PDCR 130 SERIES

Amplified Output Pressure Transducers

- Excellent linearity and hysteresis
  ±0.1% B.S.L. for all ranges

- Amplified output
  Up to 10V available

- Good thermal stability
  ±1.5% total error band -20° to +80°C

- Integral zero and span adjustments
PDCR 130 SERIES

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 70mbar to 700 bar are available in combinations of gauge, sealed gauge, absolute and differential modes whilst 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. ±15V d.c. or ±12V d.c.

PDCR 130 - Integral vented cable and silicon diaphragm
PDCR 130/C - Integral connector and silicon diaphragm
PDCR 130/W - Integral vented cable and isolation diaphragm
PDCR 130/W/C - Integral connector, wet/wet differential
PDCR 130/WL - Integral P.T.F.E. cable, wet/wet differential
PDCR 130/WL/C - Integral connector, wet/wet differential

PDCR 13 X/X

/W fitted with stainless steel isolation diaphragm between the silicon diaphragm and pressure media on positive side.
/W* differential with wet/wet capability *Denotes maximum line pressure
/C integral connector and free mating socket.

Electrical construction input/output

0 excitation voltage 10-32V d.c. isolated input/output
5 excitation voltage ±15V d.c. or ±12V d.c. non-isolated.

PDCR 130 transducer series

The Type Numbering System Denotes the Following Details:-

STANDARD SPECIFICATION

Operating Pressure Ranges

PDCR 130 and PDCR 135
70mbar, 175mbar, 350mbar, 700mbar, 1, 1.5, 2, 3.5, 5, 7, 10, 15, 20, 35, 60 and 70 bar gauge or sealed gauge.
Sealed gauge not available for ranges up to 10 bar.

PDCR 130/W and PDCR 135/W
350mbar, 700mbar, 1, 1.5, 2, 3.5, 5, 7, 10, 15, 20, 35, 60 and 70 bar gauge or absolute
175mbar gauge only.
135, 200, 350, 500 and 700 bar sealed gauge or absolute.

PDCR 130/WL and PDCR 135/WL
175mbar, 350mbar, 700mbar, 1, 1.5, 2, 3.5, 5, 7, 10, 15, 20 and 35 bar differential.
Other pressure units can be specified, e.g. psi, kPa, etc.

Intermediate pressure ranges, and depth amplified transducers are available, refer to depth/level data sheet.

Overpressure

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

PDCR 130 and PDCR 135
10x for 70 and 175mbar ranges
6x for 350mbar range
4x for 700mbar to 35 bar ranges
2x for 60 to 135 bar ranges.

PDCR 130/W and PDCR 135/W
10x for 175mbar range
6x for 350mbar range
4x for 700mbar to 20 bar ranges
100 bar for 35 to 70 bar ranges
2x for 135 bar range and above

Pressure containment >1400 bar for 135 to 700 bar ranges.

PDCR 130/WL and PDCR 135/WL

Positive side:-
10x for 175mbar range
6x for 350mbar range
4x for 700mbar to 20 bar ranges
100 bar for 35 to 70 bar ranges.
Negative side:-
Must not exceed positive side by greater than:-
6x for 175mbar range
4x for 350mbar range
2x for 700mbar to 5 bar ranges
10 bar for 7 bar to 35 bar ranges.

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

Maximum Line Pressure (Case Pressure)

2 bar – PDCR 130/2WL & PDCR 135/2WL
7 bar – PDCR 130/7WL & PDCR 135/7WL
35 bar – PDCR 130/35WL & PDCR 135/35WL
75 bar available on request.

Pressure Media

PDCR 130 and PDCR 135
Fluids compatible with silicon, titanium, pyrex and epoxy.
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, silicon, pyrex and epoxy.

Conducting Pressure Media

When operating the PDCR 130 and PDCR 135 with a conducting pressure media use a fully floating system or earth the +Ve supply.
If this method is not practicable please refer to manufacturer.

Transduction Principle

Integrated silicon strain gauge bridge.
**PDCR 130 SERIES**

### SUPPLY VOLTAGE

**PDCR 130, PDCR 130/W and PDCR 130/WL**
- 10-32V d.c. @20A isolated from output.

**PDCR 135, PDCR 135/W and PDCR 135/WL**
- +5V, 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, PDCR 130/W and PDCR 130/WL**
- 0.005% F.S./O./Volt.

**PDCR 135, PDCR 135/W and PDCR 135/WL**
- 0.02% F.S./O./Volt.

Polarity reversal protected.

### OUTPUT VOLTAGE

**1V** for 70mbar range

**2.5V** for 175mbar range

**5V** for 350mbar range and above

Output is isolated on PDCR 130, PDCR 130/W and PDCR 130/WL.

10V maximum available for 350mbar range and above.

Bi-directional output available, please refer to manufacturer.

### OUTPUT CURRENT

**PDCR 130, PDCR 130/W and PDCR 130/WL**
- 2mA maximum.

**PDCR 135, PDCR 135/W and PDCR 135/WL**
- 5mA maximum.

### RESOLUTION

Infinite.

### COMBINED NON-LINEARITY, Hysteresis and REPEATABILITY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>±0.01% B.S.L.</td>
<td>for all ranges</td>
</tr>
</tbody>
</table>

Considered separately on each side for PDCR 130/WL and PDCR 135/WL.

±0.05% B.S.L. available for ranges up to 20 bar on request.

Please refer to manufacturer.

### ZERO OFFSET AND SPAN SETTING

Integral trim potentiometers giving total adjustment of nominally 10% F.S.O.

### OPERATING TEMPERATURE RANGE

-40° to +80°C standard

-20° to +125°C for connector versions.

This temperature range can be extended.

### TEMPERATURE EFFECTS

**PDCR 130 and PDCR 135**
- ±0.5% total error band

10° to 40°C for 70mbar range

±0.5% total error band

0° to 50°C for 175mbar range and above

±1.5% total error band

-20° to +80°C for 175mbar range and above.

**PDCR 130/W and PDCR 135/W**
- ±0.5% total error band

10° to 40°C for 175mbar range

±0.5% total error band

0° to 50°C for 350mbar range and above

±1.5% total error band

-20° to +80°C for 350mbar range and above.

**PDCR 130/WL and PDCR 135/WL**
- ±0.5% total error band

10° to 40°C for 175mbar range

±0.5% total error band

0° to 50°C for 350mbar range and above

±1.5% total error band

-20° to +80°C for 350mbar range and above.

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

### NATURAL FREQUENCY (MECHANICAL)

**PDCR 130 and PDCR 135**
- 28kHz for 350mbar range increasing to 369kHz for 35 bar range.

For more detailed information please refer to manufacturer.

**PDCR 130/W and PDCR 135/W**
- 10.5kHz for 350mbar range increasing to 210kHz for 35 bar range.

For more detailed information please refer to manufacturer.

### AMPLIFIER BANDWIDTH

-3dB at 2kHz nominal.

### ACCELERATION SENSITIVITY

**PDCR 130 and PDCR 135**
- 0.006% F.S./g for 350mbar range decreasing to 0.0002% F.S./g for 35 bar range.

**PDCR 130/W and PDCR 135/W**
- 0.004% F.S./g for 350mbar range decreasing to 0.00005% F.S./g for 35 bar 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 12 mm double amplitude (MIL-STD 810C Proc 514.2-2 Curve L).

### WEIGHT

**PDCR 130, PDCR 135, PDCR 130/W and PDCR 135/W**
- 250 grams nominal.

**PDCR 130/WL and PDCR 135/WL**
- 250 grams nominal.

### ELECTRICAL CONNECTION

**PDCR 130, PDCR 135, PDCR 130/W and PDCR 135/W**
- 1 metre integrated shielded/vented cable supplied.

**PDCR 130/WL and PDCR 135/WL**
- 1 metre shielded cable supplied. Longer lengths available on request.

### CONNECTOR VERSIONS

**PDCR 130/C, PDCR 135/C, PDCR 130/W/C, PDCR 135/W/C**
- 6 pin bayonet fixed plug to MIL-C 26482 or DEF 5325 shell size 10 and mating socket.

Amphenol type 62GB-16F10-6S supplied as standard.

### ELECTRICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Pressure range</td>
<td>(3) Gauge, sealed gauge, absolute or differential</td>
</tr>
<tr>
<td>(4) Maximum line pressure for/*WL versions</td>
<td>(5) Temperature range</td>
</tr>
<tr>
<td>(6) Pressure connection</td>
<td>(7) Pressure media</td>
</tr>
<tr>
<td>(8) Supply voltage</td>
<td>(9) Output voltage</td>
</tr>
</tbody>
</table>

For non-standard requirements, please specify in detail.

### CONTINUING DEVELOPMENT

Continuing development sometimes necessitates specification changes without notice.

### SPECIFIC 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 an improved temperature performance over a wider temperature range, reduced non-linearity error or a revised mechanical configuration Druck have the engineering experience and capability, and would be pleased to consider your requirements.

Please contact our Sale Office for further information.

### ORDERING INFORMATION

Please state the following:-

1. Type number.
2. Pressure range
3. Gauge
4. Pressure media
5. Output voltage
6. Supply voltage
7. Pressure connection
8. Electrical connection
9. Pressure range
10. Pressure range
11. Pressure connection

For non-standard requirements, please specify in detail.

### SPECIFICATION SHEET

For further information please contact our Sale Office.
INSTALLATION DRAWINGS Dimensions: mm

PDCR 130, PDCR 135

PDCR 130/W, PDCR 135/W

PDCR 130/WL, PDCR 135/WL

<table>
<thead>
<tr>
<th>Electrical Connection</th>
<th>Connector Versions</th>
<th>Cable Versions</th>
<th>Function</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDCR 130/C</td>
<td>PDCR 130</td>
<td>PDCR 130/WL*</td>
<td>PDCR 130</td>
<td>PDCR 135</td>
</tr>
<tr>
<td>PDCR 135/C</td>
<td>PDCR 135</td>
<td>PDCR 135/WL*</td>
<td>PDCR 135</td>
<td>PDCR 135</td>
</tr>
<tr>
<td>PDCR 130/W/C</td>
<td>PDCR 130/W</td>
<td>PDCR 130/W</td>
<td>PDCR 130/W</td>
<td>PDCR 135/W</td>
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<tr>
<td>PDCR 135/W/C</td>
<td>PDCR 135/W</td>
<td>PDCR 135/W</td>
<td>PDCR 135/W</td>
<td>PDCR 135/W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pin</th>
<th>Cable Colour</th>
<th>Function</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Red</td>
<td>Supply positive</td>
<td>Supply positive</td>
</tr>
<tr>
<td>D</td>
<td>White</td>
<td>Supply 0V</td>
<td>Supply negative</td>
</tr>
<tr>
<td>B</td>
<td>Yellow</td>
<td>Output positive</td>
<td>Output positive</td>
</tr>
<tr>
<td>C</td>
<td>Blue</td>
<td>Output negative</td>
<td>0V common</td>
</tr>
<tr>
<td>F connected to C</td>
<td>—</td>
<td>—</td>
<td>R-cal when spec.</td>
</tr>
<tr>
<td>E</td>
<td>Orange</td>
<td>R-cal when spec.</td>
<td>R-cal when spec.</td>
</tr>
</tbody>
</table>

*R-cal not available and screen is connected to body

Any other cores and screen not connected.