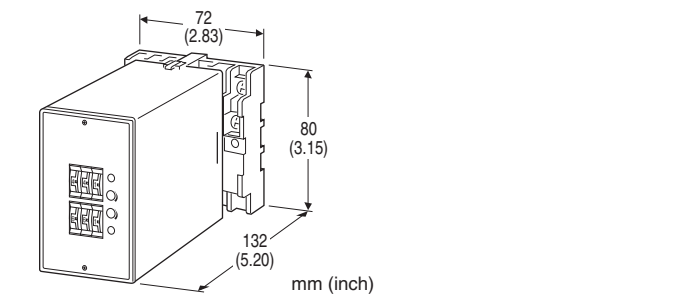


Limit Alarms (with DC output) AE-UNIT

FREQUENCY ALARM

Functions & Features

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



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

ORDERING INFORMATION

- Code number: AESP-[1][2][3][4][5][6]-[7]
- Specify a code from below for each [1] through [7]. (e.g. AESP-2A2101-D)
- Frequency range (e.g. 0 - 500 Hz)
- Special DC output range (For codes Z & 0)

[1] INPUT

- 1: Dry contact
- 2: Voltage pulse

[2] 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)

[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
Zero adjustment: -5 to +5 % (front)
Span adjustment: 95 to 105 % (front)
Setpoint adjustments: Thumbwheel switches (front); 0 - 99 % independently; 1 % increments
 Remark: This unit has low-end cutout function below 2 - 5 % input. A setpoint below this equals 0 %.
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.
Low-end cutout: 2 to 5 %

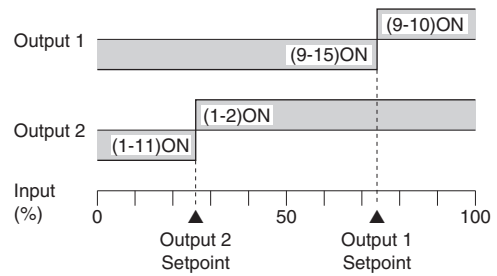
INPUT SPECIFICATIONS

Frequency range: 0 - 50 Hz through 10 kHz
Pulse width (time) requirement: Duty ratio 20 - 80 % at 100 % input
■ Dry Contact: Mechanical contact or open collector
Sensing: approx. 7.5 V DC @1 mA
ON/OFF level: ≤ 200 Ω / 0.6 V for ON, ≥ 100 kΩ / 2 V for OFF
■ Voltage Pulse: Square or sine waveforms
Input pulse sensing: Capacitor coupled; detecting pulse rise
Input amplitude: 2 - 50 Vp-p
Input impedance: 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 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

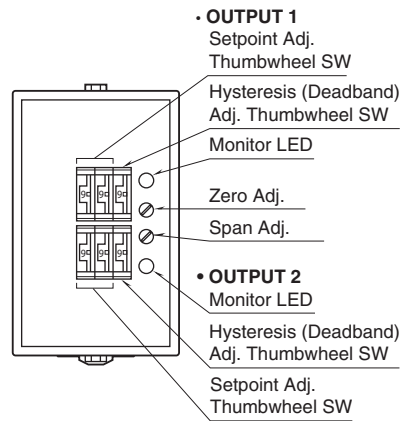
- AC:** Operational voltage range: rating ±10 %, 50/60 ±2 Hz, approx. 3 VA
- DC:** Operational voltage range: rating ±10 %, or 85 - 150 V for 110 V rating (ripple 10 % p-p max.)
 Approx. 2 W (80 mA at 24 V)
- Operating temperature:** -5 to +55°C (23 to 131°F)
- Operating humidity:** 30 to 90 %RH (non-condensing)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

PERFORMANCE in percentage of span

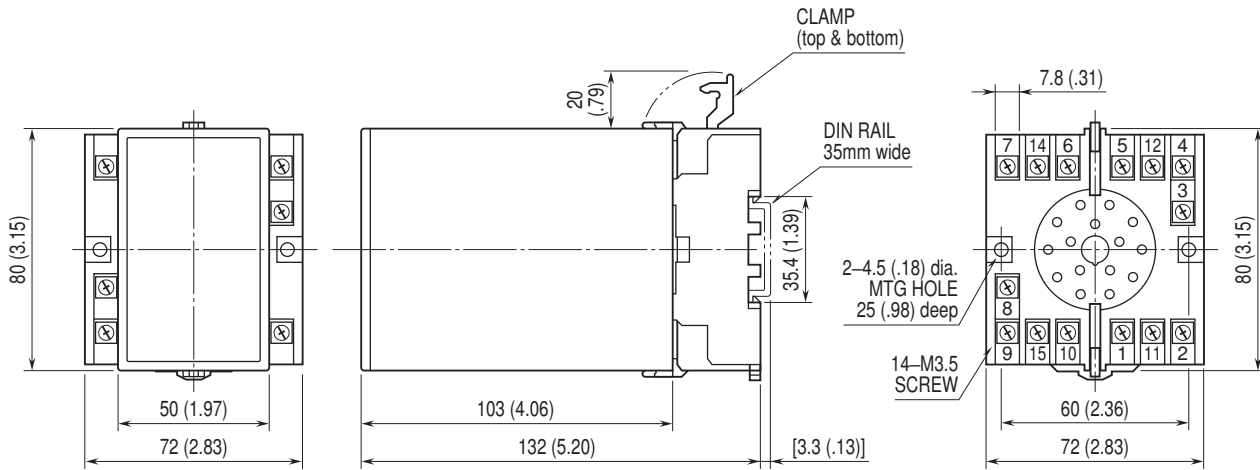
- DC output**
Accuracy: ±0.3 % (input 10 - 100 %)
Response time: (0 - 90 %)
 Approx. 2 sec. for 0 - 50 Hz
 Approx. 1 sec. for 0 - 100 Hz
 Approx. 0.5 sec. for 0 - 500 Hz
 Approx. 0.5 sec. for 0 - 10 kHz
- Alarm output**
Setpoint accuracy: ±0.8 % (input 10 - 100 %)
Hysteresis (Deadband) setpoint accuracy: ±0.3 %
ON delay time accuracy: DC output response + 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



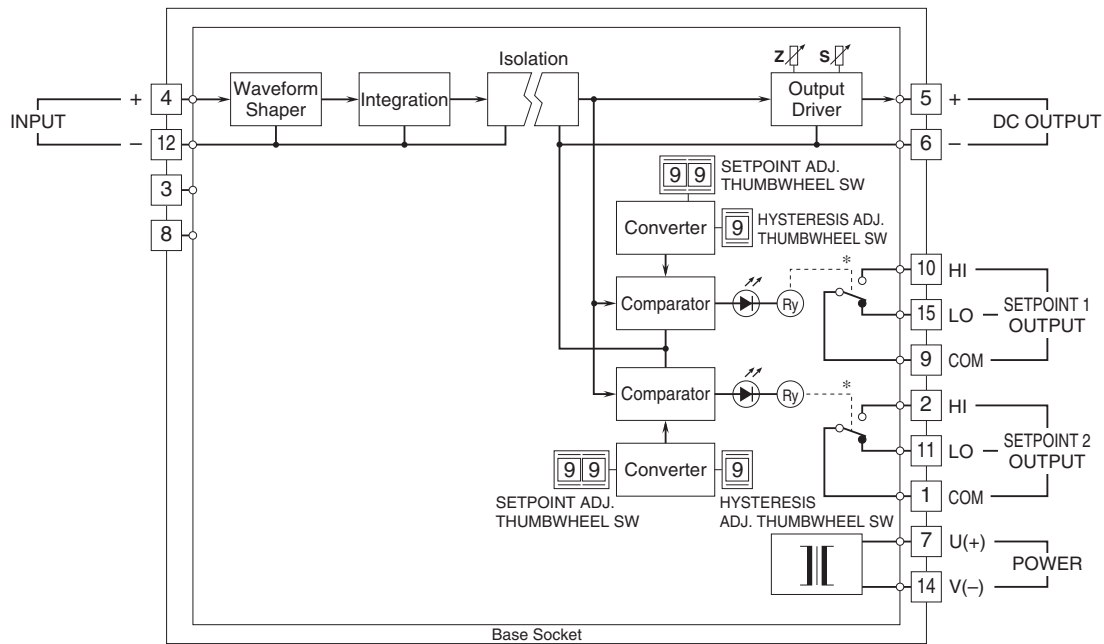
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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



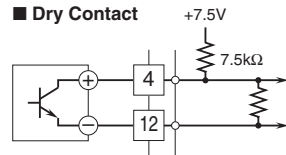
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



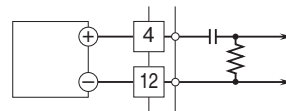
*Relay status for output codes "1" & "4", at power OFF.

Input Connection Examples

■ Dry Contact

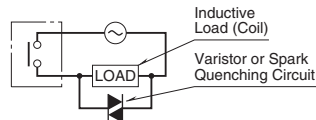


■ Voltage Pulse

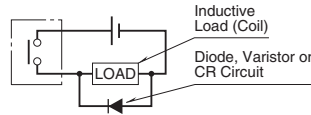


■ Relay Protection

•AC Powered



•DC Powered



Specifications are subject to change without notice.

