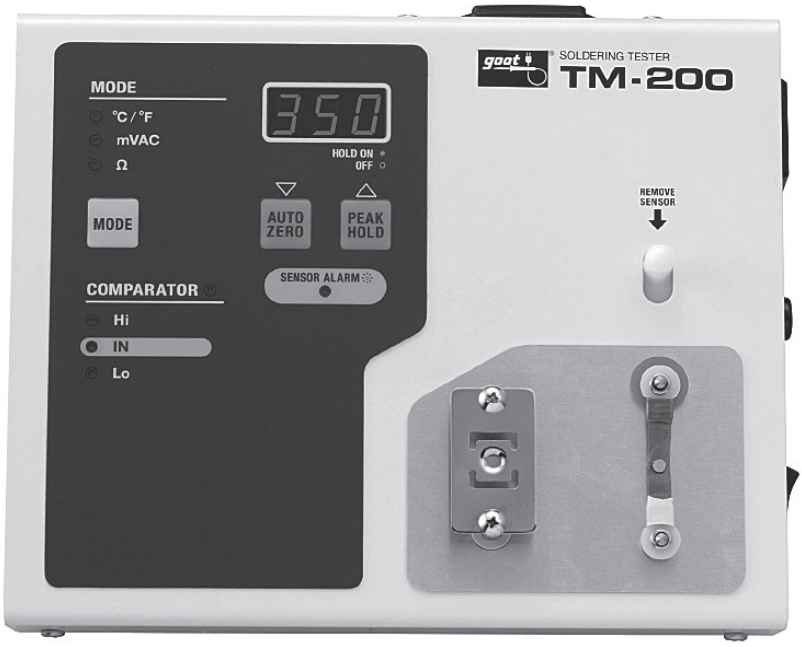
**OPERATION MANUAL**

goot®

# SOLDERING TESTER
# TM-200

AG




## WARNING

Read this Owner's Operation Manual before using your soldering tester. Failure to follow the warning and instructions in this manual could result in serious injury and property damage.

Thank you for buying ***goot*** Soldering Tester TM-200. Please read this Owner's Operation Manual before using your soldering tester.

**KEEP THIS MANUAL FOR FUTURE REFERENCE**

**TAIYO ELECTRIC IND.CO.,LTD.**

# SAFETY MARK DEFINITIONS

In this manual, the following safety marks are used.

## WARNING

Failure to obey a safety warning could result in death or serious injury to yourself or to others, or in physical damage.

## CAUTION

Failure to obey a safety caution could result in injury to yourself or to others, or in physical damage.

## NOTE

A note or word of advice.

# 1 TABLE OF CONTENTS

# 2 FOR SAFE OPERATION

**WARNING**

**Make sure that the machine is grounded at all times to prevent electrical shocks.**

**CAUTION**

1. The measuring tip is very hot. Handle with care. Careless handling may result in fire or personal injury.
2. To avoid injury, do not touch the sensor and the terminal plate during measuring or soon after measuring. These areas get very hot.
3. Be sure not to touch the **TM-200** anywhere except the sensor or the terminal plate. Excess heat will melt or damage the body of the device.
4. To avoid damage to the tester and soldering iron, do not forget to check the voltage before plugging in the soldering tester.
5. To avoid damage to the tester, do not connect a soldering iron with rated current over 7A.
6. Do not open the device. You might damage sensitive parts.
7. Avoid impacts to prevent damage to, or deterioration of, the product during transportation. Be especially careful to avoid deformation or breakage from dropping.

**NOTE**

1. The sensor and the terminal plate are consumable items.
2. You cannot test leak voltage / earth resistance on an ungrounded soldering iron.
3. The included plug adapter is for the plug shape NEMA 5-15 only. When you use other shapes of plugs, please have an appropriate plug adapter ready.
4. Tear off the protective transparent seal on the key pad and the aluminum mat before use.

# 3 SPECIFICATIONS

## 3-1 SPECIFICATIONS

Measures tip temperature, leak voltage, and earth resistance.

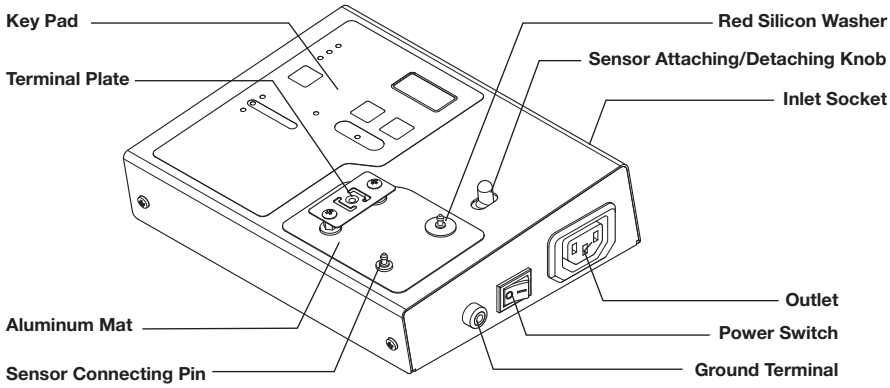
| MODEL | TM-200 |
|---|---|
| Voltage | 100-240V AC 50/60Hz |
| Rated Current | 7A |
| Dimensions | 185(W) × 58(H) × 160(D)mm |
| Weight | Approx. 1kg (w/o cord) |
| Temperature Resolution | 1˚C |
| Temperature Measuring Range | Sensor : (TM-100S):0-500˚C Probe : (TM-100SP):0-700˚C |
| Temperature Accuracy | 0–500˚C : ±3˚C / 501–700˚C : ±4˚C (excluding sensor error) |
| Voltage Resolution | 0-99.9mV : 0.1mV 100-200mV : 1mV (autorange) |
| Voltage Measuring Range | 0-200mV |
| Voltage Accuracy | +/- (5% of reading value + 1dgt) |
| Resistance Resolution | 0-99.9Ω : 0.1Ω 100-200Ω : 1Ω (autorange) |
| Resistance Measuring Range | 0-200Ω |
| Resistance Accuracy | +/- (5% of reading value + 1dgt) |
| Operating Environment | 0–40˚C、20–85%RH (no condensation) |

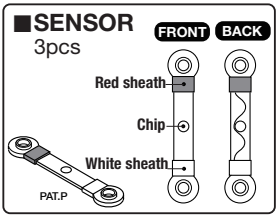
## 3-2 CALIBRATION

Accuracy assured for 1 year from the day of purchase. After 1 year, please consult a calibration authority in your country.

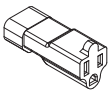
# 4 PACKAGE CONTENTS / NAMES OF PARTS

## Unit



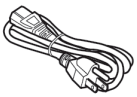

Plug Adapter



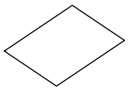
Earth Lead

Fuse

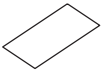
Power Cord



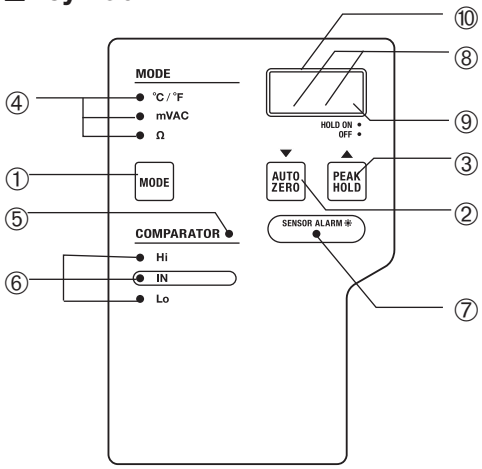
Operation Manual



User Registration/Warranty Card
(Japan Only)



## ■Key Pad




① MODE Changer
(Setting key when setting mode)

② AUTO ZERO Button
(Down key when setting mode)

③ PEAK HOLD Button
(Up key when setting mode)

④ MODE Lamp

⑤ COMPARATOR Lamp (Light up)

⑥ COMPARATOR Result Indicator

⑦ SENSOR ALARM Lamp (Flash)

⑧ Decimal Point

⑨ Hold Lamp (light up)

⑩ Display

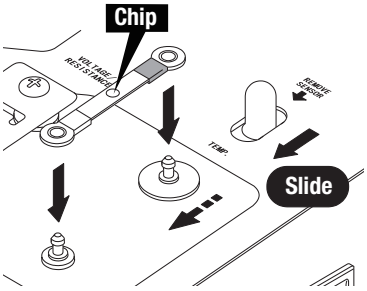
# 5 HOW TO TEST

## 5-1 PREPARATION

**a.** Attaching the sensor.

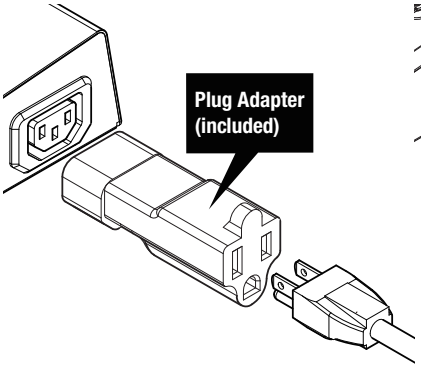
(1) Attach the red sheath side of the sensor to the connecting pin with the red silicon washer. The chip must be up.

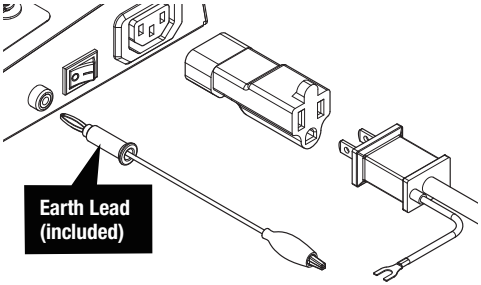
(2) Slide the attaching/detaching knob in the direction of the arrow. The connecting pin & the red silicon washer will move down. Then attach the white sheath side of the sensor to the other connecting pin.




**b.** Place the power cord firmly into its inlet at the back. Plug in the soldering tester. Be sure that the voltage of the soldering iron (to be measured) and the wall socket must be the same.

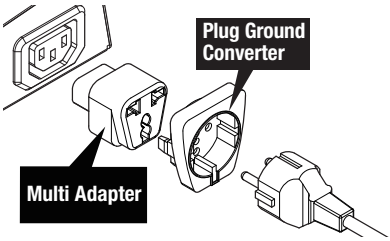
**c.** Connect the power cord of the soldering iron to the outlet at the right side.




If using a power plug with ground wire, use the enclosed earth lead and connect it to the GND (Ground) Terminal.

**NOTE**

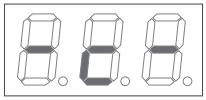
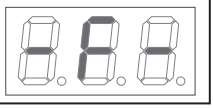
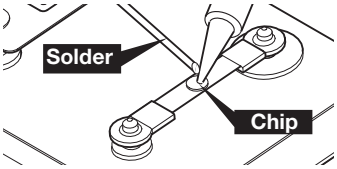
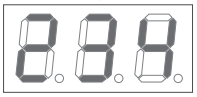



If your plug shape does not match to the outlet of the included plug adapter, please use an appropriate plug adapter.

**d. Switch the device ON (to I side).**

## 5-2 MEASURING THE TIP TEMPERATURE

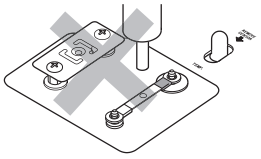
**How to Measure the Tip Temperature.**

| OPERATION | DISPLAY |
|---|---|
| 1   Press the **MODE** key and select ˚**C** or ˚**F** [Temperature Measuring Mode]. Display shows the set unit Celsius [**-c-**] or Fahrenheit [**-F-**] first, and next the measured value. | **Temperature Measuring Mode**  ⇩ **Measured Value**  NOTE When the default setting is Fahrenheit, the first display is as shown below.  Ex.) Room temperature 25°C |
| 2 Put the tip to the sensor chip, applying fresh solder to both parts.   | **Measured Value**  ⇩  The indicated measured temperature increases with the rising temperature of the sensor. **CAUTION** To avoid injury, do not touch the sensor and the terminal plate during measuring or soon after measuring. These areas get very hot. |
| 3 Please read when the displayed value is stable. | **Tip Temperature**  Ex.) Tip temperature 350°C |

**NOTE** **When device is switched on, it automatically selects the [Temperature Measuring Mode]. You can skip the setting No.1 (shown above) when you measure the tip temperature soon after switch ON.**

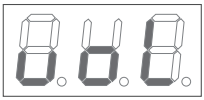
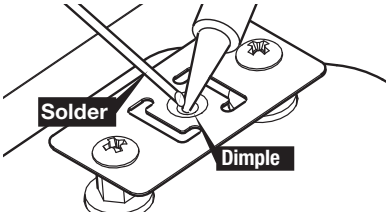
**NOTE** **When set to Fahrenheit, temperature over 1000˚F are indicated by F-1 and the last three digits, alternately.**

**CAUTION** **Do not measure the temperature of the hot air, to prevent damage to the device.**



## 5-3 MEASURING THE LEAK VOLTAGE

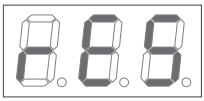
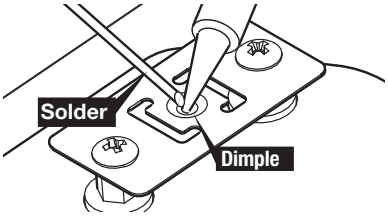
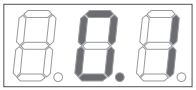
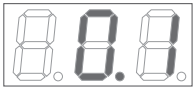
**How to Measure the Leak Voltage.**

| OPERATION | DISPLAY |
|---|---|
| 1   Press the MODE key and select the mV AC [Leak Voltage Measuring Mode]. Display shows the [voL] first, and changes to the measured value. | **Voltage Measuring Mode**   **Measured Value**  Ex.) 0.0mV |
| 2   Pressing the AUTO ZERO key automatically corrects the zero error. The mode lamp flashes during correction. | **Correcting Zero Error**  |
| 3 Put the tip to the center dimple of the terminal plate, applying fresh solder to both parts.   | **Measured Value**  **CAUTION** To avoid injury, do not touch the sensor and the terminal plate during measuring or soon after measuring. These areas get very hot. |
| 4 Please read when the displayed value is stable. | **Leak Voltage**  Ex.) 0.1mV |

**NOTE** **For details of the auto zero function, please refer to page 21 [AUTO ZERO FUNCTION]. IPC defines that the leak voltage should not exceed 2mV.**

## 5-4 MEASURING THE EARTH RESISTANCE

**How to Measure the Earth Resistance.**

| OPERATION | DISPLAY |
|---|---|
| 1   Press the MODE key and select the Ω [Earth Resistance Measuring Mode]. Display shows the [rES] first, and changes to the measured value. | **Earth Resistance Measuring Mode**  **Measured Value**  Ex.) Over Load |
| 2   Pressing the AUTO ZERO key automatically corrects the zero error. The mode lamp flashes during correction. | **Correcting Zero Error**  |
| 3 Put the tip to the center dimple of the terminal plate, applying fresh solder to both parts.   | **Measured Value**  **CAUTION** To avoid injury, do not touch the sensor and the terminal plate during measuring or soon after measuring. These areas get very hot. |
| 4 Please read when the displayed value is stable. | **Earth Resistance**  Ex.) 0.1 Ω |

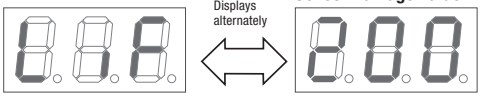
**NOTE** **For details of the auto zero function, please refer to page 21 [AUTO ZERO FUNCTION]. IPC defines that the earth resistance should not exceed 5 Ω.**

# 6 OPERATION

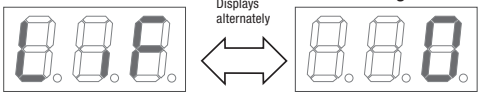
## 6-1 SETTING THE SENSOR ALARM

When measuring temperature, the device weighs and integrates sensor damage by counting in units of 3-seconds' use at temperature 350°C (662°F). The alarm lamp will flash when the counter exceeds the set number of counts, to indicate the approx. replacement-timing of the sensor.

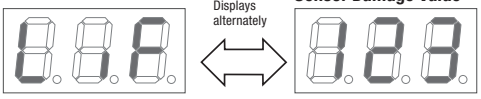
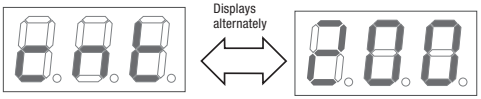
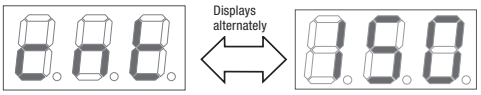
**How to Check the Sensor Damage.**

| OPERATION | DISPLAY |
|---|---|
| 1   Press and hold the MODE key for over 3 seconds. |   Ex.) 200 times |
| 2   Press and hold the MODE key for over 3 seconds. | Returns to the measured value in the present running mode. |

**How to Reset the Sensor Damage Value.**

| OPERATION | DISPLAY |
|---|---|
| 1   Press the MODE key and select ˚C or ˚F [Temperature Measuring Mode]. | **Measured Value**  Ex.) Room temperature 25°C |
| 2   Press and hold the AUTO ZERO key for over 3 seconds. **Setting completed** |    **Returns to the measured value.**  |

**How to Change the Sensor Life Value.** **Ex.) From 200 to 150.**

| OPERATION | DISPLAY |
|---|---|
| 1 **(in measuring mode)**<br>  <br>Press and hold the MODE key for over 3 seconds. |  <br>Ex.) 123 times |
| 2<br>  <br>Press the MODE key and select the [cnt]. |  |
| 3<br>  <br>Press (and hold) the AUTO ZERO key until the display shows [150] from [200]. |  |
| 4<br>  <br>Press and hold the MODE key for over 3 seconds.<br>**Setting completed** | Returns to the measured value in the present running mode. |

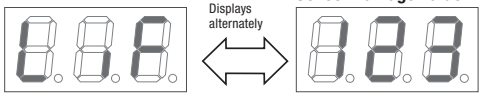
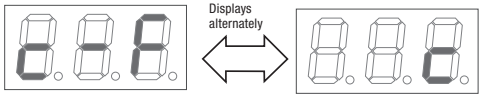
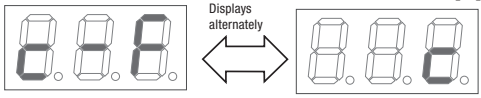
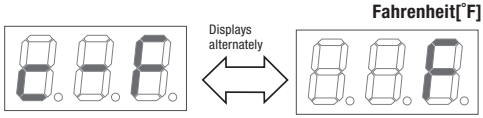
**NOTE**

**The sensor life "200 times when counted in units of 3-seconds' use at temperature 350°C (662°F)." is just a tentative indication. The actual sensor-life can be changed by your operating conditions. When replacing the sensor, reset the damaged value. Figure out the sensor life, and change its set value for effective use.**

## 6-2 SETTING THE TEMPERATURE DISPLAY

The temperature can be viewed in Celsius or in Fahrenheit.

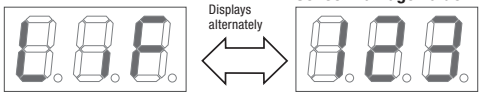
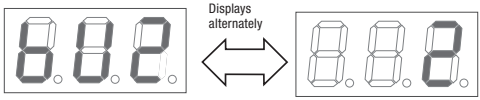
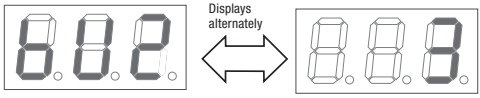
**How to Set the Temperature Display.** **Ex.) From Celsius[˚C] to Fahrenheit[˚F].**

| OPERATION | DISPLAY |
|---|---|
| 1 **(in measuring mode)**<br>  <br>Press and hold the MODE key for over 3 seconds. |  <br>Ex.) 123 times |
| 2<br>  <br>Press the MODE key and select the [c-F]. |  |
| 3<br>  <br>Press the AUTO ZERO key to select Celsius[˚C].<br>  <br>Press the PEAK HOLD key to select Fahrenheit[˚F]. |  <br>  |
| 4<br>  <br>Press and hold the MODE key for over 3 seconds.<br>**Setting completed** | Returns to the measured value in the present running mode. |

## 6-3 SETTING THE ALARM SOUND

Alarm volume is adjustable. The default setting is 2. Mute the alarm sound with 0.

**How to Set the Sensor Alarm.** **Ex.) From volume 2 to 3.**

| OPERATION | DISPLAY |
|---|---|
| 1 **(in measuring mode)**<br>  <br>Press and hold the MODE key for over 3 seconds. | **Sensor Damage Value**<br>  <br>Ex.) 123 times |
| 2<br>  <br>Press the MODE key and select the [bUZ]. | **Alarm Volume 2**<br>  |
|  <br>Press the PEAK HOLD key to display [3] from [2]. | **Alarm Volume 3**<br>  |
| 3<br>  <br>Press and hold the MODE key for over 3 seconds.<br>**Setting completed** | Returns to the measured value in the present running mode. |

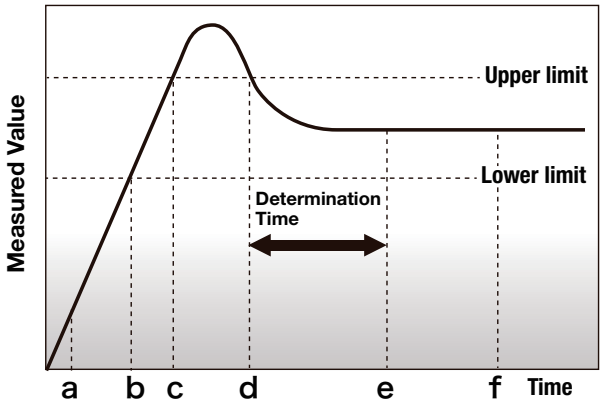
## 6-4 SETTING THE COMPARATOR FUNCTION

The comparator tells the pass-fail result from the measured value. Warning lamp IN (green) & buzzer tell pass result when the value is within the set upper-lower limits. With this function, you can judge whether the soldering iron meets the condition or not without reading the measured value.

This function can be used in any mode (tip temperature / leak voltage / earth resistance). Just press the MODE key to change modes. In setting mode, the upper-lower limits of the pass-fail range are adjustable.

**DETERMINATION EXAMPLE**

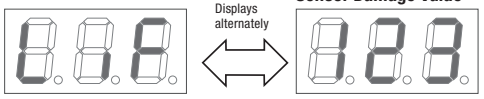
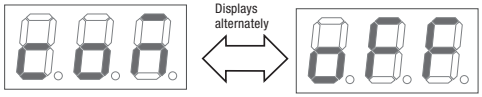
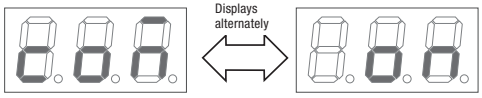
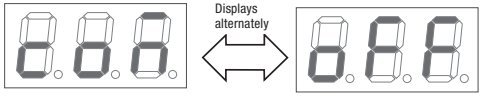
Example: Temperature Measuring




a. Lower than lower limit. Lo lamp (red) lights up.
b. Within the limits. Lights off. Determination time begins. Will take time to complete.
c. Higher than upper limit. Hi lamp (red) lights up.
d. Within the limits. Lights off. Determination time restarts. Will take time to complete.
e. Determination time has passed. Time to judge. The IN lamp (green) lights up and the alarm sounds.
f. With more time, the alarm sounds again.

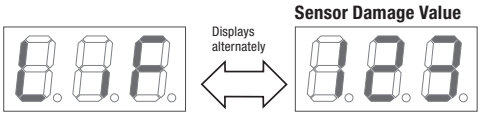
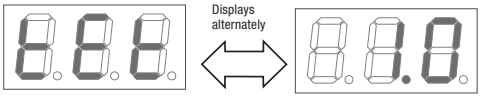
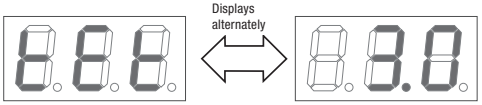
**NOTE** **When measuring leak voltage, time will not count until the tip touches the terminal plate.**

**How to Set the Comparator Function.**

| OPERATION | DISPLAY |
|---|---|
| 1 **(in measuring mode)**<br>  <br>Press and hold the MODE key for over 3 seconds. |  <br>Ex.) 123 times |
| 2<br>  <br>Press the MODE key and select the [coM]. |  |
| 3<br>  <br>Press the PEAK HOLD key to select [ON].<br>  <br>Press the AUTO ZERO key to select [OFF]. |  <br>  |
| 4<br>  <br>Press and hold the MODE key for over 3 seconds.<br>**Setting completed** | Returns to the measured value in the present running mode. |

## How to Set the Comparator Determination Time.

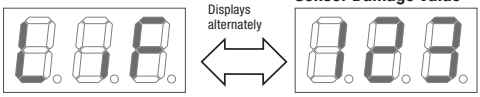
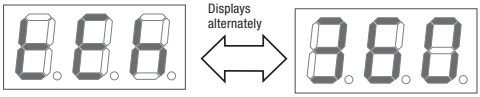
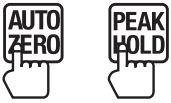
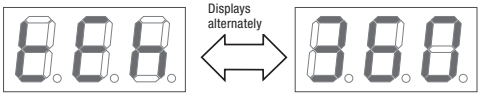
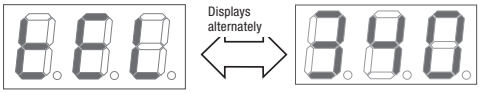
**Ex.) From 1.0 second to 3.0 seconds for measuring of tip temperature.**

| OPERATION | DISPLAY |
|---|---|
| 1 **(in measuring mode)**<br>  <br>Press and hold the MODE key for over 3 seconds. |  <br>Ex.) 123 times |
| 2  <br>Press the MODE key and select the [tEt]. | *  |
| 3  <br>Press (and hold) the PEAK HOLD key until the display shows [3.0] from [1.0]. |  |
| 4  <br>Press and hold the MODE key for over 3 seconds.<br>**Setting completed** | Returns to the measured value in the present running mode. |

*** The display varies by measuring mode. For details of leak voltage / earth resistance, please refer to page 22 [PARAMETERS].**

**How to Set the the Upper-lower Limits of the Comparator Determination.**

**Ex.) Setting the upper-limit 360˚C and lower-limit 340˚C for tip temperature measurement.**

| OPERATION | DISPLAY |
|---|---|
| 1 **(in measuring mode)**<br>  <br>Press and hold the MODE key for over 3 seconds. |  <br>**Sensor Damage Value**<br>Ex.) 123 times |
| 2<br>  <br>Press the MODE key and select the [tEh] or [tEL]. |  <br>Ex.) Upper Limit |
| 3<br>  <br>Press (and hold) AUTO ZERO / PEAK HOLD keys to set your desired limits. |  <br>**New Upper Limit**<br>  <br>**New Lower Limit** |
| 4<br>  <br>Press and hold the MODE key for over 3 seconds.<br>**Setting completed** | Returns to the measured value in the present running mode. |

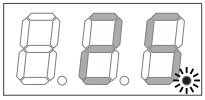
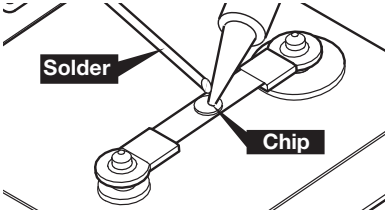
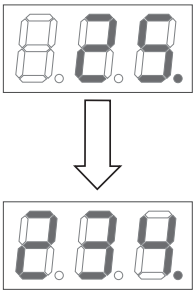
**NOTE** **Both upper limit and lower limit can be set individually for measurement of Tip temperature / Leak voltage / Earth resistance. For details of parameters, please refer to page 22 [PARAMETERS].**

## 6-5 INDICATED VALUE HOLD FUNCTION

Keeps the indicated value displayed. When reading is difficult because of unstable values, you can keep the displayed value with this function. During temperature measurement, it operates as Peak Hold function.

**How to Use the Indicated Value Hold Function.**
(during tip temperature measurement)

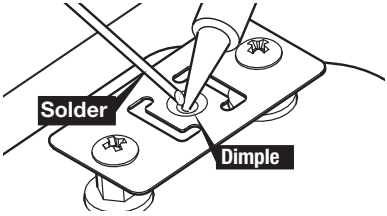
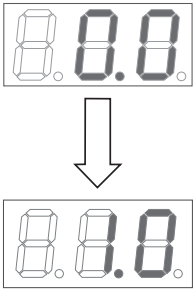
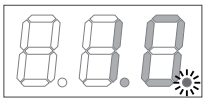
**Ex.) Room temperature 25°C,**
**Maximum temperature 350°C**

| OPERATION | DISPLAY |
|---|---|
| 1 **(in measuring mode)**<br>  <br>Press the PEAK HOLD key. |  <br>The hold lamp (after the final digit) lights up. |
| 2 Put the tip to the sensor chip, applying fresh solder to both parts.<br>  | **Measured Value**<br>  <br>The indicated measured temperature increases with the rising temperature of the sensor.<br>**CAUTION**<br>To avoid injury, do not touch the sensor and the terminal plate during measuring or soon after measuring. These areas get very hot. |
| 3 The displayed value stays even if the tip is released from the chip. Press the PEAK HOLD key again to unset the peak hold function. | **Tip Temperature**<br>  <br>Ex.) Tip temperature 350°C |

**NOTE** **The peak hold function is invalid when the comparator function is ON.**

**How to Use the Indicated Value Hold Function.**
(during leak voltage / earth resistance measurement)

**Ex.) When 1.0mV during Leak Voltage measurement.**

| OPERATION | DISPLAY |
|---|---|
| 1 Put the tip to the center dimple of the terminal plate, applying fresh solder to both parts.   | **Measured Value**   **⚠ CAUTION** To avoid injury, do not touch the sensor and the terminal plate during measuring or soon after measuring. These areas get very hot. |
| 2   Press the PEAK HOLD key to keep the indicated value displayed. Press the PEAK HOLD key again to unset the peak hold function. | **Leak Voltage**   The hold lamp (after the final digit) lights up. |

Operates the same way during earth resistance measurement.

**NOTE** **The peak hold function is invalid when the comparator function is ON.**

## 6-6 AUTO ZERO FUNCTION

Automatically corrects the zero error from the temperature change or age of the circuit.

For usage of the auto zero function, please refer to page 9 [MEASURING THE LEAK VOLTAGE] and page 10 [MEASURING THE EARTH RESISTANCE].

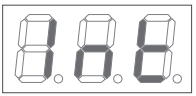
**NOTE** **During measuring the voltage, "0.0" is not always displayed soon after the auto zero function is performed. Nothing is wrong, even though a numeral is displayed.**

**NOTE** **Though you don't have to do it each time, this operation is required every first measurement after switching ON, or if time has passed between measurement.**

## 6-7 INITIALIZE THE SETTINGS

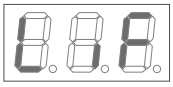
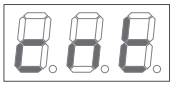
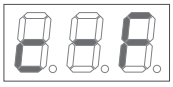
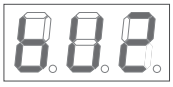
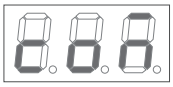
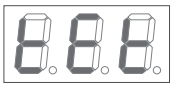
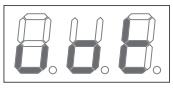
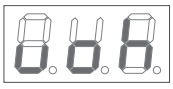
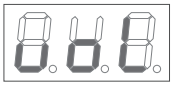
By doing the procedure shown below, all the parameters will be restored to the factory default settings.

**How to Restore Default Settings.**

| OPERATION | DISPLAY |
|---|---|
| 1 MODE + AUTO ZERO + PEAK HOLD<br>When the measured value is displayed, press and hold the following keys for over 5 seconds. | Measured Value<br>  |
| 2 All settings are restored to the factory default.<br>**Setting completed** |  <br>Flashes 5 times<br>Returns to the measured value in the present running mode. |

# 7 PARAMETERS

During measuring mode, press and hold the MODE key to enter the setting mode. For details of the settings, please refer to page 11 [6. OPERATION] and following.

| TERM | DISPLAY | RANGE | UNIT | DEFAULT SETTING |
|---|---|---|---|---|
| **Sensor Damage Value** (Display only) |  | 0~650 (Measuring Range) | — | 0 |
| **Sensor Life Value** |  | 0~500 | — | 200 |
| **Temperature Scale** (Celsius / Fahrenheit) |  | c/F | — | c |
| **Alarm Volume** |  | 0~3 | — | 2 |
| **Comparator** |  | oFF/on | — | oFF |
| **Comparator Determination Time** (Temperature) |  | 0.5~5.0 | sec. | 1.0 |
| **Temperature Upper Limit** |  | 0~700/ 0~1292 | ℃ / ° F | 360/680 |
| **Temperature Lower Limit** |  | 0~700/ 0~1292 | ℃ / ° F | 340/644 |
| **Comparator Determination Time** (Voltage) |  | 0.5~5.0 | sec. | 1.0 |
| **Voltage Upper Limit** |  | 0~200 | mV | 2.0※1 |
| **Voltage Lower Limit** |  | 0~200 | mV | 0.0 |
| **Comparator Determination Time** (Resistance) |  | 0.5~5.0 | sec. | 1.0 |

| TERM | DISPLAY | RANGE | UNIT | DEFAULT SETTING |
|---|---|---|---|---|
| **Resistance Upper Limit** |  | 0~200 | Ω | 5.0※2 |
| **Resistance Lower Limit** |  | 0~200 | Ω | 0.0 |

* IPC defines that the leak voltage should not exceed 2mV.

* IPC defines that the earth resistance should not exceed 5 Ω.

**NOTE** **The upper limit value cannot be set lower than lower limit. Also cannot be set above the maximum limit.**

**NOTE** **When set to Fahrenheit, temperature over 1000˚F are indicated by F-1 and the last three digits, alternately.**

# 8 MAINTENANCE

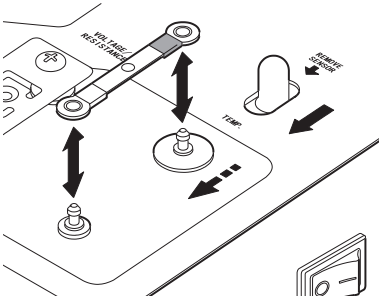
## 8-1 REPLACING THE SENSOR

**How to Detach the Sensor.**

Slide the attaching/detaching knob in the direction of the arrow. The sensor will come loose. Remove.

**How to Attach the sensor.**

Please refer to page 7 [5-1 PREPARATION].




**CAUTION**

**Attach with correct orientation, and right side up. Incorrect attaching will cause wrong temperature data or sensor damage.**

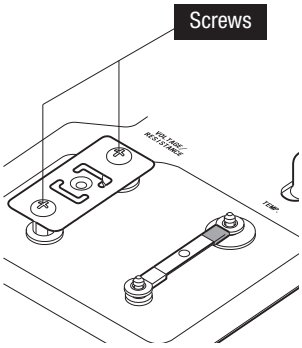
**CAUTION**

**Put the sensor on the connector pin firmly. To avoid damaging the sensor, do not bend or deform it.**

**NOTE**

**When using the Sensor Alarm function, reset the sensor damage value in measuring mode after replacing with a new sensor. (Refer to page 11)**

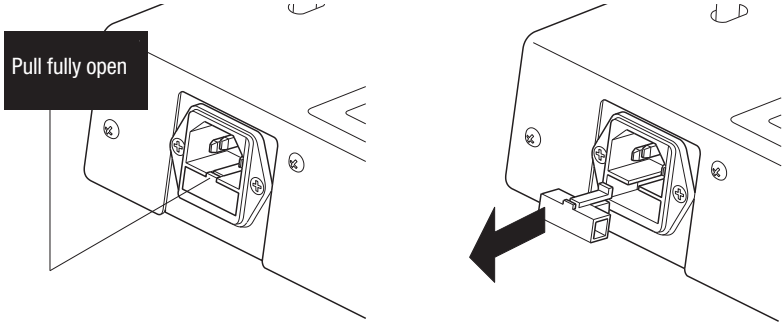
## 8-2 REPLACING THE TERMINAL PLATE




Remove the two fixed screws. Fit new plate. Replace screws.

## 8-3 REPLACING THE FUSE

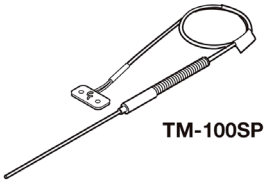
Use a flat screwdriver to pry open the housing. Pull fully open.




# 9 REPLACEMENT PARTS / OPTIONS

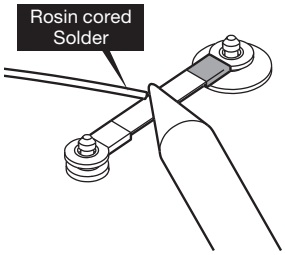
Contact your nearest distributor.

| NO. | Item | Model | Note |
|---|---|---|---|
| 1 | Sensor | **TM-100S** | (3pcs) |
| 2 | Terminal Plate | **TM-200P** | |
| 3 | Sensor Probe | **TM-100SP** | for Solder Pot |



# 10 RECOMMENDATION

For accurate tip temperature measurement, place the tip correctly. Here is some advice for effective tip temperature measurement.




### 1. Fresh Solder to the Sensor

Apply rosin-cored solder to both tip and the chip of the sensor, as in normal soldering work. Use the proper solder amount for your tip size.

**NOTE**

**Too little solder may result in poor heat transmission from the tip to the sensor. Too much solder will drain the heat of the tip, and result in wrong measuring data.**

After initial operation, clean up any extra solder or stains on the center chip. Use goot solder wick CP series.

**NOTE**

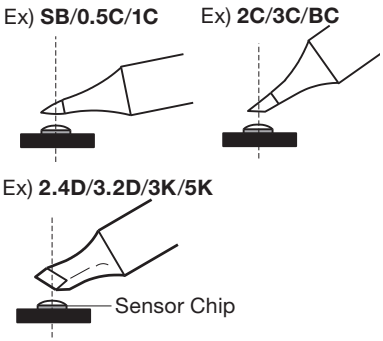
**Solder must be fresh when measuring. An oxidized / stained tip may result in wrong measuring data.**

### 2. Putting the Tip to the Sensor

Put the center of the tip's plated part to the center of the sensor chip.

**NOTE**

**Fine tips (such as SB/1C) lose heat to the sensor. Apply the side surface of the tip, not the tip end.**




**CAUTION**

**Putting the tip to the sensor chip means just placing the tip on the chip. Too much pressure to the sensor risks damage.**

Keep the tip on the sensor chip, until the displayed temperature is stable.

**NOTE** **It takes approx. 3 seconds to display a stable temperature.**

Please read when the displayed value is stable.

**NOTE** **The sensor is a consumable item. The sensor reception will become worse because of the degradation of the chip after repeated use. Requires periodic replacement.**

SOLDERING EQUIPMENT AND ACCESSORIES
**TAIYO ELECTRIC IND.CO.,LTD.**

For customer service, please contact your nearest distributor or :

HomePage: ***www.goot.co.jp*** E-mail: ***info@goot.co.jp***



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