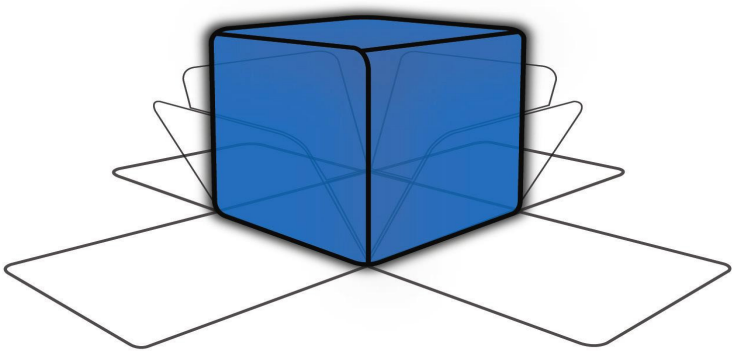
BD-419

4-20mA loop process display

Instruction Manual



COMPLIANCE WEST *USA*

Dear Customer:

Congratulations! Compliance West USA is proud to present you with your 4" LED Display. Configuration and setup instructions are included in the Manual, so please retain this information for future use.

Thank you for your trust and confidence.

Table of Contents

Section 1

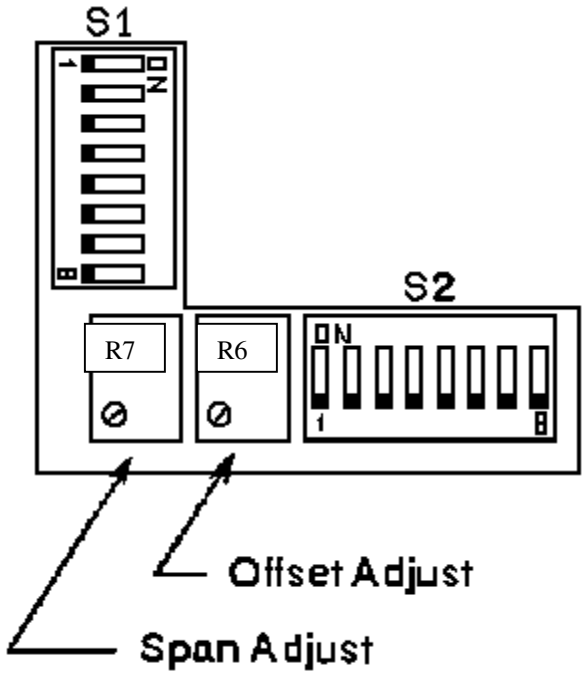
Calibration and Setup Instructions

4-20mA Loop Display

This manual contains complete setup and calibration instructions for the Compliance West USA Model GIANT DISPLAY 4" readouts for use on a 4-20mA loop.

Switch Settings

Refer to the drawing below and the legend for switch settings. Switches are found under the screw panel on the rear of the GIANT DISPLAY.



See switch settings on next page.

Input Range

Input range	S1 position 4	5	6	7	8	scaled reading [1]	Input impedance
200 mV	0	0	0	1	0	0 to 1999	250 Kohm
2 V	0	1	0	0	0	0 to 1999	1 Mohm
1-5 V	0	0	1	0	0	0 to 1000[2]	1 Mohm
10 V	0	0	0	0	1	0 to 1000[2]	1 Mohm
4-20 mA	1	0	0	1	0	0 to 1999	10 ohm

1 = ON, 0 = OFF

1. Decimal point can be programmed for any location specified in Decimal point table.
2. If a full-scale reading of 1999 is desired at this input range, switch to the next lower input range.

Offset settings

Setting Description	S2 position 4	5	6
Positive zero mA reading	1	0	0
Negative zero mA reading	0	1	0
Zero mA reading = 0	0	0	1

For the following Zero mA readings, do NOT take into consideration where the decimal point is.
(Example: If you want a Zero mA reading of 75.0, use the value of 750 for the calculation and setting of the S2 position in the following table)

Setting Description	S2 position 7	8
Zero mA has an absolute value of 0 to 140	1	1
Zero mA has an absolute value of 0 to 800	1	0
Zero mA has an absolute value of 800 to 1500	0	0

1 = ON, 0 = OFF
Adjust Offset Adjust counterclockwise to increase offset

Decimal point settings

Decimal point	S2 position 1	2	3
None	0	0	0
X.XXX	1	0	0
XX.XX	0	1	0
XXX.X	0	0	1

Calibration Instructions

The 4-20mA loop LED display allows you to display any number meaningful to your factory (gallons per minute, etc) which is proportional to the input. The 4-20mA loop defines 4 mA as the lowest possible input and 20 mA as the highest possible input. We have developed the following instructions to allow you to easily calibrate your display. For the following calculations, do NOT take into consideration where the decimal point is. (Example: If you want a span is 45.5, use 455 for the calculation and if you want an offset of -10.0 use -100 in the calculations). Before you start, you will need to know the following values:

Span

This is the difference between the number you want displayed between inputs of 4 mA and 20 mA.

EXAMPLE: If you are displaying amps, and your transducer defines 4 mA input to correspond to 0 amps and 20 mA input to correspond to 2000 amps, then your span is 2000. If you wish to display Fahrenheit temperature and your transducer outputs 4 mA at 32 degrees F and 20 mA at 212 degrees F, then your span is 212-32 = 180.

CALCULATION:

1. YOUR DESIRED READING AT 4mA: _____
2. YOUR DESIRED READING AT 20 mA: _____
3. YOUR SPAN: _____

(Your Span is your desired reading at 20 mA - your desired reading at 4 mA)

Offset

If you want a number different from 0 to display at 4 mA input, that number is your offset.

EXAMPLE: If you wish to display Fahrenheit temperature, and 4 mA input corresponds to 32 degrees, then your offset is +32. If your display is to read 0 at 4 mA input, then your offset is zero.

1. YOUR OFFSET: _____

Zero mA Reading

This is the display output when there is 0 mA input to the display itself; i.e. the 4-20mA loop is disconnected from the display. The Zero mA Reading value has no correspondence to the real world. It is a number derived mathematically to make display setup and calibration easier.

EXAMPLE: Using the Fahrenheit temperature example above, the Zero mA Reading would be 32 - (180/4) = -13

CALCULATION:

1. $\text{Zero mA reading} = (\text{OFFSET}) - \frac{(\text{SPAN})}{4}$

Display Setup

1 Plug in the display. Do not connect the 4-20 mA loop to the display. The display is now powered up with nothing connected to it.

2. Use the Offset Adjust control to set the display to the Zero mA Reading calculated above.

3. Connect the display to the functioning 4-20mA loop or to a loop calibrator tool adjusted for 20 mA.

4. If you are using a loop calibrator, set the Span control to read correctly for a 20 mA input.

5. If you are using the functioning 4-20 mA loop, then use a calibrated instrument to determine the desired reading and use the span control on the display to set it.

   EXAMPLE: Your 4-20mA loop is calibrated to read 0-2000 amps. Using an accurate current meter, you know that the measured current is 813 amps. Without changing the current flowing in the circuit, use the span control to set the display output to 813.

6. Calibration of the setup may be checked by using a loop calibrator set to 4 mA or by disconnecting the 4-20 mA loop from the source, leaving it attached to the display. Either method should result in 4 mA input to the display. The display should read the desired reading at 4 mA determined above.

Section 3

Technical Assistance

For Technical Assistance
Phone: (800) 748-6224

Technical Assistance is available from Compliance West USA between the hours of 8:30 AM and 4:00 PM Pacific Time Monday through Friday.

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