



## BX-35-DCA

### 20/50/100/200mV DC Full Scale

Measuring AC current directly from industry standard 5 Amp CTs, this meter is the OEM's choice for modern switchboard installation and upgrades.

**3 1/2 Digit with 0.56" LEDs  
in a 1/16 DIN Case**

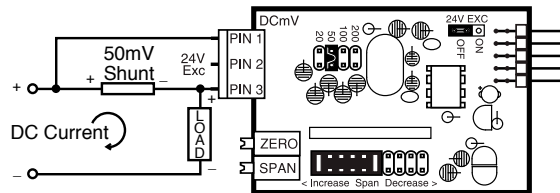
### Compatibility

The BX-Series have a matching DIN case style that is complementary to the Leopard and Tiger family of meters. BX-Meters are the OEM's choice for switchboard and process indication. Each model is dedicated to a specific application and designed for quick and easy installation.



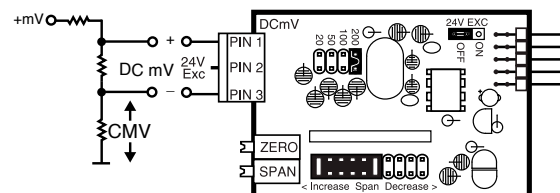
### Typical Application Connections

**DC Current** measurement using a 50mV Shunt.  
Easily user scaled to display currents up to 1999 Amps.



Shunt may be in Hi or Lo side of Load.

**DC mV** measurement with a resolution of 100 microVolts.  
Easily user scaled to display voltages up to 199.9 mV.



Can be used to measure single-ended or differential inputs. Max CMV (common mode voltage) is 50V\*. Because CMV is common with meter ground, higher CMV inputs to a max of 1KV require mechanical isolation of all contactable meter parts.

### General Features

The BX-35-DCA is a cost-effective, low DC voltage measuring meter with four header selectable full scale ranges of 20mV, 50mV, 100mV(standard) and 200mV. The meter is particularly suited for measuring DC current using 50mV standard current shunts. After selecting a new range, re-calibration is required. The standard meter has a high efficiency red LED.

### Specifications

- Input Configuration:**..... Single-ended, however isolated power supply enables differential measurements up to a maximum common mode of 50V.\*
- Full Scale Ranges:**..... Four header selectable ranges of  $\pm 20$ mV DC,  $\pm 50$ mV DC,  $\pm 100$ mV DC &  $\pm 200$ mV DC full scale
- Input Impedance:**..... 50K $\Omega$ /100K $\Omega$ /65K $\Omega$  in 50/100/200 ranges
- A/D Converter:**..... 12 bit dual slope
- Accuracy:**.....  $\pm(0.05\%$  of reading + 2 counts)
- Temp. Coeff.:**..... 100 ppm/ $^{\circ}$ C (Typical)
- Warm up time:**..... 2 minutes
- Conversion Rate:**..... 3 conversions per second (Typical)
- Display:**..... **3 1/2 digit 0.56" Red LED display (std)**, 0.56" GREEN or Super Bright RED are optional. Range -1999 to 1999 counts.
- Decimal Selection:**..... Header under face plate, X·X·X·X
- Positive Overrange:**..... 1 (MSD) is displayed with all other digits blank.
- Power Supply:**..... AC/DC Auto sensing wide range supply  
**PS1 (std)**..... 85-265 VAC, 50-400Hz / 95-300 VDC @1.5W  
**PS2**..... 15-48 VAC, 50-400Hz / 10-72 VDC @4.0W
- Operating Temp.:**..... 0 to 50  $^{\circ}$ C
- Storage Temp.:**..... -20  $^{\circ}$ C to 70  $^{\circ}$ C.
- Relative Humidity:**..... 95% (non condensing)
- Case Dimensions:**..... 1/16 DIN Bezel: 96x24mm (3.78"x0.95")  
 Depth behind bezel 122.2 mm (4.83")  
 Plus 12.7mm (0.5") for Right-angled connector..
- Weight:**..... 7 oz., 9 oz when packed.
- Certification:**..... UL Listed.

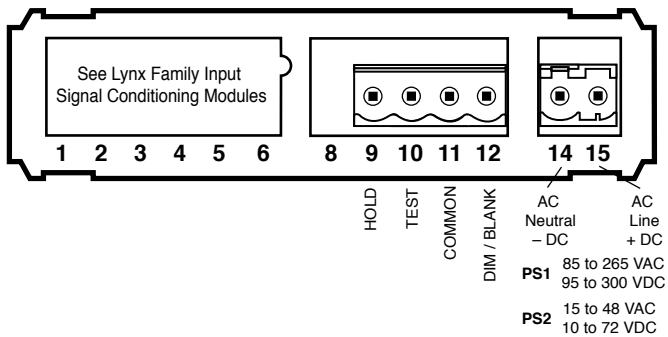
### BX-Series, the OEMs choice for switchboard and process indication

- BX-35-ACA**..... AC amps, Scales RMS (True RMS Opt.). (5 Amp Internal Shunt), 3.5digit
- BX-35-ACV**..... AC volts, Scaled RMS (True RMS Opt.). 199.9/300V AC Header  
.....Selectable Ranges, 3.5 digit
- BX-35-DCA**..... DC mV  $\pm 50$ mV,  $\pm 100$ mV,  $\pm 200$ mV Header Selectable Ranges, 3.5 digit
- BX-35-DCV**..... DC volts  $\pm 2$ V/ $\pm 20$ V/ $\pm 200$ V Header Selectable Ranges, 3.5 digit
- BX-35-CL**..... Process 4 to 20mA (100.0), easily user scalable, 3.5 digit w/Exc. opt
- BX-35-HZ**..... AC Line Frequency 15.0Hz to 199.9Hz. Up to 300V AC input, 3.5 digit
- BX-35-TC-KF or JF** K or J Thermocouple with  $^{\circ}$ F, optional  $^{\circ}$ C, 3.5 digit
- BX-35-RTD-F**..... 100 $\Omega$  platinum RTD, 3 or 4 wire,  $^{\circ}$ F in 1 $^{\circ}$  resolution, optional  $^{\circ}$ C, 3.5 digit
- BX-35-PRESSURE**..... Pressure, Load Cell 20mV/2mV/V, 5/10V Exc 4-wire 3.5 digit

- BX-45-ACA**..... AC amps, Scales RMS (True RMS Opt.). (5 Amp Internal Shunt), 4.5digit
- BX-45-ACV**..... AC volts, Scaled RMS (True RMS Opt.). 199.99/300.0V AC Header  
.....Selectable Ranges, 4.5 digit
- BX-45-DCA**..... DC mV  $\pm 50$ mV,  $\pm 100$ mV,  $\pm 200$ mV Header Selectable Ranges, 4.5 digit
- BX-45-DCV**..... DC volts  $\pm 2$ V/ $\pm 20$ V/ $\pm 200$ V Header Selectable Ranges, 4.5 digit
- BX-45-CL**..... Process 4 to 20mA (100.00), easily user scalable, 4.5 digit w/Exc. opt
- BX-45-TC-KF**..... K Thermocouple with  $^{\circ}$ F, optional  $^{\circ}$ C, 4.5 digit
- BX-45-TC-JF**..... J Thermocouple with  $^{\circ}$ F, optional  $^{\circ}$ C, 4.5 digit
- BX-45-RTD-F**..... 100 $\Omega$  platinum RTD, 3 or 4 wire,  $^{\circ}$ F in 1 $^{\circ}$  resolution, optional  $^{\circ}$ C, 4.5 digit
- BX-45-PRESSURE**..... Pressure, Load Cell 20mV/2mV/V, 5/10V Exc 4-wire 4.5 digit

## Connector Pinouts

This meter uses plug-in type screw terminal connectors for all connections.



## Pin Descriptions

### Pins 1 to 3 - Input

**Pin 9 - Hold:** If this pin is left unconnected the meter will operate in a free running mode. When this pin is connected to the Common Pin 11, the meter display will be latched. A/D conversions will continue, but the display will not be updated until Pin 9 is disconnected from Pin 11.

**Pin 10 - Display Test:** When this pin is connected to the Common Pin 11, all segments of the display light up and 1888 is displayed. This is used to detect any missing segments in the display.

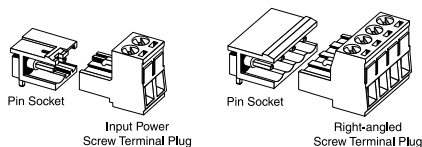
**Pin 11 - Common:** To Hold, Test or Dim the display, the respective pins have to be connected to this Common Pin.

**Pin 12 - Dim/Blank:** When this pin is connected to the Common Pin 11 the display is blanked out. If it is connected through an external 1K $\Omega$  pot, the display may be dimmed.

**Pin 14 & 15 - AC/DC Power Input:** These pins are the power pins of the meter and they only accept a special polarized screw terminal plug that can not be inserted into any other input socket. The standard meter has a auto sensing AC/DC power supply that operates from 85-265 VAC/95-300 VDC (PS1 Std). An optional isolated low voltage power supply that operates from 15-48 VAC/10-72 VDC (PS2) is also available.

## Connectors

This meter uses plug-in type screw terminal connectors for all input and output connections. The power supply connections (pins 14 and 15) have a unique plug and socket outline to prevent cross connection. The main board uses standard right-angled connectors.



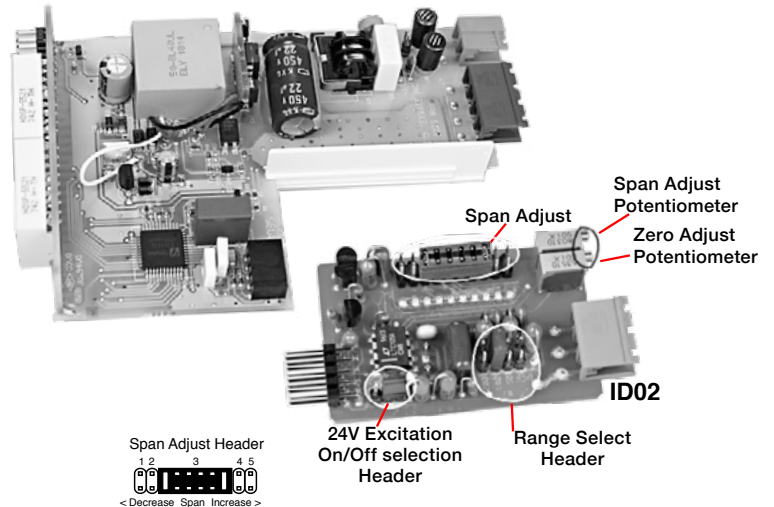
**WARNING:** AC and DC input signals and power supply voltages can be hazardous. Do Not connect live wires to screw terminal plugs, and do not insert, remove or handle screw terminal plugs with live wires connected.

## Calibration Procedure

1. Select the required full scale voltage range, by repositioning the jumper clip on the range select header.
2. Apply an input of 0 millivolts. Adjust the zero offset pot until the meter reads 000.
4. Apply a known high input signal that is within the full scale voltage range selected.
5. Adjust the Span Pot until the meter displays the required reading for the signal being applied.
6. The BX-35-DCA is now calibrated and ready for use.

*(Whenever a new range is selected, re-calibration is required to meet the specified accuracy).*

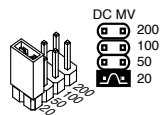
## Component Layout



SPAN Adjust Header position	1	2	3	4	5
SPAN Pot %	10%	10%	10%	10%	10%
Signal Span %	20%	40%	60%	80%	100%

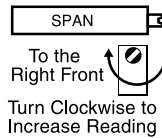
## Signal Conditioning Components

### INPUT RANGE Header



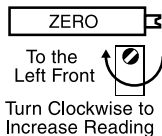
Range values are marked on the PCB. Three positions are provided. After selecting a new range with the single jumper clip, re-calibration is required.

### SPAN Potentiometer (Pot)



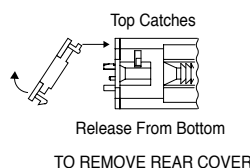
The 15 turn SPAN pot is always on the right side (as viewed from the front of the meter). Typical adjustment is 100% of the input signal range.

### ZERO Potentiometer (Pot)



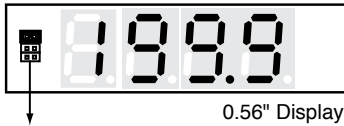
The ZERO pot is always to the left of the SPAN pot (as viewed from the front of the meter). Typically it enables the displayed reading to be offset  $\pm 100$  counts.

## Opening Back Panel



To open back panel, insert a flat screwdriver or similar instrument in both slots on the top of the case and pry open. The BX-Series meters slide out from the rear of the case as a complete assembly.

## Decimal Point Selection



0.56" Display



Decimal selection is made by moving the jumper to the indicated position on the header for the decimal required on the front of the display board.

- 1XX.X  
1X.XX  
1.XXX

### Decimal Select Header

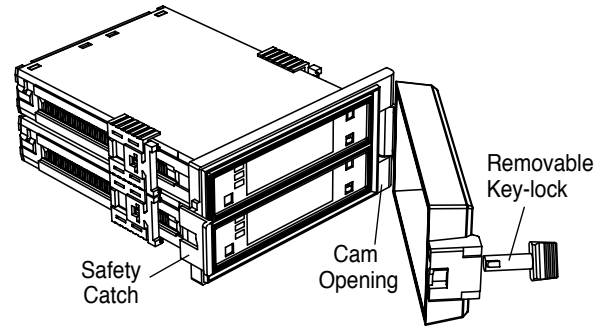
## Installation Guidelines

1. Install and wire meter per local applicable codes/regulations, the particular application, and good installation practices.
2. Install meter in a location that does not exceed the maximum operating temperature and that provides good air circulation.
3. Separate input/output leads from power lines to protect the meter from external noise. Input/output leads should be routed as far away as possible from contactors, control relays, transformers and other noisy components. Shielding cables for input/output leads is recommended with shield connection to earth ground near the meter preferred.
4. A circuit breaker or disconnect switch is required to disconnect power to the meter. The breaker/switch should be in close proximity to the meter and marked as the disconnecting device for the meter or meter circuit. The circuit breaker or wall switch must be rated for the applied voltage (e.g., 120VAC or 240VAC) and current appropriate for the electrical application (e.g., 15A or 20A).
5. See *Case Dimensions* section for panel cutout information.
6. See *Connector Pinouts* section for wiring.
7. Use 28-12 AWG wiring, minimum 90°C (HH) temperature rating. Strip wire approximately 0.3 in. (7-8 mm).
8. Recommended torque on all terminal plug screws is 4.5 lb-in (0.51 N-m).



## Clear Lockable Water-proof Cover

The clear lockable cover is designed to be dust and water proof to NEMA-4X, IP65 standards. The assembly consists of a base and cover with a cam hinge and key-lock fastening mechanism. An O-ring, or neoprene gasket forms a seal between the base and the panel. The cam hinge prevents the cover from closing when opened until pushed closed. The cover has a tapered recess that, when closed, forms a seal with a tapered spigot on the base. A key-lock employs a cam locking device to force the spigot into the recess, ensuring seal integrity. A safety catch keeps the cover closed even when the key is removed, and the keyhole can be used to attach a safety seal clip, preventing unauthorized opening.



Clear Lockable NEMA 4X  
Splash Proof Cover  
can accept two 1/16 DIN  
cases P/N:(OP-N4/96x48)

## Face Plate Descriptors



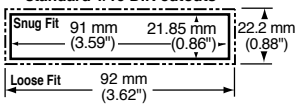
To customize the face plate, clear adhesive label containing various popular descriptors may be ordered. Choose the descriptor desired, peel off the adhesive backing and align the descriptor in the center right of the faceplate.

P.N.: 75-DESCRIPTR

## BX Case Dimensions and Panel Cutouts

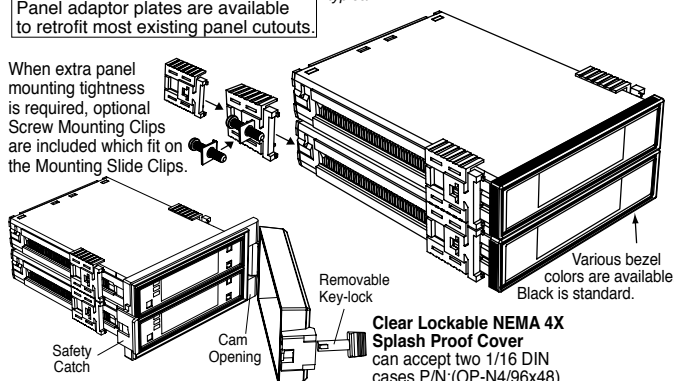
### PANEL CUTOUT

Case will mount in  
standard 1/16 DIN cutouts



Panel adaptor plates are available to retrofit most existing panel cutouts.

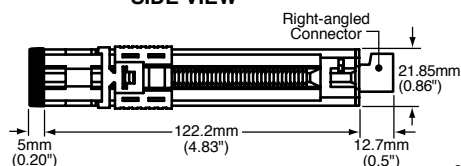
When extra panel mounting tightness is required, optional Screw Mounting Clips are included which fit on the Mounting Slide Clips.



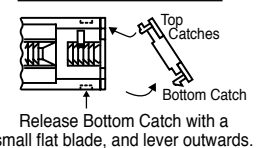
### FRONT VIEW

1/16 DIN (96x24mm)

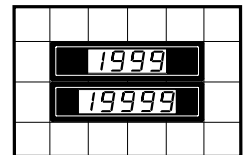
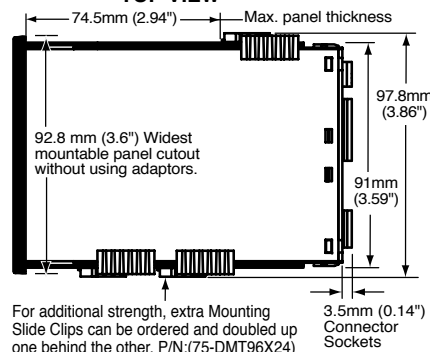
### SIDE VIEW



### TO REMOVE REAR COVER



### TOP VIEW



The 96x24mm case is particularly suitable for mounting in mosaic panels or insulative panels up to 2" thick. They can also stack mount, 2 up in existing cut-outs for 1/8 DIN (96x48mm) or 4 up in 1/4 DIN (96x96mm).

## Ordering Information

### Standard Options for this Model Number

Part Number	Description	List
<b>► BASIC MODEL NUMBER</b> Includes plug in type screw terminals, standard display and standard power supply unless optional versions are ordered.		
<b>BX-35-DCA</b> .....	DPM, DC mV $\pm 20\text{mV}$ , $\pm 50\text{mV}$ , $\pm 100\text{mV}$ , $\pm 200\text{mV}$ ...	
.....	Header selectable ranges ID02	
<b>► DISPLAY</b>		
<b>DR</b> ...	Red LED, 0.56 inch high	.....
<b>DB</b> ...	Super-bright Red LED, 0.56 inch high	.....
<b>DG</b> ...	Green LED, 0.56 inch high	.....
<b>► POWER SUPPLY</b>		
<b>PS1</b> ..	85-265VAC/95-300VDC	.....
<b>PS2</b> ..	15-48VAC/10-72VDC	.....

### Special Options and Accessories

Part Number	Description	List
<b>► SPECIAL OPTIONS (Specify Inputs or Outputs &amp; Req. Reading)</b>		
ZR	..... Range Change from Standard Range shown in <b>BOLD</b> type	
ZS	..... Custom display scaling within standard ranges	...
<b>► ACCESSORIES (Specify Serial # for Custom Artwork Installation)</b>		
75-DBBZ96X24	Black Bezel for 96x24mm Case	.....
75-DMTC96X24	Side Slide Brackets (2 pc) - extra set, extra strength	...
ART-FS-S/D	..... NRC for artwork & set-up Faceplate/Desc	.....
ART-FS1	..... Install Custom Faceplate per meter - 1 color	...
93-PLUG2P-DP	Extra Screw Terminal Conn., 2 Pin Power Plug	..
93-PLUG2P-DR	Extra Screw Terminal Conn., 2 Pin Plug	.....
93-PLUG3P-DR	Extra Screw Terminal Conn., 3 Pin Plug	.....
93-PLUG4P-DR	Extra Screw Terminal Conn., 4 Pin Plug	.....
DN.CAS96X24L	Complete 96x24mm Case with bezel	.....
OP-MTLCLIP	..... Screw Mounting Clips (2 pc) to screw tighten slide brackets	..
75-DTP96X24	..... Black Metal Trim Plate (96x24mm Case) 1 Meter	..
75-DTP2X9624	..... Black Metal Trim Plate (96x24mm Case) 2 Meters	..
75-DTP3X9624	..... Black Metal Trim Plate (96x24mm Case) 3 Meters	..
OP-PMA/SWB-2	Switch Board Panel Mounting Adapter 2 Meters	..
OP-PMA/SWB-3	Switch Board Panel Mounting Adapter 3 Meters	..
75-DESCRIPTR	Clear adhesive descriptors label for face plate	..

### WARRANTY

Texmate warrants that its products are free from defects in material and workmanship under normal use and service for a period of one year from date of shipment. Texmate's obligations under this warranty are limited to replacement or repair, at its option, at its factory, of any of the products which shall, within the applicable period after shipment, be returned to Texmate's facility, transportation charges pre-paid, and which are, after examination, disclosed to the satisfaction of Texmate to be thus defective. The warranty shall not apply to any equipment which shall have been repaired or altered, except by Texmate, or which shall have been subjected to misuse, negligence, or accident. In no case shall Texmate's liability exceed the original purchase price. The aforementioned provisions do not extend the original warranty period of any product which has been either repaired or replaced by Texmate.

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