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Piezoresistive Pressure Sensor

Type 4264A...

for R&D, Industrial, Automotive and Aerospace Test Applications

Type 4264A… series is a small, compact differential pressure sensor that complements the Type 4260/62A… series of versatile high performance pressure sensors operating in harsh test environments where temperature extremes, high vibration and shock levels are present.

- Pressure ranges from 1.5 … 150 psi differential, uni- and bi-directional
- Small and compact
- 0.05 % FS accuracy, available
- 0.1 % FS stability per year
- Temperature compensated –40 … 250 °F
- 300 % proof pressure
- Fast response time
- mV, V and mA electrical output options
- Many different voltage output options available: 1 … 5, 0.5 … 4.5, 0 … 10 etc... (3 and 4-wire)
- Intrinsically Safe

Applications

Type 4264A… series from Kistler is well suited for demanding differential pressure applications in the R&D, engine test, road test, component test and for general test applications supporting the automotive, aerospace and industrial markets.

Engine and powertrain test
- Engine oil and coolant filter pressures
- Intake Manifold air flow
- Exhaust Gas Recirculation (EGR)
- Crankcase pressure

On vehicle test
- Oil and coolant filter monitoring
- Fuel system pressurization and flow
- Air conditioning system validation
- Aerodynamics

Component and sub-system testing
- Auxiliary power units
- Air conditioning systems
- Valvetrain development
- Flight test – avionics cooling, cabin conditioning
- Leak testing

CE Compliant Information

EMC compliant to EN61326-1:2001/A1/A2 industrial locations compliant with Pressure Equipment Directive (PED) 97/23/EC a Category 1 Pressure Accessory.

Note: “Pressure Range” is equivalent to max. working pressure (PS) as referred to in the PED.

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Description

Type 4264A… series sensor is based upon proven Kistler piezoresistive sensing technology that has been continually developed and refined since the early 1970's. A silicon sensing element is mounted within a high integrity seal assembly that is fully isolated from the pressure media by a welded 316L stainless steel or Hastelloy™ diaphragm. The silicon sensing element exhibits high performance for stability and repeatability, extremely important parameters for the Test Engineer.

The pressure sensing assembly features a unique sealing method (US Patent 7, 373, 827) that enables the sensor to withstand multiple cycles without fatigue that is especially useful in cyclic applications. This design also enables flexibility in choice of pressure connections without the use of adaptors or 'O' rings.

The reference pressure port is an additional part of the modular build thus ensuring rapid delivery while maintaining flexibility for choice of pressure fittings.

Surface mount electronics condition the output from the silicon sensing element and provide temperature compensation. Additional electronic circuit boards can then be added to configure the electrical output for a wide choice of voltage and mA outputs. As a result, Type 4264A… series can be quickly configured at the factory to the customer's choice of electrical output to suit a variety of data acquisition systems. Additionally, non-interactive zero and span calibration adjustments can be provided.

EMC protection, reverse polarity, power supply regulation, over voltage and short circuit protection is provided, ensuring Type 4264A… series is well suited for the harsh test environments that are commonplace in the automotive and aerospace test markets.

Type 4264A… series is available with options for use in ATEX zoned hazardous area: Zone 0, intrinsically safe CE Ex II 1G and Zone 2, non-incendive Ex II 3G. CSA certified 2009 2053869 single seal.

Type 4264A… series is stocked in popular types and pressure ranges. Prior to shipping the sensor is adjusted to suit the required pressure range and engineering units, the zero and span checked and the sensor finally completed with a choice of electrical and pressure connections.

Finally, every Type 4264A… series sensor is fully tested over both pressure and temperature to ensure compliance to the specifications. This data is available for each sensor and is traceable to ISO 17025 and NIST.

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Specifications	Unit	Type 4264A… Unidirectional Differential											
Pressure range	psid	1.5	2.5	3	5	7.5	10	15	30	50	75	100	150
	options	Alternative pressure units available for mA and Voltage outputs: see table 3 for detail											
Proof pressure	psid	> 3 x FS											
Burst pressure, positive	psid	> 4 x FS											
Common mode (line pressure)	psig	200 max.											
Output		mV, V or mA											
Operating temperature	°F	–67 … 250 (mV or V) / –67 … 212 (mA)											
Compensated temperature range	°F	–40 … 250 (mV or V) / –40 … 175 (mA)											
Accuracy at T_{ref} (non-linearity, hysteresis, repeatability), BFSL [1]	± %Span	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Thermal effects (reference 77 °F)													
15 … 122 °F	%Span	3.5	3.5	3.5	3.5	2	1	1	1	1	1	1	1
–40 … 250 °F (175 °F for mA version)	%Span	10	10	10	10	5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Long term stability (12 months)	%Span	±0.1											

Note: For special calibration, please call Kistler

1) Premium accuracy available see ordering key

Specifications	Unit	Type 4264AB … Bi-directional Differential						
Pressure range	psid	± 1.5	± 2.5	±3.0	±5.0	± 7.5	± 10	± 15
	options	Alternative pressure units available for mA and Voltage outputs: see table 3 for detail						
Proof pressure	psid	>3 x FS pressure						
Burst pressure	psid	>5 x FS pressure (Positive) / >4x FS pressure (Negative)						
Common mode (line pressure)	psig	200 max.						
Output		mV, V or mA						
Operating temperature	°F	–67 … 250 (mV or V) / –67 … 212 (mA)						
Compensated temperature range	°F	–40 … 250 (mV or V) / –40 … 175 (mA)						
Accuracy (non-linearity, hysteresis, repeatability), BFSL	± %Span	0.2 (Positive and negative slope considered independently)						
Thermal effects (reference 77 °F)								
15 … 122 °F	%Span	3.5	3.5	3.5	3.5	2	1	1
–40 … 250 °F (175 °F for mA version)	%Span	10	10	10	10	5	1.5	1.5
Long term stability (12 months)	%Span	±0.1						

Note: For special calibration, please call Kistler

General environmental specifications	Unit	Type 4264A… Unidirectional Differential / Type 4264AB … Bi-directional											
Pressure range (Uni-directional Type 4264A…)	psid	1.5	2.5	3	5	7.5	10	15	30	50	75	100	150
Pressure range (Bi-directional Type 4264AB…)	psid	±1.5	±2.5	±3	±5	±7.5	±10	±15					
Supply voltage	V	5 … 15 (mV versions) / 9 … 28 (mA versions)											
Voltage versions	V	refer to table voltage versions, electrical specs (pg. 4)											
DC output impedance	ohms	< 200 (V output)											
Minimum load resistance	ohms	2500 (V output), 5000 (–5 … 5 V output, 4 wire), 20000 (–5 … 5 V, 3 wire)											
Supply voltage effects max. (regulated units)	%Span/V	0.005											
Warm up time	msec	<1 (mV & V output) <3 (mA output)											
Output noise typical	mVrms	<1 (V output) < 0.1 (mV & mA output)											
Zero setting [2]	%Span	±3 (mV versions) / ±1 (V and mA versions)											
Span setting [3]	%Span	±3 (mV versions) / ±1 (V and mA versions)											
Frequency response, max.	Hz	2000											
Options non-interactive zero and span adjust	%FS	±5											
Shunt calibration (Rcal), ±20 % (V only)	%FS	80											

2) output at 0 pressure

3) Δ output between max. and min. pressure

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Voltage versions; electrical specifications

V output (VDC)	Supply Voltage (VDC)	Current Drain (mA)
0.5 … 4.5 / Ratiometric / 3-wire	5 ±0.5	<2
1 … 6 / 0.5 … 4.5 / 0.1 … 5 VDC / 3-wire	max. output + 0.5 (low power, limited protection)	<2.5
	8 … 42	<3 … 6
0 … 5 / 4-wire	8 … 42	<3 … 6
0 … 10 / 4-wire	13 … 42	<3 … 6
–5 … 5 / 4-wire	13 … 42	<6 … 8.5
–5 … 5 / 3-wire active offset	13 … 42	<7 … 16
0 … 5 / 3-wire active offset	7 … 42	<7 … 16
0 … 10 / 3-wire active offset	13 … 42	<7 … 16

General environmental specifications	Unit	**Type 4264A… Unidirectional Differential / Type 4264AB … Bi-directional**
Pressure range (Uni-directional Type 4264A...)	psid	1.5 | 2.5 | 3 | 5 | 7.5 | 10 | 15 | 30 | 50 | 75 | 100 | 150
Pressure range (Bi-directional Type 4264AB...)	psid	±1.5 | ±2.5 | ±3 | ±5 | ±7.5 | ±10 | ±15
Storage temperature limits	°F	65 … 285 (mV and V) / –65 … 212 (mA)
Design life	FS cycles	50 million at 2 Hz
Vibration, 50 g peak, 10 Hz to 2 kHz per	%FS/g	response <0.05 (reduces with increasing pressure range) MIL-STD-202G, Method 204D, Condition E
Shock		1000g, 0.5 msec half sine pulse in 3 mutually perpendicular axes will not affect performance: MIL-STD-202G, Method 213B-1, Condition E
		100g, 6 msec half sine pulse in 3 mutually perpendicular axes will not affect performance: MIL-STD-202G, Method 213B-1, Condition C
Acceleration sensitivity	%FS/g	<0.05 (reducing with increasing pressure range)
Insulation resistance, at 500 VDC	Mohm	100
Approvals		CE compliant to EN61326:1998+A1+A2:2001 (IEC 61326:2002) Pressure Equipment Directive 97/23/EC (PED), category 1, pressure accessory
Hazardous area certification		IS Zone 0: Ex ia IIC T4 (–40°F<=Ta<=175°F) CE Ex II 1G Non-Incendive Zone 2: Ex nL IIC T4(–40°F<=Ta<=175°F) Ex II 3G
		CSA certified 2009 2053869 single seal

General physical specifications	Unit	**Type 4264A… Unidirectional Differential / Type 4264AB … Bi-directional**
Electrical / Pressure connections		see ordering information
Installation torque	lbf-ft	11.1
Environmental protection		IP65 (Cable, DIN, Connector versions)
Weight	oz.	<8
Media compatibility - Positive port materials		Stainless Steel 316L
Negative port materials		Silicon, Pyrex, Gold Plating, Epoxy and 316L Stainless Steel

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Ordering Key

Unidirectional Differential Pressure

Type 4264A □ □ □ □ □ □ □ □ □

Range (PsiD)	
1.5	**1D5**
2.5	**2D5**
3.0	**3D0**
5.0	**5D0**
7.5	**7D5**
10	**010**
15	**015**
30	**030**
50	**050**
75	**075**
100	**100**
150	**150**
See table 3 (pg. 12) for nom. ranges in other units	

Pressure Units	
PSI	**A**
BAR	**B**
KPA	**C**
TORR	**D**
INHg (32 °F)	**E**
MMHg (32 °F)	**F**
INH_20 (40 °F)	**G**
MH_20 (40 °F)	**H**

Output Type	
See table 1 (pg. 7)	**[A-Z] [1-8]**

Pressure Connector	
7/16-20 UNF female. SAE J1926	**A**
1/4-18 NPT male	**B**
1/4-18 NPT female	**C**
1/4 AN 7/16-20 UNF male, Class 2A, to SAE J514	**D**
G1/4 BSP female	**E**
G1/4B BSP male	**F**
1/8-27 NPT male	**G**
7/16-20 UNF male bulkhead (1/4 pipe)	**H**
1/8-27 NPT male bulkhead G1/4B	**I**
1/4 AN bulkhead (7/16-20 UNF Class 2A, male to SAE J514)	**J**
7/16-20 UNJF, Class 3A, male to AS 4395 (formerly MS 33656-04)	**K**
M10x1 male	**L**
7/16-20 UNF male, SAE J1926	**M**
1/8-27 NPT female	**N**
G1/4B BSP male, 60° Internal	**P**
G 1/2 B BSP MALE	**R**
1/2-20 UNJF-3B, FEMALE	**S**

Electrical Connector	
Raychem cable	**A**
MIL-C-26482	**B**
MIL-DTL-38999	**C**
DIN 43650A	**D**
LUMBERG M12	**E**

Ref. Connector	
1/4-18 NPT male	**B**
1/4 AN 7/16-20 UNF male, Class 2A, to SAE J514	**D**
1/8-27 NPT male	**G**
7/16-20 UNF male (1/4 pipe)	**H**
7/16-20 UNJF, Class 3A, male to AS 4395 (formerly MS 33656-04)	**K**
G1/4B BSP male, 60° Internal	**P**

Cable Length	
see table 4 (pg. 12)	**[0-H]**

Wiring Options	
See table 2 (pg. 9-11)	**[A-W]**

Certification (Optional)	
none	**0**
Calibration certificate (supplied with premium)	**1**
Premium accuracy with cert [4]	**2**
IS Zone 0	**A**
nL Zone 2	**B**
IS Zone 0 Premium [4]	**C**
nL Zone 2 Premium [4]	**D**

Differential Premium Accuracy

Premium accuracy: ±0.05% FS to ±0.15% FS (availability based on selected pressure sensor, contact Kistler).

Pressure Adaptors: Optional Accessories for Type 4264A...

- 7/16-20 UNF male to 1/4 NPT male 6570
- 7/16-20 UNF male to 7/16-20 UNF male 6572
- 7/16-20 UNF male to 1/8-27 NPT male 6574

Electrical Connector: Optional Accessories for Type 4264A...

- Din 43650A Hirschman, mating connector 1500A89
- MIL-C26482 Amphenol, mating connector 1500A90

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Ordering Key

Bi-directional Differential Pressure

Type 4264AB □ □ □ □ □ □ □ □ □

Range (PsiD)

±1.5	**04**
±2.5	**03**
±3	**02**
±5	**05**
±7.5	**06**
±10	**01**
±15	**07**
See table 3 (pg. 12) for nom. ranges in other units	

Pressure Units

PSI	**A**
BAR	**B**
KPA	**C**
TORR	**D**
INHg (32 °F)	**E**
MMHg (32 °F)	**F**
INH_20 (40 °F)	**G**
MH_20 (40 °F)	**H**

Output Type

See table 1 (pg. 7)	**[A-Z] [1-8]**

Pressure Connector

7/16-20 UNF female, SAE J1926	**A**
1/4-18 NPT male	**B**
1/4-18 NPT female	**C**
1/4 AN 7/16-20 UNF male, Class 2A, male to SAE J514	**D**
G1/4 BSP female	**E**
G1/4B BSP male	**F**
1/8-27 NPT male	**G**
7/16-20 UNF male bulkhead (1/4 pipe)	**H**
1/8-27 NPT male bulkhead G1/4B	**I**
1/4 AN bulkhead (7/16-20 UNF Class 2A, male to SAE J514)	**J**
7/16-20 UNJF, Class 3A, male to AS 4395 (formerly MS 33656-04)	**K**
M10x1 male	**L**
7/16-20 UNF male, SAE J1926	**M**
1/8-27 NPT female	**N**
G1/4B BSP male, 60° Internal cone	**P**
G 1/2 B BSP MALE	**R**
1/2-20 UNJF-3B, FEMALE	**S**

Electrical Connector

Raychem cable	**A**
MIL-C-26482	**B**
MIL-DTL-38999	**C**
DIN 43650A	**D**
LUMBERG M12	**E**

Ref. Connector

1/4-18 NPT male	**B**
1/4 AN 7/16-20 UNF male, Class 2A, male to SAE J514	**D**
1/8-27 NPT male	**G**
7/16-20 UNF male (1/4 pipe)	**H**
7/16-20 UNJF, Class 3A, male to AS 4395	**K**
G1/4B BSP male, 60° Internal cone	**P**

Cable Length

see table 4 (pg. 12)	**[0-H]**

Wiring Options

See table 2 (pg. 9-11)	**[A-W]**

Certification (Optional)

none	**0**
Calibration certificate (supplied with premium)	**1**
Premium accuracy with cert [5)]	**2**
IS Zone 0	**A**
nL Zone 2	**B**
IS Zone 0 Premium [5)]	**C**
nL Zone 2 Premium [5)]	**D**

Differential Premium Accuracy

Premium accuracy: ±0.05% FS to ±0.15% FS (availability based on selected pressure sensor, contact Kistler).

Pressure Adaptors: Optional Accessories for Type 4264AB...

- 7/16-20 UNF male to 1/4 NPT male 6570
- 7/16-20 UNF male to 7/16-20 UNF male 6572
- 7/16-20 UNF male to 1/8-27 NPT male 6574

Electrical Connector: Optional Accessories for Type 4264AB...

- Din 43650A Hirschman, mating connector 1500A89
- MIL-C26482 Amphenol, mating connector 1500A90

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Table 1

Output Accuracy and Electrical Output Configuration

Code	Output
A	mV (10 mV/V)
C	4-20 mA
E	4-20 mA, adjustable cal-adjust
F	1 … 6 VDC (3-wire)
H	1 … 6 VDC (3-wire) cal-adjust
I	0.5 … 4.5 VDC (3-wire)
K	0.5 … 4.5 VDC (3-wire) cal-adjust
L	0.1 … 5 VDC (3-wire)
N	0.1 … 5 VDC (3-wire), cal-adjust
O	0.5 … 4.5 VDC (3-wire) low power, 5 V supply
Q	0.5 … 4.5 VDC (3-wire) low power, 5 V supply, cal-adjust
R	0 … 10 VDC (4-wire)
T	0 … 10 VDC (4-wire), cal-adjust
U	–5 … 5 VDC (4-wire)
W	–5 … 5 VDC (4-wire), cal-adjust
X	0 … 5 VDC (4-wire)
Z	0 … 5 VDC (4-wire), cal-adjust
1	0 … 5 VDC (3-wire) active offset, cal. adjust
2	0 … 10 VDC (3-wire) active offset, cal. adjust
3	0.5 … 4.5 VDC (3-wire) low power ratiometric
4	–5 … 5 VDC (3-wire) active offset, cal. adjust
5	0.5 … 4.5 VDC (3-wire) low power ratiometric, cal-adjust
6	0 … 5 VDC (3-wire) active offset
7	0 … 10 VDC (3-wire) active offset
8	–5 … 5 VDC (3-wire) active offset

Calibration Data

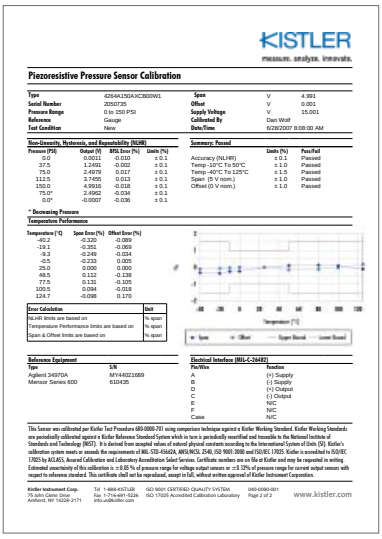
Calibration data is available for all Type 4264A… series sensors and is supplied as standard with all premium accuracy sensors.

The following information is provided on the calibration sheet and provides a comprehensive summary of the actual performance of the sensor compared to specification:

- Non-linearity, hysteresis & repeatability at room temperature
- Zero setting and span setting at room temperature
- Thermal zero shift and thermal span shift through the compensated temperature range
- Pass/fail summary
- Electrical connection details

All data is traceable to the National Institute of Standards and Technology (NIST) and is ISO17025 certified.

Type 4264A… series can be provided with custom calibrations for specific applications.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Piezoresistive Pressure Sensor Calibration

Type	4264A150AXCB00W1	Span	V 4.991
Serial Number	2050735	Offset	V 0.001
Pressure Range	0 to 150 PSI	Supply Voltage	V 15.001
Reference	Gauge	Calibrated By	Dan Wolf
Test Condition	New	Date/Time	6/28/2007 8:08:00 AM

Non-Linearity, Hysteresis, and Repeatability (NLHR)

Pressure (PSI)	Output (V)	BFSL Error (%)	Limits (%)
0.0	0.0011	-0.010	± 0.1
37.5	1.2491	-0.002	± 0.1
75.0	2.4979	0.017	± 0.1
112.5	3.7455	0.013	± 0.1
150.0	4.9916	-0.018	± 0.1
75.0*	2.4962	-0.034	± 0.1
0.0*	-0.0007	-0.036	± 0.1

Summary: Passed

	Limits (%)	Pass/Fail
Accuracy (NLHR)	± 0.1	Passed
Temp -10°C To 50°C	± 1.0	Passed
Temp -40°C To 125°C	± 1.5	Passed
Span (5 V nom.)	± 1.0	Passed
Offset (0 V nom.)	± 1.0	Passed

* Decreasing Pressure

Temperature Performance

Temperature (°C)	Span Error (%)	Offset Error (%)
-40.2	-0.330	-0.089
-19.1	-0.351	-0.069
-9.3	-0.249	-0.034
-0.5	-0.233	0.005
25.0	0.000	0.000
48.5	0.112	-0.138
77.5	0.131	-0.105
100.5	0.094	-0.018
124.7	-0.098	0.170

Error Calculation	Unit
NLHR limits are based on	% span
Temperature Performance limits are based on	% span
Span & Offset limits are based on	% span

Reference Equipment

Type	S/N
Agilent 34970A	MY44021689
Mensor Series 600	610435

Electrical Interface (MIL-C-26482)

Pin/Wire	Function
A	(+) Supply
B	(-) Supply
D	(+) Output
C	(-) Output
E	N/C
F	N/C
Case	N/C

This Sensor was calibrated per Kistler Test Procedure 680-0000-791 using comparison technique against a Kistler Working Standard. Kistler Working Standards are periodically calibrated against a Kistler Reference Standard System which in turn is periodically recertified and traceable to the National Institute of Standards and Technology (NIST). It is derived from accepted values of natural physical constants according to the International System of Units (SI). Kistler's calibration system meets or exceeds the requirements of ANSI/NCSL Z540, ISO 9001:2000 and ISO/IEC 17025. Kistler is accredited to ISO/IEC 17025 by A2LA/ACLASS, Accred Calibration and Laboratory Accreditation Select Services. Certificate numbers are on file at Kistler and may be requested in writing. Estimated uncertainty of this calibration is ±0.05 % of pressure range for voltage output sensors or ±0.12% of pressure range for current output sensors with respect to reference standard. This certificate shall not be reproduced, except in full, without written approval of Kistler Instrument Corporation.

Kistler Instrument Corp. 79 John Glenn Drive Amherst, NY 14228-2171 Tel 1-888-KISTLER Fax 1-716-691-5226 info.us@kistler.com ISO 9001 CERTIFIED QUALITY SYSTEM ISO 17025 Accredited Calibration Laboratory 040-0090-001 Page 2 of 2 www.kistler.com

Special Calibration

Custom calibrations include improved Static Error Band, improved temperature effects over custom temperature limits and improved zero and span setting tolerances. Examples of improved temperature errors (thermal zero and thermal span shift) include:

- 0.5 % FS over 14 … 122 °F
- 1.0 % FS over 14 … 255 °F
- 1.0 % FS over –40 … 122 °F

Contact Kistler to discuss special calibration requirements.

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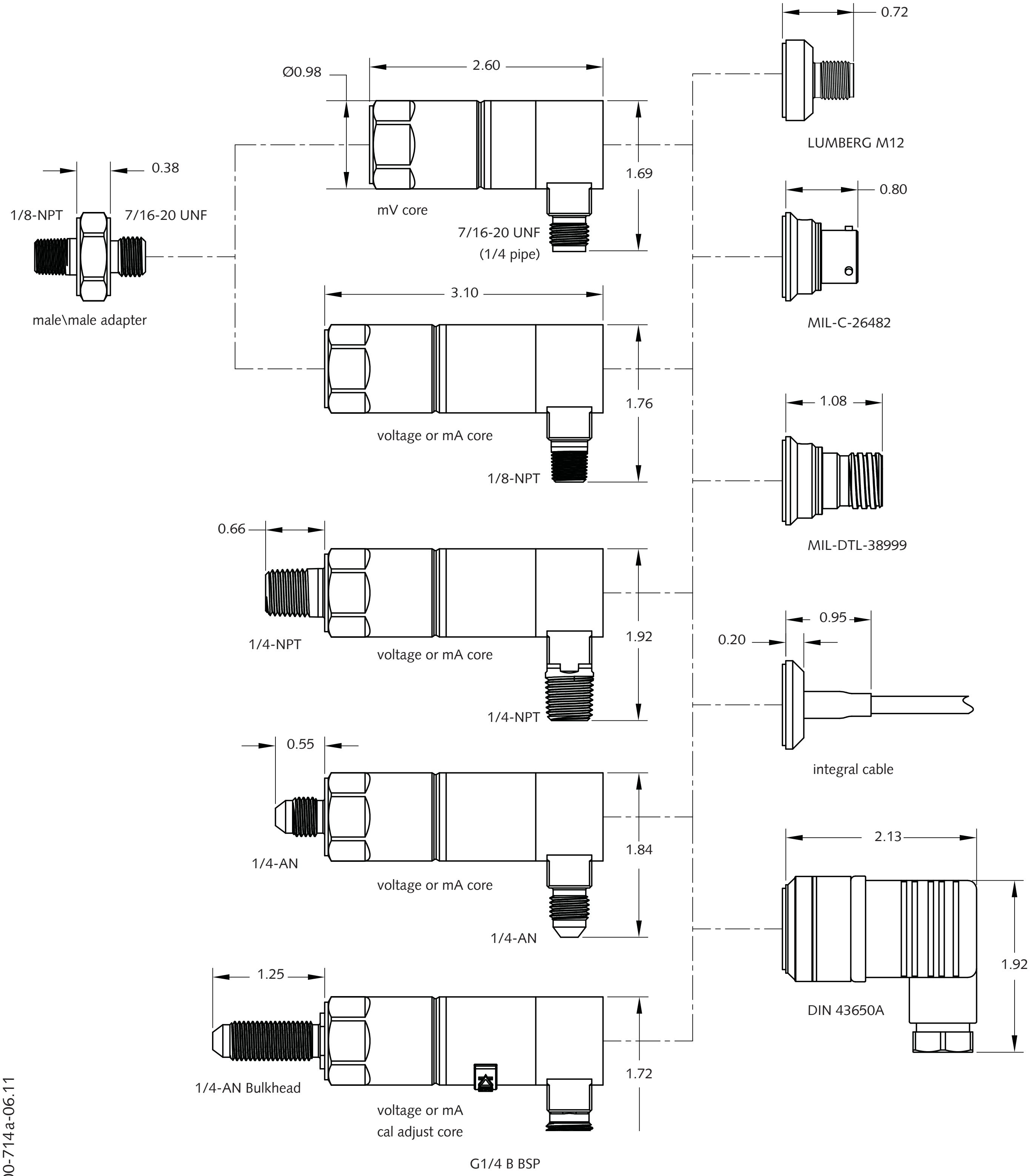
Dimensional Information



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Note: Common pressure and electrical connections shown, other options are available

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Table 2

Wiring Option, Voltage Output

Option A: Cable, 4-Wire with Shunt Rcal.

Wire Color	Connection
Red	(+) Supply
Blue	(–) Supply
Yellow	(+) Output
Green	(–) Output
Brown	Shunt
Black	Not connected
Shield	Not connected

Option B: Cable, 4-Wire

Wire Color	Connection
Red	(+) Supply
Blue	(–) Supply
Yellow	(+) Output
Green	(–) Output
Black/Brown	Not connected
Shield & Drain	Not connected

Option C: Cable, 3-Wire with Shunt Rcal.

Wire Color	Connection
Red	(+) Supply
Blue	(–) Supply (–) Output
Yellow	(+) Output
Brown	Shunt
Green/Black	Not connected
Shield	Not connected

Option D: Cable, 3-Wire

Wire Color	Connection
Red	(+) Supply
Blue	(–) Supply (–) Output
Yellow	(+) Output
Green/Black/Brown	Not connected
Shield	Not connected

Option E: Cable, 3-Wire with Shunt Rcal.

Wire Color	Connection
Red	(+) Supply
Black/Green	(–) Supply (–) Output
Yellow	(+) Output
Blue	Shunt
Brown	Not connected
Shield	Not connected

Option F: Connector, 4-Wire with Shunt Rcal.

Pin (connector B)	Pin (connector C)	Connection
A	1	(+) Supply
D	4	(–) Supply
B	2	(+) Output
C	3	(–) Output
E	5	Shunt
F	6	Not connected
Case	Case	Not connected

Option G: Connector, 4-Wire

Pin (connector B)	Pin (connector C)	Connection
A	1	(+) Supply
D	4	(–) Supply
B	2	(+) Output
C	3	(–) Output
E/F	5/6	Not connected
Case	Case	Not connected

Option H: Connector, 4-Wire with Shunt Rcal.

Pin (connector B)	Pin (connector C)	Connection
A	1	(+) Supply
B	2	(–) Supply
C	3	(+) Output
D	4	(–) Output
E	5	Shunt
F	6	Not connected
Case	Case	Not connected

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Table 2 (continued)

Wiring Option Voltage Output

Option I: Connector, 4-Wire

Pin (connector B)	Pin (connector C)	Connection
A	1	(+) Supply
B	2	(–) Supply
C	3	(+) Output
D	4	(–) Output
E/F	5/6	Not connected
Case	Case	Not connected

Option J: Connector, 4-Wire with Shunt Rcal.

Pin (connector B)	Pin (connector C)	Connection
A	1	(+) Supply
C	3	(–) Supply
D	4	(+) Output
B	2	(–) Output
E	5	Shunt
F	6	Not connected
Case	Case	Not connected

Option K: Connector, 4-Wire

Pin (connector B)	Pin (connector C)	Connection
A	1	(+) Supply
C	3	(–) Supply
D	4	(+) Output
B	2	(–) Output
E/F	5/6	Not connected
Case	Case	Not connected

Option W: Connector, 4-Wire

Pin (connector B)	Pin (connector C)	Connection
A	1	(+) Supply
B	2	(–) Supply
C	3	(–) Output
D	4	(+) Output
E/F	5/6	Not connected
Case	Case	Not connected

Option L: Connector, 3-Wire with Shunt Rcal.

Pin (connector B)	Pin (connector C)	Connection
A	1	(+) Supply
D, C	4, 3	(–) Supply (–) Output
B	2	(+) Output
E	5	Shunt
F	6	Not connected
Case	Case	Not connected

Option M: Connector, 3-Wire

Pin (connector B)	Pin (connector C)	Connection
A	1	(+) Supply
D, C	4, 3	(–) Supply (–) Output
B	2	(+) Output
E/F	5/6	Not connected
Case	Case	Not connected

Option N: Connector, 3-Wire with Shunt Rcal.

Pin (connector B)	Pin (connector C)	Connection
A	1	(+) Supply
B, C	2, 3	(–) Supply (–) Output
D	4	(+) Output
E	5	Shunt
F	6	Not connected
Case	Case	Not connected

Option U: Connector, 3-Wire

Pin (connector B)	Pin (connector C)	Connection
A	1	(+) Supply
B, C	2, 3	(–) Supply (–) Output
D	4	(+) Output
E, F	5, 6	Not connected
Case	Case	Not connected

Option X: Connector, 3-Wire

Pin (connector D and E)	**1**	**2**	**3**	**4**
Connection	(+) Supply	(–) Supply/ Output	(+) Output	Case ground

Option Y: Connector, 3-Wire

Pin (connector D and E)	**1**	**2**	**3**	**4**
Connection	(–) Supply/ Output	(+) Output	(+) Supply	Case ground

Connections

A … F	MIL-C-26482
1 … 6	MIL-DTL-38999
1 … 4	DIN 43650A

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Table 2 (continued)

Wiring Option mV Output

Option Q: Cable

Wire Color	Connection
Red	(+) Supply
Blue	(–) Supply
Green	(–) Output
Yellow	(+) Output
Shield	Not connected
Black/Brown	Not connected

Option S: Cable

Wire Color	Connection
Red/ Brown	(+) Supply
Blue/ Black	(–) Supply
Green	(–) Output
Yellow	(+) Output
Shield	Not connected

Option T: Connector

Pin (connector B)	Pin (connector C)	Connection
A	1	(+) Supply
D	4	(–) Supply
B	2	(+) Output
C	3	(–) Output
F	6	Not connected
E	5	Case

Option V: Connector, Remote Supply Monitoring

Pin (connector B)	Pin (connector C)	Connection
A, B	1, 2	(+) Supply
D, C	3, 4	(–) Supply
E	5	(+) Output
F	6	(–) Output
Case	Case	Not connected

Connections
A … F MIL-C-26482
1 … 6 MIL-DTL-38999

Loop Powered Current 4 … 20 mA:

Option O: Cable, 2-Wire

Wire Color	Connection
Red	(+) Supply
Blue	(–) Output/(–) Supply
Black	Case ground
Shield	Not connected
Green/Yellow/Brown	Not connected

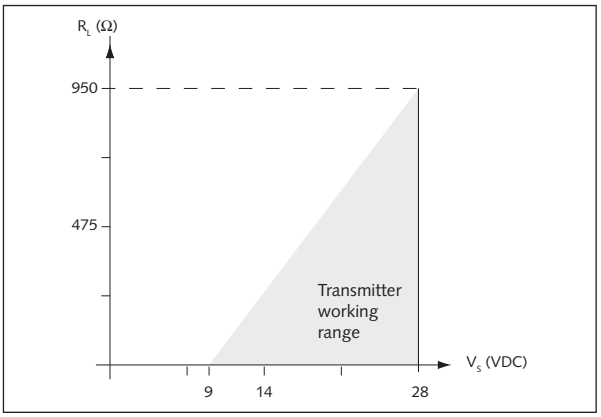
Option P: Connector, 2-Wire
(Electrical Connector Options B & C Only)

Pin (connector B)	Pin (connector C)	Connection
A	1	(+) Supply
C	3	(–) Output (–) Supply
E	5	Case ground*
B, D, F	2, 4, 6	Not connected

Option R: Din Connector, 2-Wire
(Electrical Connector Option D Only)

Pin	Connection
1	(+) Supply
3	(–) Output/(–) Supply
4	Case ground (DC)
2	Not connected

Loop Resistance Chart



Load Chart for 4 … 20 mA (loop powered current output)	
Key	Description
V_S	Voltage at the terminal of transmitter
R_L	Load resistance

Min. required working voltage is given by
Vs (0.02 x R_L) + 9V

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Table 3

Pressure Units for Ordering Codes

Code	Psi (A)	Bar (B)	Kpa (C) Nominal	Torr (D) Nominal	INHG @0°C (E) Nominal	MMHG @0°C (F) Nominal	INH2O @4°C (G) Nominal	MH2O @4°C (H) Nominal
1D5	1.5	0.1	10.0	75.0	3.0	75.0	40.0	1.0
2D5	2.5	0.17	17	125	5	125	70	1.7
3D0	3	0.2	20.0	150.0	6.0	150.0	80.0	2.0
5D0	5	0.35	35.0	250.0	10.0	250.0	140.0	3.5
7D5	7.5	0.5	50.0	375.0	15.0	375.0	200.0	5.0
010	10	0.7	70.0	525.0	20.0	525.0	280.0	7.0
015	15	1.0	100.0	750.0	30.0	750.0	400.0	10.0
030	30	2.0	200.0		60.0	1500.0	800.0	20.0
050	50	3.5	350.0		100.0	2500.0	1400.0	35.0
075	75	5.0	500.0		150.0	3750.0	2000.0	50.0
100	100	7.0	700.0		200.0	5000.0	2750.0	70.0
150	150	10.0	1000.0		300.0	7500.0	4000.0	100.0
B01	–10	–0.7	–70.0		–20.0	–525.0	–280.0	–7.0
	10	0.7	70.0		20.0	525.0	280.0	7.0
B02	–3	–0.2	–20.0		–6.0	–150.0	–80.0	–2.0
	3	0.2	20.0		6.0	150.0	80.0	2.0
B03	–2.5	–0.17	–17.0		–5.0	–125.0	–70.0	–1.7
	2.5	0.17	17.0		5.0	125.0	70.0	1.7
B04	–1.5	–0.1	–10.0		–3.0	–75.0	–40.0	–1.0
	1.5	0.1	10.0		3.0	75.0	40.0	1.0
B05	–5.0	–0.35	–35.0		–10.0	–250.0	–140.0	–3.5
	5.0	0.35	35.0		10.0	250.0	140.0	3.5
B06	–7.5	–0.5	–50.0		–15.0	–375.0	–200.0	–5.0
	7.5	0.5	50.0		15.0	375.0	200.0	5.0
B07	–15.0	–1.0	–100.0		–30.0	–750.0	–400.0	–10.0
	15.0	1.0	100.0		30.0	750.0	400.0	10.0

Table 4

Preferred Cable Lengths

Code	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H
Length (ft)	None	1	2	3	4	5	6	7	8	9	10	15	20	25	30	50	75	99

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