

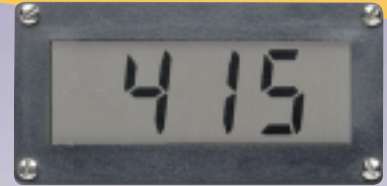
## BL Flat Packs Big Little Digital Panel Meters

MODUTEC

**BEST OF  
CLASS**



BL-176



BL-177

#### Backlighting Options

- 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-177
- Value priced
- Low power consumption

*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
- "LO-BAT" indication on 9VDC power units

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

- 13 pin connection or solder pad connections
- Easy to install bezel mount, order 00-907062-002 for bezel kit

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

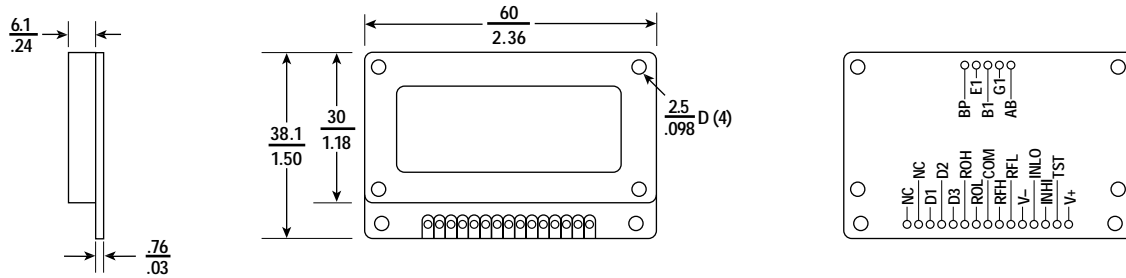
- User selectable decimal points
- Choice of  $\pm 200\text{mV}$ ,  $\pm 2\text{V}$  or  $\pm 20\text{V}$  input
- Choice of 9VDC, +5VDC; or  $\pm 5\text{VDC}$  power

#### Applications

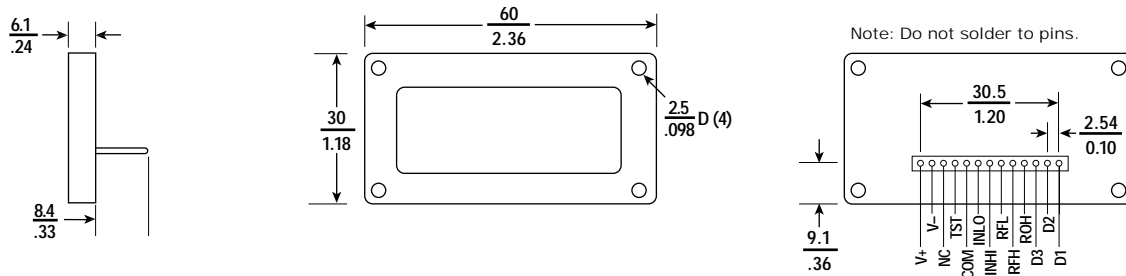
- ▶ Telecommunications
- ▶ Water Purification
- ▶ Sewage Treatment
- ▶ Flow
- ▶ Process
- ▶ Desalinization
- ▶ DC Amps
- ▶ DC Volts

## BL Series Bezel, Window and Surface Mount Dimensional Drawings (mm/in)

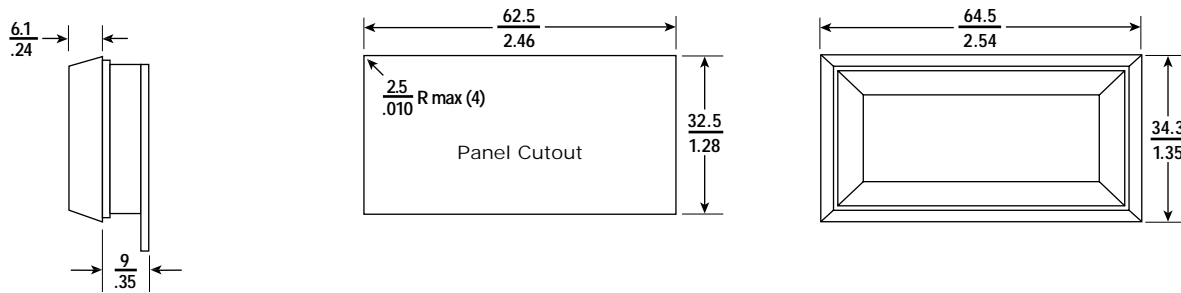
BL-176



BL-177



Bezel Mounting (BL-176 and BL-177)



## How to Order

B L - 1 7 

a	b	c
6	1	0 2

**Terminals**  
a 6 = Solder Pads  
7 = 13 Pins

**DPM Power**  
b 1 = 9VDC  
2 = +5v and -5VDC  
3 = +5VDC

**Input**  
c 01 = 200mVDC  
02 = 2VDC  
03 = 20VDC

Example: BL-176102 is a 9VDC (battery powered) with solder pads, and a 2VDC input.

Female Connector for BL-177 order: 00-939033-091

## BL Series Specifications

### Display

- Digits:** 3 1/2 digits, 7 segments Non-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
- Low Battery:** "Low Bat" annunciator for <7.2V (9V power only)

### Performance

- Accuracy:** ±(0.1% rdg + 2 count) with + 5 and ± 5V power  
±(0.1% rdg + 1 count) with 9V power
- Conversion Rate:** 2.5 per second
- Common Mode Voltage Range:** ±1V maximum
- Common Mode Rejection:** > 86 db
- Zero Adjust:** Automatic
- Tempco:** 100 PPM/°C typical

### Standard Analog Inputs

- Full Scale Range:** Choice ±200mV, ±2V, or ±20V. Special Ranges and engineering units available
- Configuration:** True differential input and references
- Ratiometric Operation:** -176, -177
- Protection:** 250V DC or 150V RMS continuous 300V intermittent maximum
- Bias Current:** 1 pA typical, 10 pA maximum

*BL Series Specifications (continued)*

Standard Power Options

**9V Battery:** 9V isolated, 7.2-12V at 150 uA  
**+5V and -5VDC:**  $\pm 5V \pm 5\%$  at 100 uA  
**+5V:** 5V  $\pm 5\%$  at 3 mA

Connectors

<b>13 connector pins, 0.025" square</b>	BL-177
<b>15 solder pads</b>	Series BL-176

Environment

**Operating<sup>2</sup>:** 0°C to +50°C  
**Storage:** -20°C to 70°C

<sup>2</sup> Extended operating ranges available. Please consult factory.

Connector Pin Designations

<b>V+, V-</b>	Positive & negative connections for power supply
<b>NC:</b>	Not Connected
<b>TST:</b>	Return for +5V power
<b>COM:</b>	Internal reference voltage return. Input common for 9V units
<b>IN HI, IN LO:</b>	Signal inputs
<b>RFL, RFH:</b>	Differential reference inputs
<b>ROH, ROL:</b>	On board reference terminals. ROL on BL-176 only
<b>D1, D2, D3:</b>	Decimal point selection: Connect to V+ as follows: D1=X.XXX D2=XX.XX D3=XXX.X
<b>BP, E1, B1, G1, AB:</b>	Can be used for underrange and overrange signal for external auto ranging on the BL-176

Accessories and Options:

- Female connector for BL-100, -130, 177, -300, -330, -400, 430, -500, -530, -600, -630 series: Order 939099-091
- For display hold function add suffix “-H” to catalog number
- For coated board and solid front cover add suffix “-MI” to catalog number
- For special OEM requirements, other input ranges, wider operating temperature, or other features, contact factory.