

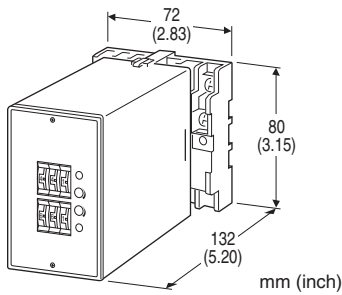
Limit Alarms (with DC output) AE-UNIT

TWO-WIRE TRANSMITTER ALARM

(with square root extractor)

Functions & Features

- Powering a 4 - 20 mA DC current loop
- Providing SPDT relay outputs at preset current levels
- Dual (Hi/Lo) trip
- Shortcircuit protection
- 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: AEDN-[1][2][3][4][5]-[6][7]

ORDERING INFORMATION

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

INPUT

Current
4 - 20 mA DC (Input resistance 250 Ω)

[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
Overrange output: 0 - 105 % 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
 Remark: Setpoint is applied to the result of square root extraction. A setpoint below 10 % output equals 0 % due to the low-end cutout function.
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.
Low-end cutout: Approx. 1 % (input)

SUPPLY OUTPUT

Output voltage: 24 - 28 V DC with no load
Current rating: ≤ 22 mA DC
 • **Shortcircuit Protection**
Current limited: 35 mA max.
Protected time duration: No limit

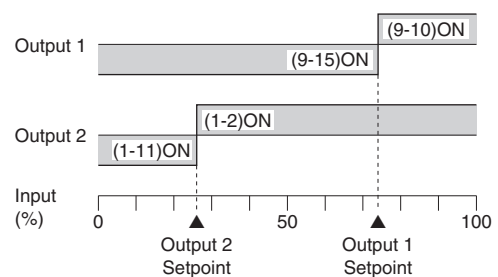
INPUT SPECIFICATIONS

■ **DC Current:** Input resistor incorporated

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 $\pm 10\%$, 50/60 ± 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: $\pm 0.2\%$ (refer to the input when 30 % or less)

Response time: ≤ 0.7 sec. (0 - 90 %)

•Alarm output

Setpoint accuracy: $\pm 0.7\%$ (input 1 - 100 %)

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: $\pm 0.015\%/^{\circ}\text{C}$ ($\pm 0.008\%/^{\circ}\text{F}$)

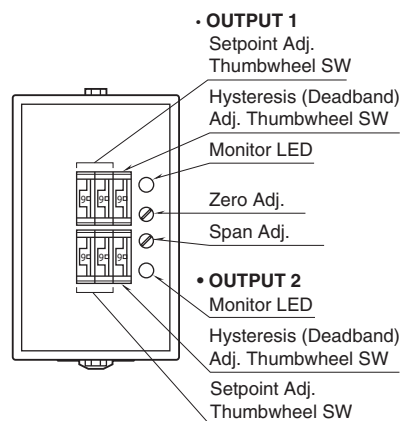
Line voltage effect: $\pm 0.1\%$ over voltage range

Insulation resistance: $\geq 100\text{ M}\Omega$ with 500 V DC

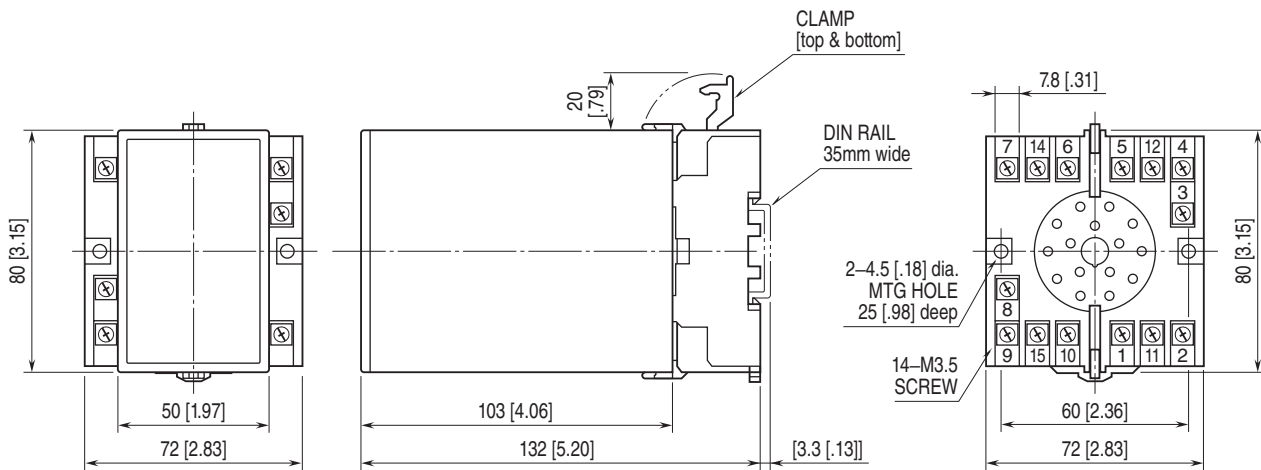
Dielectric strength: 2000 V AC @ 1 minute

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

EXTERNAL VIEW

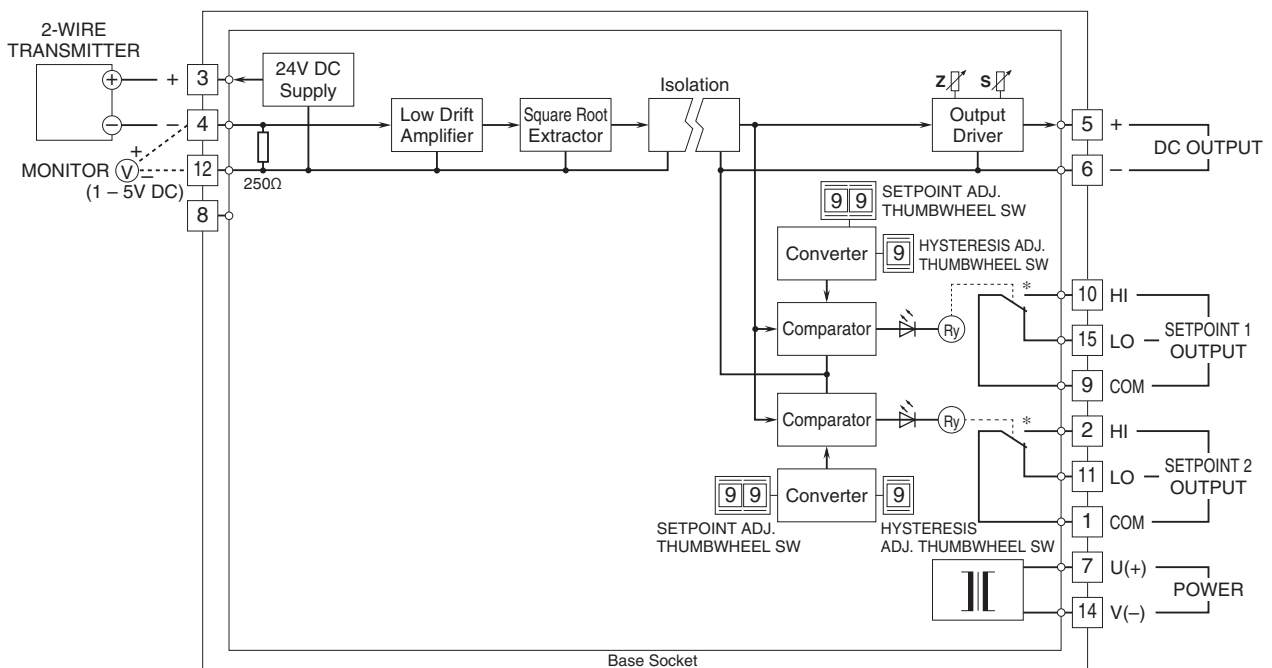


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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

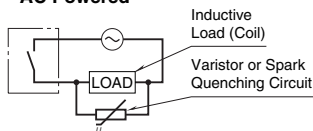
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



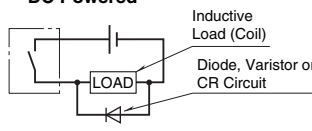
*Relay status for output codes "1" & "4", at power OFF.

■ Relay Protection

• AC Powered



• DC Powered



Specifications are subject to change without notice.