

Plug-in Signal Conditioners MX-UNIT

THERMOCOUPLE TRANSMITTER

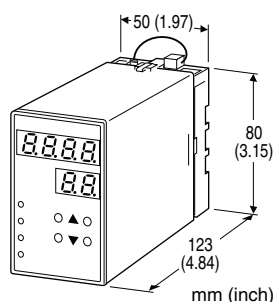
(front configurable)

Functions & Features

- Converts a thermocouple input into a linearized process signal
- Field-programmable T/C type, temperature and output range
- Easy programming via front UP-DOWN keys with a help of 4-digit and 2-digit displays
- I/O signal inversion feature
- Isolation up to 2000 V AC
- Loop test output
- High-density mounting

Typical Applications

- Isolation between control room and field instrumentation
- Ideal for quick spare part



MODEL: MXT-[1]-[2][3]

ORDERING INFORMATION

- Code number: MXT-[1]-[2][3]

Specify a code from below for each of [1] through [3].
(e.g. MXT-V1-M2/Q)

- Specify the specification for option code /Q
(e.g. /C01/S01/SET)

[1] OUTPUT

Current

Z1: Range 0 – 20 mA DC (Load resistance 600Ω max.)

Voltage

V1: Range -1 – +1 V DC (Load resistance 1000Ω min.)

V2: Range -10 – +10 V DC (Load resistance 10kΩ min.)

[2] 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.)

[3] 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-1712)

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

At burnout: Downscale $\leq$ -10 %, Upscale $\geq$ 110 %, Output $\leq$ 0 mA not available

Programming: Via front keys

- Input Type
- Moving average
- Burnout
- etc.

For detailed information, 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: Input signal in engineering unit

Overrange indication: LEDs blinking

Burnout indication: LEDs blinking and the PLC turns on.

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

LEDs: Red; the PL1 turns on with negative polarity and the PL2 turns on with burnout or programming error.

INPUT SPECIFICATIONS

Input resistance: 1 MΩ min.

Burnout sensing: ≤ 0.2 μA

Input min. step: 0.1 ('1' for ≥ ±1000)

Default setting: K (CA) 0 – 100°C

Temperature range

T/C	USABLE RANGE		CONFORMANCE LIMIT	
	°C	°F	°C	°F
(PR)*	-50 to +1860	-58 to +3380	150	302
K (CA)*	-270 to +1470	-454 to +2678	-200	-328
E (CRC)*	-270 to +1020	-454 to +1868	-200	-328
J (IC)	-260 to +1300	-436 to +2372	-260	-436
T (CC)*	-270 to +500	-454 to +932	-200	-328
B (RH)*	20 to 1920	68 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)	-50 to +2410	-58 to +4370	-50	-58
N*	-270 to +1400	-454 to +2552	-200	-328
U	-250 to +600	-418 to +1112	-250	-418
L	-250 to +1000	-418 to +1832	-250	-418
P (Platinel II)	-50 to +1500	-58 to +2732	-50	-58

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

Note 1: Set the upper range temperature with a larger value than the lower range temperature value.

Note 2: Inverted output is available with the configuration.

Note 3: Operational range is of -15 to +115% or in the usable range as indicated above.

OUTPUT SPECIFICATIONS

■ **DC Current:** 0.0 – 20.0 mA DC

Operational range: 0.0 – 24.0 mA DC

Minimum increment: 0.1 mA

Default setting: 4.0 – 20.0 mA DC

■ **DC Voltage**

Code V1: -1.00 – +1.00 V DC

Operational range: -1.15 – +1.15 V DC

Minimum increment: 10 mV

Code V2: -10.0 – +10.0 V DC

Operational range: -11.5 – +11.5 V DC

Minimum increment: 100 mV

Note: Set to the 100 % output with a larger value than the 0 % output value.

Default setting:

Code V1: -1.00 – +1.00 V DC

Code V2: -10.0 – +10.0 V DC

INSTALLATION**Power consumption**

• **AC:**

Approx. 3 VA at 100 V

Approx. 5 VA at 200 V

Approx. 6 VA at 264 V

• **DC:** Approx. 3.5 W (100 mA at 24 V)

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

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

Mounting: Surface or DIN rail

Weight: 450 g (0.99 lb)

PERFORMANCE

Accuracy: Input + output

Input: ±0.3°C (±0.54°F)

Output: ±0.05 %

Min. span required to ensure the accuracy:

20 % of the nominal I/O range

Display accuracy: Input accuracy ±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: ≤ 0.5 sec. (0 – 90 %)

Burnout response time: ≤ 2 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

Installation Category II

Pollution Degree 2

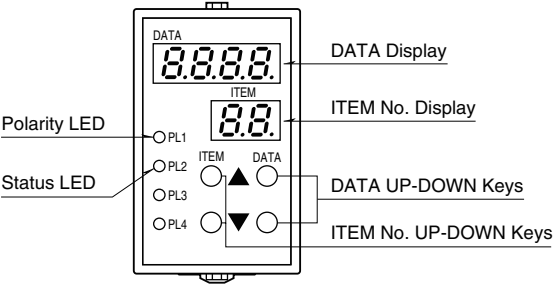
Input or output to power: Reinforced insulation (300 V)

Input to output: Basic insulation (300 V)

RoHS Directive

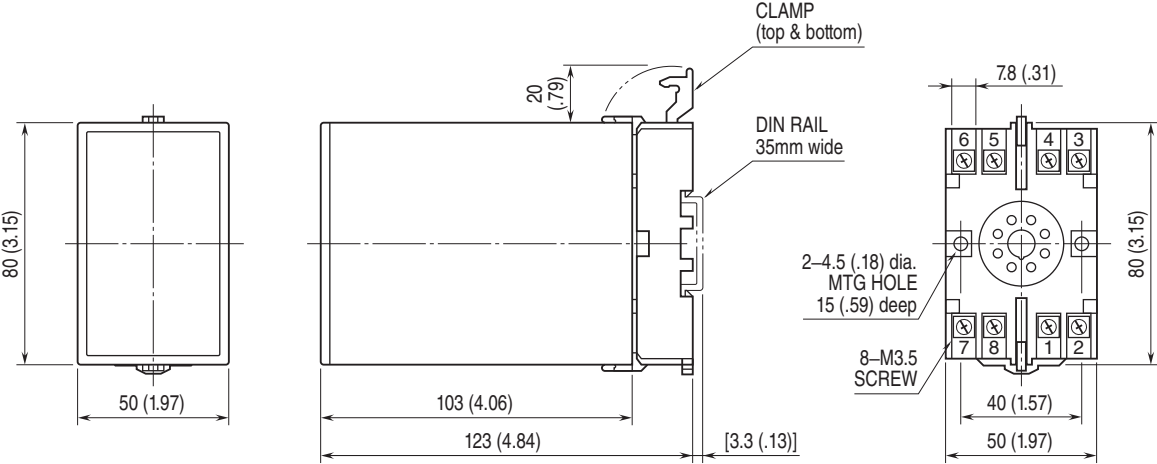
EN 50581

EXTERNAL VIEW



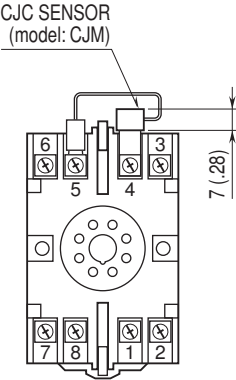
Refer to the instruction manual for detailed procedures.

EXTERNAL DIMENSIONS unit: mm (inch)

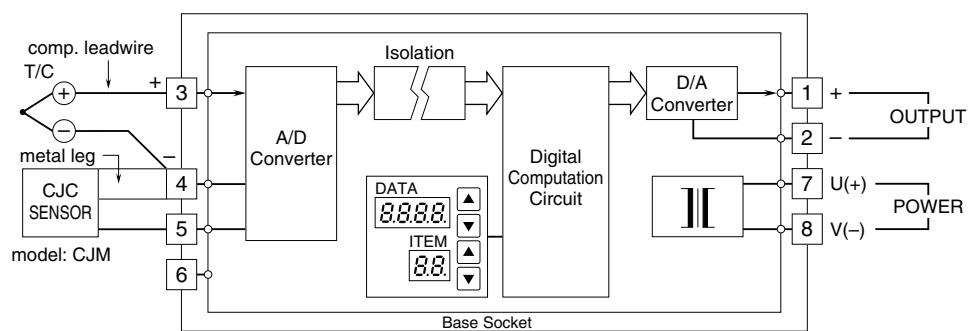


• When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm (inch)



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.