

MM7010 & MM7010 ISO FREQUENCY INPUT TRANSMITTERS



DESCRIPTION

The MM7010 is used to provide a DC output voltage or current proportional to the frequency of the input signal. It is useful for measuring speed of motor, conveyors, or other devices that can create a periodic signal proportional to the desired function. The wide range of input sensitivity allows the MM7010 to be driven from low level magnetic pickups as well as logic level signals.

A threshold adjustment sets the minimum input amplitude the module will process. This allows the user to trade off sensitivity versus noise rejection. An optional pullup resistor (Option P) permits use with contact-closure or open-collector inputs.

OPTIONS

The following options are available on the MM7010 & MM7010ISO:

- P** 10 kilohm pullup resistor for use with open-collector or contact-closure inputs.
- U** All circuit boards conformal coated for protection against moisture.

DC Power

Inverter-isolated 12 V or 24 VDC power.

CONTROLS

Three controls, ZERO, SPAN and THRESHOLD, are accessible from the top of the module.

CALIBRATION

The MM7010 is shipped with ZERO and SPAN pre-calibrated. The user need only adjust the THRESHOLD for the desired sensitivity.

The THRESHOLD adjustment allows the module to be made insensitive to the line frequency pickup or other noise signals whose levels are below the threshold setting. Turning this control fully clockwise reduces the threshold to zero and makes the input most sensitive.

To adjust, set the input at about half-scale frequency and at about 25% of its normal amplitude. Turn the THRESHOLD control fully clockwise then, while monitoring the output, turn the control counterclockwise until the output drops (suddenly) to its low-end value. NOTE: If the output does not drop, leave the control fully counterclockwise.

To re-calibrate ZERO and SPAN, proceed as follows:

Refer to the instrument's label to determine your instrument's supply voltage and input and output ranges. Refer to the "Block Diagram and Pin Connections" for pin connections.

Connect a calibrated frequency source to the input of the instrument. (Option P, if noted on the label, indicates a pullup resistor has been added for use with switch-closure or open-collector input (See Block Diagram and Pin Connections).

Set the input frequency to the low end of the input range and adjust the ZERO control for the low-end of the input range and adjust the ZERO control for the low-end output voltage or current. Increase the input frequency to full scale and adjust the SPAN control for the full-scale output. Repeat until both readings are correct.

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 2¾ inch wide PVC track (TRK48).

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

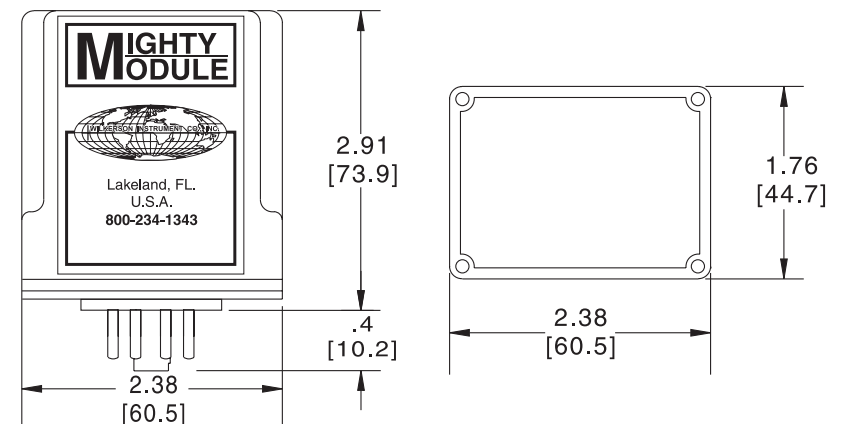
A DIN rail mounted socket (DMP008) is available for 35mm symmetrical DIN rail.

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.

CASE DIMENSIONS INCHES [mm]



SPECIFICATIONS

INPUT RANGE

select **any** range from
0 to 10 Hz min
to 0 to 60 kHz max

INPUT SENSITIVITY

any voltage from 50 mV
to 100 V peak

INPUT IMPEDANCE

100 kilohms

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 20 mA max
24 V compliance*
(min span 1 mA)

ACCURACY

$\pm 0.1\%$ of span

LINEARITY

$\pm 0.1\%$ of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

ISOLATION (ISO OPTION)

Output/Input
>500 megohms

Breakdown Voltage
>1000 VAC rms

BREAKDOWN, PWR/CIRCUITRY

>1500 VAC rms

OPERATING TEMPERATURE

14°F to 140°F
-10°C to 60°C

TEMPERATURE STABILITY

$\pm 0.02\%$ of span/°C max

OPTION P

Pullup resistor to + input
10 kilohms to +5 VDC
Open-circuit voltage
+5 VDC

POWER

115 VAC $\pm 10\%$,
50 or 60 Hz
(2.5 W max)

230 VAC $\pm 10\%$,
50 or 60 Hz
(2.5 W max)

(DC Power Option)

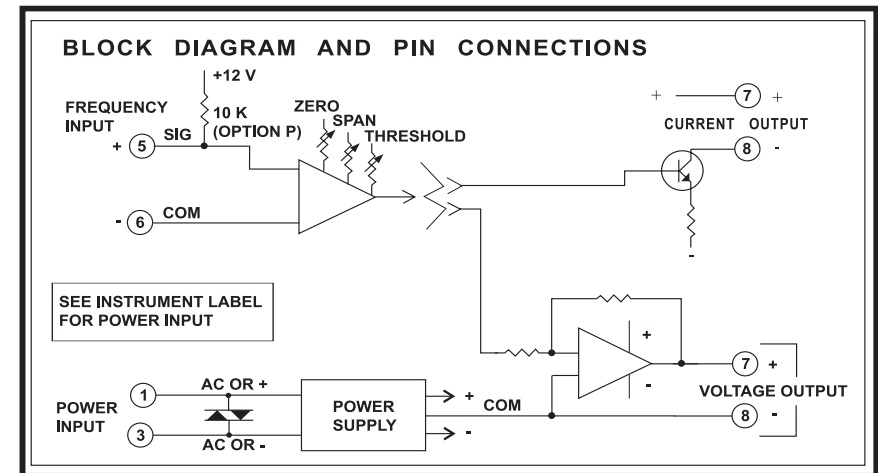
12 VDC
(limits 10 VDC to 15 VDC)
(2.5 W max)

24 VDC
(limits 21 VDC to 32 VDC)
(2.5 W max)

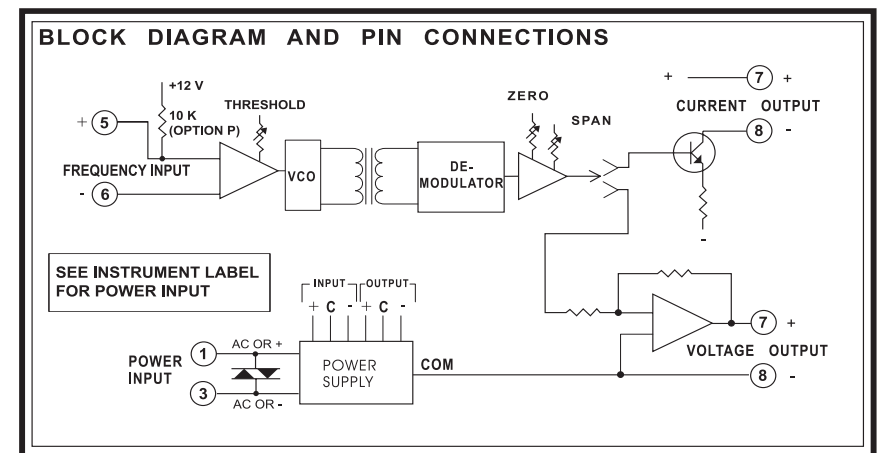
Isolation, DC power
supply to input
common: >500 megohms

* *Compliance: The sum of all voltage drops in the output loop cannot exceed 24 V at rated current (1200 ohms @ 20 mA).*

MM7010



MM7010 ISO



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