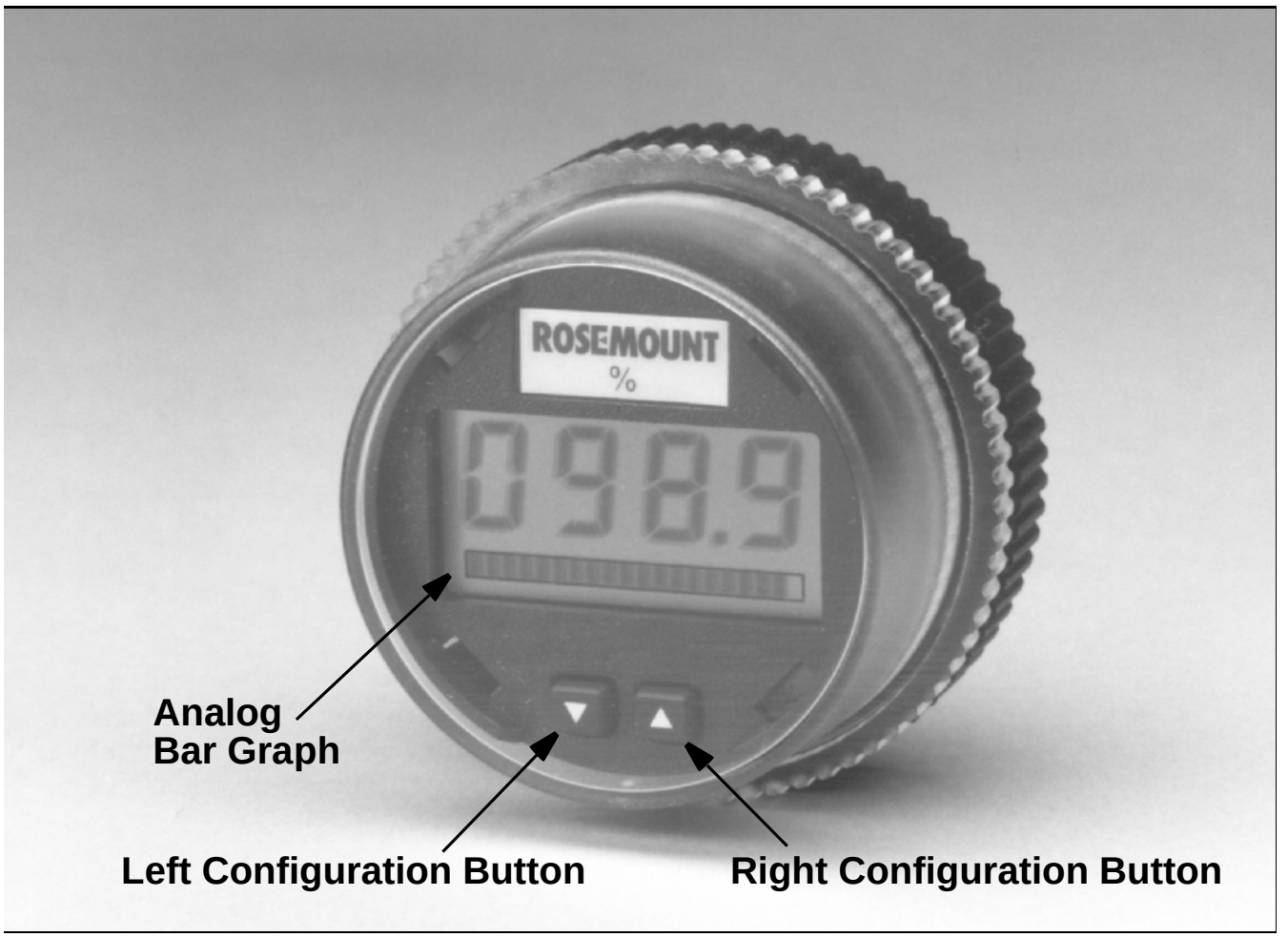
00809-0100-4691
English
Rev. AA

LCD Meter

Product Manual



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INTRODUCTION

The Rosemount® LCD meter is designed to be used with the Rosemount Model 1151 Smart and Analog Pressure Transmitters, the Model 1144 Pressure Transmitter, the Model 751 Field Signal Indicator, the Model 444 Temperature Transmitter, and the Model 1135 Pressure-to-Current Converter. The LCD meter plugs directly into these instruments to provide an accurate digital display of the process variable. This manual explains the configuration and assembly of the LCD meter and includes applicable functional, performance, and physical specifications.

This meter adds no voltage drop in the 4–20 mA current loop when connected directly across the transmitter test terminals. When used in the Model 751 Remote Signal Indicator, the meter plugs into terminals 1 and 2.

LCD METER ASSEMBLY

Figure 1 shows the mounting hardware required to properly install the LCD meter on a transmitter or in the field signal indicator. This mounting hardware may also be used with the Rosemount universal (analog) meter.

LCD METER CONFIGURATION

The LCD meter may be configured to meet specific requirements by using the left and right configuration buttons located on the meter face as shown on the cover. The analog bar graph is also shown on the cover. The 20-segment bar graph is factory calibrated and represents 4–20 mA directly.

No calibration equipment is required to configure the LCD meter, but between 4 and 20 mA must be flowing through the loop. The actual value of the current is not significant. In addition, meter configuration does not affect the transmitter/loop current. Use the following meter configuration procedure to properly configure the LCD meter.

NOTE
The LCD meter time-out is approximately 16 seconds. If keys are not pressed within this period, the indicator reverts to reading the current signal.

Remove the cover

1. Unscrew the retaining ring shown on the cover and lift the transparent cover off of the housing.

Position the decimal point and select the meter function

2. Press the left and right configuration buttons simultaneously and release them immediately.
3. To move the decimal point to the desired location, press the left configuration button. Note that the decimal point wraps around.
4. To scroll through the mode options, press the right configuration button repeatedly until the desired mode is displayed. See Table 1.

Store the information

5. Press both configuration buttons simultaneously for two seconds. Note that the meter displays “----” for approximately 7.5 seconds while the information is being stored.

Set the display equivalent to a 4 mA signal

6. Press the left button for two seconds.
7. To decrease the display numbers, press the left configuration button and to increase the numbers, press the right configuration button. Set the numbers between –999 and 1000.
8. To store the information, press both configuration buttons simultaneously for two seconds. Note that the meter displays “----” for approximately 7.5 seconds while the information is being stored.

Set the display equivalent to a 20 mA signal

9. Press the right button for two seconds.
10. To decrease the display numbers, press the left configuration button on the display and to increase the

numbers, press the right configuration button. Set the numbers between –999 and 9999. The sum of the 4 mA point and the span must not exceed 9999.

11. To store the information, press both configuration buttons simultaneously for two seconds. Note that the meter displays “----” for approximately 7.5 seconds while the information is being stored. The LCD meter is now configured.

Replace the cover

12. Make sure the rubber gasket is seated properly, replace the transparent cover, and replace the retaining ring .

TABLE 1. LCD Meter Modes.

Options	Relationship between Input Signal and Digital Display
L in	Linear
L inF	Linear with five-second filter
Srt	Square root
SrtF	Square root with five-second filter

Square root function only relates to the digital display. The bar graph output remains linear with the current signal.

Square root response

The digital display is proportional to the square root of the input current where 4 mA = 0 and 20 mA = 1.0, scaled per the calibration procedure. The transition point from linear to square root is at 25% of full scale flow.

Filter response operates upon “present input” and “input received in the previous five second interval” in the following manner:

Display = (0.75 × previous input) + (0.25 × present input).

This relationship is maintained provided that the previous reading minus the present reading is less than 25% of full scale.

LCD METER SPECIFICATIONS

Input Signal

4–20 mA dc.

Meter Indication

4-digit LCD showing –999 to 9999. A 20-segment bar graph directly represents the 4–20 mA current.

Digital Display Resolution

0.05% of range ±1 digit.

Analog Bar Graph Resolution

1 mA or 5% of input range.

Indication Accuracy

0.25% of range ±1 digit.

Scaling/Configuration

4 mA Point Limits: –999 to 1000.

Span limits: 0200 to 9999.

The sum of the 4 mA point and span must not exceed 9999.

Adjustments are made using non-interactive zero and span buttons.

Temperature Limits

Storage: –40 to 85 °C (–40 to 185 °F).

Operating: –20 to 70 °C (–4 to 158 °F).

Between temperatures –40 to –20 °C (–40 to –4 °F), the loop is intact and the meter is not damaged.

Temperature Effect

0.01% of range per °C on zero.

0.02% of range per °C on span

Stability

Over Time: 0.1% of range ±1 digit for 6 months.

Overload Limitation

666 mA.

Update Period

750 ms.

Response Time

Responds to changes in input within a maximum of two update periods. If the filter is activated, then the display responds to the change within nine update periods.

Humidity Limitation

0 to 95% non-condensing relative humidity.

Power Interrupt

All configuration and calibration constants are stored in EEPROM memory and are not affected by power loss.

Failure Mode

LCD meter failure will not affect transmitter operation.

Under/Over Range Indication

Input current < 3.5 mA: Display blank.

Input current > 22.0 mA: Display flashes 112.5% of full scale value or 9999, whichever is less.

Hazardous Locations

Approved for use with Rosemount Models 444, 751, 1135, 1144, and 1151.

Meter Size

$2\frac{1}{4}$-inch diameter face with $\frac{1}{2}$-inch high characters.

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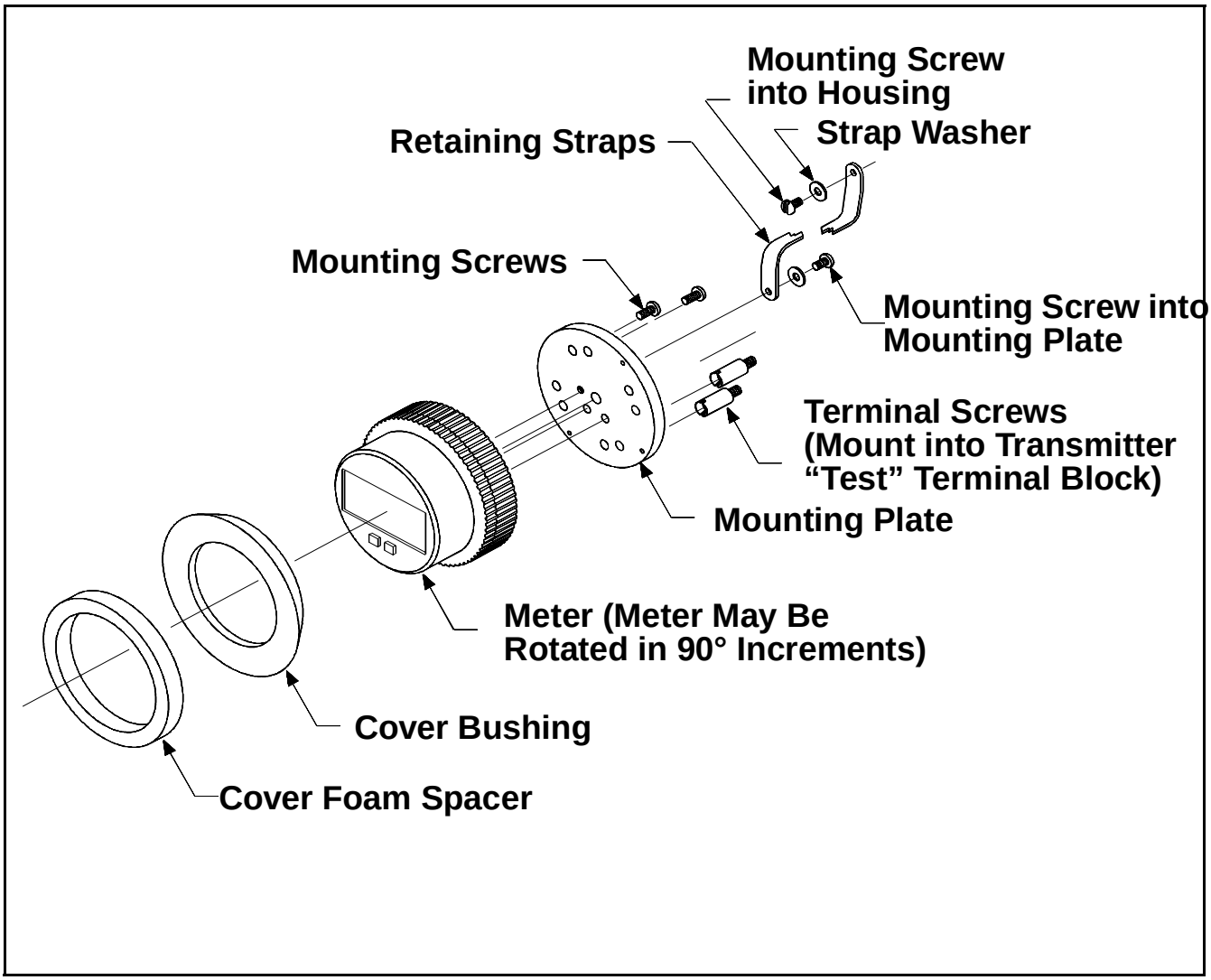

FIGURE 1. LCD Meter Exploded View.