

Plug-in Signal Conditioners M-UNIT

SIGNAL TRANSMITTER

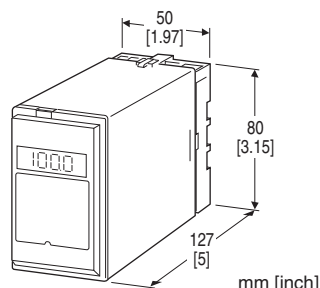
(isolated)

Functions & Features

- Converts a DC input into a standard process signal
- Isolation up to 2000 V AC
- Fast response type available
- LCD meter (engineering unit display selectable)
- Simple loop test output (0 % and 100 %)
- High-density mounting

Typical Applications

- Isolation between control room and field instrumentation
- Power plant (2000 V AC isolation, 110 V DC power supply)



MODEL: SV-[1][2]-[3][4]

ORDERING INFORMATION

- Code number: SV-[1][2]-[3][4]
- Specify a code from below for each of [1] through [4].
(e.g. SV-6A-B/E2/Q)
- Special input and output ranges (For codes Z & 0)
- Specify the specification for option code /Q
(e.g. /C01/S01)

[1] INPUT

Current

- A: 4 – 20 mA DC (Input resistance 250 Ω)
 A1: 4 – 20 mA DC (Input resistance 50 Ω)
 B: 2 – 10 mA DC (Input resistance 500 Ω)
 C: 1 – 5 mA DC (Input resistance 1000 Ω)
 D: 0 – 20 mA DC (Input resistance 50 Ω)
 E: 0 – 16 mA DC (Input resistance 62.5 Ω)
 F: 0 – 10 mA DC (Input resistance 100 Ω)
 G: 0 – 1 mA DC (Input resistance 1000 Ω)
 H: 10 – 50 mA DC (Input resistance 100 Ω)
 J: 0 – 10 μA DC (Input resistance 1000 Ω)
 K: 0 – 100 μA DC (Input resistance 1000 Ω)
 GW: -1 – +1 mA DC (Input resistance 1000 Ω)

FW: -10 – +10 mA DC (Input resistance 100 Ω)
 Z: Specify current (See INPUT SPECIFICATIONS)

Voltage

- 1: 0 – 10 mV DC (Input resistance 10 kΩ min.)
 15: 0 – 50 mV DC (Input resistance 10 kΩ min.)
 16: 0 – 60 mV DC (Input resistance 10 kΩ min.)
 2: 0 – 100 mV DC (Input resistance 100 kΩ min.)
 3: 0 – 1 V DC (Input resistance 1 MΩ min.)
 4: 0 – 10 V DC (Input resistance 1 MΩ min.)
 5: 0 – 5 V DC (Input resistance 1 MΩ min.)
 6: 1 – 5 V DC (Input resistance 1 MΩ min.)
 4W: -10 – +10 V DC (Input resistance 1 MΩ min.)
 5W: -5 – +5 V DC (Input resistance 1 MΩ min.)
 0: Specify voltage (See INPUT SPECIFICATIONS)

[2] 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)

[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

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

[4] 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)

Response Time (0 - 90 %)

blank: Standard (≤ 0.5 sec.)

/K: Fast response (Approx. 25 msec.)

(Not selectable with Option /E2)

Custom specification

(Refer to the custom specification list for difference of specification and combination of code numbers.)

blank: none

/X1: Input resistance

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: 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: %, μ V, 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: %

INPUT SPECIFICATIONS**■ DC Current:**

Shunt resistor attached to the input terminals (0.5 W)

Specify input resistance value for code Z.

■ DC Voltage: -300 - +300 V DC

Minimum span: 3 mV

Offset: Max. 1.5 times span

Input resistance

Span 3 - 10 mV : ≥ 10 k Ω

Span 10 - 100 mV : ≥ 10 k Ω

Span 0.1 - 1 V : ≥ 100 k Ω

Span ≥ 1 V : ≥ 1 M Ω

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 (80 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: $\pm (0.1$ % of FS + 1 digit)

Simple loop test output setting accuracy: ± 0.5 %

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

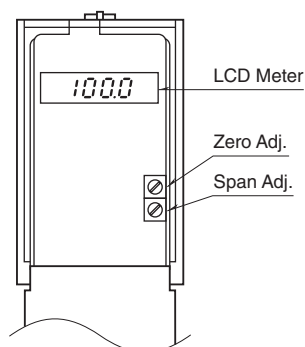
Line voltage effect: ± 0.1 % over voltage range

Insulation resistance: ≥ 100 M Ω with 500 V DC

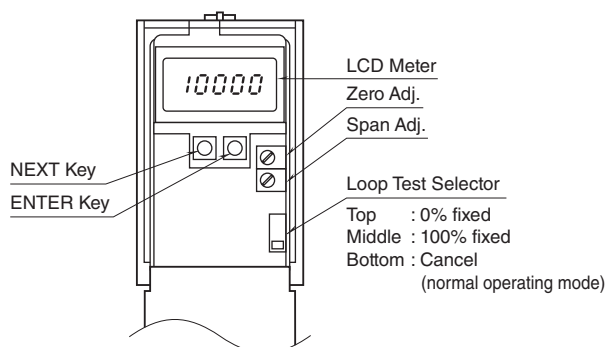
Dielectric strength: 2000 V AC @1 minute (input to output to power to ground)

EXTERNAL VIEW

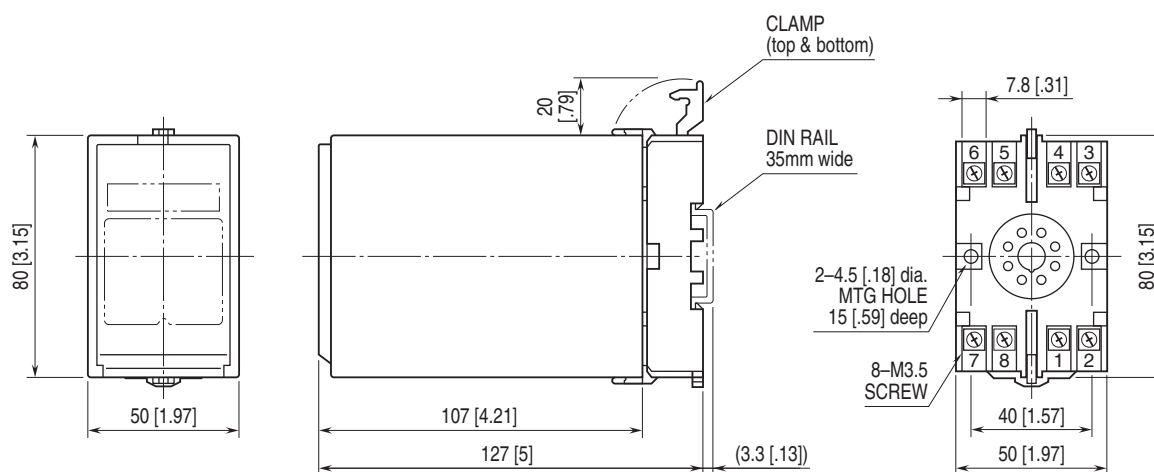
■ OPTION /E



■ OPTION /E2

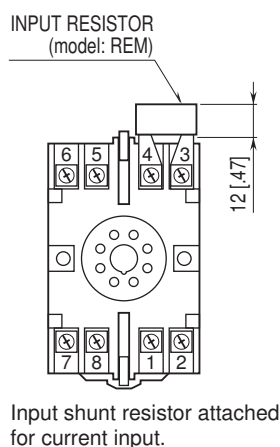


EXTERNAL DIMENSIONS unit: mm [inch]

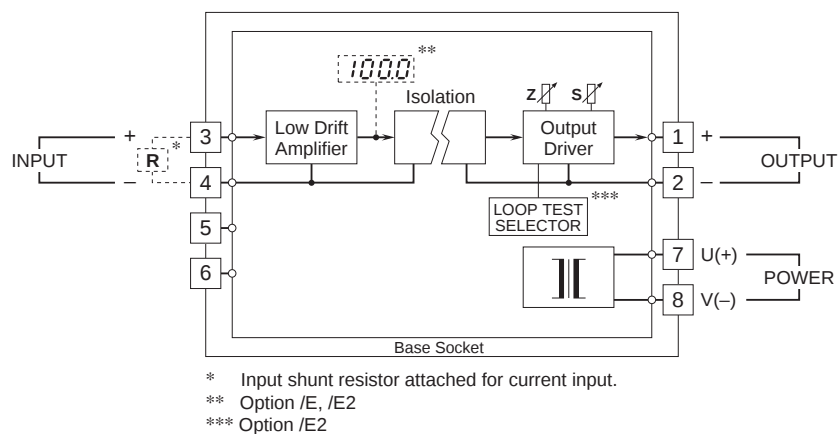


• When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm [inch]



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.

CUSTOM SPECIFICATION LIST

Refer to the following pages for each detailed custom specification.

Custom specification: Option /X1

■ Major specification changes

Input resistance: 10 MΩ min. (input 0 - 2 V DC)

CUSTOM SPECIFICATION : OPTION /X1**Major specification changes**

Input resistance: 10 MΩ max.
(input 0 - 2 V DC)

MODEL: SV-0[2]-[3][4]

Same as standard specification (without customization)
except followings.
Refer to standard specification pages.

ORDERING INFORMATION

- Code number: SV-0[2]-[3][4]

For each of [2] through [4] same code as standard
specification is available.

Be sure to specify /X1 of option [4].

(e.g. SV-0A-B/E1/X1/Q)

Refer to standard specification pages.

SPECIFICATION CHANGES**■ Input specifications**

- Input 0 - 2 V DC
 - Input resistance: 10 MΩ min.
- (UL not available)