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. There are no O-rings or organics exposed to the pressure media and the durability is excellent. 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
- ±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 ($500V_{DC}$)	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

1. Best fit straight line.
2. TEB includes all accuracy errors, thermal errors, span and zero tolerances over the compensated temperature range.
3. Temperature range for product with standard cable is -20°C to +105°C.
4. Between sensor body to any pins of connector.
5. The maximum pressure that can be applied without changing the transducer's performance or accuracy.
6. The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer
7. Refer to pressure port Listing notes for installation recommendations.
8. This product can be configured for custom OEM requirements. Contact Factory for different transfer function. See "Pressure Transfer Function' diagram.
9. Maximum temperature range for product with standard cable is -20ºC to 105ºC.
10. Do not apply torque to connector housing of transducer
11. 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)						

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AGENCY APPROVALS

RoHS: RoHS 2 (Directive 2011/65/EU)	
Industrial Control Equipment UL508 Certified	CSA 22.2 No. 14-10
EMC Performance Criteria: Output Change < ±1.5% FSO	
ESD IEC 61000-4-2	8kV Contact/15kV Air; Discharge Rate >10s
EM Field IEC 61000-4-3	100V/m, 1kHz 80% Modulation, 80 ~ 1000MHz
Electrical Fast Transient IEC 61000-4-4	Level 2, 1kV each line, capacitance coupling
Surge IEC 61000-4-5	Level 2, 42Ω Impedance, Figure 11 (L-L 500V, L-E 1kV)
Conducted RF IEC 61000-4-6	Level 2, 3V/130dB, 150kHz ~ 80MHz, 2s Dwell, Clamp Injection
Pulse Magnetic Field IEC 61000-4-9	Level 3, 100A/m, 10 second pulse interval
Emission IEC 55022	Class B, 30dB @ 30-230MHz, 37dB @ 230 – 1000MHz

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

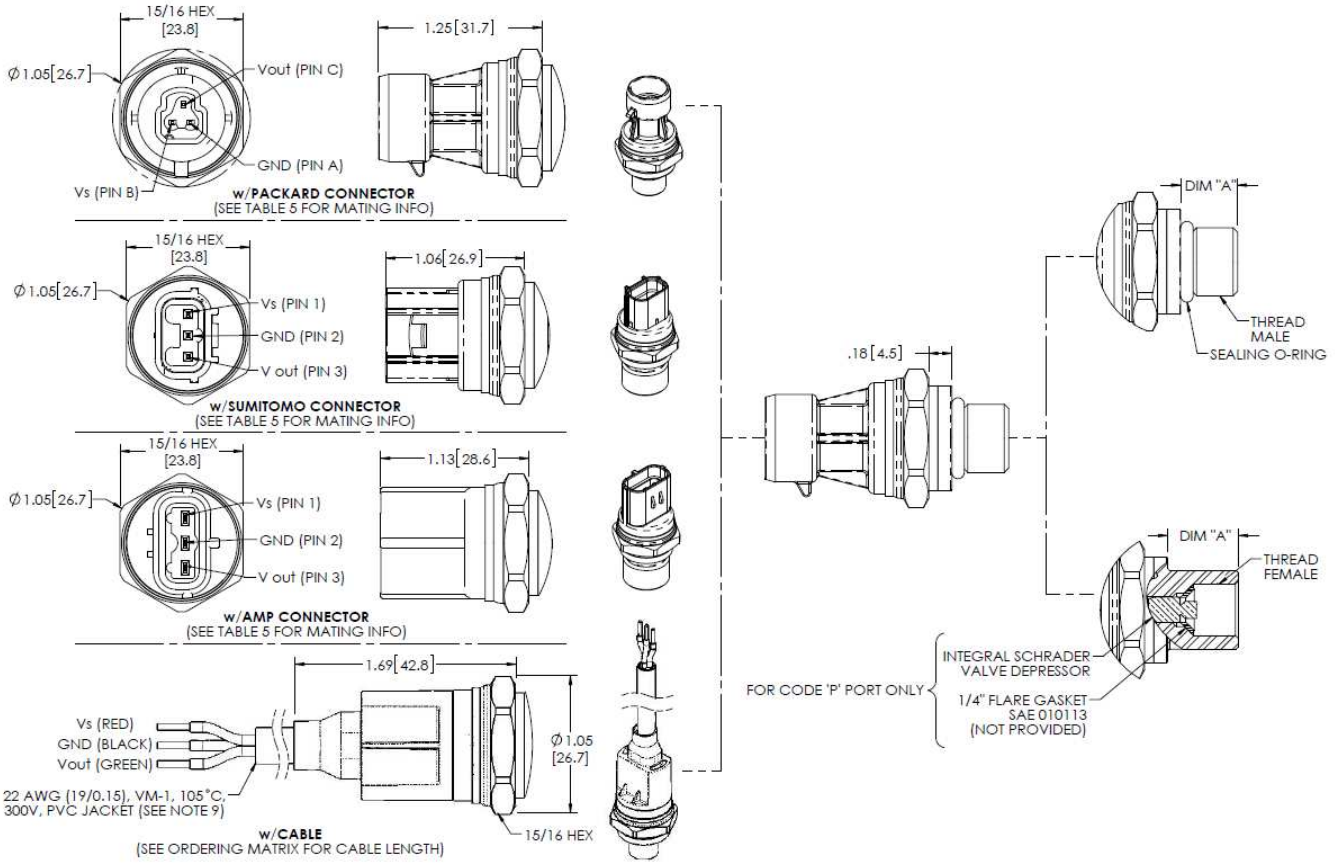
*T.F.F.T.: Turns From Finger Tight
Transducers can be installed by either spanner or deep socket. Torque values provided are for reference: actual torque depends upon mating port material, surface finish, lubrication and sealing mechanism. Transducers calibration and/or zero may shift if part is over-torqued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

CONNECTOR INFORMATION

Connector	Connector, Pin Plating		Connector, Mating
Packard Metri-Pack 150 Series	*powerandsignal.com*	0.003 – 0.005 mm Sn	Housing P/N: 12065287 Terminals P/N: 12103881
Sumitomo HV040 Series	*sumitomokenki.com*	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	*te.com*	0.0004 mm Au over 0.0013 mm Ni	Housing P/N: 174357 Terminals P/N: 171630

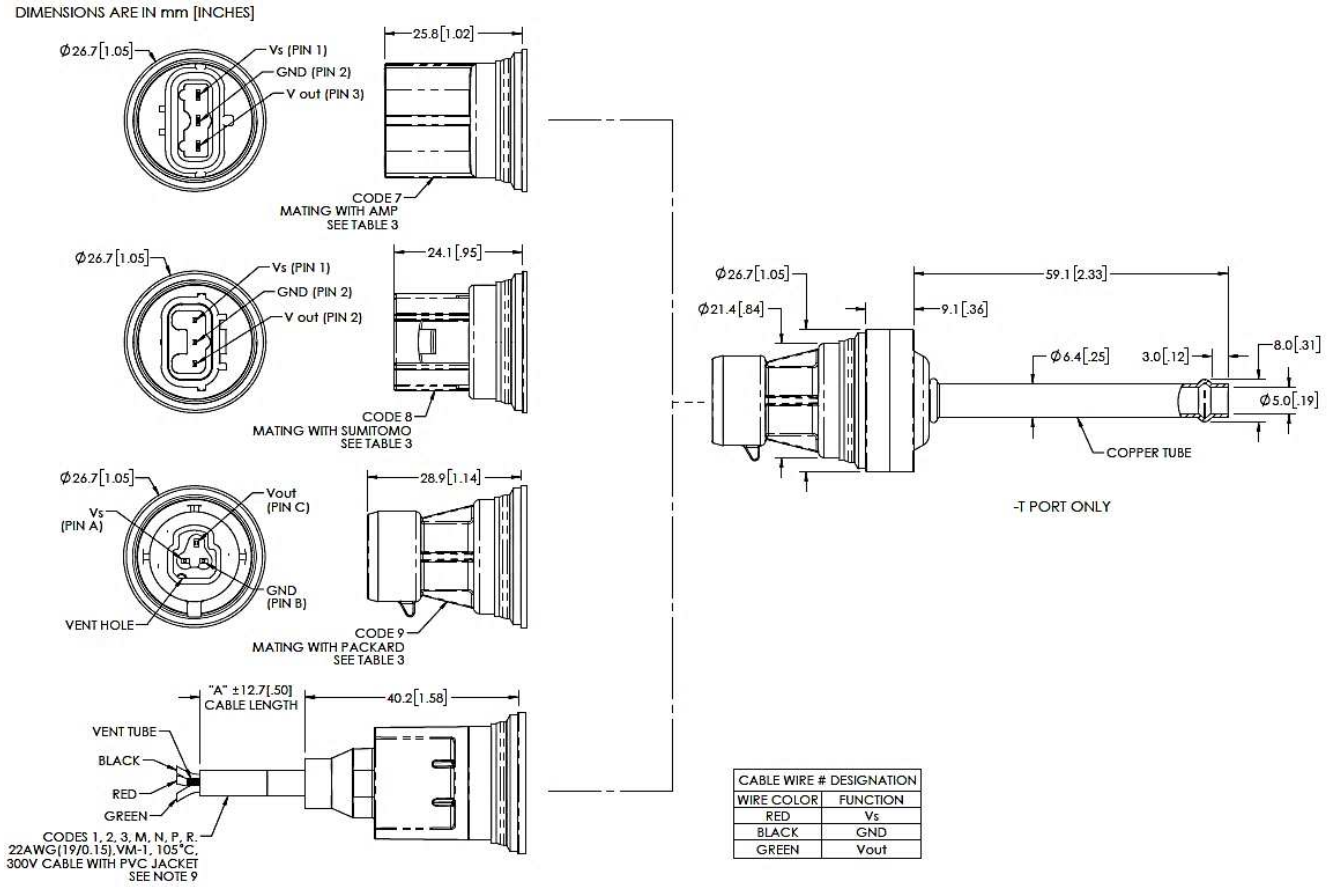
DIMENSIONS

Dimensions are in INCHES [mm]



Copper Tube

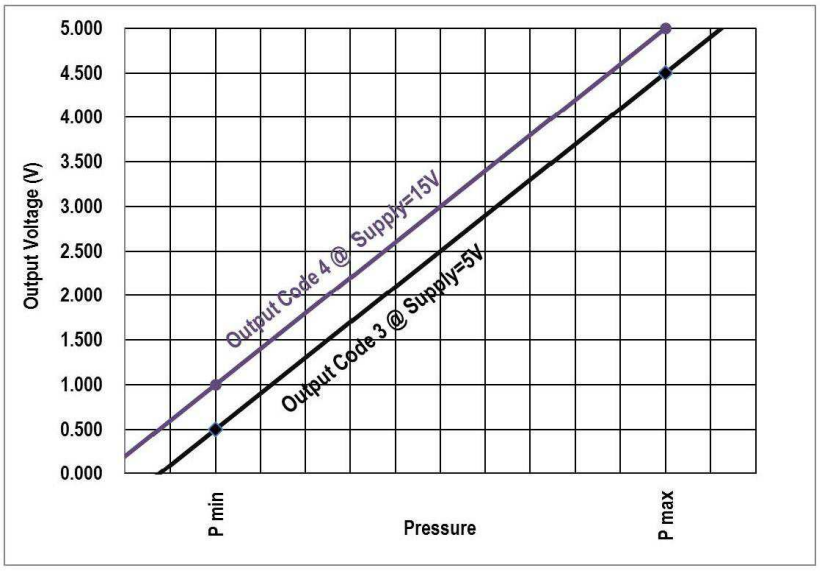
DIMENSIONS ARE IN mm [INCHES]



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 – T B 0000

Output	
Code	Output Voltage
3	0.5 – 4.5 V
4	1.0 – 5.0 V

Cable/Connectors	
1	Cable, 2 feet
2	Cable, 4 feet
3	Cable, 10 teet
7	Amp Connector
8	HV040 Sumitomo
9	Packard Connector
M	Cable 1 meter
N	Cable, 2 meter
P	Cable, 5 meter
R	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	
0	17-4PH Stainless Steel
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
2	G1/4,BS5380, Male
4	7/16-20 UNF, SAE J1926-2, Male, w/ O-ring
5	1/4-18 NPT Male
6	1/8-27 NPT Male
E	R1/4-19 Male
F	G1/4-19, BS5380, Female
P	7/16-20 UNF Female w/ Integral Valve Depressor; 1/4 Flare Gasket SAE J513C, Copper
Q	M10x1.0 ISO 6149-2, Male
S	M12x1.5, ISO 6149-2, Male
G	M14x1.5, ISO 6149-2, Male
U	G1/4, DIN 3852-E, Male
T	1/4” OD Copper Tube*