



# BetaGauge II

INTRINSICALLY  
SAFE  
MODEL  
AVAILABLE



## BetaGauge II. The new industry standard in portable pressure calibrators is **0.025% accuracy.**

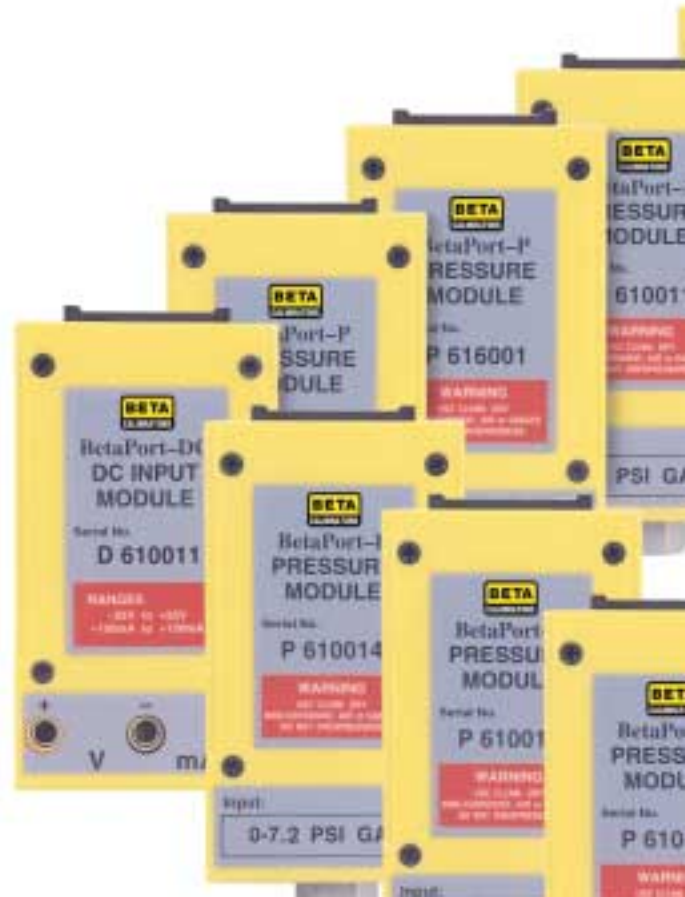
The process industries are quite literally under pressure. There's a lot of pressure instrumentation out there (one source estimates nearly 75% of all field calibrations involve some type of pressure variable). There's a lot riding on this instrumentation — process quality, plant safety, company profits. And a lot of the instrumentation rides on calibration accuracy.

That's why we weren't about to introduce just another pressure calibrator. We wanted to develop a successor that would significantly improve upon our own best-selling BetaGauge™. We wanted to meet calibration requirements now and into the next decade.

By any measure, we satisfied that design criterion and then some. BetaGauge II™ is a quantum leap over every other DPG on the market. Over other pressure calibration devices like dead weight testers. Even over our own BetaGauge 320.

In terms of accuracy, the most critical feature of any calibrator, BetaGauge II is unmatched by any device in its price range. For the majority of its available ranges, it has a typical pressure accuracy of 0.025% fullscale and an electrical accuracy of  $\pm 0.01\%$ . That makes it four times more precise than the instruments it is used to calibrate, including 0.10% accuracy smart pressure transmitters. Even so, BetaGauge II is priced competitively with distant second 0.05% pressure calibrators. The closest devices more accurate are far more expensive — lab instruments not intended for field use, such as quartz gauges used to calibrate other calibrators.

Yet remarkably, best-of-class accuracy is but one of many reasons for specifying BetaGauge II.



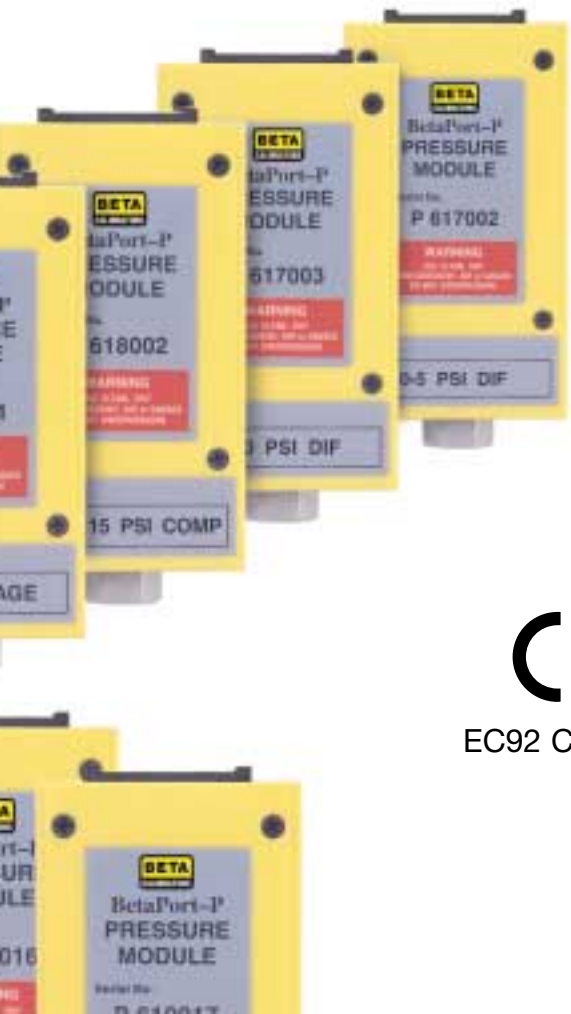


## A wide range of software makes BetaGauge II a full-featured documenting calibrator.

By automating pressure calibrations via a variety of popular software packages, BetaGauge II users can create a centralized database for reporting and analyzing instrument maintenance tasks. Automation saves time and money, while resulting in better performing instrumentation.

BetaGauge II, like other Beta Calibrators, is compatible with most leading calibration management software, including ASTEC Cornerstone™, CAL Station™ and Base Station™, Emerson Asset Management System (AMST™), and Honeywell Documint™.

In addition, Beta supplies the Field Calibrator Interface Standard (FCINTF), which provides communications with other FCINTF compatible software.



EC92 Compliant

## The calibration data you need. With urgency and clarity.

The first thing you notice about BetaGauge II is its “big screen” display. More specifically, its 128 by 128 pixel, 63 by 63 mm LCD display with on-demand backlighting, top viewing angle, and per-channel display fields. A simple-to-use membrane keypad and a user-prompting program make BetaGauge II especially easy to navigate.

In addition to psig, psia, and psid, read-outs are keypad selectable in any of the following engineering units for pressure: Kp/cm<sup>2</sup>; Atmos; mBar; Bar; Kpa; mmHg; InHg; InWc 4°C, 20°C, 60°F; cmWc 4°C, 20°C, 60°F; plus one user-defined unit.

Other valuable BetaGauge II features include minimum/maximum measurement memory, which automatically retains the lowest and highest values in any procedures, and % error display, which allows difficult pressure calibrations to be done without the need to maintain exact or steady test pressures.

## Built for punishment. Ready for anything.

BetaGauge II is a complete pressure calibrator. Engineered to perform in any industrial environment. Equipped with everything you need for maintaining your pressure instruments to their manufacturers' specs.

We developed BetaGauge II as intrinsically safe for use in Class I, Groups A, B, C, and D, and suitable for use in Class I Division 2, Groups A, B, C, and D hazardous areas. BetaGauge II is built and tested with intrinsically safe circuits and as intrinsically safe equipment. An intrinsically safe version is available.

Other safeguards include rugged ABS plastic cases, ESD protection on all pins, and EMI shielding. For optimum mechanical strength, external pressure connection is made by a 1/8" FNPT 316SS connector welded to a stainless steel metal plate.

BetaGauge II is supplied with the following standard equipment:

- A multifunction, English-language, two-channel pressure calibrator.
- A standard voltage/current input module.
- An external battery pack (NiCad, rechargeable).

- One set of test leads.
- A standard trickle charger.
- An instruction manual.
- A vinyl carrying case.
- A 9 pin D shell to 9 pin D shell serial cable.

Options for BetaGauge II include:

- A 9 to 25 pin D shell adaptor.
- Additional standard input modules (23 pressure ranges to choose from).
- Vacuum and pressure pumps.
- Quick charge battery charger/conditioner.
- Wall mount fast charger.
- CSA Exia rated intrinsically safe battery pack.



## Dual-channel operation and 24 field changeable ranges redefine calibrator versatility.

With pressure devices of varying types and ranges scattered throughout a typical process plant, dedicated calibrators can get very costly, very quickly. BetaGauge // addresses this problem simply and sensibly. It is both a two-channel and multi-range device. Changing ranges is as easy as plugging in new input modules, which can be done even while the unit is powered up. BetaGauge // automatically recognizes the signals and assigns them to the proper channel. That versatility makes it the ideal answer for pressure calibration, even in critical applications like gas pipelines and other smart transmitter-equipped sites.

There are 24 standard BetaGauge // pressure ranges available in fully interchangeable input modules:

- 12 gauge ranges (from 0-5 psig up to 0-5000 psig).

- Two vacuum ranges (from 0 to -5 psig up to 0 to -15 psig).
- Five absolute ranges (from 0-15 psia up to 0-300 psia).
- Two compound ranges (from -15 to 15 psig up to -15 to 30 psig).
- Three differential ranges (from 0-5 psid up to 0-50 psid).

The standard dc module provides five electrical ranges:

- Three voltage ranges (from 0 to  $\pm 249.99$  mV dc up to 0 to  $\pm 24.999$  Vdc).
- Two current ranges (0 to  $\pm 24.999$  mA dc and 0 to  $\pm 149.99$  mA).

Special ranges and calibrations are available upon request at additional cost.

This plug-in design simplifies maintenance, too. The base unit needs no recalibration; only the input modules do. That means you never have to be out of service — you send only the out-of-calibration modules back to the shop, while still using BetaGauge // in the field.



### AVAILABLE RANGES

#### PRESSURE

Gauge (PSIG)	Sealed Gauge (PSIG)	Vacuum (PSIG)	Absolute (PSIA)	Compound (PSIG)	Differential (PSID)*
0-5 (0-350 mBar) <sup>††</sup>	0-300 (0-20 Bar)	0 to -5 (0 to -350 mBar) <sup>††</sup>	0-15 (0-1 Bar) <sup>†</sup>	-15 to 15 (-1 to 1 Bar) <sup>†</sup>	0-5 (0-350 mBar) <sup>††</sup>
0-7.2 (0-500 mBar) <sup>**†</sup>	0-1000 (0-70 Bar)	0 to -15 (0 to -1 Bar) <sup>†</sup>	0-30 (0-2 Bar)	-15 to 30 (-1 to 2 Bar)	0-30 (0-2 Bar)
0-10 (0-700 mBar) <sup>†</sup>	0-1500 (0-100 Bar)		0-50 (0-3.5 Bar)		0-50 (0-3.5 Bar)
0-30 (0-2 Bar)	0-3000 (0-200 Bar)		0-100 (0-7 Bar)		
0-50 (0-3.5 Bar)	0-5000 (0-340 Bar)		0-300 (0-20 Bar)		
0-100 (0-7 Bar)					
0-150 (0-10 Bar)					

\*Maximum static pressure, 200 psig (14 Bar)  
\*\*200 InWc

Notes: 0-7.2PSI, 0-150 PSI, and 0-1500 PSI are extended ranges. (See specifications for accuracies.)

Other Pressure Units (keypad selectable): Kp/cm<sup>2</sup>; Atmos; mBar; Bar; Kpa; mmHg; InWc 4°C, 20°C, 60°F; plus one user-defined unit; choice of engineering unit may be restricted by available resolution.

All gauge and sealed gauge ranges have 316 S.S. wetted parts and are compatible with media suitable for that material. Other ranges are non-isolated and are compatible with non-corrosive and non-conductive gases only.

<sup>†</sup>Thermal and Pressure Hysteresis: .0025 PSI (.1724 mBar)  
<sup>††</sup>Thermal and Pressure Hysteresis: .0030 PSI (.2068 mBar)  
All other ranges: No Hysteresis

#### ELECTRICAL

Voltage:

> 1M ohms input impedance

Autoranging: 0 to  $\pm 249.99$  mVdc

0 to  $\pm 2.4999$  Vdc

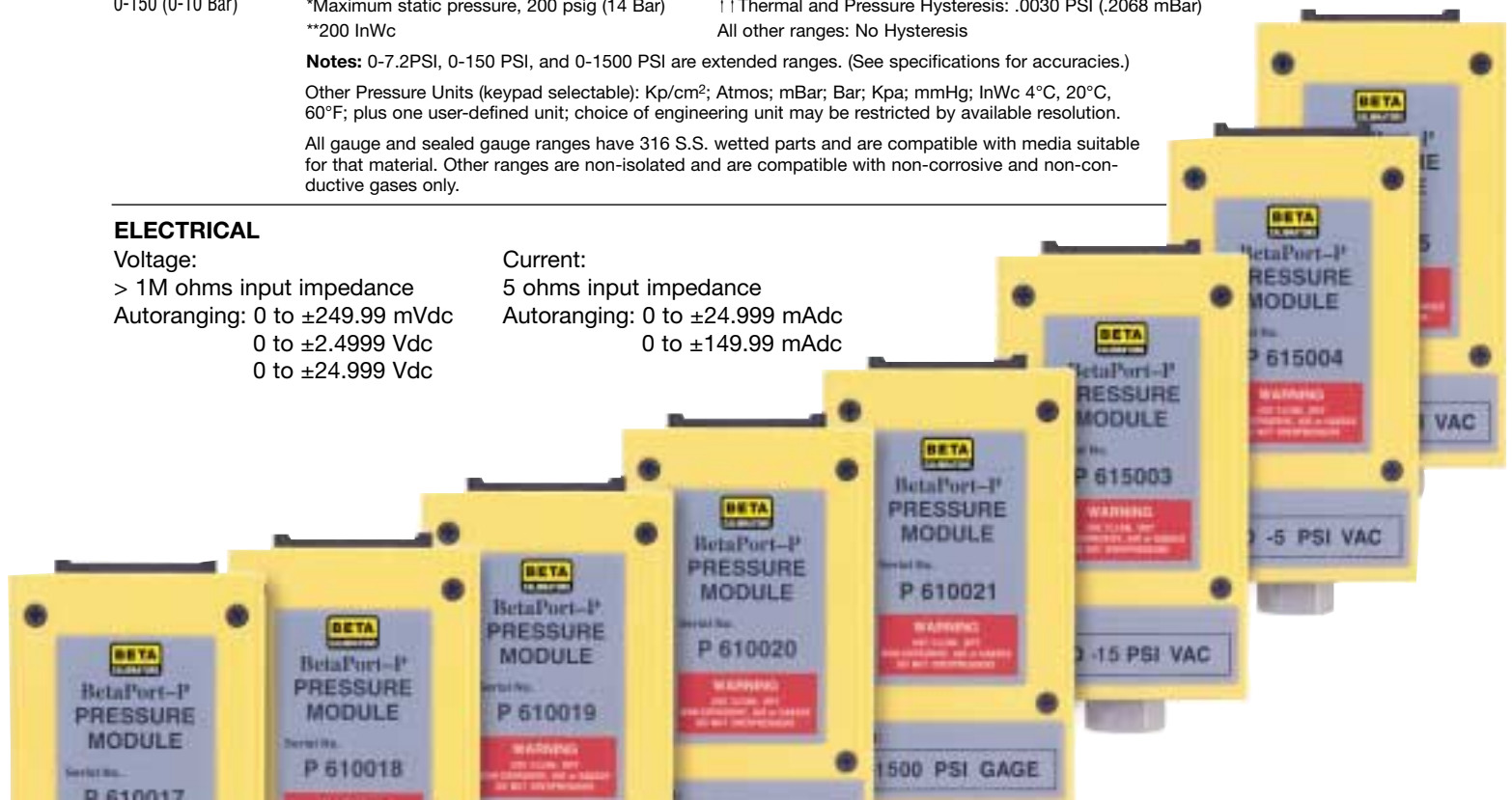
0 to  $\pm 24.999$  Vdc

Current:

5 ohms input impedance

Autoranging: 0 to  $\pm 24.999$  mAdc

0 to  $\pm 149.99$  mAdc





## Specifications

### RANGES

See foldout page for table of pressure ranges and listing of electrical ranges. Each of the ranges is for a specific input module. Additional modules can be provided as options.

### ACCURACY

#### Pressure

- Gauge, Vacuum, Absolute, Compound, and Differential Standard Ranges:  
 $\pm 0.025\%$  FS ( $0^{\circ}\text{C}$  to  $50^{\circ}\text{C}$ ) for six months
- Gauge Extended Ranges:  
 $\pm 0.035\%$  FS ( $0^{\circ}\text{C}$  to  $50^{\circ}\text{C}$ ) for six months
- Accuracy for ranges with thermal and pressure hysteresis is:  
 $\pm$  (Accuracy% FS + Hysteresis in PSI)

#### Electrical:

$\pm 0.01\%$  FS +  $\pm 0.01\%$  Rdg ( $15^{\circ}\text{C}$  to  $35^{\circ}\text{C}$ ) for 12 months

### ENVIRONMENTAL

#### Temperature:

- $-20^{\circ}\text{C}$  to  $50^{\circ}\text{C}$  (operating)
- $-30^{\circ}\text{C}$  to  $50^{\circ}\text{C}$  (storage with batteries)
- $-30^{\circ}\text{C}$  to  $70^{\circ}\text{C}$  (storage without batteries)

#### Relative Humidity:

0 to 95% non-condensing

#### Effects:

- Pressure: none over the operating temperature
- Electrical:  $\pm 0.002\%$  Range/ $^{\circ}\text{C}$  outside  $15^{\circ}\text{C}$  to  $35^{\circ}\text{C}$

#### Overpressure

(without damage or calibration effects)

- 0-15 psi\* 400% of sensor range
- 30-250 psi 300% of sensor range
- 300-10,000 psi 150% of sensor range

\*0-200 InWc is 300% of sensor range

### OTHER

**Alarm Trip Detect:** Wet contact input, 48 Vdc max.

**Damping Factor:** Programmable 1.0 to 5 sec response time for all inputs (running average)

**Display:** 128 X 128 pixel LCD with LED backlight; two inputs simultaneously displayed with maximum of 5 digits resolution



### Power Supply:

- Rechargeable NiCad external battery pack: 6 V, 1.0 Ah, 10 hours nominal operation time at  $25^{\circ}\text{C}$ ; extra battery packs available; battery charger (trickle) standard
- Charging: 16 hours maximum; fast charge battery optional, 90 min. charge time

**Circuit Protection:** Voltage and current input protected for connection to 120 Vac

**Pressure Connections:** 1/8" FNPT 316SS

**Electrical Connections:** Standard banana jack on 3/4" centers

**Weight:** < 1.5 kg with carrying case and accessories (typical)

**Size:** 4.3" x 7.5" x 2.4" (110 mm x 190 mm x 60 mm)

Specifications subject to change without notice.

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## We make calibrators as if your process depends on them.

We're BETA Calibrators, a unit of Martel Electronics Corporation. Together we are the largest maker of instrument calibrators and calibration systems in North America. Our combination of high performance, productivity and reliability have made ours the calibrators of choice world-wide.

The BETA line includes calibrators that address virtually every requirement:

- Multi-function calibrators that efficiently combine measurement and simulation capabilities for T/Cs, RTDs, frequency, DC current and voltage and even pressure.
- Documenting calibrators like the BetaFLEX<sup>®</sup> with HART<sup>™</sup> and Honeywell DE<sup>™</sup> protocol for "smart" instrumentation.
- Reliable fixed sensor BetaGauge 320 pressure calibrators.
- Easy to use and value priced CALTool<sup>®</sup> single function calibrators for T/Cs, RTDs, DC current and voltage, frequency and pressure.

BETA documenting calibrators are compatible with a wide variety of software including Cornerstone CAL Station and Base Station and others using industry standard FCINTF interfaces.



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