Super-mini Signal Conditioners Mini-M Series

DC ALARM

Functions & Features
• Provides N.O. relay outputs at preset DC input levels
• Dual trip
• Multi-turn potentiometer adj.
• Monitor jacks help setpoint adj.
• Power ON timer
• Relays can be powered 110 V DC

Typical Applications
• Annunciator
• Various alarm applications

MODEL: M2AVS

ORDERING INFORMATION
• Code number: M2AVS-[1][2][3][4]-[5][6]
  Specify a code from below for each [1] through [6].
  (e.g. M2AVS-6112-R/CE/Q)
• Special input range (For codes Z, 0 & 01)
• 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)
  (Select '/N' for ‘Standards & Approvals’ code.)
01: Specify voltage (See INPUT SPECIFICATIONS)
  (Select '/CE' for ‘Standards & Approvals’ code.)

[2] SETPOINT 1 OUTPUT
1: Hi (coil energized at alarm)
3: Lo (coil energized at alarm)

[3] SETPOINT 2 OUTPUT
1: Hi (coil energized at alarm)
3: Lo (coil energized at alarm)

[4] OUTPUT
2: Relay; N.O. or make contact
6: Photo MOSFET relay; N.O.

[5] POWER INPUT
AC Power
M: 85 – 264 V AC (Operational voltage range 85 – 264 V,
  47 – 66 Hz)
  (Select '/N' for ‘Standards & Approvals’ code.)
DC Power
R: 24 V DC
  (Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)
R2: 11 – 27 V DC
  (Operational voltage range 11 – 27 V, ripple 10 %p-p max.)
  (Select '/N' for ‘Standards & Approvals’ code.)
P: 110 V DC
  (Operational voltage range 85 – 150 V, ripple 10 %p-p max.)
  (Select '/N' for ‘Standards & Approvals’ code.)

[6] OPTIONS (multiple selections)
Standards & Approvals (must be specified)
/N: Without CE
/CE: CE marking
Other Options
  blank: none
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 screw terminals (torque 0.8 N·m)
Screw terminal: Chromated steel (standard) or stainless steel
Housing material: Flame-resistant resin (black)
Isolation: Input to output 1 to output 2 to power
Setpoint adjustments: Multi-turn screwdriver adjustments (front): 0 – 100 % independently
Monitor jacks: Output 0 – 1 V for 0 – 100 % setpoints
Hysteresis (deadband): ≤ 0.5 %

Front LEDs
Output 1: Red light turns on when the coil is energized.
Output 2: Green light turns on when the coil is energized.
Power ON timer: Relays de-energized for approx. 1 seconds after power is turned on.

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
(-30 – +30 V for the input code 01. Span 30 V max.)
Minimum span: 3 mV
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

■ Relay Contact:
120 V AC @0.5 A (cos ø = 1)
240 V AC @0.5 A (cos ø = 1)
30 V DC @0.5 A (resistive load)
Maximum switching voltage: 250 V AC or 120 V DC
Maximum switching power: 120 VA or 15 W (≤ 0.5 A)
Minimum load: 5 V DC @10 mA
Mechanical life: 5 × 10^7 cycles

For maximum relay life with inductive loads, external protection is recommended.
■ Photo MOSFET Relay
Maximum switching voltage: 30 V AC or 50 V DC
Maximum switching current: 0.5 A
ON resistance: ≤ 2 kΩ
Leakage current at OFF: ≤ 10 μA
For maximum relay life with inductive loads, external protection is recommended.

INSTALLATION

Power Consumption
• AC:
Approx. 3 VA at 100 V
Approx. 4 VA at 200 V
Approx. 5 VA at 264 V
• DC: Approx. 3 W
Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: Surface or DIN rail
Weight: 150 g (0.33 lb)

PERFORMANCE in percentage of span
Setpoint monitor accuracy: ±0.5 %
Temp. coefficient: ±0.05 %/°C (±0.03 %/°F)
Response time: ≤ 0.5 sec. (0 – 100 % at 90 % setpoint)
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 1 to output 2 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 (output)
Installation Category II (power)
Pollution Degree 2
Input to output to power: Basic insulation (300 V)
RoHS Directive
EN 50581

FRONT VIEW

Refer to the instruction manual for detailed procedures.

DIMENSIONS unit: mm (inch)

TERMINAL ASSIGNMENTS unit: mm (inch)
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

*Input shunt resistor attached for current input.

Specifications are subject to change without notice.