

## Features

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

The Druck 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
- mA loop calibrator



# RTX 1930 Series Specifications

## Pressure Measurement

### Operating Pressure Ranges

Any zero based FS from 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 configured by the customer to any intermediate range determined by the Range Adjustment Limits.

mH<sub>2</sub>O: 2.5, 5, 10, 15, 20, 35, 50, 100, 150, 200, 350, 700

ftH<sub>2</sub>O: 8, 16, 33, 50, 66, 115, 160, 335, 500, 650, 1150, 2300

Sensors can be provided with a pressure calibration at a downranged FS, (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.

### Overpressure

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

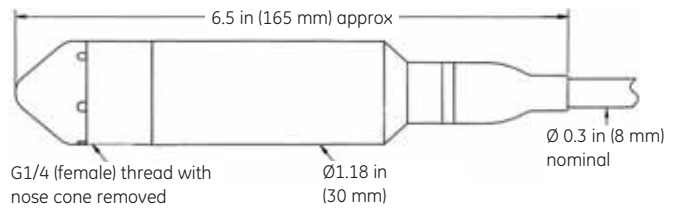
- 6 x for ranges to 2.5 mH<sub>2</sub>O (4 psi)
- 4 x for ranges above 2.5 mH<sub>2</sub>O (4 psi) (1400 mH<sub>2</sub>O (2000 psi) max)

### 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).



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

### Excitation Voltage

10 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 ms.

### 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

## Performance Specification

### Accuracy

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

- Standard:  $\pm 0.1\%$  FS 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 mH<sub>2</sub>O (7.5 psi).

### Operating Temperature Range

- Direct mount: -40 to 185 °F (-40 to 85 °C)
- Fluid immersed: 14 to 176 °F (-10 to 80 °C)

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## Temperature Effects

- ± 0.1% URL (narrow) 14 to 122 °F (-10 to 50 °C)
- ± 0.2% URL (wide) -40 to 176 °F (-40 to 80 °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 2000 g peak shock 0.5 ms duration in all axes.

## Insulation

>10 MΩ at 500 VDC

## Electromagnetic Compatibility

EN 61326

Immunity EN 61000-6-2

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 mH<sub>2</sub>O (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 ±0.06% FS BSL for standard URL ranges.

### (B) PC Configuration Interface Module

Hardware RS232 serial interface assembly with 7 ft (2.5 m) 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 mH<sub>2</sub>O etc).

## Accessories

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

- STE 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)

## Ordering Information

(1) Select model number

(2) If Option C is selected, please state calibrated range.

RTX1930 Base model number

Code	Pressure ranges
03	2.5 mH <sub>2</sub> O 8 ftH <sub>2</sub> O
04	5 mH <sub>2</sub> O 16 ftH <sub>2</sub> O
05	10 mH <sub>2</sub> O 33 ftH <sub>2</sub> O
06	15 mH <sub>2</sub> O 50 ftH <sub>2</sub> O
07	20 mH <sub>2</sub> O 66 ftH <sub>2</sub> O
08	35 mH <sub>2</sub> O 115 ftH <sub>2</sub> O
09	50 mH <sub>2</sub> O 160 ftH <sub>2</sub> O
11	100 mH <sub>2</sub> O 335 ftH <sub>2</sub> O
12	150 mH <sub>2</sub> O 500 ftH <sub>2</sub> O
13	200 mH <sub>2</sub> O 650 ftH <sub>2</sub> O
14	350 mH <sub>2</sub> O 1150 ftH <sub>2</sub> O
15	700 mH <sub>2</sub> O 2300 ftH <sub>2</sub> O

Code	Units
m	meters
f	feet

Code	Options
A	Improved accuracy
B	PC configuration interface module
C	Down ranged pressure calibration
0	no option

RTX1930 - 06 - m - BC Typical model number

(3) Cable length required and units.



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