

Plug-in Signal Conditioners M-UNIT

THERMOCOUPLE ALARM

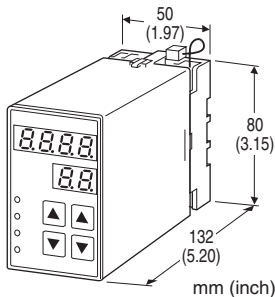
(dual or quad alarm trip; field-configurable)

Functions & Features

- Provides relay outputs at preset temperature levels
- 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: AS4T-[1]-[2][3]

ORDERING INFORMATION

- Code number: AS4T-[1]-[2][3]
- Specify a code from below for each of [1] through [3].
(e.g. AS4T-2-R/UL/Q)
- Specify the specification for option code /Q
(e.g. /C01/SET)

[1] OUTPUT

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

[2] POWER INPUT

AC Power

M2: 100 – 240 V AC, 50 – 60 Hz
(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.)

[3] OPTIONS (multiple selections)

Standards & Approvals

blank: CE marking
/UL: UL approval, CE marking

Other Options

blank: none
/Q: Option other than the above (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 (UL not available)

TERMINAL SCREW MATERIAL

/S01: Stainless steel (UL not available)

EX-FACTORY SETTING

/SET: Preset according to the Ordering Information Sheet
(No. ESU-1608)

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

Burnout: Upscale standard; downscale optional by programming

Sampling cycle: 100 msec.

User-configurable items: Front key pad

- Alarm setpoint
- Power ON-delay time
- Alarm ON-delay time
- Moving average
- Hi/Lo trip operation
- Coil at alarm
- Hysteresis (deadband)
- Temperature range
- Temperature unit
- Thermocouple
- 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

PV indication: Temperature 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 LEDs turn on when coils are energized.
(L1 and L2 for 2-point alarm. L1, L2, L3 and L4 for 4-point alarm.)

Mechanical life: 5×10^7 cycles

(Note): The value indicate capacity of output relay in equipment.
Use within relay rating for EU and UL.

INPUT SPECIFICATIONS

Input resistance: 1 MΩ min.
Burnout sensing: 45 nA ±10 %
Default setting: K (CA) -100.0 - +999.9°C
Minimum step:
-199.9 to 999.9: 0.1
Not greater than -200, not lower than 1000: 1

Temperature range

T/C	USABLE RANGE		CONFORMANCE LIMIT	
	°C	°F	°C	°F
(PR) *	-52 to +1860	-61.6 to +3380	150	302
K (CA) *	-272 to +1472	-458 to +2682	-200	-328
E (CRC) *	-272 to +1020	-458 to +1868	-200	-328
J (IC)	-260 to +1300	-436 to +2372	-260	-436
T (CC) *	-272 to +500	-458 to +932	-200	-328
B (RH) *	24 to 1920	75.2 to 3488	450	842
R *	-100 to +1860	-148 to +3380	150	302
S *	-100 to +1860	-148 to +3380	150	302
C (WRe 5-26)	-52 to +2416	-61.6 to +4381	-52	-61.6
N	-272 to +1400	-458 to +2552	-200	-328
U	-252 to +600	-422 to +1112	-252	-422
L	-252 to +1000	-422 to +1832	-252	-422
P (Platinel II)	-52 to +1496	-61.6 to +2725	-52	-61.6

* For temperatures ranges near the lower limit of the usable range, the transmitter may not satisfy the described accuracy.

OUTPUT SPECIFICATIONS

■ Quad Alarm

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)
Maximum switching voltage(Note): 380 V AC or 125 V DC
Maximum switching power(Note): 120 VA or 30 W
Minimum load: 5 V DC @ 10 mA
Mechanical life: 5×10^7 cycles

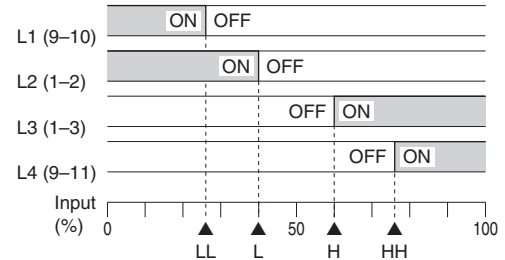
■ Dual Alarm

Relay rating:
120 V AC @ 5 A (cos φ = 1)
240 V AC @ 2.5 A (cos φ = 1)
30 V DC @ 5 A (resistive load)
Maximum switching voltage(Note): 380 V AC or 125 V DC
Maximum switching power(Note): 600 VA or 150 W
Minimum load: 5 V DC @ 10 mA

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: ≤ 6 VA
- DC: ≤ 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): ±(0.1 % of FS + 1 digit)

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

Cold junction compensation error: ±0.5°C or ±0.9°F
(at 20°C ±10°C or 68°F ±18°F)

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

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

Burnout response: ≤ 5 sec.

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

EU conformity:

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

Low Voltage Directive

EN 61010-1

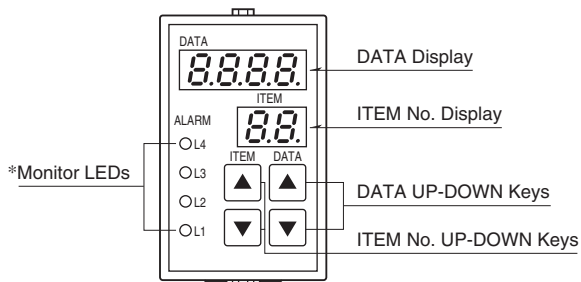
Measurement Category II (output)

Installation Category II (power)
 Pollution Degree 2
 Input to output to power: Basic insulation (300 V)
 RoHS Directive

Approval:

UL/C-UL general safety requirements
 (UL 61010-1, CAN/CSA-C22.2 No.61010-1)

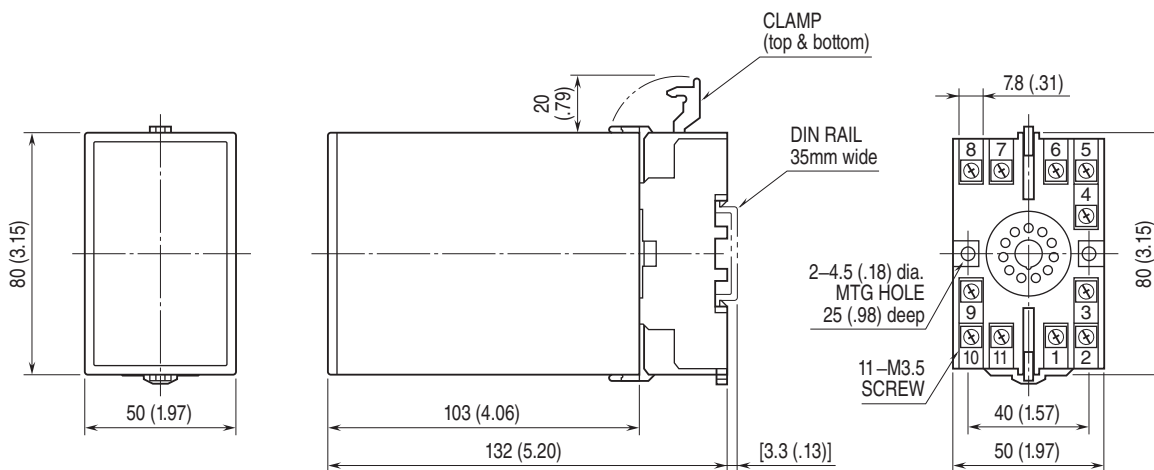
EXTERNAL VIEW



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

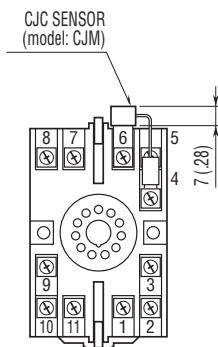
Refer to the instruction manual for detailed procedures.

EXTERNAL DIMENSIONS unit: mm [inch]



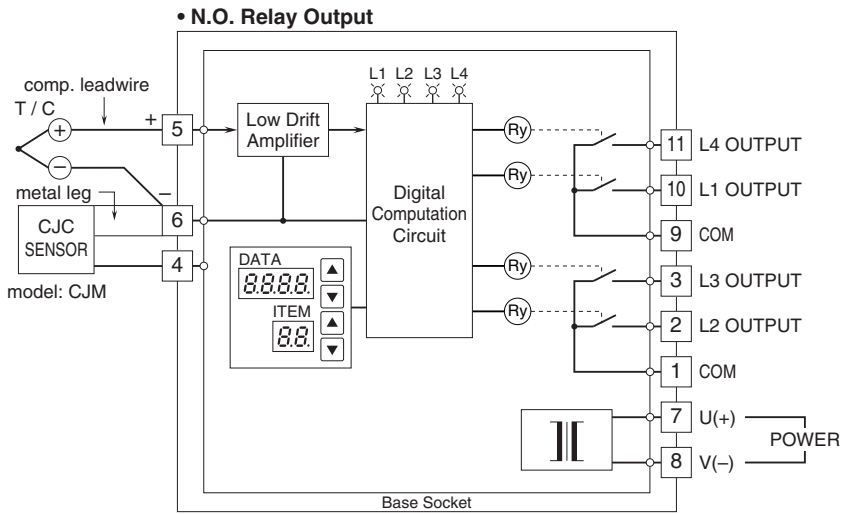
• When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm (inch)



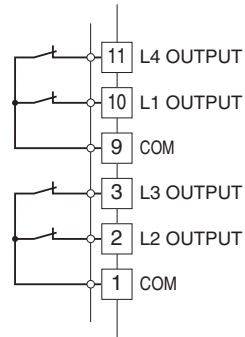
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

■ OUTPUT CODE: 2

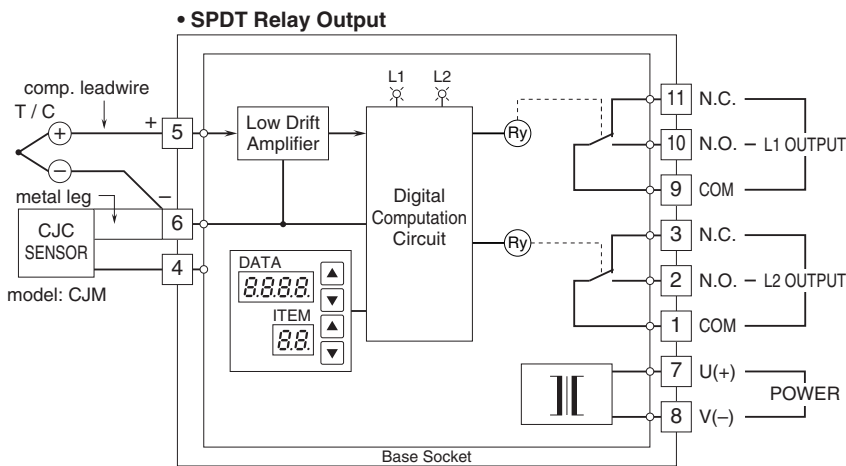


■ OUTPUT CODE: 3

• N.C. Relay Output

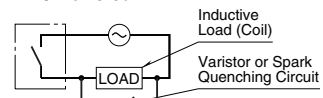


■ OUTPUT CODE: 5

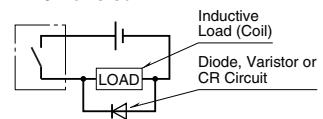


■ Relay Protection

• AC Powered



• DC Powered



Specifications are subject to change without notice.