

RecoHandTM

Instruction Manual

TEIJIN

Table of Contents

Introduction	3
Safety Precautions	4
Requests for Use	6
Precautions for Wireless Communications	6
Name of Each Part	8
Accessories	8
LED indicator	9
How to Charge	9
How to Use	10
Attaching the Reader to the Attachment	10
Wearing the Attachment	11
Reading the IC Tag	12
Using the Sample Application	12
Troubleshooting	13
Cleaning and Repair	14
Maintenance and Support	14
Collection	14
Specifications	15

Introduction

Thank you for using “RecoHand”.

This manual describes the precautions and usage-related information of the wearable RFID reader “RecoHand” (hereinafter referred to as “this product”).

Please read this manual carefully and use it correctly.

Please keep this manual in a safe place after reading it.

The contents and illustrations in this manual are current as of December 2023. The specifications may be changed without notice or performance improvement and other reasons.

Please be sure to read the “Safety Precautions” (📄 page 4) before use.

- ① **Unauthorized reproduction of part or all of the contents of this manual is prohibited.**
- ② **The contents of this manual may be subject to change without prior notice.**
- ③ **We have created the contents of this manual with the utmost care, however, if you notice any suspicious points, errors, or omissions, please contact our support desk (see back cover).**
- ④ **Please note that our company is not responsible for any claims for losses, lost profits, or others outcomes due to operation of this product, regardless of Item ②.**

-
- Android is a trademark of Google LLC.
 - Other names, company names, product names, and others mentioned in this manual are trademarks or registered trademarks of each company.

Safety Precautions Be sure to observe

This section describes the precautions that you should take to prevent harm to the user or other people, and a damage to property.

This section uses the icons below to classify and describe the level of harm or damage that may occur if the product is used incorrectly in the case the instructions are not followed.

 DANGER	Indicates that “there is an imminent possibility that you may suffer death or serious injury”.
 WARNING	Indicates that “there is a possibility that you may suffer death or serious injury”.
 CAUTION	Indicates that “there is a possibility that you may suffer injury or that property damage may occur”.

This section uses the symbols below to classify and describe the types of items you should observe. (Below are some symbol examples.)

	Indicates a prohibited action that you should not do.		Indicates a mandatory action that you must carry out.
---	---	---	---

 DANGER	
	Reader (👉 page 8) ● Do not use the product in railway facilities, medical equipment, safety equipment, or equipment used for maintaining or protecting human life. ● Do not install, use, or leave the product in a high-temperature location such as near a fire or under the scorching sun. ● Do not immerse the product in water or seawater, or allow it to get wet. ● Do not use the product in a place where flammable gas is generated. ● Do not pierce the product with nails, hit it with a hammer, or step on it. ● Do not throw the product or subject it to strong impact.

 WARNING	
	● Do not use the product near implanted medical devices such as cardiac pacemakers or defibrillators (within approximately 22 cm). These devices may be affected by the UHF band RFID communication used by this product. ● Do not use the product in a humid environment or operate it with wet hands. Short circuiting or overheating may cause a fire, electric shock, or malfunction. ● Do not splash liquids such as drinks or medicines on the product, or insert foreign objects into it. Short circuiting or overheating may cause a fire, electric shock, or malfunction. ● Do not disassemble, repair, or modify the product. Doing so may cause an injury, electric shock, or malfunction. If the product is disassembled, repaired, or modified, we may refuse to repair it.



WARNING



- **If any abnormalities such as smoke, heat generation, strange odors, or abnormal noises occur during use, immediately stop using the product and remove it from your hand.**
If you continue to use it as is, it may cause a fire, electric shock, or malfunction.
- **If the product is not completely charged after the specified charging time, stop charging it.**
Not observing the above may trigger ignition, heat generation, rupturing, or leakage.
- **For systems that affect human life, for example, the management of medical supplies, take great care to ensure that even if the data is incorrect, there is no possibility that human life will be affected.**



CAUTION



- **Do not get the product wet.**
This product is not waterproof.
If the product gets wet, wipe off any moisture or water immediately using a soft cloth.
- **Do not use the product near devices that generate strong radio waves, such as radios.**
Doing so may cause a malfunction.
- **Do not use the reader if it is damaged, deformed, or has deteriorated.**
If you continue to use it as it is, it may trigger heat generation, fire, rupturing, leakage, or injury.
- **Do not charge using cables with different terminals.**
- **Do not use chemicals or cleaning agents containing solvents such as thinner, benzene, or alcohol.**
Doing so may cause discoloration or deformation.
When cleaning, please follow the instructions shown in “Cleaning and Repair” (☞ page 14).
- **Wear the attachment, and do not touch any hot objects.**
The attachment is not resistant to heat.
If you touch a hot object, it may cause burns.
- **Do not perform work involving rotating objects or parts (drilling machine, chamfering machine, etc.) while wearing the attachment.**
The attachment is not resistant to sharp objects.
Be careful when using knives or sharp objects. Doing so may cause an injury.
- **Do not touch anything that carries an electric current while wearing the attachment.**
The attachment is conductive, which may lead to an electric shock.



- **When charging, connect the USB cable to the USB Type-C connector of the reader.**
If you charge it by connecting it directly to an electrical outlet or using a car cigarette lighter, doing so may trigger heat generation, fire, or an explosion.
- **If you feel any unusual sensations on your skin, immediately stop using the product, and remove it from your hand.**
Depending on your constitution, it may cause itching, rashes, etc.
If you feel or notice any strange occurrences on your body, please consult your doctor.
- **When connecting the reader to a computer to charge it, be sure to check the precautions listed in the computer’s instruction manual.**

Requests for Use

● Please note that the product may not function correctly or may malfunction in the following environments or locations.

- Places exposed to direct sunlight
- Places subject to a lot of vibration
- Environment where there are devices that generate a strong magnetic force
- Environment where the temperature changes rapidly and where condensation may form
- Environment where the product is placed on metal or surrounded by anything
- Environment where static electricity charging or electrostatic discharging occurs

● This product is not designed or manufactured for use in equipment or systems that require particularly high quality, such as medical, fuel control, transportation, or disaster prevention applications.

We are not responsible for any damage including personal injury, disasters, environmental destruction, or other types that may occur due to the use of the product for the above purposes.

● If a malfunction occurs due to an incorrect operation, we may charge a fee for repairs even during the warranty period (within six months after delivery).

● This product uses a module that has received a construction design certification for specified low-power radio stations in the 920 MHz band as stipulated in the Radio Law. Modifications are prohibited by law.

● This product is a wireless device that uses radio waves, so it may affect medical equipment depending on the installation location and operation.

● The attachment is made of textiles, so it generates dust by itself. Please check whether any dust has been generated before use.

● When you want to transport the product by air or carry it on board an aircraft, please contact the carrier or airline in advance.

Precautions for Wireless Communications

JAPAN

● This product is a UHF band specified low-power device, so government approval is not required to use it.

The following actions are prohibited by the Radio Law.

- ① Disassembly or modification of wireless modules and antennas.
- ② Removal or erasing of the attached nameplate (☞ page 10), or placing of a label over the nameplate to prevent it from being read.

Certificate of conformance

The built-in RF module and built-in Bluetooth module have received a construction design certification based on the Radio Law, so no radio station license is required.

The information on the certificate of conformance of the wireless module is shown on the nameplate (☞ page 10).

Certification	Model/Name	Certification No.
Construction design certification based on the Radio Law	M920SRW	011-180006

USA

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

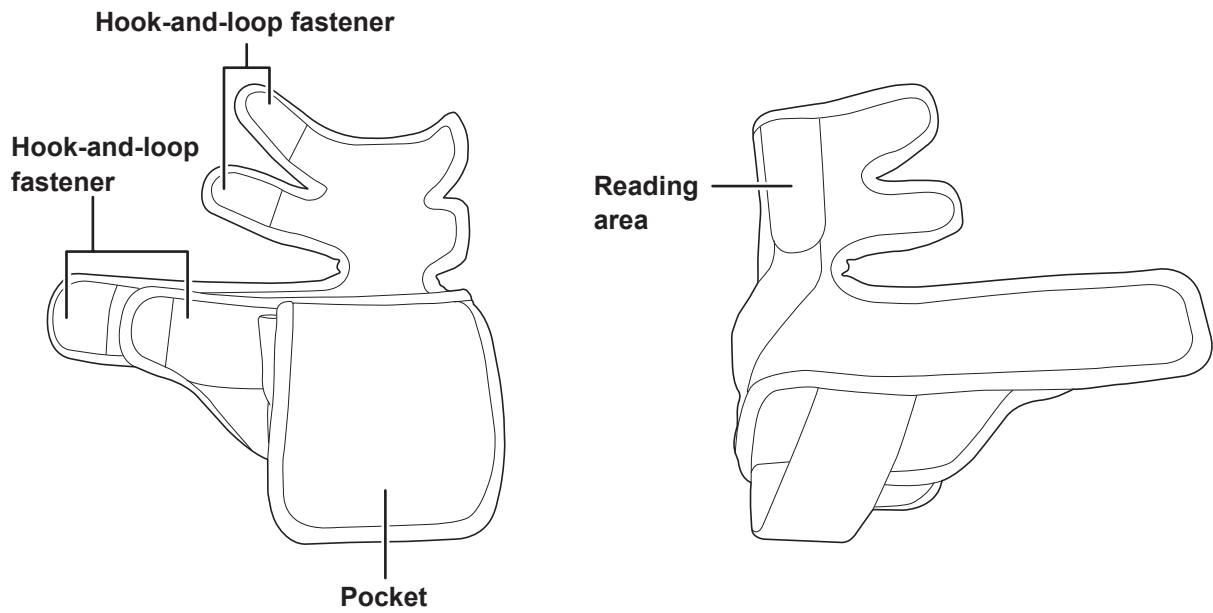
CANADA

This device complies with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

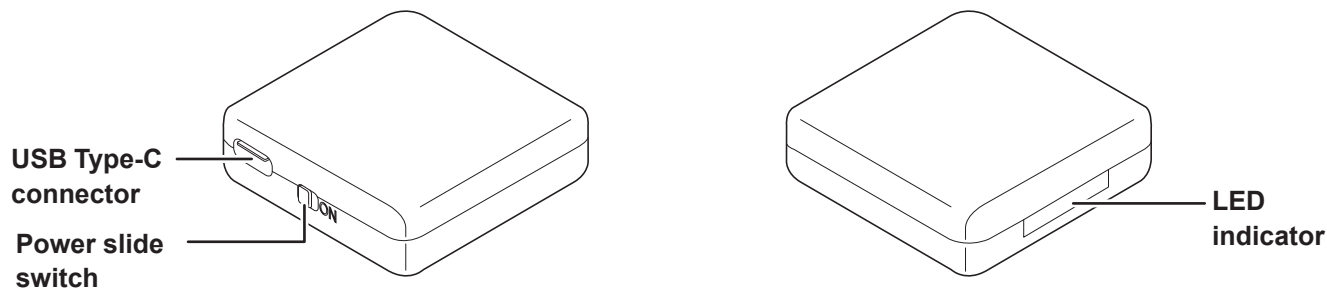
Le présent appareil est conforme aux RSS sans licence d'Innovation, Sciences et Développement économique Canada. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Name of Each Part

Attachment

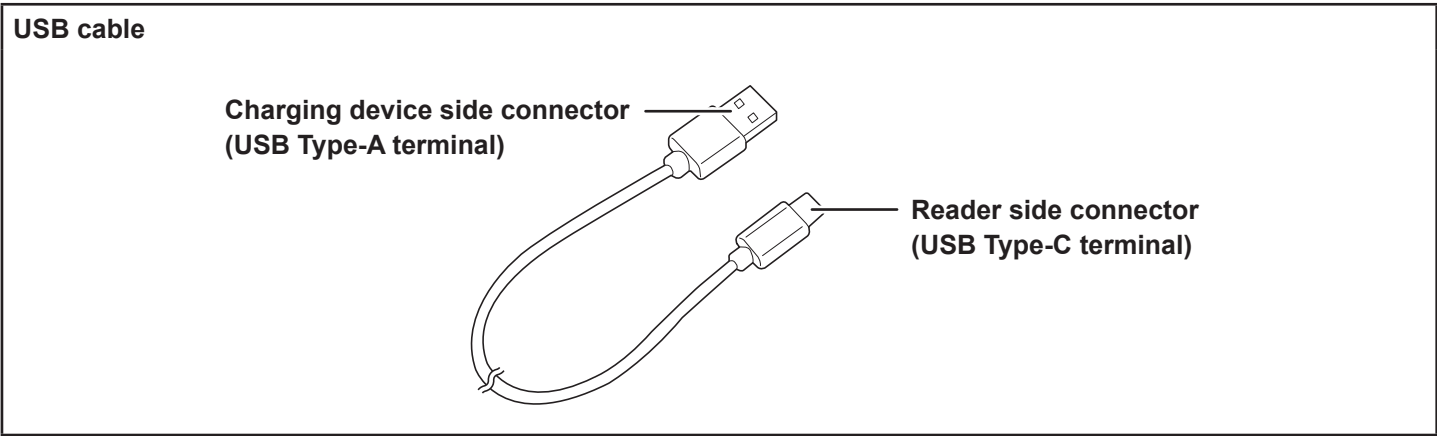


Reader



Accessories

Check the accessories.



LED indicator

The table below shows the display patterns shown in the reader's LED indicator.

Operation	Display pattern	
Power-on	Green	Flashes twice every 2 seconds
Power-off	—	Lights out
When BLE connected	Green	Flashes once every second
Radio wave radiation	Green	Lights up
When reading the IC tag	Green + Red	Green: Lights up Red: Flashes twice quickly
Under charging	Orange	Lights up
Charing completed	—	Lights out

How to Charge

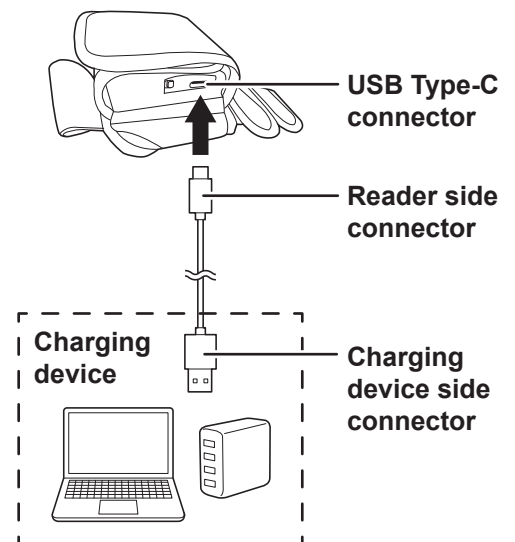
- 1 Connect the reader side connector of the USB cable to the USB Type-C connector of the reader.**

You can connect the reader while it is in the pocket of the attachment.

- 2 Connect the charging device side connector of the USB cable to a charging device such as a computer or USB charger.**

While charging is in progress, the reader's LED indicator lights orange.

When charging is complete, the reader's LED indicator turns off.
(See the table above.)

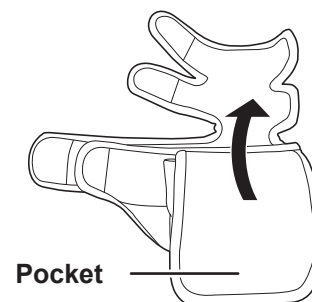


- If charging/discharging is repeated, it will reduce the battery capacity and shorten the reader usage time (☞ page 15). If the product is used continuously for less than 2 hours, it is recommended that the reader is replaced.
- You can check the remaining battery power with the customer-developed application by using the battery information acquisition command in the SDK.

How to Use

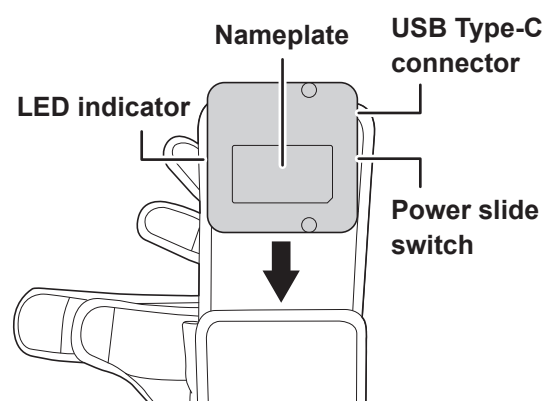
Attaching the Reader to the Attachment

1 Open the pocket.

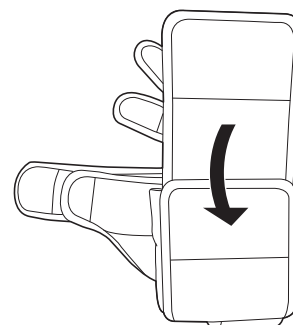


2 Put the reader in the pocket.

- Be careful of the direction of the reader.
(See the illustration.)



3 Close the pocket.

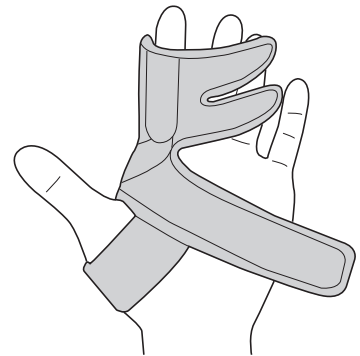


Wearing the Attachment

Wear the attachment to your left hand.

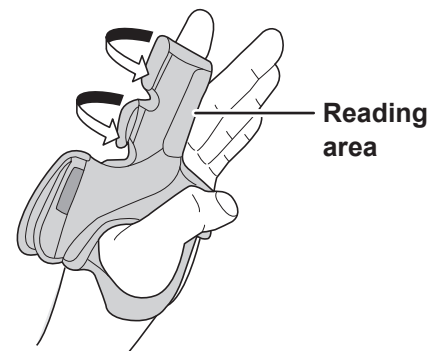
1 Attaching the Reader to the Attachment. (👉 page 10)

2 Wear the attachment to your left hand as shown in the illustration.

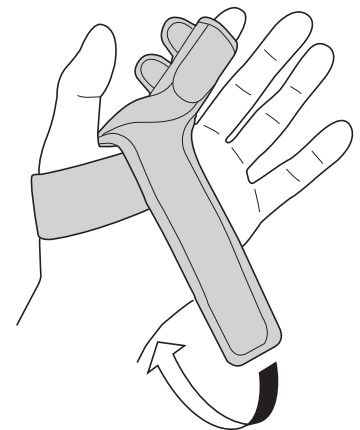


3 Fasten the hook-and-loop fastener on the index finger.

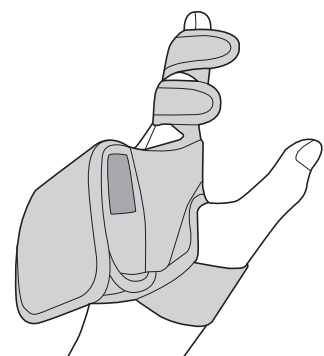
● Check that the reading area is on the pad of your index finger, and firmly attach it.



4 Fasten the hook-and-loop fastener under your little finger.



5 Grasp or open your hand to check that the reading area and the entire attachment are in place.

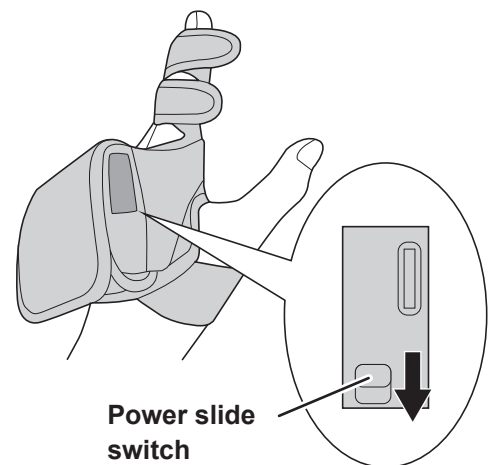


Reading the IC Tag

1 Wear the attachment with the reader mounted. (☞ page 11)

2 Turn on the reader.

The LED indicator on the reader flashes green (twice every 2 seconds). (☞ page 9)



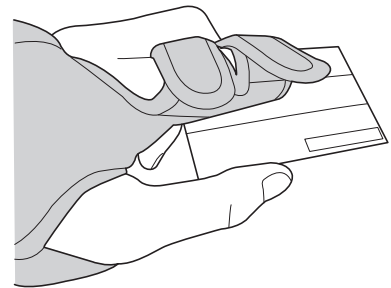
3 Hold the reading area of your index finger over the IC tag.

While the IC tag is being read, the reader's LED indicator shows the following display pattern. (☞ page 9)

Green: Lights up

Red: Flashes twice quickly

When reading is finished, turn off the reader.



Using the Sample Application

You can install the sample application on your smartphone and check whether it can read the IC tag correctly.

The sample application can be downloaded from the URL below.

<https://inquiry.teijin-frontier.com/client/form/recopick-DL>

Troubleshooting

Symptom	Check/action
The power does not turn on. • The LED indicator does not flash green (twice every 2 seconds).	● Charge the reader. (☞ page 9)
Cannot read the IC tag. • The LED indicator does not show the following display pattern. Green: Lights up Red: Flashes twice quickly • Even if the LED indicator shows the display pattern when reading an IC tag, the read data is not displayed in the sample app.	● Attach the reader to the attachment correctly. (☞ page 10) ● Charge the reader. (☞ page 9) ● Replace the IC tag, read the IC tag again, and check whether the read data is displayed correctly in the sample app.
Cannot charge. • The LED indicator does not light up orange.	● If you have a USB cable with the same terminal (☞ page 8) as the accessory, replace the USB cable and check if charging is possible.

If the problem is not resolved even after you have taken the above actions, please contact our support desk (see back cover).

Cleaning and Repair

Attachment

The attachment can be washed in hand wash mode of a home washing machine or in cold water.

Be sure to remove the reader before washing.

When using the attachment after washing, dry it naturally. Then, check that the attachment is completely dry before attaching the reader and using it.

- **IC tag reading may become unstable due to a malfunction of the attachment. If the attachment (especially around the reading area) is torn, frayed, or dirty, it is recommended that the attachment is replaced.**

Reader

If the reader becomes dirty, soak a soft cloth in a diluted solution of neutral detergent, wring it well, and use it to wipe the dirt off the reader. Finally, thoroughly wipe the reader using a dry cloth.

- **Do not use chemicals or cleaning agents containing solvents such as thinner, benzene, or alcohol, as this may cause discoloration or deformation.**

Maintenance and Support

For inquiries about consultations, questions, malfunctions related to this product, please contact our support desk (see back cover).

Collection

If you no longer need this product, we will collect it, so please contact our support desk (see back cover) without disposing of it.

Specifications

- Connect to your Android device via Bluetooth.
- Charge with a USB terminal. It can also be charged using a mobile battery.

Compatible tag communication standards	ISO/IEC 18000-63 and EPCglobal Class1 Gen2 compliant
Frequency	920.6 to 923.4 MHz
Weight (Attachment + Reader)	Approx. 76.5 g
Interface	Bluetooth 5.1 Class2 compliant
Power supply	Battery 3.7 V Capacity: 550 mAh*1
Usage time	Approx. 4 hours (continuous operation)*2
Environmental condition (Reader)	Operating temperature/humidity 10°C to +50°C/85% or less (no condensation) Storage temperature/humidity -20°C to +70°C/85% or less (no condensation)
Laws/Compatible standards	RFID: Specific low power BLE: 2.4 GHz low power RoHS

*1: The reader is not subject to the Electrical Appliance and Material Safety Law (PSE).
The volumetric energy density of the installed lithium-ion cells is less than 400 watt hours per liter (400 Wh/L).

*2: The numbers are the reference values.

Attachment size

Size notation	Hand width (cm)
S	21.5 to less than 22.5
L	25.5 to less than 26.5

The hand width indicates the actual size (nude size) of the applicable hand width.

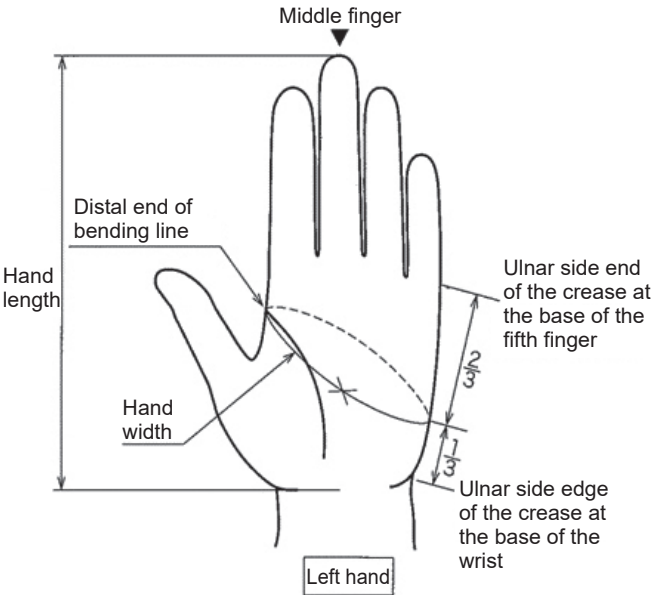
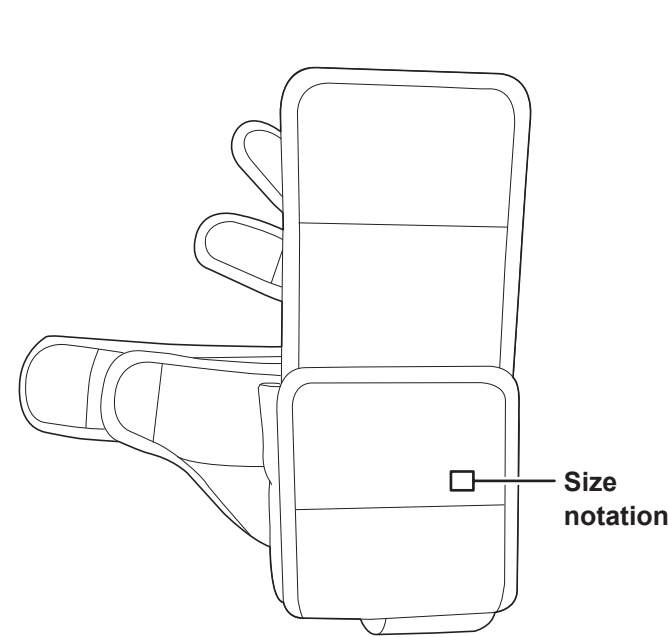


Image source:
Japan Glove Industrial Association
“Glove Size JIS Standard Operation Standards”

For inquiries about consultations, questions,
malfunctions related to this product,

Support desk

The support desk is only able to be contacted via e-mail.

recopick-support@teijin-frontier.com

TEIJIN FRONTIER CO., LTD.

New Business Development Division,
Smart Sensing Business Department

7F NBF Comodio Shiodome Bldg., 2-14-1 Higashi-Shinbashi,
Minato-ku, Tokyo 105-0021

21GCPT01V02