MM1200
THERMOCOUPLE INPUT
LIMIT ALARMS

DESCRIPTION

The MM1200 monitors any thermocouple input signal and trips a dpdt, 5 A relay when the input exceeds the desired level. Normal operation has the relay energized for the non-alarm condition and de-energized for an alarm condition. This provides a fail-safe alarm condition for loss of power to the module. The alarm has a set of red/green LEDs to indicate the alarm status.

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.

With the latching option, the alarm has no deadband control. Once the limit has been reached, the alarm latches and power must be momentarily interrupted to reset the alarm.

Cold junction compensation is provided by a solid state temperature sensor embedded in the thermocouple terminal strip. The module includes filtering and conditioning to reduce susceptibility to transients and noisy operations.

Upscale burnout protection is provided as standard. In the event the thermocouple opens, the module behaves as though the input goes offscale high.

Option B provides downscale burnout protection (module behaves as though the input goes low).

OPTIONS

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.

V Relay driver output (12VDC unfiltered). For use with 12 VDC relay coils having 220 ohms resistance. Also suitable for use as open-collector output.

B Standard burnout protection is upscale (high temperature). Option B provides downscale (low temperature) indication on thermocouple burnout.

CALIBRATION

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

Known input must be provided for setpoint adjustment and for calibration. If a thermocouple simulator is available, use it to provide the input, connecting it to the module with the appropriate pair of thermocouple wires. Otherwise, use copper wires to connect a precision DC millivolt source to the input.

When a millivolt source and copper wires are used it will be necessary to measure and correct for the temperature at the module's input connection. Using standard tables for your thermocouple, find the millivolt level corresponding to the temperature at the input terminals. Then, at each calibration temperature, subtract this voltage from the voltage given by the thermocouple table. Remember, calibration accuracy will be no better than the accuracy of this temperature measurement.

Connect the 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.

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 2 3/4 inch wide PVC track (TRK48).

A hold-down assembly (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 8-pin socket is available (HKB-HK2D-11).

SPECIFICATIONS

INPUT RANGE
 select any type thermocouple
 (min span 5 mV)

SETPOINT
 0 to 100% of span

DEADBAND
 0.5% to 100% of span

ACCURACY
 ±0.1% of span

COMMON MODE REJECTION
 120 dB, DC to 60 Hz

RELAY CONTACT (dpdt)
 Resistive Load:
   5 A max, 150 W max,
   220 VAC max, 30 VDC max
 Inductive Load:
   (Power factor ³0.4):
   2.5 A max, 75 W max,
   220 VAC max, 30 VDC max

Linearity
   (Option T) ±0.01% of span

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

TEMPERATURE STABILITY
 ±(0.02% of span + 1.3 micro V)/°C max

POWER (2.5 W max)
 115 VAC ±10%, 50/60 Hz
 230 VAC ±10%, 50/60 Hz
(DC Power Option)
 24 VDC (limits 21 VDC to 28 VDC)

 Isolation, DC power supply to input
 common: 10 megohms

V OPTION
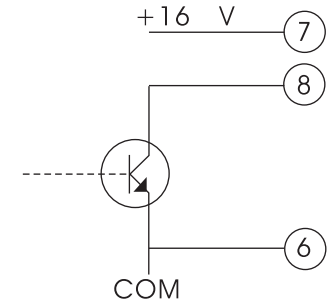# (OPEN-COLLECTOR TRANSISTOR OUTPUT)
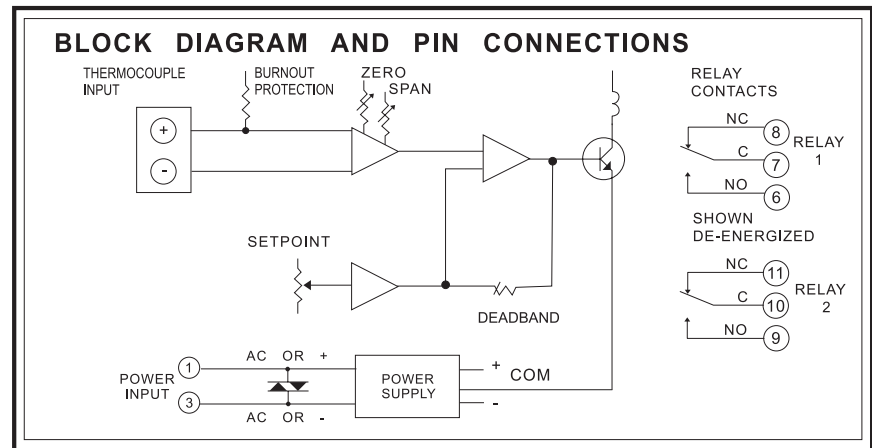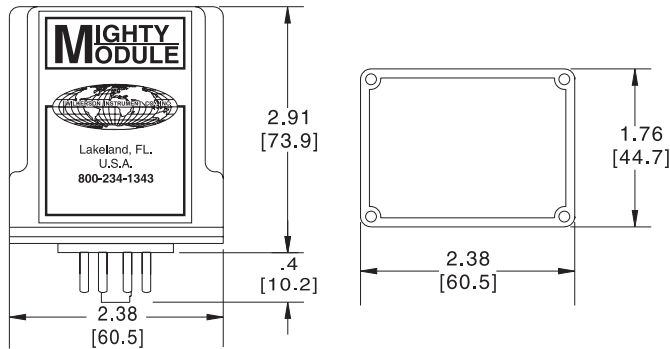
For TTL
(open-collector) output use:
Pins 8 (+) and 6

For relay driver
(switched voltage) output use:
Pins 7 (+) and 8

CASE DIMENSIONS INCHES [mm]

MIGHTY MODULE
Lakeland, FL.
U.S.A.
800-234-1343

2.91 [73.9]
.4 [10.2]
2.38 [60.5]
2.38 [60.5]
1.76 [44.7]

BLOCK DIAGRAM AND PIN CONNECTIONS