

Plug-in Signal Conditioners M-UNIT

B: 100 V / 200 V / 5 A AC (single-phase / 3- wire)

WATT TRANSDUCER

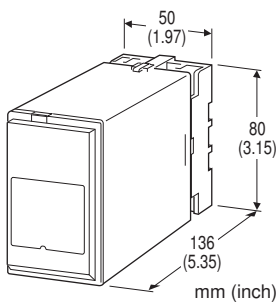
(high-speed response)

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



[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 k Ω max.)

GW: -1 – +1 mA DC (Load resistance 10 k Ω max.)

Z: Specify current (See OUTPUT SPECIFICATIONS)

Voltage

1: 0 – 10 mV DC (Load resistance 10 k Ω min.)

2: 0 – 100 mV DC (Load resistance 100 k Ω min.)

3: 0 – 1 V DC (Load resistance 1000 Ω min.)

4: 0 – 10 V DC (Load resistance 10 k Ω 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 k Ω min.)

2W: -100 – +100 mV DC (Load resistance 100 k Ω min.)

3W: -1 – +1 V DC (Load resistance 1000 Ω min.)

4W: -10 – +10 V DC (Load resistance 10 k Ω min.)

5W: -5 – +5 V DC (Load resistance 5000 Ω min.)

0: Specify voltage (See OUTPUT SPECIFICATIONS)

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 [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)

[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

/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 M-System's 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 $\div$ ((VT Ratio) $\times$ (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] $\div$ ((3300 $\div$ 110) $\times$ (250 $\div$ 5)) = 0 - 500 [W]

• 3-phase / 3-wire

VOLTAGE INPUT		CURRENT INPUT		STD RANGE	AVAILABLE RANGE
	BURDEN		BURDEN		
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		CURRENT INPUT		STD RANGE	AVAILABLE RANGE
	BURDEN		BURDEN		
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		CURRENT INPUT		STD RANGE	AVAILABLE RANGE
	BURDEN		BURDEN		
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 $[\pm]$ output

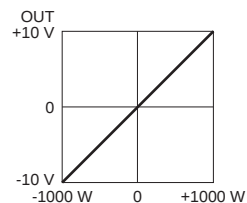
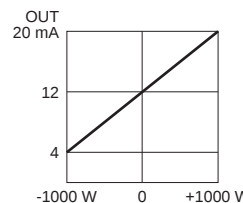
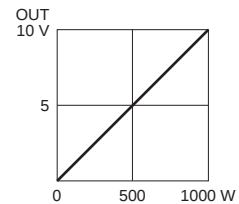
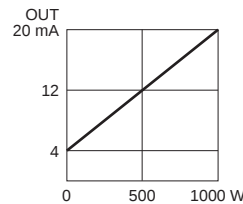
■ **DC Voltage:** -10 - +12 V DC

Minimum span: 5 mV

Offset: Max. 1.5 times span

Load resistance: Output drive 1 mA max. at ≥ 0.5 V

■ OPERATION DIAGRAM (example)



INSTALLATION

Power input

•AC: Operational voltage range: rating $\pm 10\%$,

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: $\pm 1.0\%$

Temp. coefficient: $\pm 0.1\%/^{\circ}\text{C}$ ($\pm 0.06\%/^{\circ}\text{F}$)

Response time: Approx. 40 msec. (0 – 90 %)

Ripple: 1 %p-p max.

Line voltage effect: $\pm 0.1\%$ over voltage range

Insulation resistance: $\geq 100\text{ M}\Omega$ 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)

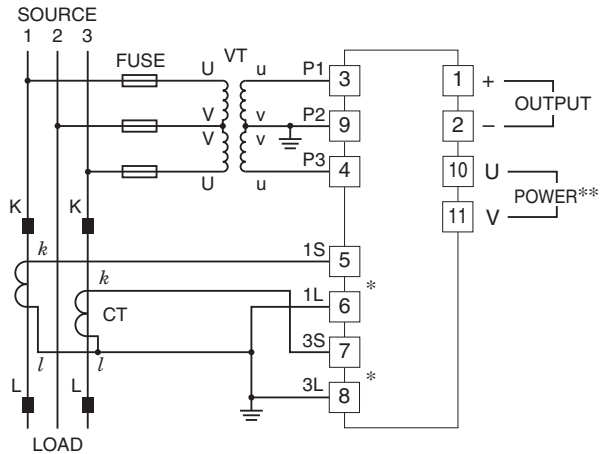
Output to power: Basic insulation (300 V)

RoHS Directive

EN 50581

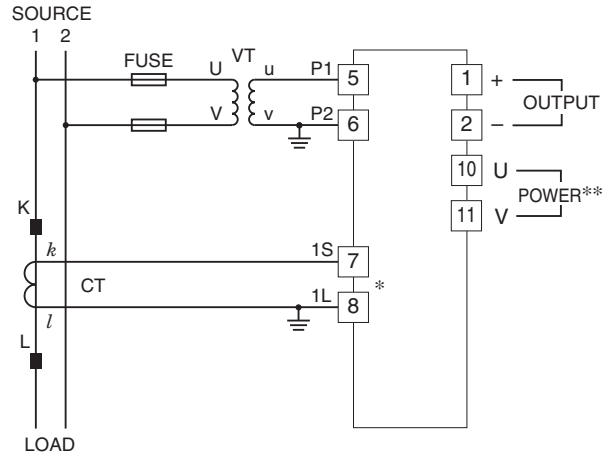
CONNECTION DIAGRAM

■ 3-PHASE/3-WIRE



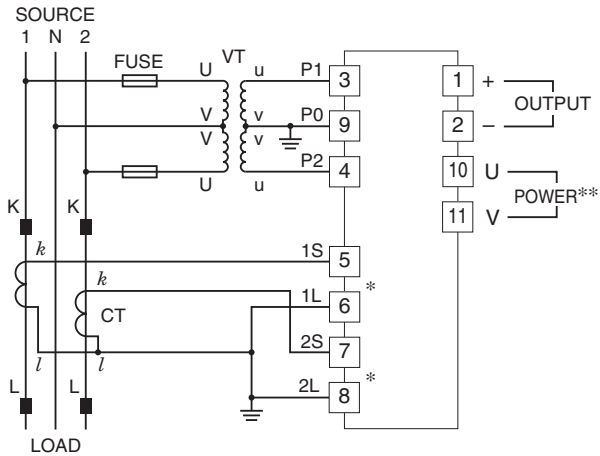
*CT Protector (model: CTM) attached to these terminals.

■ SINGLE-PHASE/2-WIRE



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

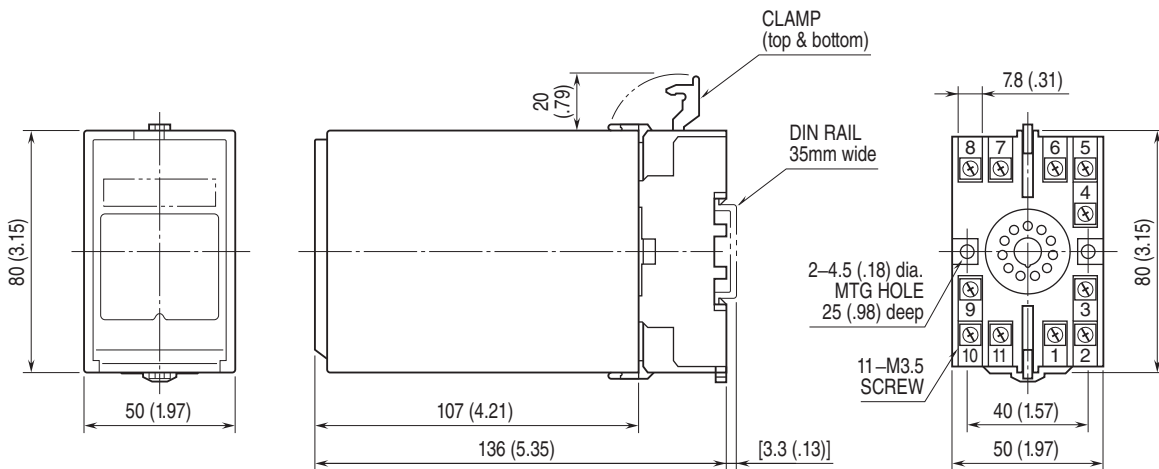
■ SINGLE-PHASE/3-WIRE



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

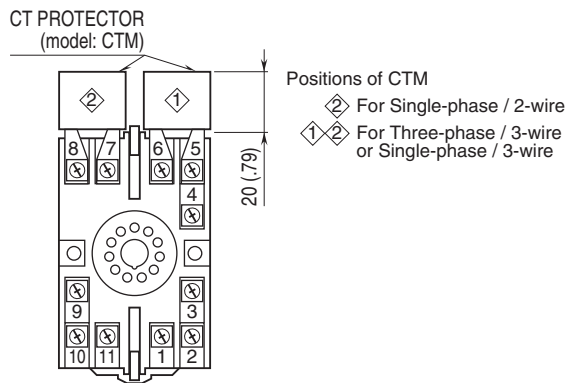
**The transducer can be powered from the input voltage when the voltage is sufficiently stable and meets other supply voltage requirements.

EXTERNAL DIMENSIONS unit: mm (inch)



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

TERMINAL ASSIGNMENTS unit: mm (inch)



Specifications are subject to change without notice.

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)

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 [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]

$-75 [W] \div 1000 [W] \times 100 = -7.5 [\%]$

■ OPERATION DIAGRAM (example)

