

## Power Transducer Series

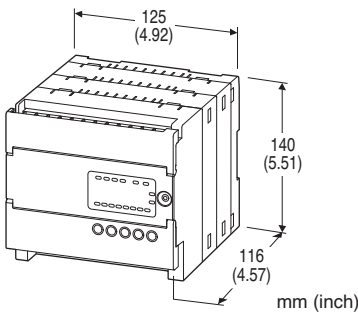
### MULTI POWER TRANSDUCER

#### 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 keys 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 [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  $\pm$  10 %, ripple 10 %p-p max.)  
V: 48 V DC  
(Operational voltage range 48 V  $\pm$  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,  $\Sigma$

**Power factor:** 1, 2, 3,  $\Sigma$

**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

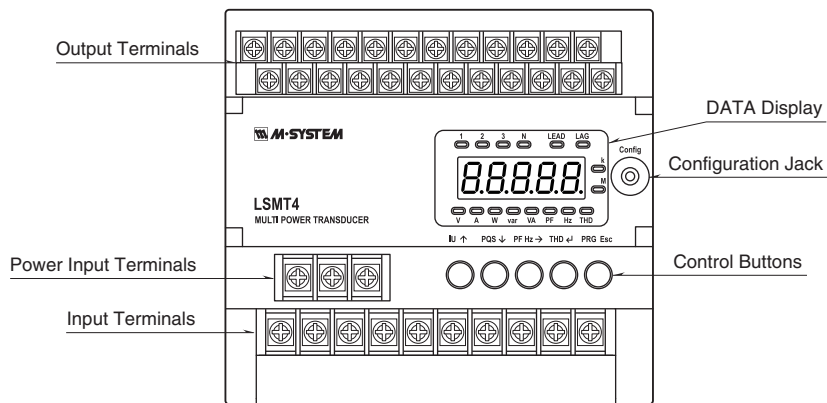
Input to output: Reinforced insulation (480 V)

Output to auxiliary power: Reinforced insulation (300 V)

RoHS Directive

EN 50581

## EXTERNAL VIEW

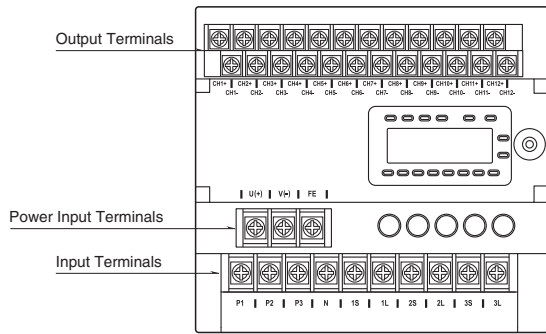


## TERMINAL CONNECTIONS

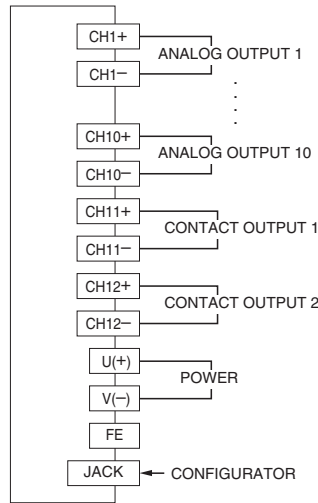
Note: In order to improve EMC performance, bond the FE terminal to ground.

Caution: FE terminal is NOT a protective conductor terminal.

### ■ TERMINAL ASSIGNMENT

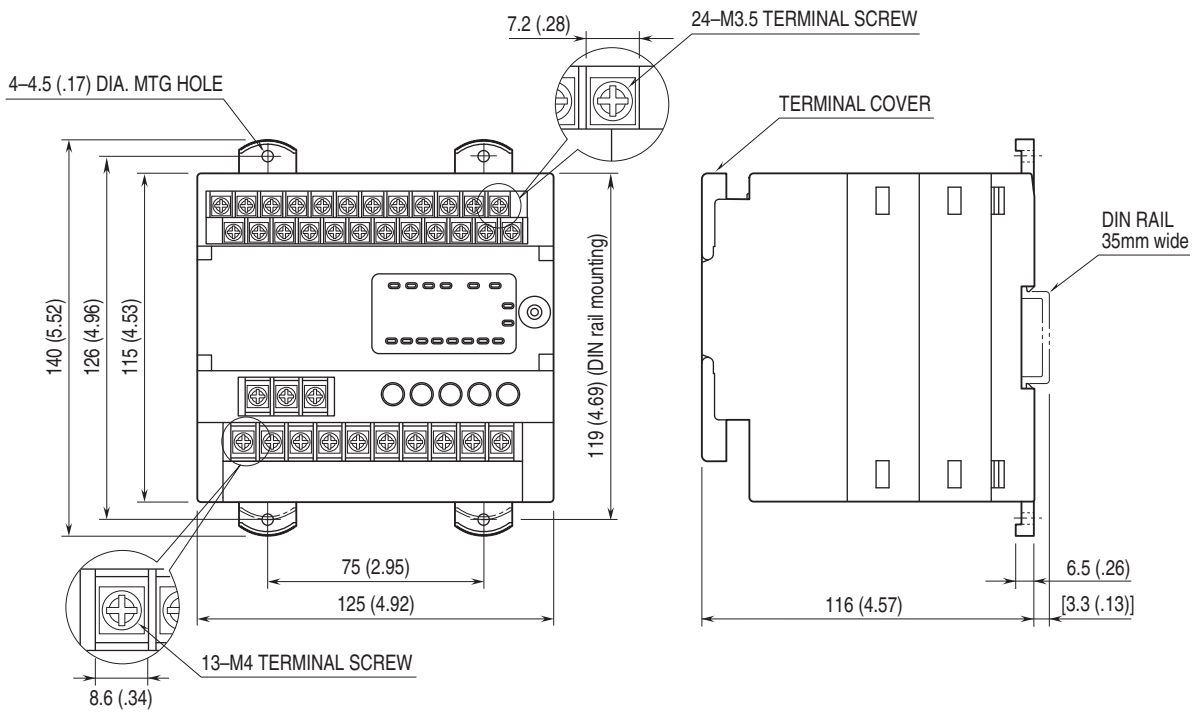


### ■ ELECTRICAL CONNECTION



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	

**DIMENSIONS unit: mm (inch)**



Specifications are subject to change without notice.