



ULTRA HIGH DIFFERENTIAL PRESSURE TRANSMITTER

Models 114, 214, 314

WORKING & OPERATION OF MODEL 14

Most differential pressure transducers have a sensor in the center of two passive diaphragms, which are normally only between .001 and .004 of an inch thick. An oil fill is used to transfer the pressure from the passive diaphragms to the sensor. As the sensor is cycled in the positive and negative direction, in the course of normal operation, there may be a slight zero shift due to a change in the sensor's neutral axis. These diaphragms and oil fill can also influence the overall performance of the unit by damping pressure spikes and causing pressure shifts.

The Model 14 was designed to solve these problems. This model connects two precisely matched sensors to a common electronic package which subtracts and then amplifies their outputs to provide a differential signal. If required, additional electronics can be added to the unit to provide signals proportional to either or both of the line pressures, as well.

Each sensor of the Model 14 is cycled in only one direction, which helps achieve a greater zero stability. Also, since no oil fill is required, there is no damping of response time, and temperature effects are minimized. In addition, because the sensing diaphragms are much thicker than the above mentioned passive diaphragms, this unit can be used in high cyclic or more rugged applications.



INDUSTRIAL GRADE

FEATURES:

- Rugged
- No fill
- Intrinsically Safe

PRESSURE RANGES:

- From 500 to 0-20,000 psid
(See ordering guide)

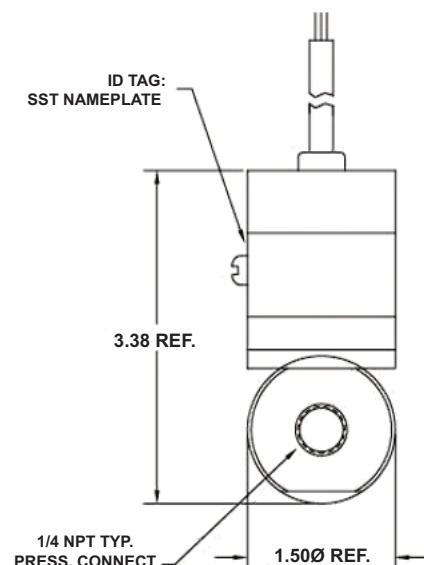
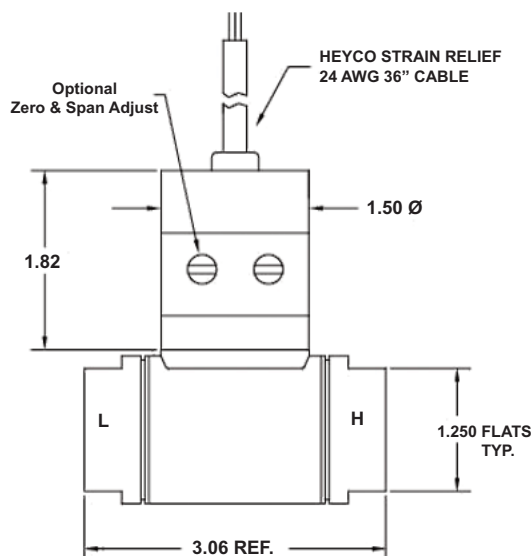
ACCURACY:

- From $\pm 1.0\%$ FSO to $\pm 0.2\%$ FSO (RSS)
(See specifications & ordering guide.)

WIRING CODE

	114	214	314
A/1 RED	+ EXC.	+ EXC.	+ EXC./SIGNAL
B/2 GREEN	+ SIGNAL	+ SIGNAL	NC
C/3 WHITE	- SIGNAL	NC	NC
D/4 BLACK	- EXC.	- EXC./SIGNAL	- EXC./SIGNAL
E/5 BLUE	NC OPTION GH	NC OPTION GH	NC OPTION GH
F/6 BROWN	NC OPTION GH	NC OPTION GH	NC OPTION GH
SHIELD	OPEN	OPEN	OPEN

Some options will affect dimensions. Consult factory if important.



GP:50 reserves the right to make product improvements and amendments to the product specifications stated throughout this brochure without prior notification. Please contact the factory on all critical dimensions and specifications for verification.

A5SL-14.00 Rev A



Specifications reflect standard product, improved performance/mechanical options available. Modifications may alter specs, consult factory for more information.

Full Scale Differential Pressure Ranges	±500, 600, 750, 1000, 1500, 2000, 2500, 3000, 5000, 7500, 10K, 15K, 20K psid			
Static Line Pressure	5 times differential pressure range or 22,5000 psi, whichever is less			
Wetted Parts	316 & 15-5 ph Stainless Steel			
Accuracy	(Static error band includes non-linearity, hysteresis, non-repeatability)			
Series A	±1.0% FSO (RSS)			
Series B	±0.5% FSO (RSS)			
Series C	±0.2% FSO (RSS)			
Zero Shift with Line Pressure	Less than ±1.0% FSO/1000 psid			
Temperature Limits				
Compensated	0° F to +180° F			
Operating	-20° F to +190° F			
Storage	-65° F to +250° F			
Temperature Compensation				
Zero	±2.0% FSO/100° F			
Span	±2.0% FSO/100° F			
Full Scale Output (Span) High Side (at 0 psid)	(Model 114)	(Model 214)	(Model 314)	
	3.0 mV/V±2% at 70°F	5.0 Vdc ±2% at 70°F	16.0 (4-20mA) ±2% at 70°F	
Electricals	(Model 114)	(Model 214)	(Model 314)	(Model 314Z)
Excitation Voltage	3.5-15 Vdc	9.0 - 40 Vdc	9.0 - 36 Vdc	9 - 36 Vdc
Output at 70° F	3.0 mV/V ±2% FSO	5.0 Vdc ±2% FSO	16.0 (4-20 mA) ±2% FSO	4-20 mA ±2% FSO
Zero Balance (at 0 psid)	0.0 mV/V ±5% FSO at 70°F	0.0 Vdc ±5% FSO at 70°F	4.0 mA ±5% FSO at 70°F	
Range Calibration Signal	Shunt resistance value provided on Calibration Card for 100% FSO. (Std. on Model 114)			
Mechanicals				
Proof Pressure	5 times rated Differential Pressure Range, or 22,500 psi, whichever is less			
Burst Pressure	10 times rated Differential Pressure Range, or 22,500 psi, whichever is less			
Pressure Connections	1/4" NPT (F)			
Electrical Connections	6 conductor cable, 24 AWG 36" long, Standard Optional Connectors available			
Enclosure Material	316 Stainless Steel			
Identification	Imprinted Stainless Steel nameplate welded to body			

ORDERING GUIDE:

MODEL	SERIES	RANGE	OPTIONS
●	+	●	●/●/●

Example: 314-C-RV-CA

MODEL

114	3 mV/V
214	5 Vdc
314	4 - 20 mA
314Z	4 - 20 mA (Intrinsically Safe)

SERIES

A	±1.0% FSO (RSS)
B	±0.5% FSO (RSS)
C	±0.2% FSO (RSS)

PRESSURE RANGE

psid	
RH 500	RT 3000
RJ 600	RV 5000
RK 750	RX 7500
RM 1000	RZ 10000
RO 1500	SB 15000
RR 2000	SD 20000
RS 2500	SZ Other

OPTIONS

- AA None
- ALTERNATE CONNECTOR OR CABLE**
- CA Bendix PTIH-10-6P (Mate: PT06E-10-6S [SR] not included)
- CB MS3102E-14S-6P
- CD Cannon WK6-32S (Mate WK6-21C not supplied)
- CE Terminal Block
- CF 1/2" NPT (M) thread with 36" potted leads
- CJ DIN 43650 (includes mate) (Hirschmann type)
- CK Lumberg RSF-3/12 mm
- CM Bendix PTIH-8-4P, or equal
- CO Junction Box (thermocouple type) with terminal block
- CP Cannon WK4-32S
- CW Summersible housing, 8' polyurethane jacket non-vented cable, neoprene grommet and 1/2" NPT(M) Conduit fitting (0-500 psi max. For non-vented units only.)
- CZ Alternate Connector/Cable/Other
- HK NEMA-4X w/24" Cable
- PRESSURE PORT**
- FA MS33649-4 (1/4" AN-10050, female)
- FC 3/8" NPT (F)
- FD MS33656-4 (7/16-20 UNF-3A, for 1/4" tube)
- FH 1/8" NPT (F)
- FJ 1/4" NPT (M)
- FL 1/8" NPT (M)
- LG SAE-4 (F) O-ring seal thread
- LH SAE-6 (M) O-ring seal straight thread (with O-ring)
- LP 1/4" BSPP (F)
- LT SAE-4 (M) O-ring seal straight thread (with O-ring)
- FZ Other
- GENERAL**
- GA Standardized output to ±0.5% FSO
- GB Alternate outputs. Specify zero and span
- GE Improved temperature compensation to ±0.5% FSO/ 100°F for zero and span respectively
- GG Alternate shunt calibration signal
- GH Internal shunt calibration resistor set to 100 ±0.5% FSO
- GJ Add zero and span controls
- GK Inconel Pressure cavity
- GS 0-10 Vdc FSO, (Required 16-32 Vdc exc.)
- HL RFI protection (for unit in proximity to radio transmitter)
- MA 1-5 Vdc FSO
- GZ Customer special