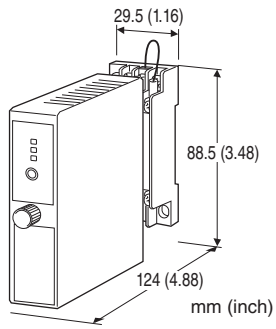
Space-saving Dual Output Signal Conditioners
Mini-MW Series

THERMOCOUPLE TRANSMITTER

(PC programmable)

Functions & Features

- Accepts direct input from a thermocouple and provides a linearized process signal
- PC programmable
- Wide selection of thermocouples
- User's temperature table can be used
- High-density mounting



MODEL: W2XT-[1][2][3]-[4][5]

ORDERING INFORMATION

- Code number: W2XT-[1][2][3]-[4][5]

Specify a code from below for each [1] through [5].
(e.g. W2XT-2Z1V3-M2/N/Q)

- Temperature range (e.g. 0 – 800°C)
- Output 1 range (e.g. 4 – 20 mA DC)
- Output 2 range (e.g. 1 – 5 V DC)
- Specify the specification for option code 'Q.'

(e.g. /C01/S01/SET)
Note: If one of the outputs should be a current range, specify it for the Output 1 to allow a greater load.

[1] INPUT THERMOCOUPLE

1: (PR)
2: K (CA)
3: E (CRC)
4: J (IC)
5: T (CC)
6: B (RH)
7: R
8: S
9: C (WRe 5-26)
N: N
U: U
L: L
P: Platinel II
0: Specify
(Configurator software is used to change the input type and precise range.)

[2] OUTPUT 1

Current
Z1: Range 0 – 20 mA DC
Voltage
V2: Range -10 – +10 V DC
V3: Range -5 – +5 V DC
(Configurator software is used to change output over the described range of the selected suffix code.
For changing between suffix codes, set the Output Range Selector on the side of unit before software adjustment.)

[3] OUTPUT 2

Same range availability as Output 1
Y: None
(Configurator software is used to change output over the described range of the selected suffix code.
For changing between suffix codes, set the Output Range Selector on the side of unit before software adjustment.)

[4] 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.)

[5] OPTIONS (multiple selections)

Standards & Approvals (must be specified)
/N: Without CE
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
TERMINAL SCREW MATERIAL
/S01: Stainless steel
EX-FACTORY SETTING
/SET: Preset according to the Ordering Information Sheet

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幸託有限公司
XIN TOP CORPORATION
TEL：(02)2598-1199 E-mail：info@xintop.com
FAX：(02)2596-2331 Website：www.xintop.com

(No. ESU-5508)

RELATED PRODUCTS

• PC configurator software (model: W2CFG)
Downloadable at M-System's web site.
A dedicated cable is required to connect the module to the PC. Please refer to the internet software download site or the users manual for the PC configurator for applicable cable types.

GENERAL SPECIFICATIONS

Construction: Plug-in
Connection: M3 screw terminals (torque 0.8 N·m)
Screw terminal: Chromated steel (standard) or stainless steel
Housing material: Flame-resistant resin (black)
Isolation: Input to output 1 to output 2 to power
Overrange output: -15 to +115 %
(Negative current output is not available.)
Zero adjustment: -5 to +5 % (PC programming)
Span adjustment: 95 to 105 % (PC programming)
Burnout: Upscale standard; downscale, specific value output or no burnout optional by programming
Linearization: Standard
Cold junction compensation: CJC sensor attached to the input terminals
Status indicator LED: Tri-color (green/amber/red) LED; Flashing patterns indicate operation status of the transmitter.
Programming: Downloaded from PC; input type and range, output type and range, zero and span, burnout type, user's linearization table, etc.
For detailed information, refer to the users manual for the PC configurator.
Configurator connection: 2.5 dia. miniature jack; RS-232-C level

INPUT SPECIFICATIONS

Input resistance: 1 MΩ min.
Burnout sensing: ≤ 4 µA
If not specified, the input range is shown below.
1 PR: 0–1600°C
2 K: 0–1000°C
3 E: 0–500°C
4 J: 0–500°C
5 T: 0–300°C
6 B: 500–1600°C
7 R: 500–1600°C
8 S: 0–1600°C
9 C (WRe 5-26): 0–2000°C
N N: 0–1000°C
U U: 0–300°C
L L: 0–500°C
P Platinel II: 0–1200°C

OUTPUT SPECIFICATIONS

■ **DC Current**
Operational range: 0 – 23 mA DC
Minimum span: 1 mA
Offset: Lower range can be any specific value within the output range provided that the minimum span is maintained.
Load resistance: Output drive 12 V max. for Output 1; 7 V max. for Output 2
(e.g. 4 – 20 mA: 600 Ω [12 V/20 mA])
If not specified, the output range is 4 – 20 mA DC.
■ **DC Voltage**
Code V2 (wide spans)
Operational range: -11.5 – +11.5 V DC
Minimum span: 1 V
Code V3 (narrow spans)
Operational range: -6 – +6 V DC
Minimum span: 0.5 V
Offset: Lower range can be any specific value within the output range provided that the minimum span is maintained.
Load resistance: Output drive 1 mA max.
(e.g. 1 – 5 V: 5000 Ω [5 V/1 mA])
If not specified, the output range is shown below.
V2: 0 – 10 V DC
V3: 1 – 5 V DC

INSTALLATION

Power Consumption
•**AC**:
Approx. 5 VA at 100 V
Approx. 6 VA at 200 V
Approx. 7 VA at 240 V
•**DC**: Approx. 3 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: 150 g (0.33 lb)

PERFORMANCE in percentage of span

Overall accuracy: Input accuracy + output accuracy
• **Input accuracy**: Accuracy (Table 1) + Cold Junction Compensation Error 3°C (5.4°F)
• **Output accuracy**: Max. Output Range ÷ Span × ±0.04%
Cold junction compensation error:
±3°C at 25 ±10°C
±5.4°F at 77 ±18°F

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Temp. coefficient: ±0.015 %/°C (±0.008 %/°F) of max. span
Response time: ≤ 1 sec. (0 – 90 %)
Burnout response: ≤ 10 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 1 to output 2 to power to ground)

CALCULATION EXAMPLES OF OVERALL ACCURACY

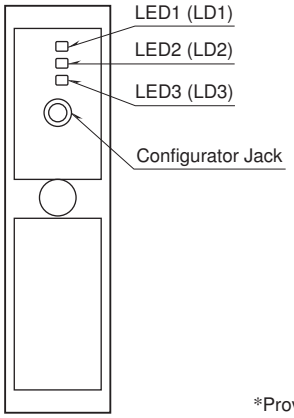
[Example] K thermocouple, 0 – 1000°C, 4 – 20 mA DC output
Absolute value accuracy (Table 1): 0.25°C
CJC error (3°C) added: 3.25°C
• Input accuracy = 3.25°C ÷ 1000°C × 100 = 0.325 %
Output span: 16 mA (20 – 4)
• Output accuracy = 20 mA ÷ 16 mA × 0.04 = 0.05 %
Overall accucracy including CJC error = 0.325 + 0.05 = ±0.38 % of span

Table 1.

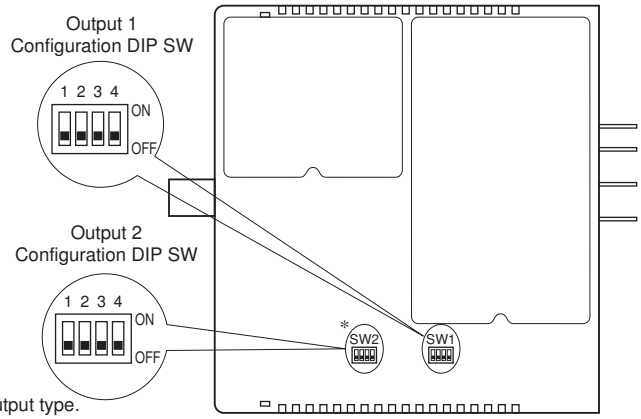
THERMO-COUPLE	°C			
	MIN. SPAN	MAXIMUM RANGE	ACCURACY	CONFORMANCE RANGE
(PR)	20	0 to 1760	±1.00	0 to 1760
K (CA)	20	-270 to +1370	±0.25	-150 to +1370
E (CRC)	20	-270 to +1000	±0.20	-170 to +1000
J (IC)	20	-210 to +1200	±0.25	-180 to +1200
T (CC)	20	-270 to +400	±0.25	-170 to +400
B (RH)	20	100 to 1820	±0.75	400 to 1760
R	20	-50 to +1760	±0.50	200 to 1760
S	20	-50 to +1760	±0.50	0 to 1760
C (WRe 5-26)	20	0 to 2315	±0.80	0 to 2315
N	20	-270 to +1300	±0.30	-130 to +1300
U	20	-200 to +600	±0.20	-200 to +600
L	20	-200 to +900	±0.25	-200 to +900
P (Platinel Ⅱ)	20	0 to 1395	±0.25	0 to 1395
THERMO-COUPLE	°F			
	MIN. SPAN	MAXIMUM RANGE	ACCURACY	CONFORMANCE RANGE
(PR)	36	32 to 3200	±1.80	32 to 3200
K (CA)	36	-454 to +2498	±0.45	-238 to +2498
E (CRC)	36	-454 to +1832	±0.36	-274 to +1832
J (IC)	36	-346 to +2192	±0.45	-292 to +2192
T (CC)	36	-454 to +752	±0.45	-274 to +752
B (RH)	36	212 to 3308	±1.35	752 to 3200
R	36	-58 to +3200	±0.90	392 to 3200
S	36	-58 to +3200	±0.90	32 to 3200
C (WRe 5-26)	36	32 to 4199	±1.44	32 to 4199
N	36	-454 to +2372	±0.54	-202 to +2372
U	36	-328 to +1112	±0.36	-328 to +1112
L	36	-328 to +1652	±0.45	-328 to +1652
P (Platinel Ⅱ)	36	32 to 2543	±0.45	32 to 2543

EXTERNAL VIEW

FRONT VIEW



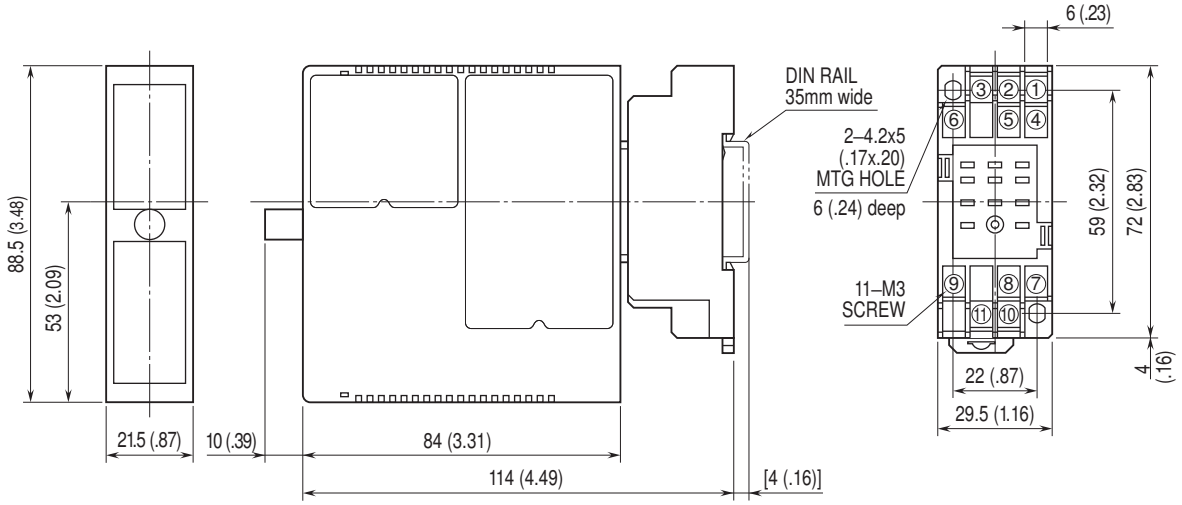
SIDE VIEW



*Provided only for two-output type.

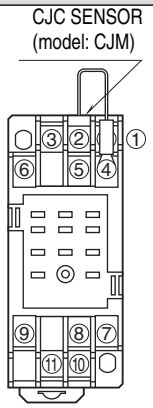
Refer to the instruction manual for detailed procedures.

DIMENSIONS unit: mm (inch)



When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS



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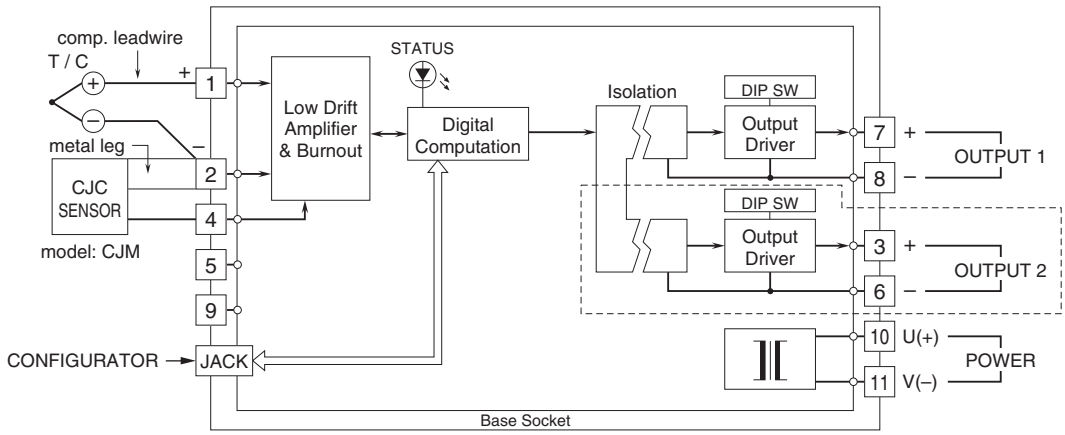
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Remark: The section enclosed by broken line is only with 2nd output option.

⚠ Specifications are subject to change without notice.

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