



Human Big Data Sensor

ID Node (Model Name: MTD-04125N9)

Multi Cradle (Model Name: MTD-04238MC9)

Instruction Manual



Read this instruction manual carefully and maintain for future reference.

- Carefully read and thoroughly understand the safety precautions before operating this device.
- Maintain this instruction manual in a location where it can be readily available for reference whenever necessary.

Distributed by
Hitachi High-Technologies Corporation

Manufactured by
TKR CORPORATION CO., LTD

Change History

| Version | Date | Description |
|---------|------------|-----------------------|
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Foreword

Thank you very much for using our product.

This product is a system aimed at supporting the visualization of communications at your company.

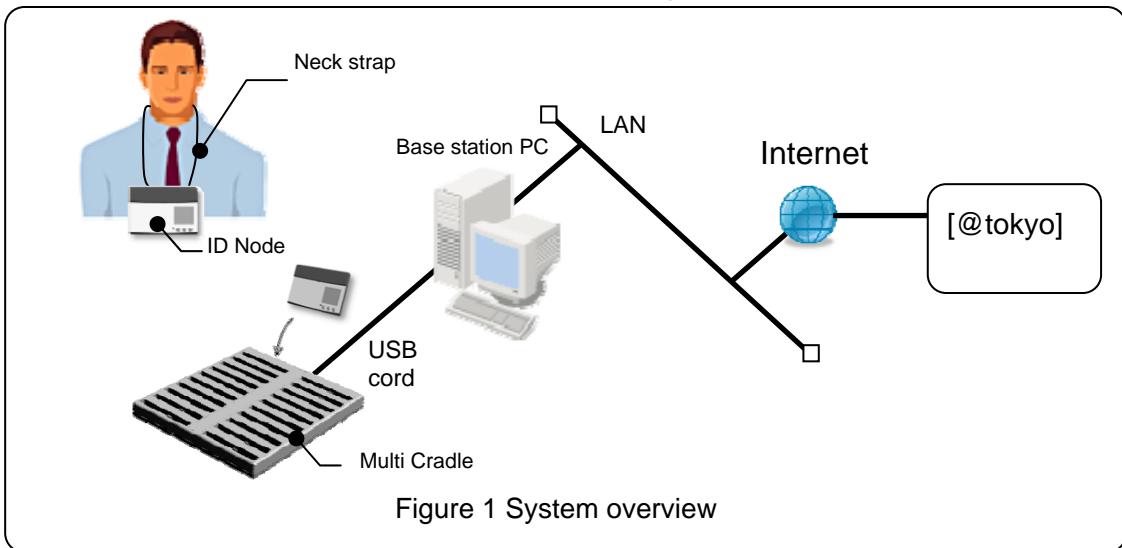
This instruction manual (manual) describes the precautions and knowledge necessary to use the ID Node and Multi Cradle.

Be sure to read this manual before using this product to ensure correct usage.

[General Structure of the System]

This system helps you identify areas of improvement in an organization or a team, and rapidly achieve organizational reform by collecting and analyzing communication data.

Communication data is collected from the ID Nodes attached to the neck straps of the users who wear them while they participate in meetings and other work activities.



- **ID Node:** Device worn around the neck to collect communication data.
- **Multi Cradle:** Device used to charge the ID Nodes, and also transfer data collected by the ID Node of each wearer to the base station PC using a USB cord.

[Copyright, Trademarks, Warranty, and Disclaimer]

[Copyright Notice]

- The content of this document is subject to change without prior notice for reasons such as improvement.
- If any item in this instruction manual is unclear, or if issues such as operation failure or malfunction occur, please contact the personnel responsible in your company.

[Registered Trademarks]

- Human Big Data Sensor is a registered trademark of Hitachi, Ltd.
- The company and product names mentioned are the trademarks or registered trademarks of their respective companies.

[Product Warranty Information]

- When used in accordance with the instructions provided in this manual, this product is guaranteed to be free from defects in material and manufacture to the extent provided in the specifications described in this manual.
- The product will be replaced if it is found to be faulty due to defects in manufacture.

[Applicable Regions]

- Japan, United States of America, Canada, Singapore

[Compliant Standards]

- Safety standard:

<ID Node / Multi Cradle>UL: UL60950-1

cUL: CSA C22.2 No.60950-1

- Electromagnetic interference standard:

<ID Node>VCCI (Class B)

FCC, Part15, Subpart B (Class B)

<Multi Cradle>VCCI (Class A)

FCC, Part15, Subpart B (Class A)

- Radio standard:

<ID Node (Only)>United States:

FCC, Part15, Subpart C

FCC ID: 2ADVJMTD04125N9

Canada:

RSS-210 Issue 8

RSS-Gen Issue 4

CAN ICES-3(B) / NMB-3(B)

(IC: 12676A-MTD04125N9)

Singapore:

IDA Standards (Dealers ID: DA103787)

Complies with
IDA Standards
DA103787

<ID Node / Multi Cradle>

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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. This equipment has very low levels of RF energy that it deemed to comply without maximum permissive exposure evaluation (MPE).

<ID Node (Class B device)>

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.

<Multi Cradle (Class A device)>

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause

harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

<ID Node>

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- 1) l'appareil ne doit pas produire de brouillage;
- 2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

<ID Node>

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment and meets RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment has very low levels of RF energy that it deemed to comply without maximum permissive exposure evaluation (MPE).

Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'IC. Cet équipement émet une énergie RF très faible qui est considérée conforme sans évaluation de l'exposition maximale autorisée.

[Exceptions to Warranty]

Free-of-charge repair does not apply in the following circumstances:

- Failure caused by installing the device in a location that does not comply with the hardware specifications or usage conditions of the device.
- Failure to use the power source (voltage, current, frequency) specified by TKR Corporation, or failure due to defective power supply.
- Corrosion of electrical circuits or deterioration of optical elements due to highly corrosive gas in the atmosphere.
- Failure caused by using hardware, software, or spare parts that are not supplied by TKR Corporation.
- Failure caused by using the device in a manner not specified in this manual, or by repair performed outside the control of TKR.
- Failure caused by moving or transporting the device in an environment that does not comply with the hardware specifications or usage conditions of the device.
- Any unauthorized disassembly, modifications, or relocation.
- Failure caused by fire, earthquake, storm and flood damage, lightening strike, civil unrest, crime, terrorist act, radioactive contamination, war, contamination by hazardous substances, or any other accidents due to force majeure.
- Failure caused by computer viruses.
- Failure that occurs due to natural service life or wear of parts.
- Equipment that has been disposed of or resold to a third party without notifying TKR Corporation.
- Corruption of data due to equipment failure.

[Disclaimer]

TKR Corporation or Hitachi high-technologies Corporation shall not be liable for infringement of privacy or other dispute, or any resulting damage that is associated with the use of this Human Big Data Sensor system.

[Disposal]

- Please return unnecessary ID Nodes to the personnel responsible. Do not dispose of them on your own.
The personnel responsible will collect the devices and then contact TKR Corporation.
- For any other devices, the personnel responsible shall dispose of them according to corresponding local regulations.



Safe Handling Instructions



Safe Handling Instructions

- Carefully read and fully understand the safety instructions provided below before using the Human Big Data Sensor.
- Please observe the intended use of the product as well as the procedures and instructions specified in the instruction manual.
- Please observe the warning instructions provided in the instruction manual as well as the warning instructions provided on the warning labels attached to the main unit of the device. Failure to do so might result in personal injury or equipment damage.

Safety precautions are preceded by the headers DANGER, WARNING, CAUTION, NOTICE, as shown below, that are used in combination with the safety alert symbol .



: This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



DANGER

: DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

: WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

: CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



NOTICE

: NOTICE indicates a situation which, if not avoided, could result in property damage, device failure and/or damage, or other performance impairment or malfunction that could prevent the collection of accurate data.



Safe Handling Instructions

Important warnings provided in this manual as well as the sections where such warnings are provided are summarized below.

1. Warning Instructions Related to the ID Node



Failure to observe the following warnings might result in death or serious injury:

- **Do not stare into the infrared light-emitting parts.**
Do not stare into the infrared light-emitting parts. Infrared rays can damage your eyes.
- **Be careful that the ID Node strap does not catch on some other object.**
Do not wear the ID Node in locations where it can get caught on or pulled into machines or other devices. Also be careful with elevators or dumbwaiter doors.
- **This product uses lithium-ion batteries. Inappropriate usage could cause heat generation, explosion, or combustion. Please observe the following warning instructions.**
 - **Disassembly or modification is prohibited.**
Disassembly or modification could result in personal injury or property damage, including fire and electric shock.
Incorrect polarity could cause the batteries to explode.
 - **Do not allow rainwater, beverages, animal urine, or other liquids to contact the product.**
Liquid contacting the product or using it in a humid area could damage the protection circuit built into the lithium-ion batteries and cause heat generation, explosion, or combustion.
 - **Do not expose the product to high temperature.**
Placing the product on a dashboard or near a window where it could be exposed to direct sunlight, or inside a sun-heated car or other high-temperature places near a heat source, could cause the insulation of lithium-ion batteries to melt as well as damage their gas outlet valves and protection mechanism, possibly resulting in heat generation, explosion, or combustion.
 - **Do not insert foreign metal objects such as hairpins and clips into the product.**
Shorting the terminals of lithium-ion batteries with a metal object causes excessive current flow, possibly resulting in heat generation, explosion, or combustion.
 - **Do not expose the product to impacts or deformation.**
Handling the ID Node in a rough manner or inadvertently stepping or sitting on it could deform the lithium-ion batteries and damage the protection mechanism, possibly resulting in heat generation, explosion, or combustion.
 - **Do not use devices other than the Multi Cradle to charge the ID Nodes.**
Difference in charging conditions could cause fire, heat generation, or combustion, possibly resulting in burns.
 - **Transport the product in accordance with the relevant laws and regulations.**
- **Store the product out of the reach of children.**



Safe Handling Instructions

CAUTION

FCC CAUTION

<ID Node>

- (1) Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- (2) This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.



Safe Handling Instructions

2. Warning Instructions Related to the Multi Cradle



WARNING Failure to observe the following warnings might result in death or serious injury:

- **Do not insert or remove the ID Node into or from the Multi Cradle with wet hands.**
Doing so could cause electric shock, or result in fire or failure of the Multi Cradle.
- **Do not allow rainwater, beverages, animal urine, or other liquids to contact the product.**
Doing so could cause electric shock, or result in fire or failure.
- **Do not insert wire, metal object, or other foreign objects into the product.**
Do not insert wire, metal object, or other foreign objects such as pins and clips into the product. Doing so could cause shorting, possibly resulting in fire, electric shock, or failure. If you inadvertently insert such an object into the product, immediately remove the power plug from the power outlet.
- **Do not connect or charge devices other than the ID Nodes.**
This product can only charge the ID Nodes. Do not connect or charge any other devices. Doing so could cause burns due to fire, heat generation, or combustion.
- **Disassembly or modification is prohibited.**
Disassembly or modification could result in personal injury or property damage, including fire and electric shock.
- **Use a dedicated AC adapter.**
Always use a dedicated adapter. Using any other adapters could cause fire, smoke generation, or combustion, possibly resulting in burns.
- **Precautions on handling the AC adapter (power cord section)**
Observe the following precautions in order to prevent electric shock or fire caused by the breakage of the AC adapter cord:

| | |
|---|---|
| Do not pull the cord section.* | Do not pinch the cord. |
| Do not bend the cord. | Do not allow chemicals to contact the cord. |
| Do not twist the cord. | Do not place any object on top of the cord. |
| Do not bind the cord. | Do not modify the cord. |
| Do not fix the cord using fasteners such as staples. | |
| Do not use a damaged cord. If the cord is damaged, contact the personnel responsible. The personnel responsible will then contact TKR Corporation for assistance. | |

* **Do not pull the cord section.**

Be sure to hold the AC adapter's DC connector and pull it out perpendicularly in order to unplug the connector from the Multi Cradle main unit. Pulling on the power cord section or applying excessive force to the connector could damage the power cord section and create a fire or electric shock.



Safe Handling Instructions

2. Warning Instructions Related to the Multi Cradle (Continued)



Failure to observe the following warnings might result in death or serious injury:

- **Do not touch the DC connector in the AC adapter output section with wet hands.**

Do not touch the connector with wet hands. Doing so could cause electric shock.

- **Handling the AC adapter main unit**

Follow the instructions below when handling the AC adapter. Failure to do so might cause burns due to fire, electric shock, or heat generation.

| | |
|---|--|
| Never disassemble the device. | Do not use the device near where water is used (such as a bathtub, washbasin, kitchen sink, or washing machine), in a humid basement room, near a swimming pool, or in a dusty area. |
| Do not allow water to contact the device, and do not touch it with wet hands. | Do not use the device or leave it in an environment where it can be affected by heat. |
| Do not place any object on top of the device. | |

- **Only plug into specified power outlets.**

Use the specified power outlet with the specified voltage. Using any other power source could result in fire or ground leakage. The use of a cord that does not meet the power specifications of the product can cause the cord to overheat and create a fire.

- **Do not use multiple outlet adapters.**

The flow of a current exceeding the rated current through the power outlet could cause overheating and create a fire.

- **Do not hold the power plug with wet hands.**

Do not plug or unplug the power plug with wet hands. Doing so could cause electric shock.

- **Make sure that the power plug is not inserted loosely.**

Make sure that the power plug is completely and securely inserted into the power outlet. Loose insertion of the power plug could cause heat generation due to contact failure and create a fire. Buildup of dust or the adhesion of water droplets around the plug and outlet could create a fire.



Safe Handling Instructions

2. Warning Instructions Related to the Multi Cradle (Continued)



WARNING

Failure to observe the following warnings might result in death or serious injury:

● Precautions on handling the USB cord

Check the product and corresponding connectors before connecting the USB cord. Connecting the USB incorrectly could cause a short and fire. Furthermore, observe the following precautions on handling and connecting the USB cord:

| | |
|---|--------------------------------|
| Do not use a broken USB connector. | Do not step on the cord. |
| Do not place any object on top of the cord. | Do not use a broken cable. |
| Do not use a loosely connected cord. | Do not bind a cord being used. |



CAUTION

Failure to observe the following warnings might result in minor injury:

● Beware of burn hazards (AC adapter).

The AC adapter becomes hot during use. Caution is advised. Avoid allowing the adapter to contact the skin for a prolonged period of time. Furthermore, the parts remain hot immediately after unplugging the power plug. Allow them to sufficiently cool before handling.

Placing the adapter directly on the carpet or other floor surface could cause heat generation or discoloration of the surface.



Safe Handling Instructions

3. General Precautions for All Devices



Failure to observe the following warnings might result in death or serious injury:

● Do not subject the device to an impact by dropping.

Do not subject the device to excessive impact by dropping or hitting. Doing so might cause deformation or degradation, with continued usage resulting in electric shock or fire.

● Do not install or use the device in inappropriate locations.

Install and use the device in locations that comply with the hardware specifications or usage conditions of the device. Do not situate the device in the locations listed below. Doing so could result in a fire.

| | |
|--|---|
| Dusty locations | Locations subject to direct sunlight |
| Humid locations, such as near a water heater | Unstable locations |
| Hot locations, such as near a heat source | Locations subject to splashing from rainwater* |

* The devices may not be used outdoors (applicable to all devices).

● Do not use the device in an environment where corrosive gases are present.

Do not install or use the device in locations where corrosive gases (sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia, and similar) are present.

Do not install the device in an environment where corrosion enhancing substances (sodium chloride, sulfur, and similar) or conductive metal are present in dust or air. Doing so might cause the printed board inside the product to corrode or short, possibly resulting in a fire.

● Modification of the device, use of unspecified parts, or removal of a safety device is potentially dangerous.

Do not perform such operations.



Failure to observe the following warning might result in property damage or failure, or might prevent you from collecting accurate data:

● The ID Node emit infrared rays. Accordingly, if you are carrying these devices into a factory, hospital, or office, make sure to check in advance if there are any infrared control devices in the area that could be affected by the ID Node.

Accidental sprinkler discharge due to the activation of a fire sensor, defects in goods-in-process due to the interruption of production caused by the malfunction of the control sensor in the production line of the factory, or interference with the infrared communication LAN, can potentially cause substantial economic damage.



Safe Handling Instructions

5. Warning Labels Attached to the Device

Multi Cradle

The warning label below is attached to the Multi Cradle. Read the label carefully and check the actual items described on the label. If the label has deteriorated and become illegible, contact the personnel responsible. The personnel responsible will then check the condition of the label and contact TKR Corporation for assistance.

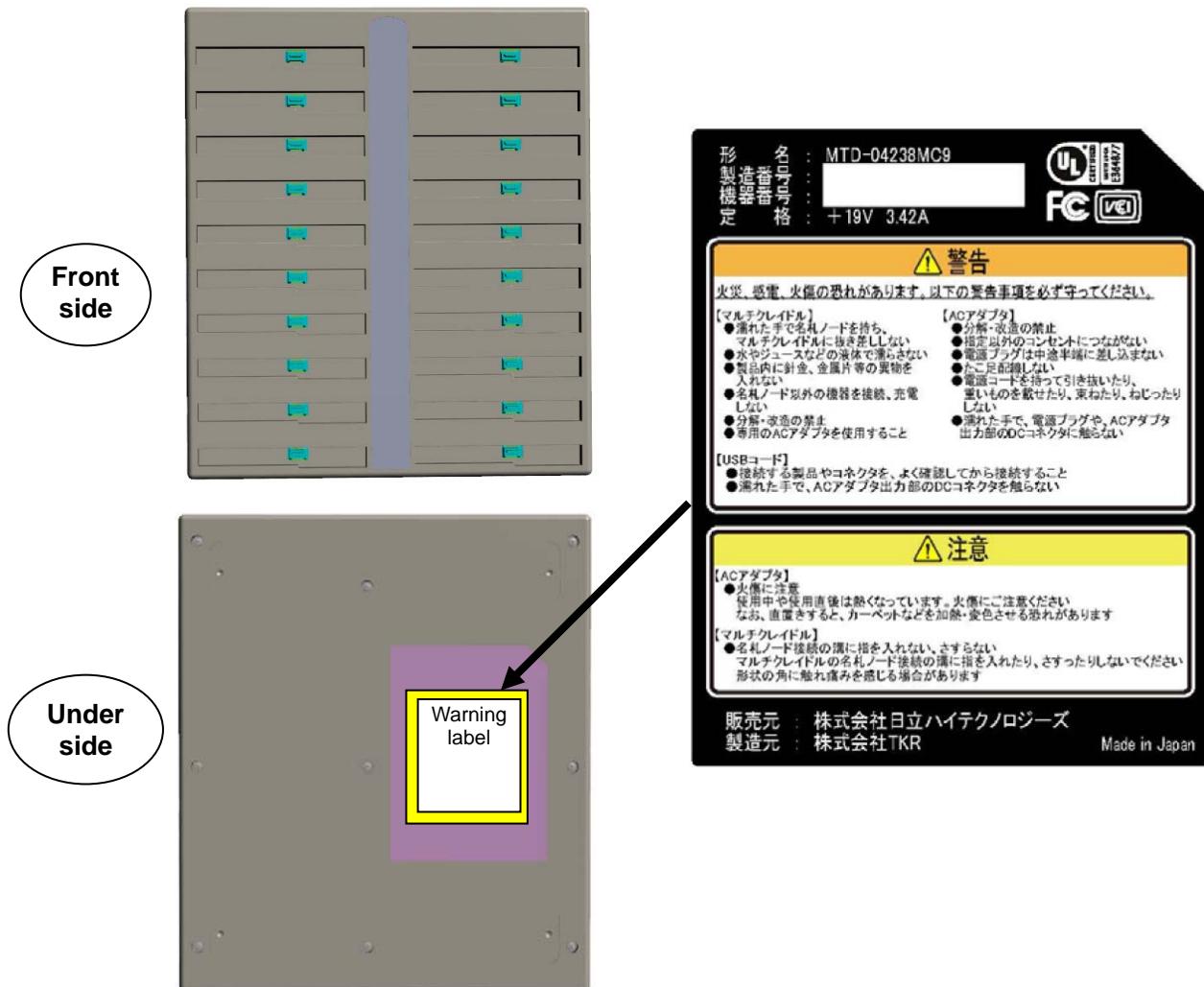


Figure 2 Warning label on the underside of the Multi Cradle

Using Human Big Data Sensor

Instruction Manual

A series of steps starting from contract conclusion and unpacking of the product sent from TKR Corporation to the start of data collection are summarized below.

**Read this manual
thoroughly.**



**Charge the ID Node
and wear around the
neck.**

Human Big Data Sensor Instruction Manual

Read this manual thoroughly to ensure correct usage of the product.

**Chapter 1 Names and Functions of the
Parts of the Device**

Chapter 2 Preparation

Chapter 3 Daily Usage

Connect the ID Node to the Multi Cradle installed on-site for charging.

Then, wear the ID Node around the neck to start communication measurement.

Chapter 1 Names and Functions of the Parts of the Device

1.1 ID Nodes

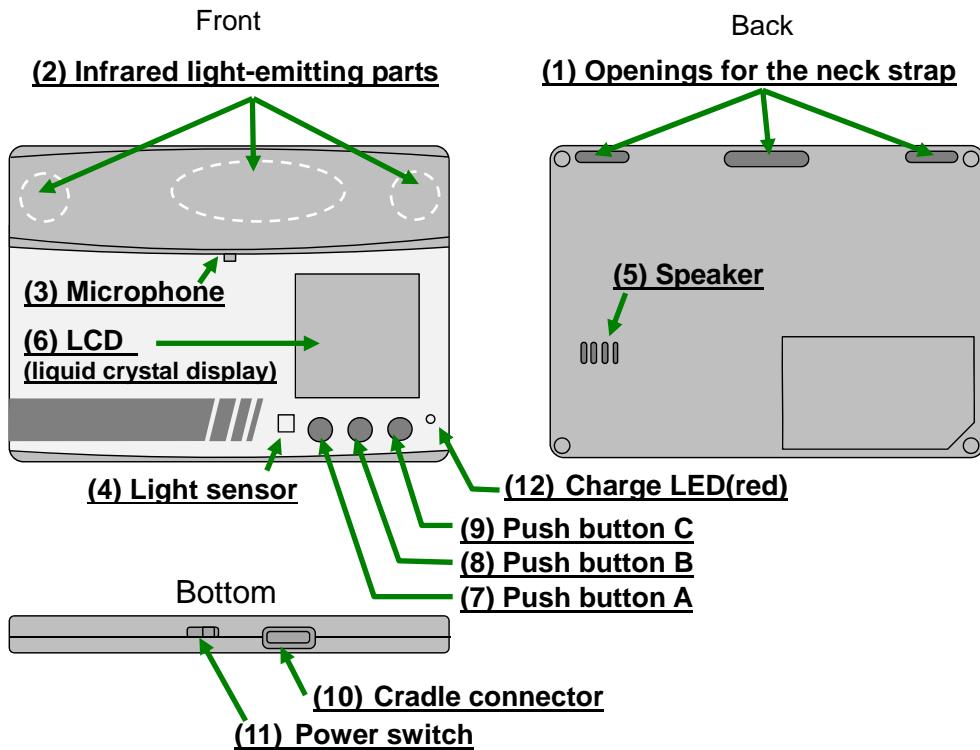


Figure 3 Overview of the ID Node

(1) Openings for the neck strap

Holes through which the neck strap passes so that the ID Node can be hung from the neck

(2) Infrared light-emitting parts

Parts used for infrared communication between the ID Nodes and for monitoring communication status

(3) Microphone

Device that collects ambient sound (voice)

(4) Light sensor

Device that collects light data

(5) Speaker

Device that sounds a buzzer

(6) LCD (liquid crystal display)

Three types of windows (default window, encounter time window, physical activity time window) are displayed.

Use push button A to change the windows.

Default window: Time in 24-hour notation, date, day of the week, battery status, and temperature are displayed.

Encounter time window: Total time spent in encounter with other persons is displayed.

Physical activity time window: Total time spent on physical activity is displayed.

(7) Push button A

Button used to change windows displayed on the LCD. Each time the button is pressed, the window changes in the following order: default window → encounter time window → physical activity time window → default window....

(8) Push button B

Spare button. Pressing the button has no affect.

(9) Push button C

Spare button. Pressing the button has no affect.

(10) Cradle connector

Connector that is connected to the ID connector of the Multi Cradle.

It is connected to transmit data to or retrieve data from the Multi Cradle, and to charge the ID Nodes.

(11) Power switch

Power switch. Slide the switch **to the right** to turn the power on.

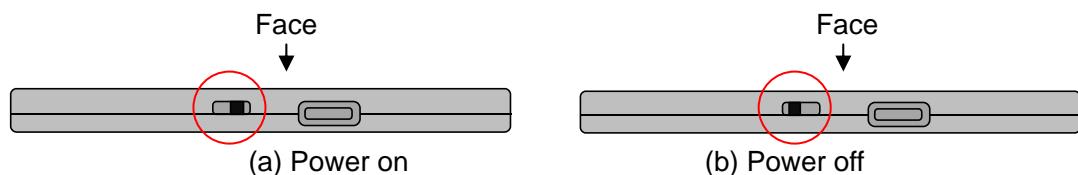


Figure 4 On/Off status of the power switch on the ID Node

(12) Charge LED(red)

LED that lights up when the ID Node is connected to power source for charging.

1.2 Multi Cradle

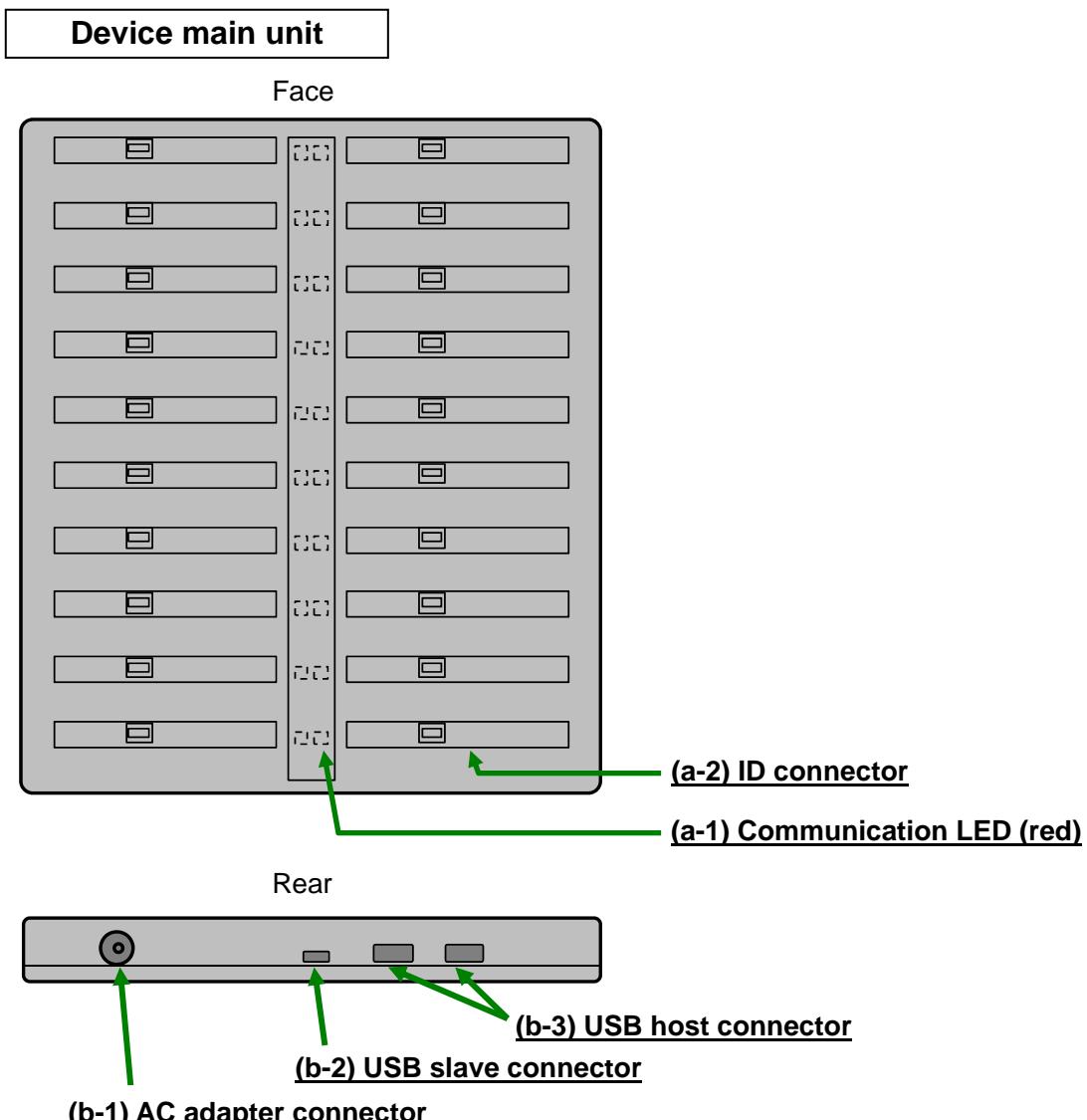


Figure 5 Face and rear view of the exterior of the Multi Cradle

(a-1) Communication LED (yellow)

LED that lights when data is transmitted to or retrieved from the ID Node.

(a-2) ID connector

Connector used to connect the ID Nodes. It transmits data to, retrieves data from, and charges the ID Nodes.

(b-1) AC adapter connector

Connector that connects the AC adapter supplied with the device.

(b-2) USB slave connector

Connector used to exchange data between the main unit and the base station PC.

(b-3) USB host connector

Connectors that connect to other multi cradle units to expand units of ID nodes to be charged.

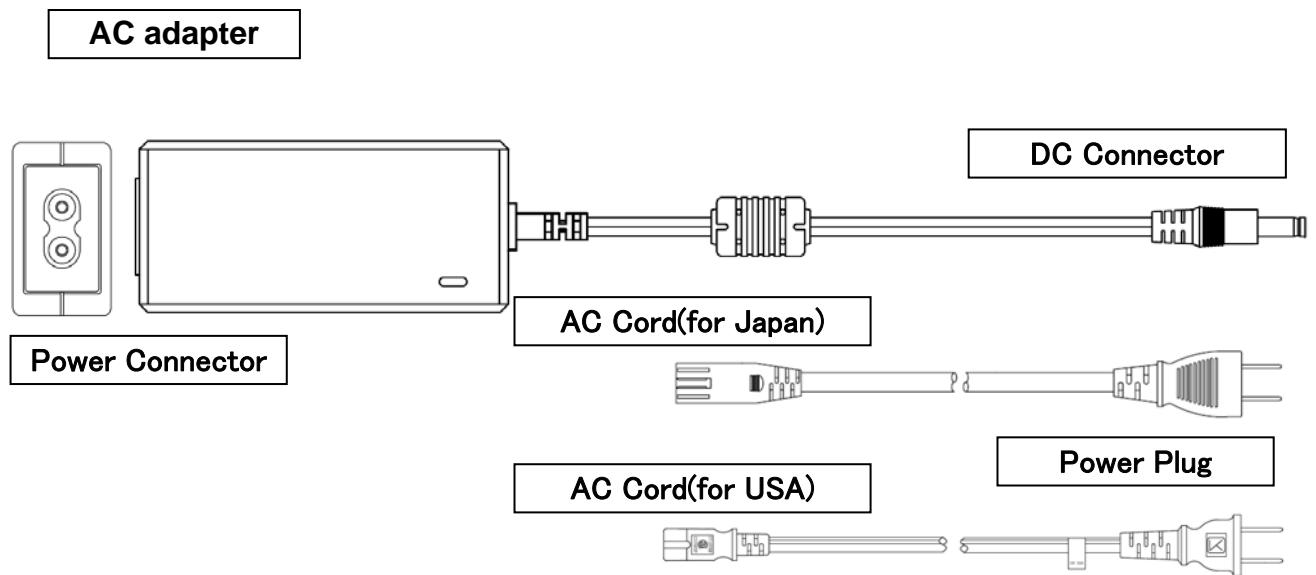


Figure 8 Overview of the USB cord

(1) DC connector

Connector that is connected to the AC adapter connector located on the rear side of the main unit

(2) Power Connector

Connector that is connected to the AC Cord

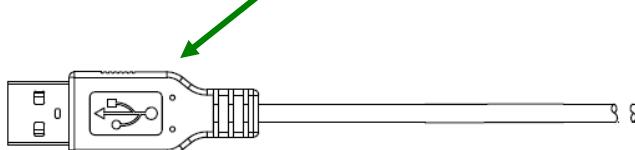
(3) Power Plug

Plug connected to a power outlet

Please use country specific AC Cord.

USB cord

(1) USB connector A



(2) USB Micro B connector

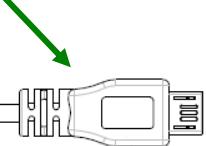


Figure 8 Overview of the USB cord

(1) USB connector A

Connector that is connected to the USB connector on the base station PC

(2) USB Micro B connector

Connector that is connected to the USB connector located on the rear side of the main unit

Chapter 2 Preparation

2.1 Preparing the Multi Cradle



WARNING

Failure to observe the following warnings might result in death or serious injury:

- **Use a dedicated AC adapter.**

Always use a dedicated adapter. Using any other adapters could cause fire, smoke generation, or combustion, possibly resulting in burns.

- **Use the AC adapter in an appropriate installation location.**

Follow the instructions below when handling the AC adapter. Failure to do so might cause burns due to fire, electric shock, or heat generation.

- Do not use the device near where water is used (such as a bathtub, washbasin, kitchen sink, or washing machine), in a humid basement room, near a swimming pool, or in a dusty area.
- Do not use the device or leave it in an environment where it can be affected by heat.
- Do not place any object on top of the device.

- **Do not use the Multi Cradle or AC adapter in an environment where corrosive gases are present.**

- **Only plug into specified power outlets.**

Use the specified power outlet with the specified voltage. Using any other power source could result in fire or ground leakage. The use of a cord that does not meet the power specifications of the product can cause the cord to overheat and create a fire.

- **Make sure that the power plug is not inserted loosely.**

Make sure that the power plug is completely and securely inserted into the power outlet. Loose insertion of the power plug could cause heat generation due to contact failure and create a fire. Buildup of dust or the adhesion of water droplets around the plug and outlet could create a fire.

- **Do not use multiple outlet adapters.**

- **Do not unplug the power cord by pulling on the cord, and do not place any heavy object on top of the cord. Do not bind, twist or otherwise stress the cord.**

- **Do not touch the power plug or the DC connector in the AC adapter output section with wet hands.**

- **Connect the USB cord after thoroughly checking the product and connectors to which it is to be connected.**

2.1.1 Multi Cradle preparation procedure

NOTICE

Refer to these steps if you are preparing the Multi Cradle by yourself.

The Multi Cradle is connected to the base station PC via USB cord, by following the steps below.

- (1) Connect AC Cord to Power Connector
- (2) Connect the DC connector of the AC adapter with the AC adapter connector on the rear side of the main unit.
- (3) Attach ferrite core to USB cord
- (4) Connect the USB cord to USB Micro B connector with the USB slave connector on the rear side of the main unit.
- (5) Connect the USB cord USB connector A with the USB port on the base station PC.
- (6) Insert the AC cord power plug into the power outlet.

2.2 Preparing the ID Nodes



WARNING

Failure to observe the following warnings might result in death or serious injury:

- **Do not use devices other than the Multi Cradle to charge the ID Nodes.**

Difference in charging conditions could cause heat generation or combustion, possibly resulting in fire or burns.

- **Do not drop foreign metal objects such as hairpins and clips onto electrically charged parts.**

Shorting the electrically charged part of the Multi Cradle or terminals of lithium-ion batteries with a metal object causes excessive current flow, possibly resulting in heat generation, explosion, or combustion.

- **Do not insert or remove the ID Node into or from the Multi Cradle with wet hands.**

Doing so could cause electric shock, or result in fire or failure of the Multi Cradle.



CAUTION

Failure to observe the following warnings might result in minor injury:

- **Do not insert your fingers into or rub the slots on the Multi Cradle where the ID Nodes are to be inserted.**

Do not insert your fingers into or rub the slots on the Multi Cradle where the ID Nodes are to be inserted.

You might feel some pain when your fingers come into contact with the edges.

2.2.2 ID Node preparation procedure

- Insert the ID Node to the Multi Cradle for charging.
- Connect the cradle **adapter** of the ID Node with the ID connector of the Multi Cradle. When the connection is established, charging starts automatically.
- The charge LED on ID node lights up in red while charging. The LED turns off when charging is complete.
- A fully charged ID Node is capable of approximately 24 hours of continuous operation.

NOTICE

Failure to observe the following warning might result in property damage or failure, or might prevent you from collecting accurate data:

● **Carefully connect the ID Node to the Multi Cradle.**

Be sure to hold the sides of the ID Node with your fingers and insert it perpendicularly into the Multi Cradle in order to connect the cradle connector of the ID Node with the ID connector of the Multi Cradle. In doing so, be careful not to let it interfere with the adjacent nodes. Otherwise, the ID Node might be damaged or broken.

● **Make sure to completely insert the ID Node into the connector in order to connect the ID Node with the Multi Cradle.**

Even if the ID Node is inserted correctly, it could still be loosely connected. Make sure that the ID Node is completely inserted into the connector.

● **Slide the power switch on the ID Node to the on position before connecting with the Multi Cradle.**

If the power switch on the ID Node is in the off position, the ID Node emits a distinct beeping sound when it is connected to the Multi Cradle.

Chapter 3 Daily Usage

[Precautions on using the ID Node]

| | |
|--|--|
| ! WARNING | Failure to observe the following warnings might result in death or serious injury: |
| <ul style="list-style-type: none">● Do not stare into the infrared light-emitting parts.● Be careful that the ID Node strap does not catch on some other object.● This product uses lithium-ion batteries. Inappropriate usage could cause heat generation, explosion, or combustion. Please observe the following warning instructions.<ul style="list-style-type: none">• Disassembly or modification is prohibited.• Do not allow rainwater, beverages, animal urine, or other liquids to contact the product.• Do not expose the product to high temperature.• Do not insert foreign metal objects such as hairpins and clips into the product.• Do not expose the product to impacts or deformation.• Do not use devices other than the Multi Cradle to charge the ID Nodes.• Transport the product in accordance with the relevant laws and regulations.● Store the product out of the reach of children. | |

| | |
|---|--|
| NOTICE | Failure to observe the following warning might result in property damage or failure, or might prevent you from collecting accurate data: |
| <ul style="list-style-type: none">● Make sure to keep the power switch on during usage.● The device may not be used outdoors. Do not use the device outdoors. Doing so can cause failure.● Carefully connect the ID Node to the Multi Cradle. Be sure to hold the sides of the ID Node with your fingers and insert it perpendicularly into the Multi Cradle in order to connect the cradle connector of the ID Node with the ID connector of the Multi Cradle. In doing so, be careful not to let it interfere with the adjacent nodes. Otherwise, the ID Node might be damaged or broken.● Do not press hard on the LCD. Do not press on or apply strong pressure to the LCD on the frontside of the ID Node. Doing so could damage the liquid crystal panel.● Do not place the device near other infrared control devices. Do not carry the ID Node into a factory, hospital, or office where other infrared control devices may be in use. Accidental sprinkler discharge due to the activation of a fire sensor, defects in goods-in-process due to the interruption of production caused by the malfunction of the control sensor in the production line of the factory, or interference with the | |

infrared communication LAN, can potentially cause substantial economic damage.

[Precautions on using the Multi Cradle]



Failure to observe the following warnings might result in death or serious injury:

[Multi Cradle]

- Do not insert or remove the ID Node into or from the Multi Cradle with wet hands.
- Do not allow water or other liquid to contact the product.
- Do not insert wire, metal object, or other foreign objects into the product.
- Do not connect or charge devices other than the ID Nodes.
- Disassembly or modification is prohibited.
- Use a dedicated AC adapter.

[AC adapter]

- Use a dedicated AC adapter.
- Disassembly or modification is not allowed.
- Only plug into specified power outlets.
- Make sure that the power plug is not inserted loosely.
- Do not use multiple outlet adapters.
- Do not unplug the power cord by pulling on the cord, and do not place any heavy object on top of the cord. Do not bind, twist or otherwise stress the cord.
- Do not touch the power plug or the DC connector in the AC adapter output section with wet hands.

[USB cord]

- Thoroughly check the product and connectors to be connected.
- Do not touch the DC connector in the AC adapter output section with wet hands.



Failure to observe the following warnings might result in minor injury:

[AC adapter]

● Beware of burn hazards.

The AC adapter is hot during and immediately after usage. Beware of burn hazards.

Placing the adapter directly on the carpet or other floor surface could cause heat generation or discoloration of the surface.

[Multi Cradle]

● Do not insert your fingers into or rub the slots for inserting the ID Nodes.

Do not insert your fingers into or rub the slots on the Multi Cradle where the ID

Nodes are to be inserted.

You might feel some pain when your fingers come into contact with the edges.

NOTICE

Failure to observe the following warning might result in property damage or failure, or might prevent you from collecting accurate data:

- Make sure to keep the power switch on during usage.

3.1 Start and end of operation

- Operation starts the moment you disconnect the ID Node from the Multi Cradle. Attach the disconnected ID Node to the neck strap hanging from your neck.
- Operation ends the moment you connect the ID Node to the Multi Cradle. First remove the neck strap from your neck and then connect the ID Node to the Multi Cradle.
- Once connected to the Multi Cradle, the ID Node is automatically charged and the collected data are automatically transferred to the base station PC. The encounter time and physical activity time displayed on the ID Node LCD are reset to 0:00 to collect data for the next day.

NOTICE

Failure to observe the following warning might result in property damage or failure, or might prevent you from collecting accurate data:

- Do not remove the ID Node while transferring collected data to the base station PC.

During data transfer, the communication LED (yellow) on the Multi Cradle flashes at very short intervals.

- Adjust the neck strap so that the ID Node is hanging just below the chest level, thus ensuring accurate data collection.

The infrared light-emitting parts that are built into the ID Node have an approximately 60° angle of detection with a 2 to 3-m detection distance.

Chapter 4 Troubleshooting

DANGER

Failure to observe the following instructions could result in death or serious injury:

- If any abnormal conditions, including abnormal noise, odor, or smoke generation, occur during use, immediately stop using the device and disconnect the power.

Take necessary safety measures to prevent any individuals who are not aware of the trouble from turning the power back on again, and then report the incident to the personnel responsible.

The personnel responsible will then check the condition and contact TKR Corporation for assistance.

[Emergency contact]



WARNING

Failure to observe the following warnings might result in death or serious injury:

- Disassembly or modification of the device, use of unspecified parts, or removal of a safety device is potentially dangerous.
Do not perform such operations.
Disassembly or modification could result in smoke generation or combustion, possibly resulting in fire or burns.
- The voltage and current applied to the Multi Cradle and AC adapter could cause fire or electric shock. Repairing them by yourself can be dangerous. Please contact service technicians designated by TKR Corporation for assistance.
- The ID Node uses lithium-ion batteries. Shorting during repair or incorrect polarity may result in an explosion. Please contact service technicians designated by TKR Corporation for repair.

4.1 Nothing appears on the LCD of my ID Node.

- (1) Operation does not start until you disconnect the ID Node from the Multi Cradle.
Pull out the ID Node and check if the power switch is in the on position.
- (2) Check if the ID Node is charged. Connect it to the Multi Cradle to check that the charge LED on the ID node does not light up.
- (3) The internal operation of the main unit might not be functioning properly. Slide the power switch to the off position and then back to the on position again.



If the above procedure does not solve the problem, please contact the personnel responsible.
The personnel responsible will then contact TKR Corporation for assistance.

4.2 The communication LED (red) on the Multi Cradle does not flash when I connect the ID Node to the Multi Cradle.

- (1) Check if the power switch on the ID Node is in the on position.
- (2) Check if the ID Node is securely connected to the Multi Cradle. Check that it is not loosely inserted.
- (3) The internal operation of the main unit might not be functioning properly. Slide the power switch to the off position and then back to the on position again.



If the above procedure does not solve the problem, please contact the personnel responsible.
The personnel responsible will then contact TKR Corporation for assistance.

4.3 The charge LED (red) on the ID node does not light up when I connect the ID Node to the Multi Cradle.

- (1) Check if anything is displayed on the LCD of the ID Node. If something is displayed, it means that the ID Node is fully charged.
- (2) Check if the ID Node is securely connected to the Multi Cradle. Check that it is not loosely inserted.
- (3) The internal operation of the main unit might not be functioning properly. Slide the power switch to the off position and then back to the on position again.



If the above procedure does not solve the problem, please contact the personnel responsible.
The personnel responsible will then contact TKR Corporation for assistance.

4.4 The charge LED (red) on the ID node does not turn off even when more than three hours has elapsed since the connection of the ID Node.

(1) This is caused by the deterioration or failure of the lithium-ion batteries in the ID Node.



WARNING
Please contact the personnel responsible.
The personnel responsible will then contact TKR Corporation for assistance

4.5 Water or other liquid has accidentally contacted the ID Node or Multi Cradle.



WARNING
Please contact the personnel responsible.
The personnel responsible will then check the condition and contact TKR Corporation for assistance.

4.6 The USB cord connecting the Multi Cradle with the base station PC has become disconnected.

(1) If the USB cord is disconnected, the base station PC can no longer retrieve collected data from the Multi Cradle.



NOTICE
Please contact the personnel responsible.
The personnel responsible will then contact TKR Corporation for assistance.

Appendix

Appendix 1 ID Node Specifications

Hardware specifications and usage conditions

| Item | Description |
|--------------------------------|--|
| External dimensions | H 58.7 x W 82 x D 8.8 mm (including the lugs) |
| LCD (liquid crystal display) | H 128 x W 128 dots, white and black, no backlight |
| Weight | Approximately 39 g |
| Battery*1 | Three lithium-ion batteries (rated voltage: 3.7 V) Capable of approximately 24 hours of continuous operation (when fully charged) |
| Waterproofing | None |
| Impact resistance | Impact resistance to falls from a height of up to 30 cm |
| Operating temperature/humidity | Temperature: 0 to 40°C; Humidity: 10 to 90% |

*1: The batteries have a limited life span.

Appendix 2 Multi Cradle Specifications

Hardware specifications (main unit) and usage conditions

| Item | Description |
|--------------------------------|---|
| External dimensions | H 245 x W 211 x D 23 mm (including the lugs) |
| Weight | Approximately 480 g |
| Power-supply voltage | DC 19 V, 2 A (supplied by a dedicated AC adapter)*1 |
| Operating temperature/humidity | Temperature: 0 to 40°C; Humidity: 20 to 80% |

*1: Including the charge current of the lithium-ion batteries in the ID Node as well as the ID Node operating current

Hardware specifications (AC adapter) and usage conditions

| Item | Description |
|--------------------------------|--|
| External dimensions | H 38 x W 53 x D 115 mm (cord length: 1,800 mm) |
| Weight | Approximately 310 g |
| Power source (input) | AC 100 -240V, 50-60Hz |
| Power-supply voltage (output) | DC 19 V, 2.64 A |
| Operating temperature/humidity | Temperature: 0 to 40°C; Humidity: 20 to 80% |

Human Big Data Sensor Instruction Manual

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