High-density Signal Conditioners 10-RACK

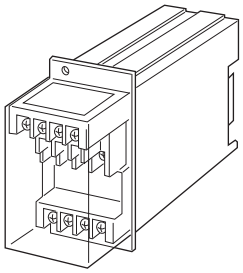
POWER FACTOR TRANSDUCER

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 [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 M-System's 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

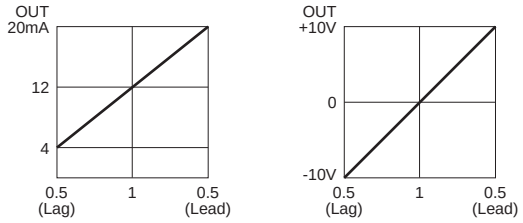
Remark: A device which employs different measuring methods may show different outputs from that of M-System's.
Frequency: 50 or 60 Hz
•Current Input
Input burden: 0.1 VA (input 1 A)
0.5 VA (input 5 A)
Operational range: 10 – 120 % of rating
Overload capacity: 1000 % of rating for 3 sec., 200 % for 10 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

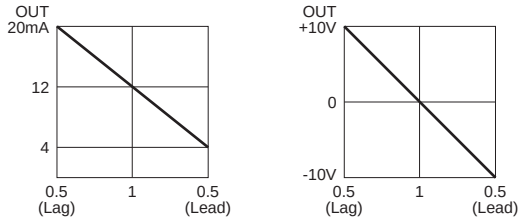
■ DC Output
•DC Current: 0 – 20 mA DC and ±1 mA
Minimum span: 1 mA
Offset: ≤ 1.5 times span
Load resistance: Output drive 12 V max.; 10 V for [±] output
■ DC Voltage: -10 – +12 V DC
Minimum span: 5 mV
Offset: Max. 1.5 times span
Load resistance: Output drive 1 mA max. at ≥ 0.5 V

■ OPERATION DIAGRAM (example)

• Negative in lag, positive in lead



• Negative in lead, positive in lag



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

INSTALLATION

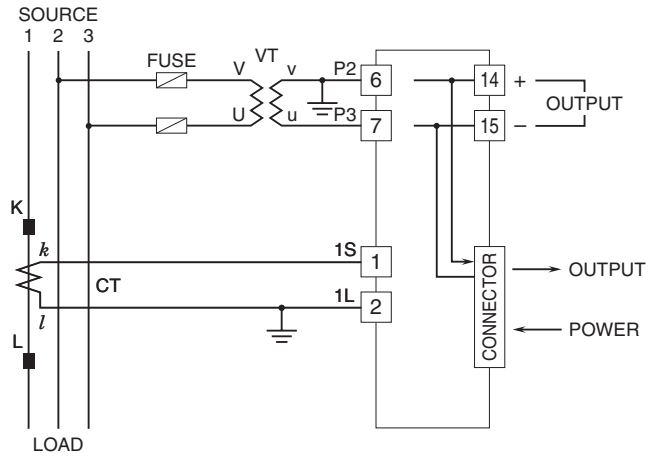
Current consumption: Approx. 80 mA
Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: Standard Rack 10BXx
Weight: 400 g (0.88 lb)

PERFORMANCE in percentage of span

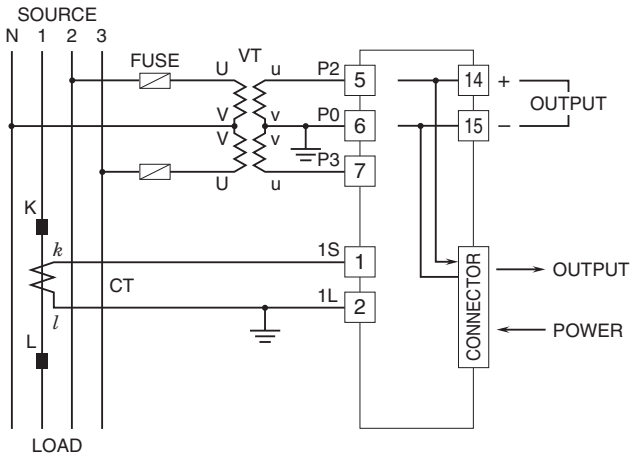
Accuracy:
±2 % with input 1 – 0.866, balanced load
±4 % with input 0.866 – 0.5, balanced load
Temp. coefficient: ±0.4 %/°C (±0.22 %/°F)
Response time: ≤ 1 sec. (0 – 90 %)
Ripple: 0.5 %p-p max. (50/60 Hz)
Line voltage effect: ±0.1 % over voltage range
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric 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

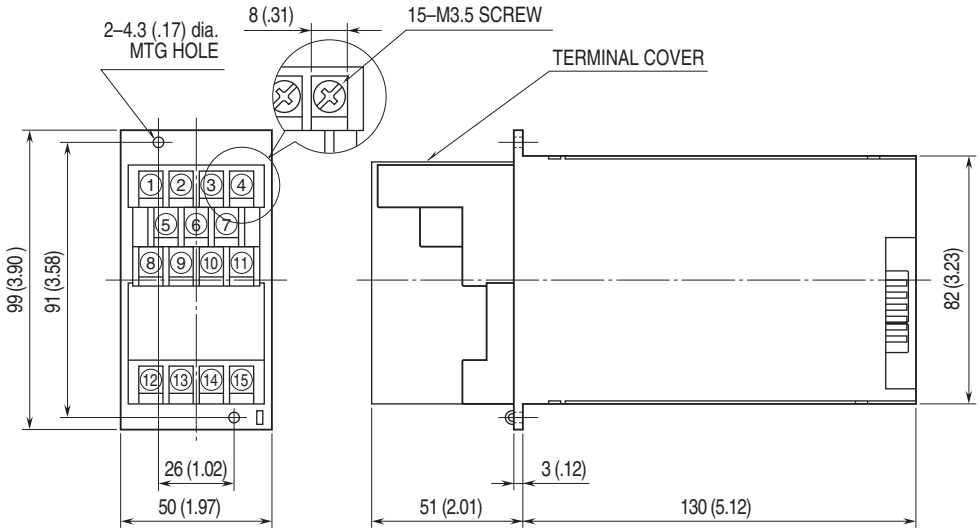


■ 3-PHASE/4-WIRE



EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)

Terminals 8 through 11 are deleted.



⚠ Specifications are subject to change without notice.