

## MLH Series

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### All Metal Pressure Sensors



#### DESCRIPTION

MLH Series pressure sensors combine Application Specific Integrated Circuit (ASIC) technology with a media isolated, metal diaphragm design. This digitally compensated sensor offers value and performance, making it the ideal pressure sensing solution for demanding applications. Fully temperature compensated, calibrated and amplified, the MLH is available in 50 psi to 8,000 psi pressure ranges.

MLH sensors deliver  $\pm 0.25\%$  full scale accuracy Best Fit Straight Line (BFSL) and as low as 2% total error over a temperature range of  $-40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$  [ $-40^{\circ}\text{F}$  to  $257^{\circ}\text{F}$ ]. Industry standard connectors and process ports are offered for enhanced reliability and user flexibility.

#### FEATURES

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- All metal wetted parts for use in wide variety of fluid applications
- No internal elastomeric seals mean no o-ring compatibility issues
- Amplified outputs eliminate cost of external amplifiers
- Input reverse voltage protection guards against mis-wiring
- Less than 2 ms response time provides accurate, high speed measurement
- Rated IP65 or better for protection from harsh environments

The MLH has six standard output options:

- A. 0.5 Vdc to 4.5 Vdc ratiometric from 5 Vdc excitation
- B. 4 mA to 20 mA
- C. 1 Vdc to 6 Vdc regulated
- D. 0.25 Vdc to 10.25 Vdc regulated
- E. 0.5 Vdc to 4.5 Vdc regulated
- G. 1 Vdc to 5 Vdc regulated

#### POTENTIAL APPLICATIONS

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- Compressors
- Refrigeration and HVAC/R
- General industrial
- General hydraulics
- Multiple transportation applications including braking and alternate fuels
- Medical

# MLH Series

**Table 1. Pressure Range Specifications<sup>1</sup> (At 25 °C [77 °F] and at rated excitation unless otherwise specified.)**

| psi            |     |      |      |      |      |      |      |       |       |       |       |       |
|----------------|-----|------|------|------|------|------|------|-------|-------|-------|-------|-------|
| Pressure       | 50  | 100  | 150  | 200  | 250  | 300  | 500  | 1000  | 2000  | 3000  | 5000  | 8000  |
| Proof pressure | 150 | 300  | 450  | 600  | 750  | 900  | 1500 | 2000  | 4000  | 6000  | 7500  | 12000 |
| Burst pressure | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 5000 | 10000 | 20000 | 30000 | 30000 | 30000 |
| bar            |     |      |      |      |      |      |      |       |       |       |       |       |
| Pressure       | 6   | 10   | 16   | 25   | 40   | 60   | 100  | 160   | 250   | 350   | 500   | 550   |
| Proof pressure | 18  | 30   | 48   | 75   | 80   | 120  | 200  | 320   | 500   | 700   | 750   | 825   |
| Burst pressure | 60  | 100  | 160  | 250  | 400  | 600  | 1000 | 1600  | 2068  | 2068  | 2068  | 2068  |

**Note:**

1. Comparable metric units follow same proof and burst specifications.

**Table 2. Physical and Environmental Specifications**

| Parameter                                                                                                                        | Characteristic                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Material in contact with media                                                                                                   | port: stainless steel 304L; diaphragm: Haynes 214 alloy                                                                    |
| Housing material                                                                                                                 | black plastic – Amodel AS-4133 HS – PPA                                                                                    |
| Weight                                                                                                                           | 57.0 g [2.0 oz] (typical for Delphi Metri-Pack 150 and 1/8 NPT port)                                                       |
| Shock                                                                                                                            | 100 g peak [11 ms]                                                                                                         |
| Vibration                                                                                                                        | MIL-STD-810C, Figure 514.2-5, Curve AK, Table 514.2-V, Random Vibration Test [overall g rms = 20.7 min.]                   |
| Compensated and operating temperature range:<br>0.5 Vdc to 4.5 Vdc ratiometric output<br>all regulated and 4 mA to 20 mA outputs | -40 °C to 125 °C [-40 °F to 257 °F]<br>-40 °C to 125 °C [-40 °F to 257 °F] See Figures 2 and 3 for operating area details. |
| Storage temperature range                                                                                                        | -40 °C to 125 °C [-40 °F to 257 °F]                                                                                        |
| Approvals                                                                                                                        | UL Component Recognition for USA and Canada: File No. E258956                                                              |

**Table 3. Electrical Specifications (At 25 °C [77 °F] and at rated excitation unless otherwise specified.)**

| Parameter              | Ratiometric (A)                    | Current (B)                       | Regulated (C)                   | Regulated (D)                     | Regulated (E)                   | Regulated (G)                   |
|------------------------|------------------------------------|-----------------------------------|---------------------------------|-----------------------------------|---------------------------------|---------------------------------|
| Zero output            | 0.5 Vdc                            | 4 mA                              | 1 Vdc                           | 0.25 Vdc                          | 0.5 Vdc                         | 1 Vdc                           |
| Full scale span (FSS)  | 4 Vdc<br>(0.5 Vdc to 4.5 Vdc)      | 16 mA<br>(4 mA to 20 mA)          | 5 Vdc<br>(1 Vdc to 6 Vdc)       | 10 Vdc<br>(0.25 Vdc to 10.25 Vdc) | 4 Vdc<br>(0.5 Vdc to 4.5 Vdc)   | 4 Vdc<br>(1 Vdc to 5 Vdc)       |
| Excitation             | 5 Vdc<br>(6 Vdc max.) <sup>1</sup> | 9.5 Vdc to<br>30 Vdc <sup>2</sup> | 8 Vdc to<br>30 Vdc <sup>2</sup> | 14 Vdc to<br>30 Vdc <sup>2</sup>  | 7 Vdc to<br>30 Vdc <sup>2</sup> | 8 Vdc to<br>30 Vdc <sup>2</sup> |
| Supply current         | 4 mA typ.<br>(8 mA max.)           | N/A                               | 5 mA typ.<br>(17 mA max.)       | 5 mA typ.<br>(17 mA max.)         | 5 mA typ.<br>(17 mA max.)       | 5 mA typ.<br>(17 mA max.)       |
| Source (nominal)       | 1 mA                               | N/A                               | 1 mA                            | 1 mA                              | 1 mA                            | 1 mA                            |
| Sink (nominal)         | 1 mA<br>at zero output             | N/A                               | 1 mA<br>at zero output          | 1 mA<br>at zero output            | 1 mA<br>at zero output          | 1 mA<br>at zero output          |
| Supply rejection ratio | 90 dB                              | 90 dB                             | 90 dB                           | 90 dB                             | 90 dB                           | 90 dB                           |
| Output impedance       | 25 Ω max.                          | N/A                               | 25 Ω max.                       | 25 Ω max.                         | 25 Ω max.                       | 25 Ω max.                       |

**Notes:**

1. Maintains ratiometricity at 5 ±0.25 Vdc excitation. Product can tolerate 6 Vdc excitation without damage.
2. See Figures 2 and 3 for more information regarding maximum excitation voltage vs. operating temperature.

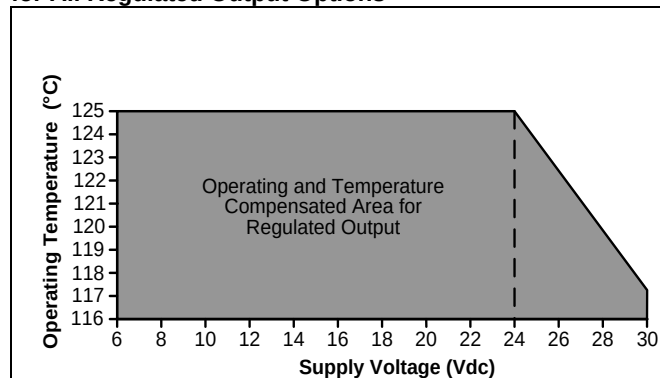
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**Table 4. Performance Specifications (At 25 °C [77 °F] and at rated excitation unless otherwise specified.)**

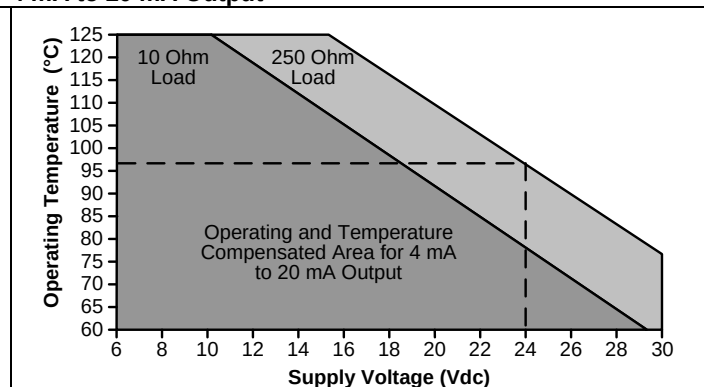
| Parameter                                                   | Characteristic |
|-------------------------------------------------------------|----------------|
| Response time                                               | <2 ms          |
| Accuracy <sup>1</sup> :                                     |                |
| ≥100 psi                                                    | ±0.25% FSS     |
| <100 psi                                                    | ±0.50% FSS     |
| Total error band <sup>2</sup> :                             |                |
| Gage:                                                       |                |
| <300 psig                                                   | ±3% FSS        |
| ≥300 psig                                                   | ±2% FSS        |
| Seal gage:                                                  |                |
| ≥300 psis                                                   | ±2% FSS        |
| Seal gage <u>without</u> L, M, P termination:               |                |
| 100 psis to 299 psis (-40 °C to 85 °C [-40 °F to 185 °F])   | ±3% FSS        |
| 100 psis to 299 psis (>85 °C to 125 °C [>185 °F to 257 °F]) | ±10% FSS       |
| ≥300 psis (-40 °C to 125 °C [-40 °F to 257 °F])             | ±2% FSS        |
| Seal gage <u>with</u> L, M, P termination:                  |                |
| 100 psis to 299 psis (-40 °C to 65 °C [-40 °F to 149 °F])   | ±10% FSS       |
| 100 psis to 299 psis (>65 °C to 125 °C [>149 °F to 257 °F]) | ±15% FSS       |
| ≥300 psis (-40 °C to 65 °C [-40 °F to 149 °F])              | ±5% FSS        |
| ≥300 psis (>65 °C to 125 °C [>149 °F to 257 °F])            | ±15% FSS       |

**Notes:**

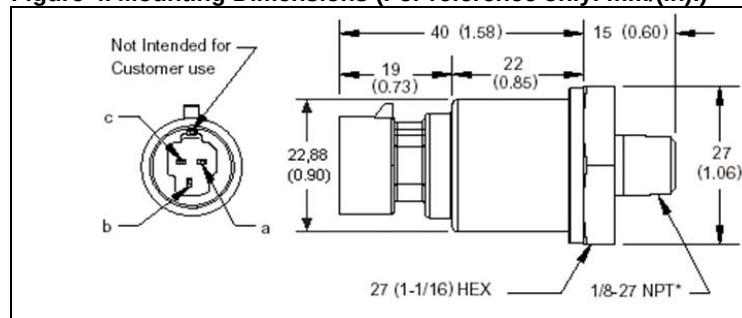
1. Includes pressure non-linearity (BFSL), pressure hysteresis and non-repeatability. Thermal errors are not included.
2. Includes zero error, span error, thermal effect on zero, thermal effect on span, thermal hysteresis, pressure-non-linearity, pressure hysteresis and non-repeatability.

**Figure 2. Operating and Temperature Compensated Area for All Regulated Output Options**

**Note:**

The dashed line indicates the operating and temperature compensated area with a 24 V supply.

**Figure 3. Operating and Temperature Compensated Area for 4 mA to 20 mA Output**

**Note:**

The operating area is extended with a 250 Ohm resistor. Higher loads extend the operating area. The dashed line indicates the operating and temperature compensated area with a 24 V supply using a 250 Ohm load.

**Figure 4. Mounting Dimensions (For reference only. mm/(in.))**

**Pin and Wire Codes (Option B – Packard)**

| Pin | Voltage      | Current       |
|-----|--------------|---------------|
| a   | + excitation | + excitation  |
| b   | output       | - excitation  |
| c   | common       | no connection |

A variety of pressure ports and electrical termination connection options are available. Refer to the "How to Order" on previous page for possible combinations. Contact your Honeywell representative for details.

## Nomenclature and Order Guide<sup>1</sup>

|                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
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| <b>Series</b>                                                                                                                                                                                                                                                                                                                                                                                                                        |         |  | <b>MLH</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                    |                                   | <b>Output Signal</b>       |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| <b>Pressure Range</b>                                                                                                                                                                                                                                                                                                                                                                                                                |         |  | <table><tr><td>psi</td><td>bar</td></tr><tr><td>050 500</td><td>006 100</td></tr><tr><td>100 01K</td><td>010 160</td></tr><tr><td>150 02K</td><td>016 250</td></tr><tr><td>200 03K</td><td>025 350</td></tr><tr><td>250 05K</td><td>040 500</td></tr><tr><td>300 08K</td><td>060 550</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                    |                                   | psi                        | bar                                | 050 500         | 006 100         | 100 01K                          | 010 160                         | 150 02K                                | 016 250 | 200 03K | 025 350                                | 250 05K | 040 500 | 300 08K                                          | 060 550 | <table><tr><td colspan="3"><b>Pressure Connection</b></td></tr><tr><td colspan="3">A = 0.5 Vdc to 4.5 Vdc ratiometric from 5 Vdc excitation</td></tr><tr><td colspan="3">B = 4 mA to 20 mA</td></tr><tr><td colspan="3">C = 1 Vdc to 6 Vdc regulated</td></tr><tr><td colspan="3">D = 0.25 Vdc to 10.25 Vdc regulated</td></tr><tr><td colspan="3">E = 0.5 Vdc to 4.5 Vdc regulated</td></tr><tr><td colspan="3">G = 1 Vdc to 5 Vdc regulated</td></tr></table> |                                        |  | <b>Pressure Connection</b> |                    |  | A = 0.5 Vdc to 4.5 Vdc ratiometric from 5 Vdc excitation |                                                     |  | B = 4 mA to 20 mA |                                      |  | C = 1 Vdc to 6 Vdc regulated |                                                                  |  | D = 0.25 Vdc to 10.25 Vdc regulated |                                                   |  | E = 0.5 Vdc to 4.5 Vdc regulated |                 |  | G = 1 Vdc to 5 Vdc regulated |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| psi                                                                                                                                                                                                                                                                                                                                                                                                                                  | bar     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 050 500                                                                                                                                                                                                                                                                                                                                                                                                                              | 006 100 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 100 01K                                                                                                                                                                                                                                                                                                                                                                                                                              | 010 160 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 150 02K                                                                                                                                                                                                                                                                                                                                                                                                                              | 016 250 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 200 03K                                                                                                                                                                                                                                                                                                                                                                                                                              | 025 350 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 250 05K                                                                                                                                                                                                                                                                                                                                                                                                                              | 040 500 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 300 08K                                                                                                                                                                                                                                                                                                                                                                                                                              | 060 550 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| <b>Pressure Connection</b>                                                                                                                                                                                                                                                                                                                                                                                                           |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| A = 0.5 Vdc to 4.5 Vdc ratiometric from 5 Vdc excitation                                                                                                                                                                                                                                                                                                                                                                             |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| B = 4 mA to 20 mA                                                                                                                                                                                                                                                                                                                                                                                                                    |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| C = 1 Vdc to 6 Vdc regulated                                                                                                                                                                                                                                                                                                                                                                                                         |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| D = 0.25 Vdc to 10.25 Vdc regulated                                                                                                                                                                                                                                                                                                                                                                                                  |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| E = 0.5 Vdc to 4.5 Vdc regulated                                                                                                                                                                                                                                                                                                                                                                                                     |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| G = 1 Vdc to 5 Vdc regulated                                                                                                                                                                                                                                                                                                                                                                                                         |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| <b>Unit</b>                                                                                                                                                                                                                                                                                                                                                                                                                          |         |  | <table><tr><td colspan="3"><b>Pressure Connection</b></td></tr><tr><td colspan="3">01 = 1/4-18 NPT</td></tr><tr><td colspan="3">02 = M12 x 1.5 (ISO 6149)<sup>3</sup></td></tr><tr><td colspan="3">03 = M14 x 1.5 (ISO 6149)<sup>3</sup></td></tr><tr><td colspan="3">04 = 3/8-24 UNF (SAE-3 O-ring boss)<sup>3</sup></td></tr><tr><td colspan="3">05 = M18 x 1.5 (ISO 6149)<sup>3</sup></td></tr><tr><td colspan="3">06 = 1/8 in-27 NPT</td></tr><tr><td colspan="3">07 = 1/2 in-20 UNF (SAE-5 O-ring boss)<sup>3</sup></td></tr><tr><td colspan="3">08 = M10 x 1 (ISO 6149)<sup>3</sup></td></tr><tr><td colspan="3">09 = 1/4 in SAE female Schrader (7/16-20 UNF-2B internal thread)</td></tr><tr><td colspan="3">10 = 7/16-20 UNF (SAE-4 O-ring boss)<sup>3</sup></td></tr><tr><td colspan="3">11 = 1/2 in NPT</td></tr><tr><td colspan="3">12 = 9/16-18 UNF (SAE-6 O-ring boss)<sup>3</sup></td></tr><tr><td colspan="3">13 = R 1/4-19 BSPT (ISO 7-1 tapered thread)</td></tr><tr><td colspan="3">14 = G 1/4-19 (DIN 3852-2)<sup>3</sup></td></tr><tr><td colspan="3">15 = G 1/8 with O-ring groove<sup>3</sup></td></tr><tr><td colspan="3">16 = M16 x 1.5 (ISO 6149)<sup>3</sup></td></tr><tr><td colspan="3">17 = G 1/4 with O-ring groove<sup>3</sup></td></tr><tr><td colspan="3">18 = G 1/8 (DIN 3852-2)<sup>3</sup></td></tr><tr><td colspan="3">19 = R 1/8-28 BSPT (ISO 7-1 tapered thread)</td></tr><tr><td colspan="3">20 = M20 x 1.5 (ISO 6149)<sup>3</sup></td></tr><tr><td colspan="3">21 = 1/2-20 (SAE J514)<sup>3</sup></td></tr></table> |                                    |                                   | <b>Pressure Connection</b> |                                    |                 | 01 = 1/4-18 NPT |                                  |                                 | 02 = M12 x 1.5 (ISO 6149) <sup>3</sup> |         |         | 03 = M14 x 1.5 (ISO 6149) <sup>3</sup> |         |         | 04 = 3/8-24 UNF (SAE-3 O-ring boss) <sup>3</sup> |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 05 = M18 x 1.5 (ISO 6149) <sup>3</sup> |  |                            | 06 = 1/8 in-27 NPT |  |                                                          | 07 = 1/2 in-20 UNF (SAE-5 O-ring boss) <sup>3</sup> |  |                   | 08 = M10 x 1 (ISO 6149) <sup>3</sup> |  |                              | 09 = 1/4 in SAE female Schrader (7/16-20 UNF-2B internal thread) |  |                                     | 10 = 7/16-20 UNF (SAE-4 O-ring boss) <sup>3</sup> |  |                                  | 11 = 1/2 in NPT |  |                              | 12 = 9/16-18 UNF (SAE-6 O-ring boss) <sup>3</sup> |  |  | 13 = R 1/4-19 BSPT (ISO 7-1 tapered thread) |  |  | 14 = G 1/4-19 (DIN 3852-2) <sup>3</sup> |  |  | 15 = G 1/8 with O-ring groove <sup>3</sup> |  |  | 16 = M16 x 1.5 (ISO 6149) <sup>3</sup> |  |  | 17 = G 1/4 with O-ring groove <sup>3</sup> |  |  | 18 = G 1/8 (DIN 3852-2) <sup>3</sup> |  |  | 19 = R 1/8-28 BSPT (ISO 7-1 tapered thread) |  |  | 20 = M20 x 1.5 (ISO 6149) <sup>3</sup> |  |  | 21 = 1/2-20 (SAE J514) <sup>3</sup> |  |  |
| <b>Pressure Connection</b>                                                                                                                                                                                                                                                                                                                                                                                                           |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 01 = 1/4-18 NPT                                                                                                                                                                                                                                                                                                                                                                                                                      |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 02 = M12 x 1.5 (ISO 6149) <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                               |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 03 = M14 x 1.5 (ISO 6149) <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                               |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 04 = 3/8-24 UNF (SAE-3 O-ring boss) <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                     |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 05 = M18 x 1.5 (ISO 6149) <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                               |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 06 = 1/8 in-27 NPT                                                                                                                                                                                                                                                                                                                                                                                                                   |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 07 = 1/2 in-20 UNF (SAE-5 O-ring boss) <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                  |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 08 = M10 x 1 (ISO 6149) <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                 |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 09 = 1/4 in SAE female Schrader (7/16-20 UNF-2B internal thread)                                                                                                                                                                                                                                                                                                                                                                     |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 10 = 7/16-20 UNF (SAE-4 O-ring boss) <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                    |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 11 = 1/2 in NPT                                                                                                                                                                                                                                                                                                                                                                                                                      |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 12 = 9/16-18 UNF (SAE-6 O-ring boss) <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                    |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 13 = R 1/4-19 BSPT (ISO 7-1 tapered thread)                                                                                                                                                                                                                                                                                                                                                                                          |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 14 = G 1/4-19 (DIN 3852-2) <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                              |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 15 = G 1/8 with O-ring groove <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                           |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 16 = M16 x 1.5 (ISO 6149) <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                               |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 17 = G 1/4 with O-ring groove <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                           |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 18 = G 1/8 (DIN 3852-2) <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                 |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 19 = R 1/8-28 BSPT (ISO 7-1 tapered thread)                                                                                                                                                                                                                                                                                                                                                                                          |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 20 = M20 x 1.5 (ISO 6149) <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                               |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| 21 = 1/2-20 (SAE J514) <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                  |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| <b>Measurement Type</b>                                                                                                                                                                                                                                                                                                                                                                                                              |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| <table><tr><td>G = Gage (psi)</td></tr><tr><td>S = Sealed gage (psi)<sup>4</sup></td></tr></table>                                                                                                                                                                                                                                                                                                                                   |         |  | G = Gage (psi)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | S = Sealed gage (psi) <sup>4</sup> |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| G = Gage (psi)                                                                                                                                                                                                                                                                                                                                                                                                                       |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| S = Sealed gage (psi) <sup>4</sup>                                                                                                                                                                                                                                                                                                                                                                                                   |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| <b>Electrical Termination</b>                                                                                                                                                                                                                                                                                                                                                                                                        |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| <table><tr><td>B = Delphi Metri-Pack 150</td></tr><tr><td>C = Hirschmann (mates with G4W1F)</td></tr><tr><td>D = M12 x 1 (Brad Harrison micro)</td></tr><tr><td>G = DIN 43650-C, 8 mm-male</td></tr><tr><td>H = Amp Superseal 1.5<sup>2</sup></td></tr><tr><td>L = Cable (1 m)</td></tr><tr><td>M = Cable (3 m)</td></tr><tr><td>P = Flying leads (20 AWG – 6 in)</td></tr><tr><td>T = Deutsch DTM04-3P (integral)</td></tr></table> |         |  | B = Delphi Metri-Pack 150                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | C = Hirschmann (mates with G4W1F)  | D = M12 x 1 (Brad Harrison micro) | G = DIN 43650-C, 8 mm-male | H = Amp Superseal 1.5 <sup>2</sup> | L = Cable (1 m) | M = Cable (3 m) | P = Flying leads (20 AWG – 6 in) | T = Deutsch DTM04-3P (integral) |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| B = Delphi Metri-Pack 150                                                                                                                                                                                                                                                                                                                                                                                                            |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| C = Hirschmann (mates with G4W1F)                                                                                                                                                                                                                                                                                                                                                                                                    |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| D = M12 x 1 (Brad Harrison micro)                                                                                                                                                                                                                                                                                                                                                                                                    |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| G = DIN 43650-C, 8 mm-male                                                                                                                                                                                                                                                                                                                                                                                                           |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| H = Amp Superseal 1.5 <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                   |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| L = Cable (1 m)                                                                                                                                                                                                                                                                                                                                                                                                                      |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| M = Cable (3 m)                                                                                                                                                                                                                                                                                                                                                                                                                      |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| P = Flying leads (20 AWG – 6 in)                                                                                                                                                                                                                                                                                                                                                                                                     |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| T = Deutsch DTM04-3P (integral)                                                                                                                                                                                                                                                                                                                                                                                                      |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |
| <i>(Mating connectors are not supplied.)</i>                                                                                                                                                                                                                                                                                                                                                                                         |         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                   |                            |                                    |                 |                 |                                  |                                 |                                        |         |         |                                        |         |         |                                                  |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |  |                            |                    |  |                                                          |                                                     |  |                   |                                      |  |                              |                                                                  |  |                                     |                                                   |  |                                  |                 |  |                              |                                                   |  |  |                                             |  |  |                                         |  |  |                                            |  |  |                                        |  |  |                                            |  |  |                                      |  |  |                                             |  |  |                                        |  |  |                                     |  |  |

**Notes:**

1. Not all combinations are available. Minimum quantity orders apply. Additional pressure ranges, port styles and special calibration versions are available. Contact your local sales representative for assistance.
2. Available with “A” output only.
3. Supplied with O-ring.
4. Sealed gage devices are not available for pressure ranges below 100 psi.

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- Sealed gage devices are not available for pressure ranges below 100 psi.

## ⚠ WARNING

### MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

**Failure to comply with these instructions could result in death or serious injury.**

## ⚠ WARNING

### PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

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### Phone and Fax:

|               |                         |
|---------------|-------------------------|
| Asia Pacific  | +65 6355-2828           |
|               | +65 6445-3033 Fax       |
| Europe        | +44 (0) 1698 481481     |
|               | +44 (0) 1698 481676 Fax |
| Latin America | +1-305-805-8188         |
|               | +1-305-883-8257 Fax     |
| USA/Canada    | +1-800-537-6945         |
|               | +1-815-235-6847         |
|               | +1-815-235-6545 Fax     |

Sensing and Control

Honeywell

1985 Douglas Drive North

Golden Valley, MN 55422

[www.honeywell.com/sensing](http://www.honeywell.com/sensing)

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