

Quick Start Guide

BetaGauge 321 Pressure Calibrator



1. **Power On/Off Key** - This key is used to turn the calibrator on and off.
2. **Display Backlight On/Off Key** - This key is used to turn the display backlight on and off.
3. **Zero Key** - This key is used to zero pressure measurements.
4. **Soft Function Keys** - These keys are used primarily to configure the calibrator.
5. **UPPER Display** - Indicates what is being measured and the unit of measure (in one of 17 available pressure units). For mA and mA Loop functions, also indicates the percent of the 4 to 20 mA span.

6. **MIDDLE Display** - Indicates what is being measured and the unit of measure (in one of 17 available pressure units). For mA and mA Loop functions, also indicates the percent of the 4 to 20 mA span.
7. **LOWER Display** - Indicates what is being measured and the unit of measure (in one of 17 available pressure units). For mA and mA Loop functions, also indicates the percent of the 4 to 20 mA span.
8. **Main Menu Display** - Functions assigned to the three Function Keys (4) appear above each key. The functions displayed change as the operating mode and options are selected.
9. **Internal Pressure Ports** - Internal Sensors P1 (left) and P2 (right).
10. **Input Terminals** - These terminals are used to measure current, voltage, and a contact closure for switch test.
11. **External Module Input** - This connection is used to interface with optional BetaPort-P Digital Pressure Modules (BPPA-100 Adapter required).
12. **RTD Input** - This connection accepts a Model LTP-100A PT-100 RTD for temperature measurements.

Note: To conserve space throughout this Guide, the product name, BetaGauge 321 is abbreviated as BG-321.

TURN BG-321 ON OR OFF

Press Power On/Off key. The BG-321 will automatically switch off after 30 minutes if no keys are pressed.

SETTING THE AUTO SHUTDOWN FUNCTION

The BG-321 will shut off automatically if no keys are pressed for an interval of 30 minutes (the factory default). This interval can be adjusted:

- To disable the Auto Shutdown function, or to change the interval, do the following:
1. Press F3 [MORE].
 2. Press F2 [NEXT] repeatedly until "AUTO OFF" is displayed in the left position of the menu.
 3. Press F1 [AUTO OFF].
 4. Press F2 [↑UP] or F3 [↓DOWN] until the desired interval or "OFF" is displayed.
 5. Press F1 [AUTO OFF DONE].

ADJUSTING DISPLAY CONTRAST

To adjust the display contrast:

1. Press F3 [MORE].
2. Press F2 [NEXT] once. "CONTRAST" is displayed in the left position of the menu.
3. Press F1 [CONTRAST].
4. Press F2 [↑UP] or F3 [↓DOWN] until the desired display contrast is displayed.
5. Press F1 [CONTRAST DONE].

MAKING A MEASUREMENT (GENERAL SETUP)

To setup the BG-321 calibrator to make a measurement, do the following:

The BG-321 has three displays for three simultaneous measurements. To select a display to configure,

1. Press F2 to make the UPPER, MIDDLE, or LOWER display the current (active) display.
2. Press F2 [CONFIG]. The measurement to be displayed will flash, and the left position of the Main Menu will change to [SELECT].
3. Repeatedly press F1 [SELECT] to cycle through the type of measurement to be taken [P1→P2→EXT→P1 ST*→P2 ST*→EXT ST*→mA→mA Loop→Volts→RTD].

(ST* = Switch Test; EXT = External Pressure Module/Port)
CONTINUED ON REVERSE SIDE

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www.martelcorp.com/calibrate/BG321/quickstart.htm

- 4a. For current or voltage measurements, when the measurement type is displayed, press F3 [DONE].
- 4b. For pressure measurements, press F2 [NEXT]. The Engineering Units display will flash. Repeatedly press F1 [SELECT] until the desired Engineering units are displayed. Press F3 [DONE].
- 4c. For RTD measurements, press F2 [NEXT]. The temperature units display will flash. Press F1 [SELECT] to toggle the temperature units between °C and °F. Press F3 [DONE].

When RTD is configured on the LOWER display, the RTD type can be selected as follows:

5. With RTD selected in the LOWER display, and the Main Menu displaying CONFIG - LOWER - MORE, press F3 [MORE].
6. Repeatedly press F2 [NEXT] until "PROBE TYPE" is displayed in the left side of the Main Menu. Press F1 [PROBE TYPE].
7. The probe type in the LOWER display will flash. Repeatedly press F1 [SELECT] until the RTD probe type that matches the type connected is displayed. Selected types are PT100-385→PT100-392→PT100-JIS→CUSTOM. Press F3 [DONE] to confirm your selection. (The default type is PT100-385.)

SAVING AND RECALLING SETUPS

The BG-321 will automatically save the current setup for recall at power-up. Additionally, five setups can be recalled through the SETUPS menu. To access the SETUPS menu:

1. Press F3 [MORE].
2. Repeatedly press F2 [NEXT] until "SETUPS" is displayed in the left side of the Main Menu. Press F1 [SETUPS].

To save a configuration:

1. Press F1 [SAVE].
2. Press F2 [↑UP] or F3 [↓DOWN] until the desired setup location (N=1 through 5) is displayed.
3. Press F1 [SAVE SETUP N].

To recall a configuration:

1. Press F2 [RECALL].
2. Press F2 [↑UP] or F3 [↓DOWN] until the desired setup location (N=1 through 5) is displayed.
3. Press F1 [RCL SETUP N].

FACTORY SETUPS

The BG-321 is shipped with five factory setups. These setups are shown below.

SETUP 1:

UPPER display is set to [P1] mode.
MIDDLE display is set to mA.
LOWER display is off.

[P1]	30.000	psi
mA	20.000 mA	100.00%
CONFIG	LOWER	MORE

SETUP 2:

UPPER display is set to [P2] mode.
MIDDLE display is set to mA.
LOWER display is off.

[P2]	30.000	psi
mA	20.000 mA	100.00%
CONFIG	LOWER	MORE

SETUP 3:

UPPER display is set to [P1] mode.
MIDDLE display is set to [P2] mode.
LOWER display is off.

[P1]	10.000	psi
[P2]	30.000	psi
CONFIG	LOWER	MORE

SETUP 4:

UPPER display is set to [P1 ST] switch test.
MIDDLE display is off.
LOWER display is off.

[P1] ST CLOSE	0.000	psi
CONFIG	LOWER	MORE

SETUP 5:

UPPER display is set to [P1].
MIDDLE display is set to [P2].
LOWER display is set to RTD.

[P1]	0.0000	psi
[P2]	0.00	psi
RTD	85.78 °F	
CONFIG	LOWER	MORE

CUSTODY TRANSFER/FLOW CALIBRATION

The BG-321 is ideal for flow computer calibration. Every manufacturer of flow computers has a different calibration procedure; however, most call for calibration of three parameters - static pressure, differential pressure, and temperature. To facilitate these measurements, RECALL factory SETUP #5 on the BG-321. Then:

1. Connect the calibrator to your static and differential pressures [P1], [P2], EXT. Then connect the RTD sensor to the calibrator.

Note:

The pressures in the UPPER and MIDDLE displays can be changed to [P1], [P2], and EXT.

2. Using the reading of your RTD, static and differential pressures, make sure the flow computer has the correct reading. If not, adjust the flow computer as necessary.

Please refer to the BetaGauge 321 Reference Manual for information regarding additional features.

