

MANUAL

ODT-HH-MAH120
HANDHELD





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

Congratulations

You have chosen a device manufactured by Pepperl+Fuchs. Pepperl+Fuchs develops, produces and distributes electronic sensors and interface modules for the market of automation technology on a worldwide scale.

The most important instructions can be found in the following chapters:

- Cable connection: see chapter 5.3
- Basic operation: see chapter 6.1
- Optimizing the handheld: see chapter 7

1.1 Warranty

The device has a limited warranty of 24 months.

Limited warranty

Pepperl+Fuchs manufactures its hardware products in accordance with state-of-the-art industry standards. Pepperl+Fuchs warrants that its products are free of material and processing faults, provided that the products are used under the normal operating conditions specified by the manufacturer. The warranty shall apply only to the original owner and is not transferable to third parties. All associated exclusions of liability, limitations and other conditions in this section shall apply to the warranty.

Warranty conditions

For products with serial numbers (e.g. devices in the ODT-HH-MAH* product range), warranty shall be given for 24 months from the date of delivery. A limited warranty of 180 days shall apply to wear products and accessories with a date code (e.g. batteries). A limited guarantee of 90 days shall apply to products without a serial number (e.g. optionally available handles and connection cables).

Exclusion of liability

The warranty shall not apply to products that:

- have been repaired, modified or manipulated unless carried out or expressly authorized by Pepperl+Fuchs,
- have not been maintained in accordance with the operating and handling instructions supplied by Pepperl+Fuchs,
- have been exposed to abnormal physical or electrical loads, immersed in liquids, or have been subject to one of the following:
 - breakdown,
 - crushing,
 - incorrect use,
 - abuse,
 - power shortage,
 - unsuitable voltage supply,
 - incorrect polarity,
 - negligence or accident
- have been used for a purpose other than that described in the operating and handling instructions.

Preventive maintenance is the responsibility of the customer and shall not be covered by this warranty.

General

With the exception of the above-mentioned guarantees, Pepperl+Fuchs shall not accept guarantees of any kind for products supplied hereunder, neither of an explicit nor implicit nature, including, but not restricted to, implicit warranties for defects and guarantees of suitability for a special purpose and non-infringement of third-party rights.

The above-named explicit guarantees replace all obligations and liabilities on the part of Pepperl+Fuchs with regard to damage, including, but not limited to, special, indirect or consequential damage in conjunction with the use or design of the product. The liability of the seller to the buyer and other persons (irrespective of the reason for liability, whether contract, warranty, impermissible activity, abuse and/or other causes) in conjunction with the use of a product shall, under no circumstances, exceed the original purchase price of the product. Under no circumstances shall Pepperl+Fuchs be liable for consequential damage, special and indirect damage, collateral damage or fines or lost profits, turnover or data loss, even if Pepperl+Fuchs has been informed of this possibility in writing.

2 Declaration of Conformity

This product has been developed and manufactured in accordance with applicable European standards and directives.



Note!

A Declaration of Conformity can be requested from the manufacturer.

The manufacturer of this product, Pepperl+Fuchs GmbH, in D-68307 Mannheim, Germany, has a certified quality management system in accordance with ISO 9001.



3 Safety

3.1 Used Symbols

Safety-relevant Symbols



Danger!

This symbol indicates a warning about a possible danger.

In the event the warning is ignored, the consequences may range from personal injury to death.



Warning!

This symbol indicates a warning about a possible fault or danger.

In the event the warning is ignored, the consequences may course personal injury or heaviest property damage.



Caution!

This symbol warns of a possible fault.

Failure to observe the instructions given in this warning may result in the devices and any connected facilities or systems develop a fault or fail completely.

Informative Symbols



Note!

This symbol brings important information to your attention.



Action

This symbol marks an acting paragraph.

3.2 Intended use

Operating the Handheld in a way different from that described in these instructions may have a negative effect on the reliability and function of the device and connected systems. Protection of operating personnel and the overall system is no longer guaranteed if the device is not used as specified.

The handheld was designed for identifying 1D and 2D codes and should be used for this purpose only. The handheld is flexible and can therefore be used to decode codes in many branches of industry, such as the logistics sector.

3.3 General notes on safety

The operator of the system is responsible in terms of planning, mounting, commissioning, operating and maintenance.

Installation and commissioning of all devices must be performed by a trained professional only.

Protection of operating personnel and the system is not ensured if the product is not used in accordance with its intended purpose.

Only use recommended original accessories.

Independent interventions and separate modifications are dangerous and will void the warranty and exclude the manufacturer from any liability. If serious faults occur, stop using the device. Secure the device against inadvertent operation. In the event of repairs, send the device to Pepperl+Fuchs.

When packing the device for storage or transport, use materials that will protect the device from bumps and impacts and protect against moisture. The original packaging provides the best protection. Also take into account the permitted ambient conditions.

4 Product description

4.1 ODT-HH-MAH120 - use and application

The ODT-HH-MAH120 is a robust and inexpensive handheld for all standard bar codes and 2D codes. The Megapixel-CMOS image sensor facilitates in conjunction with the specially developed optical system an extremely large reading range, relating to both the reading distance and the image window. Thus the reading range begins already at 2 cm and ends at approx. 25 cm, depending on the size of the code or the modules. Thanks to automatic dynamic optimization, the handheld recognizes the most varied codings and enables you to work efficiently. A target projection distinguished by color in the form of a sectional image is used as an aid to orientation; this projection helps to support optimum guidance during visual positioning. Using the handheld under difficult ambient conditions is made easier by the sturdy design of the MAH120, which can withstand a fall from a height of 2 m onto a solid floor/ground without its functions being impaired. Confirmation of a successful reading is effected by optical, acoustic or tactile means (vibration). USB, PS/2 or RS 232 is available as the standard interface, depending on which connecting cable you choose. You can program the ODT-HH-MAH120 handheld using convenient programs or configuration code. There is also an additional option of creating customer-specific solutions with a JavaScript editor. Furthermore, the Linux core of the operating system opens up still further options.

4.2 Field of view and resolution

The handheld has an innovative field of view. You have the opportunity to modify this field of view according to your requirements. Three modes are available for this purpose:

1. **DOT mode (Dynamic Optimization Technology):** This technology allows you to switch dynamically between SXGA and VGA modes and thus adapts the resolution, the lighting and the reading ranges automatically to the requirements of the scan environment. In DOT mode the handheld, when reading 2D code, achieves similar reading speeds that are typical of 1D handhelds. DOT mode is best suited to recording codes of different symbolologies in different sizes. DOT mode is active on delivery.
2. **SXGA mode:** In SXGA mode the handheld uses a resolution of 1280 x 1024 pixels and thereby achieves a broad reading spectrum for one- and two-dimensional codes of all information densities. In SXGA mode the handheld requires more time to recognize the codes on account of the size of the data to be processed. You have the opportunity to reduce this time by means of optimization functions (see chapter 7.3):
 - By adapting the resolution
 - By reducing the focus range ("windowing")
3. **VGA mode:** In VGA mode the handheld uses a lower resolution. Less time is required to record an image, to complete internal processing and to decode the code thanks to the very good compression algorithm in VGA mode. However, the focus range of the handheld is smaller in VGA mode.

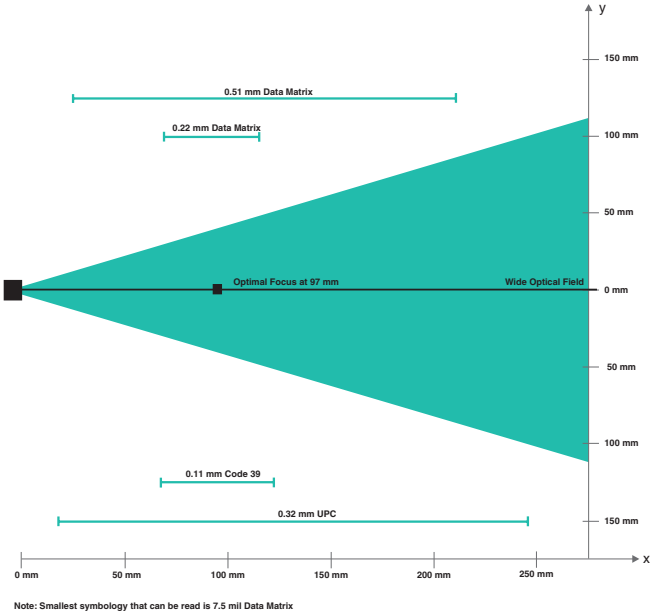


Figure 4.1: Field of vision of ODT-HH-MAH120 handheld

4.3 Indicators and control elements



- 1 Status LED
- 2 Camera, lighting LEDs
- 3 Trigger button
- 4 8-pin connecting jack

Reading Confirmation from handheld

The following table contains all the confirmation indicators which are communicated by the handheld by means of LED, tactile and acoustic signals.

Action	Tactile/acoustic signal	LED
handheld successfully switched on	1 signal tone/vibration	Flashes yellow, green, yellow
Connection using USB connecting cable successful	1 signal tone/vibration	-
Reading successful, data have been sent to the computer	1 signal tone/vibration	Flashes green
Configuration code successfully read, configuration performed	1 signal tone/vibration Short pause 1 signal tone/vibration	Flashes green
Unknown configuration code, configuration not performed	1 short signal tone/vibration Short pause 1 short signal tone/vibration	Flashes green

4.4 Accessories

Several accessories are available.

4.4.1 Connecting cable

The following connecting cables are available as an option:

Designation	Description
ODZ-MAH-CAB-B14	Connecting cable USB interface, length approx. 180 cm
ODZ-MAH-CAB-R2	Connecting cable RS 232 interface, length approx. 120 cm
ODZ-MAH-CAB-R6	Connecting cable PS/2 interface, length approx. 120 cm

5 Installation

5.1 Storage and transport

For storage and transport purposes, package the unit using shockproof packaging material and protect it against moisture. The best method of protection is to package the unit using the original packaging. Furthermore, ensure that the ambient conditions are within allowable range.

5.2 Preparation



Unpacking the unit

1. Check that all package contents are present and undamaged.
If anything is damaged, inform the shipper and contact the supplier.
2. Check that all items are present and correct based on your order and the shipping documents.
If you have any questions, please contact Pepperl+Fuchs.
3. Keep the original packing material in case you need to store or ship the unit at a later time.

5.3 Connection

You have the opportunity to connect the handheld to the following PC interfaces:

- USB
- RS232
- PS/2

The handheld is ready for immediate use once you have connected it to the computer.



Attaching the connecting cable to the handheld

1. Slide the protective cap over the 8-pin DIN plug.



2. Attach the spacer disk to the 8-pin DIN plug.



When the spacer disk snaps onto the DIN plug, it is attached correctly.

3. Align the 8-pin plug so that it fits into the socket on the handheld.



4. Press the 8-pin DIN plug, including spacer disk and protective cap, onto the socket.



5. Use a screwdriver and the screws provided to fasten the protective cap onto the bottom of the handle.



5.3.1 Connection via USB



Connecting USB connecting cable to computer

1. Insert the USB plug of the connecting cable in a free USB port on your computer. This can be done during operation.

The handheld turns itself on automatically once you have connected it to the computer.

2. Scan the code **USB Keyboard Mode**:



M134_02

3. Scan the code **Save Settings**:



Further USB configuration options, see chapter 7.4.1.

5.3.2 Connection via RS 232



Connecting RS 232 connecting cable to computer

1. Turn the computer off.
2. Connect the RS 232 plug of the connecting cable to the RS 232 port of the computer.
3. Connect the low-voltage plug of the power-supply unit to the low-voltage jack of the RS 232 connecting cable.
4. Connect the mains power plug of the power-supply unit to the mains power supply.
5. Turn the computer on.
The handheld turns itself on automatically once you have turned the computer on.
6. Scan the code **RS232 1 Way Mode**:



7. Scan the code **Save Settings**:



The handheld uses the following RS 232 factory settings:

- RS232 1 Way Mode
- 57600 baud
- 2 stop bits
- 8 data bits
- No parity

Further RS232 configuration options, see chapter 7.4.2.

5.3.3 Connection via PS/2



Connecting PS/2 connecting cable to computer

1. Turn the computer off.
2. Disconnect the connection to the computer if an external keyboard is connected to the computer.
3. If you are using a USB keyboard, connect the keyboard with an appropriate adapter to the PS/2 connecting jack of the connecting cable. If you are using a keyboard with PS/2 plug, connect the plug directly to the PS/2 connecting jack of the connecting cable.
4. Connect the PS/2 plug of the connecting cable to the computer's PS/2 port for keyboards.
5. Turn the computer on.

The handheld turns itself on automatically once you have turn the computer on.

6. Scan the code **PS/2 Mode**:



M126_01

7. Scan the code **Save Settings**:



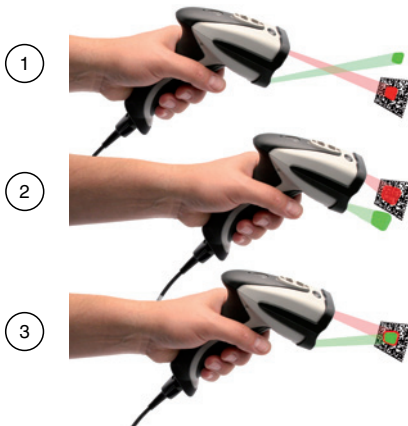
M188_02

6 Commissioning

6.1 Positioning and reading techniques

This handheld uses digital camera technology to record an image of the code to be read. After an image has been recorded, the handheld uses highly developed evaluation procedures to evaluate the data contained in the recording.

This handheld supports you with target projections in the form of two squares distinguished by color when codes are sighted and focused. This projection is realized by one red and one green LED on the handheld. Precise positioning becomes increasingly important in the case of small codes or codes with a high information density.



- 1 Handheld too far away from the code
- 2 Handheld positioned too close to the code
- 3 Handheld optimally positioned (optimum distance: 9.7 cm)



Sighting and reading 1D and 2D codes

1. With the trigger button pressed, aim the red square at the code to be read.
2. Alter the distance between the handheld and the code, depending on the position of the green square: the code is optimally sighted as soon as the two squares overlap.

The code is read automatically. In the event of successful decoding, the acoustic and tactile signal sounds and the status LED flashes green once (depending on the configuration of the handheld).






7 Optimizing the handheld

7.1 Factory defaults



Resetting the handheld to factory defaults

To reset the handheld to the factory defaults of the operating mode, scan the appropriate code.

Operating mode	Code
USB	 M049_03
RS232	 M418_02
PS/2	 M060_03

7.2 Programming different code symbologies

7.2.1 Aztec

Aztec on



Aztec off (default)



Example:



7.2.2 Codabar

Codabar on (default)



Codabar off



Example:



7.2.3 Codablock F

Codablock F - on



Codablock F - off (default)



Example:





7.2.4 Code 11

Code 11 on (default)



M394_01

Code 11 Checksum 1 digit



M395_01

Code 11 Checksum 1 digit &
Strip from result



M397_01

Code 11 Checksum 2 digit &
Strip from Result



M396_01

Code 11 off



M393_01

Example:



7.2.5 Code 39

Code 39 on (default)



Code 39 Enable Checksum



Disable Checksum (default)



Code 39 Enable Checksum & Strip from result



Code 39 Extended Full ASCII on



Code 39 Extended Full ASCII Off (default)



Code 39 Short Margin On



Code 39 Short Margin Off (default)



Code 39 Trioptic On



Code 39 Trioptic Off



Code 39 off



Example Code 39:



Example Trioptic Code 39:





7.2.6 Code 93

Code 39 on (default)



M281_02

Code 93 off



M280_01

Example:



123456789

7.2.7 Code 128

Code 128 on (default)



M283_01

Code 128 Short Margin On



M392_01

Code 128 Short Margin Off (default)



M391_01

Code 128 off



M282_01

Example:



12345678912345

7.2.8 Composite

Composite on



M285_02

Composite off (default)



M284_02

7.2.9 Data Matrix

Data Matrix Rectangle On



Data Matrix Rectangle Off (default)



Data Matrix Inverse On



Data Matrix Inverse Off (default)



Exempl: Data Matrix:



Example Data Matrix Rectangle:



7.2.10 GoCode

GoCode is a two-dimensional symbol in miniature format. GoCode has been developed so that it fits in a text line and has a multidimensionally adaptable matrix pattern that can be reproduced on practically any surface. GoCode is proprietary symbology and can be used following acquisition of a runtime license. GoCode has many significant advantages over conventional linear barcodes and 2-D symbols. Further information on the advantages of proprietary symbology can be obtained from Pepperl+Fuchs.





7.2.11 Interleaved 2 of 5

Int 2 of 5 On (default)



M244_01

Int 2 of 5 Off



M243_01

Int 2 of 5 Two Digits On



M246_01

Int 2 of 5 Two Digits Off



M245_02

Int 2 of 5 Four Digits On



M248_01

Int 2 of 5 Four Digits Off



M247_01

Example:



123456789

7.2.12 Maxicode

Maxicode on



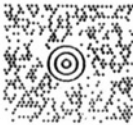
M289_04

Maxicode off



M288_01

Example:



7.2.13 Matrix 2 of 5

Matrix 2 of 5 on (default)



Matrix 2 of 5 off



Example:



7.2.14 Micro PDF417

Micro PDF417 on



Micro PDF417 off (default)



Example:



7.2.15 MSI Plessey

MSI Plessey on



MSI Plessey off (default)



Example:





7.2.16 NEC 2 of 5

NEC 2 of 5 on



M673_01

NEC 2 of 5 off (default)



M672_01

7.2.17 PDF417

PDF417 on (default)



M293_01

PDF417 Off



M292_01

Macro PDF 417 On



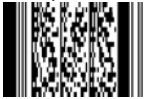
M287_01

Macro PDF 417 Off (default)



M286_01

Example:



7.2.18 Pharmacode

An explanation of the Pharmacode settings and all programming codes can be obtained from Pepperl+Fuchs.

7.2.19 Post Codes

All post codes (zipcodes) are deactivated as standard. Scan the following codes to activate the corresponding post symbology.



Note!

If you wish to change the activated symbologies, first scan the code **Disable all Postal Codes** and then the post codes for the desired symbology.

Australian Post on



Japan Post on



KIX



Planet on



Postnet on



Planet & Postnet on



Royal Mail on



Disable all postal codes



Example:





7.2.20 QR Code

QR Code On



M261_01

QR Code Off (default)



M260_01

Enable Checksum



M265_01

Disable Checksum (default)



M264_01

QR Code Inverse On



M262_01

Both Inverse and Standard On



M263_01

All QR On (includes Micro QR)



M609_03

Inverse QR and Micro QR On



M687_03

Example QR Code:



Example Micro QR:



7.2.21 RSS

RSS Limited On



RSS 14 and RSS 14 Truncated
On



RSS 14 Stacked On



RSS Expanded On



All RSS On



All RSS Off (default)



Example RSS Limited Code:



Example RSS 14 Code:



Example RSS 14 Truncated Code:



Example RSS 14 Stacked Code:



7.2.22 Telepen

Telepen On (default)



Telepen Off



Example:





7.2.23 UPC/EAN/JAN

UPC On (default)



M295_01

UPC Off



M294_01

UPC Short Margin Enabled



M299_01

UPC Short Margin Disabled
(Default)



M298_01

UPC Extension On



M297_01

UPC Extension Off



M296_01

Example:



7.3 Optimization of the decoding performance




7.3.1 Optimization of reading speed: resolution

In SXGA mode the handheld needs more time to identify the codes on account of the size of the data to be processed. You have the opportunity to reduce the resolution of the SXGA mode (1280 x 1024) to 640 x 480 (VGA mode). This drastically reduces the data volume to enable codes to be read more quickly by the handheld.



Adapting resolution

Scan one of the following codes to set the corresponding resolution.

Mode	Structure of code	Data matrix code
SXGA	Suitable for: 2D codes Information density: high Size of code: small	 M730_01
VGA	Suitable for: 1D/2D code Information density: low to medium Size of code: large	 M731_01
Wide-Field DOT (default)	Suitable for: 1D/2D code Information density: low to high Size of code: small to large	 M729_02

7.3.2 Optimization of the reading speed: windowing

In SXGA mode, the handheld needs more time to detect the codes due to the quantity of the processed data. You have the option of using presets to optimize the reading speed of the handheld or adapting the resolution.

Furthermore, you have the option of optimizing the reading speed by windowing (adapting the reading area to the code to be read).

1D codes

When windowing for 1D codes of invariable size, the handheld focus is reduced to a reading area of 200x1024 pixels.

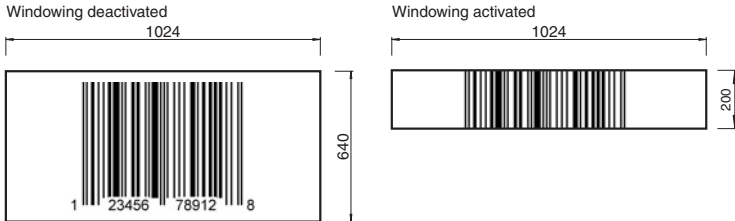


Figure 7.1: Effect of 1D windowing

The handheld must detect a narrow, horizontal strip to decode the 1D codes correctly. The area above and below the 200 pixels is ignored, reducing the data volume of the processed data and enabling the handheld to read the codes faster.



Activating 1D windowing



Note!

Activating 1D windowing may cause problems when other codes are read. If necessary, increase the distance between the handheld and the code you wish to read.

To activate 1D windowing, scan the code **1D Codes ONLY (200 x 1024 pixels)**:



2D codes

When windowing for 2D codes of invariable size, the handheld focus is reduced to a reading area of either 640 x 640, 512 x 512 or 480 x 480 pixels.

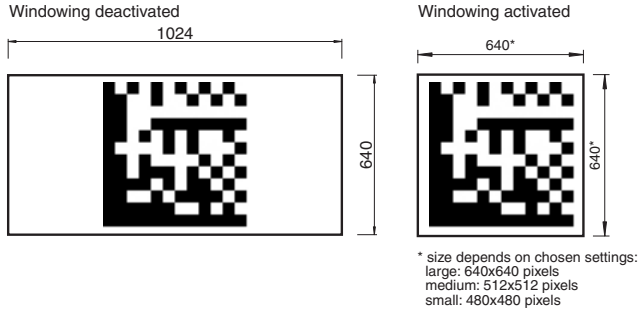


Figure 7.2: Effect of 2D windowing

Downsizing the reading area reduces the data volume of the processed data and enables the handheld to read the codes faster.



Activating 2D windowing

1. To activate 2D windowing for a reading area of 640 x 640 pixels, scan the code **Large 2D Codes (640 x 640 pixels)**:



2. To activate 2D windowing for a reading area of 512 x 512 pixels, scan the code **Medium 2D Codes (512 x 512 pixels)**:



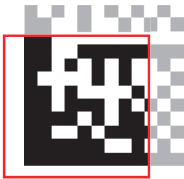
3. To activate 2D windowing for a reading area of 480 x 480 pixels, scan the code **Small 2D Codes (480 x 480 pixels)**:



M210_01

Windowing limits

- Selecting a window of insufficient size has a negative influence of the performance of the handheld and the code may not be read:



- The windowing function is not suitable for detecting codes of different sizes.

7.4 Handheld configuration



Locking handheld to prevent modifications to settings

Once you have adjusted all the necessary settings of the handheld, you have the option of locking the settings to prevent further modifications. To do so, proceed as follows:

1. Scan the code **Reader Settings Locked**:



M429_01

2. To unlock the handheld, scan the code **Reader Settings Unlocked**:



M428_01





7.4.1 USB operating modes



Changing USB operating modes

There are 3 operating modes for USB operation of the handheld.

To change the USB operating mode, scan the relevant code in the following table.

USB Keyboard Mode	
<p>Scan this code to transmit all the scanned data from the handheld to the computer. The data transmitted by the handheld are handled by the computer as data which have been input via a USB keyboard.</p>	 M134_02
USB Downloader	
<p>Scan this code to transmit unformatted, unpacked data via the USB interface to the handheld.</p>	 M133_01
USB Virtual COM 1 Way Mode	
<p>Scan this code to port USB keyboard data to a serial application. You will also need a Virtual Com driver, which can be found at www.pepperl-fuchs.com.</p>	 M668_01
Reset to USB Factory Defaults	
<p>Scan this code to reset the handheld to the USB factory settings.</p>	 M049_03












7.4.2 RS232 operating modes







Changing RS232 communication parameters

Scan the respective code to change the individual RS 232 connection settings (view table "RS232 communication settings" on page 38).

RS232 communication settings

Setting data bit			
7 data bits  M100_01	8 data bits (default)  M101_01		
Setting stop bit			
2 stop bits (default)  M106_01			
Setting baud rate			
1200  M092_01	2400  M093_01	4800  M094_01	9600  M095_01
19200  M096_01	38400  M097_01	57600 (default)  M098_01	115200  M099_01
Setting parity			

Even  M102_01	Odd  M104_01	None  M103_01	
Scan this code to reset the handheld to the RS232 default settings:	 M418_02		

7.4.3 Configuration of LED target projection



Changing LED target projections

To change the LED target projection, scan the relevant code in the following table.

Red target LED on  M732_01	Red target LED off  M733_01
Green target LED on  M734_01	Green target LED off  M735_01











7.4.4 Continuous reading

Apart from the possibility of initiating a reading by pressing the trigger button, you also have the option of using the handheld in continuous mode and taking readings repeatedly. There are several configuration options available.





Configuring continuous reading mode

Scan in the relevant codes in the following table to activate continuous mode and configure continuous reading.

Activating/Deactivating continuous mode		
Activate  M140_01		Deactivate (default)  M141_02
Reading delay		
Defines the time interval between individual readings		
0 seconds (default)  M142_01	1 second  M143_01	3 seconds  M144_01
Dual code reading delay		
Defines the time interval during which codes that were already decoded in a previous reading are deleted.		
0 seconds (default)  M222_01	1 second  M223_01	3 seconds  M224_01
Activating/Deactivating code reading on moving objects		
Activate  M701_01		Deactivate (default)  M702_01

7.4.5 Lighting

<p>Activating continuous lighting</p>  <p>M580_02</p>	<p>Deactivating continuous lighting</p>  <p>M579_02</p>
--	---

7.4.6 Mirror decoding

As soon as you activate mirror decoding, the handheld can read codes that have been inverted. Furthermore, all other code reading functions are deactivated.



Activating/Deactivating mirror decoding

1. To activate mirror decoding, scan the code **Mirroring on**:



2. To deactivate mirror decoding, scan the code **Mirroring off (Default)**:



7.4.7 Prefix and suffix settings



Caution!

Risk of data loss

If you scan one of the following codes, data loss may result

First save the settings on your handheld before scanning one of the following codes.



Defining prefix

For presentation of the read data, we recommend - besides the use of suffixes (see "Defining suffix" on page 44) - the use of prefixes as separators between the individual data records. You can select between several separators. Combining several separators is also possible (e.g. a comma followed by a space, followed by the data record). To define a prefix, proceed as follows:

1. To define a comma as a prefix, scan the code **Prefix - Comma**:



M159_02

2. To define a space as a prefix, scan the code **Prefix - Space**:



M164_02

3. To define a tab in USB mode as a prefix, scan the code **Prefix - Tab (USB Mode)**:



M166_01

4. To define a tab in serial applications as a prefix, scan the code **Prefix - Tab (RS232 Mode)**:



M218_02

5. To define a carriage return line feed in serial applications as a prefix, scan the code **Prefix - Carriage Return Line Feed**:



M214_02



Defining suffix

For presentation of the read data, we recommend - besides the use of prefixes (see "Defining prefix" on page 42) - the use of suffixes as separators between the individual data records. You can select between several separators. Combining several separators is also possible (e.g. a comma followed by a space, followed by the data record). Proceed as follows to define a suffix:

1. To define a comma as a suffix, scan the code **Suffix - Comma**:



2. To define a space as a suffix, scan the code **Suffix - Space**:



3. To define a carriage return in serial applications as a suffix, scan the code **Suffix - Carriage return**:



- To define a line feed in serial applications as a suffix, scan the code **Suffix - Line Feed**:



M169_04

- To define a carriage return line feed in serial applications as a suffix, scan the code **Suffix - Carriage Return Line Feed**:



M170_04

- To define a wordwrap in USB mode as a suffix, scan the code **Suffix - Enter**:



M161_04

- To define a tab in USB, PS/2 or Bluetooth mode as a suffix, scan the code **Suffix - Tab (USB)**:



M167_04

8. To define a tab in serial applications as a suffix, scan the code **Suffix - Tab (RS232)**:



M167_04



Deleting prefix and suffix

1. To delete all prefixes, scan the code **Prefix - Erase**:



M404_01

2. To delete all suffixes, scan the code **Suffix - Erase**:



M405_02

3. To delete all prefixes and suffixes, scan the code **Erase Prefix & Suffix Data**:



M406_02

7.4.8 Text commands



Activating/deactivating text-command function

Scan one of the following codes to activate or deactivate the text-commando function.

Activate text command

Deactivate text command (default)



M198_01



M197_02

7.4.9 OCR A und B

Mithilfe des Handhelds haben Sie die Möglichkeit optische Texterkennung durchzuführen.



OCR aktivieren/deaktivieren

Um OCR zu aktivieren bzw. zu deaktivieren, scannen Sie einen der folgenden Codes.

OCR aktivieren

OCR deaktivieren (Default)



M713_01



M712_01



Note!

Um OCR-Funktionen nutzen zu können, benötigen Sie eine OCR-Lizenz.

7.4.10 Information on firmware and serial number of the handheld

You have the option of displaying information on firmware and the serial number of the handheld.

This information is structured as follows:

Xap/iVVVVWWWWXXXSSSSSSSSSPXXX-XX+XX-

Abbreviation	Characters	Meaning
Xap/i	-	Internal ID
VVVV	4	Version number of application firmware
WWWW	4	Version number of bootloader firmware
XXXX	4	Version number of Bluetooth firmware
SSSSSSSSSS	10	Serial number of handheld
P	1	A for application firmware, B for bootloader firmware
XXX-XX+XX-	-	Internal ID



Note!

The serial number of handhelds with Bluetooth function is the same as the Bluetooth pin number.



Reading firmware and serial numbers

To read information on firmware and the serial number of the handheld, proceed as follows:

1. Open a text editing program (e.g. Notepad, Word for Windows, etc.).
2. Scan the code **Reader ID and Firmware**:



Information on firmware and the serial number of the handheld is transferred from the internal handheld memory and displayed in the text editing program.



Note!

Current firmware and upgrades

Pepperl+Fuchs regularly releases new firmware for handheld readers. Contact Pepperl+Fuchs for information on current firmware versions or upgrades.

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