MM4420 & MM4420ISO DC INPUT DIVIDER TRANSMITTER

DESCRIPTION

The MM4420 modules are used to produce a DC output proportional to the ratio or quotient of two DC inputs. The division function is useful in applications such as controlling relative speeds or mixing rates and in compensating flow readings for temperature changes (mass flow = flow rate / temperature).

The two inputs are amplified and applied to a complex integrated circuit which performs the division function. The resulting quotient is applied to an output stage which provides the final DC voltage or current output. Zero and span adjustments in the output circuit allow precise calibration.

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

For current inputs, internal shunt resistors create DC voltage levels at the amplifier inputs. Input offset capability permits division of offset inputs such as 4/20mA.

Circuit function is Output = (Input A) / (Input B). The normal scale factor (gain) is such that the output is at full scale when both inputs are at full scale.

MM4420ISO only: The resulting quotient is applied to a VCO to develop a pulse train with a duty cycle proportional to the input. This pulse train is coupled through an isolation transformer where the duty cycle data is converted to a proportional DC level in the output circuit.

OPTIONS

U All circuit boards conformal coated for protection against moisture

DC Power 24 VDC power

CONTROLS

The MM4420 modules contain two calibration controls, ZERO and SPAN. Both are available at the top of the module.

CALIBRATION

The MM4420 modules are shipped precalibrated and does not normally need adjustment. If you need to recalibrate, proceed as follows:

Monitor the output with an accurate meter and insert input signals into both inputs. Set Input A to its minimum level, Input B to full scale. Adjust the ZERO control for the proper output. Increase Input A to full scale and adjust the SPAN control for the proper output. Repeat the procedure, the controls may interact slightly.

MOUNTING

The module is designed to plug into a standard 8-pin relay socket. Part number MP008 is a molded plastic socket suitable for mounting on a flat surface or in a 2 ¾ inch wide PVC snap track (TRK48). Use (CLP1) hold down clip, if needed. A Killark HK Series explosion-proof housing with dome and 8-pin socket is available (HKB-HK2D-8). A DIN rail socket (DMP008) is available for 35mm symmetrical DIN rail.

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.

SPECIFICATIONS

INPUT RANGE
Voltage
select any range between ±10V (±250 V with ISO option)
(min span 1 V)
Typical Inputs:
0-1V, 0-5V, 0-10V
Current
select any range between ±100 mA max (min span 1 mA)
Typical Inputs:
4/20 mA or 10/50 mA

INPUT IMPEDANCE
Voltage
100 kilohm
Current
1.25V drop standard, (others available)

OUTPUT RANGE
Voltage
select any range from -10 V to +15 V, 10 mA max load (min span 0.2 V)

ACCURACY
(Inputs at 10% or greater) better than ± 0.25% of span

OUTPUT RANGE
Voltage
select any range from -10 V to +15 V, 10 mA max load (min span 0.2 V)
Current
select any range from 0 to 50 mA max, 24 V compliance (min span 0.2V)
18 V compliance for ISO option if full-scale output >20 mA

TEMPERATURE STABILITY
±0.04% of span per °C

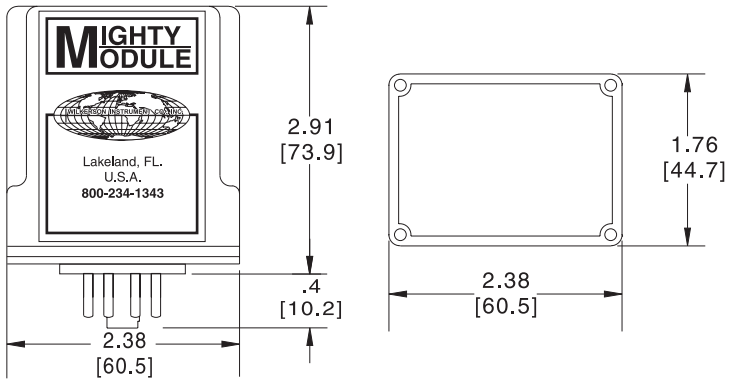
OPERATING TEMPERATURE
-10° C to 60° C
14° F to 140° F

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

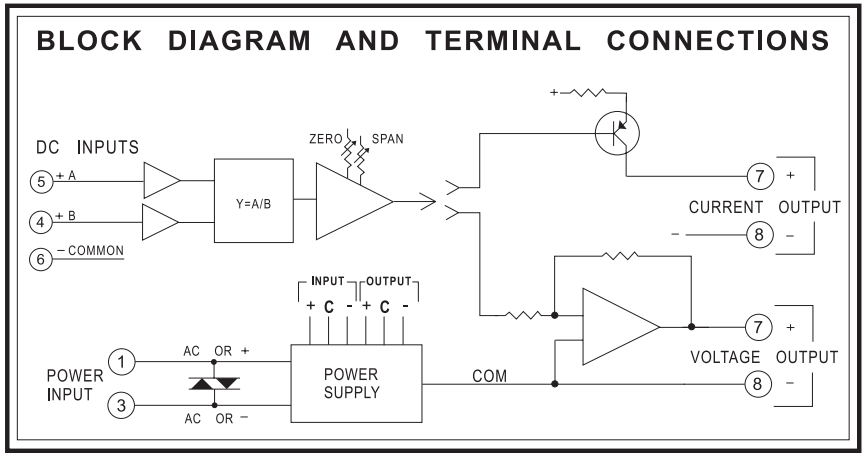
ISOLATION (MM4420ISO)

INPUT/OUTPUT BREAKDOWN
>500 megohms
>1000 VAC rms

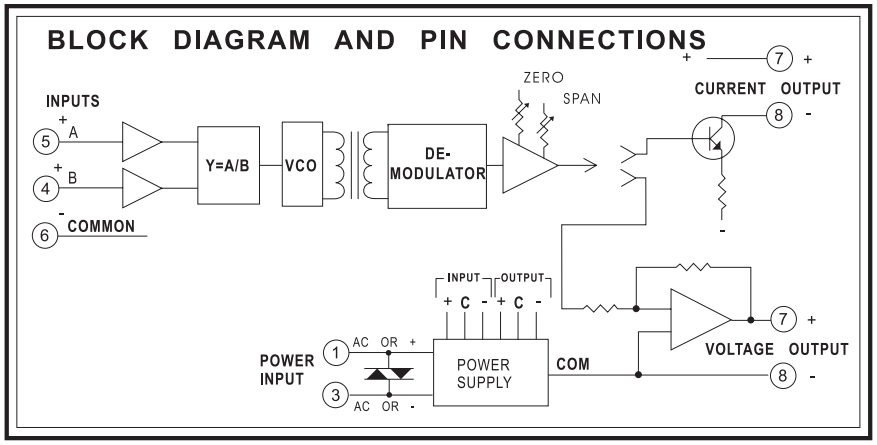
CASE DIMENSIONS INCHES [mm]



MM4420



MM4420ISO



 DWG#103497 06/08

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