



BX-35-HZ

AC Line Frequency 3 1/2 Digit with 0.56" LEDs in a 1/16 DIN Case

An cost-effective meter for 15.0 to 199.9Hz
AC line frequency measurement.
Quick and easily installation make it the OEM's
choice for switchboard upgrades.

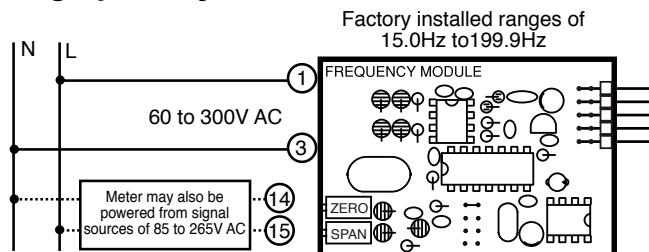
General Features

The BX-35-HZ is a cost-effective, AC line frequency measuring meter with a factory installed range of 15.0Hz to 199.9Hz. The unique input structure allows safe phase to phase line frequency measurements in multi-phase systems.

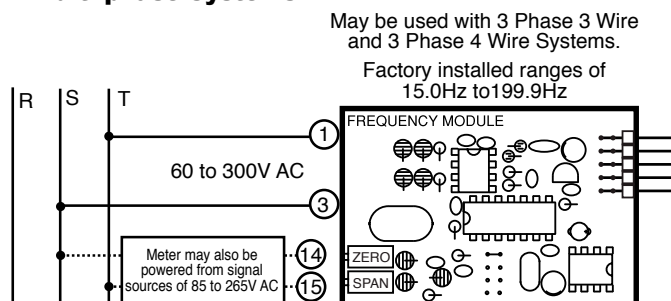
Display Hold and Display Test functions are also provided. The standard meters have a high efficiency red LED display.

Typical Application Connections

AC Line Frequency measurement in Single-phase Systems.



AC Phase to Phase Line Frequency measurement in Multi-phase Systems.



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:..... Differential with Frequency to Voltage converter. Inputs resistively isolated to 1400V from the internal ground of meter by 1.94MΩ, so that phase to phase measurements up to 300V AC can be safely made.

Full Scale Ranges:..... Factory installed range of 15.0Hz to 199.9Hz.

Input Impedance:..... 4MΩ

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:..... 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 °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

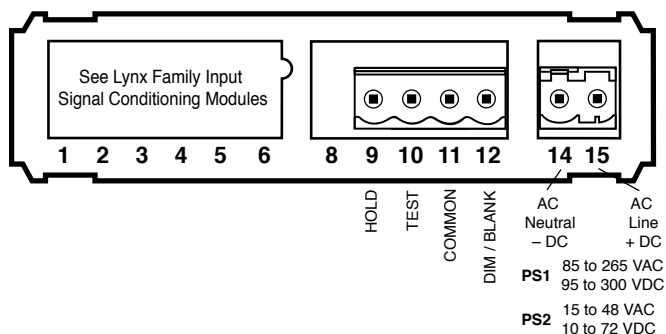
BX-45-TC-JF..... J Thermocouple with °F, optional °C, 4.5 digit

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-Signal Input High: AC voltages from 60 to 300V can be applied this pin which is resistively isolated to 1400V from the internal ground of meter by 1.94MΩ, so that phase to phase measurements up to 300V AC can be safely made.

Pins 3-Signal Input Low : AC voltages from 60 to 300V can be applied this pin which is resistively isolated to 1400V from the internal ground of meter by 1.94MΩ, so that phase to phase measurements up to 300V AC can be safely made.

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.

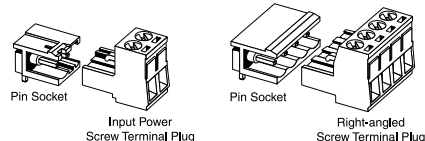
Pin 11 - Common: To Hold, Test or Dim the display, the respective pins have to be connected to this Common Pin.

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 1KΩ 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.

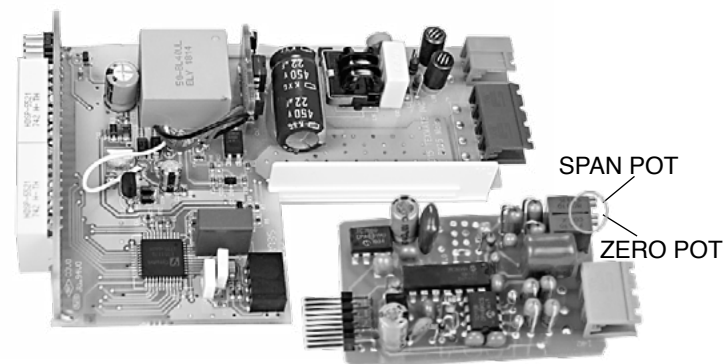


WARNING: AC and DC input signals and power supply voltages can be hazardous. Do Not connect live wires to screw terminal plugs, and do not insert, remove or handle screw terminal plugs with live wires connected.

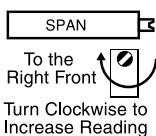
Calibration Procedure

1. Apply a zero input by shorting the inputs to the meter. Adjust the zero trim pot until the meter reads 000.
2. Apply an AC voltage from 60V to 500V AC, of a known frequency.
3. Adjust the Span Pot until the meter displays the frequency being applied.
4. The BX-35-HZ is now calibrated and ready for use.

Component Layout

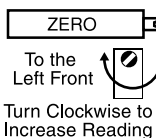


Signal Conditioning Components



SPAN Potentiometer (Pot)

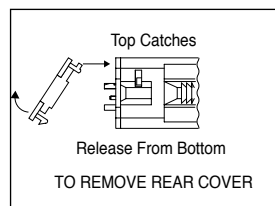
The 15 turn SPAN pot is always on the right side (as viewed from the back of the meter). Typical adjustment is 20% of the input signal range.



ZERO Potentiometer (Pot)

The ZERO pot is always to the left of the SPAN pot (as viewed from the back of the meter). Typically it enables the display reading to be offset ±50 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



Decimal Select Header

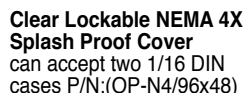
Decimal selection is made by moving the jumper to the indicated position on the header for the decimal required on the front of the display board.

Installation Guidelines

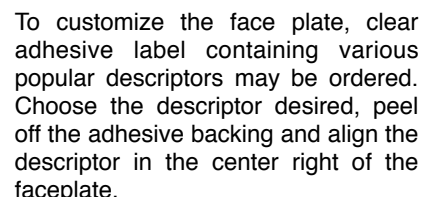
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Clear Lockable Water-proof Cover

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.



Optional Face Plate Descriptors

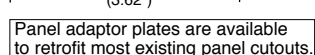


P.N.: DU-CASEDES

BX Case Dimensions and Panel Cutouts

PANEL CUTOUT

Snug Fit 01 mm 01.85 mm 22.2 mm



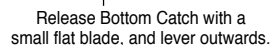
FRONT VIEW



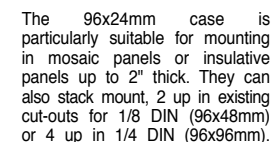
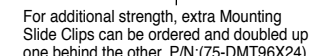
SIDE VIEW



TO REMOVE REAR COVER



TOP VIEW



Ordering Information

Standard Options for this Model Number

Part Number	Description	List
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► **BASIC MODEL NUMBER** Includes plug in type screw terminals, standard display and standard power supply unless optional versions are ordered.
BX-35-HZ..... AC Line Frequency, 15.0 to 199.9Hz

► 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
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► SPECIAL OPTIONS (Specify Inputs or Outputs & Req. Reading)

CR-CHANGE . . . Calibrated Range Change to another Standard Range . . .

CS-3/3.5/4 . . . Custom display scaling within std. ranges

► ACCESSORIES (Specify Serial # for Custom Artwork Installation)

75-DMTC96X24 Side Slide Brackets (2 pc) - extra set, extra strength . . .

75-DBBZ96X24 Extra Black Bezel for 96x24mm Case

ART-FS-S/D . . . NRC for artwork & set-up Faceplate/Desc.

ART-FS-001 . . . 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 Extra 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

DU-CASEDES . . Clear adhesive descriptors label for face plate.

WARRANTY

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