

## Dual Output Plug-in Signal Conditioners W-UNIT

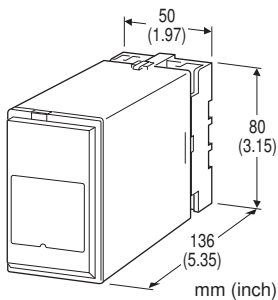
### PHASE ANGLE TRANSDUCER

#### Functions & Features

- Providing a DC output signal in proportion to phase angle
- DC output containing little ripple is ideal for computer input
- 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
- Measuring phase angle for a motor



## MODEL: WEPA-1[1][2][3][4]-[5][6]

### ORDERING INFORMATION

• Code number: WEPA-1[1][2][3][4]-[5][6]

Specify a code from below for each of [1] through [6].

- (e.g. WEPA-11MA5W-C/Q)
- Special output ranges (For codes Z & 0)
- Specify the specification for option code /Q (e.g. /C01/S01)

Note: When the user requires a current and a voltage output, specify the current to be the Output 1 which allows a greater load.

### CONFIGURATION

1: 3-phase / 3-wire

### [1] INPUT (balanced 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

### [2] OUTPUT SIGNAL POLARITY

- P: Negative in lag, positive in lead
- M: Negative in lead, positive in lag

### [3] OUTPUT 1

#### Current

- A: 4 - 20 mA DC (Load resistance 600  $\Omega$  max.)
- B: 2 - 10 mA DC (Load resistance 1200  $\Omega$  max.)
- C: 1 - 5 mA DC (Load resistance 2400  $\Omega$  max.)
- D: 0 - 20 mA DC (Load resistance 600  $\Omega$  max.)
- E: 0 - 16 mA DC (Load resistance 750  $\Omega$  max.)
- F: 0 - 10 mA DC (Load resistance 1200  $\Omega$  max.)
- G: 0 - 1 mA DC (Load resistance 12 k $\Omega$  max.)
- GW: -1 - +1 mA DC (Load resistance 10 k $\Omega$  max.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)

#### Voltage

- 1: 0 - 10 mV DC (Load resistance 10 k $\Omega$  min.)
- 2: 0 - 100 mV DC (Load resistance 100 k $\Omega$  min.)
- 3: 0 - 1 V DC (Load resistance 1000  $\Omega$  min.)
- 4: 0 - 10 V DC (Load resistance 10 k $\Omega$  min.)
- 5: 0 - 5 V DC (Load resistance 5000  $\Omega$  min.)
- 6: 1 - 5 V DC (Load resistance 5000  $\Omega$  min.)
- 1W: -10 - +10 mV DC (Load resistance 10 k $\Omega$  min.)
- 2W: -100 - +100 mV DC (Load resistance 100 k $\Omega$  min.)
- 3W: -1 - +1 V DC (Load resistance 1000  $\Omega$  min.)
- 4W: -10 - +10 V DC (Load resistance 10 k $\Omega$  min.)
- 5W: -5 - +5 V DC (Load resistance 5000  $\Omega$  min.)
- 0: Specify voltage (See OUTPUT SPECIFICATIONS)

### [4] OUTPUT 2

#### Current

- A: 4 - 20 mA DC (Load resistance 350  $\Omega$  max.)
- B: 2 - 10 mA DC (Load resistance 700  $\Omega$  max.)
- C: 1 - 5 mA DC (Load resistance 1400  $\Omega$  max.)
- D: 0 - 20 mA DC (Load resistance 350  $\Omega$  max.)
- E: 0 - 16 mA DC (Load resistance 430  $\Omega$  max.)
- F: 0 - 10 mA DC (Load resistance 700  $\Omega$  max.)
- G: 0 - 1 mA DC (Load resistance 7000  $\Omega$  max.)
- GW: -1 - +1 mA DC (Load resistance 7000  $\Omega$  max.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)

#### Voltage

Same range availability as Output 1

## [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

### DC Power

S: 12 V DC  
R: 24 V DC  
V: 48 V DC  
P: 110 V DC

## [6] 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 1 to output 2 to power

Overrange output: Approx. -10 to +120 % at 1 - 5 V

Zero adjustment: -5 to +5 % (front)

Span adjustment: 95 to 105 % (front)

Adjustable individually for each output 1 and output 2.

## INPUT SPECIFICATIONS

Frequency: 50 or 60 Hz

### • Current Input

Input burden: 0.1 VA (input 1 A)

0.5 VA (input 5 A)

Operational range: 10 - 120 % of rating

Overload capacity: 1000 % of rating for 3 sec., 200 % for 10 sec., 120 % continuous

### • Voltage Input

Input burden: Approx. 0.5 VA

Operational range: 85 - 120 % of rating

Overload capacity: 150 % of rating for 10 sec., 120 % continuous

### ■ Input range:

Lag 60° - 0 - lead 60°

Lead 60° - 0 - lag 60°

## OUTPUT SPECIFICATIONS

■ DC Current: 0 - 20 mA DC and  $\pm 1$  mA

Minimum span: 1 mA

Offset: Max. 1.5 times span

Load resistance: Output drive 12 V max. for Output 1; 10 V for  $[\pm]$  output; 7 V max. for Output 2

### ■ Voltage Output

Output voltage range: -10 to +10V DC

Span: 5mV to 22V

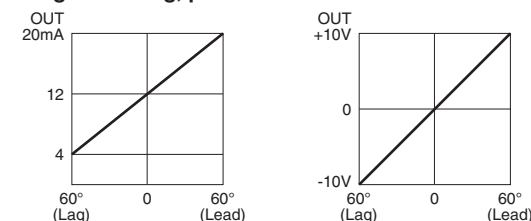
Offset:  $\leq 1.5$  times span

Load resistance: Resistance value with load current of  $\leq 1$  mA

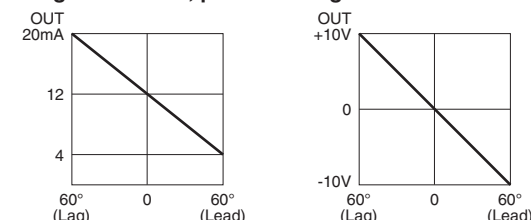
(at output of  $\geq 0.5$ V)

### ■ OPERATION DIAGRAM (example)

#### • Negative in lag, positive in lead



#### • Negative in lead, positive in lag



Note: When there is no input voltage or 5% or less of the rated input current, the output may become unstable (hunting).

## INSTALLATION

### Power input

•AC: Operational voltage range: rating  $\pm 10$  %, 50/60  $\pm 2$  Hz, approx. 3 VA

•DC: Operational voltage range: rating  $\pm 10$  %, or 85 - 150 V for 110 V rating, ripple 10 %p-p max., approx. 3 W (27 mA at 110 V)

Operating temperature: -5 to +55°C (23 to 131°F)

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

Mounting: Surface or DIN rail

Weight: 500 g (1.1 lb)

### PERFORMANCE in percentage of span

**Accuracy:**  $\pm 2\%$  with balanced load

**Temp. coefficient:  $\pm 0.2\text{ \%/}^{\circ}\text{C}$  ( $\pm 0.11\text{ \%/}^{\circ}\text{F}$ )**

**Response time:**  $\leq 1$  sec. (0 - 90 %)

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

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

**Insulation resistance:**  $\geq 100 \text{ M}\Omega$  with 500 V DC

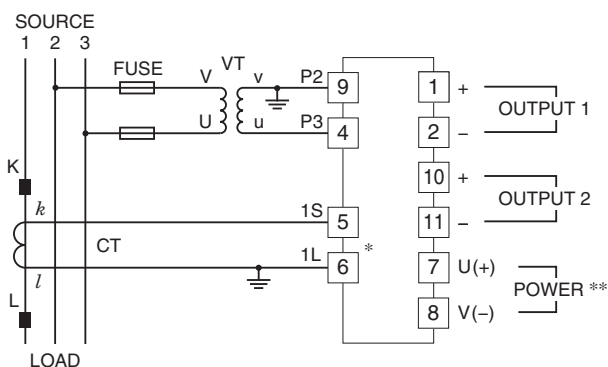
**Dielectric strength: 2000 V AC @ 1 minute**

(voltage input to current input to output 1 or output 2 to power to ground)

1000 V AC @ 1 minute (output 1 to output 2)

## CONNECTION DIAGRAM

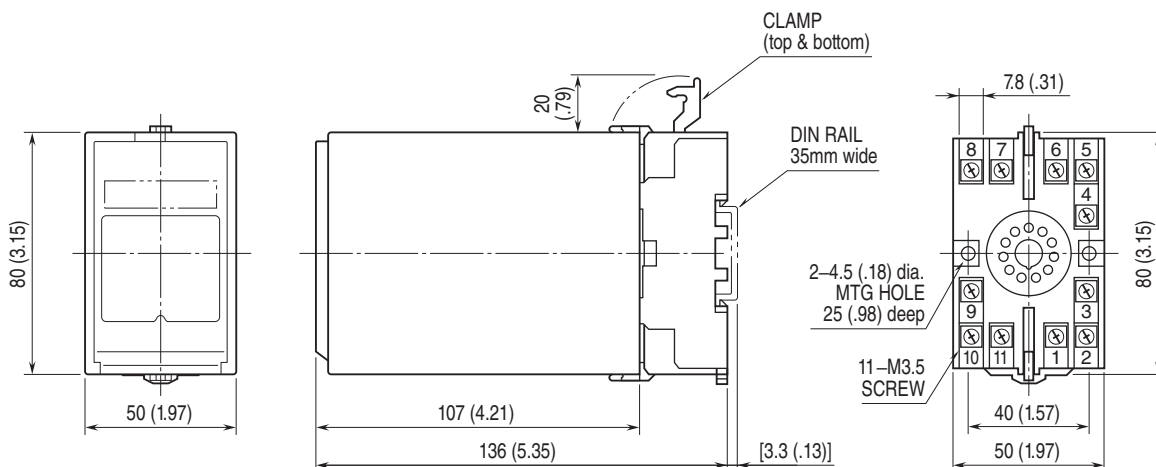
### ■3-PHASE/3-WIRE



\* CT Protector (model: CTM) attached to this terminal.

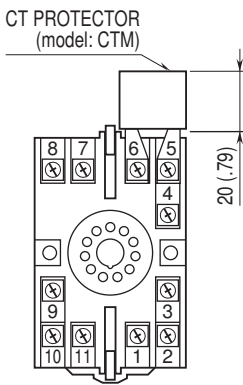
\*\* The transducer can be powered from the input voltage when the voltage is sufficiently stable and meets other supply voltage requirements.

### 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.