

## Plug-in Signal Conditioners M-UNIT

### CT ALARM

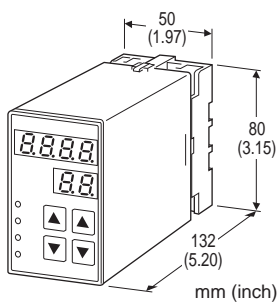
(dual or quad alarm trip; field-configurable)

#### Functions & Features

- Provides relay outputs at preset AC current levels from a CT (current transformer)
- True RMS sensing
- 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: AS4CT-[1][2]-[3][4]

### ORDERING INFORMATION

- Code number: AS4CT-[1][2]-[3][4]
- Specify a code from below for each [1] through [4]. (e.g. AS4CT-S52-R/Q)
- Specify the specification for option code /Q (e.g. /C01/S01/SET)

### [1] INPUT

#### Current

S1: 0 - 1 A AC

S5: 0 - 5 A AC

### [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  $\pm$ 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-1603)

### 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

Input waveform: Up to 15 % of 3rd harmonic content

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)
- 0 %, 100 % input voltage/current



• 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.

(L1 and L2 for 2-point alarm. L1, L2, L3 and L4 for 4-point alarm.)

## INPUT SPECIFICATIONS

Operational range: 0 - 115 % of rating

S1: 0 - 1 A

S5: 0 - 5 A

Frequency: 50 or 60 Hz

Input burden: 0.1 VA (input 0 - 1 A)

0.5 VA (input 0 - 5 A)

Overload capacity: 1000 % of rating for 3 sec., 200 % for 10 sec., 120 % continuous

Minimum increment

S1: 0.01 A

S5: 0.01 A

Default setting

S1: 0 - 1 A

S5: 0 - 5 A

## 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

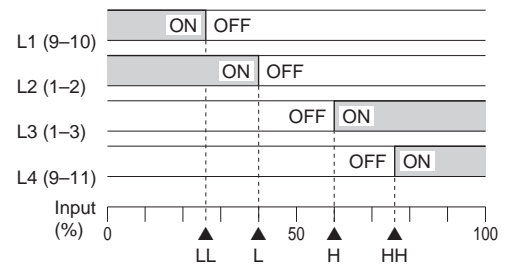
Minimum load: 5 V DC @ 10 mA

Mechanical life:  $5 \times 10^7$  cycles

## 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 1 - 3, 9 - 11 turn on.

## INSTALLATION

### Power consumption

•AC:

Approx. 4.6 VA at 100 V

Approx. 5.9 VA at 200 V

Approx. 6.8 VA at 264 V

•DC: Approx. 3.5 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 lb)

## PERFORMANCE in percentage of FS input

Setpoint accuracy (trip point accuracy):  $\pm(0.3 \%$  of FS + 1 digit)

Display accuracy:  $\pm(0.3 \%$  of FS + 1 digit)

Temp. coefficient:  $\pm 0.015 \%$ /°C ( $\pm 0.008 \%$ /°F)

Response time:  $\leq 0.7$  sec. (0 - 100 % at 90 % setpoint)

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 (input, output)

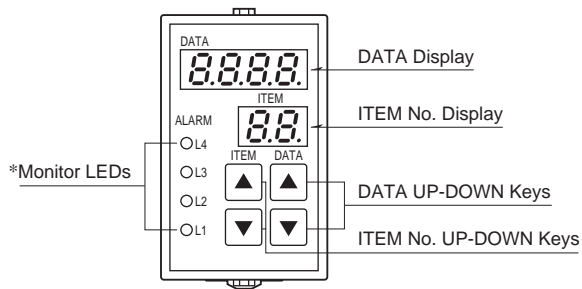
Installation Category II (power)

Pollution Degree 2

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



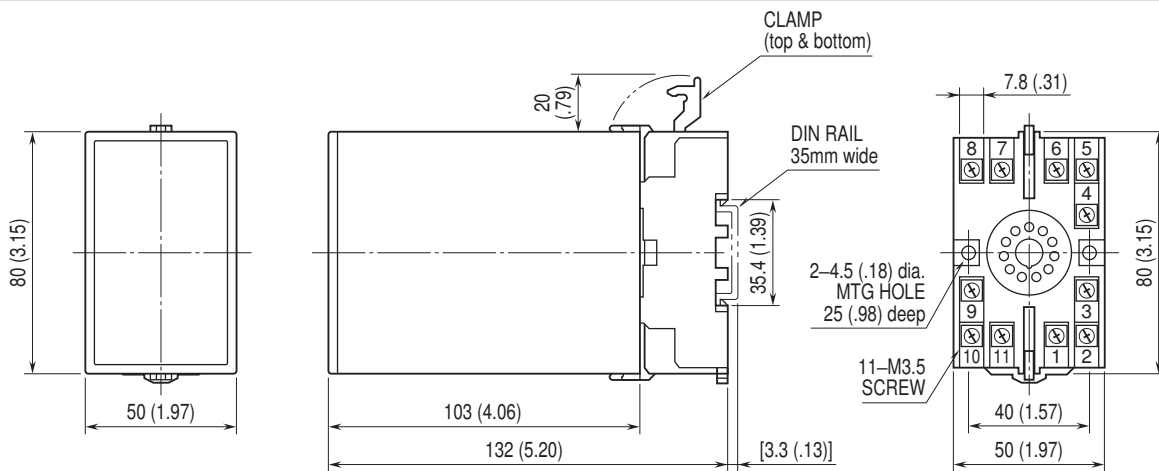
## EXTERNAL VIEW



\*L3 or L4 does not turn on for dual output type.

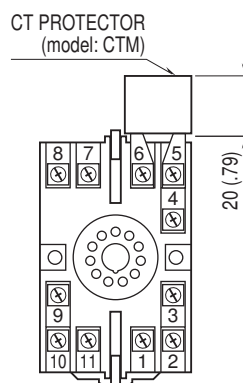
Refer to the instruction manual for detailed procedures.

## DIMENSIONS unit: mm (inch)



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

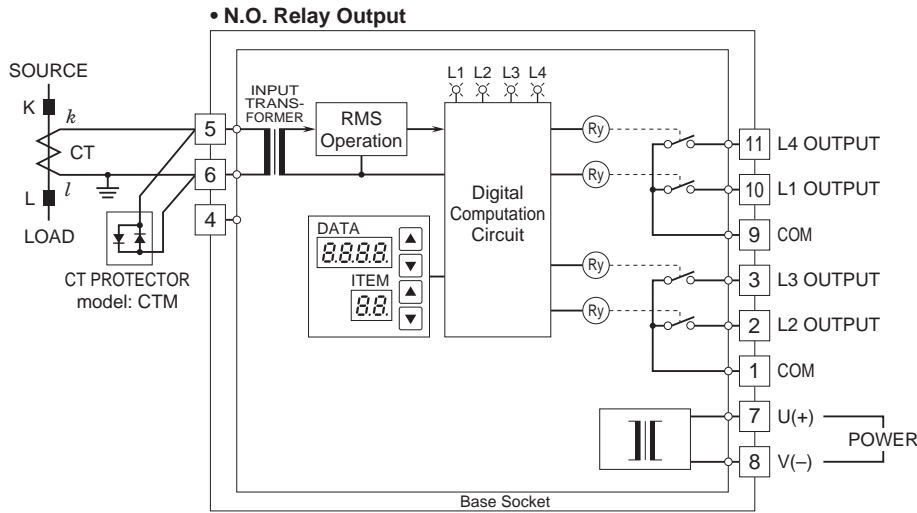
## TERMINAL ASSIGNMENTS unit: mm (inch)



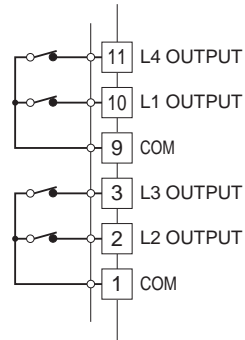
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

■ OUTPUT SUFFIX CODE: 2

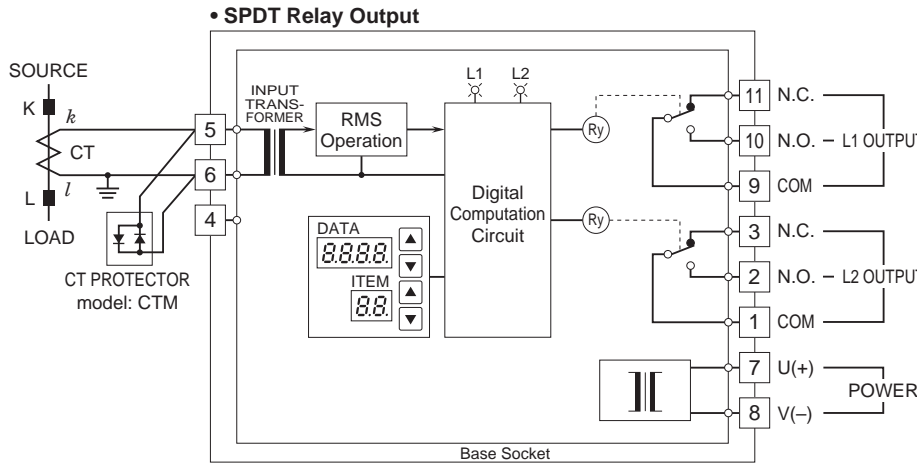
■ OUTPUT SUFFIX CODE: 3



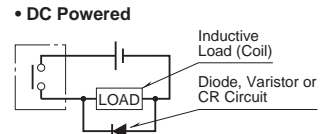
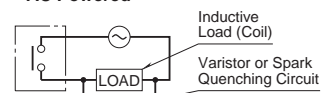
**• N.C. Relay Output**



■ OUTPUT SUFFIX CODE: 5



■ Relay Protection



Specifications are subject to change without notice.