

# Safety Instructions 1

**Read the Safety Instructions carefully before using probes. Failure to read and to comply with our instructions can result in serious injury and accidents. Note that we do not take any responsibility for any incidents which are caused by failure to obey our instructions.**

To reduce the risk of damage to the device under test or to prevent a probe mounted area from melting or fusing, do not use current beyond the safety range (refer to our catalog for the safety current).

## — SAFETY CURRENT —

**Safety current in our catalog is only adapted when current flows through a probe alone. Please note that consideration of contact resistance or wire size is not included in the safety range of current.**

Safety current can be varied if any of the following cases are adapted to your measurement;

### **In Case Contact Resistance Is High**

- Heat can be generated even within the safety range of current if contact resistance is high.
- Heat can be generated even within the safety range of current where contact resistance is raised. Contact resistance is raised when the probe tips are worn due to the increasing number of hits.

### **In Case Wires Are Connected To Receptacles**

- The safety current cannot be adapted where the resistance between components in the probe is raised by the increasing number of contacts.

### **In Case Unsuitable Wire Size Is Used**

- The safety current cannot be adapted where unsuitable size of wires are connected to the probes.

## Safety Instructions 2

**Read the Safety Instructions carefully before using probes. Failure to read and to comply with our instructions can result in serious injury and accidents. Note that we do not take any responsibility for any incidents which are caused by failure to obey our instructions.**

Probes should be carefully selected. The most suitable probe can be different depending on target conditions. (e.g. base material, plating material, shape, the amount of electric current, the process of oxidization, etc.)

- To reduce the risk of damage to the device under test or to prevent a probe mounted area from melting or fusing, do not use current beyond the safety range (refer to our catalog for the safety current).
- Heat can be generated even within the safety range of current if contact resistance is high.
- Heat at the contact point can be varied by the degree of contact resistance. Where high current is used, check the contact resistance. (High resistance can raise temperature at the contact point.)
- Contact resistance can be raised where current is kept flowing. At the contact point can also be raised. Where current flow over one hour, check the contact resistance.
- Make sure that probes contact not only physically but also electrically. Contaminants can attach to probe tips. If current flows through contaminants (=no electrical contact), they can gradually be oxidized. As a result, oxidized contaminants can be turned to insulation, and then, they can cause sparking at contact point and lead to breaking the device under test.
- Select probes carefully, and consider that surface condition of the target is changeable when it is heated up. Selecting probes without considering it can lead to measurement failure.
- Be careful about the ambient temperature. Probes are not suitable at 0°C or below.
- Clean tips of probes regularly to reduce contamination. Contaminants can make the probes wear out quickly and cause failure of measuring.
- Do not use where corrosive liquid is applied.
- Exposed to oilmist, some probes will not be usable.
- Avoid a humid place and use desiccant to store probes to reduce the risk of rust and oxidization.
- Do not use probes which are kept stored more than one year.

**If you need to use high current or voltage, please consult with us**

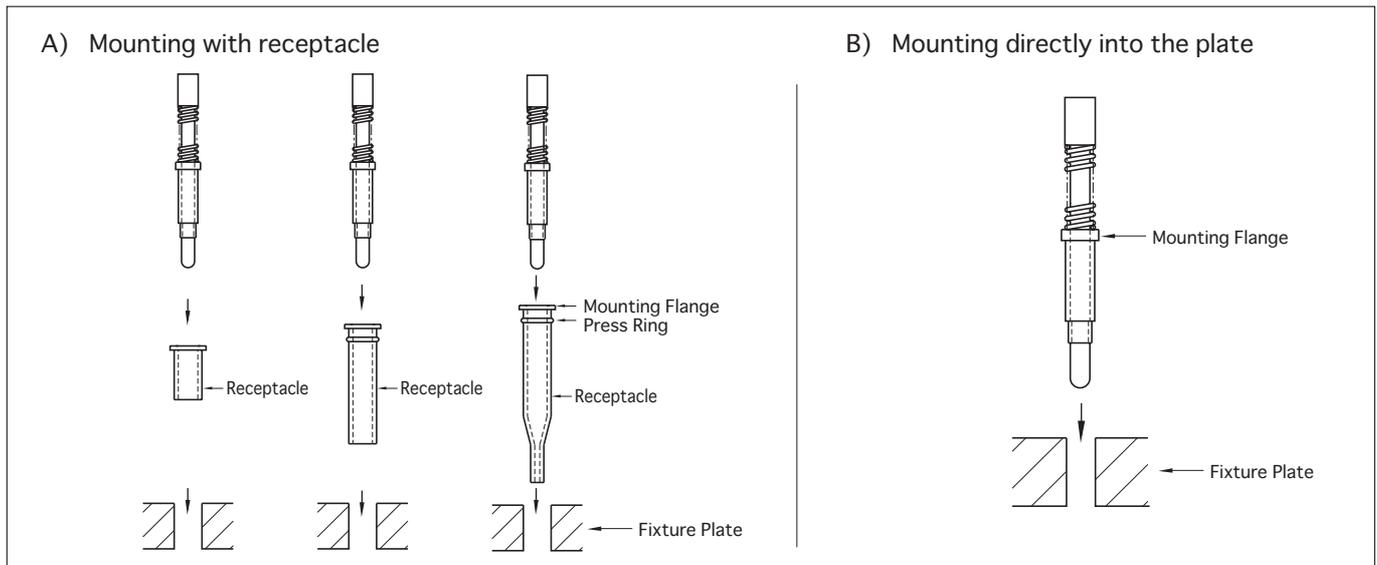
### **- CAUTION -**

- If contact resistance is raised, fire or serious accidents can occur.
- Be careful when high current used, fire or serious accidents can occur resulting from wrong use.
- Be careful when high voltage used, failure to use probes properly can cause sparking and breaking the device under test.
- The probe can be worn and broken while it working.
- Be careful when you check probes closely while they working. Wear protective glasses. Probes can be displaced or fly by their spring action and can cause injury to you.
- Thin or sharp tip can cause injury to you. Be careful when you use them.
- Thin tips of probes can be damaged or broken easily.

Probes are not guaranteed where they are used to measure except electric products or components.

# How to Use

## [ MOUNTING ]



There are two ways to mount probes into a fixture plate.

### A) Mounting with receptacles (Recommended)

#### 1. Drill holes in the fixture plate

- Use our catalog for reference only. The actual hole diameter can slightly vary due to material of the fixture plate, drill speed, pressure etc. Make sure the appropriate diameter when you mount probes.
- Drilling of fixtures is much easier as holes for receptacles need not be as exact as for probes.
- The distance between mounting holes should be sufficient. A short distance between probes can cause electric discharge under high voltage.
- The distance between mounting holes should be sufficient so that mounted probes would not hit each other.
- Too small size of holes in a fixture plate results in excessive holding force so that probes will not work smoothly.
- Too big size of holes in a fixture plate results in lack of holding force so that receptacles can be loosen or fallen.

#### 2. Receptacles are press-fit into the fixture plate

- Receptacles can facilitate to change probes. Use only adaptable receptacles to probe types.

#### 3. Probes are press-fit into the receptacles

### B) Mounting directly into the fixture plate

#### 1. Drill holes in the fixture plate

- Use our catalog for reference only. The actual hole diameter can slightly vary due to material of the fixture plate, drill speed, pressure etc. Make sure the appropriate diameter when you mount probes.
- Too small size of holes in a fixture plate results in excessive holding force so that probes will not work smoothly.
- Too big size of holes in a fixture plate results in lack of holding force so that probes can be loosen or fallen.

#### 2. Probes are press-fit into the plate

- Probes should be mounted at a sufficient distance. A short distance between probes can cause electric discharge under high voltage.
- Probes should be mounted at a sufficient distance in order not to hit other probes.

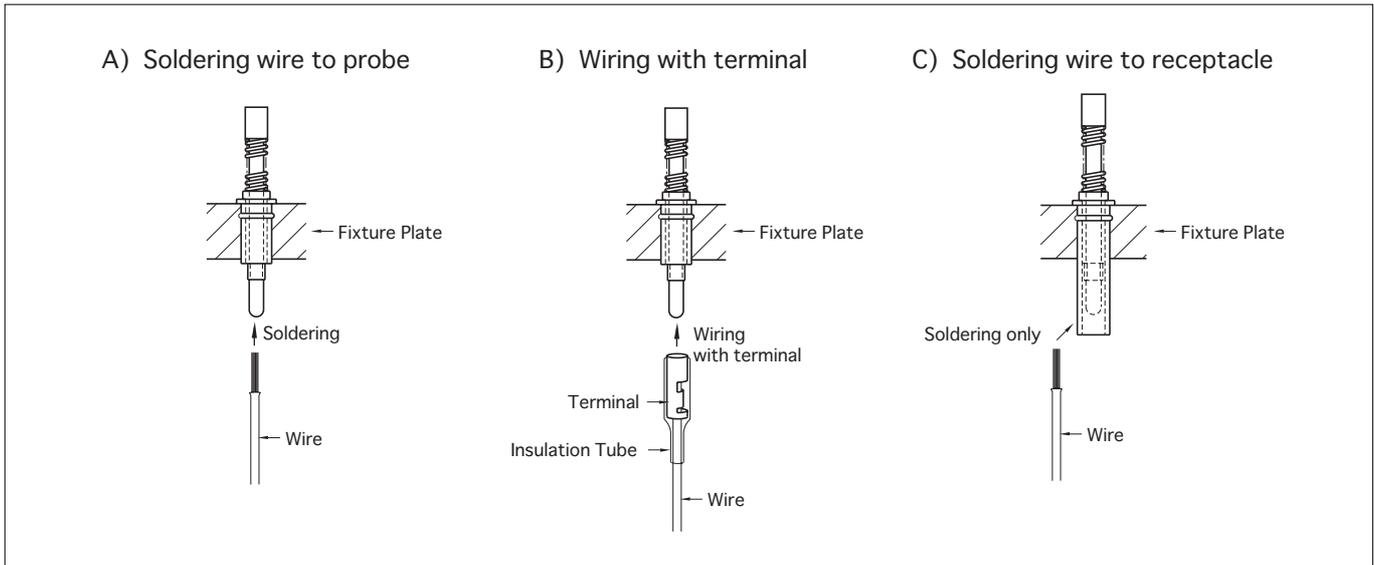
### - CAUTION -

- The probe can be worn and broken while it working.
- Thin or sharp tip can cause injury to you. Be careful when you use them.
- Thin tips of probes can be damaged or broken easily.

**If you need to mount probes in other ways, please consult with us**

# How to Use (Cont.)

## [ WIRING ]



There are three methods to wire. Select the most suitable method for your measuring.

### **A) Soldering wire directly to probes**

- Use wire of flexible material to make probes move smoothly.
- The tension of a wire should be loose (Do not make it tight). Probes cannot move smoothly and fail to contact to the target owing to tight wires.

### **B) Wiring with terminals**

- Use wire of flexible material to make probes move smoothly.
- The tension of a wire should be loose (Do not make it tight). Probes cannot move smoothly and fail to contact to the target owing to tight wires.
- Use only adaptable terminals to the probe types. Using terminals can facilitate to change probes.

### **C) Soldering wire to receptacles**

- Not recommended for precise measurement. Where precise measurement is required we recommend method A) or B).
- Not recommended for high current.
- Use only adaptable receptacles to the probe types. Using receptacles can facilitate to change probes.

### **- CAUTION -**

- The probe can be worn and broken while it working.
- Thin or sharp tip can cause injury to you. Be careful when you use them.
- Thin tips of probes can be damaged or broken easily.

**If you need to wire in other ways, please consult with us**