

## PDCR 130 SERIES

### Amplified Output Pressure Transducers

- **Absolute, gauge or differential versions**
- **High accuracy**  
 $\pm 0.1\%$  or  $\pm 0.05\%$  BSL
- **Aircraft compatible excitation**  
 $10-32\text{ Vdc}$  or  $\pm 15\text{ Vdc}$
- **Amplified output**  
*Up to 10V available*
- **Input/output isolation**  
*PDCR 130/W & PDCR 130/WL Series*
- **Good thermal stability**  
 $\pm 1.5\%$  total error band  $-5^\circ$  to  $+175^\circ\text{F}$
- **Integral zero and span adjustments**



This series of pressure transducers provides the user with a high level output signal for industrial, marine and aerospace applications. Gauge and absolute versions have all wetted parts manufactured from 316 stainless steel. Differential versions are suitable for wet/wet applications.

Military grade electronic components are used to ensure maximum integrity. Each unit is individually calibrated and temperature compensated before shipment.

Zero and span potentiometers are provided in the rear of the transducer body and user access is via two sealed blanking plugs.

Linearizing and temperature compensation is provided within the instrument, and the rationalized outputs ensure interchangeability without system recalibration.

During manufacture the transducers may be set to customer requirements for intermediate pressure ranges or other pressure units.

## INTRODUCTION

The PDCR 130 series is a complete range of high level output pressure transducers, featuring the very latest in silicon strain gauge diaphragm, electronic thermal compensation and linearization technology.

The fully encapsulated solid state designs are particularly suitable for industrial, marine and aerospace applications where high vibration and a relatively hostile environment is present.

Pressure ranges from 2.5 psi to 10,000 psi are available in combinations of gauge, sealed gauge, absolute and differential modes while stainless steel wetted parts ensure wide range pressure media compatibility when required.

Input/output signal isolation, single and dual rail supply operation and integral zero and span potentiometers ensure system interchangeability and ease of calibration.

### Type Number and Construction Format:-

#### Supply Voltage

10-32V d.c.

PDCR 130/W -Integral vented cable and isolation diaphragm

PDCR 130/W/C -Integral connector and isolation diaphragm

PDCR 130/WL -Integral teflon. cable, wet/wet differential

PDCR 130/WL/C -Integral connector, wet/wet differential

#### Supply Voltage

± 15V d.c. or ± 12V d.c.

-PDCR 135/W

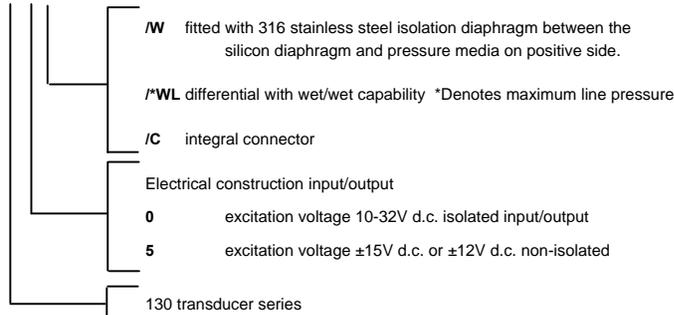
-PDCR 135/W/C

-PDCR 135/WL

-PDCR 135/WL/C

### The type numbering system denotes the following details:-

#### PDCR 13X/X



Please refer to operating pressure ranges, pressure media, temperature effects, ordering information and installation drawings to fulfil your requirements

## STANDARD SPECIFICATION

### Operating Pressure Ranges

#### PDCR 130/W and PDCR 135/W

2.5 psi gauge only  
5, 10, 15, 20, 30, 50, 100, 150, 200, 300, 500, 900, 1000 psi gauge or absolute  
2000, 3000, 5000, 7500, 10000 psi absolute or sealed gauge

Other pressure units may be specified, e.g. ins. H<sub>2</sub>O, kPa, etc.

#### PDCR 130/WL and PDCR 135/WL

2.5, 5, 10, 15, 20, 30, 50, 100, 150, 200, 300 and 500 psi differential.

Other pressure units may be specified, e.g. ins. H<sub>2</sub>O, kPa, etc.

Intermediate pressure ranges and depth amplified transducers are available. Please refer to manufacturer.

### Overpressure

The rated pressure can be exceeded by the following multiples causing negligible calibration change:-

#### PDCR 130/W and PDCR 135/W

10 x for 2.5 psi range  
6 x for 5 psi range  
4 x for 10 psi to 200 psi ranges  
3 x for 200 psi to 500 psi ranges  
2 x for 900 psi to 10000 psi ranges

Pressure containment >20000 psi for 2000 to 10000 psi ranges.

#### PDCR 130/WL and PDCR 135/WL

Positive side:-

10 x for 2.5 psi range  
6 x for 5 psi range  
4 x for 10 psi to 300 psi ranges  
1500 psi for 500 psi range

Negative side:-

Must not exceed positive side by greater than:-  
6 x for 2.5 psi range  
4 x for 5 psi range  
2 x for 10 psi to 50 psi ranges  
1.5 x for 100 psi range and above

For bi-directional use in the higher ranges refer to manufacturer.

#### Maximum Line Pressure (case pressure)

30 psi - PDCR 130/2WL & PDCR 135/2WL  
100 psi - PDCR 130/7WL & PDCR 135/7WL  
500 psi - PDCR 130/35WL & PDCR 135/35WL  
1000 psi available on request.

### Pressure Media

#### PDCR 130/W and PDCR 135/W

Fluids compatible with 316 stainless steel.

#### PDCR 130/WL and PDCR 135/WL

Positive side:-  
Fluids compatible with 316 stainless steel.  
Negative side:-  
Fluids compatible with 316 stainless steel and silicon.

### Transduction Principle

Integrated silicon strain gauge bridge.

### Supply Voltage

#### PDCR 130 Series

10-32V d.c. @20mA isolated from output.

#### PDCR 135 Series

+15, 0, -15V d.c.  
+15V (± 0.5 Volts) 1mA nominal.  
-15V (± 0.5 Volts) 6mA nominal.  
+12, 0, -12V d.c. available.

Currents are quoted for zero output current.

### Supply Sensitivity

#### PDCR 130 Series

0.005% F.S.O./Volt

#### PDCR 135 Series

0.02% F.S.O./Volt  
Polarity reversal protected.

### Output Voltage

2.5V standard for 2.5 psi range  
5V standard for 5 psi range and above  
(10V maximum available for 5 psi range and above)

(Isolated on PDCR 130/W and PDCR 130/WL)

Bi-directional output available, please refer to manufacturer.

For alternative amplified output transducers, please refer to manufacturer.

### Output Current

#### PDCR 130 Series

2mA maximum.

#### PDCR 135 Series

5mA maximum.

### Resolution

Infinite.

### Combined Non-linearity, Hysteresis and Repeatability.

± 0.1% B.S.L. for all ranges  
Considered separately on each side for PDCR 130/WL and PDCR 135/WL.

± 0.05% B.S.L. available for ranges up to 300 psi on request.

Please refer to manufacturer.

### Zero Offset and Span Setting

Integral trim potentiometers giving total adjustment of nominally 10% F.S.O. available on most models.

### Operating Temperature Range

-40° to +175°F (-40° to +80°C) for  
PDCR 130/W, PDCR 130/WL, PDCR 135/W and  
PDCR 135/WL  
-40° to +250°F (-40° to +125°C) for  
PDCR 130/WC, PDCR 130/WL/C,  
PDCR 135/W/C, and PDCR 135/WL/C.

This temperature range can be extended.

### Temperature Effects

#### PDCR 130 and PDCR 135 Series

± 0.5% total error band 32° to 122°F (0° to +50°C)  
± 1.5% total error band -5° to 175°F (-20° to +80°C)  
2.5 psi range, ±0.5% total error band 50° to 105°F  
(10° to 40°C)

For special applications it is possible to give improved temperature compensation over a wider range.

**Natural Frequency (Mechanical)****PDCR 130/W and PDCR 135/W,****PDCR 130/WL and PDCR 135/WL**

10.5 kHz for 5 psi range increasing to 210 kHz for 500 psi range.

*For more detailed information please refer to manufacturer.*

**Amplifier Bandwidth**

-3dB at 2kHz nominal.

**Acceleration Sensitivity****PDCR 130/W, PDCR 135/W****PDCR 130/WL and PDCR 135/WL**

0.044% F.S.O./g for 5 psi range decreasing to 0.0005% F.S.O./g for 500 psi range

**Mechanical Shock**

1000g 1ms half sine pulse in each of 3 mutually perpendicular axis will not effect calibration.

**Vibration**

Response less than 0.05% F.S./g at 30g peak 10Hz-2kHz, limited by .47 inches double amplitude (MIL-STD 810C Proc 514.2-2 Curve L).

**Weight****PDCR 130/W and PDCR 135/W**

8.6 ozs. nominal.

**PDCR 130/WL and PDCR 135/WL**

10.0 ozs. nominal.

**Electrical Connection****PDCR 130/W and PDCR 135/W**

3 feet integral shielded/vented cable supplied.

**PDCR 130/WL and PDCR 135/WL**

3 feet teflon shielded cable supplied.

*Longer lengths available on request.*

**Connector Versions****PDCR 130/W/C, PDCR 135/W/C,****PDCR 130/WL/C and PDCR 135/WL/C**

6 pin Bayonet receptacle, PT1H-10-6P or equivalent (Hermetic stainless) to MIL-C-26482.

*Mating electrical socket type PT06A-10-6S or equivalent available on request (P/N 163-009).*

**Pressure Connections****PDCR 130/WL, PDCR 135/WL,****PDCR 130/WL/C, and PDCR 135/WL/C**

Positive Port: 1/4" NPT male or 7/16 UNF male (MS33656-4)

Negative Port: 1/4" NPT male or 7/16 UNF male (MS33656-4)

**PDCR 130/W, PDCR 135/W,****PDCR 130/W/C and PDCR 135/W/C**

Gauge, Absolute and Sealed Gauge: 1/4" NPT male or 7/16" UNF male (MS33656-4).

*Other pressure connections available on request.*

**ORDERING INFORMATION**

Please state the following:

- (1) Type number
- (2) Pressure range
- (3) Gauge, sealed gauge, absolute or differential
- (4) Maximum line pressure for /W versions
- (5) Temperature range
- (6) Pressure connection
- (7) Pressure media
- (8) Supply voltage
- (9) Output voltage
- (10) Mating electrical socket, P/N 163-009, (if required)

*For non-standard requirements please specify in detail.*

*Continuing development sometimes necessitates specification changes without notice.*

**Your specification requirements**

In addition to the standard specification detailed in this data sheet the PDCR 130 series can be manufactured to comply with specific requirements where system compatibility dictates that certain critical parameters be maintained.

Whether it is improved temperature performance over a wider temperature range, reduced non-linearity error or a revised mechanical configuration Druck has the engineering experience and capability, and would be pleased to consider your requirements.

Please contact our Sales Office for further information.

**OPTIONS**

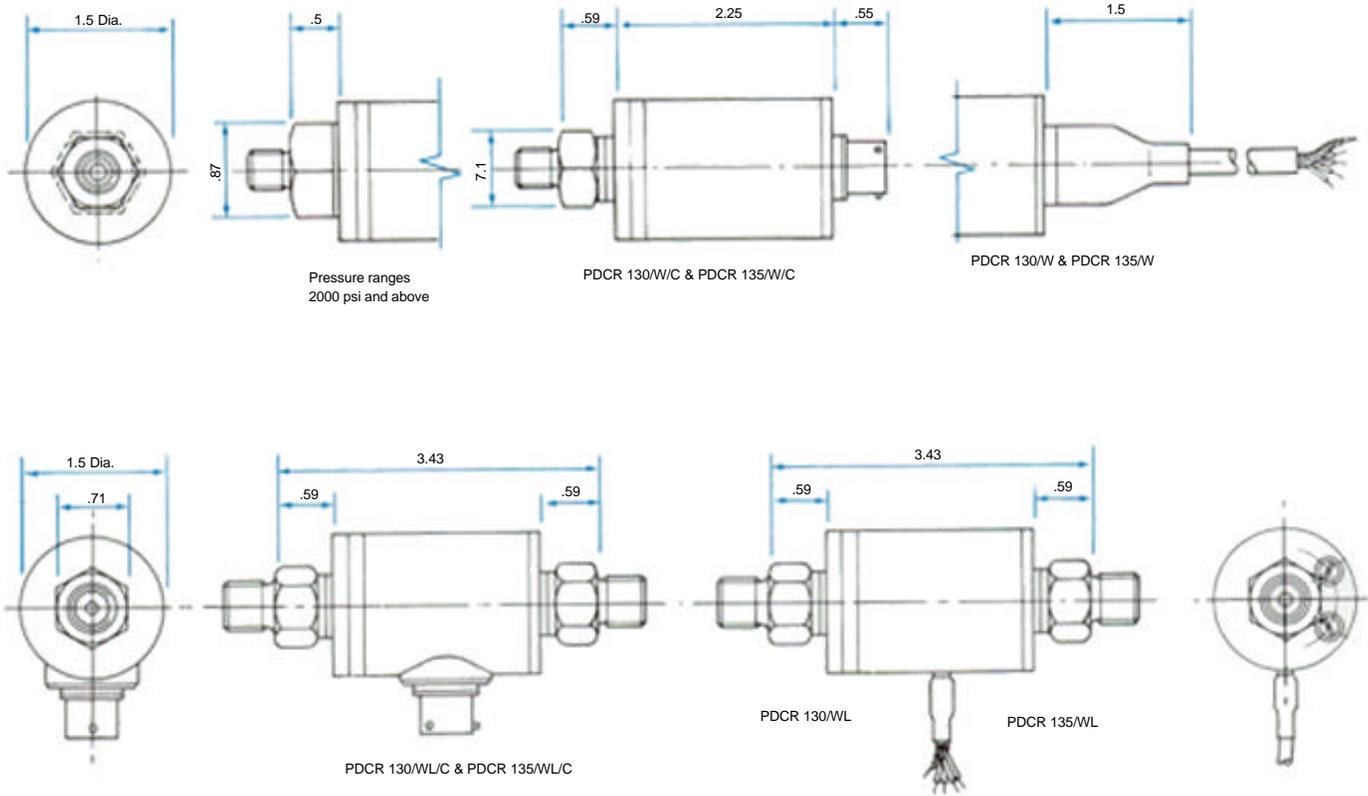
80% internal shunt calibration circuit

When specified, this provides a simulated positive 80% ± 5% increase in output signal (exact pressure equivalent for this signal is provided on calibration certificate). See electrical connection details on following page.

*Please refer to manufacturer for other shunt calibration requirements.*

Submersible transducer: contact manufacturer.  
Flush mounting transducer: contact manufacturer.  
Alternate electrical connectors available; contact manufacturer (see /WX).

**INSTALLATION DRAWINGS** Dimensions: inches



**Electrical connection**

FUNCTION	INTEGRAL CABLE VERSIONS		CONNECTOR VERSIONS	
	PDCR 130/W PDCR 135/W	PDCR 130/WL PDCR 135/WL	PDCR 130/W/C PDCR 135/W/C	PDCR 130/WX PDCR 135/WX
Supply Positive	Red	Red	A	1
Supply OV	White	Blue	D	4
Output Positive	Yellow	Yellow	B	2
Output Negative	Blue	Green	C	3
Optional 80% Shunt Cal (Operated by connecting the following terminals)	Orange/Black	-	E/F	5/6
Shield	Not connected	Connected to body	-	-

NOTE: 1) If integral cable length not specified, nominally 3 ft. Will be supplied.



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