

BARGRAPH INDICATING ALARM
(with 4-digit digital meter)

MODEL **48DV**

BEFORE USE

Thank you for choosing us. Before use, check the contents of package you received as outlined below. If you have any problems or questions on the product, please contact our sales office or representatives.

■ **PACKAGE INCLUDES:**

- Bargraph indicating alarm (1)
- Instruction manual (1)

■ **MODEL NO.**

Check that model No. described on the specification label is exactly what you ordered.

■ **INSTRUCTION MANUAL**

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

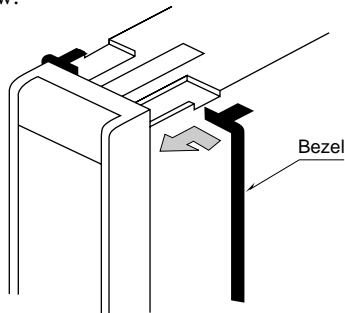
POINTS OF CAUTION

■ **POWER INPUT RATINGS**

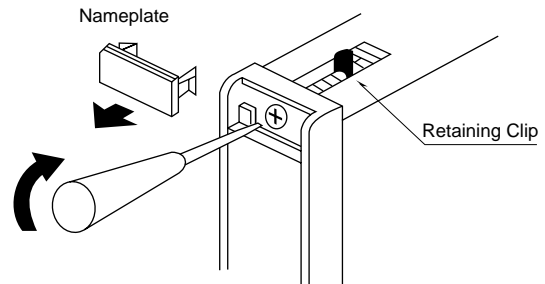
- Operational range & power consumption: Check the power rating for the unit on the specification label.
 - Rating 85 – 132V AC: 85 – 132V, 47 – 63 Hz, approx. 7VA
 - Rating 170 – 264V AC: 170 – 264V, 47 – 63 Hz, approx. 7VA
 - Rating 24V DC: 24V ±15%, approx. 6W

■ **INSTALLATION**

- A bezel is provided in the pocket inside the package. Push the bezel in behind the front side of the unit as illustrated below.



- When installing the meter into a panel, first remove the nameplates at the top and bottom of the front panel. Turn the screws behind these nameplates clockwise until the retaining clips come up and are fixed. Turning the screws counterclockwise loosen the retaining clips.



- The acrylic front cover and scaleplate can be removed when you remove the nameplates.

■ **ENVIRONMENT**

- Indoor use
- When heavy dust or metal particles are present in the air, install the unit inside proper housing and ventilate it.
- 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 0 to 50°C (32 to 122°F) with relative humidity within 40 to 80% RH in order to ensure adequate life span and operation.
- Be sure that the ventilation slits are not covered with cables, etc. Leave at least 5 cm (2 in.) both at the top and bottom of the unit.

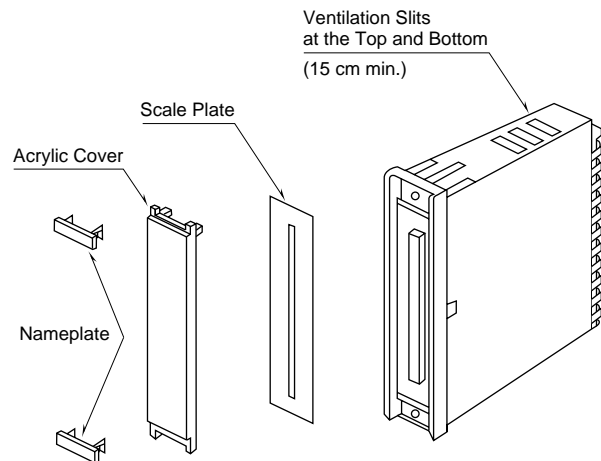
■ **WIRING**

- Do not install cables (power supply, input and output) 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**

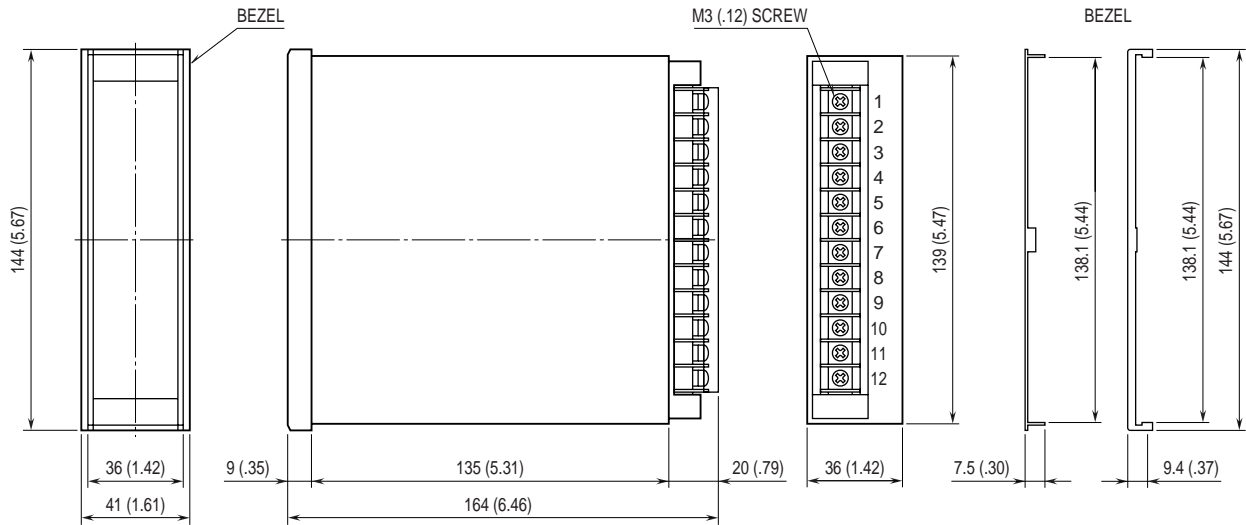
- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

COMPONENT IDENTIFICATION



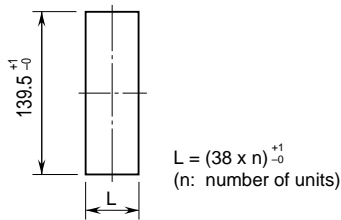
INSTALLATION mm (inch)

EXTERNAL DIMENSIONS



PANEL CUTOUT

Panel thickness: 1.6 – 5.5 mm

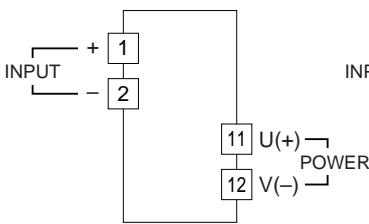


- Note 1. A bezel is required between units for high-density mounting.
- Note 2. Observe at the minimum of 5 cm above and below the units for heat dissipation.

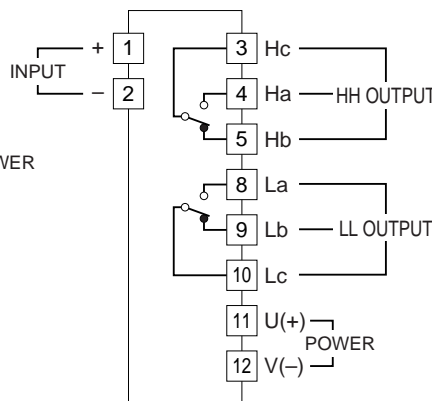
TERMINAL CONNECTIONS

Refer to the connection diagrams below.

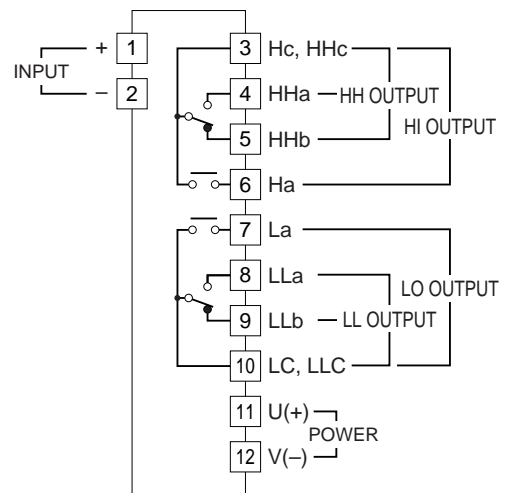
48DV-0



48DV-2

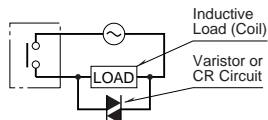


48DV-4

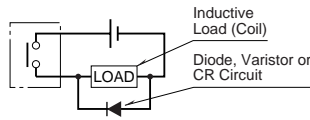


Relay Protection

AC Powered

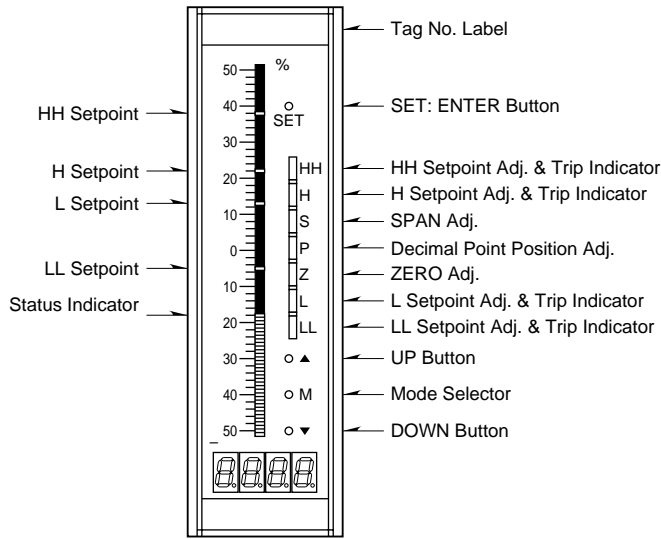


DC Powered



FRONT PANEL CONFIGURATION

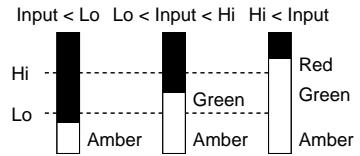
■48DV-2, 48DV-4



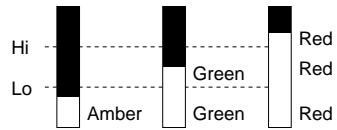
HH and LL Setpoint Adj. are deleted with model 48DV-2.

•Multi-Color Indication

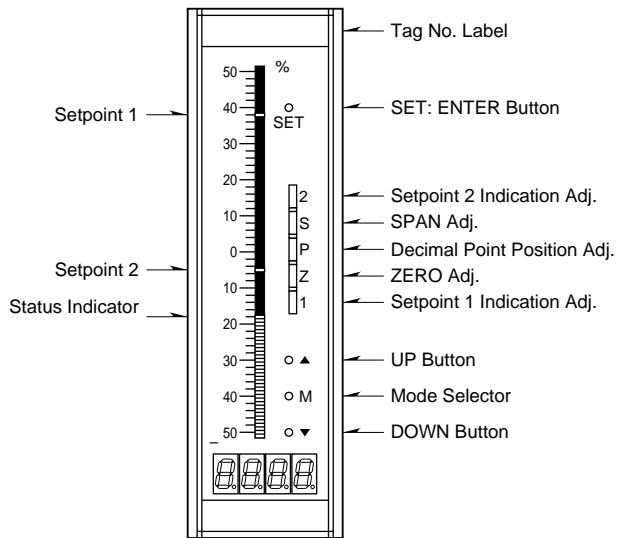
Pattern 1



Pattern 2



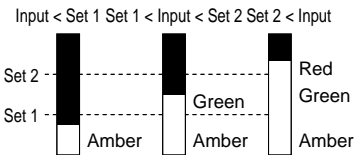
■48DV-0



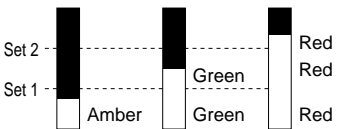
Setpoint 1 and 2 Adj. are deleted with models 48DV-0R, 0Y, or 0G.

•Multi-Color Indication

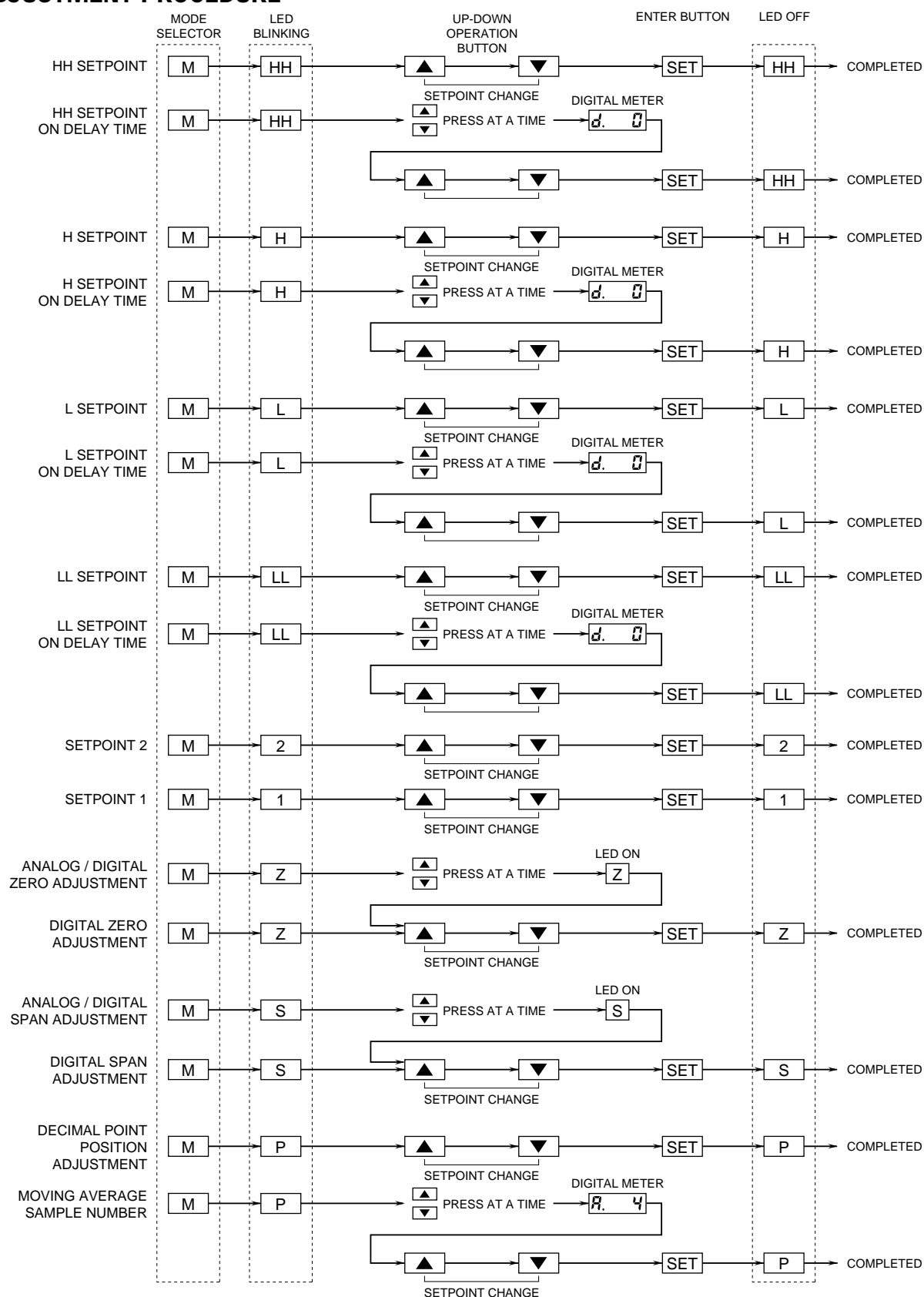
Pattern 1



Pattern 2



ADJUSTMENT PROCEDURE



Remark 1: HH, H, L and LL setpoints are stored in the memory even the power is lost during operation.
If you need to adjust zero and span or digital meter, proceed before alarm setpoint adjustments.
Apply 0% and 100% input and adjust respective analog zero and span.

Remark 2: HH, H, L and LL Setpoint Adj. are deleted with model 48DV-0.
HH and LL Setpoint Adj. are deleted with model 48DV-2.

■ ALARM SETPOINT ADJUSTMENTS

- **48DV-2:** H [L setpoint + 1%] to 100%
L 0 to [H setpoint - 1%]
- **48DV-4:** HH [H setpoint + 1%] to 100%
H [L setpoint + 1%] to [HH setpoint - 1%]
L [LL setpoint + 1%] to [H setpoint - 1%]
LL 0 to [L setpoint - 1%]

• How to Set HH (or H, L, LL, 2, 1) Setpoints

- 1) Press [M] and choose [HH].
- 2) Press [UP] or [DOWN] buttons until the indicator comes to the desired position, and press [SET].
(Same procedure for H, L, LL, 2, and 1 setpoints)

■ HH (or H, L, LL) ALARM ON DELAY TIME

- 1) Press [M] and choose [HH].
- 2) Press [UP] and [DOWN] buttons at once. Current setting value in seconds is indicated at the right end of the digital meter, with 'd.' at the left end.
- 3) Press [UP] or [DOWN] buttons until the meter shows the desired value, and press [SET]. When the LED is turned off, the new value is stored.
(Same procedure for H, L, LL setpoints)

■ ANALOG/DIGITAL ZERO (SPAN) ADJUSTMENTS

ZERO and SPAN are adjustable within $\pm 10\%$ at the front.

- 1) Press [M] and choose [Z].
- 2) Press [UP] and [DOWN] buttons at once. (Z LED turns on.)
- 3) Press [UP] or [DOWN] buttons until the indicator comes to the desired position, and press [SET].
(Same procedure for SPAN)

■ DIGITAL ZERO (SPAN) ADJUSTMENTS

- 1) Press [M] and choose [Z].
- 2) Press [UP] or [DOWN] buttons until the indicator comes to a desired position, and press [SET].
(Same procedure for SPAN)

■ DECIMAL POINT POSITION

- 1) Press [M] and choose [P].
- 2) Press [UP] or [DOWN] buttons until the decimal point comes to a desired position, and press [SET].

■ MOVING AVERAGE SAMPLE NUMBER

- 1) Press [M] and choose [P].
- 2) Press [UP] and [DOWN] buttons at once. Current setting value is indicated at the right end of the digital meter, with 'A.' at the left end.
- 3) Press [UP] or [DOWN] buttons until the meter shows the desired value, and press [SET]. When the LED is turned off, the new value is stored.

- Pressing [UP] or [DOWN] two times moves the indicator by 1 segment. When you keep pressing these buttons, the speed of indicator change increases.
- The set values are not stored in memory until [SET] is pressed.
- ZERO and SPAN are factory calibrated.
- Refer to the "FRONT PANEL CONFIGURATION" in Page 3 for the positions of each button.

ERROR MESSAGES

DISPLAY	ERROR MESSAGE
Lo	Measured value is below the lower limit.
Hi	Measured value is over the higher limit.

When the above messages appear on the digital display:

- 1) Return the measured signal input within the appropriate range.
- 2) Go through Analog/Digital Zero (Span) Adjustments.
Supply 0% for Zero and 100% for Span respectively.

CALIBRATION PROCEDURE

This unit is calibrated 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 calibration, adjust the output as explained in the following.

■ HOW TO CALIBRATE THE OUTPUT INDICATION

Use a signal source and measuring instruments of sufficient accuracy level. Turn the power supply on and warm up for more than 10 minutes.

- 1) ZERO: Apply 0% input and adjust output indication to 0% following the procedure explained previously in this page.
- 2) SPAN: Apply 100% input and adjust output indication to 100% following the procedure explained previously in this page.
- 3) Check ZERO adjustment again with 0% input.
- 4) When ZERO value is changed, repeat the above procedure 1) - 3).

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 accuracy described in the data sheet. When the output is out of tolerance, recalibrate the unit according to the "CALIBRATION PROCEDURE" explained earlier.