

## Limit Alarms M-PAC

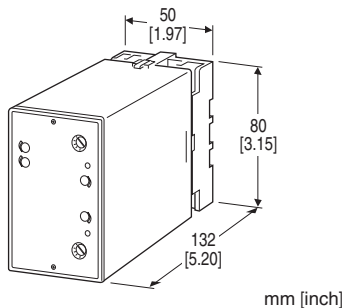
### 2-WIRE TRANSMITTER LIMIT ALARM

#### Functions & Features

- Supplying power to 2-wire current loop and providing relay contact closure(s) at a preset input level
- Single, latching or dual setpoint
- Failsafe operation available
- Deadband adjustable from 1 to 100%
- Indicator LED provided

#### Typical Applications

- Annunciator
- Various alarm applications



### MODEL: MP11[1][2]-A-[3]/[4]

#### ORDERING INFORMATION

- Code number: MP11[1][2]-A-[3]/[4]
- Specify a code from below for each of [1] through [4].  
(e.g. MP1100-A-F/T/V)

#### [1] RELAY CONTACT OUTPUT

- 0: Single (Hi) trip, non-latching
- 1: Single (Hi) trip, latching
- 2: Dual (Hi/Lo) trip, non-latching

#### [2] SETPOINT CONTROL

- 0: Front-accessed three-turn screwdriver adjust
- 2: Remote dial connections (total resistance 1 k - 100 k $\Omega$ )
- 3: DC programmable (0 - 1 V DC)

#### INPUT

##### Current

A: 4 - 20 mA DC (Input resistance 250  $\Omega$ )

#### [3] POWER INPUT

##### AC Power

F: 120 V AC

J: 240 V AC

##### DC Power

S: 12 V DC

R: 24 V DC

#### [4] OPTIONS

H: Latching operation for dual trip; reset at power off (5 seconds min.)

(dual trip type only)

R: Reversed relay sense

T: Transmitter output (0 - 1 V DC)

V: Relay drive voltage output

X: Lo-trip sense for single trip; Lo/Lo for dual trip

Y: Hi/Hi-trip sense for dual trip (dual trip type only)

#### GENERAL SPECIFICATIONS

**Construction:** Plug-in

**Connection:** M3.5 screw terminals

**Screw terminal:** Chromated steel

**Housing material:** Flame-resistant resin (black)

**Isolation:** Input to output to power (non-isolated between I/O with Option V)

**Zero adjustment:** -5 to +5 % (front)

**Span adjustment:** 95 to 105 % (front)

**Setpoint adjustments:** Front accessed three-turn screwdriver, remote dial potentiometer or DC input

**Deadband adjustments:** Front accessed single-turn screwdriver; 1 - 100 %

**Front LEDs:** Red LED turns on at a tripped condition

**Power ON timer:** Relays de-energized for approx. 2 seconds after power is turned on.

#### SUPPLY OUTPUT

**Output voltage:** 24 - 28 V DC with no load

**Current rating:**  $\leq$  22 mA DC

- Shortcircuit Protection

**Current limited:** 35 mA max.

**Protected time duration:** No limit

#### INPUT SPECIFICATIONS

- DC Current: Input resistor incorporated

- Setpoint Control

- Remote dial connections

**Potentiometer:** Total resistance 1 k - 100 k $\Omega$

**Excitation:** 4 V DC

- DC programmable: 0 - 1 V DC

## OUTPUT SPECIFICATIONS

### ■ Relay Contact

- **Single / Latching:** Isolated DPDT relay; de-energized at trip
- **Dual:** Isolated SPDT relay; energized at trip

**Rating:** 120 V AC @ 3 A ( $\cos\phi=1$ )

30 V DC @ 3 A (resistive load)

**Electrical life:**  $10^5$  cycles

**Mechanical life:**  $10^7$  cycles

For maximum relay life with inductive loads, external protection is recommended.

■ **Relay Drive Voltage Output (option V):** 24 V DC average; drives 1.2 k $\Omega$  or greater coil impedance

■ **Transmitter Output (option T):** 0 - 1 V DC; 1 mA max. (setpoint and process input)

## INSTALLATION

### Power input

• **AC:** Operational voltage range: rating  $\pm 10$  %, 50/60  $\pm 2$  Hz, approx. 2.5 VA

• **DC:** Operational voltage range: rating  $\pm 10$  % ripple 10 %p-p max.

90 mA at 24 V

180 mA at 12 V

**Operating temperature:** -5 to +60°C (23 to 140°F)

**Storage temperature:** -20 to +85°C (-4 to +185°F)

**Operating humidity:** 30 to 90 %RH (non-condensing)

**Mounting:** Surface (DIN rail available for 11-pin base)

**Weight:** 400 g (0.88 lb)

## PERFORMANCE in percentage of span

**Repeatability:**  $\pm 0.2$  %

**Temp. coefficient:**  $\pm 0.05$  %/°C ( $\pm 0.03$  %/°F)

**Response time:**  $\leq 0.5$  sec. (0 - 100 % at 90 % setpoint)

**Line voltage effect:**  $\pm 0.1$  % over voltage range

**Insulation resistance:**  $\geq 100$  M $\Omega$  with 500 V DC

**Dielectric strength:** 1000 V AC @ 1 minute

(input to output to power)

2000 V AC @ 1 minute (output to ground)

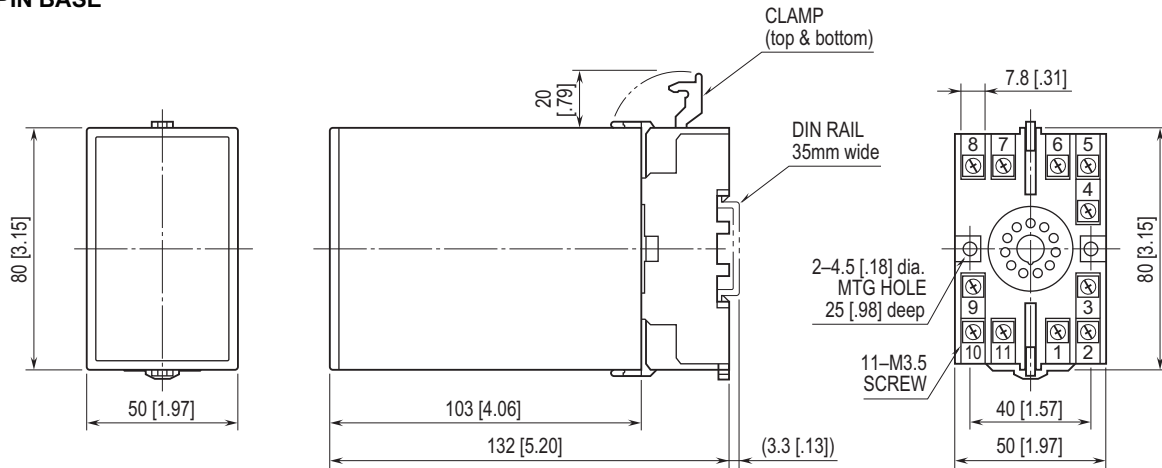
**Common mode noise rejection:**

**60 Hz:** Greater than 120 dB

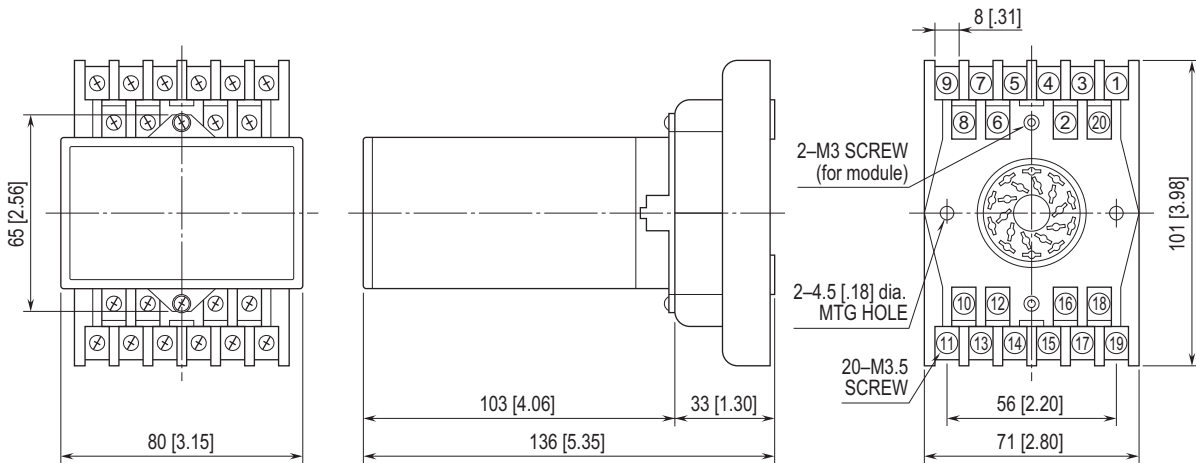
**DC:** Greater than 140 dB

## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]

### 11-PIN BASE

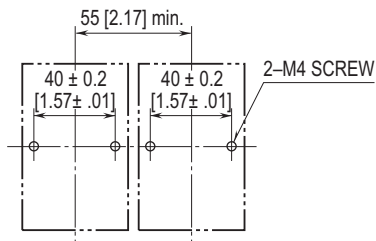


### 20-PIN BASE

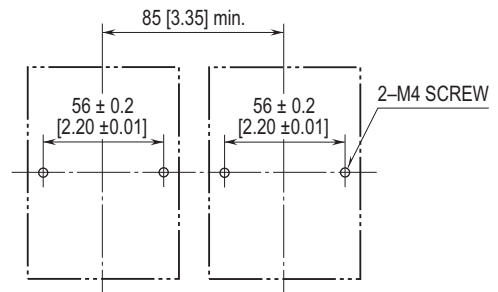


## MOUNTING REQUIREMENTS unit: mm [inch]

### 11-PIN BASE



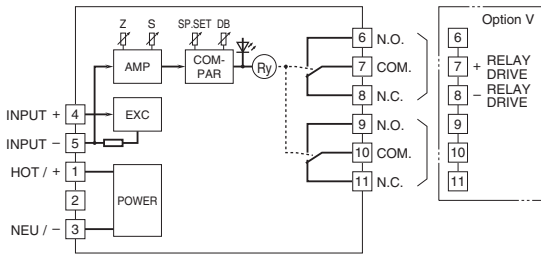
### 20-PIN BASE



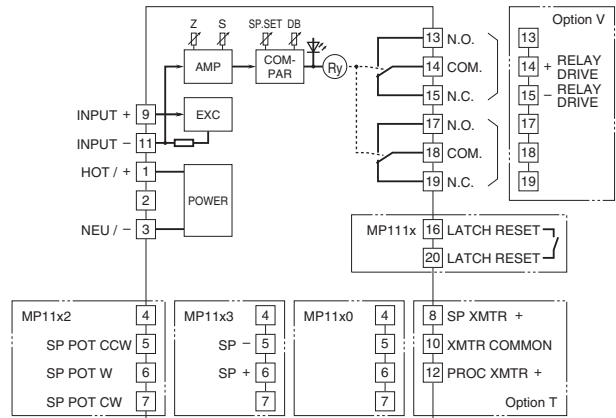
## BLOCK DIAGRAM

### ■ SINGLE / LATCHING OUTPUT

#### •11-pin Base

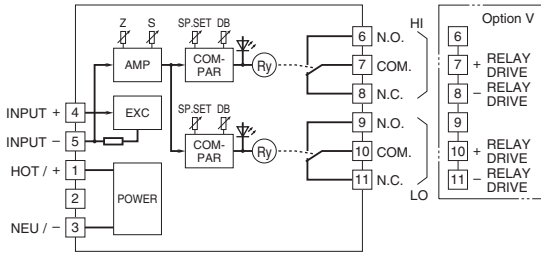


#### •20-pin Base

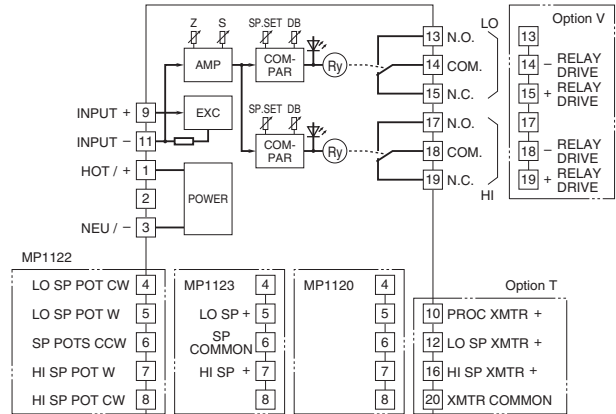


### ■ DUAL OUTPUT

#### •11-pin Base



#### •20-pin Base



## I/O TERMINAL ASSIGNMENT

### ■SINGLE OUTPUT

PIN	MP1100	MP1100 w/Option T	MP1102	MP1102 w/Option T	MP1103	MP1103 w/Option T
1	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)
2	No Connection	No Connection	No Connection	No Connection	No Connection	No Connection
3	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)
4	INPUT +	No Connection	No Connection	No Connection	No Connection	No Connection
5	INPUT -	No Connection	SP Pot CCW	SP Pot CCW	SP -	SP -
6	N.O. ]	No Connection	SP Pot W	SP Pot W	SP +	SP +
7	COM * ]	No Connection	SP Pot CW	SP Pot CW	No Connection	No Connection
8	N.C. * ]	SP Xmtr +	No Connection	SP Xmtr +	No Connection	SP Xmtr +
9	N.O. ]	INPUT +	INPUT +	INPUT +	INPUT +	INPUT +
10	COM ]	Xmtr Common	No Connection	Xmtr Common	No Connection	Xmtr Common
11	N.C. ]	INPUT -	INPUT -	INPUT -	INPUT -	INPUT -
12		Proc Xmtr +	No Connection	Proc Xmtr +	No Connection	Proc Xmtr +
13		N.O. ]	N.O. ]	N.O. ]	N.O. ]	N.O. ]
14		COM * ]	COM * ]	COM * ]	COM * ]	COM * ]
15		N.C. * ]	N.C. * ]	N.C. * ]	N.C. * ]	N.C. * ]
16		No Connection	No Connection	No Connection	No Connection	No Connection
17		N.O. ]	N.O. ]	N.O. ]	N.O. ]	N.O. ]
18		COM ]	COM ]	COM ]	COM ]	COM ]
19		N.C. ]	N.C. ]	N.C. ]	N.C. ]	N.C. ]
20		No Connection	No Connection	No Connection	No Connection	No Connection

#### KEYS

N.O. = Normally Open  
COM = Common  
N.C. = Normally Closed  
Proc = Process  
Xmtr = Transmitter  
SP = Setpoint  
W = Wiper  
CW = Clockwise  
CCW = Counterclockwise

\*Pins used for Option V  
20-pin = 14(+) - 15(-)  
11-pin = 7(+) - 8(-)

### ■LATCHING OUTPUT

PIN	MP1110	MP1110 w/Option T	MP1112	MP1112 w/Option T	MP1113	MP1113 w/Option T
1	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)
2	No Connection	No Connection	No Connection	No Connection	No Connection	No Connection
3	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)
4	No Connection	No Connection	No Connection	No Connection	No Connection	No Connection
5	No Connection	No Connection	SP Pot CCW	SP Pot CCW	SP -	SP -
6	No Connection	No Connection	SP Pot W	SP Pot W	SP +	SP +
7	No Connection	No Connection	SP Pot CW	SP Pot CW	No Connection	No Connection
8	No Connection	SP Xmtr +	No Connection	SP Xmtr +	No Connection	SP Xmtr +
9	INPUT +	INPUT +	INPUT +	INPUT +	INPUT +	INPUT +
10	No Connection	Xmtr Common	No Connection	Xmtr Common	No Connection	Xmtr Common
11	INPUT -	INPUT -	INPUT -	INPUT -	INPUT -	INPUT -
12	No Connection	Proc Xmtr +	No Connection	Proc Xmtr +	No Connection	Proc Xmtr +
13	N.O. ]	N.O. ]	N.O. ]	N.O. ]	N.O. ]	N.O. ]
14	COM * ]	COM * ]	COM * ]	COM * ]	COM * ]	COM * ]
15	N.C. * ]	N.C. * ]	N.C. * ]	N.C. * ]	N.C. * ]	N.C. * ]
16	Latch Reset	Latch Reset	Latch Reset	Latch Reset	Latch Reset	Latch Reset
17	N.O. ]	N.O. ]	N.O. ]	N.O. ]	N.O. ]	N.O. ]
18	COM ]	COM ]	COM ]	COM ]	COM ]	COM ]
19	N.C. ]	N.C. ]	N.C. ]	N.C. ]	N.C. ]	N.C. ]
20	Latch Reset	Latch Reset	Latch Reset	Latch Reset	Latch Reset	Latch Reset

#### KEYS

N.O. = Normally Open  
COM = Common  
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Proc = Process  
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CW = Clockwise  
CCW = Counterclockwise

\*Pins used for Option V  
20-pin = 14(+) - 15(-)

### ■DUAL OUTPUT

PIN	MP1120	MP1120 w/Option T	MP1122	MP1122 w/Option T	MP1123	MP1123 w/Option T
1	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)
2	No Connection	No Connection	No Connection	No Connection	No Connection	No Connection
3	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)
4	INPUT +	No Connection	Lo SP Pot CW	Lo SP Pot CW	No Connection	No Connection
5	INPUT -	No Connection	Lo SP Pot W	Lo SP Pot W	Lo SP +	Lo SP +
6	N.O. ]	No Connection	SP Pots CCW	SP Pots CCW	SP Common	SP Common
7	COM * ] Hi Set	No Connection	Hi SP Pot W	Hi SP Pot W	Hi SP +	Hi SP +
8	N.C. * ]	No Connection	Hi SP Pot CW	Hi SP Pot CW	No Connection	No Connection
9	N.O. ]	INPUT +	INPUT +	INPUT +	INPUT +	INPUT +
10	COM * ] Lo Set	Proc Xmtr +	No Connection	Proc Xmtr +	No Connection	Proc Xmtr +
11	N.C. * ]	INPUT -	INPUT -	INPUT -	INPUT -	INPUT -
12		Lo SP Xmtr +	No Connection	Lo SP Xmtr +	No Connection	Lo SP Xmtr +
13		N.O. ]	N.O. ]	N.O. ]	N.O. ]	N.O. ]
14		COM * ] Lo Set	COM * ] Lo Set	COM * ] Lo Set	COM * ] Lo Set	COM * ] Lo Set
15		N.C. * ]	N.C. * ]	N.C. * ]	N.C. * ]	N.C. * ]
16		Hi SP Xmtr +	No Connection	Hi SP Xmtr +	No Connection	Hi SP Xmtr +
17		N.O. ]	N.O. ]	N.O. ]	N.O. ]	N.O. ]
18		COM * ] Hi Set	COM * ] Hi Set	COM * ] Hi Set	COM * ] Hi Set	COM * ] Hi Set
19		N.C. * ]	N.C. * ]	N.C. * ]	N.C. * ]	N.C. * ]
20		Xmtr Common	No Connection	Xmtr Common	No Connection	Xmtr Common

#### KEYS

N.O. = Normally Open  
COM = Common  
N.C. = Normally Closed  
Proc = Process  
Xmtr = Transmitter  
SP = Setpoint  
W = Wiper  
CW = Clockwise  
CCW = Counterclockwise

\*Pins used for Option V  
20-pin:  
Hi Set = 19(+) - 18(-)  
Lo Set = 15(+) - 14(-)  
11-pin:  
Hi Set = 7(+) - 8(-)  
Lo Set = 10(+) - 11(-)



Specifications are subject to change without notice.