Plug-in Signal Conditioners M-UNIT

SIGNAL TRANSMITTER

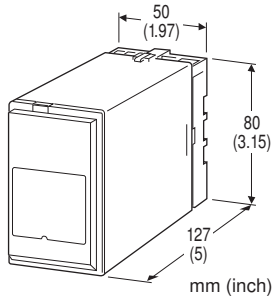
(isolated; max. 200 mA output)

Functions & Features

• Converting a DC process input into a high-power current or voltage up to 200 mA
• Isolation up to 2000 V AC
• High-density mounting

Typical Applications

• Retrofitting 10 – 50 mA DC control system
• DC excitation for an electromagnetic coil which demands a high power



MODEL: SVA–[1][2]–[3][4]

ORDERING INFORMATION

• Code number: SVA-[1][2]-[3][4]
Specify a code from below for each of [1] through [4].
(e.g. SVA-AN-K3/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

H: 10 – 50mA DC (Load resistance 400 Ω max.)
L: 0 – 50 mA DC (Load resistance 400 Ω max.)
M: 0 – 100 mA DC (Load resistance 200 Ω max.)
N: 0 – 200 mA DC (Load resistance 50 Ω max.)
Z: Specify current (See OUTPUT SPECIFICATIONS)

Voltage

4: 0 – 10 V DC (Load resistance 50 Ω min.)
5: 0 – 5 V DC (Load resistance 25 Ω min.)
6: 1 – 5 V DC (Load resistance 25 Ω min.)
8: 0 – 20 V DC (Load resistance 200 Ω min.)
0: Specify voltage (See OUTPUT SPECIFICATIONS)

[3] POWER INPUT

AC Power

K3: 100 – 120 V AC
(Operational voltage range 90 – 132 V, 47 – 66 Hz)
L3: 200 – 240 V AC
(Operational voltage range 180 – 264 V, 47 – 66 Hz)

DC Power

P: 110 V DC
(Operational voltage range 85 – 150 V, ripple 10 %p-p max.)

[4] OPTIONS

blank: none
/Q: With options (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 mA or 0 V up to 105 % of upper range value
Zero adjustment: -25 – +25 % no output below 0 mA or 0 V (front)
Span adjustment: 50 to 100 % for the rated input span (front)

INPUT SPECIFICATIONS

■ **DC Current**:
Shunt resistor attached to the input terminals (0.5 W)
Specify input resistance value for code Z.
■ **DC Voltage**: -30 – +30 V DC
Span: Min. 3 mV, max. 30 V
Offset: Max. 1.5 times span
Input resistance
Span 3 – 10 mV : ≥ 10 kΩ
Span 10 – 100 mV : ≥ 10 kΩ
Span 0.1 – 1 V : ≥ 100 kΩ
Span ≥ 1 V : ≥ 1 MΩ

OUTPUT SPECIFICATIONS

■ **DC Current**: 0 – 200 mA DC
Minimum span: 20 mA
Zero suppression: max. 30 % of span
Load inductance: 1 H max.
Load resistance
Max. current ≤ 100 mA: Output drive max. 20 V
100 mA < max. current ≤ 200 mA: R_L [Ω] = 2 [W] / (max. current [A])^2
■ **DC Voltage**: 0 – 20 V DC
Minimum span: 2 V
Zero suppression: Max. 30 % of span
Load resistance
Max. voltage ≤ 10 V: R_L [Ω] = max. voltage [V] / 0.2 [A]
10 V < max. voltage ≤ 20V: R_L [Ω] = (max. voltage [V])^2 / 2 [W]

INSTALLATION

Power consumption
•**AC**: Approx. 10 VA, 5 W max.
•**DC**: ≤ 5 W
Operating temperature: -5 to + 50°C (23 to 122°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: Surface or DIN rail
Weight: 300 g (0.66 lb)

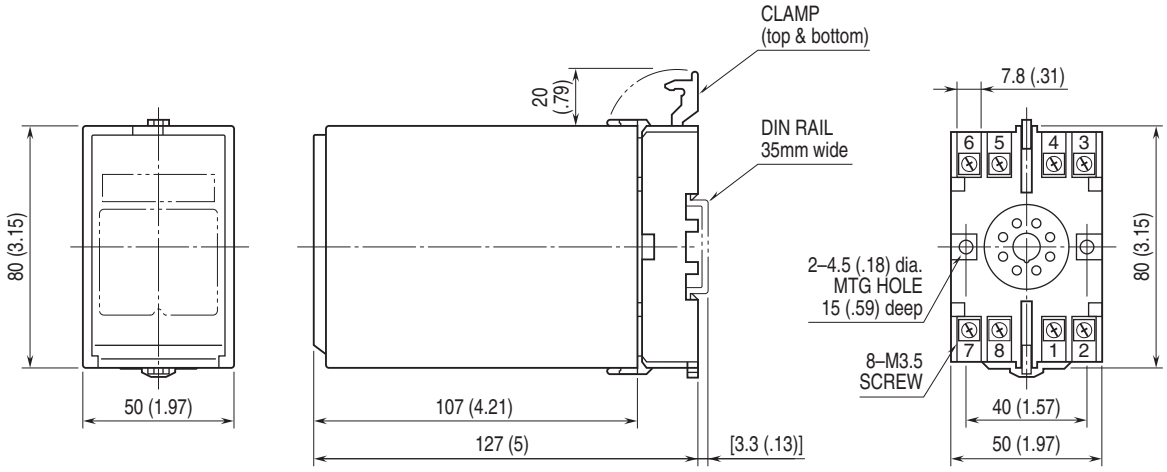
PERFORMANCE in percentage of span

Accuracy: ±0.2 %
Temp. coefficient: ±0.02 %/°C (±0.01 %/°F)
Response time: ≤ 0.5 sec. (0 – 90 %)
Load effect
Current output: ±0.2 % over load range
Voltage output: +0.2 % or -{0.2 + (0.3 [Ω] × max. load [A]) / output span [V] × 100} % over load range
Line voltage effect: ±0.2 % 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

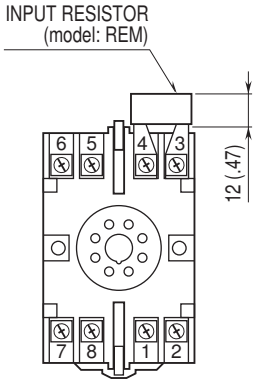
EU conformity:
EMC Directive
EMI EN 61000-6-4
EMS EN 61000-6-2
Low Voltage Directive
EN 61010-1
Measurement Category II
Pollution Degree 2
Input or output to power: Reinforced insulation (300 V)
Input to output: Basic insulation (300 V)
RoHS Directive
EN 50581

EXTERNAL DIMENSIONS unit: mm (inch)



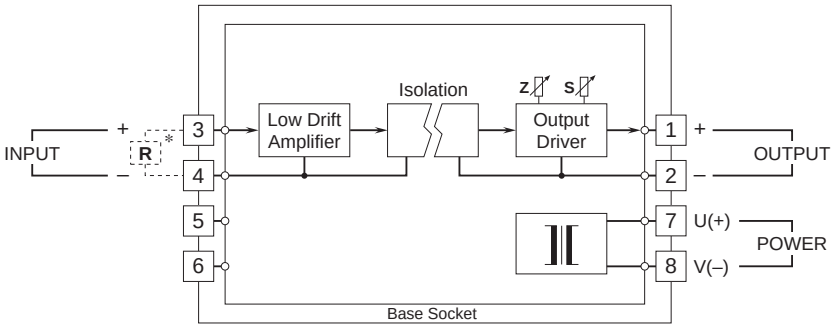
• When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm (inch)



Input shunt resistor attached
for current input.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



*Input shunt resistor attached for current input.

⚠ Specifications are subject to change without notice.