

Limit Alarms M-PAC

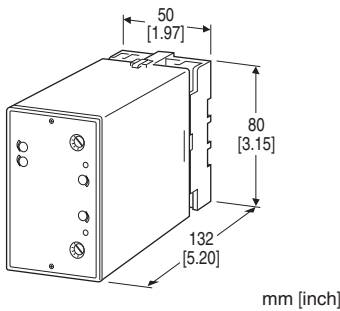
RTD INPUT LIMIT ALARM

Functions & Features

- Accepting 2- or 3-wire RTD inputs and providing relay contact closure(s) at a preset input level
- Upscale burnout protection as standard
- Downscale or no burnout optional
- Single, latching or dual setpoint
- Failsafe operation available
- Deadband adjustable from 1 to 100%
- Indicator LED provided

Typical Applications

- Annunciator
- Various alarm applications



MODEL: MP14[1][2]-[3]-[4]/[5]

ORDERING INFORMATION

- Code number: MP14[1][2]-[3]-[4]/[5]
- Specify a code from below for each of [1] through [5].
(e.g. MP1400-4-F/T/V)
- Temperature range (e.g. 0 - 100°C)

[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 kΩ)
3: DC programmable (0 - 1 V DC)

[3] INPUT RTD (2- or 3-wire)

- 4:** Pt 100 (JIS'97, IEC)
 (Usable range: -200 to +660°C, -328 to +1112°F; min.span: 50°C, 90°F)

0: Specify

Note: Consult us for 2-wire RTD

[4] POWER INPUT

AC Power

F: 120 V AC

J: 240 V AC

DC Power

S: 12 V DC

R: 24 V DC

[5] 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 %

Burnout: Upscale standard; downscale or no burnout optional

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.

INPUT SPECIFICATIONS

■ RTD (2-wire or 3-wire)

Maximum leadwire resistance: 200 Ω per wire (3-wire)

Sensing current: 2 mA

■ Setpoint Control

- Remote dial connections

Potentiometer: Total resistance 1 k - 100 kΩ

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 Ω 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 ± 10 %, 50/60 ± 2 Hz, approx. 2 VA
- **DC:** Operational voltage range: rating ± 10 % ripple 10 %p-p max.
80 mA at 24 V
160 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: ± 0.2 %

Temp. coefficient: ± 0.05 %/°C (± 0.03 %/°F)

Response time: ≤ 0.5 sec. (0 - 100 % at 90 % setpoint)

Burnout response: 1 sec.

Line voltage effect: ± 0.1 % over voltage range

Insulation resistance: ≥ 100 M Ω 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:

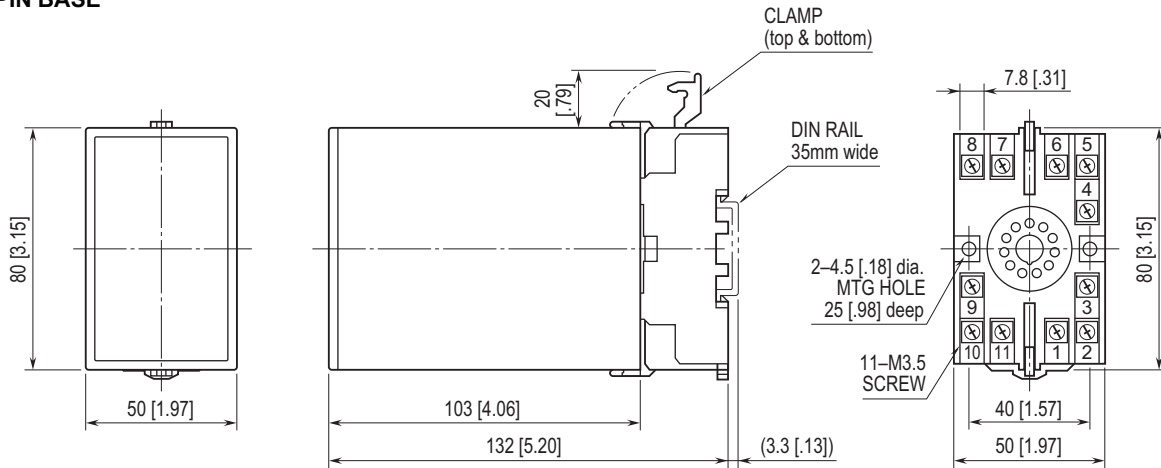
60 Hz: Greater than 120 dB

DC: Greater than 140 dB

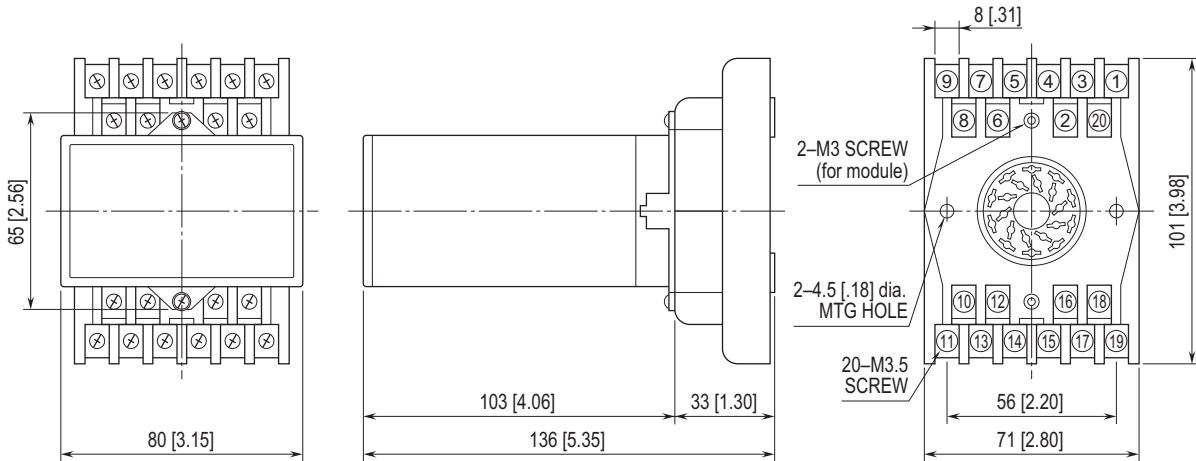
MODEL: MP1400-1423

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]

11-PIN BASE

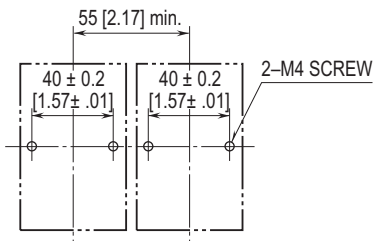


20-PIN BASE

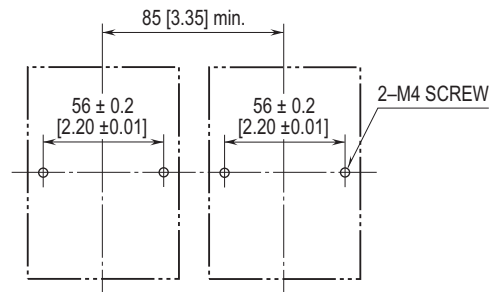


MOUNTING REQUIREMENTS unit: mm [inch]

11-PIN BASE

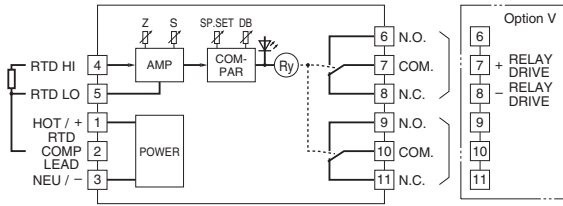


20-PIN BASE

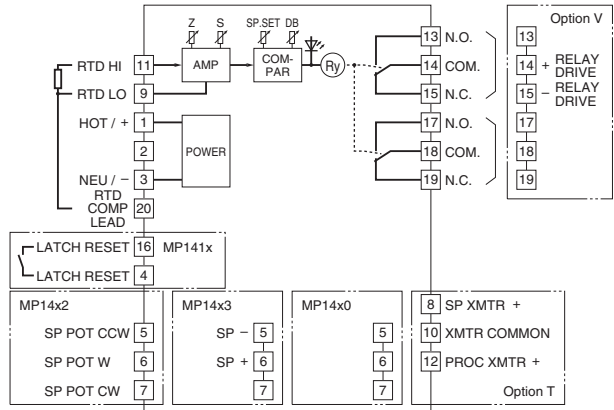


BLOCK DIAGRAM

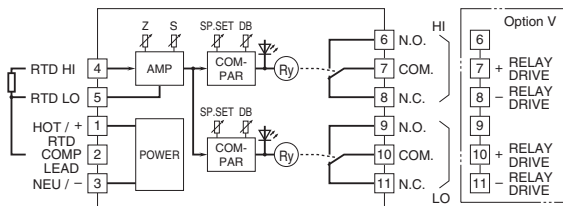
■ SINGLE / LATCHING OUTPUT •11-pin Base



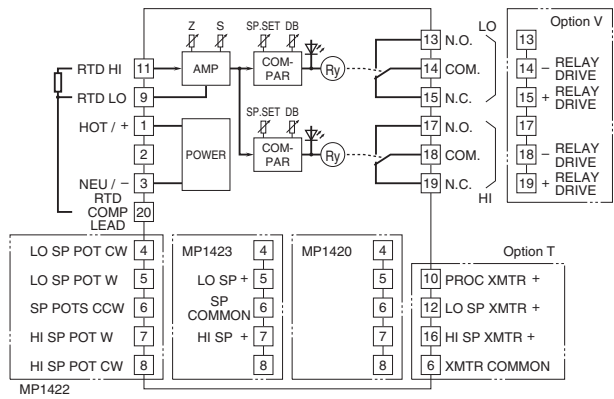
•20-pin Base



■ DUAL OUTPUT •11-pin Base



•20-pin Base



I/O TERMINAL ASSIGNMENT

■ SINGLE OUTPUT

PIN	MP1400	MP1400 w/Option T	MP1402	MP1402 w/Option T	MP1403	MP1403 w/Option T
1	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)
2	RTD Comp Lead	No Connection	No Connection	No Connection	No Connection	No Connection
3	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)
4	RTD Hi	No Connection	No Connection	No Connection	No Connection	No Connection
5	RTD Lo	No Connection	SP Pot CCW	SP Pot CCW	SP -	No Connection
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.	RTD Lo	RTD Lo	RTD Lo	RTD Lo	RTD Lo
10	COM	Xmtr Common	No Connection	Xmtr Common	No Connection	Xmtr Common
11	N.C.	RTD Hi	RTD Hi	RTD Hi	RTD Hi	RTD Hi
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		RTD Comp Lead	RTD Comp Lead	RTD Comp Lead	RTD Comp Lead	RTD Comp Lead

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	MP1410	MP1410 w/Option T	MP1412	MP1412 w/Option T	MP1413	MP1413 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	Latch Reset	Latch Reset	Latch Reset	Latch Reset	Latch Reset	Latch Reset
5	No Connection	No Connection	SP Pot CCW	SP Pot CCW	SP -	No Connection
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	RTD Lo	RTD Lo	RTD Lo	RTD Lo	RTD Lo	RTD Lo
10	No Connection	Xmtr Common	No Connection	Xmtr Common	No Connection	Xmtr Common
11	RTD Hi	RTD Hi	RTD Hi	RTD Hi	RTD Hi	RTD Hi
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	RTD Comp Lead	RTD Comp Lead	RTD Comp Lead	RTD Comp Lead	RTD Comp Lead	RTD Comp Lead

KEYS

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 CCW = Counterclockwise

*Pins used for Option V

20-pin = 14(+) - 15(-)

■ DUAL OUTPUT

PIN	MP1420	MP1420 w/Option T	MP1422	MP1422 w/Option T	MP1423	MP1423 w/Option T
1	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)	POWER (Hot/+)
2	RTD Comp Lead	No Connection	No Connection	No Connection	No Connection	No Connection
3	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)	POWER (Neu/-)
4	RTD Hi	No Connection	Lo SP Pot CW	Lo SP Pot CW	No Connection	No Connection
5	RTD Lo	No Connection	Lo SP Pot W	Lo SP Pot W	Lo SP +	Lo SP +
6	N.O.	Xmtr Common	SP Pots CCW	SP Pots CCW/ Xmtr Common	SP Common	SP Common/ Xmtr 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.	RTD Lo	RTD Lo	RTD Lo	RTD Lo	RTD Lo
10	COM * Lo Set	Proc Xmtr +	No Connection	Proc Xmtr +	No Connection	Proc Xmtr +
11	N.C. *	RTD Hi	RTD Hi	RTD Hi	RTD Hi	RTD Hi
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		RTD Comp Lead	RTD Comp Lead	RTD Comp Lead	RTD Comp Lead	RTD Comp Lead

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.