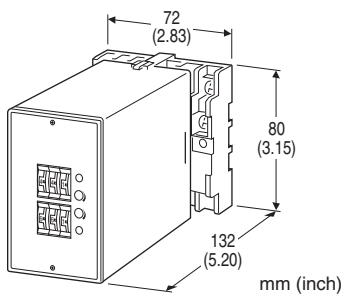


## Limit Alarms (with DC output) AE-UNIT

### AC ALARM

#### Functions & Features

- Providing SPDT relay outputs at preset AC current/voltage levels
- Dual (Hi/Lo) trip
- Additional isolated DC output proportional to the input
- True RMS sensing
- Energized or de-energized coil at a tripped condition selectable
- Thumbwheel switch adjustments
- Relays can be powered 110 V DC



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

#### ORDERING INFORMATION

- Code number: AEAC-[1][2][3][4][5][6]-[7]  
Specify a code from below for each [1] through [7].  
(e.g. AEAC-A6A2101-D)
- Special input and DC output ranges (For codes AZ, A8, Z & 0)

#### [1] INPUT

##### Current

- AA:** 0 - 10 mA AC (Input resistance 100  $\Omega$ )
- AB:** 0 - 50 mA AC (Input resistance 20  $\Omega$ )
- AC:** 0 - 100 mA AC (Input resistance 10  $\Omega$ )
- AD:** 0 - 500 mA AC (Input resistance 1  $\Omega$ )
- AZ:** Specify current (See INPUT SPECIFICATIONS)
- (0 % input must be 0 mA.)

##### Voltage

- A1:** 0 - 100 mV AC (Input resistance 100 k $\Omega$  min.)
- A2:** 0 - 500 mV AC (Input resistance 100 k $\Omega$  min.)
- A3:** 0 - 1 V AC (Input resistance 100 k $\Omega$  min.)
- A4:** 0 - 5 V AC (Input resistance 100 k $\Omega$  min.)
- A5:** 0 - 10 V AC (Input resistance 100 k $\Omega$  min.)
- A6:** 0 - 120 V AC (Input resistance 100 k $\Omega$  min.)
- A7:** 0 - 150 V AC (Input resistance 100 k $\Omega$  min.)
- A8:** Specify voltage (See INPUT SPECIFICATIONS)
- (0 % input must be 0 V.)

#### [2] DC OUTPUT

**N:** None

##### Current

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

##### Voltage

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

#### [3] 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)

#### [4] 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)

#### [5] ON DELAY TIME

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

#### [6] POWER ON DELAY TIME

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



## [7] 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

## GENERAL SPECIFICATIONS

**Construction:** Plug-in  
**Connection:** M3.5 screw terminals  
**Housing material:** Flame-resistant resin (black)  
**Isolation:** Input to DC output to alarm output 1 to alarm output 2 to power  
**Input waveform:** Up to 15 % of 3rd harmonic content  
**Zero adjustment:** -5 to +5 % (front)  
**Span adjustment:** 95 to 105 % (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 lights turn on when the coils are energized.

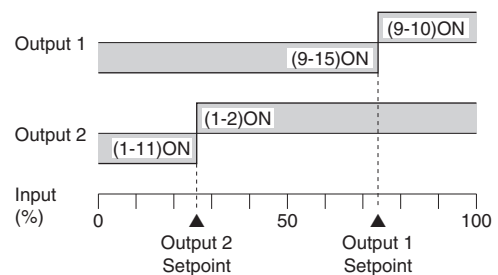
## INPUT SPECIFICATIONS

**Frequency:** 40 Hz min., 1 kHz max.  
**AC Current:** 0 - 1 A AC; input resistor incorporated  
**Minimum span:** 1 mA  
**Input resistance**  
 Span 1 mA: 1 kΩ  
 Span ≤ 2 mA: 500 Ω  
 Span ≤ 5 mA: 200 Ω  
 Span ≤ 10 mA: 100 Ω  
 Span ≤ 20 mA: 50 Ω  
 Span ≤ 50 mA: 20 Ω  
 Span ≤ 100 mA: 10 Ω  
 Span ≤ 500 mA: 1 Ω  
 Span ≤ 1 A: 0.5 Ω  
**AC Voltage:** 0 - 250 V AC  
**Minimum span:** 50 mV  
**Input resistance:** 100 kΩ min.

## 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 φ = 1)  
 120 V AC @ 1 A (cos φ = 1)  
 240 V AC @ 0.5 A (cos φ = 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 10<sup>7</sup> 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

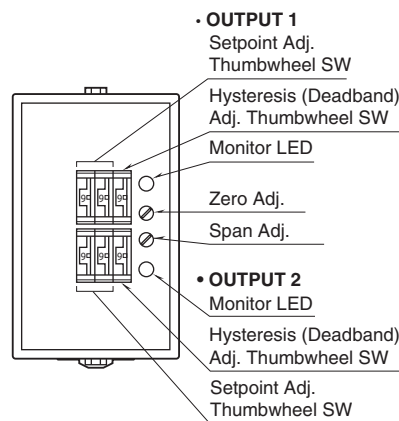
**Power input**  
**AC:** Operational voltage range: rating ±10 %, 50/60 ±2 Hz, approx. 3 VA  
**DC:** Operational voltage range: rating ±10 %, or 85 - 150 V for 110 V rating (ripple 10 % p-p max.)  
 Approx. 2 W (80 mA at 24 V)  
**Operating temperature:** -5 to +55°C (23 to 131°F)  
**Operating humidity:** 30 to 90 %RH (non-condensing)  
**Mounting:** Surface or DIN rail  
**Weight:** 450 g (0.99 lbs)



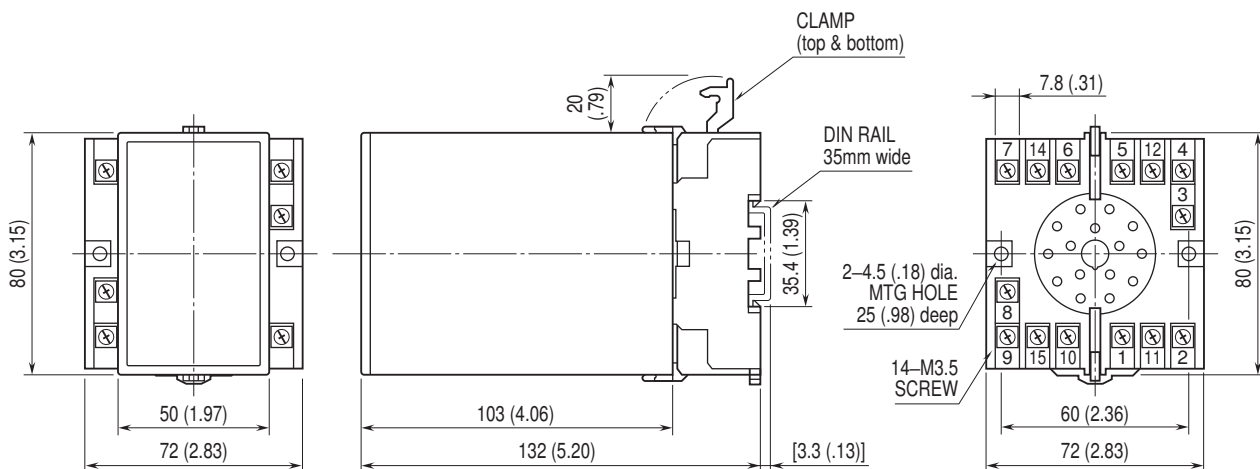
## PERFORMANCE in percentage of span

- DC output
  - Accuracy:  $\pm 0.4\%$
  - Response time:  $\leq 0.7$  sec. (0 - 90 %)
- Alarm output
  - Setpoint accuracy:  $\pm 0.9\%$
  - Hysteresis (Deadband) setpoint accuracy:  $\pm 0.3\%$
  - ON delay time accuracy: rating  $\pm 20\%$  or 0.7 sec., whichever is greater.
  - Power ON delay time accuracy: rating  $\pm 30\%$
  - Trip point repeatability:  $\pm 0.05\%$
- Temp. coefficient:  $\pm 0.015\%/^{\circ}\text{C}$  ( $\pm 0.008\%/^{\circ}\text{F}$ )
- Line voltage effect:  $\pm 0.1\%$  over voltage range
- Insulation resistance:  $\geq 100\ \text{M}\Omega$  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

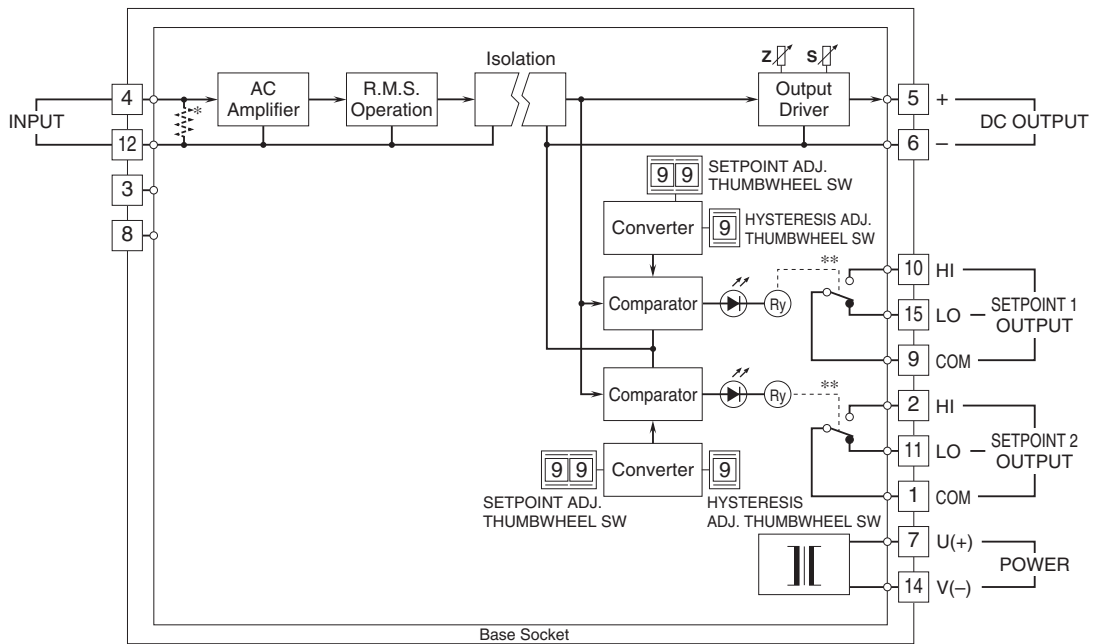


## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

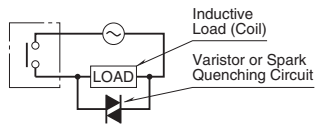
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



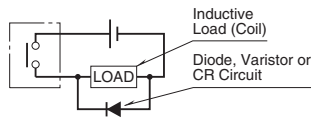
\* Input resistor incorporated for current input.  
 \*\*Relay status for output codes "1" & "4", at power OFF.

### ■ Relay Protection

#### •AC Powered



#### •DC Powered



Specifications are subject to change without notice.