

# DM4300A DC INPUT FIXED RANGE ISOLATED TRANSMITTER



## FUNCTION

The *DM4300A* provides an isolated output voltage or current proportional to an input voltage or current. The input and output ranges are fixed at 0/10Vdc or 4/20mA. It is useful for converting voltages to current, currents to voltage.

## DESCRIPTION

The *DM4300A* module, with the fast response option, produces a change in output signal to within 99% of the change in input signal in less than 150 microseconds. This option makes it useful in motor control feedback circuits.

The output is fully isolated from input, line power, and ground. The unit is useful for eliminating ground loops and for isolating from common mode voltages. The *DM4300A* utilizes a feedback voltage controlled oscillator to develop a digital signal with a duty cycle proportional to the input signal amplitude. This signal is coupled through an isolating pulse transformer to the output circuitry, where the duty cycle data is converted to a proportional output signal level.

The module includes filtering and conditioning to reduce susceptibility to transients and noisy environments.

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.

## MODELS

DM4300A	INPUT SIGNAL	OUTPUT SIGNAL
	0-10 Volts	0-10 Volts
	4-20 mA	4-20 mA
	0-10 Volts	4-20 mA
	4-20 mA	0-10 Volts

## OPTIONS

(User specified)

**AC Power** 24, 115 or 230 VAC

**DC Power** 12 or 24 VDC

**U** All circuit boards conformal coated for protection against moisture.

**HS** High Speed (Fast Response)

## INSTALLATION

*DM4300A* mounts on standard DIN Rail. Install it by hooking the top of the module's latch onto the top of the rail, then use a downward rotating motion to snap the module onto the rail. To remove the module, insert a screwdriver into the slot on the spring loaded snap which is located on the lower backside of the unit. Apply a downward pressure on the release and rotate the module 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, Output and Power connections are shown on the terminal block labels.

**CAUTION: BEFORE PROCEEDING, REMOVE ALL POWER TO THE WIRES AND MODULE TO AVOID THE DANGER OF SHOCK AND/OR DAMAGE TO THE UNIT.**

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.

**CAUTION: THE DIN/RAIL SHOULD BE EARTH GROUNDED (GREEN WIRE) TO ENSURE SAFEST OPERATION AND TO PROVIDE OPTIMUM PERFORMANCE.**

## CALIBRATION

**CAUTION: BE SURE ALL RANGE SELECT JUMPERS ARE SET TO THEIR PROPER POSITIONS BEFORE APPLYING INPUT OR POWER.**

The *DM4300A* is factory calibrated to the input and output noted on the side label.

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

1. Remove the front panel and disconnect the power.
2. Connect voltage or current supply to the input; and meters to the input and output terminals. Apply power to the module.
3. Set the input to represent the zero level, the lowest value of the input span.
4. Observe the output meter. Use the ZERO adjustment to raise or lower the output to the desired zero level.
5. Set the input to represent the upper limit of the input; and meters to the input and output span.
6. Observe the output monitor. Use the SPAN adjustment to raise or lower the output to the desired maximum level.
7. Repeat steps 4 to 7 to fine tune the output. Usually 3 repetitions will give the desired results.
8. Remove power, disconnect test equipment and install the module for operation. Replace the front panel.

Figure 1

DM4300A DC ISOLATED TRANSMITTER	
ZERO  SPAN	
FACTORY SETUP	FIELD SETUP
MODEL _____	INPUT _____
INPUT _____	OUTPUT _____
OUTPUT _____	POWER _____ V
POWER _____ VA _____ HZ	_____ HZ
CODE _____	_____

**SPECIFICATIONS**

**INPUT**

**Inputs Available**  
4/20 mA and 0/10 V

**Span adjustment**  
±15% of span

**Impedance**

Current 61.9 ohms  
Voltage 500 kilohms

**Zero adjustment**

±15% of span

**OUTPUT**

**Outputs Available**  
4/20 mA<sub>dc</sub> and 0/10 V

**Drive Capability**  
Voltage  
5 mA (2 kilohms at 10 V)  
Current  
>24 V compliance  
(1200 ohms max at 20 mA)

**Accuracy**

±0.1% of span

**Input to Output Linearity**

±0.02% of span

**Step response time**

100 ms normal  
150 μsec (DM4300-HS) fast acting

**Output Ripple (peak-to-peak)**

0.15% of span

**COMMON MODE REJECTION**

120 dB DC to 60 Hz

**ISOLATION OUTPUT/INPUT**

>500 megohms

**BREAKDOWN, OUTPUT TO INPUT**

>1000 volts RMS sinewave

**BREAKDOWN, POWER CIRCUITRY**

>1500 volts RMS sinewave

**OPERATING TEMPERATURE**

14° to 140°F (-10° to 60°C)

**TEMPERATURE STABILITY**

±(0.02% of span)/°C

**POWER**

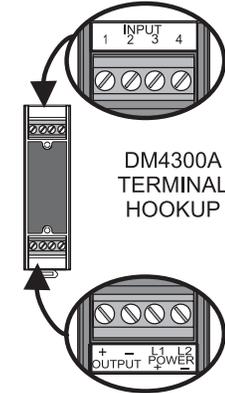
Wattage 2.5 W max

AC (standard)  
115 VAC ±10%, 50/60 Hz  
230 VAC ±10%, 50/60 Hz  
24 VAC ±10%, 50/60 Hz

DC (optional)  
12 VDC nominal (10 to 15 VDC)  
24 VDC nominal (21 to 28 VDC)

**MOUNTING**

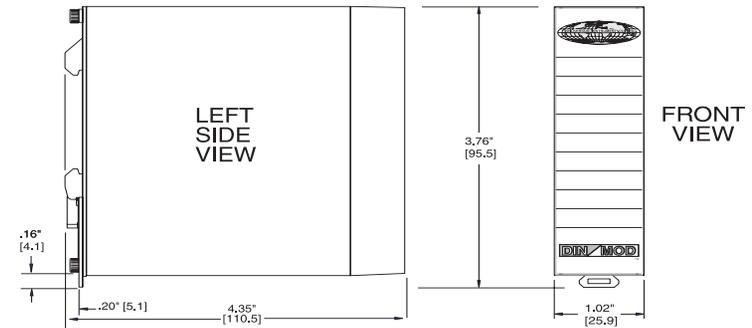
The module mounts on a standard H-35 DIN rail. A spring latch holds it in place. The module is demounted by using a screw driver to release the latch. The latch is accessible at the bottom of the module.



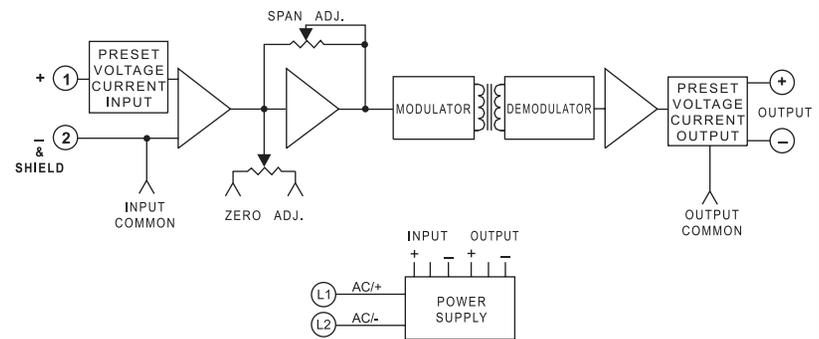
**WARRANTY**

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.

**CASE DIMENSIONS INCHES [mm]**



**BLOCK DIAGRAM AND PIN CONNECTIONS**



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