [47.75]	2.18 [55.37]
		DIM B	2.17 [54.36]	2.37 [60.20]	2.34 [59.44]	2.63 [66.80]
R	CABLE 10 METRE	DIM A	1.71 [43.43]	1.92 [48.77]	1.88 [47.75]	2.18 [55.37]
		DIM B	2.17 [54.36]	2.37 [60.20]	2.34 [59.44]	2.63 [66.80]

TABLE 2

PRESSURE PORT		
CODE	PORT	DIM C
2	1/4 BSP	0.47 [11.94]
4	7/16-20 MALE O-RING	0.36 [9.14]
5	1/4 NPT	0.64 [16.26]
6	1/8 NPT	0.53 [13.46]
E	1/4 BSPT	0.50 [12.70]
F	1/4 BSP FEMALE	0.70 [17.78]
P	7/16-20 FEMALE W/ INTEGRAL VALVE DEPRESS	0.43 [10.92]
Q	M10 X 1.0 mm	0.42 [10.67]
S	M12 X 1.5 mm	0.53 [13.46]
W	M20 X 1.5 mm	0.70 [17.78]

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## mechanical dimensions

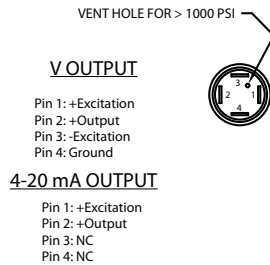
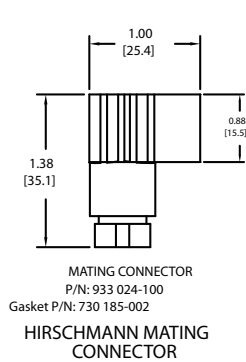


**V OUTPUT**

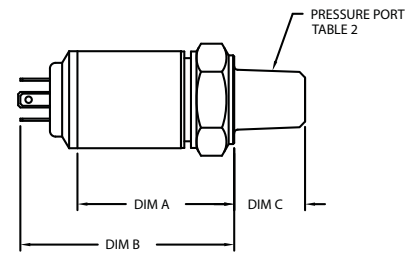
Pin 1: +Excitation  
Pin 2: +Output  
Pin 3: -Excitation  
Pin 4: GND

**4-20 mA OUTPUT**

Pin 1: +Excitation  
Pin 2: Output



**HIRSCHMANN CONNECTOR DIN 43650-C**  
P/N 933-114-100  
IP65



## PACKARD CONNECTOR

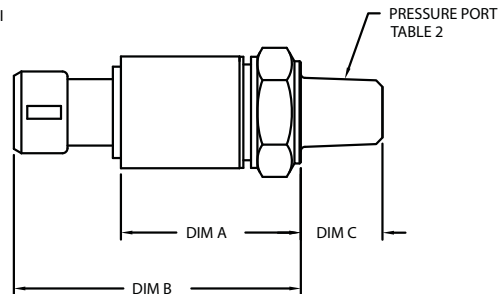
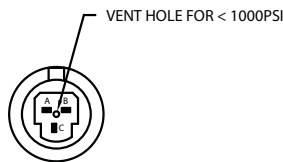
IP67

**V OUTPUT**

Pin A: +Excitation  
Pin B: -Excitation  
Pin C: +Output

**4-20 mA OUTPUT**

Pin A: +Excitation  
Pin B: Output



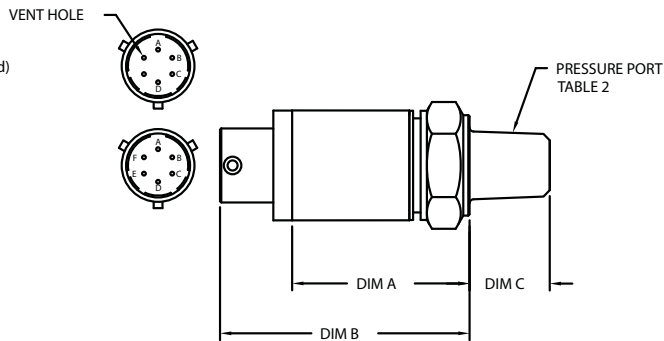
## mechanical dimensions

### 4-20 mA OUTPUT

Positive supply Pin A and B (internally connected)  
 Negative supply Pin C and D (internally connected)

### V OUTPUT

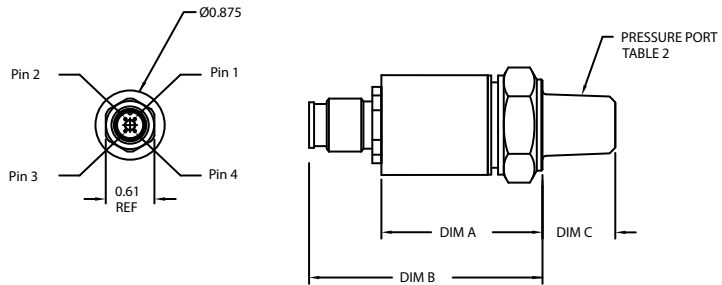
Pin A: +Excitation  
 Pin B: +Output  
 Pin C: -Excitation  
 Pin D: -Excitation  
 Pin E: Not Used  
 Pin F: Vent (Removed for < 1000 psi)



## BENDIX CONNECTOR

### V OUTPUT

Pin 1: +Excitation  
 Pin 2: +Output  
 Pin 3: -Excitation  
 Pin 4: Not Used



### 4-20 mA OUTPUT

Pin 1: +Supply  
 Pin 2: N.C.  
 Pin 3: Return  
 Pin 4: N.C.

## BINDER CONNECTOR

P/N: 09-3431-00-04