

Plug-in Signal Conditioners M-UNIT

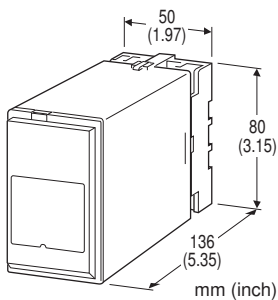
WATT TRANSDUCER

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
- "Time division multiplication" method accepts distorted waveforms
- Isolation up to 2000 V AC
- High-density mounting

Typical Applications

- Centralized monitoring and control of power management system in a manufacturing facility or building
- SCR - Silicon Controlled Rectifier



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

ORDERING INFORMATION

- Code number: MEWT-[1][2][3]-[4][5]
- Specify a code from below for each of [1] through [5].
(e.g. MEWT-11A-B/Q)
- Calibration range (e.g. 0 - 1000 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
- 2: Single-phase / 2-wire
- 3: Single-phase / 3-wire

[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] 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)

[4] 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

DC Power

S: 12 V DC

R: 24 V DC

V: 48 V DC

P: 110 V DC

[5] 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

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**Computation:** Time division multiplication**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:** 50 or 60 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:** 0 - 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

 $750 \times 10^3 \text{ [W]} \div ((3300 \div 110) \times (250 \div 5)) = 0 - 500 \text{ [W]}$ • **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**

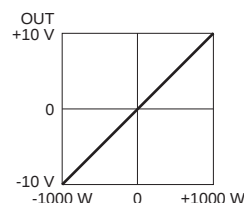
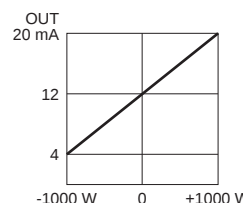
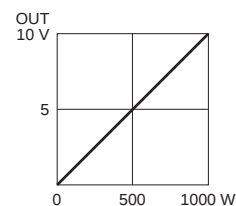
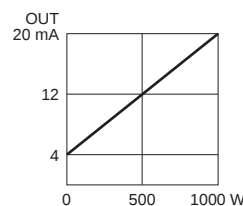
VOLTAGE INPUT	CURRENT INPUT		STD RANGE	AVAILABLE RANGE	
	BURDEN	BURDEN			
110V	0.2VA	1A	0.1VA	±100W	±50W – ±120W
		5A	0.5VA	±500W	±250W – ±600W
220V	0.4VA	1A	0.1VA	±200W	±100W – ±240W
		5A	0.5VA	±1000W	±500W – ±1200W

• **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 [±] 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. 2 VA
- **DC:** Operational voltage range: rating $\pm 10\%$, or 85 – 150 V for 110 V rating, ripple 10 %p-p max., approx. 2 W (18 mA at 110 V)

Operating temperature: -5 to +60°C (23 to 140°F)

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

Mounting: Surface or DIN rail

Weight: 400 g (0.88 lb)

PERFORMANCE in percentage of span

Accuracy: $\pm 0.5\%$

Temp. coefficient: $\pm 0.05\%/^{\circ}\text{C}$ ($\pm 0.03\%/^{\circ}\text{F}$)

Response time: ≤ 1 sec. (0 – 90 %)

Ripple: 0.5 %p-p max. (50/60 Hz)

The output ripple may increase when there is great difference between the frequencies of input signal and power supply.

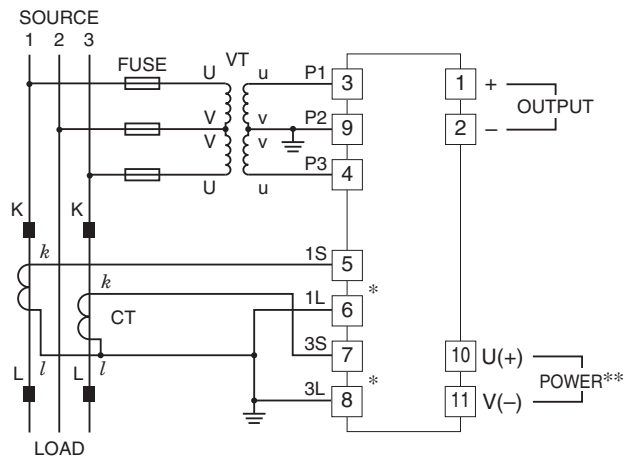
Line voltage effect: $\pm 0.1\%$ over voltage range

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)

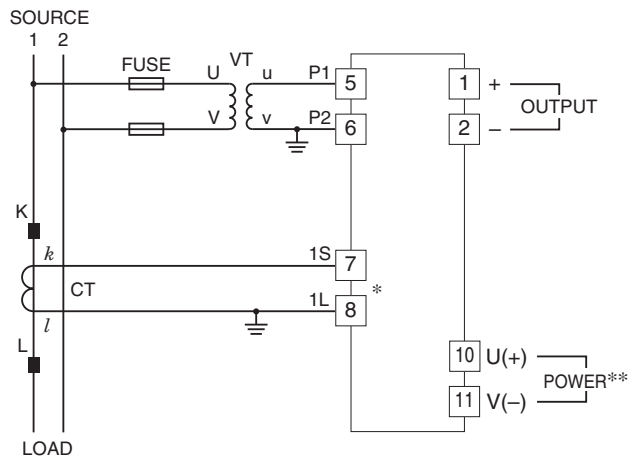
CONNECTION DIAGRAM

■3-PHASE/3-WIRE



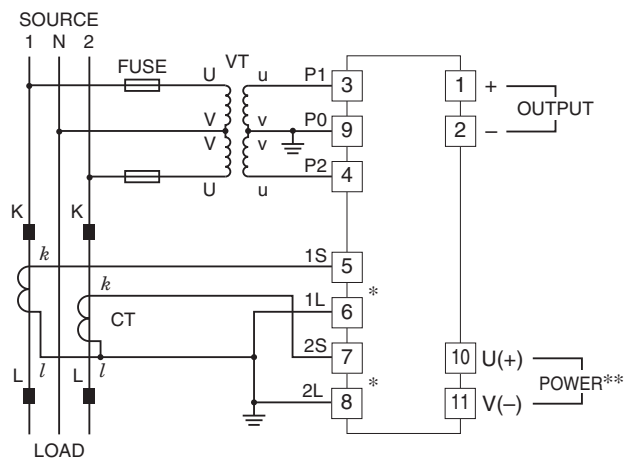
*CT Protector (model: CTM) attached to these terminals.

■SINGLE-PHASE/2-WIRE



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

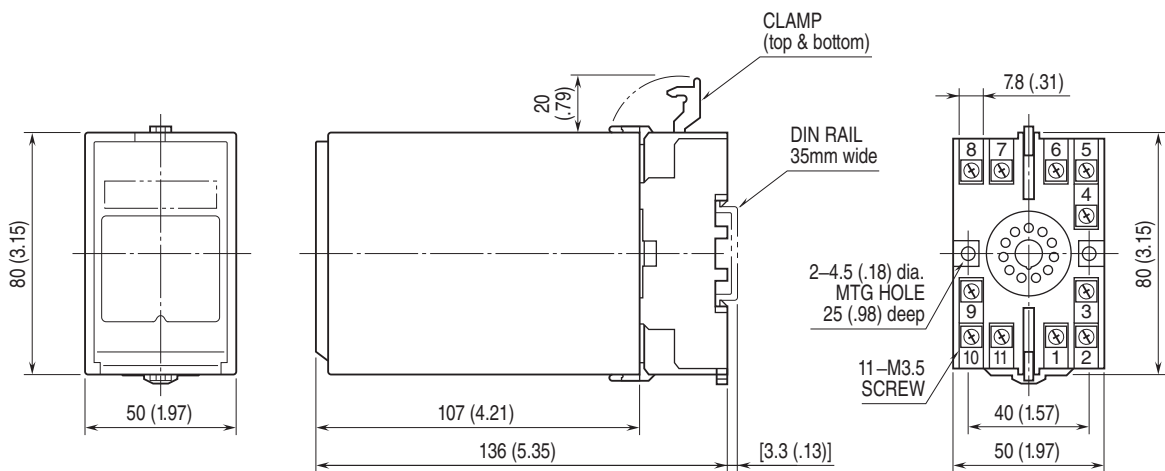
■SINGLE-PHASE/3-WIRE



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

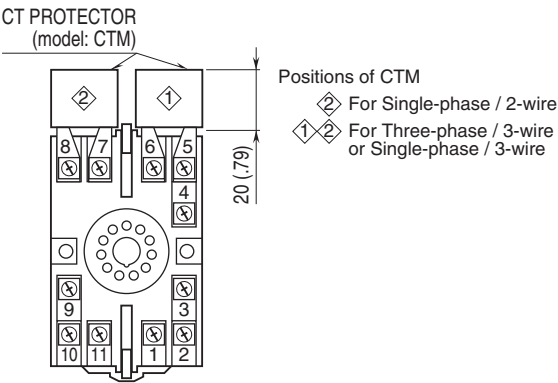
**The transducer can be powered from the input voltage when the voltage is sufficiently stable and meets other supply voltage requirements.

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.