

Subject: “Pro”-Series Manual Loading Station	Initial Release Date: 10/01/94	Revision Date: 05/28/97	Revision: B
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1. Introduction

This Application Note describes the Manual Loading Station, a variation of the “PRO” Series bargraphs. Calibration instructions are also provided.

2. Description

A Manual Loading Station is an adjustable current source with a bargraph display. It does not measure any external signals. The user manually sets or *loads* an output line current from 4 to 20 mADC. That value remains until the user changes it. (A *manual only* version of the Manual Loading Station resets the output current to 4 mADC each time the unit is switched on.) The bargraph displays the current as a value from 0 to 100%. The optional digital display provides a numeric read-out between 0 and 100. The Manual Loading Station is available by ordering it as an option on the BB101P, BK051P, BW051P, and BJ101P bargraphs.

The Manual Loading Station can be combined with a standard bargraph controller in a single housing by ordering model BJ202P and specifying the manual loading station option. In this configuration, the right side is the Manual Loading Station and the left side is the bargraph controller with all its options. The two sides are completely independent.

The accuracy of the Manual Loading Station is the same as all “Pro” Series bargraphs with 4/20 mADC retransmission.

2.1 Operation

When the Manual Loading Station is switched on, the output line current will be restored to what it was when the unit was last turned off and the Alarm annunciator will be off. (The *manual only* version resets the output current to 4 mADC each time the unit is switched on.) The Up and Down annunciators are not used, and there are no setpoints, peak, or value readings.

2.2 Setting the Output Line Current

1. Switch the unit on, then place the unit into the Adjust mode by pressing the Up and Down buttons simultaneously for three seconds. The Alarm annunciator will turn on and the digital display will read *-I-*. The bargraph will display 0, the output line current will remain unchanged, and for the next three seconds, the Up and Down buttons will have no effect.
2. After three seconds (sooner if the center button is pressed), use the Up and Down buttons to increase and decrease the output line current. It takes about 10 seconds to change from 0 to 100 (4 to 20 mADC). The Alarm annunciator will remain on, and the bargraph and digital display (if present) will read between 0 and 100.
3. To store the new value and exit the Adjust mode, either wait 3 seconds after pressing the last button, or press the center button. (The *manual only* version will remain in the Adjust mode until switched off.)

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3. Error Checking

Whenever the unit is powered off, it writes the last value of output line current in the EEPROM. Each time power is applied, the unit reads the output line current value from the EEPROM. If an error is encountered while *reading* the data, or if the data is not valid, the unit displays UUUU. It then sets the output line current to the minimum value of 4 mA and continues trying to read the value stored in the EEPROM until (a) valid data is read, in which case the unit will go into normal operation, or (b) the unit is placed into the Adjust mode as previously described.

If an error occurs while *writing* to the EEPROM, the display will read UUUU, the output value will be set to 4 mA, and all buttons will be disabled, indicating the unit requires service. Before returning the unit for service, verify that all switches in SW4, SW5, and SW6 are open (up, or away from the circuit board). Verify that switch 1 of SW2 is closed (down, or toward the circuit board) and switch 2, 3, and 4 are open.

4. Calibration

The output line current can be checked and recalibrated as follows. Refer to the installation instructions that came with the unit for switch, connector and potentiometer locations):

1. Simultaneously press the Up and center buttons while applying power. The digital display and bargraph will both indicate 0.
2. Use an external meter to measure the output line current and adjust for a reading of 4.0 mA if necessary.
 - a. Models B101, K051, W051: Measure between Option board E1 pins 3 (+) and 2 (-), adjust R21.
 - b. Models J101/202: Measure between E1 pins 1 (+) and 4 (-), adjust R71.
3. Press the center button once. The unit will display full scale readings (100% and 100.0).
4. Measure the output line current and adjust for a reading of 20 mA if necessary.
 - a. Models B101, K051, W051: Adjust R23.
 - b. Models J101/202: Adjust R66.
5. Press the center button again to return the unit to normal operation.

5. Technical Support

AMETEK/Dixson supports all “Pro” Series bargraphs. Calibration, configuration, linearization, application and engineering assistance is available by calling the Bargraph Service Department at (970) 244-1245. The hours are Monday through Thursday from 7:00 a.m. to 5:30 p.m. MST, and Friday from 7:00 a.m. to 3:30 p.m.