

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 0,1 ... 10 bar differential, uni- and bi-directional
- Small and compact
- 0,05 % FS accuracy, available
- 0,1 % FS stability per year
- Temperature compensated -40 ... 125 °C
- 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.

4264A_000-714e-06.11

This information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes. Liability for consequential damage resulting from the use of Kistler products is excluded.

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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 (C) (E) II 1G and Zone 2, non-incendive (E) II 3G. (E) 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.

| Specifications | Unit | Type 4264A... Unidirectional Differential | | | | | | | | | | | | |
|---|---------------------------------------|---|------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pressure range | bard | 0,1 | 0,17 | 0,2 | 0,35 | 0,5 | 0,7 | 1 | 2 | 3 | 5 | 7 | 10 | |
| | options | Alternative pressure units available for mA and Voltage outputs: see table 3 for detail | | | | | | | | | | | | |
| Proof pressure | bard | > 3 x FS | | | | | | | | | | | | |
| Burst pressure, positive | bard | > 4 x FS | | | | | | | | | | | | |
| Common mode (line pressure) | barg | 14 max. | | | | | | | | | | | | |
| Output | | mV, V or mA | | | | | | | | | | | | |
| Operating temperature | °C | -55 ... 125 (mV or V) / -55 ... 100 (mA) | | | | | | | | | | | | |
| Compensated temperature range | °C | -40 ... 125 (mV or V) / -40 ... 80 (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 25 °C) | | | | | | | | | | | | | | |
| | -10 ... 50 °C | %Span | 3,5 | 3,5 | 3,5 | 3,5 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | -40 ... 125 °C (80 °C 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 | bard | ± 0,1 | ± 0,17 | ± 0,2 | ± 0,35 | ± 0,5 | ± 0,7 | ± 1 | |
| | options | Alternative pressure units available for mA and Voltage outputs: see table 3 for detail | | | | | | | |
| Proof pressure | bard | >3 x FS pressure | | | | | | | |
| Burst pressure | bard | >5 x FS pressure (Positive) / >4x FS pressure (Negative) | | | | | | | |
| Common mode (line pressure) | barg | 14 max. | | | | | | | |
| Output | | mV, V or mA | | | | | | | |
| Operating temperature | °C | -55 ... 125 (mV or V) / -55 ... 100 (mA) | | | | | | | |
| Compensated temperature range | °C | -40 ... 125 (mV or V) / -40 ... 80 (mA) | | | | | | | |
| Accuracy (non-linearity, hysteresis, repeatability), BFSL | ± %Span | 0,2 (Positive and negative slope considered independently) | | | | | | | |
| Thermal effects (reference 25 °C) | | | | | | | | | |
| | -10 ... 50 °C | %Span | 3,5 | 3,5 | 3,5 | 3,5 | 2 | 1 | 1 |
| | -40 ... 125 °C (80 °C 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...) | bard | 0,1 | 0,17 | 0,2 | 0,35 | 0,5 | 0,7 | 1 | 2 | 3 | 5 | 7 | 10 | |
| Pressure range (Bi-directional Type 4264AB...) | bard | ± 0,1 | ± 0,17 | ± 0,2 | ± 0,35 | ± 0,5 | ± 0,7 | ± 1 | | | | | | |
| Supply voltage | V | 5 ... 15 (mV versions) / 9 ... 28 (mA versions) | | | | | | | | | | | | |
| | Voltage versions | refer to table voltage versions, electrical specs (pg. 4) | | | | | | | | | | | | |
| DC output impedance | ohms | < 200 (V output) | | | | | | | | | | | | |
| Minimum load resistance | ohms | 2 500 (V output), 5 000 (-5 ... 5 V output, 4 wire), 20 000 (-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 | 2 000 | | | | | | | | | | | | |
| 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

Voltage versions; electrical specifications

| V output (VDC) | Supply Voltage (VDC) | Current Drain (mA) |
|--|---|--------------------|
| 0 ... 10 / 3-wire active offset | 13 ... 42 | <7 ... 16 |
| 0 ... 10 / 4-wire | 13 ... 42 | <3 ... 6 |
| 0 ... 5 / 3-wire active offset | 7 ... 42 | <7 ... 16 |
| 0 ... 5 / 4-wire | 8 ... 42 | <3 ... 6 |
| 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 |
| -5 ... 5 / 3-wire active offset | 13 ... 42 | <7 ... 16 |
| -5 ... 5 / 4-wire | 13 ... 42 | <6 ... 8,5 |

| General environmental specifications | Unit | Type 4264A... Unidirectional Differential / Type 4264AB ... Bi-directional | | | | | | | | | | | |
|--|-----------|---|-------|------|-------|------|------|----|---|---|---|---|----|
| Pressure range (Uni-directional Type 4264A...) | bar | 0,1 | 0,17 | 0,2 | 0,35 | 0,5 | 0,7 | 1 | 2 | 3 | 5 | 7 | 10 |
| Pressure range (Bi-directional Type 4264AB...) | bar | ±0,1 | ±0,17 | ±0,2 | ±0,35 | ±0,5 | ±0,7 | ±1 | | | | | |
| Storage temperature limits | °C | -55 ... 140 (mV and V) / -55 ... 100 (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) Ⓒ ⒺII 1G | | | | | | | | | | | |
| | | Non-Incendive Zone 2: Ex nL IIC T4(-40°F<=Ta<=175°F) ⒸII 3G | | | | | | | | | | | |
| | | Ⓒ CSA certified 2009 2053869 single seal | | | | | | | | | | | |

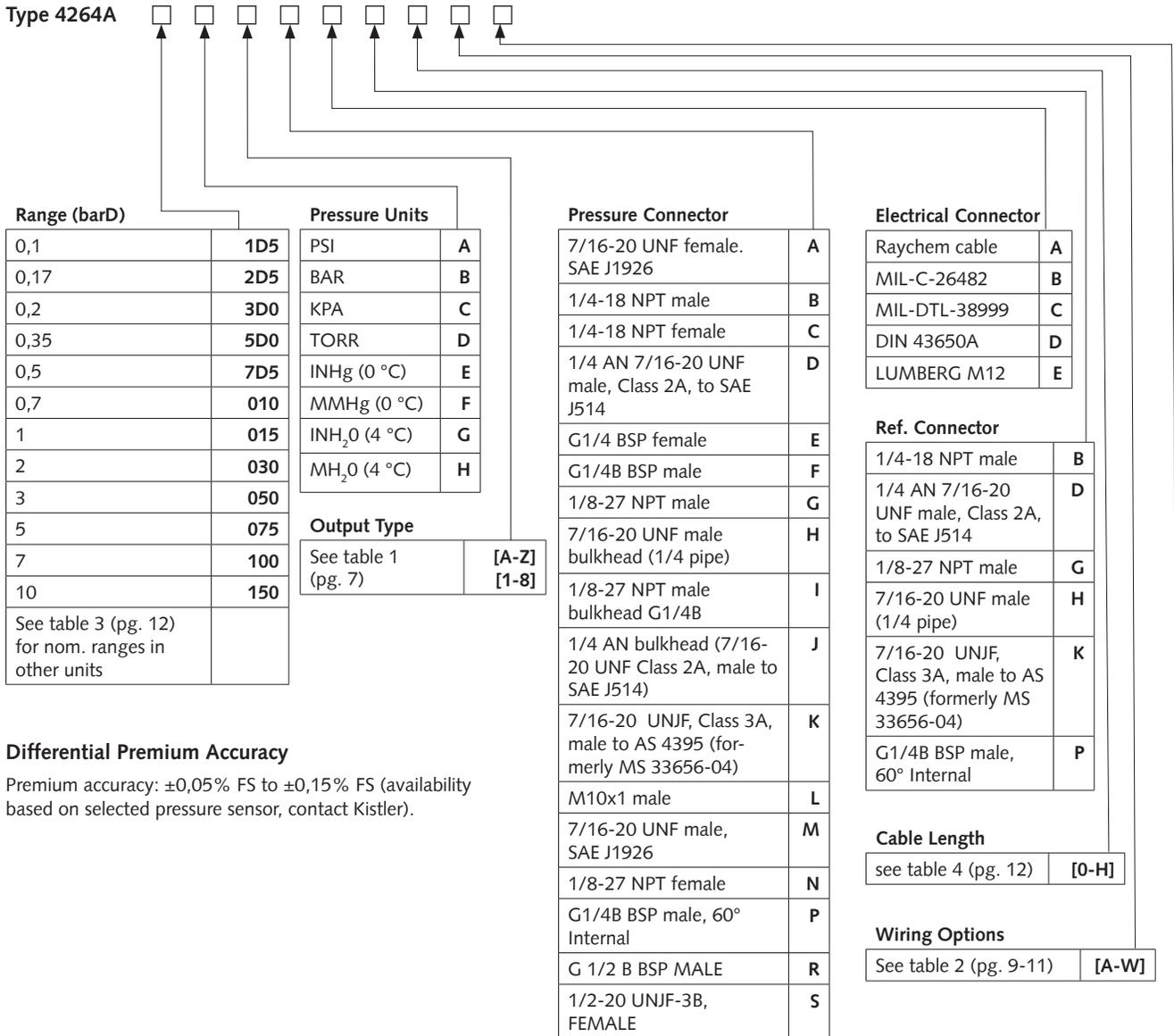
| General physical specifications | Unit | Type 4264A... Unidirectional Differential / Type 4264AB ... Bi-directional |
|---|------|--|
| Electrical / Pressure connections | | see ordering information |
| Installation torque | Nm | 15 |
| Environmental protection | | IP65 (Cable, DIN, Connector versions) |
| Weight | gram | <250 |
| Media compatibility - Positive port materials | | Stainless Steel 316L |
| Negative port materials | | Silicon, Pyrex, Gold Plating, Epoxy and 316L Stainless Steel |

4264A_000-714e-06.11

Ordering Key

Unidirectional Differential Pressure

Type 4264A



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

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 |

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Ordering Key

Bi-directional Differential Pressure

Type 4264AB



| Range (barD) | |
|---|----|
| ±0,1 | 04 |
| ±0,17 | 03 |
| ±0,2 | 02 |
| ±0,35 | 05 |
| ±0,5 | 06 |
| ±0,7 | 01 |
| ±1 | 07 |
| See table 3 (pg. 12) for nom. ranges in other units | |

| Pressure Units | |
|---------------------------|---|
| PSI | A |
| BAR | B |
| KPA | C |
| TORR | D |
| INHg (0 °C) | E |
| MMHg (0 °C) | F |
| INH ₂ O (4 °C) | G |
| MH ₂ O (4 °C) | 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

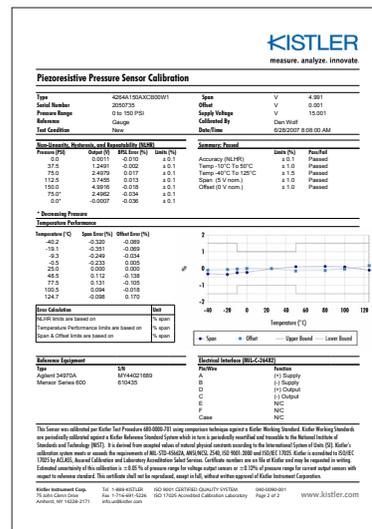
Calibration data is available for all Type 4264A... series sensors and is supplied as standard with all premium accuracy sensors.

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.



Special Calibration

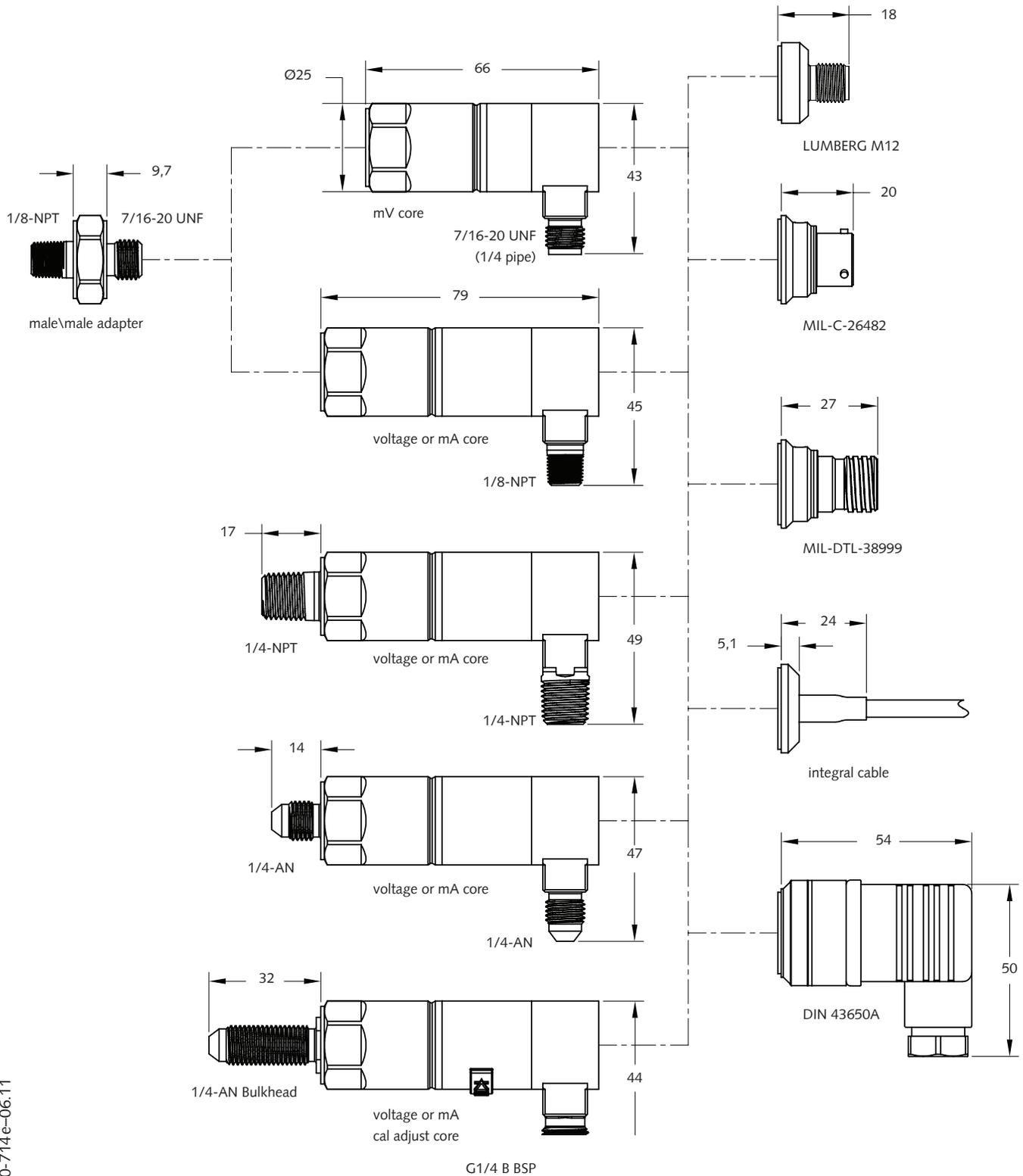
Custom calibrations include improved Static Error Band, improved temperature effects over custom temperature limits and improved zero and span setting tolerances. Examples of improved temperature errors (thermal zero and thermal span shift) include:

- 0,5 % FS over -10 ... 50 °C
- 1,0 % FS over -10 ... 125 °C
- 1,0 % FS over -40 ... 50 °C

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

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 |

4264A_000-714e-06.11

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

4264A_000-714e-06.11

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)

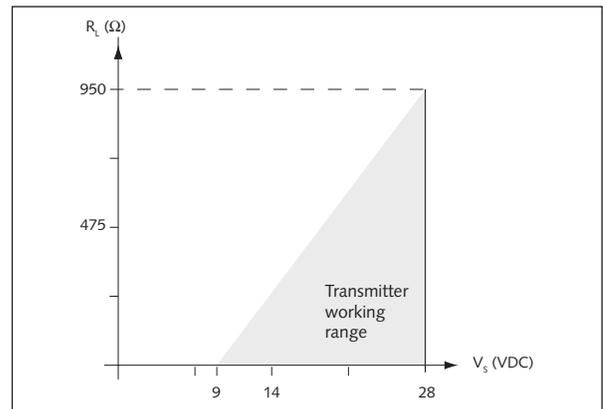
| Pin (connector B) | Pin (connector C) | Connection |
|-------------------|-------------------|--------------------------|
| A | 1 | (+) Supply |
| C | 3 | (-) Output (-) Supply |
| E | 5 | Case ground* |
| B, D, F | 2, 4, 6 | Not connected |

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
 $V_S = (0,02 \times R_L) + 9V$

4264A_000-714e-06.11

This information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes. Liability for consequential damage resulting from the use of Kistler products is excluded.

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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 | 1 500 | 800,0 | 20,0 |
| 050 | 50 | 3,5 | 350,0 | | 100,0 | 2 500 | 1 400 | 35,0 |
| 075 | 75 | 5,0 | 500,0 | | 150,0 | 3 750 | 2 000 | 50,0 |
| 100 | 100 | 7,0 | 700,0 | | 200,0 | 5 000 | 2 750 | 70,0 |
| 150 | 150 | 10,0 | 1 000 | | 300,0 | 7 500 | 4 000 | 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 (m) | None | 0,3 | 0,6 | 0,9 | 1,2 | 1,5 | 1,8 | 2,1 | 2,4 | 2,7 | 3 | 4,6 | 6,1 | 7,6 | 9,1 | 15,2 | 22,9 | 30,2 |

4264A_000-714e-06.11