



D5100

Industrial Differential Pressure Transducer

SPECIFICATIONS

- 316L Stainless Steel Wetted Surface
- Voltage, Current, and mV Outputs
- True Wet/Wet Differential
- CE Certified (amplified version only)
- Variety of Pressure Ports and Electrical Connections

FEATURES

- Heavy Industrial CE Approval (amplified only)
- As Low As $\pm 0.1\%$ Pressure Non Linearity
- Rugged Construction: Can Withstand 50g Shock/20g Vibration
- Up to -40°C to $+125^{\circ}\text{C}$ Operating Temperature Range
- Excellent Stability
- Various Output, Pressure Ports and Electrical Connections

The D5100 series from Measurement Specialties sets the price and performance standard for differential pressure transducers used in demanding environments.

The amplified model of the D5100 series exceeds the latest heavy industrial CE requirements including surge protection and reverse polarity protection. The amplified and mV output pressure transducers both have two pressure ports for high and low pressures and all wetted parts are made of 316L stainless steel. They come in a variety of electrical configurations and ranges from 1 to 500 psi (up to 35 Bar).

APPLICATIONS

- Process Controls
- Tank Level Measurement
- Filter Performance Monitoring
- Corrosive Fluids and Gas Measurement Systems
- Flow Measurements

STANDARD RANGES

| Range | psiD | Range | barD |
|----------|------|-----------|------|
| 0 to 1 | • | 0 to 0.07 | • |
| 0 to 5 | • | 0 to 0.35 | • |
| 0 to 15 | • | 0 to 1 | • |
| 0 to 30 | • | 0 to 2 | • |
| 0 to 50 | • | 0 to 3.5 | • |
| 0 to 100 | • | 0 to 7 | • |
| 0 to 300 | • | 0 to 20 | • |
| 0 to 500 | • | 0 to 35 | • |

PERFORMANCE SPECIFICATIONS (AMPLIFIED OUTPUT)

Typical Drive: See Output Options Table

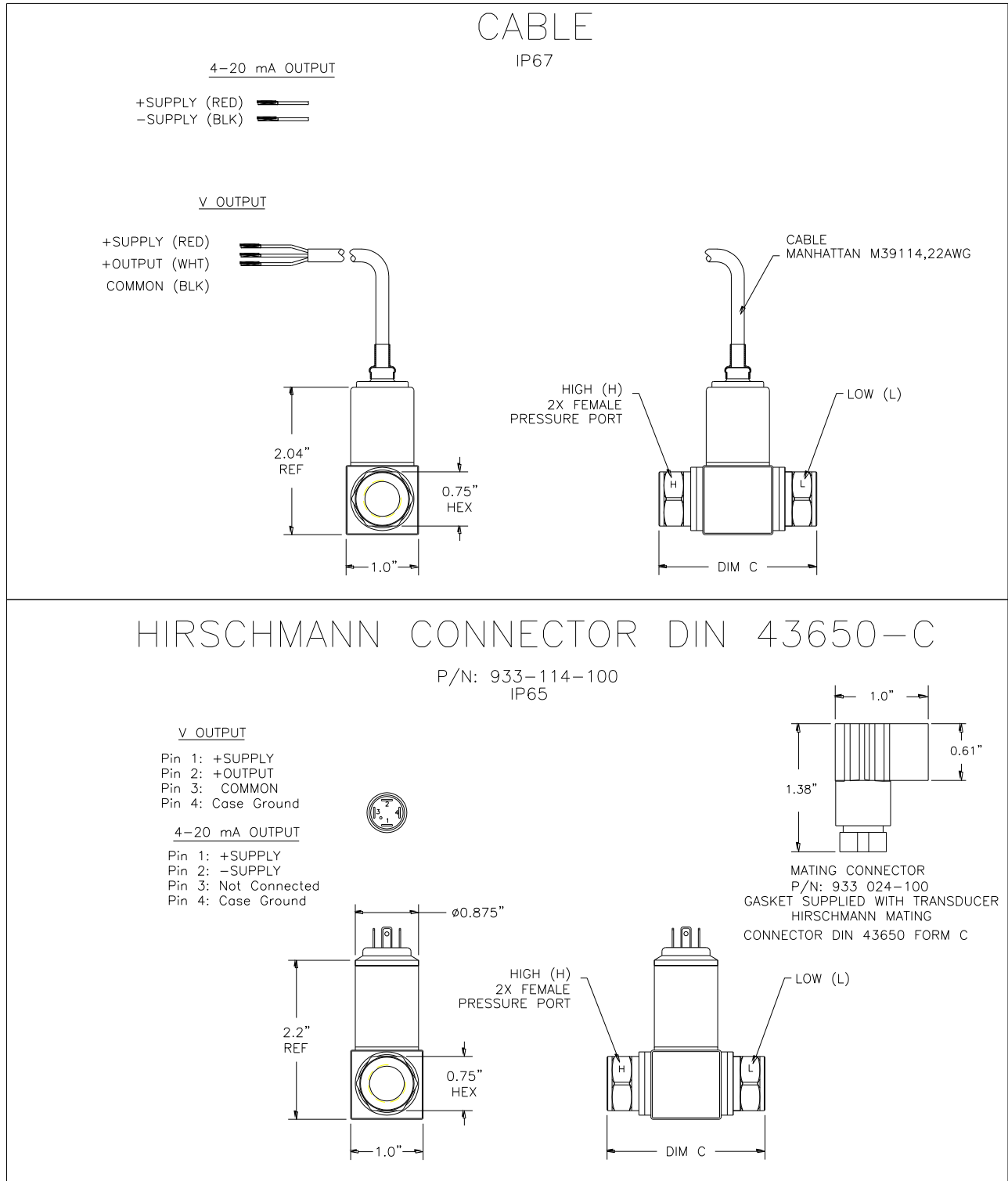
Ambient Temperature: 25°C (unless otherwise specified)

| PARAMETERS | 1 PSI | | | ≥5 PSI | | | UNITS | NOTES |
|-----------------------------------|---|-------|------|--|------|-------------|-----------------------|-------|
| | MIN | TYP | MAX | MIN | TYP | MAX | | |
| Accuracy | -0.3 | | 0.3 | 5psi: -0.25 ≥15psi: -0.1 | | 0.25 0.1 | %Span | 1 |
| Isolation, Body To Any Lead | 1 | | | 1 | | | MΩ @25V _{DC} | |
| Pressure Cycles | 1.00E+6 | | | 1.00E+6 | | | 0-FS Cycles | |
| Proof Pressure (High Side) | | | 10X | | | 3X | Rated | 2 |
| Proof Pressure (Low Side) | | | 10X | | | 3X | Rated | 3 |
| Burst Pressure (High Side) | | | 12X | | | 4X | Rated | 2 |
| Burst Pressure (Low Side) | | | 12X | | | 4X | Rated | 3 |
| Line (common) Pressure | | | 1000 | | | 1000 | psi | |
| Line Pressure Effect on Zero | | 0.004 | | 5psi: 0.0008 TYP ≥15psi: 0.0005 TYP | | | %Span/psi | |
| Long Term Stability | | ±0.25 | | | ±0.1 | | %Span/year | |
| Total Error Band | -1.5 | | 1.5 | -1 | | 1 | %Span | |
| Compensated Temperature | 0 | | 50 | 5psi: 0 ≥15psi: -20 | | 70 +85 | °C | |
| Operating Temperature | -40 | | +85 | -40 | | +125 | °C | 4 |
| Storage Temperature | -40 | | +125 | -40 | | +125 | °C | 4 |
| Load Resistance (R _L) | R _L > 100k Ω | | | | | | | 5 |
| Sensor Type | Differential Pressure Sensor with Unidirectional Calibration | | | | | | | |
| Pressure Port Material | 316L Stainless Steel | | | | | | | |
| Bandwidth | DC to 1KHz (typical) | | | | | | | |
| Shock | 50g, 11 msec Half sine shock per MIL-STD-202F, Method 213B, Condition A | | | | | | | |
| Vibration | ±20g, MIL-STD-810C, Procedure 514.2, Fig 514.2-2, Curve L | | | | | | | |

Notes

1. Combined linearity, hysteresis and repeatability using Best Fit Straight Line.
2. 1000psi, whichever is less.
3. 150psi, whichever is less.
4. Except cable 105°C Max.
5. Voltage output.

DIMENSIONS (AMPLIFIED OUTPUT)



DIMENSIONS (AMPLIFIED OUTPUT)

HIRSCHMANN CONNECTOR DIN43650 FORM A

P/N: 933 376-100

IP65

V OUTPUT

4-20 mA OUTPUT

- Pin 1: +SUPPLY
- Pin 2: -SUPPLY
- Pin 3: Not Connected
- Pin 4: Case Ground

MATING CONNECTOR

Dim Unit: MM

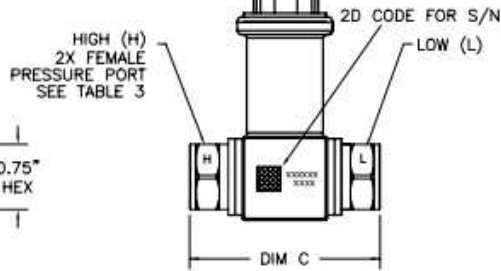
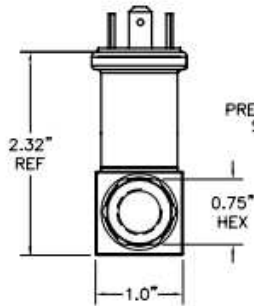
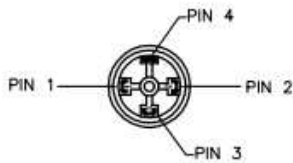
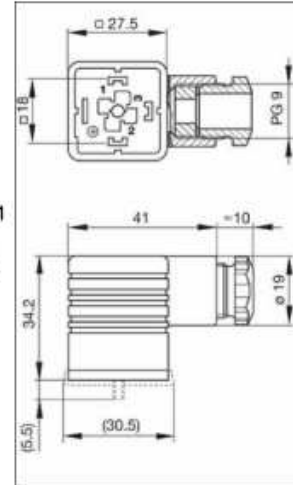
P/N: 931 969-100

Gasket(NBR) P/N: 730 801-002

Knurled Screw P/N: 732 574-001

HIRSCHMANN MATING

CONNECTOR DIN 43650 FORM A



DIMENSIONS (AMPLIFIED OUTPUT)

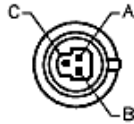
Packard Connector
IP66

4-20 mA OUTPUT

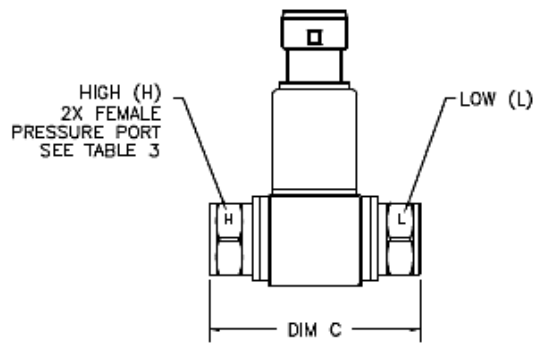
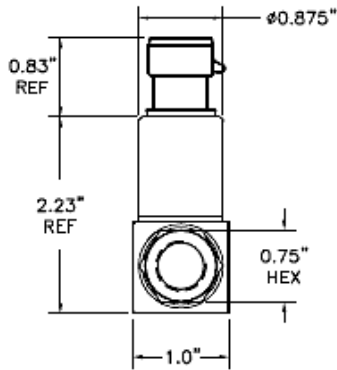
PIN A: +SUPPLY
PIN B: -SUPPLY
PIN C: Not Connected

V OUTPUT

PIN A: +SUPPLY
PIN B: COMMON
PIN C: +OUTPUT



Mating packard connector
Housing P/N: 12078090
Socket P/N: 12103881
Web site for mating connector:
www.powerandsignal.com



Bayonet PTIH-10-6P Connector

IP66

4-20 mA OUTPUT

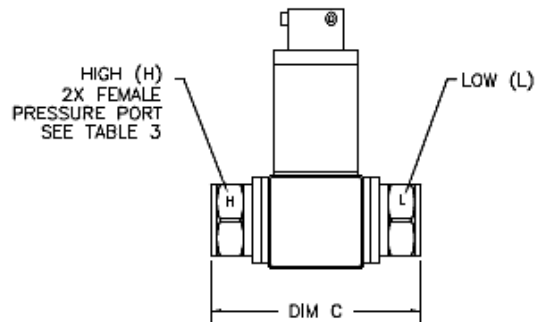
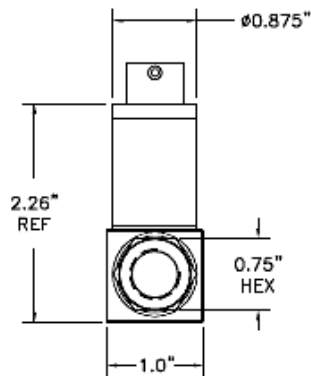
POSITIVE SUPPLY PIN A AND B (INTERNALLY CONNECTED)
NEGATIVE SUPPLY PIN C AND D (INTERNALLY CONNECTED)
PIN E: Not Connected
PIN F: Not Connected

V OUTPUT

PIN A: +SUPPLY
PIN B: +OUTPUT
PIN C: COMMON
PIN D: COMMON
PIN E: Not Connected
PIN F: Not Connected



Mating Bendix connector
P/N: PT06A-10-6S
MIL-C-26482



D5100

Industrial Differential Pressure Transducer

OUTPUT OPTIONS (AMPLIFIED OUTPUT)

| Code | Output | MIN | Supply(V) | | MAX |
|------|--------------------------|------|-----------|--|------|
| | | | TYP | | |
| 3 | 0.5 – 4.5V (ratiometric) | 4.75 | 5.00 | | 5.25 |
| 4 | 1 – 5V | 8 | 15 | | 30 |
| 5 | 4 – 20mA | 9 | 15 | | 30 |

PERFORMANCE SPECIFICATIONS (mV OUTPUT)Unless Otherwise Specified: Ambient Temperature: 25°C, Supply Voltage: 10V_{DC}

| PARAMETERS | 1 PSI | | | ≥5 PSI | | | UNITS | NOTES |
|----------------------------------|---|-------|------|--|------|------|-----------------------|-------|
| | MIN | TYP | MAX | MIN | TYP | MAX | | |
| Supply Voltage | | 10 | 14 | | 10 | 14 | V _{DC} | |
| Zero Pressure Output | -2.0 | 0 | 2.0 | 5psi: -2.0 ≥15psi: -1.0 | 0 | 2.0 | mV | |
| Span | 77 | 80 | 83 | 5psi: 98 ≥15psi: 99 | 100 | 102 | mV | |
| Accuracy | -0.3 | | 0.3 | 5psi: -0.25 ≥15psi: -0.1 | | 0.25 | %Span | 1 |
| Input Resistance | 5.5 | 9.0 | 12.5 | 5.5 | 9.0 | 12.5 | KΩ | |
| Output Resistance | 4.0 | | 30.0 | 5psi: 4.0 ≥15psi: 4.0 | | 30.0 | KΩ | |
| Isolation, Body To Any Lead | 50 | | | 50 | | | MΩ @50V _{DC} | |
| Pressure Cycles | 1.00E+6 | | | 1.00E+6 | | | 0-FS Cycles | |
| Proof Pressure (High Side) | | | 10X | | | 3X | Rated | 2 |
| Proof Pressure (Low Side) | | | 10X | | | 3X | Rated | 3 |
| Burst Pressure (High Side) | | | 12X | | | 4X | Rated | 2 |
| Burst Pressure (Low Side) | | | 12X | | | 4X | Rated | 3 |
| Line (common) Pressure | | | 1000 | | | 1000 | psi | |
| Line Pressure Effect on Zero | | 0.004 | | 5psi: 0.0008 TYP ≥15psi: 0.0005 TYP | | | %Span/psi | |
| Long Term Stability | | ±0.25 | | | ±0.1 | | %Span/year | |
| Temperature Coefficient – Span | -1.5 | | 1.5 | 5psi: -1.5 ≥15psi: -1.0 | | 1.5 | %Span | |
| Temperature Coefficient – Offset | -2.5 | | 2.5 | 5psi: -1.5 ≥15psi: -1.0 | | 1.5 | %Span | |
| Output Load Resistance | 5 | | | 5 | | | MΩ | |
| Output Noise (10Hz to 1KHz) | | 1.0 | | | 1.0 | | μV p-p | |
| Response Time (10% to 90%) | | 0.1 | | | 0.1 | | ms | |
| Compensated Temperature | 0 | | 50 | 5psi: 0 ≥15psi: -20 | | 70 | °C | |
| Operating Temperature | -40 | | +85 | -40 | | +125 | °C | |
| Storage Temperature | -40 | | +125 | -40 | | +125 | °C | 4 |
| Voltage Breakdown | 500V rms@50Hz, Leakage Current <1mA | | | | | | | |
| Sensor Type | Differential Pressure Sensor with Unidirectional Calibration | | | | | | | |
| Pressure Port Material | 316L Stainless Steel | | | | | | | |
| Shock | 50g, 11 msec Half sine shock per MIL-STD-202F, Method 213B, Condition A | | | | | | | |

D5100

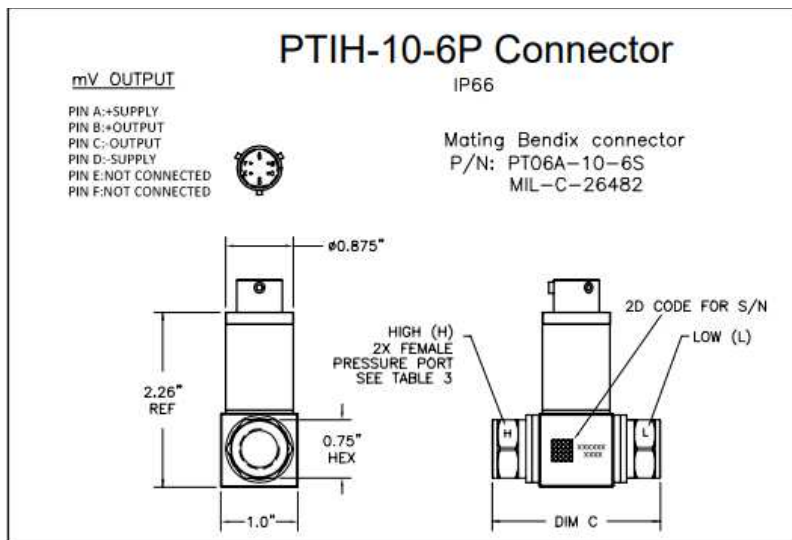
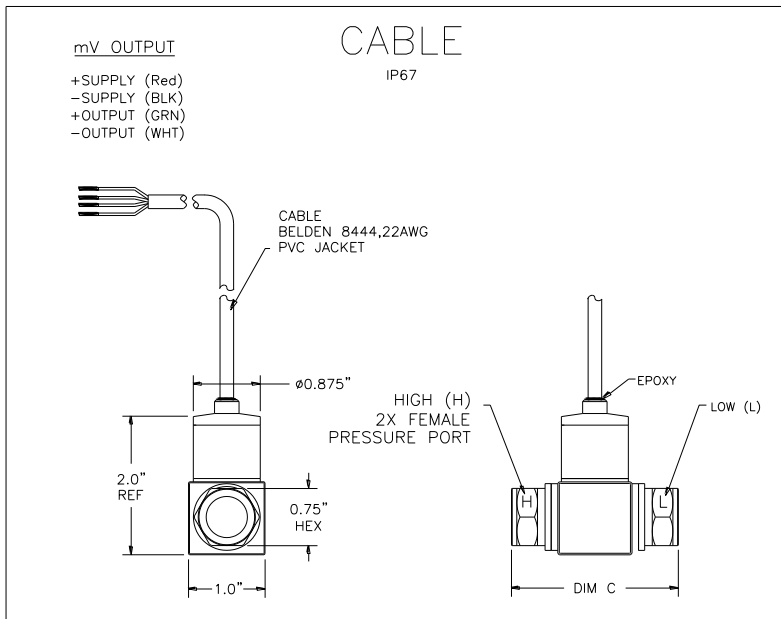
Industrial Differential Pressure Transducer

Notes

1. Combined linearity, hysteresis and repeatability using Best Fit Straight Line.
2. 1000psi, whichever is less.
3. 150psi, whichever is less.
4. Except cable 105°C Max.

| Pressure Port Options | Dim C (inches) [mm] | Electrical Connection Options |
|-------------------------------|---------------------|-------------------------------|
| 2 = 1/4-19 BSPP Male | 3.08 [78.3] | 1 = 2 ft cable |
| 5 = 1/4-18 NPT Male | 3.18 [80.8] | |
| F = 1/4-19 BSPP Female | 2.18 [55.42] | |
| G = 1/4-18 NPT Female | 2.18 [55.42] | |
| Others available upon request | | Others available upon request |

DIMENSIONS (mV OUTPUT)



D5100

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OUTPUT OPTIONS (mV OUTPUT)

| Code | Output | MIN | Supply(V) TYP | MAX |
|------|--|-----|------------------|-----|
| 2 | 80mV (1psi), 100mV (≥5psi) [ratiometric] | | 10 | 14 |

ORDERING INFORMATION

D51 2 3 – 00000 R – 030X D

| Output | | |
|--------|-------------------------------|----------------|
| Code | Output | Supply Voltage |
| 2 | mV Output, see specifications | |
| 3 | 0.5 – 4.5 V Ratiometric | 5±0.25 V |
| 4 | 1 – 5V | 8 – 30 V |
| 5 | 4 – 20mA | 9 – 30 V |

| Pressure Range | |
|----------------|-------|
| 001P | 0.07B |
| 005P | 0.35B |
| 015P | 001B |
| 030P | 002B |
| 050P | 3.5B |
| 100P | 007B |
| 300P | 020B |
| 500P | 035B |

All Intermediate Ranges with Amplified Output are Standard

| Connection | |
|------------|---------------------------------------|
| Code | Connection |
| 1 | Cable 2ft, Manhattan #39114.22AWG |
| 2 | Cable 4 feet Manhattan #39114.22AWG |
| 3 | Cable 10 feet Manhattan #39114.22AWG |
| 4 | Packard Connector |
| 5 | Bayonet Connector |
| 6 | Hirschmann Connector DIN 43650-C |
| 7 | Hirschmann Connector DIN43650-A |
| D | M12 Connector |
| M | Cable 1 meter Manhattan #39114.22AWG |
| N | Cable 2 meter Manhattan #39114.22AWG |
| P | Cable 5 meter Manhattan #39114.22AWG |
| R | Cable 10 meter Manhattan #39114.22AWG |

| Pressure Port | | |
|---------------|---|-------------|
| Code | Port | Dim C |
| 2 | 1/4-19 BSPP Male | 3.08[78.23] |
| 4 | 7/16-20 UNF-2A Male SAE J514 Straight Thread O-ring BUNA-N 70SH-904 ID8.92mm xW1.83mm | 2.84[72.14] |
| 5 | 1/4-18 NPT Male | 3.19[81.03] |
| 6 | 1/8-27 NPT Male | 3.13[79.50] |
| H | 7/16-20 UNF-3A AS4395 Male | 3.23[82.04] |
| F | 1/4-19 BSPP Female | 2.18[55.37] |
| G | 1/4 -18 NPT Female | 2.18[55.37] |
| P | 7/16-20 UNF SAE J514 Female | 2.18[55.37] |
| R | 1/8-27 NPT Female | 2.18[55.37] |

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