

# Highest Precision and Accuracy

## The BetaGauge 321A/311A

Whichever you choose, the single sensor BetaGauge 311A, or the dual sensor BetaGauge 321A, you'll have everything you need for calibrating pressure anywhere. Gas custody transfer is the ideal application for the accuracy and capabilities of the BetaGauge 321A. Select from two standard configurations: 15 psi/1500 psi, or 30 psi/3000 psi, or create a custom configuration by selecting between any two ranges. The BetaGauge 311A can be configured by selecting from any range from 0.3, 1, 5, 15, 30, 50, 100, 150, 300, 500, 1000, 1500, 3000, 5000, or 10000 psi. Both are supplied with soft case, AA batteries, manual, NIST-traceable certificate, and test leads.

Both are available in kits including the Pressure Calibrator, Pt100 RTD Probe, AA batteries, manual, NIST-traceable certificate, test leads, and hard-sided carrying case. **And the newly improved -A versions provide enhanced features over their predecessors, including a Power-Tool-Tough case, custom engineering units, user-adjustable resolution, and enhanced stability.**



**BetaGauge 321A  
Dual Sensor**



**BetaGauge 311A  
Single Sensor**

### General Features

- For intrinsically safe applications choose the 311A-Ex or 321A-Ex versions available late 2010
- Two isolated, stainless steel, pressure sensors with 0.025% F.S. accuracy (one on 311A)
- 27 available pressure ranges
- Temperature-compensation ensures accuracy in the field applications
- External pressure module connection supports all BetaPort-P pressure modules (27 ranges) for even more measurement capability
- Pt100 RTD input for temperature measurement, accurate to 0.1°C (0.2°F)
- Measure 4-20 mA input
- Internal 24 V Loop Power Supply can power a transmitter under test
- Measure up to 30 V DC
- Large graphic style LCD with backlight can be configured to display up to 3 inputs simultaneously (i.e. pressure 1, pressure 2, and RTD or any combination of inputs)
- Ideal for gas flow calibration (custody transfer) applications
- Pressure displayed in the user's choice of 19 engineering units
- Switch test on Pressure 1, Pressure 2, or external pressure module
- Operating mode layers support simple measurements to complex applications
- Up to five frequently used setups can be stored; last setup automatically recalled on power-up
- % Error and damping functions
- Small, rugged compact design operates on four (4) standard AA batteries

# Available in a Hand-Held Instrument

## Specifications (15 °C to 35 °C, unless otherwise noted)

### Ranges

#### Available Pressure

##### Isolated Gauge (PSIG):

0 to 15 (0 to 1 Bar), 0 to 30 (0 to 2 Bar), 0 to 1000 (0 to 70 Bar),  
0 to 1500 (0 to 100 Bar), 0 to 3000 (0 to 200 Bar),  
0 to 5000 (0 to 340 Bar), 0 to 10000 (0 to 700 Bar)

##### Non Isolated Compound (PSIG):

-0.4 to 0.4 (-20 to 20 mBar), -1 to 1 (-70 to 70 mBar),  
-5 to 5 (-350 to 350 mBar), -7.2 to 7.2 (-500 to 500 mBar),  
-15 to 15 (-1 to 1 Bar), -15 to 30 (-1 to 2 Bar)

##### Isolated Compound (PSIG):

-12 to 50 (-0.8 to 3.5 Bar), -12 to 100 (-0.8 to 7 Bar),  
-12 to 150 (-0.8 to 10 Bar), -12 to 300 (-0.8 to 20 Bar),  
-12 to 500 (-0.8 to 35 Bar)

##### Isolated Absolute (PSIA):

0 to 15 (0 to 1 Bar), 0 to 30 (0 to 2 Bar), 0 to 100 (0 to 7 Bar),  
0 to 150 (0 to 10 Bar), 0 to 300 (0 to 20 Bar)

##### Non Isolated Differential (PSID):

-0.4 to 0.4 (-20 to 20 mBar), -1 to 1 (-70 to 70 mBar),  
-5 to 5 (-350 to 350 mBar), -12 to 30 (-0.8 to 2 Bar),  
-12 to 50 (-0.8 to 3.5 Bar), -12 to 100 (-0.8 to 7 Bar)

mA 0 to 24.000 mA

Volts 0 to 30.000 VDC

RTD -40°C to 105°C (-40°F to 220°F)

#### Engineering Units

psi, bar, mbar, kPa, kgcm<sup>2</sup>, cmH<sub>2</sub>O@4°C, cmH<sub>2</sub>O@20°C,  
mH<sub>2</sub>O@4°C, mH<sub>2</sub>O@20°C, inH<sub>2</sub>O@4°C, inH<sub>2</sub>O@20°C,  
inH<sub>2</sub>O@60°F, mmHg@0°C, inHg@0°C, ftH<sub>2</sub>O@4°C,  
ftH<sub>2</sub>O@20°C, ftH<sub>2</sub>O@60°F

### Accuracy

#### Pressure

0.3 psi	±0.1 % FS
1.0 psi	±0.05 % FS
15 to 3000 psi	±0.025 % FS
5, 5000, 10000 psi	±0.035 % FS

mA ±0.015% of rdg ±0.002mA

Volts ±0.015% of reading ±0.002V

RTD input range (Pt100-385) -40°C to 105°C (-40°F to 220°F)

#### Temperature Effect

No effect on accuracy on all functions from 15°C to 35°C

Add ±0.002% F.S./°C for temps outside of 15°C to 35°C

### General

Instrument Setup Recall 5; last used on power-up

#### Environmental

Operating Temperature	-10 °C to +50 °C
Storage Temperature	-20 °C to +60 °C

Power Requirements 6.0 VDC

Battery Four (4) standard AA cells

Battery Life >35 hours, typical usage

#### Physical

Dimensions 8.3" H x 3.9"W x 1.8"D  
(21.082 x 9.906 x 4.572 cm)

Weight 1 lbs, 4 oz. (0.567 kg)

#### Connectors/Ports Pressure

Two, 1/8" NPT

BetaPort-P pressure module;

RTD

#### Intrinsic Safety

IECEX and ATEX, approval pending

Ex ia IIB T4 Gb (Ta=-10... +55°C)

Included Accessories soft case, batteries, manual, NIST-traceable certificate, and test leads



## Order # Description and Range

### Ranges:

#### Isolated Gauge (PSIG):

0 to 15 (0 to 1 Bar), 0 to 30 (0 to 2 Bar), 0 to 1000 (0 to 70 Bar),  
0 to 1500 (0 to 100 Bar), 0 to 3000 (0 to 200 Bar),  
0 to 5000 (0 to 340 Bar), 0 to 10000 (0 to 700 Bar)

#### Non Isolated Compound (PSIG):

-0.4 to 0.4 (-20 to 20 mBar), -1 to 1 (-70 to 70 mBar),  
-5 to 5 (-350 to 350 mBar), -7.2 to 7.2 (-500 to 500 mBar),  
-15 to 15 (-1 to 1 Bar), -15 to 30 (-1 to 2 Bar)

#### Isolated Compound (PSIG):

-12 to 50 (-0.8 to 3.5 Bar), -12 to 100 (-0.8 to 7 Bar),  
-12 to 150 (-0.8 to 10 Bar), -12 to 300 (-0.8 to 20 Bar),  
-12 to 500 (-0.8 to 35 Bar)

#### Isolated Absolute (PSIA):

0 to 15 (0 to 1 Bar), 0 to 30 (0 to 2 Bar), 0 to 100 (0 to 7 Bar),  
0 to 150 (0 to 10 Bar), 0 to 300 (0 to 20 Bar)

#### Non Isolated Differential (PSID):

-0.4 to 0.4 (-20 to 20 mBar), -1 to 1 (-70 to 70 mBar),  
-5 to 5 (-350 to 350 mBar), -12 to 30 (-0.8 to 2 Bar),  
-12 to 50 (-0.8 to 3.5 Bar), -12 to 100 (-0.8 to 7 Bar)

Please specify PSI, PSIA, or PSID

BG311-C BetaGauge 311, range in "C" psi

BG311-CK BetaGauge 311 Kit, range in "C" psi

BG321-15 BetaGauge 321, 15/1500 psi ranges

BG321-30 BetaGauge 321, 30/3000 psi ranges

BG321-C/D BetaGauge 321, custom C psi/D psi internal pressure ranges

BG321-15K BetaGauge 321 Kit, 15/1500 psi ranges

BG321-30K BetaGauge 321 Kit, 30/3000 psi ranges

BG321-C/DK BetaGauge 321 Kit, with custom C psi/D psi ranges

LTP-100A Pt100 RTD Probe Assembly

BPPA-100 BetaPort-P Pressure Module Adapter