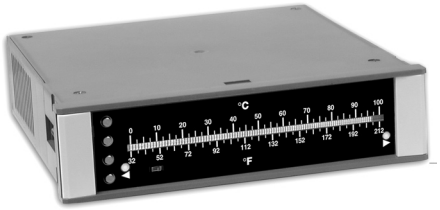
264 SERIES
of
101 Segment Bargraphs



Center Bar for Dual Scale Applications
(Tri-Color or Mono-Color)

Left or Right Bar to match Edgewise Mechanical Meters with Left or Right Pointers (Mono-Color only)

Smart Tri-Color or Mono-Color center mounted bargraphs, and Mono-Color right or left mounted bargraphs, with Universal Header Selectable Inputs, an optional isolated analog output and up to four fully programmable set points, for monitoring, measurement, and control applications.

CE

General Features

- Two 10 Amp Form C, and two 5 Amp Form A relays available.
- Auto-sensing AC/DC power supply. For voltages between **85-265 V AC / 95-370 V DC (Z)** or 18-48 / 18-72 V AC / DC (Y).
- Optional isolated 16 bit analog output. User or factory scalable to 4 to 20 mA, 0 to 20 mA or 0 to 10 V across any desired span from one segment to the full scale range.
- Optional NEMA-4 front cover.
- 24 V DC excitation is available to power external 4/20 mA transmitters and 5 or 10 V DC excitation is available for resistance bridge type sensors.

Software Features

- The 101 segment bargraph can be easily user scaled.
- Bargraph center zero function.
- Four programmable setpoints.
- Relay activation can be selected to occur above (HI) or below (LO) each setpoint.

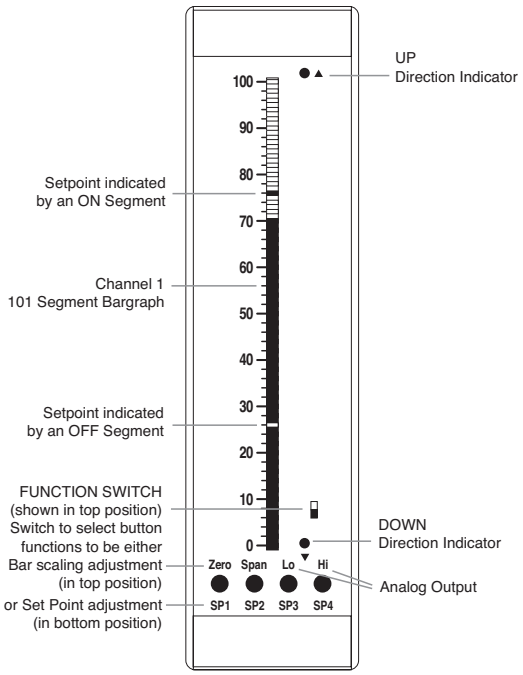
Compatibility

Input Specs: .....Depends on range and function selected
A/D Converter:.....14 bit single slope
Accuracy:.....±(0.05% of reading + 1segment)
Temp. Coeff.: .....100 ppm/°C (Typical)
Warm up time:.....2 minutes
Conversion Rate: .....10 conversions per second (Typical)
Bargraph Display:.....**101 segment 4" vertical red bars (std)**, horizontal (optn), green (optn)
Polarity:.....Selectable center zero
Positive Overrange:..Bargraph display flashes
Negative Overrange:.First segment of bargraph display flashes
Relay Output: .....Two 5 Amp Form A relays and Two 10 Amp Form C relays
Analog Output:.....Isolated 16 bit user scalable mA or V
1: (volts out) ..... 0-10 V DC @ 500 Ω or higher resistance
2: (mA out) .....4-20 mA @ 0 to 500Ω max loop resistance
Power Supply: .....AC/DC Auto sensing wide range supply
Y.....18-48 VAC / 18-72 VDC @ 2.5W max 4.2W
Z (std).....**85-265 VAC / 95-370 VDC @ 2.5W max 4.2W**
Operating Temp.:.....0 to 60°C
Storage Temp: .....–20°C to 70°C
Relative Humidity: ....95% (non condensing)
Case Dimensions:.....3/32 DIN (Bezel 36Wx144Hmm)
Depth behind bezel 135 mm (5.32")
Plus 16 mm (0.63") for connectors
Weight:.....9.5 oz., 12 oz when packed

Ordering Code

RELAYS	POWER SUPPLY	UNIVERSAL PROCESS INPUT	DISPLAY	COLOR	ANALOG OUTPUT
DTV: No Relays	**A: 85 ~ 264V AC**	**: Custom Input	**VS: Vertical**	**RD: Red Bargraph**	_: Custom Output
DTT: Two 10A Form C Relays	**110 ~ 370V DC**	1: 0 ~ 1mA	HS: Horizontal	GN: Green Bargraph	_: 0 ~ 10V
DTF: Two 10A Form C Relays and Two 5A Form A Relays	B: 19 ~ 36V AC/DC	**2: 4 ~ 20mA**		YL: Yellow Bargraph	**_: 4 ~ 20mA**
		3: 0 ~ 1V		: Tricolor Bargraph	_: 0 ~ 20mA
		4: 1 ~ 5V			
		5: 0 ~ 5V			

Controls and Indicators



Quickset Programming

This bargraph features our unique QUICKSET PROGRAMMING. When a front panel button is pressed the associated function is directly changed. The direction of change will be either up or down, as indicated by the UP and DOWN indicator LEDs. After the indicator LED lights up there is a 0.5 second delay before any change occurs. When a button is released and pressed again the direction of change is reversed. As there are no menu or sub-menus to navigate, the programming and setup is quick and easy.

Front Panel Buttons

Zero Button

The Zero Button sets the low input signal scaling.

Span Button

The Span Button sets the high input signal scaling.

Analog Output Lo

The Analog Output Lo button sets the lower level of the analog output. It could be set to 0mA, 4mA or 0V.

Analog Output Hi

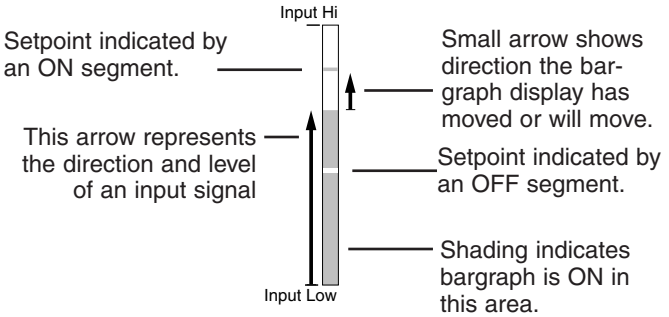
The Analog Output Hi button sets the upper level of the analog output. It could be set to 20mA or 10V.

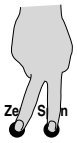
SP1, SP2, SP3 and SP4 Buttons

These buttons set up the corresponding setpoints. The position of the Set Points on the bargraph display are indicated by an ON or OFF Segment depending on whether the bargraph display is below or above the Set Point.

Glossary of Programming Symbols and Modes of Operation

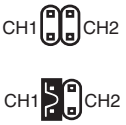
To explain software programming procedures, logic diagrams are used to visually assist in following programming steps. The following symbols are used to represent the functions and displays of the meter:





When two fingers are shown side by side, the two corresponding buttons must be pressed at the same time to initiate an indicated function.

Standard or Center Zero Display Mode Select Header

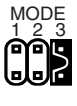


- No Jumper clips enables standard display on CH1.
- Jumper clip to enable Center Zero display on CH1.

Operating Mode Select Header

This header selects one of the two basic operating modes presently available for this meter.

Mode 0 Bargraph with four set points displayed on bargraph display.

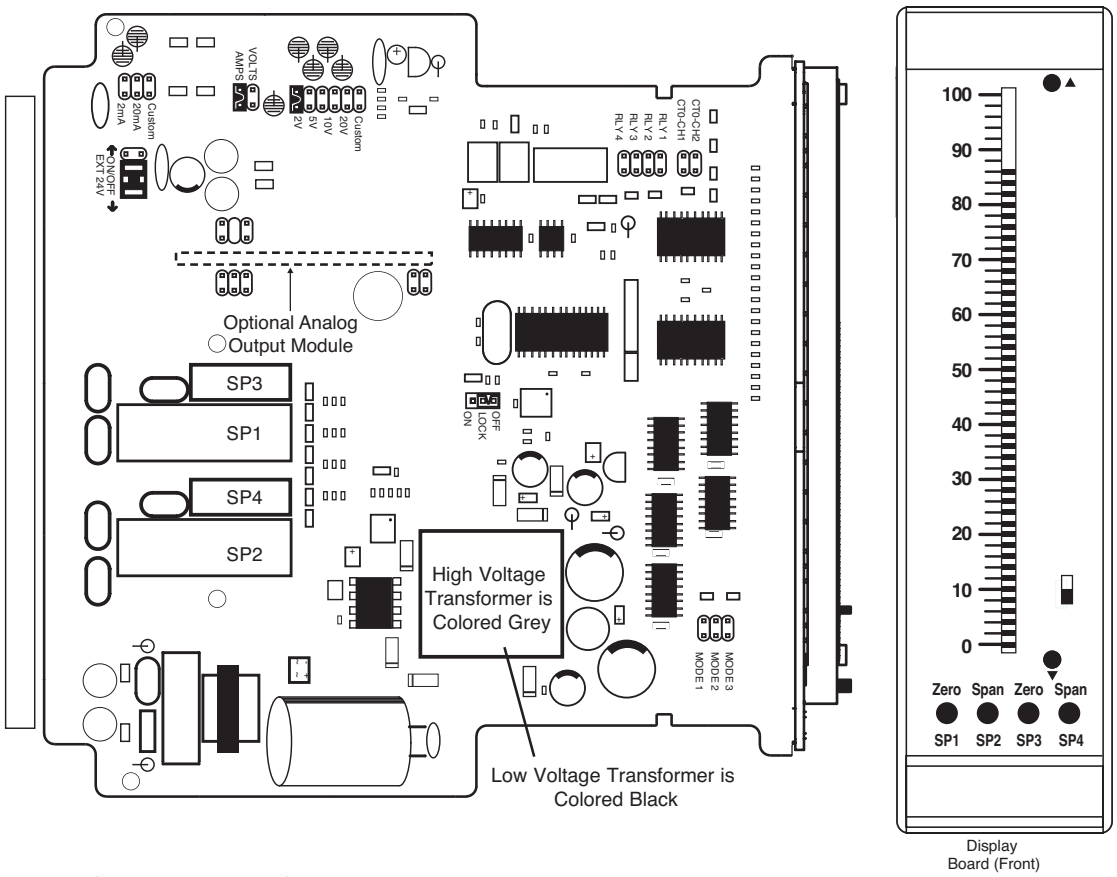


Mode 3 Enables the Hysteresis mode for tank filling or tank emptying applications.

Relay Activation Mode Select Header

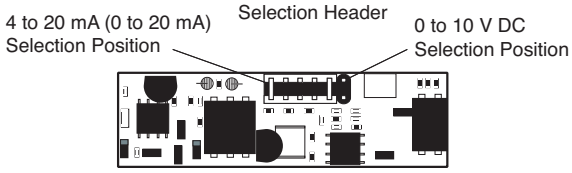
When no jumper clips are installed the relays will activate when the display exceeds the set point. Any relay that has a jumper clip installed will activate when the display is less than the set point.

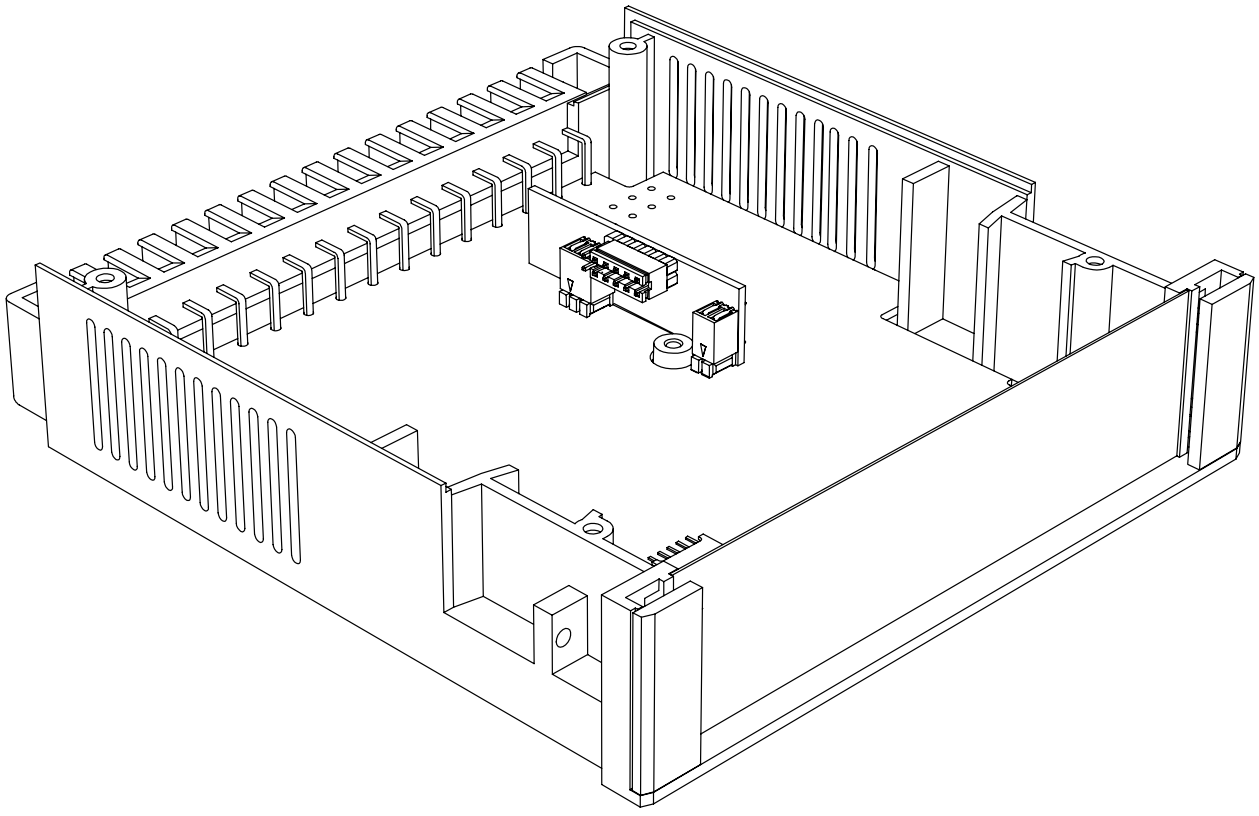
Component Layout



Display
Board (Front)

Optional Analog Output Module

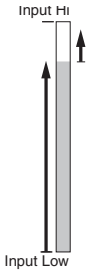




Standard Display Mode

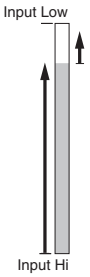
Standard Scaling

Standard display mode selected and scaled so bar increases as input signal increases from Low to Hi.



Inverse Scaling

Standard display mode selected and scaled so the bar increases as the input signal decreases from Hi to Low.



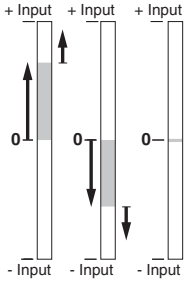
Center Zero Display Mode

CTO-CH2 / CTO-CH1 — Applies center point display mode to Channel 1

CTO-CH2 / CTO-CH1 — Center point display mode is NOT applied

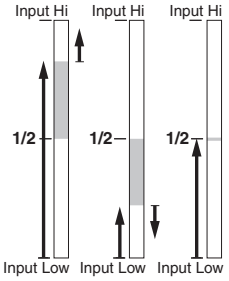
Bipolar Center Zero

Center point display mode selected and scaled, so the bar increases upward from zero, for increasing positive inputs and downward from zero for increasing negative inputs. When the input is zero, only the center segment will be on.



Halfway Zero Point

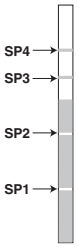
Center point display mode selected and scaled, so the bar increases upwards or downwards from the center point, for signals that are greater or less than half the calibrated full scale range respectively. When the input is equal to half the full scale range, only the center segment will be on.



Mode 0 Channel Inputs

Display with 4 Set Points

With Standard display or Center point mode selected, the setpoints are indicated by an **ON** segment outside the bar display area and by an **OFF** segment inside the bar display area.

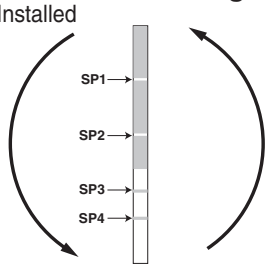


Horizontal and Reverse Mounting

with Custom Face Plate Installed

Horizontal or Reverse Mounting

Meters can be mounted horizontally in the panel and for those applications that require an opposite growth of the bar, the meter can be vertically or horizontally mounted upside down

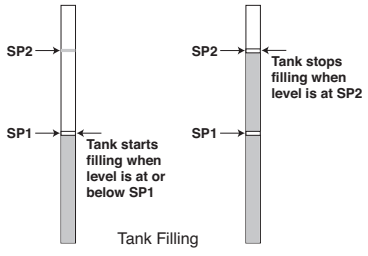


MODE 1 2 3

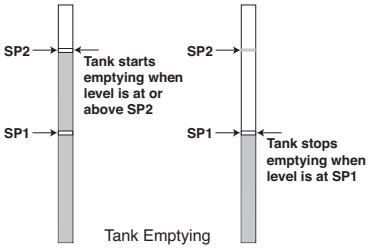
Mode 3 Hysteresis Band between SP1 & SP2

This mode enables the Hysteresis function. In order for Hysteresis to function, SP2 must be set to a value greater than SP1, and SP2 should be selected as High (h) Setpoint (See page 7). When these conditions are met, and Mode 3 is selected, then a Hysteresis band is created for the SP1 relay, with the upper limit of SP2 and the lower limit of SP1. SP2 relay continues to operate normally.

•For a tank filling application SP1 is set to a Low (L) Setpoint. SP1 relay can control a pump that fills the tank. With Mode 3 selected, SP1 relay activates for inputs less than the SP1 level. Once activated, SP1 relay will stay ON until the tank is filled to the SP2 level.



•For a tank emptying application SP1 is set to a High (h) Setpoint. SP1 can control a pump that empties the tank. With Mode 3 selected, SP1 relay activates for inputs greater than the SP2 level. Once activated, SP1 relay will stay ON until the tank is emptied to the SP1 level.



Two Point Quickset Scaling and Calibration

Meters with **QUICKSET PROGRAMMING** feature a unique, easy-to-use, two point scaling and calibration system.

Scaling or calibration is accomplished simply, by applying a zero or low input signal and adjusting the bar to the desired reading, using the ZERO button. A higher input signal is then applied, and the bar is adjusted to the desired reading for that input value, using the SPAN button.

IMPORTANT DETAILS THAT MAKE QUICKSET PROGRAMMING EASY TO USE AND UNDERSTAND

1. The zero and span buttons are functionally the same, except as follows: The ZERO button can initiate a scaling with input signals from zero to 95% of fullscale.The Span button can initiate a scaling with input signals from 5% of fullscale to 105% of fullscale.

2. When a Zero or Span button is pressed, the Up or Down indicator LED will immediately light up to show the direction, in which the Bar will move, after a 0.5 second delay. If the button is released and pressed again, the opposite Up or Down indicator will light up, and 0.5 seconds later the Bar will begin to move in that direction until the button is released. When the bar is being adjusted to zero or fullscale, the bar will automatically stop at the zero or fullscale position, and will not overshoot these positions, even if the button continues to be pressed.

3. While the bar is being adjusted, a new offset and scale factor is continuously being calculated. At the moment the button is released, and the scaling is accepted, the calculation data is memorized and implemented. The Scaling calculation is based on the new position of the Bar, the input signal being applied at that moment, and the previously memorized position of the Bar and the input signal that was being applied, when the other button was last released.

4. Positive and negative signals maybe integrated into a two point scaling. However when either a ZERO or SPAN button is pressed the input signal being applied, must be more than 5% higher or lower than the previously memorized value of the input signal, that was being applied when the other button was last released. If not, the bar will flash, the scaling will not be accepted, and the previous scaling will still be retained in memory.

5. Because of the requirement, that a new scaling input signal must be 5% higher or lower than the previously stored value, it can sometimes be difficult to implement a desired scaling, particularly when using a calibrator that only has fixed output values. In this case Reset the Scaling by pressing the ZERO and SPAN buttons simultaneously for two seconds. Both scaling memories will be erased and an internal default scale factor will be loaded. This provides a display of zero to fullscale on the bar for an input of approximately 0 to 100% of the range selected on the input signal conditioning module. After Resetting the Scaling a new calibration, using either button, can be implemented with new input signal values. It is good practice to always use the Zero button for lower input signals and the Span button for higher input signals, even when the bar display scale is inversed.

6. The larger the difference between two points used for calibration, the better the accuracy. However if the difference is too high, and the output from the input signal conditioning module is greater than +2.1VDC, or less than -1.05VDC, the bar will flash over range. The calibration will not then be accepted and, the previous scaling will still be retained in memory. In this case, either a lower input signal must be used, or a higher range on the input module should be selected to recalibrate the meter.

Note: Most input signal conditioners have provisions for analog calibration and scaling. If the meter's scale factor is set to read zero with a zero input (shorted input), and to read 10 Bars fullscale with a 2.000 V input, any pre-calibrated signal conditioner with an output that does not exceed – 1 V to + 2 V, will read correctly in the meter without any further calibration.

Standard Display Mode Calibration Procedure

Standard Display with Jumper Clips in OFF position

Standard or Center Zero Display Mode may be selected, depending on the Operating Mode selected. If the standard display mode is not already selected open the meter case as showing on page 4 and move the jumper clips on the display mode select header to the OFF position.

STEP A REVIEW THE INPUT MODULE STATUS

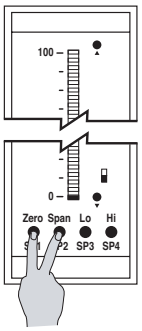
1) See pages 15 – 21 for information on input modules that may be used with this meter.
2) Confirm that the correct range and input is selected on the input signal conditioning module.

Note: When undertaking an initial set up and primary scaling and calibration of the meter it is best to start with a reset of the scaling.

STEP B RESET THE SCALING

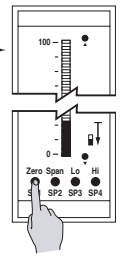
1)Apply power to the meter and press the ZERO and SPAN buttons simultaneously for 2 seconds. This erases any previously memorized scalings, and resets the scaling to the factory default, of approximately zero to full scale, for an input, that is 0 to 100% of the range selected on the input signal conditioner.

Reset the scaling to the default value on by pressing the Zero and Span buttons simultaneously for 2 secs.



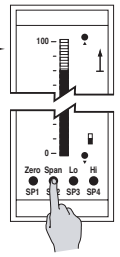
Standard Display Mode Calibration Procedure Continued

Note: To calibrate the bargraph you must be able to input two input signals. Usually the minimum input (LO Input) and the maximum input (HI Input) signals are used for optimum accuracy. However a scaling can be accomplished with any two signals that are higher or lower than each other by more than 5% of fullscale and are not greater than +2.1VDC or less than -1.05VDC.



STEP C SET THE LOW INPUT SIGNAL READING ON THE BAR

1) Apply the LO input signal (4ma in this example) to the input pins.
2) Using the ZERO button adjust the bar up or down to the required position.



STEP D SET THE HIGH INPUT SIGNAL READING ON THE BAR

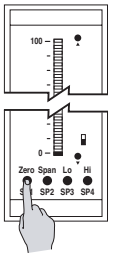
1) Apply the high input signal (20mA in this example) to the input pins. Using the SPAN button adjust the bar to the required position. This position could be higher or lower than the position adjusted in Step 2. The scaling for an input of 4 to 20mA is now complete.

One Point Quickset Rescaling and Calibration Procedure

ONE POINT RECALIBRATION

As explained earlier, the bargraph is calibrated using two point calibration. Once a bargraph is calibrated, the low end of the range may be then recalibrated without affecting the calibration of the high end, and vice versa.

For example, take a bargraph that has been calibrated to read zero to full scale for an input of 4 to 20mA. If now the scaling has to be changed to read zero to full scale for an input of 0 to 20mA, only the low (4 mA) end needs to be recalibrated. The high (20 mA) end of the scaling is left untouched, and so does not change. The following one point recalibration procedure is used for this purpose.



STEP A RECALIBRATE THE LOW INPUT SIGNAL READING ON THE BAR

1) Apply the LO input signal (0ma in this example) to the input pins. The first segment will flash, indicating an under range condition.
2) Using the ZERO button adjust the bar up to the required position.
3) The bargraph has now been recalibrated to read zero to fullscale for a 0 to 20 mA input.

Center Zero Mode Scaling For Bipolar Inputs

The procedure for scaling the bar graph for bipolar signals is very simple. If say CH1 has to be scaled for -1V to +1V, the steps are as follows:

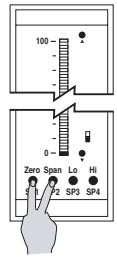
STEP A SELECT THE CENTER ZERO DISPLAY MODE FOR CH1

1) Following the instructions on page 4, remove the meter from the case.
2) Select the Center Zero Mode for CH1 by repositioning the jumper clip on the Center Zero Display Mode Select Header.

STEP B REVIEW THE INPUT MODULE STATUS

1) See pages 15 – 21 for information on input modules that may be use with this meter.
2) Only the IDP4 Universal Input module can be used for dual inputs and information on this module can be found on page 15.
3) Confirm that the correct range and input is selected on the input signal conditioning module.

Note: When undertaking an initial set up and primary scaling and calibration of the meter it is best to start with a reset of the scaling.



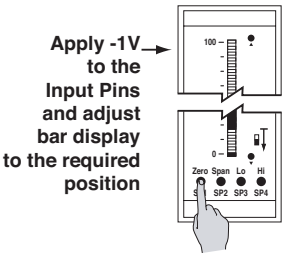
STEP C RESET THE SCALING ON CHANNEL ONE

1) Apply power to the meter and press the CH1 ZERO and CH1 SPAN buttons simultaneously for 2 seconds. This erases any previously memorized scalings, and resets the scaling to the factory default, of approximately zero to full scale, for an input, that is 0 to 100% of the range selected on the input signal conditioner.

STEP D SET THE LOW INPUT SIGNAL READING ON THE BAR

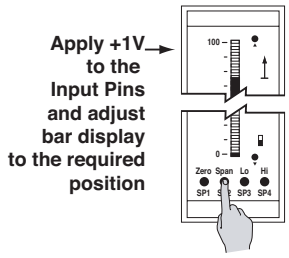
Center Zero Mode Scaling For Bipolar Inputs Continued

1) Apply the LO input signal (-1V in this example) to the CH1 input pins.
2) Using the CH1 ZERO button adjust the bar down to the required position. In this case, all the bar segments from mid point down to the bottom will be ON.



STEP E SET THE HIGH INPUT SIGNAL READING ON THE BAR

1) Apply the high input signal (+1V in this example) to the CH1 input pins.
2) Using the CH1 SPAN button adjust the bar to the required position. This position could be higher or lower than the position adjusted in Step 2. In this case, all the bar segments from mid point up to the top will be ON.
3) The scaling of CH1 for an input of -1V to +1V is now complete.



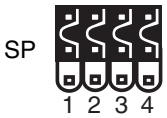
Setpoint Adjust

The bargraph has the option to have up to 4 setpoints (two 10A Form C relays and two 5A Form A relays) installed. Each relay may be set to activate either above or below its setpoint by inserting jumper clips on the Relay Activation header which is located on the Display Driver Board. See the layout diagram on Page 4 and 14 for the exact location. The steps to setup the setpoints are as follows:

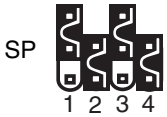
1) SELECT THE RELAY ACTIVATION MODE FOR EACH INSTALLED RELAY

Make sure that the required relays have been installed in the meter. Refer to the component layout on Page 14 for relay positions. If a jumper clip is installed in a specific relay position on the Relay Activation Mode Header, that relay will activate when the display bar is lower that the programmed setpoint. If no jumper clip is installed in a specific relay position on the Relay Activation Mode Header, that relay will activate when the display bar is equal to or higher that the programmed setpoint. The Diagrams below show some of the various possibilities for relay activation.

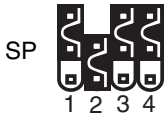
Default
SP1, SP2, SP3, and SP4 all activate when input is equal to or higher than set point.



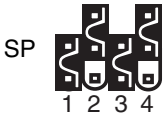
SP2 and SP4 activate when input is lower than set point. SP1 and SP3 activate when input is equal to or higher than set point.



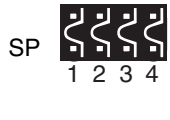
SP2 activate when input is lower than set point. SP1, SP3 and SP4 activate when input is equal to or higher than set point.



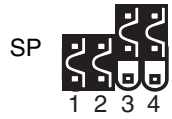
SP1 and SP3 activate when input is lower than set point. SP2 and SP4 activate when input is equal to or higher than set point.



SP1, SP2, SP3, and SP4 all activate when input is lower than set point.



SP1 and SP2 activate when input is lower than set point. SP3 and SP4 activate when input is equal to or higher than set point.

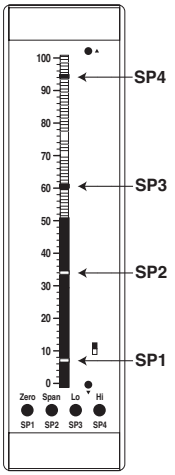


Setpoint Adjust Continued

2) ADJUST THE SETPOINT FOR EACH RELAY

The setpoint for each relay is set by the front panel buttons marked SP1, SP2, SP3 and SP4. When a front panel button is pressed and held down, the associated setpoint is directly changed. The direction of change will be either up or down, as indicated by the UP and DOWN indicator LEDs. After the indicator LED lights up there is a 0.5 second delay before any change occurs. To reverse the direction of change, release the button and then press down again. As there are no menus or sub-menus to navigate, the programming and setup is quick and easy.

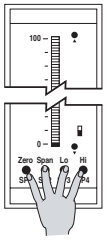
Setpoints are indicated on the bar display by an ON segment if the bar is below the setpoint and with an OFF segment if the bar display is above the setpoint.



Setting the Colors

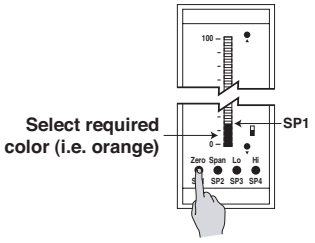
STEP A ENTER COLOR SET MODE

Hold down ALL four setpoint buttons (SP1, SP2, SP3 and SP4) and apply power to the meter. The meter will light up in the Color Set Mode. Release all the setpoint buttons.



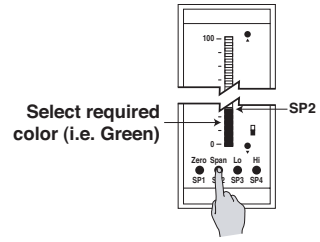
STEP B SELECT COLOR FOR BAR ABOVE SETPOINT 1

Hold down the SP1 button. The color of the bar segments below SP1 will cycle between red, green and orange. Release the SP1 button when the bar is the required color. Now Whenever the bar is above the SP1 level it will be this color. When the bar is below the SP1 level it will always be red.



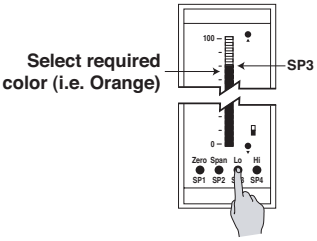
STEP C SELECT COLOR FOR BAR ABOVE SETPOINT 2

Hold down the SP2 button. The color of the bar segments below SP2 will cycle between red, green and orange. Release the SP2 button when the bar is the required color. Now whenever the bar is above the SP2 level it will be this color.



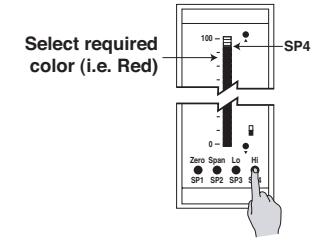
STEP D SELECT COLOR FOR BAR ABOVE SETPOINT 3

Hold down the SP3 button. The color of the bar segments below SP3 will cycle between red, green and orange. Release the SP3 button when the bar is the required color. Now whenever the bar is above the SP3 level it will be this color.



STEP E SELECT COLOR FOR BAR ABOVE SETPOINT 4

Hold down the SP4 button. The color of the bar segments below SP4 will cycle between red, green and orange. Release the SP4 button when the bar is the required color. Now whenever the bar is above the SP4 level it will be this color.



STEP F EXIT COLOR SET MODE

Turn off the power to the meter for 5 seconds and then re apply the power. The bargraph will now work with the programmed colors.

Analog Output Scaling and Calibration

When the optional analog output module is installed, an independently calibrated 16 bit isolated, voltage or current analog output is available. **The analog signal is independently scaled to the input signal and not to the bargraph display.** It is important to note that the Analog Output is completely independently of the bargraph display. This means for example that the bargraph display may be scaled to go from zero to full scale as the input changes from 0 to 5V, while at the same time, the analog output is scaled to go from 4 to 20mA as the input changes from 2 to 3V. Rescaling the bargraph or the analog output will not affect the scaling of the other.

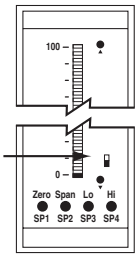
To calibrate the Analog Output you must be able to input two input signals. Usually the minimum input (LO Input) and the maximum (HI Input) signals are used for maximum accuracy.

For example the five steps to obtain an Analog Output of 4mA to 20mA for an input of 0 to 10V are:

STEP A ACCESS THE ANALOG CALIBRATION MODE

1) Confirm the internal analog output module is installed and that the required voltage or current output option is selected.
2) Make sure the Function Switch in in the top position.
3) The Lo and Hi buttons will now calibrate the Analog Output.

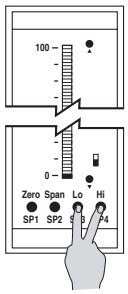
Function Switch in top position



STEP B RESET THE ANALOG OUTPUT SCALING

1) Press the LO and HI buttons simultaneously and hold them down for 2 seconds. This will reset the analog output scaling to the default value. The default analog output scaling is approximately 0 to 20mA (0 to 10V if voltage output option is selected) for an input that is 0 to 100% of the range selected on the input signal conditioner.

Reset the analog output scaling by pressing the LO (zero) and HI (span) buttons simultaneously for 2 secs.

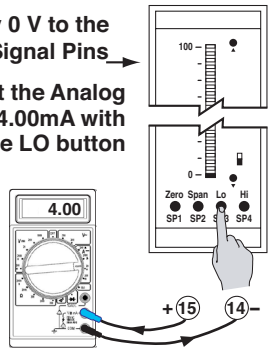


STEP C CALIBRATE ANALOG OUTPUT FOR LO SIGNAL

1) Apply the low input signal (0V in this example) to the meter.
2) Connect an external multimeter to the analog output pins (Pins 17 and 18).
3) Using the LO button adjust the analog output as measured on the external multimeter to be the required value. (4mA in this example). When the LO button is pressed, the UP or DOWN indicator LED shows the direction of change. To reverse the direction of change release the LO button and press down again. Initially the output changes very slowly, but speeds up as the LO button remains pressed down. The analog output for a low input can be set in this step to any value in the range of 0 to 20mA or 0 to 10V (if the voltage output option is selected).

Apply 0 V to the Input Signal Pins

Adjust the Analog output to 4.00mA with the LO button

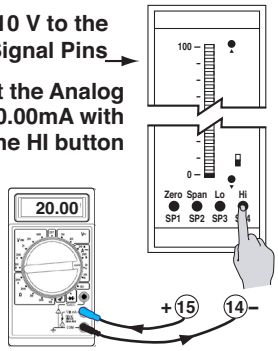


STEP D CALIBRATE ANALOG OUTPUT FOR HI SIGNAL

1) Next apply the high input signal (10V in this example) to the meter.
2) Using the HI button, adjust the analog output as measured on the external multimeter to be the required value. (20mA in this example). When the HI button is pressed the UP or DOWN indicator LED shows the direction of change. Release the HI button and press again to reverse the direction of change. Initially the output changes very slowly, but speeds up as the HI button continues to remain pressed. This output may be higher or lower than the value set in Step 2, and may be any value in the range of 0 to 20mA or 0 to10V. This allows the easy reversal of analog output that is required in some applications.

Apply 10 V to the Input Signal Pins

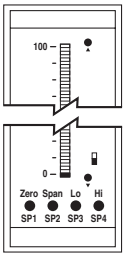
Adjust the Analog output to 20.00mA with the HI button



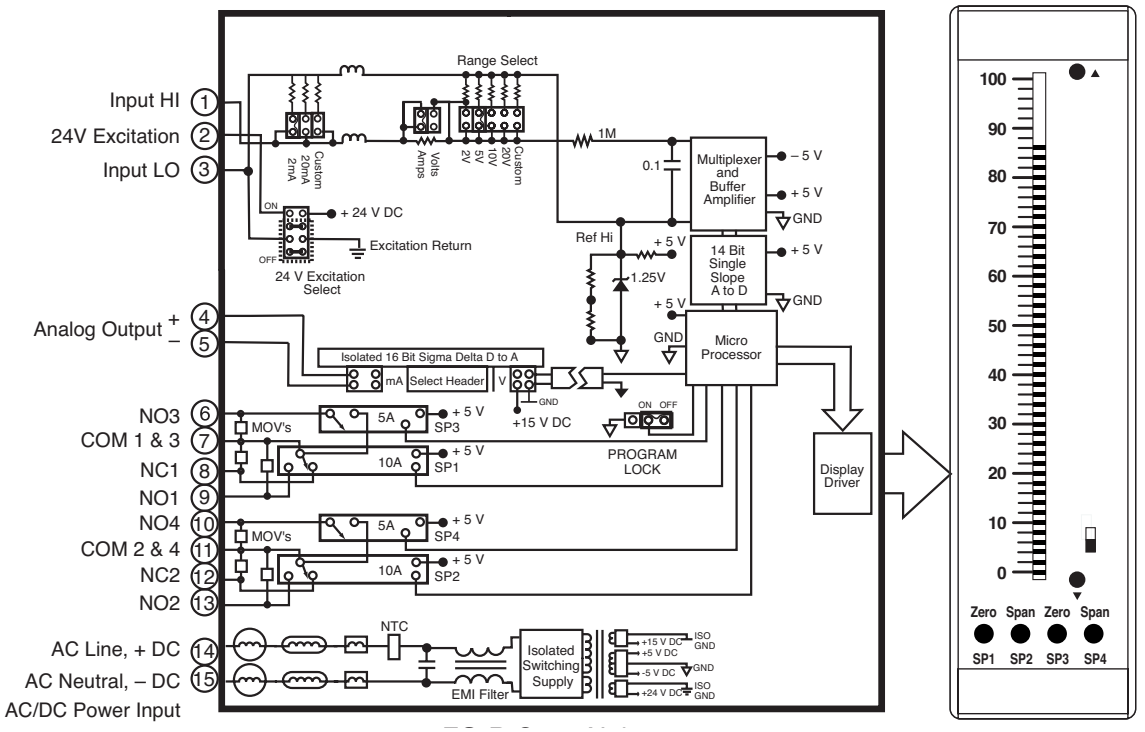
STEP E EXIT THE ANALOG OUTPUT CALIBRATION MODE

1) Turn OFF the power to the bargraph
2) Re-power the bargraph. The two buttons will now return to their original function of DISPLAY 2 ZERO and DISPLAY 2 SPAN.
3) Calibration is now complete and the bar is scaled for a 0 to 10V input to produce an analog output of 4 to 20mA.

Turn Power OFF and then back ON to exit Analog output Calibration Mode



Functional Diagram

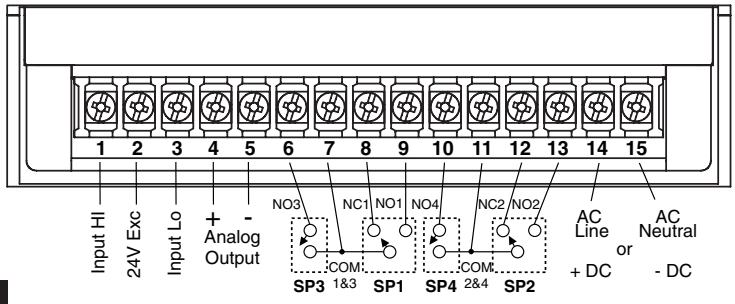


Connector Pinouts

Rear Panel Pinout Diagram

This meter uses plug-in type screw terminal connectors for all input and output connections.

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.



Pin Descriptions

Input Signal – Pins 1 to 3

Pin 1 Input HI
Pin 2 24V EXC
Pin 3 Input Lo

Analog Output – Pins 4 to 5

Pin 4 Analog Output +
Pin 5 Analog Output –

Pins 6 to 13 – Relay Output Pins

Pin 6 **SP3 NO.** Normally Open 5 Amp Form A.
Pin 7 **SP1/3 COM.** Common for SP1 and SP3.
Pin 8 **SP1 NC.** Normally Closed 10 Amp Form C.
Pin 9 **SP1 NO.** Normally Open 10 Amp Form C.
Pin 10 **SP4 NO.** Normally Open 5 Amp Form A.
Pin 11 **SP2/4 COM.** Common for SP2 and SP4.
Pin 12 **SP2 NC.** Normally Closed 10 Amp Form C.
Pin 13 **SP2 NO.** Normally Open 10 Amp Form C.

Pins 14 to 15 – AC/DC Power Input

Pin 14 AC line or +DC. Power input. The standard power is 85 to 265VAC or 95 to 370VDC. Optional power supply of 18 to 48VAC or 18 to 72VDC power is also available.

Pin 15 AC neutral or -DC. Power input. The standard power is 85 to 265VAC or 95 to 370VDC. Optional power supply of 18 to 48VAC or 18 to 72VDC power is also available.

Relay Activation Header

NO Jumper Clips.
Relays activate
ABOVE setpoint

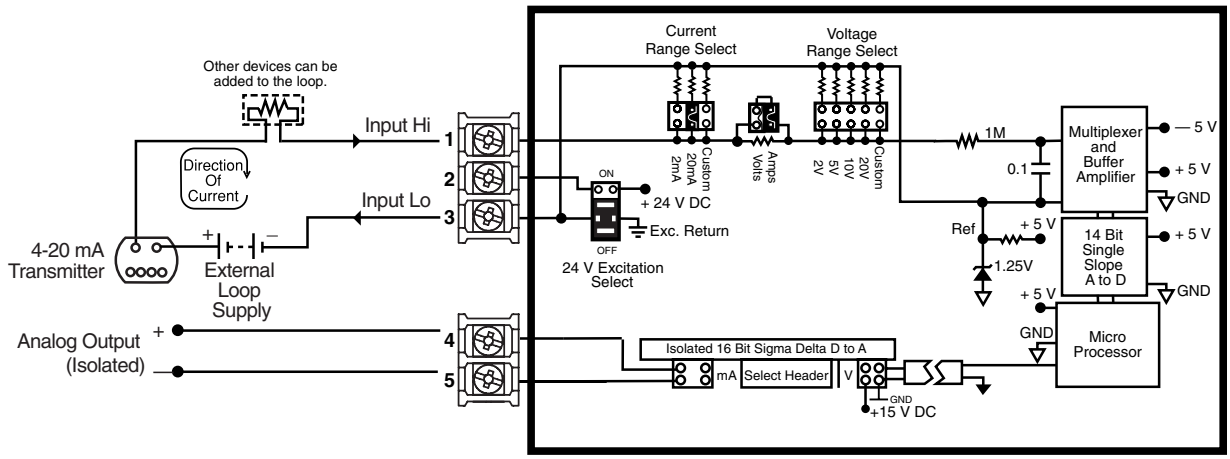
ALL Jumper Clips.
Relays activate
BELOW setpoint

Combination of Jumper Clips.
Relays 1 and 4 activate BELOW setpoint. Relays 2 and 3 activate ABOVE setpoint

- ❑ The relays are default to activate ABOVE (HIGH) the setpoint.
- ❑ Any relay WITHOUT a jumper clip activates ABOVE the setpoint.
- ❑ Any relay WITH a jumper clip activates BELOW the setpoint.
- ❑ Any combination of relay activation using the header and jumper clips is possible.

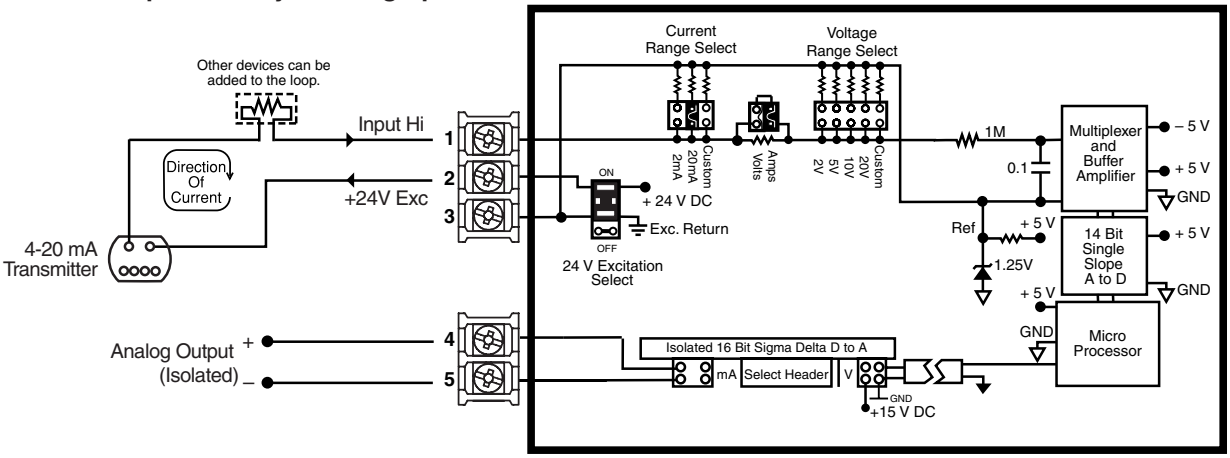
SINGLE CHANNEL 4 to 20 mA DC: Example shown is with the Isolated Analog Output Option.

with **External 24V DC Excitation.**

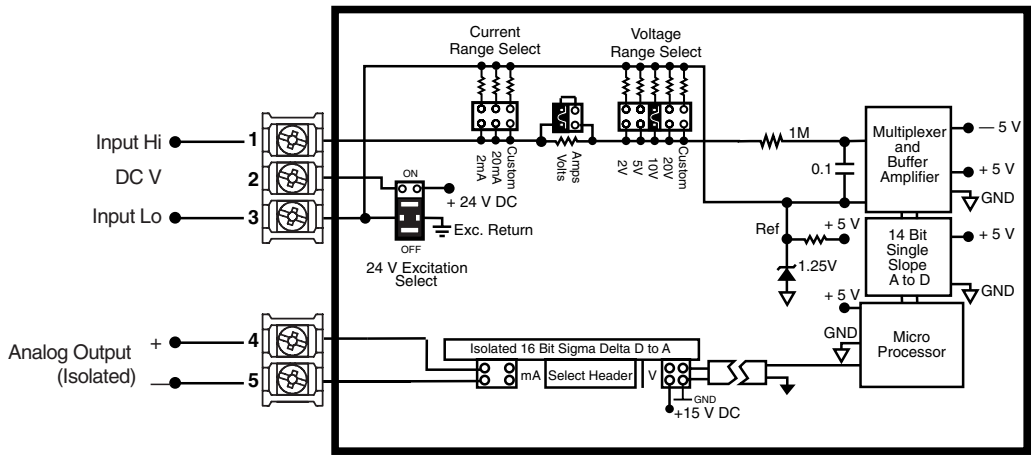


SINGLE CHANNEL 4 to 20 mA DC: Example shown is with the Isolated Analog Output Option.

with **24V Excitation provided by the Bargraph**



SINGLE CHANNEL DC Volts: Select appropriate range of 2V, 5V, 10V or 20V. (Custom ranges also available).
Example shown is for 10V DC with Isolated Analog Output option.



Installation Instructions

STEP A Prepare the Panel

1) Cut a hole in the panel to suit the panel cutout. See Case Dimensions for panel cutout sizes.

STEP B Fit the Meter

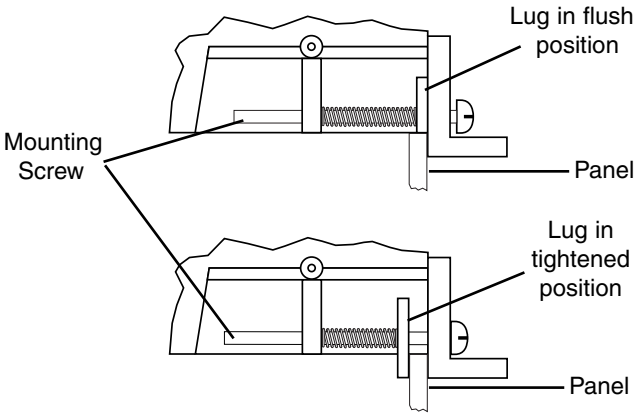
1) Turn both mounting screws counterclockwise to allow for the thickness of the panel.
2) Make sure that both lugs on the mounting screws are flush with the edge of the bargraph case.
3) Push the bargraph into the panel cutout from the front of the panel.
4) Push and turn the mounting screws in a clockwise direction until they are tight.

STEP C Connect the Cables

1) Connect all input cables to the connector pins (see Connector Pinouts for details).
2) Connect the power cables to the connector pins (see Connector Pinouts for details).

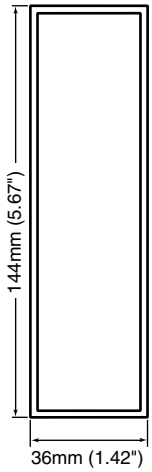
WARNING

AC and DC power supply voltages are hazardous. Make sure the power supply is isolated before connecting to the bargraph.

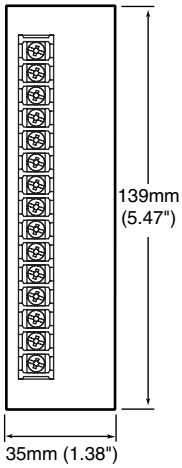


Case Dimensions

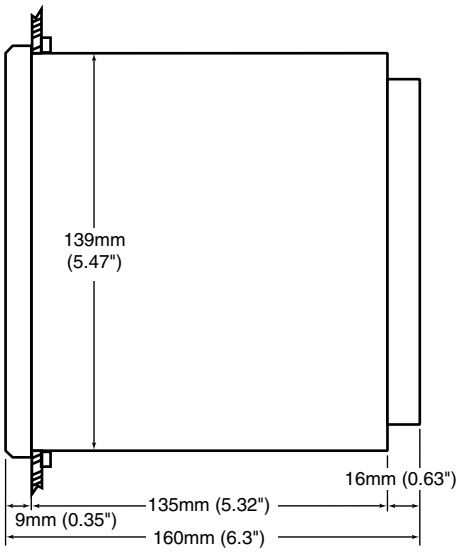
Bezel



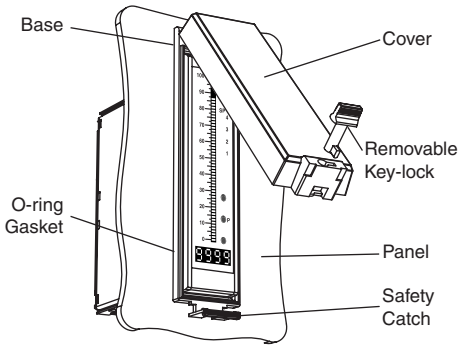
Rear View



Top View



NEMA-4X Lens Cover



Part #: OP-N4/144T36

This cover is designed to be dust and water proof to NEMA-4 standards. The lens cover consists of a base and cover with a cam hinge and key-lock locking device.
An O-ring, or Neoprene gasket forms a seal between the base and the panel. The cam hinge holds the cover from closing when opened until pushed closed. A safety catch keeps the cover closed even when the key is removed and the key hole can be used to attach a safety seal clip, preventing unauthorized opening.

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