

BetaGauge 321

BETA
CALIBRATORS

MARTEL ELECTRONICS

Technical Specifications Bulletin

Dual Sensor, Triple Display, Pressure Calibrator



*The new standard
for custody transfer
applications*

BetaGauge 321 Dual Sensor

Description

The BetaGauge 321 Dual Sensor Pressure Calibrator provides unmatched pressure measurement flexibility over any competitive unit, setting a new standard over the venerable BetaGauge 320.

The BetaGauge 321 provides 0.025% FS accuracy on both internal, isolated, stainless steel pressure sensors. An external pressure module connection supports all BetaPort-P pressure modules for even greater measurement capability. A Pt100 RTD input is provided for temperature measurements accurate to 0.1 °C (0.2 °F). In addition, the BetaGauge 321 measures 4-20 mA loop current and up to 30 VDC. An internal 24 V Loop Power Supply can power a transmitter under test. The BetaGauge 321 supports up to

three simultaneous measurements in any combination, including three pressure measurements. With simultaneous display of two pressure and an RTD temperature measurement, the BetaGauge 321 is ideal for gas flow calibration (custody transfer) applications.

The BetaGauge 321 is available in two standard configurations – 15 psi/1500 psi or 30 psi/3000 psi ranges – or customized with any two ranges selected from 5, 15, 100, 300, 500, 1000, 3000, 5000, or 10,000 psi. It is also available in a Kit, which includes the BetaGauge 321 Pressure Calibrator, Pt100 RTD Probe, batteries, manual, NIST-traceable certificate, test leads, and hard-sided carrying case.



Gas Flow Calibration/Custody Transfer



Pressure Calibrator

Features

- Two isolated, stainless steel, pressure sensors with 0.025% F.S. accuracy
- Temperature-compensation ensures accuracy in field applications
- External pressure module connection supports all BETA Port-P pressure modules (25 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
- Display 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
- 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 to be stored; last setup automatically recalled on power-up
- % Error and damping functions
- Small, rugged compact design operates on four (4) standard AA batteries

Specifications (18 °C to 28 °C unless otherwise noted.)

Ranges

| | |
|-------------------------------------|--|
| Available Pressure (select any two) | 5 psi, 15, psi, 30, psi, 100 psi, 300 psi, 500 psi, 1000 psi, 3000 psi, 5000 psi, 10,000 psi |
| 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, kg/cm ² , cmH ₂ O@4°C, cmH ₂ O@20°C, mH ₂ O@4°C, mH ₂ O@20°C, inH ₂ O@4°C, inH ₂ O@20°C, inH ₂ O@60°F, mmHg@0°C, inHg@0°C, ftH ₂ O@4°C, ftH ₂ O@20°C, ftH ₂ O@60°F |

Accuracy

| | |
|---------------------|---|
| Pressure | |
| 15 psi to 3000 psi | ±0.025% F.S.; for all ranges |
| 5, 5000, 10,000 psi | ±0.035% F.S. |
| mA | ±0.015% of rdg±0.002mA |
| Volts | ±0.015% of reading ±0.002V |
| RTD (ohms) | ±0.015% of rdg ±0.02 ohms; or ±0.1°C @ 0°C for Pt100 |

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

PSI - Bar - kPa Ranges

| | | | | | | | | | | |
|-----|--------|--------|--------|--------|--------|--------|---------|--------|--------|---------|
| psi | 5.0000 | 15.000 | 30.000 | 100.00 | 300.00 | 500.00 | 1000.0 | 3000.0 | 5000.0 | 10000.0 |
| bar | 0.7000 | 1.0342 | 2.0684 | 6.8947 | 20.684 | 34.474 | 68.9475 | 206.84 | 344.74 | 689.475 |
| kPa | 70.000 | 103.42 | 206.84 | 689.48 | 2068.4 | 3447.4 | 6894.75 | 20684 | 34474 | 68947.6 |

Ordering Information

| MODEL | DESCRIPTION |
|-------|-------------|
|-------|-------------|

BETA 321 Dual Sensor Pressure Calibrator

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

| | |
|-----------|---|
| BG321-15 | Specifies 15 psi/1500 psi internal pressure ranges |
| BG321-30 | Specifies 30 psi/3000 psi internal pressure ranges |
| BG321-C/D | Specifies custom C psi/D psi internal pressure ranges |

BETA 321 Pressure Calibrator Kits

Kit includes Calibrator, RTD PT100 Probe, batteries, manual, NIST-traceable certificate, test leads, and hard-sided carrying case

| | |
|------------|--|
| BG321-15K | BETA 321 Kit, with 15 psi/1500 psi ranges |
| BG321-30K | BETA 321 Kit, with 30 psi/3000 psi ranges |
| BG321-C/DK | BETA 321 Kit, with custom C psi/D psi ranges |
| LTP-100 | Pt100, RTD Probe Assembly |

Accessories

| | |
|------------|---|
| BPPA-100 | BetaPort-P Pressure Module Adapter |
| BetaPort-P | Pressure Modules (refer to separate data sheet) |



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