

Plug-in Signal Conditioners M-UNIT

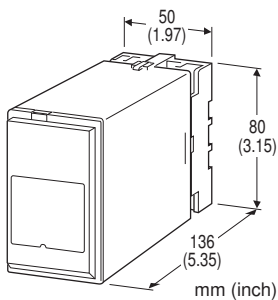
WATT TRANSDUCER

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 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)

[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

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

• 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 [±] output

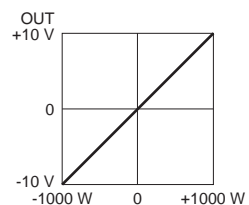
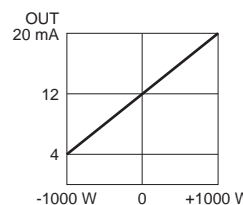
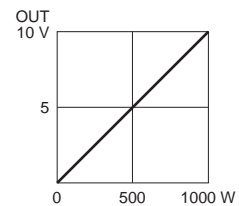
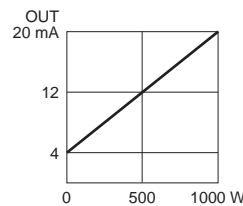
■ **DC Voltage:** -10 - +12 V DC

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.

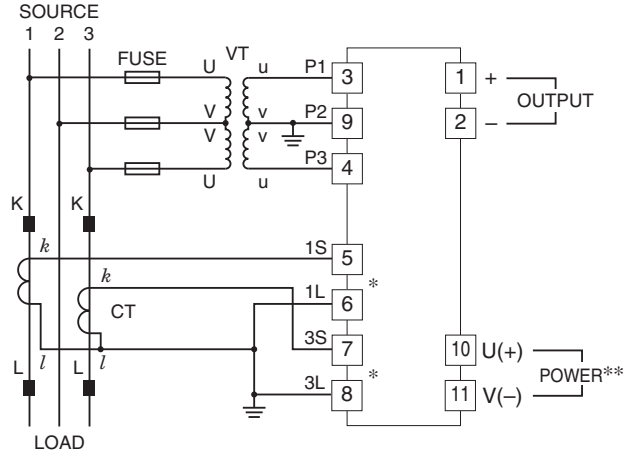
Line voltage effect: $\pm 0.1\%$ over voltage range

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)

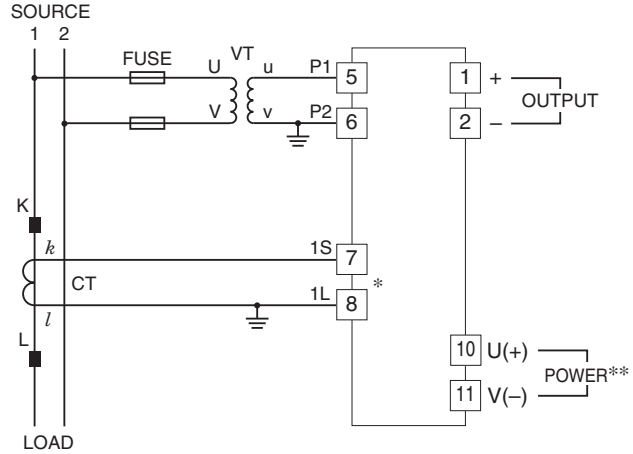
CONNECTION DIAGRAM

■3-PHASE/3-WIRE



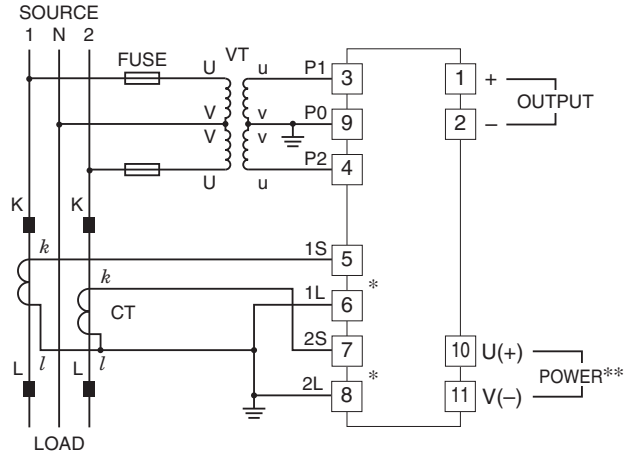
*CT Protector (model: CTM) attached to these terminals.

■SINGLE-PHASE/2-WIRE



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

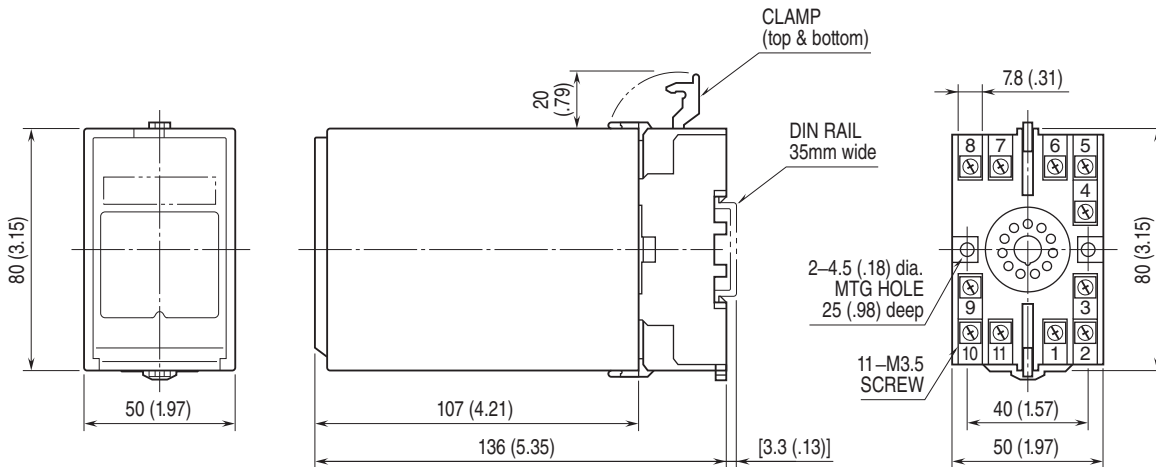
■SINGLE-PHASE/3-WIRE



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

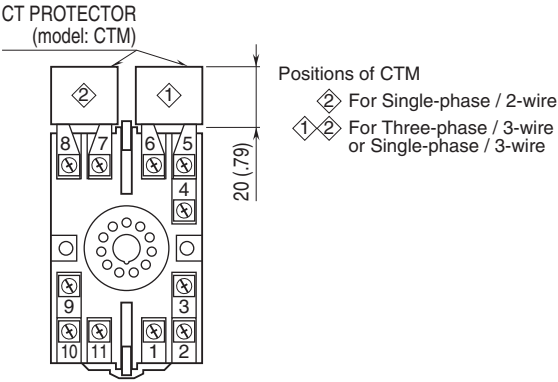
**The transducer can be powered from the input voltage when the voltage is sufficiently stable and meets other supply voltage requirements.

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.