QUICK START GUIDE

ODT-MAC40*-*-RD

DE **STATIONÄRES LESEGERÄT FÜR DATA MATRIX-CODES**

EN **STATIONARY READING DEVICE FOR DATA MATRIX CODES**

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SENSING YOUR NEEDS

DE Es gelten die Allgemeinen Lieferbedingungen für Erzeugnisse und Leistungen der Elektroindustrie, herausgegeben vom Zentralverband Elektroindustrie (ZVEI) e.V. in ihrer neusten Fassung sowie die Ergänzungsklausel: "Erweiterter Eigentumsvorbehalt".

EN 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 Purpose of this quick start guide

This quick start guide contains basic instructions for operating the device. However, the manual takes priority over the quick start guide.

1.2 General safety instructions

Class 2 laser product

This device is a class 2 laser product:

Standards

IEC 60825-1:2007 certified. Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated 06-24-07.

Warning!
Visible red class 2 laser light

The irradiation can lead to irritation especially in a dark environment. Do not point at people!

Caution: Do not look into the beam!

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

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

Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure..

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Only use recommended original accessories.

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

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

User modification and or repair 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, return the device to your local Pepperl+Fuchs representative or sales office.

1.3   Intended Use

The ODT-MAC40*-*-RD stationary read devices are intended to be used only for the identification of objects by means of Data Matrix codes.

Always operate the device as described in these instructions to ensure that the device and connected systems function correctly. The protection of operating personnel and plant is only guaranteed if the device is operated in accordance with its intended use.
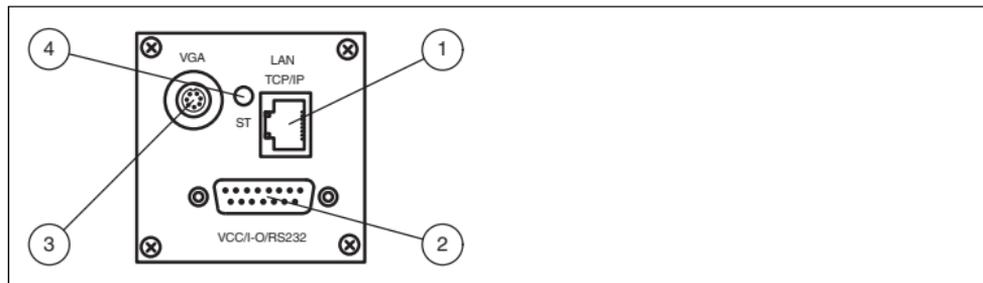
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2 Product Description

2.1 Displays and controls
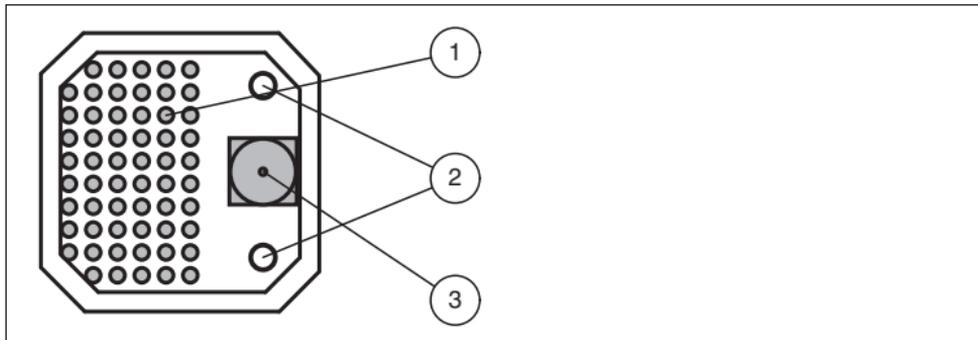
1. Lightning unit
2. Laser diodes
3. CMOS camera

The stationary reader ODT-MAC403-* does not have laser diodes.

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1 RJ45 Ethernet network socket

2 15-pin D-Sub connector

3 Video output VGA

4 Status LED

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Status LED

| LED color	Description
Yellow	The LED briefly illuminates in yellow after switching on.
Green	The LED illuminates in green after a successful read (good read).
Red	The LED illuminates in red after an unsuccessful read (bad read).

2.2 Interfaces and Connections
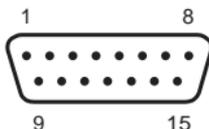
15-Pin D-sub Plug

PIN	Signal	Description
1, 2	GND	GND for device
3	GND IO	GND for inputs/outputs
4, 5	+UB	24 VDC device supply
6	+ UB IO	Supply for inputs/outputs, 24 VDC
7	NC	Not connected
8	IN2	Input 2
9	OUT1	Good output
10	OUT2	Bad output
11	IN1	Trigger
12	NC	Not connected
13	TX RS232	Transmission line, RS232
14	RX RS232	Receive line, RS232
15	IN3	Input 3

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> ⚠ **Caution!**
>
> Connecting the RS 232 interface
>
> Make sure that there is no reverse polarity of the supply voltage, before you connect the RS 232 interface.
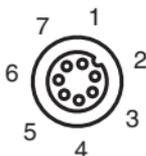
Video Output, VGA 640x480 (7-Pin M9 Socket)

PIN	Signal	Description
1	OUT V_{sync}	Vertical synchronization output
2	GND	Ground
3	OUT R	Red signal output
4	OUT G	Green signal output
5	GND	Ground
6	OUT B	Blue signal output
7	OUT H_{sync}	Horizontal synchronization output

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Netzwerkanschluss

Figure 2.1   Network connection pin assignments

1   Transmit data (+)

2   Transmit data (-)

3   Receive data (+)

4   Not assigned

5   Not assigned

6   Receive data (-)

7   Not assigned

8   Not assigned

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2.3 Accessories

Various accessories are available.

2.3.1 Cables

The following cables are available as accessories.

Model number	Description
ODZ-MAC-CAB-VIDEO	Video connection cable, cylindrical connector, 7-pin on SUB-D socket, 15-pin VGA, 2 meters
ODZ-MAC-CAB-15POL-2,5M-FEMALE	Connection cable, Sub-D socket, 15-pin, 2.5 meters, can be pre-assembled
ODZ-MAC-CAB-15POL-5M-FEMALE	Connection cable, Sub-D socket, 15-pin, 5 meters, can be pre-assembled
ODZ-MAC-CAB-24V-R2-2M	Connection cable for power supply, RS 232
V45-G-10M-V45-G	Network cable RJ45, category 5, up to 100 MHz, 10 m

2.3.2 Other accessories

Other products are available as accessories.

Model number	Description
ODZ-MAC-PWR-24V	Desk top power supply 24 V DC, 1.88 A

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3 Installation

3.1 Mounting

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Note!

Preventing reflection and glare

Reflection and glare from reflective surfaces can impair the captured image and therefore lead to incorrect readings. To prevent reflection and glare, install the stationary reading device at a slight angle.

The read distance differs according to the reader. The correct read distance can be found in the technical data for the reader to be installed.

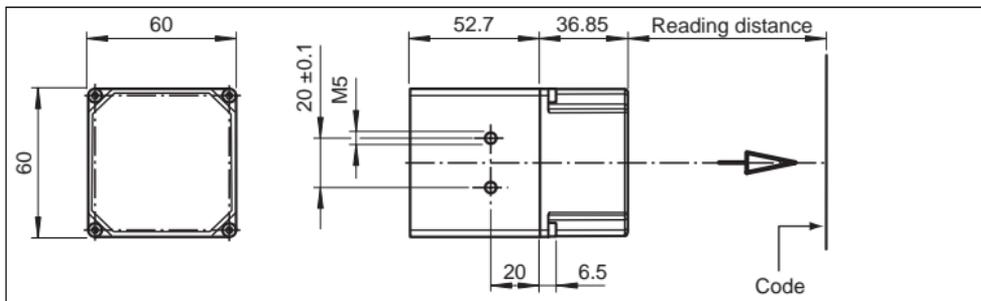The straight version is available only upon request.

Figure 3.1 Dimensions of the **straight** housing

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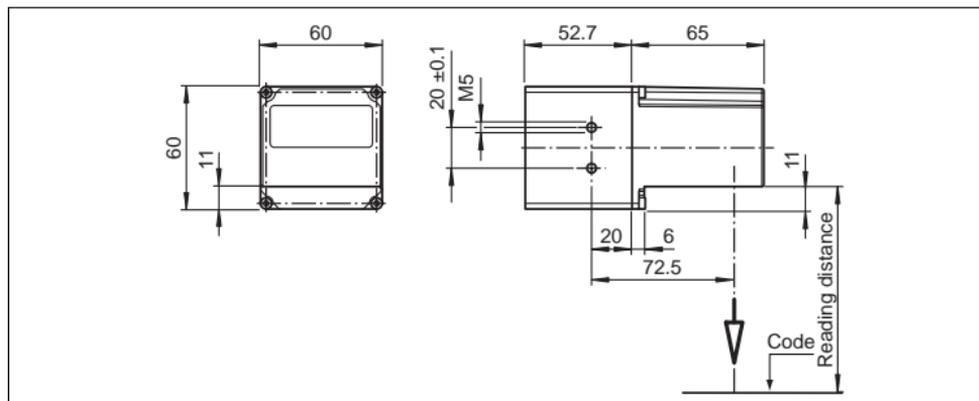
Figure 3.2   Dimensions of the **angle** housing

Note!

Connection to ground

When installing the device, ensure that it is has a ground connection.

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3.2 Connecting the device

▶ Connecting the power supply

To connect a power supply to the device, proceed as follows.

1. Plug the 15-pin Sub-D socket into the connector provided for this purpose on the back of the housing.

2. Screw in the two mounting screws as far as possible.

   ↳ This ensures that the cable cannot be inadvertently pulled out.

3. Next connect the power supply to the appropriate pins on the Sub-D socket.

   ↳ The power supply has now been connected.

Caution!

Connecting the RS 232 interface

Make sure that there is no reverse polarity of the supply voltage, before you connect the RS 232 interface

To connect the power supply to the device quicker, the pre-configured connection cable can also be used. Information can be found in the Accessories section.

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Note!

Record the network configuration

The device communicates with the connected machine control system using the TCP/IP protocol. To ensure communication works correctly, you must note down all the changes you make to the network configuration.

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Note!

Network cabling

Use a crossover network cable to connect the device directly to a PC. If the device is being operated within a network, use a twisted-pair network cable to connect it to the network.

▶ Establishing a network connection

In order to establish a network connection, proceed as follows.

When delivered, the device has a fixed IP address (192.168.2.2). To facilitate communication within the network, you must configure your network. The configuration data can be found in the network configuration overview.

▶ Connecting a trigger sensor

To connect a trigger sensor, proceed as follows.

Connect the trigger sensor to the cable previously connected for the power supply.

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4 Commissioning

4.1 Connecting the stationary reader

The reader has its own web server. You have the option of making settings on the stationary reader using a standard web browser.

▶ Aligning the stationary reader

To find the ideal alignment for the device, use the two laser diodes in the stationary reader.

1. Supply power to the reader via the D-Sub connector.

2. Adjust the stationary reader so that both points generated by the laser diodes are positioned on top of each other on the code to be read.

↳ This sets the ideal reading distance between the stationary reader and the code to be read.

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5 Operation

5.1 Web-based operator interface

You have the option of configuring and operating the stationary reader via a web-based operator interface, and using it to display information.

▶ Starting the operator interface

Note!

To start the operator interface of the stationary reader, you need a standard web browser (e.g. Windows Internet Explorer or Mozilla Firefox) and Java, version 1.6 or later.

To start the operator interface, proceed as follows:

In the input field of a standard web browser, enter the IP address of the stationary reading device (**192.168.2.2**) and confirm this using Return.

↳ The **Settings** tab opens as the start page.

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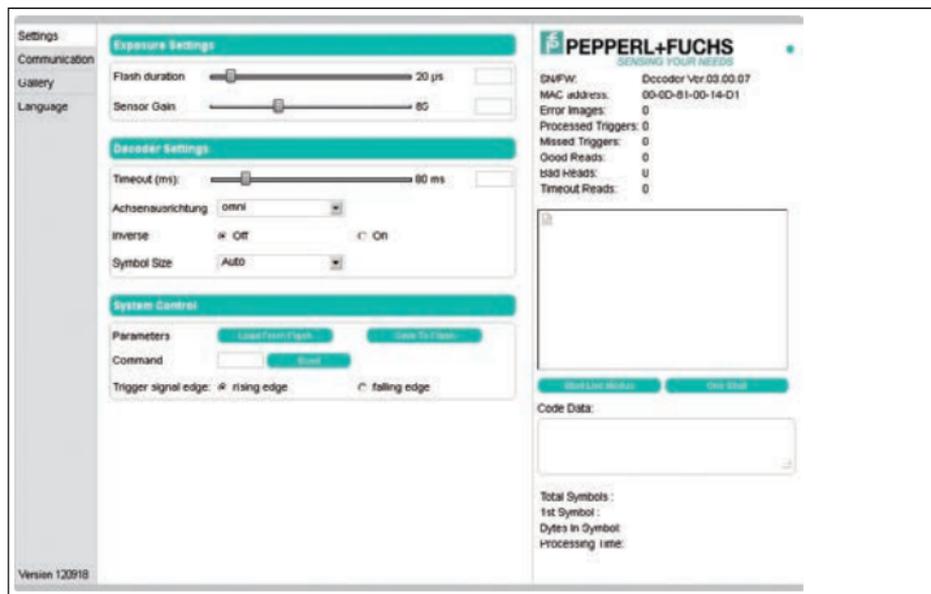
The following four tabs can be found on the left-hand side of the display:

- Settings
- Communication
- Gallery
- Language

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Various different information is displayed in the central section - depending on which tab is active.

On the right-hand side, various status information (such as the software/ firmware version, the MAC address, the number of reads, etc.) is displayed, as well as the last image captured and the decoded information. On the right of the Pepperl+Fuchs company logo there is a pictorial representation of a status LED. This status LED lights up green when a device is connected. Otherwise it is red.

▶ Activating live image capture

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Note!

By viewing the captured images on the operator interface during operation, the image refresh rate reduces significantly.

To activate live image capture, click the **Start Live Mode** button on the right-hand side of the display screen.

↪ The stationary reader starts to capture images. The captured images are displayed in the results window. The decoded information is displayed beneath it in a separate window.

▶ Starting single image capture

On the right-hand side of the display screen, click on the button **Single image**.

↪ Clicking the button triggers a single image capture.

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5.1.1 **Settings** Tab

The **Settings** tab enables you to configure various parameters and send commands to the reader. Using the buttons on the left-hand section of the display, you can navigate to the other tabs, **Communication**, **Gallery**, and **Language**.

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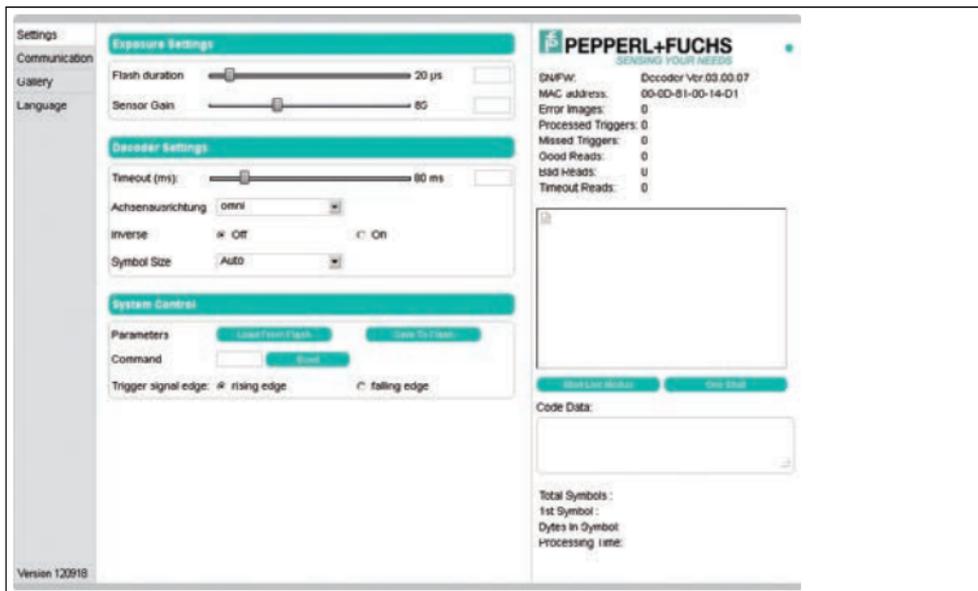
In the center of the display, the following functions are available in different areas:

Sensor Parameters & System Settings

Parameter	Explanation
Flash duration	This parameter is used to set the duration of the flash at intervals of 10 µs.
Gain	This parameter is used to set the electronic gain. A high value electronically increases the brightness of the captured image and can improve the readability of the code considerably in the event of poor ambient conditions.

Decoder Parameters

Parameter	Explanation
Timeout	This parameter is used to set the time limit after which the read operation is terminated.
Axis alignment	Use this parameter to set the alignment of the code to the object to be read. This improves the decoding results.
Inverse	Off: Select this option if you are using Data Matrix codes on a white background. On: Select this option if you are using inverse Data Matrix codes on a black background.
Symbol size	This parameter is used to set the symbol size of the Data Matrix codes used. Using constant symbol sizes improves decoding results.

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System Settings

Setting	Explanation
Parameter set	Load from flash: Use this action to load parameter settings from the internal memory bank (flash EEPROM). Save to flash: Use this action to save your current parameter settings in the internal memory bank (flash EEPROM).
Command	Send individual commands to the reader
Trigger signal edge	Use this parameter to set the trigger edge, at which the sensor is to be triggered. Possible settings are the rising or falling edge.

Sending a command

You have the option of sending individual commands to the sensor. The commands are made up of 4-digit hexadecimal numbers (0 ... F). An overview of the available commands can be found in the appendix.

1. If you are not already on the **Settings** tab, navigate to it.
2. Enter a valid, 4-digit hexadecimal number for the required command in the **Command** field.

Command   [   ]   Send

3. Click on **Send**.

↳ The relevant command will be sent to the sensor, where it will be executed.

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