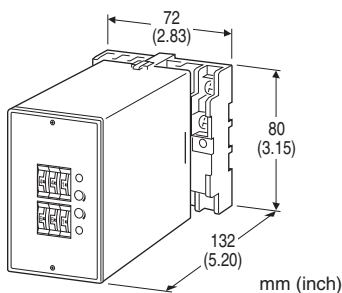


## Limit Alarms (with DC output) AE-UNIT

### TACHOGENERATOR ALARM

#### Functions & Features

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



### MODEL: AETG-[1][2][3][4][5][6]-[7][8]

#### ORDERING INFORMATION

- Code number: AETG-[1][2][3][4][5][6]-[7][8]
- Specify a code from below for each [1] through [8].  
(e.g. AETG-6A2101-D/Q)
- Special input and DC output ranges  
(For codes U, Z & 0)
- Specify the specification for option code /Q  
(e.g. /C01/S01)

#### [1] INPUT

##### Voltage

- 1: 0 - 35 V AC (Input resistance 100 kΩ min.)
- 2: 0 - 50 mV AC (Input resistance 100 kΩ min.)
- 3: 0 - 60 mV AC (Input resistance 100 kΩ min.)
- 4: 0 - 100 mV AC (Input resistance 100 kΩ min.)
- 5: 0 - 1 V AC (Input resistance 100 kΩ min.)
- 6: 0 - 10 V AC (Input resistance 100 kΩ min.)
- 7: 0 - 100 V AC (Input resistance 100 kΩ min.)
- 8: 0 - 110 V AC (Input resistance 100 kΩ min.)
- 9: 0 - 150 V AC (Input resistance 100 kΩ min.)
- A: 0 - 200 V AC (Input resistance 100 kΩ min.)
- B: 0 - 250 V AC (Input resistance 100 kΩ min.)
- U: 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 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

## [8] OPTIONS

blank: none

/Q: With options (specify the specification)

### SPECIFICATIONS OF OPTION: Q (multiple selections)

#### COATING (For the detail, refer to M-System's 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

**Overrange output:** 0 to 120 % at 1 - 5 V

**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

•AC Voltage: 0 - 250 V AC

Minimum span: 50 mV

Frequency: 15 Hz min., 1 kHz max. with 100 % input

Input resistance: ≥ 100 kΩ

## 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  $\phi$  = 1)

120 V AC @ 1 A (cos  $\phi$  = 1)

240 V AC @ 0.5 A (cos  $\phi$  = 1)

30 V DC @ 1 A (resistive load)

Maximum switching voltage: 380 V AC or 125 V DC

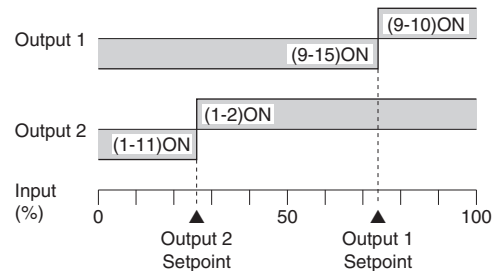
Maximum switching power: 120 VA or 30 W

Minimum load: 5 V DC @ 10 mA

Mechanical life:  $5 \times 10^7$  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  $\pm 10$  %, 50/60  $\pm 2$  Hz, approx. 3 VA

•DC: Operational voltage range: rating  $\pm 10$  %, 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)

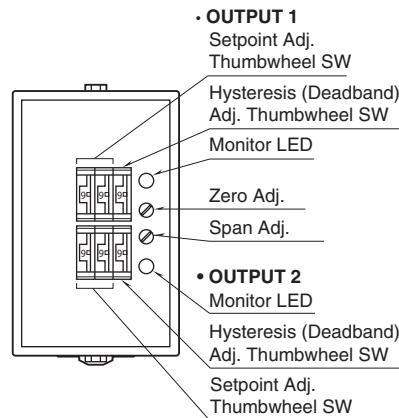
Mounting: Surface or DIN rail

Weight: 450 g (0.99 lb)

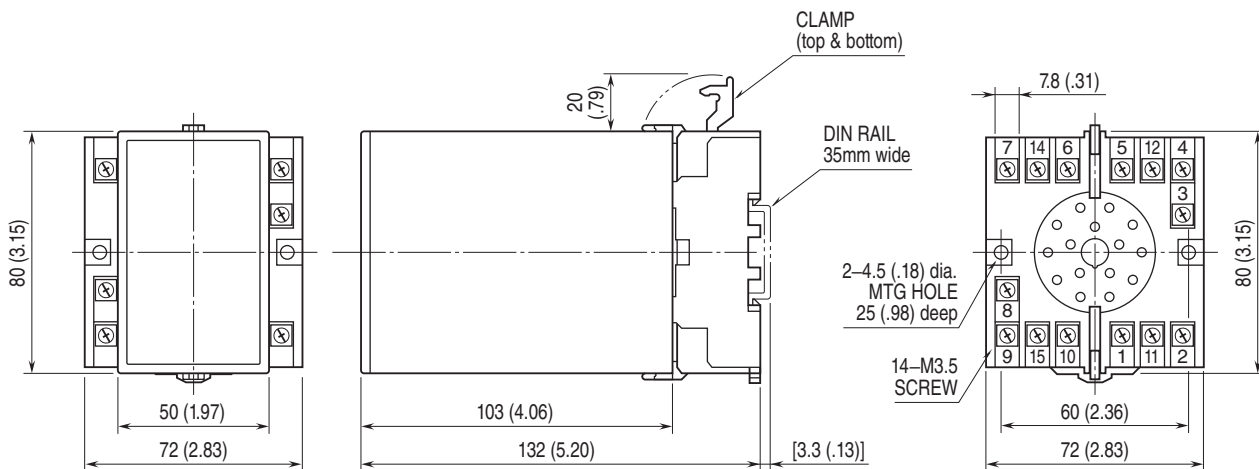
## PERFORMANCE in percentage of span

- DC output
  - Accuracy:  $\pm 0.4\%$
  - Response time:  $\leq 0.5$  seconds (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

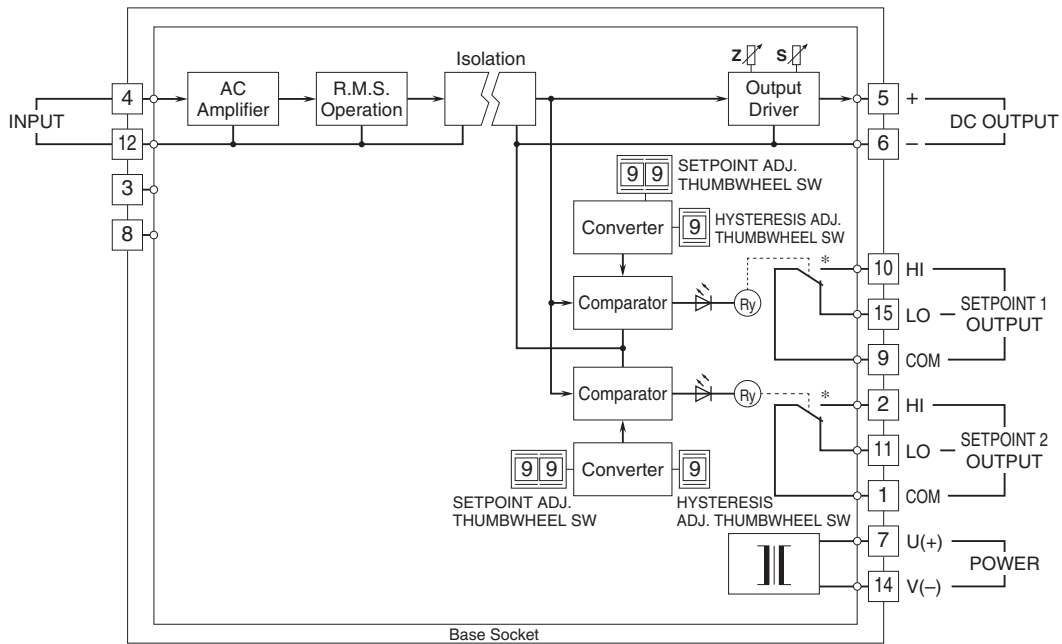


## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

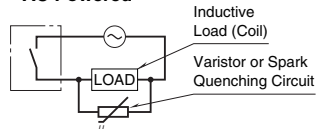
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



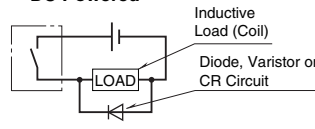
\*Relay status for output codes "1" & "4", at power OFF.

### ■ Relay Protection

#### • AC Powered



#### • DC Powered



Specifications are subject to change without notice.