

BL Non-Isolated Power DPM Big Little Digital Panel Meters

MODUTEC

**BEST OF
CLASS**



Backlighting Options

- **Positive Green** Black on Green Background
- **Negative Green** Green on Black Background
- **Positive Red** Black on Red Background
- **Negative Red** Red on Black Background
- **Non-Backlit LCD** Black on Grey Background

The MODUTEC BL Digital panel meter gives you all the functionality you need with none of the extras you don't need. That means simplicity, easy readability, small footprint, and a low cost.

- **Ultra compact** form factor with optional flat back design on BL-176 or BL-177¹
- Ideal for **line monitoring**
- Value priced
- **Low power consumption**
- Input signal can be used to power meter

The MODUTEC BL is easy-to-read and provides a variety of indicators — all in a compact unit.

- 3 ½ digit readout, full scale 1999 display
- ½" **high digits** on a high contrast LCD
- Auto-polarity (-) displayed

Ease of assembly is one of the BL's most valuable benefits.

- 13 pin connection, solder pad connections or terminal block
- Easy to install bezel mount

The BL offers a variety of flexible features to meet your unique applications needs.

- **User selectable decimal points**
- Choice of ± 200mV, ± 2V, ± 20V, ± 200V, ± 200µA, ± 2mA, ± 20mA, or ± 200mA input as standard
- Choice of + 5VDC, ± 5 VDC, 10-24VDC, 115VAC or 230VAC power options

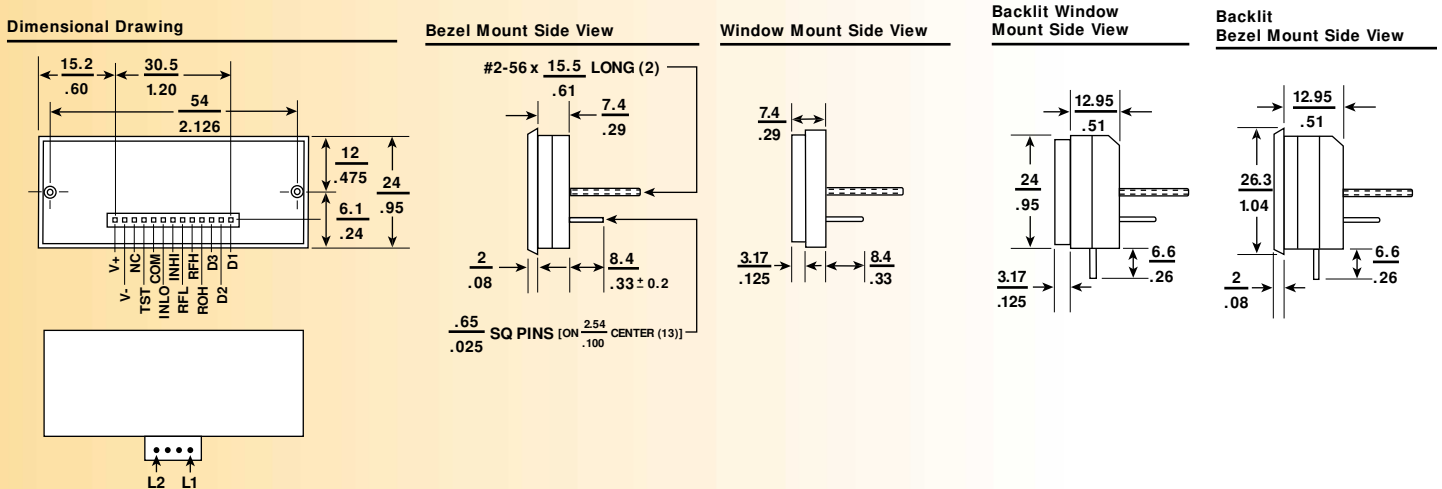
¹ See our website for specifications.

Applications

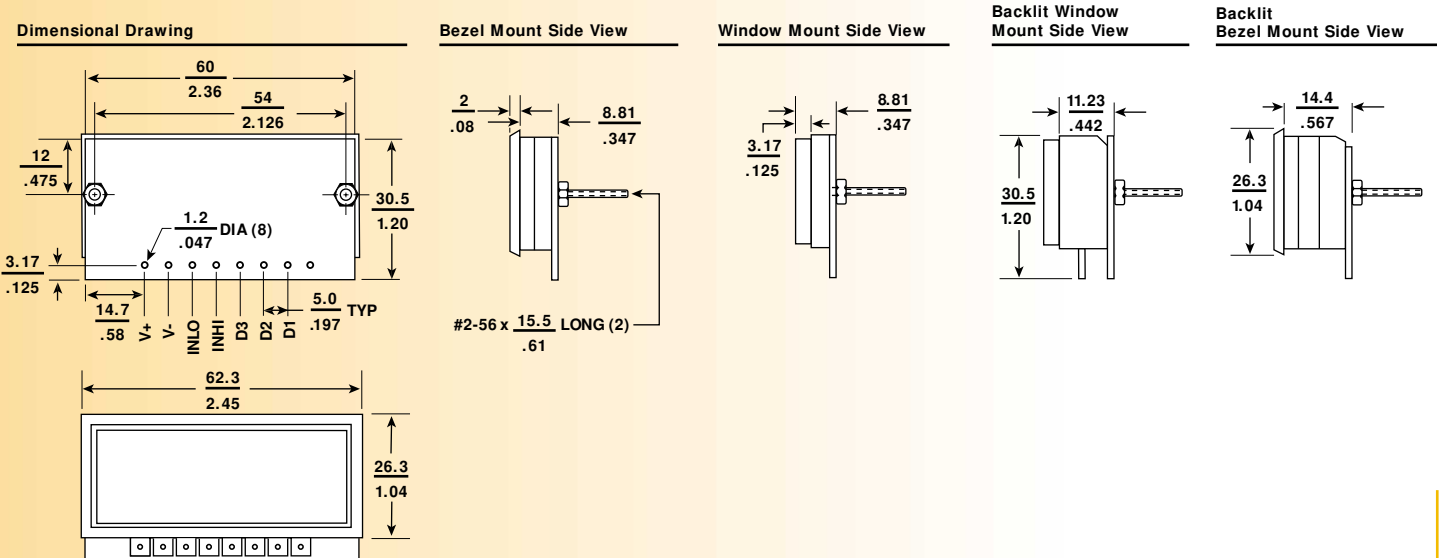
- ▶ **Telecommunications**
- ▶ **Water Purification**
- ▶ **Sewage Treatment**
- ▶ **Flow**
- ▶ **Process**
- ▶ **Desalinization**
- ▶ **DC Amps**
- ▶ **DC Volts**

BL Series 13 Pin Connector and Solder Pad Dimensional Drawings (mm/in)

BL Family 13 Pin Connector (Note: Do not solder to pins.)



BL Family Solder Pads



BL Series Specifications

Display

Digits: 3 $\frac{1}{2}$ digits, 7 segments Backlit LCD (1999)

Digit Height: 0.5" (12.7 mm)

Polarity: Automatic (-) displayed

Decimal Point: Three positions, external selection

Overload: Three lower digits blank for readings greater than 1999 counts

Performance

Accuracy: $\pm(0.1\% \text{ rdg} + 2 \text{ count})$ with +5 and $\pm 5\text{V}$ power

$\pm(0.1\% \text{ rdg} + 1 \text{ count})$ with 9V power 2.5 per second

Conversion Rate: 2.5 per second

Common Mode Voltage Range: $\pm 1 \text{ V}$ maximum

Common Mode Rejection: > 86 db

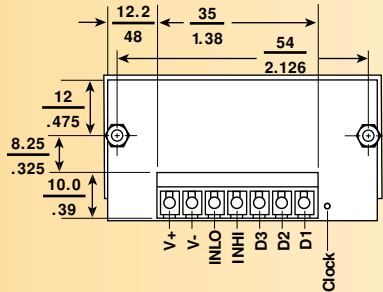
Zero Adjust: Automatic

Tempco: 100 PPM/ $^{\circ}\text{C}$ typical

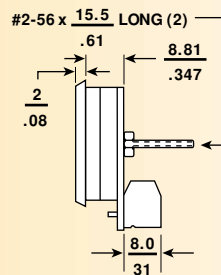
BL Series 13 Pin Connector and Solder Pad Dimensional Drawings (mm/in)

BL Family Screw Terminal Block

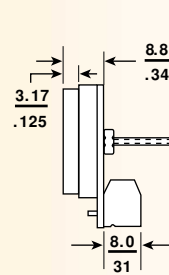
Dimensional Drawing



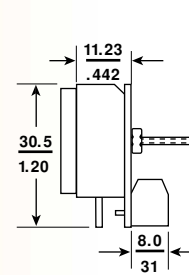
Bezel Mount Side View



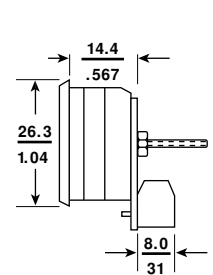
Window Mount Side View



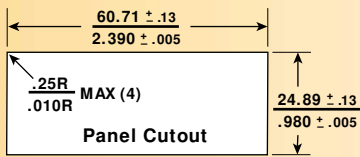
Backlit Window Mount Side View



Backlit Bezel Mount Side View

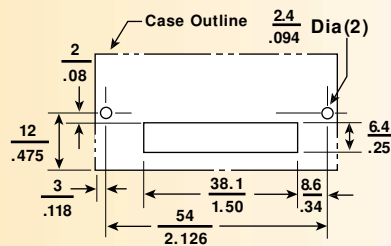


Bezel Mount Cutout

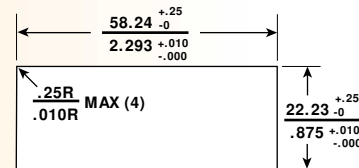


Surface Mount Cutout

(Available for 100 Series only)



Window Mount Cutout



BL Series Specifications (continued)

Standard Analog Inputs

Full Scale Range: Choice $\pm 200\text{V}$, $\pm 2\text{V}$, $\pm 20\text{V}$, $\pm 200\text{V}$, $\pm 200\mu\text{A}$, $\pm 2\text{mA}$, $\pm 20\text{mA}$, or $\pm 200\text{mA}$. Special Ranges and engineering units available

Configuration: True differential input and references

Ratiometric Operation: Available on models BL-100, -130, -300, -330, -400, -430, -500, -530, -600, and -630

Protection: 250V DC or 150 V RMS continuous 300 V intermittent maximum

Bias Current: 1 pA typical, 10 pA maximum

Standard Power Options

+5V and -5VDC: $\pm 5\text{V} \pm 5\%$ at 150 μA

+5VDC: 5V $\pm 5\%$ at 3 mA

Connector Pin Designations

V+, V-	Positive & negative connections for power supply
NC:	Not Connected
TST:	Return for +5V power
COM:	Internal reference voltage return. Input common for 9V units
IN HI, IN LO:	Signal inputs
RFL, RFH:	Differential reference inputs
ROH, ROL:	On board reference terminals.
D1, D2, D3:	Decimal point selection: Connect to V+ as follows: D1=X.XXX D2=XX.XX D3=XXX.X
L1, L2:	Backlighting power terminals: Connect as below. Series 300, 400 (Green): L1 is negative input, L2 is positive. Series 500, 600 (Red): L1 is positive input, L2 is negative.

How to Order

B L - **a** **b** **c** **d** **e** **f**
3 **3** **2** **3** **0 2** **0 1**

a **Display**
 1 = Standard Reflective LCD
 3 = Positive Green
 4 = Negative Green
 5 = Negative Red
 6 = Positive Red

b **Mounting**
 0 = Window Mount
 3 = Bezel Mount

c **Terminals**
 0 = 13 Pins
 1 = Terminal Block
 2 = Solder Pads

d **DPM Power**
 1 = 9VDC
 2 = +5V and -5VDC
 3 = +5VDC
 6 = 10 to 30VDC¹

e **Input**
 01 = 200mVDC
 02 = 2VDC
 03 = 20VDC
 04 = 200VDC¹
 10 = 200 μ ADC¹
 11 = 2mADC¹
 12 = 20mADC¹
 13 = 200mADC¹

f **Backlit Power**
 (leave blank for all standard Reflective LCDs)
 01 = 5VDC
 02 = 12VDC
 03 = 24VDC

¹ Available only in X01, X02, X31 or X32 models

Example: BL-332302 01 is a positive green display, bezel mount DPM with solder pads, 5VDC DPM power, 2VDC input, and 5VDC backlight power.

BL Series Specifications (continued)

Backlighting Power Options — (Series 300, 400, 500 and 600 only)

Power	Voltage Range	Red Current ¹	Green Current ¹
5VDC	4.7V to 5.25V max	130mA to 200mADC (165mA nominal)	75mA to 160mADC (115mA nominal)
12VDC	11V to 13V max	50mA to 100mADC (80mA nominal)	40mA to 80mADC (60mA nominal)
24VDC	22V to 26V max	32mA to 50mADC (40mA nominal)	20 mA to 40mADC (30mA nominal)

¹ External resistor may be used to lower current requirements.

Connectors

Series BL-100, 130, 300, 330, 400, 430, 500, 530, 600, 630 13 connector pins, 0.025" square

Series BL-101, 131, 301, 331, 401, 431, 501, 531, 601, 631 17 terminal connector block

Series BL-102, 132, 302, 332, 402, 432, 502, 532, 602, 632 7 solder pads

Backlight power terminals: 2 solder pads

Environment

Operating²: 32°F to 122°F (0°C to +50°C)

Storage: -4°F to 158°F (-20°C to +70°C)

² Extended operating ranges available.

Options:

- Female connector for BL-100, -130, -300, -330, -400, 430, -500, -530, -600, -630 series: Order 00-939033-091
- For display hold function add suffix "-H" to catalog number
- For coated board and solid front cover add suffix "-MT" to catalog number
- For special OEM requirements, other input ranges, wider operating temperature, or other features, contact factory.