

MM1600 & MM1604

AC INPUT

SINGLE ALARMS



DESCRIPTION

The MM1600 & MM1604 modules monitor an AC input signal and trip a DPDT 5A relay when the input exceeds the desired level. Normal operation has the relay energized and it de-energizes for an alarm condition. This provides an alarm condition for loss of power to the alarm. A two-color LED indicates relay status, green for normal, and red for alarm.

A deadband adjustment allows a deadband of 0.5% to 100% of span to be set into the module. The deadband is symmetrical about the setpoint.

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

MODELS

Two styles of setpoint controls are available for the alarms. These are listed below by model number:

MM1600: AC Input Single Alarm
(25-turn screwdriver Adj)

MM1604: AC Input Single Alarm
(Dial-10-turn precision)

OPTIONS

The following options are available for the alarms:

- H** High Alarm: Alarm occurs on an increasing signal
- L** Low Alarm: Alarm occurs on a decreasing signal.
- R** The Normal condition for the relay is energized. It de-energizes for an alarm condition (Failsafe). Option R (Reverse Sense) reverses this logic.
- U** All circuit boards conformal coated for protection against moisture.

CONTROLS

The MM1600 & MM1604 alarm modules contain zero, span and deadband adjustments. Both modules have built-in setpoint controls.

CALIBRATION

Modules are shipped with ZERO and SPAN precalibrated. The user needs only adjust the SETPOINT and DEADBAND for the desired levels.

Connect a signal to the module input and set it for the desired trip point. Turn the DEADBAND fully ccw. Adjust the SETPOINT control until the relay just trips.

Adjust the DEADBAND for the desired amount of deadband. Vary the signal up and down to check the level at which the relay trips. The setpoint will remain centered in the middle of the deadband.

If there is a need to recalibrate ZERO and SPAN, proceed as follows:

Connect a signal to the module and set it for its minimum level. Turn the DEADBAND and SETPOINT controls fully ccw. Adjust the ZERO control until the relay just trips (LED turns red).

Increase the signal to 100% of span and turn the SETPOINT control fully cw (or increase the setpoint input to 100%). Adjust the SPAN control until the relay just trips (LED turns red). Repeat the procedure, the controls interact slightly.

After adjusting ZERO and SPAN, readjust the SETPOINT and DEADBAND controls.

MOUNTING

The modules are designed to plug into a standard 11-pin relay socket. (MP011) is a molded plastic socket suitable for mounting on a flat surface or snap into a 2 1/4 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 (DMP011) is available for 35mm symmetrical DIN rail.

A Killark HK Series explosion-proof housing with dome and 11 pin socket is available (HKB-HK2D-11).

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 from 0 to 250 Vrms 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
see table in block diagram

SETPOINT

0 to 100% of span

DEADBAND

0.5% to 100% of span

RESPONSE TIME

1 sec typical

ACCURACY

$\pm 0.5\%$ of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

RELAY CONTACTS

(dpdt)

Resistive Load:
5 A max, 150 W max,
220 VAC max, 30 VDC max

Inductive Load:
(Power Factor ≥ 0.4):
2.5 A max, 75 W max,
220 VAC max, 30 VDC max

OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY

$\pm 0.2\%$ of span/ $^{\circ}$ C max

POWER

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

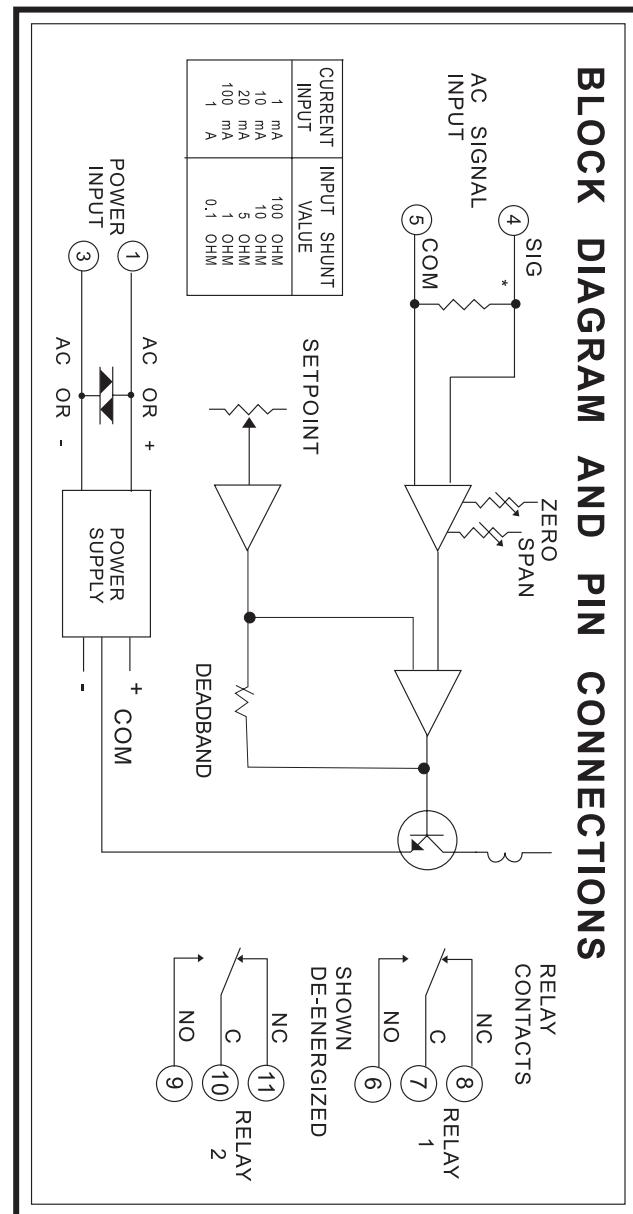
230 VAC $\pm 10\%$,
50/60 Hz (2.5 W max)

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

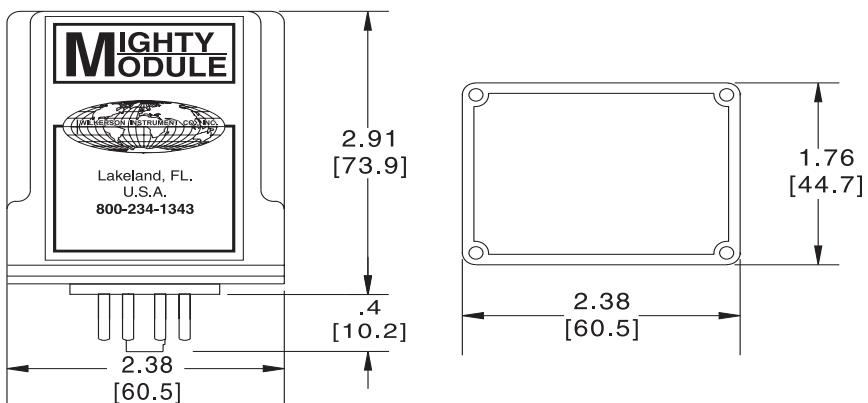
Isolation, DC power supply to input
common: 10 megohms

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

BLOCK DIAGRAM AND PIN CONNECTIONS



CASE DIMENSIONS INCHES [mm]



Specifications are subject to change without notice. © 2014 Wilkerson Instrument Co., Inc.

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