MM4010, MM4050, MM4300 & MM4310 DC TO DC TRANSMITTERS

FUNCTION

The MM4010, MM4050, MM4300 and MM4310 DC to DC Transmitters provide DC output voltages or currents proportional to a DC input signal. They are useful in converting voltages to currents or currents to voltages, in providing signal isolation and in scaling signal levels from one amplitude to another.

DESCRIPTION

A stable amplifier is used to monitor a DC input voltage. For current inputs a shunt resistor is added inside the module to create a voltage level at the amplifier input. A final amplifier produces the desired DC voltage or current output.

The modules include filtering and conditioning to reduce susceptibility to transients and noisy operations.

MM4300 and MM4310 utilize pulse width modulation to develop a pulse train with a duty cycle proportional to input signal amplitude. This pulse train is coupled through a pulse transformer where the duty cycle data is converted to a proportional DC level in the output circuit.

A wide range input option adds an 10 position DIP switch which provides input voltage and current range selection by connecting any of 6 gain-setting and 2 current-shunt resistors.

MODEL NUMBERS

Transmitters are available with or without input isolation and with standard or narrow spans. The narrow span models use a superior, low drift input amplifier. Model numbers are as follows:

MM4010 Standard spans, nonisolated

MM4050 Narrow spans (below 50 mV), nonisolated

MM4300 Standard spans, input-output isolated

MM4310 Narrow spans (below 50 mV), input-output isolated

OPTIONS

WR Wide range input. Allows a choice of input voltage and current range selections by use of an 10 position DIP switch.

U All circuit boards conformal coated for protection against moisture.

DC Power 12 or 24 VDC.

RT Reverse acting transmitter. The transmitter output decreases as the input increases. *(MM4300, MM4310 only)*

CONTROLS

The DC to DC transmitters contain two calibration controls, zero and span *(gain)*. The WR option adds an 10 position DIP switch for range selection.

CALIBRATION

The transmitters are precisely calibrated at the factory and do not normally require user calibration. If there is a need to recalibrate, proceed as follows:

If your transmitter includes the WR option, remove its cover and set the 10 DIP switches according to the table below.

ZERO and SPAN adjustments are available on top of the transmitter module. Connect a calibrated signal source to the module input. Monitor the output of the module with an accurate digital meter. Set the input signal to its zero or low value and adjust the ZERO control for the proper output. Increase the input signal to its full scale value and adjust the SPAN control for the proper output. Repeat the procedure once or twice, the controls may interact slightly.

MOUNTING

The module is designed to plug into a standard 8-pin relay socket. MP008 is a molded plastic socket suitable for mounting on a flat surface or snap into a 2 3/4 inch wide PVC track TRK48.

A hold-down clip , CLP1, is available for installation where vibration may be a problem.

A DIN rail mounted socket, DMP008, is available for 35mm symmetrical DIN rail.

A Killark HK Series explosion-proof housing with dome and 8-pin socket is available, HKB-HK2D-8.

WARRANTY

The Mighty Module Series of products carry a limited warranty of 10 + 5 years. In the event of a failure due to defective material or workmanship, during the 10 year period, the unit will be repaired or replaced at no charge. For a period of 5 years after the initial 10 year warranty, the unit will be repaired, if possible, for a cost of 10 % of the original purchase price.

Relays are not covered by the warranty.

WIDE RANGING INPUT *(WR OPTION)*

INPUT	CLOSE SWITCH POSITION #	INPUT	CLOSE SWITCH POSITION #
0/50 mV	none	0/1 mA	9
0/100 mV	1	0/5 mA	10
0/500 mV	2	0/10 mA	1, 10
0/1 V	3	4/20 mA	7. 9
1/5 V	6	0/20 mA	3, 9
0/5 V	4	10/50 mA	8, 10
0/10 V	5	0/50 mA	2, 10

SPECIFICATIONS

INPUT IMPEDANCE
Voltage 200 kilohms
Current see table on block diagram

INPUT RANGE
MM4010 Select any range between ±10 V max (min span 50 mV)
MM4050 Select any range between ±10 V max (min span 10 mV)
MM4300 Select any range between ±250 V max (min span 50 mV)
MM4310 Select any range between ±20 V max (min span 10 mV)
Current MM4010, MM4050, MM4300, MM4310 select any range between ±5 A max (min span 1 mA)

OUTPUT LIMITS
Voltage -10 to +15 V, 10 mA
Current 50 mA, 24 V compliance

LINEARITY
MM4010, MM4050
±0.01% of Span
MM4300, MM4310
±0.05% of Span

OUTPUT RIPPLE
MM4300, MM4310
less than 0.1% of Span peak to peak

ACCURACY
±0.1% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

ISOLATION, OUTPUT/INPUT BREAKDOWN
(MM4300, MM4310)
>500 megohms
>1000 VAC rms

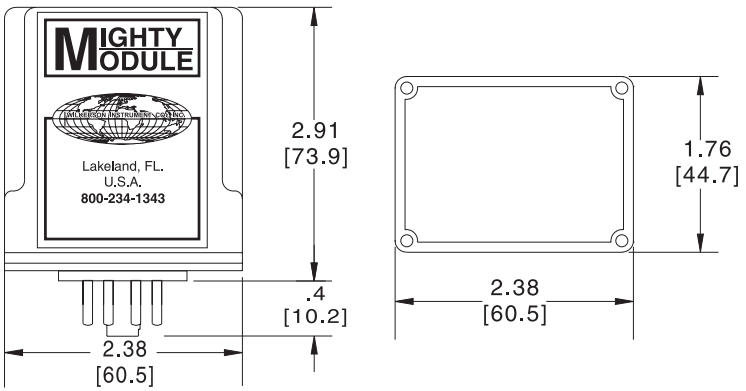
BREAKDOWN, PWR/CIRCUITRY
>1500 VAC rms

OPERATING TEMPERATURE
14°F to 140°F (-10°C to 60°C)

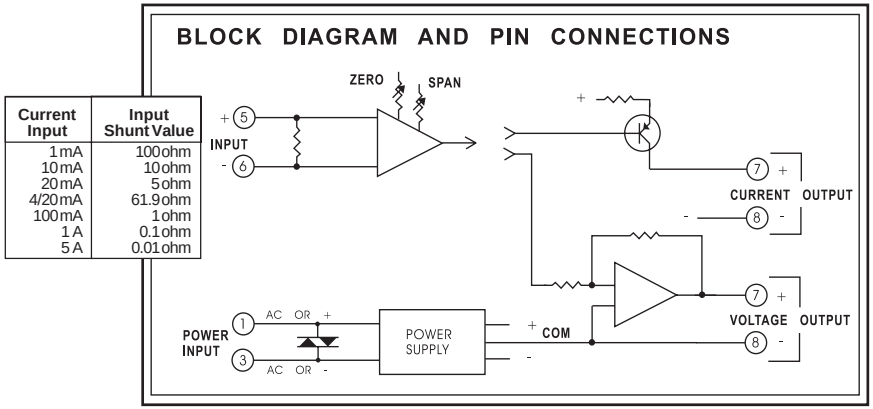
TEMPERATURE STABILITY
±(0.02% of span +1.3 microvolt/°C max

POWER
Standard
115 VAC ±10%, 50/60 Hz
Optional
230 VAC ±10%, 50/60 Hz
12 or 24 VDC (2.5 W max)

CASE DIMENSIONS INCHES [mm]

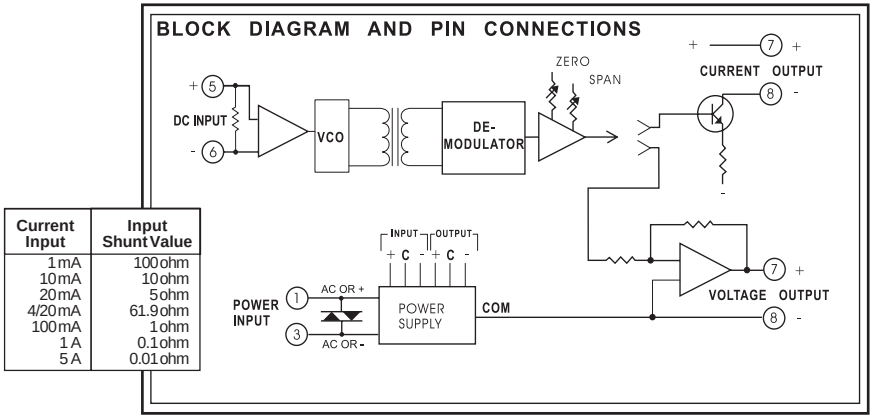


MM4010/4050



Current Input	Input Shunt Value
1 mA	100 ohm
10 mA	10 ohm
20 mA	5 ohm
4/20 mA	61.9 ohm
100 mA	1 ohm
1 A	0.1 ohm
5 A	0.01 ohm

MM4300/4310



Current Input	Input Shunt Value
1 mA	100 ohm
10 mA	10 ohm
20 mA	5 ohm
4/20 mA	61.9 ohm
100 mA	1 ohm
1 A	0.1 ohm
5 A	0.01 ohm

 DWG#W102308B 3/07

WILKERSON INSTRUMENT CO., INC.
www.wici.com
2915 Parkway Street
Lakeland, FL 33811-1391 · USA
800-234-1343
Tel: 863-647-2000 · Fax: 863-644-5318
www.wici.com · E-mail: sales@wici.com