



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, kgcm 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

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

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	
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

Ordering Information

MODEL	DESCRIPTION
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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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