

DM4391-1 & DM4391-2 4/20 mA DC INPUT / OUTPUT LOOP POWERED ISOLATOR



DESCRIPTION

The DM4391 provides a 4 to 20 milliamp current output directly proportional to the 4 to 20 milliamp current input in a DIN Rail mount package.

A single channel version (DM4391-1) and a dual channel version (DM4391-2) are available.

Power for the unit is completely derived from the input current. No external power is required. The input and output are fully isolated from each other.

Span and zero adjustments for the output of each channel are easily accessed from under a pull off/push on cover panel.

The DIN Rail package snaps onto the rail and is easily removed from the front side by using a screwdriver to release the spring loaded snap.

OPTIONS

(User specified)

Channels: 1 Channel DM4391-1
2 Channel DM4391-2

U All circuit boards conformal coated for protection against moisture.

INSTALLATION

The DM4391 mounts on the standard DIN Rail. Install by hooking the top of the module onto the top of the rail, then using a downward rotating motion to snap the module onto the rail. Remove the module by inserting a screwdriver into slot in the spring loaded snap located on the lower backside of the unit. Apply downward pressure on the release. The module can be rotated up and off of the rail.

1. Remove the front panel by spanning the top and bottom edges between the thumb and index finger. Use a rocking motion to pull the front panel away from the module.
2. Input connections are shown on the terminal block labels. To access input and output terminals, the connecting wires are inserted into the top of the top terminal block, and into the bottom of the bottom terminal block. The terminal blocks unplug. Wiring can be completed before the product is installed. Recommended wire sizes are 22-14 AWG Cu, with a strip length of 0.25 inches.
3. Replace the front panel by inserting the pins into the slotted holes located on the bezel and pushing it into position.
4. The front panel label provides space for the user to make application notes.

CALIBRATION

The DM4391 is factory calibrated to output 4/20 mA for 4/20 mA input with a current meter input impedance as a load.

ZERO and SPAN control adjustments are provided for each channel in the DM4391. The ZERO and SPAN controls are clearly marked next to the potentiometer. On the DM 4391-2 the controls are labeled for their associated channels.

Field adjustments can be made by using the following recommended procedure.

1. Connect a current source to the input and current meters to the input and output. The output must have a load. Note the load characteristics shown in the included graph to ensure that the input is not overloaded.
2. With the input current set to 4.000 mA, use a small screwdriver or pot adjustment tool to adjust the ZERO control to make the output current 4.000 mA.
3. With the input current set to 20.000 mA, use a small screwdriver or pot adjustment tool to adjust the SPAN control to make the output current 20.000 mA.
4. Repeat steps 2 and 3 to fine tune the output to be within .004 mA of the output. Usually 3 times will give the desired results.
5. Disconnect test equipment and install for operation. Replace the front panel by inserting the pins into the slotted holes located on the bezel and pushing it into position.

SPECIFICATIONS

INPUT RANGE

4-20 milliamps DC
Input voltage drop
see Load Characteristics Graph

OUTPUT RANGE

4-20 milliamps DC
Isolated output load

minimum
0 ohms

maximum
limited to the available
input drop at 20 mA,
see Load Characteristics Graph.

Load Effect

<0.1%
0 to 500 ohms
<0.35%
500 to 1000 ohms

Span adjustment
 $\pm 7.5\%$

Zero adjustment
 $\pm 25\%$

Accuracy
 $\pm 0.02\%$ of span

Step response time
<200 msec to 99% of span

Ripple (peak-to-peak):
<0.1%

Linearity
 $\pm 0.02\%$ of span

ISOLATION, OUTPUT/INPUT

>500 megohms

BREAKDOWN, OUTPUT/INPUT

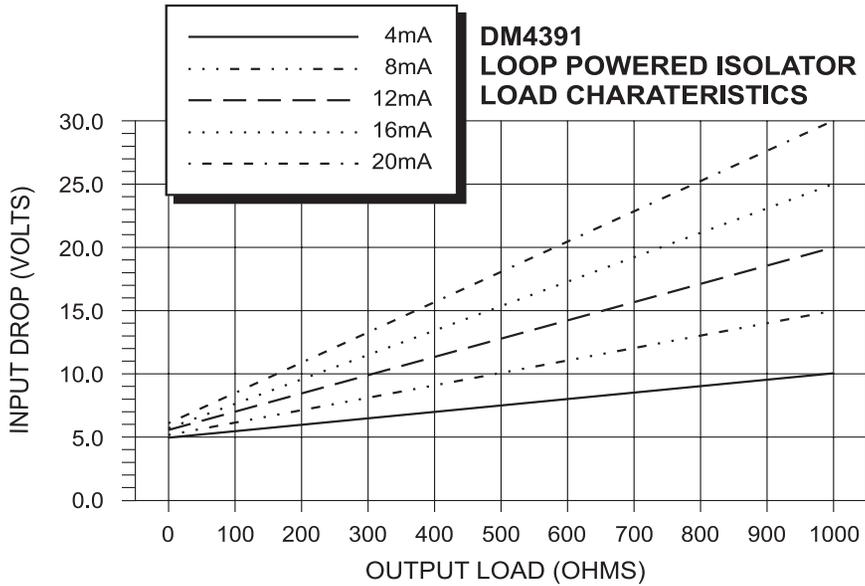
>1000 volts RMS sinewave

OPERATING TEMPERATURE

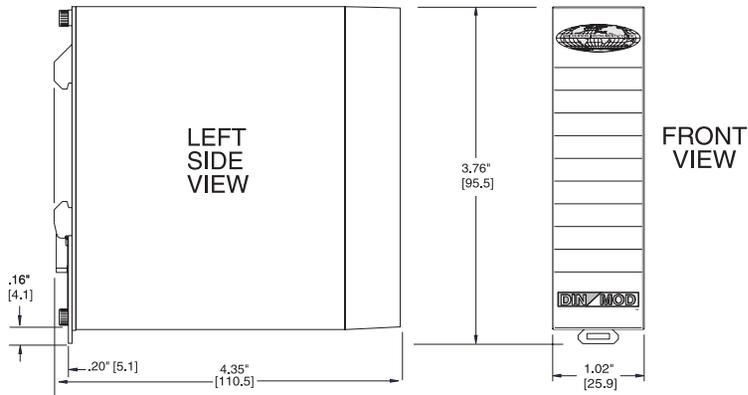
14°F to 140°F (-10°C to 60°C)

TEMPERATURE STABILITY

$\pm(0.02\%$ of span + 2 microvolt)/°C



CASE DIMENSIONS INCHES [mm]

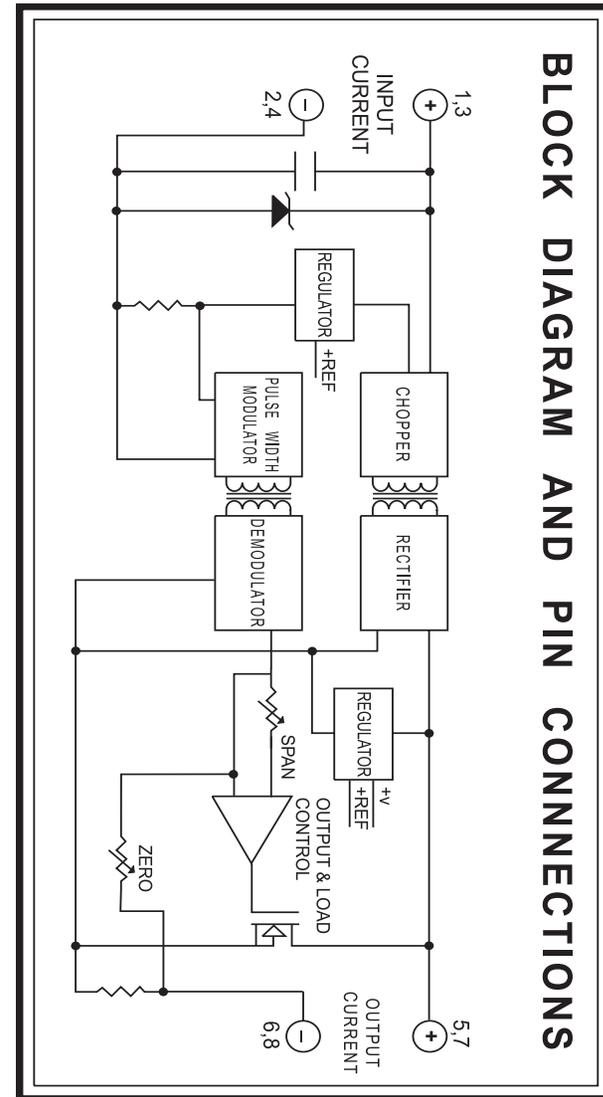


MOUNTING

The module mounts on a standard H-35 DIN rail. A spring latch holds it in place. The module is demounted by using a screw driver to release the latch. The latch is accessible at the bottom of the module.

WARRANTY

The **DIN/ MOD** Series of products carry a limited permanent warranty. In the event of a failure due to defective material or workmanship, the unit will be repaired or replaced at no charge. Relays are not covered by the warranty.



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