

3. Operation

- $3\mathchar`{-}1$ General cautions and preparation prior to operation
- 1)This instrument should be used at an ambient temperature of 0 to 50° C and a humidity of 80% or less, paying special attention to dew condensation.
- 2) It must be used at a location free of dust.
- $\ensuremath{\mathsf{3}}\xspace$)Care should be taken to prevent vibration and shock.
- 4)Noise
- (a)Electric circuit

Because it is difficult for such a small instrument as this to accommodate a perfect noise prevention circuit, use a surge absorbing circuit such as an external line filter or varistor to prevent excess surge when the instrument is used at a location where lightening frequently occurs or magnetic switches are likely to be actuated on the same power line. (b) Shielding

If noise causes a problem, connect the E terminal(11) for AC, or the power OV terminal(17) for DC to the ground or equipment grounding terminal.

If space induction causes a problem, it can be prevented by covering the instrument case with a metal plate.

3-2 Mounting

1)Panel mounting

Make a rectangular cutout as shown in Fig. 1, insert the instrument in the panel as shown in Fig. 2, and then fully push the instrument into the panel.

(It is recommended that panel thickness be from $0.\,8$ to 5mm)



3-3 Connector connection

Insert the attached input/output connector in the rear of the panel meter. The connector is provided with an incorrect insertion prevention key, so it is easy to make sure that it is not connected upside down. After insertion, tighten the both sides with the attached screws.

1) Power connection

For AC, connect power to terminals 16 to 18, operate the instrument at a power supply voltage of 90 to 132V or 180 to 264V.

Because the meter also has no fuse, install a fuse (for 0.2A) outside of the meter, if necessary.

For DC, connect power to terminals 17 to 18,

Power variation in this case is 5V DC $\pm\,5\%$ or 24V DC $\pm\,20\%$

(Because this instrument is not provided with a power supply switch, it starts operating when power is supplied.)

2)Decimal-point setting

The decimal point can be freely set to the desired position when the following connector terminals are shorted. However, because the decimal point is not set prior to shipment, it must be set at the appropriate position by the customer.



3) Input connection

Connect an input signal (DC voltage or DC current to terminals 1 to 3. Use a 2-core shielded cable and connect the shield to the input LO side at one point near the signal source.



Connector Connection Diagram



Note: Input LO and COMMON have the same potential.

 \triangle $\hfill\square$ marks indicate vacant terminals, but do not use them as junction terminals.

4)Display hold and external start

Displayed value is hold to the value just after the hold (No. 8) and COMMON(NO. 7) terminals are shorted. In addition,

measurement starts when these terminals are opened at the necessary timing. {Positive pulse from OV to +5V for more than 400ms, or contact signal(open)}

The minimum time required for one measurement is about 400 ms. In addition, as the input(LO) and COMMON(7) terminals are connected and not DC-isolated, use a mechanical contact signal such as a relay or switch for control as much as possible. When performing control by TTL. Or transistor, and such an external circuit in Fig.3. (This circuit is absolutely necessary for isolation when the input is floated.)





This is the digital circuit COMMON terminal (No. 7) which is internally connected to the LO terminal. However, do not connect the digital circuit to the LO terminal to prevent measurement error.

4. Maintenance

4-1 Caution for maintenance

The storage temperature of this instrument should be between $-10^\circ\!C$ and $+70^\circ\!C$ at a relative humidity of 60% or less. As the instrument case and bezel are mode of molded Plastic,

do not use a volatile liquid such as thinner to clean them.

5.Warranty

This meter is warranted for a period of one year from date of delivery. Any defect which occurs in this period and is undoubtedly caused by Watanabe's faults will be remedied free of charge.

This warranty dose not apply to the meter showing abuse or damage which has been altered or repaired by others except as authorized by Watanabe Electric Industry.

6.After-sale Service

This meter is delivered after being manufactured, tested and inspected under strict quality control.

However, if any problem does occur, contact your nearest Watanabe sales agent giving as much information on problem as possible.

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