

BEFORE USE

Thank you for choosing M-System. Before use, check the contents of the package you received as outlined below. If you have any problems or questions with the product, please contact M-System's Sales Office or representatives.

PACKAGE INCLUDES:

Bargraph indicator (incl. scale plate) (1)

MODEL NO.

Confirm that the model number described on the product is exactly what you ordered.

INSTRUCTION MANUAL

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures.

POINTS OF CAUTION

CONFORMITY WITH EC DIRECTIVES

The actual installation environments such as panel configurations, connected devices, connected wires, may affect the protection level of this unit when it is integrated in a panel system. The user may have to review the CE requirements in regard to the whole system and employ additional protective measures to ensure the CE conformity.

POWER INPUT RATING & OPERATIONAL RANGE

- Locate the power input rating marked on the product and confirm its operational range as indicated below:
 5 V DC: rating $\pm 10\%$, 0.8 W or less
 24 V DC: rating $\pm 15\%$, 1.0 W or less

REMOVING THE UNIT

Before you remove the unit or mount it, turn off the power supply and input signal for safety.

ENVIRONMENT

- Indoor use
- When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.
- Do not install the unit where it is subjected to continuous vibration. Do not apply physical impact to the unit.
- Environmental temperature must be within -5 to $+55^{\circ}\text{C}$ (23 to 131°F) with relative humidity within 10 to 90% RH in order to ensure adequate life span and operation.
- When mounting vertically, leave 3 cm or more of space above and below the unit, 1 cm or more space to right and left the unit, when mounting horizontally, leave 3 cm or more of space above and below the unit, 2.5 cm or more of space to left and right of the unit for heat dissipation.

WIRING

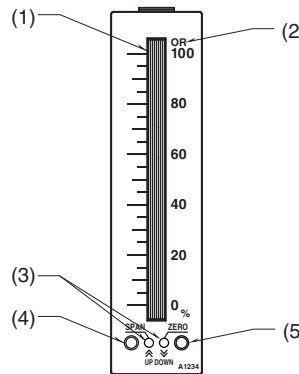
- Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.

AND

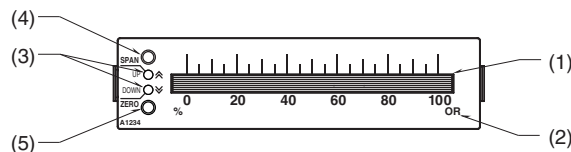
- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

COMPONENT IDENTIFICATION

VERTICAL MOUNTING

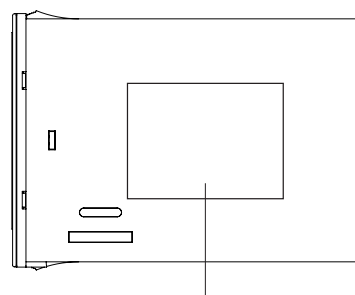


HORIZONTAL MOUNTING



- (1) Bargraph indicator
- (2) Over-range display (Input exceeds 100%)
- (3) Adjustment button
- (4) Span adj. indicator LED
- (5) Zero adj. indicator LED

SIDE VIEW (VERTICAL MOUNTING)



Specifications (On the top for horizontal mounting)

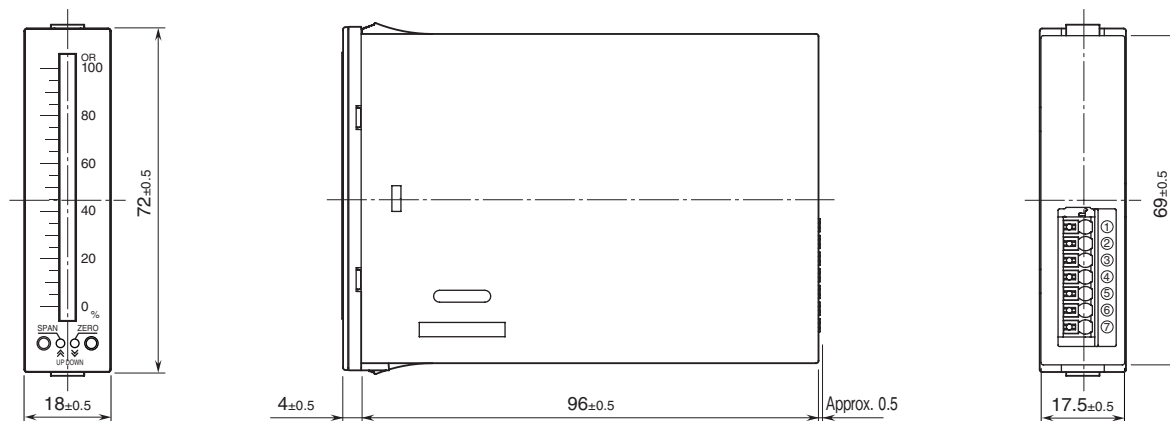
DISPLAY

- 55-segment bargraph LEDs are mounted on the unit.
- At the default setting, the bargraph's third segment indicates 0% and 53rd segment indicates 100%.
- When overrange occurs, the first segment turns on with input less than 0%, the 55th segment turns on with input exceeding 100%. The 2nd and 54th segments do not turn on.
- Zero/Span adjustment can be performed within 3rd to 53rd segments, and is not available for overrange displays.

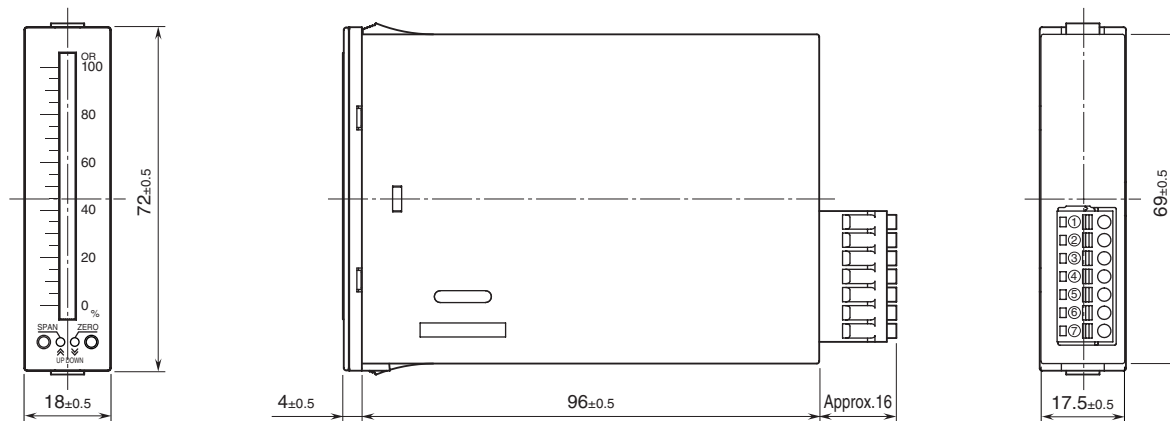
INSTALLATION

■ EXTERNAL DIMENSIONS unit: mm

■ SCREWLESS SPRING TERMINAL



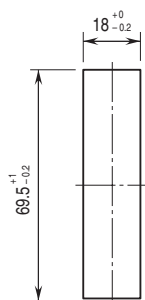
■ SEPARABLE SCREWLESS SPRING TERMINAL



■ PANEL CUTOUT unit: mm

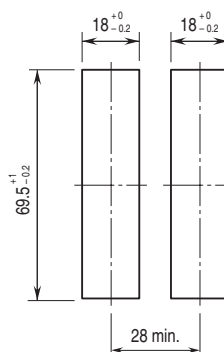
• VERTICAL MOUNTING

· Single Mounting



Panel thickness: 0.5 - 2.0

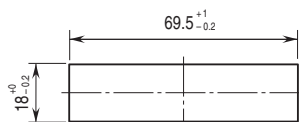
· Clustered Mounting



Panel thickness: 0.5 - 2.0

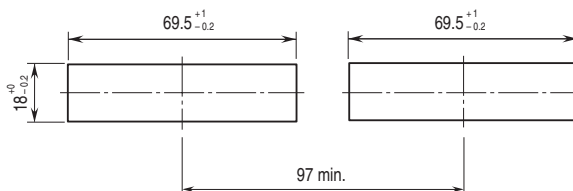
• HORIZONTAL MOUNTING

· Single Mounting



Panel thickness: 0.5 - 2.0

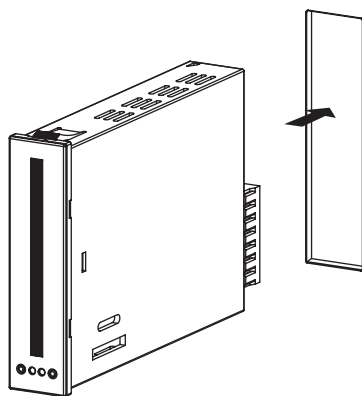
· Clustered Mounting



Panel thickness: 0.5 - 2.0

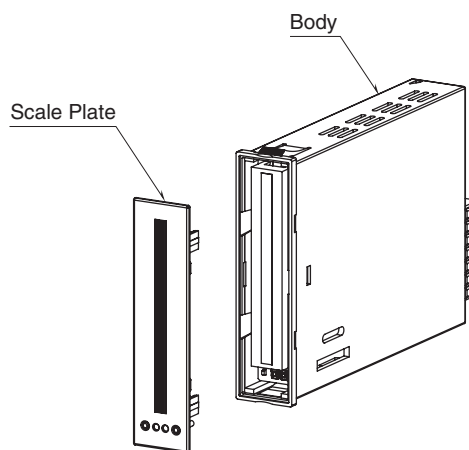
- Note 1. When mounting vertically, leave 3 cm or more of space above and below the unit.
1 cm or more of space to right and left of the unit.
- Note 2. When mounting horizontally, leave 3 cm or more of space above and below the unit.
2.5 cm or more of space to left and right of the unit.

■ HOW TO MOUNT THE UNIT ON A PANEL



Just insert the meter body

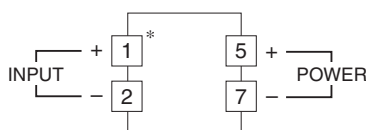
■ HOW TO REPLACE THE SCALE PLATE



- Push the scale plate into the unit when replacing the scale plate
- The scale plate can be easily removed by pulling with one hand.

TERMINAL CONNECTIONS

Refer to the connection diagram below.

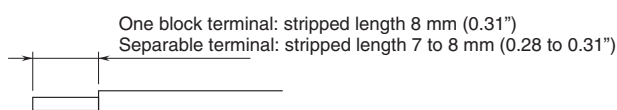


* Input shunt resistor incorporated for current input.

WIRING INSTRUCTIONS

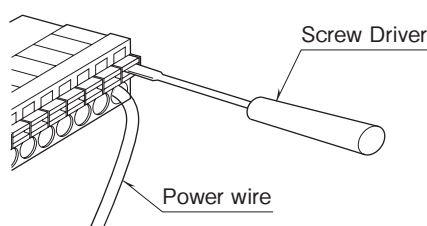
- **One block terminal:** Screwless spring terminal
Applicable wire size 0.13 to 1.5 mm²,
stripped length 8 mm (0.31")
- **Separable terminal:** Separable screwless spring terminal
Applicable wire size 0.5 to 1.5 mm²,
stripped length 7 to 8 mm (0.28 to 0.31")

Refer to the drawing below for wire conductor.



CONNECTION PROCEDURE

Insert the wire end until it comes to a full stop while pushing slot with the tip of a screw driver as shown below. Be sure wire insulation is not inside the terminal.



CALIBRATION

This unit is adjusted at the factory to meet the ordered specifications, therefore you usually do not need any calibration. For matching the indication to a receiving instrument or in case of regular checking, adjust the output as explained in the following.

For adjustment, push the button with a stick (1 to 1.5 mm dia.).

ZERO ADJUSTMENT

Zero adjustment accuracy range is -10 to +10%.

- 1) Hold down [DOWN] button at least for 3 seconds to enable zero adjustment. Zero LED (green) turns on.
- 2) Set the output of a signal source to 0% value. Press [UP] or [DOWN] buttons until the bar graph shows 0% point. Adjustment value increases with [UP] button, decreases with [DOWN] button. When no operation time passes over 60 sec. or more, zero adjustment is cleared and it returns to normal mode.
- 3) Keep pressing [UP] or [DOWN] buttons at least for 3 seconds to return to normal mode. Zero LED turns off.

SPAN ADJUSTMENT

Span adjustment accuracy range is 90 to 110%.

- 1) Hold down [UP] button at least for 3 seconds to enable span adjustment. Span LED (green) turns on.
- 2) Set the output of a signal source to 100% value. Press [UP] or [DOWN] buttons until the bar graph shows 100% point. Adjustment value increases with [UP] button, decreases with [DOWN] button. When no operation time passes over 60 sec. or more, zero adjustment is cleared and it returns to normal mode.
- 3) Keep pressing [UP] or [DOWN] buttons at least for 3 seconds to return to normal mode. Span LED turns off.

RETURNING TO FACTORY DEFAULT ADJUSTMENT DATA

Keep pressing [UP] and [DOWN] buttons at once for 3 seconds or more to return to factory default adjustment data.

MAINTENANCE

Regular checking procedure is explained below:

CHECKING

Warm up the unit for at least 10 minutes. Apply 0%, 25%, 50%, 75% and 100% input signal. Check that the output indication for the respective input signal remains within the range of accuracy described in the data sheet.