

**OHV10-F228-R2**

**1-D/2-D Code Handheld  
Reader**

**Manual**



**CE**

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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 information on the following:

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



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**Note**

For full information on the product, refer to the further documentation on the Internet at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

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The documentation comprises the following parts:

- This document
- Datasheet

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

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

## 1.2 Target Group, Personnel

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

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

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

## 1.3 Symbols Used

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

### Warning Messages

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

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



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#### **Danger!**

This symbol indicates an imminent danger.

Non-observance will result in personal injury or death.

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#### **Warning!**

This symbol indicates a possible fault or danger.

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

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#### **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.

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### Informative Symbols



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#### **Note**

This symbol brings important information to your attention.

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



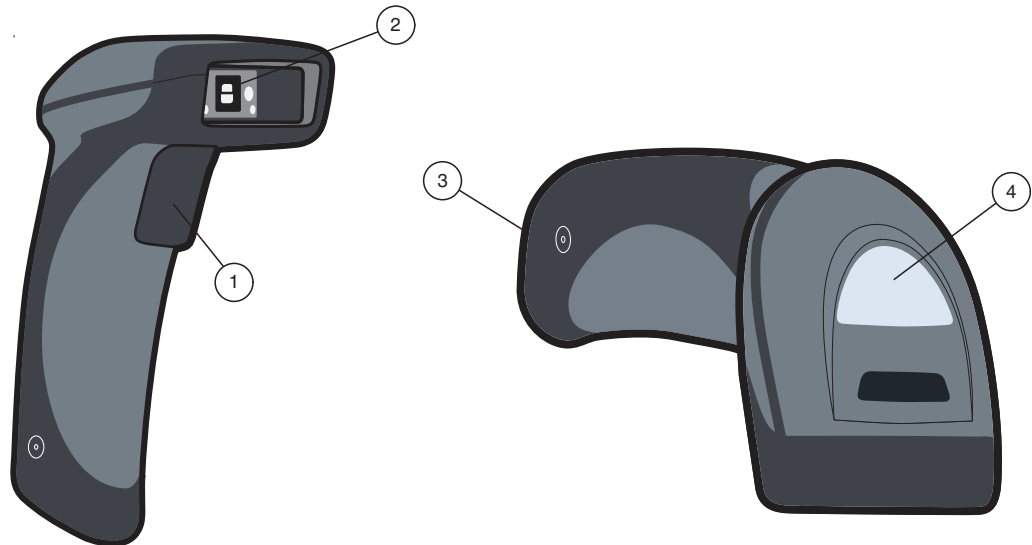
Figure 2.1 Handheld reader

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

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

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

## 2.2 Indicators and Operating Elements



1. Trigger button
2. Optical unit
3. 10-pin connector socket
4. Function indicator

## 2.3 Notifications

Action	Function indicator	Audible signal	Vibration
Handheld reader successfully switched on	Off	Beeps twice	Vibrates once
Handheld reader ready	Off	No audible signal	No vibration
Code read successfully	Function indicator briefly lights up green	Beeps once	Vibrates once
Control code read successfully	Function indicator briefly lights up green	Beeps twice	Vibrates once

## 2.4 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
OHV-BRACKET	Table mounting bracket

## 2.5 Storage and Disposal

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

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

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



## 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.

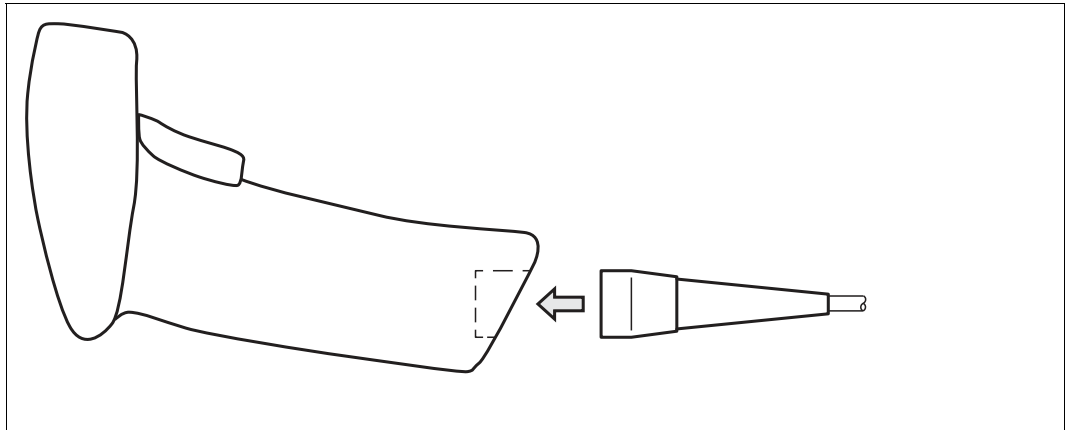


Figure 3.1 Inserting the cable

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 on the side at the bottom of the handle.

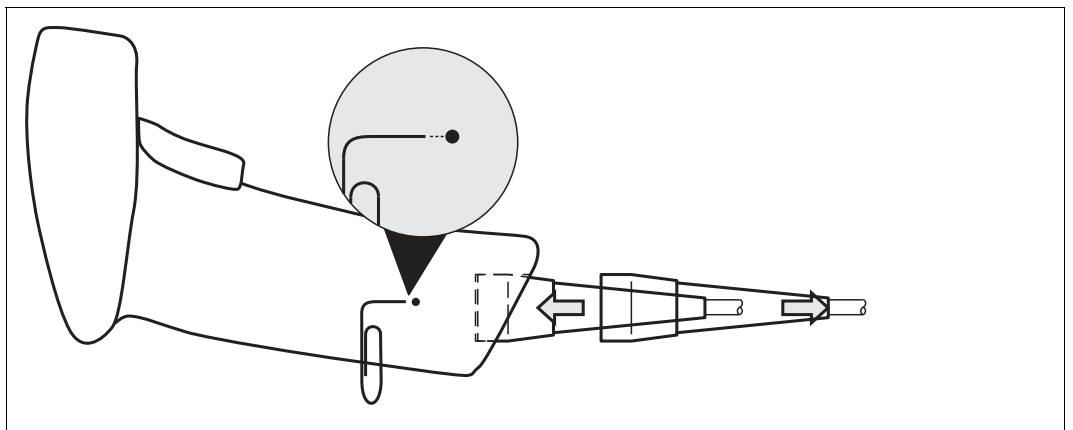


Figure 3.2 Removing the cable

2. Carefully pull the cable and the 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. 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 Keyboard Mode



#### Activating Keyboard Mode

Read the following code using the handheld reader.

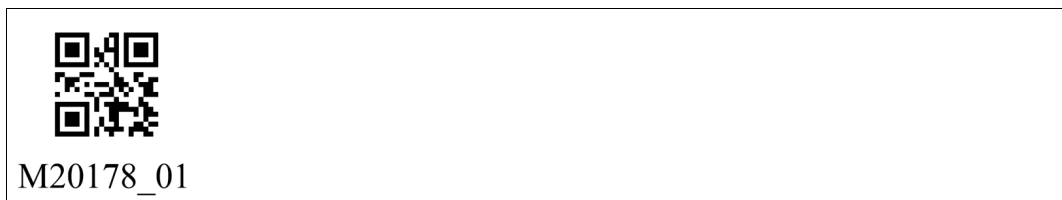


Figure 3.3 Keyboard Mode

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



#### Note

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

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

### 3.1.4 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. If the connection is successful, the function indicator lights up green, an acoustic signal sounds, and the handheld reader vibrates.

↳ The handheld reader is now ready.

7. Read the following code using the handheld reader.



Figure 3.4 RS-232 Connection

↳ The function indicator on the handheld reader lights up green. An RS-232 connection is established.

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

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

## 3.2 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).

## 4 Configuration

The handheld reader is configured using control codes (see chapter 4.2.1). The control codes can be used to set the communication mode, general read mode settings, keyboard language, and other settings of the handheld reader.

### 4.1 Keyboard Layout

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

#### Microsoft Windows

German (Germany)



M20188\_01

English (US International)



M20198\_01

French (France)



M20185\_01

Italian



M20363\_01

Japanese



M20192\_01

Russian



M20194\_01

Spanish (Spain)



M20195\_01

Chinese (Simplified)



M20362\_01

US English (default)








M20182\_01

### 4.2 Configuration Using Control Codes

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

### 4.2.1 Control Codes





Configuration instructions			
Communication mode settings	 M20238_01 Activate package mode	 M20239_01 Activate raw mode—default	
Data formatting			
	 M20255_02 Convert hex output	 M20222_01 Convert data to lower case	 M20221_01 Convert data to upper case

Configuration instructions			
Data formatting prefix and suffix settings	 M20223_02 Deactivate data formatting—default	 M20322_01 Delete prefix and suffix data	 M20207_01 Delete prefix data
	 M20208_01 Delete suffix data	 M20343_01 Prefix AIM ID off—default	 M20344_01 Prefix AIM ID on
	 M20209_01 Prefix comma	 M20210_01 Prefix space	 M20211_01 "Prefix" tab (RS-232 mode only)
	 M20218_02 "Prefix" tab (USB keyboard mode only)	 M20212_01 Suffix line break (RS-232 mode only)	 M20213_01 Suffix line feed in line break (RS-232 mode only)—default
	 M20215_01 Suffix comma	 M20219_02 Suffix enter (USB keyboard mode only)	 M20214_01 Suffix line feed (RS-232 mode only)


Configuration instructions			
<p>Data formatting prefix and suffix settings</p> <p>Data verification</p> <p>General read mode settings</p> <p>General read mode settings</p> <p>General read mode settings</p>	 M20216_01 Suffix space	 M20217 "Suffix" tab (RS-232 mode only)	 M20220_02 "Suffix" tab (USB keyboard mode only)
	 M20258_02 Activate ISO 15434 and ISO 15418 validation	 M20257_02 Activate ISO 15434 validation	 M20256_02 Activate UDI/HIBC validation
	 M20329_01 Beep on and vibration on—default	 M20228_04 500 ms scan delay with motion detection on a stand—default	 M20332_01 Beep off and vibration off
	 M20330_01 Beep on and vibration on	 M20331_01 Beep on and vibration off	 M20339_01 Beep volume 0 %
	 M20342_01 Beep volume 100 %—default	 M20340_01 Beep volume 33 %	 M20341_01 Beep volume 67 %

Configuration Guide			
general-reading-mode- settings	 <b>M20224_01</b> Continuous Scan Mode On	 <b>M20241_02</b> Disable Cell Phone Reading Enhancement - Default	 <b>M20295_01</b> Disable Target LED During Image Capture
general-reading-mode- settings	 <b>M20334_02</b> Disable Targeting-Always-On	 <b>M20240_03</b> Enable Cell Phone Reading Enhancement	 <b>M20302_01</b> Enable Stand Detection - Default
general-reading-mode- settings	 <b>M20294_01</b> Enable Target LED During Image Capture - Default	 <b>M20333_02</b> Enable Targeting-Always-On	 <b>M20199_01</b> Motion Detect Always On
general-reading-mode- settings	 <b>M20200_01</b> Motion Detect or Continuous Scan Off (Out of Stand) - Default	 <b>M20297_02</b> Motion Detection On In Stand - Default	 <b>M20227_03</b> No Scan Delay with Motion Detection in stand
general-reading-mode- settings	 <b>M20325_01</b> Reader Raw Text Commands Off - Default	 <b>M20326_01</b> Reader Raw Text Commands On	 <b>M20244_01</b> Set Motion Detect Maximum Brightness to 100% - Default













Configuration Guide			
<p>general-reading-mode- settings</p> <p>keyboard-language- settings</p> <p>keyboard-language- settings</p> <p>keyboard-language- settings</p> <p>keyboard-language- settings</p>	 <p>M20247_01</p> <p>Set Motion Detect Maximum Brightness to 25%</p>	 <p>M20246_01</p> <p>Set Motion Detect Maximum Brightness to 50%</p>	 <p>M20245_01</p> <p>Set Motion Detect Maximum Brightness to 75%</p>
	 <p>M20352_01</p> <p>Control Character Input - Alt + Keypad</p>	 <p>M20351_01</p> <p>Control Character Input - Ctrl + Character</p>	 <p>M20350_01</p> <p>Control Character Input - Language Default - Default</p>
	 <p>M20353_01</p> <p>Control Character Input - Alt + Leading Zero</p>	 <p>M20205_01</p> <p>Data Encoding: ASCII to Unicode Codepoint - Alt Sequences for Windows</p>	 <p>M20203_01</p> <p>Data Encoding: Raw ASCII to Keyboard XML File Lookup - Default</p>
			 <p>M20184_01</p> <p>Keyboard Support: English Keyboard Mapping for Apple</p>
	 <p>M20186_01</p> <p>Keyboard Support: French Keyboard Mapping for Apple</p>	 <p>M20185_01</p> <p>Keyboard Support: French Keyboard Mapping for Windows</p>	 <p>M20181_01</p> <p>Keyboard Support: French-Belgian Keyboard Mapping for Windows</p>

Configuration instructions			
Keyboard language settings	 <p>M20187_01</p> <p>Keyboard support: German keyboard layout for Apple</p>	 <p>M20188_01</p> <p>Keyboard support: German keyboard layout for Windows</p>	 <p>M20189_01</p> <p>Keyboard support: Swiss German keyboard layout for Apple</p>
Keyboard language settings	 <p>M20190_01</p> <p>Keyboard support: Swiss German keyboard layout for Windows</p>	 <p>M20191_01</p> <p>Keyboard support: Italian keyboard layout for Apple</p>	 <p>M20192_01</p> <p>Keyboard support: Japanese keyboard layout for Windows</p>
Keyboard language settings	 <p>M20194_01</p> <p>Keyboard support: Russian keyboard layout for Windows</p>	 <p>M20362_01</p> <p>Keyboard support: Simplified Chinese keyboard layout for</p>	 <p>M20196_01</p> <p>Keyboard support: Spanish keyboard layout for Apple</p>
Keyboard language settings	 <p>M20195_01</p> <p>Keyboard support: Spanish keyboard layout for Windows</p>	 <p>M20193_01</p> <p>Keyboard support: Latin American Spanish keyboard layout for Windows</p>	 <p>M20197_01</p> <p>Keyboard support: UK English keyboard layout for Windows</p>
Keyboard language settings	 <p>M20182_01</p> <p>Keyboard support: US English keyboard layout for Windows—default</p>	 <p>M20198_01</p> <p>Keyboard support: US International (Universal) keyboard layout for Windows</p>	 <p>M20180_01</p> <p>List of installed languages</p>

Configuration instructions			
Keyboard language settings	 M20363_01 Set Italian as active language for Windows	 M20364_01 Set Portuguese as active language for Windows	
Operating system settings	 M20306_01 Alternative operating system (Linux/Mac) off—default	 M20305_01 Alternative operating system (Linux/Mac) on	
Read modem command settings	 M20361_01 Reader information, limited		
Reset—delete and save—reader settings	 M20345_01 Restart the reader (RCSRS)	 M20111_01 Reset to factory settings (USB)	 M20335_01 Save all reader settings

Configuration instructions			
RS-232 settings	 <b>M20309_01</b> Activate RS-232 interface sequence control—one-way		
	 <b>M20112_01</b> Reset to RS-232 factory settings	 <b>M20170_01</b> RS-232 interface— 1 stop bit—default	 <b>M20167_01</b> RS-232 interface— baud rate 115200—default value
	 <b>M20160_01</b> RS-232 interface—baud rate 1200	 <b>M20164_01</b> RS-232 interface—baud rate 19200	 <b>M20171_01</b> RS-232 interface—2 stop bits
	 <b>M20161_01</b> RS-232 interface—baud rate 2400	 <b>M20165_01</b> RS-232 interface—baud rate 38400	 <b>M20162_01</b> RS-232 interface—baud rate 4800
	 <b>M20166_01</b> RS-232 interface—baud rate 57600	 <b>M20168_01</b> RS-232 interface—7 data bits	 <b>M20169_01</b> RS-232 interface—8 data bits—default









Configuration instructions			
RS-232 settings	 M20163_01 RS-232 interface—baud rate 9600	 M20172_01 RS-232 interface—even parity	 M20173_01 RS-232 interface—no parity
	 M20174_01 RS-232 interface—odd parity	 M20176_01 RS-232 interface sequence control off—default	 M20175_01 RS-232 interface sequence control on
	 M20237_01 1 day delay for duplicate scan	 M20236_01 1 hour delay for duplicate scan	 M20230_01 1 second delay for duplicate scan
	 M20234_01 10 second delay for duplicate scan	 M20231_01 2 second delay for duplicate scan	 M20232_01 3 second delay for duplicate scan
	 M20235_01 30 second delay for duplicate scan	 M20233_01 5 second delay for duplicate scan	 M20229_01 Deactivate delay for duplicate scan—default















Configuration instructions			
Code symbology settings	 <p>M20131_01 Do not convert EAN-8 to EAN-13—default</p>	 <p>M20001_01 Australian Post off—default</p>	 <p>M20000_01 Australian Post on</p>
Code symbology settings	 <p>M20004_01 Aztec inverse and normal on</p>	 <p>M20005_01 Aztec inverse off—default</p>	 <p>M20319_01 Aztec mirror off—default</p>
Code symbology settings	 <p>M20318_01 Aztec mirror on</p>	 <p>M20003_01 Aztec off</p>	 <p>M20002_01 Aztec on—default</p>
Code symbology settings	 <p>M20007_01 BC412 off—default</p>	 <p>M20006_01 BC412 on</p>	 <p>M20009_01 Canada Post off—default</p>
Code symbology settings	 <p>M20008_01 Canada Post on</p>	 <p>M20013_01 Codabar checksum off—default</p>	 <p>M20012_01 Codabar checksum on</p>
















Configuration instructions			
Code symbology settings	 M20011_01 Codabar off	 M20010_01 Codabar on—default	 M20019_01 Codablock F off—default
	 M20018_01 Codablock F on	 M20023_01 Code 11 checksum deducted from result—default	 M20022_01 Code 11 checksum removed from result activated
	 M20031_01 Switch off code 11 checksum test—default	 M20021_01 Code 11 off—default	 M20020_01 Code 11 on
	 M20032_01 Code 11 one-digit checksum	 M20033_01 Code 11 two-digit checksum—default	 M20035_01 Code 128 off
	 M20034_01 Code 128 on—default	 M20025_01 Code 32 (Italian Pharmacode) off—default	 M20024_01 Code 32 (Italian Pharmacode) on





Configuration Guide			
code-symbology- settings	 <b>M20029_01</b> Code 39 Checksum Off - Default	 <b>M20028_01</b> Code 39 Checksum On	 <b>M20030_01</b> Code 39 Checksum Stripped from Result On
	 <b>M20320_02</b> Code 39 Extended Full ASCII Off - Default	 <b>M20321_02</b> Code 39 Extended Full ASCII On	 <b>M20027_01</b> Code 39 Off
	 <b>M20026_01</b> Code 39 On - Default	 <b>M20264_01</b> Code 49 Off - Default	 <b>M20263_01</b> Code 49 On
	 <b>M20266_01</b> Code 93 Off	 <b>M20265_01</b> Code 93 On - Default	 <b>M20037_01</b> Composite Off - Default
	 <b>M20036_01</b> Composite On	 <b>M20136_01</b> Convert Bookland EAN-13 to ISBN	 <b>M20138_01</b> Convert Bookland EAN-13 to ISSN












Configuration instructions			
Code symbology settings	 <p>M20130_01 Convert from EAN-8 to EAN-13</p>	 <p>M20134_01 Convert from UPC-A to EAN-13</p>	 <p>M20292_01 User-defined QR code off—default</p>
Code symbology settings	 <p>M20291_01 User-defined QR code on</p>	 <p>M20040_01 DataMatrix Inverse and Normal on—default</p>	 <p>M20041_01 DataMatrix Inverse off</p>
Code symbology settings	 <p>M20043_01 DataMatrix mirroring off—default</p>	 <p>M20042_01 DataMatrix mirroring on</p>	 <p>M20039_01 DataMatrix off</p>
Code symbology settings	 <p>M20038_02 DataMatrix on—default</p>	 <p>M20047_01 DataMatrix rectangular extension off—default</p>	 <p>M20046_01 DataMatrix rectangular extension on</p>
Code symbology settings	 <p>M20045_01 Rectangular DataMatrix off</p>	 <p>M20044_01 Rectangular DataMatrix on—default</p>	 <p>M20260_02 Deactivate BC412 Regular and Reverse—default</p>












Configuration instructions			
Code symbology settings	 <p>M20274_01 Deactivate GS1 DataBar Expanded</p>	 <p>M20276_01 Deactivate GS1 DataBar Expanded Stacked</p>	 <p>M20278_01 Deactivate GS1 DataBar Limited</p>
Code symbology settings	 <p>M20268_01 Deactivate GS1 DataBar Omnidirectional and GS1 DataBar Truncated</p>	 <p>M20272_01 Deactivate GS1 DataBar Stacked and GS1 DataBar Stacked Omnidirectional</p>	 <p>M20137_01 Do not convert Bookland EAN-13 to ISBN—default</p>
Code symbology settings	 <p>M20139_01 Do not convert Bookland EAN-13 to ISSN—default</p>	 <p>M20135_01 Do not convert UPC-A to EAN-13—default</p>	 <p>M20151_01 Do not transmit EAN-13 check digit—default</p>
Code symbology settings	 <p>M20149_01 Do not transmit EAN-8 check digit—default</p>	 <p>M20143_01 Do not transmit UPC-A numbering system—default</p>	 <p>M20145_01 Do not transmit UPC-E check digit—default</p>
Code symbology settings	 <p>M20147_01 Do not transmit UPC-E numbering system—default</p>	 <p>M20259_02 Activate BC412—deactivate BC412 Reverse</p>	 <p>M20357_01 Activate GoCode and GoCode Mirror decoding</p>

Configuration instructions			
Code symbology settings	 M20273_01 Activate GS1 DataBar Expanded—default	 M20275_01 Activate GS1 DataBar Expanded Stacked—default	 M20277_01 Activate GS1 DataBar Limited—default
	 M20271_01 Activate GS1 DataBar Stacked and GS1 DataBar Stacked Omnidirectional—default	 M20282_01 GridMatrix Inverse off—default	 M20281_01 GridMatrix Inverse on
	 M20284_02 GridMatrix Mirror off—default	 M20284_02 GridMatrix Mirror on	 M20049_01 GridMatrix off—default
	 M20048_01 GridMatrix on	 M20051_02 GS1 DataBar off	 M20050_02 GS1 DataBar on—default
	 M20055_01 Han Xin Inverse off—default	 M20054_01 Han Xin Inverse on	 M20057_01 Han Xin Mirror off—default

Configuration instructions			
Code symbology settings	 M20056_01 Han Xin Mirror on	 M20304_01 Han Xin Normal and Inverse on	 M20053_01 Han Xin off—default
	 M20052_01 Han Xin on	 M20059_01 Hong Kong 2 of 5 off—default	 M20058_01 Hong Kong 2 of 5 on
	 M20063_01 Interleaved 2 of 5 checksums off—default	 M20062_01 Interleaved 2 of 5 checksums on	 M20077_01 Interleaved 2 of 5 checksums removed from result—default
	 M20064_01 Interleaved 2 of 5 checksums removed from result on	 M20061_01 Interleaved 2 of 5 off	 M20060_01 Interleaved 2 of 5 on—default
	 M20066_01 Japan Post off—default	 M20065_01 Japan Post on	 M20015_01 Retain Codabar start and stop characters—default










Configuration instructions			
Code symbology settings	 <b>M20122_01</b> Retain trioptic start and stop character	 <b>M20068_01</b> KIX (Dutch Post) off—default	 <b>M20067_01</b> KIX (Dutch Post) on
	 <b>M20070_01</b> Korean Post off—default	 <b>M20069_01</b> Korean Post on	 <b>M20072_01</b> Matrix 2 of 5 off—default
	 <b>M20071_01</b> Matrix 2 of 5 on	 <b>M20074_01</b> MaxiCode off—default	 <b>M20073_01</b> MaxiCode on
	 <b>M20091_01</b> MicroPDF417 off—default	 <b>M20090_01</b> MicroPDF417 on	 <b>M20104_01</b> Micro QR code off—default
	 <b>M20103_01</b> Micro QR code on	 <b>M20106_01</b> Mode 1 QR code off—default	 <b>M20105_01</b> Mode 1 QR code on









Configuration instructions			
Code symbology settings	 <p>M20079_01 MSI Plessey checksum must be Mod 10</p>	 <p>M20080_02 MSI Plessey checksum must be Mod 10/10</p>	 <p>M20081_02 MSI Plessey checksum must be Mod 11/10</p>
Code symbology settings	 <p>M20078_01 MSI Plessey checksum off—default</p>	 <p>M20083_01 MSI Plessey checksum removed from result off—standard</p>	 <p>M20082_01 MSI Plessey checksum removed from result on</p>
Code symbology settings	 <p>M20076_01 MSI Plessey off—default</p>	 <p>M20075_01 MSI Plessey on</p>	 <p>M20087_01 NEC 2 of 5 checksum off</p>
Code symbology settings	 <p>M20086_01 NEC 2 of 5 checksum on—default</p>	 <p>M20085_01 NEC 2 of 5 off—default</p>	 <p>M20084_01 NEC 2 of 5 on</p>
Code symbology settings	 <p>M20116_01 Output Telepen as ASCII</p>	 <p>M20117_01 Telepen as numeric output—default</p>	 <p>M20089_01 PDF417 off</p>




Configuration instructions			
Code symbology settings	 <p>M20088_01 PDF417 on—default</p>	 <p>M20290_01 Pharmacode color off—default</p>	 <p>M20289_01 Pharmacode color on</p>
Code symbology settings	 <p>M20095_01 Pharmacode normal barcode decoding (from left to right)—default</p>	 <p>M20093_01 Pharmacode off—default</p>	 <p>M20092_01 Pharmacode on</p>
Code symbology settings	 <p>M20094_01 Pharmacode reverse barcode decoding (from right to left)</p>	 <p>M20100_01 QR code inverse and normal on</p>	 <p>M20099_01 QR code inverse only</p>
Code symbology settings	 <p>M20102_01 QR code mirroring off—default</p>	 <p>M20101_01 QR code mirroring on</p>	 <p>M20097_01 QR code off</p>
Code symbology settings	 <p>M20096_01 QR code on—default</p>	 <p>M20098_01 Standard QR code only—default</p>	 <p>M20014_01 Remove Codabar start and stop characters</p>

Configuration instructions			
Code symbology settings	 <p>M20123_01 Remove trioptic start and stop characters—default</p>	 <p>M20262_02 BC412 reverse off—default</p>	 <p>M20261_01 BC412 reverse on</p>
Code symbology settings	 <p>M20121_01 Trioptic reverse off—default</p>	 <p>M20120_01 Trioptic reverse on</p>	 <p>M20286_01 Royal Mail checksum off</p>
Code symbology settings	 <p>M20285_01 Royal Mail checksum on</p>	 <p>M20108_01 Straight 2 of 5 off—default</p>	 <p>M20107_01 Straight 2 of 5 on</p>
Code symbology settings	 <p>M20110_01 Telepen off—default</p>	 <p>M20109_01 Telepen on</p>	 <p>M20150_01 Transmit EAN-13 check digit</p>
Code symbology settings	 <p>M20148_01 Transmit EAN-8 check digit</p>	 <p>M20140_01 Transmit UPC-A check digit</p>	 <p>M20142_01 Transmit UPC-A numbering system</p>



Configuration instructions			
Code symbology settings	 M20144_01 Transmit UPC-E check digit	 M20144_01 Transmit UPC-E check digit on	 M20146_01 Transmit UPC-E numbering system on
Code symbology settings	 M20119_01 Trioptic off—default	 M20118_01 Trioptic on	 M20288_01 UK Plessey off—default
Code symbology settings	 M20287_01 UK Plessey on	 M20125_01 UK Royal Mail off—default	 M20124_01 UK Royal Mail on
Code symbology settings	 M20133_01 UPC-E expansion off—default	 M20132_01 UPC-E expansion on	 M20129_01 UPC expansion off—default
Code symbology settings	 M20128_01 UPC expansion on	 M20127_01 UPC/EAN off	 M20126_01 UPC/EAN on—default

Configuration instructions			
Code symbology settings	 M20153_01 UPU ID tags off—default	 M20152_01 UPU ID tags on	 M20155_01 USPS Intelligent Mail off—default
	 M20154_01 USPS Intelligent Mail on	 M20157_01 USPS PLANET off—default	 M20156_01 USPS PLANET on
	 M20159_01 USPS POSTNET off—default	 M20158_01 USPS POSTNET on	

Configuration instructions			
USB settings	 M20250_01 Activate USB VCOM mode	 M20399_01 Set device to full-speed USB mode	 M20400_01 Set device to high-speed USB mode—default
USB settings		 M20178_01 USB keyboard mode—default	

## 5 Operation

### 5.1 Reading Codes

The handheld reader reads both very small 2-D codes (e.g., QR codes) and larger 1-D codes (e.g., barcodes). The optimum reading distance depends on the module size or minimum bar width of the codes. The smaller this is, the closer the handheld reader should be held to the code. In many cases, a code can be read at a distance of 10 cm.

By default, the read range is indicated by two blue bars. However, you can deactivate the display of the blue bars.



#### Tip

If several codes are located right 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

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

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



Figure 5.1 Code recognition

2. Press the trigger button
  - ↳ If the reading process is successful, the function indicator on the handheld reader briefly lights up green. When activated, an audible signal is emitted and the handheld reader vibrates.
3. If the code is not recognized, change the reading angle or the reading distance and press the trigger button again.




## 5.2 Operation Using a Mounting Bracket







The handheld reader features a motion detection system. If motion detection is activated, the handheld reader automatically attempts to read a code as soon as a movement is detected in the read range. It is not necessary to actuate the trigger button.

If the OHV-BRACKET is used, the handheld reader is set at the factory in such a way that motion detection is automatically activated when the handheld reader is inserted into the bracket and automatically deactivated when the handheld reader is removed from the bracket. However, you can change this setting.



Figure 5.2 Operation using a mounting bracket (schematic diagram)

Control code	Function
 M20199_01	Activates motion detection regardless of whether the handheld reader is in the OHV-BRACKET.
 M20297_02	Enables automatic activation of motion detection when the handheld reader is inserted into the OHV-BRACKET.
 M20200_01	Disables motion detection regardless of whether the handheld reader is in the OHV-BRACKET.

Control code	Function
 M20227_03	No scan delay for motion detection.
 M20228_04	Sets the scan delay for motion detection to 500 ms.
 M20244_01	Sets the maximum brightness for motion detection to 100 %—default.
 M20247_01	Sets the maximum brightness for motion detection to 25 %.
 M20246_01	Sets the maximum brightness for motion detection to 50 %.
 M20245_01	Sets the maximum brightness for motion detection to 75 %.

### 5.3 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.

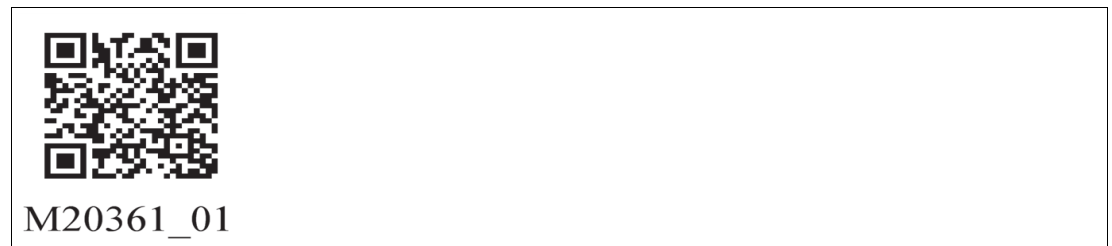


Figure 5.3 Device information

The read result is in the following format:

Xap/iVVVVWWWXXXXSSSSSSSSSSAOODYYYYHHIIIIJJJJKKKKLLLL<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

## 6 Maintenance

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

When cleaning the optical unit you should note the following:

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



## 7 Troubleshooting




### Note

Do not repair, modify, or manipulate the device.

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

### Fault Repair

Fault	Possible cause	Remedy
Codes cannot be read.	The optical unit on the handheld reader is dirty.	Clean the optical unit. See chapter 6
	The reading distance is too large or too small.	Move the handheld reader closer to or farther from the code until the height of the blue bars is roughly the same height as the code.
	The code is on a reflective surface.	Enable the option for enhanced display reading. Change the reading angle by holding the handheld reader at an angle to the surface.
	Reading of the code type is disabled.	Enable the code type using the corresponding control codes; see chapter 4.2.1.
The read result is not transferred.	The handheld reader is not in keyboard mode.	Activate keyboard mode.
The read result is incorrect.	The handheld reader is using the wrong keyboard layout.	Change the keyboard layout for the current operating mode.
	The code type is incorrectly interpreted as a different code type.	Use the corresponding control code (see chapter 4.2.1).
Some settings are 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.   M20335_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 a few seconds, a number of beeps will sound at an increasing rate and with a rising pitch. 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 a few seconds, five beeps will sound. Release the trigger button.
  - ↳ The handheld reader has now been restored to its default settings.

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