Limit Alarms (potentiometer adj.) A-UNIT

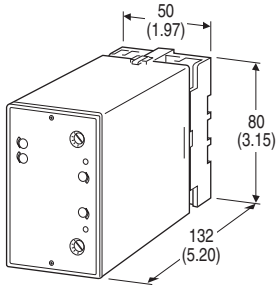
DC ALARM

Functions & Features

- Providing SPDT relay outputs at preset DC input levels
- Dual (Hi/Lo) trip
- Energized or de-energized coil at a tripped condition selectable
- Hysteresis (deadband) adjustable
- Enclosed relays
- Relays can be powered 110 V DC
- Isolation up to 2000 V AC
- High-density mounting

Typical Applications

- Annunciator
- Various alarm applications



mm (inch)

MODEL: ACV-[1]1[2][3]-[4][5]

ORDERING INFORMATION

- Code number: ACV-[1]1[2][3]-[4][5]

Specify a code from below for each of [1] through [5].
(e.g. ACV-A113-B/Q)

- Special input range (For codes Z & 0)
- Specify the specification for option code /Q
(e.g. /C01/S01)

[1] INPUT

Current

A: 4 – 20 mA DC (Input resistance 250 Ω)
A1: 4 – 20 mA DC (Input resistance 50 Ω)
B: 2 – 10 mA DC (Input resistance 500 Ω)
C: 1 – 5 mA DC (Input resistance 1000 Ω)
D: 0 – 20 mA DC (Input resistance 50 Ω)
E: 0 – 16 mA DC (Input resistance 62.5 Ω)
F: 0 – 10 mA DC (Input resistance 100 Ω)
G: 0 – 1 mA DC (Input resistance 1000 Ω)
H: 10 – 50 mA DC (Input resistance 100 Ω)
J: 0 – 10 µA DC (Input resistance 1000 Ω)
K: 0 – 100 µA DC (Input resistance 1000 Ω)
GW: -1 – +1 mA DC (Input resistance 1000 Ω)
FW: -10 – +10 mA DC (Input resistance 100 Ω)
Z: Specify current (See INPUT SPECIFICATIONS)

Voltage

1: 0 – 10 mV DC (Input resistance 10 kΩ min.)
15: 0 – 50 mV DC (Input resistance 10 kΩ min.)
16: 0 – 60 mV DC (Input resistance 10 kΩ min.)
2: 0 – 100 mV DC (Input resistance 100 kΩ min.)
3: 0 – 1 V DC (Input resistance 1 MΩ min.)
4: 0 – 10 V DC (Input resistance 1 MΩ min.)
5: 0 – 5 V DC (Input resistance 1 MΩ min.)
6: 1 – 5 V DC (Input resistance 1 MΩ min.)
4W: -10 – +10 V DC (Input resistance 1 MΩ min.)
5W: -5 – +5 V DC (Input resistance 1 MΩ min.)
0: Specify voltage (See INPUT SPECIFICATIONS)

SETPOINT ADJUSTMENTS

1: Single-turn screws

[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] 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

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[5] 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 output 1 to output 2 to power
Zero adjustment: -5 to +5 % (front)
Span adjustment: 95 to 105 % (front)
Setpoint adjustments: 270°-turn screwdriver adjustments (front); 0 – 100 % independently
Hysteresis (deadband) adjustments: 1 – 100 % (front)
Front LEDs: LED turns on at a tripped condition; red for output 1, green for output 2
Power ON timer: Relays de-energized for approx. 2 seconds after power is turned on.

INPUT SPECIFICATIONS

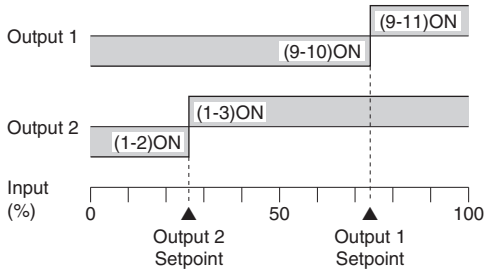
■ **DC Current**:
Shunt resistor attached to the input terminals (0.5 W)
Specify input resistance value for code Z.
■ **DC Voltage**: -300 – +300 V DC
Minimum span: 10 mV
Offset: Max. 1.5 times span
Input resistance
Span 10 – 100 mV : ≥ 10 kΩ
Span 0.1 – 1 V : ≥ 100 kΩ
Span ≥ 1 V : ≥ 1 MΩ

OUTPUT SPECIFICATIONS

■ **Relay Contact**: 100 V AC @ 1 A (cos ø = 1)
120 V AC @ 1 A (cos ø = 1)
240 V AC @ 0.5 A (cos ø = 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 10^7 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 – 2, 9 – 10 turn ON
• **Output Code: 2 & 3**: Terminals 1 – 3, 9 – 11 turn ON

INSTALLATION

Power input
• **AC**: Operational voltage range: rating ±10 %, 50/60 ±2 Hz, approx. 2 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 +60°C (23 to 140°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

Trip point repeatability: ±0.5 %
Temp. coefficient: ±0.05 %/°C (±0.03 %/°F)
Response time: ≤ 0.5 sec. (0 – 100 % at 90 % setpoint)
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 output 1 to output 2 to power to ground)

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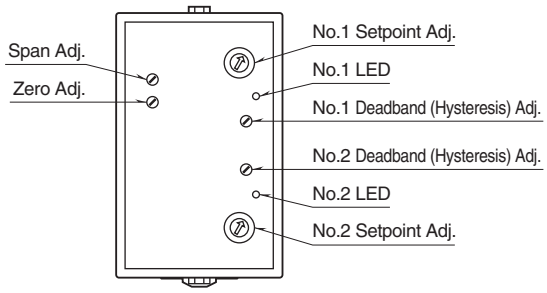
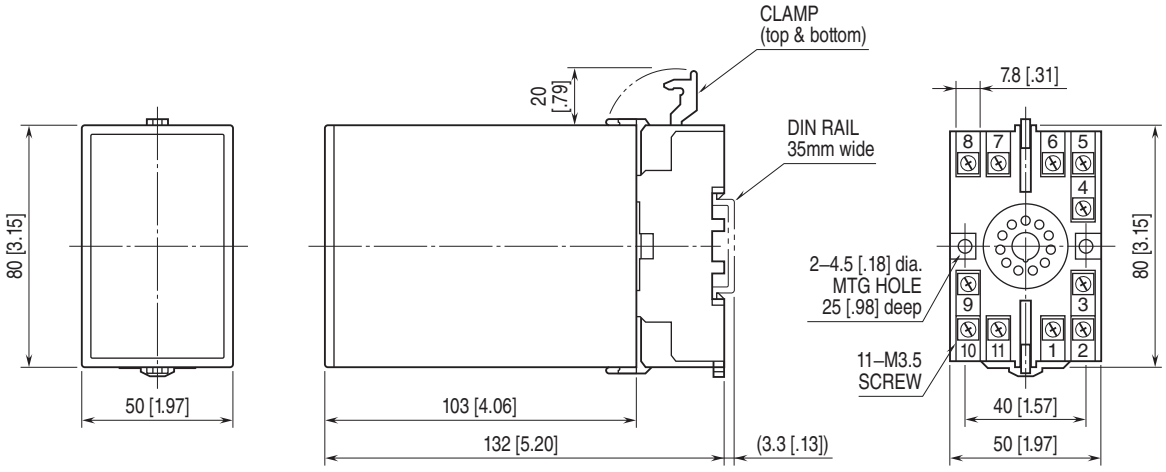
EXTERNAL VIEW

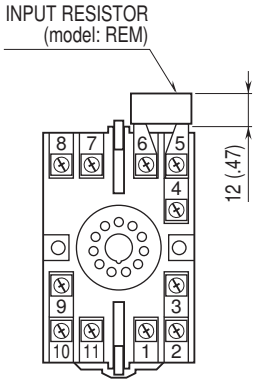


EXTERNAL DIMENSIONS unit: mm [inch]



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

TERMINAL ASSIGNMENTS unit: mm [inch]



Input shunt resistor attached
for current input.

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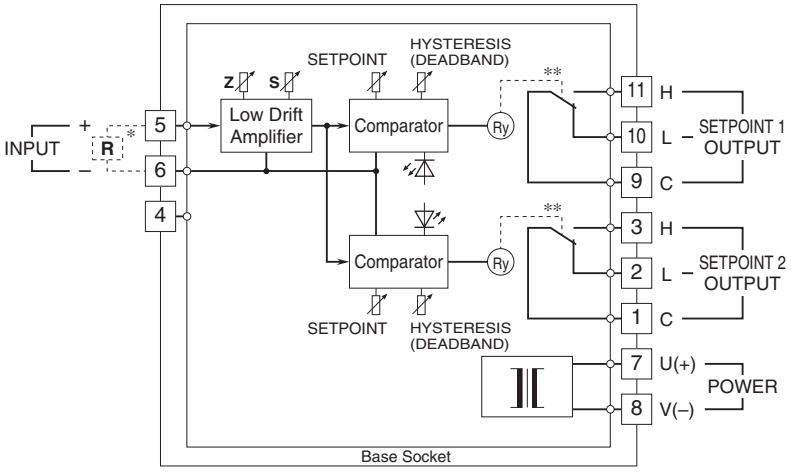
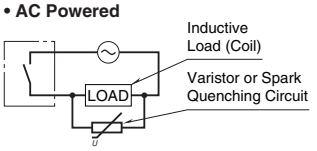
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



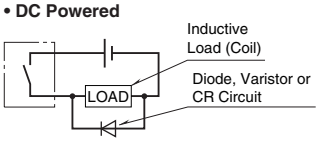
* Input shunt resistor attached for current input.
**Relay status for output codes “1” & “4”, at power OFF.

■ **Relay Protection**

• AC Powered



• DC Powered



⚠ Specifications are subject to change without notice.

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