

UNIK5000H specifications

Measurement

Operating pressure ranges

Gauge ranges

Any zero based range 700 mbar to 70 bar (10.2 to 1000 psi)

Note: All psi values are approximate.

Sealed gauge ranges

Any zero based range 10 to 700 bar (146 to 10000 psi)

Absolute ranges

Any zero based range 700 mbar to 700 bar (10.2 to 10000 psi)

Non-zero based ranges

Non-zero based ranges are available. For non-zero based gauge ranges, please contact Druck to discuss your requirements.

Over pressure

- 4 × FS (up to 200 bar for ranges ≤70 bar and up to 1200 bar for ranges >70 bar)*

Containment pressure

- 6 × FS (200 bar (2900 psi) max) for ranges up to 70 bar (1000 psi) gauge
- Ranges up to 70 bar (1000 psi) absolute 200 bar (2900 psi)
- Ranges above 70 bar (1000 psi) 1200 bar (17400 psi)*

*600 bar (8700 psi) for pressure connector options RA and RF

Supply and outputs

| Electronics option | Description | Supply voltage (V) | Output | Current consumption (mA) |
|--------------------|-----------------------------|--------------------|----------------------|--------------------------|
| 0 | mV Passive | 2.5 to 12 | 10 mV/V [^] | <2 at 10 V |
| 1 | mV Linearised | 7 to 12 | 10 mV/V [^] | <3 |
| 2 | mA | 7 to 28** | 4–20 mA | <30 |
| 3 | 0 to 5 V 4-wire | 7 to 16** | 0 to 5 V | <3 |
| 4 | 0 to 5 V 3-wire | 7 to 16** | 0 to 5 V* | <3 |
| 5 | Basic Configurable (3-wire) | See below | See below | <3 |
| 6 | 0 to 10 V 4-wire | 12 to 16** | 0 to 10 V | <3 |
| 7 | 0.5 V to 4.5 V Ratiometric | 5.0 ± 0.5 | 0.5 to 4.5 V | <3 |
| 8 | Configurable (4-wire) | 7 to 36 | See below | See below |
| 9 | Configurable (3-wire) | 7 to 36 | See below | See below |

[^] with a 10 V supply mV output sensors give 100 mV over the full scale pressure.

- Output is ratiometric to the supply voltage
- Output reduces pro-rata for pressure ranges below 350 mbar (5 psi)

* 0 to 5 V 3-wire output is non true zero. At pressures below 1% of span the output will be fixed at approximately 50 mV

**32 V in non-hazardous area operation

Supply voltage is between [Maximum output + 1 V] (7 V minimum) to 16 V (32 V in non-hazardous area operation)

Basic configurable (option 5), configurable 4-wire (option 8), configurable 3-wire (option 9)

Any pressure signal output configurations will be available, subject to the following limitations:

| Output specification | Basic configurable (option 5) | Configurable (options 8, 9) |
|------------------------------------|-------------------------------|---|
| Minimum span: | 4 V | 2 V |
| Maximum span: | 10 V | 20 V |
| Maximum output limit: | 11 V | ±10 V |
| Maximum zero offset: | Span / 2 | ±Span |
| Current consumption: | < 3 mA | < 20 mA @ 7 Vdc decreasing to < 5 mA @ 32 Vdc |
| Reverse output response available: | No | Yes |
| Maximum operating temperature: | +125°C | +80°C |

Output voltage range can be specified to a resolution of 0.1 V.

The output will continue to respond to 110% FS. e.g. if a 0 to 10 V output is specified, the output will continue to increase proportionally to applied pressure until at least 11 V.

Option 5: Not true zero, the output will saturate at < 50 mV.

Options 8, 9: On startup <100 mA drawn for 10 ms typically.

Options 8, 9: Shunt calibration: not available with reverse output.

Examples

| Configuration | Allowed | Not Allowed |
|-------------------------------|--------------|----------------------------------|
| Basic Configurable (Option 5) | 0 to 5 V | 1 to 4 V (span too small) |
| | 0.5 to 4.5 V | 4 to 11 V (offset too big) |
| | 1 to 6 V | |
| | 1 to 11 V | |
| Configurable (Options 8, 9) | -10 to 0 V | 0 to 12 V (outside ±10 V limits) |
| | 0 to 5 V | 6 to 10 V (offset too big) |
| | -5 to 5 V | 0 to 0.5 V (span too small) |
| | -2 to 10 V | |
| | 1 to 6 V | |
| | 10 to 0 V | |

Power-up time

- mV, Voltage and current versions: 10 ms
- Configurable 3-wire and 4-wire versions: 500 ms

Insulation

- 500 Vdc: > 100 MΩ
- 500 Vac: < 5 mA leakage current (mV and mA versions only)

Shunt calibration

Shunt calibration provides a customer accessible connection which, when applied, causes a shift in output of 80% FS in order to simulate applied pressure. It is fitted to the mV, configurable 4-wire and configurable 3-wire versions as standard. It is not available with DIN, M12 x 1 or M20 x 1.5 electrical connectors (options 7, D, G and R).

Shunt calibration is activated in different ways depending on the electrical connector and version:

- mV versions: connect shunt cal to -ve supply or where available, connect both shunt cal connections together.
- Configurable 4-wire and configurable 3-wire versions: connect Shunt cal to -ve output or, where available, connect both shunt cal connections together.

Note: Not available with reverse output.

Performance specifications

There are three grades of performance specification: Industrial, Improved and Premium.

Accuracy

Voltage, current and mV linearised

Combined effects of non-linearity, hysteresis and repeatability:

- Industrial: $\pm 0.2\%$ FS BSL
- Improved: $\pm 0.1\%$ FS BSL
- Premium: $\pm 0.04\%$ FS BSL

mV passive

≤ 70 bar

Industrial/Improved: $\pm 0.25\%$ FS BSL

Premium not available

> 70 bar

Industrial/Improved: $\pm 0.5\%$ FS BSL

Premium not available

Note 1: For the barometric pressure range, accuracy is of span, not full scale.

Note 2: For bi-directional ranges, accuracy is specified for each direction separately.

Zero offset and span setting

Demountable electrical connector options allow access to potentiometers that give at least $\pm 5\%$ FS adjustment (see Electrical connector section).

Factory set to:

| Product Description | Industrial | Improved and Premium |
|---|----------------|----------------------|
| Current and voltage versions (Demountable electrical connections and cable gland) | $\pm 0.5\%$ FS | $\pm 0.2\%$ FS |
| Current and voltage versions (All other electrical connections) | $\pm 1.0\%$ FS | $\pm 1.0\%$ FS |
| mV versions | ± 3.0 mV | ± 3.0 mV |

Long term stability

$\pm 0.05\%$ FS typical ($\pm 0.1\%$ FS maximum) per year

Temperature effects

Four compensated temperature ranges can be chosen.

Industrial accuracy performance:

- -10 to $+50^\circ\text{C}$ ($+14$ to $+122^\circ\text{F}$): $\pm 0.75\%$ FS TEB*
- -20 to $+80^\circ\text{C}$ (-4 to $+176^\circ\text{F}$): $\pm 1.5\%$ FS TEB
- -40 to $+80^\circ\text{C}$ (-40 to $+176^\circ\text{F}$): $\pm 2.25\%$ FS TEB
- -40 to $+125^\circ\text{C}$ (-40 to $+257^\circ\text{F}$): $\pm 2.25\%$ FS TEB

*TEB = Temperature Error Band

Improved and Premium accuracy performance:

- -10 to $+50^\circ\text{C}$ ($+14$ to $+122^\circ\text{F}$): $\pm 0.5\%$ FS TEB
- -20 to $+80^\circ\text{C}$ (-4 to $+176^\circ\text{F}$): $\pm 1.0\%$ FS TEB
- -40 to $+80^\circ\text{C}$ (-40 to $+176^\circ\text{F}$): $\pm 1.5\%$ FS TEB
- -40 to $+125^\circ\text{C}$ (-40 to $+257^\circ\text{F}$): $\pm 1.5\%$ FS TEB

Temperature effects increase pro-rata for pressure ranges below 350 mbar (5 psi) and double for barometric ranges.

Physical specifications

Environmental protection

See Electrical connector section

Operating temperature range

See Electrical connector section

Pressure media

Fluids compatible with stainless steel 316L and gold

Do not use with oxygen rich media or other strong oxidizing agents.

This product contains materials or fluids that may degrade or combust in the presence of strong oxidizing agents.

Enclosure materials

Stainless steel (body), nitrile- or silicone-rubber (o-rings, gaskets), EPDM (gaskets), PTFE (vent filter), nickel plated brass (lock rings), glass filled nylon (electrical connector assemblies).

Pressure connector

Refer to ordering information for available options.

General certifications

CRN Certified 0F13650.517890YTN ADD1/REV1, 0F13828.2 and CSA 0F13650.56 ADD1 for pressure ranges up to and including 350 bar (5000 psi).

Electrical connector

Various electrical connector options are available offering different features:

| Code | Description | Maximum operating temperature range | | IP rating | Zero/ span adjust |
|------|---------------------------------|-------------------------------------|-------------|-----------|-------------------|
| | | °C | °F | | |
| 1 | Cable Gland | -40 to +80 | -40 to +176 | 65 | N |
| 2 | Raychem Cable | -55 to +125 | -67 to +257 | 65 | N |
| 6/E | Bayonet MIL-C-26482 | -55 to +125 | -67 to +257 | 67 | N |
| 7 | DIN 43650 Form A Demountable | -40 to +80 | -40 to +176 | 65 | Y |
| A/F | Bayonet MIL-C-26482 Demountable | -55 to +125 | -67 to +257 | 65 | Y |
| C | 1/2 NPT Conduit | -40 to +80 | -40 to +176 | 65 | N |
| D | Micro DIN (9.4 mm pitch) | -40 to +80 | -40 to +176 | 65 | N |
| G | M12x1 4-pin | -55 to +125 | -67 to +257 | 67 | N |
| K | Zero Halogen Cable Demountable | -40 to +80 | -40 to +176 | 65 | Y |
| R | M20 x 1.5 Inline | -40 to +80 | -40 to +176 | 65 | Y |

Note 1: Electronics output options 8 and 9 are restricted to a maximum operating temperature of 80°C (176°F).

Note 2: Hazardous area approved versions are restricted to a maximum operating temperature range of -40°C to +80°C (-40°F to +176°F).

Note 3: Electrical connector option R IP65 rating only with suitable conduit/cable fitting.

Note 4: IP67 rating on options 6/E and G applies to absolute, differential and sealed gauge reference sensors only. Gauge reference sensors are rated IP65.

CE conformity

- RoHS 2011/65/EU
- Pressure equipment directive 2014/68/EU sound engineering practice
- ATEX 2014/34/EU (Optional)
- EMC directive 2014/30/EU
- BS EN 61000-6-1: 2007: Susceptibility - light industrial
- BS EN 61000-6-2: 2005: Susceptibility - heavy industrial*
- BS EN 61000-6-3: 2007+A1:2011: Emissions - light industrial
- BS EN 61000-6-4: 2007+A1:2011: Emissions - heavy industrial
- BS EN 61326-1: 2013: Electrical equipment for measurement, control and laboratory use
- BS EN 61326-2-3: 2013: Particular requirements for pressure transducers

*PMP/PTX models with electrical connector options 6, A, C, E, F, G and R with cable screen connected to case.

Hazardous area approvals (optional)

General applications:

- IECEx/ATEX/UKEX intrinsically safe 'ia' group IIC
- NEPSI intrinsically safe 'ia' group II
- FM approved (Canada & US) intrinsically safe Exia Class I, Division 1, Groups A, B, C & D and Class I, Zone 0 AEx/Ex ia Group IIC; Single Seal

For full certification details, refer to the type-examination certificates (or approval listings) and supplied hazardous area installation instructions.

Wiring details

| Connector type | Option code | | Electronics option | | | | | mV |
|--|-------------|--------|--------------------|---|------------------|-------------------------------|-------------------------------|------------|
| | | | 4 to 20 mA | Voltage (3-wire) and basic configurable | Voltage (4-wire) | Configurable voltage (4-wire) | Configurable voltage (3-wire) | |
| Cable (Not Raychem) | I, C | Red | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply |
| | | Yellow | - | +ve Output | +ve Output | +ve Output | +ve Output | +ve Output |
| | | Blue | - | - | -ve Output | -ve Output | 0V Common | -ve Output |
| | | White | -ve Supply | 0V Common | -ve Supply | -ve Supply | 0V Common | -ve Supply |
| | | Orange | - | - | - | Shunt Cal | Shunt Cal | Shunt Cal |
| | | Black | - | - | - | - | - | - |
| | | Screen | - | - | - | - | - | - |
| Raychem Cable | 2 | Red | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply |
| | | White | - | +ve Output | +ve Output | +ve Output | +ve Output | +ve Output |
| | | Green | - | - | -ve Output | -ve Output | 0V Common | -ve Output |
| | | Blue | -ve Supply | 0V Common | -ve Supply | -ve Supply | 0V Common | -ve Supply |
| | | Black | - | - | - | Shunt Cal | Shunt Cal | Shunt Cal |
| | | Screen | - | - | - | - | - | - |
| MIL-C-26482 Bayonet | 6, A | A | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply |
| | | B | -ve Supply | +ve Output | +ve Output | +ve Output | +ve Output | +ve Output |
| | | C | - | - | -ve Output | -ve Output | 0V Common | -ve Output |
| | | D | - | 0V Common | -ve Supply | -ve Supply | 0V Common | -ve Supply |
| | | E | - | - | - | Shunt Cal | Shunt Cal | Shunt Cal |
| | | F | - | - | - | - | - | Shunt Cal |
| DIN 43650 Form A Micro DIN | 7 D | 1 | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply |
| | | 2 | -ve Supply | 0V Common | -ve Supply | -ve Supply | 0V Common | -ve Supply |
| | | 3 | - | +ve Output | +ve Output | +ve Output | +ve Output | +ve Output |
| | | E | Case | Case | -ve Output | -ve Output | 0V Common | -ve Output |
| Bayonet Alternative Wiring Options | E, F | A | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply |
| | | B | - | 0V Common | -ve Supply | -ve Supply | 0V Common | -ve Supply |
| | | C | - | +ve Output | +ve Output | +ve Output | +ve Output | +ve Output |
| | | D | -ve Supply | - | -ve Output | -ve Output | 0V Common | -ve Output |
| | | E | - | - | - | Shunt Cal | Shunt Cal | Shunt Cal |
| | | F | - | - | - | Shunt Cal | Shunt Cal | - |
| M12 x 1 4-Pin | G | 1 | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply |
| | | 2 | - | +ve Output | +ve Output | +ve Output | +ve Output | +ve Output |
| | | 3 | -ve Supply | 0V Common | -ve Supply | -ve Supply | 0V Common | -ve Supply |
| | | 4 | Case | Case | -ve Output | -ve Output | 0V Common | -ve Output |
| Zero Halogen Cable (Demountable) | K | Pink | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply | +ve Supply |
| | | White | - | +ve Output | +ve Output | +ve Output | +ve Output | +ve Output |
| | | Green | - | - | -ve Output | -ve Output | 0V Common | -ve Output |
| | | Blue | -ve Supply | 0V Common | -ve Supply | -ve Supply | 0V Common | -ve Supply |
| | | Grey | - | - | - | Shunt Cal | Shunt Cal | Shunt Cal |
| | | Brown | - | - | - | - | - | - |
| | | Yellow | - | - | - | - | - | - |
| | | Screen | - | - | - | - | - | - |
| M20 x 1.5 Female Demountable | R | +ve | +ve Supply | - | - | - | - | - |
| | | -ve | -ve Supply | - | - | - | - | - |

Ordering information (see the online configuration tool at Druck.com)

1. Select model number

Main Product Variant

PMP Amplified Pressure Transducer
 PDCR mV Pressure Transducer
 PTX 4-20 mA Pressure Transmitter

Product Series

5 UNIK 5000

Diameter and Material

0 25mm Stainless Steel

Electrical Connector (Note 6)

- 1 Cable Gland (Polyurethane Cable)
- 2 Raychem Cable
- 6 MIL-C-26482 (6-pin Shell Size 10) (Mating connector not supplied)
- 7 DIN 43650 Form A Demountable (Mating connector supplied)
- A Demountable MIL-C-26482 (6-pin Shell Size 10) (Mating connector not supplied)
- C 1/2" NPT Conduit (Polyurethane cable)
- D Micro DIN (9.4 mm Pitch) (Mating connector supplied)
- E MIL-C-26482 (6 pin Shell Size 10) Alternative Wiring (Mating connector not supplied)
- F Demountable MIL-C-26482 (6 pin Shell Size 10) Alternative Wiring (Mating connector not supplied)
- G M12 x 1.4-pin male (Mating connector not supplied)
- K Zero Halogen Cable Demountable
- R M20 x 1.5 Inline Female Conduit Demountable (Note 7)

Electronics Option

- 0 mV Passive 4-wire (PDCR) (Note 1)
- 1 mV Linearised 4-wire (PDCR)
- 2 4 to 20 mA 2-wire (PTX)
- 3 0 to 5 V 4-wire (PMP)
- 4 0 to 5 V 3-wire (PMP)
- 5 Basic Configurable 3-wire (PMP)
- 6 0 to 10 V 4-wire (PMP)
- 7 0.5 to 4.5 V Ratiometric 3-wire (PMP) (Note 5)
- 8 Configurable 4-wire (PMP) (Note 4, 5)
- 9 Configurable 3-wire (PMP) (Note 4, 5)

Hydrogen use

Compensated Temperature Range

- TA -10 to +50 °C (-14 to +122 °F)
- TB -20 to +80 °C (-4 to +176 °F)
- TC -40 to +80 °C (-40 to +176 °F)
- TD -40 to +125 °C (-40 to +257 °F) (Note 2, 5)

Accuracy

- A1 Industrial
- A2 Improved
- A3 Premium

Calibration

- CA Zero/Span Data
- CB Room Temperature
- CC Full Thermal
- CR Room Temperature/Measured Reading

Hazardous Area Approval (Note 6)

- H0 None
- H1 IECEx/ATEX/UKEX Intrinsically Safe 'ia' Group IIC
- H6 FM (C & US) Intrinsically Safe 'ia' Group IIC/ABCD
- HS IECEx/ATEX/FM (C & US) Intrinsically Safe 'ia' Groups IIC/ABCD [H1 + H6]
- J1 IECEx/ATEX/NEPSI Intrinsically Safe 'ia' Group IIC

Pressure Connector

- PA G1/4 Female (Note 3)
- PB G1/4 Male Flat
- PC G1/4 Male 60° Internal Cone
- PD G1/8 Male 60° Internal Cone
- PE 1/4 NPT Female (Note 3)
- PF 1/4 NPT Male
- PG 1/8 NPT Male
- PH M20x1.5 Male (3 mm bore)
- PJ M14x1.5 60° Internal Cone
- PK M12x1 Internal Cone
- PL 7/16-20 UNJF Male 74° External Cone
- PN G1/2 Male via Adaptor (Note 3)
- PQ G1/4 Quick Connect
- PR 1/2 NPT Male via Adaptor (Note 3)
- PS 1/4 Swagelok Bulkhead
- PT G1/4 Male Flat Long
- PU 7/16-20 UNF Long 37° Flare Tip (Note 3)
- PV 7/16-20 UNJF Female (Note 3)
- PX 7/16-20 UNF Male Short Flat J1926 (Note 3, 10)
- P58 7/16-20 UNF Female Autoclave (Note 9)
- PZ M10 x 1.80° Internal Cone
- RA VCR Female (Note 3, 8)
- RD M12 x 1.0 74° External Cone
- RE Quick Release Male
- RF VCR Male (Note 3, 8)
- RJ M20 x 1.5 Male (8 mm bore)
- RT 1/8-27 NPT Female
- RU R3/8 Male
- RV R1/4 Male

PTX 5 0 7 2 H - TA - A2 - CB - H0 - PA (Example Model Number)

Ordering notes

Note 1: Premium accuracy is not available on this version

Note 2: Please ensure that the electrical connector selected is option 2, 6, A, E, F or G.

Note 3: Select one of these pressure connectors for pressure ranges over 70 bar

Note 4: Maximum operating temperature is 80°C (176°F)

Note 5: Hazardous area certifications not available

Note 6: Hazardous area certifications are restricted by electrical connector options in line with the following table:

| Approval | Electrical connector | | | | | | | | | |
|----------|----------------------|---|-----|---|-----|---|---|---|---|---|
| | 1 | 2 | 6/E | 7 | A/F | C | D | G | K | R |
| H0 | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| H1 | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| H6 | Y | Y | Y | Y | Y | Y | Y | - | - | Y |
| HS | Y | Y | Y | Y | Y | Y | Y | - | - | Y |
| J1 | Y | Y | Y | Y | Y | Y | Y | - | - | Y |

Note 7: Electronics option 2 only

Note 8: Pressure ranges less than 500 bar

Note 9: Only available on pressure ranges of 500 bar and over.

Note 10: Working pressure limited to 630 bar

2. State pressure range and units (e.g., 0 to 10 bar)

Pressure unit options are:

| Symbol | Description |
|---------------------|-----------------|
| bar | bar |
| mbar | millibar |
| psi | pounds/sq. inch |
| Pa | Pascal |
| hPa | hectoPascal |
| kPa | kiloPascal |
| MPa | MegaPascal |
| mmH ₂ O | mm water |
| cmH ₂ O | cm water |
| mH ₂ O | metres water |
| inH ₂ O | inches water |
| ftH ₂ O | feet water |
| mmHg | mm mercury |
| inHg | inches mercury |
| kgf/cm ² | kg force/sq. cm |
| atm | atmosphere |
| Torr | torr |

3. State pressure reference (e.g., gauge)

Reference options are:

- gauge
- absolute
- sealed gauge

4. State cable lengths and units

Integer values only, e.g. 1 m cable, 8 ft. Minimum length 1 m (3 ft) cable (only required with certain electrical connectors).

Maximum cable length 100 m (300 ft) for approval options not H0; 200 m (600 ft) for approval option H0.

5. Output options 5, 8 and 9

State voltage output at minimum and maximum pressure (e.g., output -1 to 9 V)

Typical order examples

PTX5012H-TB-A2-CA-H0-PA: 0 to 10 bar, gauge, 3 m cable

PMP5028H-TC-A3-CC-H0-PE: -15 to 75 psi, gauge, 15 ft cable, output voltage -1 to 5 V

PDCR5071H-TB-A1-CB-H0-PA: 0 to 100 bar, sealed gauge

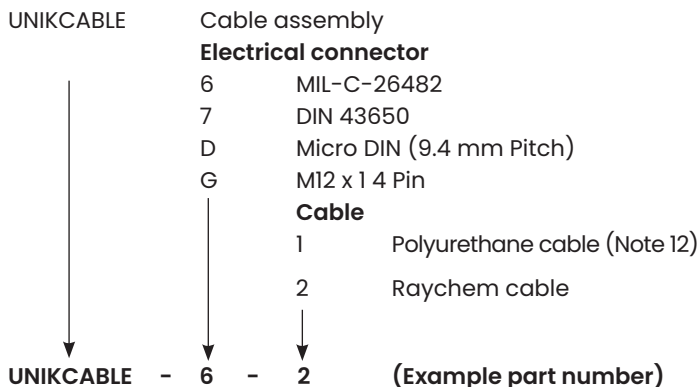
Accessories (order as separate line items)

P/N 163-009: Mating connector for MIL-C-26482 (Electrical connector options 6, A, E, and F) (Note 11)

Cable assemblies (Note 11)

A made up electrical connector with a length of cable.

1. Select part number



2. State cable length and units (Integer value only)

Minimum length 1 m (3 ft)

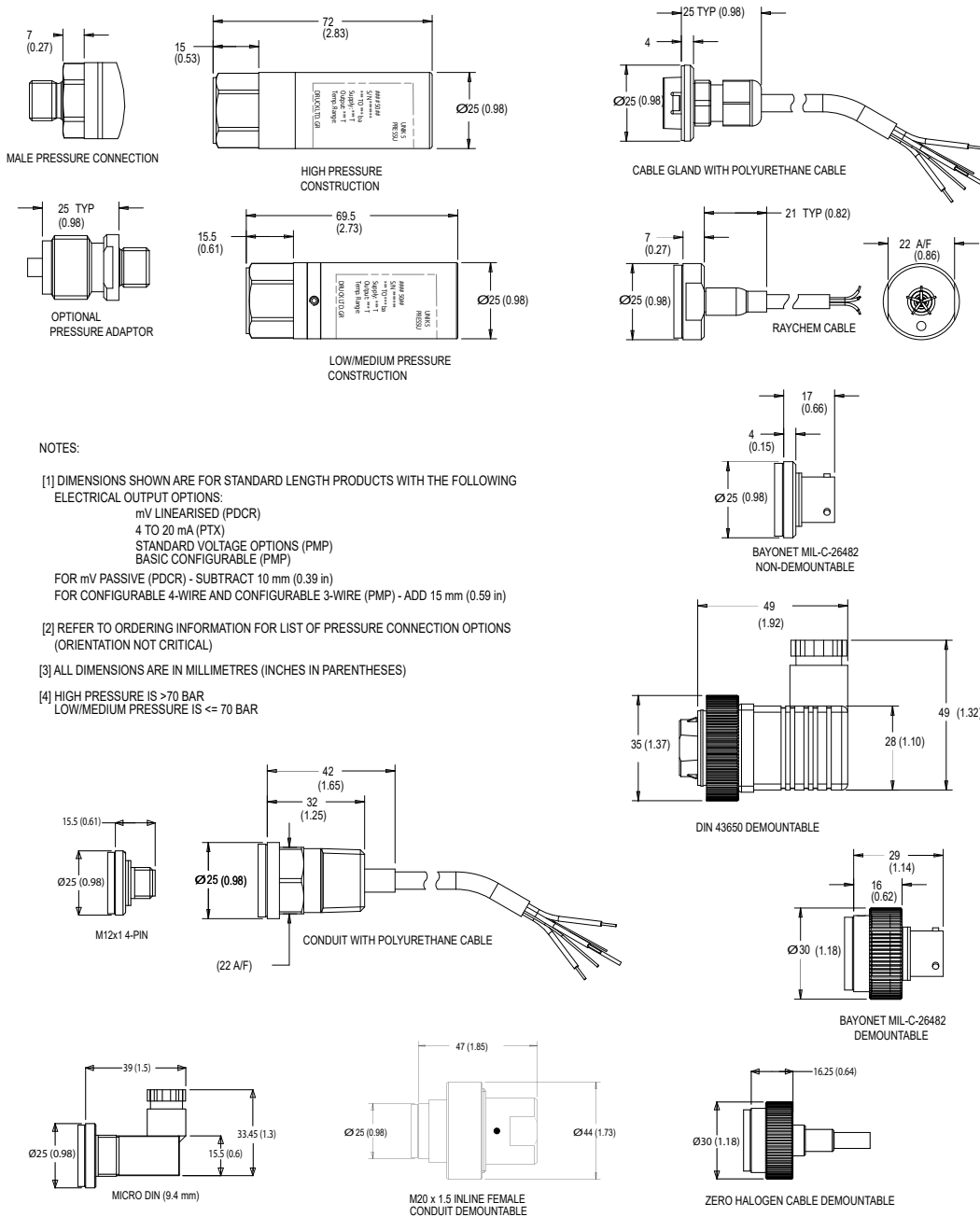
Maximum length 200 m (600 ft)

Example: UNIKCABLE-6-2 5 m

Note 11: Not considered suitable for use in hazardous areas.

Note 12: This cable is the same as that used in the electrical connector cable gland (Option 1 in the main product).

Mechanical drawings



Druck offers a portfolio of high accuracy, high performance test and calibration equipment that are ideal for the calibration and adjustment of Druck's pressure sensors.

[Find out more at Druck.com](https://www.druck.com)



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