MM6010

AC INPUT
ISOLATED TRANSMITTER

DESCRIPTION

The MM6010 provides DC output voltage or current proportional to an AC input signal. It is useful in measuring AC voltages or currents and converting them to DC levels for driving controllers, recorders, meters, or other instruments. It utilizes a precision rectifier system to provide accurate and stable rectification of the AC input signal. The module provides an output signal proportional to the average level of the input signal. It is calibrated assuming a sinusoidal input signal will be applied. Other calibrations are available.

The module includes filtering and conditioning to reduce susceptibility to transients and noisy operations. They utilize pulse width modulation to develop a pulse train with a duty cycle proportional to the 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.

TYPICAL APPLICATIONS

Monitoring power line or power supply voltages and currents. Measuring the output of self-generating process sensors or transducers which generate AC signals and measuring current consumption of electrical devices such as motors, pumps or heaters.

OPTIONS

The following options are available on the MM6010:

U	All circuit boards conformal coated for protection against moisture.
DC Power	Inverter-isolated 12 or 24 VDC power.

CONTROLS

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

CALIBRATION

The MM6010 is shipped pre-calibrated. If there is a need to re-calibrate, 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 precision AC voltage source to the input. Connect a precision DC voltage or current meter to the output.

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

MOUNTING

The module is designed to plug into a standard 8 pin relay socket. Part number MP008 is a molded plastic socket that can be mounted on a flat surface or snapped into 2¾ inch wide PVC track (part no. TRK 48).

A spring hold-down clip (part no. CLP-1) is available for installations where vibration may be a problem.

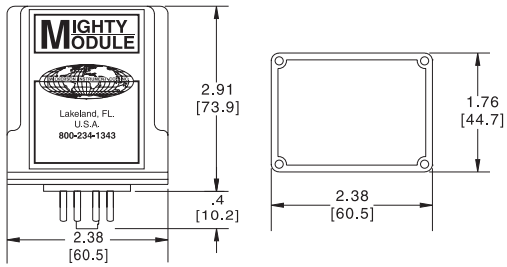
A Killark HK Series explosion-proof housing with dome and 8-pin socket is available (HKB-HK2D-8). A DIN-rail mounted socket (DMP008) is available for 35mm symmetrical DIN-rail.

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.

CASE DIMENSIONS INCHES [mm]



SPECIFICATIONS

Input Range

Voltage
select **any** range from 0 to 250 V max*
(min span 50 mV)

Current
select **any** range from 0 to 1 A rms max,**
(min span 1 mA, internal shunt)

Input Frequency
40 Hz to 1 kHz sine wave

Input Impedance
Voltage
200 kilohms

Current Input	Input Shunt Value
1 mA	100 OHM
10 mA	10 OHM
20 mA	5 OHM
100 mA	1 OHM
1 A	0.1 OHM

Output Range
Voltage
select **any** range from -10 V to +15 V, 10mA max load (min. span 0.2 V)
Current
select **any** range from 0 to 25 mA max, (min span 1 mA)

18 V compliance ***

Response Time
1 sec typical

Accuracy
±0.5% of span

Linearity
±0.1% of span

Common Mode Rejection
120 dB, DC to 60 Hz

Isolation
Output/Input
> 500 megohms

Breakdown Voltage
>1000 VAC rms

Output Ripple
(peak to peak)
< = 0.05% of span

Linearity
± 0.05% of span

Breakdown, Power Circuitry
>1500 VAC rms

Operating Temperature
14°F to 140°F / -10°C to 60°C

Temperature Stability
±0.02% of span/°C

Power
115 VAC ±10%,
50 to 60 Hz
(2.5 W max)

230 VAC ±10%,
50 to 60 Hz
(2.5 W max)

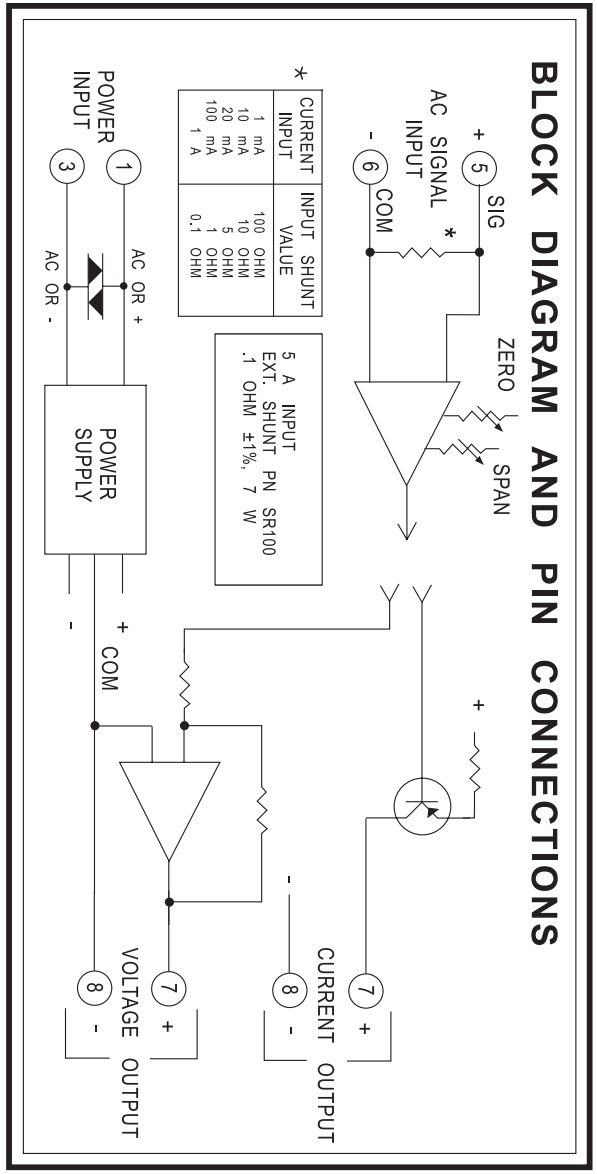
(DC Power Option)
24 VDC
(limits 21 VDC to 28 VDC)
(2.5 W max)

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

* *within specified range limits*

** *For input values greater than 1 A rms select appropriate external shunt resistor for 0-500 mV rms input.*

****Compliance:*
The sum of all voltage drops in the output loop cannot exceed 18 V at rated current (900 ohms @ 20 mA).



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