KEYENCE

Wireless
Hand-held Barcode Reader

HR-51 Series

User's Manual

Read this manual before use in order to achieve maximum performance.
Keep this manual in a safe place after reading so that you can use it at any time.

Introduction

This manual contains information about procedures for handling, operations, warnings, and precautions about “Hand-held Barcode Reader HR-51 Series”.
Make sure to read this manual before use. Keep this manual in a safe place for future reference.

■ Symbols

This manual uses the following symbols that alert you to important messages.
Be sure to read these messages carefully.

⚠ **DANGER**	Failure to follow instructions and mishandling the product may lead to death or serious injury.

⚠ **WARNING**	Failure to follow instructions may lead to physical injury (i.e., electric shock, burns, etc.).

⚠ **CAUTION**	Failure to follow instructions may lead to the product malfunctions.

Note	Provides additional information on proper operations that can be easily mistaken.

📖 Indicates reference pages in this manual or other manuals.

■ General Precautions

- At startup and during operation, be sure to monitor the functions and performance of HR-51 and confirm the normal operation.
- We recommend that you take substantial safety measures to avoid any damage in the event the HR-51 series malfunctions.
- If the product is modified or used in any way other than described in the specifications, its functions and performance cannot be guaranteed.
- When the HR-51 series is used in combination with other devices, the functions and performance may be degraded, depending on the operating conditions, surrounding environment, etc..
- Do not use the HR-51 series for the purpose of protecting the human body.

■ Notice

When this product is used under the circumstances and operating environments described below, adhere to the limitations of the ratings, take adequate measures to ensure safety such as fail-safe installations and consult a KEYENCE sales representative.

- For use under circumstances or environments which are not described in the manual.
- For use with nuclear power control, railway, aircraft, vehicles, incinerators, medical equipment, entertainment equipment, safety devices, etc.
- For use in applications where death or serious property damage is possible and extensive safety precautions are required.

Safety Precautions

■ Safety Precautions on Laser Apparatus

⚠ **WARNING**	Use of controls or adjustments or performunce of procedures other than those specified herein may result in hazardous radiation exposure.

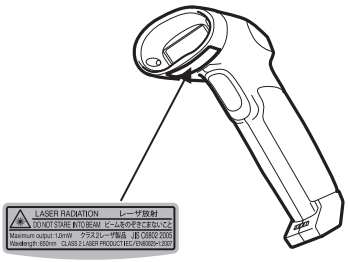
The “Hand-held Barcode Reader HR-51 Series” employs a visible red semiconductor laser for its light source. HR-51 has a wavelength of 650 nm and is classified as a Class 2 laser under IEC standard (IEC60825-1: “Safety of Laser Products”).

Model	HR-51
Wavelength	650nm
Maximum output	1.0mW
Class	CLASS 2 (IEC60825-1)

⚠ **WARNING**	• Do not directly stare into the laser beams or specularly reflected light. Doing so may result in serious eye injury. Do not direct laser beams towards a human body intentionally although laser beams will not cause damage even if it strikes exposed skin. • Never disassemble HR-51. HR-51 is not equipped with a mechanism to stop laser emission when disassembled. If HR-51 is disassembled, laser beams emitted from HR-51 may cause eye injury. • Before cleaning the transmitter/receiver part of laser scanner, be sure to stop the emission of laser beams. Otherwise, exposure to the laser may cause eye injury. • Be careful of the light path of laser beams. Be especially careful of the specularly reflected light. Do not install HR-51 in such a way that the laser beam passes at eye height when operating HR-51.

■ Warning label locations

HR-51



Operating Precautions

⚠ **CAUTION**

■ Precautions on use

- Do not disassemble or modify this unit. Doing so may lead to product failure.
- This unit is a precision instrument. Dropping the unit or subjecting it to shock may cause damage. Take enough care when carrying or using this unit.
- Locate cables as far as possible from high-voltage lines and power lines. Otherwise, generated noise may cause product failure or operation error.
- Do not hold the unit by its cable when carrying. The HR-51 may strike the wall and may be damaged. Also due to the stress on the cables, the wires may be broken.
- Be sure to use the supplied AC adaptor or optional AC adaptor for HR-UC51. Using other AC adaptors than these may result in fire, electric shock or product failures.
- Be sure to periodically clean the power connection part of AC adaptor connected to HR-UC51 as it tends to catch dust. Tracking phenomenon may result in fire. Also, disconnect the AC adaptor from the outlet if not using a long period of time.
- When recharging HR-51 on HR-UC51, be sure to check no foreign objects are attached to the recharge terminal. Foreign objects may cause fire.

■ Environments for use

Do not use in the following locations. Product failure or mechanical error may occur.

- Locations where the ambient temperature is beyond specified range
- Locations where the ambient humidity is beyond specified range
- Locations where the unit is exposed to direct sunlight
- High-temperature locations such as inside a closed car
- Locations where condensation occurs due to the rapid humidity change
- Locations where there are corrosive gas or combustible gas
- Locations where there is a large amount of airborne dust, salt, iron, and greasy fumes
- Locations where the unit may be directly subjected to vibration or impact
- Locations where water, oil or chemicals may splash onto the unit
- Locations where a strong magnetic or electric field is generated

Precautions for using the built-in rechargeable battery

HR-51 contains the built-in lithium ion rechargeable battery. Observe the following precautions for proper use.
On disposal, follow the disposal procedure specified by each local government.

⚠ **DANGER**	• Stop the recharging process if recharging does not finish even after the specified recharge time. The built-in rechargeable battery may become hot, explode or cause fire. • If there is leak or abnormal smell from the built-in rechargeable battery, keep it away from fire immediately. The battery electrolyte may catch fire, resulting in explosion and ignition. • Never put it into the fire. The explosion of built-in rechargeable battery may lead to a serious accident. • Never put it into the water. The chemical reaction of the built-in rechargeable battery may lead to an accident.

⚠ **WARNING**	• In the event that the leaked liquid comes into the eye, do not wipe it. Clean it immediately with clean water instead and go to the eye specialist. If the eye is left untreated, eye damage may result. • In the event the liquid leaked from the built-in rechargeable battery is attached to the skin, wash it immediately with clean water. Otherwise, skin irritation may occur.

⚠ **CAUTION**	• Do not leave or use it in a heated car, under the scorching sun or at high-humidity locations. The built-in rechargeable battery may become hot or cause fire. Also, the battery life may become short and the performance may deteriorate. • Recharge and use the built-in battery in the temperature environment of –5 to 140 degree. If it is used in other temperature environments than this, the built-in rechargeable battery may be hot or damaged. Also, the life become short and the performance may deteriorate. • Never use other rechargers than the specified one. Product failure may occur.

Wireless communication

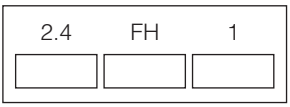
HR-51 and HR-UC51 contain the built-in wireless device based on the Bluetooth wireless technology.

⚠ **CAUTION**	Never disassemble or modify HR-51 and HR-UC51 as those conducts are prohibited by the Radio Law. HR-51 and HR-UC51 are regarded as specified low power radio devices and they obtained Construction Design Certification according to the standard required by law.

■ Cautions for wireless communication

- If the product is used near a wireless LAN device with the same frequency band as that of HR-51 and HR-UC51, radio wave interference may occur and the communication speed becomes slow or communication may become impossible.
- The communication may be impossible near equipment using the same frequency band of electric wave as that of HR-51 and HR-UC51, such as microwave oven, industrial heating equipment and medical high-frequency equipment.
- Communication may be impossible in the following locations
  - Locations near metallic objects or where there is much metallic powder
  - Locations surrounded by a metallic wall
  - Locations where the unit is subject to strong vibration
- Communication-possible distance is approx. 10 m, however, depending on the environment for use, communication may be impossible. Make sure to check the communication condition before introduction.
- With the frequency band for HR-51 and HR-UC51, premise radio stations (with license required) and specified low power radio station (with license not required) for identifying mobile objects used for industrial, scientific and medical equipment or product lines in factory are operating.
- Before using HR-51 and HR-UC51, be sure to check that premise radio stations and specified low power radio stations are not operating in the vicinity.
- If radio wave interference occurs from HR-51 and HR-UC51 against premise radio stations for identifying mobile objects, stop the electric wave generation, contact the following address and consult to take necessary measures (i.e. setting a partition) to avoid interference.
- If radio wave interference occur from HR-51 and HR-UC51 against specified low power radio stations for identifying mobile objects or other problems occur, contact the following address.

  Contact address: KEYENCE CORPORATION, tel.:06-6379-1151



2.4 : This represents wireless equipment using 2.4GHz band.

FH : This represents the modulation method of FH-SS.

1 : This represents the assumed interference distance (≤ 10m)

□□□ : This represents the whole band is used and the equipment range for identifying mobile objects is unavoidable.

Safety Regulations and Standards

■ FDA regulations

HR-51 Series complies with FDA laser product regulation and is classified as class 2 laser product.
Applicable regulation: 21 CFR Part 1040.10, 1040.11
The classification is based on IEC60825-1 following the Laser Notice No. 50 from FDA (CDRH).

■ FCC regulations

HR-51 Series complies with the following FCC regulations.

Applicable regulation	: FCC Part 15 Subpart B, Class B digital devices
	FCC Part 15 Subpart C
FCC ID	: RF40945A (HR-51)
	RF40945B (HR-UC51)

FCC WARNING
Changes or modifications not expressly apprvoed by the party responsible for compliance could void the user's authority to operate the equipment. 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.

NOTICE
The HR-51 and the HR-UC51 have 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. The HR-51 and the HR-UC51 generate, use 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 the HR-51 and the HR-UC51 do 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.

The HR-UC51 complied with FCC radiation exposure limits set forth for uncontrolled equipment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65. The HR-UC51 has very low levels of RF energy that it deemed to comply without maximum permissive exposure evaluation (MPE). But it is desirable that it should be installed and operated with at least 20cm and more between the radiator and person's body (excluding extremities: hands, wrists, feet and legs).

The HR-51 complies with FCC radiation exposure limits set forth for uncontrolled equipment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65. The HR-51 has very low levels of RF energy that it is deemed to comply without testing of specific absorption ratio (SAR).

■ CE Marking

HR-51 Series complies with the requirements of R&TTE Directive.

Applicable standards :	ETSI EN300 328
	ETSI EN301 489-1
	ETSI EN301 489-17
	EN60950-1
	EN60825-1, Laser Class2
Overvoltage category :	I (HR-51)
	II (HR-UC51)
Pollution degree	2

■ EU Countries where HR-51 Series can be used

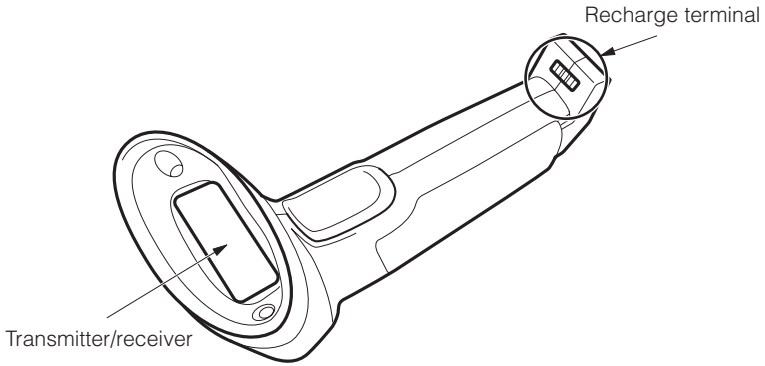
HR-51 Series can be used in the following EU countries.

O Austria	O Belgium	O Cyprus	O Czech
O Denmark	O Estonia	O Finland	O France
O Germany	O Greece	O Hungary	O Ireland
O Italy	O Latvia	O Lithuania	O Luxemburg
O Malta	O Holland	O Portuguese	O Slovakia
O Slovenia	O Spain	O Sweden	O United Kingdom
O Poland	O Bulgaria	O Romania	

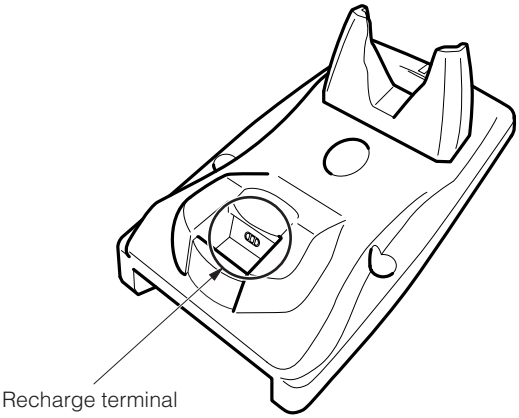
Maintenance

Clean the following parts of HR-51 and HR-UC51 periodically.

- HR-51
  Clean the transmitter/receiver and recharge terminal.



- HR-UC51
  Clean the recharge terminal.



■ How to clean

Transmitter/receiver : Wipe it lightly with an eyeglass cloth or a soft cloth moistened with a plastic cleaner.
Recharge terminal : Wipe it lightly with a soft cloth moistened with alcohol.

MEMO

1

Overview

This chapter explains the package contents list, part names and functions, and basic operations.

1-1 Checking the Package Contents

HR-51 comes with the following items. Check that all of the items are included.

Hand-held Laser Barcode Reader HR-51

■ Main unit: 1

Model	Communication interface
HR-51	Bluetooth interface

- HR-51

- Laser warning seal

Japanese/English

German

French

Chinese

- Strap

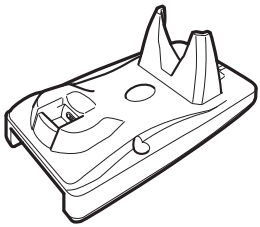
■ User's manual: 1

Communication unit HR-UC51 (Dedicated use for HR-51)

■ Main unit: 1

Model	Communication interface
HR-UC51	Bluetooth interface

- HR-UC51



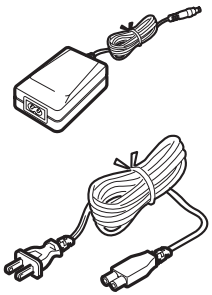
- BD address barcode label

■ Cables

- RS-232C cable

- USB Cable

■ AC adaptor: 1

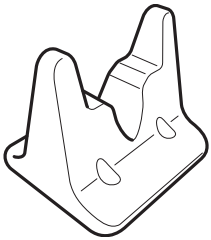


■ Operating instructions: 1

Options

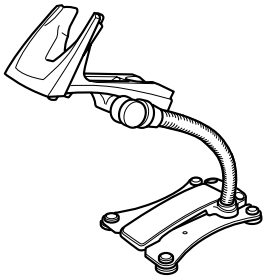
■ Stand OP-87027

- OP-87027: Use this stand when placing HR-51 on a table top



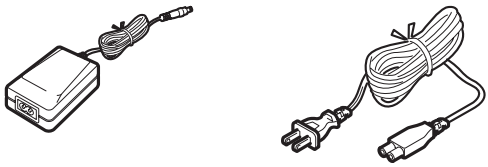
■ Stand OP-87026

- OP-87026 : Use this stand when using HR-51 in detection mode, etc.



■ AC adaptor

- OP-84372: AC100 to 240V applicable (Same as the supplied accessory for HR-UC51)

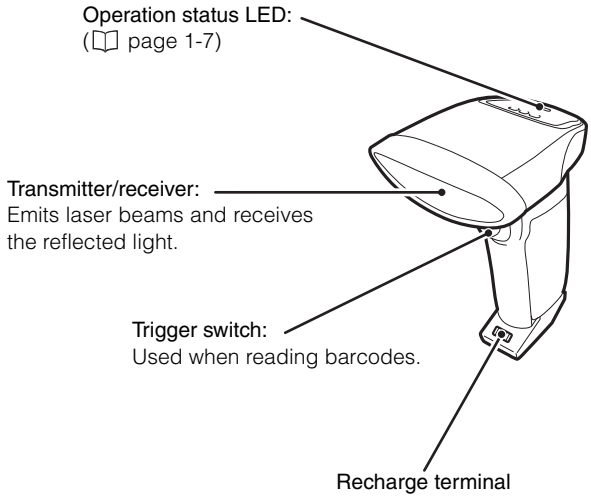


1-2 Part Names and Functions

This section explains the part names and functions

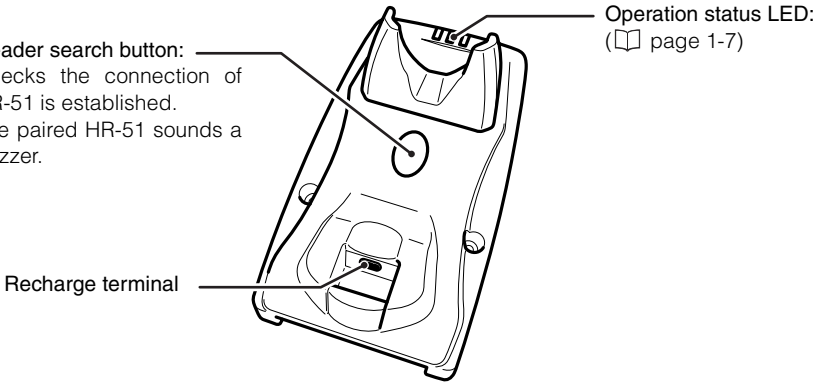
HR-51

HR-51

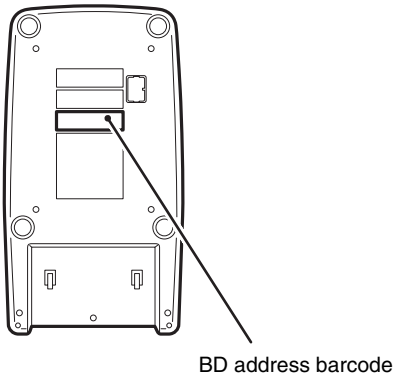


HR-UC51

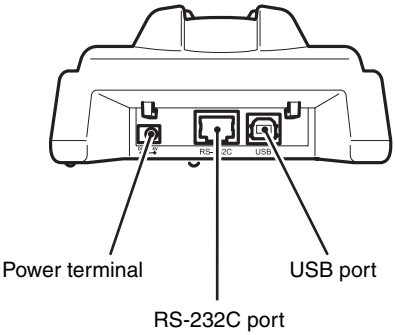
HR-UC51: front



bottom



back

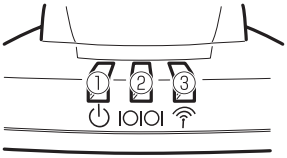


Operation status LED

■ HR-51

LED color	LED light-up timing
Green	• When fully charged • When recognizing barcode in program mode
Red	• When reading the Setup barcode that cannot be set • When recharging • When read data cannot be transmitted
Orange	• When the remaining battery level is low
Blue	• When the connection with HR-UC51 is established • When the transmission of read data is complete • When scanning the Setup barcode

■ HR-UC51



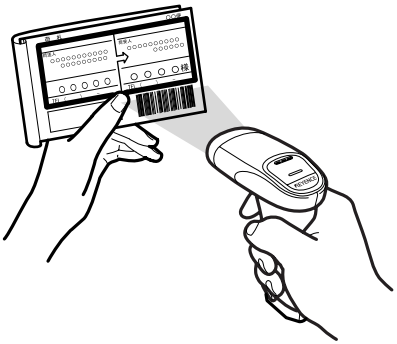
LED number	LED color	LED light-up timing
①	Red	When the power is turned on
②	Green	When data transmission is complete
	Red	When data transmission is impossible
③	Blue	Lights up: When the connection with HR-UC51 is established Blinks: When the connection is not yet established

1-3 Basic operations

This section explains the basic operations of the barcode reader.

Reading a barcode

Point the transmitter/receiver toward the barcode and press the trigger switch about 50 mm away from the barcode.



- When the barcode is read, the operation status LED (green) lights up and the buzzer sounds.
  (You can make the setting for the operation status LED and the buzzer not to operate.)
- The read barcode data is sent to the connected computer or other equipment.

■ Notes for reading

Adjust the reading direction and reading timing so the laser beam can be emitted from the one end to the other end of barcode to scan correctly.

- Correct scanning

- Wrong scanning

You cannot specify which barcode to read

2

Connections

This chapter explains the connection methods for HR-51 Series.

2-1 Connecting HR-51 to HR-UC51

HR-51 and the communication unit HR-UC51 communicate in pairs. Before operation, be sure to establish the connection (pairing) between HR-51 and the communication unit HR-UC51.

Note	• HR-51 operates in fully-charged condition. • The communication unit HR-UC51 operates with the power ON.

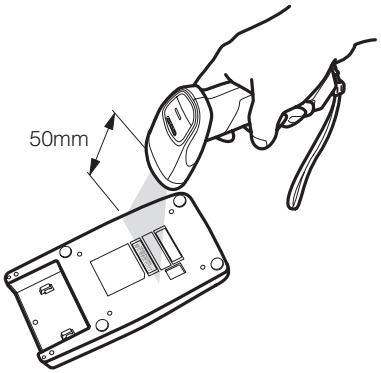
Procedure

Note	When the connection (pairing) is not established, the following operations or conditions result. • After the barcode is read, the operation status LED of HR-51 lights red once and the buzzer sounds. • LED ③ of HR-UC51 blinks blue. Perform the following operations in this condition. • Note that even if you use more than 2 units of HR-51, communication is possible only between connection-established HR-51 and the communication unit HR-UC51.

1 Press the “Trigger switch” to emit the laser beams.

2 Select the communication interface.
(As a default setting, RS-232C interface has been selected.)

3 Read the BD address barcode attached to the communication unit or supplied BD address barcode.



When the connection (pairing) is established, the following conditions result.

- After the barcode is read, the operation status LED of HR-51 lights blue once and the buzzer sounds.
- LED ③ of HR-UC51 lights blue.

⚠ CAUTION	If you change the communication interface, turn OFF and ON once and read the BD address again. Otherwise, the unit may not operate normally (i.e. connection failure, transmission failure).

Notes when the wireless connection is established between HR-51 and HR-UC51

■ For reading the barcode

You cannot read the barcode in the establishment process with HR-UC51.

■ When multiple HR-51 and HR-UC 51 are connected

- Only connected pairs can communicate.
- If multiple HR-51 read the same address bar code of HR-UC51, only the first connection-established HR-51 can communicate with HR-UC51. If you wish to change pairs of HR-51 and HR-UC51, perform the same operation as described at “Changing pairs of HR-51 and HR-UC51” below.

■ Changing pairs of HR-51 and HR-UC51

If you change HR-51 in use to another HR-51, perform the following operations.

Procedure

1 Cancel the connection of connection-established HR-51 in either way of the following.

- Cut connection by reading the Connection-cut barcode.
- Cut connection by pressing and holding the trigger key.
- Cut connection automatically during wireless communication.

2 Read the BD address of HR-UC51 using another HR-51.

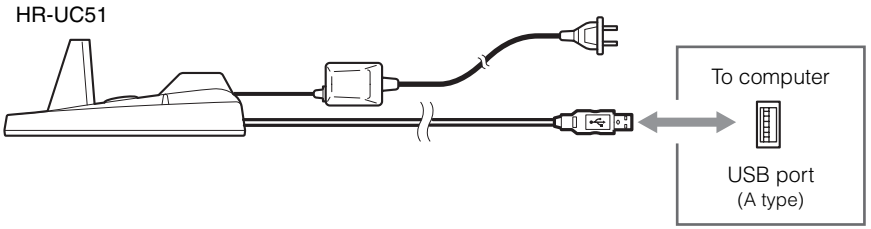
Note	If you restart HR-UC51, the connection of HR-UC51 will become unestablished. Make sure to establish 1 to 1 connection between HR-51 and HR-UC51.

2-2 Connecting HR-UC51

After cables are connected, connect the communication unit to equipment with the connection method according to the communication interface.

Connecting to a computer using the USB interface

Connect to the USB port of the computer. Compliant OS: Windows Vista/XP/2000/98



⚠ CAUTION	Be sure to use the supplied AC adaptor or optional AC adaptor. Using other power sources may damage the unit.

■ Notes when using the computer

- Do not read a barcode while pressing down a key. Do not enter a key while receiving data.
- Set the input mode to “half-width alphanumeric characters”.
- You can select keyboard specifications.

Installing the USB driver

When HR-UC51 is first connected to a Windows 98 PC, the USB driver installation screen appears. Install the driver according to the on-screen instructions.
(Windows Vista, XP and 2000 do not require this operation.)

Note	Connect the barcode reader after the startup of the computer. If it is connected with the power OFF, start the computer.

Procedure

1 The “Add New Hardware Wizard” screen appears and the message “This window searches for new drivers for: USB human interface device” is displayed. Click “Next”.

2 The message “What do you want Windows to do?” is displayed. Then select “Search for the best driver for your device (Recommended)” and click “Next”.

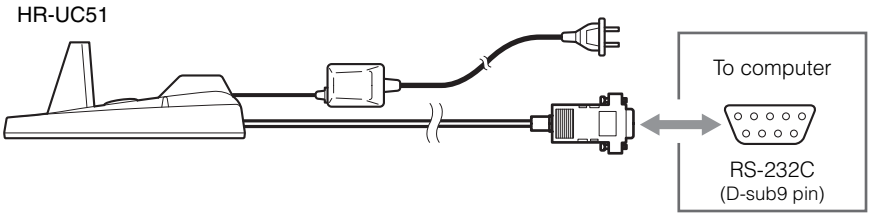
3 Click on the “Next” button. “USB human interface device” is displayed and the message “Windows driver file search for the device” appears. Click “Next”.

Note	The CD-ROM (Windows) may be required depending on the computer environment.

4 Windows begins installing the driver. When installation is complete, the message “Windows has finished installing the software that your new hardware device requires.” appears. Click “Finish”.

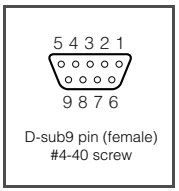
Connecting to a computer using the RS-232C interface

The barcode reader can directly connect to the serial port (RS-232C D-sub9 pin connector) of a DOSV computer.



⚠ **CAUTION**	Be sure to use the supplied AC adaptor or optional AC adaptor. Using other power sources may damage the unit.

■ HR-UC51 connector pin



Pin number	Symbol	Description	Signal direction
1	FG	Frame Ground	–
2	SD (TXD)	Sends Data	Output
3	RD (RXD)	Receives Data	Input
4	DR (DSR)	Data set ready	Input
5	SG	Signal Ground	–
6	–	Do not connect.	–
7	CS (CTS)	Can Send	Input
8	RS (RTS)	Requests to send data	Output

Note	DR (DSR) and ER (DTR) functions cannot be used.

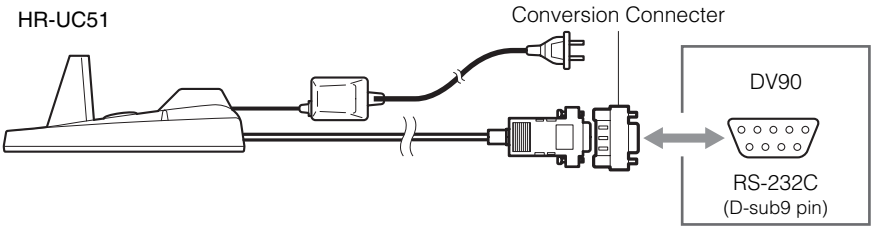
■ Communication settings

The default settings for HR-UC51 are as follows. The setting values can be changed. Make sure that the settings for HR-UC51 and the connected computer are the same.

- Baud rate : 9600bit/s
- Data length : 7 bit
- Parity : Even
- Stop bit : 1 bit
- Communication protocol : Non-procedure

■ Connecting to DV-90 Series

To connect to DV-90 Series, the conversion connecter is necessary as below.



Use the following conversion connector.

- Manufacturer : ELECOM Inc.
- Product name : Serial Reverse Adaptor
- Model : AD-R9

⚠ **CAUTION**	• Be sure to use the supplied AC adaptor or optional AC adaptor. Using other power sources may result in fire, electric shock or product malfunctions. • Power is supplied from the AC adaptor. Power is not supplied from the D-sub connector.

2-3 Recharging HR-51

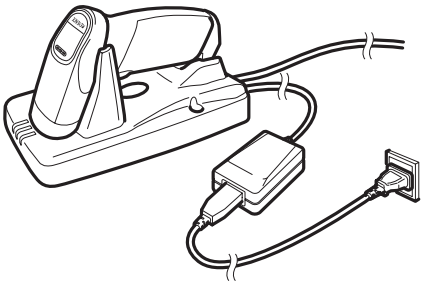
Use the dedicated communication unit HR-UC51 to recharge HR-51.

Note	There is no remaining battery at the time of shipment. Be sure to charge the battery when using this product for the first time.

■ Recharge method

1 Connect the supplied AC adaptor or optional AC adaptor to the communication unit HR-UC51 and confirm the power is ON.

2 Set HR-51 to the communication unit HR-UC51 so the recharge terminal of HR-UC51 is not misaligned with that of HR-51.
As soon as recharging starts, the operation status LED of HR-51 lights red.



Recharging is complete when the operation status LED of HR-51 lights green.

Note	Clean the recharge terminals of HR-51 and HR-UC51 periodically (📖 page 7). Dirt will interfere with recharging.

HR-51 rechargeable battery

If the battery level of HR-51 becomes low, the operation status LED lights orange.
Pay attention to the operation status LED while operating and recharge the battery whenever necessary.

■ Continuous use time

The following chart shows approximate continuous use time in each case after recharging HR-51 is complete.

Conditions	Approximate continuous use time
Reading 1 time/5 sec.	15 hours
Keeping the connection *1	16 hours
Wireless not connected	250 hours

*1 The battery is consumed even when not in use as HR-51 and HR-UC51 always communicates wirelessly.
- It is recommended that HR-51 is set on HR-UC51 when not in use.

Note	• The above continuous use time is approximate and may become shorter depending on the period of use. • If the continuous use time becomes extremely short, replace the battery. Consult your nearest dealer.

■ Recharge time

The following chart shows approximate recharge time from battery level 0 to fully-charged level.

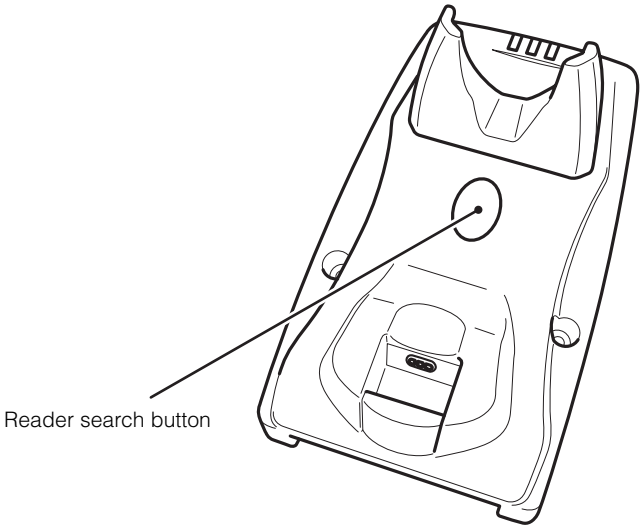
Recharge method	Recharge time
When power is supplied from the AC adaptor	Approx. 3 hours
When power is supplied from the USB bus power	Approx. 6 hours

2-4 Checking the connected pairs

Checking the connection pairs may be necessary in the environment that multiple HR-51 and the communication unit HR-UC51 are used. For example, when you are not sure which communication unit is connection-established with HR-51, use this function.

■ How to check the connected pairs

Press the “Reader search button” of the communication unit HR-UC51 while the connection between HR-51 and HR-UC51 has been established.



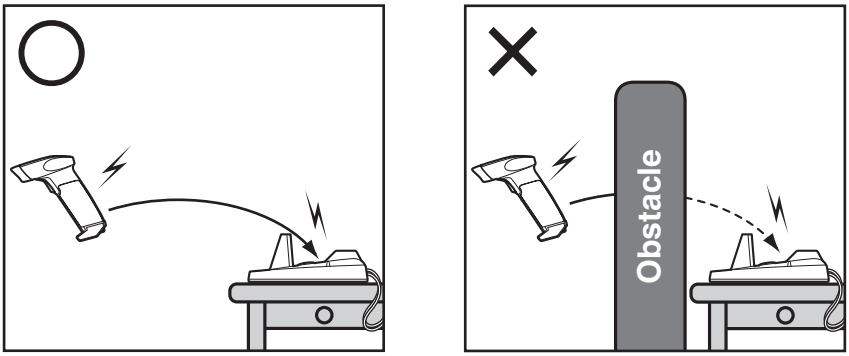
The paired HR-51 sounds a buzzer.

2-5 Wireless communication environment

Bluetooth Version 1.2 is used for the wireless communication between HR-51 and the communication unit HR-UC51. Use in the following environment.

■ Communication distance and surrounding environment

HR-51 and the communication unit HR-UC51 can communicate wirelessly within the range of approx. 10 m.
However, the wireless communication is interrupted if obstacles such as concrete and a metal exist. Use in environments with no obstacles.



Read “Cautions for wireless communication”. (📖 page 4)

■ Operations when the wireless communication is interrupted

If the communication is cut, the following operations result.

- The operation status LED of HR-51 lights red once and the buzzer sounds.
- The operation status LED ③ 📶 of communication unit HR-UC51 blinks.

When wireless communication becomes available, the setting is automatically restored according to the setting contents of automatic reconnecting operation.

If connection fails within the automatic reconnecting operation period, make connection again using either of the methods below.

- Read “Connection-ON barcode”.
- Read the readable barcode when “Automatic connection after reading the barcode” is “Enable”.
- When “Connection on/cut by pressing down the trigger key” is “Enable”, press down the trigger key for the set time for “Trigger key pressing-down time: Connection ON”.
- Read the BD address of HR-UC51.

Note	If the BD address of UR-UC51 has not been registered on HR-51, read the BD address of HR-UC51 before connection.

Appendix

A-1 Specifications

HR-51 Series General specifications

Model		HR-51
Interface		Bluetooth communication type
Light source		Visible red semiconductor laser (Wavelength: 650 nm)
	Maximum output	1mW or less
	Class	CLASS 2 (IEC60825-1)
Reading distance		See the characteristic range for reading (20 to 500 mm)
Reading width		See the characteristic range for reading
Minimum resolution		0.127mm
PCS		0.45 or more
Scan rate		100 scans per second
Supported codes		Code39, ITF, NW-7, JAN/EAN/UPC (add-on support), Code128, GS1-128 (EAN-128), GS1 DataBar, Code93, Industrial 2of5
Environment resistance	Drop impact	1.5m
	Ambient temperature	–5 to +40°C
	Storage ambient temperature	–20 to +60°C
	Ambient light	Sunlight: 50000 lx or less, fluorescent lamp: 3000 lx or less
	Ambient humidity	5 to 95%RH, No condensation
	Storage ambient humidity	5 to 95%RH, No condensation
	Operating atmosphere	No dust or corrosive gas present
	Protection structure	IP42
Weight		Approx. 118 g

Model		HR-51
Wireless communication part	Wireless standard	Bluetooth Ver1.2
	Wireless frequency	2402MHz to 2480MHz
	Communication output	CLASS 2 (max. 2.5 m)
	Communication distance	Scope 10m
Built-in battery		Lithium ion battery, continuous use time: 16 hours

HR-UC51 General specifications (Communication unit dedicated for HR-51)

Model		HR-UC51	
Wired communication part	Communication standard	USB Ver2.0 (HID class) compliant	RS-232C compliant
	Connector shape	USB (B type)	D-sub9 pin (female)
Wireless communication part	Wireless standard	Bluetooth Ver2.0	
	Wireless frequency	2402MHz to 2480MHz	
	Communication output	CLASS 2 (max. 2.5 m)	
	Communication distance	Scope 10m	
Recharge part	Recharge system	Constant-current and constant-voltage system	
	Recharge time	AC adaptor: approx. 3 hours USB bus power: approx. 6 hours	
Environment resistance	Ambient temperature	–5 to +40°C	
	Storage ambient temperature	–20 to +60°C	
	Ambient humidity	25 to 85% RH, No freeze or condensation	
	Storage ambient humidity	20 to 90% RH, No freeze or condensation	
	Operating atmosphere	No dust or corrosive gas present	
Dimensions		78×100×185mm	
Weight		Approx. 230 g (excluding cables)	
AC adaptor specifications		See OP-84372 specifications.	

■ Interface specifications

USB interface

USB version	USB-HID Fullspeed
Compliant OS	Windows Vista/XP/2000/98
Format of sent data	Same as data sent from keyboard

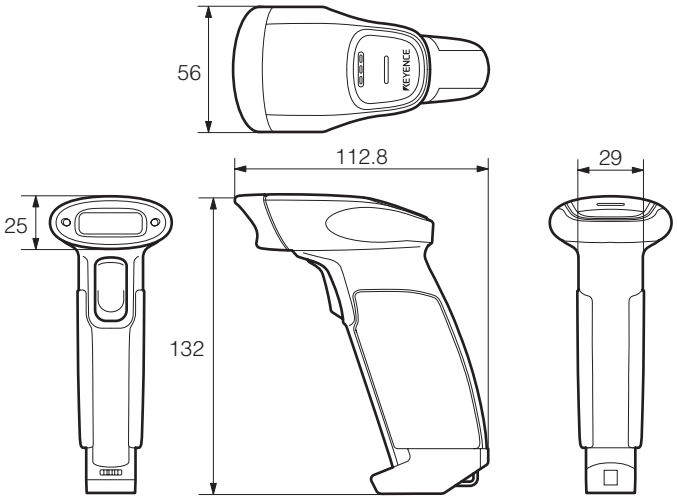
RS-232C interface

Synchronization method	Start-stop synchronization
Transmission code	ASCII code
Baud rate	600, 1200, 2400, 4800, 9600, 19200, 38400, 57600bit/s
Data length	7/8 bit
Parity check	None/Even/Odd
Stop bit length	1/2 bit
Flow control	Non

A-2 Dimensions

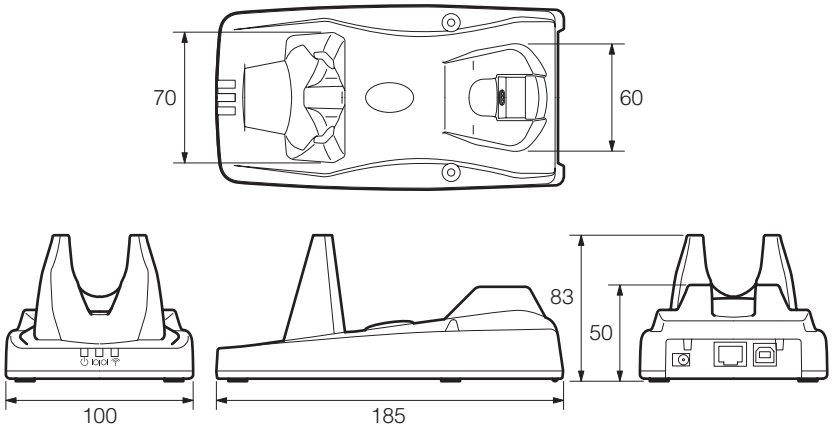
■ **HR-51**

(Unit: mm)



■ **HR-UC51**

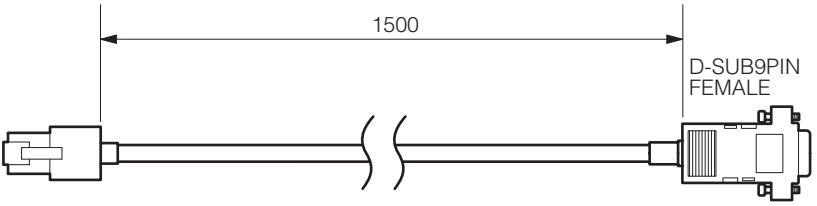
(Unit: mm)



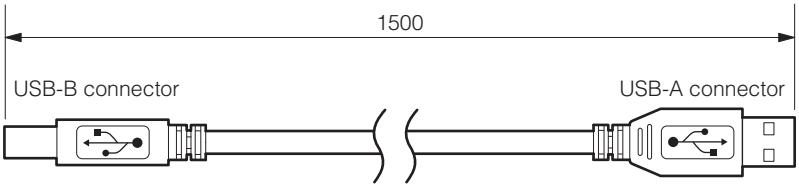
■ Supplied cables

• RS-232C cable

(Unit: mm)



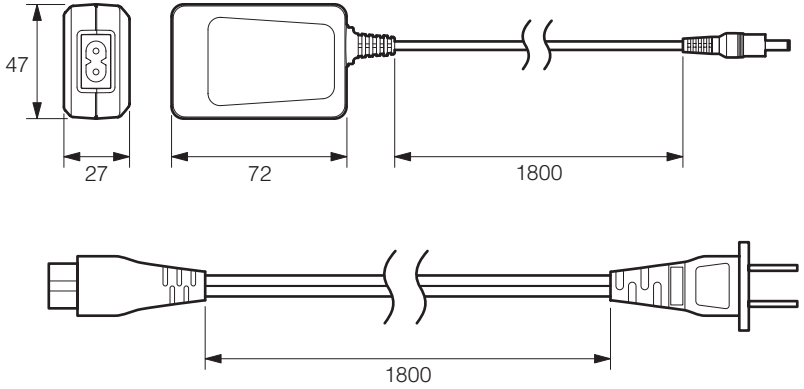
• USB cable



■ AC adaptor

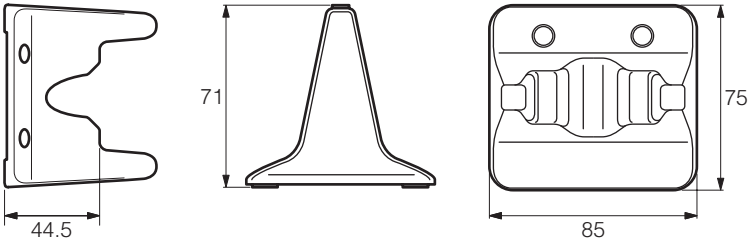
• OP-84372 (supplied with HR-UC51)

(Unit: mm)



■ Stand OP-87027

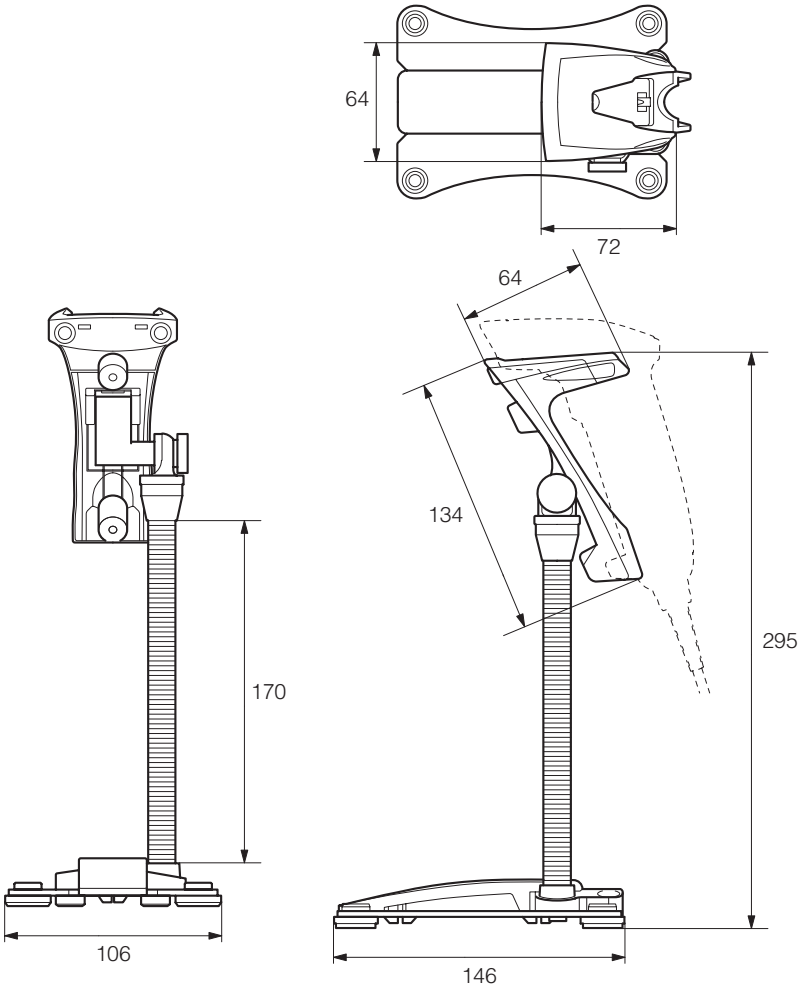
• OP-87027 (Unit: mm)



■ Stand OP-87026

• OP-87026

(Unit: mm)



Warranty

1 Warranty period

One-year warranty is provided for this product after it is delivered to the designated place.

2 Warranty scope

(1) If failure occurs under KEYENCE responsibility during the above warranty period, free repair service is provided.
However, the following cases are excluded from the warranty scope.

① Malfunctions caused by improper conditions, environments, handling and operations other than those described in the operating instructions, user's manual and separately provided specifications.

② Malfunctions caused by user's device or design contents of software except for KEYENCE products.

③ Malfunctions caused by modification or service done by other parties than KEYENCE.

④ Malfunctions that could have been prevented if the consumable parts described in the operating instructions or user's manual had been properly maintained and replaced.

⑤ Malfunctions that were not foreseeable with the technology at the time of shipment.

⑥ Malfunctions caused by other external factors irrelevant to KEYENCE (i.e., fire, earthquake, flood, etc.)

The limit of warranty period is as described above (1). KEYENCE will not responsible for secondary damages (device damage, opportunity loss, lost earnings, etc.) and any other damages on user's side resulted from malfunctions of KEYENCE products.

3 Applicable scope of product

KEYENCE products are designed and manufactured as general-purpose products for general industrial use.
The following uses are not intended and are out of applicable scope.
However, if a user consults KEYENCE beforehand, confirms the product specifications under the userfs responsibility, approves the rating and performance, and then take necessary safety measures, the use is applicable.
Even in this case, the warranty scope is the same as described above.

① For use with facilities where death or serious property damage are possible, such as nuclear power generation, aircraft, railway, ship, vehicles, medical equipment, etc.

② For use with public facilities such as electricity, gas, water, etc.

③ For use outdoors and in similar conditions and environments

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