



## BN-40BCD

### Remote BCD Display 4 Digit 0.56" LED in a 1/16 DIN Case



### 5 VDC Powered LED BCD Input Meter in DIN 96X24mm Case.

#### General Features

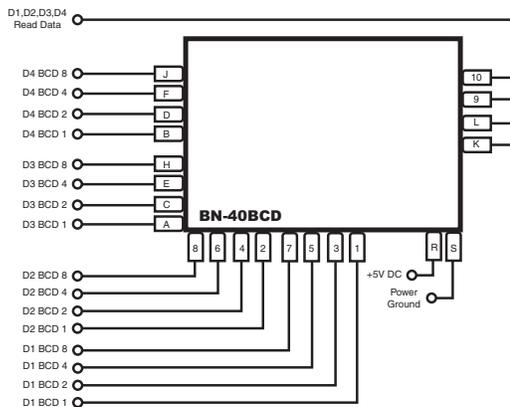
The BN-40BCD is a 4 digit remote or slave BCD display that is popularly used to display the BCD output from a PLC system.

For applications where a polarity sign is required the 3 1/2 digit BN-35BCD may be used. The BN-40 BCD and BN-35 BCD are ideal solutions for low cost operator interfaces.

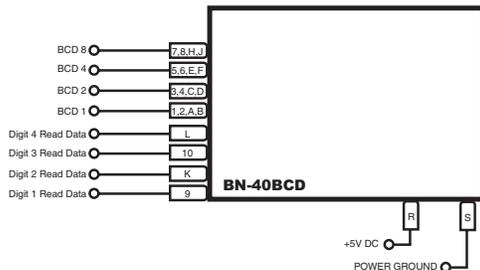
Both BN-40BCD and BN-35 BCD are powered from 5V DC. They are shipped standard with Red LEDs, but green LEDs or super bright LEDs for high ambient light conditions are also offered.

#### Typical Application Connections

**BN-40BCD** with parallel BCD input.



**BN-40BCD** with multiplexed BCD input.



#### 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

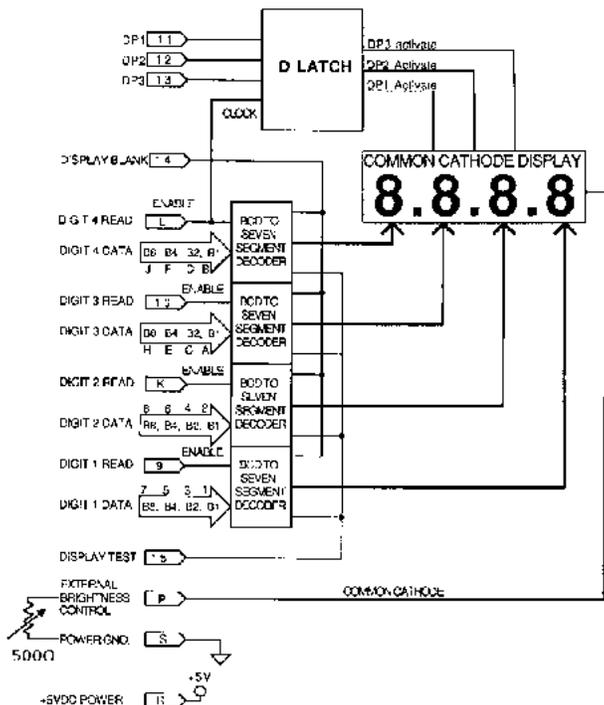
- Input Configuration:** .....BCD 1-2-4-8 code, positive logic
- Full Scale Ranges:** .....±199.9mVDC ±1.999VDC (standard)  
±19.99VDC±199.9VDC
- Input Impedance:** .....Exceeds 100MΩ on 200mV, 2V ranges.  
1MΩ other ranges.
- Input Protection:** .....±100V AC/DC for 200mV, 2V and 20V ranges.  
±250VAC/DC for 200V range
- Conversion Rate:** .....3 readings per second
- Common Mode Rejection:**...80dB at DC
- Normal Mode Rejection:**.....60dB at 50/60Hz for 200mV and 2V ranges.
- Common Mode Voltage:**...-1V to +2VDC
- Accuracy:** .....± (0.05% of reading + 1 digit)
- Temperature Coefficient:** ....5ppm/°C in ratiometric mode 50ppm/°C in 200mV / 2V ranges
- Maximum resolution:** .....100μV in 200mV range.
- Zero Stability:**.....Autozeroed. 0.1 counts per °C
- Display:**.....0.56" high red LEDs. Display Hold, Blank and Test provided.
- Overrange Indication:** .....The most significant digit "1" is displayed with all the other digits blanked.
- Power Supply:** .....5VDC @ 200mA.
- Operating Temperature:** ..0°C to 70°C (5V supply);  
0°C to 50°C (12V supply)
- Storage Temperature:**.....-12°C to 80°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:**.....10gms (.35 oz)

### BN-Series, For Those Applications Where Space Is A Premium

- BN-35** ..... .0.2/2/20/200V DC ranges, 3.5 digit, 5V DC Powered
- BN-35BCD** .....Parallel or Multiplex BCD, 3.5 digit, 5V DC Powered
- BN-35CL** ..... .4 to 20mA, Isolated 24V DC, 3.5 digit
- BN-35I** ..... .0.2/2/20/200V DC ranges, Isolated 24V DC, 3.5 digit

- BN-40BCD** ..... .Parallel or Multiplex BCD, 4.0 digit, 5V DC Powered
- BN-45** ..... .2/20/200V DC ranges, 4.5 digit, 5V DC Powered
- BN-45I** ..... .2/20/200V DC ranges, Isolated 24V DC, 3.5 digit

## Functional Diagram



**Pins A, C, E and H** are the B1, B2, B4 and B8 bits of Digit 3 respectively. +5V on these lines corresponds to a High Level (1), and 0V on these lines corresponds to a Lo Level (0).

**Pin B, D, F and J** are the B1, B2, B4 and B8 bit of the MSD Digit 4. +5V on this line corresponds to a High Level (1), and 0V on this line corresponds to a Lo Level (0).

**Pins 9, K, 10 and L** are the Read Data lines for the Digit 1, Digit 2, Digit 3 and Digit 4 data respectively. Data is read into the meter whenever the corresponding Read Data line is at +5V (Hi Level).

**Pins 11, 12 and 13** are the Decimal Point Inputs to the meter. They correspond to Decimal 1, 2 and 3 respectively. When any of these pins is at a +5V (Hi Level) the corresponding Decimal is turned ON.

**Pin P** is the Display Dim or External Brightness Pin. If an external potentiometer (approx 500Ω) is connected between Pin P and Pin S, the brightness of the display can be adjusted. If no adjustment is required Pin P should be directly connected to Power Ground Pin S.

**Pin 14** is the Display Blank Pin. If Pin 15 is directly connected to Pin S, all segments of the display are turned OFF. This feature is used to conserve power in "push to read" applications.

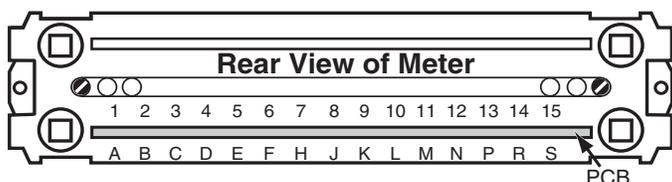
**Pin 15** is the Display Test Pin. If Pin 14 is directly connected to Pin S, all segments of the display come on. This is a useful feature to test for missing segments.

**Pin R** is the +5V DC Power Pin. The current required is approx 200mA.

**Pin S** is the 0V Power Ground Pin.

## Connector Pinouts

The Texmate model BN-40BCD interconnects by means of a standard PC board edge connector having two rows of 15 pins, spaced on 0.156" centers. Connectors are available from Texmate.



### METER REAR WITH PCB EDGE CONNECTOR MOUNTED

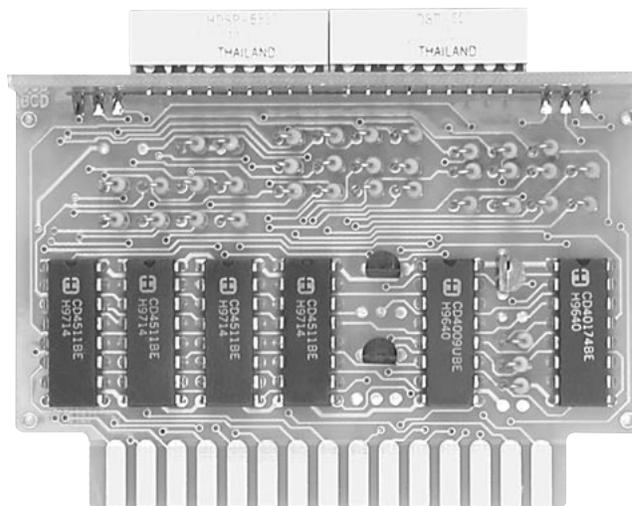
(For mounting of screw terminal blocks see rear page)

COMPONENT SIDE PINS	SOLDER SIDE PINS
B1 Bit of LSD Digit 1 - 1	A - B1 Bit of Digit 3
B1 Bit of Digit 2 - 2	B - B1 Bit of MSD Digit 1
B2 Bit of LSD Digit 1 - 3	C - B2 Bit of Digit 3
B2 Bit of Digit 2 - 4	D
B4 Bit of LSD Digit 1 - 5	E - B4 Bit of Digit 3
B4 Bit of Digit 2 - 6	F
B8 Bit of LSD Digit 1 - 7	H - B8 Bit of Digit 3
B8 Bit of Digit 2 - 8	J
Read Data - 9	K - Read Data
Read Data - 10	L - Read Data
Decimal Point - 11	M - Polarity Input
Decimal Point - 12	N - Polarity Invert
Decimal Point - 13	P - External Brightness
Display Blank - 14	R - Power
Display Test - 15	S - Ground

**Pins 1, 3, 5 and 7** are the B1, B2, B4 and B8 bits of the LSD Digit 1 respectively. +5V on these lines corresponds to a High Level (1), and 0V on these lines corresponds to a Lo Level (0).

**Pins 2, 4, 6 and 8** are the B1, B2, B4 and B8 bits of Digit 2 respectively. +5V on these lines corresponds to a High Level (1), and 0V on these lines corresponds to a Lo Level (0).

## Component Layout



## Input Range Selection

Changing the range to **200mV, 20V or 200V**. The BN-40BCD comes standard as a 2VDC meter. The factory can recalibrate the meter to a different range either when the meter is ordered or as an after sale service using part number VRC-DPM.

For the user to change the range, closing of some jumpers by soldering and opening other jumpers is required. Follow the chart below to achieve the required range. See the above component layout to find location of jumpers. Remember to recalibrate the meter after every range change.

Input Range	Open Jumper	Closed Jumper
200mV	J1 and J2	J3 and J4
2V	J1, J2, J3 and J4	—
20V	J1, J3, J4	J2
200V	J2, J3, J4	J1

## Calibration Procedure

The BN-40BCD is calibrated at the factory with a precision DC voltage source. Whenever the range is changed, the meter needs to be recalibrated. The Span Potentiometer is accessible with the front cover of the meter removed for user calibration.

1. Make sure there is proper DC power and input.
2. Connect the power supply.
3. Apply a positive signal input equal to 95% of the full scale input.
4. Adjust Span Potentiometer in the front of the meter so that the displayed reading agrees with the signal input.
5. The BN-40BCD is now calibrated and ready for use.

## Opening Back Panel

Unscrew the knurled collars, and remove the mounting clips. Snap out the rear plastic plate. The BN-40BCD printed circuit board can then be easily removed by sliding it out from the rear of the case .

## Power Supply

The BN-40BCD ships from the factory with a non-isolated 5VDC power supply. For applications where isolation is required between the power and signal grounds, use the Texmate model BN-35-ISO. This model is available with 5V, 12V, 15V, and 24V power options and generates an internally isolated supply.

## Front Bezel Descriptors

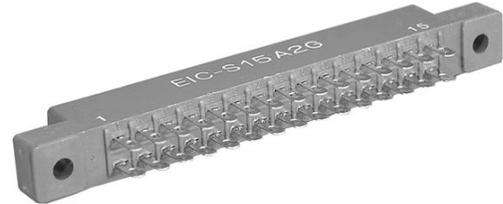
AC	Ω	kV	kVAR	m <sup>3</sup> /hr	Hz	RPM
V	mV	min	PF	°F	°C	Cosθ
DC	x10kN	μA	PSIG	mS	kg/cm <sup>2</sup>	psi
kW	W	kWH	pH	%	K	kPa
A	mbar	mA	MW	kA	RPS	MWH
mWs	μm	kW/s	l	l/sec	ml	cm
ORP	mm/s	1/min	mm	kg/sec	lbs	kg/hr
FT	bars	min <sup>1</sup>	m/min	Mvars	μV	dB

To customize the front bezel, each BN-meter is supplied with a white printed clear adhesive label containing various popular descriptors. Choose the descriptor desired, peel off the adhesive backing and align the descriptor in the center right of the faceplate.

## Optional PCB Edge Connector

### PCB Edge Connector

A standard 30-pin edge connector (two rows of 15 pins on 0.156" centers) may be used to connect the BN-40BCD meter. Order part no. CN-L15.



## Custom Face Plates

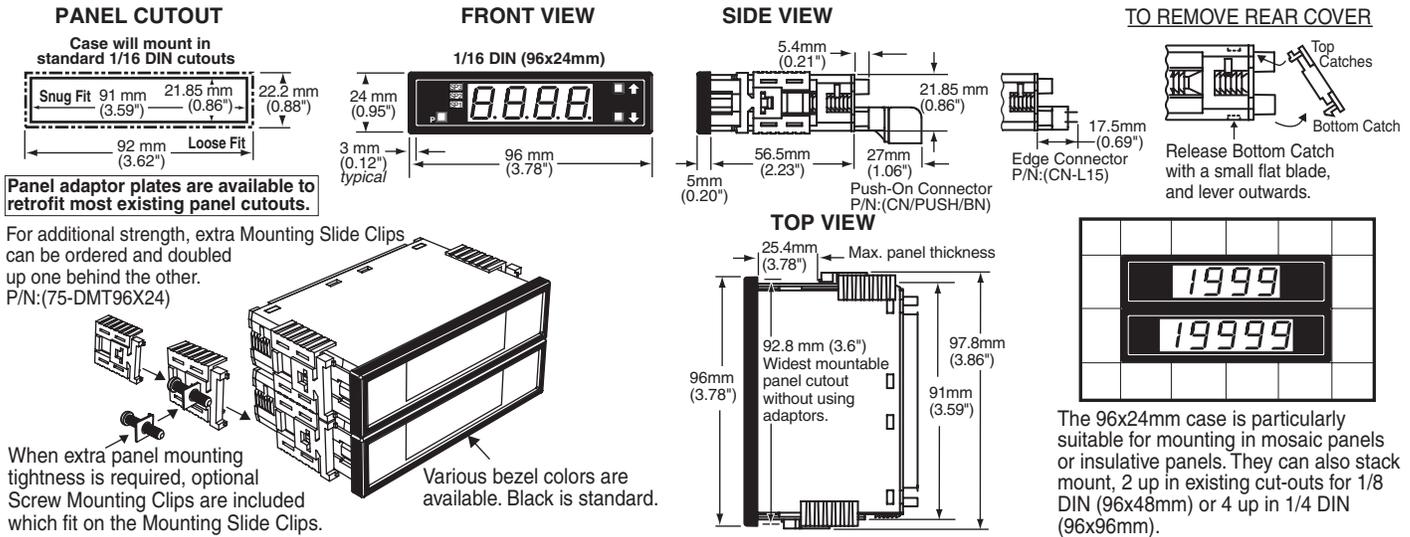


### Texmate Produces Thousands of Custom OEM Face Plates

Have Texmate Design and Build a Custom Face Plate to Suit your Next project!

- Custom face plates have a non-recurring artwork charge. A serial number is then assigned to each artwork, to facilitate re-ordering.
- Small Run or One-Off custom face plates incur an installation charge, and are generally printed on a special plastic film, which is then laminated to custom faceplate blanks as required.
- Large Run (250 pieces min): custom face plates are production silk screened, issued a part number, and held in stock for free installation as required by customer orders.
- OEMs may also order Custom Meter Labels, Box Labels Custom Data Sheets and Instruction Manuals.

# BN Case Dimensions and Panel Cutouts



## Ordering Information

### Standard Options for this Model Number

Part Number	Description	List
<b>► BASIC MODEL NUMBER</b> Includes standard display and standard power supply unless optional versions are ordered.		
BN-40BCD	.....4.0 digit, 5VDC Pwr, Parallel or MUX BCD input	
<b>► DISPLAY</b>		
STANDARD	.....Red LEDs, 0.56 inch high	
BN-GREEN4	.....Green LED, 0.56 inch high	
BN-BRIGHT	.....Super bright Red LEDs, 0.56 inch high	

### Special Options and Accessories

Part Number	Description	List
<b>► ACCESSORIES</b>		
CN-L15	.....PCB Edge Connector, Solder Type, Dual Row 15 Pins	
75-DMTC96X24	.....Side Slide Brackets, extra set (96x24mm only)	
75-DBBZ96X24	.....Black Bezel for 96x24mm Case, BN and AM series	
DN.CAS96X24	.....Din Case 96 X 24 Short Depth with Bezel	
<i>Prices subject to change without notice.</i>		

### 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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For product details visit [www.texmate.com](http://www.texmate.com)

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