



## M7100

### Pressure Transducer

#### SPECIFICATIONS

- Performance standard on and off highway engine and vehicle OEMs
- Rugged for heavy equipment and outdoor use
- Designed specifically for high volume applications
- Stainless steel wetted surfaces
- Medium to high pressures
- UL Certified
- Gage

The M7100 pressure transducer from the Microfused line of MEAS sets a new price performance standard for demanding engine and vehicle, and industrial applications. This transducer is suitable for measurement of liquid or gas pressure, even for difficult media such as contaminated water, steam and corrosive fluids.

The transducer pressure cavity is machined from a solid piece of 17-4 PH stainless steel. The standard version includes a 1/4 NPT pipe thread allowing a leak-proof, all metal sealed system. This automotive grade pressure transducer with stainless steel hermetic pressure ports and integral electrical connector can boast up to 10,000psi (700bar). The M7100 is UL certified and exceeds the latest industrial requirements including surge protection and is overvoltage protected in both positive and reverse polarity.

#### FEATURES

- Hermetic Pressure Ports
- Integral Electrical Connector
- Survives High Vibration
- $\pm 0.25\%$  Accuracy
- Water Resistant 1M Immersion

#### APPLICATIONS

- On and Off Highway Engines and Vehicles
- HVAC Refrigeration Controls
- Compressors
- Hydraulics
- Energy and Water Management

## STANDARD RANGES

Range (psi)	Range (bar)	Gage
0 to 150	0 to 010	•
0 to 200	0 to 014	•
0 to 300	0 to 020	•
0 to 500	0 to 035	•
0 to 01K	0 to 070	•
0 to 1K5	0 to 100	•
0 to 03K	0 to 200	•
0 to 05K	0 to 350	•
0 to 7K5	0 to 500	•
0 to 10K	0 to 700	•

## PERFORMANCE SPECIFICATIONS

Ambient Temperature: 25°C (unless otherwise specified);

PARAMETERS	MIN		TYP	MAX		UNITS	NOTES
	Steel	Copper		Steel	Copper		
Load Resistance	10					KΩ	
Accuracy (combined linearity, hysteresis & repeatability)	-0.25			0.25		%Span	1
Total Error Band	-1.0	-2.5		1.0	2.5	%Span	2
Compensated Temperature	-20	-30		+85	120	°C	
Operating Temperature	-40			+125		°C	3
Storage Temperature	-50			+125		°C	
Insulation Resistance (500V <sub>DC</sub> )	100					MΩ	4
Short Circuit Protected			Yes				
Output Noise @ 1kHz			10			mV	
Long Term Stability	-0.25			0.25		%Span/Year	
Frequency Response @ -3dB			1			kHz	

### Notes

- Best fit straight line.
- TEB includes all accuracy errors, thermal errors, span and zero tolerances over the compensated temperature range.
- Temperature range for product with standard cable is -20°C to +105°C.
- Between sensor body to any pins of connector.
- The maximum pressure that can be applied without changing the transducer's performance or accuracy.
- The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer
- Refer to pressure port Listing notes for installation recommendations.
- This product can be configured for custom OEM requirements. Contact Factory for different transfer function. See "Pressure Transfer Function" diagram.
- Maximum temperature range for product with standard cable is -20°C to 105°C.
- Do not apply torque to connector housing of transducer
- To ensure proper environmental sealing and electrical connections when using a mating connector, follow the connector manufacturer's installation guidelines.

## ENVIRONMENTAL SPECIFICATIONS

Ambient Temperature: 25°C (unless otherwise specified)

PARAMETERS	MIN		TYP	MAX		UNITS	NOTES	
	Steel	Copper		Steel	Copper			
Humidity (@40°C)				93		%RH		
Pressure Overload				2X		Rated	5	
Pressure Burst				5X	3X	Rated	6	
Pressure Cycle		10M				Cycles		
Media, Pressure Port	Steel	Fluids compatible with 17-4PH Stainless Steel						
	Copper	Fluids compatible with Brass						
Mechanical Vibration	Steel	20g, 10 ~ 2000Hz MIL-STD-810C, Method 514.2, Curve L						
	Copper	10g peak, 55~2000Hz MIL-STD-202G, Method 204D, Test Condition C						
Mechanical Shock	Steel	Half-Sine, Peak: 50g, 11ms MIL-STD-202, Method 213B, Condition A						
	Copper	Half-Sine, Peak: 50g, 11ms MIL-STD-202G, Method 213B, Condition A						
Package Protection				IP67 (IEC60529)				

## AGENCY APPROVALS

RoHS: RoHS 2 (Directive 2011/65/EU)

Industrial Control Equipment CSA 22.2 No. 14-10

UL508 Certified

EMC Performance Criteria: Output Change < ±1.5% FSO

ESD 8kV Contact/15kV Air; Discharge Rate >10s

IEC 61000-4-2

EM Field 100V/m, 1kHz 80% Modulation, 80 ~ 1000MHz

IEC 61000-4-3

Electrical Fast Transient Level 2, 1kV each line, capacitance coupling

IEC 61000-4-4

Surge Level 2, 42Ω Impedance, Figure 11 (L-L 500V, L-E 1kV)

IEC 61000-4-5

Conducted RF Level 2, 3V/130dB, 150kHz ~ 80MHz, 2s Dwell, Clamp Injection

IEC 61000-4-6

Pulse Magnetic Field Level 3, 100A/m, 10 second pulse interval

IEC 61000-4-9

Emission Class B, 30dB @ 30-230MHz, 37dB @ 230 – 1000MHz

IEC 55022

## PRESSURE PORT INFORMATION

Pressure Port Options	Dim A	Tightening Torque (Nm)
2 = G1/4, BS5380, Male	.43 [11.0]	30~35
4 = 7-16-20 UNF, SAE J1926-2, Male, w/ O-Ring	.36 [9.1]	18~20
5 = 1/4-18 NPT Male	.56 [14.2]	2~3 T.F.F.T.
6 = 1/8-27 NPT Male	.38 [9.7]	2~3 T.F.F.T.
E = R1/4-19, Male	.56 [14.2]	2~3 T.F.F.T.
F = G1/4-19, BS5380, Female	.64 [16.3]	30~35
P = 7/16-20UNF Female w/ Integral Valve Depressor; 1/4 Flare Gasket SAE J513C, Copper	.64 [16.3]	15~16
Q = M10 x 1.0, ISO 6149-2, Male	.37 [9.5]	15~16
S = M12 x 1.5, ISO 6149-2, Male	.43 [11.0]	28~30
G = M14 x 1.5, ISO 6149-2, Male	.43 [11.0]	30~35
U = G1/4, DIN 3852-E, Male	.47 [12.0]	30~35

### Notes: Installation

\*T.F.F.T.: Turns From Finger Tight

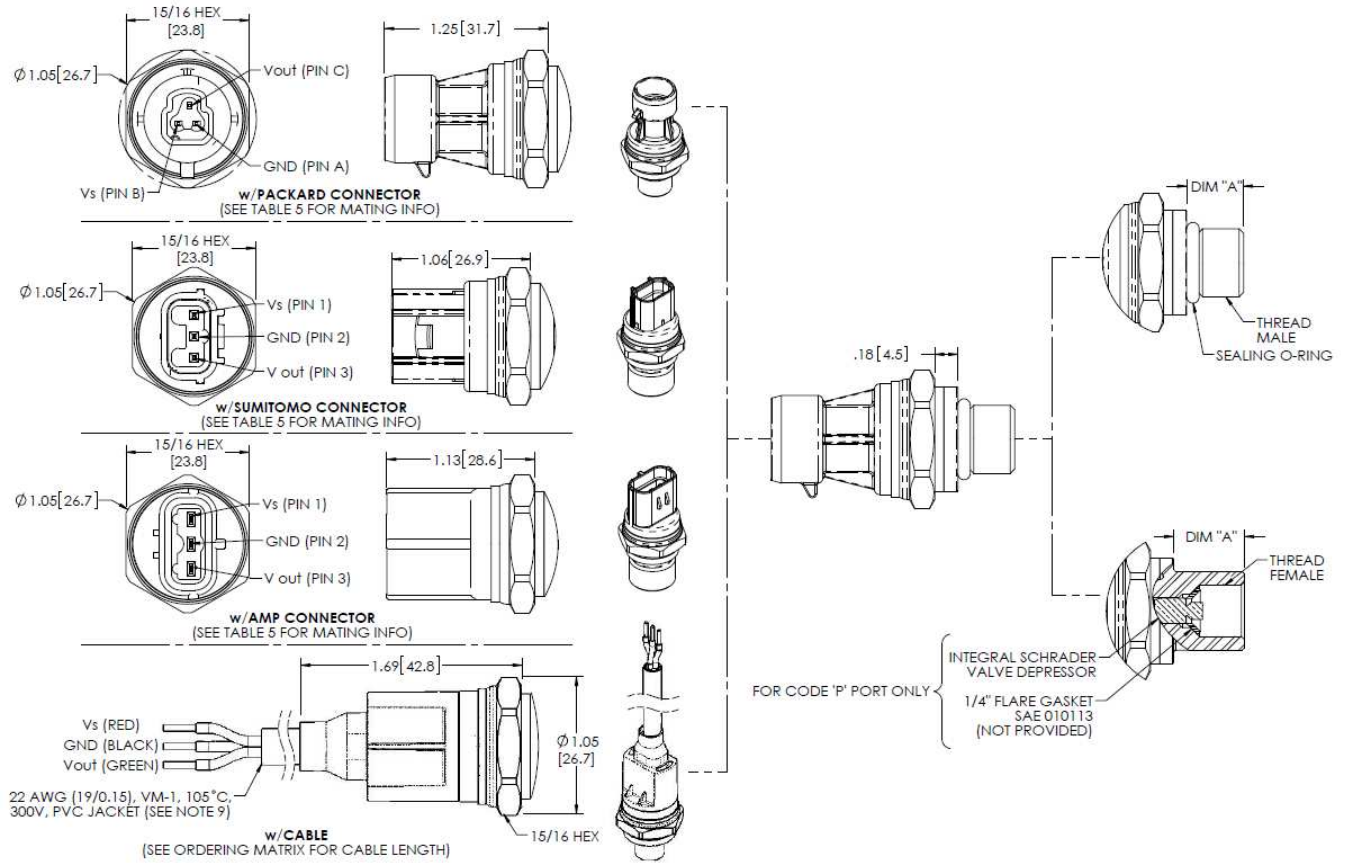
Transducers can be installed by either spanner or deep socket. Torque values provided are for reference: actual torque depends upon mating port material, surface finish, lubrication and sealing mechanism. Transducers calibration and/or zero may shift if part is over-torqued during installation. Check for a zero shift after installing.

## CONNECTOR INFORMATION

Connector	Connector, Pin Plating	Connector, Mating
Packard Metri-Pack 150 Series	<i>powerandsignal.com</i> 0.003 – 0.005 mm Sn	Housing P/N: 12065287 Terminals P/N: 12103881
Sumitomo HV040 Series	<i>sumitomokenki.com</i> 0.003 mm Sn over 0.0005 – 0.001 mm Cu	Housing P/N: 6189-6907 Terminals P/N: 8100-3067/8
AMP Econoseal-J Mark II 070 Series	<i>te.com</i> 0.0004 mm Au over 0.0013 mm Ni	Housing P/N: 174357 Terminals P/N: 171630

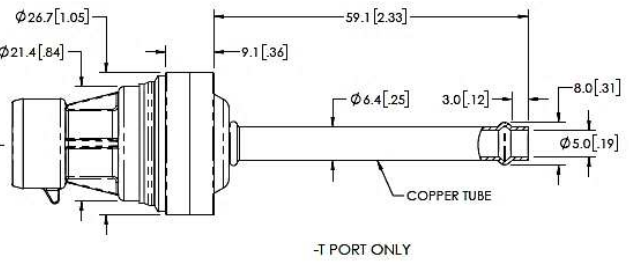
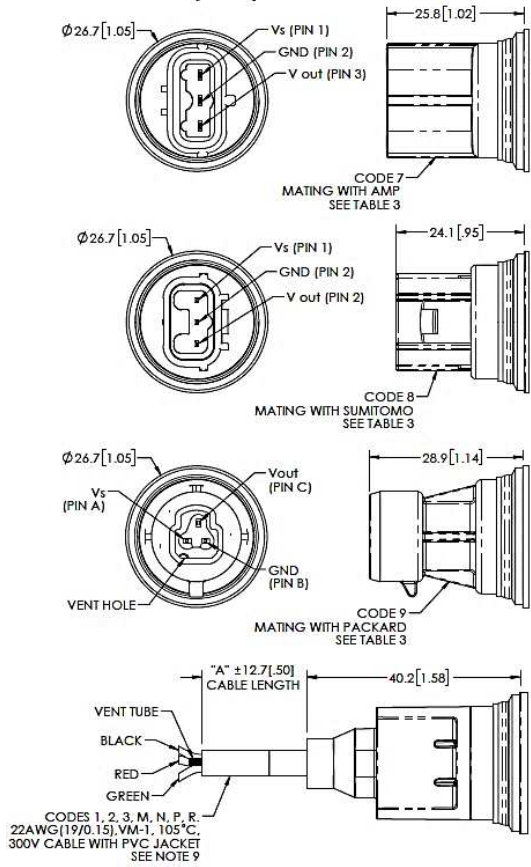
## DIMENSIONS

Dimensions are in INCHES [mm]



**Copper Tube**

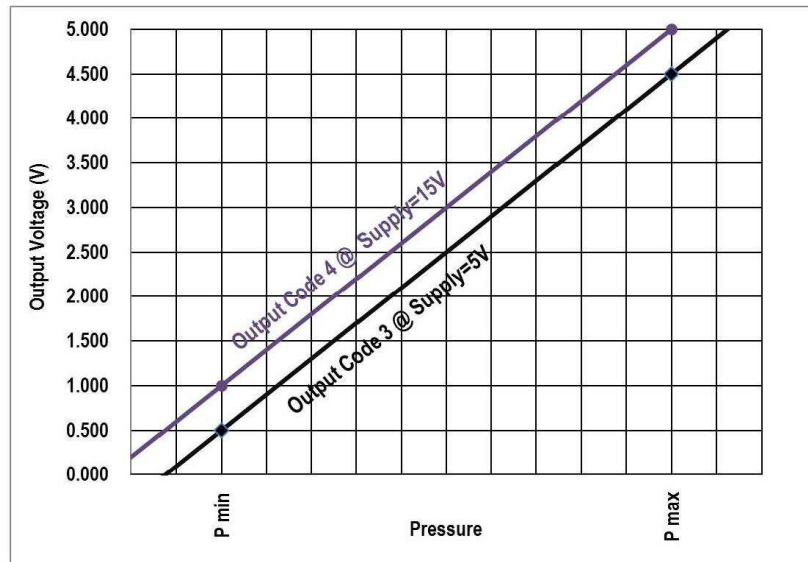
DIMENSIONS ARE IN mm [INCHES]



CABLE WIRE # DESIGNATION	
WIRE COLOR	FUNCTION
RED	Vs
BLACK	GND
GREEN	Vout

## CHARTS

**Pressure Transfer Function**



**Output Type vs. Supply**

Output Type (Code)	3	4
Supply Voltage	4.75 ~ 5.25V*	8 ~ 32V
Supply Current	4.0 ~ 10.0mA	
Output Voltage	0.5 ~ 4.5V*	1.0 ~ 5.0V
Reverse Voltage	16V	
Overvoltage Protection	16V	32V

\* Output ratiometric to supply voltage

**Pressure Range**

psi	bar
150P	010B
200P	014B
300P	020B
500P	035B
01KP	070B
1K5P	100B
03KP	200B
05KP	350B
7K5P	500B
10KP	700B

**Pressure Range (Cu Tube)**

psi	bar
150P	010B
300P	020B
450P	030B
500P	035B
750P	050B

**Connection Type**

1	Cable 2 feet
2	Cable 4 feet
3	Cable 10 feet
7	AMP070 Connector
8	HV040 Sumitomo
9	Packard Connector
M	Cable 1 m
N	Cable 2 m
P	Cable 5 m
R	Cable 10 m

## ORDERING INFORMATION

M71 3 M – 300P G – I B 0000

Output	
Code	Output Voltage
<b>3</b>	0.5 – 4.5 V
<b>4</b>	1.0 – 5.0 V

Cable/Connectors	
<b>1</b>	Cable, 2 feet
<b>2</b>	Cable, 4 feet
<b>3</b>	Cable, 10 feet
<b>7</b>	Amp Connector
<b>8</b>	HV040 Sumitomo
<b>9</b>	Packard Connector
<b>M</b>	Cable 1 meter
<b>N</b>	Cable, 2 meter
<b>P</b>	Cable, 5 meter
<b>R</b>	Cable, 10 meter

Pressure Range [psi]	
psi	bar
150P	010B
200P	014B
300P	020B
450P	030B
500P	035B
750P	050B
01KP	070B
1K5P	100B
03KP	200B
05KP	350B
7K5P	500B
10KP	700B

Options in **green** are for both Port Materials  
Options in **blue** are for Copper port only.  
Options in **black** are for 17-4PH St. Steel only

Port Material	
<b>0</b>	17-4PH Stainless Steel
<b>B</b>	Copper, C12200*

Copper Tube Pressure Port (**T**) is available only with Copper Port Material, C12200 Option (**B**) and all **blue** or **green** options

Pressure Port	
Code	Port
<b>2</b>	G1/4, BS5380, Male
<b>4</b>	7/16-20 UNF, SAE J1926-2, Male, w/ O-ring
<b>5</b>	1/4-18 NPT Male
<b>6</b>	1/8-27 NPT Male
<b>E</b>	R1/4-19 Male
<b>F</b>	G1/4-19, BS5380, Female
<b>P</b>	7/16-20 UNF Female w/ Integral Valve Depressor; 1/4 Flare Gasket SAE J513C, Copper
<b>Q</b>	M10x1.0 ISO 6149-2, Male
<b>S</b>	M12x1.5, ISO 6149-2, Male
<b>G</b>	M14x1.5, ISO 6149-2, Male
<b>U</b>	G1/4, DIN 3852-E, Male
<b>T</b>	1/4" OD Copper Tube*

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