

## Plug-in Signal Conditioners K-UNIT

### WATT TRANSDUCER

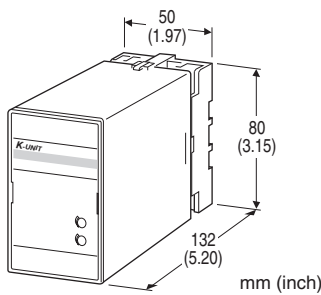
(self-powered)

#### 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
- No auxiliary power source required

#### Typical Applications

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



### MODEL: KEWTN-[1][2][3][4]

#### ORDERING INFORMATION

- Code number: KEWTN-[1][2][3][4]
- Specify a code from below for each of [1] through [4]. (e.g. KEWTN-11A/Q)
- Calibration range (e.g. -750 - +750 W)
- VT ratio, CT ratio (e.g. VT 3300 / 110 V, CT 250 / 5 A)
- Special DC 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.)  
J: 0 - 5 mA DC (Load resistance 2400 Ω 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] 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

**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

### • Voltage Input

**Operational range:** 85 - 110 % of rating

**Overload capacity:** 150 % of rating for 10 sec., 110 % continuous

### • Current Input

**Operational range:** 0 - 120 % of rating

**Overload capacity:** 1000 % of rating for 3 sec., 200 % 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

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

### ■ INPUT RANGE

#### • 3-phase / 3-wire

| INPUT   | STD.RANGE | AVAILABLE RANGE | BURDEN (VA)          |        |
|---------|-----------|-----------------|----------------------|--------|
|         |           |                 | VOLT.                | CURR.  |
| 110V/1A | ±200 W    | ±100 - ±240 W   | P <sub>1</sub> : 2.5 | 0.1/ph |
| 110V/5A | ±1000 W   | ±500 - ±1200 W  | P <sub>3</sub> : 0.2 | 0.5/ph |
| 220V/1A | ±400 W    | ±200 - ±480 W   | P <sub>1</sub> : 2.5 | 0.1/ph |
| 220V/5A | ±2000 W   | ±1000 - ±2400 W | P <sub>3</sub> : 0.4 | 0.5/ph |

#### • Single-phase / 2-wire

| INPUT   | STD.RANGE | AVAILABLE RANGE | BURDEN (VA) |       |
|---------|-----------|-----------------|-------------|-------|
|         |           |                 | VOLT.       | CURR. |
| 110V/1A | ±100 W    | ±50 - ±120 W    | 2.5         | 0.1   |
| 110V/5A | ±500 W    | ±250 - ±600 W   |             | 0.5   |
| 220V/1A | ±200 W    | ±100 - ±240 W   | 2.5         | 0.1   |
| 220V/5A | ±1000 W   | ±500 - ±1200 W  |             | 0.5   |

#### • Single-phase / 3-wire

| INPUT   | STD.RANGE | AVAILABLE RANGE | BURDEN (VA)          |        |
|---------|-----------|-----------------|----------------------|--------|
|         |           |                 | VOLT.                | CURR.  |
| 200V/1A | ±200 W    | ±100 - ±240 W   | P <sub>1</sub> : 2.5 | 0.1/ph |
| 200V/5A | ±1000 W   | ±500 - ±1200 W  | P <sub>2</sub> : 0.2 | 0.5/ph |

## 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 max.

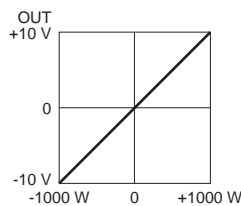
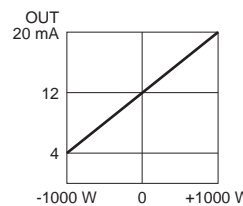
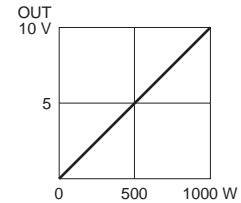
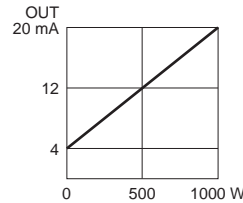
■ DC Voltage: -10 - +12 V DC

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

Operating temperature: -10 to +55°C (14 to 131°F)

Operating humidity: 30 to 85 %RH (non-condensing)

Mounting: Surface or DIN rail

Weight: 450 g (0.99 lb)

## PERFORMANCE in percentage of span

Accuracy: ±0.5 % (at 23°C ±10°C or 73.4°F ±18°F, 45 - 65 Hz)

Response time: ≤ 2 sec. (0 - 100 % ±1 %)

Ripple: 0.5 %p-p max.

Insulation resistance: ≥ 100 MΩ with 500 V DC

Dielectric strength: 2000 V AC @ 1 minute

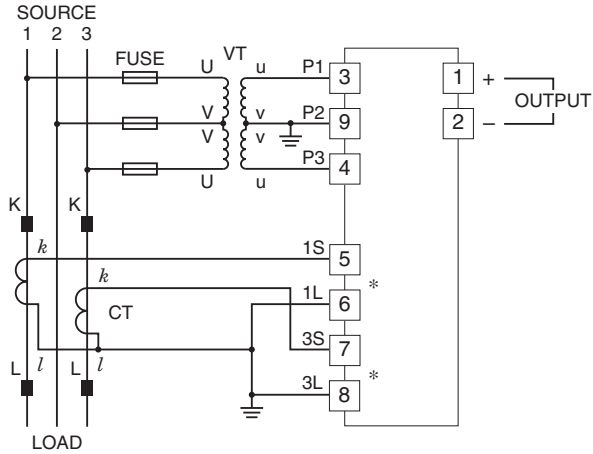
(voltage input to current input to output to ground)

Impulse withstand voltage: 1.2 / 50 μsec., ±5 kV

(input to output or ground)

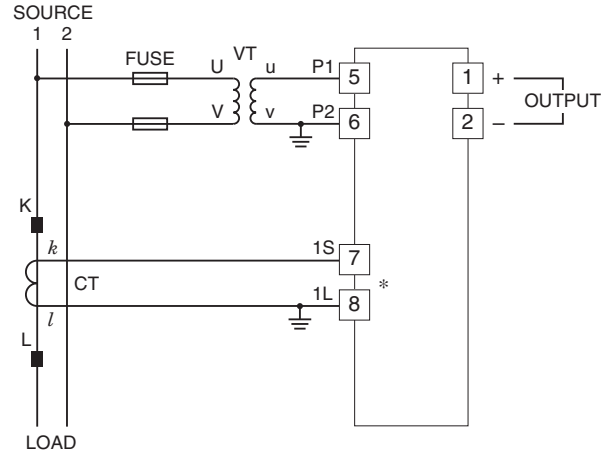
## CONNECTION DIAGRAM

### 3-PHASE/3-WIRE



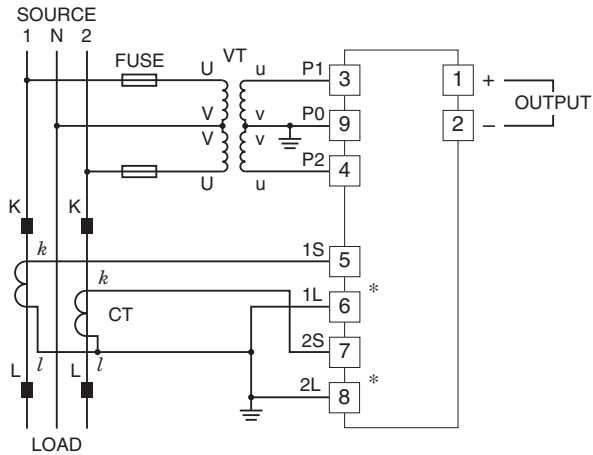
\*CT Protector (model: CTM) attached to these terminals.

### SINGLE-PHASE/2-WIRE



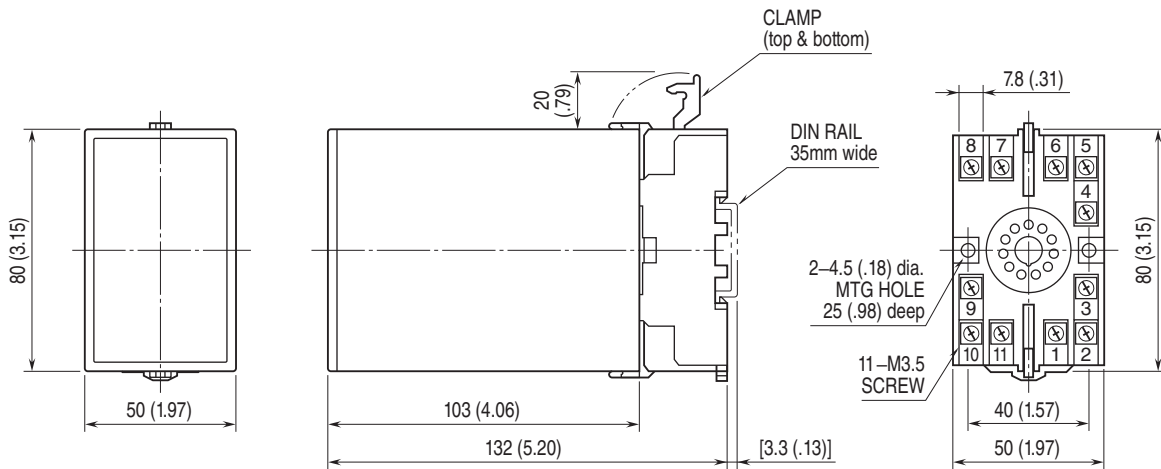
\*CT Protector (model: CTM) attached to these terminals.

### SINGLE-PHASE/3-WIRE



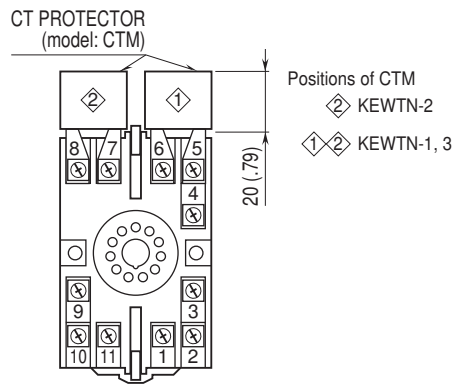
\*CT Protector (model: CTM) attached to these terminals.

## 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.