BCD PANEL INDICATOR
MODEL AI-304 SERIES
INSTRUCTION MANUAL

Caution

(1) The application of voltage or current exceeding its maximum allowable value to the input terminals may result in instrument damage.
(2) The supply of power out of its allowable range may cause fire, electric shock or instrument failure.
(3) The content of this manual may subject to change without prior notice for product improvement.
(4) This manual is carefully prepared. However, if any question arises, or any mistake, omission or suggestion is found in the content of this manual, contact your nearest our sales agent.
(5) After read this manual, please keep it as anytime can see.

Thank you very much for purchasing our Model AI-304 BCD panel indicator this time. Prior to operation, please check that the meter has not been damaged during transportation, and also there are no deviations between your and our specifications.

Make this manual available to the operator of this meter.

1. Before operation

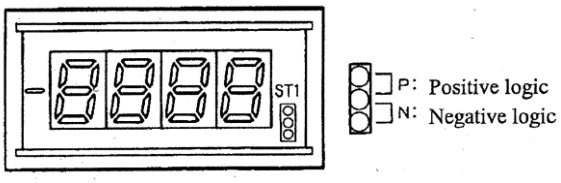
The AI-304 is compatible with both positive logic and negative logic. Remove the front panel and then set the desired logic by referring to the following diagram.

*For removing the front panel, refer to item 3-3.

[Setting]

Positive logic :
Move the shorting socket on the P/N terminal board (ST1) to the P side.

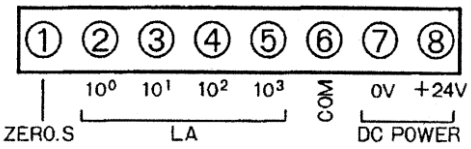
Negative logic :
Move the shorting socket on the P/N terminal board (ST1) to the N side.
(Usually, the meter is set to the positive logic prior to factory shipment.)



2. Terminal connection

■Lower screw terminal board

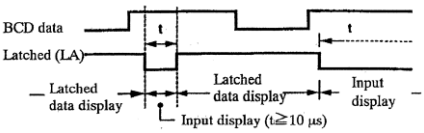
Screw terminal connection diagram



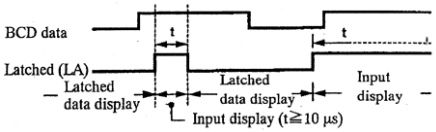
①: ZERO' S terminal(Zero suppression terminal)
If this terminal is shorted with the COM terminal for integer display, the display shows only "0" in the least significant digit, but does not show "0' s" in the 2nd to 4th digits.

②③④⑤: LA terminals (Latch terminals)
The relevant LA terminal is used to latch and display data corresponding to that digit.
*For the internal circuit, see the "Input Circuit" diagram.

◎Positive logic:
BCD input data is latched and displayed with the relevant LA terminal opened or set to logical level "1".



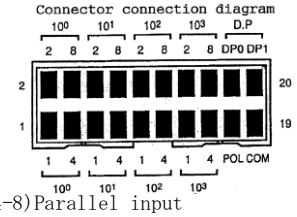
◎Negative logic:
BCD input data is latched and displayed with the relevant LA terminal shorted with the COM terminal or set to logical level "0".



⑥: COM terminal
This terminal is used to control the input signal of zero suppression or digit latching.
*This terminal is internally connected with the COM terminal (No.19 terminal) on the upper connector.
*This terminal is isolated from the 0V terminal (No.7 terminal) on the lower screw terminal board.

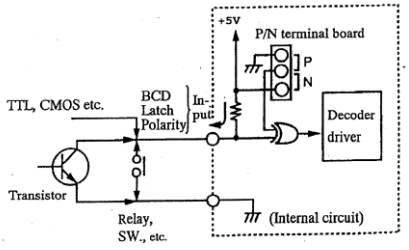
⑦⑧: DC POWER(Power terminals)
Power for this meter (24V DC±20%) is applied to these terminals. As this meter is not provided with a power switch, it is ready to operate just when the power is applied to these terminals.

■Upper connector



1 to 16:BCD(1-2-4-8)Parallel input
Connect the input signal (BCD parallel) to the position corresponding to the digit shown in the above connector connection diagram. Keep all wiring as short as possible, and use twisted pairs of wires if induction noise is considered to affect the meter.

[Input circuit]



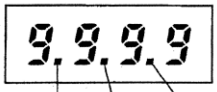
Each of the input terminals (BCD terminals corresponding to all digits, polarity terminal, D.P terminals, terminal of latching each digit and zero suppression terminal) is internally pulled up.

17:POL terminal (Polarity terminal)
Input terminal to display "−" for polarity.
◎Positive logic :
The LED for minus display is lit with the POL terminal opened or set to logical level "1".
◎Negative logic:
The LED for minus display is lit with the POL terminal shorted with the COM terminal or set to logical level "0".

18, 20:Decimal point(D.P) setting terminals
The decimal point can be lit by connecting the D.P (DP0 and DP1) terminals on the connector. (See the following table.) As the decimal point is set to "No lighting" prior to factory shipment, connect the relevant to D.P terminals to light the decimal point in the desired digit at the site.
In addition, as this meter is provided with the zero suppression function by decimal point selection, if the digits higher than the digit in which the decimal point is lit show "0' s" these "0' s" are not displayed.

D.P to be lit	D.P terminals	
	DP1	DP0
10^3	0	0
10^2	0	1
10^1	1	0
No lighting	1	1

0 → With the DP terminal shorted with the COM terminal or set to logical level "0."
1 → With the DP terminal opened or set to logical level "1."



10^3 D.P 10^2 D.P 10^1 D.P

19:COM terminal

This terminal is used to control each of the input signals such as BCD input signal, decimal point, or POL.

*This terminal is internally connected with the COM terminal (No.6 terminal) on the lower screw terminal board.

**This terminal is isolated from the 0V terminal (No.7 terminal) on the lower screw terminal board.

Note: If power is supplied to this meter with only the power terminals connected, the following operation is performed.

Positive logic:

Only "-" for polarity is displayed.

The latch function is also activated.

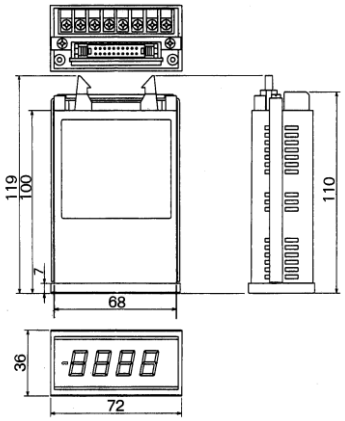
Negative logic:

"0000" is displayed.

Never apply a voltage of more than 5V to each of the input terminals (BCD terminals corresponding to all digits, polarity terminal, D.P terminals, terminal of latching each digit and zero suppression terminal).

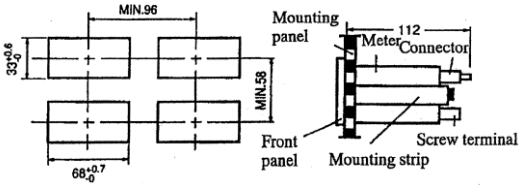
3.Dimensions and mounting

3-1 Dimensions



3-2 Mounting

Drill the cutout through the panel as shown in the following panel cutout diagram, and then insert the meter into the cutout from the front of the mounting panel as shown in the following side view. Finally, tighten the meter using the mounting strip from the rear.



・Recommended panel thickness: 0.8 to 5mm

・Do not install the meter in any location where:

The meter is exposed to the direct sunshine,

The ambient temperature and humidity are not within 0 and 50℃, and 35 and 85% RH, respectively.

There are chemicals or corrosive gases harmful to the meter, or there is dust.

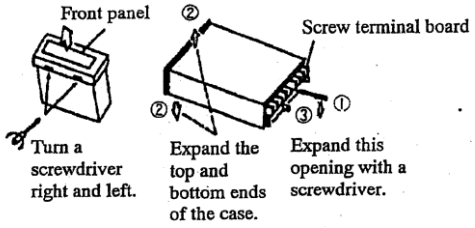
Vibration or impact is applied to the meter.

・If this meter is installed within equipment, fully ventilate the inside of the equipment so that temperature within the equipment does not exceed 50℃.

3-3 How to remove the internal circuit board

Insert a flat blade screwdriver into each of the two holes at the bottom of the meter panel, and then turn the screwdriver right and left to remove the front panel from the meter.

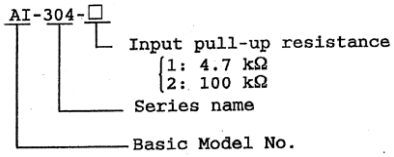
Next, insert the screwdriver into the hole at the bottom of the screw terminal board in the rear, and then push this terminal board forward while expanding the opening of the terminal board also while vertically expanding the top and bottom ends of the case.



4.Specifications

Model No.	Input level	Input pull-up resistance
AI-304-1	L:0.0 to 1.5V	4.7kΩ
AI-304-2	H:3.5 to 5.0V	100kΩ

■Model No. configuration



■General specifications

Data input	: BCD(1-2-4-8) parallel input Positive logic and negative logic, selectable
Maximum display	: −9999
Display	: LED numeric elements Character height, 14.2mm(red)
Polarity display	: "-" is displayed in the most significant digit. Positive logic; With the POL terminal opened or level "1" Negative logic; With the POL terminal shorted with the COM terminal or set to level "0"
Zero suppression	: Provided
External control	: Data latch Positive logic; With the LA terminal corresponding to each digit opened or set to level "1". Negative logic; With the LA terminal corresponding to each digit shorted with COM terminal or level "0".
Decimal point	: Can be set to the position in any desired digit.
Operating temperature/humidity range	: 0 to 50℃/ 35 to 85%RH(No condensing)
Power	: 24V DC±20%
Current consumption	: 75mA(TYP)
Dimensions	: 72(W)×36(H)×119(D)mm
Weight	: Approx. 140g
Dielectric strength	: Between the power terminal (0V) and the COM terminal; For 1 min. at 500V DC Between the power terminal (0V) and the case; For 1 min. at 1500V AC
Insulation resistance	: Between each terminal described above; More than 100MΩ at 250V DC
Accessories	: Instruction manual 1 copy Terminal cover 1 pc. Compressed socket 1 pc. (Conforming to MLT Standard)

5. Warranty and After-Sales Service

1)Warranty

The warranty lasts for one year from the date of delivery. If this product fails during this period and the reason is considered to be clearly.

The manufacturer warrants to the original retail customer its indicator to be free of defects in material and workmanship for use under normal care and will repair or replace any.

2)After Sales Service

Under strict quality control measures, this product was manufactured, tested, inspected and shipped. Should a defect in manufacture or Workmanship be identified, please return the product to our distributor or directly to us. It would be highly appreciated if you could give a detailed account of the fault and enclose it with the product.

watanabe
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