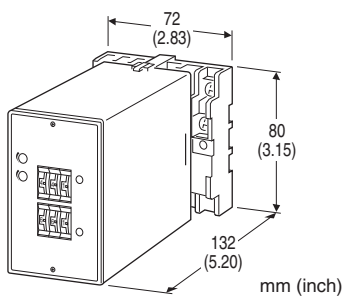


Limit Alarms (with DC output) AE-UNIT

POTENTIOMETER ALARM

Functions & Features

- Providing SPDT relay outputs at preset potentiometer or slidewire positions
- Zero/span adjustable to 50 %
- Dual (Hi/Lo) trip
- Additional isolated DC output proportional to the temperature
- Energized or de-energized coil at a tripped condition selectable
- Thumbwheel switch adjustments
- Relays can be powered 110 V DC



MODEL: AEM-[1][2][3][4][5]-[6][7]

ORDERING INFORMATION

- Code number: AEM-[1][2][3][4][5]-[6][7]
- Specify a code from below for each of [1] through [7].
(e.g. AEM-A2101-D/Q)
- Special DC output range (For codes Z & 0)
- Specify the specification for option code /Q
(e.g. /C01/S01)

INPUT POTENTIOMETER

Total resistance 100 Ω - 10 kΩ

[1] DC OUTPUT

N: None

Current

- A: 4 - 20 mA DC (Load resistance 350 Ω max.)
- B: 2 - 10 mA DC (Load resistance 700 Ω max.)
- C: 1 - 5 mA DC (Load resistance 1400 Ω max.)
- D: 0 - 20 mA DC (Load resistance 350 Ω max.)
- E: 0 - 16 mA DC (Load resistance 430 Ω max.)
- F: 0 - 10 mA DC (Load resistance 700 Ω max.)
- G: 0 - 1 mA DC (Load resistance 7000 Ω max.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)

Voltage

- 1: 0 - 10 mV DC (Load resistance 10 kΩ min.)
- 2: 0 - 100 mV DC (Load resistance 100 kΩ min.)
- 3: 0 - 1 V DC (Load resistance 1000 Ω min.)
- 4: 0 - 10 V DC (Load resistance 10 kΩ min.)
- 5: 0 - 5 V DC (Load resistance 5000 Ω min.)
- 6: 1 - 5 V DC (Load resistance 5000 Ω min.)
- 4W: -10 - +10 V DC (Load resistance 10 kΩ min.)
- 5W: -5 - +5 V DC (Load resistance 5000 Ω min.)
- 0: Specify voltage (See OUTPUT SPECIFICATIONS)

[2] SETPOINT 1 OUTPUT

- 1: Hi (coil energized at alarm)
- 2: Hi (coil de-energized at alarm)
- 3: Lo (coil energized at alarm)
- 4: Lo (coil de-energized at alarm)

[3] SETPOINT 2 OUTPUT

- 1: Hi (coil energized at alarm)
- 2: Hi (coil de-energized at alarm)
- 3: Lo (coil energized at alarm)
- 4: Lo (coil de-energized at alarm)

[4] ON DELAY TIME

- 0: 0.5 seconds
- 1: 1 second
- 2: 2 seconds
- 3: 3 seconds
- 4: 4 seconds

[5] POWER ON DELAY TIME

- 1: 1 second
- 2: 2 seconds
- 3: 3 seconds
- 4: 4 seconds
- 5: 5 seconds

[6] POWER INPUT

AC Power

- B: 100 V AC
- C: 110 V AC
- D: 115 V AC
- F: 120 V AC
- G: 200 V AC
- H: 220 V AC
- J: 240 V AC

DC Power

- S: 12 V DC
- R: 24 V DC
- V: 48 V DC
- P: 110 V DC

[7] OPTIONS

blank: none

/Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q (multiple selections)

COATING (For the detail, refer to our web site.)

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

TERMINAL SCREW MATERIAL

/S01: Stainless steel

GENERAL SPECIFICATIONS

Construction: Plug-in

Connection: M3.5 screw terminals

Screw terminal: Chromated steel (standard) or stainless steel

Housing material: Flame-resistant resin (black)

Isolation: Input to DC output to alarm output 1 to alarm output 2 to power

Zero adjustment: 0 - 50 % of total resistance (front)

Span adjustment: 50 - 100 % of total resistance (front)

Setpoint adjustments: Thumbwheel switches (front);
0 - 99 % independently; 1 % increments

Hysteresis (deadband) adjustments: Thumbwheel switches (front); 0.5, 1 - 9 % independently; 1 % increments (SW position 0 = 0.5); [Lo SP + Hysteresis] ≤ 102

Front LEDs: Red LED turns on when the coil is energized.

INPUT SPECIFICATIONS

Minimum span: 50 % of total resistance

Excitation: 0.5 V DC

OUTPUT SPECIFICATIONS

■ DC Output

• DC Current: 0 - 20 mA DC

Minimum span: 1 mA

Offset: Max. 1.5 times span

Load resistance: Output drive 7 V maximum

• DC Voltage: -10 - +12 V DC

Minimum span: 5 mV

Offset: Max. 1.5 times span

Load resistance: Output drive 1 mA maximum; at ≥ 0.5 V

■ Alarm Output: Relay contact

100 V AC @ 1 A (cos θ = 1)

120 V AC @ 1 A (cos θ = 1)

240 V AC @ 0.5 A (cos θ = 1)

30 V DC @ 1 A (resistive load)

Maximum switching voltage: 380 V AC or 125 V DC

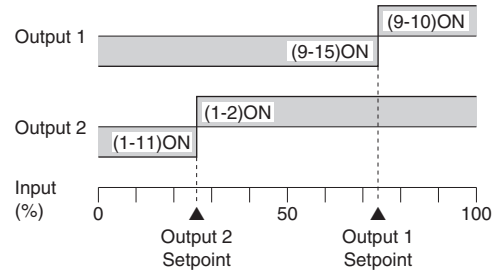
Maximum switching power: 120 VA or 30 W

Minimum load: 5 V DC @ 10 mA

Mechanical life: 5 x 10⁷ cycles

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

Alarm Trip Operation Terminal No. in parentheses



Trip Operation in Power Failure

- Output Code: 1 & 4: Terminals 1 - 11, 9 - 15 turn ON
- Output Code: 2 & 3: Terminals 1 - 2, 9 - 10 turn ON

INSTALLATION

Power input

• AC: Operational voltage range: rating ±10 %, 50/60 ±2 Hz, approx. 3 VA

• DC: Operational voltage range: rating ±10 %, or 85 - 150 V for 110 V rating (ripple 10 % p-p max.) approx. 2 W (80 mA at 24 V)

Operating temperature: -5 to +55°C (23 to 131°F)

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

Mounting: Surface or DIN rail

Weight: 450 g (0.99 lb)

PERFORMANCE in percentage of span

• DC output

Accuracy: ±0.1 %

Response time: ≤ 0.5 sec. (0 - 90 %)

• Alarm output

Setpoint accuracy: ±0.5 %

Hysteresis (Deadband) setpoint accuracy: ±0.3 %

ON delay time accuracy: rating ±20 % or 0.3 sec., whichever is greater.

Power ON delay time accuracy: rating ±30 %

Trip point repeatability: ±0.05 %

Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)

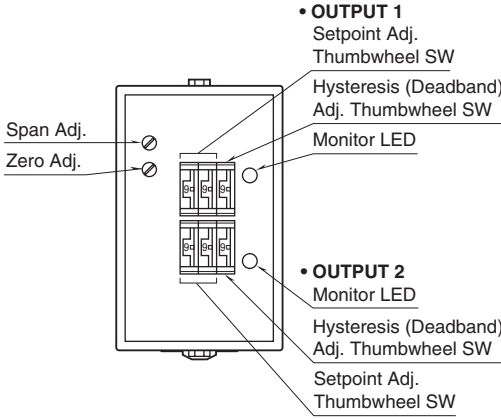
Line voltage effect: ±0.1 % over voltage range

Insulation resistance: ≥ 100 MΩ with 500 V DC

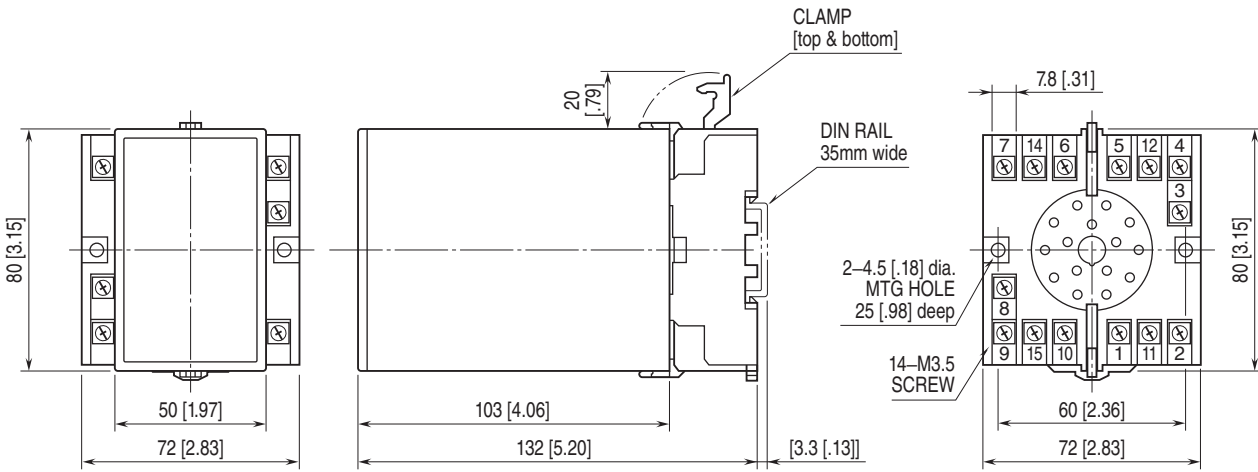
Dielectric strength: 2000 V AC @ 1 minute

(input to DC output to alarm output 1 to alarm output 2 to power to ground)

EXTERNAL VIEW

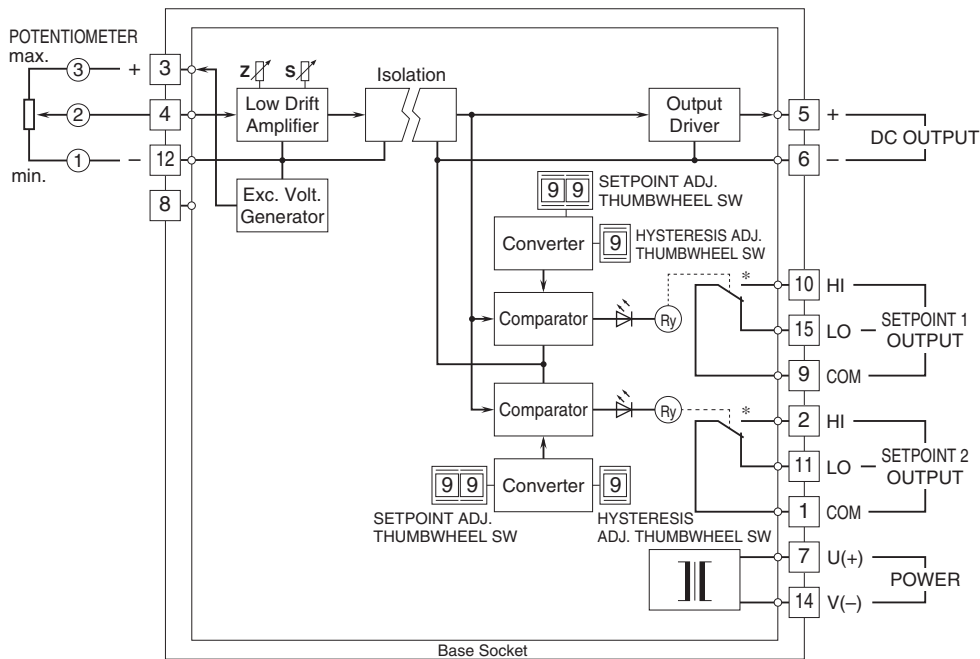


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



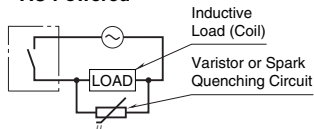
• When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

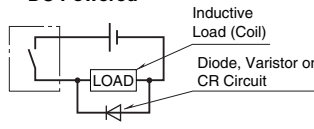


*Relay status for output codes "1" & "4", at power OFF.

■ Relay Protection
• AC Powered



• DC Powered



Specifications are subject to change without notice.