

## Plug-in Signal Conditioners MX-UNIT

### THERMOCOUPLE TRANSMITTER

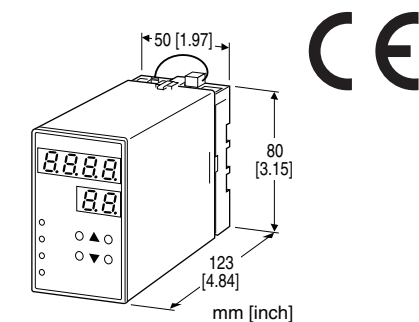
(front configurable)

#### 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 ±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 our 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 ≤ -10 %, Upscale ≥ 110 %, Output ≤ 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

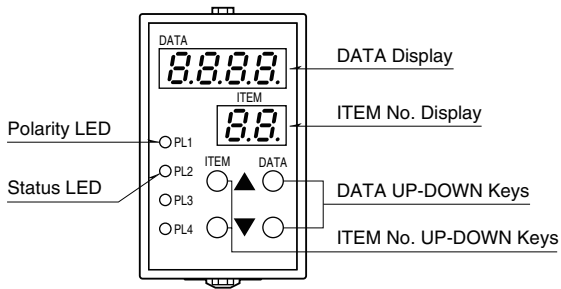
Pollution Degree 2

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

Input to output: Basic insulation (300 V)

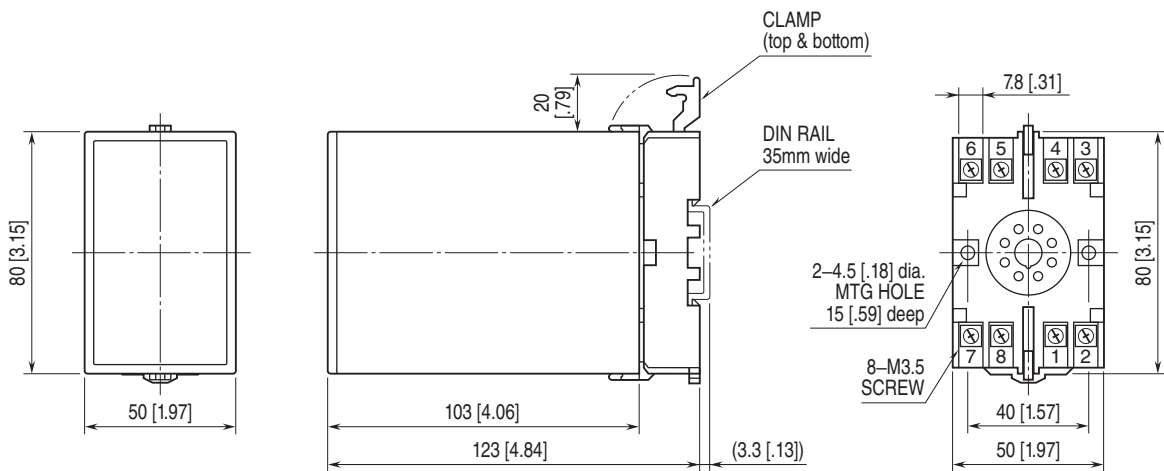
RoHS Directive

**EXTERNAL VIEW**



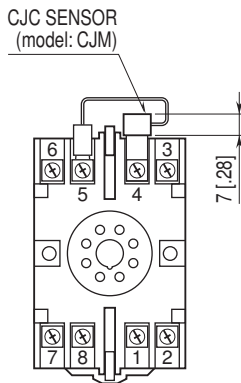
Refer to the instruction manual for detailed procedures.

**EXTERNAL DIMENSIONS unit: mm [inch]**

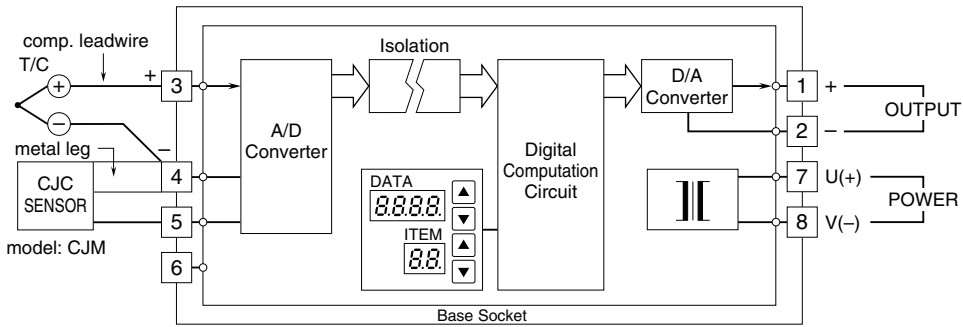


• When mounting, no extra space is needed between units.

**TERMINAL ASSIGNMENTS unit: mm [inch]**



**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



Specifications are subject to change without notice.