

Plug-in Signal Conditioners M-UNIT

STRAIN GAUGE ALARM

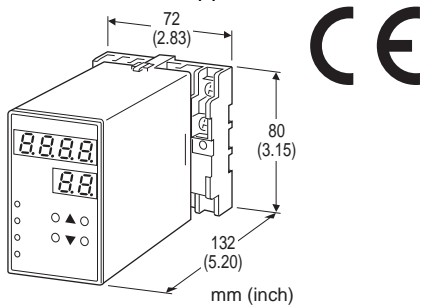
(dual or quad alarm trip; field-configurable)

Functions & Features

- Accepts a bridge type strain gauge utilized in load cells, pressure transducers
- Quad or dual trip
- Setting and display in engineering unit values
- Setpoint adjustments with the front keypad
- Software lock
- Adjustable hysteresis (deadband)
- On-delay timer
- Hi/Lo trip and energized/de-energized coil independently selectable for each setpoint
- Enclosed relays
- Relays can be powered by 200 V AC and 100 V DC
- High-density mounting on DIN rail

Typical Applications

- Annunciator
- Various alarm applications



MODEL: AS4LC-[1][2]-[3][4]

ORDERING INFORMATION

- Code number: AS4LC-[1][2]-[3][4]
- Specify a code from below for each [1] through [4]. (e.g. AS4LC-S12-R/Q)
- Specify the specification for option code /Q (e.g. /C01/S01/SET)

[1] INPUT STRAIN GAUGE

- S1: 0.0 - 3.0 mV/V
- S2: 0.0 - 10.0 mV/V
- S3: 0.0 - 30.0 mV/V

[2] OUTPUT

- 2: 4 points; N.O. or make contact
- 3: 4 points; N.C. or break contact
- 5: 2 points; SPDT or transfer contact

[3] POWER INPUT

AC Power

M2: 100 - 240 V AC (Operational voltage range 85 - 264 V, 47 - 66 Hz)

DC Power

R: 24 V DC

(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

P: 110 V DC

(Operational voltage range 85 - 150 V, ripple 10 %p-p max.)

[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

EX-FACTORY SETTING

/SET: Preset according to the Ordering Information Sheet (No. ESU-1601)

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 to power

Excitation adjustment: 0.1 - 12.0 V (front)

Zero adjustment: 0 - 100 % (front)

Gain adjustment: 0 - 9.99 (front)

Tare adjustment: -199.9 - 999.9 % (front or by external contact)

Sampling cycle: 100 msec.

User-configurable items: Front key pad

- Alarm setpoint
- Display range scaling
- Power ON-delay time
- Alarm ON-delay time
- Moving average
- Hi/Lo trip operation
- Coil at alarm
- Hysteresis (deadband)
- Sensor sensitivity
- Contact input (Tare adjustment, Peak hold, Valley hold, Sample hold)
- 0 %, 100 % input setting



• Others

(Refer to the instruction manual)

■ DISPLAY

LED: 8 mm (.31") 7 segment, red

Number of display digits: 4 digits for DATA display; 2 digits for ITEM display

Range: -1999 to 9999

(decimal point position selectable)

PV indication: Input signal in engineering unit

Overrange indication: LEDs blinking

Power saving mode: Displays turn off if the keys are untouched for a preset time period

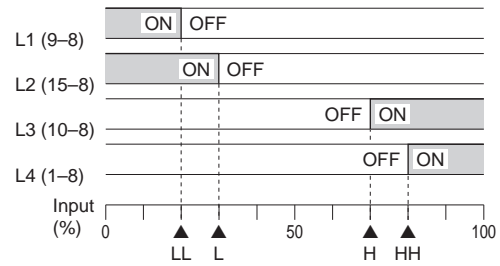
LEDs: Red lights turn on when coils are energized.

(PL1 and PL2 for 2-point alarm. PL1, PL2, PL3 and PL4 for 4-point alarm.)

Alarm Trip Operation

Terminal No. in parentheses

Example with quad N.O. contacts (LL, L, H, HH)



Trip Operation in Power Failure

- Output code 2: All relays turn off.
- Output code 3: All relays turn on.
- Output code 5: Terminals 15 – 8, 1 – 8 turn on.

INPUT SPECIFICATIONS

■ Strain Gauge Input

• Strain Gauge

Rated output from strain gauge:

S1: -19.9 – +30.0 mV, span 1.0 – 30.0 mV

S2: -19.9 – +99.9 mV, span 3.0 – 99.9 mV

S3: -199.9 – +300.0 mV, span 10.0 – 300.0 mV

Default setting:

S1: 0 – 3 mV/V

S2: 0 – 9.999 mV/V

S3: 0 – 30 mV/V

Consult factory for use with a compression/tension load cells.

• Excitation: 0.1 – 12.0 V adjustable (0.1 V increments)

Maximum current: 30 mA

Default setting: 1 V

■ Contact Input: TTL level (5V-CMOS level), open collector or dry contact (saturation voltage ≤ 1 V, sink current 0.5 mA)

OUTPUT SPECIFICATIONS

Relay rating:

120 V AC @ 1 A (cos φ = 1)

240 V AC @ 0.5 A (cos φ = 1)

30 V DC @ 1 A (resistive load)

Limited within 0.5 A for CE

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 × 10⁷ cycles

INSTALLATION

Power consumption

• AC: Approx. 11 VA

• DC: Approx. 8 W

Operating temperature: -5 to +55°C (23 to 131°F)

Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: Surface or DIN rail

Weight: 500 g (1.1 lbs)

PERFORMANCE in percentage of span

Setpoint accuracy (trip point accuracy): ±(0.1 % of FS + 1 digit)

Display accuracy: ±(0.1 % of FS + 1 digit)

Temp. coefficient: ±0.015 %/°C (±0.008 %/°F) of max. span

Response time: ≤ 1.5 sec. (0 – 100 % at 90 % setpoint)

Excitation: Set value ±250 mV

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 to power to ground)

STANDARDS & APPROVALS

CE conformity:

EMC Directive (2004/108/EC)

EMI EN 61000-6-4: 2007

EMS EN 61000-6-2: 2005

Low Voltage Directive (2006/95/EC)

EN 61010-1: 2001

Measurement Category II (output)

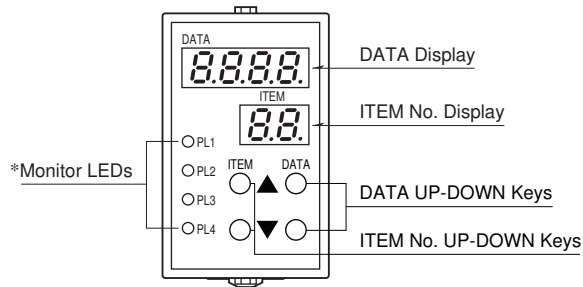
Installation Category II (power)

Pollution Degree 2

Input to output to power – Basic insulation (300 V)



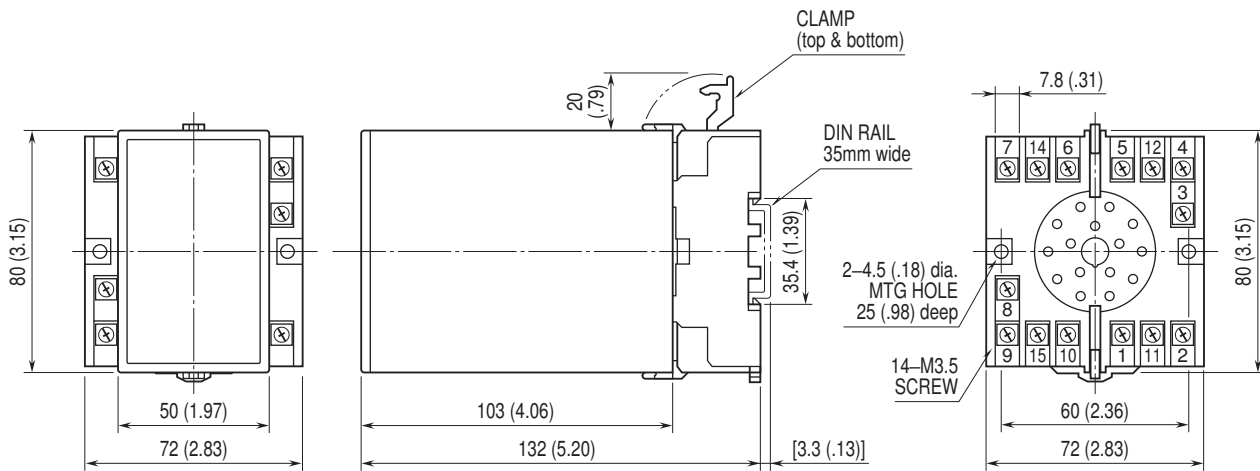
EXTERNAL VIEW



*PL3 or PL4 does not turn on for dual output type.

Refer to the instruction manual for detailed procedures.

DIMENSIONS unit: mm (inch)

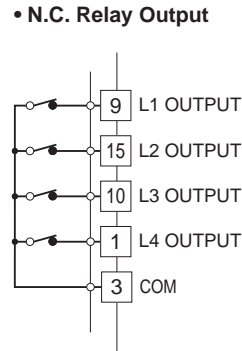
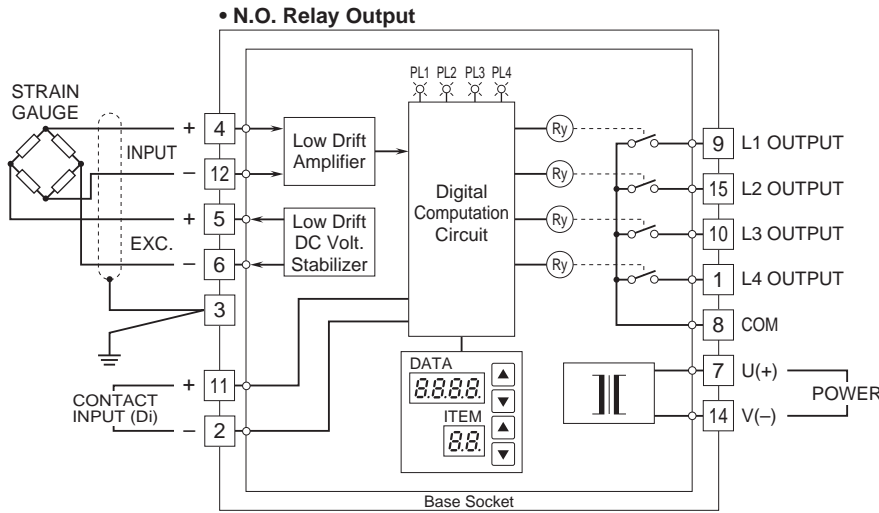


• When mounting, no extra space is needed between units.

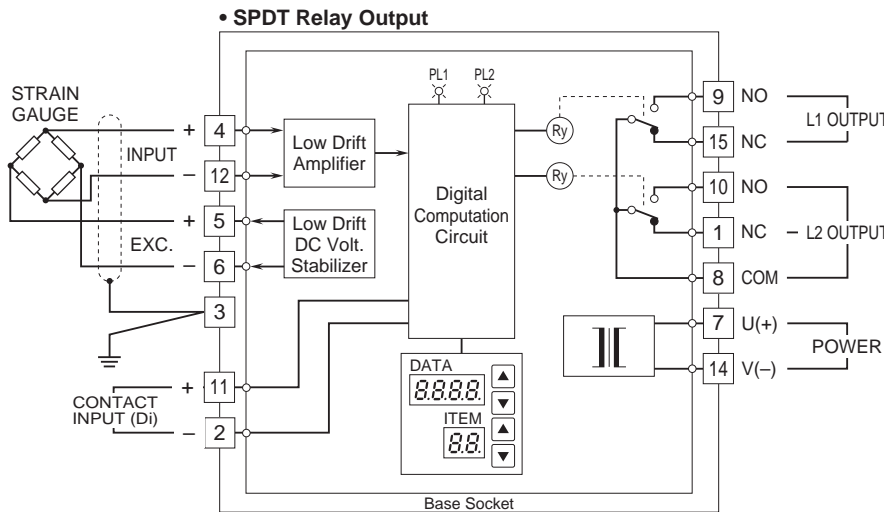
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

■ OUTPUT SUFFIX CODE: 2

■ OUTPUT SUFFIX CODE: 3

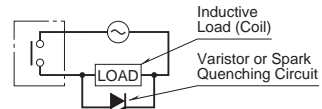


■ OUTPUT SUFFIX CODE: 5

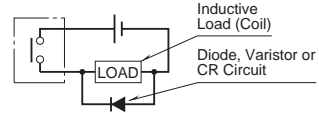


■ Relay Protection

• AC Powered



• DC Powered



Specifications are subject to change without notice.