

## Features

- Ranges from 0.6 mH<sub>2</sub>O to 700 mH<sub>2</sub>O (1 to 1000 psi)
- Accuracy  $\pm 0.06\%$
- Fully welded 316 stainless construction
- 4:1 downranging
- 4 to 20 mA output
- Full range of installation accessories

The RTX 1930 transmitter (4 to 20 mA output) is a new generation rangeable, fully submersible, high performance sensor for measurement of hydrostatic liquid levels.

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

# RTX 1930 Series

## Remote Rangeable Level Pressure Sensor

RTX 1930 is a Druck product. Druck has joined other GE high-technology sensing businesses under a new name—GE Industrial, Sensing.



# GE Sensing

## 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 Druck level sensors developed over 25 years of application use, provides an ideal long-term solution for a reliable, accurate and economical level measurement.

The Druck micro-machined silicon diaphragm is sealed within an all 316 stainless steel pressure module assembly. This is contained within a 1.2 in (30 mm) diameter body incorporating a sophisticated package of analog through-path and digital electronics, terminating in an injection molded cable assembly. The cable features are a Kevlar strain relief cord and IP68/Type 6 rating for indefinite immersion in 700 mH<sub>2</sub>O (1000 psi).

## Ease of Use

A simple datum marked cable system is provided for ease of installation. Incremental 1 meter 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.

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



# RTX 1930 Series Specifications

## Pressure Measurement

### Operating Pressure Ranges

Any zero-based Full Scale (FS) between 0.625 mH<sub>2</sub>O to 700 mH<sub>2</sub>O 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 250 mbar gauge (URL) (≈ 2.5 mH<sub>2</sub>O or 4 psi)
- 0 to 500 mbar gauge (URL) (≈ 5 mH<sub>2</sub>O or 7.5 psi)
- 0 to 1 bar gauge (URL) (≈ 10 mH<sub>2</sub>O or 15 psi)
- 0 to 1.5 bar gauge (URL) (≈ 15 mH<sub>2</sub>O or 22.5 psi)
- 0 to 2 bar gauge (URL) (≈ 20 mH<sub>2</sub>O or 30 psi)
- 0 to 3.5 bar gauge (URL) (≈ 35 mH<sub>2</sub>O or 50 psi)
- 0 to 5 bar gauge (URL) (≈ 50 mH<sub>2</sub>O or 75 psi)
- 0 to 10 bar gauge (URL) (≈ 100 mH<sub>2</sub>O or 150 psi)
- 0 to 15 bar gauge (URL) (≈ 150 mH<sub>2</sub>O or 200 psi)
- 0 to 35 bar gauge (URL) (≈ 350 mH<sub>2</sub>O or 500 psi)
- 0 to 70 bar gauge (URL) (≈ 700 mH<sub>2</sub>O or 1000 psi)

Sensors can be provided with a pressure calibration at a downranged F.S., (e.g., 17 mH<sub>2</sub>O) at an additional cost (refer to Option C).

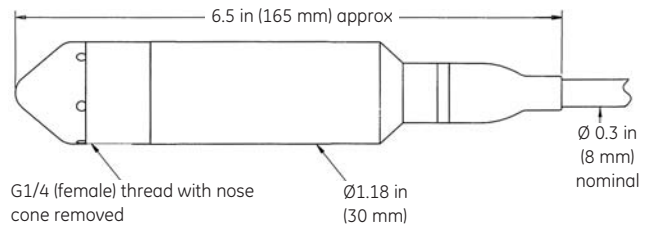
Other units are software selectable, e.g. mmH<sub>2</sub>O, ftH<sub>2</sub>O, inH<sub>2</sub>O, mbar, psi, bar

### Range Adjustment Limits

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

Reverse (20 to 4 mA)—output can be inverted to give reducing current with increasing level, e.g., 0 to 10 mH<sub>2</sub>O (0 to 15 psi) 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 10 mH<sub>2</sub>O (0 to 15 psi) range can be elevated up to 7.5 to 10 mH<sub>2</sub>O (10 to 15 psi), with corresponding 4 to 20 mA output, e.g for water tower applications.



Installation drawing

### RTX 1930 Electrical Connections

Red:	Analog Supply Positive
Blue:	Analog Supply Negative
Screen wire	connected to case
Orange:	Digital Configuration V+ comms
White:	Digital Configuration Tx comms
Yellow:	Digital Configuration Rx comms
Black:	Digital Configuration Ground comms

### Overpressure

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

- 6 x for ranges to 2.5 mH<sub>2</sub>O (4 psi)
- 4 x for ranges above 2.5 mH<sub>2</sub>O (4 psi) (1400 mH<sub>2</sub>O (2000 psi) max)

### Pressure Containment

- 10 x for ranges to 2.5 mH<sub>2</sub>O (4 psi)
- 6 x for ranges above 2.5 mH<sub>2</sub>O (4 psi) (1400 mH<sub>2</sub>O (2000 psi) max)

### Media Compatibility

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

### Excitation Voltage

10 V to 30 V

The minimum supply voltage ( $V_{MIN}$ ) which must appear across the pressure transmitter terminals is 9 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,  $R_{LOOP}$  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.

# RTX 1930 Series Specifications

## Performance Specification

### Accuracy

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

- Standard:  $\pm 0.1\%$  FS Best Straight Line (BSL) maximum
- Option A:  $\pm 0.06\%$  FS BSL maximum

### 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 mHzO (7.5 psi))

### Operating Temperature Range

- Direct mount:  $-40^{\circ}$  to  $185^{\circ}\text{F}$  ( $-40^{\circ}$  to  $85^{\circ}\text{C}$ )
- Fluid immersed:  $14^{\circ}$  to  $176^{\circ}\text{F}$  ( $-10^{\circ}$  to  $80^{\circ}\text{C}$ )

### Temperature Effects

- $\pm 0.1\%$  URL (narrow)  $14$  to  $122^{\circ}\text{F}$  ( $-10^{\circ}$  to  $50^{\circ}\text{C}$ )
- $\pm 0.2\%$  URL (wide)  $-40$  to  $176^{\circ}\text{F}$  ( $-40^{\circ}$  to  $80^{\circ}\text{C}$ )

### Shock and Vibration

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

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

### Insulation

$>10\text{ M}\Omega$  at 500 Vdc.

### Electromagnetic Compatibility

EN61326

Immunity EN61000-6-2

Emission EN 61000-6-3

### Software

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

## Physical Specification

### Cable Lengths

To be specified as required in 3.2 ft (1 m) increments up to 1500 ft (500 m).

### Documentation

Units provided with traceable calibration certificate.

### 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 119 lb (54 kg) load. Water ingress protection to IP68/Type 6 to 700 mHzO (1000 psi).

Analog 4 to 20 mA - 2 wires

Isolated digital interface - 4 wires each unit provided with digital interface splash-proof cable assembly for use with PC Configuration Interface Module (Option B).

## Options

### (A) Improved Accuracy

Improved accuracy of  $\pm 0.06\%$  FS BSL for standard URL ranges.

### (B) PC Configuration Interface Module

Hardware RS232 serial interface assembly with 7 ft (2.5 meter) lead fitted with splash proof cable assembly. 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 mHzO etc)

## Accessories

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

- STE moisture proof sensor termination enclosure (202-034-01)
- Long sink weight 0.7 in (17.5 mm) diameter (222-116-01)
- 1930 sink weight 1.18 in (30 mm) diameter (222-156-01)
- Cable clamp system (192-373-01)
- 360° rotatable calibration adaptor to:
  - G1/8 (DA4112-3-01)
  - 1/8 NPT (DA4112-4-01)
- Economical direct calibration adaptor to:
  - G1/8 (DA2536-1-01)
  - 1/8 NPT (DA2536-2-01)

# RTX 1930 Series Specifications

## 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.*

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