



BX-45-DCV 2V/20V/200V DC Meter

A cost-effective Process meter for single ended or differential measurements of DC Volt signals, easy to install in Switchboard and Mosaic panels.

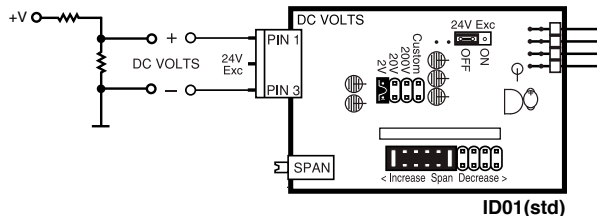
4 1/2 Digit with 0.56" LEDs
in a 1/16 DIN Case

General Features

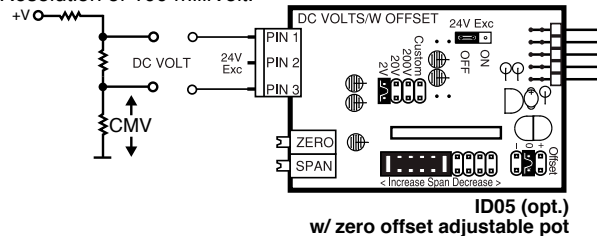
The BX-45-DCV is a reliable cost-effective DC voltage measuring meter with three header selectable full scale ranges of 2V, 20V and 200V. This meter may be used to measure single-ended as well as differential signals and is easily scaled to any desired process engineering unit. After selecting a new range, re-calibration is required. Display Hold and Display Test functions are also provided. The standard meter has a high efficiency red LED.

Typical Application Connections

DC Volts Single-ended measurement with a Resolution of 100 milliVolt.



DC Volts Differential measurement with a Resolution of 100 milliVolt.



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.

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.



Specifications

Input Configuration:... Single-ended, however isolated power supply enables differential measurements up to maximum common mode of 50V.*

Full Scale Ranges:..... Three header selectable ranges of 2V, 20V, and 200V DC full scale

A/D Converter:..... 12 bit dual slope

Accuracy:..... ±(0.05% of reading + 2 counts)

Temp. Coeff.:..... 100 ppm/°C (Typical)

Warm up time:..... 2 minutes

Conversion Rate:..... 3 conversions per second (Typical)

Display:..... 4 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•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 °C

Storage Temp.:..... -20 °C to 70 °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 ±50mV, ±100mV, ±200mV Header Selectable Ranges, 3.5 digit

BX-35-DCV..... DC volts ±2V/±20V/±200V 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 °F, optional °C, 3.5 digit

BX-35-RTD-F..... 100Ω platinum RTD, 3 or 4 wire, °F in 1° resolution, optional °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 ±50mV, ±100mV, ±200mV Header Selectable Ranges, 4.5 digit

BX-45-DCV..... DC volts ±2V/±20V/±200V 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 °F, optional °C, 4.5 digit

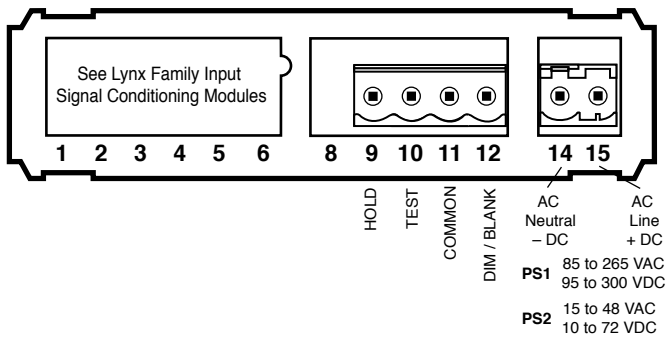
BX-45-TC-JF..... J Thermocouple with °F, optional °C, 4.5 digit

BX-45-RTD-F..... 100Ω platinum RTD, 3 or 4 wire, °F in 1° resolution, optional °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 18888 is displayed. This is used to detect any missing segments in the display.

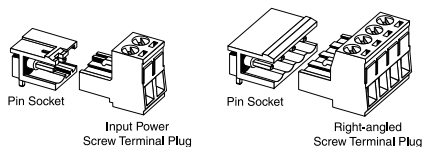
Pin 11 - Common: To Hold, Test or Dim the display, the respective pins have to be connected to this Common Pin.

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 Ω 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.

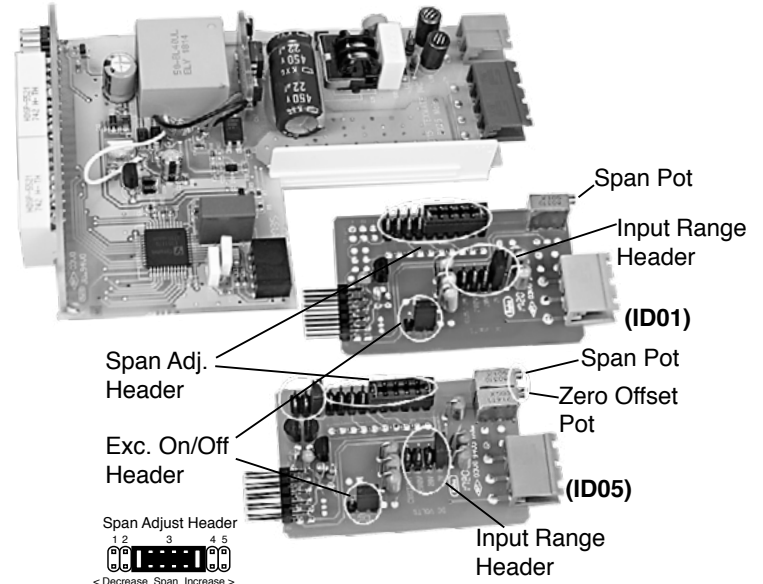


WARNING: AC and DC input signals and power supply voltages can be hazardous. Do Not connect live wires to screw terminal plugs, and do not insert, remove or handle screw terminal plugs with live wires connected.

Calibration Procedure

1. Select the required full scale voltage range by re-positioning the jumper clip on the Range Select Header. A range of 2V, 20V or 200V full scale may be selected.
2. Apply an input of 0 Volt DC to the meter by shorting the inputs. The meter will auto zero and display zero.
3. If you need to offset zero, order the ID05 option and adjust until the meter reads 0000.
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. (e.g.: 1VDC=1.000)
6. The BX-35-DCV 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

Custom 200V, 20V, 2V. Range values are marked on the PCB. Four positions are provided. After selecting a new range with the single jumper clip, re-calibration is required.

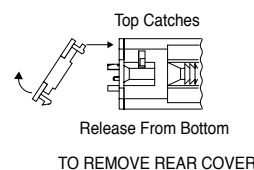
SPAN Potentiometer (Pot)

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)

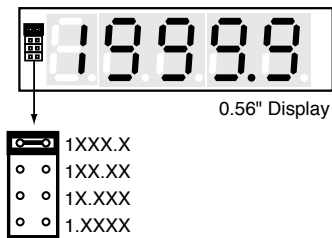
The ZERO pot is always to the left of the SPAN pot (as viewed from the front of the meter). Typically it enables the displayed reading to be offset ± 100 counts.

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 Select Header



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.

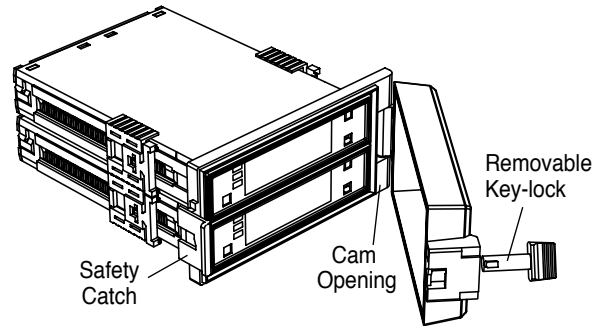
Installation Guidelines

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)



BX Case Dimensions and Panel Cutouts

PANEL CUTOUT
Case will mount in standard 1/16 DIN cutouts

Snug Fit	91 mm (3.59")	21.85 mm (0.86")	22.2 mm (0.88")
Loose Fit	92 mm (3.62")		

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

Release Bottom Catch with a small flat blade, and lever outwards.

TOP VIEW

92.8 mm (3.6") Widest mountable panel cutout without using adaptors.

For additional strength, extra Mounting Slide Clips can be ordered and doubled up one behind the other. P/N:(75-DMT96X24)

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

Ordering Information

Standard Options for this Model Number

Part Number	Description	List
► BASIC MODEL NUMBER Includes plug in type screw terminals, standard display and standard power supply unless optional versions are ordered.		
BX-45-DCV	DC Volts, 2V/20V/200V w/24V Exc. ID01	
	Offset option .. with zero offset adjustable pot ID05	
► DISPLAY		
DR	Red LED, 0.56 inch high.	
DB . . .	Super-bright Red LED, 0.56 inch high	
DG . . .	Green LED, 0.56 inch high	
► POWER SUPPLY		
PS1 . . .	85-265VAC/95-300VDC	
PS2 . . .	15-48VAC/10-72VDC	

Special Options and Accessories

Part Number	Description	List
► SPECIAL OPTIONS (Specify Inputs or Outputs & Req. Reading)		
ZR	Range Change from Standard Range shown in BOLD type	
ZS	Custom display scaling within standard ranges . . .	
► ACCESSORIES (Specify Serial # for Custom Artwork Installation)		
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 . . .	

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.

USER'S RESPONSIBILITY

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