

IC-HH51/HH52

Modular Handheld

Manual



Your automation, our passion.

 **PEPPERL+FUCHS**

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troindustrie (ZVEI) e.V.) in its most recent version as well as the supplementary clause:
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1 Safety

1.1 Introduction

1.1.1 Content of this Document

This document contains information required to use the product in the relevant phases of the product life cycle. This may include information on the following:

- Product identification
- Delivery, transport, and storage
- Mounting and installation
- Commissioning and operation
- Maintenance and repair
- Troubleshooting
- Dismounting
- Disposal



Note

For full information on the product, refer to the further documentation on the Internet at www.pepperl-fuchs.com.

The documentation comprises the following parts:

- This document
- Datasheet

In addition, the documentation may comprise the following parts, if applicable:

- EU-type examination certificate
- EU declaration of conformity
- Attestation of conformity
- Certificates
- Control drawings
- Instruction manual
- Other documents

1.1.2 Manufacturer

Pepperl+Fuchs Group Lilienthalstraße 200, 68307 Mannheim, Germany
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Internet: www.pepperl-fuchs.com
--

1.1.3 Target Group, Personnel

Responsibility for planning, assembly, commissioning, operation, maintenance, and dismantling lies with the plant operator.

Only appropriately trained and qualified personnel may carry out mounting, installation, commissioning, operation, maintenance, and dismantling of the product. The personnel must have read and understood the instruction manual and the further documentation.

Prior to using the product make yourself familiar with it. Read the document carefully.

1.1.4 Symbols Used

This document contains symbols for the identification of warning messages and of informative messages.

Warning Messages

You will find warning messages, whenever dangers may arise from your actions. It is mandatory that you observe these warning messages for your personal safety and in order to avoid property damage.

Depending on the risk level, the warning messages are displayed in descending order as follows:



Danger!

This symbol indicates an imminent danger.

Non-observance will result in personal injury or death.



Warning!

This symbol indicates a possible fault or danger.

Non-observance may cause personal injury or serious property damage.



Caution!

This symbol indicates a possible fault.

Non-observance could interrupt the device and any connected systems and plants, or result in their complete failure.

Informative Symbols



Note

This symbol brings important information to your attention.



Action

This symbol indicates a paragraph with instructions. You are prompted to perform an action or a sequence of actions.

1.2 Warnings and Safety Notices

Read the following warning and safety notices. They are designed to help keep you safe and the handheld ready for operation.



Caution!

Use only the power supply and batteries provided to operate the handheld, docking station, and modules.

Using unapproved components may seriously damage the handheld or docking station. Remove the battery if the handheld is not going to be used for an extended period of time.



Warning!

Explosion Hazard

The battery in the handheld is a lithium ion battery pack. Lithium ion batteries can explode if exposed to fire or heat. The battery pack must not be disassembled and exposed to fire or heat (above 60 °C/140 °F).

**Caution!****Maximum Permissible Ambient Temperature**

Do not place the handheld, battery, modules, docking station, or power supply near heat sources such as fans, etc. Never expose the handheld, battery, or modules to direct sunlight, excessive sources of dust, or vibrations. Make sure that there is no risk of tripping over connection cables or power supplies.

The maximum permissible ambient temperatures for the handheld, battery, and modules are listed below.

Operating temperature: -20 °C to 50 °C (-4 °F to 122 °F)¹

Storage temperature: -20 °C to 60 °C (-4 °F to 140 °F)

Storage temperature: -20 °C to 25 °C (-4 °F to 77 °F)²

Charging temperatures: 5 °C to 35 °C (41 °F to 95 °F)³

Charging temperatures: 5 °C to 45 °C (41 °F to 113 °F)

1. The handheld should not be used in deep-freeze areas until the startup process is complete.

2. Battery

3. Handheld

**Caution!****Damage to the Touch Screen**

Always operate the touch screen using your fingertips or with a stylus provided for this purpose. Never use pens or other sharp objects.

**Caution!****Medical Devices**

Consult a physician or the manufacturer of the medical device before using the handheld and its components near medical devices (e.g., pacemakers).

**Caution!****Hazardous Areas**

The handheld and the modules must not be used in hazardous areas.

**Caution!****Damage**

Prior to use, check the handheld, battery, modules, docking station, power supply, and any connection cables for damage. Damaged parts must be replaced.

**Caution!****Interfaces**

The interfaces must only be used for their intended use.

**Caution!****Overheating**

To avoid overheating, do not cover the handheld, modules, docking station, or power supply while in operation.



Caution!

Repairs

The devices may only be opened by trained and qualified personnel.



Caution!

Excessive Sound Pressure

Excessive sound pressure from earphones, headphones, or headsets can cause hearing loss.



Note

This is a Class A product (EN55032). This product may cause radio interference in residential areas. In this case, the operator may be required to take appropriate action.



Caution!

Damaged Battery

If the battery is damaged during installation, please dispose of it in the proper manner immediately.



Caution!

Max. Permissible Transmission Power

The device has the following wireless systems:

WLAN, BT-compatible near-range radio frequency bands:

WLAN

2.412 GHz – 2.472 GHz

5.15 GHz – 5.35 GHz

5.47 GHz – 5.725 GHz

BT-compatible near-range radio

2.402 GHz – 2.480 GHz

Max. permissible transmission power in frequency band:

WLAN 2.4 GHz band, max. 100 mW

WLAN 5 GHz band, max. 200 mW

BT-compatible near-range radio max. 100 mW



Caution!

Country-Specific Restrictions

Please observe the following national and regulatory restrictions regarding the use of wireless devices.

WLAN restrictions:

In the EU, the WLAN 5 GHz band (5.15 GHz – 5.35 GHz) may only be operated indoors.

In France, WLAN operation outdoors (channels 8 – 13) at 2.454 GHz – 2.4835 GHz is only permitted at a maximum of 10 mW.



Note

If the display is in idle mode, it can be reactivated by briefly pressing the on/off button.



Caution!

Damage to the Eyes

Do not trigger the camera flash or scanner while they are pointing directly into your eyes or the eyes of someone in the immediate vicinity—doing so may damage the retina.

1.3

Laser Class 2 Safety Information

The IC-HH52 handheld features an optical laser scanner for reading barcodes and Data Matrix codes.

Class 2 Laser Product



Warning!

LASER BEAM

DO NOT LOOK INTO THE BEAM

Switch off the handheld before cleaning it.

The laser classification warning label is located on the bottom of the mobile handheld computer.



Figure 1.1



Figure 1.2

Standards

Complies with EN 60825-1:2014

$P \leq 1.0 \text{ mW}$

$\lambda = 655 \text{ nm}$

Laser beam location



Figure 1.3

2021-09



Warning!

Visible and invisible class 2 laser light

Caution: visible and invisible laser light. Do not look into the beam!

The laser light can be an irritant, especially in a dark environment. Do not point lasers at people!

Maintenance and repairs must be carried out by authorized service personnel only!

Install the device so that the warning is clearly visible and readable.

Caution: Using controls or adjustments, or performing procedures other than those specified herein may result in harmful laser beam exposure.

Only use recommended original accessories.

The operating company bears responsibility for observing locally applicable safety regulations.

Installation and commissioning of all devices may be performed only by trained and qualified personnel.

It is dangerous for the user to make changes and/or repairs. Additionally, doing so voids the warranty and excludes the manufacturer from any liability. In the event of any serious errors, stop using the device. Secure the device against unintended operation. To have the device repaired, return it to your local Pepperl+Fuchs representative or your sales center.

2 Product Description

2.1 Intended Use


The IC-HH51/52 handheld is used for mobile data collection and transmission. The included components are intended for use exclusively with the handheld or the ICZ-HH50-CHARGER docking station.

The handheld modules are accessories for the IC-HH51/52. The included components are intended for use exclusively with the handheld.

2.2 Using the Handheld

Operating Elements



- 1 On/off button 
- 2 Scanner buttons, orange



Switching On

Press the on/off button to switch on the handheld.

↳ The status LED turns green when the handheld is switched on. The operating system home screen or your usual working environment appears on the display.



Switching Off

1. Press the on/off button for at least three seconds to switch off the handheld.
 - ↳ A dialog appears on the right-hand side of the display with the options "Switch off," "Restart," and "Screenshot."
2. Press "Switch off."
 - ↳ The status LED goes out when the handheld is switched off.



Tip

Click on an empty area in the display if you want to close this dialog. The dialog closes again.



Idle Mode

With the handheld turned on, press and hold the on/off button for two seconds to place the handheld in idle mode.

- ↳ Processes and system processes keep power consumption to a minimum to save power.
- ↳ The display is switched off.
- ↳ The handheld uses minimal power, and the battery life is extended.



Note

Emergency Power Supply

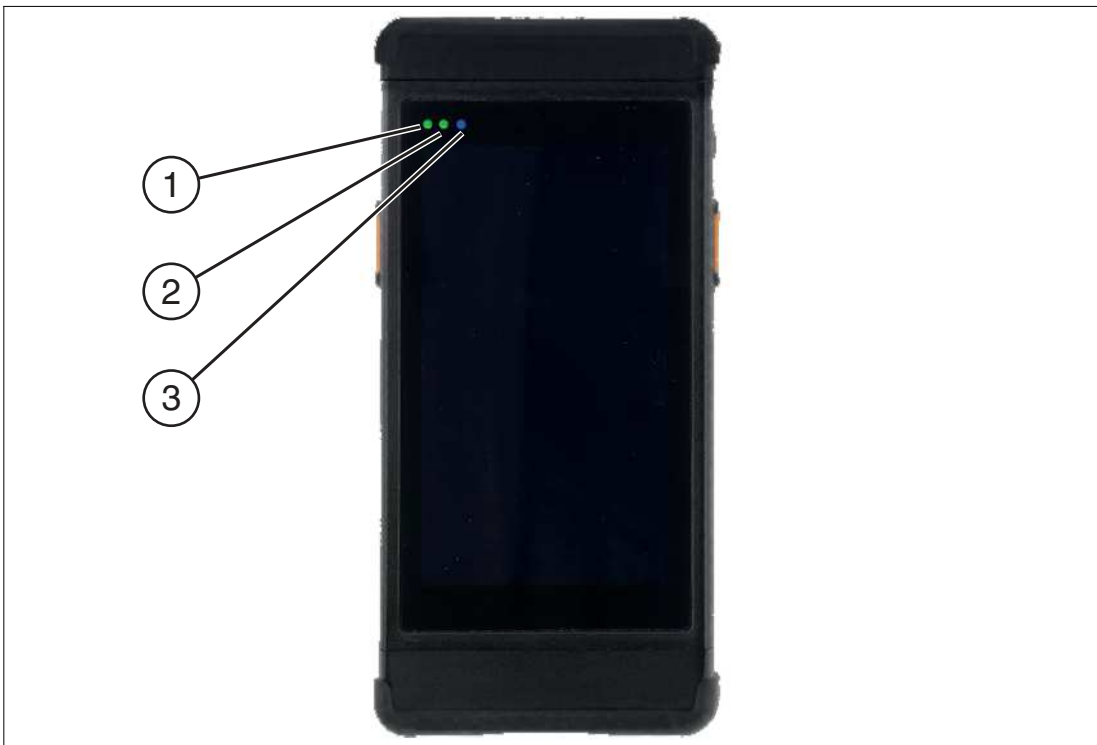
The emergency power supply is enabled when the handheld is switched on for at least 30 minutes.

The emergency power supply provides power to the handheld for up to ten seconds during a battery change, allowing the battery to be changed while applications are running.

Once the removal of the battery is detected, a message is sent to the operating system. This message prompts applications to store important data. The display goes dark during this process. Once the battery is re-inserted, the display becomes active again.

2.3 Handheld Indicators

Status LEDs



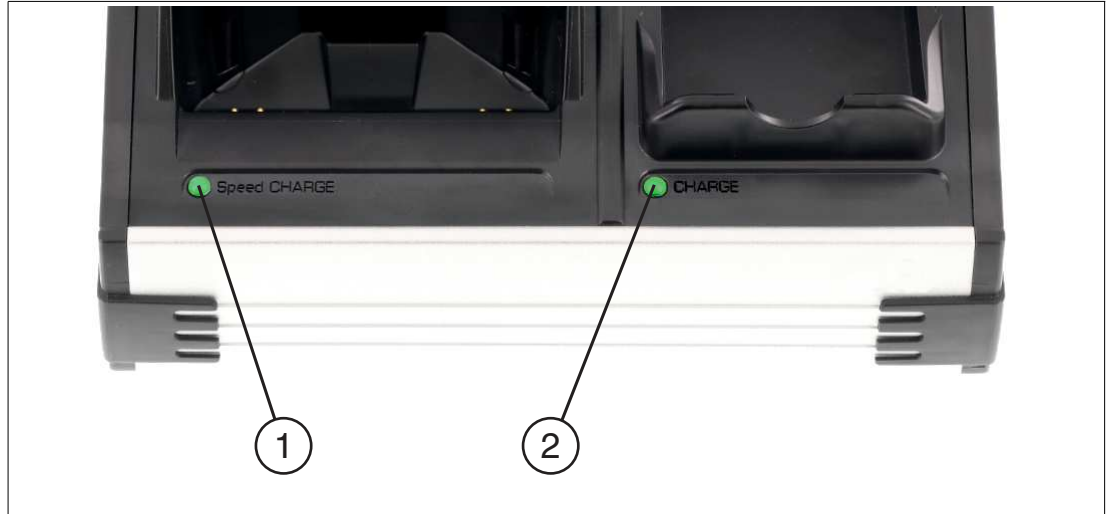
- 1 On LED
- 2 Charge LED
- 3 Application LED

Function

LED	Color	Meaning
On	Lights up green	The handheld is switched on The handheld is starting up
	Flashes green	The handheld is in idle mode
Charge	Lights up green	The handheld is charging
	Flashes yellow	The handheld does not recognize the battery
	Flashes red	Low battery
Application		Application-controlled, function can be defined as required

2.4 Docking Station Indicators

Status LEDs



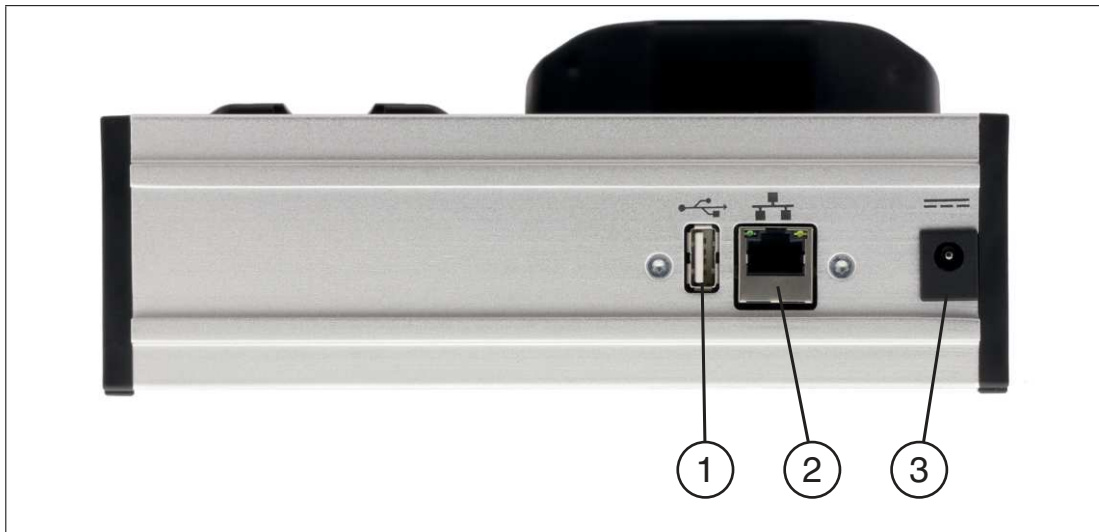
- 1 Speed CHARGE LED
- 2 CHARGE LED

Function

LED	Color	Meaning
Speed CHARGE	Lights up red	The battery in the handheld is charging
	Lights up green	The battery in the handheld is fully charged
	Off	No handheld on the charger
CHARGE	Lights up red	The battery is charging
	Lights up green	The battery is fully charged
	Off	No battery on the charger

2.5 Docking Station Interfaces

Interfaces



- 1 USB socket, type A
- 2 RJ45 socket
- 3 DC socket

Designation	Description
USB socket, type A	USB host interface. The connected USB devices are identified by the USB host adapter in the handheld.
RJ45 socket	Ethernet interface (10/100 Mbit). Network communication is carried out via the Ethernet interface in the handheld.
DC socket	Voltage supply, for connecting the DC plug on the power supply.

Power supply

The handheld and the spare battery must only be charged in the docking station using the appropriate power supply.

External power supply for ICZ-HH50-CHARGER:

- Input voltage ~ 100 V AC – 240 V AC; 1.0 A max.; 50 Hz – 60 Hz
- Output voltage 15 V DC; 2.4 A
- Power cable, country-specific

2.6 Plug-In Modules

Plug-in modules can be slid onto the connection mechanism on top of the device.

Once a plug-in module has been slid onto the connection mechanism on top of the main device, the device can be used to read out tags.



Note

Reading out tags requires starting a software application that is used to initialize the module. The read operation can subsequently be executed using the software application.

UHF: IUH-HH50-FR*



Figure 2.1 Plug-in module for reading UHF RFID tags.

Data

Model number	IUH-HH50-FR1-01	IUH-HH50-FR2-02	IUH-HH50-FR2-03
Frequency band	865 MHz ... 868 MHz	902 MHz ... 928 MHz	920.5 MHz ... 924.5 MHz
Max. permissible transmission power	200 mW ERP		
Read range	≤ 1.5 m		
Antenna type	Integrated, linear polarization		
Output power	0 dBm ... 23 dBm		

HF: IQH1-HH50



Figure 2.2 Plug-in module for reading HF RFID tags in accordance with ISO 15693.

Data

Model number	IQH1-HH50
Frequency band	13.56 MHz
Read range	IQC21-50: 65 mm IQC21-30P: 45 mm IQC21-8*: 15 mm

LF: IPH-HH50



Figure 2.3 Plug-in module for reading LF-RFID tags

Data

Model number	IPH-HH50
Frequency band	125 kHz
Read range	IPC02-50: 65 mm IPC02-30P: 45 mm IPC02-20P: 35 mm IPC02-12: 21 mm



Caution!

Sliding the Plug-In Module Off the Connection Mechanism on Top of the Device:

Do not reach into the scanner glass area as there is a risk of injury due to pinching when sliding the module.

The scanner glass could also become dirty.

2.7 Lithium Ion Battery



Warning!

Explosion Hazard

The battery in the handheld is a lithium ion battery pack. Lithium ion batteries can explode if exposed to fire or heat. The battery pack must not be disassembled and exposed to fire or heat (above 60 °C/140 °F).

ICZ-HH50-BAT

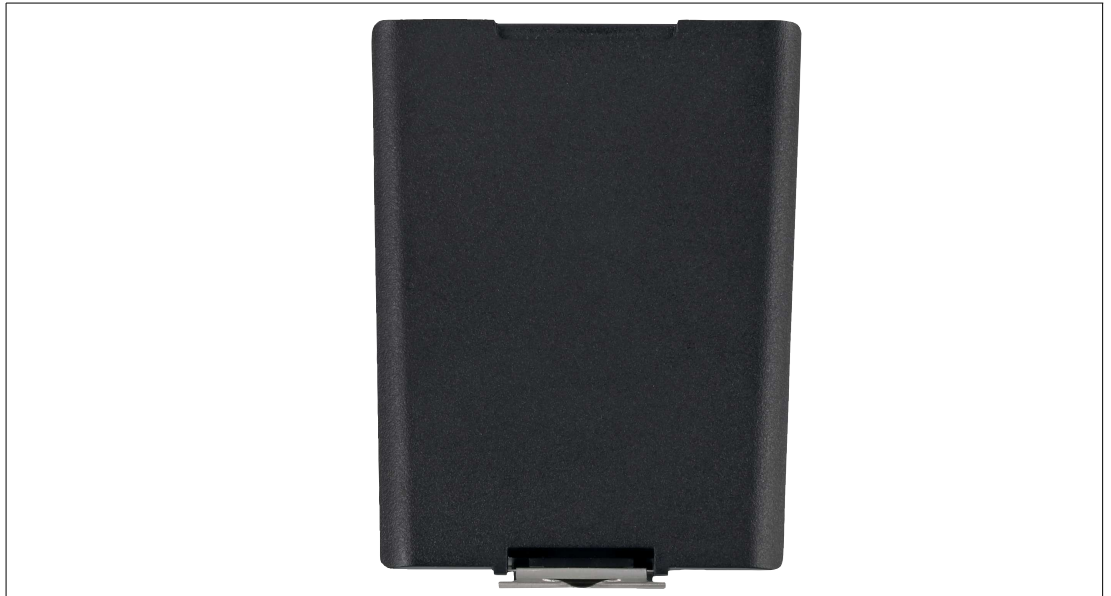


Figure 2.4

Data

Model number	ICZ-HH50-BAT
Voltage	3.8 V
Capacitance	6000 mAh



Caution!

Damaged Battery

If the battery is damaged during installation, please dispose of it in the proper manner immediately.



Caution!

Use only the power supply and batteries provided to operate the handheld, docking station, and modules.

Using unapproved components may seriously damage the handheld or docking station. Remove the battery if the handheld is not going to be used for an extended period of time.

2.8 Open-Source Software

This handheld contains software components that are licensed by the rights holders as free software or open-source software under the GNU General Public License. You can request the source code for these software components from Pepperl+Fuchs by submitting an inquiry within three years of the sale of the product.

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3 Commissioning

3.1 Handheld

Before commissioning the handheld for the first time, make sure that the battery installed at the factory is fully charged. Connect the ICZ-HH50-CHARGER docking station¹ to the mains via the power supply provided and insert the handheld into the docking station. The battery is fully charged when the charge LED on the docking station lights up green. You can now use the handheld. More information about the handheld and docking station can be found in the following chapters.

3.2 Docking Station

Place the docking station in a flat, stable, clean, and shaded area. Plug the power cable into the external power supply. Plug the DC plug on the power supply into the DC socket on the back of the docking station. The DC socket is marked with the direct-current voltage symbol — — — .



Note

Disconnect the docking station by unplugging the power plug from the mains voltage.

The associated power socket must be easily accessible and located near the docking station.

3.3 Charging the Batteries

Docking Station



- 1 Slot for the handheld
- 2 Slot for separate batteries

Charge the battery in the handheld by inserting the handheld into the docking station.

¹. Not included in the scope of delivery

Inserting the Handheld into and Removing It from the Docking Station



Figure 3.1

Charge a separate battery by inserting the battery into the docking station.



Inserting the Battery into the Docking Station

1. Insert the battery into the battery charging compartment at an angle.
2. Push the battery into the battery charging compartment until it audibly clicks into place.

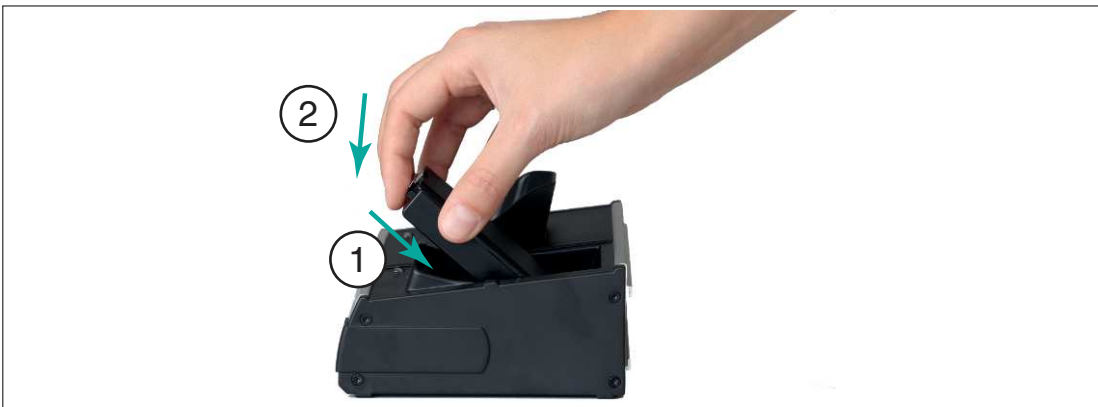


Figure 3.2



Removing the Battery from the Docking Station

1. Open the lock by pushing it toward the battery surface.
2. Lift the battery upward.



Figure 3.3



Caution!

The charging and communication contacts are very sensitive.

Only insert the handheld and separate battery into and remove them from the docking station as outlined above. Do not touch the contacts with your fingers or objects such as pens, screwdrivers, etc.

3.4

Plug-In Modules

The top and bottom plug-in modules are attached and removed by sliding them sideways.

Top Plug-In Module



Figure 3.4

Bottom Plug-In Module (Optional Accessory)



Figure 3.5

4 Maintenance and Repair

4.1 Cleaning and Care

**Tip**

To clean the handheld, place it and the module on a solid, level surface such as a table. This ensures that you are able to hold the devices securely, and the handheld or module will not slide out of your hand during the cleaning process.

**Caution!**

Do not use unsuitable cleaning agents.

Do not use corrosive chemicals, cleaning solutions, or harsh cleaning agents to clean the devices.

Display

Switch off the handheld to clean the display.

The display responds to touch and may compromise or interfere with active programs.

Do not apply excessive pressure to the display.

Viewing Window for Scanner, Camera, and Camera Light

Switch off the handheld if you experience any abnormalities during scanning.

Clean the scanner glass with a soft, dry cloth.

The scanner glass is highly transparent and barely visible to the naked eye. Fold the cloth so that it can easily move back and forth in the scanner shaft.

Do not apply excessive pressure to the glass.

Charging and Communication Contacts

If charging or communication problems occur, clean the charging and communication contacts with a soft, damp cloth.

**Warning!**

De-energize the device.

Disconnect the device from the voltage before cleaning the charging and communication contacts on the docking station.

Keyboard/Keys

Switch off the handheld to clean the keys.

The keys respond to touch and can compromise or interfere with active programs.

Do not apply excessive pressure to the keys.

4.2 Changing the Retaining Strap



Removing the Retaining Strap

1. Turn the device over so that the rear side is facing upward.
2. Open the hook-and-loop fastening on the retaining strap.



Figure 4.1

3. Undo the strap loop at the bottom of the device.



Figure 4.2

4. Pull the retaining strap down through the top mount for the strap.



Figure 4.3



Attaching the Retaining Strap

1. Turn the device over so that the rear side is facing upward.
2. Pull the retaining strap down through the top mount for the strap.



Figure 4.4

3. Fasten the strap loop at the bottom of the device.



Figure 4.5

4. Fasten the hook-and-loop fastening on the retaining strap.



Figure 4.6

4.3 Changing the Battery



Caution!

Only use the power supply and batteries provided to operate the handheld and docking station. Using unapproved components may seriously damage the handheld or docking station. Remove the battery if the handheld is not going to be used for an extended period of time.



Note

The battery compartment is located on the back of the device.



Removing the Battery

1. Unhook the retaining strap. See chapter 4.2.
2. Push the lock toward the battery surface.
↳ Open the lid and remove the battery.



Figure 4.7



Inserting the Battery

1. Insert the battery into the battery compartment at an angle.
1. Insert the battery such that the battery contacts are aligned with the device contacts.

↳ Push the battery down into the compartment. The lock clicks into place.



Figure 4.8

2. Re-attach the retaining strap. See chapter 4.2.



Note

Emergency Power Supply

The emergency power supply is enabled when the handheld is switched on for at least 30 minutes.

The emergency power supply provides power to the handheld for up to ten seconds during a battery change, allowing the battery to be changed while applications are running.

Once the removal of the battery is detected, a message is sent to the operating system. This message prompts applications to store important data. The display goes dark during this process. Once the battery is re-inserted, the display becomes active again.

5 Notes on disposal

Electronic waste is hazardous waste. When disposing of the equipment, observe the current statutory requirements in the respective country of use, as well as local regulations.

Do not dispose of storage batteries with the household refuse.



Consumers are obliged by law to dispose of used storage batteries in accordance with regulations. You can hand in your used batteries at public collection points in your area or sales points where batteries of that particular kind are sold. You can also send your used batteries directly to us for disposal. Please remember that this service is only available within the scope of normal use. If you wish to send back your used batteries, please affix sufficient postage stamps and send to our address. There are no extra charges for disposal.

Your automation, our passion.

Explosion Protection

- Intrinsic Safety Barriers
- Signal Conditioners
- FieldConnex® Fieldbus
- Remote I/O Systems
- Electrical Ex Equipment
- Purge and Pressurization
- Industrial HMI
- Mobile Computing and Communications
- HART Interface Solutions
- Surge Protection
- Wireless Solutions
- Level Measurement

Industrial Sensors

- Proximity Sensors
- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- Fieldbus Modules
- AS-Interface
- Identification Systems
- Displays and Signal Processing
- Connectivity

Pepperl+Fuchs Quality

Download our latest policy here:

www.pepperl-fuchs.com/quality

