

## CP-45

Comparator w/120VAC Contacts

## CP-45H

Comparator w/240VAC Contacts  
Both have 4 1/2 DIGIT LED  
in a Slim Bezel Case



A Precision Single Setpoint BCD Comparator/Controller with Ten User Selectable Modes.

### General Features

The CP-45 and CP-45H are 5VDC powered, single setpoint BCD comparator/controllers. They directly accept the parallel BCD output from Texmate's meter models PM-45LBCD, PM-45LUBCD, PM-45XBCD and PM-45XUBCD, or any other compatible parallel BCD output device. The CP-meters compare the BCD input and the setpoint established by the thumbwheel switches to activate an internal relay. The relay contacts are rated for 2A at 120VAC in the CP-45 and for 200mA at 250VAC in the CP-45H. Up to five CP-meters may be connected in parallel to provide multiple setpoints. The CP-meters have a relay with a set of changeover contacts, so they can be configured for fail safe operation. Interface boards are also available to interconnect the CP-meters to the Texmate meters RP-4500BCD and RP-4500DBCD.

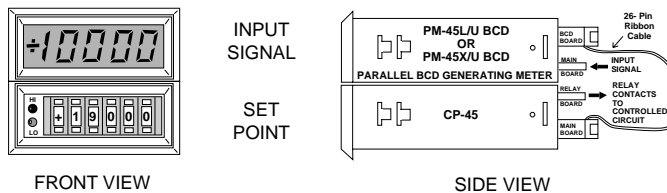
The CP-45 and CP-45H controllers have ten user selectable modes of operation. The internal relay with one Form-C changeover contacts activates when signal is: greater than, equal to, less than, greater than or equal to, or less than or equal to, the set point. Red and green LED's on the front panel continuously show the relation of the input signal to the setpoint. Adjustable activation delay of up to 20 secs. is provided to prevent relay chatter for noisy input signals. Relay can also be operated in latched mode with manual Reset.

### Typical Application Connections

#### SINGLE SETPOINT ON/OFF CONTROLLER

By combining the CP-45/CP-45H with a PM-45LBCD, PM-45LUBCD, PM-45XBCD, or PM-45XUBCD, a single setpoint, ON/OFF controller can easily be configured\*. Interface boards are also available to interconnect the CP-meters to the Texmate meters RP-4500BCD and RP-4500DBCD. The CP-45/CP-45H internal mode select switch allows the user to set the point at which the internal relay is activated. For noisy input signals, a relay activation delay may be introduced.

\* Refer to the data sheets of PM-45L/LUBCD or PM-45X/XUBCD for connection details.



View more application connections and connection instructions on page 3.

### Compatibility

The CP-Series is shipped in a standard Slim Bezel case. The Slim Bezel case is compatible with the CM, SM, TM, & SP Series of meters. The CP-Series can be ordered in End Mount cases for twin mounting or combinations of multiple center mount cases and two end mount cases for stack mounting.

#### SLIM



#### BEZEL

### Specifications

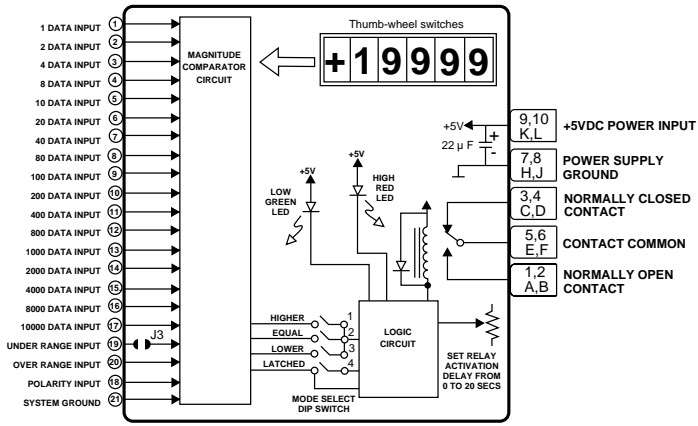
- Setpoint Input:** .....Set with 4.5 digit thumbwheel switches
- Setpoint Ranges:** .....-19999 to +19999
- Alarm Indicator:** .....Hi (red) and Low (green) LED's light up when the input is greater than or less than the setpoint. Both red and green LED's light up when the input equals the setpoint.
- Digital Input:** .....TTL or 5V CMOS compatible
- Data Format:** .....Parallel BCD (8421). Pinout compatible with parallel BCD output of panel meters PM-45LBCD, PM-45LUBCD, PM-45XBCD and PM-45XUBCD. Interface boards also available to connect the CP-45 to RP-4500BCD and RP-4500DBCD.
- BCD Logic 0:**.....0.7V at 1.2mA
- BCD Logic 1:**.....2.0V at 60µA
- Relay Contacts:** .....Form C relay with one set of changeover contacts. Ratings for resistive loads: CP-45: 2A at 24VDC or 120VAC. CP-45H: 200mA at 250VAC or 2A at 30VDC.
- Relay Life at Max. Load:**..100,000 operations min.
- Relay Operating Modes:**..Ten user selectable operating modes: Latched or unlatched with relay activation when signal is less than, equal to, greater than, less than or equal to and greater than or equal to the setpoint. The relay activation delay is adjustable from 0 to 20 sec.
- Power Requirements:**.....5VDC at 150mA
- Operating Temperature:** ....0° to +60°C
- Storage Temperature:**.....-20° to +70°C
- Relative Humidity** .....95% (non-condensing)
- Case Dimensions:** .....Bezel 2.76" x 1.17" (69.75 x 29.7mm)  
Depth behind Bezel 3.32"(84mm) plus 0.68" (17.27mm) for connector.
- Weight:** .....143 gms (5 oz) when packed

### CP-Series, high performance comparator controllers

CP-45 .....4.5 digit BCD Comparator w/120VAC Relay Contacts

CP-45H .....4.5 digit BCD Comparator w/240VAC Relay Contacts

# Functional Diagram



Pins 5,6,E,F:

Contact Common. Contact common of the relay. Maximum resistive load: CP-45: 2A at 24VDC or 120VAC.

CP-45H: 200mA at 250VAC or 2A at 30VDC.

CP-45: 2A at 24VDC or 120VAC.

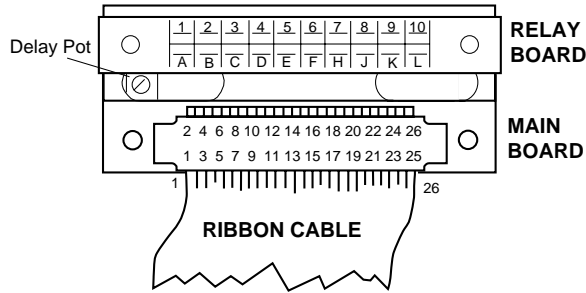
CP-45H: 200mA at 250VAC or 2A at 30VDC.

Pins 7,8,H,J: Power Supply Ground.

Pins 9,10,K,L: +5VDC Power Supply Input. +5VDC Power Input to the meter. Power consumption is maximum 150mA.

# Connector Pinouts

The Texmate model CP-45/CP-45H interconnects by means of a standard 26 pin ribbon cable to a PCB type connector for the main board, and screw terminal blocks (provided with the meter) for the relay board. A standard PCB edge connector having two rows of 10 pins each, on 0.156" centers may be used instead of the Texmate screw terminal blocks. Connectors are available from Texmate, or from almost any connector manufacturer.



Component Side	Solder Side
Normally Open Contact 1	N.O. — N.O. A } Normally Open Contact
Normally Closed Contact 3	N.C. — N.C. C } Normally Closed Contact
Contact Common 5	COM — COM E } Contact Common
Power Supply Ground 7	GND — GND H } Power Supply Ground
+5V DC Power Supply Input 9	+5V — +5V K } +5V DC Power Supply Input
	2 } Normally Open Contact
	4 } Normally Closed Contact
	6 } Contact Common
	8 } Power Supply Ground
	10 } +5V DC Power Supply Input
	12 } Not used
	14 } Not used
	16 } Not used
	18 } Not used
	20 } Not used
	22 } Not used
	24 } Not used
	26 } Not used

## MAIN BOARD

Pins 1 to 21: The parallel BCD information about the signal is input to the meter through these pins.

Pins 22 to 26: Not used.

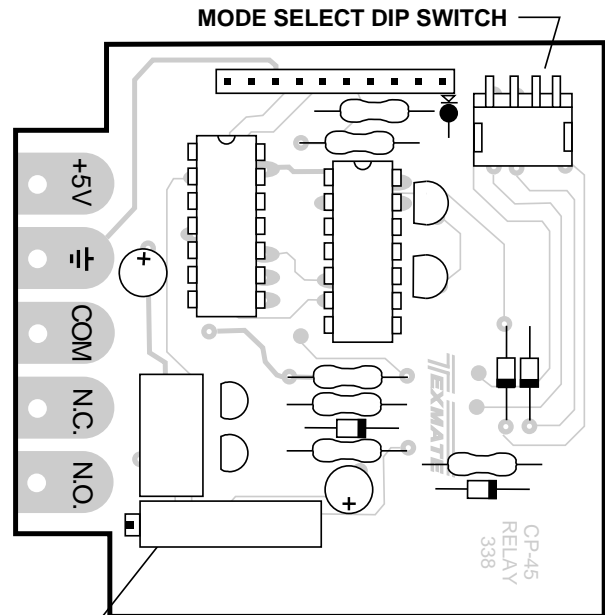
## RELAY BOARD

Pins 1,2,A,B: Normally Open Contact. Normally open contact of the relay. Maximum resistive load CP-45: 2A at 24VDC or 120VAC.

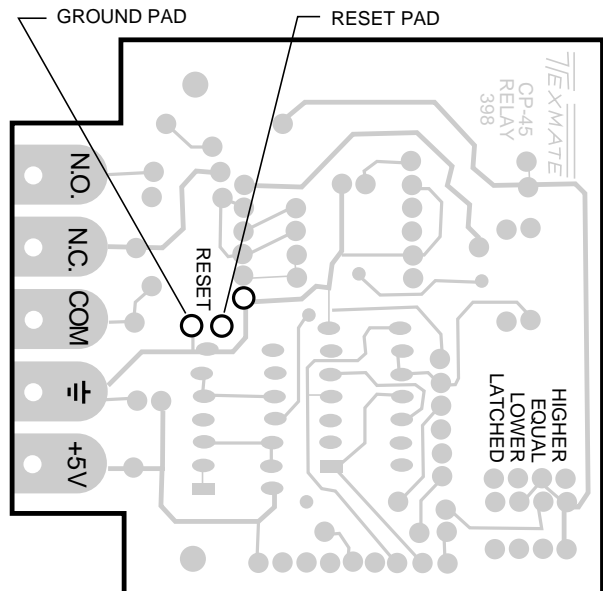
CP-45H: 200mA at 250VAC or 2A at 30VDC.

Pins 3,4,C,D: Normally Closed Contact. Normally closed

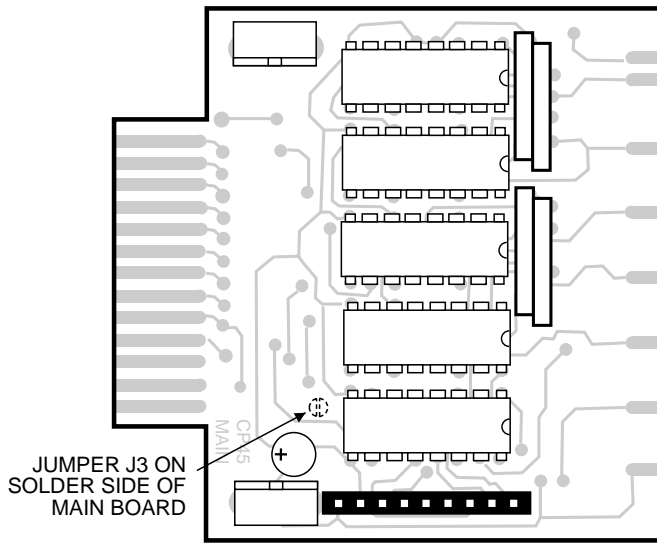
# Component Layout



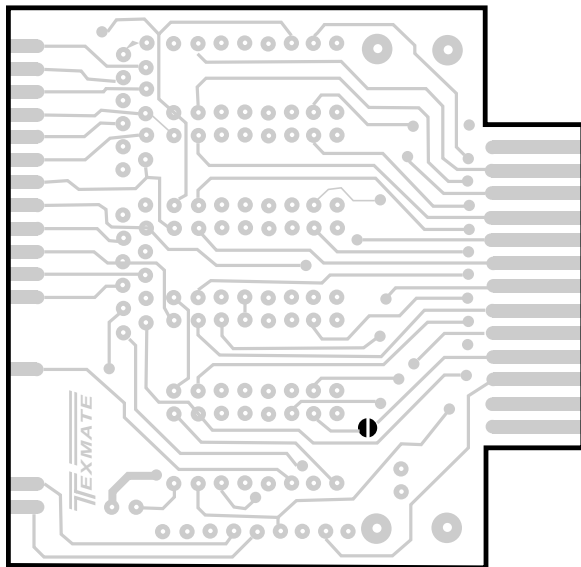
RELAY BOARD COMPONENT SIDE



RELAY BOARD SOLDER SIDE



**MAIN BOARD COMPONENT SIDE**



**MAIN BOARD SOLDER SIDE**

**Status LEDs**

Two LED's on the front panel continuously display the status of the input signal in relation to the setpoint. The High (red) LED turns ON when the input signal is higher than the set point. The Low (green) LED turns ON when the input signal is lower than the set point. Both the High (red) and Low (green) LED's are on when the input signal is equal to the set point.

**Activation Delay**

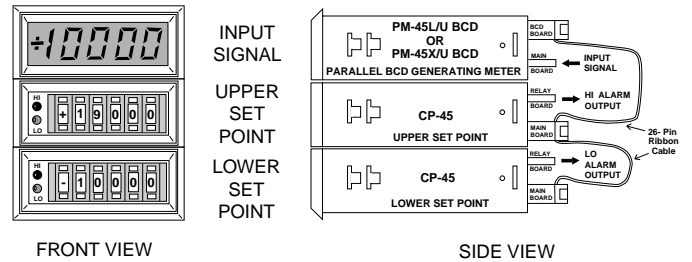
When the input signal is noisy, it may result in the relay "chattering" on and off. This can be prevented by using the relay activation delay potentiometer. The signal has to remain in the setpoint activation range for the delay time before the relay activates. Delay is introduced only for relay activation. There is no delay for deactivation. When the delay pot is turned completely anti-clockwise, the delay is zero. When turned completely clockwise, the delay is about 20 seconds.

**Typical Application Connections**

The CP-45 may be used in a wide variety of configurations. The following circuits illustrate some of the possibilities and demonstrate the exceptional versatility of Texmate products. Components called for in the applications which are not part of the standard meter may be supplied by the user or in some cases purchased from Texmate. The circuit diagrams explain the basic pinout connections required for each application.

**MULTIPLE SETPOINT CONTROLLER**

Up to five CP-45/CP-45H meters may be connected in parallel to a single PM-45LBCD, PM-45LUBCD, PM-45XBCD, or PM-45XUBCD meter, creating a multiple set point controller which can easily be configured. Interface boards are also available to interconnect the CP-meters to the Texmate meters RP-4500BCD and RP-4500DBC. The point at which each CP-45/CP-45H relay is activated is user programmable with the internal mode select switch. The changeover contacts of the CP-45/CP-45H relay can be configured for fail safe operation. For noisy signals, a relay activation delay may be introduced.



**Optional PCB Edge Connector**

**PCB Edge Connector**

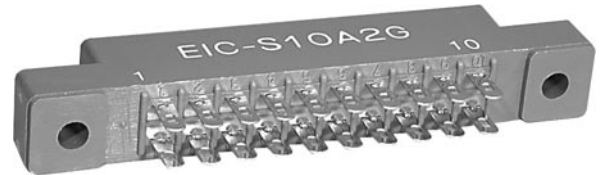
A 26-pin edge connector (two rows of 13 pins) to 26 wire ribbon cable is used to connect the CP-Series of meters. Order part no. CN-S13.



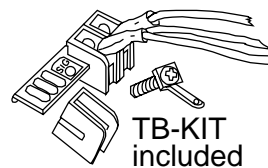
**Optional PCB Edge Connector**

**PCB Edge Connector**

A standard 20-pin edge connector (two rows of 10 pins on 0.156" centers) is used to connect the CP-45 meter. Order part no. CN-L10.



**TB-Kit Screw Connectors**



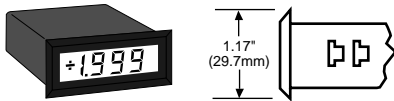
Texmate's individual screw terminal blocks offer a convenient alternative to edge connectors for many applications, allowing complete installation, configuration and calibration without the need for soldering.

Slide each terminal block over the PCB until the hole aligns. Insert the retaining screw to secure. Each kit includes: 3 plastic blocks with metal contacts, 4 screws with spade connectors, 1 metal contact and 3 quick disconnects.

## CP Case Dimensions and Panel Cutouts

The Slim Bezel Case is supplied as standard. If specified at time of ordering, any combination of Twin Mounting and Multiple Array Cases may be substituted at no additional cost. Extra cases may be ordered separately.

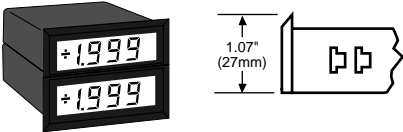
### STANDARD SLIM BEZEL CASE



**SLIM BEZEL CASE**  
Standard Black ABS case with matte finish bezel for single unit mounting.

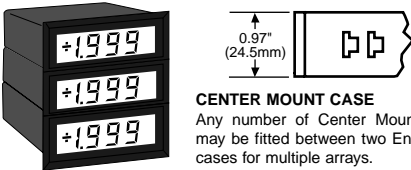
Part No. **SL-CASERED** for LED's  
**SL-CASECLR** for LCD's

### OPTIONAL TWIN MOUNTING OR MULTIPLE ARRAY CASES



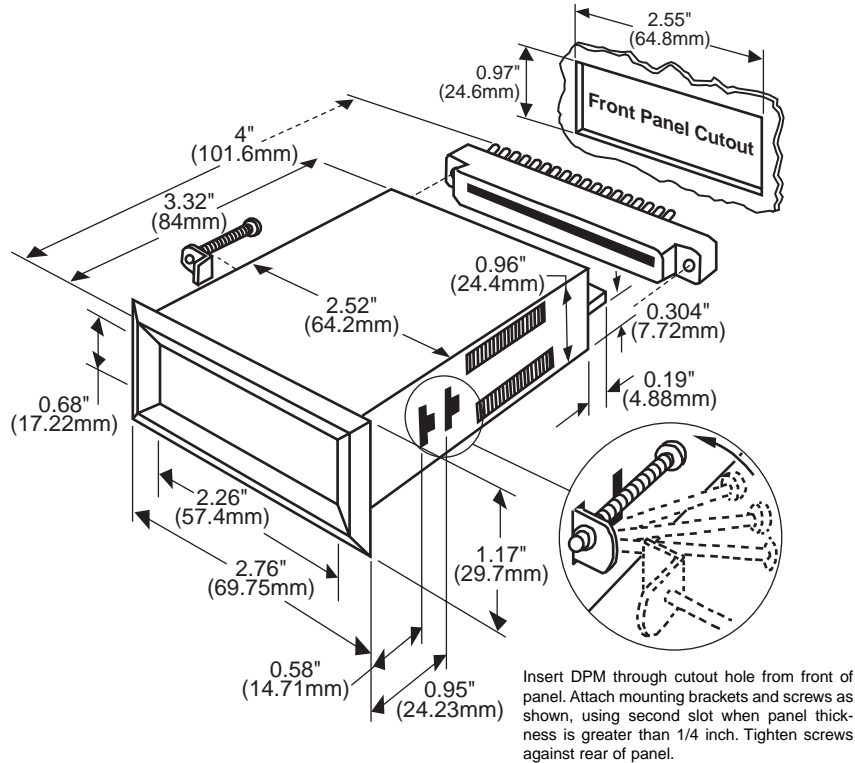
**END MOUNT CASE**  
Same styling as Slim Bezel case but with bottom edge of bezel removed. Two End Mount cases can be twin mounted in a single cutout.

Part No. **EM-CASERED** for LED's  
**EM-CASECLR** for LCD's



**CENTER MOUNT CASE**  
Any number of Center Mount cases may be fitted between two End Mount cases for multiple arrays.

Part No. **CM-CASERED** for LED's  
**CM-CASECLR** for LCD's



Insert DPM through cutout hole from front of panel. Attach mounting brackets and screws as shown, using second slot when panel thickness is greater than 1/4 inch. Tighten screws against rear of panel.

## Ordering Information

### Standard Options for this Model Number

Part Number .Description

#### ► BASIC MODEL NUMBER

CP-45 . . . . .4.5 digit BCD Comparator w/120VAC Relay Contacts  
CP-45H . . . . .4.5 digit BCD Comparator w/240VAC Relay Contacts

CN-S13 . . . . .Dual Row 13 Pin Edge Conn to 26 Wire Ribbon Cable  
TB-KIT . . . . .Extra Replacement Terminal Block Connector Kit (3)

Prices subject to change without notice.

### Special Options and Accessories

Part Number .Description

#### ► ACCESSORIES

CN-L10 . . . . .Dual Row 10 Pin Connector, Solder Type

### 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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Texmate has facilities in Japan, New Zealand, Taiwan, and Thailand. We also have authorized distributors throughout the USA and in 28 other countries.

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

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