OHV210-F229-B15

Handheld reader

Manual

CE

Your automation, our passion.

PEPPERL+FUCHS

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Worldwide

Pepperl+Fuchs Group

Lilienthalstr. 200

68307 Mannheim

Germany

Phone: +49 621 776 - 0

E-mail: info@de.pepperl-fuchs.com

North American Headquarters

Pepperl+Fuchs Inc.

1600 Enterprise Parkway

Twinsburg, Ohio 44087

USA

Phone: +1 330 425-3555

E-mail: sales@us.pepperl-fuchs.com

Asia Headquarters

Pepperl+Fuchs Pte. Ltd.

P+F Building

18 Ayer Rajah Crescent

Singapore 139942

Phone: +65 6779-9091

E-mail: sales@sg.pepperl-fuchs.com

https://www.pepperl-fuchs.com

2024-02

1 Introduction

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.

Note

For specific device information such as the year of construction, scan the QR code on the device. As an alternative, enter the serial number in the serial number search 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
- Functional safety manual
- Other documents

1.2 Target Group, Personnel

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

Only appropriately trained and qualified personnel may carry out mounting, installation, commissioning, operation, maintenance, and dismounting 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.

1.3 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

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

2 Product Description

2.1 Use and Application

Caution!

Irritation caused by optical radiation

The optical unit on the handheld reader is equipped with very bright LEDs that can cause irritation in dark environments.

Do not point the handheld reader at people.
Do not look directly into the optical unit on the handheld reader.

The handheld is a compact handheld reader for all common 1-D and 2-D codes. Special technology to prevent glare allows the device to read codes accurately on highly reflective surfaces. With its patented dual lens and a resolution of 1.2 million pixels, it can read both small and large codes from a wide range of distances. A different-colored target projection makes it easier to see the relevant code. The device responds via a vibration or a visual or audio signal.

The Vision Configurator software can be used to create rule sets for formatting read results without extensive programming work. This enables easy integration into ERP systems. The read data is transferred via the Bluetooth interface or by plugging the handheld reader into the charging cradle. With its rugged housing and degree of protection (IP65), the handheld reader is suitable for outdoor use.

Figure 2.1 Handheld reader

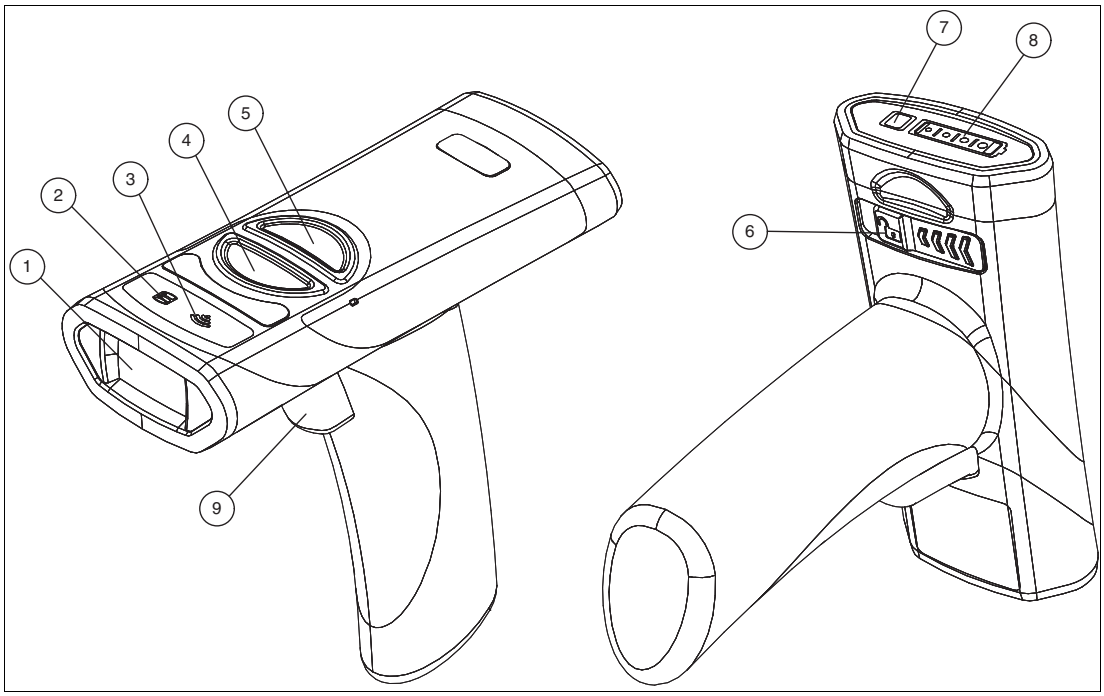
The device is only approved for appropriate and intended use. Ignoring these instructions will void any warranty and absolve the manufacturer from any liability.

Use the device only within the specified ambient and operating conditions.

Protection of the personnel and the plant is not ensured if the device is not used according to its intended use.

2.2 Indicators and Operating Elements

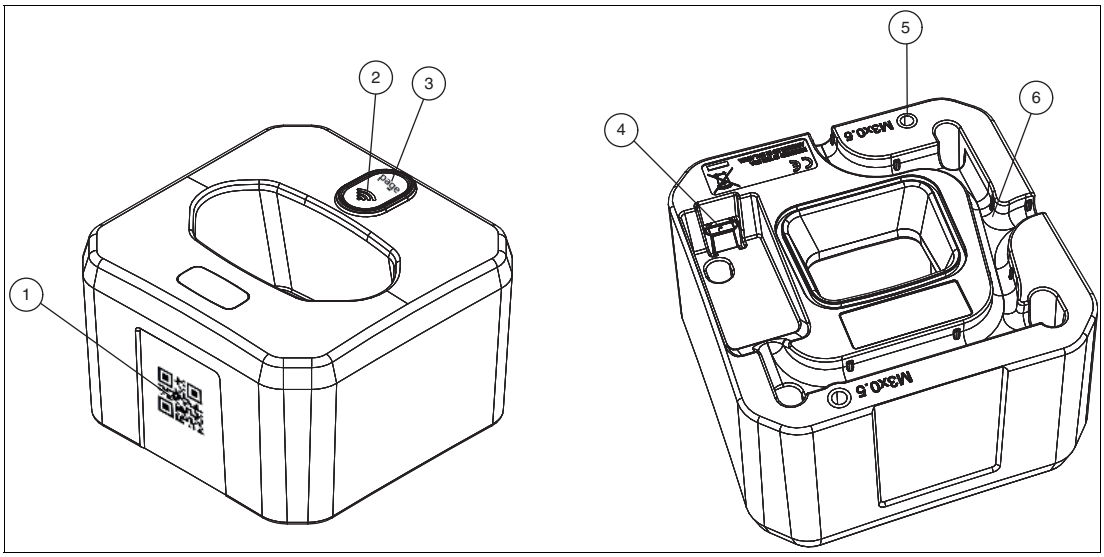
Handheld reader



1 Optical unit
2 Data LED
3 Wireless LED
4 Trigger button 1
5 Trigger button 2
6 Battery release
7 Battery status button
8 Battery status indicator
9 Trigger button 3

2024-02

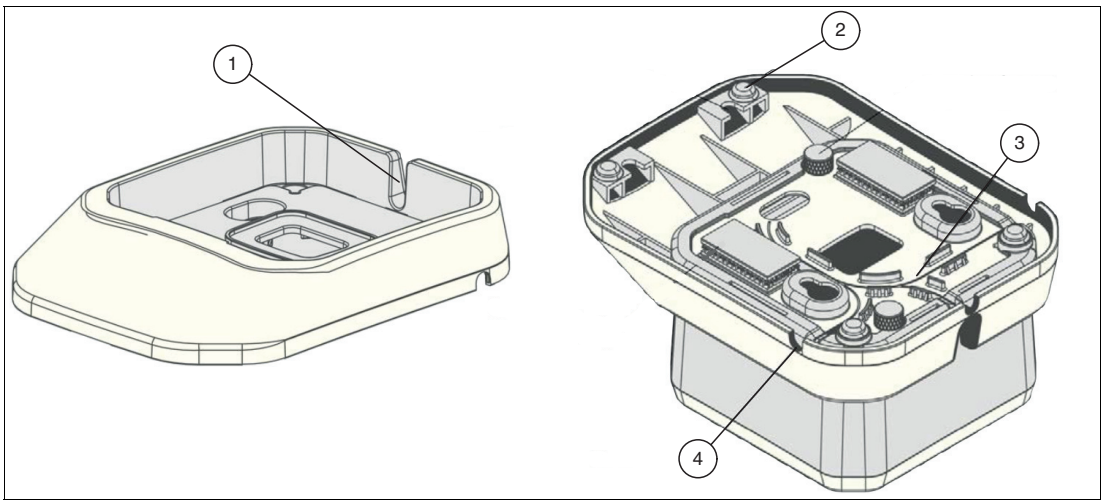
Charging cradle



1 Quick connection code
2 Wireless LED
3 Page button
4 Micro USB interface
5 Threaded mounting inserts (M3 x 0.5)
6 Cable guide groove

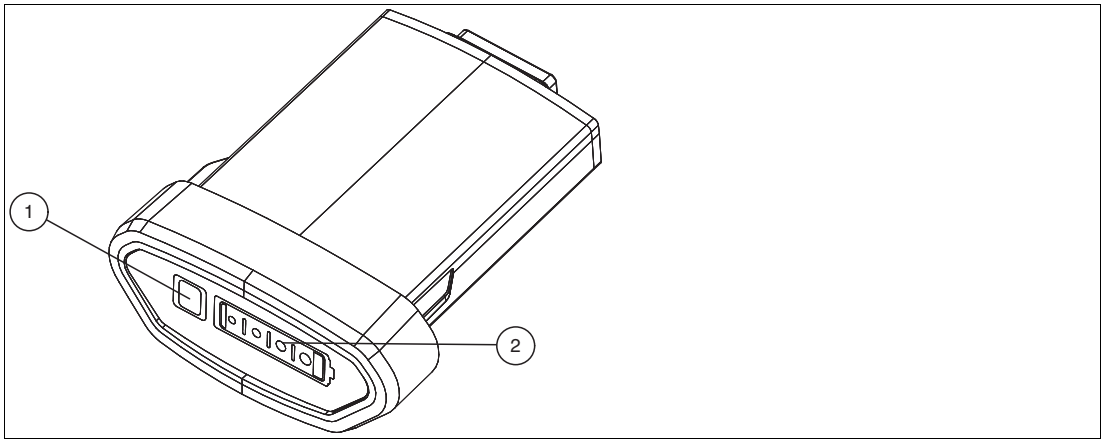
Table mount

The table mount provides additional stability to the charging cradle when it is freestanding on a counter or table.



1 Cable output
2 Rubber feet
3 Cable entry guides
4 Cable output

Lithium-ion battery



1 Battery status button

2 Battery Status Indicator

2.3 Scope of Delivery

Check the packaging and contents for damage.

Check if you have received every item and if the items received are the ones you ordered.

- Handheld reader
  OHV210-F229-B15
- Lithium ion battery, 1200 mAh
  OHV210-BAT
- Charging cradle
  OHV210-CHARGER-B15

2.4 Accessories

Designation	Description
OHV210-CHARGER-B15	Charging cradle for OHV200 handheld readers with integrated Bluetooth modem incl. connection cable USB-G-1M-PVC-ABG-USBB-G The connection cable can also be ordered separately at a later point.
OHV-BAT	Lithium ion battery, 1200 mAh
Vision Configurator	Configuration software for camera-based sensors When using OHV handheld readers, you can download the software free of charge from www.pepperl-fuchs.com.

2.5 Storage and Disposal

Keep the original packaging. Always store and transport the device in the original packaging.

Store the device in a clean and dry environment. The permitted ambient conditions must be considered, see datasheet.

The device, built-in components, packaging, and any batteries contained within must be disposed in compliance with the applicable laws and guidelines of the respective country.

2024-02

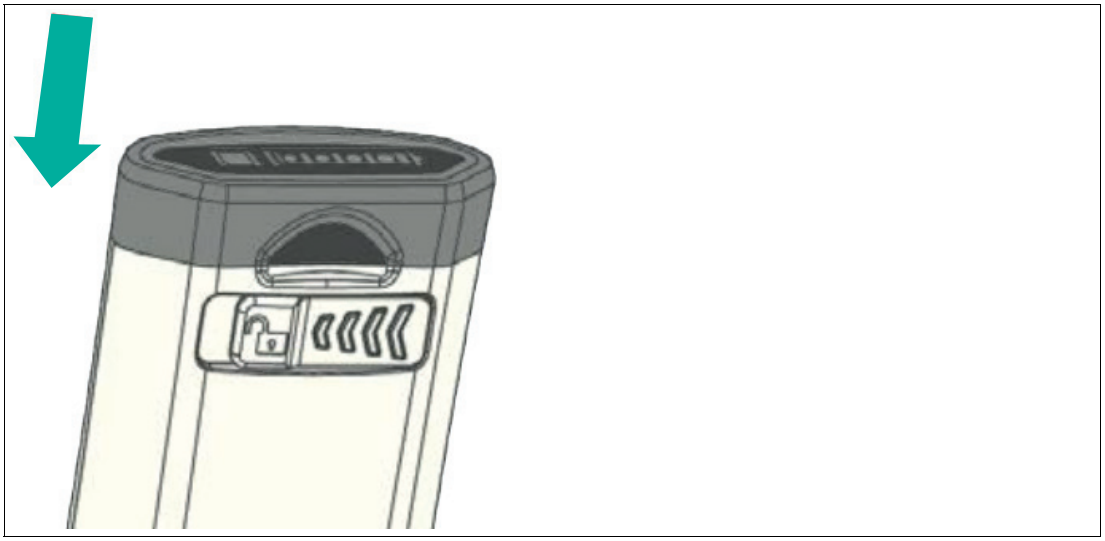
3 Installation

3.1 Inserting and Removing the Battery

Inserting the Battery

The battery is shaped so that it can only be inserted in one direction.

1. Insert the battery into the cavity of the handheld reader until it clicks into place.

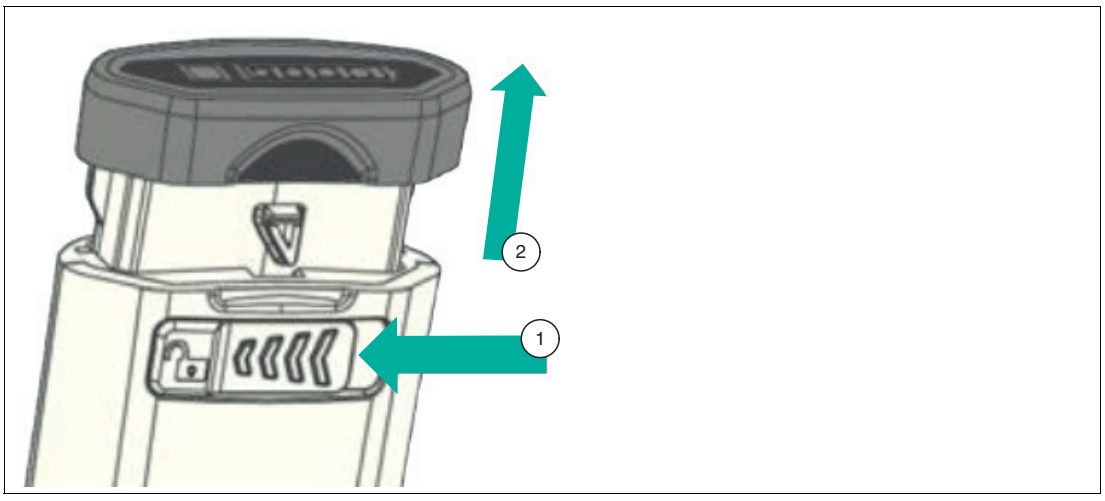


2. Press any key on the handheld reader (except the battery status key on the battery) for half a second.

↳ The handheld reader begins the start sequence. When the handheld reader has successfully completed its start sequence (approximately 2 seconds), it emits a beep, the LEDs flash, and the handheld reader vibrates once.

Removing the Battery

1. Move the locking device on the bottom of the handheld reader in the direction of the arrow until the battery easily springs out.

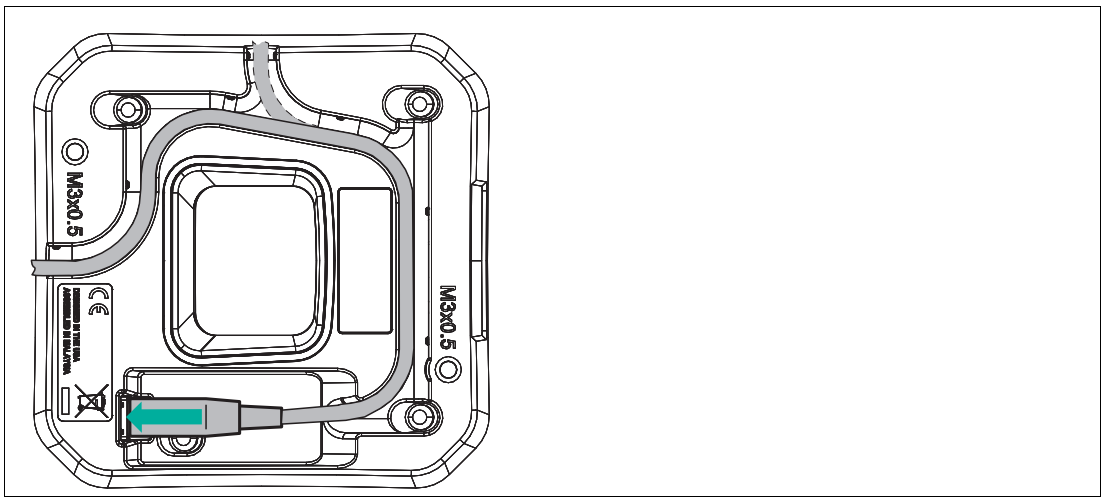


2. Pull the battery out of the handheld reader.

3.2 Charging Cradle Connection

Connecting the Charging Cradle

1. Insert the micro USB plug of the cable into the micro USB connection on the bottom of the charging cradle.

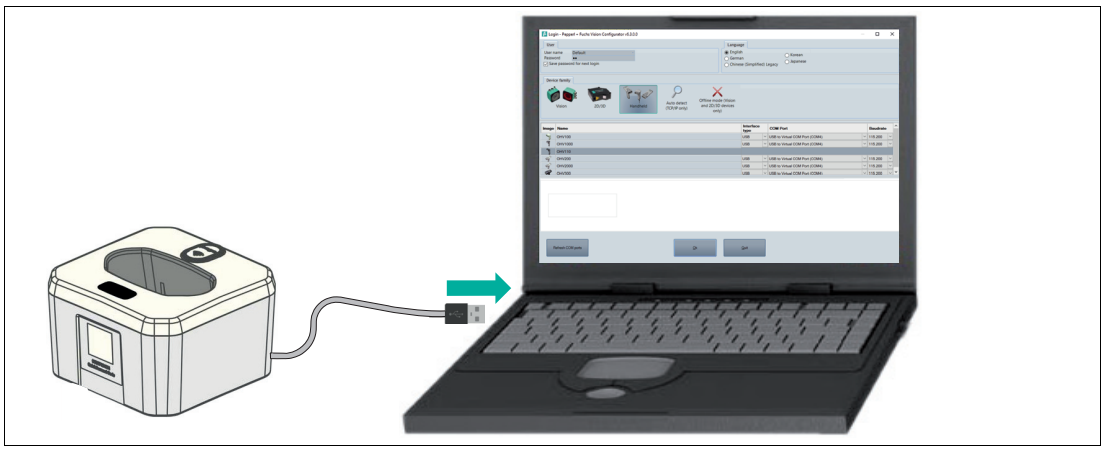


2. Route the cable along the cable guide groove on the bottom of the charging cradle.

Note

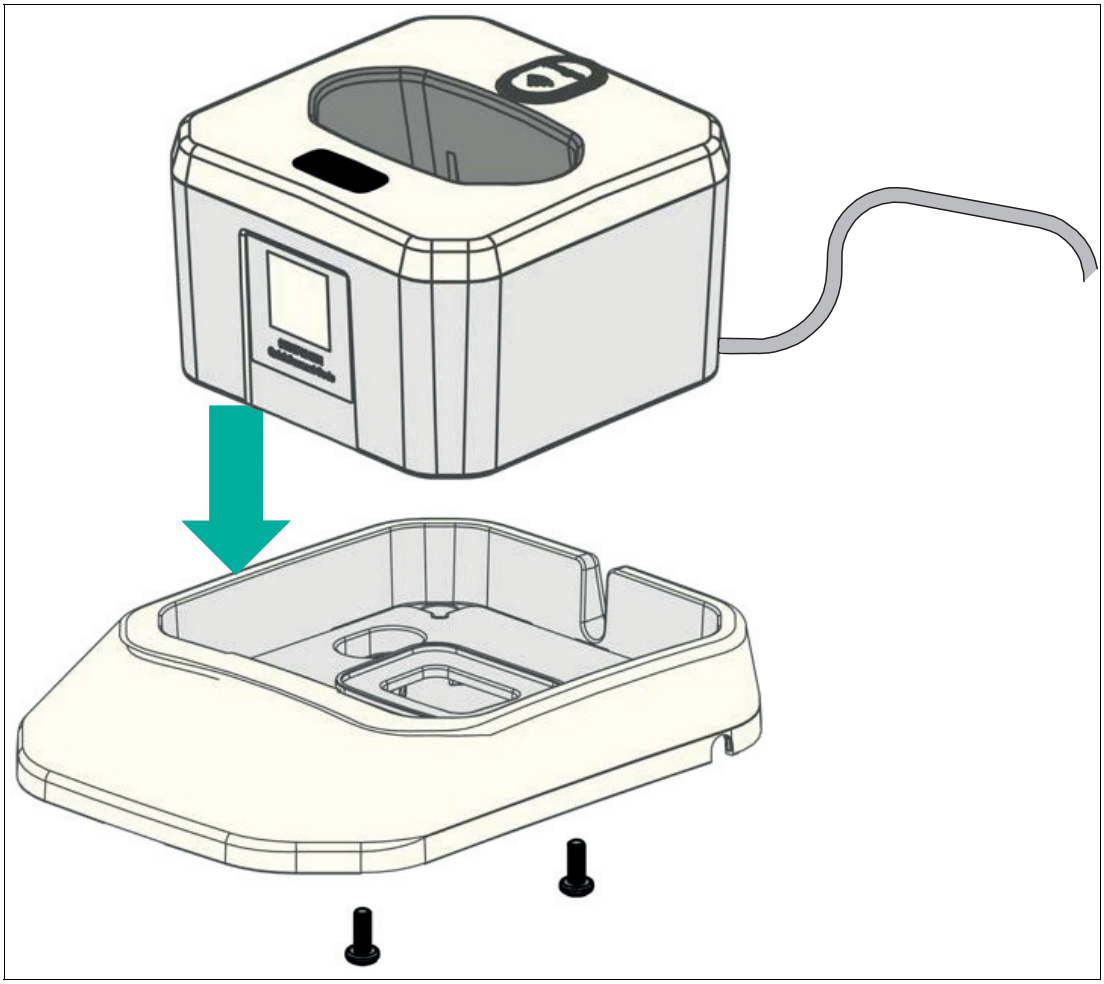
When the charging cradle is placed in a table mount, the cable should come through the hole on the back of the charging cradle.

3. Insert the USB plug on the connection cable into a free USB port on the PC. This step can be carried out even during operation.



4. Place the charging cradle in the table mount. The charging cradle can be attached to the table mount using the two flat head screws supplied.

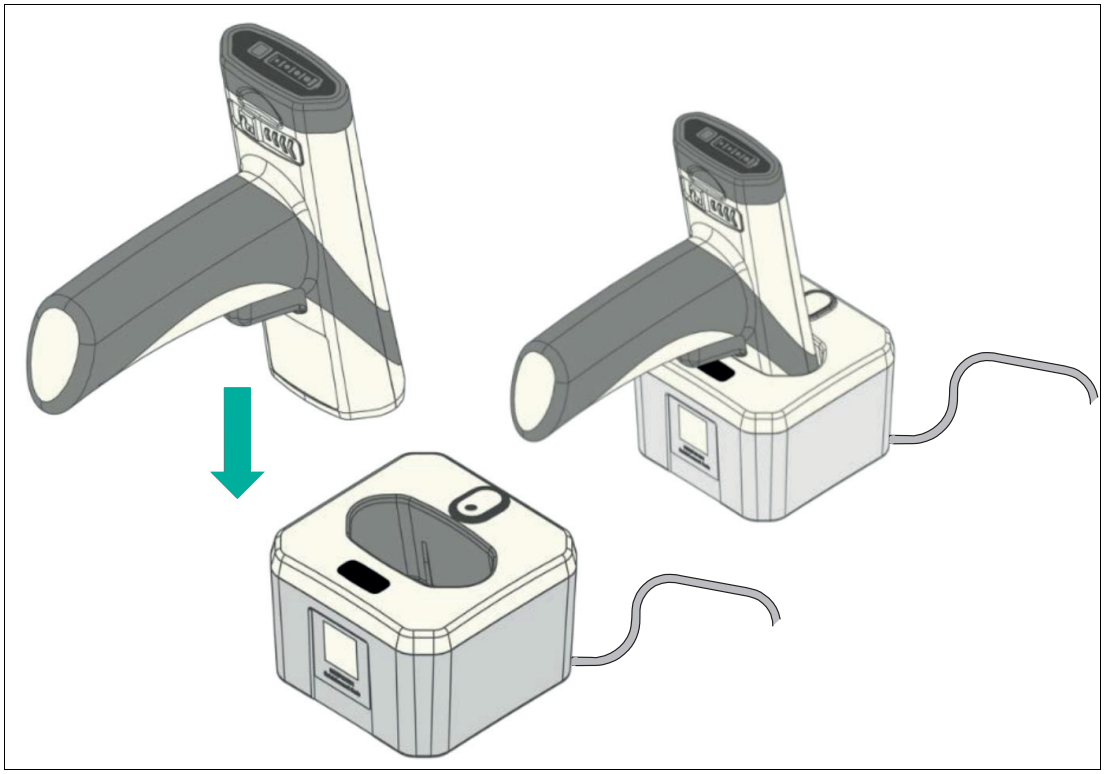
2024-02



3.3 Charging the Handheld Reader

Charging the Handheld Reader

1. To charge the battery installed in the handheld reader, place the handheld reader in the charging cradle, with the scanning window facing down.



↳ The handheld reader emits a beep when it is turned off and activated. The handheld reader emits an additional beep when it is coupled with the charging cradle and reconnects.

↳ The battery status indicator starts flashing alternately for four secondsand lights up for one second. When the battery is fully charged , the battery status indicator lights up continuously.

Note

Charging Duration

The battery will be fully charged in approximately 3.5 hours when the charging cradle is used with an external power supply. Charging time may vary when the inductive charging cradle is connected to a PC USB connection.

Tip

Before First Use

It is recommendedthat the battery is fully charged before using the handheld reader for the first time, even if a new battery has remaining capacitance.

To ensure sufficient battery power for the duration of a shift, always place the handheld reader back in the charging cradle between activities.

Tip

Battery Status Indicator

To check the battery charge status, press the battery status button on the back of the battery, see chapter 5.5.

3.4 Connection via Bluetooth®

The charging cradle connects to a host via a USB cable. It automatically detects the USB hosts and connects as an HID keyboard device by default. To change to a different interface type, scan the desired interface configuration code.

The handheld reader can be coupled with the inductive Bluetooth® charging cradle. The charging cradle receives data wirelessly from the coupled handheld reader and sends it via USB to the host computer. It can receive commands, configurations, files, etc., from the host computer, and send them wirelessly to the coupled handheld reader.

Establishing a Bluetooth® Connection

1. To couple the handheld reader with the Bluetooth® charging cradle, scan the quick connect code on the front of the cradle.

   ↳ A successful coupling is indicated by the handheld reader emitting two short beeps followed by another beep and then vibrating. In addition, the radio indicators on both the handheld reader and the charging cradle permanently light up green. The read data is transferred directly to the connected PC and to the currently opened program. The handheld reader behaves like a keyboard.

Bluetooth Wireless Performance

The handheld reader uses Class 2 Bluetooth wireless. The output power in the handheld reader is set to 0 dBm by default , but can be configured to lower or higher maximum values. The default output power of the Bluetooth wireless on the handheld reader is -8 dBm and can also be adjusted. A reduction in wireless output limits the detection range of the data transfer.

Automatic Bluetooth Reconnection

The handheld reader attempts to reconnect automatically if the connection is lost (e.g., if the handheld reader is outside the detection range, if battery power is reduced, if the device is restarted, or if the charging cradle or host is turned off). This automatic reconnection function is enabled by default and can be deactivated as needed. The automatic reconnection timeout is five minutes by default but can be configured for other periods.

Bluetooth Security

Bluetooth low-energy communication in the handheld reader is AES-128 encrypted as standard. Please contact Pepperl+Fuchs Support for additional security requirements.

3.5 Connection to a Host

The handheld reader can be coupled as a Bluetooth HID keyboard device with a third-party host such as a cell phone, tablet, and PC that supports BLE (Bluetooth Low Energy).

Establishing a Host Connection

1. Scan the following control codes CC0066002_01 and finally M20381_01 to put the handheld reader into Bluetooth HID keyboard mode.

CC006002_01

Figure 3.1 CC0066002_01

M20381_01

Figure 3.2 M20381_01

2. Open the Bluetooth settings menu on the mobile device or device manager on the PC, find "OHV210" under the available Bluetooth devices, and connect.

↳ When the handheld reader is successfully connected, it emits a beep and the BT indicator on the handheld reader flashes.

3.6 Locking Device Connections

The handheld reader can lock the connection between a read device and charging cradle. After the connection has been locked, the charging cradle can only connect to the coupled read device.

Locking Device Connections

1. After you have coupled the handheld reader with the charging cradle, scan the M20409_01 barcode to lock the connection and scan the M20410_01 barcode to unlock the connection.

Figure 3.3 M20409_01 and M20410_01

4 Configuration

There are two different ways to configure the handheld reader.

- **Control Codes**: Control codes allow direct configuration without using a PC. To change a parameter, scan the appropriate control code using the handheld reader. See chapter 4.3.
- **Vision Configurator**: The software allows you to perform advanced configuration on a PC using a clearly arranged user interface. Standard functions include modifying the output string, editing the read result, and assigning a prefix or suffix to the read result, generating user-defined control codes, and performing a firmware update. See chapter 4.2.

4.1 Selecting the Operating Mode

The handheld reader has three different operating modes.

Mode	Description
Keyboard Mode	In keyboard mode, the handheld reader acts like a keyboard; see chapter 4.1.1. The read codes are transferred to the PC as a combination of letters and digits.
Vision Configurator Mode	In Vision Configurator mode, the charging cradle is connected to a PC and connects to the Vision Configurator. This mode is used exclusively for communication with Vision Configurator, see chapter 4.1.2.
Virtual COM Port	The handheld reader operates as an RS-232 serial device via an emulator, see chapter 4.1.3.
Batch mode	In batch mode, data can be collected using the handheld reader and temporarily stored in the reader, see chapter 4.1.4.

4.1.1 Keyboard Mode

The handheld reader can be used automatically in keyboard mode. No additional control code is required. To couple with the charging cradle , all that is required is for the quick connect code on the front of the charging cradle to be read (see chapter 3.4).

Note

Data is transferred using a US English keyboard layout by default.

If data is not transferred correctly in keyboard mode, modify the keyboard layout.

4.1.2 Vision Configurator Mode

Vision Configurator is a configuration software for camera-based sensors. The software allows you to perform advanced configuration of the sensor using a clearly arranged user interface. Standard tasks include parameterizing the handheld reader, saving data sets, and transferring and displaying data and error diagnostics.

To install Vision Configurator, you must activate Vision Configurator mode see chapter 4.2.1.

Note

As an alternative to configuration using Vision Configurator, you can configure the handheld reader using control codes (see chapter 4.3.1).

Note

Switch to Keyboard Mode

To switch back to keyboard mode, first close Vision Configurator. Then scan the quick connect code on the front of the charging cradle.

2024-02

4.1.3 Bidirectional Communication

To enable bidirectional communication, virtual COM mode must be activated. To do so, proceed as follows:

Activating Virtual COM Mode

1. Scan the following control code "USB Vcom" to activate the virtual USB COM port.

USB Vcom

2. Scan the following control code "M20326_01" to activate the text commands.

M20326_01

3. Alternatively, the text command can be activated via the command `++++FWCMSOR1<CR>` and sent to the handheld reader via a monitor program.

Example

Sending Text Commands

The Hercules program from HW group is one example of a monitor program that can be used. In virtual COM mode, you can send the commands for beep and trigger to the handheld reader, for example.

The following figure shows the two commands "Beep" and "Trigger:"

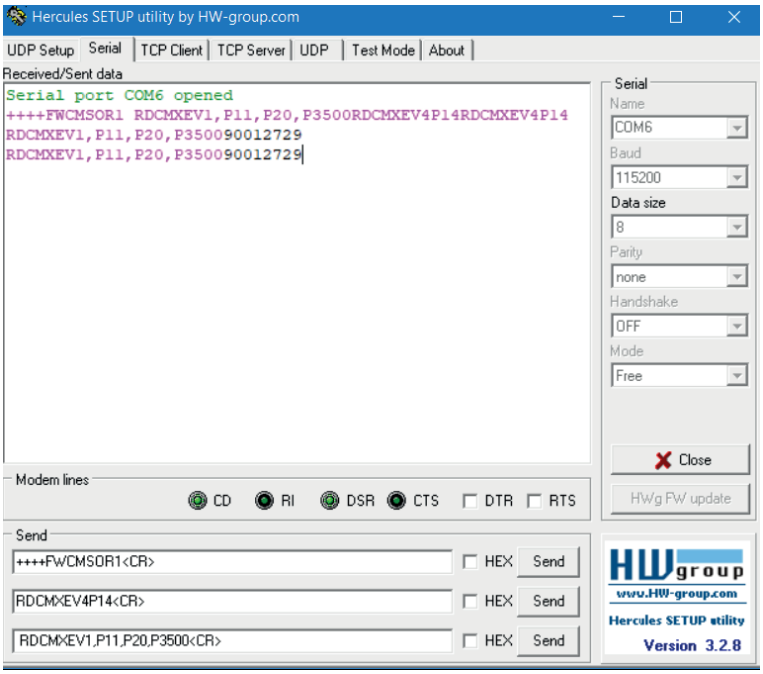


Figure 4.1 Example of beep and trigger commands

- **Beep**: RDCMXEV4P14<CR>
- **Trigger**: RDCMXEV1,P11.P20,P3500<CR>

↳ In virtual COM mode, the handheld reader operates like an RS-232 series device.

Disabling Virtual COM Mode and Switching to USB Keyboard Mode

1. Scan the following control code "USB Keyboard" to enter Keyboard mode.

USB Keyboard

2. Scan the following control code "M20325_01" to deactivate the text commands.

M20325_01

3. If you have activated the text command via a monitor program, you can deactivate it using the command `++++FWCMSOR0<CR>`.

2024-02

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4.1.4 Batch Mode

In batch mode, data can be collected with the handheld reader and temporarily stored in the reader

Note

Ensure that the handheld reader's firmware has been updated to version 2.6.12, as older versions do not support batch mode.

Batch mode indicator

In batch mode, the data symbol on the handheld reader lights up permanently to indicate that the handheld reader is in batch mode.

When the first scan data is stored, the data symbol on the handheld reader flashes at 1 Hz to indicate that data processing is active.

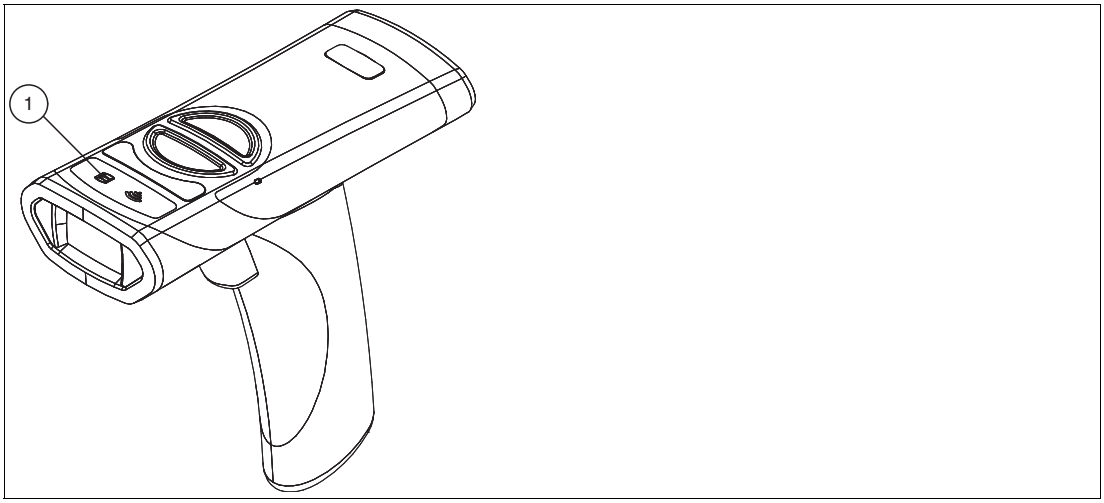


Figure 4.2

Full storage

When the memory reaches 80 % of the user-defined maximum capacity, the LED starts flashing at 2 Hz.

When the maximum memory capacity is reached, the data symbol flashes at 4 Hz and a beep sounds for all further scans as no data is being stored or processed.

Storage capacity

The default storage capacity in batch mode is set to 1 MB. When the batch file reaches this size, the handheld reader will not be able to store any more data and will beep instead. Regardless of the length of the code (size in bytes), 4 bytes of header information are added to each scan before it is stored.

The following formula shows one way of calculating the size of a scan chunk:

Scan chunk size = prefix length (bytes) + code length (bytes) + suffix length (bytes) + header length (bytes)

For example, the data block size for a UPC-12 code scan with no prefix or suffix added is 0+12+0+4 = 16 bytes. If we only scan codes of this size and again do not add a prefix or suffix, we can store approximately 1 MB/16B = 65.5 K barcodes (1048576/16 = 65536) with the default stack settings.

The following steps must first be carried out for initial commissioning in batch mode:

Activate batch mode

Scan the following control codes to set the handheld reader to batch mode.

Factory Reset


CC004361_05

Clear Modem


ClearModem

Batch-Modus aktivieren


M20490_01

Batch mode is indicated by the data symbol on the handheld reader lighting up.

Optional settings for data transmission

If data transfer is required in the charging cradle, scan the following control code "In-stand transfer".


M20491_01

Hybrid erase mode

Scanning the following control code will clear the data on the handheld reader after transmission.


M20495_01

2024-02

Activate additional settings

Scan the appropriate control codes to enable additional settings such as prefix/suffix or code symbologies.

Deactivating the automatic reconnection

Scan the following control code to interrupt the automatic connection to the charging cradle.

Control codes can then be scanned and automatically stored in the handheld reader. The data symbol flashes.

M20404_01

Data transfer to the charger/PC

Scan the Quick Connect Code on the front of the charging cradle.

If the "In-stand transfer" control code is activated, the transfer only takes place after insertion into the charging cradle.

Otherwise, the handheld reader transmits the data immediately after scanning the Quick Connect Code.

The transmission can take up to 20 seconds.

Out of Range Mode

Scan the same scan sequence as before, with the exception of the "Disable Auto-Reconnect" control code.

Instead, scan the following control code "Out of range batch" at the end.

M20492_01

Note

Function

Within Bluetooth range, the handheld reader transmits the code directly. Out of range, the data is stored on the hand-held reader and sent to the charging cradle/PC when it re-enters the Bluetooth range.

Further control codes for batch mode

Disable batch mode

Batch mode can be deactivated with the following control code.


M20489_01

Batch mode beep indication disabled

The following control code can be used to disable beep output in batch mode.


M20497_01

Batch mode beep indication enabled

The following control code can be used to enable beep output in batch mode.


M20498_01

Manual erase mode

The data on the handheld reader can be manually cleared by scanning the following control code.


M20494_01

Each control code transmitted is simultaneously stored in the handheld reader.

Execute manual erase

This control code is used to delete the copy after data transmission.


M20496_01

2024-02

4.1.5 Keyboard Layout

You can use the following control codes to modify the keyboard layout for the current operating mode.

Microsoft Windows

German (Germany)

M20188_01

English (US International)

M20198_01

French (France)

M20185_01

Italian

M20363_01

Japanese

M20192_01

Russian

M20194_01

Spanish (Spain)

M20195_01

Chinese (Simplified)

M20362_01

US English (default)

M20182_01

4.2 Using Vision Configurator

To use Vision Configurator, you must activate Vision Configurator mode. This mode is used exclusively for communication with Vision Configurator. If you are configuring the handheld reader using control codes, you do not need to switch to Vision Configurator mode.

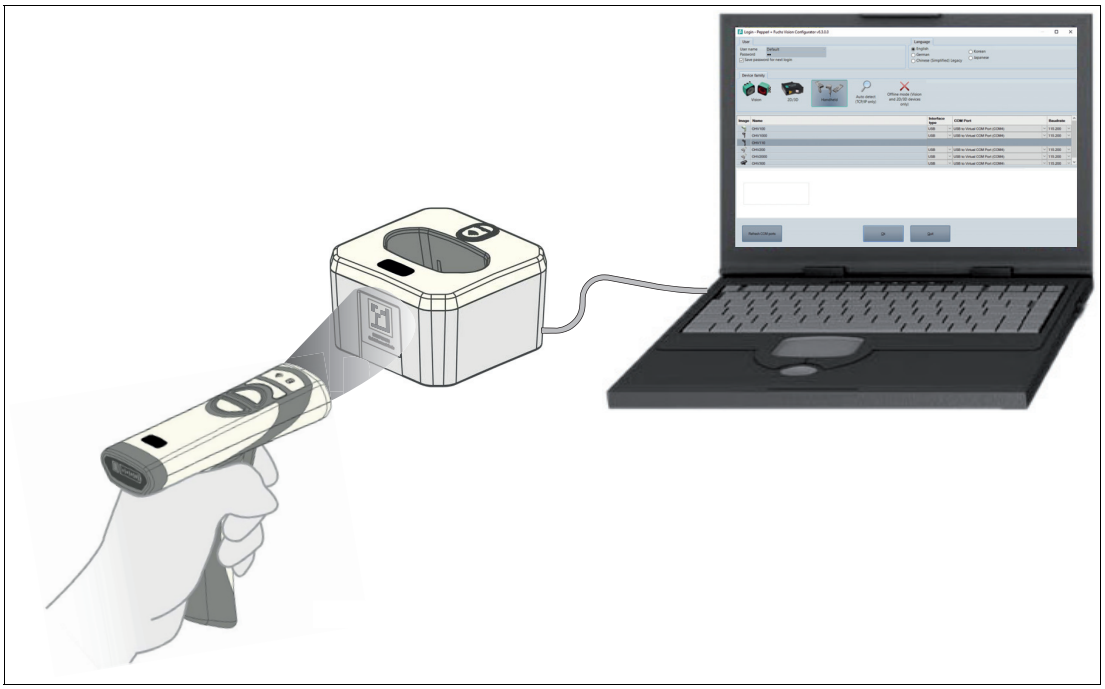
4.2.1 Connecting to Vision Configurator

To install Vision Configurator and connect the handheld reader with Vision Configurator, proceed as follows:

Installing Vision Configurator

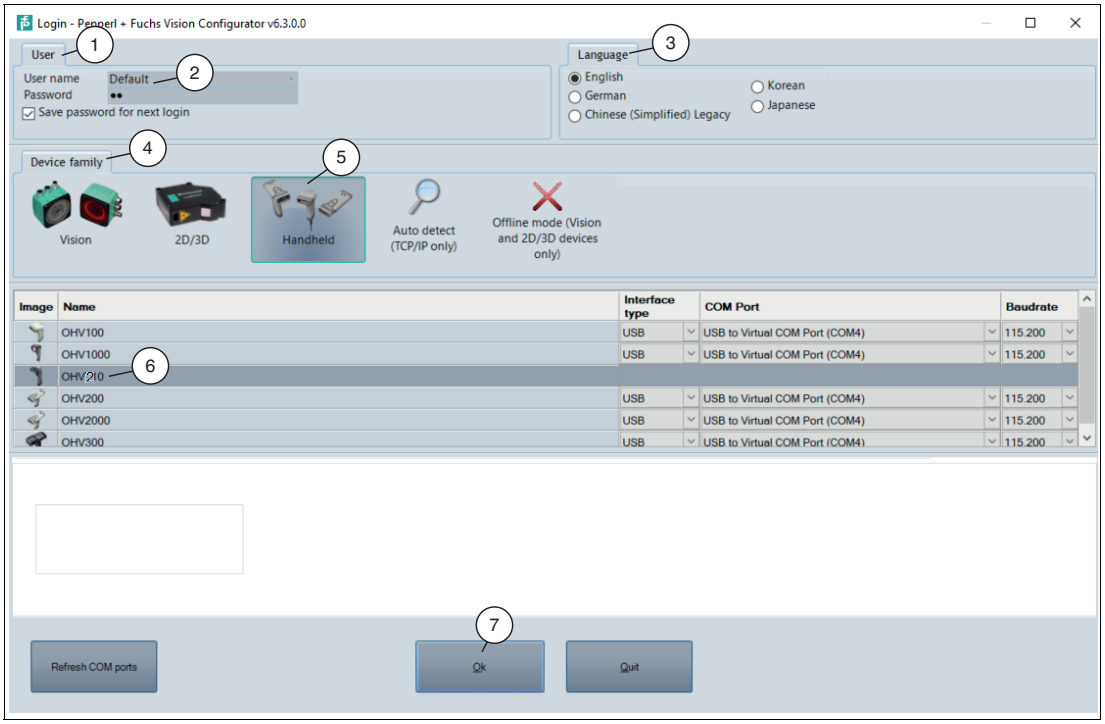
1. Download the latest version of Vision Configurator from http://www.pepperl-fuchs.com.
2. Run the setup file.
3. Select a language.
4. Follow the instructions in the setup wizard.

Connecting the Handheld Reader to Vision Configurator



1. Scan the quick connect code on the front of the charging cradle.

   ↳ A successful coupling of the hand-held reader with the charging cradle is indicated by the handheld reader emitting two short beeps followed by another beep and then vibrating. In addition, the radio indicators on both the handheld reader and the charging cradle permanently light up green.



2. Start Vision Configurator.
3. Enter the user name and password (2) under the **User** tab (1).

4. Select a language in the **Language** section (3).
5. Select **Handheld** (5) in the **Device family** section (4).
6. Select the **OHV210** handheld reader (6) from the device list.
7. Click the **OK** button (7).

↳ The application window opens.

8. If the handheld reader has not yet connected to Vision Configurator, select **USB** (8) under "Connection type" in the application window.
9. Next click the **Connect** button (9).

↳ A connection to the handheld reader is established.

Note

As an alternative to configuration using Vision Configurator, you can configure the handheld reader using control codes.

4.2.2 Layout of Application Window

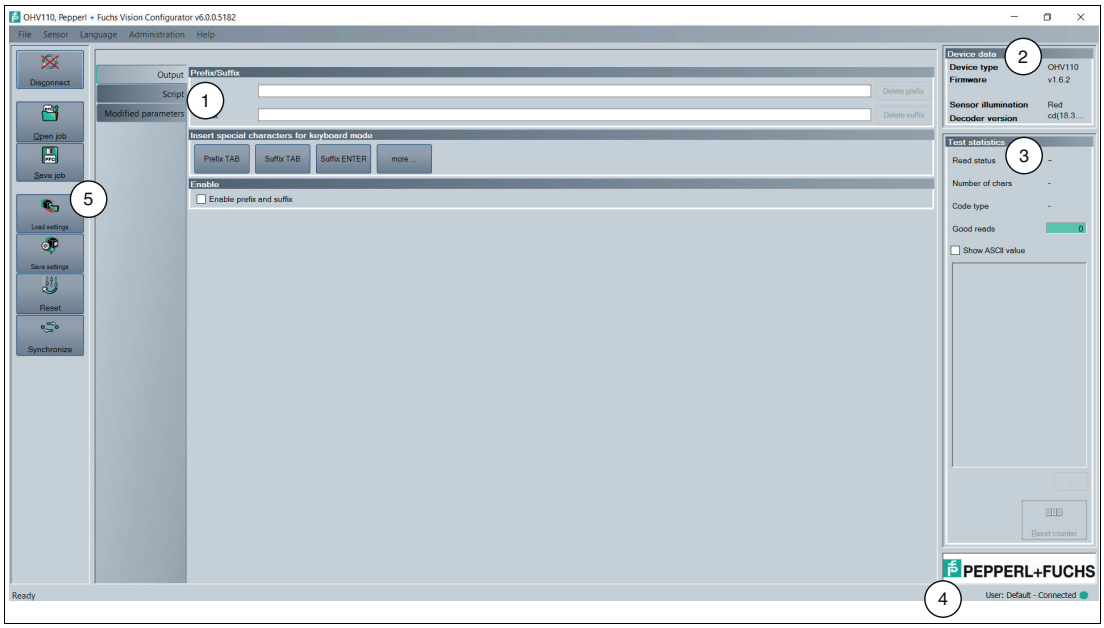


Figure 4.3 Application screen

1. The **parameter area** is split into several subareas and contains sensor-specific parameters.
2. The **Sensor data** area shows information about the connected sensor.
3. The **Test statistics** area shows information on the read codes.
4. The **status bar** shows information about the user who is logged in as well as the sensor connection status.
5. The **toolbar** allows direct access to selected menu items.

2024-02

4.2.3 Sensor Data

This area shows information about the connected sensor.

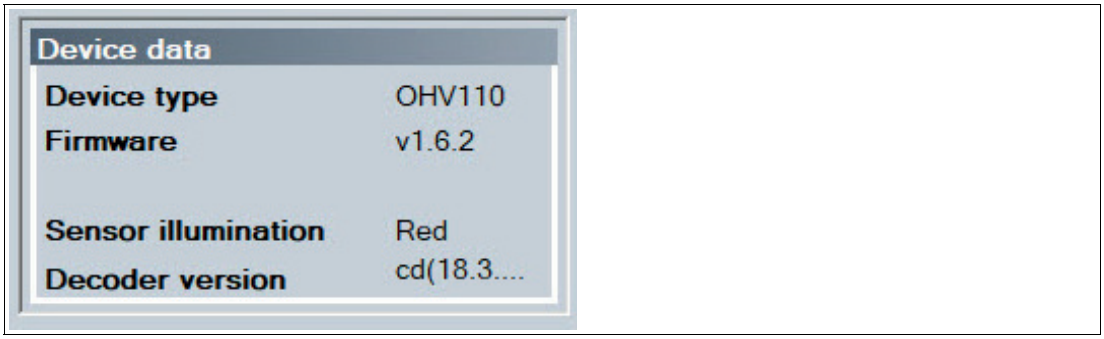


Figure 4.4 Device data

4.2.4 Test Statistics

This area shows information about the read code.

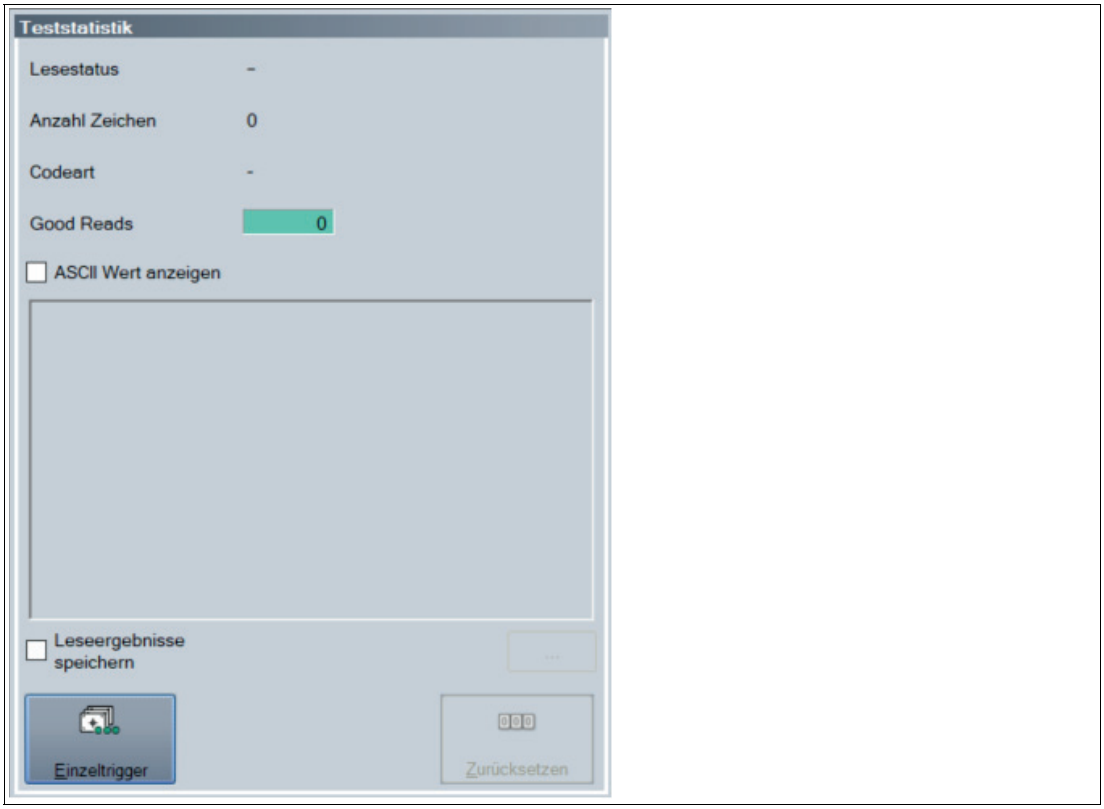


Figure 4.5 Test Statistics

Display ASCII value	Enable this option to display the read result in ASCII characters.
Reset	Clears the contents of the **Test statistics** area.

4.2.5 Firmware Update

Updating the Handheld Reader Firmware

Note

It is not possible to update the firmware when the battery is low. To ensure that the firmware can be successfully updated, recharge the battery or replace it with a charged battery.

1. The handheld reader must be connected to the charging cradle. To do this, scan the quick connect code on the front of the charging cradle.

   ↳ A successful coupling is indicated by the handheld reader emitting two short beeps followed by another beep and then vibrating. In addition, the radio indicators on both the handheld reader and the charging cradle permanently light up green.

2. Click on **Upload new file to sensor** or select **Sensor > Update Firmware** in the menu bar.
3. Select a firmware file with the extension *.crvfw.
4. The firmware file is transferred to the handheld reader. Uploading the firmware takes a few minutes.
5. Once the file has been transferred, the handheld reader automatically restarts.

   ↳ The firmware is now updated. You can check the firmware version in the **Sensor data** section. See chapter 4.2.3.

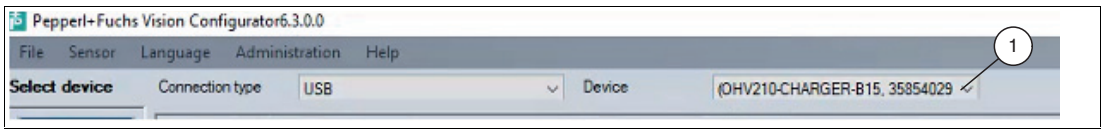
Updating the Charging Cradle Firmware

Note

To update the charging cradle, it must not be connected to the handheld reader.

1. Close Vision Configurator.
2. Remove the battery from the handheld reader. This ensures that there is no connection to the handheld reader.
3. Start Vision Configurator and log in with your handheld reader (OHV210) (see chapter 4.2.1).

   ↳ The product name of the charging cradle (1) is displayed in the application window under "Device".



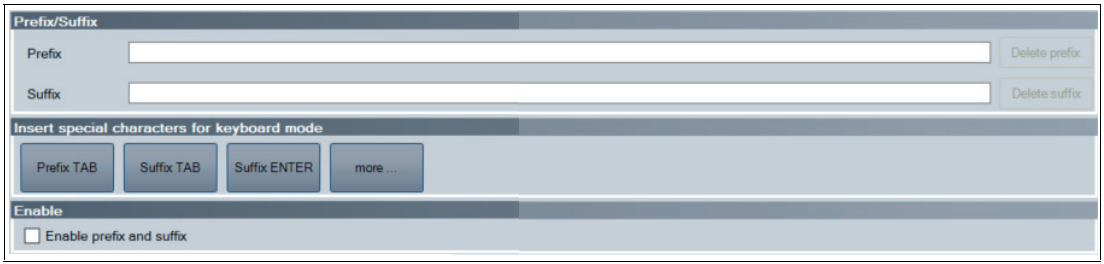
4. Click on **Upload new file to sensor** or select **Sensor > Make firmware update** in the menu bar.
5. Select a firmware file with the extension *.crbfw.
6. The firmware file is transferred to the charging cradle. Uploading the firmware takes a few minutes.
7. Once the file has been transferred, the charging cradle automatically restarts.

   ↳ The firmware is now updated. You can check the firmware version in the **Sensor data** section. See chapter 4.2.3.

2024-02

4.2.6 Read Result

You can edit the read result and assign a prefix or suffix to the result here. The prefix is placed in front of the read result and the suffix is placed at the end of the read result.



Prefix/Suffix

Prefix	You can input a value for the prefix here. To delete the prefix, click **Delete prefix**.
Suffix	You can input a value for the suffix here. To delete a suffix, click **Delete suffix**.

Inserting Special Characters for Keyboard Mode

Prefix TAB	Click **Prefix TAB** to insert a tab character into the prefix field.
Suffix TAB	Click **Suffix TAB** to insert a tab character into the suffix field.
Suffix ENTER	Click **Suffix ENTER** to insert an input character into the suffix field.
More...	Click **More...** to call up a list of additional special characters. To insert a special character from the list, click the **+**icon in the corresponding line. Different special characters are available depending on whether the handheld reader is connected to the Vision Configurator via USB or via virtual COM.

Additional Outputs

Enable prefix and suffix	Click the checkbox to switch **Prefix and Suffix** on or off.

4.2.7 Edited Parameters

Here you can find an overview of all settings you have changed that now deviate from the factory settings.

To generate a control code that contains all affected settings, click on **Create control code for own settings**.

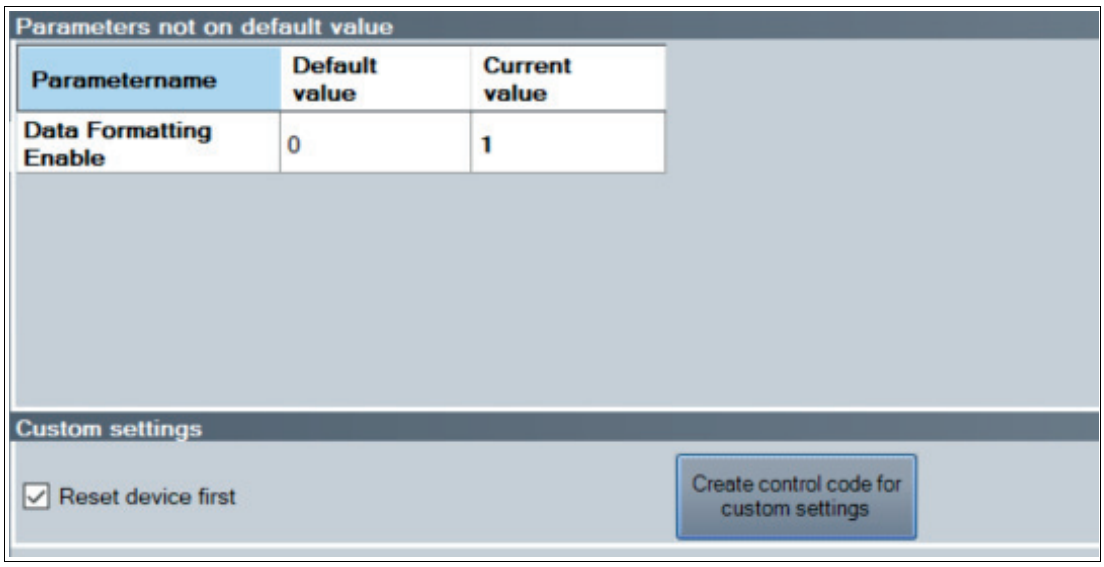
If you check the **First completely reset sensor** check box, a reset command is integrated in the control code. When the control code is read, all settings are first reset to factory defaults before the new settings are applied.

Note

Scripts for processing the read result are not included in this overview.

Tip

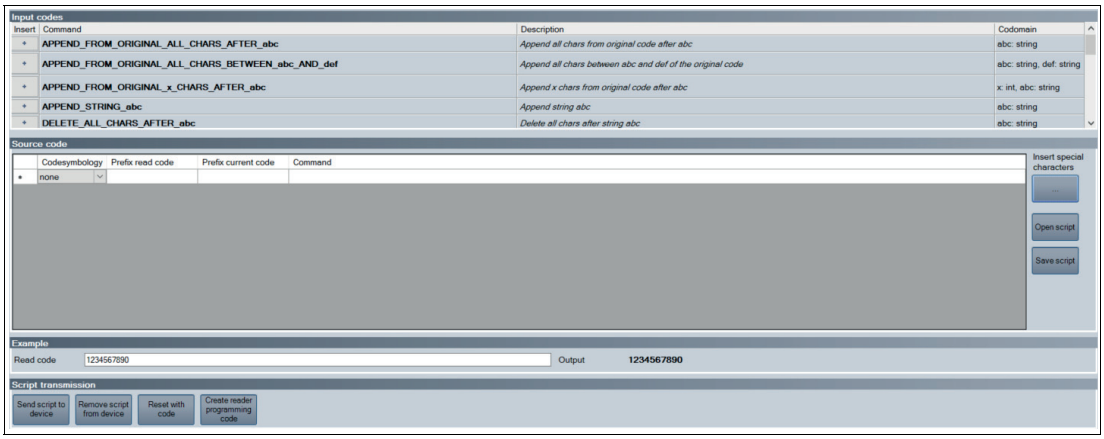
This function allows your configured settings to be transferred to multiple sensors by scanning the control code.



4.2.8 Script

Here you can edit the read result using JavaScript. You can input your own source code or assemble a script from predefined blocks.

If a prefix or a suffix is assigned to the read result, the prefixes or suffixes are assigned immediately after processing of the script.



Input Codes

The following predefined blocks are available:

`SUBSTRING_FROM_POSITION_x_ON_y_CHARS`
Only returns one part of the code. x refers to the position from which the characters are output, where x = 0 represents the first character of the code. y denotes the number of characters that are output after position x.
For example: `SUBSTRING_FROM_POSITION_6_ON_3_CHARS` returns characters 7 to 9.

`SUBSTRING_FROM_POSITION_x_ON_ALL_CHARS`
Only returns one part of the code. x refers to the position from which all subsequent characters are output, where x = 0 represents the first character of the code.

`OUTPUT_LAST_x_CHARS`
Returns the last x characters of the code.
For example: `OUTPUT_LAST_3_CHARS` returns the last 3 characters.

`OUTPUT_ALL_CHARS_BETWEEN_abc_AND_def`
Returns the characters of the code that are between a character string abc and def. If there are multiple occurrences of the character strings abc and def, only the characters between the first occurrence are returned. If the character string abc does not appear, no characters are returned.

`OUTPUT_ALL_CHARS_BEFORE_abc`
Returns the characters of the code that appear before a character string abc. If there are multiple occurrences of the character string abc, all characters before the first occurrence are returned. If the character string abc does not appear, no characters are returned.

`OUTPUT_ALL_CHARS_AFTER_abc`
Returns the relevant characters of the code that follow the character string abc. If the character string abc appears multiple times, all characters from the first occurrence are returned and subsequent occurrences of the character string abc are deleted. If the character string abc does not appear, no characters are returned.

`OUTPUT_x_CHARS_AFTER_abc`
Returns x relevant characters of the code that follow the character string abc. If the character string abc appears multiple times, x characters from the first occurrence are returned and subsequent occurrences of the character string abc are deleted. If the character string abc does not appear, no characters are returned.

`DELETE_FROM_POSITION_x_ON_y_CHARS`
Deletes part of the code. x refers to the position from which y characters are removed, where x = 0 represents the first character of the code.
For example: `DELETE_FROM_POSITION_0_ON_5_CHARS` deletes characters 1 to 5.

`DELETE_SUBSTRING_abc`
Deletes the character string from the code. If the character string occurs multiple times, only the first occurrence of the character string is deleted.

`DELETE_LAST_x_CHARS`
Deletes the last x characters of the code.
For example: `DELETE_LAST_4_CHARS` deletes the last four characters.

`DELETE_ALL_CHARS_BEFORE_abc`
Deletes all characters of the code that appear before a character string abc. If there are multiple occurrences of the character string abc, only the characters that appear before the first occurrence are deleted.

`DELETE_ALL_CHARS_AFTER_abc`
Deletes all characters of the code that follow a character string abc. If there are multiple occurrences of the character string abc, all characters after the first occurrence are deleted.

`INSERT_abc_AT_POSITION_x`
Adds the character string abc at position x, where x = 0 represents the position before the first character of the code.

`INSERT_abc_AFTER_def`
Adds the character string abc to the character string def. If the character string def appears multiple times, the character string abc is appended to the first occurrence. If the character string def does not appear, no characters are inserted.

`APPEND_STRING_abc`
Appends the character string abc to the code.

`IF_GOODREAD_OUTPUT_abc`
Returns the character string abc if a code has been read successfully.

`REPLACE_STRING_abc_WITH_def`
Adds the character string abc to the character string def. If the character string abc appears multiple times, only the first occurrence is replaced.

`REPLACE_ALL_abc_AFTER_POSITION_x_WITH_def`
Replaces the character string abc with the character string def after position x. If the character string abc appears more than once after position x, all occurrences are replaced.

`IF_CODE_CONTAINS_abc_OUTPUT_def`
Returns the character string def if the character string abc appears in the code. If the character string abc appears multiple times, the character string def is returned only once.

`APPEND_FROM_ORIGINAL_ALL_CHARS_AFTER_abc`
Appends all of the characters that follow the character string abc in the read code to the output. This rule applies directly to the read code and is independent of any other rules already applied to the code. If the character string abc appears multiple times, all characters from the first occurrence are appended and subsequent occurrences of the character string abc are deleted. If the code does not contain the character string abc, no characters are appended.

`APPEND_FROM_ORIGINAL_x_CHARS_AFTER_abc`
Appends x characters that follow the character string abc in the read code to the output. This rule applies directly to the read code and is independent of any other rules already applied to the code. If the character string abc appears multiple times, x characters from the first occurrence are appended and subsequent occurrences of the character string abc are deleted. If the code does not contain the character string abc, no characters are appended.

Source Code

You can edit the source code for the script in the source code area. You can use the **Insert special characters** button to insert certain special characters.

Example

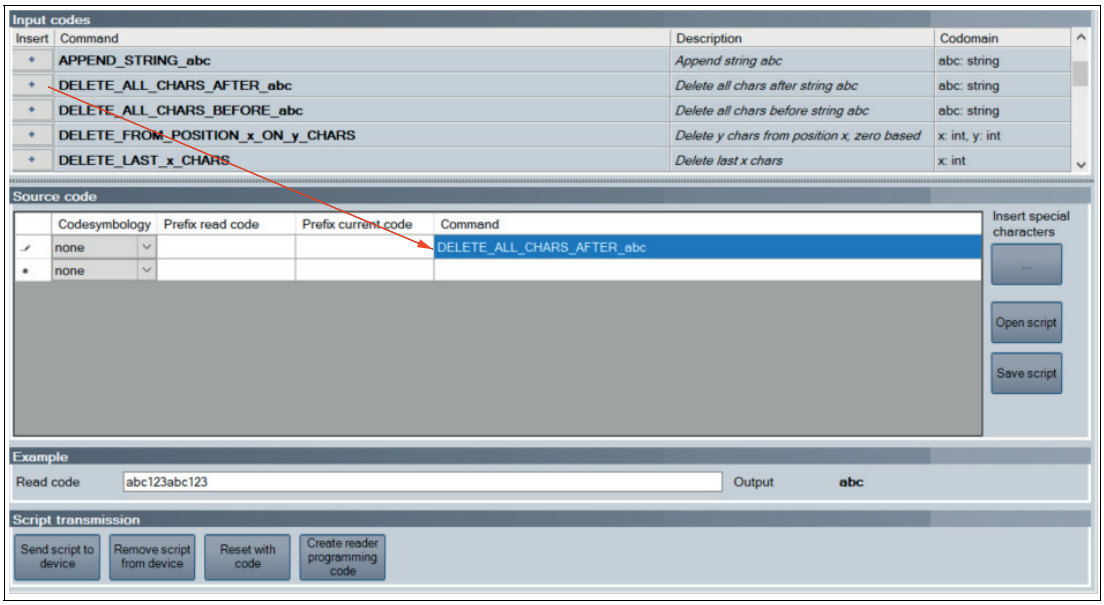
In this area you can use an example to test the result.

Transferring Script

Button	Description
Open	Opens a locally stored script file.
Save	Saves the current script to a local file.
Send script to sensor	Saves the script on the sensor. After pressing this button, the handheld reader takes approx. 30 seconds to complete and automatically reconnects to the Vision Configurator.
Delete script from sensor	Deletes the script from the sensor. After pressing this button, the handheld reader takes about 30 seconds to complete and automatically reconnects to the Vision Configurator.
Save and restart	Saves the script on the sensor. The sensor then restarts and the script is activated.
Reset with code	Creates a control code that can be used to reset the sensor. After reading the control code, the sensor restarts.
Create control code	Generates a control code for the script. After reading the control code, the sensor restarts and the script is activated if the script has been saved on the sensor.

Creating a Script

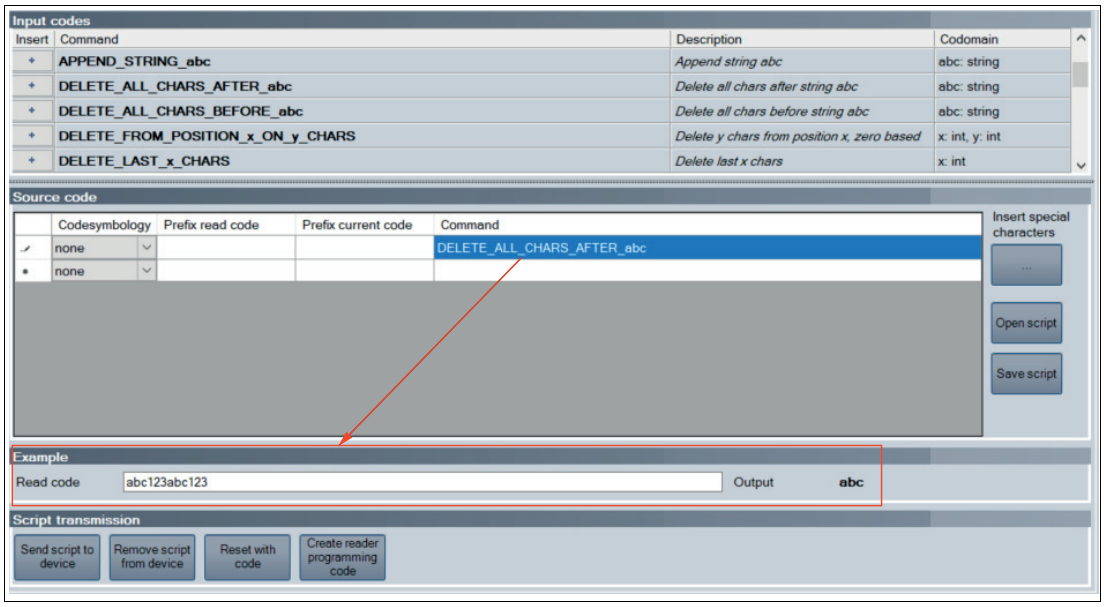
1. In the **Source code** area, click on a cell in the first column to edit the corresponding line.
2. Click **+** to insert a predefined block in the selected line. You can also insert multiple commands and combine these with one another.



↳ The command appears in the selected line. If the source code is red, the source code is incomplete or contains errors. If the source code is green, the source code is error-free.

3. Complete the variables so that the command can be executed.
If a command is to be executed only for a specific code type, select the relevant code type in the **Code symbology** column.
If a command is to be executed only if the read code begins with a certain character string, input the character string in the **Prefix of read code** column.
If a command is to be executed only if the current processing result begins with a certain character string, input the character string in **Prefix of current code** column.
To insert special characters, click on **Insert special characters**.

4. If the source code is green, you can test the source code in the **Example** area. To do this, enter a sample value in the **Read code** field.



↳ The commands from the **Source code** area are applied to the sample value in the **Read code** field and the result is displayed in the **Output** field.

Note

Note that JavaScript must always be deleted separately. To do this, click the "Delete script from sensor" button, or read the following code with the handheld reader.

CC005634

Figure 4.6 Delete JavaScript

Note

If your Vision Configurator is open, you will need to reconnect to Vision Configurator after scanning the control code. Follow the instructions to connect the handheld reader to Vision Configurator, see chapter 4.2.1.

2024-02

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4.3 Configuration Using Control Codes

The handheld reader is configured using control codes. Control codes allow direct configuration without using a PC. To change a parameter, scan the appropriate control code using the handheld reader.

4.3.1 Data Matrix control codes

Bluetooth settings	 M20428_01 Clear connection (pairing) history on Bluetooth charging station	 M20397_01 Clear connection (pairing) history on Bluetooth reader	 M20426_01 Disable Beep During Reconnection - Default
Bluetooth settings	 M20427_01 Enable Beep Every 30 seconds During Reconnection	 M20398_01 Get Bluetooth parameters	
Communication mode settings	 M20238_01 Enable Packet Mode	 M20239_01 Enable Raw Mode - Default	
Data formatting: Prefix - Suffix settings	 M20255_02 Convert Barcode Data to Bracketed Hex Output	 M20222_01 Convert Barcode Data to Lowercase	 M20221_01 Convert Barcode Data to Uppercase
Data formatting: Prefix - Suffix settings	 M20223_02 Disable Data Formatting - Default	 M20322_01 Erase Prefix & Suffix Data	 M20207_01 Erase Prefix Data

Data formatting: Prefix - Suffix settings	M20208_01 Erase Suffix Data	M20343_01 Prefix AIM ID Off - Default	M20344_01 Prefix AIM ID On
Data formatting: Prefix - Suffix settings	M20209_01 Prefix Comma	M20210_01 Prefix Space	M20218_02 Prefix Tab (USB Keyboard Mode Only)
Data formatting: Prefix - Suffix settings	M20215_01 Suffix Comma	M20219_02 Suffix Enter (USB Keyboard Mode Only)	M20216_01 Suffix Space
Data formatting: Prefix - Suffix settings	M20220_02 Suffix Tab (USB Keyboard Mode Only)		
Data validation	M20258_02 Enable ISO15434 & ISO15418 Validation	M20257_02 Enable ISO15434 Validation	M20256_02 Enable UDI/HIBC Validation

Data formatting: Prefix - Suffix settings			M20211_01 "Prefix" tab (Virtual COM mode only)
Data formatting: Prefix - Suffix settings		M20212_01 Suffix carriage return (Virtual COM mode only)	M20213_01 Suffix carriage return line feed (Virtual COM mode only)
Data formatting: Prefix - Suffix settings			M20214_01 Suffix line feed (Virtual COM mode only)
Data formatting: Prefix - Suffix settings		M20217 "Suffix" tab (Virtual COM mode only)	

General modem settings	 M20424_01 Get BT Charging Base Configuration	 M20425_01 Reset BT Charging Base to Factory Defaults	
General reading mode settings	 M20329_01 Beep On Vibrate On - Default	 M20332_01 Beep Off Vibrate Off	 M20330_01 Beep Off Vibrate On
General reading mode settings	 M20331_01 Beep On Vibrate Off	 M20339_01 Beep Volume 0%	 M20342_01 Beep Volume 100% - Default
General reading mode settings	 M20340_01 Beep Volume 33%	 M20341_01 Beep Volume 67%	 M20241_02 Disable Cell Phone Reading Enhancement - Default
General reading mode settings	 M20387_01 Disable Presentation Scan Mode in Charger - Default	 M20295_01 Disable Target LED During Image Capture	 M20334_02 Disable Targeting-Always-On

General reading mode settings	 M20240_03 Enable Cell Phone Reading Enhancement	 M20388_01 Enable Presentation Scan Mode in Charger with Motion Detection	 M20294_01 Enable Target LED During Image Capture - Default
General reading mode settings	 M20333_02 Enable Targeting-Always-On	 M20325_01 Reader Raw Text Commands Off - Default	 M20326_01 Reader Raw Text Commands On
General reading mode settings	 M20244_01 Set Motion Detect Maximum Brightness to 100% - Default	 M20247_01 Set Motion Detect Maximum Brightness to 25%	 M20246_01 Set Motion Detect Maximum Brightness to 50%
General reading mode settings	 M20245_01 Set Motion Detect Maximum Brightness to 75%		
General reading mode settings	 M20352_01 Control Character Input - Alt + Keypad	 M20351_01 Control Character Input - Ctrl + Character	 M20350_01 Control Character Input - Language Default - Default

Keybord language settings	M20353_01 Control Character Input -Alt + Leading Zero	M20203_01 Data Encoding: Raw ASCII to Keyboard XML File Lookup - Default	M20204_01 Data Encoding: UTF8 to Unicode Codepoint - Alt Sequences for Windows
Keybord language settings	M20179_01 Get Active Language	M20184_01 Keyboard Support: English Keyboard Mapping for Apple	M20186_01 Keyboard Support: French Keyboard Mapping for Apple
Keybord language settings	M20186_01 Keyboard Support: French Keyboard Mapping for Apple	M20181_01 Keyboard Support: French-Belgian Keyboard Mapping for Windows	M20187_01 Keyboard Support: German Keyboard Mapping for Apple
Keybord language settings	M20188_01 Keyboard Support: German Keyboard Mapping for Windows	M20190_01 Keyboard Support: German-Swiss Keyboard Mapping for Windows	M20191_01 Keyboard Support: Italian Keyboard Mapping for Apple
Keybord language settings	M20192_01 Keyboard Support: Japanese Keyboard Mapping for Windows	M20194_01 Keyboard Support: Russian Keyboard Mapping for Windows	M20362_01 Keyboard Support: Simplified Chinese Keyboard Mapping for Windows

Keybord language settings	M20196_01 Keyboard Support: Spanish Keyboard Mapping for Apple	M20195_01 Keyboard Support: Spanish Keyboard Mapping for Windows	M20193_01 Keyboard Support: Spanish-Latin American Keyboard Mapping for Windows
Keybord language settings	M20197_01 Keyboard Support: UK English Keyboard Mapping for Windows	M20182_01 Keyboard Support: US English Keyboard Mapping for Windows - Default	M20198_01 Keyboard Support: US International (Universal) Keyboard Mapping for Windows
Keybord language settings	M20180_01 List Installed Languages	M20363_01 Set Italian for Windows as active language	M20364_01 Set Portuguese for Windows as active language
Miscellaneous settings	M20243_01 Disable Upload Image Mode - Default	M20242_01 Enable Upload Image Mode	
Operating system settings	M20306_01 Alternate Operating System (Linux/Mac) Off - Default	M20305_01 Alternate Operating System (Linux/Mac) On	

Reader modem command settings	M20114_01 Get Reader Parameters	M20113_01 Output Reader Configuration	M20361_01 Reader Information, limited
Reset, clear and save reader settings	M20390_01 Reset Bluetooth Reader to Factory Defaults	M20335_01 Save All Reader Settings	
Scan delay settings	M20237_01 1 Day Duplicate Scan Delay	M20236_01 1 Hour Duplicate Scan Delay	M20230_01 1 Second Duplicate Scan Delay
Scan delay settings	M20234_01 10 Second Duplicate Scan Delay	M20231_01 2 Second Duplicate Scan Delay	M20232_01 3 Second Duplicate Scan Delay
Scan delay settings	M20235_01 30 Second Duplicate Scan Delay	M20233_01 5 Second Duplicate Scan Delay	M20229_01 Disable Duplicate Scan Delay - Default

Virtual COM port settings	M20309_01 Active Virtual COM port sequence control - one-way		
Virtual COM port settings		M20170_01 Virtual COM port - 1 stop bit - default	M20167_01 Virtual COM port - baud rate 115200 - default value
Virtual COM port settings	M20160_01 Virtual COM port - baud rate 1200	M20164_01 Virtual COM port - baud rate 19200	M20171_01 Virtual COM port - 2 stop bits
Virtual COM port settings	M20161_01 Virtual COM port - baud rate 2400	M20165_01 Virtual COM port - baud rate 38400	M20162_01 Virtual COM port - baud rate 4800
Virtual COM port settings	M20166_01 Virtual COM port - baud rate 57600	M20168_01 Virtual COM port - 7 data bits	M20169_01 Virtual COM port - 8 data bits - default

Virtual COM port settings	M20163_01 Virtual COM port - baud rate 9600	M20172_01 Virtual COM port - even parity	M20173_01 Virtual COM port - no parity
Virtual COM port settings	M20174_01 Virtual COM port - odd parity		

Symbology settings	M20131_01 Do Not Convert EAN-8 to EAN-13 - Default	M20001_01 Australian Post Off - Default	M20000_01 Australian Post On
Symbology settings	M20004_01 Aztec Inverse & Normal On	M20005_01 Aztec Inverse Off - Default	M20319_01 Aztec Mirror Off - Default
Symbology settings	M20318_01 Aztec Mirror On	M20003_01 Aztec Off	M20002_01 Aztec On - Default
Symbology settings	M20007_01 BC412 Off - Default	M20006_01 BC412 On	M20009_01 Canada Post Off - Default
Symbology settings	M20008_01 Canada Post On	M20013_01 Codabar Checksum Off - Default	M20012_01 Codabar Checksum On

Symbology settings	M20011_01 Codabar Off	M20010_01 Codabar On - Default	M20019_01 Codablock F Off - Default
Symbology settings	M20018_01 Codablock F On	M20023_01 Code 11 Checksum Stripped from Result Off - Default	M20022_01 Code 11 Checksum Stripped from Result On
Symbology settings	M20031_01 Code 11 Disable Checksum Checking - Default	M20021_01 Code 11 Off - Default	M20020_01 Code 11 On
Symbology settings	M20032_01 Code 11 One Digit Checksum	M20033_01 Code 11 Two Digit Checksum - Default	M20035_01 Code 128 Off
Symbology settings	M20034_01 Code 128 On - Default	M20025_01 Code 32 (Italian Pharmacode) Off - Default	M20024_01 Code 32 (Italian Pharmacode) On

Symbology settings	 M20029_01 Code 39 Checksum Off - Default	 M20030_01 Code 39 Checksum On	 M20030_01 Code 39 Checksum Stripped from Result On
Symbology settings	 M20320_02 Code 39 Extended Full ASCII Off - Default	 M20321_02 Code 39 Extended Full ASCII On	 M20027_01 Code 39 Off
Symbology settings	 M20026_01 Code 39 On - Default	 M20264_01 Code 49 Off - Default	 M20263_01 Code 49 On
Symbology settings	 M20266_01 Code 93 Off	 M20265_01 Code 93 On - Default	 M20037_01 Composite Off - Default
Symbology settings	 M20036_01 Composite On	 M20136_01 Convert Bookland EAN-13 to ISBN	 M20138_01 Convert Bookland EAN-13 to ISSN

Symbology settings	M20130_01 Convert EAN-8 to EAN-13	M20134_01 Convert UPC-A to EAN-13	M20292_01 Custom QR Code Off - Default
Symbology settings	M20291_01 Custom QR Code On	M20040_01 Data Matrix Inverse and Normal On - Default	M20041_01 Data Matrix Inverse Off
Symbology settings	M20043_01 Data Matrix Mirror Off - Default	M20042_01 Data Matrix Mirror On	M20039_01 Data Matrix Off
Symbology settings	M20038_02 Data Matrix On - Default	M20047_01 Data Matrix Rectangular Extended Off - Default	M20046_01 Data Matrix Rectangular Extended On
Symbology settings	M20045_01 Data Matrix Rectangular Off	M20044_01 Data Matrix Rectangular On - Default	M20260_02 Disable BC412 Regular and Reverse - Default

Symbology settings	M20274_01 Disable GS1 DataBar Expanded	M20276_01 Disable GS1 DataBar Expanded Stacked	M20278_01 Disable GS1 DataBar Limited
Symbology settings	M20272_01 Disable GS1 DataBar Stacked and GS1 DataBar Stacked Omnidirectional	M20137_01 Do Not Convert Bookland EAN-13 to ISBN - Default	M20139_01 Do Not Convert Bookland EAN-13 to ISSN - Default
Symbology settings	M20135_01 Do Not Convert UPC-A to EAN-13 - Default	M20131_01 Do Not Transmit EAN-13 Check Digit - Default	M20149_01 Do Not Transmit EAN-8 Check Digit - Default
Symbology settings	M20141_01 Do Not Transmit UPC-A Check Digit - Default	M20143_01 Do Not Transmit UPC-A Number System - Default	M20145_01 Do Not Transmit UPC-E Check Digit - Default
Symbology settings	M20147_01 Do Not Transmit UPC-E Number System - Default	M20259_02 Enable BC412 - Disable BC412 Reverse	M20357_01 Enable GoCode & GoCode Mirror Decoding

Symbology settings	M20273_01 Enable GS1 DataBar Expanded - Default	M20275_01 Enable GS1 DataBar Expanded Stacked - Default	M20277_01 Enable GS1 DataBar Limited - Default
Symbology settings	M20271_01 Enable GS1 DataBar Stacked and GS1 DataBar Stacked Omnidirectional - Default	M20282_01 Grid Matrix Inverse Off - Default	M20281_01 Grid Matrix Inverse On
Symbology settings	M20284_02 Grid Matrix Mirror Off - Default	M20284_02 Grid Matrix Mirror On	M20049_01 Grid Matrix Off - Default
Symbology settings	M20048_01 Grid Matrix On	M20051_02 GS1 DataBar Off	M20050_02 GS1 DataBar On - Default
Symbology settings	M20055_01 Han Xin Inverse Off - Default	M20054_01 Han Xin Inverse On	M20057_01 Han Xin Mirror Off - Default

Symbology settings	 M20056_01 Han Xin Mirror On	 M20304_01 Han Xin Normal and Inverse On	 M20053_01 Han Xin Off - Default
Symbology settings	 M20052_01 Han Xin On	 M20059_01 Hong Kong 2 of 5 Off - Default	 M20058_01 Hong Kong 2 of 5 On
Symbology settings	 M20063_01 Interleaved 2 of 5 Checksum Off - Default	 M20062_01 Interleaved 2 of 5 Checksum On	 M20077_01 Interleaved 2 of 5 Checksum Stripped from Result Off - Default
Symbology settings	 M20064_01 Interleaved 2 of 5 Checksum Stripped from Result On	 M20061_01 Interleaved 2 of 5 Off	 M20060_01 Interleaved 2 of 5 On - Default
Symbology settings	 M20066_01 Japan Post Off - Default	 M20065_01 Japan Post On	 M20015_01 Keep Codabar Start and Stop Delimiters - Default

Symbology settings	M20068_01 Keep Trioptic Start and Stop Delimiters	M20068_01 KIX (Dutch Post) Off - Default	M20067_01 KIX (Dutch Post) On
Symbology settings	M20070_01 Korean Post Off - Default	M20069_01 Korean Post On	M20072_01 Matrix 2 of 5 Off - Default
Symbology settings	M20071_01 Matrix 2 of 5 On	M20074_01 Maxicode Off - Default	M20073_01 Maxicode On
Symbology settings	M20091_01 Micro PDF417 Off - Default	M20090_01 Micro PDF417 On	M20104_01 Micro QR Code Off - Default
Symbology settings	M20103_01 Micro QR Code On	M20106_01 Mode 1 QR Code Off - Default	M20105_01 Mode 1 QR Code On

Symbology settings	 M20079_01 MSI Plessey Check-sum Must Be Mod 10	 M20080_02 MSI Plessey Check-sum Must Be Mod 10/10	 M20081_02 MSI Plessey Check-sum Must Be Mod 11/10
Symbology settings	 M20078_01 MSI Plessey Check-sum Off - Default	 M20083_01 MSI Plessey Check-sum Stripped from Result Off - Default	 M20082_01 MSI Plessey Check-sum Stripped from Result On
Symbology settings	 M20076_01 MSI Plessey Off - Default	 M20075_01 MSI Plessey On	 M20087_01 NEC 2 of 5 Check-sum Off
Symbology settings	 M20086_01 NEC 2 of 5 Check-sum On - Default	 M20085_01 NEC 2 of 5 Off - Default	 M20084_01 NEC 2 of 5 On
Symbology settings	 M20116_01 Output Telepen as ASCII	 M20117_01 Output Telepen as Numeric - Default	 M20290_01 Pharmacode Color Off - Default

Symbology settings	 M20289_01 Pharmacode Color On	 M20095_01 Pharmacode Normal Barcode Decoding (Left to Right) - Default	 M20093_01 Pharmacode Off - Default
Symbology settings	 M20092_01 Pharmacode On	 M20094_01 Pharmacode Reverse Barcode Decoding (Right to Left)	 M20100_01 QR Code Inverse and Normal On
Symbology settings	 M20099_01 QR Code Inverse Only	 M20101_01 QR Code Mirror On	 M20097_01 QR Code Off
Symbology settings	 M20096_01 QR Code On - Default	 M20098_01 QR Code Standard Only - Default	 M20345_01 Reboot Reader
Symbology settings	 M20014_01 Remove Codabar Start and Stop Delimit-ers	 M20123_01 Remove Trioptic Start and Stop Delimiters - Default	 M20262_02 Reverse BC412 Off - Default

Symbology settings	 M20261_01 Reverse BC412 On	 M20121_01 Reverse Trioptic Off - Default	 M20120_01 Reverse Trioptic On
Symbology settings	 M20286_01 Royal Mail Checksum Off	 M20285_01 Royal Mail Checksum On	 M20108_01 Straight 2 of 5 Off - Default
Symbology settings	 M20107_01 Straight 2 of 5 On	 M20110_01 Telepen Off - Default	 M20109_01 Telepen On
Symbology settings	 M20150_01 Transmit EAN-13 Check Digit	 M20148_01 Transmit EAN-8 Check Digit	 M20140_01 Transmit UPC-A Check Digit
Symbology settings	 M20142_01 Transmit UPC-A Number System	 M20144_01 Transmit UPC-E Check Digit	 M20146_01 Transmit UPC-E Number System On

Symbology settings	 M20119_01 Trioptic Off - Default	 M20118_01 Trioptic On	 M20288_01 UK Plessey Off - Default
Symbology settings	 M20287_01 UK Plessey On	 M20125_01 UK Royal Mail Off - Default	 M20124_01 UK Royal Mail On
Symbology settings	 M20133_01 UPC E Expansion Off - Default	 M20132_01 UPC E Expansion On	 M20129_01 UPC Supplemental Off - Default
Symbology settings	 M20128_01 UPC Supplemental On	 M20127_01 UPC/EAN Off	 M20126_01 UPC/EAN On - Default
Symbology settings	 M20153_01 UPU ID Tags Off - Default	 M20152_01 UPU ID Tags On	 M20155_01 USPS Intelligent Mail Off - Default

Symbology settings	M20154_01 USPS Intelligent Mail On	M20157_01 USPS Planet Off - Default	M20156_01 USPS Planet On
Symbology settings	M20159_01 USPS Postnet Off - Default	M20158_01 USPS Postnet On	

5 Operation

5.1 Switching On the Handheld Reader

To switch on the handheld reader , press any trigger button.

- The function indicator on the handheld reader briefly lights up green
- The handheld reader vibrates once
- The handheld reader emits two beeps
- The wireless LED flashes until a Bluetooth connection is established

5.2 Reading Codes

The handheld reader reads both very small 2-D codes, such as QR codes, and larger 1-D codes. such as barcodes. The optimal read distance is 10 cm.

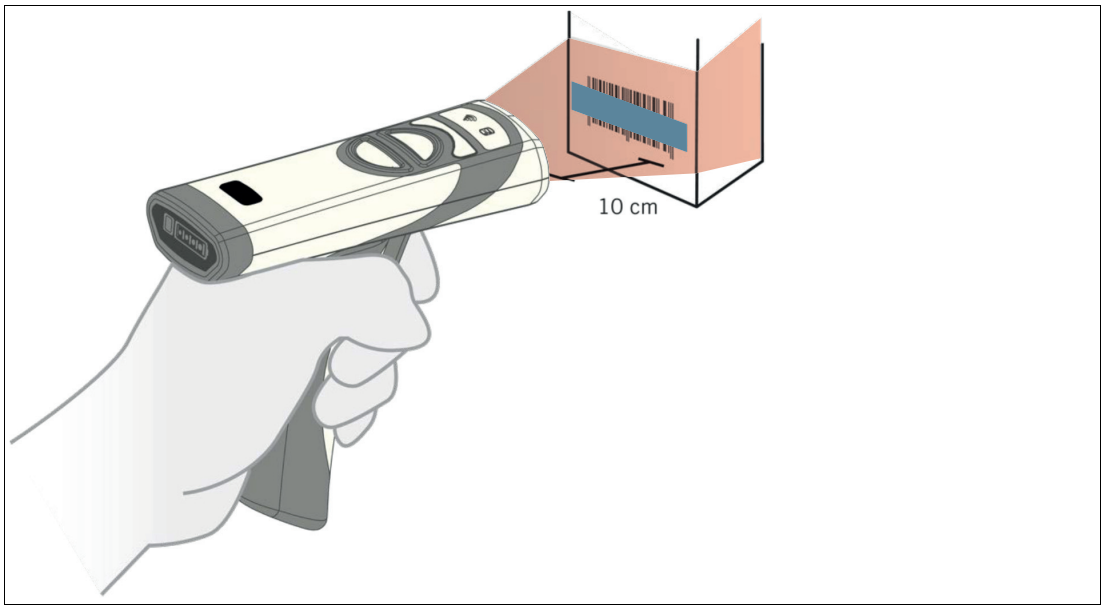
The field of view is indicated by a blue bar, see chapter 5.3.

Tip

If several codes are directly next to each other, we recommend that you cover the codes you do not wish to read. This prevents you from inadvertently reading another code.

Reading Codes

The handheld reader registers itself with other devices as an input device or keyboard. Before you read a code, start or activate the application to which the read result is to be transferred.



1. Hold the handheld reader so that the contrast between the code and surface is as high as possible. A reading angle between 45° and 90° is optimal. The reading distance is approximately 10 cm, depending on the code type and code size.
2. Press the trigger button

   ↳ If the reading operation is successful, the function indicator on the handheld reader briefly lights up green. Once Vision Configurator mode is activated, an audible signal is emitted and the handheld reader vibrates.
3. If the code is not recognized, change the reading angle or the reading distance and press the trigger button again.

2024-02

5.3 Orientation

The handheld reader transmits a blue bar when the trigger button is pressed to facilitate detecting the code in its field of view. Point the bar to the code for the best reading quality.

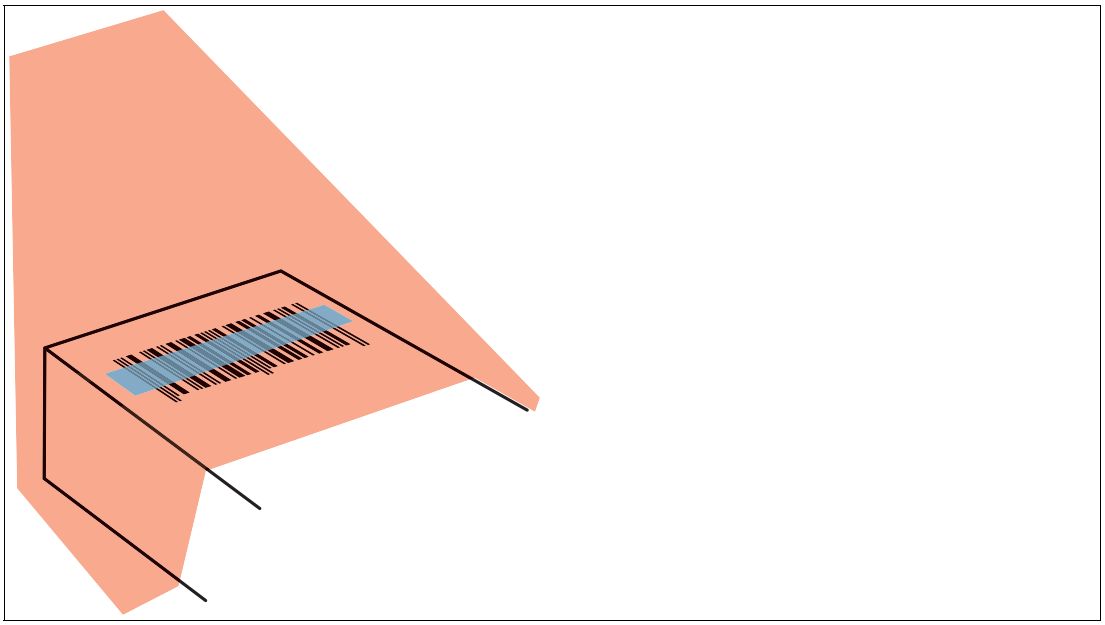


Figure 5.1 Field of view

5.4 Operation of the Charging Cradle

To operate the charging cradle, motion detection must first be activated using the appropriate control code. The handheld reader is inserted into the charging cradle and can detect codes in the reading area via the bottom of the charging cradle. The handheld reader provides motion detection. The handheld reader automatically attempts to read a code as soon as movement in the reading area is detected. It is not necessary to activate the trigger button. These features make the handheld reader especially suitable for picking applications. This means that the worker can hold packages with codes for automatic reading and recording under the charging cradle and an extra hand is therefore not required. In addition, the handheld reader can be removed from the charging cradle for recording codes on pallets and can be used on the move.

When an object is in the field of view of the handheld reader, the reader automatically lights up red, switches on the blue bar, and attempts to read the code. If the reading operation is successful, the function indicator on the handheld reader briefly lights up green. Once Vision Configurator mode is activated, an audible signal is emitted and the handheld reader vibrates.

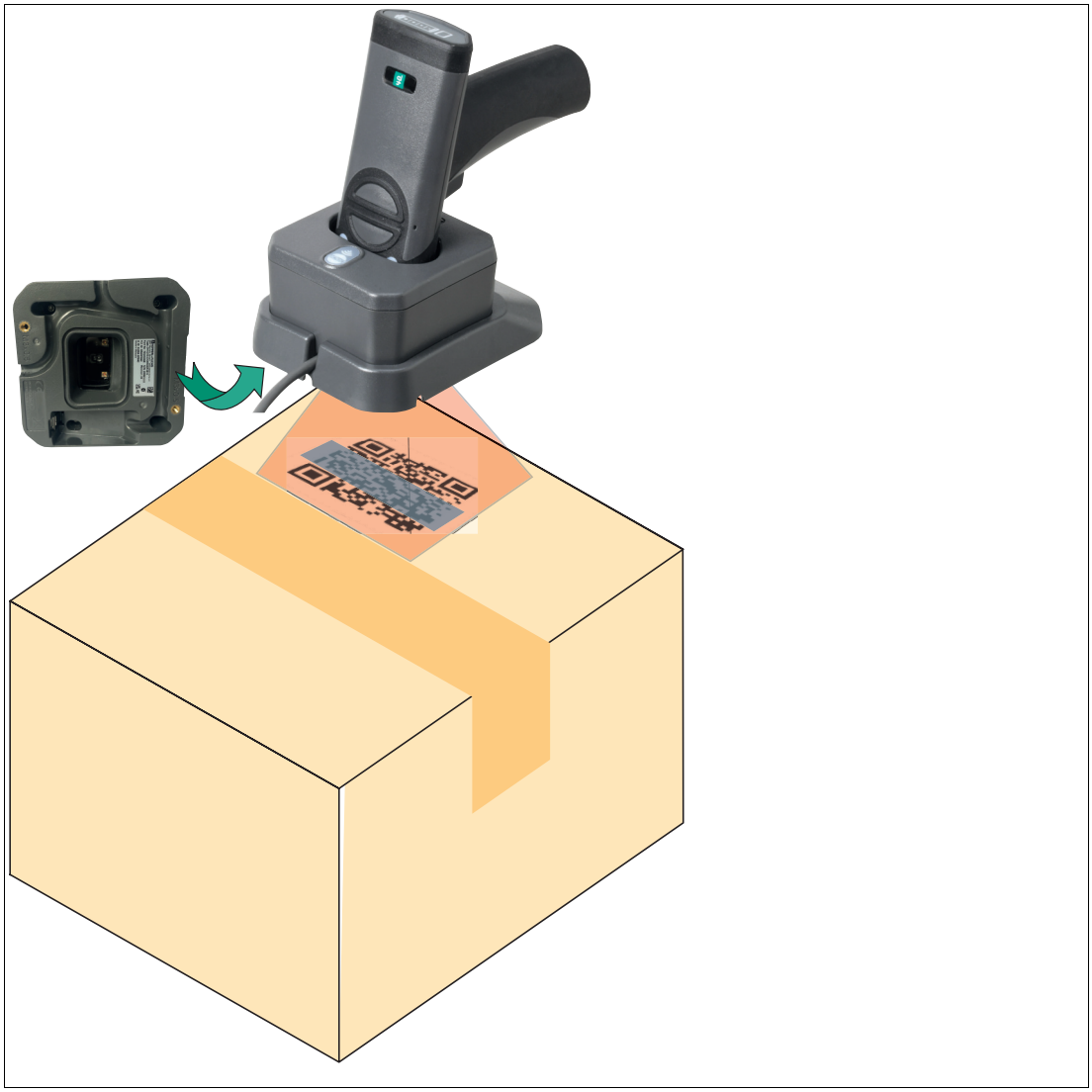


Figure 5.2 Operation using a charging cradle (schematic diagram)

Control code	Function
 M20424_01	Calls up the charging cradle settings
 M20425_01	Resets charging cradle to factory settings
 M20388_01	Activates presentation scan mode with motion detection in the charging cradle
 M20387_01	Deactivates the presentation scan mode in the charging cradle—default
 M20244_01	Sets the maximum brightness for motion detection to 100 %—default
 M20247_01	Sets the maximum brightness for motion detection to 25 %
 M20246_01	Sets the maximum brightness for motion detection to 50 %
 M20245_01	Sets the maximum brightness for motion detection to 75 %

5.5 Using the Battery

The battery has a lithium ion cell with advanced features that enable effective use and management of its service life. Normally, a new battery is only partially charged and must be fully charged before first use. The battery has a built-in status indicator that turns on when the power indicator button on the battery is pressed, or when one of the three trigger buttons is pressed.

Battery Status Indicator

To check the battery charge status, press the button on the back of the battery.

Charge status	LED 1	LED 2	LED 3	LED 4	Battery Status Indicator
75 % ... 100 %	On	On	On	On	
50 % ... 75 %	On	On	On	-	
25 % ... 50 %	On	On	-	-	
< 25 %	On	-	-	-	
< 10 %	Flashing	-	-	-	
Battery empty	Off	Off	Off	Off	

Note

Charging the Handheld Reader

To charge the battery installed in the handheld reader, place the handheld reader in the charging cradle, with the scanning window facing down, see chapter 3.3.

When the handheld reader is charging, the battery status indicator LEDs flash. More LEDs flash as the charge level increases. When the battery is fully charged, four LEDs will permanently light up.

Note

Battery Status Check

The battery has a built-in status check that compares the remaining energy capacity to a new cell. Depending on the intensity of use and operation, the battery should be replaced if the remaining capacitance falls below a certain value to ensure that the battery always lasts a whole shift. Code (M20402_01) recommends replacing the battery when the remaining capacitance falls below 80 %, which is approximately 500 charge cycles.

M20402_01

5.6 Locating the Handheld Reader

The Page button on the charging cradle helps you locate a connected handheld reader. If it is pressed for more than one second, the connected handheld reader beeps until any button on the handheld reader is pressed. Please note that the handheld reader emits a beep via the Page button, even if the beep function is deactivated. If a handheld reader is not connected, the Page LED on the charging cradle flashes quickly three times.

The search function is automatically deactivated after 30 seconds.

5.7 Operating Modes

The handheld reader offers four operating modes:

Read mode

- Press the trigger button on the handheld reader to read codes.
- If motion detection is activated, the handheld reader automatically attempts to read a code, as soon as a movement is detected in the read range.

Idle mode

The handheld reader is switched on, codes are not read. In this state , the lighting and the blue bar are switched off.

Shutdown mode

If the handheld reader is not charged and is in idle mode, it will turn off by default after two hours. The duration of the idle mode before entering the power-off mode can be set between one and ten hours. If you press any button on a scanner that is turned off or place it in a charger with power, it will wake up again within two seconds.

5.8 Notifications

The handheld reader has built-in audible, visual, and haptic signals that provide status information to the user. The default display signals are described below. These signals can be adapted for different environments.

Handheld reader

Status	Visual	Acoustic	Haptic
Handheld reader successfully switched on	The function indicator on the handheld reader briefly lights up red then briefly lights up green.	Beeps once	Vibrates once
The handheld reader attempts to establish a connection with a host	Wireless LED flashes quickly until timeout	-	-
Successful connection to a host	Wireless LED lights up continuously	Beeps twice briefly and beeps once	Vibrates once
Connected to a host	Wireless LED lights up continuously	-	-
Successful reconnection to charging cradle	-	Beeps once	-
Connection failed	-	Beeps three times	-
Code recognition and transfer data successful	Function indicator on the handheld reader briefly lights up green. The wireless LED will flash until the data transfer is complete	Beeps once	Vibrates once
Code recognition successful, data transfer failed	-	Beeps three times	-
Control code recognition and processing successfully	Function indicator on the handheld reader briefly lights up green.	Beeps twice	Vibrates twice
Control code recognition successful, processing failed	Function indicator on the handheld reader briefly lights up green.	Beeps four times	Vibrates four times
In idle state, outside the charging cradle	The wireless LED flashes once every ten seconds	-	-
Handheld reader search function active (see chapter 5.6)	-	The handheld reader beeps untilany button on the handheld reader is pressed or the search time has elapsed.	-
Download file or firmware	The function indicator on the handheld reader flashes yellow	-	-
Install the file or firmware	Function indicator on the handheld reader briefly lights up red	Three slow beeps after completion	Three slow vibrations after completion

Battery

Status	Visual
Battery status button pressed	Battery status indicator LEDs light up for four seconds
Trigger button on the handheld reader pressed	Battery status indicator LEDs light up for four seconds
Charging	Battery status indicator LEDs light up alternately for four seconds and off for one second
Fully charged while remaining in the charging cradle	LEDs on the battery status indicator light up continuously

Charging cradle

Status	Visual
Switched off	LED off
Powered but not connected to a handheld reader	LED lights up alternately for one second on and one second off
Attempt to establish connection with a handheld reader	LED flashes quickly seven times
Connected to a handheld reader	LED lights up continuously
Data transfer	LED lights up alternately for two seconds on and two seconds off
Page delivered to a connected handheld reader	LED flashes until the connected handheld reader starts to beep
Page is output, but no handheld reader is connected	LED flashes three times

6 Servicing

To get the best possible performance out of your device, clean the optical unit on the device when necessary and always keep it clean.

When cleaning the optical unit you should note the following:

- Do not touch the optical unit with your fingers.
- Do not immerse the device in water. Do not spray the device with water or other liquids.
- Do not use abrasive agents to clean the surface of the device.
- Use a cotton or paper cloth moistened with water or isopropyl alcohol. The cloth must not be soaked!
- Remove any residual alcohol using a cotton or paper cloth moistened with distilled water. The cloth must not be soaked!
- Wipe the device surfaces dry using a lint-free cloth.

2024-02

7 Troubleshooting

Note

Do not repair, modify, or manipulate the device.

If there is a defect, the device must be repaired by Pepperl+Fuchs.

Fault Repair

Error	Possible cause	Remedy
The lighting and/or code are not visible when the trigger button is pressed	The battery is empty	Charge the battery or replace it with a charged battery. When charging, make sure that the LEDs on the battery status indicator flash.
	Image sensor failure when the function indicator on the handheld reader flashes red	Contact Customer Service
Lighting is activated Codes cannot be read	Some code types are not activated by default	Make sure that the right code type is activated. You can activate code types using control codes ().
The read result is not transferred.	The handheld reader is not in the correct operating mode	Activate a suitable operating mode by programming the corresponding control code ().
Codes cannot be read	The optical unit on the handheld reader is dirty.	Clean the optical unit, see chapter 6.
	The reading distance is too large or too small.	Move the handheld reader closer to or farther from the code until the width of the blue bars is roughly the same width as the code, see chapter 5.3.
	The code is on a reflective surface.	Enable the option for enhanced display reading. Change the reading angle by holding the handheld reader at an angle to the surface.
The read result is incorrect	The handheld reader is using the wrong keyboard layout.	Change the keyboard layout for the current operating mode.
	The code type is incorrectly interpreted as a different code type.	Use the **Test statistics** area in Vision Configurator to determine which code type the code is being read as (see chapter 4.2.4).
	The read result is altered by a script, code type input, a prefix, or a suffix.	Use the **Parameter area** in Vision Configurator to check the settings for **Read result** () and **Script** ().
When the battery status button on the battery is pressed, no LEDs on the battery status indicator light up	The battery may be discharged	Charge the battery or replace it with a freshly charged battery. When charging, make sure that the LEDs of the battery status indicator flash, see chapter 5.5.
	The battery is faulty	Replace the battery with a functional one.

Error	Possible cause	Remedy
The handheld reader beeps three times	The handheld reader could not establish a connection with a Bluetooth charging cradle	Make sure the charging cradle is switched on (the wireless LED on the charging cradle lights up or flashes) and read the quick connect code again.
	Code recognition successful, data transfer failed	Make sure that the handheld reader is connected to the charging cradle by reading the quick connect code.
No connection to the Bluetooth device	The device does not support Bluetooth® Low Energy (BLE) connection	Use a compatible device that supports Bluetooth® Low Energy (BLE)
The handheld reader beeps and vibrates four times after reading the control code	Control code recognition successful, processing failed	Make sure that you are using the right control code for the handheld reader
The wireless LED on the handheld reader flashes once per second	The handheld reader is not connected to a charging cradle or a host (PC, tablet, cell phone) that supports BLE	Bring the handheld reader into the Bluetooth detection range of the charging cradle of a host. Read the quick connect code on the charging cradle to couple and connect the handheld reader. Use the device manager on the host to couple and connect with the handheld reader
The wireless LED flashes once every ten seconds	The handheld reader is in idle mode and is not in the charging cradle	Place the handheld reader in the charging cradle or press a button to activate the handheld reader
The handheld reader beeps until any button is pressed	The search function has been activated	Press any button on the handheld reader, see chapter 5.6.
The search function does not work	The handheld reader is not connected or the handheld reader is out of detection range.	Read the quick connect code to couple the handheld reader with the charging cradle, or bring the handheld reader within detection range of the charging cradle.
The wireless LED flashes quickly 7 times, no data can be sent	The charging cradle attempts to establish a connection with the handheld reader	Make sure that the handheld reader is turned on and within the detection range.
No data is transferred in Bluetooth mode.	The handheld reader is outside the detection range of the Bluetooth receiver.	Move the handheld closer to the charger or Bluetooth modem. If the connection is not automatically reestablished, scan the **Quick Connect** code on the front of the charger or the modem.

Hardware Reset

As an alternative to reading the control code, you can reset the handheld reader using the trigger buttons.

1. Move the locking device on the bottom of the handheld reader in the direction of the arrow and remove the battery.
2. Press and hold both trigger buttons on the top of the handheld reader.
3. Insert the battery into the handheld reader and hold down the trigger buttons. After a few seconds, a number of beeps will sound in sequence.
4. Then release the trigger buttons.

   ↳ The function indicator of the handheld reader flashes green and the device beeps. The handheld reader has now been restored to its default settings.

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