Super-mini Signal Conditioners with LCD Display M7E-UNIT Series

DISCONTINUED MODEL
Replaced with Model M2EAXV

DC ALARM

(dual or quad alarm trip)

Functions & Features
- Provides relay outputs at preset DC input levels
- Quad or dual trip
- Front LCD display indicating values in scaled engineering unit range is used to program the module
- Adjustable deadband (hysteresis)
- Software lock
- ON delay time selectable
- Hi/Lo trip and energized/de-energized coil independently selectable for each setpoint
- Enclosed relays
- Relays can be powered by 200 V AC and 100 V DC
- High-density mounting on DIN rail

Typical Applications
- Annunciator
- Various alarm applications

MODEL: M7EASV-[1][2]-[3][4]

ORDERING INFORMATION

- Code number: M7EASV-[1][2]-[3][4]

Specify a code from below for each of [1] through [4].
(e.g. M7EASV-Z12-M2/CE/Q)
- Specify the specification for option code /Q
(e.g. /C01/S01/SET)

[1] INPUT

Current
Z1: Range 0 – 50 mA DC (Input resistance 100 Ω)
Voltage
S1: Range -1000 – +1000 mV DC (Input resistance 1 MΩ min.)
S2: Range -10 – +10 V DC (Input resistance 1 MΩ min.)

[2] OUTPUT

2: 4 points; N.O. or make contact
3: 4 points; N.C. or break contact
5: 2 points; SPDT or transfer contact

[3] POWER INPUT

AC Power
M2: 100 – 240 V AC (Operational voltage range 85 – 264 V, 47 – 66 Hz)
DC Power
R: 24 V DC
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

[4] OPTIONS (multiple selections)

Standards & Approvals
blank: Without CE
/CE: CE marking
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
EX-FACTORY SETTING
/SET: Preset according to the Ordering Information Sheet (No. ESU-7762)
Default setting will be used if not otherwise specified.

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FACTORY DEFAULT SETTING

INPUT CALIBRATION	Z1: 4 — 20 mA DC S1: 1 — 100 mV DC S2: 1 — 5 V DC
MOVING AVERAGE	NONE
SCALING RANGE	0.0 — 100.0
DECIMAL POINT	XXX.X
SCALING UNIT	°C
L1 ALARM VALUE	20.0
L1 ALARM TRIP OPERATION	Lo alarm trip
L1 ALARM HYSTERESIS	1.0
L1 ALARM COIL AT ALARM	Coil energized
L2 ALARM VALUE	80.0 (2 point alarm) 30.0 (4 point alarm)
L2 ALARM TRIP OPERATION	Hi alarm trip (2 point alarm) Lo alarm trip (4 point alarm)
L2 ALARM HYSTERESIS	1.0
L2 ALARM COIL AT ALARM	Coil energized
L3 ALARM VALUE	70.0
L3 ALARM TRIP OPERATION	Hi alarm trip
L3 ALARM HYSTERESIS	1.0
L3 ALARM COIL AT ALARM	Coil energized
L4 ALARM VALUE	80.0
L4 ALARM TRIP OPERATION	Hi alarm trip
L4 ALARM HYSTERESIS	1.0
L4 ALARM COIL AT ALARM	Coil energized
POWER ON DELAY TIMER	5
ALARM ON DELAY TIMER	0
LATCHING	Invalid
LCD CONTRAST	50
LCD BACK LIGHT	Off Timer
LCD BACK LIGHT OFF TIME	10

RELATED PRODUCTS

• PC configurator software (model: M7CFG)
Downloadable at our web site.
A dedicated cable is required to connect the module to the PC. Please refer to the internet software download site or the users manual for the PC configurator for applicable cable types.

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 to power
Programming: Front buttons or PC software
Programmable parameters:
• Input range
• Input fine adjustments
• Moving average (None, 4, 8, 16 or 32 samples)
• Scale Range: -9999 to +9999
  Unit: User specific unit programmable.
  Decimal point position
• Alarm output (L1...L4 independently)
  Setpoint (scaled value)
  Trip action (Hi or Lo)
  Deadband (hysteresis) (scaled value)
  Relay coil (energized or de-energized)
• Power ON delay time (0 to 99 sec.)
• Alarm ON delay time (0 to 999 sec.)
• Latching or not
• LCD Contrast
  Back Light (On, Off, Off timer)
• Tag name
• Alarm test
Refer to the instruction manual for details.

LCD DISPLAY

Display functions: Displays and sets measured range, engineering unit, alarm operation
Effective visual area: Approx. 15.6 × 18.9 mm (0.61” × 0.74”)
Number of pixels: 68 × 95 (horizontal × vertical)
Character color: Black
Backlight: LED (orange in normal status, red when an alarm is tripped.)
Backlight life: Approx. 50 000 hours
(Expected time for the LCD brightness to be reduced by half when the LCD is used continuously in 50 % brightness in 25°C)
LCD type: Transreflective FSTN
Display range: -9999 to +9999
Decimal point position: Selectable
Display rate: 150 msec.

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INPUT SPECIFICATIONS

■ **DC Current**: Shunt resistor attached to the input terminals (0.5 W)
Operational range: 0 – 70 mA DC with 100 Ω, 0.5 W
Input range: 0 – 50 mA DC
Minimum span: 2 mA
Factory default setting: 4 – 20 mA DC
Offset: Lower range can be any specific value within the input range provided that the minimum span is maintained.

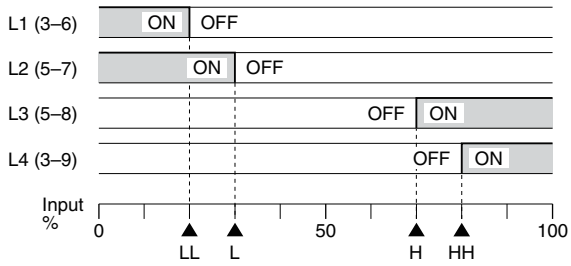
■ **DC VOLTAGE**
Code S1 (narrow spans)
Operational range: -1150 – +1150 mV DC
Input range: -1000 – +1000 mV DC
Minimum span: 10 mV
Factory default setting: 0 – 100 mV DC
Code S2 (wide spans)
Operational range: -11.5 – +11.5 V DC
Input range: -10 – +10 V DC
Minimum span: 0.1 V
Factory default setting: 1 – 5 V DC
Offset: Lower range can be any specific value within the input range provided that the minimum span is maintained.

OUTPUT SPECIFICATIONS

■ **Quad Alarm**
Relay rating: 100 V AC @ 1 A (cos ø = 1)
120 V AC @ 1 A (cos ø = 1)
240 V AC @ 0.5 A (cos ø = 1)
30 V DC @ 1 A (resistive load)
Maximum switching voltage: 250 V AC or 125 V DC
(Limited to the max. voltage 150 V AC or to the use for Measurement Category I in order to conform with EU Directive)
Maximum switching power: 120 VA or 30 W
Minimum load: 5 V DC @ 10 mA
Mechanical life: 5×10^7 cycles

■ **DUAL ALARM**
Relay rating: 100 V AC @ 4 A (cos ø = 1)
120 V AC @ 4 A (cos ø = 1)
240 V AC @ 2 A (cos ø = 1)
30 V DC @ 4 A (resistive load)
Maximum switching voltage: 250 V AC or 125 V DC
(Limited to the max. voltage 150 V AC or to the use for Measurement Category I in order to conform with EU Directive)
Maximum switching power: 480 VA or 150 W
Minimum load: 5 V DC @ 10 mA
Mechanical life: 5×10^7 cycles

Alarm Trip Operation Terminal No. in parentheses
• Example Quad N.O. contacts (LL, L, H, HH)



Trip operation in power failure
Output code 2 : All relays turn OFF.
Output code 3 : All relays turn ON.
Output code 5 : Terminals 3 – 9, 5 – 8 turn ON.

INSTALLATION

Power Consumption
•**AC**:
Approx. 4 VA at 100 V
Approx. 5 VA at 200 V
Approx. 6 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: 200 g (0.44 lb)

PERFORMANCE in percentage of FS input

Setpoint accuracy (trip point accuracy): ±(0.1 % of FS + 1 digit)
Display accuracy: ±(0.1 % of FS + 1 digit)
Temp. coefficient: ±0.015 %/°C (±0.008 %/°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 to power to ground)

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STANDARDS & APPROVALS

EU conformity:

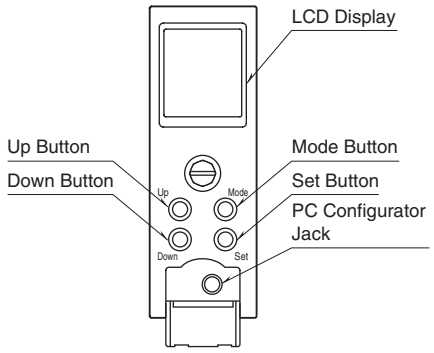
EMC Directive
- EMI EN 61000-6-4
- EMS EN 61000-6-2

Low Voltage Directive
- EN 61010-1
- Measurement Category II (output)
- Installation Category II (power)
- Pollution Degree 2
- Input or output to power: Reinforced insulation (300 V)
- Input to output: Basic insulation (300 V)
- (When 150 V AC max. load voltage or measurement category I, applicable as reinforced insulation)

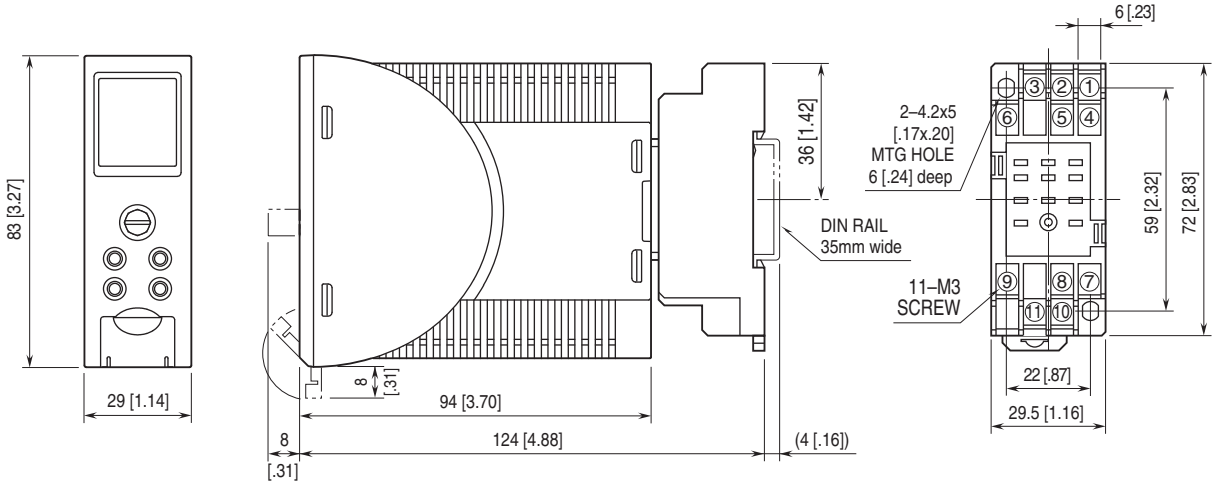
RoHS Directive

EXTERNAL VIEW

Refer to the instruction manual for the setting procedure.



EXTERNAL DIMENSIONS unit: mm [inch]

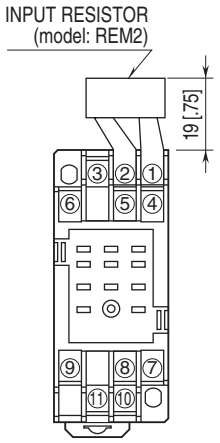


• When mounting, no extra space is needed between units.

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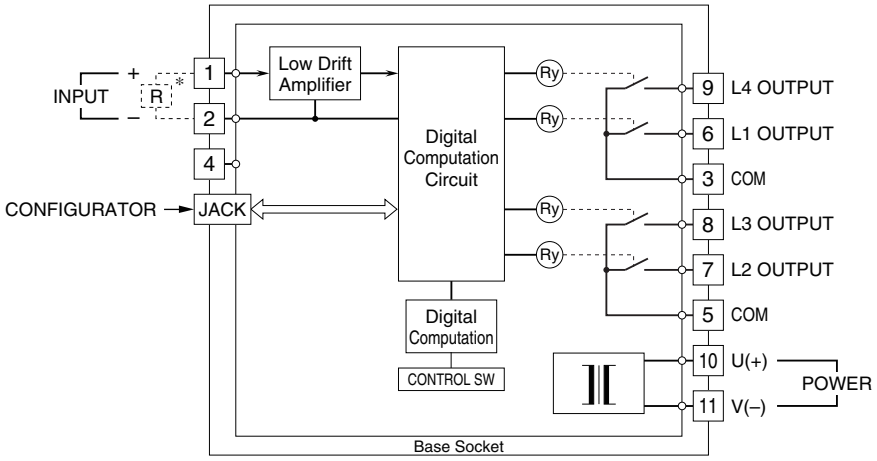
TERMINAL ASSIGNMENTS unit: mm [inch]

Input shunt resistor (model: REM2) attached for current input



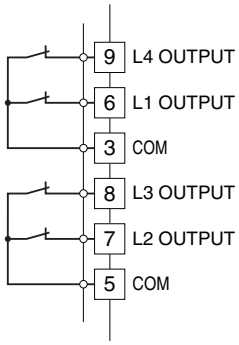
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

■ **OUTPUT CODE 2: N.O. Relay**

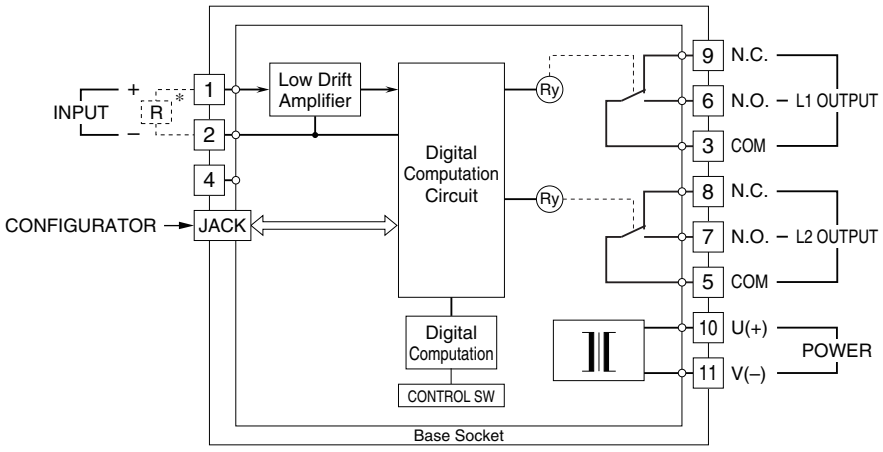


*Input shunt resistor attached for current input.

■ **OUTPUT CODE 3: N.C. Relay**



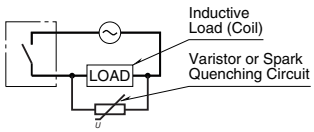
■ **OUTPUT CODE 5: SPDT Relay**



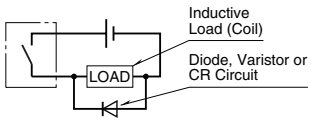
*Input shunt resistor attached for current input.

■ **Relay Protection**

• AC Powered



• DC Powered



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⚠ Specifications are subject to change without notice.

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