

Power Transducer Series

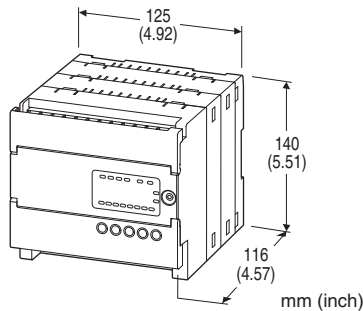
MULTI POWER TRANSDUCER

Functions & Features

- Measures simultaneously several variables of a heavy-current power system: current, voltage, active, reactive and apparent power, active and reactive energy, power factor, frequency, etc.
- Parameters are programmable using the front buttons or the PC
- Displayed measurands are freely selectable
- Loop test output
- 10-point analog and 2-point energy pulse output

Typical Applications

- Multi-functional power measurement in electric device or in switching boards.



MODEL: LSMT4-[1][2][3]1-[4][5]

ORDERING INFORMATION

- Code number: LSMT4-[1][2][3]1-[4][5]
Specify a code from below for each of [1] through [5].
(e.g. LSMT4-12A1-AD4/Q)
- Specify the specification for option code /Q
(e.g. /C01)
- Non-specified orders will be shipped at default factory settings (No. ESU-1957). However, the power suffix code must be specified.
Measured variables can be reconfigured with front panel or PC configurator software.

[1] CONFIGURATION

- 1: Single phase / 2-wire and 3-wire, 3-phase / 3-wire
- 2: Single phase / 2-wire and 3-wire,
3-phase / 3-wire and 4-wire

[2] INPUT

- 1: 480 V / 1 A AC
- 2: 480 V / 5 A AC

[3] OUTPUT

- Current**
- A: 4 - 20 mA DC
- Voltage**
- 4: 0 - 10 V DC
5: 0 - 5 V DC
6: 1 - 5 V DC

DISCRETE OUTPUT

- 1: Do 2-point

[4] AUXILIARY POWER SUPPLY

- AD4: universal
100 - 240 V AC (Operational range 85 - 264 V, 50 / 60 Hz) /
110 - 240 V DC (Operational range 99 - 264 V,
ripple 10 %p-p max)
- DC Power**
- R: 24 V DC
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)
V: 48 V DC
(Operational voltage range 48 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

RELATED PRODUCTS

- PC configurator software (model: LSCFG)
Downloadable at M-System's web site.
A dedicated cable is required to connect the module to the PC. Please refer to the internet software download site or the users manual for the PC configurator for applicable cable types.

GENERAL SPECIFICATIONS

- Construction:** Stand-alone; terminal access at the front
Degree of protection: IP 20 (Terminal block, housing)
Connection
Voltage input: M4 screw terminals (torque 1.4 N·m)

Current input: M4 screw terminals (torque 1.4 N·m)

Output: M3.5 screw terminals (torque 0.6 N·m)

Power: M4 screw terminals (torque 1.4 N·m)

Configuration

Code 1: Single phase/2-wire and 3-wire, 3-phase/3-wire balanced/unbalanced load

Code 2: Single phase/2-wire and 3-wire, 3-phase/3-wire balanced/unbalanced load, 3-phase/4-wire balanced/unbalanced load

Screw terminal: Nickel-plated steel

Housing material: Flame-resistant resin (black)

Isolation: Voltage input to current input to output signal to discrete output 1 to discrete output 2 to auxiliary power supply to FE

■ Measured variables

Voltage: 1 - N, 2 - N, 3 - N, 1 - 2, 2 - 3, 3 - 1

Current: 1, 2, 3, N

Active / reactive / apparent power: 1, 2, 3, Σ

Power factor: 1, 2, 3, Σ

Frequency

Active energy

Reactive energy

■ DISPLAY:

Red LED; for setting and monitoring; signed 5 digits

INPUT SPECIFICATIONS

Frequency: 50 / 60 Hz (45 - 65 Hz)

• Voltage Input

Rated voltage

Line-to-line (delta voltage): 480 V

Line-neutral (phase voltage): 277 V (single phase / 2-wire and 3-wire)

Consumption VA: $\leq U_{LN}^2 / 300 \text{ k}\Omega$ / phase

Overload capacity: 200 % of rating for 10 sec., 120 % continuous

Selectable primary voltage range: 50 - 400 000 V

• Current Input

Rated current: 1 A or 5 A

Consumption VA: $\leq I^2 \cdot 0.01 \Omega$ / phase

Overload capacity: 4000 % of rating for 1 sec., 2000 % for 4 sec., 120 % continuous

Selectable primary current range: 1 - 20 000 A

Selectable primary power range: $\leq 2 \text{ G VA}$

Operational range

Voltage, current, apparent power: $\leq 120 \%$ of the rating

Active / reactive power: -120 to +120 % of the rating

Frequency: 45 - 65 Hz

Power factor: -1 to +1

OUTPUT SPECIFICATIONS

■ DC Output

Load resistance (output range)

4 - 20 mA DC: $\leq 600 \Omega$

0 - 10 V DC: $\geq 5 \text{ k}\Omega$

0 - 5 V DC: $\geq 1 \text{ k}\Omega$

1 - 5 V DC: $\geq 1 \text{ k}\Omega$

■ Open Collector

Energy count output

Max. rated load: 130 V DC @ 50 mA

Continuous rated load: 130 V DC @ 30 mA

Saturation voltage: 1.5 V DC

When driving an inductive load, external contact protection and noise quenching recommended.

INSTALLATION

Auxiliary Power

•AC: < 20 VA

•DC: < 9 W

Operating temperature: -10 to +55°C (14 to 131°F)

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

Mounting: Surface or DIN rail

Weight: 700 g (1.5 lb)

PERFORMANCE in percentage of rating

Accuracy

(at 23°C $\pm 10^\circ\text{C}$ or 73.4°F $\pm 18^\circ\text{F}$, 45 - 65 Hz)

Voltage: $\pm 0.5 \%$

Percentage of 100 V at $\geq 1 \text{ V}$ to < 100 V

Percentage of input voltage at $\geq 100 \text{ V}$

Current: $\pm 0.5 \%$

Power: $\pm 0.5 \%$

Percentage of the span of wattage as listed below at < 100 V:

173.2 W (1 A) or 866 W (5 A) for 3 ph/3 w

100 W (1 A) or 500 W (5 A) for 1 ph/2 w

200 W (1 A) or 1000 W (5 A) for 1 ph/3 w

300 W (1 A) or 1500 W (5 A) for 3 ph/4 w

Percentage of the span of power based on input voltage and rated current (1 A or 5 A) at $\geq 100 \text{ V}$

PF: $\pm 0.5 \%$

Frequency: $\pm 0.5 \%$

Energy: $\pm 1 \%$ (Load current 5 - 120 % PF 1; load current 10 - 120 % PF 0.5)

Response time: $\leq 1 \text{ sec.}$ (0 - 99 %)

Insulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC

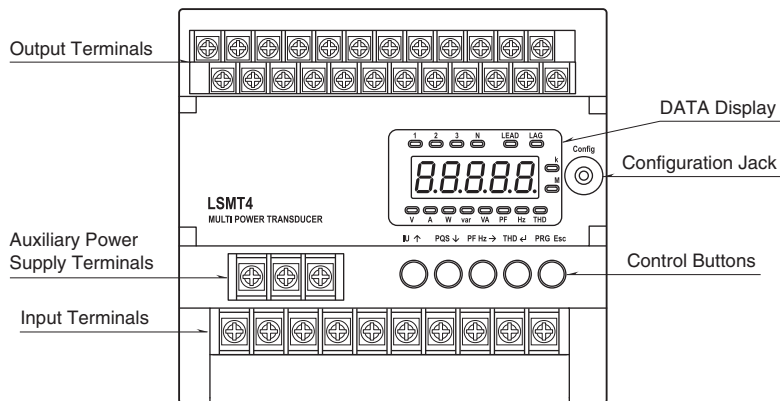
Dielectric strength: 2000 V AC @ 1 minute

(Voltage input to current input to output signal to discrete output 1 to discrete output 2 to auxiliary power to FE)

STANDARDS & APPROVALS

EU conformity:
 EMC Directive
 EMI EN 61000-6-4
 EMS EN 61000-6-2
 Low Voltage Directive
 EN 61010-1
 Measurement Category II (input)
 Installation Category II (auxiliary power)
 Pollution Degree 2
 Input to output: Reinforced insulation (480 V)
 Output to auxiliary power: Reinforced insulation (300 V)
 RoHS Directive

EXTERNAL VIEW

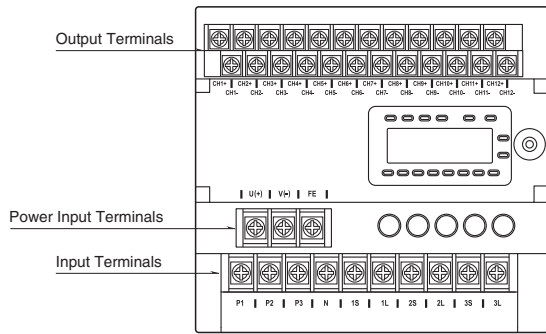


TERMINAL CONNECTIONS

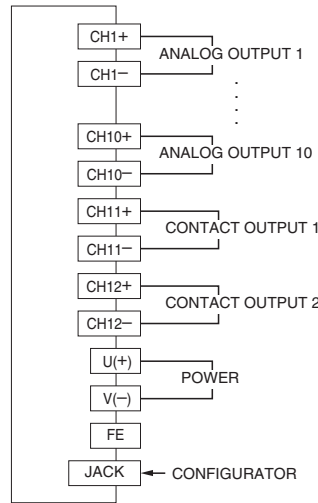
Note: In order to improve EMC performance, bond the FE terminal to ground.

Caution: FE terminal is NOT a protective conductor terminal.

■ TERMINAL ASSIGNMENT

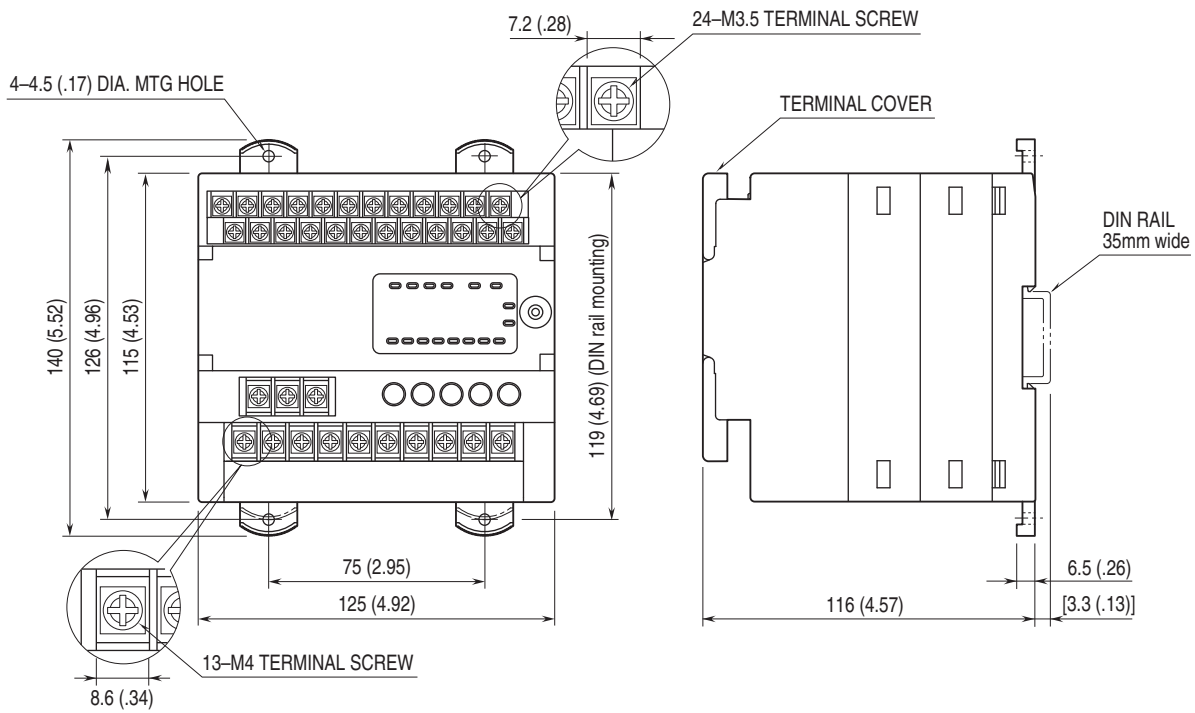


■ ELECTRICAL CONNECTION

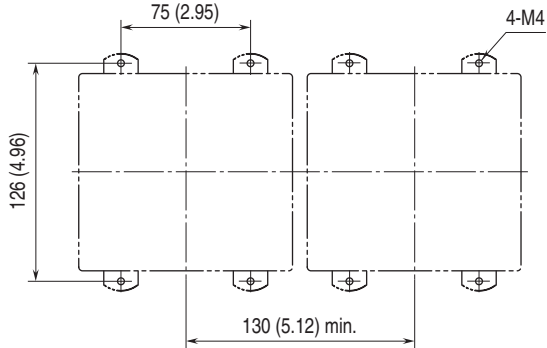


System / Application	Terminal
3-phase / 3-wire, unbalanced load	
Single phase / 2-wire	
3-phase / 4-wire, balanced load	
3-phase / 3-wire, balanced load	
3-phase / 4-wire, unbalanced load	
Single phase / 3-wire	

EXTERNAL DIMENSIONS unit: mm [inch]



MOUNTING REQUIREMENTS unit: mm [inch]



Specifications are subject to change without notice.