

## Plug-in Signal Conditioners M-UNIT

### CURRENT LOOP SUPPLY

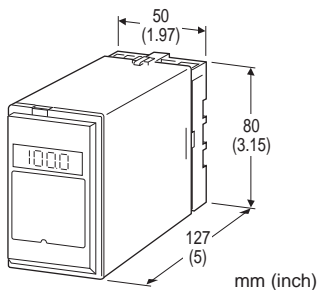
(with square root extractor; non-isolated)

#### Functions & Features

- Powering a 4 - 20 mA DC current loop
- Square root extraction
- Shortcircuit protection
- Applicable to smart transmitters
- LCD meter (engineering unit display selectable)
- Simple loop test output (0 % and 100 %)
- High-density mounting

#### Typical Applications

- Various 2-wire transmitters
- Square root extractor application (4 - 20 mA input)



## MODEL: FND-[1][2]

### ORDERING INFORMATION

- Code number: FND-[1][2]

Specify a code from below for each [1] and [2].  
(e.g. FND-B/E2/Q)

- Specify the specification for option code /Q  
(e.g. /C01/S01)

### INPUT

#### Current

4 - 20 mA DC (Input resistance 250 Ω)

### OUTPUT

#### Voltage

1 - 5 V DC (Load resistance 500 Ω min.)

### [1] 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

S: 12 V DC

R: 24 V DC

V: 48 V DC

P: 110 V DC (Not selectable with Option /E2)

### [2] OPTIONS (multiple selections)

#### LCD Meter (after function or low-end cutout)

blank: Without

/E: LCD meter (0.0 - 100.0 %)

/E2: With LCD display in engineering unit with backlight and the simple loop test output

#### 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: 0 - 105 % at 1 - 5 V

Zero adjustment: -5 to +5 % (front)

Span adjustment: 95 to 105 % (front)

Display scaling: -10000 - +10000; ex-factory set to 0.00 - 100.00 (%)

Engineering unit: %, μV, mV, V, mA, A, °C, °F, Ω, DEG K, mHz, Hz, kHz, VAC, AAC, mg, g, kg, t, rpm or rps selectable

Low-end cutout: Approx. 10 % (output)

Simple loop test output: 0 % and 100 % signal simulated by selecting the front switch positions.

### SUPPLY OUTPUT

Output voltage: 24 - 28 V DC with no load

Current rating: ≤ 22 mA DC

- Shortcircuit Protection

Current limited: 35 mA max.



Protected time duration: No limit

## INPUT SPECIFICATIONS

■ DC Current: Input resistor incorporated

## INSTALLATION

### Power input

•AC: Operational voltage range: rating  $\pm 10\%$ , 50/60  $\pm 2$  Hz, approx. 2 VA

(approx. 3 VA with Option /E2)

•DC: Operational voltage range: rating  $\pm 10\%$ , or 85 - 150 V for 110 V rating (ripple 10 % p-p max.) approx. 2.6 W (110 mA at 24 V; approx. 3.6 W with Option /E2)

**Operating temperature:** -5 to +60°C (23 to 140°F)

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

**Mounting:** Surface or DIN rail

**Weight:** 300 g (0.66 lb)

## PERFORMANCE in percentage of span

**Accuracy:**  $\pm 0.2\%$  (input 1 - 100 %)

**Display accuracy:**  $\pm (0.2\% \text{ of FS} + 1 \text{ digit})$  (Input 1 - 100 %)

**Simple loop test output setting accuracy:**  $\pm 0.5\%$

**Temp. coefficient:**  $\pm 0.015\% / ^\circ\text{C}$  ( $\pm 0.008\% / ^\circ\text{F}$ )

**Response time:**  $\leq 0.5$  sec. (0 - 90 %)

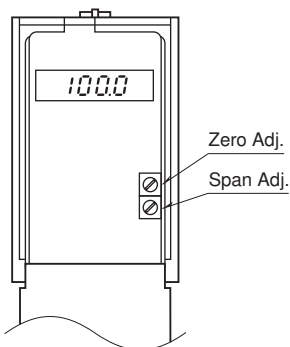
**Line voltage effect:**  $\pm 0.1\%$  over voltage range

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

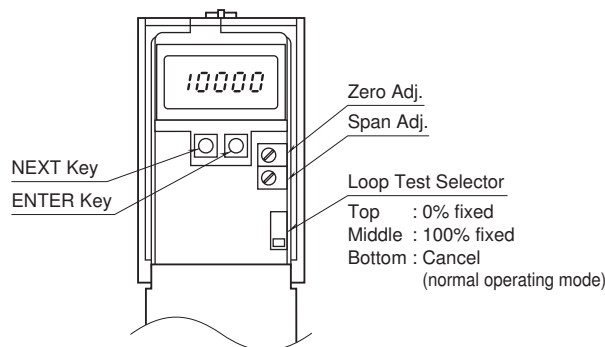
**Dielectric strength:** 2000 V AC @1 minute (input or output to power to ground)

## EXTERNAL VIEW

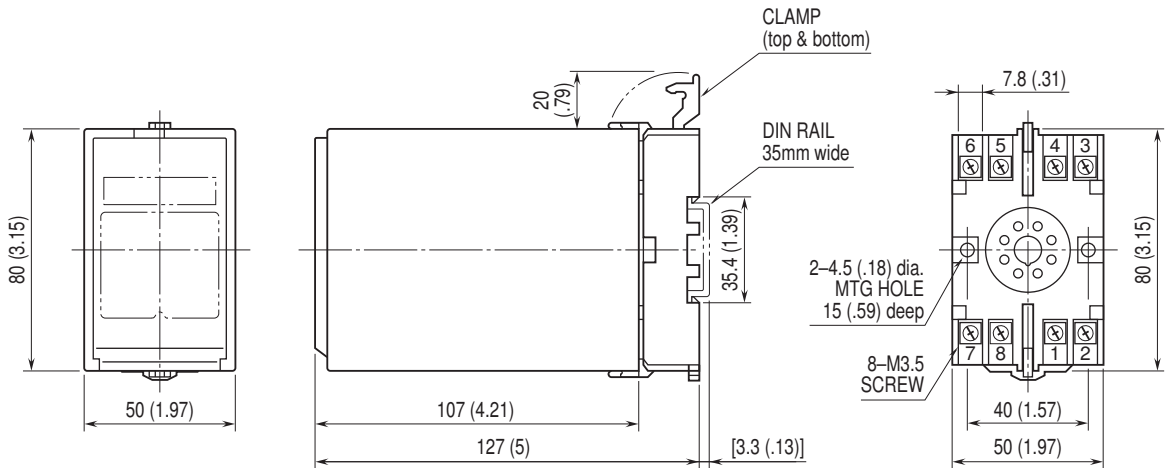
OPTION /E



OPTION /E2

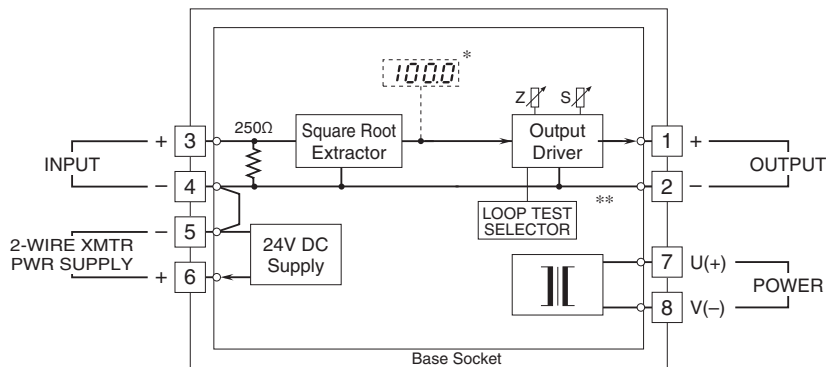


## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

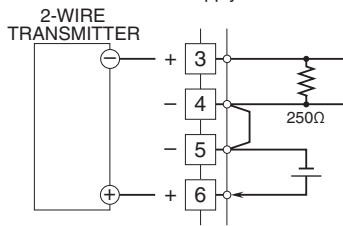
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



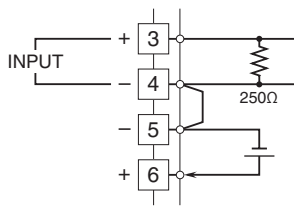
\*Option /E, E2

\*\* Option /E2

■When Used as DC Supply



■When Used as Square Root Extractor



Specifications are subject to change without notice.