

MANUAL

**OHV1000-F223-R2**

**Handheld reader**



CE

With regard to the supply of products, the current issue of the following document is applicable: The General Terms of Delivery for Products and Services of the Electrical Industry, published by the Central Association of the Electrical Industry (Zentralverband Elektrotechnik und Elektroindustrie (ZVEI) e.V.) in its most recent version as well as the supplementary clause: "Expanded reservation of proprietorship"

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# 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 the following:

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

The documentation comprises the following parts:

- Present document
- Datasheet

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

- EC-Type Examination Certificate
- EC Declaration of Conformity
- Attestation of conformity
- Certificates
- Control drawings
- 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 in instances, 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 damages.

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.

## 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 OHV1000 handheld is a compact handheld reader for all common 1-D and 2-D codes applied directly to the surface of a product. For example, the code may have been etched, printed, or laser-engraved on the housing. Special technology to prevent glare allows the device to accurately read codes 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. Feedback comes in the form of a visual or audible signal or a vibration.

Using the Vision Configurator software, rule sets can be created for formatting read results without the need for extensive programming work. This facilitates integration into ERP systems. Data is transferred via USB or RS-232, depending on which connection cable is selected. With its robust housing and IP54 protection, the handheld reader is ideally suited to heavy-duty industrial use.

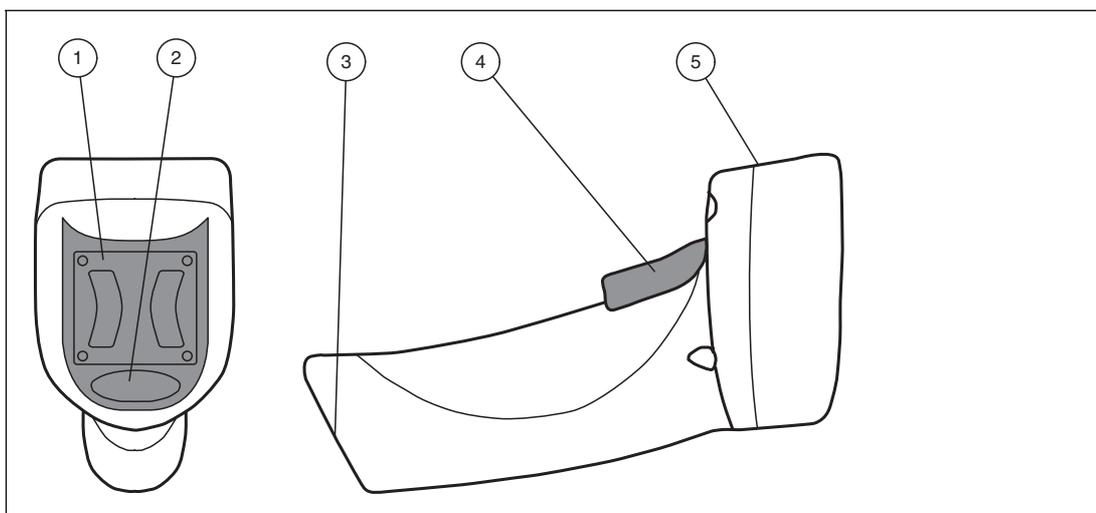


The device is only approved for appropriate and intended use. Ignoring these instructions will void any warranty and absolve the manufacturer from any liability.

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 being used according to its intended use.

## 2.2 Indicators and Operating Controls



- 1 Mounting bracket
- 2 Function indicator
- 3 10-pin connector socket
- 4 Trigger button
- 5 Optical unit

## 2.3 Feedback

Action	Function indicator	Audible signal	Vibration
Handheld reader successfully switched on	Off	Two audible signals	Vibrates twice
Handheld reader ready	Off	No audible signal	No vibration
Code reading successful	Function indicator briefly lights up green.	Single audible signal	Vibrates once
Configuration code reading successful	Function indicator briefly lights up green.	Two audible signals	Vibrates twice

## 2.4 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  
OHV1000-F223-R2
- Brief instructions

## 2.5 Accessories

Designation	Description
V45-G-2M-PVC-ABG-USB-G	Connection cable for USB connection, approx. 1.8 meters
V45-G-2M-PVC-SUBD9	Connection cable for RS-232 connection, approx. 2.4 meters (extended) Data connection: Sub-D socket, 9-pin Power supply: DC connector socket, 5.5 mm
ODZ-MAH-SUPPLY	Power supply for RS-232 connection 5 VDC, 1.2 A, short-circuit protected
Vision Configurator	Configuration software for camera-based sensors When using OHV handheld readers, you can download the software free of charge from <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .

## 2.6 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 (see datasheet) must be considered.

Disposing of device, packaging, and possibly contained batteries must be in compliance with the applicable laws and guidelines of the respective country.



### 3 Installation

#### 3.1 Connection

You can connect the handheld reader to the following interfaces.

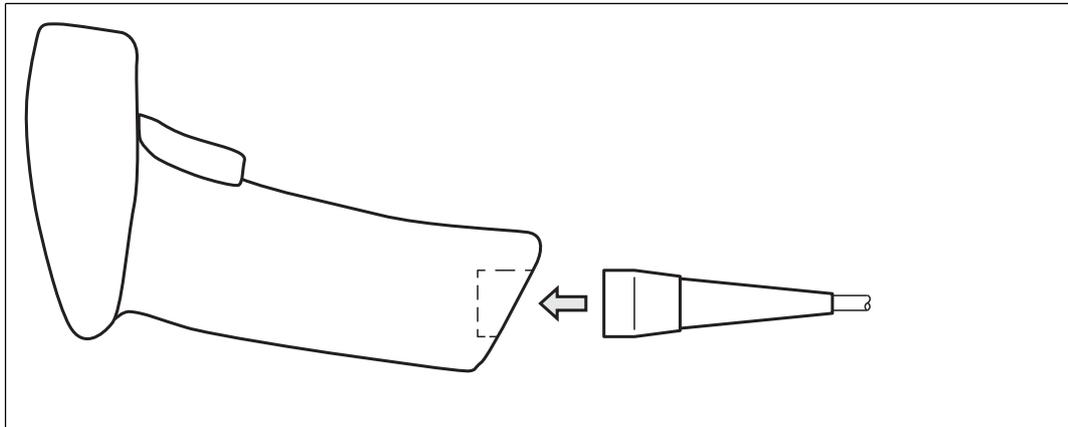
- USB
- RS-232

##### 3.1.1 Installing/Removing the Cable



###### Installing the Cable

1. Hold the end of the cable with the RJ50 plug and insert the plug into the RJ50 socket underneath the handle.

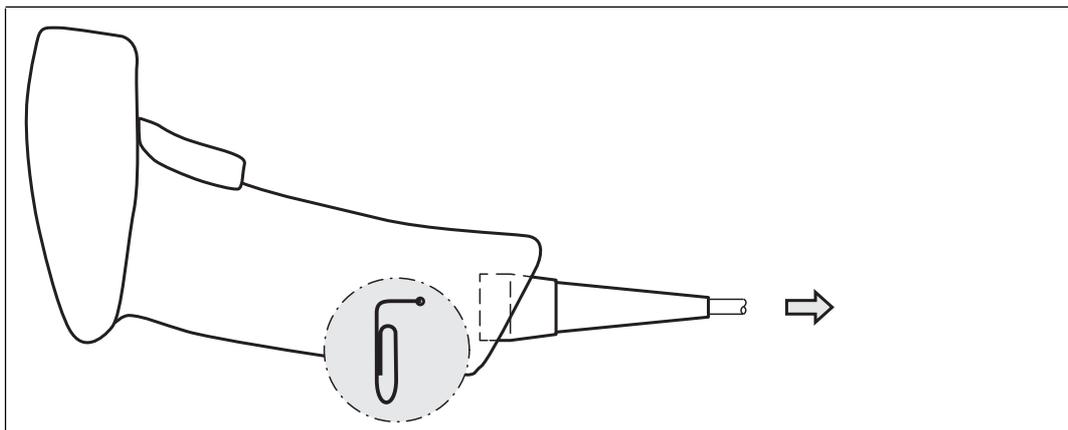


2. Make sure that the cable audibly snaps into place.



###### Removing the Cable

1. Insert a thin object such as a straightened paper clip into the hole at the bottom of the handle at the side.



2. Carefully pull the cable complete with RJ50 plug out of the handle.

### 3.1.2 Establishing a USB Connection



#### Establishing a USB Connection

1. 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.
2. To switch on the handheld reader, hold down the trigger button for approx. two seconds.
3. When the handheld reader is successfully connected, an audible signal will be emitted and the handheld reader will vibrate.

↳ The handheld reader is now ready.

### 3.1.3 Establishing an RS-232 Connection



#### Establishing an RS-232 Connection

1. Switch off the PC.
2. Insert the RS-232 plug on the connection cable into the RS-232 port on the PC.
3. Insert the low-voltage plug on the power supply unit into the low-voltage socket on the RS-232 connection cable.
4. Connect the mains power plug on the power supply unit to the mains.
5. Switch on the PC.

↳ Once you have switched on the PC, the handheld reader will switch itself on automatically.

6. When the handheld reader is successfully connected, an audible signal will be emitted and the handheld reader will vibrate.

↳ The handheld reader is now ready.

The handheld reader uses the following RS-232 factory settings:

- 115,200 baud
- 8 data bits
- No parity

## 3.2 Installing Vision Configurator

Vision Configurator is a piece of 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 parameterization of the handheld reader, saving data sets, as well as the transfer and display of data and error diagnostics.



#### **Note!**

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



#### Installing Vision Configurator

1. Download the current version of Vision Configurator from <http://www.pepperl-fuchs.com>.
2. Open the installation file.
3. Select a language.
4. Follow the instructions on the setup wizard.

5. Before exiting the setup wizard, select **Install OHV USB driver**. A virtual COM port is installed that Vision Configurator uses to communicate with OHV handheld readers.



### 3.3 Installing Device Drivers

The handheld reader registers itself as an input device or keyboard. Special device drivers are not needed.

The operating system automatically installs the drivers for input devices (Human Interface Device). An active internet connection is required, depending on the operating system.

## 4 Configuration

### 4.1 Selecting Operating Mode

The handheld reader has two different operating modes.

Mode	Description
<b>Keyboard Mode</b>	When in keyboard mode, the handheld reader acts like a keyboard. The read codes are transferred to the PC as a combination of letters and digits.
<b>Configuration Mode</b>	Configuration mode is used exclusively for communication with Vision Configurator. See chapter 4.3 After configuration has been completed, switch back to operating mode.

#### 4.1.1 Keyboard Mode



##### Activating Keyboard Mode

Read the following code using the handheld reader.



M10200\_01

↳ The function indicator on the handheld reader briefly lights up green.

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

If data is not transferred correctly in keyboard mode, modify the keyboard layout. See chapter 4.1.3

#### 4.1.2 Configuration Mode



##### Activating Configuration Mode (USB Connection)

Read the following code using the handheld reader.



M10005\_01

↳ The function indicator on the handheld reader briefly lights up green.



##### Activating Configuration Mode (RS-232 connection)

1. Read the following code to activate raw mode for the data transfer.



M10387\_01

2. Read a code to define the baud rate. See chapter 4.4.5  
You can use the following code, for example, which sets the baud rate of the RS-232 connection to 115,200.



M10399\_01

↳ The function indicator on the handheld reader briefly lights up green.

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

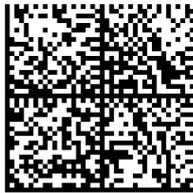
To select a different keyboard layout, see the **Device Settings** area in Vision Configurator. See chapter 4.3.10

### 4.1.3 Keyboard Layout

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

#### Microsoft Windows

English (US)



M10460\_02

English (US International)



M10469\_01

English (GB)



M10471\_01

German (Germany)



M10463\_02

German (Switzerland)



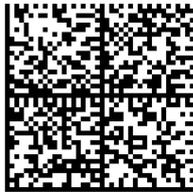
M10466\_02

French (France)



M10462\_02

French (Belgium)



M10461\_02

Spanish (Spain)



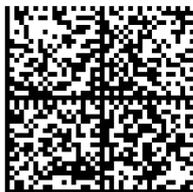
M10472\_01

Spanish (Latin America)



M10465\_02

Russian



M10418\_02

Japanese



M10464\_02

### Apple OS X and iOS



## 4.2 Configuring the Handheld Reader

There are two different ways to configure the handheld reader.

- **Vision Configurator:** The software allows you to perform advanced configuration on a PC using a clearly arranged user interface. Standard tasks include parameterization of the handheld reader, saving data sets, as well as the transfer and display of data and error diagnostics. See chapter 4.3
- **Control codes:** Control codes allow direct configuration without using a PC. To adjust a parameter, scan the appropriate control code using the handheld reader. See chapter 4.4

## 4.3 Configuration Process Using Vision Configurator

To configure the handheld reader using Vision Configurator, you must activate configuration 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 configuration mode.



### **Note!**

After configuration has been completed, switch back to keyboard mode. See chapter 4.1.1



### Starting Vision Configurator

Before working with Vision Configurator, ensure that the handheld reader is in configuration mode. See chapter 4.1.2

1. Start Vision Configurator.
2. Select the user name **Default** in the **User** area. There are no different user rights for OHV handheld readers.
3. Select **OHV sensor** in the **Sensor family** area.
4. Select the handheld reader, the connection type, and the connection port from the list, where necessary.
5. Select a language in the **Language** area.
6. Click **OK**.

↳ The connection between the handheld reader and the software has now been created.

### 4.3.1 Layout of Application Window

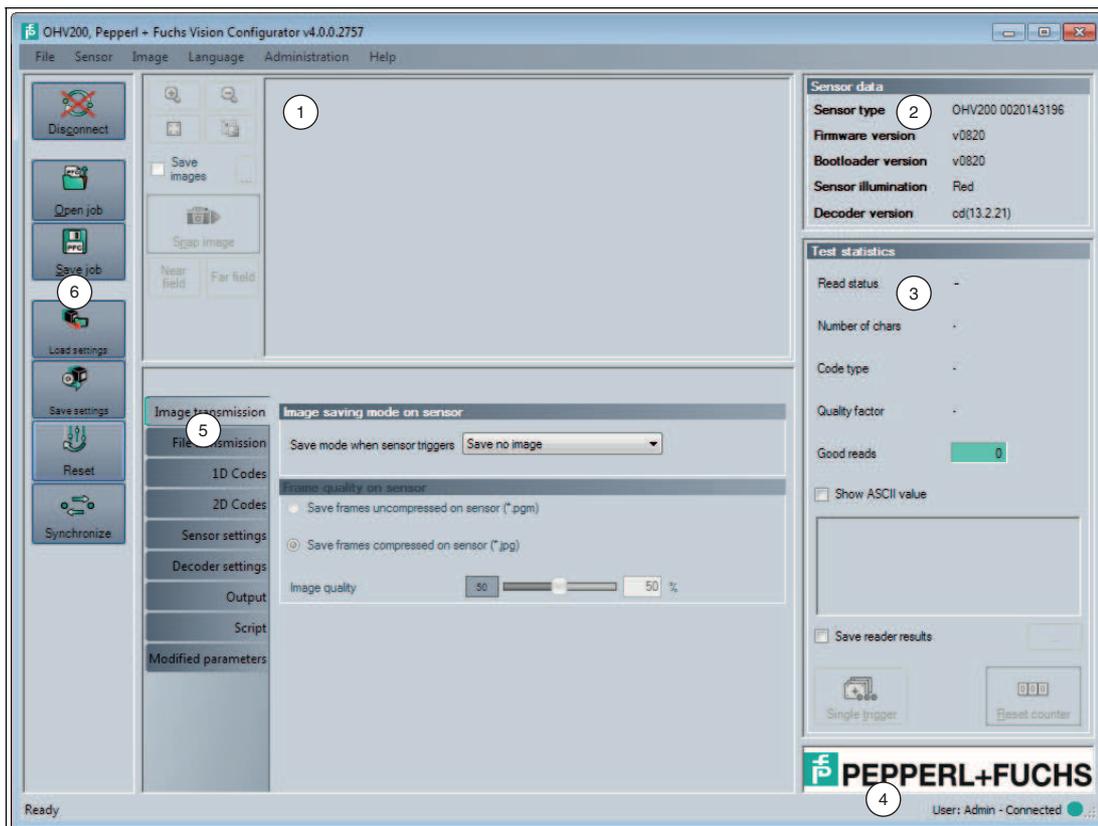


Figure 4.1 Application screen

1. The display area shows the read images and offers basic editing tools.
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 parameter area is split into several subareas and contains sensor-specific parameters.
6. The toolbar allows direct access to selected menu items.

### 4.3.2 Image display

The image display shows the recording taken by the handheld reader in the near field and far field.

The toolbar offers basic editing functions.



1. Zoom into the image.
2. Zoom out of the image.
3. Display image in original size.
4. Length x width in pixels
5. Current zoom factor as a percentage
6. Position of the cursor within the image
7. Grayscale value of the pixel over which the cursor is located.
8. If you have activated **Save image**, you can select a location to save the image here.
9. Triggers a new recording in the near field and far field.  
The image is immediately transferred to the image display area.
10. Triggers a new recording in the far field.  
The image is immediately transferred to the image display area.
11. Triggers a new recording in the near field.  
The image is immediately transferred to the image display area.
12. Tick **Save images** if you wish to save the recording locally.
13. Adjusts the image display in relation to the size of the image display area.



### 4.3.3 Sensor Data

This area shows information about the connected sensor.

Sensor data	
<b>Sensor type</b>	OHV1000 0020310081
<b>Firmware version</b>	v0956
<b>Bootloader version</b>	v0956
<b>Sensor illumination</b>	Red
<b>Decoder version</b>	cd(14.1.2)

### 4.3.4 Test Statistics

This area shows information about the read code.

Test statistics	
Read status	-
Number of chars	-
Code type	-
Quality factor	-
Good reads	0
<input type="checkbox"/> Show ASCII value	
<input type="checkbox"/> Save reader results	
 Single trigger	 Reset counter

Show ASCII value	Activate this option to display the read result in ASCII characters.
Save reader results	Activate this option to save read results locally. If you have activated this option, you can select a location to save the results.
Single trigger	Triggers a read operation.
Reset counter	Clears the contents of the <b>Test statistics</b> area.

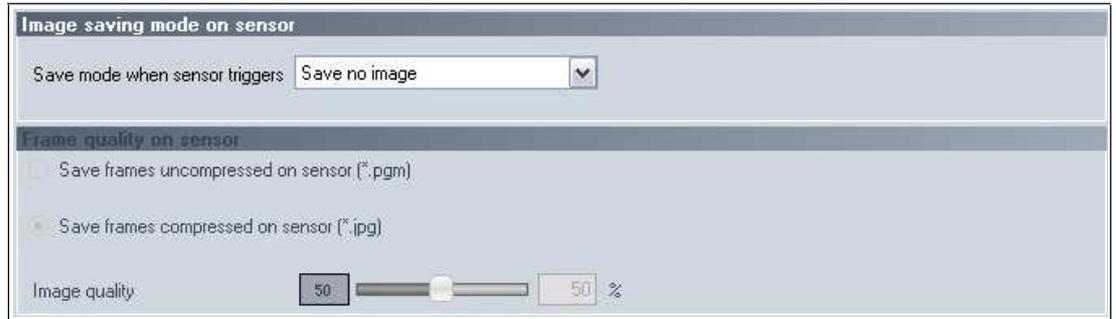
### 4.3.5 Image Transmission

This is where you can define the settings for saving read codes.



**Note!**

Saving images when decoding increases the decoding time.



**Image Saving Mode on Sensor**

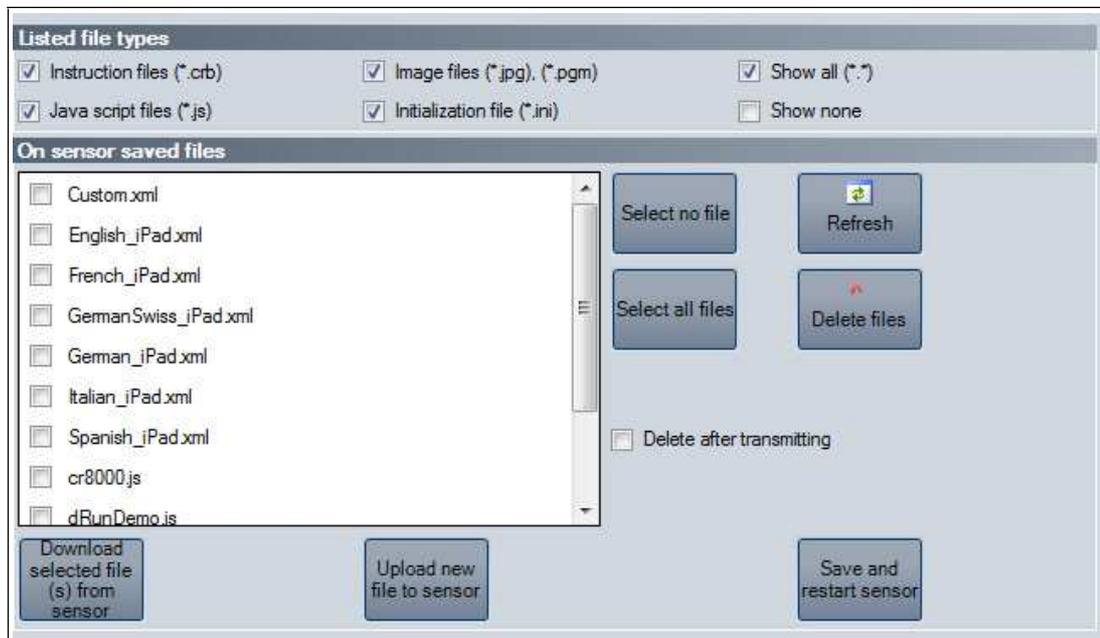
<b>Save mode when sensor triggers</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Save no image</li> <li><input type="checkbox"/> Save all images</li> <li><input type="checkbox"/> Save non decoded images</li> <li><input type="checkbox"/> Save decoded images</li> </ul>
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**Frame Quality on Sensor**

<b>Save frames uncompressed on sensor</b>	The recorded image is saved uncompressed in portable graymap format on the sensor.
<b>Save frames compressed on sensor</b>	The recorded image is saved compressed in JPEG format on the sensor.
<b>Image quality</b>	<p>If the image is to be saved in JPEG format, you can define the image quality here.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 0 %: maximum compression, lowest image quality</li> <li><input type="checkbox"/> ...</li> <li><input type="checkbox"/> 100 %: minimum compression, highest image quality</li> </ul>

### 4.3.6 File Transmission

This is where you can manage files saved on the sensor.



#### Listed File Types

<b>Instruction files</b>	Displays the command files on the sensor with file extension <b>crb</b>
<b>Java script files</b>	Displays the JavaScript files on the sensor with file extension <b>js</b>
<b>Image files</b>	Displays the graphics files on the sensor with file extension <b>jpg</b> or <b>pgm</b>
<b>Initialization file</b>	Displays the initialization files on the sensor with file extension <b>ini</b>
<b>Show all</b>	Displays all the files on the sensor
<b>Show none</b>	Displays no files on the sensor

#### On sensor saved files

<b>Select no file</b>	Cancels selection on all files
<b>Refresh</b>	Updates the display of files
<b>Select all files</b>	Selects all the files on the sensor
<b>Delete files</b>	Deletes the selected files
<b>Delete after transmitting</b>	The selected files on the sensor are deleted following transfer from the sensor to the PC
<b>Download selected file(s) from sensor</b>	Loads the selected files from the sensor to the PC
<b>Upload new file to sensor</b>	Loads the file to the sensor
<b>Save and restart sensor</b>	Saves the current sensor settings and restarts the sensor



## Updating Firmware

1. Click on **Upload new file to sensor** or select **Sensor > Update Firmware** in the menu bar.
2. Select a firmware file with the extension crz.
3. The firmware file is transferred to the handheld reader. Uploading the firmware takes a few minutes.
4. Once the file has been transferred, the handheld reader automatically restarts.
  - ↳ The firmware is now updated. You can check the firmware version in the **Device data** area.

### 4.3.7

## 1-D Codes

This is where you can define which 1-D code types the handheld reader should read. Different code types are shown depending on the sensor used and the firmware version.



### Tip

Deactivate all code types that are not required and activate only the code types that you wish to read. This increases the evaluation speed and prevents a code type such as Codablock being mistakenly interpreted as another code type, such as Code 128.



## Activating 1-D Codes

1. To activate a code type, check the check box in front of the code type designation.
  - ↳ Advanced options for the selected code type are shown in the area on the right.
2. Activate or deactivate the advanced options.
3. To save the settings, select **Sensor > Save settings** in the menu bar.



## Deactivating 1-D Codes

1. To deactivate a code type, uncheck the check box in front of the code type designation.
2. To save the settings, select **Sensor > Save settings** in the menu bar.



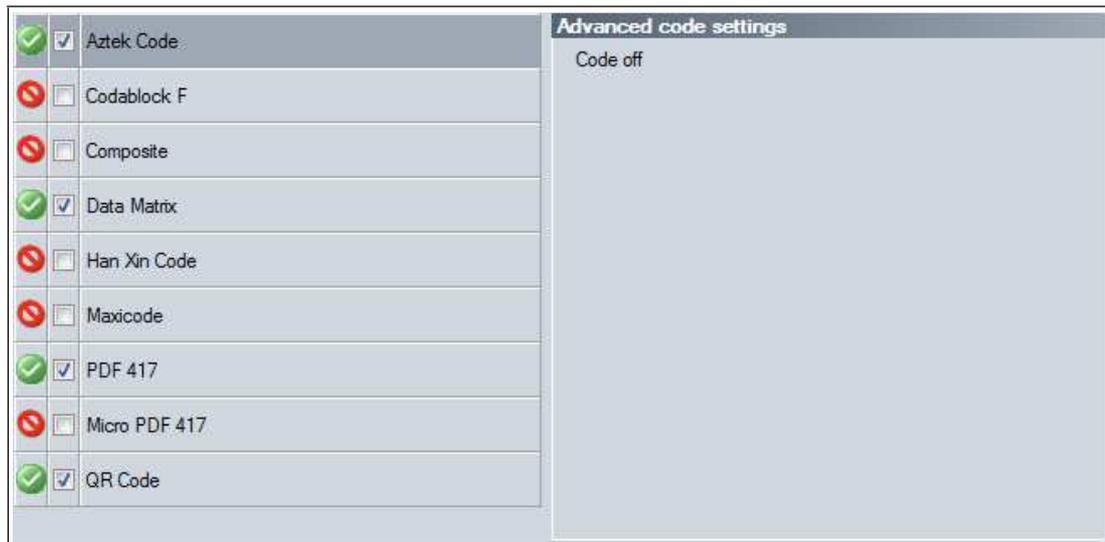
### 4.3.8 2-D Codes

This is where you can define which 2-D code types the handheld reader should read. Different code types are shown depending on the sensor used and the firmware version.



**Tip**

Deactivate all code types that are not required and activate only the code types that you wish to read. This increases the evaluation speed and prevents a code type such as Codablock being mistakenly interpreted as another code type, such as Code 128.



#### Activating 2-D Codes

1. To activate a code type, check the check box in front of the code type designation.  
↳ Advanced options for the selected code type are shown in the area on the right.
2. Activate or deactivate the advanced options.
3. To save the settings, select **Sensor > Save settings** in the menu bar.

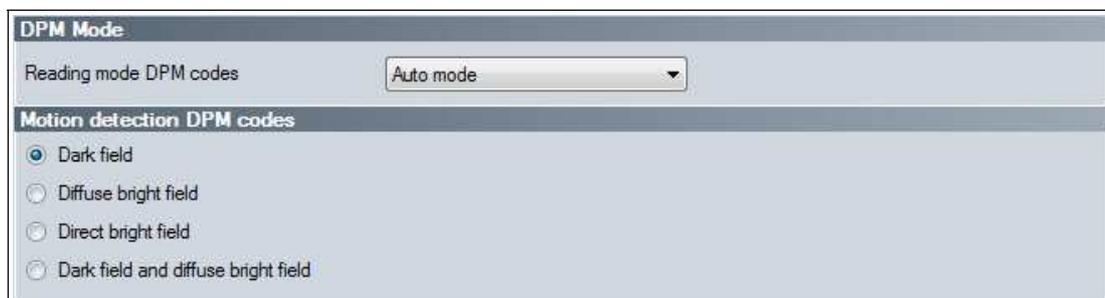


#### Deactivating 2-D Codes

1. To deactivate a code type, uncheck the check box in front of the code type designation.
2. To save the settings, select **Sensor > Save settings** in the menu bar.

### 4.3.9 DPM Codes

Here, you can change the read mode.



**DPM Mode**

<p><b>Reading mode DPM codes</b></p>	<p>Here, you can select the read mode.</p> <ul style="list-style-type: none"> <li>■ <b>Auto mode:</b> For reading needed, printed, or lasered codes at any angle. The lighting is adjusted automatically.</li> <li>■ <b>Dark field, dot peen, 15–45 degrees:</b> For reading needed codes at an angle between 15° and 45°. The lighting is adjusted so that codes can be read on a dark surface.</li> <li>■ <b>Dark field, 15–45 degrees/laser-etched, 90 degrees:</b> For reading needed codes at an angle between 15° and 45° and lasered codes at an angle of 90°. The lighting is adjusted so that codes can be read on a dark surface.</li> <li>■ <b>Dark field, laser-etched, 90 degrees:</b> For reading lasered codes at an angle of 90°. The lighting is adjusted so that codes can be read on a dark surface.</li> <li>■ <b>Diffuse bright, dot peen, 90 degrees:</b> For reading needed codes at an angle of 90°. The lighting is adjusted so that codes can be read on a patterned surface.</li> <li>■ <b>Diffuse bright, dot peen/laser-etched, 90 degrees:</b> For reading needed or lasered codes at an angle of 90°. The lighting is adjusted so that codes can be read on a patterned surface.</li> <li>■ <b>Diffuse bright, laser-etched, 90 degrees:</b> For reading lasered codes at an angle of 90°. The lighting is adjusted so that codes can be read on a patterned surface.</li> <li>■ <b>Curved surface, dot peen/laser-etched, 90 degrees:</b> For reading needed or lasered codes at an angle of 90°. The lighting is adjusted so that codes can be read on a curved surface.</li> <li>■ <b>Direct bright field:</b> For reading codes printed on paper.</li> </ul>
<p><b>Motion detection DPM codes</b></p>	<p>Here, you can select the read mode for motion detection.</p> <ul style="list-style-type: none"> <li>■ <b>Dark field:</b> For reading codes on dark surfaces</li> <li>■ <b>Diffuse bright field:</b> For reading codes on patterned surfaces</li> <li>■ <b>Direct bright field:</b> For reading codes on bright surfaces</li> <li>■ <b>Dark field and diffuse bright field:</b> For reading codes on dark, patterned surfaces</li> </ul>



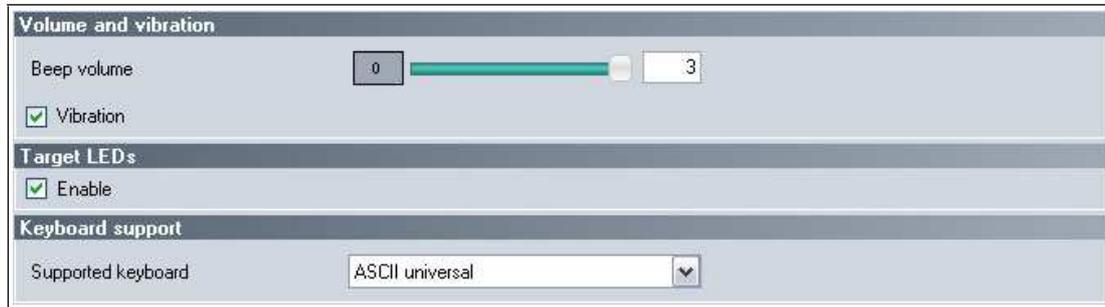
### 4.3.10 Device Settings

This is where you can configure the feedback. Since the sensor registers itself with other devices as an input device or keyboard, you can configure which keyboard layout the sensor should use for data transfer.



**Note!**

To ensure the correct transfer of data, it is important to select the right keyboard layout. Depending on the keyboard selected, individual characters, such as special symbols, are output differently.



#### Volume and Vibration

<b>Audible signal volume</b>	Here you can adjust the volume of the audible signal. <ul style="list-style-type: none"> <li>■ 0: silent</li> <li>■ ...</li> <li>■ 3: maximum volume</li> </ul>
<b>Vibration</b>	Here you can activate or deactivate vibration.

#### Target LEDs

<b>Switched on</b>	Here you can activate or deactivate the blue bars that indicate the read range.
--------------------	---

#### Keyboard Support

<b>Supported keyboards</b>	<ul style="list-style-type: none"> <li>■ US keyboard without leading zero</li> <li>■ ASCII general</li> <li>■ User-defined keyboard</li> <li>■ French keyboard</li> <li>■ German keyboard</li> <li>■ Japanese keyboard</li> <li>■ Swiss keyboard</li> <li>■ Belgian keyboard</li> <li>■ UK keyboard</li> <li>■ Latin American keyboard</li> <li>■ Spanish keyboard</li> <li>■ Russian keyboard</li> </ul>
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### 4.3.11 Decoding Options

You can change settings for the read operation here.

<b>Display</b>	
<input type="checkbox"/>	Enhanced display reading
<b>Continuous reading</b>	
<input type="checkbox"/>	Continuous reading
<b>Motion detection</b>	
Motion detection	Switched off
<b>Duplicate codes</b>	
Duplicate code scan delay	None
<b>Reading field</b>	
<input checked="" type="radio"/>	Near and far field
<input type="radio"/>	Near field
<input type="radio"/>	Far field

#### Display

<b>Optimized reading of displays</b>	Optimizes the optical unit on the handheld reader to read from reflective surfaces such as displays.
--------------------------------------	--

#### Continuous Reading

<b>Continuous Reading</b>	You can activate or deactivate continuous reading here. If this option is activated, the sensor continuously attempts to read a code without the user having to activate a trigger button.
---------------------------	--

#### Motion Detection

<b>Motion Detection</b>	<p>If motion detection is enabled, the sensor automatically attempts to read a code as soon as motion is detected in the read range.</p> <ul style="list-style-type: none"> <li>■ Switched off</li> <li>■ On, no start delay</li> <li>■ On, start delay 500 ms</li> <li>■ On, no start delay, dark surroundings</li> <li>■ On, start delay 500 ms, dark surroundings</li> </ul>
-------------------------	---

#### Code Duplicates

<b>Scan delay on the same code</b>	<p>This option prevents the same code from being read twice directly in succession within a selected time frame. After the time frame has elapsed, or if another code has been read in the interim, the same code can be read again. This option is particularly useful in conjunction with continuous reading, since it can prevent the same code from being read multiple times.</p> <ul style="list-style-type: none"> <li>■ None</li> <li>■ ...</li> <li>■ 1 day</li> </ul>
------------------------------------	---



### Read Range

<b>Selection</b>	With this option, you can select whether only the near range, the long range, or both together are used for reading. If you deactivate an area, the evaluation speed increases, but codes in the deactivated area can no longer be read.
------------------	--

## 4.3.12 Read Result

You can process 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.

If the read result is additionally processed by a script, the prefixes or suffixes are assigned immediately following script processing.

### Prefix/Suffix

<b>Prefix</b>	You can input a value for the prefix here. To delete the prefix, click on <b>Delete prefix</b> .
<b>Suffix</b>	You can input a value for the suffix here. To delete a suffix, click on <b>Delete suffix</b> .

### Inserting Special Symbols for Keyboard Mode

<b>Prefix TAB</b>	Click on <b>Prefix TAB</b> to insert a tab character into the prefix field.
<b>Suffix TAB</b>	Click on <b>Suffix TAB</b> to insert a tab character into the suffix field.
<b>Suffix ENTER</b>	Click on <b>Suffix ENTER</b> to insert an input character into the suffix field.
<b>more ...</b>	Click on <b>more ...</b> to call up a list of additional special characters. To insert a special character from the list, click on the + icon in the corresponding line. Different special characters are available depending on whether the handheld reader is connected to Vision Configurator via USB or via RS-232.

### Additional Outputs

<b>Output the code type of the read code</b>	If you activate this option, the code type of the read code will be output between the prefix and the read result. If the sensor is connected to Vision Configurator, the code type is displayed in the <b>Test statistics</b> area.
--	--

### 4.3.13 Script

Here you can process 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 additionally assigned to the read result, the prefixes or suffixes are assigned immediately following the script processing.

#### Input Codes

The following predefined components are available:

`SUBSTRING_FROM_POSITION_x_ON_y_CHARS`

Only returns one part of the code. x denotes 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.

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 returned, where x = 0 represents the first character of the code.

`OUTPUT_LAST_x_CHARS`

Returns the last x characters of the code.

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 an abc and def data string. If there are multiple occurrences of the data strings abc and def, only the characters between the first occurrence are returned. If the data string abc does not appear, no characters are returned.

`OUTPUT_ALL_CHARS_BEFORE_abc`

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

`OUTPUT_ALL_CHARS_AFTER_abc`

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

`OUTPUT_x_CHARS_AFTER_abc`

Returns *x* relevant characters of the code that follow the data string *abc*. If the data string *abc* appears several times, *x* characters from the first occurrence are returned and subsequent occurrences of the data string *abc* are deleted. If the data 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 the *y* characters are removed, where *x* = 0 represents the first character of the code.

Example: `DELETE_FROM_POSITION_0_ON_5_CHARS` deletes characters 1 to 5.

`DELETE_SUBSTRING_abc`

Deletes the data string *abc* from the code. If the data string occurs several times, only the first occurrence of the data string is deleted.

`DELETE_LAST_x_CHARS`

Deletes the last *x* characters of the code.

Example: `DELETE_LAST_4_CHARS` deletes the last 4 characters.

`DELETE_ALL_CHARS_BEFORE_abc`

Deletes all characters of the code that appear before an *abc* data string. If there are multiple occurrences of the data 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 the data string *abc*. If there are multiple occurrences of the data string, all characters after the first occurrence are deleted.

`INSERT_abc_AT_POSITION_x`

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

`INSERT_abc_AFTER_def`

Adds the data string *abc* to the data string *def*. If the data string *def* appears several times, the data string *abc* is appended to the first occurrence. If the data string *def* does not appear, no characters are appended.

`APPEND_STRING_abc`

Appends the data string *abc* to the code.

`IF_GOODREAD_OUTPUT_abc`

Returns the data string *abc* if a code has been read successfully.

`REPLACE_STRING_abc_WITH_def`

Replaces the data string *abc* with the data string *def*. If the data string *abc* occurs multiple times, only the first occurrence is replaced.

`REPLACE_ALL_abc_AFTER_POSITION_x_WITH_def`

Replaces the data string *abc* with data string *def* after position *x*. If the data string *abc* appears after position *x* several times, all occurrences are replaced.

`IF_CODE_CONTAINS_abc_OUTPUT_def`

Returns the data string *def* if the data string *abc* appears in the code. If the data string *abc* appears several times, the data string *def* is returned only once.

`APPEND_FROM_ORIGINAL_ALL_CHARS_AFTER_abc`

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

APPEND\_FROM\_ORIGINAL\_x\_CHARS\_AFTER\_abc

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

### Source Code

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

### Example

In this area, you can test the result by using an example.

### Script Transfer

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.
Delete script from sensor	Deletes the script from the sensor.
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 already 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 associated line.
2. Click on **+** to insert a predefined module in the selected line. You can also insert multiple commands and combine these with one another.

The screenshot shows the 'Source code' section of the configuration interface. It features a table with columns for 'Codesymbology', 'Prefix read code', 'Prefix current code', and 'Command'. The first row is highlighted in red, indicating an error or incomplete source code. A red arrow points from the 'Command' field of this row to the 'SUBSTRING\_FROM\_POSITION\_x\_ON\_y...' text. Below the table is an 'Example' section with 'Read code' and 'Output' fields. The 'Read code' field contains '123abc456xyz789' and the 'Output' field contains '123abc456xyz789'. At the bottom, there is a 'Script transmission' section with several buttons: 'Send script to sensor', 'Remove script from sensor', 'Save and restart sensor', 'Reset with code', and 'Create reader programming code'.

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

- 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 when the read code begins with a certain data string, input the data string in the **Prefix of read code** column.  
If a command is to be executed only when the current processing result begins with a certain data string, input the data string in **Prefix of current code** column.  
To insert special characters, click on **Insert special characters**.
- 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 screenshot shows the 'Source code' section of the configuration interface. The 'Command' field now contains 'SUBSTRING\_FROM\_POSITION\_3\_ON\_4...' and is highlighted in green, indicating it is valid. A red arrow points from the 'Command' field to the 'Output' field in the 'Example' section. The 'Read code' field still contains '123abc456xyz789' and the 'Output' field now contains 'abc4'. A red box highlights the 'Example' section. The 'Script transmission' section is visible at the bottom.

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



### 4.3.14 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.

Parameters not on default value			
Parametername	Tab	Default value	Current value
Supported keyboard	Sensor settings	US keyboard without leading zero	ASCII universal

**Custom settings**

Reset sensor first

Create control code for custom settings

## 4.4 Configuration with Control Codes

As an alternative to configuration using Vision Configurator, you can configure the handheld reader using control codes. Control codes allow direct configuration without using a PC. To adjust a parameter, scan the appropriate control code using the handheld reader.

### 4.4.1 Operation

The following codes can be used to adjust the settings for operation.

#### Target Detection

Code	Description
<b>Targeting on</b>  M10153_01	Activates the blue bars for indicating the read range.
<b>Targeting off</b>  M10154_01	Deactivates the blue bars for indicating the read range.

#### Feedback

Code	Description
<b>Beep on/vibrate on</b>  M10140_01	Switches audible signals and vibration on.
<b>Beep off/vibrate on</b>  M10141_01	Switches audible signals off and vibration on.
<b>Beep on/vibrate off</b>  M10142_01	Switches audible signals on and vibration off.
<b>Beep off/vibrate off</b>  M10143_01	Switches audible signals and vibration off.
<b>Beep volume 0 %</b>  M10194_01	Sets the volume of the audible signal to 0 %.
<b>Beep volume 33 %</b>  M10195_01	Sets the volume of the audible signal to 33 %.

Code	Description
<b>Beep volume 67 %</b>  M10196_01	Sets the volume of the audible signal to 67 %.
<b>Beep volume 100 %</b>  M10197_01	Sets the volume of the audible signal to 100 %.

#### 4.4.2 Selecting the Read Mode

To improve the speed and reliability of the reading process, the handheld reader can be operated in various read modes. To activate a read mode, read the corresponding code using the handheld reader.



**Note!**

**Auto** read mode is preset as the factory default. We recommend that you use **Auto** read mode and only switch modes if individual codes cannot be read.

Read mode	Description
<b>Auto</b>  M10375_01	For reading needed, printed, or lasered codes at any angle. The lighting is adjusted automatically.
<b>Dark Field, Dot Peen 15-45 Degrees</b>  M10378_01	For reading needed codes at an angle between 15° and 45°. The lighting is adjusted so that codes can be read on a dark surface.
<b>Dark Field, Dot Peen 15-45 Degrees, Laser-Etched 90 Degrees</b>  M10379_01	For reading needed codes at an angle between 15° and 45° and lasered codes at an angle of 90°. The lighting is adjusted so that codes can be read on a dark surface.
<b>Dark Field, Laser-Etched 90 Degrees</b>  M10377_01	For reading lasered codes at an angle of 90°. The lighting is adjusted so that codes can be read on a dark surface.
<b>Diffuse Bright, Dot Peen 90 Degrees</b>  M10382_01	For reading needed codes at an angle of 90°. The lighting is adjusted so that codes can be read on a patterned surface.

Read mode	Description
<b>Diffuse Bright, Dot Peen, Laser-Etched 90 Degrees</b>  M10376_01	For reading needed or lasered codes at an angle of 90°. The lighting is adjusted so that codes can be read on a patterned surface.
<b>Diffuse Bright, Laser-Etched 90 Degrees</b>  M10381_01	For reading lasered codes at an angle of 90°. The lighting is adjusted so that codes can be read on a patterned surface.
<b>Curved Surface, Dot Peen, Laser-Etched 90 Degrees</b>  M10383_01	For reading needed or lasered codes at an angle of 90°. The lighting is adjusted so that codes can be read on a curved surface.
<b>Direct Bright Field</b>  M10380_01	For reading codes printed on paper.

### 4.4.3 Read Operation

The following codes can be used to adjust the settings for the read operation.

#### Reading Displays

Code	Description
<b>Enable cell phone reading enhancement</b>  M10163_01	Optimizes the optical unit on the handheld reader to read from reflective surfaces such as displays.
<b>Disable cell phone reading enhancement</b>  M10162_01	Deactivates optimization for reading reflective surfaces.

### Read Mirrored Codes

Code	Description
<b>Mirroring on</b>  M10125_01	Enables mirrored codes to be read.
<b>Mirroring off</b>  M10124_02	Prevents mirrored codes from being read.

### Continuous Reading

Code	Description
<b>Continuous scan on</b>  M10012_01	Activates continuous reading. If this option is activated, the sensor continuously attempts to read a code without the user having to activate a trigger button.
<b>Continuous scan off</b>  M10011_01	Deactivates continuous reading.
<b>Duplicate scan disabled</b>  M10144_01	Prevents the same code from being read twice directly in succession.
<b>1 sec duplicate scan delay</b>  M10145_01	Prevents the same code from being read twice directly in succession for a period of one second. After the time frame has elapsed, or if another code has been read in the interim, the same code can be read again.
<b>2 sec duplicate scan delay</b>  M10146_01	Prevents the same code from being read twice directly in succession for a period of two seconds. After the time frame has elapsed, or if another code has been read in the interim, the same code can be read again.
<b>3 sec duplicate scan delay</b>  M10147_01	Prevents the same code from being read twice directly in succession for a period of three seconds. After the time frame has elapsed, or if another code has been read in the interim, the same code can be read again.
<b>5 sec duplicate scan delay</b>  M10148_01	Prevents the same code from being read twice directly in succession for a period of five seconds. After the time frame has elapsed, or if another code has been read in the interim, the same code can be read again.

Code	Description
<b>10 sec duplicate scan delay</b>  M10149_01	Prevents the same code from being read twice directly in succession for a period of ten seconds. After the time frame has elapsed, or if another code has been read in the interim, the same code can be read again.
<b>30 sec duplicate scan delay</b>  M10150_01	Prevents the same code from being read twice directly in succession for a period of 30 seconds. After the time frame has elapsed, or if another code has been read in the interim, the same code can be read again.
<b>1 hour duplicate scan delay</b>  M10151_01	Prevents the same code from being read twice directly in succession for a period of one hour. After the time frame has elapsed, or if another code has been read in the interim, the same code can be read again.
<b>1 day duplicate scan delay</b>  M10152_01	Prevents the same code from being read twice directly in succession for a period of one day. After the time frame has elapsed, or if another code has been read in the interim, the same code can be read again.

#### 4.4.4 Data Processing

The following codes can be used to add prefixes or suffixes to read results, or to change all characters to upper case.

##### Prefixes

Code	Description
<b>Prefix AIM IDs on</b>  M10199_01	Activates code type output immediately before the read result. If an additional prefix is applied, the code type will be written between the prefix and the read result.
<b>Prefix AIM IDs off</b>  M10198_01	Deactivates code type output.
<b>Prefix comma</b>  M10127_01	Places a comma in front of the read result.
<b>Prefix space</b>  M10128_01	Places a space in front of the read result.

Code	Description
<b>Prefix TAB (USB connection)</b>  M10129_01	Places a tab character in front of the read result. Use this code when the handheld reader is connected to the PC via the USB interface.
<b>Prefix TAB (RS-232 connection)</b>  M10319_01	Places a tab character in front of the read result. Use this code when the handheld reader is connected to the PC via the RS-232 interface.
<b>Prefix erase/none</b>  M10126_01	Removes all prefixes.

### Suffixes

Code	Description
<b>Suffix comma</b>  M10131_01	Adds a comma to the end of the read result.
<b>Suffix space</b>  M10132_01	Adds a space to the end of the read result.
<b>Suffix enter (USB connection)</b>  M10134_01	Adds an input character to the end of the read result. Use this code when the handheld reader is connected to the PC via the USB interface.
<b>Suffix ENTER (RS-232 connection)</b>  M10322_01	Adds an input character to the end of the read result. Use this code when the handheld reader is connected to the PC via the RS-232 interface.
<b>Suffix TAB (USB connection)</b>  M10133_01	Adds a tab character to the end of the read result. Use this code when the handheld reader is connected to the PC via the USB interface.

Code	Description
<b>Suffix TAB (RS-232 connection)</b>  M10323_01	Adds a tab character to the end of the read result. Use this code when the handheld reader is connected to the PC via the RS-232 interface.
<b>Suffix erase/none</b>  M10130_01	Removes all suffixes.

#### Clearing Prefixes and Suffixes

Code	Description
<b>Erase all prefix and suffix data</b>  M10135_01	Clears all prefixes and suffixes.

#### Changing Read Results to Upper Case

Code	Description
<b>Enable translate all characters to uppercase</b>  M10220_03	Changes all characters to uppercase.
<b>Disable translate all characters to uppercase</b>  M10426_02	Outputs the characters exactly as they appear in the code.

#### 4.4.5 Data Transfer

The following codes can be used to adjust the settings for data transfer.

##### Bidirectional Connection

Code	Description
<b>Reader text commands on</b>  M10137_01	Facilitates a bidirectional connection to the handheld reader, which allows commands to be sent to the handheld reader via the serial interface. For example, this allows a signal indicating that a value has been successfully recorded by an ERP system to be transferred to the handheld reader.
<b>Reader text commands off</b>  M10136_01	Deactivates the bidirectional connection via the serial interface.

##### RS-232 Connection

Code	Description
<b>RS-232 raw mode</b>  M10387_01	Activates raw mode for data transfer.
<b>RS-232 packet mode</b>  M10388_01	Activates packet mode for data transfer.
<b>RS-232 interface, 7 data bits</b>  M10390_01	Activates the use of 7 data bits.
<b>RS-232 interface, 8 data bits</b>  M10391_01	Activates the use of 8 data bits.
<b>RS-232 interface, baud rate: 1200</b>  M10392_01	Sets the baud rate for the RS-232 connection to 1200.
<b>RS-232 interface, baud rate: 2400</b>  M10393_01	Sets the baud rate for the RS-232 connection to 2400.

Code	Description
<b>RS-232 interface, baud rate: 4800</b>  M10394_01	Sets the baud rate for the RS-232 connection to 4800.
<b>RS-232 interface, baud rate: 9600</b>  M10395_01	Sets the baud rate for the RS-232 connection to 9600.
<b>RS-232 interface, baud rate: 19,200</b>  M10396_01	Sets the baud rate for the RS-232 connection to 19,200.
<b>RS-232 interface, baud rate: 38,400</b>  M10397_01	Sets the baud rate for the RS-232 connection to 38,400.
<b>RS-232 interface, baud rate: 57,600</b>  M10398_01	Sets the baud rate for the RS-232 connection to 57,600.
<b>RS-232 interface, baud rate: 115,200</b>  M10399_01	Sets the baud rate for the RS-232 connection to 115,200.
<b>RS-232 interface, even parity</b>  M10400_01	Activates the transfer of an even parity count.
<b>RS-232 interface, odd parity</b>  M10401_01	Activates the transfer of an odd parity count.
<b>RS-232 interface, no parity</b>  M10402_01	Activates the transfer without a parity count.

#### 4.4.6 Restarting and Clearing

The following codes can be used to configure the device and the device memory.

##### Restarting the Device

Code	Description
<b>Reboot reader</b>  M10296_01	Restarts the handheld reader.

##### Resetting the Device to Factory Settings

Code	Description
<b>Reset to USB factory defaults</b>  M10002_02	Resets the handheld reader to factory settings and restarts the handheld reader. Use this code when the handheld reader is connected to the PC via the USB interface.
<b>Reset to RS-232 factory defaults</b>  M10389_02	Resets the handheld reader to factory settings and restarts the handheld reader. Use this code when the handheld reader is connected to the PC via the RS-232 interface.

##### Deleting the Memory and Scripts

Code	Description
<b>Clear all stored data and images</b>  M10138_02	Deletes all read results and recordings stored on the handheld reader.
<b>Clear all JavaScript rules</b>  M10139_01	Deletes all scripts saved on the handheld reader.



### 4.4.7 Code Types

The following codes can be used to define which code types the handheld reader should read.

Different code types are supported depending on the handheld reader and firmware version. Settings marked with a \* are preset at the factory.



**Tip**

Deactivate all code types that are not required and activate only the code types that you wish to read. This increases the evaluation speed and prevents a code type such as Codablock being mistakenly interpreted as another code type, such as Code 128.

**A**

Australian Post			
<p>On</p>  <p>M10288_02</p>	<p>Off *</p>  <p>M10289_02</p>		
Aztec			
<p>On *</p>  <p>M10018_01</p>	<p>Off</p>  <p>M10019_01</p>	<p>Inverted (light on a dark background)</p> <p>On</p>  <p>M10020_01</p>	<p>Inverted (light on a dark background) and normal</p> <p>On</p>  <p>M10021_01</p>

**C**

Codabar			
<p>On *</p>  <p>M10022_01</p>	<p>Off</p>  <p>M10023_01</p>		
Codablock F			
<p>On</p>  <p>M10027_01</p>	<p>Off *</p>  <p>M10026_01</p>		
Code 11			
<p>On</p>  <p>M10029_01</p>	<p>Off *</p>  <p>M10028_01</p>	<p>Without output of checksum</p> <p>On</p>  <p>M10031_01</p>	
Code 32 (Italian Pharmacode)			
<p>On</p>  <p>M10239_02</p>	<p>Off *</p>  <p>M10238_02</p>		
Code 39			

<p>On *</p>  <p>M10033_02</p>	<p>Off</p>  <p>M10034_02</p>	<p>Only codes with checksum On</p>  <p>M10036_01</p>	<p>Only codes with checksum Off *</p>  <p>M10035_01</p>
<p>Without output of checksum On</p>  <p>M10037_01</p>			
<b>Code 39 Extended</b>			
<p>Decoding with full ASCII character set On</p>  <p>M10039_01</p>	<p>Decoding with full ASCII character set Off *</p>  <p>M10038_01</p>		
<b>Code 49</b>			
<p>On</p>  <p>M10458_01</p>	<p>Off *</p>  <p>M10459_01</p>		
<b>Code 93</b>			
<p>On *</p>  <p>M10042_01</p>	<p>Off</p>  <p>M10043_01</p>		
<b>Code 128</b>			
<p>On *</p>  <p>M10044_01</p>	<p>Off</p>  <p>M10045_01</p>		
<b>Composite</b>			
<p>On</p>  <p>M10047_01</p>	<p>Off *</p>  <p>M10046_01</p>		

**D**

<b>Data Matrix</b>			
<p>Reading of standard Data Matrix codes is always enabled and cannot be disabled.</p>	<p>Inverted (light on a dark background) On *</p>  <p>M10051_03</p>	<p>Inverted (light on a dark background) Off</p>  <p>M10050_03</p>	



**E**

<b>EAN-8</b>			
Check digit output On *  M10485_01	Check digit output Off  M10486_01	Convert EAN-8 to EAN-13 On  M10488_01	Convert EAN-8 to EAN-13 Off *  M10487_01
<b>EAN-13</b>			
Check digit output On *  M10483_01	Check digit output Off  M10484_01	Convert Bookland EAN-13 to ISBN On  M10492_01	Convert Bookland EAN-13 to ISBN Off *  M10491_01
Convert Bookland EAN-13 to ISSN On  M10494_01	Convert Bookland EAN-13 to ISSN Off *  M10493_01		
For other settings, see <b>UPC (Universal Product Code)</b> .			

**G**

<b>GS1 DataBar</b>			
All On *  M10054_01	All Off  M10055_01	Omnidirectional and truncated On  M10057_03	Omnidirectional and truncated Off  M10355_02
Stacked and omnidirectional On  M10058_03	Stacked and omnidirectional Off  M10353_03		
<b>GS1 DataBar Expanded</b>			
On  M10059_03	Off  M10417_02	Stacked On  M10357_02	Stacked Off  M10356_02
<b>GS1 DataBar Limited</b>			
On  M10056_03	Off  M10354_02		

H

<b>Han Xin</b>			
On  M10248_01	Off *  M10249_01		
<b>Hong Kong 2 of 5</b>			
On  M10079_01	Off *  M10078_02		

I

<b>Int 2 of 5</b>			
On *  M10060_01	Off  M10061_01	Only codes with checksum On  M10235_01	Only codes with checksum Off *  M10234_01
Without output of checksum On  M10065_01			

J

<b>Japan Post</b>			
On  M10292_02	Off *  M10293_02		

K

<b>KIX Code (Dutch Post)</b>			
On  M10290_02	Off *  M10291_02		
<b>Korean Post</b>			
On  M10358_01	Off *  M10359_01		



**M**

<b>Maxicode</b>			
On  M10067_02	Off *  M10066_01		
<b>Matrix 2 of 5</b>			
On  M10069_01	Off *  M10068_01		
<b>Micro PDF417</b>			
On  M10073_01	Off *  M10072_01		
<b>MSI Plessey</b>			
On  M10076_01	Off *  M10077_01		

**N**

<b>NEC 2 of 5</b>			
On  M10082_01	Off *  M10083_01		

**P**

<b>PDF417</b>			
On *  M10070_01	Off  M10071_01		
<b>Pharmacode</b>			
On  M10275_02	Off *  M10274_03	Reading from left to right  M10281_02	Reading from right to left  M10280_02
<b>Plessey</b>			
On  M10237_02	Off *  M10236_02		

**Q**

QR Code			
<p>On *</p>  <p>M10095_03</p>	<p>Off</p>  <p>M10096_02</p>	<p>Normal, inverted (light on a dark background), mirrored, model 1</p> <p>On</p>  <p>M10101_02</p>	<p>Normal, inverted (light on a dark background), mirrored, model 1</p> <p>Off</p>  <p>M10351_03</p>

**R**

RM4SCC (Royal Mail)			
<p>On</p>  <p>M10294_02</p>	<p>Off *</p>  <p>M10295_02</p>		

**S**

Straight 2 of 5			
<p>On</p>  <p>M10241_01</p>	<p>Off *</p>  <p>M10240_01</p>		

**T**

Telepen			
<p>On</p>  <p>M10103_01</p>	<p>Off *</p>  <p>M10104_01</p>		
Trioptic			
<p>On</p>  <p>M10041_01</p>	<p>Off *</p>  <p>M10040_01</p>	<p>Reverse order of code halves</p> <p>On</p>  <p>M10446_01</p>	<p>Reverse order of code halves</p> <p>Off</p>  <p>M10445_01</p>

**U**

UPC (Universal Product Code)			
<p>UPC-A, UPC-E, EAN-8, EAN-13</p> <p>On *</p>  <p>M10105_01</p>	<p>UPC-A, UPC-E, EAN-8, EAN-13</p> <p>Off</p>  <p>M10106_01</p>	<p>Convert UPC-E to UPC-A</p> <p>On</p>  <p>M10108_01</p>	<p>Convert UPC-E to UPC-A</p> <p>Off *</p>  <p>M10107_01</p>



<p>UPC-A numbering system output On *</p>  <p>M10477_01</p>	<p>UPC-A numbering system output Off</p>  <p>M10478_01</p>	<p>UPC-A check digit output On *</p>  <p>M10475_01</p>	<p>UPC-A check digit output Off</p>  <p>M10476_01</p>
<p>UPC-E numbering system output On *</p>  <p>M10481_01</p>	<p>UPC-E numbering system output Off</p>  <p>M10482_01</p>	<p>UPC-E check digit output On *</p>  <p>M10479_01</p>	<p>UPC-E check digit output Off</p>  <p>M10480_01</p>
<p>Convert UPC-A to EAN-13 On</p>  <p>M10490_01</p>	<p>Convert UPC-A to EAN-13 Off *</p>  <p>M10489_01</p>	<p>Output of UPC-2- and UPC-5- additional codes On</p>  <p>M10110_01</p>	<p>Output of UPC-2- and UPC-5- additional codes Off *</p>  <p>M10109_01</p>
<p>For other settings, see <b>EAN-8</b> and <b>EAN-13</b>.</p>			
<p><b>UPU ID tag (Universal Postal Union)</b></p>			
<p>On</p>  <p>M10360_02</p>	<p>Off</p>  <p>M10361_02</p>		
<p><b>USPS Intelligent Mail</b></p>			
<p>On</p>  <p>M10286_02</p>	<p>Off</p>  <p>M10287_02</p>		
<p><b>USPS Planet</b></p>			
<p>On</p>  <p>M10284_02</p>	<p>Off</p>  <p>M10285_02</p>		
<p><b>USPS Postnet</b></p>			
<p>On</p>  <p>M10282_02</p>	<p>Off</p>  <p>M10283_02</p>		

## 4.5 Reading Firmware Version and Serial Number

To read the handheld reader's firmware version and serial number, scan the following code using the handheld reader.



M10157\_01

The read result is in the following format:

Xap/iVVVVWWWXXXXSSSSSSSSSAOODYYYYHHIIIJJJKKKLLLL<TAB>Z...Z

Abbreviation	Description
i	Internal ID
VVVV	Version number of application firmware
WWW	Version number of bootloader firmware
XXXX	Version number of Bluetooth firmware
SSSSSSSSSS	Serial number of the handheld reader
A	Current execution state A: processor is running B: undefined state C: undefined state
OO	OEM name
D	Display type 0 or N: no display D: standard display
YYYY	Version number of the flash memory
HH	Version number of the hardware revision
IIII	Hardware type designation
JJJJ	Version number of the boot application
KKKK	Version number of the operating system kernel
LLLL	Version number of the root file system
<TAB>	Tab characters
Z...Z	Version number of the OEM decoder

## 5 Operation

### 5.1 Reading Codes

The handheld reader reads both very small 2-D codes (e.g., Data Matrix codes) and larger 1-D codes (e.g., barcodes).



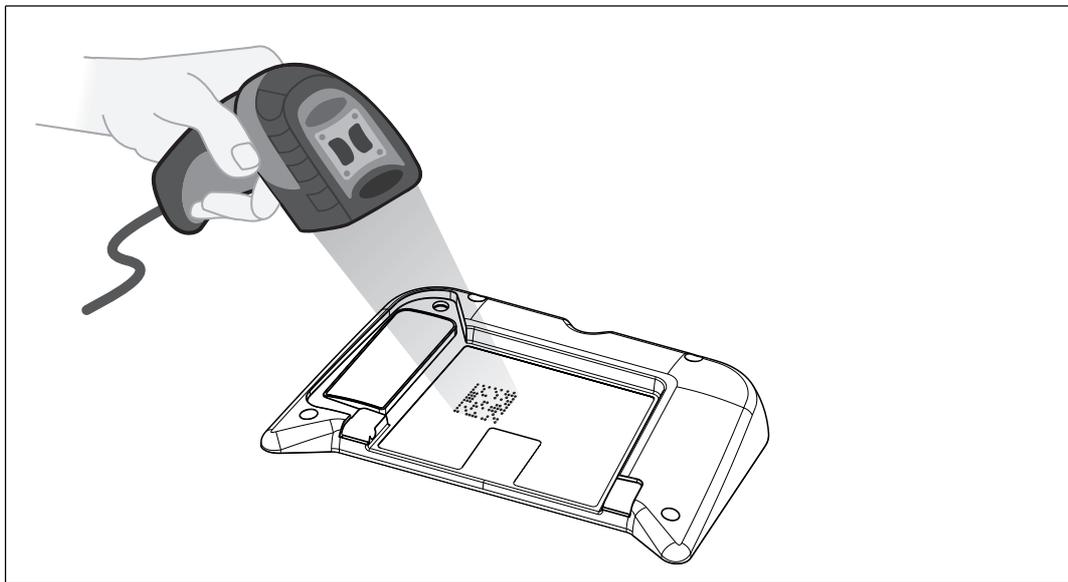
#### **Tip**

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



#### **Reading Codes**

1. Hold the handheld reader so that the contrast between the code and surface is as high as possible. A reading angle of between 45° and 90° is optimal, depending on whether the code has been etched, laser-engraved, or printed on the surface. The reading distance is approximately 25 mm or greater, depending on the code type and code size.



2. Press the trigger button.

↳ If the reading process is successful, the function indicator on the handheld reader will briefly light up green. When activated, an audible signal is emitted and the handheld reader will vibrate.

3. If the code is not recognized, change the reading angle or the reading distance and press the trigger button again.

## 6 Maintenance

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

Observe the following instructions when cleaning:

- 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 fluids.
- Do not use a scouring agent to clean the surface of the device.
- Use a cotton or paper cloth moistened with water or isopropyl alcohol (not soaked).
- Remove any residual alcohol using a cotton or paper cloth moistened with distilled water (not soaked).
- Wipe the device surfaces dry using a lint-free cloth.

7

## Troubleshooting



**Note!**

The device must not be repaired, changed or manipulated.

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

**Fault Repair**

Fault	Possible Cause	Remedy
Codes could not 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 away from the code, until the height of the blue bars roughly corresponds to the height of the code. See chapter 5.1
	The code is positioned on a reflective or patterned surface.	Change the read mode. See chapter 4.4.2
	Reading of the code type is deactivated.	Activate the code type using Vision Configurator (see chapter 4.3.7, see chapter 4.3.8) or the relevant control code (see chapter 4.4.7).
The read result is not being transferred.	The handheld reader is not in keyboard mode.	Activate keyboard mode. See chapter 4.1.1
The read result is incorrect.	The handheld reader is using the wrong keyboard layout.	Change the keyboard layout for the current operating mode. See chapter 4.1.3
	The code type is incorrectly interpreted as another code type.	Use the <b>Test statistics</b> area in Vision Configurator to determine which code type the code is being read as (see chapter 4.3.4). Deactivate all code types that are not needed using Vision Configurator (see chapter 4.3.7, see chapter 4.3.8) or the relevant control code (see chapter 4.4.7).
	The read result is altered by a script, code type details, a prefix, or a suffix.	Use the <b>Parameter</b> area in Vision Configurator to check the settings for <b>Read result</b> (see chapter 4.3.12) and <b>Script</b> (see chapter 4.3.13).
The connection to Vision Configurator cannot be established.	The handheld reader is not in configuration mode.	Activate configuration mode. See chapter 4.1.2
Some settings will be lost when the device is switched off and on again.	The altered settings have not been saved.	Change the settings again and then read the following code to save the settings manually.  M10159_01



## Hardware Reset

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

1. Disconnect the handheld reader from the PC.
2. Press and hold the trigger button on the handheld reader.
3. Connect the handheld reader to the PC.
4. After approx. ten seconds, five audible signals will sound. Then release the trigger button.
  - ↳ The function indicator on the handheld reader will flash green.
5. Press and hold the trigger button on the handheld reader again.
6. After around five seconds, one audible signal will sound. Then release the trigger button.
  - ↳ The handheld reader has now been restored to its default settings.

# FACTORY AUTOMATION – SENSING YOUR NEEDS



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