QUICK START GUIDE

ODT-MAC421-LD-WH-MC
Stationary reader for multicodes

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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 Intended use

The ODT-MAC421-LD-WH-MC stationary reader is used for decoding 1D and 2D 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. Lighting unit
2. Laser diodes
3. CMOS camera
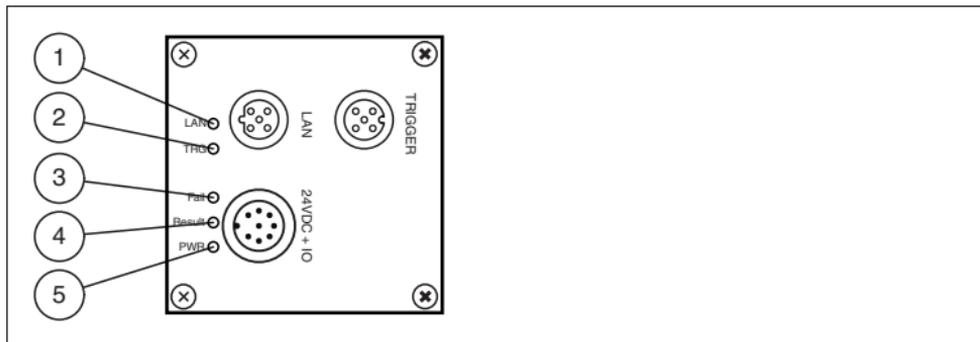
1 **Network (LAN):**
Lights up yellow as soon as a physical connection is established

2 **Trigger (TRG):**
Lights up yellow when a trigger signal is connected

3 **Fault (Fail):**
Lights up red when no code is found

4 **Result:**
Lights up green when the code was successfully decoded

5 **Power (PWR):**
Lights up green when the sensor is connected to a power supply

2.2 Interfaces and connections

The device includes the following connections:
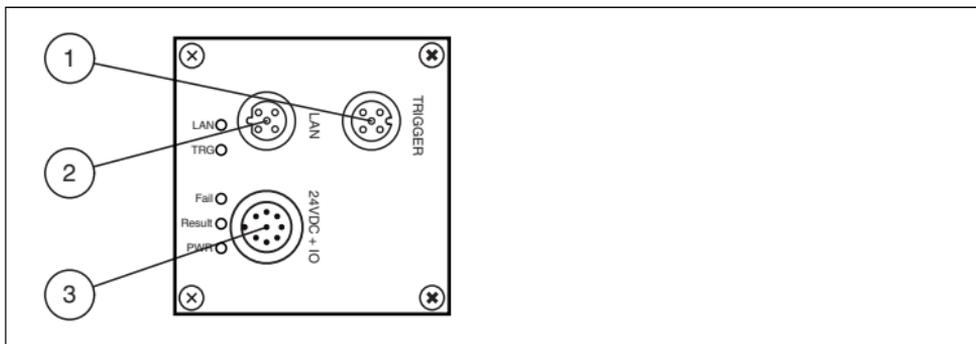
1 Trigger sensor (4-pin M12 female connector)
2 Network (4-pin M12 female connector)
3 Power supply, inputs and outputs (8-pin M12 male connector)

Power supply

There is an 8-pin M12 plug on the rear of the sensor housing for connecting the power supply and the inputs and outputs. The following diagram shows the pin assignment:
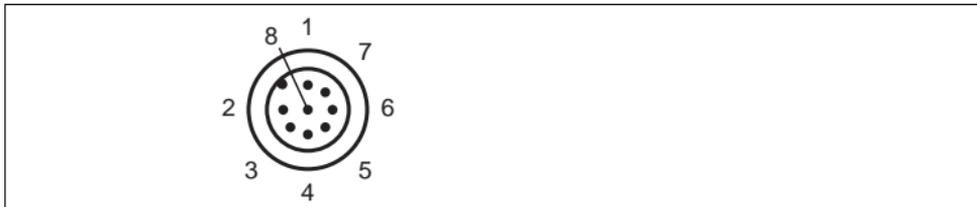
Figure 2.1: Connection layout for supply voltage and inputs and outputs

1 IN Trigger
2 +UB
3 OUT Result
4 OUT Fail
5 IN 1
6 OUT 1
7 GND
8 OUT Matchcode

Network

There is a 4-pin M12 socket on the rear of the sensor housing for connecting to the network. The following diagram shows the pin assignment:

Figure 2.2: Network connection layout

1 TX+ Ethernet
2 RX+ Ethernet
3 TX- Ethernet
4 RX- Ethernet

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Trigger sensor

There is a 5-pin M12 socket on the rear of the sensor housing for connecting a trigger sensor. The following diagram shows the pin assignment:

Figure 2.3: Trigger sensor connection layout

1   +UB
2   NC
3   GND
4   IN Trigger
5   NC

2.3   Accessories

Various accessories are available.

2.3.1 Power supply

Use the following connection cable to connect the power supply, inputs and outputs to the sensor.

M12 connection cables

	Material	Length	Cable end, field attachable
8-pin M12 socket, straight	PUR	2 m	V19-G-2M-PUR-ABG
		5 m	V19-G-5M-PUR-ABG
		10 m	V19-G-10M-PUR-ABG
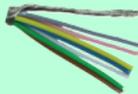
Field-attachable M12 connectors

Model number	Description	mm^2	Cable dia.
V19-G-ABG-PG9	8-pin M12 socket, straight	max. 0.75	5 to 8 mm

Other lengths on request.

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2.3.2 Connection cable for trigger sensor

Use the following connection cable if you want to connect a trigger sensor to the sensor.

M12 connection cables

	Material	Length	M12 plug, straight	M12 plug, angled
5-pin M12 socket, straight	PUR	2 m	V15-G-2M-PUR-V15-G	on request
		5 m	V15-G-5M-PUR-V15-G	on request
		10 m	V15-G-10M-PUR-V15-G	on request
5-pin M12 socket, angled	PUR	2 m	V15-W-2M-PUR-V15-G	on request
		5 m	V15-W-5M-PUR-V15-G	on request
		10 m	V15-W-10M-PUR-V15-G	on request

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Field-attachable M12 connectors

Model number	Description	mm^2	Cable dia.
V15B-G	5-pin M12 socket, straight	max. 0.75	4 to 6 mm
V15-W-PG9	5-pin M12 socket, angled	max. 0.75	6 to 8 mm
V15B-W	5-pin M12 socket, angled	max. 0.75	4 to 6 mm

Other lengths on request.

2.3.3 Network cable

The sensor is connected to the network using an M12 connector.

Designation	Description
V45-G	RJ45 network connector, field attachable
V1S-G	4-pin M12 connector, field attachable
V1SD-G-2M-PUR-ABG-V45X-G	Connection cable, RJ45 network connector with M12 plug, cross-over, 4-pin
V1SD-G-2M-PUR-ABG-V45-G	Connection cable, RJ45 network connector with M12 plug, 4-pin

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3 Installation

3.1 Montage

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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 reading distance can be found in the technical data in the datasheet.
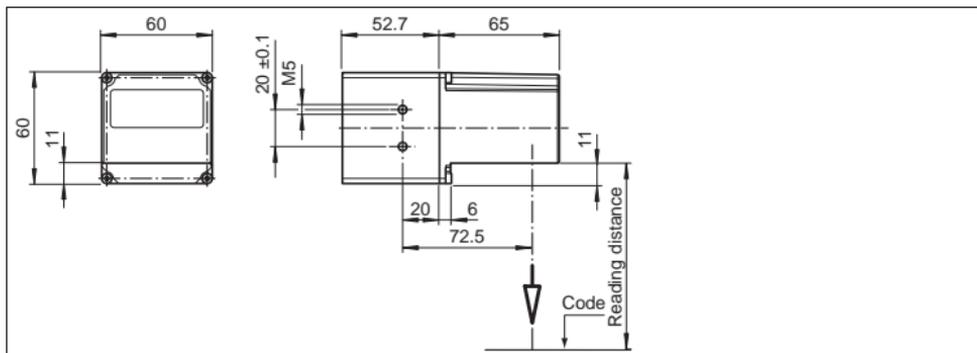
Figure 3.1: Dimensions of the **angle** housing

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Note!

Connection to ground

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

3.2 Connecting the device

▶ Connecting the power supply

To provide power to the sensor, proceed as follows:

1. Plug the 8-pin M12 socket into the connector provided for this purpose on the back of the housing.

2. Screw the cap nut as far as it will go over the connector.

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

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Note!

Record the network configuration

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

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Note!

Network cabling

Use a crossover network cable to connect the sensor directly to a PC. If the sensor 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.

1. If you are using a network cable that has a RJ45 network plug at one end and a 5-pin M12 socket at the other, insert the 5-pin M12 socket in the connector on the rear of the sensor.

2. When delivered, the sensor 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.

Plug the 5-pin M12 plug into the connector provided for this purpose on the back of the housing.

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3.3   Assigning an IP address to a network connection using Windows XP

▶   To assign an IP address to a network connection using Windows XP, proceed as follows.

1.   First select "**Network Connections**".
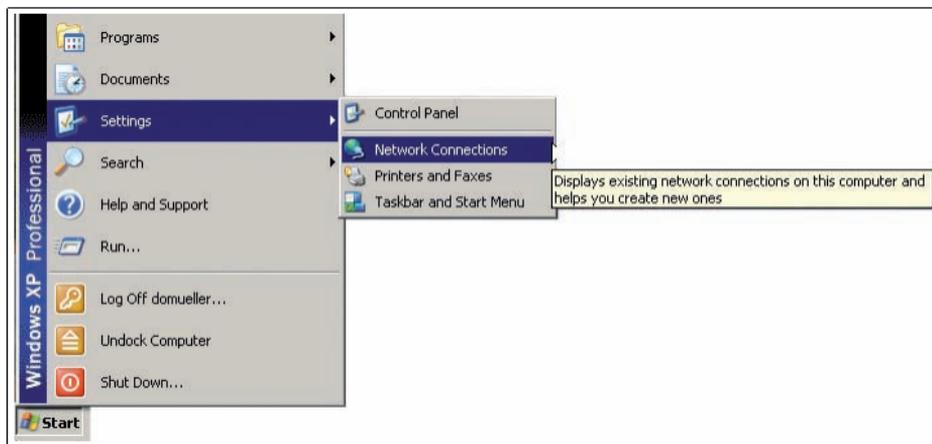
2.   Then open the required connection by double clicking on it.

↳ The Properties dialog box for the relevant connection will open.

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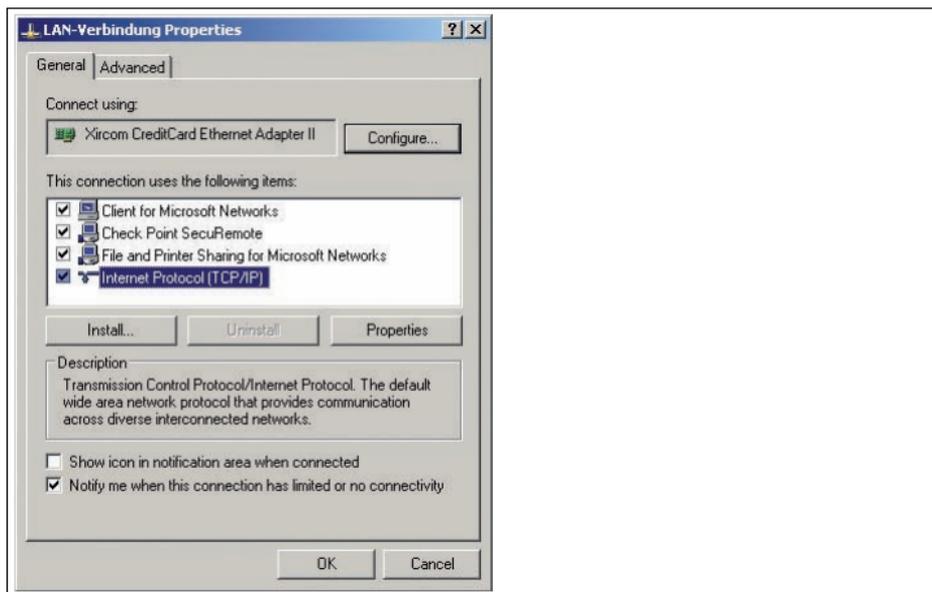
3. Select the "**Internet Protocol (TCP/IP)**" element from the Properties dialog box by double clicking on it.

↳ The TCP/IP properties dialog box will open.
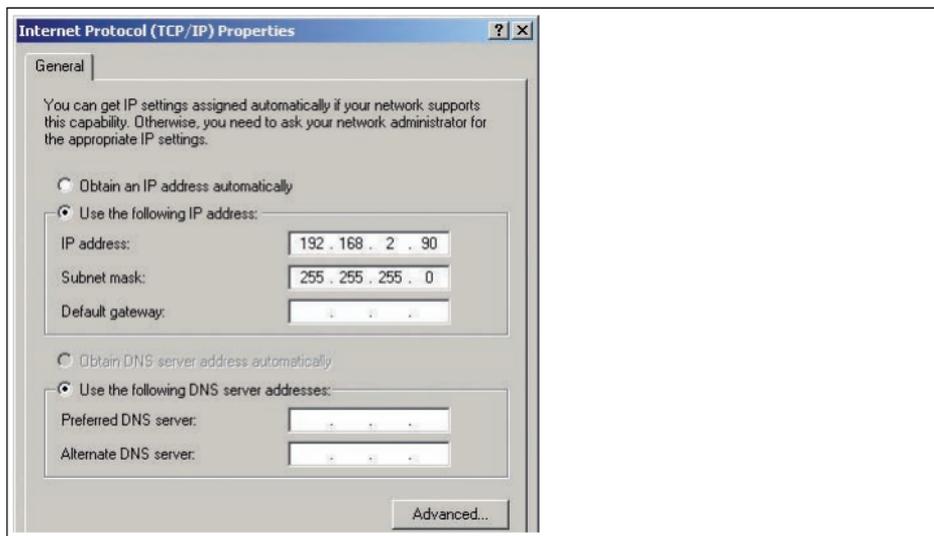
4. In the TCP/IP properties dialog box, activate "**Use the following IP address**".

5. Enter an IP address which only differs from the sensor IP address in the very last segment.

6. Enter 255.255.255.0 as the subnet mask.

7. Then confirm your entries on the TCP/IP properties page and the LAN connection properties page using "**OK**" and "**Close**".

↳ This completes the network configuration and the sensor can be used.

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4 Commissioning

4.1 Connecting the stationary reader

The sensor has its own web server. This allows you to use a standard web browser to make settings on the stationary reader.

▶ Aligning the stationary reader

1. Provide power to the sensor via the 8-pin M12 plug.

2. Set the sensor so that there is a appropriate reading distance between the sensor and the code (The reading distance can be obtained from the appropriate data).

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

5 Operation

5.1 Web-based operator interface

You have the option of configuring and operating the sensor via a web-based operator interface and using it to display information. The web-based user interface should only be used for set-up and troubleshooting purposes when the machine is down.

Note!

To start the operator interface of the sensor, you need a standard web browser (e.g., Windows Internet Explorer or Mozilla Firefox) with Java script activated.

We recommend the following browser versions

Firefox	3.6.8	Communication between MAC and PC via LAN interface
Internet Explorer	6.0.2900.2180	Communication between MAC and PC via LAN interface

Starting the operator interface

To start the operator interface, proceed as follows.

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

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

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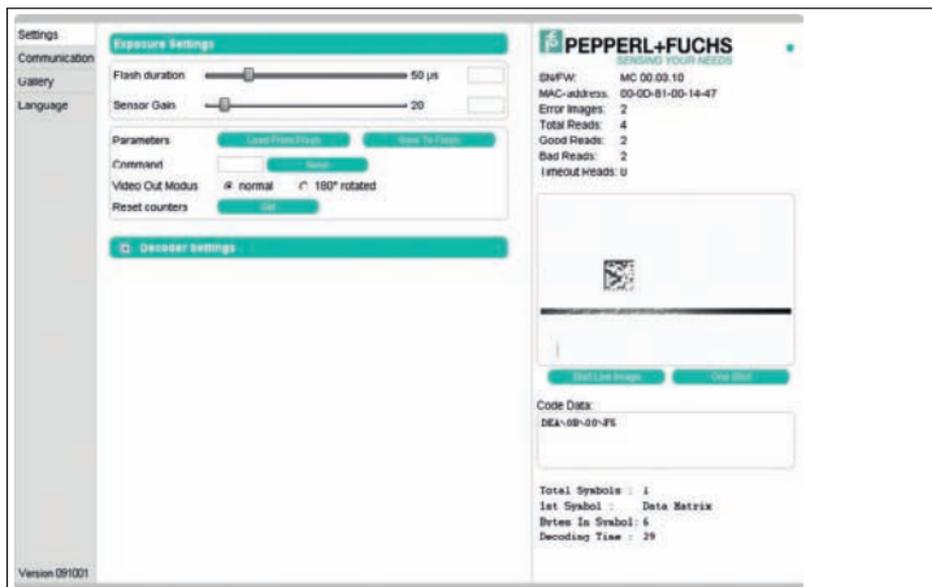
Figure 5.1: **Settings** dialog box

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

- Settings
- Communication
- Gallery
- Language

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Various 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.) are 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 on the **Start Live Image** button on the right-hand side of the display screen.

↳ The stationary reading device 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

Click on the **One Shot** button on the right-hand side of the display screen.

↳ Clicking the button triggers a single image capture.

5.1.1   **Settings** tab

The **Settings** tab enables you to configure various parameters and send commands to the sensor. The buttons on the left-hand side of the display allow you to navigate to the other tabs, **Communication**, **Gallery** and **Language**.
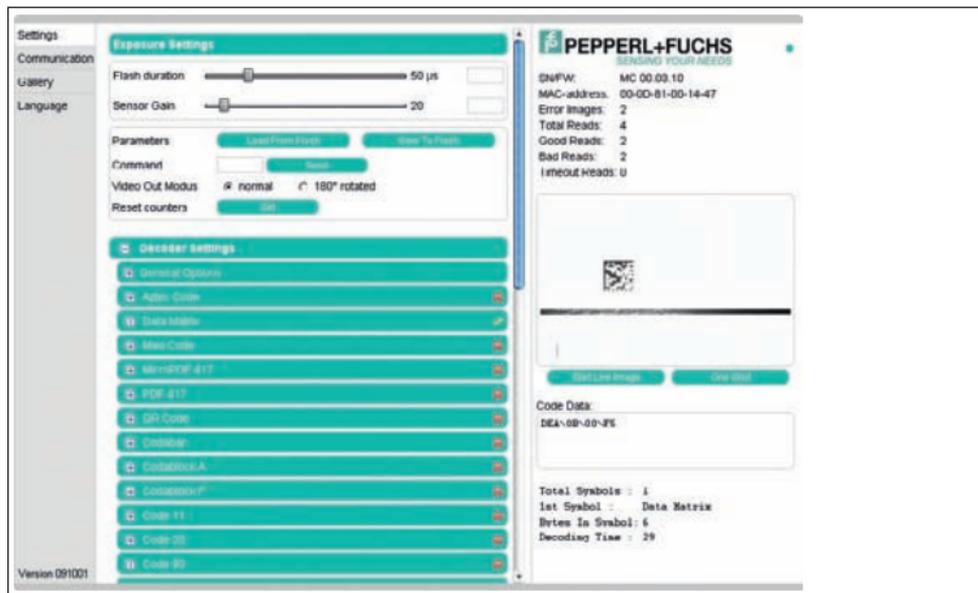
In the center of the screen, the following functions are available in different sections.

Sensor parameters

Settings	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.
Parameter set	Load From Flash: Use this button to load parameter settings from the internal memory (flash EEPROM). Save To Flash: Use this button to save your current parameter settings in the internal memory (flash EEPROM).
Command	Send individual commands to the sensor.
Video Out mode	This parameter can be used to rotate the video image up to 180° on devices with a video output.
Resetting the counter	The trigger counter value can be reset to 0 here.

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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 ... 9, A ... 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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