

## Plug-in Signal Conditioners M-UNIT

### STRAIN GAUGE TRANSMITTER

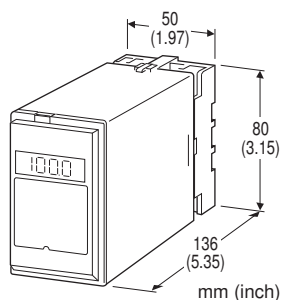
(remote sensing; non-isolated)

#### Functions & Features

- Provides a DC output signal compatible with a bridge type strain gauge utilized in load cells, pressure transducers
- Six-wire remote sensing compensates for lead resistance variations
- Excitation adjustable from 2 V to 5 V
- Wide-range adjustment: 0 - 80 % for zero, 100 - 20 % for span
- High-density mounting

#### Typical Applications

- Weighing system for tanks, hoppers, silos
- Weighing system using cranes
- Float level meter utilizing strain gauges



**MODEL: LC2-[1][2]-[3][4]**

### ORDERING INFORMATION

- Code number: LC2-[1][2]-[3][4]
- Specify a code from below for each of [1] through [4].  
(e.g. LC2-2A-B/E/K/Q)
- Special output range (For codes Z & 0)
- Specify the specification for option code /Q  
(e.g. /C01/S01)

### [1] INPUT STRAIN GAUGE

- 1: 1 mV/V
- 12: 1.25 mV/V
- 15: 1.5 mV/V
- 2: 2 mV/V
- 3: 3 mV/V
- 4: 4 mV/V
- 5: 5 mV/V
- 6: 10 mV/V
- 7: 20 mV/V
- 0: Specify (strain gauge and excitation)

### [2] OUTPUT

#### Current

- A: 4 - 20 mA DC (Load resistance 750  $\Omega$  max.)
- B: 2 - 10 mA DC (Load resistance 1500  $\Omega$  max.)
- C: 1 - 5 mA DC (Load resistance 3000  $\Omega$  max.)
- D: 0 - 20 mA DC (Load resistance 750  $\Omega$  max.)
- E: 0 - 16 mA DC (Load resistance 900  $\Omega$  max.)
- F: 0 - 10 mA DC (Load resistance 1500  $\Omega$  max.)
- G: 0 - 1 mA DC (Load resistance 15 k $\Omega$  max.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)

#### Voltage

- 1: 0 - 10 mV DC (Load resistance 10 k $\Omega$  min.)
- 2: 0 - 100 mV DC (Load resistance 100 k $\Omega$  min.)
- 3: 0 - 1 V DC (Load resistance 100  $\Omega$  min.)
- 4: 0 - 10 V DC (Load resistance 1000  $\Omega$  min.)
- 5: 0 - 5 V DC (Load resistance 500  $\Omega$  min.)
- 6: 1 - 5 V DC (Load resistance 500  $\Omega$  min.)
- 4W: -10 - +10 V DC (Load resistance 2000  $\Omega$  min.)
- 5W: -5 - +5 V DC (Load resistance 1000  $\Omega$  min.)
- 0: Specify voltage (See OUTPUT SPECIFICATIONS)

### [3] POWER INPUT

#### 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

### [4] OPTIONS (multiple selections)

#### Input Signal Indicator

- blank: Without
- /E: With (0.0 - 100.0 % display)

#### Response Time (0 - 90 %)

- blank: Standard ( $\leq 0.5$  sec.)
- /K: Fast Response (Approx. 25 msec.)

#### Other Options

- blank: none
- /Q: Option other than the above (specify the specification)

### SPECIFICATIONS OF OPTION: Q (multiple selections)

#### COATING (For the detail, refer to M-System's web site.)

- /C01: Silicone coating
- /C02: Polyurethane coating
- /C03: Rubber coating

#### TERMINAL SCREW MATERIAL

- /S01: Stainless steel

**GENERAL SPECIFICATIONS**

**Construction:** Plug-in  
**Connection:** M3.5 screw terminals  
**Screw terminal:** Chromated steel (standard) or stainless steel  
**Housing material:** Flame-resistant resin (black)  
**Isolation:** Input or output to power  
**Overrange output:** Approx. -10 to +120 % at 1 - 5 V  
**Excitation adjustment:** 2 - 5 V (front) limited to  $\leq 10$  V when the remote sensing terminals are open.  
**Zero adjustments (tare):** 0 - 80 % (front)  
 (Excitation voltage: factory default)  
**Span adjustment:** 100 - 20 % (front)  
 (Excitation voltage: factory default)  
**■ DISPLAY (Input indicator)**  
**LCD digital display:** 0.0 - 100.0 % (min. digit 0.1 %)  
 (No scaling)

**PERFORMANCE in percentage of span**

**Accuracy:**  $\pm 0.1$  % (input  $\geq 3$  mV)  
**Display accuracy:**  $\pm (0.1$  % of FS + 1 digit)  
 (input  $\geq 3$  mV)  
**Temp. coefficient:**  $\pm 0.015$  %/°C ( $\pm 0.008$  %/°F) (input  $\geq 3$  mV)  
**Line voltage effect:**  $\pm 0.1$  % over voltage range  
**Insulation resistance:**  $\geq 100$  M $\Omega$  with 500 V DC  
**Dielectric strength:** 2000 V AC @1 minute for AC power  
 1000 V AC @1 minute for DC power  
 (input or output to power)  
 2000 V AC @1 minute  
 (input or output or power to ground)

**INPUT SPECIFICATIONS**

**Input:** Bridge voltage from load cells  
**Allowable leadwire resistance:**  $\leq$  Total Strain Gauge Resistance  $\times 0.25$   
 • **Strain Gauge**  
**Rated output from strain gauge:** 1 - 20 mV/V; Input to the transmitter must be over 3 mV.  
 • **Excitation:** 2 - 5 V adjustable (5 V standard)  
**Maximum current:** 65 mA

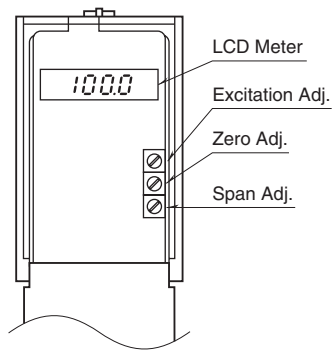
**OUTPUT SPECIFICATIONS**

**■ DC Current:** 0 - 20 mA DC  
**Minimum span:** 1 mA  
**Offset:** Max. 1.5 times span  
**Load resistance:** Output drive 15 V max.  
**■ DC Voltage:** -10 - +12 V DC  
**Minimum span:** 5 mV  
**Offset:** Max. 1.5 times span  
**Load resistance:** Output drive 10 mA max.; 5 mA for negative voltage output; at  $\geq 0.5$  V

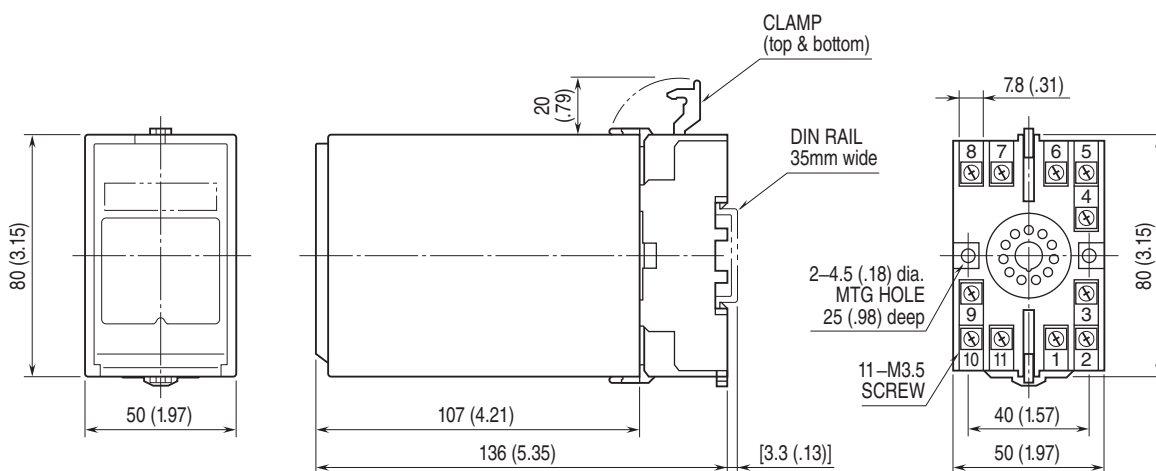
**INSTALLATION**

**Power input**  
 • **AC:** Operational voltage range: rating  $\pm 10$  %, 50/60  $\pm 2$  Hz, approx. 5 VA  
 • **DC:** Operational voltage range: 24 V  $\pm 10$  %, approx. 150 mA, ripple 10 %p-p max.  
**Operating temperature:** -5 to +60°C (23 to 140°F)  
**Operating humidity:** 30 to 90 %RH (non-condensing)  
**Mounting:** Surface or DIN rail  
**Weight:** 430 g (0.95 lb)

## EXTERNAL VIEW

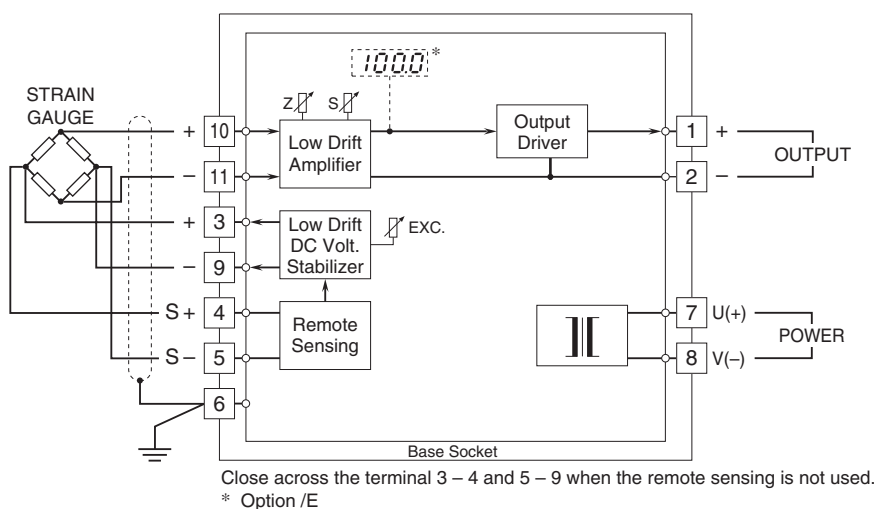


## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.