Plug-in Signal Conditioners M-UNIT

CURRENT LOOP SUPPLY

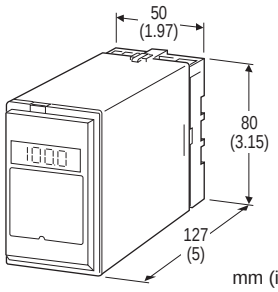
(isolated)

Functions & Features

- Powering a 4 – 20 mA DC current loop
- 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
- Isolation application (4 – 20 mA input)



MODEL: YVD–[1]–[2][3]

ORDERING INFORMATION

•Code number: YVD-[1]-[2][3]
Specify a code from below for each [1] through [3].
(e.g. YVD-A-B/E2/Q)
•Special output range (For codes Z & 0)
•Specify the specification for option code /Q
(e.g. /C01/S01)

INPUT

Current

4 – 20 mA DC (Input resistance 250 Ω)

[1] OUTPUT

Current

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

Voltage

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

[2] POWER INPUT

AC Power

B: 100 V AC
C: 110 V AC
D: 115 V AC
F: 120 V AC
G: 200 V AC (Not selectable with Option /UL)
H: 220 V AC (Not selectable with Option /UL)
J: 240 V AC (Not selectable with Option /UL)

DC Power

S: 12 V DC (Not selectable with Option /UL)
R: 24 V DC (Not selectable with Option /UL)
V: 48 V DC (Not selectable with Option /UL)
P: 110 V DC (Not selectable with Option /E2 or /UL)

[3] OPTIONS (multiple selections)

Input Signal Indicator

blank: Without
/E: With (0.0 - 100.0 % display)
/E2: With (in engineering unit with backlight and the simple loop test output)

Standards & Approvals

blank: Without UL
/UL: UL approval (Not selectable with /E or /E2)

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 (UL not available)

TERMINAL SCREW MATERIAL

/S01: Stainless steel (UL not available)

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: Approx. -10 to +120 % at 1 – 5 V
Zero adjustment: -5 to +5 % (front)
Span adjustment: 95 to 105 % (front)
Simple loop test output: 0 % and 100 % signal simulated by selecting the front switch positions. (Only for option code /E2)
■ **DISPLAY (Input indicator)**
• **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: %, µV, mV, V, mA, A, °C, °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: 40 mA max.
Protected time duration: No limit

INPUT SPECIFICATIONS

■ **DC Current**: Input resistor incorporated

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 ≥ 0.5 V

INSTALLATION

Power input
•**AC**: Operational voltage range: rating ±10 %, 50/60 ±2 Hz, approx. 3 VA
(approx. 4 VA with Option /E2)
•**DC**: Operational voltage range: rating ±10 %, or 85 – 150 V for 110 V rating, ripple 10 %p-p max.
approx. 3 W (120 mA at 24 V; approx. 4 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: 400 g (0.88 lb)

PERFORMANCE in percentage of span

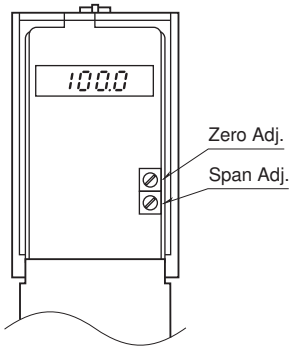
Accuracy: ±0.1 %
Display accuracy: ±(0.1 % of FS + 1 digit)
Simple loop test output setting accuracy: ±0.5 %
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)
Response time: ≤ 0.5 sec. (0 – 90 %)
Line voltage effect: ±0.1 % over voltage range
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 2000 V AC @1 minute (input to output to power to ground)

STANDARDS & APPROVALS

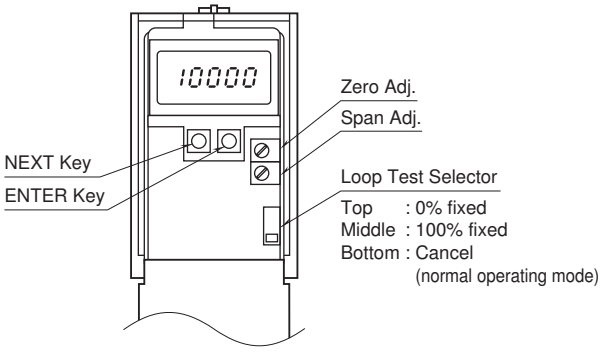
Approval:
UL/C-UL general safety requirements
(UL 3111-1, CAN/CSA-C22.2 No.1010-1)

EXTERNAL VIEW

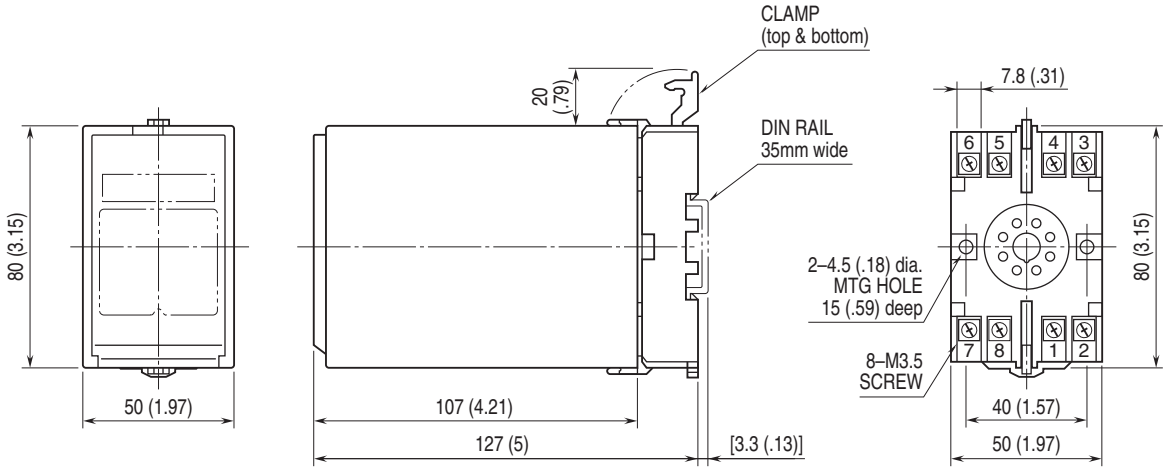
OPTION /E



OPTION /E2

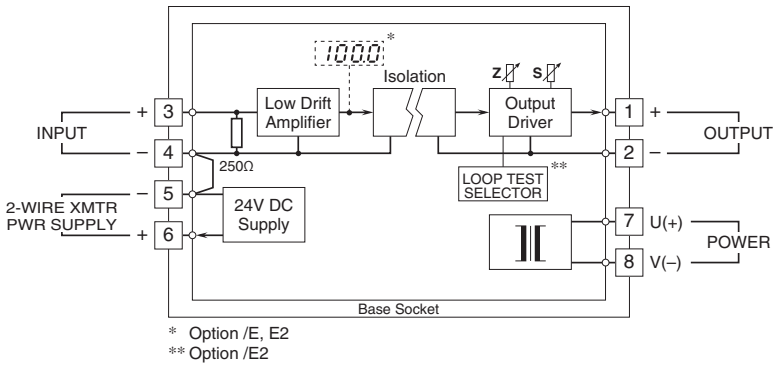


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



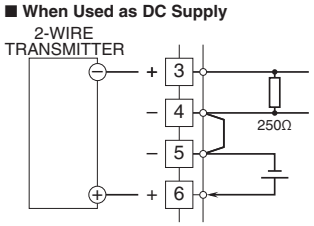
• When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

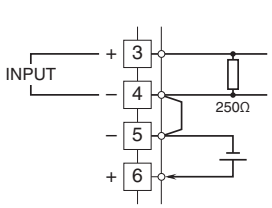


* Option /E, E2
** Option /E2

■ **When Used as DC Supply**



■ **When Used as Isolator**



⚠ Specifications are subject to change without notice.