

MM1620, MM1621 & MM1624 AC INPUT DUAL ALARMS



DESCRIPTION

The MM1620 Series modules monitor an AC input signal and provide two sets of spdt, 5A alarm relays with two independently adjustable setpoints. Each setpoint has a set of red/green LEDs to indicate alarm status. When the input is between the setpoints, the relays are normally de-energized. When the signal exceeds a particular setpoint, the relay becomes energized. To provide a “fail-safe” operation (loss of power resulting in an alarm state), select Option R. The module can be supplied as a HI/HI, HI/LO, or LO/LO alarm (HI/LO supplied if not specified).

Standard deadband on both alarms is fixed at 0.5% of span. (Option A provides adjustable deadband of 0.5% to 100% of span.) Option D, latching alarms, has no deadband control. Once the limit has been reached, the alarm latches and power to the module must be momentarily interrupted to reset the alarm.

All Wilkerson Products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

(10-turn precision dials)

MODEL NUMBERS

These instructions cover the following setpoint styles:

MM1620 AC Input Dual Alarm
(25-turn screwdriver adj)

MM1621 AC Input Dual Alarm
(Single turn dials)

MM1624 AC Input Dual Alarm

OPTIONS

The following options are available for the alarms:

H/H, H/L, L/L

H = High Alarm: Alarm occurs on an increasing signal.

L = Low Alarm: Alarm occurs on a decreasing signal.

D Latching alarms: Reset by momentary interruption of line power.

A Provides top-accessed screwdriver adjustable deadbands from 0.5% to 100% of span.

R The Normal condition for the relays is de-energized. They energize for alarm conditions. Option R (Reverse sense) reverses this logic (Failsafe).

U All circuit boards conformal coated for protection against moisture.

DC Power

Inverter isolated 12 or 24 VDC power.

CONTROLS

The MM1620, MM1621 and MM1624 modules contain two setpoint controls, plus zero and span adjustments. The setpoint controls in the MM1620 are 25-turn blind trimpots. MM1621 and MM1624 contain 1-turn and 10-turn calibrated dials, respectively.

CALIBRATION

Modules are shipped with ZERO and SPAN precalibrated. The user needs only adjust the SETPOINTS and optional DEADBANDS for the desired levels.

To calibrate the module a calibrated AC signal source covering the range of the input signal is required. 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 connections.

(Note: When calibrating latching alarms, Option D, it will be necessary to momentarily interrupt power to reset the alarm after each trip.)

To calibrate the alarm setpoints, adjust the input to the desired alarm 1 setpoint. Adjust the SETPOINT 1 control until its LED just turns red (ccw for a high alarm, cw for low).

Change the input to the desired alarm 2 setpoint and similarly adjust the SETPOINT 2 control.

The MM1621 (1-turn dial) and MM1624 (10-turn dial) may be set using their 0-100% dials.

Adjust the optional DEADBAND controls for the desired amount of deadband. Vary the input signal up and down to check the levels at which the relay trips and resets. The setpoint will remain centered in the middle of the deadband. (Note: AC input alarms respond slowly, due to their internal filtering. Vary the input slowly to allow time for the alarm to respond.)

If there is a need to recalibrate ZERO and SPAN, turn the optional DEADBAND controls fully ccw and proceed as follows:

Set the input to the low end of the input range. Turn the SETPOINT 1 control fully ccw. Adjust the ZERO control until the SETPOINT 1 LED just changes color.

Change the input to the high end of the input range. Turn the SETPOINT 2 control fully cw. Adjust the SPAN control until the SETPOINT 2 LED just changes color.

Repeat until the ZERO and SPAN settings are both correct. After adjusting ZERO and SPAN controls, the SETPOINT and DEADBAND controls will need to be reset as described above.

ALARM TYPE	HI/LO	HI/HI	LO/LO
SETPOINT 1	HI	HI	LO
SETPOINT 2	LO	HI	LO

RELAY CONTACT PROTECTION

When inductive loads such as motors, relays or transformers are switched, voltage transients may be generated which exceed the ratings of the relay contacts. (Refer to the SPECIFICATIONS for the relay contact ratings.)

Surge suppression is required across inductive loads to guard against premature relay failure. FIGURE 1 illustrates diode surge suppression for a DC load. The diode's operating (peak inverse) voltage should exceed the load's supply voltage by at least 50% and should have a current rating of at least one ampere.

FIGURE 2 shows surge suppression for an AC load, using an MOV (Metal Oxide Varistor) and a capacitor. The breakdown voltage ratings of both the MOV and the capacitor must exceed the peak AC voltage.

With normal sine-wave power, PEAK = 1.414 x RMS voltage. For 115 VAC power a 200 volt peak rating is recommended.

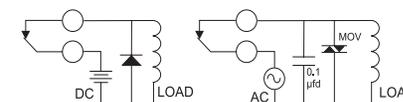


Figure 1
Surge Suppression
Inductive DC Load

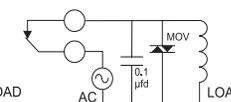


Figure 2
Surge Suppression
Inductive AC Load

SPECIFICATIONS

INPUT RANGE

Voltage
select any range from
0 to 250 V rms 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

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

SETPOINT

each alarm 0 to 100% of span

DEADBAND

Standard
fixed 0.5% of span
(Option A)
0.5% to 100% of span
(Option D)
Latching. Interrupt power to reset.

RESPONSE TIME

1 sec typical

ACCURACY

±0.5% of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

RELAY CONTACTS (spdt)

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

Inductive Load:
1/8 HP max at 120/240 VAC

OPERATING TEMPERATURE

14°F to 140°F / -10°C to 60°C

TEMPERATURE STABILITY

±0.02% of span / °C max

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 32VDC)
(2.5 W max)

Isolation, DC power supply to input
common: 10 megohms

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

MOUNTING

The module is 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 2¼ inch wide PVC track (TRK48). Spring hold-down clips are available for installation where vibration may be a problem. Use (CLP1) for MM1620 and (CLP2) for MM1621 and MM1624.

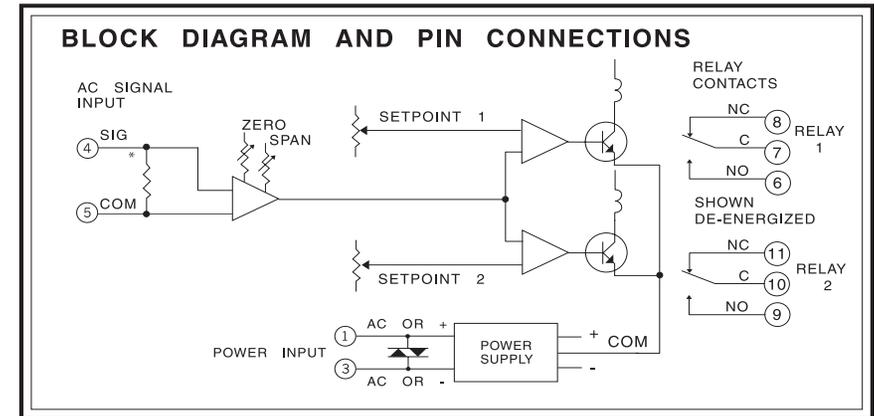
A DIN rail mounted socket (DMP011) is available for 35mm symmetrical DIN rail.

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

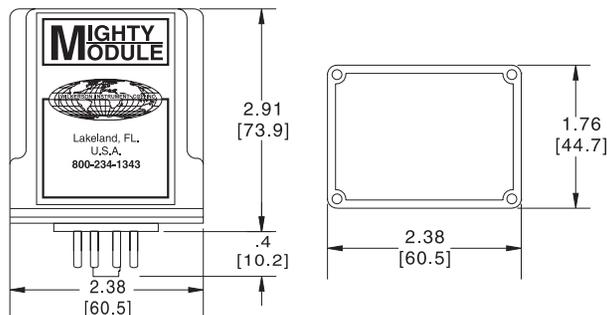
WARRANTY

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.



CASE DIMENSIONS INCHES [mm]



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