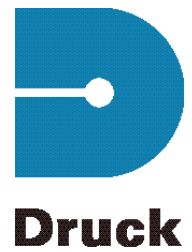


SENSORS FOR SYSTEMS

Pressure Sensors

Product Guide



- Ranges 0.04 inH₂O to 15,000 psi
- Millivolt, amplified and current output
- Digital outputs (frequency, RS 485, CANbus)
- High accuracy, stability and over-pressure
- Compact and rugged construction
- Standard or OEM designs



Pressure Measurement

Total Capability for a World of Pressure

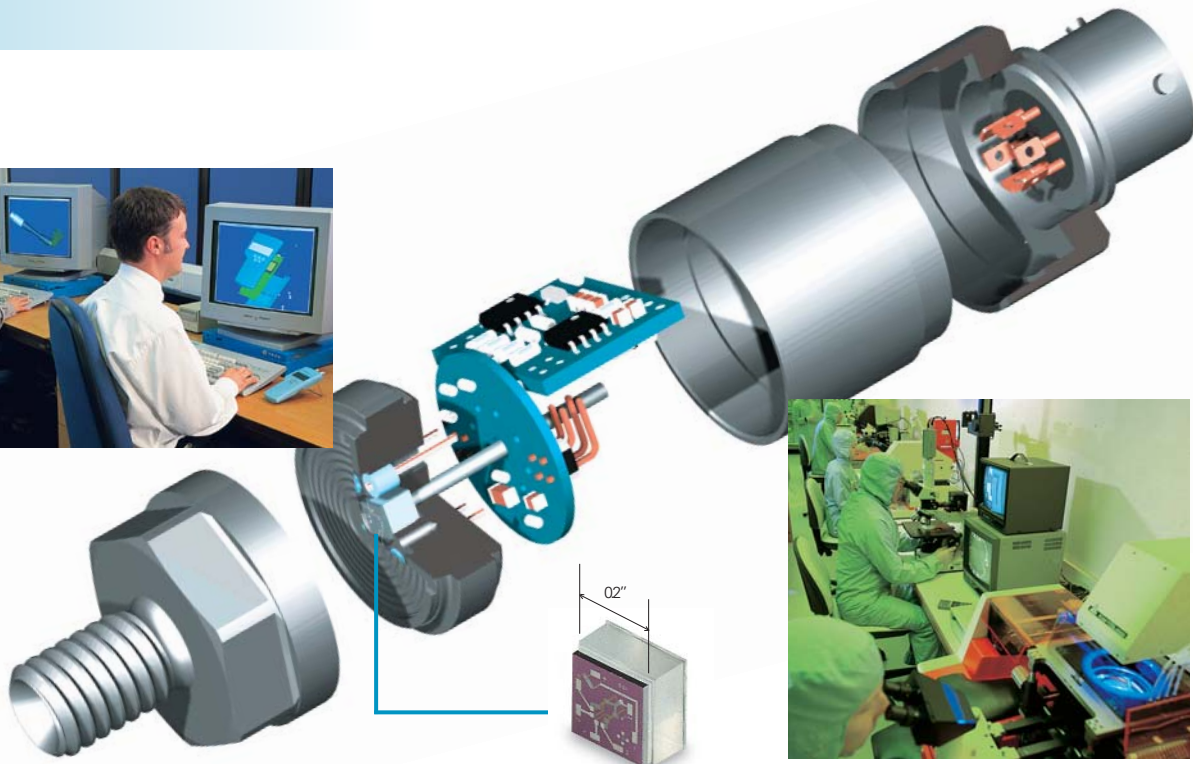
Established in 1972, Druck specializes in the design and manufacture of high-performance pressure transducers and transmitters for a wide range of applications.

Druck has one of the most comprehensive and technologically advanced silicon processing facilities in the world. It is one of only a few companies converting raw silicon into finished products by employing techniques such as micromachining.

Multi-disciplined engineering teams are experienced in the use of hybrids, ASICs, microprocessors, and surface-mount technology. Together with packaging design and other facets of engineering, Druck provides a complete solution for pressure measurement.

Druck's silicon sensor technology provides excellent performance characteristics with superior accuracy and stability along with a modular design approach which allows for flexibility of packaging to suit many different applications.

Shown below is an example of sensor construction, silicon processing, and 3D solid modeling for fast and accurate product development.





Druck

The Druck Group comprises fourteen subsidiary companies and a global agency network with development and manufacturing operations in the USA and Europe.

To address a broad range of applications and markets, Druck has four product marketing divisions. These groups are Pressure Sensors, Portable Field Calibrators, Primary and Secondary Standards and Aviation Ground Support Equipment.

This guide provides details of the extensive range of pressure sensors. A selection of products from the other divisions are shown on this page. Refer to Druck for associated product guides and data sheets.



Portable Field Calibrators Division

An extensive range of precision battery powered instruments for the calibration of pressure, temperature and electrical parameters, often in remote locations.



Druck Group Companies



Primary and Secondary Standards Division

A wide range of calibration standards are available, including deadweight testers, electronic pressure controllers and pressure indicators manufactured by Druck and group companies Ruska and Pressurements.



Aviation Ground Support Equipment Division

A selection of advanced Air Data Test Sets, aeronautical indicators and primary standards are available for flightline and laboratory applications.

Pressure Sensors

Range of Pressure Transducers and Transmitters

MILLIVOLT OUTPUT

The **PDCR 4000 Series** is a range of high performance pressure transducers which combine high accuracy with the ability to operate in extreme environments. They are compact, rugged and, with hermetic pressure media isolation, are compatible with most fluids.

Fast delivery of a wide range of transducers can be achieved by holding inventory of "core" devices, which can be selected for performance criteria and completed to the mechanical and electrical requirements of the customer.

- Ranges from 1 psi to 10,000 psi
- Differential ranges from 1 psid to 500 psid
- Accuracy to $\pm 0.04\%$ FS BSL
- Long-term stability to $\pm 0.1\%$ FS per year
- Hastelloy C276/316L SS wetted parts
- 400% proof pressure

Shown below are some other types of Druck millivolt transducers ranging from a miniature high temperature device to a low cost OEM sensor. Refer to Druck for further information and product data sheets.



PDCR 1000 Series

A low cost, flexible solution for OEM users throughout industry.

- Ranges up to 10,000 psig or psia
- Choice of pressure fittings
- Accuracy $\pm 0.25\%$ FS
- Compact size
- UL, cUL Intrinsic Safe Certified



PDCR 1800 Series

Fully submersible pressure sensors for measurement of level in groundwater, surface water and tanks.

- Ranges from 1 to 900 psi; 0-100mV output
- All-welded titanium construction with 5-year corrosion warranty
- Accuracy $\pm 0.1\%$ or $\pm 0.25\%$ FS
- Vented polyurethane or Tefzel™ cable with kevlar anti-stretch construction
- UL/FM/CSA Intrinsically Safe Class I, Div I, Grps A,B,C,D Certified
- SCU 220 Terminal enclosure with 2-wire, 4-20mA electronics and desiccant



PDCR 4100 Series

High performance differential pressure sensor

- Ranges from 1 to 500 psid
- Static pressures to 1000 psid
- Accuracy $\pm 0.04\%$ FS BSL
- Long-term stability $\pm 0.1\%$ FS per year
- 400% overpressure



PDCR 2100 Series

Wet/Wet differential pressure sensor

- Ranges from 1 to 500 psid
- Static pressure to 2000 psig
- Accuracy $\pm 0.1\%$ FS
- Long-term stability $\pm 0.1\%$ FS per year



PDCR 330 Series

Flight qualified series of transducers for aerospace applications.

- FAA/CAA flight-qualified
- Ranges from 5 to 10,000 psia or psig
- Operating temperature range -65° to $+300^{\circ}$ F
- Compact and rugged



PDCR 200

A miniature size, flush diaphragm sensor with high response output.

- Ranges from 15 to 900 psig
- Accuracy $\pm 0.2\%$ FS BSL
- Output 150mV
- Pressure connection 10-32 UNF or M5 x 0.5



AMPLIFIED OUTPUT

The **PMP 4000 Series** is an advanced range of high level output sensors designed to meet the demands of many industrial applications. High measurement accuracy and stability remove the need for regular recalibration, reducing downtime and cost of ownership.

Every sensor is fully tested over both pressure and temperature extremes prior to shipment. The output voltage is set for the pressure range selected and pressure and electrical connections are installed according to customer preference. Zero and span access allows sensor interchangeability and the 3 wire configuration permits bi-directional outputs if required.

- Ranges from 1 to 10,000 psi
- Barometric ranges available
- $\pm 0.04\%$ FSBSL
- Outputs to 10 Vdc or ± 5 Vdc
- Hastelloy C276/316L SS wetted parts
- 400% proof pressure

Some examples of other voltage output transducers are shown below. Refer to Druck for further information and product data sheets.



PMP 1000 Series

A low-cost, flexible solution for OEM users throughout industry.

- Ranges from 2.5 to 15,000 psi
- Accuracy $\pm 0.25\%$ FSBSL
- 3 or 4 wire, 0-5, 1-5 or 0-10 Vdc output
- Choice of electrical and pressure connections
- NACE (MRO 175) compatible Hastelloy C276/316L SS wetted parts
- UL/FM/CSA Intrinsically Safe Class I, Div I, Grps A,B,C,D Certified



PMP 1200 Series

Fixed range, high performance pressure transducer for fast delivery.

- Ranges from 2.5 to 15,000 psi
- Accuracy $\pm 0.25\%$ FSBSL
- 3-wire, 1-5 Vdc, low power (< 2 mA)
- NACE (MRO 175) compatible Hastelloy C276/316L SS wetted parts
- UL/FM/CSA Intrinsically Safe Class I, Div I, Grps A,B,C,D Certified
- FM/CSA Explosion-Proof Class I, Div I, Grps A,B,C,D Certified



PMP 317 Series

For on-vehicle applications requiring small size and wide temperature performance.

- Ranges from 5 to 10,000 psi
- Accuracy $\pm 0.1\%$ FSBSL
- -40° to $+250^{\circ}$ F operation
- Compact and rugged
- 3-wire or 4-wire configuration
- Hastelloy C276/316L SS wetted parts



PDCR 130 Series

Proven performance with full input/output isolation or split rail supply.

- Ranges from 2.5 to 10,000 psi
- Accuracy $\pm 0.1\%$ FSBSL; $\pm 0.05\%$ FS available
- Long-term stability $\pm 0.1\%$ FS per year
- -40° to $+250^{\circ}$ F operation
- Zero/Span adjustment
- Input/Output isolation



LPM Series

A series of low and ultra low absolute and differential pressure sensors

- Ranges from 0.03 psia to 150 psia; ± 0.04 inH₂O differential to ± 300 psid
- Wet/wet bi-directional differential pressure transducers
- Accuracy ± 0.1 FSBSL
- Long-term stability $\pm 0.1\%$ FS per year
- Inconel 600 and 316L SS wetted materials



LP 1000 Series

Clean room wet/wet differential pressure transducer

- Shown here with LDI 1001 display
- Ranges from ± 0.1 to 1.0 inH₂O
- Wet/wet differential
- Accuracy $\pm 0.5\%$ FS (0.25% available)
- Overpressure 3 psig
- Current or voltage output



CURRENT OUTPUT

The precision pressure transmitters in the **PTX 500/600 Series** are suitable for use in the demanding environment of the industrial and process sectors.

The 2 wire, 4-20mA output is not affected by electrical noise or long distance transmission. Fully encapsulated electronics with RFI/EMI protection ensure that high levels of performance are maintained, even in harsh operating conditions. Power supply is self-regulated and independent zero and span adjustment provided.

Modular construction allows a wide choice of electrical terminations, pressure adapters and pressure ranges to suit individual customer requirements.

- Ranges from 1 to 10,000 psi
- Accuracy $\pm 0.08\%$ FS BSL
- Long-term stability $\pm 0.1\%$ per year
- Intrinsically Safe Class I, Div I, Grps A,B,C,D Certified
- Hastelloy C276/316L SS wetted parts

Other types of transmitters are shown below. Refer to Druck for further information and product data sheets.



LPX 1000LCD Series

A direct replacement for Magnehelic™ gauges.

- Ranges from 0.1 to 6 inH₂O
- Accuracy $\pm 0.5\%$ FS; $\pm 0.25\%$ FS available
- 2-wire, 4-20mA
- Large (19mm) 3 1/2 digit LCD display
- Unidirectional or bidirectional operation
- User-accessible clamping (10ms to 2 sec)



PTX 1200 Series

Fixed range, high performance pressure transducer for fast delivery.

- Ranges from 2.5 to 15,000 psi
- Accuracy $\pm 0.25\%$ FS BSL
- Choice of electrical and pressure connections
- NACE (MRO 175) compatible Hastelloy C276/316L SS wetted parts
- UL/FM/CSA Intrinsically Safe Class I, Div I, Grps A,B,C,D Certified
- FM/CSA Explosion-Proof, Class I, Div I, Grps A,B,C,D Certified (PTX 1240)



PTX 2100

Wet/wet differential pressure transmitter for general industrial applications.

- Ranges to 500 psid
- Static pressures to 2000 psig
- Accuracy $\pm 0.1\%$ FS BSL
- Long-term stability $\pm 0.1\%$ FS per year
- Hastelloy C276/316L SS wetted parts



PTX 1800 Series

Fully submersible pressure transmitters for measurement of level in groundwater, surface water and tanks.

- Ranges from 1 to 900 psi; 2-wire, 4-20mA
- All-welded titanium construction with 5-year corrosion warranty
- Accuracy $\pm 0.1\%$ FS or $\pm 0.25\%$ FS
- 0.69 inch diameter
- Vented polyurethane or Tefzel™ cable with kevlar anti-stretch construction
- FM/CSA Intrinsically Safe Class I, Div I, Grps A,B,C,D Certified



PTX 1290

Fully submersible, sewage lift station pressure transmitter

- Ranges 2.5, 5, 10, 15 and 20 psig
- All-welded titanium construction with 5-year corrosion warranty
- Accuracy $\pm 0.25\%$ FS
- 1 inch diameter
- UL/cUL Intrinsically Safe Class I, Div I, Grps A,B,C,D Certified
- STE 110 terminal closure with desiccant; optional lightning arrester



LPX Series

A series of absolute and differential pressure sensors with very low ranges.

- Ranges from 0.03 psia to 150 psia; ± 0.06 inH₂O differential to ± 300 psid
- Wet/wet unidirectional or bi-directional differential pressure transducers
- Accuracy $\pm 0.1\%$ FS BSL
- Long-term stability $\pm 0.1\%$ FS per year
- Output 2-wire, 4-20mA
- Inconel 600 and 316L SS wetted materials





Druck

STANDARD OR CUSTOMIZED

Druck actively seeks out and satisfies new markets and needs, successfully addressing the diverse and ever growing applications for pressure measurement worldwide.

Druck sensors are supplied in standard or customized designs to measure pressures from fractions of an inch to over 15,000 psi and to achieve high accuracy and stability in the most demanding environments.

Major areas of use include aerospace, auto-motive, oil and gas, water and transportation, with applications ranging from offshore oil platforms to Formula One racing cars.

- Ranges from ± 0.04 inH₂O to 15,000 psi
- Static accuracies to $\pm 0.01\%$
- Long-term stability to 100ppm per year
- Millivolt, voltage, current and frequency outputs
- Digital and smart outputs including HART® protocol
- Wide range of precision sensor technologies

A small selection of customized products are shown below. Refer to Druck to discuss your own applications and product requirements in detail.



Barometric

Ultimate accuracy and stability performance, ideal for barometric purposes.

- Ranges to 50 psia
- Accuracy $\pm 0.01\%$ FS
- Long-term stability better than 100ppm per year
- Outputs: RS 232/485 or frequency
- Smart version available



Process

This range includes conventional dual compartment 4-20mA and smart/HART® transmitters.

- Ranges up to 10,000 psi
- Gauge or Absolute
- Accuracy, $\pm 0.1\%$
- 2-wire, 4-20mA with HART®
- NACE (MRO 175) compatible
- Hazardous area approvals



Aerospace

Fight qualified airframe and engine sensors, ground and flight test, plus air data pressure transducers.

- Superior accuracy and stability
- Flight certified versions
- Low-risk technology
- Compact and rugged
- Wide operating temperature range



Automotive

For engine/powertrain test, on-vehicle test, component test, and race-car on-vehicle performance monitoring.

- High accuracy and stability
- Wide operating temperature
- Compact and rugged
- Able to withstand high levels of shock and vibration



Depth and Level

A comprehensive line of submersible differential depth/level sensors for use in ground-water, waste water, hydroelectric and other fluid level applications.

- Millivolt, voltage and current outputs
- Ranges 4 inH₂O to 500 psid
- Polyurethane or Tefzel™ cable
- Accuracy $\pm 0.1\%$ FS or $\pm 0.25\%$ FS BSL



Oil & Gas

A heavy duty "mud" pressure transmitter for oil and gas drilling operations.

- Ranges to 15,000 psi
- Accuracy $\pm 0.1\%$ FS BSL
- WECO 1502/2202
- Replaceable sensor module
- Fast response time
- Superior shock and vibration performance



Pressure Measurement

Quality Assured Service, Support & Communication



Druck is committed to producing the highest quality products. This commitment extends from initial concept and development through to manufacturing, testing and shipment.

Druck is approved to the highest international quality standards, including ISO 9001, FAA and many companies who apply their own quality standards. Druck provides traceability to the National Institute of Standards and Technology and other International Standards for pressure, electrical and temperature measurements.

Operating through a global network of subsidiaries and exclusive agents, Druck maintains the highest standards of customer service. A fully integrated computer system ensures efficient customer support from sales inquiry to field service. Dedicated sales, product support, order processing and service teams use quality approved procedures to ensure fast response with flexibility of operation.

This successful philosophy is continually proven through the efficient delivery of standard catalog products, custom products for specific applications and even the management of large complex program contracts.

Druck is an ISO 9001 registered company.



Visit our website at www.druck.com or www.pressure.com to find out "What's New" in pressure measurement.



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