

Plug-in Signal Conditioners M-UNIT

SIGNAL TRANSMITTER

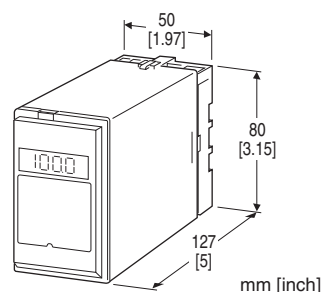
(isolated)

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 our 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

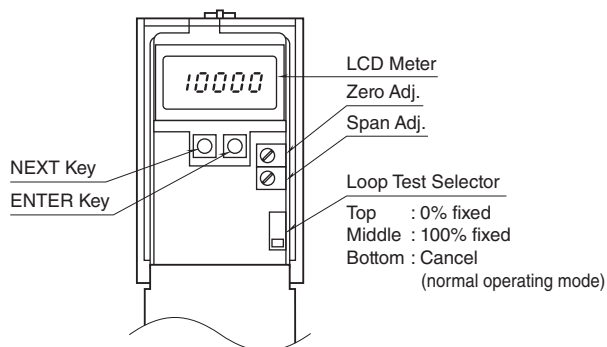
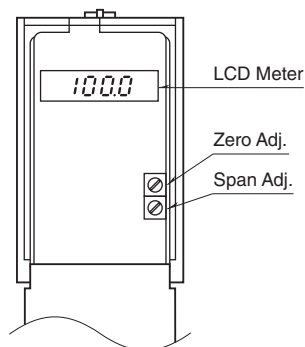
(approx. 4 VA with Option /E2)

• **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)

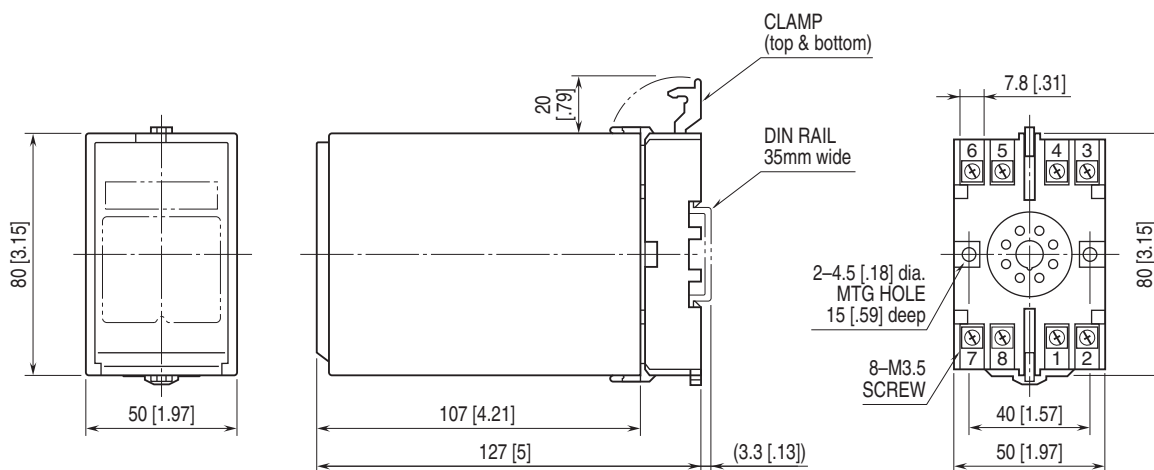
EXTERNAL VIEW

■ OPTION /E

■ OPTION /E2

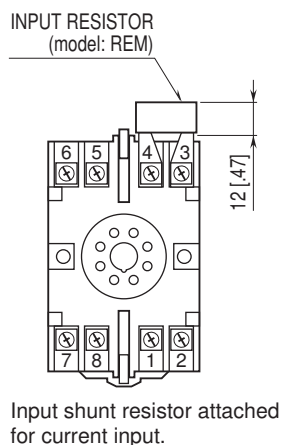


EXTERNAL DIMENSIONS unit: mm [inch]

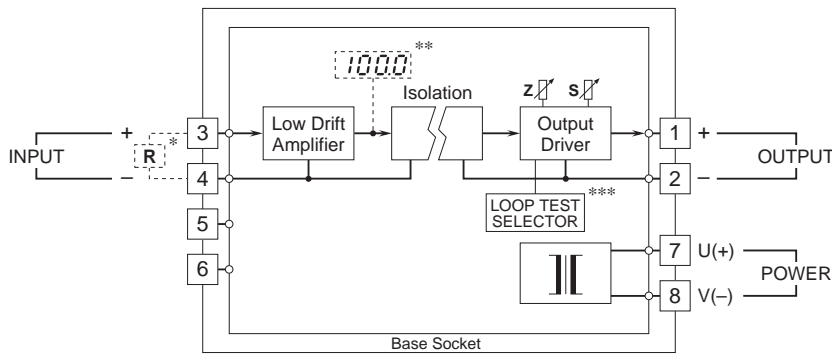


• When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm [inch]



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



- * Input shunt resistor attached for current input.
- ** Option /E, /E2
- *** Option /E2



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 M Ω 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)