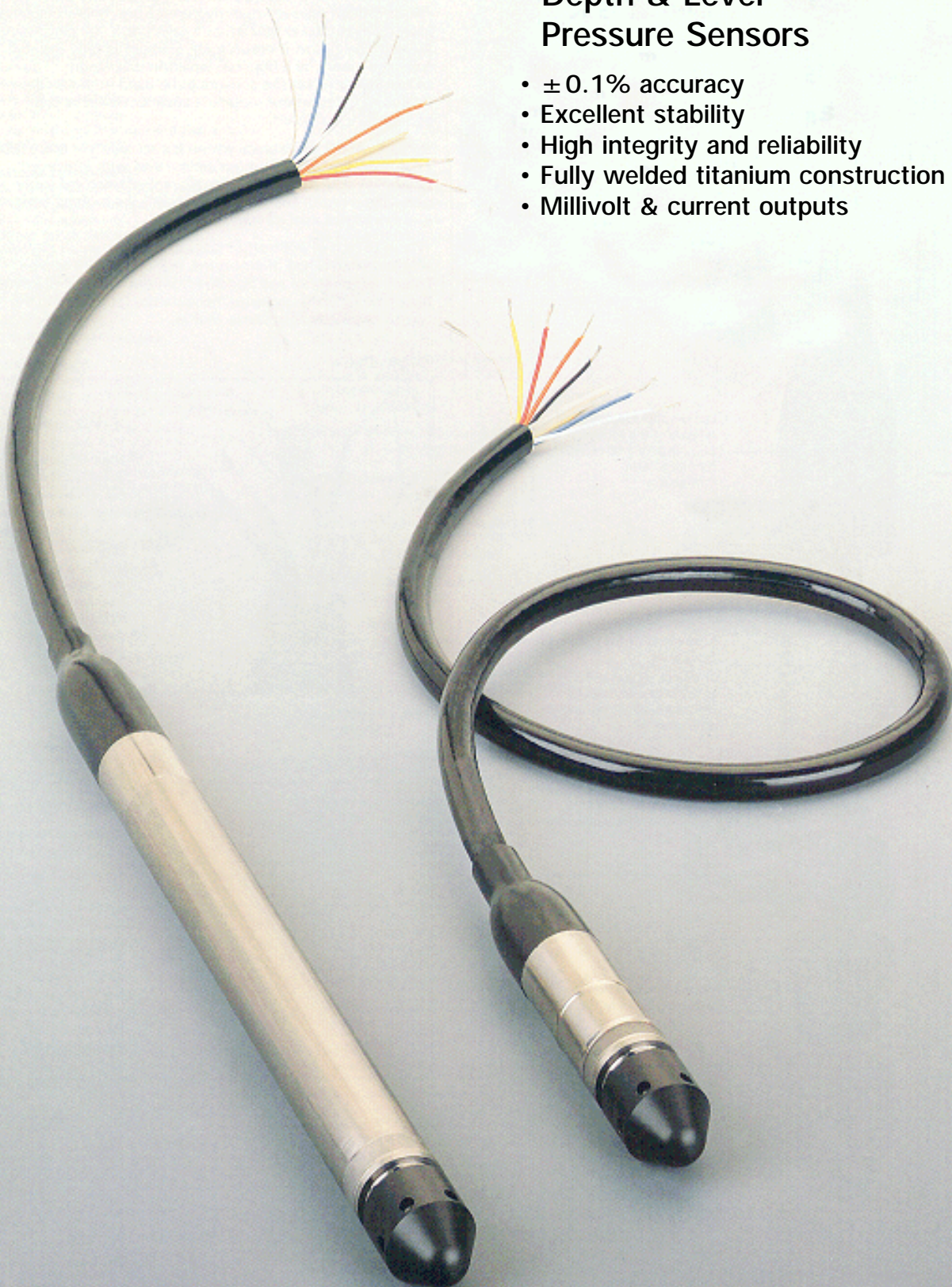


## 1830 SERIES

### Depth & Level Pressure Sensors

- $\pm 0.1\%$  accuracy
- Excellent stability
- High integrity and reliability
- Fully welded titanium construction
- Millivolt & current outputs



1830 SERIES

## 1830 SERIES: Depth & Level Pressure Sensors

### INTRODUCTION

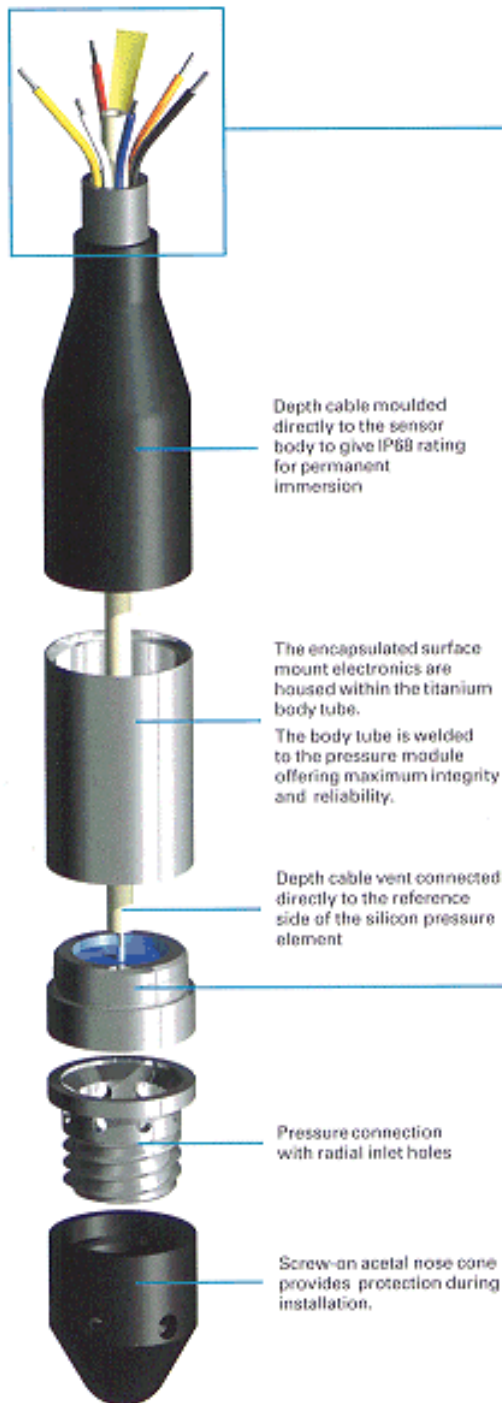
For over 20 years Druck have manufactured pressure sensors specifically for depth & level measurement.

The 1830 Series is the latest generation of fully submersible sensors which incorporate the most recent technical advances in depth & level measurement.

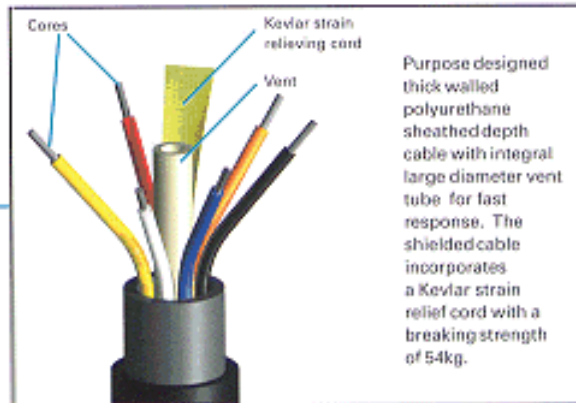
At the heart of the 1830 Series is a high stability pressure measurement element manufactured from micro-machined silicon developed within Druck's own class 100 processing facility. The silicon measurement element is fully isolated from the media by a titanium isolation diaphragm. The use of titanium enables the sensors to be used in the most hostile of fluids where materials such as stainless steel cannot be considered.

Surface mount electronics within the all titanium body tube assembly, enables minimum sensor size with improved reliability. The purpose designed vented electrical cable results in a depth and level sensor with the highest integrity and the lowest cost of ownership.

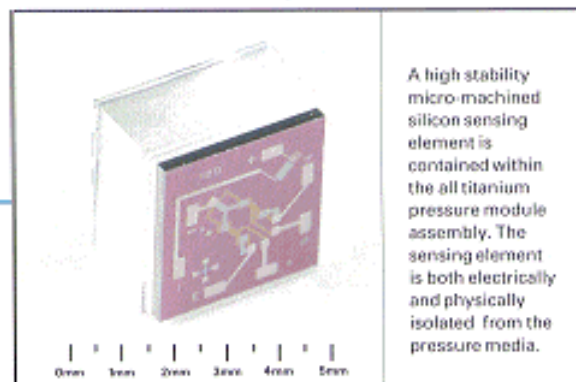
With a choice of millivolt or current outputs, small physical size and wide range of pressure, the 1830 Series can be used in a variety of applications from the smallest diameter bore holes to tank contents measurement, containing the most chemically aggressive media.



#### Depth Cable



#### Pressure Module Assembly



## 1830 SERIES: Specification

### PDCR 1830

#### Operating Pressure Range

75, 150mbar gauge  
350, 700mbar, 1, 1.5, 2, 3.5, 5, 7, 10, 15, 20,  
35 and 60 bar gauge or absolute.  
*Other pressure units can be specified.*

#### Overpressure

8x for 75 and 150mbar ranges.  
6x for 350mbar range  
4x for ranges of 700mbar and above up  
to 140 bar maximum.

#### Pressure Containment

10x for 75, 150 and 350mbar ranges  
6x for ranges of 700mbar and above up  
to 140 bar maximum  
200 bar for all absolute ranges.

#### Media Compatibility

Fluids compatible with titanium, Acetal and  
polyurethane.

#### Excitation Voltage

10 Volts at 5mA maximum.

#### Output Voltage

25mV for 75mbar range  
50mV for 150 and 350mbar ranges  
100mV for ranges of 700mbar and above  
*Output is ratiometric to supply.*

#### Common Mode Voltage

Typically  $\pm 3.5$  to  $\pm 9$  V with respect to the  
negative supply at 10 V excitation.

#### Combined Non-linearity, Hysteresis & Repeatability

$\pm 0.1\%$  F.S. BSL for all ranges.

#### Zero Offset & Span Setting

$\pm 3$ mV maximum.

#### Long Term Stability

Typically  $\pm 0.1$ mV/annum.

#### Operating Temperature Range

-20° to +60°C.

#### Compensated Temperature Range

-2° to +30°C.

#### Temperature Effects

$\pm 0.3\%$  F.S. Total Error Band for  
ranges of 350mbar and above  
 $\pm 0.6\%$  F.S. Total Error Band for  
75 and 150mbar ranges.

#### Pressure Connection

Depth cone with radial inlet holes.

#### Electrical Connection

6 cone vented polyurethane depth cable  
1 metre supplied as standard  
*Longer lengths available on request.*

#### Ingress Protection

IP68 to 700mH<sub>2</sub>O.

#### Insulation

Greater than 100M $\Omega$  at 500 V.d.c.

#### Safety

|               |            |
|---------------|------------|
| EMC emissions | EN50081-1  |
| EMC immunity  | EN50082-2  |
| Certification | CE Marked. |

### PTX 1830

#### Operating Pressure Range

75, 150mbar gauge  
350, 700mbar, 1, 1.5, 2, 3.5, 5, 7, 10, 15, 20,  
35 and 60 bar gauge or absolute.  
*Other pressure units can be specified.*

#### Overpressure

8x for 75 and 150mbar ranges  
6x for 350mbar range  
4x for ranges of 700mbar and above up  
to 140 bar maximum.

#### Pressure Containment

10x for 75, 150 and 350mbar ranges  
6x for ranges of 700mbar and above up  
to 140 bar maximum  
200 bar for all absolute ranges.

#### Media Compatibility

Fluids compatible with titanium, Acetal and  
polyurethane.

#### Excitation Voltage

9 to 30 V d.c.  
The minimum supply voltage ( $V_{min}$ ) that must  
appear across the transmitter terminals is 9V  
and is given by:-  
 $V_{min} = V_s - (0.02 \times RL)$

*Where  $V_s$  is excitation voltage in volts  
 $RL$  is total loop resistance in ohms.*

#### Output Current

4 to 20mA, 2 wire.

#### Combined Non-linearity, Hysteresis & Repeatability

$\pm 0.1\%$  F.S. BSL for all ranges.

#### Zero Offset & Span Setting

$\pm 0.25\%$  F.S. maximum.

#### Long Term Stability

Typically  $\pm 0.1\%$  F.S./annum for ranges  
above 350mbar  
For ranges of 350mbar and below, this value  
will increase pro-rata with calibration span.

#### Operating Temperature Range

-20° to +60°C.

#### Compensated Temperature Range

-2° to +30°C.

#### Temperature Effects

$\pm 0.3\%$  F.S. Total Error Band for  
ranges of 350mbar and above  
 $\pm 0.6\%$  F.S. Total Error Band for  
75 and 150mbar ranges.

#### Pressure Connection

Depth cone with radial inlet holes.

#### Electrical Connection

6 cone vented polyurethane depth cable  
1 metre supplied as standard  
*Longer lengths available on request.*

#### Ingress Protection

IP68 to 700mH<sub>2</sub>O.

#### Insulation

Greater than 100M $\Omega$  at 500 Vd.c.

#### Voltage Spike Protection

Units will withstand a 600 V voltage spike in  
accordance with ENV 50142 without damage  
when applied between all excitation lines  
and case.

#### Safety

|               |            |
|---------------|------------|
| EMC emissions | EN50081-1  |
| EMC immunity  | EN50082-2  |
| Certification | CE Marked. |



## 1830 SERIES: Depth & Level Pressure Sensors

### ORDERING INFORMATION

Please state the following:-

- (1) Type number
- (2) Pressure range
- (3) Gauge or absolute
- (4) Vented electrical cable length  
*1m supplied as standard.*

*For non-standard requirements please refer to Druck.*

*Continuing development sometimes necessitates specification changes without notice.*

### RELATED PRODUCTS

Druck manufacture a comprehensive range of pressure sensors for a diversity of applications, from aerospace to subsea and from petrochemical to medical. Additionally, Druck produce a range of pressure indicators, pressure and temperature calibrators/controllers for both field and laboratory use.

*Please refer to manufacturer for further information and data sheets.*

### CALIBRATION STANDARDS

Instruments manufactured by Druck Limited are calibrated against precision pressure calibration equipment which is traceable to International Standards.

### ORDERING INFORMATION

#### Digital Indicators

The DPI 280 Series is a range of Digital Process Indicators with built-in sensor energisation. Suitable for millivolt or current output sensors, the DPI 280 Series features include alarm levels, peak reading, averaging, dual scales and many other useful operating modes such as user configurable linearisation for tank volume measurement. Options include analogue output, RS 232 and RS 485 interfaces.

*Please refer to manufacturer for further information and data sheets.*



▲ DPI 280 Series Digital Process Indicators

#### Field Portable Pressure Calibrators

The DPI 600 Series of Field Portable Pressure Calibrators extends from low cost units with a  $\pm 0.075\%$  F.S. accuracy to premium grade  $\pm 0.05\%$  of reading devices with simultaneous pressure and electrical displays, integral test pressure generation, data storage and RS 232 interface.

The rugged design of the battery powered DPI 600 Series makes them ideal for on-site testing and calibration of all depth and level sensors. Intrinsically safe versions are also available.

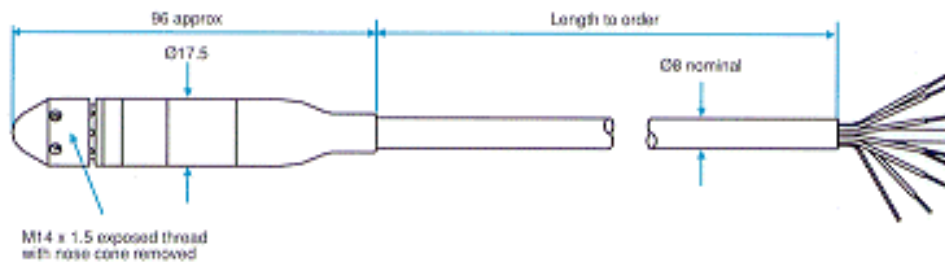
*Please refer to manufacturer for further information and data sheets.*



▲ DPI 600 Series Field Portable Pressure Calibrators

## INSTALLATION DRAWINGS

Dimensions: mm

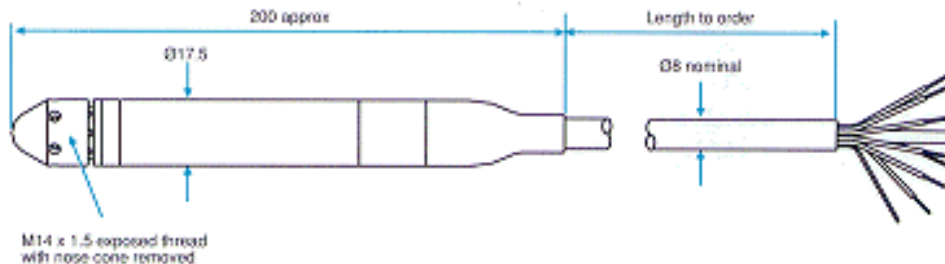


#### PDCR 1830

##### Electrical Connection

6 core vented polyurethane cable  
 Red Positive supply  
 White Negative supply  
 Yellow Positive output  
 Blue Negative output  
 Black Connected  
 Screen } to case  
 Any other cores not connected.

#### PDCR 1830



#### PTX 1830

##### Electrical Connection

6 core vented polyurethane cable  
 Red Positive supply  
 Blue Negative supply  
 Black Connected  
 Screen } to case  
 Any other cores not connected.

#### PTX 1830

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