PDCR 800 SERIES

General Purpose Pressure Transducers

• Excellent linearity and hysteresis
  ± 0.1% B.S.L. for ranges to 60 bar
• High overload capability
• Rationalised outputs
• Good thermal stability
  ± 1.5% total error band -20° to +80°C
• Parameter selection available
Every PDCR 800 transducer is based on a high performance pressure sensor (core) which has subsequently been completed for a specific application by the addition of an electron beam welded pressure connector and an electrical connector assembly. The core itself is an accurate pressure transducer incorporating a high integrity silicon diaphragm and titanium module, a pcb assembly and advanced compensation techniques which give excellent performance over extended temperature ranges. The final assembly is electron beam welded and encapsulated. These cores are produced in large quantities and following automatic calibration over the whole temperature range the data is stored in the computer data base.

The benefits are a high performance to cost ratio series of the transducers listed below, including the core which can be selected and adapted in many different ways and supplied on short delivery.

### Type Number and Specification

<table>
<thead>
<tr>
<th>Type Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDCR 800/801</td>
<td>Basic core</td>
</tr>
<tr>
<td>PDCR 810/811</td>
<td>General purpose</td>
</tr>
<tr>
<td>PDCR 820/821</td>
<td>General purpose</td>
</tr>
<tr>
<td>PDCR 830/831</td>
<td>Depth</td>
</tr>
<tr>
<td>PDCR 860/861</td>
<td>Integral connector</td>
</tr>
</tbody>
</table>

This type numbering system denotes the following details:

- **PDCR**: 8 X X
  - 8: Type series
  - X X: Sub-type numbering

#### PDCR 8X0/8X1/8X2

- **8X0**: Basic core
- **8X1, 8X2**: General purpose
- **8X3**: Depth
- **8X6**: Integral connector

*Please refer to temperature effects, ordering information, assembly diagram and installation drawings to fulfil your requirements.*
PDCR 800 SERIES: Specification Options

The following summarises the possibilities and for further details and ordering information please contact our Sales Office.

1. Parameter Selection
The PDCR 800 series transducer is calibrated to the nominal full range pressure, and the temperature effects of zero and span are monitored at five temperatures between -20°C and +80°C. This information is stored in a computer and enables us, where it is important, to optimise the performance parameters to suite specific applications. Selection can either be for improved performance in accuracy or temperature drift from standard transducers or to optimise certain parameters by using the transducers in the overrange condition.

2. Improved Accuracy
The standard linearity and hysteresis is ±0.1% B.S.L., but this can be improved to ±0.06% B.S.L., or even better by selection. In some cases this may result in a reduction of the full scale output.

3. Higher Overload Pressure
The lowest overload pressure for standard devices is 400% but this can be increased up to 100% where necessary. This will reduce the full scale output and increase the zero drift with temperature unless this is maintained by selection.

4. Higher Output
All cores can be overranged by three times nominal full scale, giving outputs of up to 300mV for most ranges. This will improve the zero stability, reduce the overload, and the linearity will be slightly degraded.

5. Excitation Voltage
The transducers can be operated from any d.c. excitation up to 12 Volts maximum. The output is proportional to excitation, but the exact offset and span should be measured at the desired excitation.

6. Improved Temperature Effects
Improved thermal error bands can be selected from the data base.

7. Improved Zero Stability
Thermal zero shift and long term zero stability are improved proportionally with overload.

8. Long Term Stability
The standard PDCR 800 series offers typically 0.2mV per year stability at 10 Volt operation, but this can be improved considerably by operating in the overrange condition at a reduced supply voltage.

9. Thermal Hysteresis
The calibration of a standard transducer at room temperature will repeat within 0.2mV after cycling through the full temperature range.

10. Rationalisation
The transducers can be selected such that both the zero offset and the full scale output are matched to better than 1% where interchangeability is important.

11. Extended Temperature Range
Transducers are available which will operate between -54°C and +125°C.

Please refer to PDCR 82X product note.

12. Rcal
This facility is available by connecting an external resistor across the appropriate connection. The thermal coefficient of this Rcal signal is typically 0.005% F.S./°C.

13. Calibration Print Out
Available on request relating to selected parameters above.

Examples of alternative specifications based upon a standard 10 bar α transducer

<table>
<thead>
<tr>
<th>Operating pressure range bar</th>
<th>Overload x F.S.</th>
<th>Accuracy B.S.L. % F.S.</th>
<th>Output with 10 Volt excitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>x5</td>
<td>±0.05%</td>
<td>70mV</td>
</tr>
<tr>
<td>10</td>
<td>x4(40 bar)</td>
<td>±0.1%</td>
<td>100mV</td>
</tr>
<tr>
<td>20</td>
<td>x2</td>
<td>±0.15%</td>
<td>200mV</td>
</tr>
<tr>
<td>50</td>
<td>x1.3</td>
<td>±0.2%</td>
<td>300mV</td>
</tr>
</tbody>
</table>

The above example illustrates the various specification performances when using the standard 10 bar core. e.g. used at 20 bar continuously, the overload is x2, accuracy is ±0.15% B.S.L. and output 200mV.

The above example can be selected if ±0.06% is required with 100mV output for ranges up to 20 bar.
PDCR 80X

PDCR 81X

PDCR 82X

PDCR 83X

PDCR 86X

e.g. PDCR 81X with flush fitting pressure connection

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