

We thank you for your purchase of this product. Please take care that this instruction manual is certainly delivered to the person in charge of operating it. For safety use of this product, please observe the following caution and also read the instructions to follow before the initial operation for proper operation of this analog indicator.

⚠ CAUTION

To prevent electric shock, observe the following cautions:

- ◆ Never make terminal connections with active lines.
- ◆ Ensure firm and tight connections to the terminals.
- ◆ Do not touch terminals while the instrument is powered on.

To avoid failure or malfunction of the instrument, do not use the instruments in such places where:

- ◆ exposed to rain, water drops or direct sunlight.
- ◆ high temperature or humidity, much dust or corrosive gas.
- ◆ affected by external noise, radio waves or static electricity.
- ◆ where there is constant vibration shock.

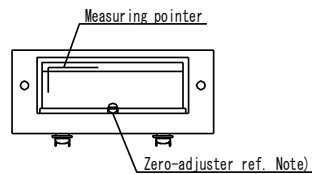
■ Check at Delivery

When the T□E series analog meter is delivered to you, please check that its specifications conform to your requirement and that there is no damage in transit. This instrument is carefully inspected before delivery from factory under our strict quality control program, but if you find any defect or inconvenience, please inform us of the model name and serial number of the product.

■ Cautions for Use

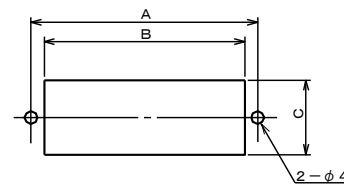
- ① This product is a precision instrument, so please take utmost care for its operation, installation or any other handling.
- ② In case of fear that this indicator suffers the surge voltage, ensure to ground one side of measuring input terminals.
- ③ Use this product within the range of its specifications and rates.

■ Name of Parts



Note) The figure above is T□E-60C series.
In case of T□E-80B, T□E-45A, Zero-adjuster is located on rear side.

■ Panel Cut-Out Dimensions



Refer the panel cut dimensions to the table below.
Note: The dimensions are the same with using escutcheon.
Escutcheon for T□E-45A is not available.

Unit:mm			
Model	A	B	C
E-80B	90	82	17
E-60C	70	62	23
E-45A	50	45	13.5

■ Installation

1. Standard installation

Insert the instrument from the rear and fasten the screw from the front with plain washer and spring washer on rear side.

Note: M3 screw, plain washer, spring washer and nut are not included with product.

2. Using escutcheon

Insert the escutcheon from the front of the panel, and fit this instrument from the rear side on the screw point, then tighten with attached nuts.

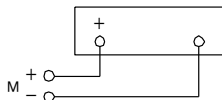
Optimum fastening torque of the nuts: 0.36 to 0.48 N·m.

■ Connections

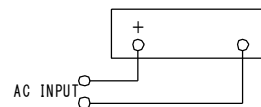
Measuring input terminals of this instrument are M3 screw. Make correct and firm connections with crimp type terminal or like. Optimum fastening torque of the screws: 0.36 to 0.48 N·m

● Measuring Input Terminals

- ① DC voltmeter / DC ammeter / Receiving meter
Connect the measuring input with correct polarity.
When it is designated, an accessory should be connected.



- ② AC voltmeter / AC ammeter
Connect the measuring input.
When it is designated, an accessory should be connected.



■ Operation

- ① Confirm the rated input and that the connection of the terminals are correctly made.
- ② Before starting the measurement, confirm that the pointer indicates zero position.
(When the rated input is 4 to 20 mA DC or 1 to 5 V DC, zero corresponds to 4 mA DC or 1 V DC which may be input to the measuring input terminals by standard voltage generator or else.)
If there is deviation from zero, adjust it to 0 turning a zero-adjuster provided on the front or the back of the instrument.

Note)

When the input impedance at the input rating DC1 to 5 V with the specification of 7331 accessory having more than 1 MΩ is inserted the auxiliary power with opened condition of input terminal of 7331, the measuring pointer indicates more than the upper limit of the scale.

- ③ The indicated value should be read from vertical direction of scale plate.

Contact Information

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Instruction Manual

Meter Model T□E-100A

I-01854 1/2

We thank you for your purchase of our model T□E-100A series meter. For safety use of this product, please observe the following caution. For proper operation of it, please also read the instructions to follow before the initial operation.

⚠ CAUTION

To prevent electric shock, observe the following cautions:

- ◆ Never make terminal connections with active lines.
- ◆ Ensure firm and tight connections to the terminals.
- ◆ Do not touch terminals while the instrument is powered on.

To avoid failure or malfunction of the instrument, do not use the instruments in such places where:

- ◆ exposed to rain, water drops or direct sunlight.
- ◆ high temperature or humidity, much dust or corrosive gas.
- ◆ affected by external noise, radio waves or static electricity.
- ◆ where there is constant vibration shock.

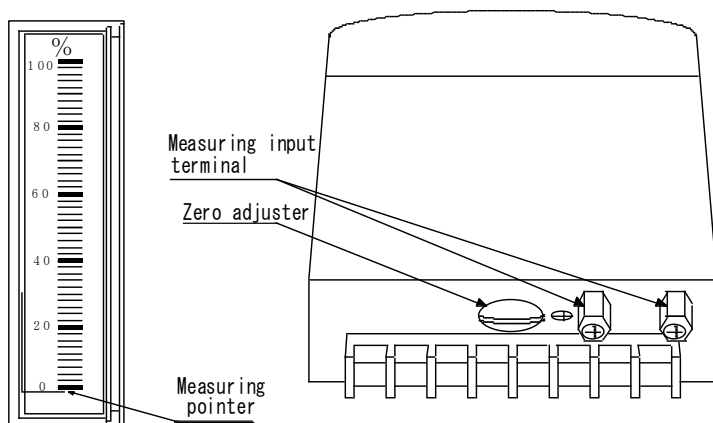
■ Check at Delivery

When the product is delivered to you, please check that its specifications conform to your requirement and that there is no damage in transit. This instrument is carefully inspected before delivery from factory under our strict quality control program, but if you find any defect or inconvenience, please inform us of the model name and serial number of the product, etc.

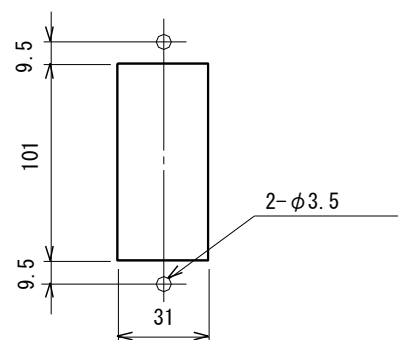
■ Cautions for Use

- ① This product is a precision instrument, so please take utmost care for transportation, installation or any other handling of it.
- ② In case of fear that this instrument suffers the surge voltage, ground one side of the measuring input terminals.
- ③ Use this product within the range or conditions conforming to its specifications and standard.

■ Name of Parts



■ Panel Cut-Out Dimensions



Note: The dimensions are same when the escutcheon is used.

■ Installation

Fasten the mounting bracket to the top and bottom (right and left for the horizontal type) of the instrument by the attached screws.

① In case of standard installation

Insert the instrument fitted with the mounting bracket from the back of the panel.

Insert the screws from the front of the panel, fit the flat washer, spring washer and nut from the back of the panel and fasten them tightly.

Note: The M3 screw, flat washer, spring washer and nut are not attached to the instrument. The users are requested to provide these materials by themselves.

② In case that the escutcheon is used

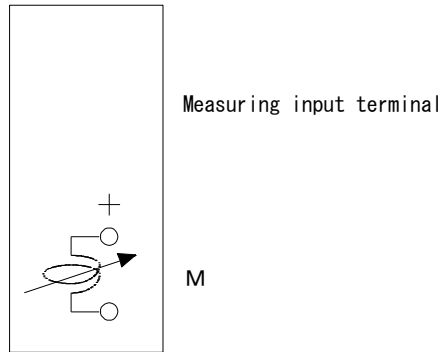
Insert the escutcheon from the front of the panel. Attach the instrument fitted with the mounting bracket to the screw part of the escutcheon from the back of the panel and, fit and fasten tightly the attached flat washer, spring washer and nut.

Fastening torque of the nut: 0.36 ~ 0.48N·m

Connections

The terminals of this instrument accepts the M3 screw.
Make firm and correct connection with crimp type terminal.

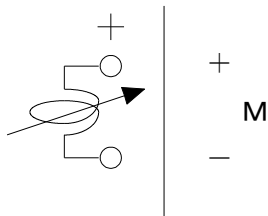
Fastening torque of the terminal screws: 0.36~0.48N·m



● Measuring Input Terminals

- ① DC Volt Meter
DC Current Meter
Receiving Meter

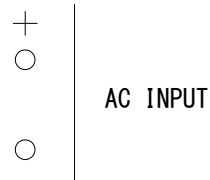
Connect the measuring input with correct polarity.
Use the particular accessory when it is designated.



- ② AC Volt Meter
AC Current Meter

Connect the measuring input.

Use the particular accessory when it is designated.



■ Operation

- ① Check that the input is rated value and that there is no mistake in connection.
② Before starting the measurement, check if the measuring pointer is accurately at zero (which is the point when the DC4mA or DC1V generated by a standard voltage/current generator is input to the input terminals, respectively when the rated input is DC4~20mA or DC1~5V).

If there is any deviation at zero position, make an adjustment by means of zero point adjuster provided on the back of instrument so that the pointer correctly points the 0.

Note)

When the input impedance at the input rating DC1 ~ 5V with the specification of 7331 accessory having more than 1 MΩ is inserted the auxiliary power with opened condition of input terminal of 7331, the measuring pointer indicates more than the upper limit of the scale.

- ③ When measuring, read in a direction at right angle of the scale plate.

Contact Information

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Instruction Manual

Meter Model T□E-120

I-02024 1/2

We thank you for your purchase of our model T□E-120 series meter. For safety use of this product, please observe the following caution. For proper operation of it, please also read the instructions to follow before the initial operation.

⚠ CAUTION

To prevent electric shock, observe the following cautions:

- ◆ Never make terminal connections with active lines.
- ◆ Ensure firm and tight connections to the terminals.
- ◆ Do not touch terminals while the instrument is powered on.

To avoid failure or malfunction of the instrument, do not use the instruments in such places where:

- ◆ exposed to rain, water drops or direct sunlight.
- ◆ high temperature or humidity, much dust or corrosive gas.
- ◆ affected by external noise, radio waves or static electricity.
- ◆ where there is constant vibration shock.

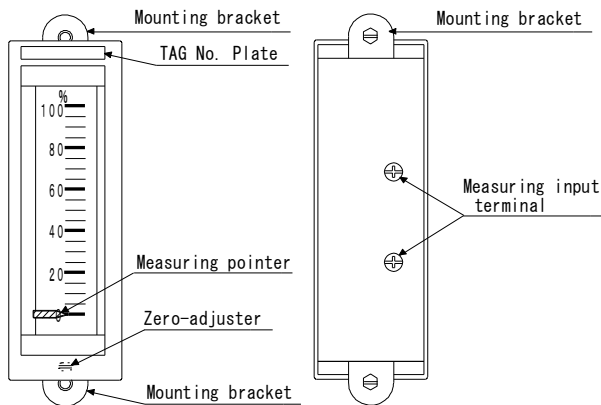
■ Check at Delivery

When the product is delivered to you, please check that its specifications conform to your requirement and that there is no damage in transit. This instrument is carefully inspected before delivery from factory under our strict quality control program, but if you find any defect or inconvenience, please inform us of the model name and serial number of the product, etc.

■ Cautions for Use

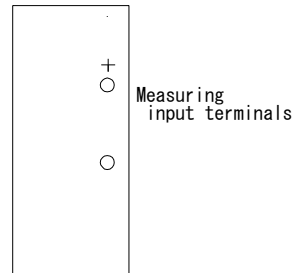
- ① This product is a precision instrument, so please take utmost care for transportation, installation or any other handling of it.
- ② In case of fear that this instrument suffers the surge voltage, ground one side of the measuring input terminals.
- ③ Use this product within the range or conditions conforming to its specifications and standard.

■ Name of Parts



■ Connections

The terminals of this instrument accepts the M5 screw. Make firm and correct connection with crimp type terminal.

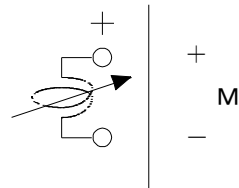


Fastening torque of the terminal screws: 1.2~1.3N·m

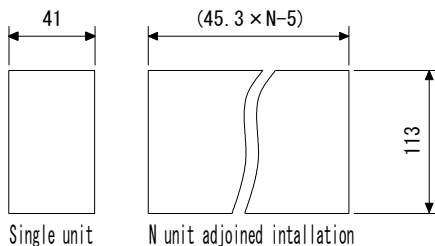
● Measuring Input Terminals

- ① DC Volt Meter • DC Current Meter • Receiving Meter

Connect the measuring input with correct polarity. Use the particular accessory when it is designated.

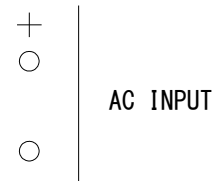


■ Panel Cut-Out Dimensions



- ② AC Volt Meter • AC Current Meter

Connect the measuring input. Use the particular accessory when it is designated.



■ Installation

Insert the instrument from the front of the panel to install. Attach the mounting brackets to the top and bottom of the instruments (right and left sides in case of vertical types) and fasten them with the attached threaded bars.

Optimum fastening torque of attached mounting brackets: 0.6~0.8N·m

■ Operation

- ① Prior to the operation of instrument, check that the input rate, control power source voltage and connections are correct.
- ② Before starting the measurement, check if the measuring pointer is accurately at zero (which is the point when the DC4mA or DC1V generated by a standard voltage/current generator is input to the input terminals, respectively when the rated input is DC4~20mA or DC1~5V). If there is a discrepancy at zero, adjust the pointer to indicate zero with the adjuster provided on the front of the instrument.

Note)

When the input impedance at the input rating DC1 ~ 5V with the specification of 7331 accessory having more than 1 MΩ is inserted the auxiliary power with opened condition of input terminal of 7331, the measuring pointer indicates more than the upper limit of the scale.

- ③ When measuring, read in a direction at right angle of the scale plate.

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We thank you for your purchase of our model T□E-152 series meter. For safety use of this product, please observe the following caution. For proper operation of it, please also read the instructions to follow before the initial operation.

⚠ CAUTION

<p>To prevent electric shock, observe the following cautions:</p> <ul style="list-style-type: none"> ◆ Never make terminal connections with active lines. ◆ Ensure firm and tight connections to the terminals. ◆ Do not touch terminals while the instrument is powered on. 	<p>To avoid failure or malfunction of the instrument, do not use the instruments in such places where:</p> <ul style="list-style-type: none"> ◆ exposed to rain, water drops or direct sunlight. ◆ high temperature or humidity, much dust or corrosive gas. ◆ affected by external noise, radio waves or static electricity. ◆ where there is constant vibration shock.
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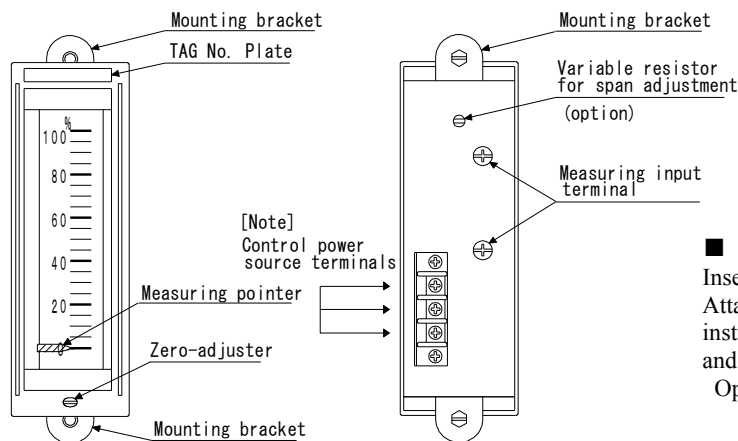
■ Check at Delivery

When the product is delivered to you, please check that its specifications conform to your requirement and that there is no damage in transit. This instrument is carefully inspected before delivery from factory under our strict quality control program, but if you find any defect or inconvenience, please inform us of the model name and serial number of the product, etc.

■ Cautions for Use

- ① This product is a precision instrument, so please take utmost care for transportation, installation or any other handling of it.
- ② In case of fear that this instrument suffers the surge voltage, ground one side of the measuring input terminals.
- ③ Use this product within the range or conditions conforming to its specifications and standard.

■ Name of Parts

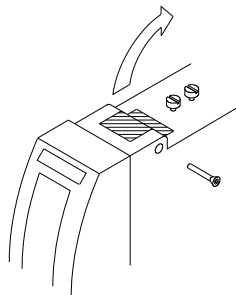


Note:

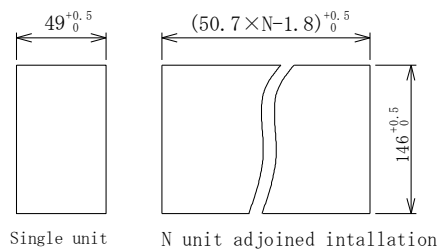
Control power source terminals are provided when the meter is receiving meter (DC1~5V meter with input impedance 1MΩ or more), resistance bulb thermometer or thermocouple thermometer having built-in converter and amplifier.

■ Additional Device & Function

○Cassette type scale plate
 When replacing a scale plate, remove the mounting brackets, white sticker and locking screw of scale holder and pull out the shaded part toward the direction that the arrow ⇒ shows. The scale plate held in the holder can be removed then.



■ Panel Cut-Out Dimensions



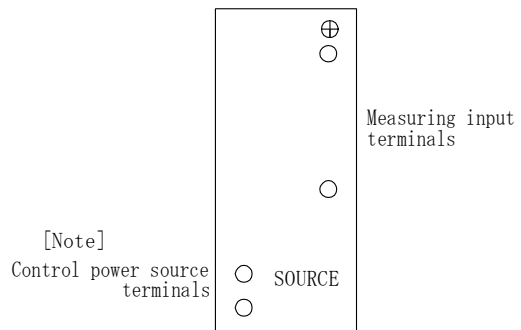
■ Installation

Insert the instrument from the front of the panel to install. Attach the mounting brackets to the top and bottom of the instruments (right and left sides in case of vertical types) and fasten them with the attached threaded bars.

Optimum fastening torque of attached mounting brackets: 0.6~0.8N·m

■ Connections

Measuring input terminals of the instrument are M5 and, the contact output and control power source terminals M3. Make firm and correct connections with crimp type terminal.



Optimum torque of terminal screws:

M5: 1.2~1.3N·m

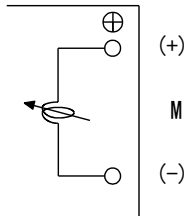
M3: 0.36~0.48N·m

● Measuring Input Terminals

Arrange a cabling of measuring input line and power source line as distant as possible from each other. Close and parallel wiring of these two lines may cause unstable reading of the instrument.

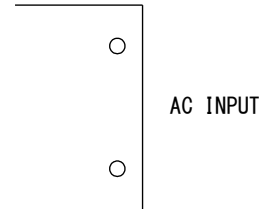
- ① DC Volt Meter
DC Current Meter
Receiving Meter

Connect the measuring input with correct polarity.
Use the particular accessory when it is designated.



- ② AC Volt Meter
AC Current Meter

Connect the measuring input.
Use the particular accessory when it is designated.



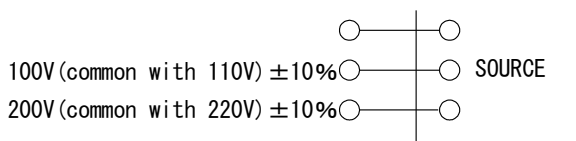
● Control Power Source Terminals

- ① AC power source model

Connect the AC voltage to the respective terminals of control power source terminals (SOURCE)

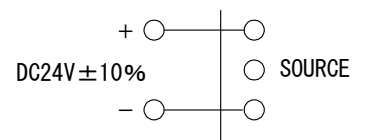
AC100V power source voltage: Terminals \pm and 100/110V

AC200V power source voltage: Terminals \pm and 200/220V



- ② DC power source model

Connect the DV24V to the control power source terminals (SOURCE) with correct polarity.



■ Operation

- ① Prior to the operation of instrument, check that the input rate, control power source voltage and connections are correct.
- ② Before starting the measurement, check if the measuring pointer is accurately at zero (which is the point when the DC4mA or DC1V generated by a standard voltage/current generator is input to the input terminals, respectively when the rated input is DC4~20mA or DC1~5V). If there is a discrepancy at zero, adjust the pointer to indicate zero with the adjuster provided on the front of the instrument.

Note)

When the input impedance at the input rating DC1 ~ 5V with the specification more than 1 M Ω is inserted the auxiliary power with opened condition of input terminal, the measuring pointer indicates more than the upper limit of the scale.

- ③ When measuring, read in a direction at right angle of the scale plate.

■ Calibration

When the variable resistor for span adjustment is provided, calibrate the instrument at an interval of about one year in order to maintain a long term accuracy. The calibration can be done with the zero adjuster provided on the panel front and the variable resistor for span adjustment on the rear of the instrument. Make the calibration with the ambient condition of 23°C \pm 5°C and 75%RH or less.

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