Power Transducer Series L-UNIT

POWER FACTOR TRANSDUCER

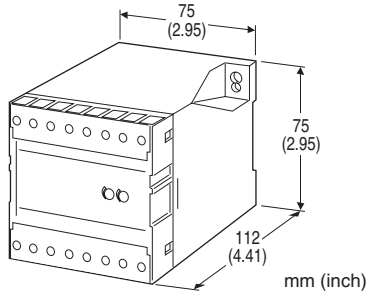
(self-powered)

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
- No auxiliary power source required

Typical Applications

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



MODEL: LPFN–[1][2][3][4][5]

ORDERING INFORMATION

- Code number: LPFN–[1][2][3][4][5]

Specify a code from below for each of [1] through [5].
(e.g. LPFN-11PA/Q)

- Special output range (For codes Z & 0)
- Specify the specification for option code /Q
(e.g. /C01/S01)

[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.)
FW: -10 – +10 mA DC (Load resistance 1000 Ω max.)
GW: -1 – +1 mA DC (Load resistance 10 kΩ max.)
JW: -5 – +5 mA DC (Load resistance 2000 Ω max.)
Z: Specify current (See OUTPUT SPECIFICATIONS)
Voltage
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)

[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: Stand-alone; terminal access at the front
Connection: M3.5 screw terminals (torque 0.8 N·m)
Screw terminal: Nickel-plated steel (standard) or stainless steel
Housing material: Flame-resistant resin (black)
Isolation: Voltage input to current input to output
Computation: Phase angle detection
Overrange output: Approx. -10 to +120 % at 1 – 5 V
Zero adjustment: -5 to +5 % (front)
Span adjustment: 95 to 105 % (front)

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INPUT SPECIFICATIONS

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

Frequency: 50 or 60 Hz

• **Voltage Input**

Input burden: 2.5 VA

Operational range: 85 – 110 % of rating

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

• **Current Input**

Input burden:

0.1 VA (input 1A)

0.5 VA (input 5A)

Operational range: 10 – 120 % of rating

Overload capacity: 1000 % of rating for 3 sec., 200 % 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**: -10 – + 20 mA DC

Span: Min. 1 mA, max. 20 mA

Offset: Max. 1.5 times span

Load resistance: Output drive 12 V maximum; 10 V for [±] output

■ **DC Voltage**: -10 – +12 V DC

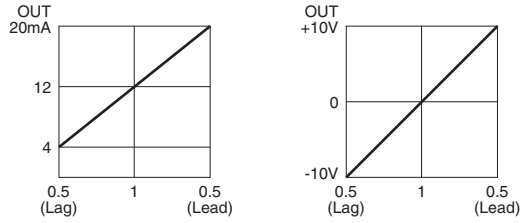
Minimum span: 5 mV

Offset: Max. 1.5 times span

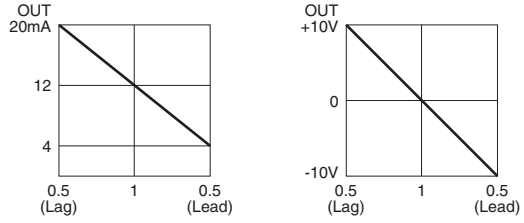
Load resistance: Output drive 1 mA max. at ≥ 0.5 V

■ **OPERATION DIAGRAM (example)**

• **Negative in lag, positive in lead**



• **Negative in lead, positive in lag**



Note: When there is 5% or less of rated input current, the output may become unstable (hunting).

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: ±2 % with input 1 – 0.866, balanced load

±4 % with input 0.866 – 0.5, balanced load (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)

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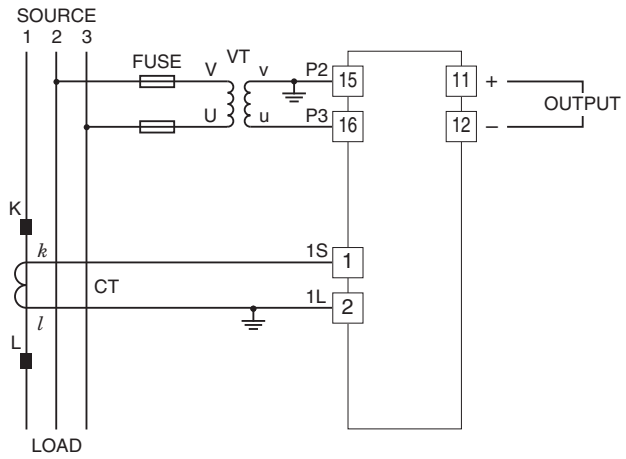
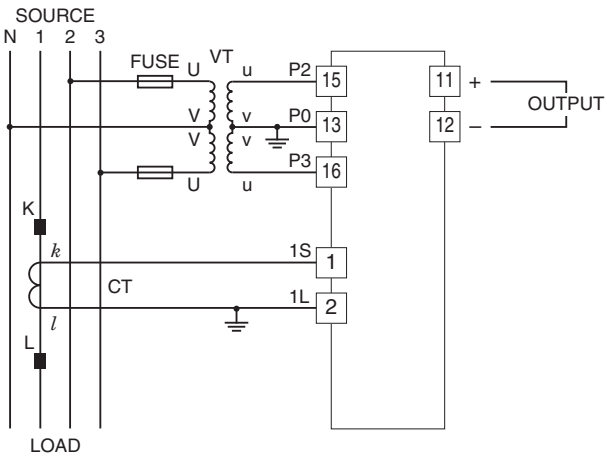
CONNECTION DIAGRAM

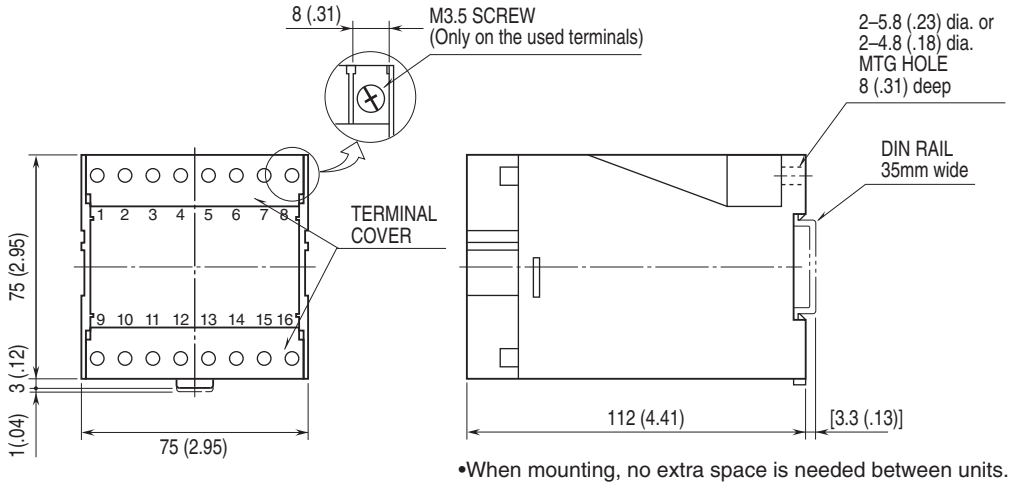
■ **3-PHASE/3-WIRE**



■ **3-PHASE/4-WIRE**



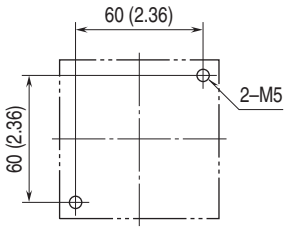
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



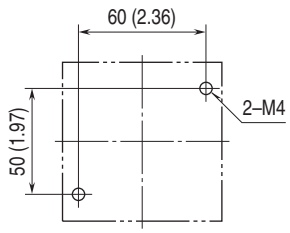
•When mounting, no extra space is needed between units.

MOUNTING REQUIREMENTS unit: mm [inch]

■ **M5 SCREWS**



■ **M4 SCREWS**



⚠ Specifications are subject to change without notice.

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