



GE Druck

RTX 1930 Series

Remote Rangeable Level Sensor

- Ranges from 0.6 mH₂O to 700 mH₂O
- Accuracy $\pm 0.06\%$
- Fully welded 316 stainless construction
- 4:1 Downranging
- 4 to 20 mA output
- Full range of installation accessories



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Remote Rangeable Level Sensor

NEW GENERATION DIGITALLY CONFIGURABLE SENSOR FOR A WORLD OF LEVEL MEASUREMENT

Proven Technology

Since 1972, Druck products have successfully applied technological innovation and application focus to a diverse and demanding world of pressure. Now part of GE Industrial Systems' Measurement & Sensing Technologies business, GE Druck manufactures a comprehensive range of pressure sensors and related test/calibration instruments for the field, workshop and laboratory.

The RTX 1930 Series, through the use of digital correction techniques and a serial configuration interface, offers a 4-20mA sensor with unparalleled accuracy, flexibility and reliability.

Asset Management

The accuracy and flexibility of the 1930 Series reduces the whole life cost for the user in a variety of level applications.

- Surface water
- Tank level
- Borehole water
- Waste water and remediation

Flexibility

The ability of each unit to be configured across a wide spectrum of levels through the use of a simple Windows based software via the serial interface, reduces inventory and simplifies site installation and maintenance.

Reliability

The fully welded construction of the RTX 1930 sensor, which contains no O-rings and incorporates all the enhanced features of a GE Druck family of level sensors developed over 25 years of application use, provides an ideal long-term solution for a reliable, accurate and economical level measurement.

The GE Druck micro-machined silicon diaphragm is sealed within an all 316 stainless steel pressure module assembly. This is contained within a 30 mm diameter body incorporating a sophisticated package of analogue through-path and digital electronics, terminating in an injection moulded cable assembly. The cable features are a Kevlar strain relief cord and IP68 rating for indefinite immersion in 700 mH₂O.

Ease of Use

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

- Simple Windows based Remote Configuration Software (RCS)
- Rugged hardware interface for digital communication
- Sink weights
- Moisture-proof Sensor Termination Enclosure
- In situ mA loop calibrator



STANDARD SPECIFICATIONS

Pressure Measurement

Operating Pressure Ranges

Any Full Scale (F.S.) between 0.625 mH₂O to 700 mH₂O gauge

Standard Pressure Ranges

The standard Upper Range Limit (URL) can be customer configured to any intermediate range determined by the **Range Adjustment Limits**

0 to 2.5 mH₂O gauge (URL)
0 to 5 mH₂O gauge (URL)
0 to 10 mH₂O gauge (URL)
0 to 15 mH₂O gauge (URL)
0 to 20 mH₂O gauge (URL)
0 to 35 mH₂O gauge (URL)
0 to 50 mH₂O gauge (URL)
0 to 100 mH₂O gauge (URL)
0 to 150 mH₂O gauge (URL)
0 to 350 mH₂O gauge (URL)
0 to 700 mH₂O gauge (URL)

Sensors can be provided with a pressure calibration at a downranged F.S., (e.g., 17 mH₂O) at an additional cost (refer to Option C).

Other units can be specified e.g. mmH₂O, ftH₂O, inH₂O, mbar, psi, bar

Range Adjustment Limits

Downranging (4:1) - full 4 to 20 mA output change for any user span setting up to the Upper Range Limit (URL) from 25 to 100% (URL).

Reverse (20 to 4 mA) - output can be inverted to generate a negative going output with positive going level, e.g., 0 to 10 mH₂O range provides a 20 to 4 mA output as a power saving feature.

Elevation - the 4 mA output can be elevated within 0 to 75% of the Upper Range Limit (URL) e.g., 0 to 40 mH₂O range can be elevated up to 30 to 40 mH₂O, with corresponding 4 to 20 mA output e.g for water tower applications.

Overpressure

Standard Pressure Ranges (URL) can be exceeded by the following multiples with negligible effect on performance:-

6 x for ranges to 2.5 mH₂O
4 x for ranges above 2.5 mH₂O (1400 mH₂O max)

Pressure Containment

10 x for ranges to 2.5 mH₂O
6 x for ranges above 2.5 mH₂O (1400 mH₂O max)

Media Compatibility

Fluids compatible with 316 stainless steel (body), acetyl (nose cone) and polyurethane (cable assembly).

Excitation Voltage

10 V to 30 V

Minimum supply voltage (V min) which must appear across the level transmitter terminals is 10 V and is given by the following equation:-
 $V_{min} = V_{sup} - (0.02 \times R \text{ loop})$
Where V sup is the supply voltage in volts, R loop is total loop resistance in ohms

Pulse Power Excitation

Recommended power-on time before output sample taken is 600 msec.

Output Signal

4 to 20 mA proportional to the level input in normal operation.
3.8 to 20.5 mA proportional to the Loop Cal input in Remote Configuration Software (RCS) operation.

STANDARD SPECIFICATIONS

Performance Specification

Accuracy

The combined effects of Non-Linearity, Hysteresis and Repeatability on standard pressure ranges (URL)

Standard: $\pm 0.1\%$ FS BSL max
Option A: $\pm 0.06\%$ FS BSL max

Zero Offset and Span Setting

Customer controlled with Remote Configuration Software (RCS).

Long Term Stability

0.1% URL per annum (0.2% for ranges below 5 mH₂O)

Operating Temperature Range

Direct mount: -40° to 85°C
Fluid immersed: -10° to 80°C

Temperature Effects

+/- 0.1% URL (TEB) over -10° to 50°C
+/- 0.2% URL (TEB) over -40° to 80°C

Shock and Vibration

MIL-STD-810E, method 514.4., Category 10 min., Figure 514.4-16

The product will withstand 20g peak shock half sine wave, 9 mS duration in all axes, also 2000g peak shock 0.5 mS duration in all axes.

Insulation

>10 M Ω at 500 Vdc.

EMC

CE marked: EN61326-1

Software

Remote Configuration Software (RCS) provided free of charge with each sensor, along with installation, maintenance and application instructions.

Physical Specification

Pressure Connection

G1/4 female fitted with detachable nose cone assembly, applicable for direct mount or immersed applications.

Electrical Connection

Vented polyurethane cable with integral Kevlar strain relief cord rated to 54 kg load. Water ingress protection to IP68 to 700 mH₂O.

Analogue 4 to 20 mA - 2 wires

Isolated digital interface - 4 wires (suitable for transmission up to 500 metres of cable).

Each unit provided free of charge with female Bulgin Buccaneer, splash-proof connector for use with PC Configuration Interface Module (Option B).

Cable Lengths

To be specified as required in 1 metre increments up to 500 metres.

Documentation

Units provided with traceable calibration certificate.

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OPTIONS

A) Improved Accuracy

An improved accuracy of $\pm 0.06\%$ FS BSL for standard ranges.

B) PC Configuration Interface Module

Hardware RS232 serial interface assembly with 2.5 metre lead fitted with mating Bulgin Buccaneer plug/socket. **Essential option for interfacing the RTX 1930 with the RCS software.**

C) Downranged Pressure Calibration

The unit will be provided with a pressure calibration certificate at your specified range (e.g., 17 mH₂O etc...)

ACCESSORIES

A full range of accessories is available to enhance installation, operation and maintenance of the 1930 series as listed below:



STE moisture proof Sensor Termination Enclosure (202-034-01)



Long Sink Weight 17.5mm Diameter (222-116-01)



1930 Sink Weight 30mm Diameter (222-156-01)



Cable Clamp System (192-373-01)



360° Rotatable Calibration Adaptor (DA4112-1-03)



Economical Direct Calibration Adaptor (DA2536-1-01)

RELATED PRODUCTS

GE Druck manufactures a wide range of pressure transducers and transmitters, associated digital indicators, barometers and a complete range of precision process calibrators and controllers for the field, workshop and laboratory. A selection of these is shown below.



RTX 1000A/H rangeable transmitter and PTX7500 industrial transmitter



DPI 610 portable pressure calibrator and UPSIII precision loop calibrator



DPI 270/280 programmable level digital indicator



DPI 515 high speed precision pressure controller/calibrator

Please refer to GE Druck for further information on related products.

ORDERING INFORMATION

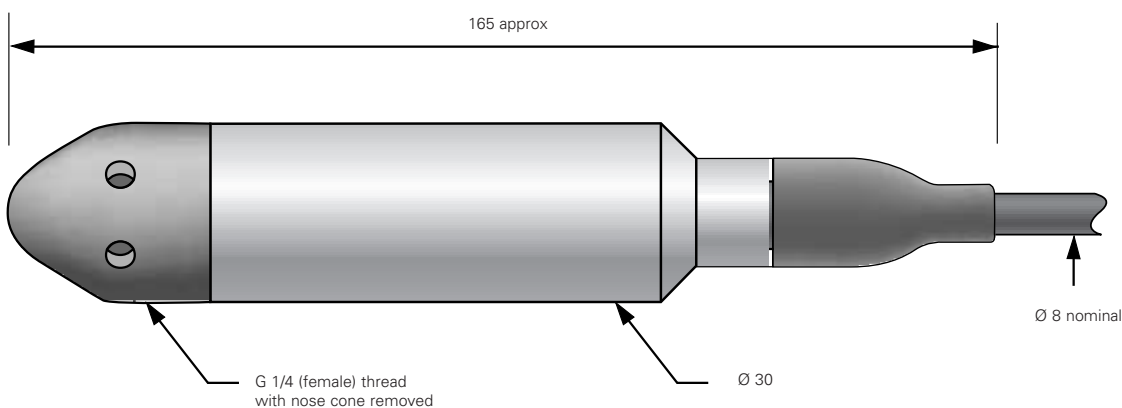
Please state the following:

- 1) Model type
- 2) Pressure range
- 3) Options (if required)
- 4) Cable length required
- 5) Accessories (order as separate items)

*Note: Option B - PC Configuration Interface Module required if RTX 1930's are to be reconfigured.

Continuing development sometimes necessitates specification changes without notice.

INSTALLATION DRAWINGS - Dimensions mm



RTX 1930 Electrical Connections

Red: Analogue Supply Positive
 Blue: Analogue Supply Negative
 Screen wire connected to case

Orange: Digital Configuration V+ comms
 White: Digital Configuration Rx comms
 Yellow: Digital Configuration Tx comms
 Black: Digital Configuration Ground comms