

## Plug-in Signal Conditioners M-UNIT

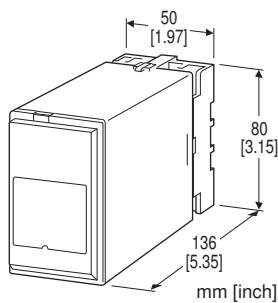
### POWER FACTOR TRANSDUCER

#### Functions & Features

- Providing a DC output signal in proportion to power factor
- 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 power factor for a motor



### MODEL: MEPF-1[1][2][3]-[4][5]

#### ORDERING INFORMATION

- Code number: MEPF-1[1][2][3]-[4][5]
- Specify a code from below for each of [1] through [5].  
(e.g. MEPF-11PA-C/Q)
- Special output range (For codes Z & 0)
- Specify the specification for option code /Q  
(e.g. /C01/S01)

#### 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

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] 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 our 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

Note: A device which employs different measuring methods may show different outputs from ours.

**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 0.5 - 1 - lead 0.5

Lead 0.5 - 1 - lag 0.5

## 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 maximum; 10 V for  $[\pm]$  output

■ **DC Voltage:** -10 - +12 V DC

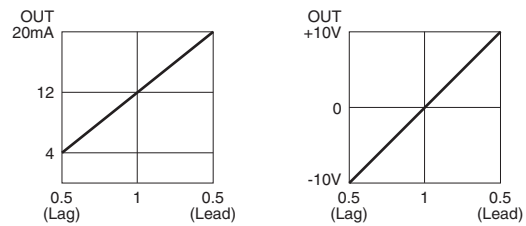
**Minimum span:** 5 mV

**Offset:** Max. 1.5 times span

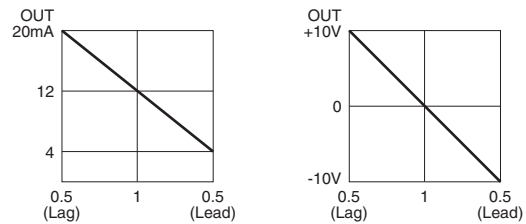
**Load resistance:** Output drive 1 mA max. at  $\geq 0.5$  V

## ■ 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 rated input current, the output may become unstable (hunting).

## INSTALLATION

### Power input

• **AC:** Operational voltage range: rating -15/+10 %, 50/60 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:

$\pm 2$  % with input 1 - 0.866, balanced load

$\pm 4$  % with input 0.866 - 0.5, balanced load

**Temp. coefficient:**  $\pm 0.4$  %/°C ( $\pm 0.22$  %/°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

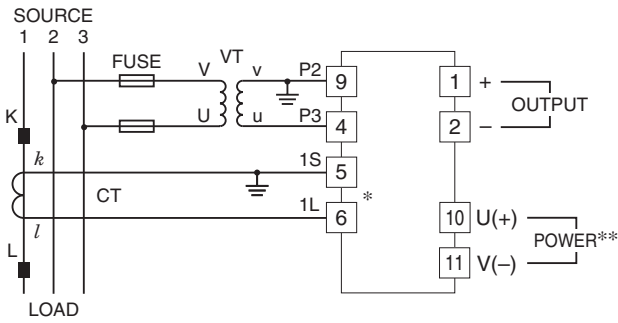
**Insulation resistance:**  $\geq 100$  M $\Omega$  with 500 V DC

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

(voltage input to current input to output to power to ground)

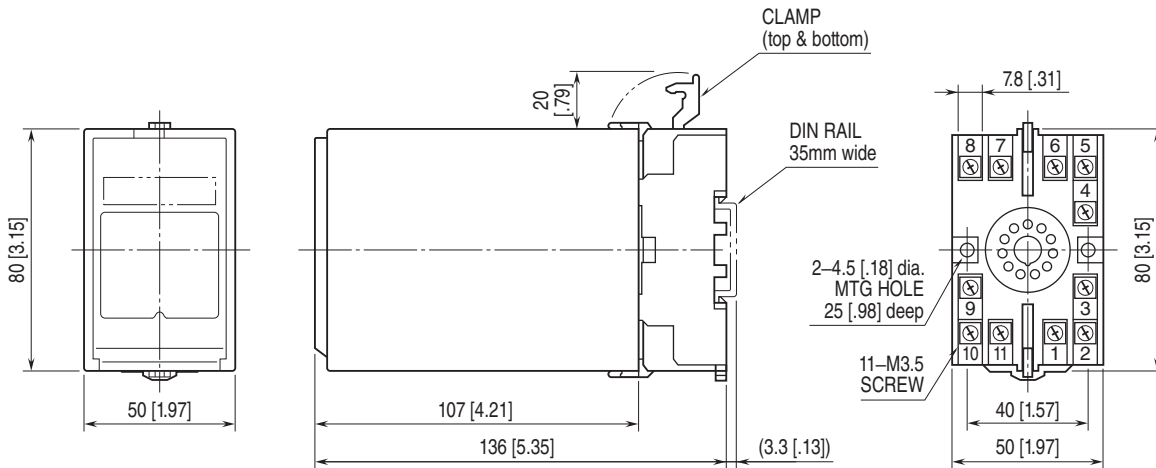
## CONNECTION DIAGRAM

### 3-PHASE/3-WIRE



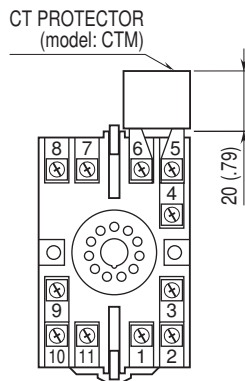
- \*CT Protector (model: CTM) attached to these terminals.
- \*\*The transducer can be powered from the input voltage when the voltage is sufficiently stable and meets other supply voltage requirements.

## 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.