

## Limit Alarms (rotary switch adj.) AL-UNIT

### TWO-WIRE TRANSMITTER ALARM

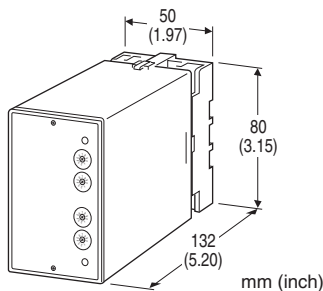
(with square root extractor)

#### Functions & Features

- Powering a 4 – 20 mA DC current loop
- Providing SPDT relay outputs at preset current levels
- Shortcircuit protection
- Square root extraction
- Applicable to smart transmitters
- Dual (Hi/Lo) trip
- Energized or de-energized coil at a tripped condition selectable
- Rotary switch setpoint adjustments
- Enclosed relays
- Relays can be powered 110 V DC
- High-density mounting

#### Typical Applications

- Annunciator
- Various alarm applications



## MODEL: ALDN-[1][2]-[3][4]

### ORDERING INFORMATION

- Code number: ALDN-[1][2]-[3][4]
- Specify a code from below for each of [1] through [4].  
(e.g. ALDN-11-B/Q)
- Specify the specification for option code /Q  
(e.g. /C01/S01)

### INPUT

#### Current

4 – 20 mA DC (Input resistance 250 Ω)

### [1] 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)

### [2] 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)

### [3] 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

### [4] 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 output 1 to output 2 to power

**Setpoint adjustments:** 10-position rotary switches (front); 0 – 99 % independently; 1 % increments

**Low-end cutout function:** Below 1 % input. A setpoint below 10 % output equals 0 %.

**Hysteresis (deadband):** 0.7 – 2.5 %

**Front LEDs:** Red LED turns on when the coil is energized.

**Power ON timer:** Relays de-energized for approx. 2 seconds after power is turned on.

## 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

**Temp. coefficient:** ±0.015 %/°C (±0.008 %/°F)

**Response time:** Approx. 0.7 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)

## INPUT SPECIFICATIONS

■ **DC Current:** Input resistor incorporated

## OUTPUT SPECIFICATIONS

■ **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

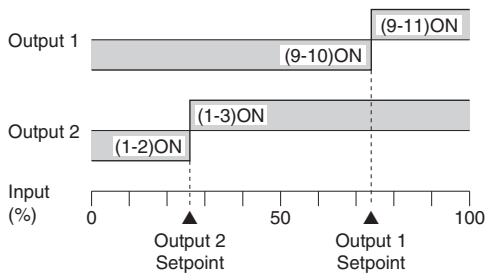
**Maximum switching power:** 120 VA or 30 W

**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 - 2, 9 - 10 turn ON
- **Output Code: 2 & 3:** Terminals 1 - 3, 9 - 11 turn ON

## INSTALLATION

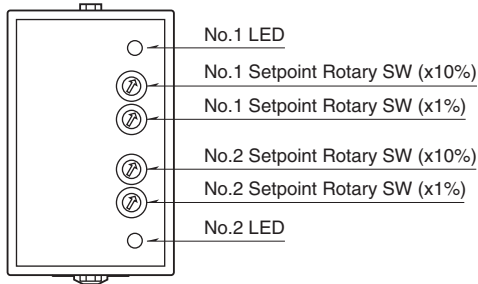
### Power input

- **AC:** Operational voltage range: rating ±10 %, 50/60 ± 2 Hz, approx. 2.5 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:** 380 g (0.84 lb)

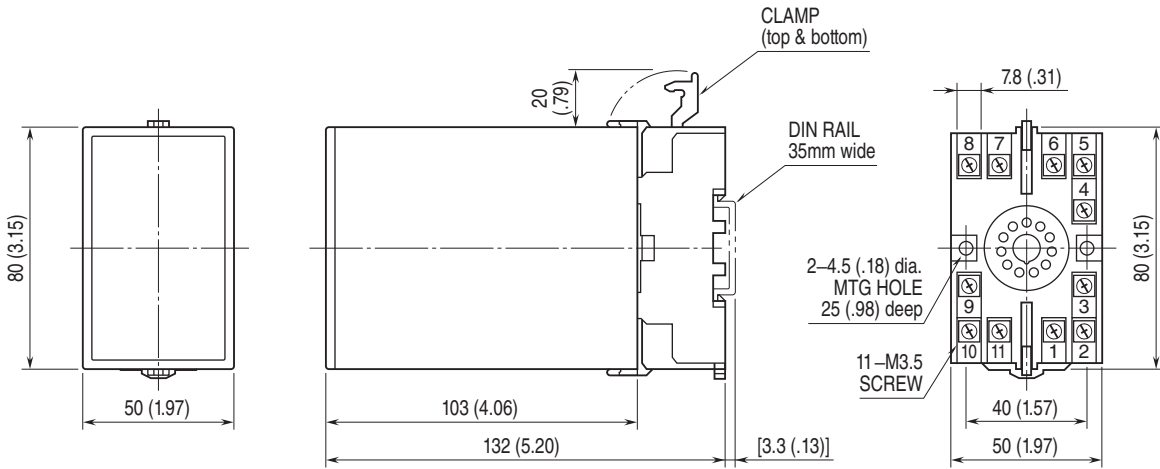
## PERFORMANCE in percentage of span

**Setpoint accuracy:** ±0.5 % (within 1 - 100 % input)  
**Trip point repeatability:** ±0.05 %

## EXTERNAL VIEW

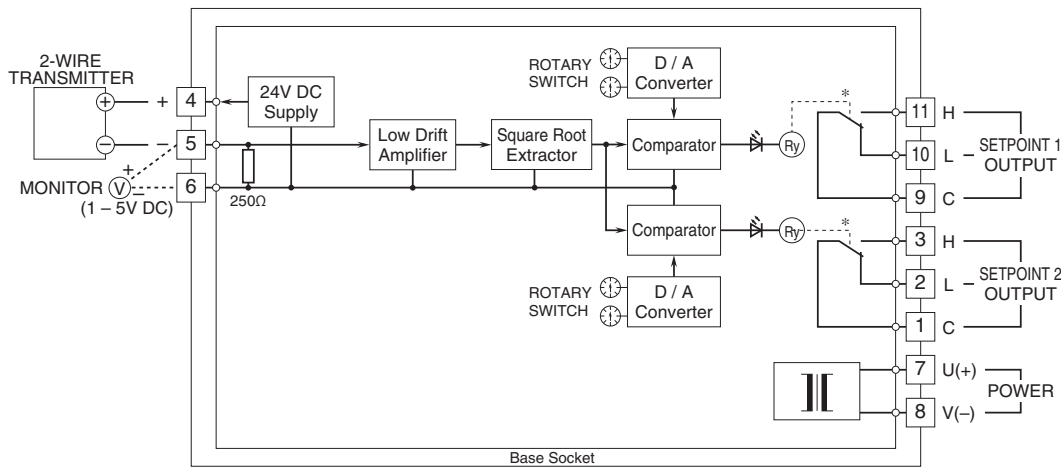


## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

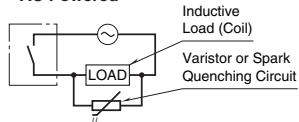
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



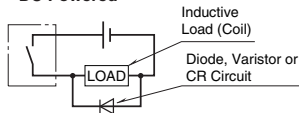
\*Relay status for output codes "1" & "4", at power OFF.

### Relay Protection

#### AC Powered



#### DC Powered





Specifications are subject to change without notice.