

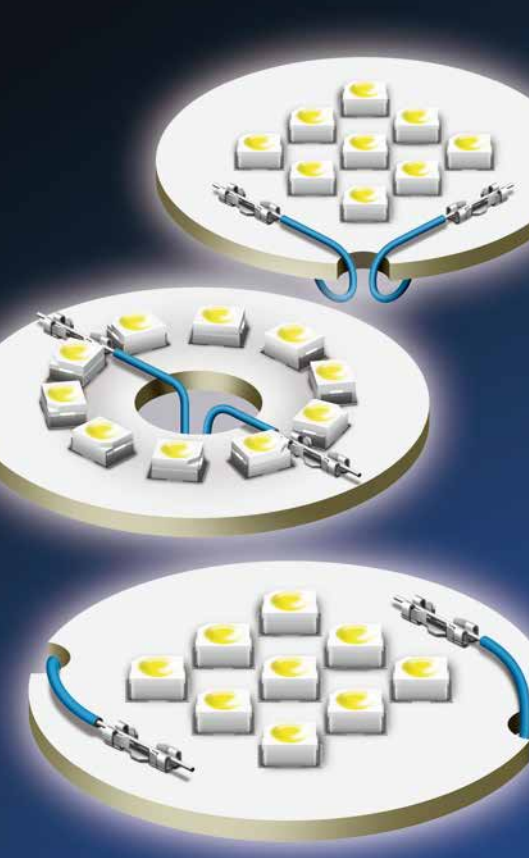
# Panasonic

LED lighting terminal

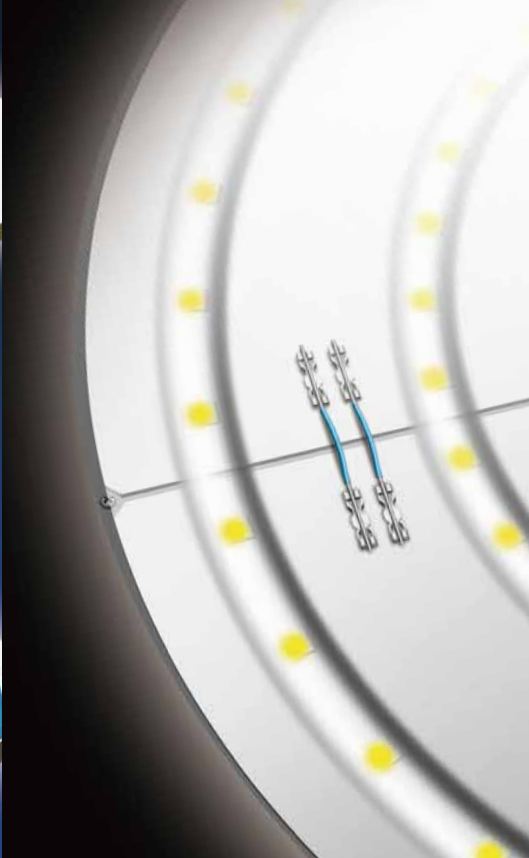
## L Series

A futuristic LED lighting installation. The background is dark with a grid of small, glowing blue and white lights. In the foreground, a large, circular, perforated metal light fixture is visible, with a smaller, similar fixture partially visible to its left. The overall scene is illuminated with a cool blue and white light, creating a high-tech, modern atmosphere.

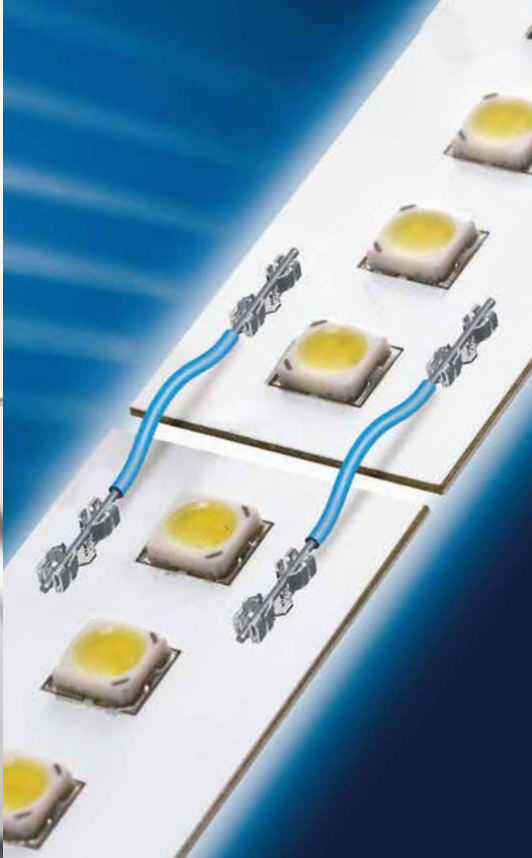
Connectors to Brighten the Future of LED Lights



Connection between different surfaces LED light bulbs



Same-plane connection

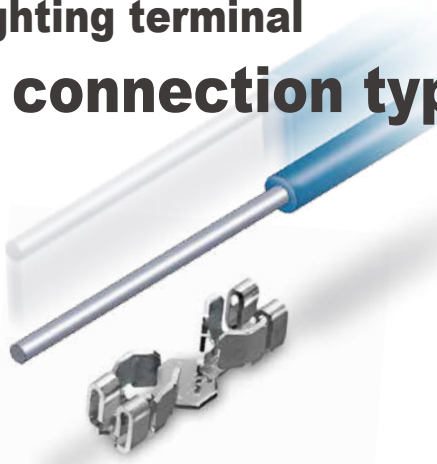


Line type LED lighting

# L2

**High capacity**  
250 V allows

## LED lighting terminal Wire connection type



### Small, low-profile, 250 V allowance, 1 pin connector for wire connection

Easy connecting with vertical mating structure a click feed back.

Original terminal shape provides strong pull strength and less concern on half mating.

More design ability of your board by small, low profile, and 1 pin connection.

The high capacity 3 A, 250 V allows the connector to serve a wide variety of connection purposes.

Dedicated mating jig available.

**Applications** Ideal for wire connection between different surfaces of power supplies and connection between PC boards on the same plane



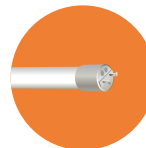
LED light bulbs



LED down-light



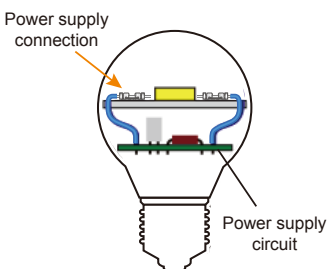
LED ceiling light



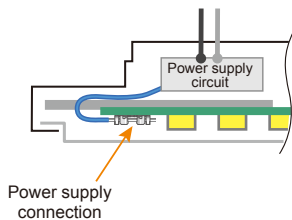
Line type LED lighting

#### Application examples

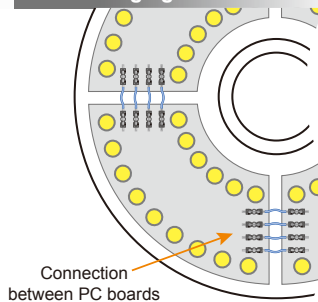
##### LED light bulbs



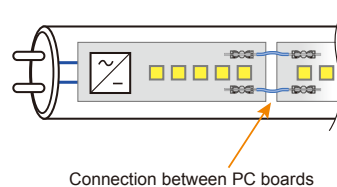
##### LED down-light



##### LED ceiling light



##### Line type



For LED

## LED lighting terminal

# L2 Series (Wire connection type)

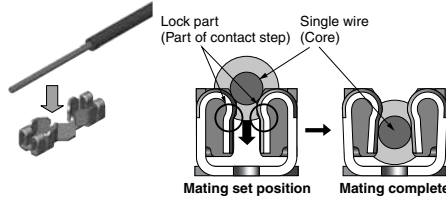
New



RoHS compliant

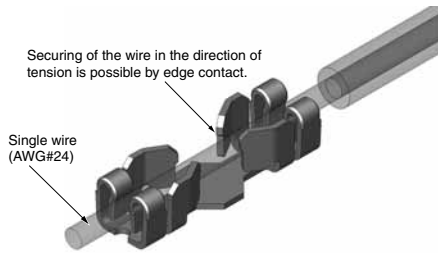
### FEATURES

**1. Easy connecting with vertical mating structure a click feed back.**  
The structure design prevents loose mating and makes it easy to visually check the mating.



When the wire goes through the lock part, click feedback is given, and the wire automatically stops at the setting position, preventing loose mating.

**2. Original terminal shape provides strong pull strength and less concern on half mating.**

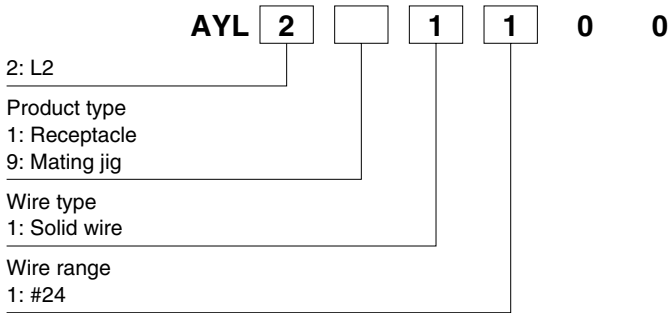


**3. More design ability of your board by small, low profile, and 1 pin connection.**  
**4. The high capacity 3 A, 250 V allows the connector to serve a wide variety of connection purposes.**  
**5. Dedicated mating jig available.**

### APPLICATIONS

- Wire connection for power supply of LED light bulbs, LED down-light and line lighting, etc.
- Between PC boards connection of LED ceiling light, LED base light and line lighting, etc.

## ORDERING INFORMATION



## PRODUCT TYPES

### ■ Receptacle

Product height	Part No.	Packing	
		Inner carton (1-reel)	Outer carton
1.35mm	AYL211100	12,000 pieces	24,000 pieces

Note: Order unit:

For volume production: 1-inner carton (1-reel) units

Samples for mounting check: fraction unit. Please contact our sales office.

### ■ Mating jig

Part	Part No.	Packing
		Outer carton (Individual packaging)
Mating jig	AYL291100	10 pieces

Note: Order unit:

For volume production: Outer carton (10 pieces) units

## SPECIFICATIONS

### 1. Characteristics

Item		Specifications	Conditions																		
Electrical characteristics	Rated current	Max. 3.0A																			
	Rated voltage	Max. 250V AC/DC																			
	Contact resistance	Initial: Max. 30mΩ After environmental examination: Max. 45mΩ	Based on the contact resistance measurement method specified by JIS C 5402.																		
Mechanical characteristics	Wire insertion force	Max. 30N (Initial)	Mating a wire to the receptacle, so that a wire and PC board are kept parallel. Measure using mating jig or mold cover.																		
	Wire retention force (Vertically)	Min. 4N (Initial)	Unmating a wire from the receptacle, so that a wire and PC board are kept parallel. Measure using mold cover.																		
	Wire retention force (Axial)	Min. 8N (Initial)	Apply an axial pull-off load to wire.																		
	Insertion and removal life	3 times (Containing initial mating)	Use a new wire. Must be inserted and removed by the designated method.																		
Environmental characteristics	Ambient temperature (Operating temperature)	-40°C to +115°C	No freezing at low temperatures. No dew condensation.																		
	Storage temperature	-40°C to +85°C (Products only) -40°C to +50°C (Packaging structure)	No freezing at low temperatures. No dew condensation.																		
	Thermal shock resistance (Receptacle and wire mated)	200 cycles, contact resistance max. 45mΩ	Conformed to MIL-STD-202F, method 107G <table border="1"> <thead> <tr> <th>Order</th> <th>Temperature (°C)</th> <th>Time (minutes)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40<math>\frac{3}{4}</math></td> <td>30</td> </tr> <tr> <td>2</td> <td>∩</td> <td>Max. 5</td> </tr> <tr> <td>3</td> <td>115<math>\frac{3}{4}</math></td> <td>30</td> </tr> <tr> <td>4</td> <td>∩</td> <td>Max. 5</td> </tr> <tr> <td></td> <td>-40<math>\frac{3}{4}</math></td> <td></td> </tr> </tbody> </table>	Order	Temperature (°C)	Time (minutes)	1	-40 $\frac{3}{4}$	30	2	∩	Max. 5	3	115 $\frac{3}{4}$	30	4	∩	Max. 5		-40 $\frac{3}{4}$	
	Order	Temperature (°C)	Time (minutes)																		
	1	-40 $\frac{3}{4}$	30																		
	2	∩	Max. 5																		
	3	115 $\frac{3}{4}$	30																		
4	∩	Max. 5																			
	-40 $\frac{3}{4}$																				
Humidity resistance (Receptacle and wire mated)	500 hours, contact resistance max. 45mΩ	Bath temperature 85±2°C, humidity 80 to 85% R.H.																			
Saltwater spray resistance (Receptacle and wire mated)	24 hours, contact resistance max. 45mΩ	Conformed to MIL-STD-1344A, method 1001 Bath temperature 35±2°C, saltwater concentration 5±1%																			
H <sub>2</sub> S resistance (Receptacle and wire mated)	48 hours, contact resistance max. 45mΩ	Conformed to JEIDA-38-1984 Bath temperature 40±2°C, gas concentration 3±1 ppm, humidity 75 to 80% R.H.																			
Soldering temperature resistance (Receptacle)	The initial specification must be satisfied electrically and mechanically	Reflow soldering: Max. peak temperature of 260°C, Max. 2 times (PC board surface temperature near the receptacle)																			
Solder paste thickness	The initial specification must be satisfied electrically and mechanically	Recommendation t = 0.12 mm																			

### 2. Material and plating

#### 1) Receptacle

Part	Material	Color	Plating
Contact	Copper alloy	—	Sn plating over Ni

#### 2) Mating jig

Part	Material	Color	Plating
Mating jig	Polycarbonate resin	Transparence	—

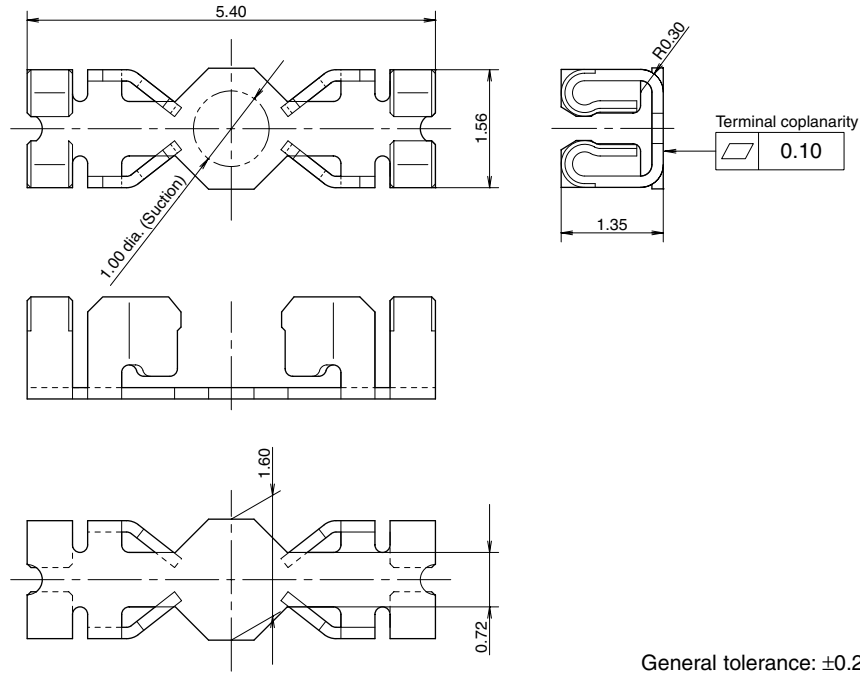
### 3. Applicable wires

Wire range	Number of conductors/Diameter of conductor (Number of conductors/mm)	Diameter of insulation (mm)	Wire core
AWG #24	1/0.511±0.010	Max. 1.35 Note) Max. 1.00 when using the mold cover	Tin plating annealed copper wire (Min. 0.3μm)

Note: This product is hot designed to be used for stranded wires (including spare solder).

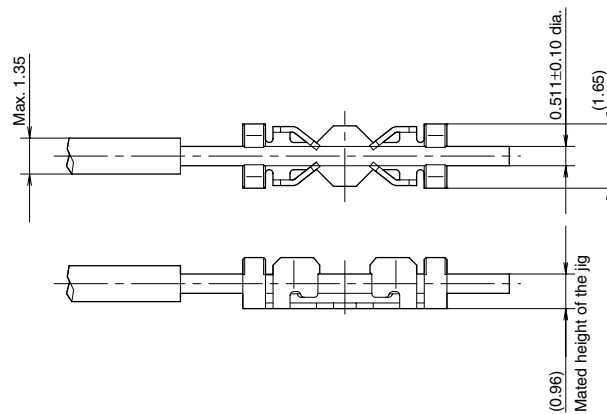
# DIMENSIONS (Unit: mm)

## Receptacle

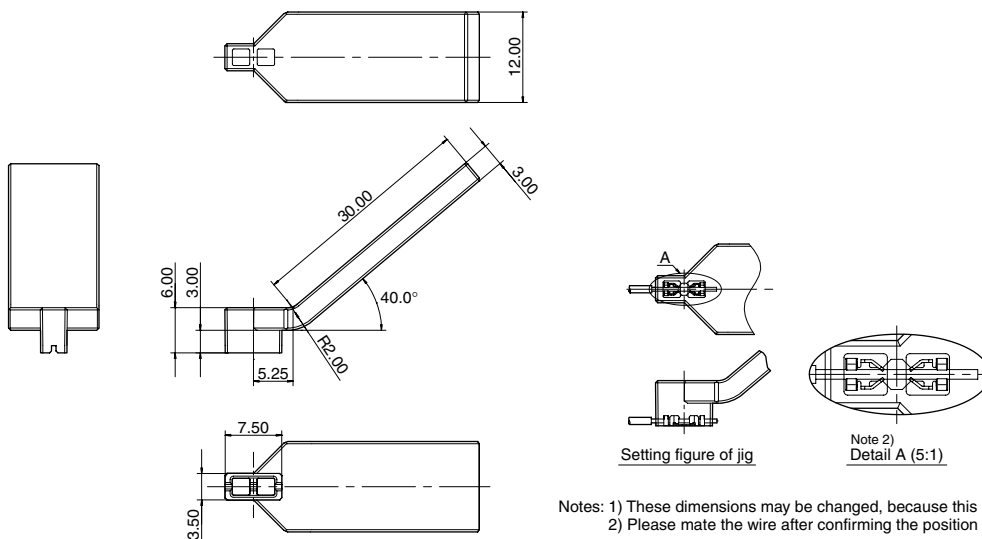


General tolerance:  $\pm 0.2$

## Receptacle and Wire are mated



## Mating jig

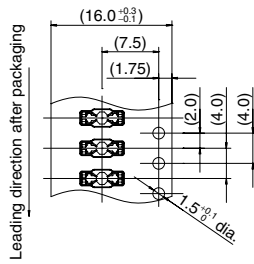


Notes: 1) These dimensions may be changed, because this product is under development.  
2) Please mate the wire after confirming the position of the receptacle from the jig hole.

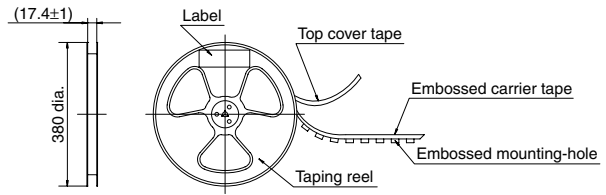
General tolerance:  $\pm 0.5$

**EMBOSSED TAPE DIMENSIONS** (Unit: mm)

• **Tape packed status**  
**Receptacle**



• **Specifications for the plastic reel**  
(In accordance with EIAJ ET-7200B.)



• **Connector orientation with respect to embossed tape feeding direction**

Direction of tape progress	Type	L2

**NOTES ON USING CONNECTOR FOR LED LIGHTING L2**

■ **Safety precautions**

Observe the following safety precautions to prevent accidents and injuries.

- 1) The use of the product outside of the specified rated current and breakdown voltage ranges may cause abnormal heating, smoke, and fire. Never use the product beyond the specified ranges.
- 2) In order to avoid accidents, make sure you have thoroughly reviewed the specifications before use. Consult us if you plan to use the product in a way not covered by the specifications.
- 3) We are consistently striving to improve quality and reliability. However, the fact remains that electrical components and devices generally fail at a given statistical probability. Furthermore, their durability varies depending on where and how they are used.

Please be sure to verify electrical components and devices under actual conditions before use. Continuously using them in a state of degraded performance may cause deterioration in insulation performance, thus resulting in abnormal heat generation, smoke generation, or fire. To avoid that, we ask you to implement safe designs that include redundancy, fire prevention, and malfunction prevention. Also, please conduct periodic maintenance so that no accidents resulting in injury or death, fire, or harm to society will be caused as a result of product failure or service life.

■ **Mounting of receptacle**

1) **PC board design**

- Design the recommended foot pattern in order to secure the mechanical strength in the soldered areas.

2) **Receptacle mounting**

- When mounting, if there is too much suction nozzle pressure, the receptacle might deform and break. Please check beforehand.
- To mount the receptacle, place the adsorption nozzle within the adsorption range shown in the specification diagram and pay careful attention not to cause the receptacle to deform.
- In case of dry condition, please care the occurrence of static electricity.

The product may be adhered to the embossed carrier tape or the cover tape in dry condition.

Recommended humidity is between 40 to 60% and please remove static electricity by ionizer in manufacturing scene.

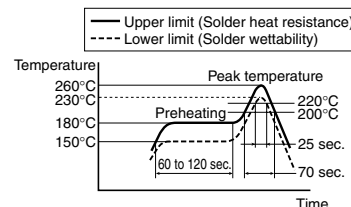
3) **Soldering**

(1) **Manual soldering**

This product is not designed to be mounted by manual soldering.

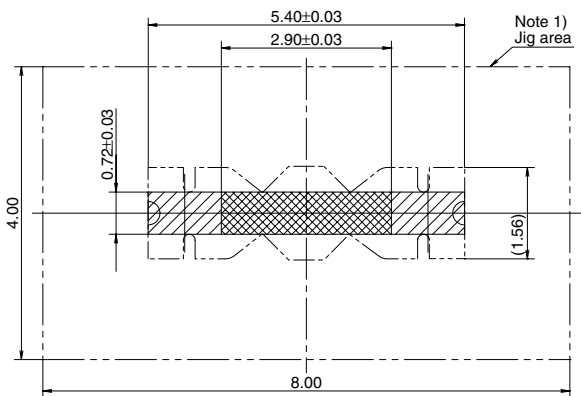
(2) **Reflow soldering**

- Screen-printing is recommended for printing paste solder.
- To determine the relationship between the screen opening area and the PC board foot pattern area, refer to the diagrams in the recommended patterns for PC boards and metal masks. Make sure to use the terminal tip as a reference position when setting.
- Too much solder may cause solder creeping near the contacting part or contact failure.
- Consult us when using a screen-printing thickness other than that recommended.
- Depending on the size of the receptacle being used, self alignment may not be possible. Accordingly, carefully position the receptacle with the PC board pattern.
- The recommended reflow temperature profile is given in the figure below.



- The temperature is measured on the surface of the PC board near the receptacle.
- Certain solder and flux types may cause serious solder creeping. Solder and flux characteristics should be taken into consideration when setting the reflow soldering conditions.
- When coating the PC board after soldering the receptacle to prevent the deterioration of insulation, perform the coating in such a way so that the coating does not get on the receptacle.

Recommended PC board Pattern (Unit: mm)  
(mounting pad layout 10 : 1)  
(TOP VIEW)



- Notes: 1) Do not mount any parts in the jig area.  
2) Pad area (Two pads must be connected.)  
3) Resist processing on the copper foil. (For solder outflow prevention.)  
4) The open window area of solder screen is the same as pad area.  
[t = 0.12 mm (Screen thickness)]

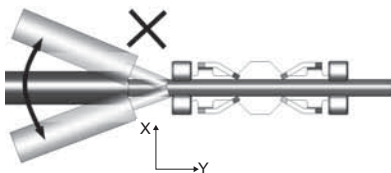
- 4) Do not drop or handle the terminal carelessly. Otherwise, the receptacle may become deformed due to excessive force or applied solderability may degrade.  
5) When cutting or bending the PC board after mounting the receptacle, be careful that the soldered sections are subjected to excessive forces.

#### ■ Remarks

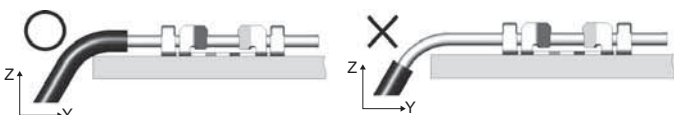
- 1) This product has simple lock structure for mating. However, applying load to the wire or drop impact may cause the wire to be disconnected. Please take countermeasures at the equipment for preventing removal of wire.  
2) Provide a sufficient insulation distance between receptacles and between the ground and receptacle. Make sure that the insulation distance is based on the safety standards of each country.  
3) Design the line to have redundancy by leaving some extra length for the wire so as not to cause the tensile force of the wire generated by the thermal expansion and contraction of PC board to apply load to the receptacle.



- 4) Do not use the wire at the movable part. Doing so will cause the receptacle to become deformed or the wire to be disconnected.

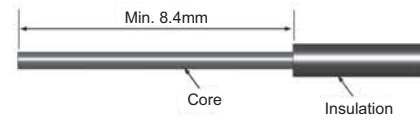


- 5) If the wire needs to be bent at the edge of the PC board, mount the receptacle so that the wire will bend at its insulation portion. Bending the wire at its core portion may cause the wire to get broken.



#### ■ Applicable wires

- 1) The following diagram shows wire strip length for stripping the wire in order to use a mating jig. (Consult us when using the mold cover.)



- 2) To strip the insulation, keep the core straight and protect it from any flaw and deformation. Deformation of the core will cause the receptacle to be deformed.



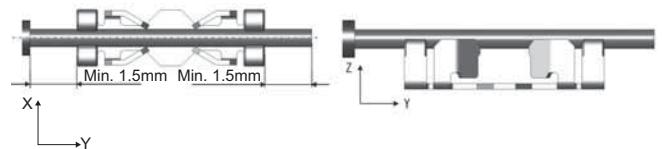
- 3) This product is not designed to be used for stranded wires (including spare solder).

#### ■ Mating of wire

- 1) When mating the wire, use the recommended mating jig.

##### (1) Positioning of wire

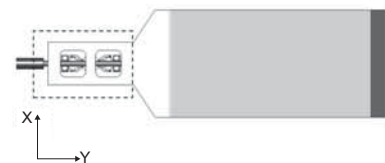
- Position the wire so that it will come to the center of the receptacle.



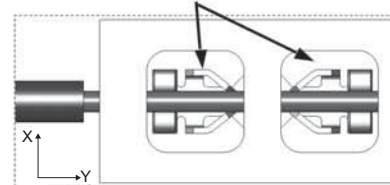
##### (2) Setting of the mating jig

- Check the positions of the receptacle through the hole in the jig, and then push the jig in the receptacle side.

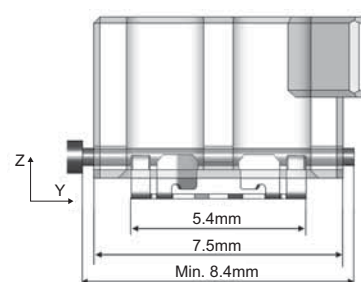
- When pushing the jig in the receptacle side, pay careful attention not to cause the jig to become misaligned. Misalignment of the jig will damage the receptacle.



Check the positions of the receptacle.

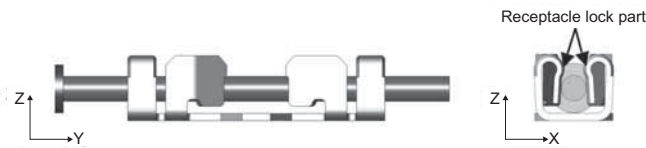


Push the jig in the receptacle side.

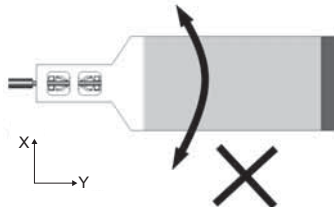


(3) Mating state

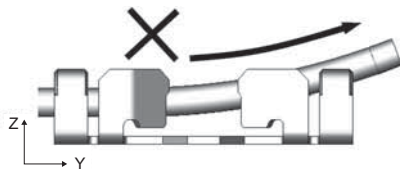
Ensure that the wire is connected to the given position.  
(The core must be lower than the receptacle lock part.)



2) Do not twist the jig to insert it. Doing so will cause the receptacle to be deformed or broken down, or the soldered portion to be peeled off.



3) Do not use the receptacle in a half-mating state. Doing so will result in a conduction failure. Ensure that the wire is completely connected.



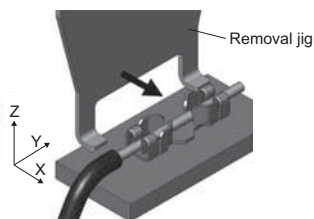
4) Do not connect up the wire to the receptacle until the receptacle is soldered.  
Also, forcibly applied external pressure on the receptacle can cause to lose its evenness or deform.  
5) Secure jig areas shown in the specification diagram.

■ Removal of wire

1) Prepare for a removal jig by reference to drawing and follow the steps for removal as shown below.  
(For a removal jig drawing, please contact our sales office.)

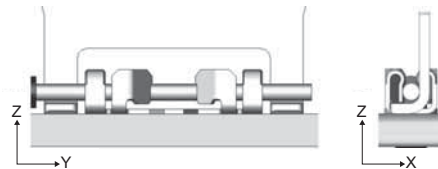
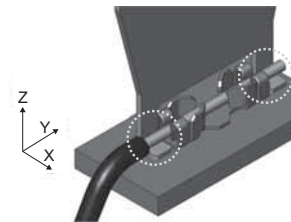
(1) Setting of removal jig

Insert the tip of the removal jig under the wire from the side of receptacle.

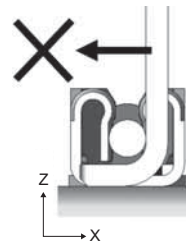


(2) Positioning of removal jig

Make sure that the tip of the removal jig is under the wire.

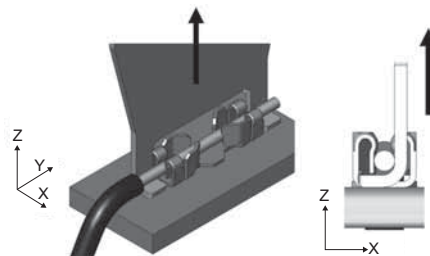


Pay attention to the position of the jig and do not apply an excessive load to the wire. Otherwise, the receptacle may be deformed.



(3) Removal way of wire

Remove the wire by lifting the jig straight up at a vertical angle to the receptacle. Lifting the jig at a slant may cause the deformation of receptacle.



2) Reuse of disconnected wire is not allowed. The disconnected wire has a scratch and a deformed shape.

Please contact .....

Panasonic Corporation

Automation Controls Business Division

■ Head Office: 1048, Kadoma, Kadoma-shi, Osaka 571-8686, Japan

■ Telephone: +81-6-6908-1050 ■ Facsimile: +81-6-6908-5781

[industrial.panasonic.com/ac/e/](http://industrial.panasonic.com/ac/e/)

**Panasonic**®

© Panasonic Corporation 2013