Plug-in Signal Conditioners M-UNIT

DC ALARM

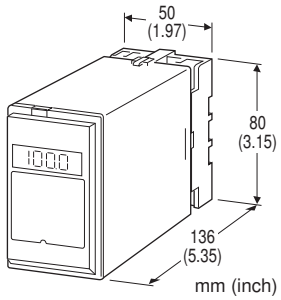
(front control button adjustment)

Functions & Features

- Providing SPDT relay outputs at preset DC input levels
- Dual trip
- Latching or non-latching output
- Deadband, ON-delay, Hi/Lo trip, failsafe action can be programmed with front UP/DOWN control buttons
- Enclosed relays
- High-density mounting

Typical Applications

- Annunciator
- Various alarm applications



MODEL: MSEF–[1]5–[2][3]

ORDERING INFORMATION

- Code number: MSEF-[1]5-[2][3]

Specify a code from below for each of [1] through [3].
(e.g. MSEF-65-F/UL/Q)

- Specify the specification for option code /Q
(e.g. /C01)

[1] INPUT

Current

A: 4 – 20 mA DC (Input resistance 250 Ω)
B: 2 – 10 mA DC (Input resistance 500 Ω)
C: 1 – 5 mA DC (Input resistance 1000 Ω)

Voltage

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.)

OUTPUT

5: Dual trip; SPDT or transfer contact

[2] POWER INPUT

AC Power

B: 100 V AC
C: 110 V AC
D: 115 V AC
F: 120 V AC
G: 200 V AC (Option /UL not selectable.)
H: 220 V AC (Option /UL not selectable.)
J: 240 V AC (Option /UL not selectable.)

DC Power

R: 24 V DC (Option /UL not selectable.)
S: 12 V DC (Option /UL not selectable.)

[3] OPTIONS (multiple selections)

Standards & Approvals

blank: CE marking
/UL: UL approval, 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 M-System's web site.)

/C01: Silicone coating
/C02: Polyurethane coating
/C03: Rubber coating (UL not available)

TERMINAL SCREW MATERIAL

/S01: Stainless steel (UL not available)

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
Latching output: Alternatively selectable to deadband option; reset with the power turned OFF.
Front LEDs: Red/green dual-color LED
Run mode: Red turns ON in tripped condition.
L1 for Output 1, L2 for Output 2
Check mode: Green turns ON.
Set mode: Red/green turns ON.
Display: LED, 4-digit digital meter
Display range: -14.0 to +113.5 %
Programming: Front key pad

- Trip point
- Hysteresis (deadband)
- Latching
- Trip operation (Hi/Lo, coil energized/de-energized)
- ON-delay time

• Power ON-delay time
(Refer to the instruction manual)

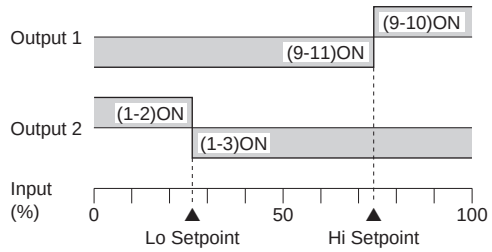
INPUT SPECIFICATIONS

■ **DC Current**:
Shunt resistor attached to the input terminals (0.5 W)

OUTPUT SPECIFICATIONS

■ **Relay Contact**: 100 V AC @ 5 A (cos ø = 1)
120 V AC @ 5 A (cos ø = 1)
240 V AC @ 2.5 A (cos ø = 1)
30 V DC @ 5 A (resistive load)
Maximum switching voltage: 300 V AC or 125 V DC
Maximum switching power: 600 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]
Output 1: High trip, coil energized at alarm
Output 2: Low trip, coil energized at alarm



Trip Operation in Power Failure: Terminals 1 –□ 3, 9 – 11 turn on.

INSTALLATION

Power input
•**AC**: Operational voltage range: rating ±10 %,
50/60 ±2 Hz, approx. 3 VA
•**DC**: Operational voltage range: rating ±10 %,
ripple 10 %p-p max., approx. 3 W (120 mA at 24 V)
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)

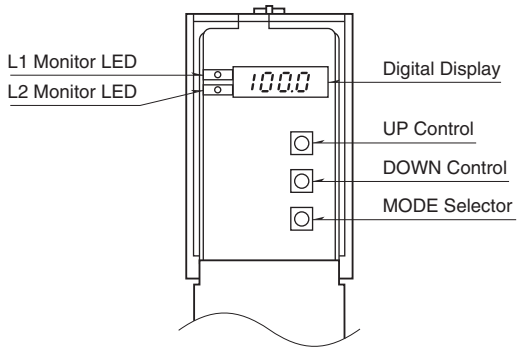
PERFORMANCE in percentage of span

Setpoint accuracy: ±0.5 %
Display accuracy: ±0.1 %
Deadband setpoint accuracy: ±0.3 %
Trip point repeatability: ±0.1 %
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)

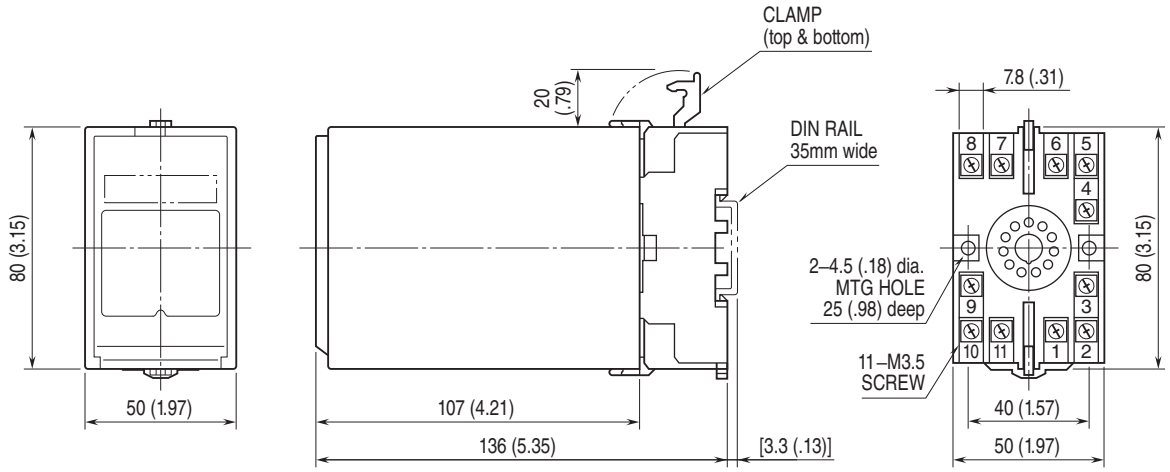
STANDARDS & APPROVALS

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
Approval:
UL/C-UL general safety requirements
(UL 3111-1, CAN/CSA-C22.2 No.1010-1)

EXTERNAL VIEW

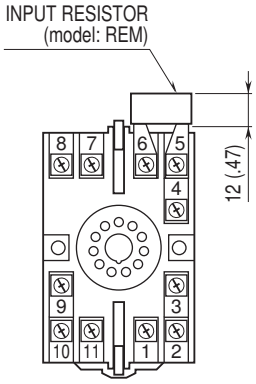


EXTERNAL DIMENSIONS unit: mm (inch)



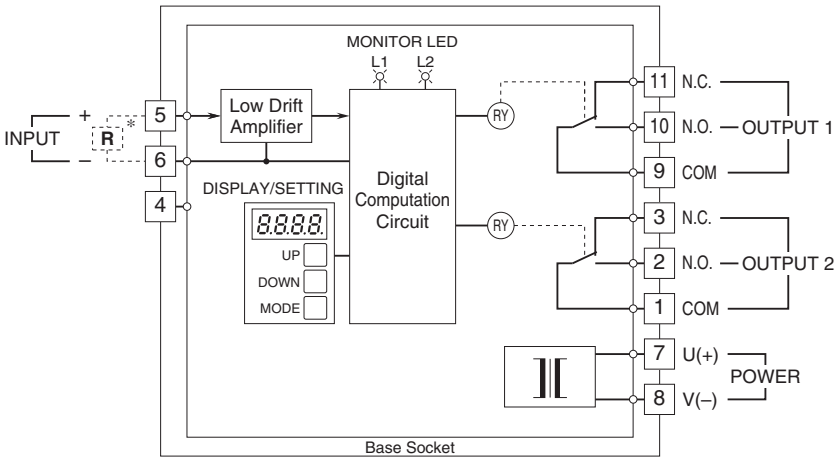
• When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm (inch)



Input shunt resistor attached
for current input.

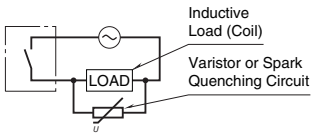
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



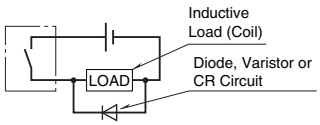
*Input shunt resistor attached for current input.

■ **Relay Protection**

• AC Powered



• DC Powered



⚠ Specifications are subject to change without notice.