Power Transducer Series L-UNIT

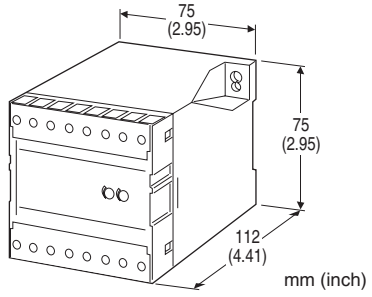
BIDIRECTIONAL CURRENT TRANSDUCER

Functions & Features

• Accepting 3-phase/3-wire AC current and voltage and detecting the magnitude and direction of the power flow by the phase angle of the signals
• Providing standard DC signal in proportion to the AC current
• DC output containing little ripple is ideal for computer input
• Isolation up to 2000V AC
• High-density mounting

Typical Applications

• Measuring AC current flow in a factory having private power plants



MODEL: LCY–1[1][2]–[3][4]

ORDERING INFORMATION

• Code number: LCY–1[1][2]-[3][4]
Specify a code from below for each of [1] through [4].
(e.g. LCY-11A-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)

Current
1: 110 V AC / -5 - +5 A
2: 110 V AC / -1 - +1 A
3: 220 V AC / -1 - +1 A
4: 220 V AC / -5 - +5 A
The negative polarity of input current indicates the direct (surplus) flow and the positive indicates the reverse flow.

[2] OUTPUT

Current
A: 4 – 20 mA DC (Load resistance 550 Ω max.)
DW: -20 – +20 mA DC (Load resistance 550 Ω max.)
FW: -10 – +10 mA DC (Load resistance 1100 Ω max.)
GW: -1 – +1 mA DC (Load resistance 11 kΩ max.)
JW: -5 – +5 mA DC (Load resistance 2200 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)

[3] AUXILIARY POWER SUPPLY

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

[4] 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

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Housing material: Flame-resistant resin (black)
Isolation: Voltage input to current input to output to auxiliary power
Input waveform: Up to 5 % of 3rd harmonic content
Overrange output: Approx. -10 to +120 % at 1 – 5 V
Zero adjustment: -5 to +5 % (front)
Span adjustment: 95 to 105 % (front)

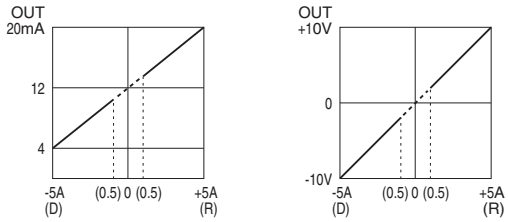
INPUT SPECIFICATIONS

■ **INPUT**
Frequency: 50 or 60 Hz
Detectable phase angle
Reverse flow: lead 85° – 0° – lag 85°
Direct flow: lag 95° – 180° – lag 265°
• **Voltage Input**
Input burden: 0.5 VA
Operational range: 50 – 120 % of rating
Overload capacity: 150 % of rating for 10 sec., 120 % continuous
• **Current Input**
Input burden: 0.1 VA (input -1 – +1 A)
0.5 VA (input -5 – +5 A)
Operational range: 10 – 120 % of rating
Overload capacity: 1000 % of rating for 3 sec., 200 % for 10 sec., 120 % continuous

OUTPUT SPECIFICATIONS

■ **DC Current**: -20 – +20 mA DC
Minimum span: 1 mA
Offset: max. 1.5 times span
Load resistance: output drive 11 V maximum
■ **DC Voltage**: -10 – +10 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)**



Keys: D = direct flow, R = reverse flow
Note: When the input is less than half of the rated voltage or the tenth of the rated current, the transducer may output as "reverse" flow.

INSTALLATION

Auxiliary power supply
•**AC**: Operational voltage range: rating -15/+10 %, 50/60 Hz, approx. 2 VA
• **DC**: Operational voltage range: rating ±10 %, or 85 – 150 V for 110 V rating, ripple 10 %p-p max., approx. 2 W (18 mA at 110 V)
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: ±0.5 % with 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.
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 to auxiliary power to ground)
Impulse withstand voltage: 1.2 / 50 µsec., ±5 kV
(input to output or ground)

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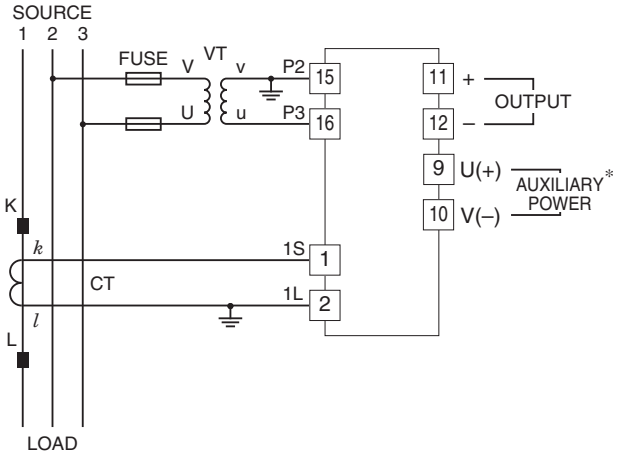
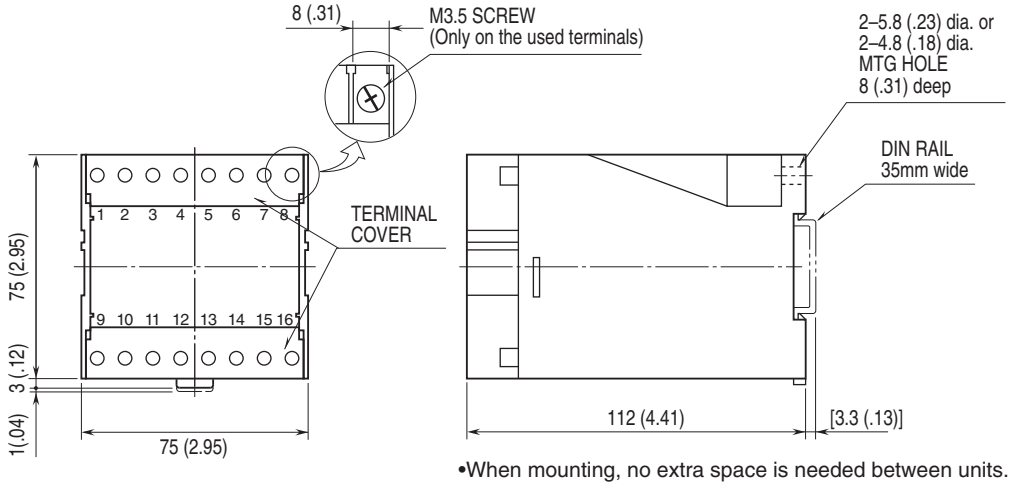
CONNECTION DIAGRAM



*The transducer can be powered from the input voltage when the voltage is sufficiently stable and meets within the range of auxiliary power supply of the unit specified in the data sheet/instruction manual.

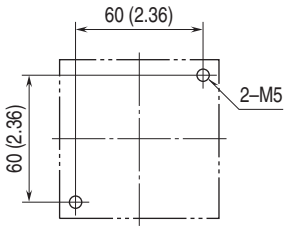
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



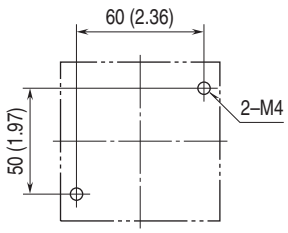
•When mounting, no extra space is needed between units.

MOUNTING REQUIREMENTS unit: mm [inch]

■ **M5 SCREWS**



■ **M4 SCREWS**



⚠ Specifications are subject to change without notice.

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