1830 SERIES

PTX/PDCR 1830 Series

Druck

Depth and Level Pressure Sensors

- ±0.1% accuracy
- Excellent stability
- High integrity and reliability
- Full welded titanium construction
- Backed by 5 year corrosion warranty
- Outputs: 4-20mA, 0-100mV

PTX/PDCR 1830 Series

Depth and Level Pressure Sensors

INTRODUCTION

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

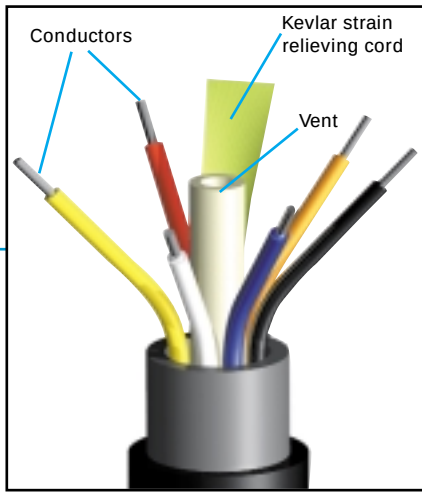
The 1830 Series is the latest generation of fully submersible sensors which incorporate the most recent technical advances in depth and level measurement.

At the heart of the 1830 Series is a high stability pressure sensing element manufactured from micro-machined silicon developed within Druck's own Class 100 processing facility. The silicon sensing 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 pressures, the 1830 Series can be used in a variety of applications from the smallest diameter bore holes to canals, rivers and reservoirs. They are ideally suited for depth/level application in the oceanographic and remediation industries. The 1830 Series depth-sensing transmitters are backed by Druck's 5-year corrosion warranty.

Depth Cable



Purpose-designed thick walled polyurethane sheathed depth cable with integral large diameter vent tube for fast response. The shielded cable incorporates a Kevlar strain relief cord with a breaking strength of 200 lbs. min.

Pressure Module Assembly

A high stability micro-machined silicon sensing element is contained within the all-titanium pressure module assembly. The sensing element is both electrically and physically isolated from the pressure media.

PTX/PDCR 1830 Series

Specification

Druck

PTX 1830

Operating Pressure Range
1, 2.5 psig
5, 10, 15, 20, 30, 50, 75, 100, 150, 200, 300, 500, 900 psia or psig
Other pressure units can be specified.

Overpressure
8x for 1 and 2.5 psig ranges
6x for 5 psig range
4x for ranges of 10 psi and above up to a maximum 2000 psi.

Pressure Containment
10x for 1, 2.5 and 5 psig ranges
6x for ranges of 10 psig and above to a maximum of 2000 psig; 3000 psi for all absolute ranges.

Media Compatibility
Fluids compatible with titanium, acetal and polyurethane.

Excitation Voltage
9 to 30 V d.c.
The minimum required supply voltage must provide at least 9V excitation to the sensor, and may be calculated as follows.

$V_S = 9 + (0.02 \times R_L)$, where

V_S is the minimum required supply voltage in volts DC
R_L is total loop resistance in ohms.

Output Current
4 to 20mA, 2 wire.

Combined Non-linearity, Hysteresis and Repeatability
±0.1% F.S. BSL for all ranges.

Zero Offset & Span Setting
±0.25% F.S. maximum.

Long Term Stability
Typically ±0.1% F.S./annum.

Operating Temperature Range
-5° to +140°F (-20° to +60°C).

Compensated Temperature Range
+30° to +86°F (-2° to +30°C).

Temperature Effects
±0.3% F.S. Total Error Band for ranges of 5 psi and above.
±0.6% F.S. Total Error Band for 1 and 2.5 psi ranges.

Pressure Connection
Depth cone with radial inlet holes.

Electrical Connection
Vented polyurethane depth cable
3 feet supplied as standard
Longer lengths available on request.

Ingress Protection
NEMA 6 (IP68) to 2300 feet of water.

Insulation
Greater than 100 Megohms at 500 Vd.c.

Safety
EMC and Surge Protection

Electrostatic Discharge (per IEC 61000-4-2)	±4 kV in contact with unit ±8 kV in air
Radiated RF Immunity (per IEC 61000-4-3)	80 to 1000 MHz @10 V/m
Fast Transient (per IEC 61000-4-4)	±1 kV @5/50 µs Tr/Th
Surge Lines to Ground (per IEC 61000-4-5)	±1 kV (42 ohm Source) @ 1.2/50 µs Tr/Th
Conducted RF Immunity (per IEC 61000-4-6)	0.15 to 80 MHz 10V/m

FM and CSA Approved, Class I, Div. 1, Groups A, B, C, D
Intrinsically Safe: ATEX Intrinsically Safe Approval
Specify approval required.

Note: *Consult factory for FM or CSA Intrinsically Safe, Class I, Div 1, Groups A, B, C, D and ATEX Intrinsically Safe EEx ia IIC ($-40°C < T_{amb} < 80°C$)*

PDCR 1830

Operating Pressure Range
1, 2.5 psig
5, 10, 15, 20, 30, 50, 75, 100, 150, 200, 300, 500, 900 psia or psig
Other pressure units can be specified.

Overpressure
8x for 1 and 2.5 psig ranges
6x for 5 psig range
4x for ranges of 10psi and above up to a maximum of 2000 psi.

Pressure Containment
10x for 1, 2.5, and 5 psig ranges
6x for ranges of 10 psig and above to a maximum of 2000 psig; 3000 psi for all absolute ranges.

Media Compatibility
Fluids compatible with titanium, acetal and polyurethane.

Excitation Voltage
10 Volts at 5mA maximum.

Output Voltage
25mV for 1 psig range
50mV for 2.5 and 5 psi ranges
100mV for ranges 10 psi and above
Output is ratiometric to supply.

Common Mode Voltage
Typically +3.5 to +9 V with respect to the negative supply at 10 V excitation.

Combined Non-linearity, Hysteresis and Repeatability
±0.1% F.S. BSL for all ranges.

Zero Setting
±3mV maximum.

Span Setting
±10mV maximum.

Long Term Stability
Typically ±0.1mV/annum.

Operating Temperature Range
-5° to +140°F (-20° to +60°C).

Compensated Temperature Range
+30° to +86°F (-2° to +30°C).

Temperature Effects
±0.3% F.S. Total Error Band for ranges of 5 psi and above.
±0.6% F.S. Total Error Band for 1 and 2.5 psi ranges.

Pressure Connection
Depth cone with radial inlet holes.

Electrical Connection
Vented polyurethane depth cable
3 feet supplied as standard
Longer lengths available on request.

Ingress Protection
NEMA 6 (IP68) to 2300 feet of water.

Insulation
Greater than 100 Megohms at 500 Vd.c.

Safety

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

FM, CSA and UL Approved,Class I, Div. I Groups A, B, C, D
Intrinsically Safe.

PTX/PDCR 1830 Series

Depth and Level Pressure Sensors

Druck

ORDERING INFORMATION

Please state the following:-
(1) Type number
(2) Pressure range
(3) Gauge or absolute
(4) Vented electrical cable length
3 ft. supplied as standard.

For non-standard requirements please refer to Druck.

ASSOCIATED PRODUCTS

Special Depth/Level Transmitter PDCR/PTX 1880
- Suitable for aggressive environment
- Tefzel/Titanium construction
- Compact 0.69" diameter
- Accuracy: ±0.1%
- 4-20mA or mV output
- Seawater compatible

Cable Termination with Remote Electronics SCU-220
- 2-wire 4-20mA
- Desiccant Indicator
- Din-Rail for lightning suppressor
- NEMA 4X

Cable Termination STE 110
- Low maintenance
- Desiccant indicator
- Suitable for all sensors
- Rated NEMA 4X
- DIN-Rail for lightning suppressor or IS barriers

Pressure Level Handbook
- Full range of products
- Installation details
- Application information
- Lightning protection

Lightning Arresters

MDK–24	2–wire
MDK–LC	4–wire
MDK–LV	3–wire

- DIN rail mountable
- Fits in STE 110 & SCU 220

Signal Conditioners/Controllers DPI 280 Series
- Dual Scaling
- Suitable for all sensors
- Programmable features
- Level control/measurement
- RS 232 and RS 485 interface
- Up to 4 flexible alarms

Portable Barometric Standards DPI740
- Battery powered
- Pocket-sized
- Barometric range
- Accuracy: ±0.015% value
- Stability: 100 ppm/year

Field Pressure Calibrator DPI 600 Series
- Accuracy: ±0.05% F.S.
- Integral ranges to 500 psi
- Voltage/current power source
- Higher ranges to 10,000 psi available
- Intrinsically safe operation optional
- Integral pressure/vacuum generation

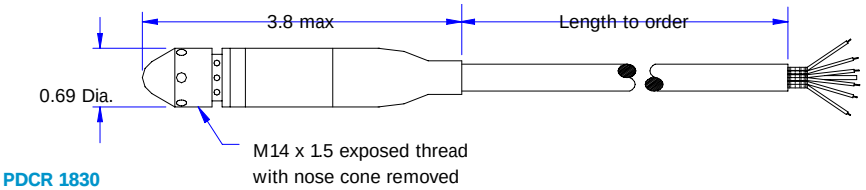
Continuing development sometimes necessitates specification changes without notice.

Druck is an ISO 9000 registered company.

DPI 280 Series Digital Process Indicators

DPI 600 Series Field Portable Pressure Calibrators

INSTALLATION DRAWINGS: Dimensions in inches (NOT TO SCALE)

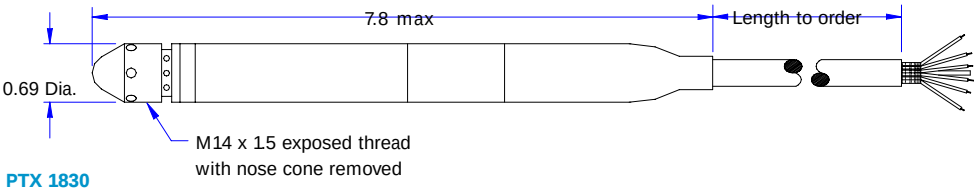


PDCR 1830

PDCR 1830
Electrical Connection
Vented polyurethane cable

Red	Positive supply
White	Negative supply
Yellow	Positive output
Blue	Negative output
Shield	connected to case

Any other conductors not connected.



PTX 1830

PTX 1830
Electrical Connection
Vented polyurethane cable

Red	Positive supply
Black	Negative supply
Shield	connected to case

Any other conductors not connected.

Druck

Druck Incorporated

Representative

Druck PTX 1830 / PDCR 1830 Level Pressure Transmitter
Distributor: ThermX Southwest 800-284-3769
www.thermx.com