

The MSS100 Series is a fully compensated pressure transducer that is ideal for medical, pharmaceutical, and bio-processing applications that involve harsh fluids.

COMPANY: Merit Sensor is a leader in piezoresistive pressure sensing and partners with clients to create high-performing solutions for a variety of applications and industries.

HISTORY: For over 25 years Merit Sensor has been a pressure-sensor supplier to the medical-device industry.

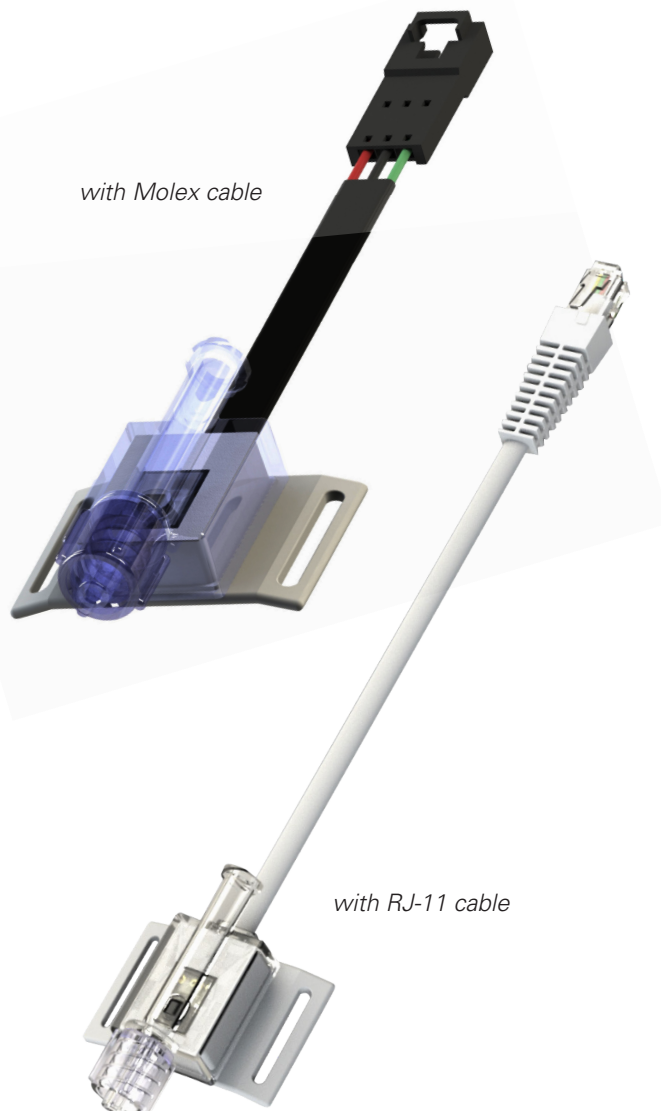
TECHNOLOGY: Merit Sensor utilizes a piezoresistive Wheatstone bridge in a design that anodically bonds glass to a chemically etched silicon diaphragm. All products are RoHS and REACH compliant.

CAPABILITIES: Merit Sensor designs, engineers, fabricates, singulates, assembles, tests, sells, and services die and packaged products from a state-of-the-art facility near Salt Lake City, Utah.

FEATURES:

Pressure Ranges	5 to 100 psi / 250 to 1000 mmHg / 35 to 700 kPa (Other ranges available upon request.)
Accuracy	+/- 1% total error band
Output	Analog 0.5 to 4.5 V
Pressure Type	Compound, Vacuum, Gage, Absolute

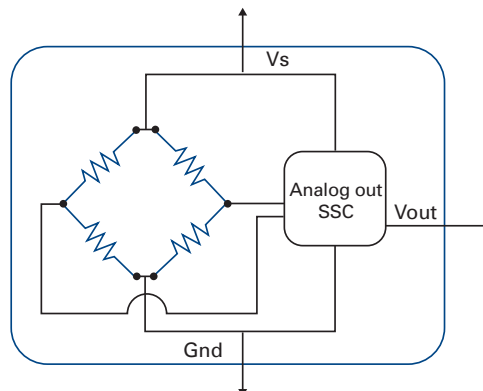
MSS100 Series			
MSS-XXXXX-XXX			
Pressure Range		Cable/Connector	
05P8 = -50 to +300mmHg		1 = Black Molex	
0020 = 20 psi		2 = 15" RJ-11	
0040 = 40 psi		Bottom Housing	
0100 = 100 psi		0 = Wings	
Pressure Type		1 = No wings	
C = Compound		Top Housing	
V = Vacuum		0 = Luer fittings	
G = Gage			
A = Absolute			



Features	Min.	Typ.	Max.	Unit	Notes
Electrical					
Supply Voltage (Vs)	4.5	5	5.5	Volts	
Supply Current			10	mA	
Output Current			2.5	mA	
Short Circuit Current	-25		25	mA	
Reverse Polarity Protection	-33			Volts	Device will cease operation during a supply voltage fault.
Overvoltage Protection			33	Volts	Device will cease operation during a supply voltage fault.
ESD	>4			kV	Human body model 1.5kOhm/100pF.
Performance					
Output Range (Vout)	10		90	%Vs	
Output Clipping Limit (Vout)	5		95	%Vs	
Resolution			0.02	%FS	>12 bit DAC
Accuracy (10°C to 50°C)	-1.0	0	1.0	%FS	Accuracy includes all error for hysteresis and linearity over the entire operating temperature range. It does not include lifetime drift. 10°C to 50°C.
Startup Time		3.5		msec	
Analog Update Time		2		msec	
Static Proof Pressure		2X FS		PSI	
Burst Pressure		3X FS		PSI	
Lifetime Drift	-0.5		0.5	%FS	Room temp – 1 year
Environmental					
Operating Temperature	0		70	°C	
Storage Temperature	-55		85	°C	
Weight		13.64		Grams	
Transfer Function Formula					
$P_{psi} = (P_{max} - P_{min}) \cdot \left(\frac{V_{out} - V_{min}}{V_{max} - V_{min}} \right) + P_{min}$					
Where P_{psi} = Measured Pressure in PSI P_{Max} = Maximum Pressure P_{Min} = Minimum Pressure V_{min} = Minimum Volatage (Usually 0.5V) V_{max} = Maximum Volatage (Usually 4.5V) V_{out} = Output voltage					

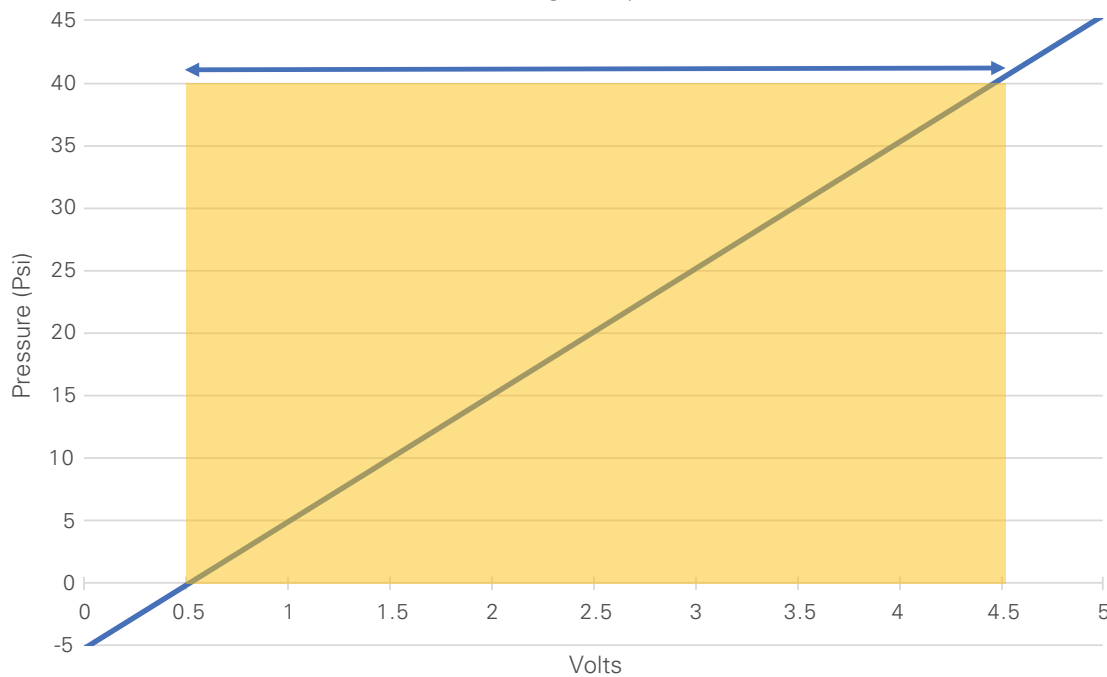
ELECTRICAL

Note: Power supply decoupling and output filtering included



Part: MSS-0040G-XXX

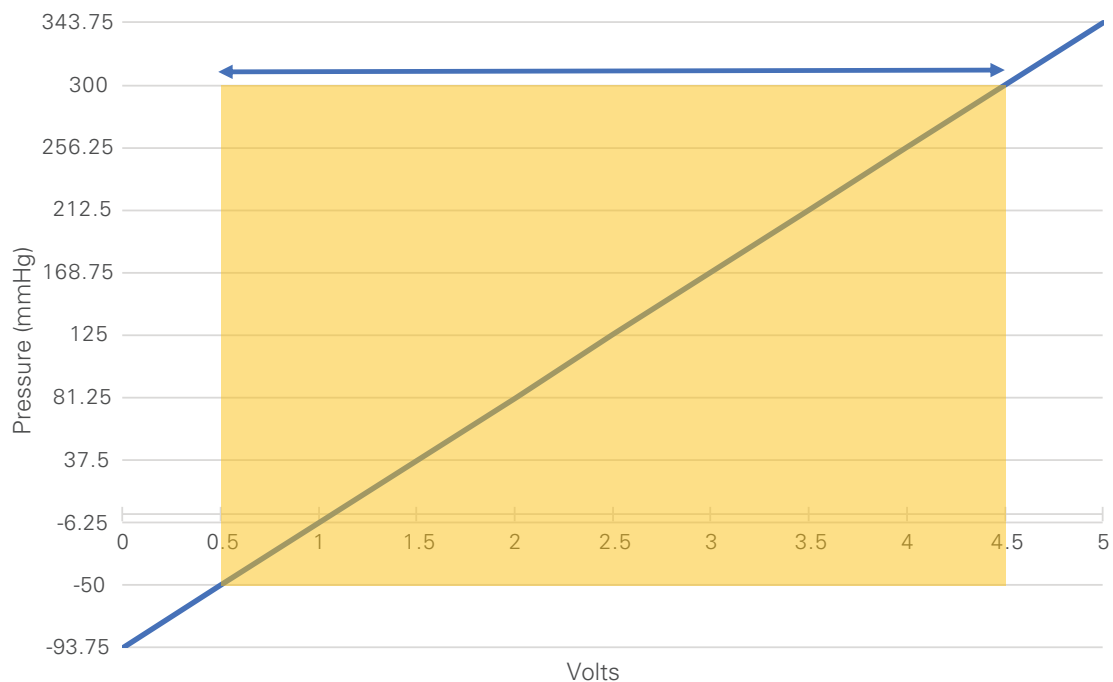
Calibrated Range (Output vs Pressure)



Gage sensor
Output = 0.5V to 4.5V
Pressure = 0 to +40psi

Part: MSS-05P8C-XXX

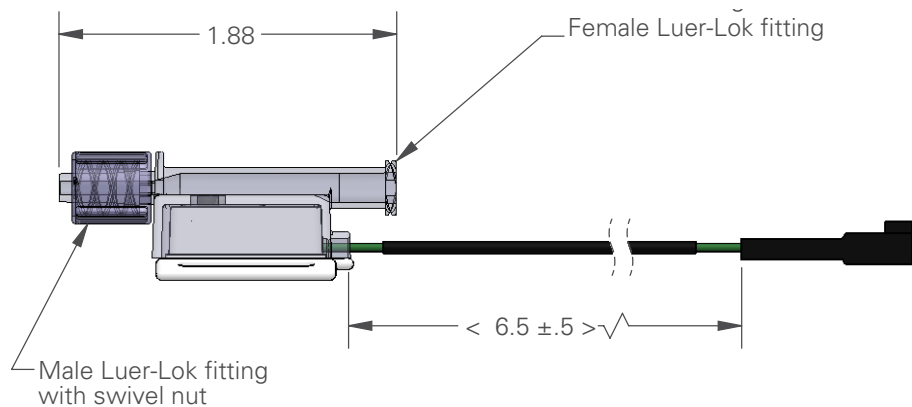
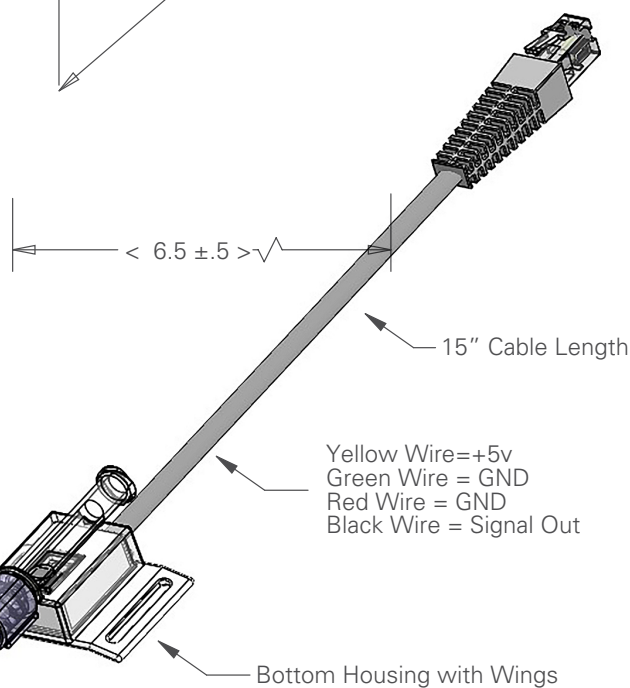
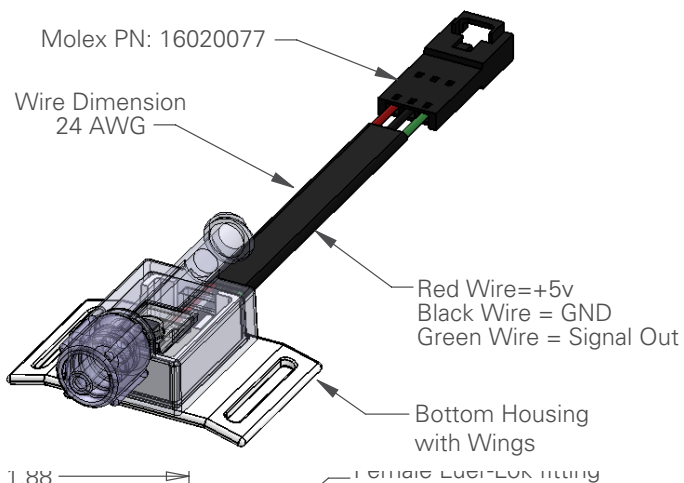
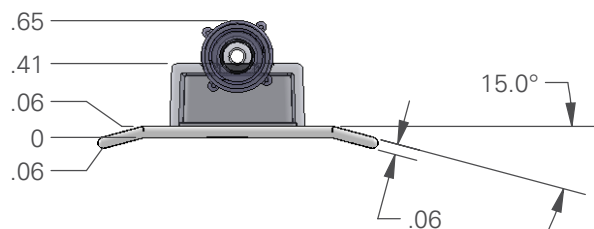
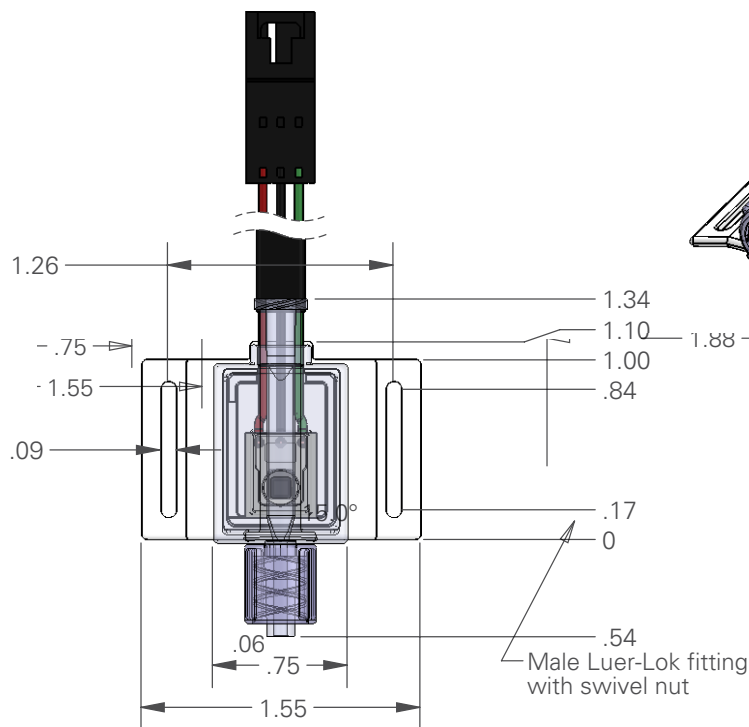
Calibrated Range (Output vs Pressure)



Compound sensor (measuring both vacuum and gage; both sides of zero)
Output = 0.5V to 4.5V
Pressure = -50 to +300mmHg (typical blood pressure applications)

MSS100 Series

DIMENSIONS (inches, post-cut)





Merit Sensor owns and operates a MEMS wafer fab, which enables the production of customized piezoresistive pressure sensors.

