

Dye-Sensitized Solar Cell
Standard Module Panel
User's Guide



Introduction

- Keep this guide with care for future reference.
- The performance and safety of this product cannot be guaranteed if used for other than its intended purposes described in this manual. Read this manual thoroughly before using the product and use it correctly.
- The contents of this manual are subject to change without notice for the purpose of improving product performance.
- The illustrations used in this manual may differ from the actual product in detail.
- We have made every effort to ensure that the contents of this manual are correct, but if you have any questions, errors, omissions, incorrect pages or missing pages, please contact us.
- Unauthorized reproduction or copying of all or part of this manual is prohibited.
- When the user of this product moves to a third party, please be sure to attach the specification sheet and this guide, and convey the correct usage.
- This product is not intended to be installed into medical devices, nuclear power equipment, aerospace equipment, transportation equipment, or other equipment related to human life or equipment or systems that require high reliability. Fujikura does not have any responsibility for personal injury or social damage caused by using this product for these purposes.

Safety precautions

This section includes instructions that must be observed to prevent harm to people and damage to property.

■ This section categorizes and describes the degree of harm and damage caused by incorrect use of this product.

	WARNING	Improper handling by ignoring this indication may result in death or serious injury.
	CAUTION	Improper handling by ignoring this indication may result in personal injury or property damage.

■ The following graphic symbols indicate what you must observe.



This symbol indicates a Don't.



This symbol indicates a Must Do.



WARNING



Do not let this product come in contact with flammable gas, flammable liquid, or organic solvent.

Do not let this product come in contact with flammable gas, flammable liquid, or organic solvent. Do not use this product where it may contact with these. It may cause a failure or fire.



Do not let this product come in contact with acid gas, corrosive gas, or corrosive liquid.

Do not let this product come in contact with acid gas, corrosive gas, or corrosive liquid. Do not use this product where it may come in contact with these substances. Do not use this product where the air contains a lot of salt. It may cause a failure or fire.



Do not apply external force to this product

Do not drop this product. Do not apply strong force, impact or pressure to this product. Using this product in that state may cause fire or electric shock.



Stop using this product immediately if the lead tip or the terminal get wet.

Continuing to use this product may result in a fire or electric shock.



Do not touch this product with wet hands

It may cause malfunction or electric shock.



Do not disassemble or modify this product

It may cause a fire or electric shock.



Check the polarity carefully before using this product

Do not mistake the polarity of the output lead when connecting to an electronic circuit. It may cause a malfunction or fire.



Do not supply electric power to this product externally. Do not use this product in a strong magnetic field, electric field or radiation environment.

It may cause a fire or electric shock.



Do not allow anyone who does not understand the proper handling method, such as infants and children, to directly touch this product.

Incorrect usage of this product may lead to damage and accidents. Rough handling or swallowing this product or its fragments may cause serious injury or serious health damage.



Stop using this product immediately and dispose of it if it is damaged.

Continuing to use this product may result in a fire or electric shock.



CAUTION



Do not touch around the sides with your bare hands.

You may get injured by touching the sides or corners of this product because it is made of glass substrate. Protect your hands with gloves when handling this product.



Do not use or store this product at high temperatures. Do not let it touch hot objects.

Storing in a place where the temperature is out of specification for the storage conditions may cause a malfunction of this product. In addition, when radiant heat is received from an external heat source, the surface temperature and internal temperature may rise above the ambient temperature.



If this product is hot, do not touch it with bare hands.

Even if the temperature is within the operating or storage conditions, touching this product with high temperature may cause burns if touched with bare hands.



Do not use or store in places where the temperature changes suddenly.

Do not use or store in a place where condensation may occur due to sudden temperature changes. It may cause a failure, fire, or electric shock.



Use and store in a dust-free place

Do not use or store in a dusty or sandy place. It may cause a failure, fire, or electric shock.



Do not damage the lead wire

A damaged wire may cause a failure, fire, or electric shock.



Do not touch the tip of the lead wire and the terminal

When attaching or detaching to/from this product, do not touch the exposed tip of the lead wire or the terminal. It may cause an electric shock, corrosion, or poor contact.



Do not touch with bare hands when damaged

In case of this product being damaged, stop using it immediately. Since a glass substrate is used, and if the product is used as it is, the damaged parts or debris may cause injury or damage to the human body. Also, since this product contains electrolyte, if it leaks, touching it may cause skin irritation. Be careful not to touch it with bare hands. In case the electrolyte gets into your eyes or mouth, immediately rinse with water or lukewarm water and seek medical advice.



Do not place in an unstable place

Dropping it may cause injury.



Do not push with strong force. Do not install with strong force

This may cause damage such as breakage of the glass substrate, resulting in injury.



Do not disassemble or modify

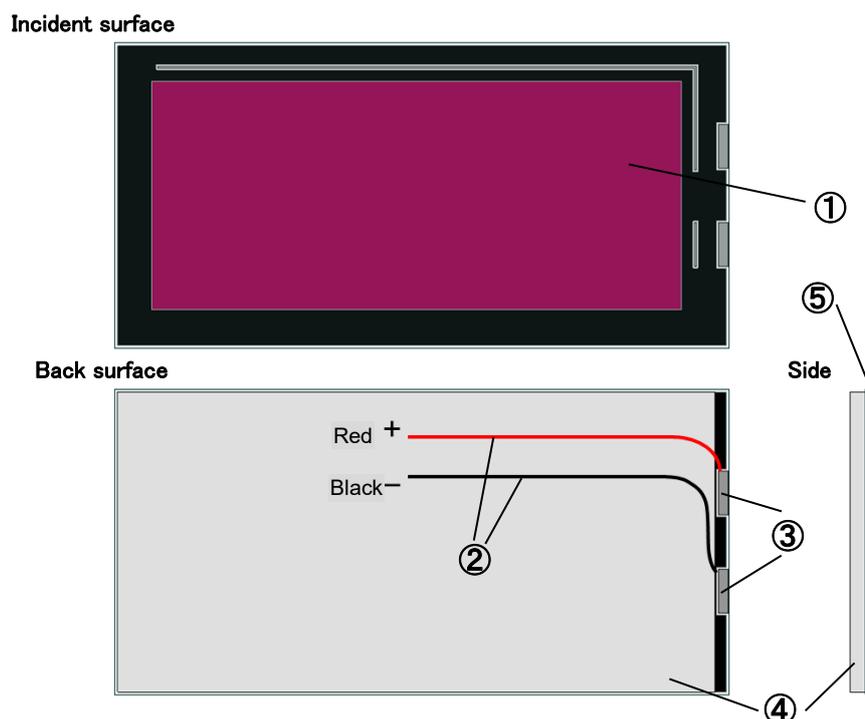
Do not disassemble or modify this product as it may cause injury or adverse effects on the human body.

Features/Functions

- This product is a solar cell module panel designed to efficiently convert even weak light into electric power. This product is suitable as a power source for electronic devices in a low light environment such as in the shade or inside a building.

Name of each part

- The shape varies depending on the model. For specifications such as external dimensions and electrical characteristics, refer to the specification sheets of each product.



- ① Power generation area**
Electricity is generated when the dark purple part is exposed to light.
- ② Lead wires**
Connect the tip of the lead wire to your device. The red is the positive pole and the black is the negative pole.
- ③ Terminal (Soldered area)**
- ④ Back sheet** (The models without a back sheet have black backsides.)
- ⑤ Glass substrate**

How to use/store/dispose

How to connect to your device

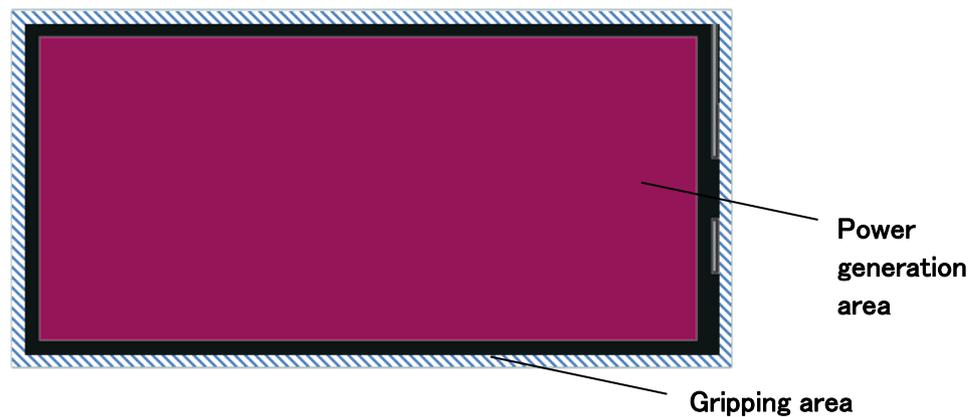
Connect the tip of the lead wire securely to the device to be used by soldering or with a connector.

- A protective film is attached to the incident surface. Please peel it off before use.
- The lead wire is fixed with tape. Please peel it off with care not to apply force to the bottom part of the lead wire.
- Please use this product after reading this manual and confirming that the electrical characteristics are suitable for your device.
- Check the polarity of $+$ or $-$ and connect this product correctly.
(If connected reversely, the reverse bias voltage will be applied, resulting in an equipment failure.)
- Take measures against static electricity when unpacking and connecting this product. Application of static electricity may cause a failure.
- Customers must not solder the terminals. Do not remove or try to replace the lead wire. The terminal will be damaged and you will not be able to use it.
- Some flux is attached to the solder at the terminal bottom of the lead wire. Please note that rubbing it may stain the surrounding area.

Recommended mounting method when installing

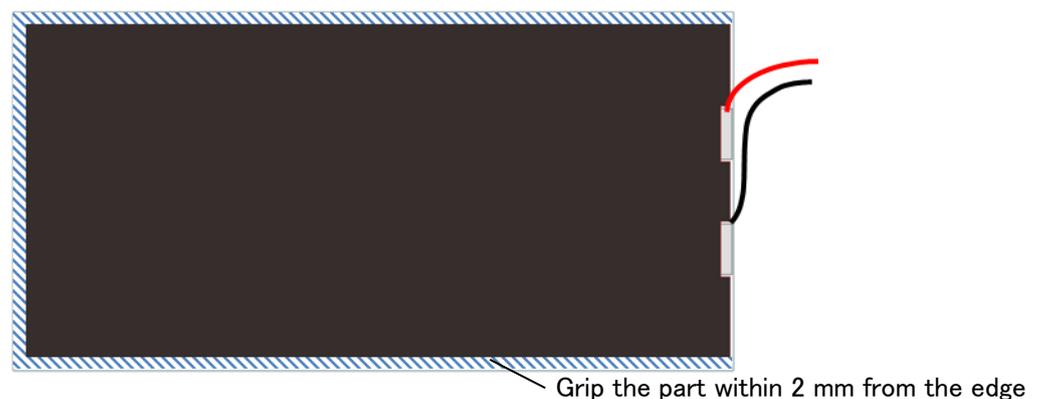
For incident surface and sides

- Be careful not to hide the power generation area, and hold it with a non-conductive member.

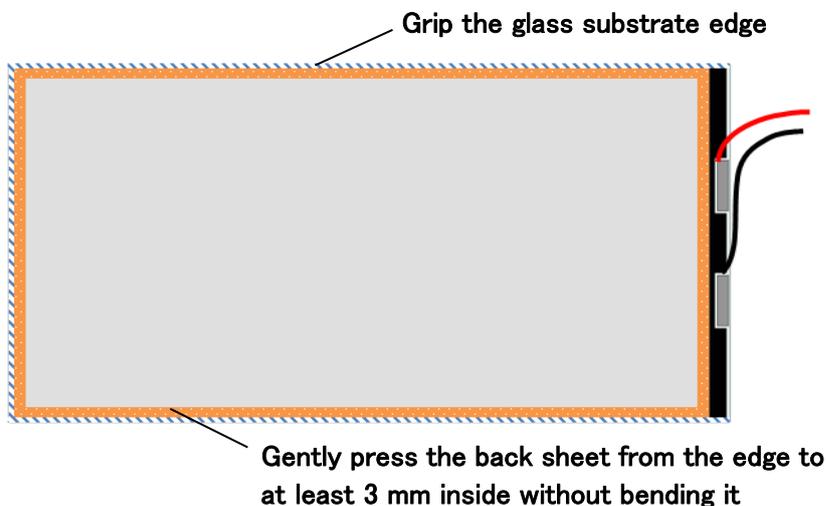


For back surface

- For models with a black back (without back sheet), hold the part within 2 mm from the edge except the terminal and its surroundings with a non-conductive member.



- For models with a gray back (with back sheet), hold the edge of the glass substrate except the terminal and its surroundings with a non-conductive member. When using this product in an environment with a temperature of 40° C or higher, gently press the back sheet from the edge to at least 3 mm inside without bending it. You can also press the entire back sheet.



- When installing, fix this module panel without strain or strong stress.
- Applying force to the back surface other than the grip part may deteriorate the performance or damage internal parts resulting in a failure. Do not push the back surface with a strong force. Do not install it in a device with force applied to the back surface.
- If bending and stretching force is applied to the soldered area of the lead wire, this product may break. Please handle with care.
- Securely fix the lead wires inside a device to be installed so that they will not move during transportation or use.
- Be careful not to install this product with tension applied to the lead wires. There is a risk that this product will become unusable due to wire breakage or peeling of the terminal.
- Be sure to take measures against static electricity during installing. If it is applied, this product may break down.
- Install this product so that the parts other than the power generation area do not get wet. Design the device so that water does not get into the sides and back of this product.
- The incident surface and back surface are insulated, but the sides can be conductive. Do not let other electronic circuits, terminals, or conductive parts touch the sides.

How to generate power

Please illuminate the power generation area. Power will be supplied to the device connected to the lead wire

- The operating environment is described in the specification sheet. Please check it before use.
- If the device does not work, check if the positive and negative polarities are connected correctly. Check the operating manual of the device to see if the generated voltage matches the device.
- For models with a back sheet, if the temperature of the entire module panel exceeds 40° C, the back sheet will easily peel off. Please use this product with the back sheet held down to the extent that the sheet does not bend.

How to store

Please store this product away from high temperature and humidity.

- Please refer to the specification sheet for the range of storage environment.
- For models with a back sheet, the adhesive that attaches the back sheet may become soft when the temperature of the entire module panel rises above 40° C. When storing in an environment with a temperature of 40° C or above, lightly press the back sheet to prevent peeling off to the extent that it does not bend.
- If you do not use this product for a long time, store it in a dark place so that the power generation area is not exposed to light. If you cannot store in a dark place, be sure to connect the + and – lead wires before storing.

How to discard

Discard the product properly according to the sorting method specified by each local government.

**Dye-Sensitized Solar Cell
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FDSC-EZALLFGC01**

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1-5-1, Kiba, Koto-Ku, Tokyo
Fujikura Ltd.
<https://www.fujikura.co.jp/eng/>