

Plug-in Signal Conditioners M-UNIT

DELAY BUFFER

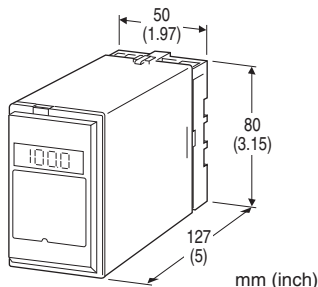
(non-isolated)

Functions & Features

- Generating a first order lag output in accordance with the preset time constant
- Time constant adjustable up to 20 seconds
- LCD meter (engineering unit display selectable)
- Simple loop test output (0 % and 100 %)
- High-density mounting

Typical Applications

- Smoothing pulsating signals
- Stabilizing indicator value of dust chambers



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

ORDERING INFORMATION

- Code number: CD-[1][2]-[3][4]
- Specify a code from below for each of [1] through [4].
(e.g. CD-6A-B/E2/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 μ A DC (Input resistance 1000 Ω)
 K: 0 – 100 μ A 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 k Ω min.)
 15: 0 – 50 mV DC (Input resistance 10 k Ω min.)
 16: 0 – 60 mV DC (Input resistance 10 k Ω min.)
 2: 0 – 100 mV DC (Input resistance 100 k Ω min.)
 3: 0 – 1 V DC (Input resistance 1 M Ω min.)
 4: 0 – 10 V DC (Input resistance 1 M Ω min.)
 5: 0 – 5 V DC (Input resistance 1 M Ω min.)
 6: 1 – 5 V DC (Input resistance 1 M Ω min.)
 4W: -10 – +10 V DC (Input resistance 1 M Ω min.)
 5W: -5 – +5 V DC (Input resistance 1 M Ω min.)
 0: Specify voltage (See INPUT SPECIFICATIONS)

[2] OUTPUT

Current

- A: 4 – 20 mA DC (Load resistance 750 Ω max.)
 B: 2 – 10 mA DC (Load resistance 1500 Ω max.)
 C: 1 – 5 mA DC (Load resistance 3000 Ω max.)
 D: 0 – 20 mA DC (Load resistance 750 Ω max.)
 E: 0 – 16 mA DC (Load resistance 900 Ω max.)
 F: 0 – 10 mA DC (Load resistance 1500 Ω max.)
 G: 0 – 1 mA DC (Load resistance 15 k Ω max.)
 Z: Specify current (See OUTPUT SPECIFICATIONS)

Voltage

- 1: 0 – 10 mV DC (Load resistance 10 k Ω min.)
 2: 0 – 100 mV DC (Load resistance 100 k Ω min.)
 3: 0 – 1 V DC (Load resistance 100 Ω min.)
 4: 0 – 10 V DC (Load resistance 1000 Ω min.)
 5: 0 – 5 V DC (Load resistance 500 Ω min.)
 6: 1 – 5 V DC (Load resistance 500 Ω min.)
 4W: -10 – +10 V DC (Load resistance 2000 Ω min.)
 5W: -5 – +5 V DC (Load resistance 1000 Ω min.)
 0: Specify voltage (See OUTPUT SPECIFICATIONS)

[3] POWER INPUT

AC Power

- B: 100 V AC
 C: 110 V AC
 D: 115 V AC
 F: 120 V AC
 G: 200 V AC
 H: 220 V AC
 J: 240 V AC

DC Power

- S: 12 V DC
 R: 24 V DC
 V: 48 V DC
 P: 110 V DC (Not selectable with Option /E2.)

[4] OPTIONS (multiple selections)**LCD Meter (After the first order lag filter)****blank:** Without**/E:** With (0.0 – 100.0 %)**/E2:** With (in engineering unit with backlight and the simple loop test output)**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**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 or output to power**Time constant adjustment:** 270°-turn screwdriver adjustment (front)**Adjustable range:** Approx. 0.5 to 20 sec.

(0 to approx. 63.2 %)

(factory set to MIN.)

Overrange output: Approx. -10 to +120 % at 1 – 5 V**Zero adjustment:** -5 to +5 % (front)**Span adjustment:** 95 to 105 % (front)**Simple loop test output:** 0 % and 100 % signal simulated by selecting the front switch positions. (Only for option code /E2)**■ DISPLAY (LCD meter)**

• Option code: /E

LCD digital display: 0.0 - 100.0 % (min. digit 0.1 %)
(No scaling)

• Option code: /E2

LCD digital display: Engineering unit

Display scaling: -10000 – +10000**Decimal position:** 10^{-1} - 10^{-4} or no decimal point**Engineering unit:** %, μ V, mV, V, mA, A, °C, °F, Ω , DEG K, mHz, Hz, kHz, VAC, AAC, mg, g, kg, t, rpm or rps selectable**Back light:** Green at normal, red at loop test output enable**Factory setting:** scaling 0.00 - 100.00, unit: %**INPUT SPECIFICATIONS****■ DC Current:**

Shunt resistor attached to the input terminals (0.5 W)

Specify input resistance value for code Z.

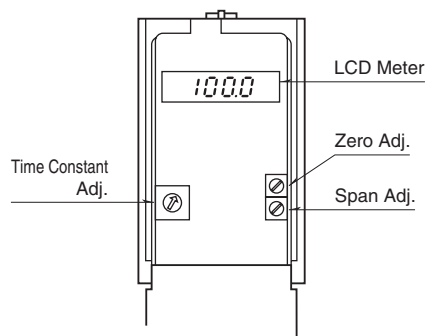
■ DC Voltage: -300 – +300 V DC**Minimum span:** 3 mV**Offset:** Max. 1.5 times span**Input resistance**Span 3 – 10 mV : $\geq 10\text{ k}\Omega$ Span 10 – 100 mV : $\geq 10\text{ k}\Omega$ Span 0.1 – 1 V : $\geq 100\text{ k}\Omega$ Span $\geq 1\text{ V}$: $\geq 1\text{ M}\Omega$ **OUTPUT SPECIFICATIONS****■ DC Current:** 0 – 20 mA DC**Minimum span:** 1 mA**Offset:** Max. 1.5 times span**Load resistance:** Output drive 15 V max.**■ DC Voltage:** -10 – +12 V DC**Minimum span:** 5 mV**Offset:** Max. 1.5 times span**Load resistance:** Output drive 10 mA max.; 5 mA for negative voltage output; at $\geq 0.5\text{ V}$ **INSTALLATION****Power input**• **AC:** Operational voltage range: rating $\pm 10\%$, 50/60 ± 2 Hz, approx. 2 VA

(approx. 3 VA with Option /E2)

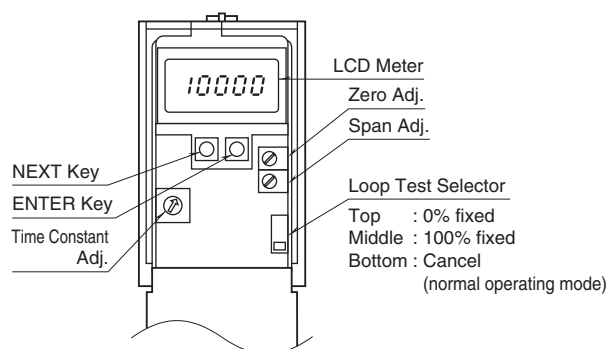
• **DC:** Operational voltage range: rating $\pm 10\%$, or 85 – 150 V for 110 V rating (ripple 10 % p-p max.) approx. 2 W (90 mA at 24 V; approx. 3 W with Option /E2)**Operating temperature:** -5 to +60°C (23 to 140°F)**Operating humidity:** 30 to 90 %RH (non-condensing)**Mounting:** Surface or DIN rail**Weight:** 300 g (0.66 lb)**PERFORMANCE in percentage of span****Accuracy:** $\pm 0.2\%$ **Display accuracy:** $\pm (0.2\% \text{ of FS} + 1 \text{ digit})$ **Simple loop test output setting accuracy:** $\pm 0.5\%$ **Temp. coefficient:** $\pm 0.015\% / ^\circ\text{C}$ ($\pm 0.008\% / ^\circ\text{F}$)**Line voltage effect:** $\pm 0.1\%$ over voltage range**Insulation resistance:** $\geq 100\text{ M}\Omega$ with 500 V DC**Dielectric strength:** 2000 V AC @1 minute (input or output to power to ground)

EXTERNAL VIEW

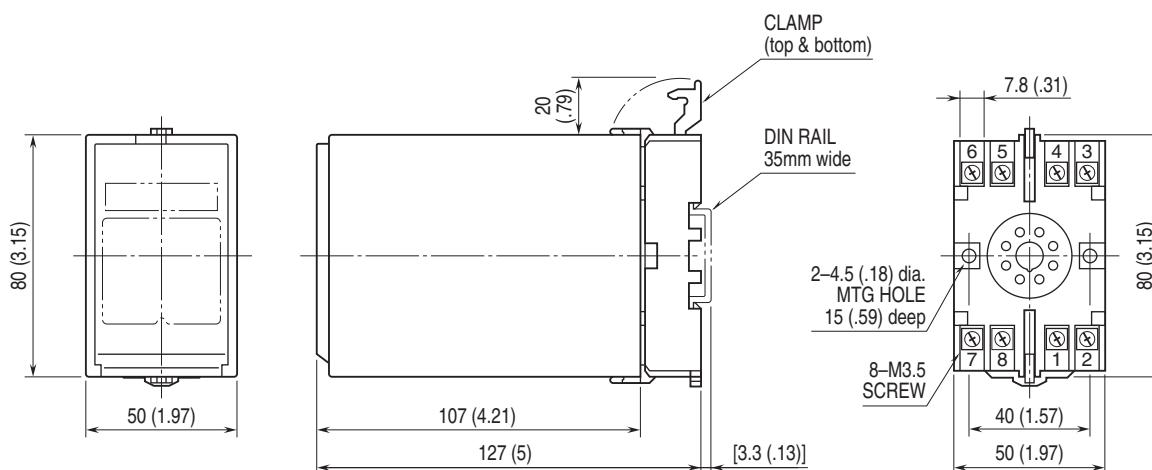
■ OPTION /E



■ OPTION /E2

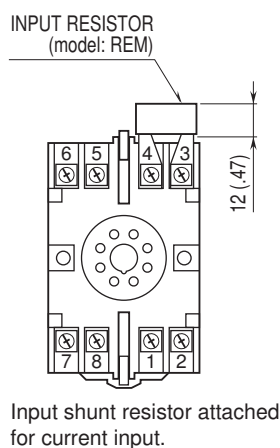


EXTERNAL DIMENSIONS unit: mm (inch)

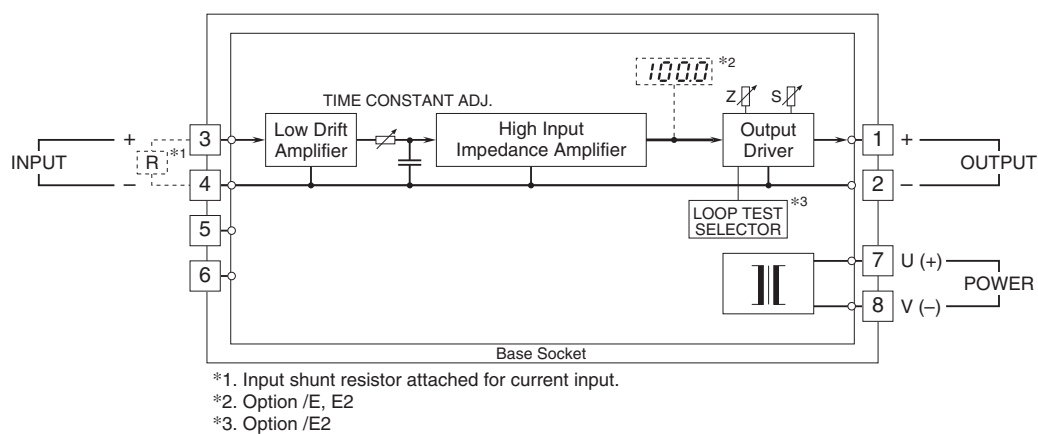


• When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm (inch)



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.