Druck

ADROIT1800

Druck re-rangeable high performance level pressure sensor

The ADROIT1800 is the latest generation fully submersible titanium pressure sensor, offering both high performance and the added functionality of re-rangeability.

Re-rangeability puts flexibility into the hands of the user, as the sensor can be re-ranged up to a ratio of 2:1 from the maximum working pressure.

Features

- Ranges from 0.35 bar to 7 bar
- Accuracy ±0.10% full scale (FS)
- Fully welded 17.5 mm diameter titanium construction
- Polyurethane cable
- Full range of installation accessories

Applications

The ADROIT1800 incorporates many enhanced features gained from experience in supplying thousands of sensors for small and large scale installations worldwide.

Example applications include:

- **Potable water**
  From ground water borehole to surface water level measurements in rivers, canals and reservoirs.
- **Waste water and remediation**
  Monitoring of secondary and outflow sewage levels and contaminated ground water levels in land fill sites.
- **Tank level**
  From land based liquid storage vessels to on-board ship ballast tank monitoring.
- **Sea water**
  Marine environmental applications, including tide gauging, coastal flood protection and wave profiling, amongst others.

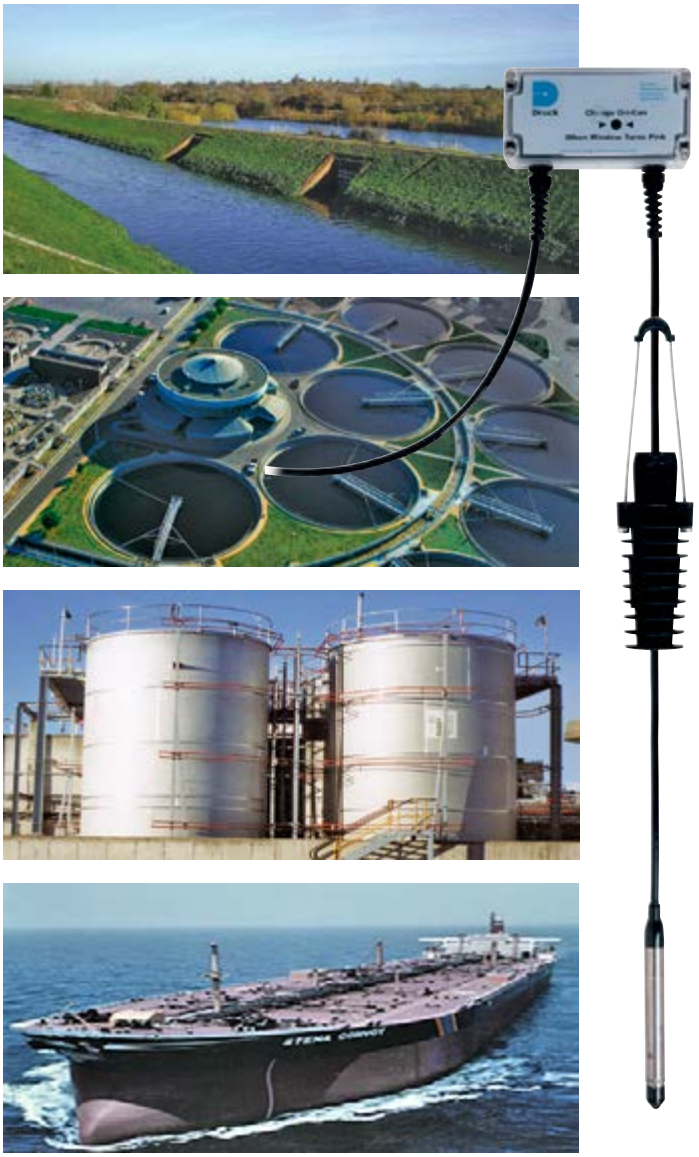
Reliability and data quality

The combination of a high technology sensor, together with advanced signal conditioning and packaging techniques, provides an ideal long term solution for reliable, accurate and economical level measurements. The micromachined silicon element is sealed within an all-titanium pressure module assembly, fully isolated from the pressure media. This is contained in a slimline, welded titanium body, terminated in an injection moulded cable assembly. The cable features a Kevlar® strain cord and is IP68 rated for indefinite immersion in 700 mH_2O.

Ease of use

A simple datum marked cable system is provided for ease of installation. 1 m datum points are clearly marked for quick and accurate cable alignment below ground level. In addition, a full range of related accessories simplifies installation, operation and maintenance, including:

- Quick-release cable clamp assembly
- Slimline and short profile sink weights
- Moistureproof Sensor Termination Enclosure
- In-situ pressure test/calibration adapters



ADROIT1800 specifications

Pressure measurement

Operating pressure ranges

0.35, 0.7, 1, 1.5, 2, 3.5, 5, 7 bar g

Overpressure

The operating FS pressure range may be exceeded by the following multiples with negligible effect on calibration:

- 6 x FS for ranges <= 0.35 bar
- 4 x FS for ranges > 0.35 bar

Pressure containment

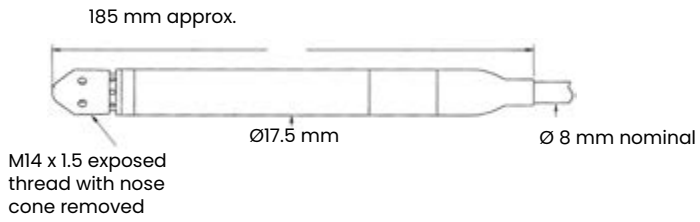
- 10 x FS for ranges <= 0.35 bar
- 6 x FS for ranges > 0.35 bar

Media compatibility

Fluids compatible with titanium (body), acetyl (nose cone) and polyurethane (cable assembly)

Not suitable for media that has an oxygen concentration >21% or other strong oxidizing agents. This product contains materials or fluids that may degrade or combust in the presence of strong oxidizing agents.

Installation Drawing:



ADROIT1800 specifications

Excitation voltage

7 to 32 V

The minimum supply voltage (V_{MIN}) which must appear across the pressure transmitter terminals is 7 V and is given by the following equation:

$V_{MIN} = V_{SUP} - (0.02 \times R_{LOOP})$

Where V_{SUP} is supply voltage in Volts, and R_{LOOP} is total loop resistance in Ohms

Pulse power excitation

Recommended power-on time before output sample: >30 ms

Output signal

4 to 20 mA, proportional for zero to FS pressure

Performance specification

Accuracy

Combined effects of non-linearity, hysteresis and repeatability, temperature effects and zero/span setting.

- **Standard**: ±0.2% FS maximum
- **Improved:** ±0.1% FS maximum

Values increase pro-rata below 700 mbar

Electrical connections

ADROIT1800 – Polyurethane cable

- **Red:** Supply positive
- **Blue:** Supply negative

Long-term stability

±0.1% FS per annum, increasing pro-rata below 700 mbar

Operating temperature range

-20 to 60°C (-4 to 140°F)

Compensated temperature range

-2 to 30°C (28 to 86°F)

Shock and vibration

MIL-STD-810E, method 514.4

Category 10 min. Figure 514.4-16

Product will withstand 20 g peak shock half sine wave

9 ms duration in all axes, also 2000 g peak shock

0.5 ms duration in all axes

Insulation

Standard: >100 MΩ at 500 Vdc

Physical specification

Pressure connection

Radial holed M14 x 1.5 mm male thread fitted with depth cone

Electrical connection

Vented polyurethane cable with integral Kevlar® strain relief cord rated to 54 kg load. Ingress protection IP68 to 700 mH_2O.

Working pressure and cable lengths

The ADROIT1800 is available in pre-defined maximum working pressures (MWP) and cable lengths. Each option can be re-ranged down by a ratio of 2:1.

Maximum Working Pressure (MWP)		Cable Length (ft)
bar G	PSI G	
0.35	5.1	30
0.7	10.2	50
1	14.5	75
1.5	21.8	100
2	29.0	140
3.5	50.8	180
5	72.5	260
7	101.5	300

CE marking

CE marked for electromagnetic compatibility

Options

Improved Accuracy

Accessories

A full range of accessories is available to enhance installation, operation and maintenance of the ADROIT1800 as listed below:

- STE moisture proof sensor termination enclosure (202-034-05)
- Slimline sink weight Ø17.5 mm (DA2608-1-01)
- Short sink weight Ø25 mm (DA4068-1-01)
- Cable clamp system (192-373-01)
- 360° Rotatable calibration adapter to: G1/8 (DA4112-1-01)
- Economical direct calibration adapter to: G1/8 (DA2537-1-01)
- Accessory pack contains (SO1830E) STE box, Slimline sink weight, cable clamp, direct calibration adapter

Ordering information

SAP part number

ADROIT1800 High Performance Level Pressure Sensor

Part Number String

		ADROIT18	30
Model			
ADROIT18	ADROIT18: mA output re-range		
Code type			
30	30: Polyurethane		

Configuration

Model

Model must be:

Code	Description
ADROIT18	ADROIT18: mA output re-range

Cable Type

Cable type must be:

Code	Description
30	30: Polyurethane

Pressure Unit of Measure

Mandatory to select one of the following:

bar	mbar	psi	ftH_2O	mH_2O

Pressure Ranges

Fixed gauge pressure ranges can be specified in any pressure unit from the table above as long as the conversion value falls within the ranges specified in bar.

Pressure Ranges (bar)	Low Pressure		High Pressure	
	Min (bar)	Max (bar)	Min (bar)	Max (bar)
0 – 0.35	0	0	0.343	0.350
0 – 0.7	0	0	0.686	0.700
0 – 1	0	0	0.980	1.000
0 – 1.5	0	0	1.470	1.500
0 – 2	0	0	1.961	2.000
0 – 3.5	0	0	3.432	3.500
0 – 5	0	0	4.903	5.000
0 – 7	0	0	6.864	7.000

Cable Length

Cable length is fixed in feet according to the pressure range chosen as shown below.

Pressure Ranges (bar)	Cable Length (ft)
0 – 0.35	30
0 – 0.7	50
0 – 1	75
0 – 1.5	100
0 – 2	140
0 – 3.5	180
0 – 5	260
0 – 7	300

Option A

Accuracy

Option	Description
A	Improved Accuracy

Supporting services

Our highly trained staff can support you, no matter where you are in the world. We can provide training, nationally accredited calibration—both initially and at periodic intervals—extended warranty terms and even rental of portable or laboratory calibrators. Further details can be found at druck.com

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