

High-density Signal Conditioners 10-RACK

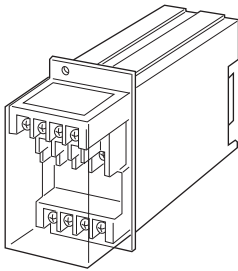
POWER FACTOR TRANSDUCER

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 (input circuit)

Typical Applications

- Centralized monitoring and control of power management system in a manufacturing facility or building
- Measuring power factor for a motor



MODEL: 10EPF-[1][2][3][4]-R[5]

ORDERING INFORMATION

- Code number: 10EPF-[1][2][3][4]-R[5]
- Specify a code from below for each of [1] through [5].  
(e.g. 10EPF-11PA-R/Q)
- Specify the specification for option code /Q  
(e.g. /C01)

[1] CONFIGURATION

- 1: 3-phase / 3-wire
- 4: 3-phase / 4-wire

[2] 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
  - 5: 220 V / 380 V / 1 A AC (3-phase / 4-wire)
  - 6: 220 V / 380 V / 5 A AC (3-phase / 4-wire)
  - 7: 110 V / 190 V / 1 A AC (3-phase / 4-wire)
  - 8: 110 V / 190 V / 5 A AC (3-phase / 4-wire)
- (220 V in code 5 and 6, and 110 V in code 7 and 8 are phase voltage)

[3] OUTPUT SIGNAL POLARITY

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

[4] 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)

POWER INPUT

DC Power

- R: 24 V DC
- (Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

[5] OPTIONS

- blank: none
- /Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q

- COATING (For the detail, refer to our web site.)
- /C01: Silicone coating
- /C02: Polyurethane coating
- /C03: Rubber coating

GENERAL SPECIFICATIONS

Construction: Rack-mounted; terminal access via screw terminals at the front and via card-edge connector at the rear; terminal cover provided

Connection

Input: M3.5 screw terminals (torque 0.8 N·m)

**Output:** Card-edge connector and M3.5 screw terminals (torque 0.8 N·m)

**Power input:** Supplied from card-edge connector

**Screw terminal:** Nickel-plated 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

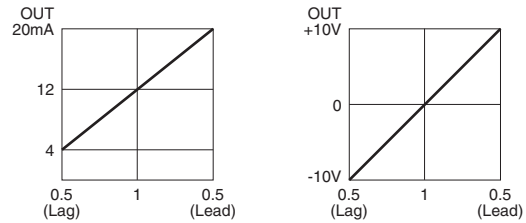
**Minimum span:** 5 mV

**Offset:** Max. 1.5 times span

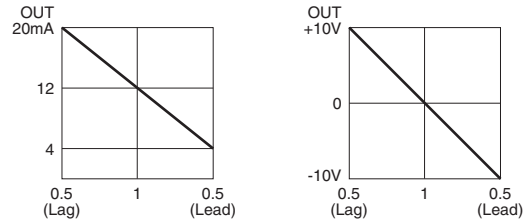
**Load resistance:** Output drive 1 mA max. at  $\geq 0.5$  V

## ■ 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

**Current consumption:** Approx. 80 mA

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

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

**Mounting:** Standard Rack 10BXx

**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

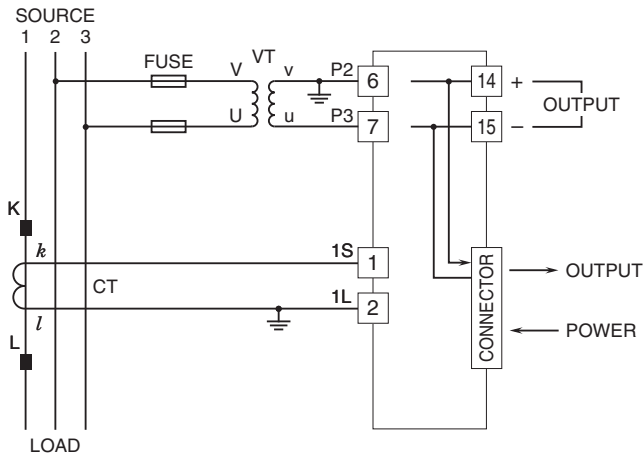
**Insulation resistance:**  $\geq 100$  M $\Omega$  with 500 V DC

**Dielectric strength:** 2000 V AC @ 1 minute (voltage input to current input to output or power to ground)

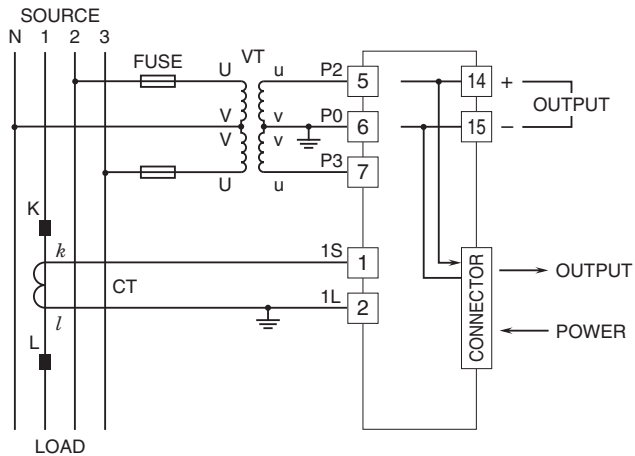
500 V AC @ 1 minute (output to power)

**CONNECTION DIAGRAM**

■ 3-PHASE/3-WIRE

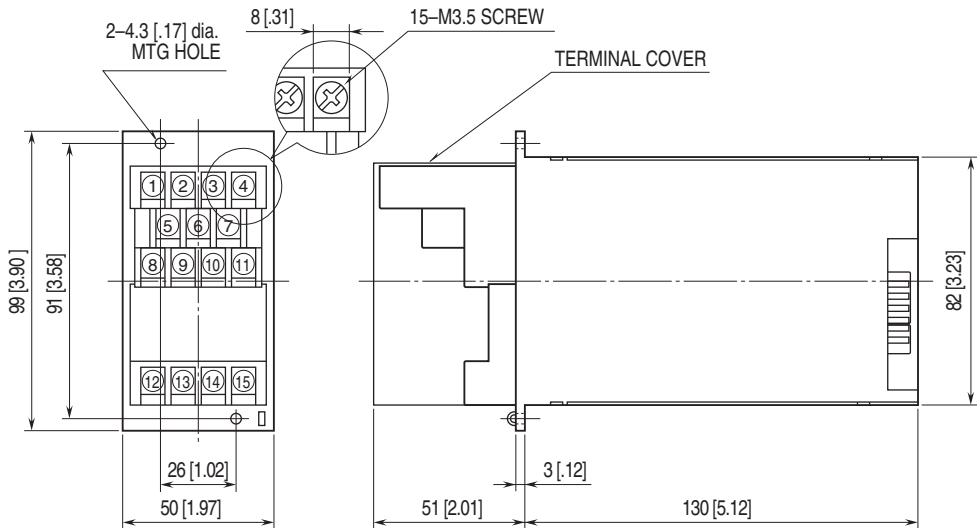


■ 3-PHASE/4-WIRE



**EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]**

Terminals 8 through 11 are deleted.



Specifications are subject to change without notice.