

Plug-in Signal Conditioners M-UNIT

CURRENT LOOP SUPPLY

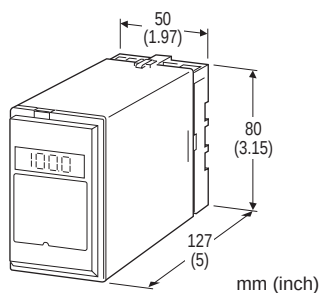
(with square root extractor; isolated)

Functions & Features

- Powering a 4 – 20 mA DC current loop
- Square root extraction
- Shortcircuit protection
- Applicable to smart transmitters
- Isolation up to 2000 V AC
- 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: FNDS-[1][2]

ORDERING INFORMATION

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

Specify a code from below for each [1] and [2].

- (e.g. FNDS-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 to output to power

Overrange output: 0 – 105 % at 1 – 5 V

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

Span adjustment: 95 to 105 % (front)

Low-end cutout: Approx. 5 – 8 % (output)

Simple loop test output: 0 % and 100 % signal simulated by selecting the front switch positions. (Only for option code /E2)

■ DISPLAY (LCD meter)

- Option code: /E

LCD digital display: 0.0 - 100.0 % (min. digit 0.1 %) (No scaling)

- Option code: /E2

LCD digital display: Engineering unit

Display scaling: -10000 – +10000

Decimal position: 10^{-1} - 10^{-4} or no decimal point

Engineering unit: %, μ V, mV, V, mA, A, $^{\circ}$ C, $^{\circ}$ F, Ω , DEG K,

mHz, Hz, kHz, VAC, AAC, mg, g, kg, t, rpm or rps selectable

Back light: Green at normal, red at loop test output enable

Factory setting: scaling 0.00 - 100.00, unit: %

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 ± 10 %, 50/60 ± 2 Hz, approx. 2 VA

(approx. 3 VA with Option /E2)

• **DC:** Operational voltage range: rating ± 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: ± 0.2 % (input 1 - 100 %)

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

Simple loop test output setting accuracy: ± 0.5 %

Temp. coefficient: ± 0.015 %/°C (± 0.008 %/°F)

Response time: ≤ 0.5 sec. (0 - 90 %)

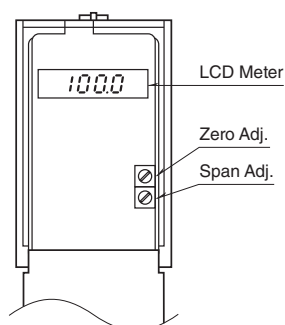
Line voltage effect: ± 0.1 % over voltage range

Insulation resistance: ≥ 100 M Ω with 500 V DC

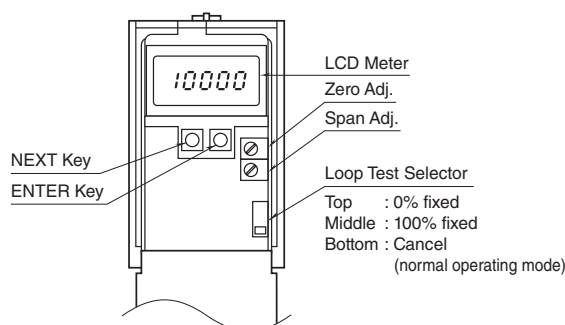
Dielectric strength: 2000 V AC @1 minute (input to output to power to ground)

EXTERNAL VIEW

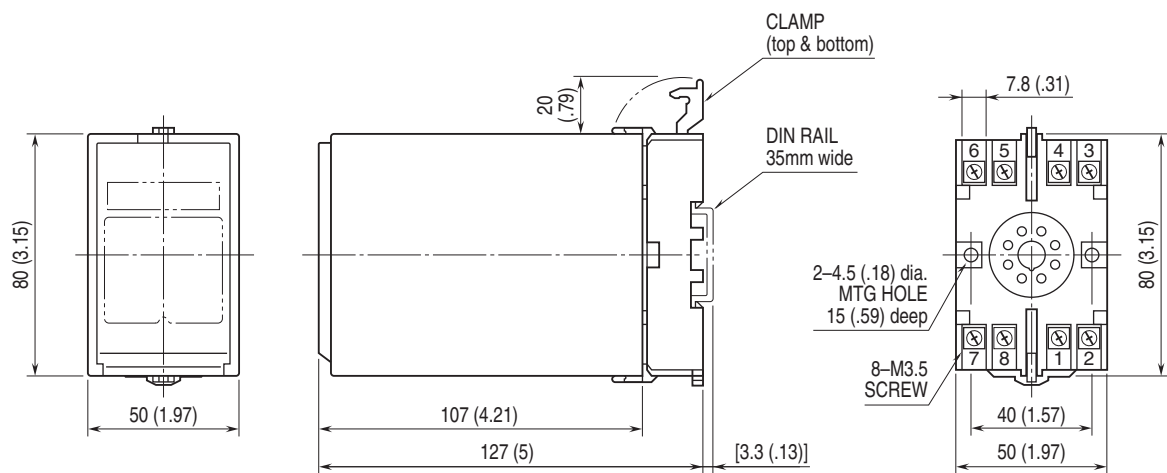
■ OPTION /E



■ OPTION /E2

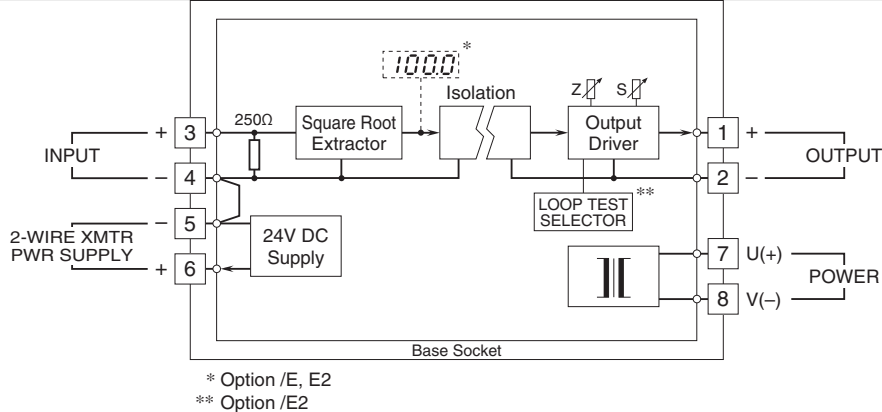


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)

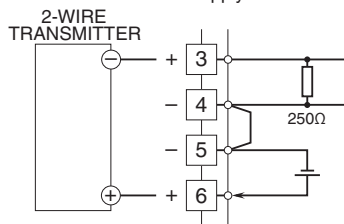


• When mounting, no extra space is needed between units.

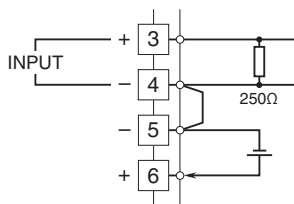
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



■ When Used as DC Supply



■ When Used as Square Root Extractor



Specifications are subject to change without notice.