Plug-in Signal Conditioners M-UNIT

WATT TRANSDUCER

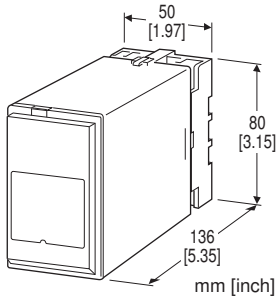
(high-speed response)

Functions & Features

• Providing a DC output signal in proportion to AC active power
• Measuring bidirectional power flow
• DC output containing little ripple is ideal for computer input
• Isolation up to 2000 V AC
• High-density mounting

Typical Applications

• Quick countermeasure against fast and violent signal variations in power surveillance systems



CE

MODEL: MEWTF-[1][2][3][4]–[5][6]

ORDERING INFORMATION

• Code number: MEWTF-[1][2][3][4]-[5][6]
Specify a code from below for each of [1] through [6].
(e.g. MEWTF-211A-B/CE/Q)
• Calibration range (e.g. 0 – 500 W)
• VT ratio, CT ratio (e.g. VT 3300/110 V, CT 250/5 A)
• Special output range (For codes Z & 0)
• Specify the specification for option code /Q
(e.g. /C01/S01)

[1] CONFIGURATION

1: 3-phase / 3-wire (CE not available)
2: Single-phase / 2-wire
3: Single-phase / 3-wire (CE not available)

[2] INPUT (unbalanced load)

1: 110 V / 5 A AC
2: 110 V / 1 A AC
3: 220 V / 1 A AC
4: 220 V / 5 A AC
A: 100 V / 200 V / 1 A AC (single-phase / 3- wire)
B: 100 V / 200 V / 5 A AC (single-phase / 3- wire)

[3] FREQUENCY

1: 50 Hz
2: 60 Hz

[4] OUTPUT

Current
A: 4 – 20 mA DC (Load resistance 600 Ω max.)
B: 2 – 10 mA DC (Load resistance 1200 Ω max.)
C: 1 – 5 mA DC (Load resistance 2400 Ω max.)
D: 0 – 20 mA DC (Load resistance 600 Ω max.)
E: 0 – 16 mA DC (Load resistance 750 Ω max.)
F: 0 – 10 mA DC (Load resistance 1200 Ω max.)
G: 0 – 1 mA DC (Load resistance 12 kΩ max.)
GW: -1 – +1 mA DC (Load resistance 10 kΩ max.)
Z: Specify current (See OUTPUT SPECIFICATIONS)
Voltage
1: 0 – 10 mV DC (Load resistance 10 kΩ min.)
2: 0 – 100 mV DC (Load resistance 100 kΩ min.)
3: 0 – 1 V DC (Load resistance 1000 Ω min.)
4: 0 – 10 V DC (Load resistance 10 kΩ min.)
5: 0 – 5 V DC (Load resistance 5000 Ω min.)
6: 1 – 5 V DC (Load resistance 5000 Ω min.)
1W: -10 – +10 mV DC (Load resistance 10 kΩ min.)
2W: -100 – +100 mV DC (Load resistance 100 kΩ min.)
3W: -1 – +1 V DC (Load resistance 1000 Ω min.)
4W: -10 – +10 V DC (Load resistance 10 kΩ min.)
5W: -5 – +5 V DC (Load resistance 5000 Ω min.)
0: Specify voltage (See OUTPUT SPECIFICATIONS)

[5] POWER INPUT

AC Power
B: 100 V AC
C: 110 V AC
D: 115 V AC
F: 120 V AC
G: 200 V AC
H: 220 V AC
J: 240 V AC

[6] OPTIONS (multiple selections)

Standards & Approvals
blank: Without CE
/CE: CE marking
(Select '2' for 'Configuration' code.)
Custom specification
(Refer to the custom specification list for difference of specification and combination of code numbers.)
blank: none

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/X1: Input range (CE not available)
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 our web site.)
/C01: Silicone coating
/C02: Polyurethane coating
/C03: Rubber coating
TERMINAL SCREW MATERIAL
/S01: Stainless steel

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: Voltage input to current input to output to power
Overrange output: Approx. -10 to +120 % at 1 – 5 V
Zero adjustment: -5 to +5 % (front)
Span adjustment: 95 to 105 % (front)

INPUT SPECIFICATIONS

Frequency: Rated frequency ±2 Hz
• **Current Input**
Operational range: 0 – 120 % of rating
Overload capacity: 1000 % of rating for 3 sec., 200 % for 10 sec., 120% continuous
• **Voltage Input**
Operational range: 10 – 120 % of rating
Overload capacity: 150 % of rating for 10 sec., 120 % continuous

■ **How To Determine Wattage Range**

Calibration Range [W] = Measuring Wattage ÷ ((VT Ratio) × (CT Ratio))
Check that the required calibration range is within the available range in the table. Specify this range when ordering.
[example]
3-phase / 3-wire, measuring wattage 750 kW,
VT 3300/110 V, CT 250/5 A
750×10^3 [W] ÷ ((3300÷110) × (250÷5))= 0 – 500 [W]

• 3-phase / 3-wire

VOLTAGE INPUT	BURDEN	CURRENT INPUT	BURDEN	STD RANGE	AVAILABLE RANGE
110V	0.2VA×2	1A	0.1VA×2	±200W	±100W – ±240W
		5A	0.5VA×2	±1000W	±500W – ±1200W
220V	0.4VA×2	1A	0.1VA×2	±400W	±200W – ±480W
		5A	0.5VA×2	±2000W	±1000W – ±2400W

• Single-phase / 2-wire

VOLTAGE INPUT	BURDEN	CURRENT INPUT	BURDEN	STD RANGE	AVAILABLE RANGE
110V	0.2VA	1A	0.1VA	±100W	±50W – ±120W
		5A	0.5VA	±500W	±250W – ±600W
220V	0.4VA	1A	0.1VA	±200W	±100W – ±240W
		5A	0.5VA	±1000W	±500W – ±1200W

• Single-phase / 3-wire

VOLTAGE INPUT	BURDEN	CURRENT INPUT	BURDEN	STD RANGE	AVAILABLE RANGE
100/200V *1	0.2VA×2	1A	0.1VA×2	±200W	±100W – ±240W
		5A	0.5VA×2	±1000W	±500W – ±1200W

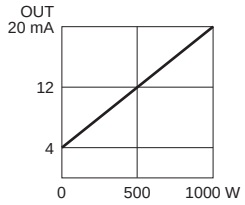
100/200V: 100V = phase voltage
200V = line voltage except the grounding.

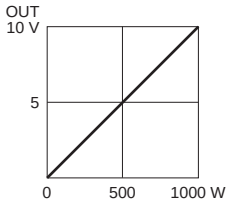
OUTPUT SPECIFICATIONS

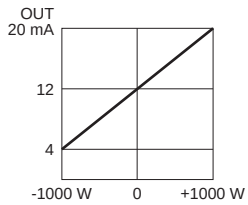
■ **DC Current**: 0 – 20 mA DC and ± 1 mA
Minimum span: 1 mA
Offset: Max. 1.5 times span
Load resistance: Output drive 12 V maximum; 10 V for [±] output

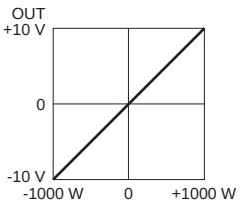
■ **DC Voltage**: -10 – +12 V DC
Minimum span: 5 mV
Offset: Max. 1.5 times span
Load resistance: Output drive 1 mA max. at ≥ 0.5 V

■ **OPERATION DIAGRAM (example)**









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INSTALLATION

Power input
•**AC**: Operational voltage range: rating ±10 %,
50/60 ±2 Hz, approx. 3.5 VA
Operating temperature: -5 to +60°C (23 to 140°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: Surface or DIN rail
Weight: 450 g (0.99 lb)

PERFORMANCE in percentage of span

Accuracy: ±1.0 %
Temp. coefficient: ±0.1 %/°C (±0.06 %/°F)
Response time: Approx. 40 msec. (0 – 90 %)
Ripple: 1 %p-p max.
Line voltage effect: ±0.1 % over voltage range
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 2000 V AC @ 1 minute
(voltage input to current 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 (input)
Installation Category II (power)
Pollution Degree 2
Input to output or power: Reinforced insulation (300 V)
Output to power: Basic insulation (300 V)
RoHS Directive

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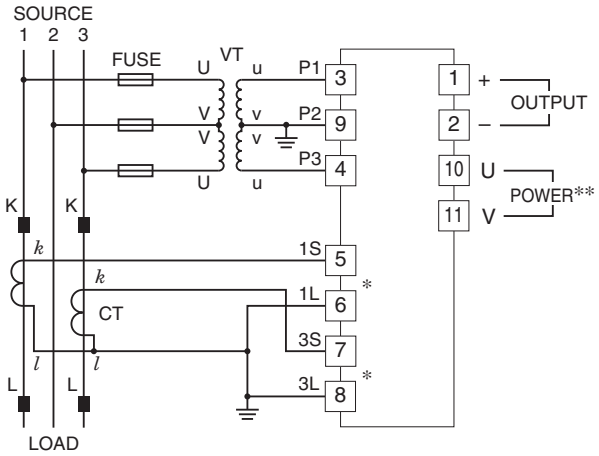
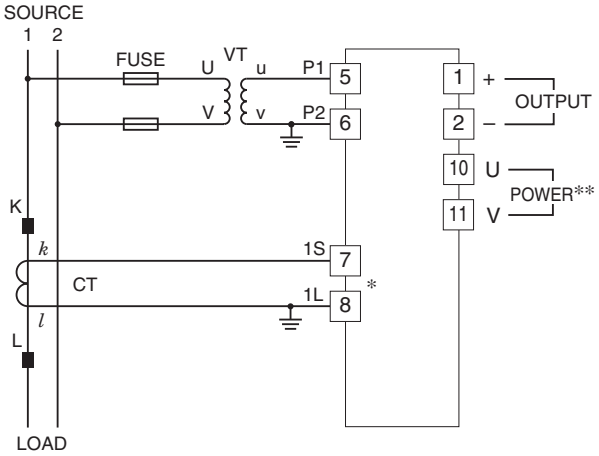
CONNECTION DIAGRAM

■ **3-PHASE/3-WIRE**



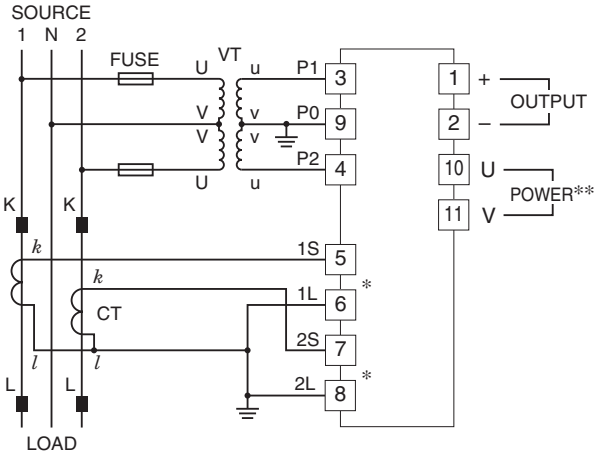
*CT Protector (model: CTM) attached to these terminals.

■ **SINGLE-PHASE/2-WIRE**



*CT Protector (model: CTM) attached to these terminals.

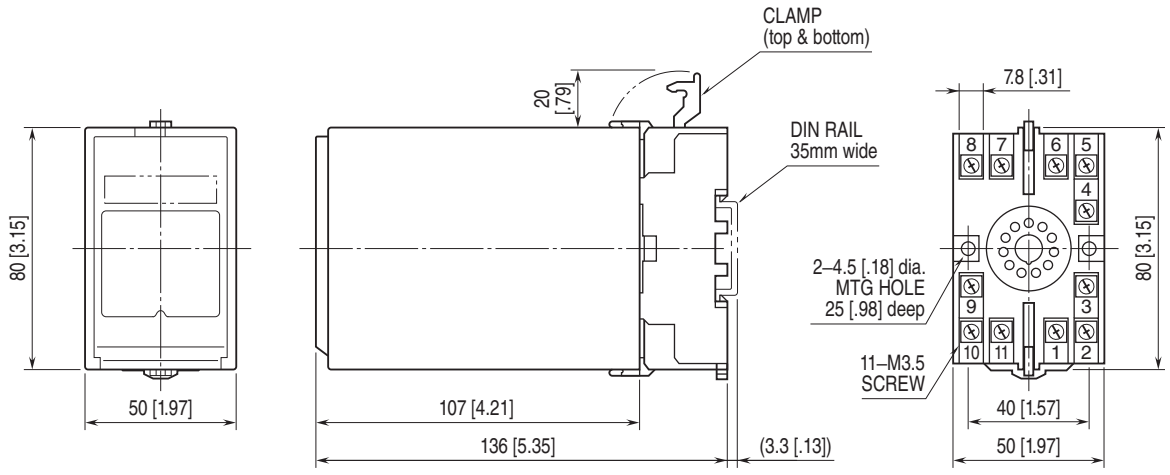
■ **SINGLE-PHASE/3-WIRE**



*CT Protector (model: CTM) attached to these terminals.

**The transducer can be powered from the input voltage when the voltage is sufficiently stable and meets other supply voltage requirements.

EXTERNAL DIMENSIONS unit: mm [inch]



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

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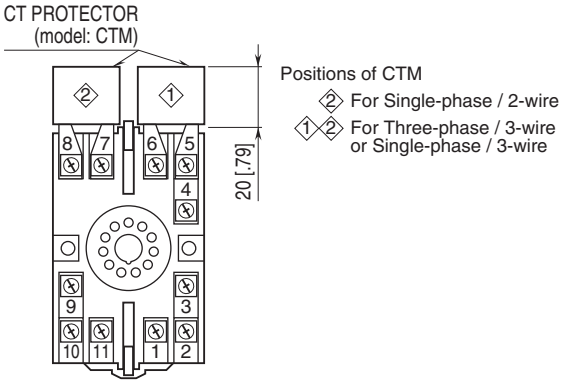
TERMINAL ASSIGNMENTS unit: mm [inch]



⚠ Specifications are subject to change without notice.

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CUSTOM SPECIFICATION LIST

Refer to the following pages for each detailed custom specification.

Custom specification: Option /X1

■ Major specification changes

Input 0%: -10 - 0 % of input 100% (W)

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CUSTOM SPECIFICATION : OPTION /X1

Major specification changes
Input 0%: -10 - 0 % of input 100% (W)

MODEL: MEWTF-[1][2][3][4]–[5][6]

Same as standard specification (without customization) except followings.
Refer to standard specification pages.

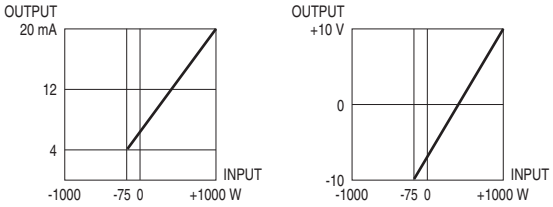
ORDERING INFORMATION

• Code number: MEWTF-[1][2][3][4]-[5][6]
For each of [1] through [6] same code as standard specification is available.
Be sure to specify /X1 of option [6].
(e.g. MEWTF-111A-B/X1/Q)
Refer to standard specification pages.

SPECIFICATION CHANGES

■ Input specifications
• Available input range
The value for 0% is within -10 - 0 % of input 100%.
e.g. Input range: -75 to 1000 [W]
-75 [W] ÷ 1000 [W] × 100 = -7.5 [%]

■ OPERATION DIAGRAM (example)



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