

Super-mini Signal Conditioners with LCD Display M7E-UNIT

TWO-WIRE TRANSMITTER ALARM
(dual or quad alarm trip)

MODEL M7EASDY

MODEL & SUFFIX CODE SELECTION

M7EASDY-□-R□

MODEL _____
INPUT _____
 4 – 20mA DC
 (Selectable within 0 – 20mA DC)
OUTPUT _____
 2 : 4 points; N.O. or make contact
 3 : 4 points; N.C. or break contact
 5 : 2 points; SPDT or transfer contact
POWER INPUT _____
 R : 24V DC
OPTIONS _____
 /CE: CE marking

ORDERING INFORMATION

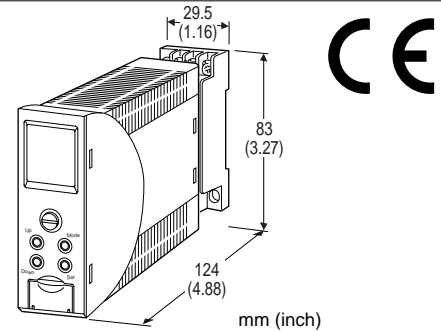
Specify code number. (e.g. M7EASDY-2-R/CE)

RELATED PRODUCTS

- PC configurator software (model: M7CFG)
 Downloadable at M-System's web site:
<http://www.m-system.co.jp>
- PC configurator cable (model: MCN-CON)

GENERAL SPECIFICATIONS

Construction: Plug-in
Connection: M3 screw terminals (torque 0.8 N·m)
Housing material: Flame-resistant resin (black)
Isolation: Input to output to power
Programming: Front control 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
 Linearization (linear, square root, user table: 128 points)
 Alarm output (L1...L4 independently)
 Setpoint (scaled value)
 Trip action (Hi or Lo)
 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



Functions & Features

- Provides relay outputs at preset DC input levels
- Quad or dual trip
- Powers a 4 – 20mA DC current loop
- Shortcircuit protection
- Applicable to smart transmitters
- Linearization or square root extraction programmable
- 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
- On-delay timer
- Hi/Lo trip and energized/de-energized coil independently selectable for each setpoint
- High-density mounting on DIN rail

Typical Applications

- Annunciator
- Various alarm applications

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*
Range: -9999 to +9999
Decimal point position: Selectable
Display rate: 150 milliseconds
LCD type: Transreflective FSTN
 *Expected time for the LCD brightness to be reduced by half when the LCD is used continuously in 50% brightness in 25°C.

TWO-WIRE TRANSMITTER INPUT

■SUPPLY OUTPUT (across the terminals 1 – 2)

Output voltage: 24 – 28V DC with no load
19V DC maximum at 20mA

Current rating: 22mA DC maximum

Permissible load resistance:

$$LR (\Omega) \leq (19 - \text{Min. Operational Voltage})V / 0.02A$$

•Shortcircuit Protection

Current limited: 26 – 35mA

Protected time duration: No limit

■INPUT: 250Ω resistor incorporated (0.25W)

Maximum range: 0 – 20mA DC

Ex-factory setting: 4 – 20mA DC

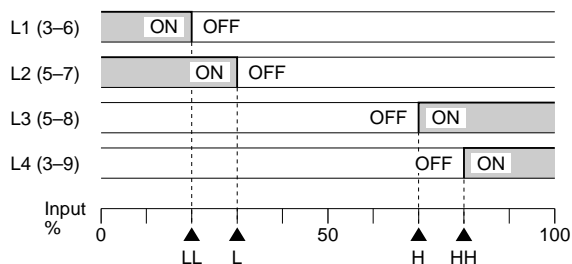
Minimum span: 2mA

Offset: Lower range can be any specific value within the maximum range provided that the minimum span is maintained.

OUTPUT

Alarm Trip Operation

Example with quad N.O. contacts (LL, L, H, HH);
Terminal No. in parentheses



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.

■QUAD ALARM

Relay rating: 120V AC @1A (cosφ=1)

240V AC @0.5A (cosφ=1)

30V DC @1A (resistive load)

electrical life 10⁵ cycles (rate 30/min.)

Maximum switching voltage: 250V AC* or 125V DC

Maximum switching power: 120VA or 30W

Minimum load: 5V DC @10mA

Mechanical life: 5 × 10⁷ cycles

■DUAL ALARM

Relay rating: 120V AC @4A (cosφ=1)

240V AC @2A (cosφ=1)

30V DC @4A (resistive load)

electrical life 10⁵ cycles (rate 30/min.)

Maximum switching voltage: 250V AC* or 125V DC

Maximum switching power: 480VA or 150W

Minimum load: 5V DC @10mA

Mechanical life: 5 × 10⁷ cycles

*Limited to the max. voltage 125V AC or to the use for Over Voltage Category I in order to conform with EC Directive.

LINEARIZATION

■LINEARIZATION TYPES

Linear: No linearization

Square root: The input is square root extracted.

User table

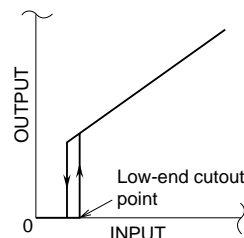
Calibration points: Max. 128 points; the input % and linearized value in scaling are specified in pairs.

Selectable range: -7.5 to +107.5% as input %;
-9999 to +9999 as linearized values

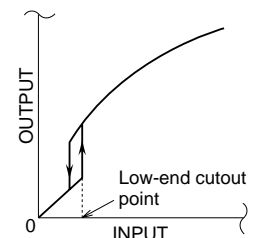
■LOW-END CUTOFF: Low-end cutout (Low Cut)

point selectable within the range of 0 to 100%. With the linear or user table output type, the output signal is forcibly set to 0% for the input lower than the low-cut point. With the square root extraction, the output signal is linear to the input when the latter is lower than the low-cut point.

• Linear or User Table



• Square Root



INSTALLATION

Power input: Operational voltage range 24V DC ±10%;
approx. 3W; ripple 10% p-p max.

Operating temperature: -5 to +55°C (23 to 131°F)

Operating humidity: 30 to 90% RH (non-condensing)

Mounting: Surface or DIN rail

Dimensions: W29.5×H83×D124 mm (1.16"×3.27"×4.88")

Weight: 200 g (0.44 lbs)

PERFORMANCE in percentage of FS input

Setpoint accuracy (trip point accuracy):

$\pm(0.1\% \text{ of FS} + 1 \text{ digit})$ (gain ≤ 1)

$\pm(0.1\% \times \text{gain of FS} + 1 \text{ digit})$ (gain > 1)

Display accuracy: $\pm(0.1\% \text{ of FS} + 1 \text{ digit})$

Temp. coefficient: $\pm 0.015\%/^{\circ}\text{C}$ ($\pm 0.008\%/^{\circ}\text{F}$)

Response time: ≤ 0.5 seconds (0 – 100% at 90% setpoint)

Line voltage effect: $\pm 0.1\%$ over voltage range

Insulation resistance: $\geq 100\text{M}\Omega$ with 500V DC

Dielectric strength: 2000V AC @1 minute

(input to output to power to ground)

STANDARDS & APPROVALS

CE conformity: EMC Directive (89/336/EEC)

EMI EN61000-6-4

EMS EN61000-6-2

Low Voltage Directive (2006/95/EC)

EN61010-1

Installation category II

Pollution degree 2

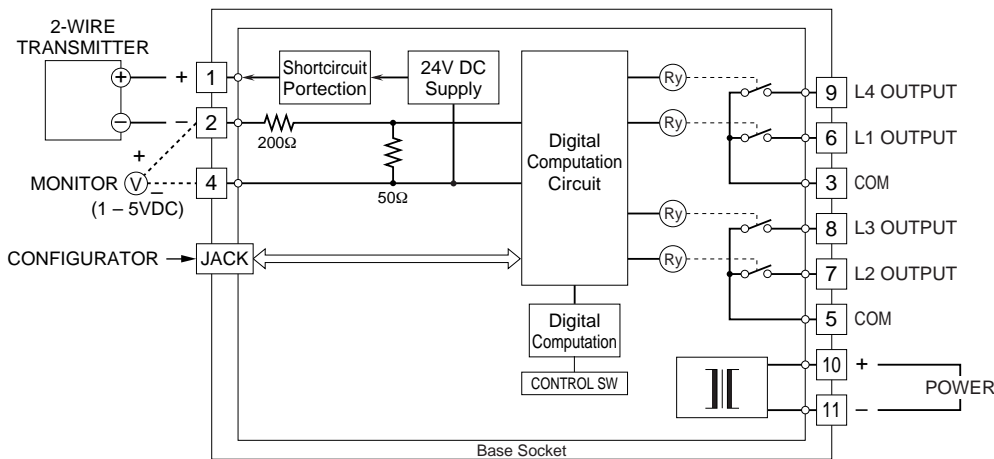
Max. operating voltage 300V

Input or output to power – Reinforced insulation

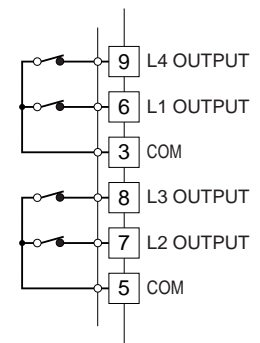
Input to output – Basic insulation

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

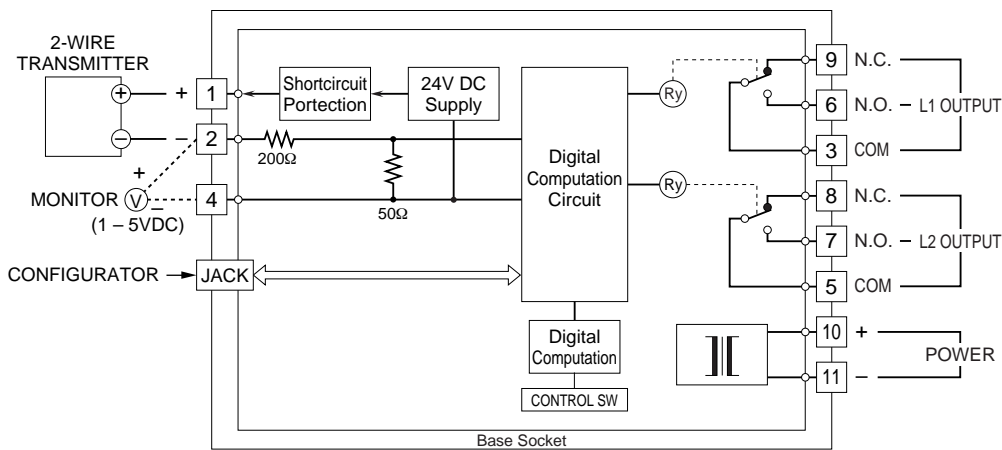
OUTPUT CODE 2: N.O. Relay



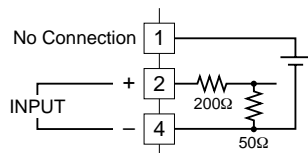
OUTPUT CODE 3: N.C. Relay



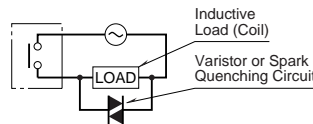
OUTPUT CODE 5: SPDT Relay



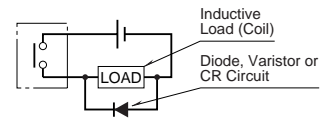
When 24V DC is Not Used



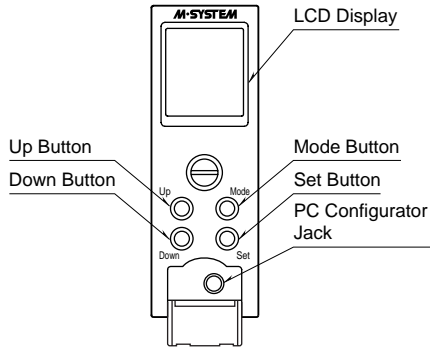
Relay Protection •AC Powered



•DC Powered



FRONT PANEL CONFIGURATION



PROGRAMMING

Two ways of configuring the M7EASDY are available:

1. PC CONFIGURATION

Windows compatible PC Configurator Software (model: M7CFG) is available. For detailed information, please refer to the users manual for the M7CFG.

2. FRONT CONTROL BUTTONS

■ BASIC OPERATION

The M7EASDY has four control buttons equipped on the front panel. Using these buttons, various parameters can be programmed. For detailed information, please refer to the instruction manual for the M7EASDY.

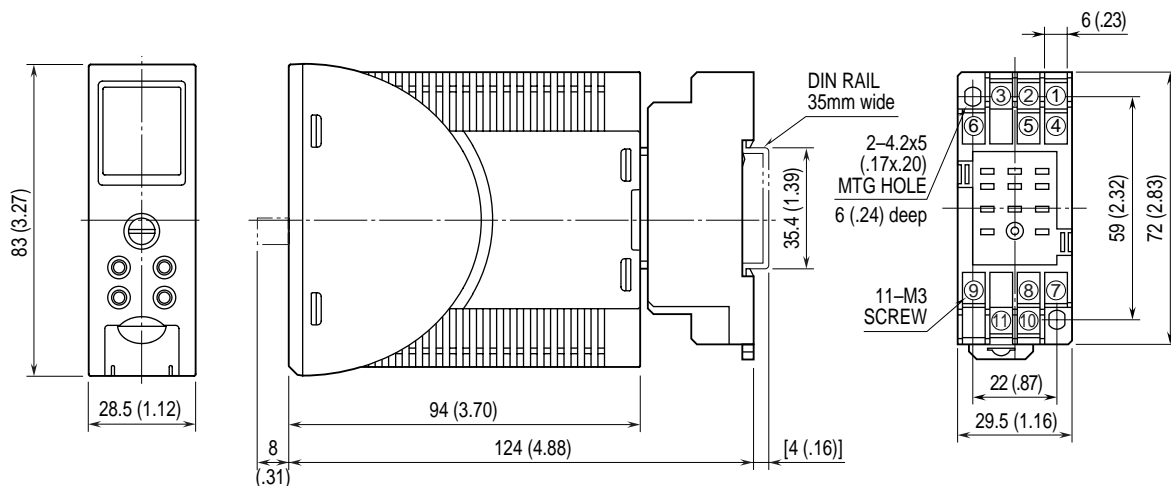
Functions of each button are as follows:

- MODE:** Used to turn the module to the Set Up Mode or to move from one parameter to another. Whenever the MODE button is pressed, the relevant setting is saved. Press the MODE button at least for 2 seconds to turn the module into 'Programmable' mode. The module returns to the Monitor Mode when the MODE button is pressed for at least 2 seconds.
- SET:** Used to enable a selected command or selection/value and to shift the cursor position to a next line.
- UP:** Used to shift the cursor position to a next selection or to increase a displayed value.
- DOWN:** Used to shift the cursor position to a previous selection or to decrease a displayed value.

■ FLOWCHART

See Figure 1.

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS mm (inch)



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

Figure 1

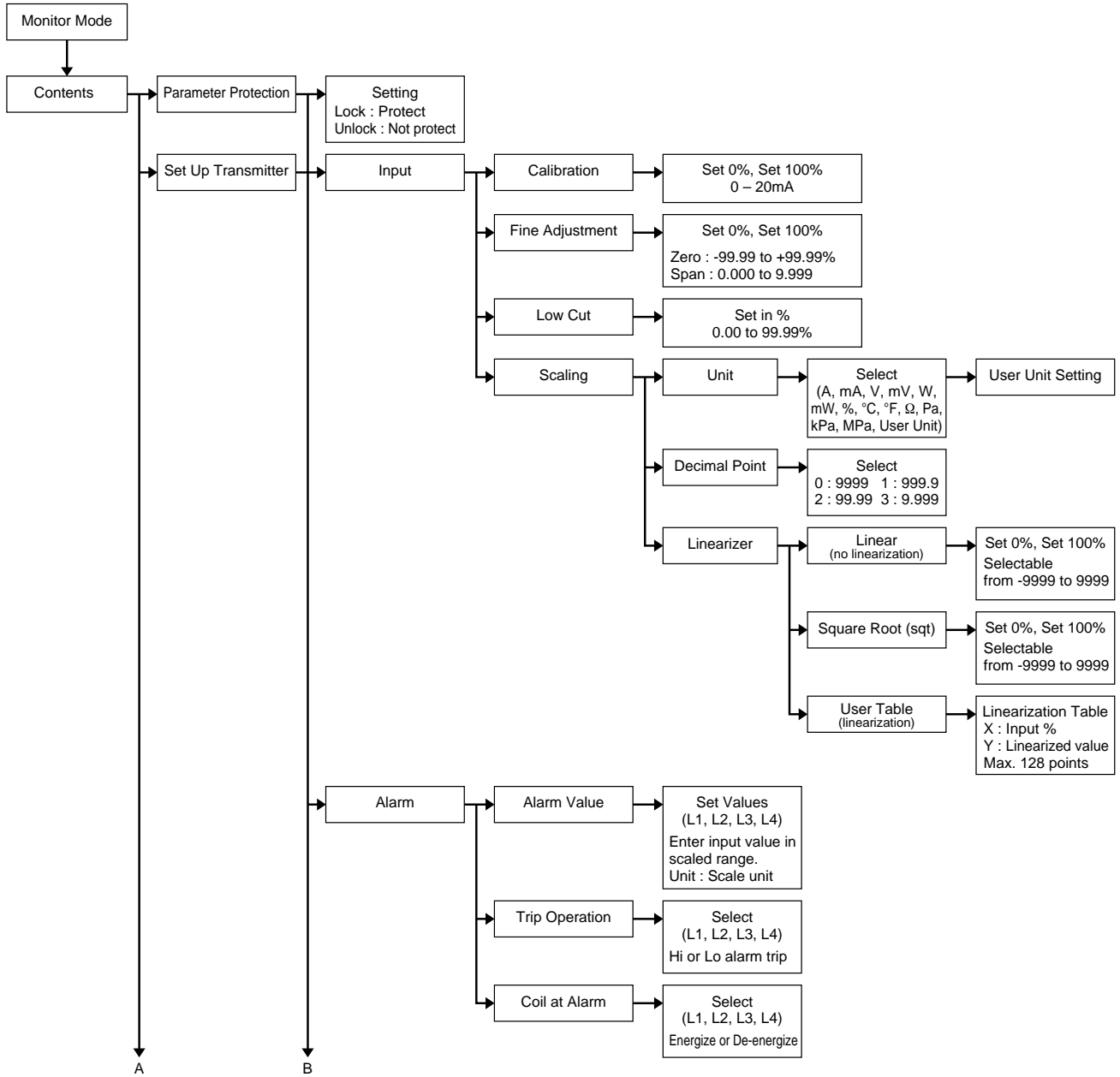


Figure 1 (continued)

