QUICK START GUIDE

2-D Laser Scanner

EN	OMD10M-R2000-B23 OMD30M-R2000-B23 OMD12M-R2000-B23
DE	OMD10M-R2000-B23 OMD30M-R2000-B23 OMD12M-R2000-B23

c UL us

CE

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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"

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".

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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 Product documentation on the internet

You can view all the relevant documentation and additional information on your product at http://www.pepperl-fuchs.com. Simply enter the product name or model number in the **Product/Key word search** box and click **Search**.

Select your product from the list of search results. Click on the information you require in the product information list, e.g., **Technical documents**.

A list of all available documents is displayed.

1.3 Intended Use

The R2000 laser scanners are measuring devices that are used on automated transport systems or other movable machinery in intralogistics. They are also used on stationary equipment in the area of factory and building automation.

Make sure that the devices are used only for their intended purpose.

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2 Safety

2.1 Laser Class 1

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Class 1 Laser Product

This sensor is certified according to laser protection class 1.

⚠️ *Warning!*
Class 1 laser light

The laser light can be an irritant, especially in a dark environment. Do not point lasers at people!

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

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

Caution: Use of controls, adjustments, or performance of procedures other than those specified herein may result in harmful laser beam exposure.

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3 Product Description
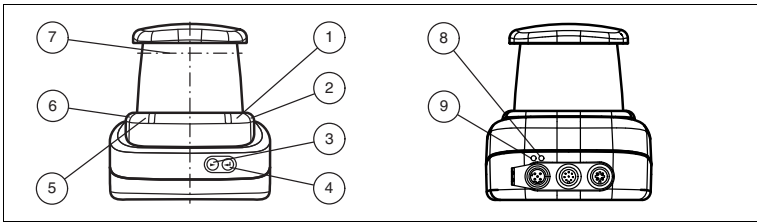
3.1 Indicators and Controls

Figure 3.1   Indicators and Controls

No.	Designation	Color
1	Operating status indicator	Green
2	Error indicator	Red
3	"Next" menu button	
4	"Return" menu button	
5	Q2 - no function	
6	Q1 - no function	
7	Laser face	
8	Ethernet link indicator	Green
9	Ethernet activity indicator	Yellow

Table 3.1   Indicators and Controls

3.2 Interfaces and Connections

The following connections are found on all devices:

Power supply

There is a 4-pin M12 connector on the rear of the housing to connect the power supply. The following diagram shows the pinning:
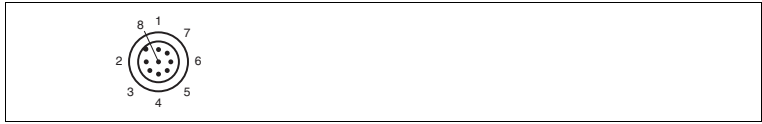

Figure 3.2   Power supply connection layout

1   24 V power supply

2   Not used

3   Ground (GND)

4   Not used

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MultiPort

The 8-pin M12 connector on the rear of the housing is for service purposes.

Interface:

There is a 4-pin M12 socket on the back of the housing to connect the Ethernet interface. The following diagram shows the pinning:

Figure 3.3   Ethernet connection layout

1   TD+

2   RD+

3   TD-

4   RD-

The connector housing is located on the shield.

3.3   Scope of Delivery

The scope of delivery includes:

■ R2000
■ Quick start guide
■ Protective cover
■ 3 x socket cap screws, M5 x 10
■ 3 x washers, size 5

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3.4 Accessories

The following products are available as accessories.

Designation	Description
V1SD-G-2M-PUR-ABG-V45-G	Patch cable M12 to RJ45, length 2 m
V1SD-G-5M-PUR-ABG-V45-G	Patch cable M12 to RJ45, length 5 m
V1SD-G-ABG-PG9	Single-ended male cordset, M12 D-coded, 4-pin for bus cable
V1-G-2M-PUR	Single-ended female cordset, straight, M12, 4-pin, PUR cable
V1-W-2M-PUR	Single-ended female cordset, angled, M12, 4-pin, PUR cable
MH-R2000	Mounting bracket, quick-lock and adjustment aid

Note!

Installation Information for North America

If a connection is made with the M12 multi-pin connector, then in the final installation of the power supply, the product must be used with a UL-listed cable/connector assembly (CYJV) that is designed for at least 30 VDC and at least 1.0 A.

Designation	Description
V1-G-BK-2M-PUR-U	Single-ended female cordset, straight, M12, 4-pin, PUR cable, length 2 m, "UL recognized"
V1-G-BK-5M-PUR-U	Single-ended female cordset, straight, M12, 4-pin, PUR cable, length 5 m, "UL recognized"
V1-G-BK-10M-PUR-U	Single-ended female cordset, straight, M12, 4-pin, PUR cable, length 10 m, "UL recognized"

To parameterize the 2-D laser scanner conveniently via a software interface, you need the corresponding device type manager (DTM) in addition to the FDT framework program (PACTware 4.x). Both PACTware and the DTM are available at www.pepperl-fuchs.com.

3.5 Further Information

Further product information and technical data are available at www.pepperl-fuchs.com.

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4 Installation

4.1 Mounting

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> ⚠ **Caution!**
> Safety information
>
> Do not point the sensor into the sun.
>
> Protect the sensor against direct and prolonged sunlight.
>
> Prevent condensation from forming by ensuring that the sensor is not subjected to any major temperature fluctuations.
>
> Do not subject the sensor to aggressive chemicals.
>
> Keep the glass on the device clean.
>
> For cleaning, use only water (if necessary with a little detergent) and a soft microfiber cloth! The use of other detergents is not permitted! The glass must never be cleaned when dry!

The device can be fitted with the supplied socket head screws with washers on the underside of the device.

> ⚠ **Caution!**
> Screw-in depth
>
> The maximum screw-in depth in the base must not exceed 8 mm, otherwise the device will be mechanically destroyed! The minimum screw-in depth is 5 mm.
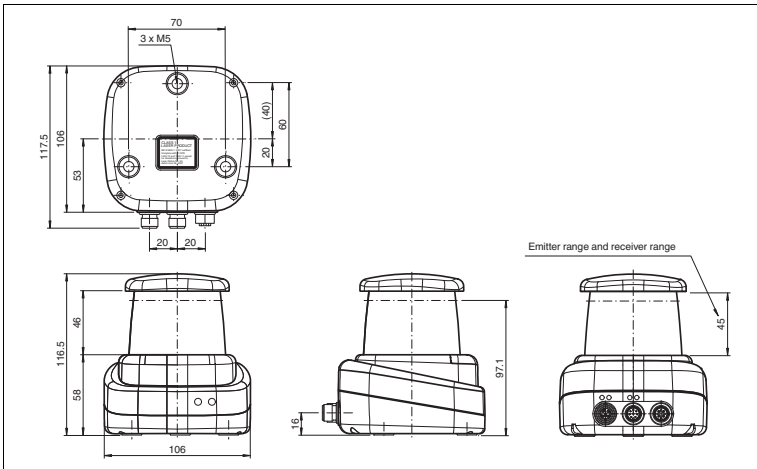

Figure 4.1   Dimensional drawing R2000

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Note!

Keep the emitting/receiving area clear

During assembly, make sure that the emitting/receiving area is kept clear. If the emitting/receiving area is covered, this reduces the performance of the 2D laser scanner.

4.2 Device Connection

Electrical connection in line with IP65

Put protective covers on unused M12 connectors.

↳ The IP65 protection class is achieved. The protective covers can be ordered as accessories see chapter 3.4.

The device conforms to protection class III. This means that the power has to be supplied as a low protective voltage (PELV).

The power supply of the device is 10 VDC ... 30 VDC. Due to the integrated motor, an increased level of startup current is required compared with normal operation. It is recommended that power supplies with 1 A (at 24 V) or with 2 A (at 12 V) are used.

The maximum cable length is 30 m.
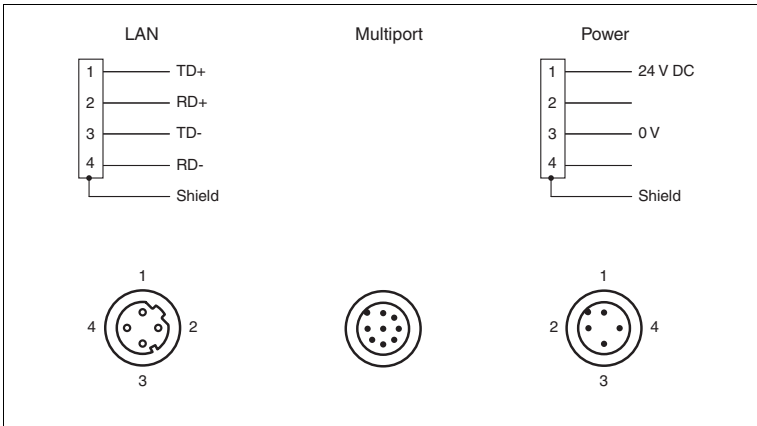
The pin assignment is as follows:

Figure 4.2   R2000 pin assignment

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5 Commissioning

▶ 1. Connect the device to the power supply.

↳ The initialization phase lasts approx. 15 seconds. This phase is shown by circles moving down the display.

2. After the initialization phase, the Pepperl+Fuchs logo will appear.

↳ The device is now ready for operation.

To achieve the best measurement accuracy, allow the device to warm up for 30 minutes.

The sensor has been tested and calibrated before delivery. It can be put into operation immediately.

In general, it is recommended to use a dedicated network card for the connection to the device.

5.1 Ethernet Configuration

The device has three different address modes. Select your preferred mode from the modes described below. The setting is configured directly on the device using the menu interface.

Auto IP

In this mode, the device independently selects a "Link-Local" IP address in the 169.254.0.0/16 range. It is ensured that the selected address is not already being used by another device.

The device is configured to Auto IP by default. The Auto IP setting is the ideal way to establish a direct connection to a PC. Set the DHCP mode (Dynamic Host Configuration Protocol) on the PC. To do this, select the TCP/IP protocol in the network card properties and select the "Obtain an IP address automatically" setting there. After approx. 30 seconds, Windows assigns an Auto IP for the PC.
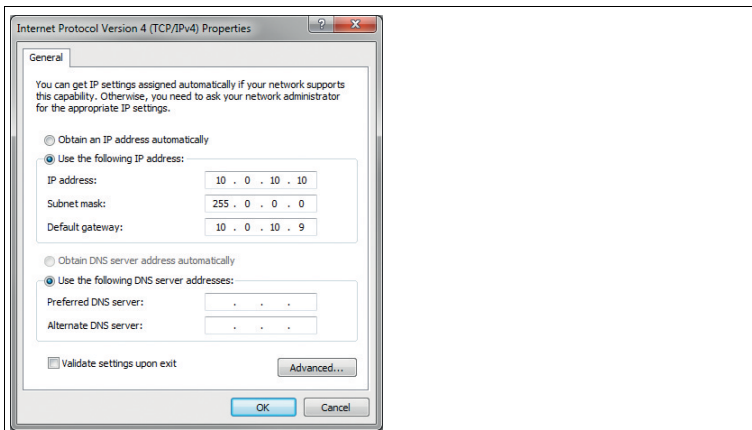
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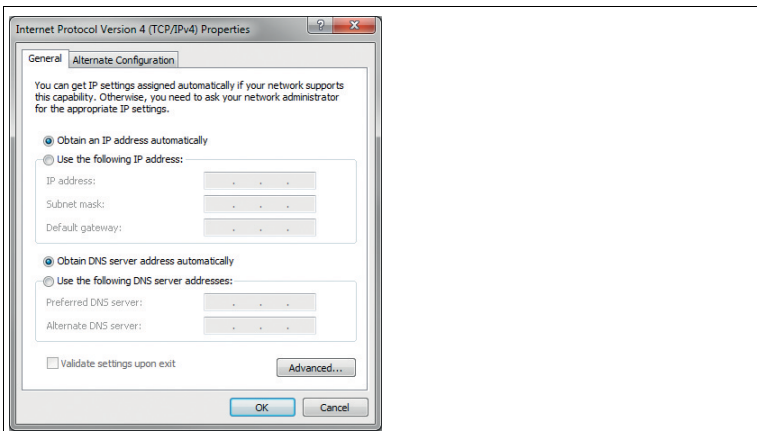
DHCP

Set the device to DHCP under the "Address mode" menu item. The DHCP configuration requires a DHCP server in the local network, e.g., a router. See the "Auto IP" item for information on this.

Manual IP

Set the device to manual under the "Address mode" menu item. The IP address is set to 10.0.10.9 and the subnet mask to 255.0.0.0 by default. To connect the device to the PC, the network card must be configured as follows. Set the required IP address in the network card menu. Select the TCP/IP protocol in the network card properties and select the "Use the following IP address" setting there. Enter the required IP address and subnet mask in these fields.

Note!

Device restart

You must restart the device after changing the Ethernet configuration.

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