



TEXMATE



0.56"
LED
Display

Optional ▲
Green LED display

Optional ▲
Custom Faceplate

**4 1/2 Digit
In Short Depth 2.83" (72 mm)
DIN 96x24mm Case**

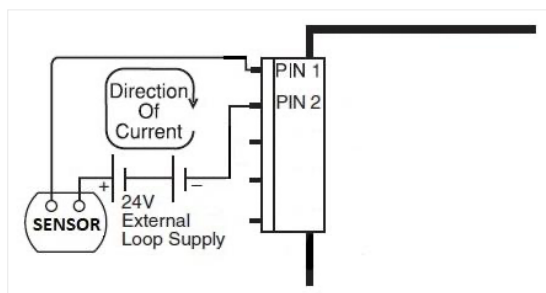
General Features

- **INTERNALLY ISOLATED** 24VDC power supply supports 9VDC to 36VDC power input.
- Input protection: clamps current to 32mA; withstands up to 50V; reverse current is blocked; loop current flows when meter is not powered
- International standard DIN 96x24mm case
- Short depth case: 2.83" (72mm) behind panel
- 0.56" high red LEDs standard
- Adjustable display brightness
- Optional green, blue or extra bright red LEDs available
- Display Hold and Test
- Ideal for OEM applications

The BN-45CL420 is a streamlined 4 to 20mA current loop meter. It is specifically designed to be easily user-scaled and calibrated to almost any conceivable engineering unit, such as temperature, pressure, viscosity, flow rates, etc., without requiring component changes. On site scaling and recalibration are facilitated by multiturn potentiometers that provide continuous adjustment within each of three head-er-programmable full scale ranges for span and zero offset.

The display is shipped standard with red LEDs, but green LEDs, blue LEDs or super bright LEDs for high ambient light environments are also offered. Display Segment Test and Hold Reading are standard features.

Typical Application Connection



BN-45CL420

**Current Loop Meter
4 1/2 Digit 0.56" LED
in a 1/16 DIN Case**

Compatibility

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



Specifications

- Input Configuration:**Series connection to 4-20mA process loop
- Full Scale Ranges:**User adjustable to any scaling between -19999 to +19999
- Input Impedance:**74Ω maximum. Maximum 1.48V drop
- A/D Converter:**15 bit dual slope integrating
- Accuracy:**±(0.05% of reading + 1 counts)
- Temperature Coefficient:** 100 ppm/°C (Typical)
- Warmup Time:**One minute to specified accuracy
- Conversion Rate:**3 readings per second
- Display:**.....0.56" High efficiency Red LED's; Display Hold and Test provided. Optional Green, Blue and Super Bright Red LEDs.
- Polarity:**Assumed positive, display negative sign
- Decimal:**.....User programmable to 4 positions
- Overload Indication:**When input exceeds full scale on any range being used, most significant "1" digit and polarity symbol are displayed with all other digits blank.
- Power Supply:**24VDC @ 51mA (standard); 9VDC @ 99mA; 12VDC @ 76mA; 36VDC @ 47mA measured under TEST (-188.88)
- Operating Temperature:**... 0°C to +50°C
- Storage Temperature:**-40°C to +85°C
- Relative Humidity:**95% (non-condensing)
- Case Dimensions:**Bezel: 96X24 mm (3.62" X 0.95")
Depth behind bezel: 56.5 mm (2.23")
Plus 27 mm (1.06") for Push-On connector or plus 17.5 mm (0.68") for Edge connector
- Weight:**85 gms (3.0 oz)
125 gms (4.4 oz) when packed

BN-Series Panel Meters, for Those Applications Where Space is a Premium

BN-35 3.5 digit, 0.2/2/20/200VDC, 5VDC Powered
BN-35I 3.5 digit, 0.2/2/20/200VDC, Isolated 24V DC

BN-40BCD... 4.0 digit, Parallel or Multiplex BCD, 5VDC Powered
BN-45 4.5 digit, 2/20/200VDC, 5VDC Powered
BN-45I 4.5 digit, 2/20/200VDC, Isolated 9-36V DC

Power Supply

The BN-45CL420 ships from the factory with a isolated 24VDC power supply (9-36VDC input range).

CAUTION - ELECTRICAL SHOCK HAZARD All internal parts of the meter may be at the same electrical potential as the input signal and power supply. Do not reposition the signal conditioning components when input voltages are applied. When measuring dangerously high input voltages, extreme care must be taken to insulate the connector pins as well as all metal parts of the meter. A suitable high voltage warning notice should be affixed to those meters where there is any possibility that the meter could be removed from its case, or the internal components accessed, concurrent with the existence of a high voltage input signal.

Signal Conditioning Components

ZERO

To the Left Front
Turn Clockwise to Increase Reading

SPAN

To the Right Front
Turn Clockwise to Increase Reading

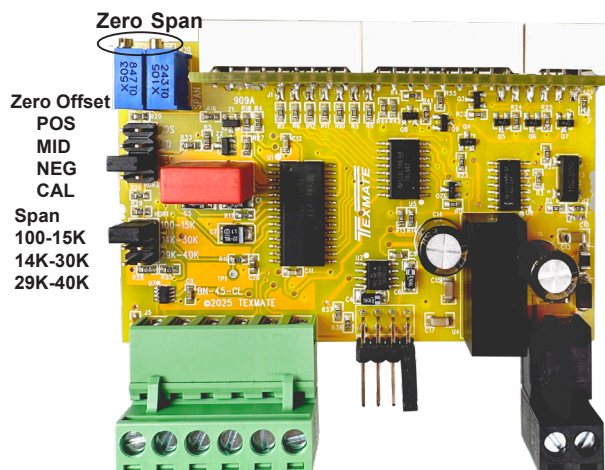
ZERO Potentiometer (Pot) Optional

The Optional ZERO pot when installed is to the left of the SPAN pots (as viewed from the back of the meter). Typically it enables the displayed reading to be offset ± 1000 counts.

SPAN Fine Potentiometer (Pot)

The 15 turn SPAN Fine pot is the middle pot (as viewed from the back of the meter). Typical adjustment is 20% of the input signal range.

Component Layout



RANGE SELECT Header

Display range or display span is the total display range between the lowest displayed value to the highest displayed value, and is selected with the Span header. For example, if the lowest displayed value is 0 and the highest displayed value is 10000, then the display range is $10000 - 0 = 10000$ or 10K, so the top Span position would be selected. If the lowest displayed value is -2000 and the highest displayed value is 18000, then the display range is $18000 - (-2000) = 20000$ or 20K, so the middle Span position would be selected. After selecting a new range, recalibration is required, see Calibration Procedure.

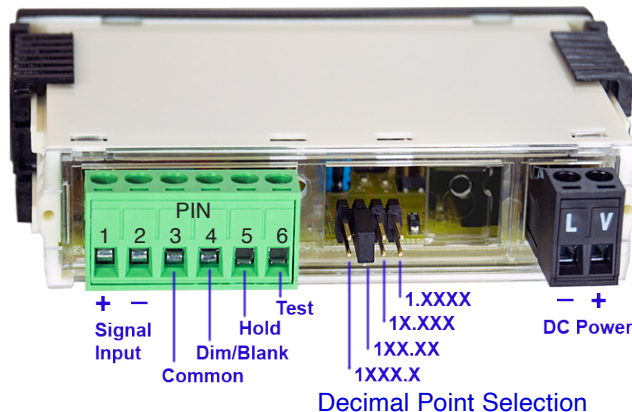
Optional Face Plate Descriptors

AC	V	kV	kVAR	m/hr	Hz	RPM
V	mV	min	PF	F	C	cos ϕ
DC	$\times 10kN$	μA	PSIG	mS	kg/cm 2	psi
kW	W	kWH	pH	%	K	kPa
A	mbar	mA	MW	kA	RPS	MWH
mWs	μm	kW/s	I	I/sec	ml	cm
ORP	mm/s	l/min	mm	kg/sec	lbs	kg/hr
FT	bars	min	m/min	Mvars	μV	dB

P.N.: 75-DESCRIPTR

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.

Connector Pinouts



Decimal Point Selection

Display Test: All numeric display segments will light up when Display Test Pin 6 is connected to Common Pin 3.

Display Blank/Dim: If Pin 4 is connected to Common Pin 3, the display will be blanked out. If a 1K Ω pot is connected between Pin 4 and Common Pin 3, the brightness of the display can be adjusted with the potentiometer.

Hold Reading: If Pin 5 is left unconnected, the meter will operate in a free-running mode. When Pin 5 is connected to the Hold/Test/Blank Common Pin 3, the meter will latch up. A/D conversions will continue, but the display will not be updated until the Hold Pin and Common pins are disconnected.

Calibration Procedure

The BN-45CL420 is calibrated at the factory to show 0.00-100.00 (%) for the 4-20mA loop current range. The display range may be changed but will require recalibration. Potentiometers are accessible with the front cover of the meter removed for user calibration.

Sample 1:

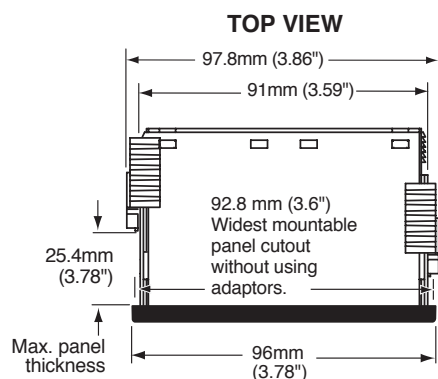
1. Make sure DC power and loop input are connected.
2. Loop current span is 20mA-4mA = 16mA
3. Determine desire display span for loop current span, e.g., 0 to 100.00 is a 10,000 count display span.
4. Set Zero Offset HDR2 to CAL position. (If 4mA value well above + zero to set to POS, if near (+/-) set to MID or to NEG if 4mA is well below - zero.
5. Select Span Range HDR1 to 100-15K position.
6. Apply 16mA and adjust Span pot to the maximum display 100.00.
7. Move Span Range HDR2 to MID.
8. Apply 4mA and adjust offset pot to display 00.00.
9. Apply 20mA. Display may should correct value depending on display range. If not adjust Span pot as needed.

Sample 2:

4mA = -25.00 and 20mA = +25.00 = Span of 5000 counts.

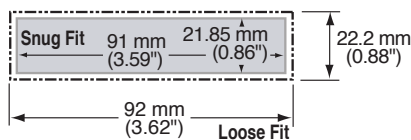
1. Set HDR2 to CAL position
2. Select Span Range HDR1 to 100=15K
3. Apply 16 mA and adjust the span pot to display the max display Span 5000.
4. Move Span Range HDR2 to MID.
5. Apply 4 mA and adjust the offset pot to display -25.00
6. Apply 20mA. Display may display correct value depending on display range. If not, adjust the Span pot as needed.

BN-45 Case Dimensions and Panel Cutouts



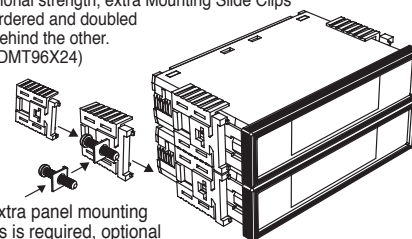
PANEL CUTOUT

Case will mount in standard 1/16 DIN cutouts

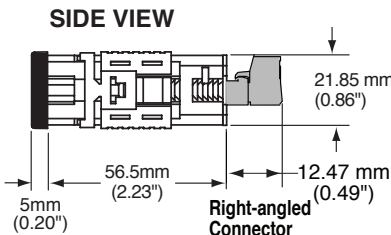
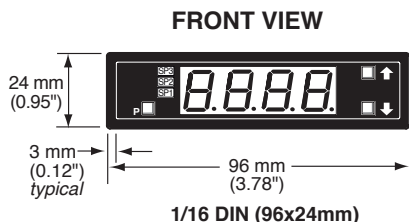


Panel adaptor plates are available to retrofit most existing panel cutouts.

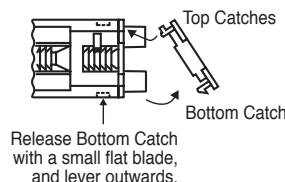
For additional strength, extra Mounting Slide Clips can be ordered and doubled up one behind the other.
P/N: (75-DMT96X24)



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



TO REMOVE REAR COVER



Ordering Information

Standard Options for this Model Number

Part Number Description

► **BASIC MODEL NUMBER** Includes plug in type screw terminals, standard display and standard power supply unless optional versions are ordered.

BN-45CL420.... 4.5 digit Red LED, 4-20mA, 9-36VDC Powered

► DISPLAY

BN-RED..... Red LED, 0.56 inch high

BN-GREEN4 . . . Green LEDs, 0.56 inch high

BN-BRIGHT . . . super bright Red LEDs, 0.56 inch high.

BN-BLUE Blue LEDs, 0.56 inch high, Visible under bright sun light

Special Options and Accessories

Part Number Description

► **SPECIAL OPTIONS (Specify Inputs & Req. Reading)**

ZS Custom display scaling within standard range

► ACCESSORIES

75-DMTC96X24 Side Slide Brackets, extra set (96x24mm)

75-DBBZ96X24 Black Bezel for 96x24mm Case

75-DESCRIPTR Clear adhesive descriptors label for face plate

DN.CAS96X24 Din Case 96 X 24 Short Depth with Bezel

WARRANTY

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