

Features

The PDCR 4000 Series provides a complete range of mV output pressure transducers offering advanced levels of measurement accuracy stability and flexibility from a standard production device

- $\pm 0.04\%$ full scale (FS) accuracy
- Ranges from 70 mbar to 700 bar
- Gauge, absolute and differential
- $\pm 0.1\%$ FS stability per annum
- 400% overpressure
- Hastelloy and stainless wetted parts

Applications

GE manufactures precision pressure sensors with a capability to meet critical applications in industrial and research environments

- Test equipment
- Research and development
- Environmental test
- Monitoring critical processes
- General industrial

PDCR 4000 Series

Druck High Performance Millivolt Output Pressure Transducers

PDCR 4000 Series is a Druck product. Druck has joined other GE high-technology sensing businesses under a new name—GE Industrial, Sensing.



PDCR 4000 Specifications

Pressure Measurement

Operating Pressure Ranges

PDCR 4000

- 70, 140 mbar gauge
- 350, 700 mbar, 1, 1.5, 2, 3.5, 5, 7, 10, 15, 20, 35, and 60 bar gauge or absolute
- 70, 135, 200, 350, 500 and 700 bar sealed gauge or absolute

PDCR 4100

- 70, 140, 350, 700 mbar, 1, 1.5, 2, 3.5, 5, 7, 10, 15, 20 and 35 bar differential

Other pressure units can be specified; e.g. psi kg/cm², kPa, inH₂O, mH₂O etc.

Overpressure

The operating pressure range may be exceeded by the following multiples with negligible effect on calibration

PDCR 4000

Gauge and absolute

- 10 x for ranges up to and including 350 mbar
- 6 x for range 700 mbar
- 4 x for ranges 1 to 60 bar, up to maximum of 140 bar
- 2 x for ranges up to and including 700 bar

PDCR 4100

Differential (positive side):

- 10 x for ranges up to 350 mbar
- 6 x for ranges up to 700 mbar
- 4 x for ranges 15 to 1 to 20 bar
- 100 bar for 35 bar range

Differential (negative side):

- 6 x for ranges up to and including 350 mbar
- 4 x for range 700 mbar
- 2 x for ranges 1 to 5 bar
- 10 bar for ranges 7 to 35 bar

Gauge sensors will respond to pressures below atmospheric. For a negative pressure calibration choose option E

This overpressure capability can be further improved by selecting a range higher than required and operating with a lower output.

Pressure Containment

Gauge and Differential (positive side)

- 12 x for ranges up to 350 mbar
- 8 x for ranges 700 mbar
- 6 x for ranges up to and including 60 bar; 200 bar maximum

Differential (negative side)

- 8 x for ranges up to 350 mbar
- 6 x for ranges 700 mbar
- 4 x for ranges up to and including 700 bar; 15 bar maximum

Sealed Gauge and Absolute

200 bar for ranges upto 60 bar
1400 bar for ranges 70 bar and above

Pressure Media

Fluids compatible with Hastelloy C276 and 316L stainless steel

PDCR 4100

Differential (negative port):

Fluids compatible with stainless steel 316L, silicon, pyrex and epoxy.

Fluid Statement

Types of fluid may be restricted in accordance with the pressure equipment directive at pressure above 200 bar. For full details, refer to GE Sensing.

Line Pressure

70 bar maximum

Excitation Voltage

10 V at 5 mA nominal

Output Voltage

- 20 mV for 70 mbar range
- 40 mV for 140 mbar range
- 100 mV for 350 mbar range and above

Transducers with ranges up to 60 bar can be over ranged 2 x full scale to provide up to 200 mV output. Linearity is slightly degraded but stability is improved.

For higher outputs up to 10V refer to PMP 4000 series datasheet.

Common Mode Voltage

Typically +3.5 V to 9 V with respect to the -ve supply at 10 V excitation

Output Impedance

2 k Ω nominal

Load Impedance

Greater than 100 k Ω for quoted performance

PDCR 4000 Specifications

Performance

Accuracy

Combined effects of non-linearity, hysteresis and repeatability

- Standard: $\pm 0.08\%$ (FS) Best Straight Line (BSL) maximum
- Option (A): $\pm 0.04\%$ FS BSL maximum available on 350 mbar range and above
 $\pm 0.06\%$ FS BSL maximum for 5 bar range

Zero Offset and Span Setting

- Zero: ± 1.5 mV, typical (± 3 mV max)
- Span: ± 1.5 mV typical (± 3 mV max)

Option (D): improve zero and span settings ± 1 mV.

Stability

- $\pm 0.1\%$ FS typical per annum for ranges 700 mbar and above
- $\pm 0.2\%$ FS typical for ranges up to and including 350 mbar

Long term stability is improved by using a lower pressure range in the overrange condition at a reduced excitation voltage.

Operating Temperature Range

- -20°C to 80°C standard

Extended operating temperature range versions are available, please refer to GE Sensing

Temperature Effects

- Over 0 to 50°C
 $\pm 0.3\%$ FS Temperature Error Band (TEB)
 $\pm 0.75\%$ FS TEB for 140 mbar range
 $\pm 1.5\%$ FS TEB for 70 mbar range
- Over -20 to 80°C
 $\pm 1\%$ FS TEB
 $\pm 2.5\%$ FS TEB for 140 mbar range
 $\pm 5\%$ FS TEB for 70 mbar range

Acceleration Sensitivity

Typically 0.04% FS/g for 350 mbar decreasing to 0.0003% FS/g for ranges above 60 bar, along the sensitive axis

Mechanical Shock

1000 g, 1 ms half sine pulse in each of 3 mutually perpendicular axes will not affect performance

Vibration

Response less than 0.05% FS/g at 30 g peak 10 to 2 kHz, limited by 12 mm double amplitude, (MIL-STD 810C Proc 514.2-2 Curve L)

Physical

Pressure Connection

70 mbar to 60 bar ranges

Male

- 1/4 in NPT male
- 1/8 in NPT male with bulkhead mount
- 1/4 in NPT male
- 1/4 in tube Swagelok with bulkhead mount MS 33656-4 (1/4 AN)
- G 1/8 B (60° internal cone)
- G 1/4 B (60° internal cone)
- G 1/4 B flat end
- 7/16 in UNF
- M14 x 1.5 mm

Female

- G 1/4 female
- 1/4 NPT female

Others available upon request. Refer to GE Sensing.

70 to 700 bar ranges

- G 1/4 in female
- 1/4 in NPT female

Adapters available on request.

Weight

- 0.12 kg nominal, 70 mbar to 60 bar
- 0.17 kg nominal, 70 to 700 bar
- 0.19 kg nominal for differential types

Electrical Connection

Refer to ordering information and installation drawings.

Intrinsic Safety:

Intrinsically safe for use with barrier systems to

 EEx ia IIC T4 ($-40^{\circ}\text{C} \leq T_a \leq 80^{\circ}\text{C}$)

Certificate BAS02ATEX0069/C

*Available on PDCR 4x1x, PDCR 4x2x, PDCR 4x6x and PDCR 4x7x ranges to 60 bar maximum
PDCR4x10 maximum cable length of 29 m
PDCR4x2x maximum cable length of 19 m*

CE Marking

Product is CE marked for electromagnetic compatibility, pressure equipment directive, and, on option stated, use in potentially explosive atmospheres.

Emissions: EN50081-1

Immunity: EN50082-2

Options

- A)** Improved accuracy $\pm 0.04\%$ FS BSL ($\pm 0.06\%$ FS BSL 5 bar range)
- B)** Internal shunt ('R' calibration facility): ranges up to 60 bar. Connecting an external link results in a positive span shift of $80\% \pm 5\%$ FS. (Not available for PDCR 4x2x, PDCR 4x7x.)
- C)** Mating electrical connector (PDCR 4x6x) (Not available for IS versions.)
- D)** Improved zero and span settings to ± 1 mV maximum
- E)** Negative calibration
- F)** Intrinsic safety, ranges up to 60 bar
Max cable length D4*1* = 29 m
D4*2* = 19 m

Order Information

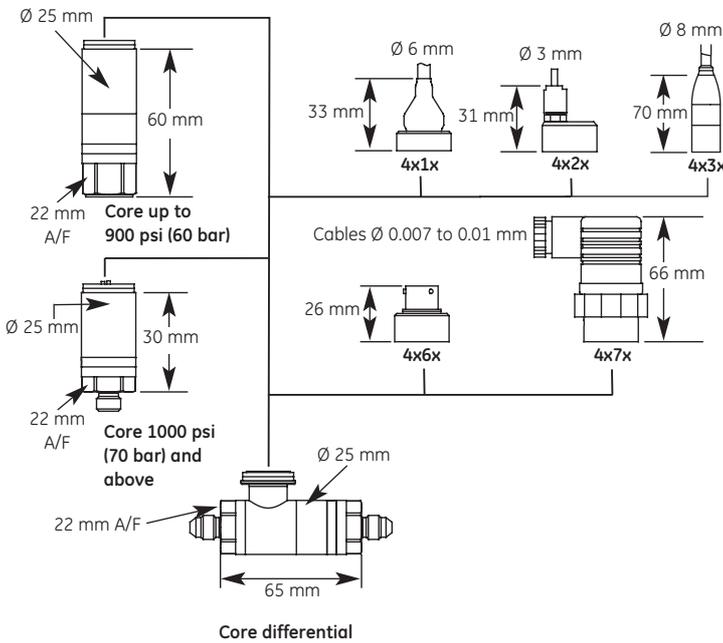
(1) Select model number

PDCR Basic type number

Code	Pressure Reference
40	Gauge, sealed gauge or absolute
41	Differential
Code	Electrical Connection
0	Core
1	Six core vented cable*1
2	Four core PTFE cable*1
3	Six core vented depth cable*1
6	Six-pin bayonet plug (mating connector - option C)
7	Rotatable DIN plug and socket
Code	Calibrated Temperature Range
0	0°C to 50°C
1	-20°C to 80°C

PDCR - - - - Typical Model Number

- 2) Pressure range and units
- 3) Gauge, sealed gauge or absolute
- 4) Cable length where applicable (in ft)
- 5) Options required



PDCR 4000 Series dimensions

Electrical Connection

Model Code	Supply		Output		R Cal
	+ ve	- ve	+ ve	- ve	
PDCR 4x0x ≤ 60 bar	4	3	5	1	2
PDCR 4x0x ≥ 70 bar	4	5	3	2	N/A
PDCR 4x1x	Red	White	Yellow	Blue	Orange
PDCR 4x2x	Red	Blue	Yellow	Green	N/A
PDCR 4x3x	Red	White	Yellow	Blue	Orange
PDCR 4x6x	A	D	B	C	E
PDCR 4x7x	1	2	3	E	N/A

Rcal only available on pressure ranges to 60 bar



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