

MANUAL

2-D Laser Scanner

EN

OBD10M-R2000-4EP
OBD30M-R2000-4EP
OBD30M-R2000-4EP-T

DE

OBD10M-R2000-4EP
OBD30M-R2000-4EP
OBD30M-R2000-4EP-T



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

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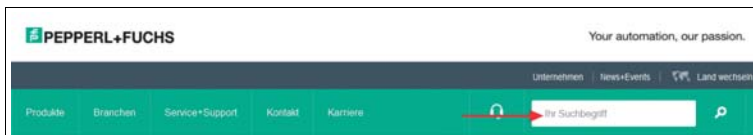
1 Introduction

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.

1.4 Validity

This manual applies to devices from firmware 1.20 and hardware 1.00 onward. The versions can be found in the device menu; .

For devices with older versions, documentation is available on request.

2 Safety

2.1 Laser Class 1

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.

3 Product Description

3.1 Indicators and Operating Controls

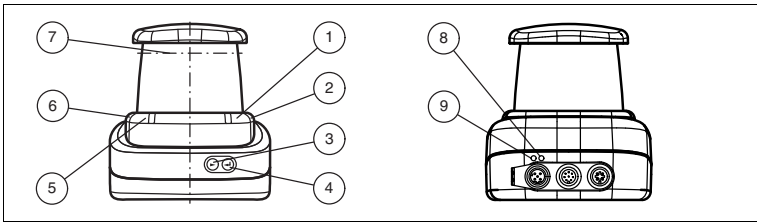


Figure 3.1 Indicators and Controls

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

Table 3.1 Indicators and Operating 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 I/Q2
- 3 Ground (GND)
- 4 I/Q1

MultiPort

An 8-pin M12 connector is located on the rear of the housing. Inputs/outputs 3 and 4 are located here



- 1 DNC (Do not connect)
- 2 DNC (Do not connect)
- 3 DNC (Do not connect)
- 4 I/Q3
- 5 I/Q4
- 6 DNC (Do not connect)
- 7 DNC (Do not connect)
- 8 DNC (Do not connect)

All pins with "DNC (Do not connect)" must not be connected!

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

Included in Delivery

The delivery package contains:

- R2000 2D laser scanner
- Quick start guide
- Protective cover for MultiPort and Ethernet
- 3 x socket cap screws, M5 x 10
- 3 x washers, size 5

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, length 2 m
V1-G-5M-PUR	Single-ended female cordset, straight, M12, 4-pin, PUR cable, length 5 m
V1-W-2M-PUR	Single-ended female cordset, angled, M12, 4-pin, PUR cable, length 2 m
V17-G-2M-PUR	Single-ended female cordset, straight, M12, 8-pin, shielded, PUR cable, length 2 m
V17-G-5M-PUR	Single-ended female cordset, straight, M12, 8-pin, shielded, PUR cable, length 5 m
V1S-B	Blind plugs



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"

3.5 Further Information

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

4 Installation

4.1 Mounting



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.

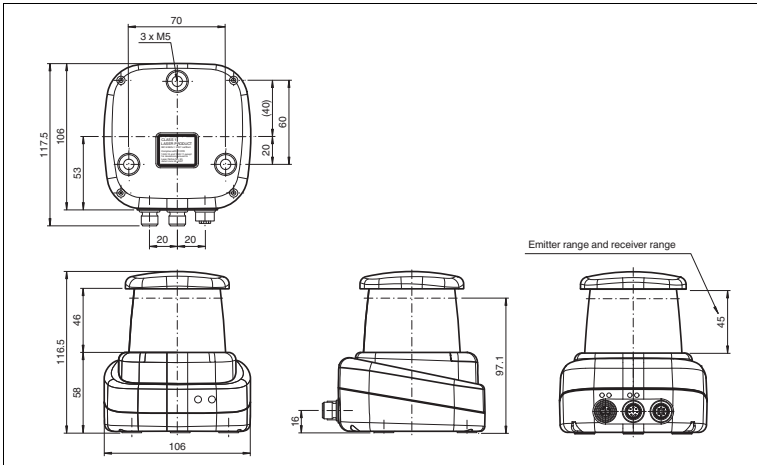


Figure 4.1 Dimensional drawing R2000



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 .

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. On account of 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:

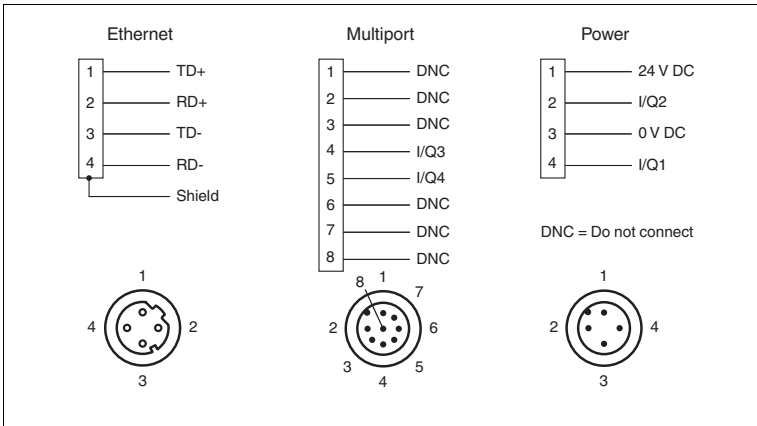


Figure 4.2 R2000 pin assignment

5

Commissioning

1. Connect the device to the power supply.
 - ↳ The initialization phase lasts approx. 10 seconds. This phase is indicated by an illuminated Power LED. The display is still disabled in this phase.
2. There is another initialization phase that lasts approx. 10 seconds.
 - ↳ The display turns on and shows circles moving downward.
3. After the initialization phase, the Pepperl+Fuchs logo will appear.
 - ↳ The device is 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. It is generally recommended to use a dedicated network card for the connection to the device. For parameterization, connect the device to an Ethernet interface on a computer. Install the PACTware software and the appropriate DTM.

5.1

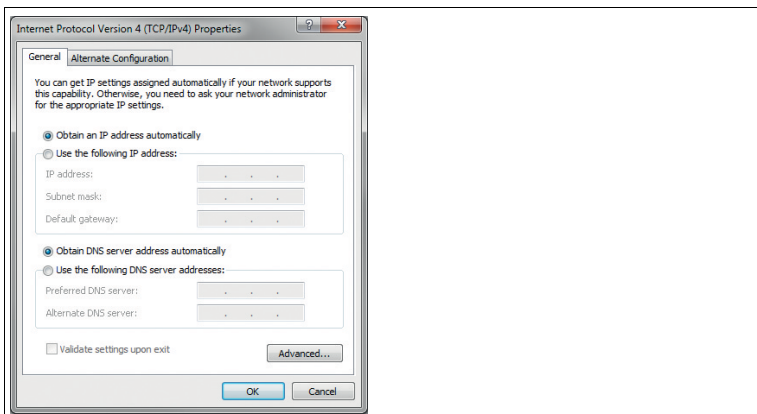
Ethernet Configuration

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. During this process, measures are taken to ensure 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.



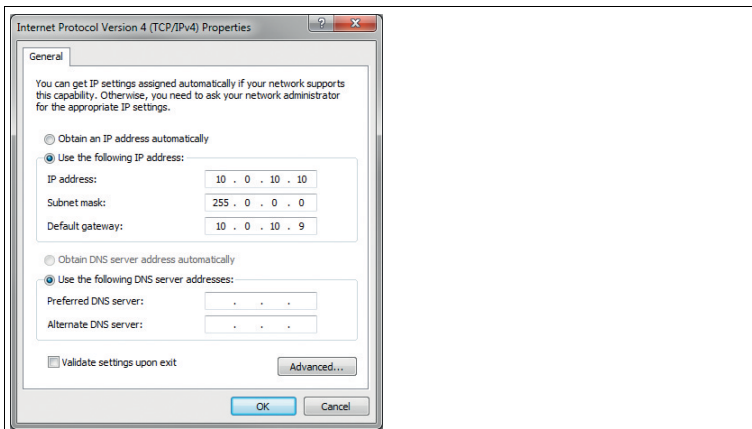
DHCP

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.



Note!

Device restart

You must restart the device after changing the Ethernet configuration.

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