

**Plug-in Signal Conditioners M-UNIT**

**STRAIN GAUGE ALARM**

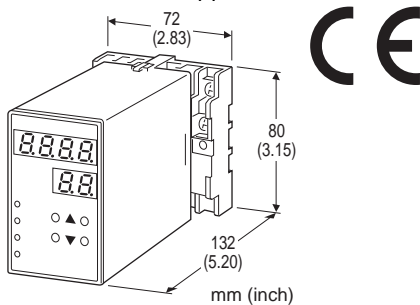
(dual or quad alarm trip; field-configurable)

**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

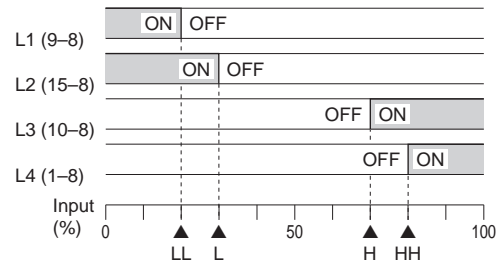
**LEDs:** Red lights turn on when coils are energized.

(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  $\leq$  1 V, sink current 0.5 mA)

## OUTPUT SPECIFICATIONS

**Relay rating:**

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

240 V AC @ 0.5 A (cos  $\phi$  = 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:**  $5 \times 10^7$  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):**  $\pm(0.1\% \text{ of FS} + 1 \text{ digit})$

**Display accuracy:**  $\pm(0.1\% \text{ of FS} + 1 \text{ digit})$

**Temp. coefficient:**  $\pm 0.015\% / ^\circ\text{C}$  ( $\pm 0.008\% / ^\circ\text{F}$ ) of max. span

**Response time:**  $\leq 1.5 \text{ sec.}$  (0 – 100 % at 90 % setpoint)

**Excitation:** Set value  $\pm 250 \text{ mV}$

**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 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)



**幸託有限公司**

**XIN TOP CORPORATION**

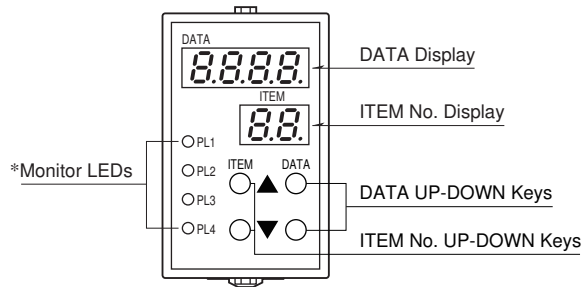
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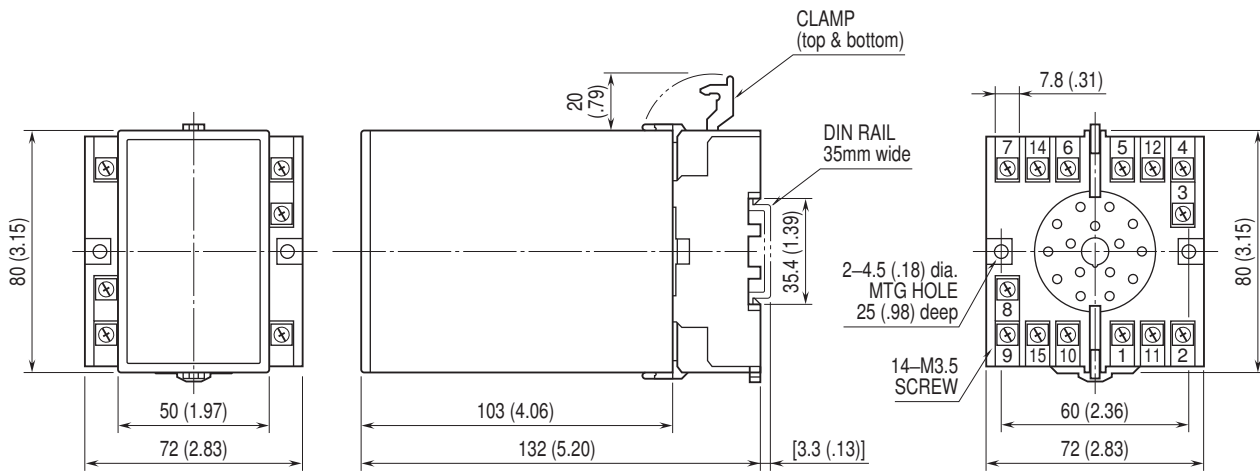
## EXTERNAL VIEW



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

Refer to the instruction manual for detailed procedures.

## DIMENSIONS unit: mm (inch)



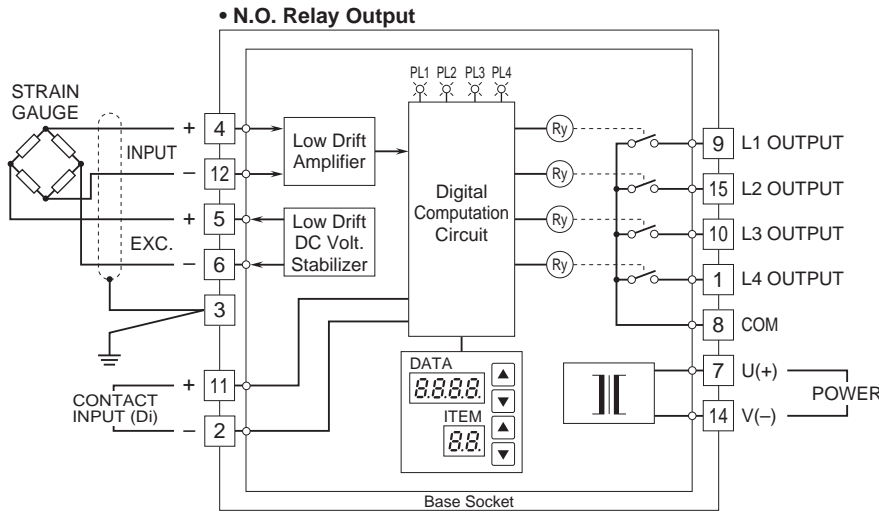
• When mounting, no extra space is needed between units.



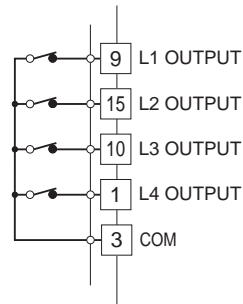
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

### ■ OUTPUT SUFFIX CODE: 2

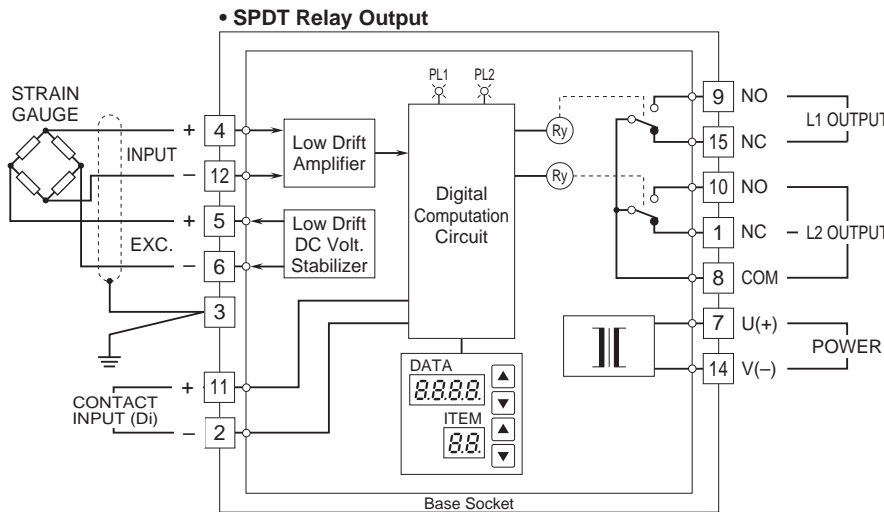
### ■ OUTPUT SUFFIX CODE: 3



### • N.C. Relay Output

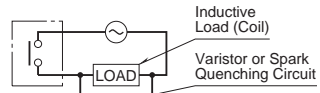


### ■ OUTPUT SUFFIX CODE: 5

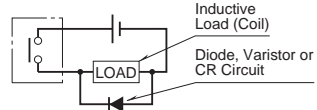


### ■ Relay Protection

#### • AC Powered



#### • DC Powered



Specifications are subject to change without notice.