

MANUAL

OPC120P-F201-B17

Optical Print Inspector with PROFINET interface



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

Informative Symbols



Note!

This symbol brings important information to your attention.



Action

This symbol indicates a paragraph with instructions.

Contact

If you have any questions about the device, its functions, or accessories, please contact us at:

Pepperl+Fuchs GmbH
Lilienthalstraße 200
68307 Mannheim
Telephone: +49 621 776-4411
Fax: +49 621 776-274411
E-Mail: fa-info@pepperl-fuchs.com



2 Declaration of conformity

This product was developed and manufactured under observance of the applicable European standards and guidelines.



Note!

A Declaration of Conformity can be requested from the manufacturer.

The product manufacturer, Pepperl+Fuchs GmbH, D-68307 Mannheim, has a certified quality assurance system that conforms to ISO 9001.



3 Safety

3.1 Safety-Relevant Symbols



Danger!

This symbol indicates an imminent danger.

Non-observance will result in personal injury or death.



Warning!

This symbol indicates a possible fault or danger.

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



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.

3.2 Intended Use

The stationary read devices OPC-*, OPD-*, and OPE-* are used to decode 1-D and 2-D codes.

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

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

3.3 Operation, Maintenance, Repair

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.

The device must not be repaired, changed or manipulated.

If there is a defect, always send back the device to Pepperl+Fuchs.

3.4 Delivery, Transport, Disposal

Check the packaging and contents for damage.

Check if you have received every item and if the items received are the ones you ordered.

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 (see datasheet) must be considered.

Disposing of device, packaging, and possibly contained batteries must be in compliance with the applicable laws and guidelines of the respective country.

4 Product Description

4.1 Indicators and Operating Controls

The illumination unit contains 7 LED indicators that provide information on the status of the device.



Figure 4.1 Indicators

- 1 **BUS LINK**
Green LED: PROFINET connection active
- 2 **BUS TX / RX**
Yellow LED: PROFINET data transfer
- 3 **BUS / ERR**
Red LED: PROFINET communication error
- 4 **GOOD / BAD**
Green/red LED: reading successful (green) or failed (red)
- 5 **TRIGGER**
Yellow LED: trigger pulse triggered
- 6 **RUN**
Yellow LED: sensor ready for operation
- 7 **INTERNAL DIAGNOSTICS**
Red/yellow/green LED: diagnostic message, no function

4.2 Interfaces and Connections

The following device connections are located on the device:

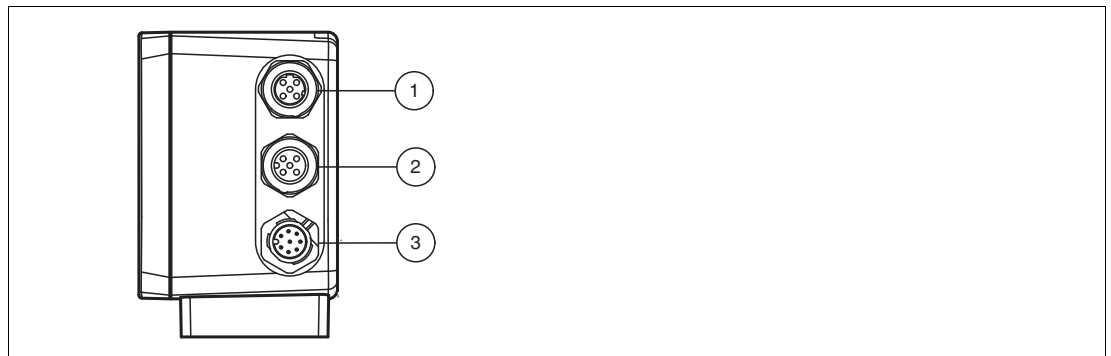


Figure 4.2 Device Connections

- 1 PROFINET 1 (4-pin M12 socket)
- 2 PROFINET 2 (4-pin M12 socket)
- 3 Main (8-pin M12 plug)



Caution!

Damage to the device

Connecting an alternating current or excessive supply voltage can damage the device or cause the device to malfunction.

Electrical connections with reversed polarity can damage the device or cause the device to malfunction.

Connect the device to direct current (DC). Ensure that the supply voltage rating is within the specified device range. Ensure that the connecting wires on the female cordset are connected correctly.

Power supply (main)

There is an 8-pin M12 connector on the side of the housing to connect the power supply and the inputs and outputs. The following diagram shows the pinning.



Figure 4.3 Connection Layout (main)

- 1 Trigger IN
- 2 + UB
- 3 USB_DM
- 4 USB_DP
- 5 n.c.
- 6 n.c.
- 7 GND
- 8 n.c.

PROFINET Interface

There are two 4-pin M12 sockets on the side of the housing. The following diagram shows the pinning.

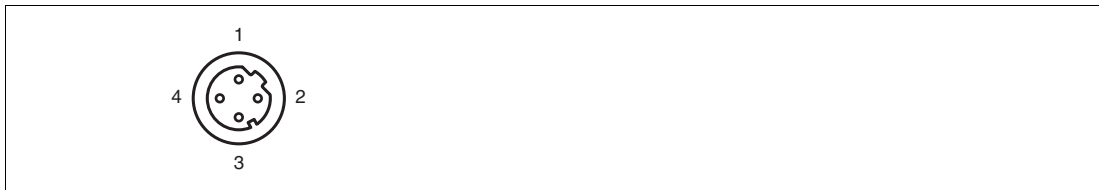


Figure 4.4 PROFINET Connection Layout

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

Shielding Cables

The shielding of cables is required to suppress electromagnetic interference. Establishing a low resistance or low impedance connection with the conductor or equipotential bonding circuit is a particularly important factor in ensuring that these interference currents do not become a source of interference themselves. Always use cables with braided shield, never use cables with a film shield. The shield is integrated at both ends, i.e., in the switch cabinet, on the controller, **and** on the reader. The grounding terminal available as an accessory allows easy integration in the equipotential bonding circuit.

In exceptional cases, the shielding of a connection at one end may be more favorable if

- An equipotential bonding cable is not laid or cannot be laid.
- A film shield is used.

The following points relating to shielding must also be noted:

- Use metal cable clips that cover large areas of the shield.
- After installing the cable shield in the control cabinet, place it directly on the equipotential bonding rail.
- Direct the protective grounding connections to a common point in a star configuration.
- The cross-section of the cables used for grounding should be as large as possible.

4.3

Scope of Delivery

- Optical Print Inspector
- Quick start guide

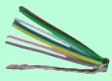

4.4 Accessories

Various accessories are available.

4.4.1 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.

4.4.2 Network Cable

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

Designation	Description
V45-G	RJ45 network plug, field attachable
V1S-G	M12 plug, 4-pin, field attachable
V1SD-G-2M-PUR-ABG-V45X-G	Double-ended cordset, RJ45 network plug with M12 plug, crossed, 4-pin
V1SD-G-2M-PUR-ABG-V45-G	Double-ended cordset, RJ45 network plug with M12 plug, 4-pin

5 Installation

5.1 Mounting the Device



Note!

Mounting an optical device

- Do not aim the sensor at the sun.
- Protect the sensor from direct long-term exposure to sun.
- Prevent condensation from forming by not exposing the sensor to any major fluctuations in temperature.
- Do not expose the sensor to the effects of any aggressive chemicals.
- Keep the lenses and reflector of the device clean. Clean with a soft cloth, using standard commercial glass cleaner if necessary.

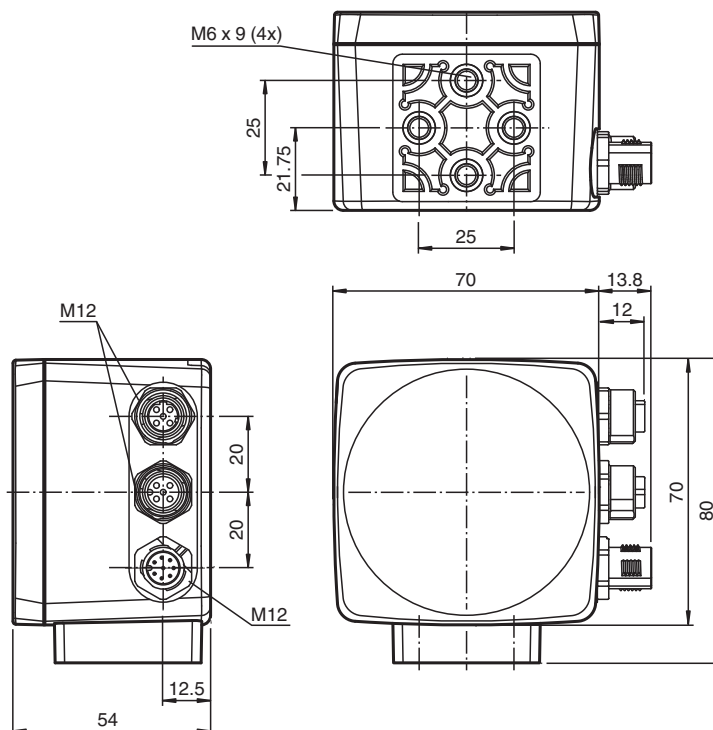
We recommend to clean the optical surface and to check screw fittings and electrical connections at regular intervals.

The surface must be level to prevent the housing from becoming distorted when the fittings are tightened. After mounting the sensor, ensure that there is still enough space to connect the connection cable to the sensor.

The reader has four symmetrically positioned M6 threads on the base of the housing to allow easy mounting of the reader in your plant.

The read distance differs according to the reader. You can find the correct read distance in the technical data for reader installation.

The following illustration shows all the relevant housing dimensions in mm:



Note!

Connection to ground

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



6 Commissioning

6.1 Connecting the Stationary Read Device

Supply power to the reader via the main connection on the device. See chapter 4.2

The sensor is usually configured exclusively using the machine control system. For test purposes and to work out the optimum settings, the sensor can be configured using Vision Configurator. See chapter 7.3

7 Operation

7.1 Communication via PROFINET

7.1.1 General information on communication via PROFINET

PROFINET is an open standard for industrial automation based on industrial Ethernet. PROFINET integrates information technology with established standards such as TCP/IP and XML into automation technology.

The communication concept for setting up decentralized applications within PROFINET is PROFINET IO, i.e. decentralized field devices are installed by PROFINET IO. The familiar IO view of PROFIBUS DP is used where the usable data of the field devices is cyclically transferred to the controller process image. PROFINET IO is a device model consisting of slots and channels, which is based on the main features of PROFIBUS DP. The field device properties are described in GSDML (General Station Description Markup Language) in XML format. PROFINET IO is engineered in the same way as system integrators from PROFIBUS DP have been for years. Here, the decentralized field devices are assigned in the settings of a controller.

PROFINET IO draws a distinction between three device types: IO controller, IO device, and IO supervisor:

IO controller: Controller that executes the automation program.

IO device: Decentrally assigned field device that is assigned to an IO controller.

IO supervisor: Programming unit/PC with commissioning and diagnostic function.

7.1.2 PROFINET I/O Interface

The OPC120P-F201-B17 reader is a field device that communicates cyclically with the assigned I/O controller.

The PROFINET interface of the reader supports:

- A transfer rate of 100 Mbit/s
- The real-time category RT
- The range of functions in accordance with **Conformance Class B**
- The identification and maintenance functions (I&M) IM0 – IM4

Identification & Maintenance Data

Identification and maintenance data (I&M data) is information stored in a device. I&M data uniquely identifies a device within a system. The identification data (I data) includes information about the device, for example the item number and device name. Identification data cannot be changed.

Maintenance data (M data) includes information regarding the device within the system, for example the installation location and installation date. Maintenance data is initially stored in the device during installation; this data can be changed.

Data Input

The Step7 software from Siemens can be used to display and change the I&M data. You can read and write I&M data 1, 2 and 3 in the "Target System" menu of the HW Config hardware configuration using the functions "Download Module Identification" and "Download Module Identification to PG". → see Figure 7.1 on page 15.

I&M Data

I&M data 1	=	system ID location ID
I&M data 2	=	installation date
I&M data 3	=	additional information

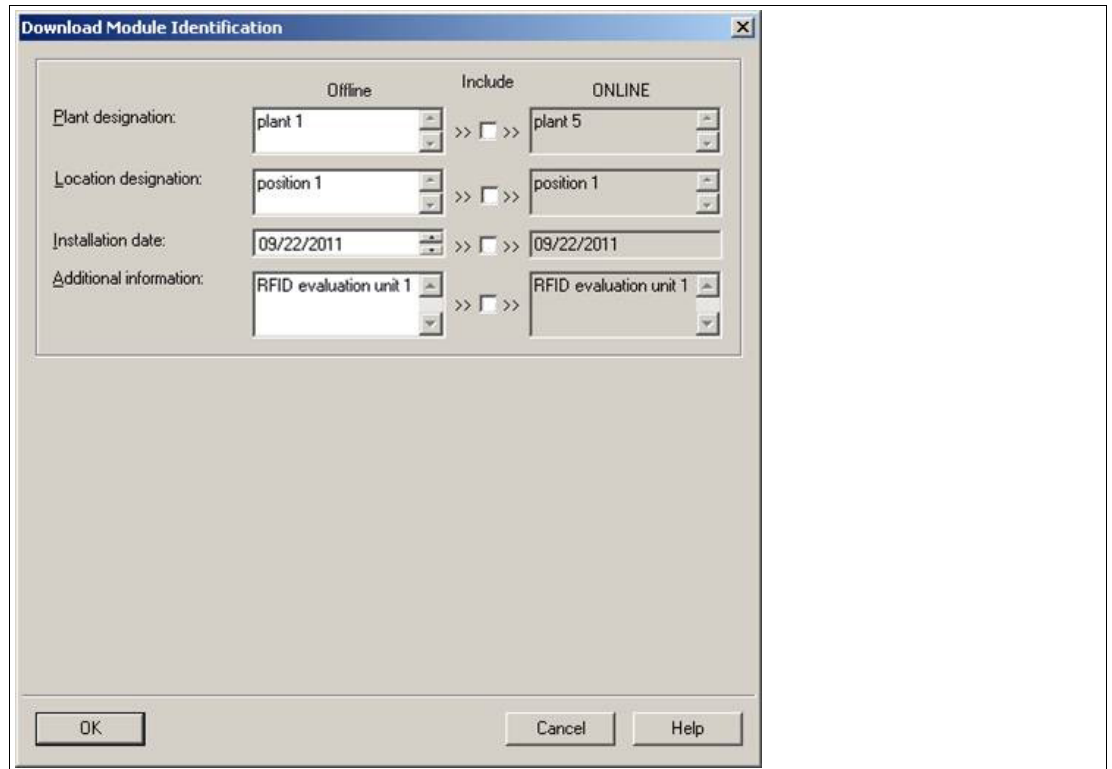


Figure 7.1

7.1.3 Project Planning Using Device Description

As with PROFIBUS DP, a field device is integrated into the project planning tool by way of a device description. The field device properties are described in the GSD file. The GSD file contains the field device data (technical features and information for communication) that you need to operate the device in a PROFINET network.

Import the GSD file into a project planning tool. Peripheral addresses are assigned to the individual channels of the field devices. The peripheral input addresses incorporate the received data. The user program evaluates and processes this data. The user program generates the peripheral output values and sends them to the control interface.

Once project planning is complete, the I/O controller receives the planning and configuration data. The I/O controller parameterizes and configures the field devices automatically.

Downloading the GSD File

You can find the relevant GSD file in the **Software** section of the product detail page for the device.

To access the product detail page for the device, go to <http://www.pepperl-fuchs.com> and type information about the device (e.g., the product description or the item number) into the search function.

Configuration Process Using the GSD File

Import the GSD file into your control system.

The reader appears in the control system module view in the **OPC code reader**.

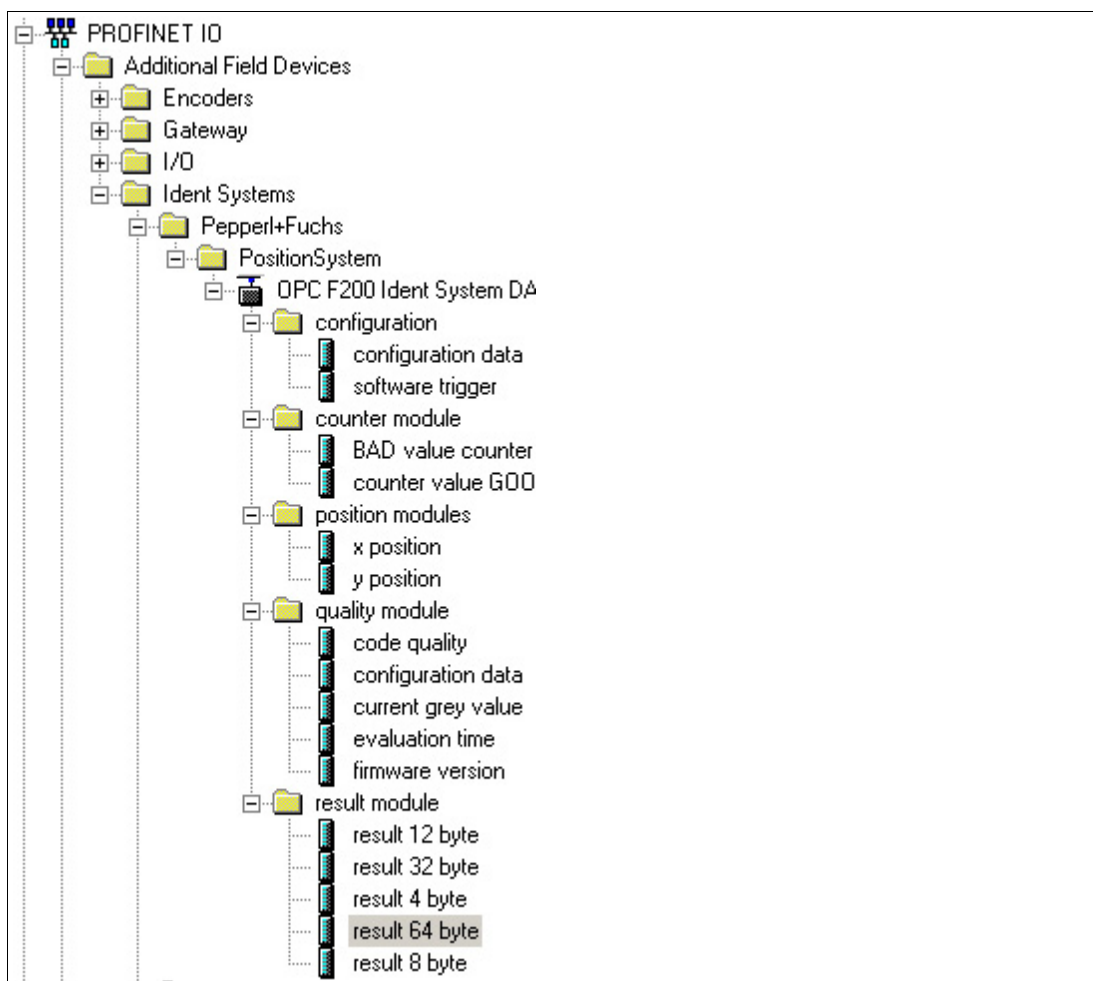


Figure 7.2 OPC120P-F201-B17 in module view

7.1.4 PROFINET Address and Identifying a Device

Every field device has a unique device identification. This device identification consists of the following:

- A **device name**. The default device name is `opc-f201`.
- An **IP address**. The default IP address is `192.168.2.3`.

7.1.5 PROFINET Modules

The OPC120P-F201-B17 reader has the following PROFINET modules.



Example!
Illustration in the controller

Slot	Module	Order number	I address	Q address	Diagnostic address:	Comment
0	opc-1201-6	OPC120P-F201			2012*	
	<i>Interface</i>				<i>2011*</i>	
	<i>Port 1</i>				<i>2010*</i>	
	<i>Port 2</i>				<i>2009*</i>	
1	<i>Konfiguration</i>				<i>2008*</i>	
2	firmware version		280...281			
3	x position		260...263			
4	y position		264...267			
5	counter value GOOD		258...259			
6	code quality		268...271			
7	BAD value counter		256...257			
8	evaluation time		278...279			
9	current grey value		276...277			
10	software trigger			272...273		
11	configuration data			266...271		
12	configuration data				274**	
12.1	<i>configuration ID</i>			<i>274...275</i>		
12.2	<i>configuration value</i>		<i>272...275</i>			
13	result 4 byte		294...297			
14	result 8 byte		336...343			
15	result 12 byte		282...293			
16	result 32 byte		304...335			
17	result 64 byte		674...737			

Figure 7.3 PROFINET Modules in SIMATIC Manager

The e-address is assigned dynamically by the controller.

Result Modules

The results of the last reading can be retrieved via PROFINET using the result modules.

Module	Type	Size	Description
Result string: 4 bytes	Input data	2 words data (4 bytes)	Result of the last reading Length: 4 bytes
Result string: 8 bytes	Input data	4 words data (8 bytes)	Result of the last reading Length: 8 bytes
Result string: 12 bytes	Input data	6 words data (12 bytes)	Result of the last reading Length: 12 bytes
Result string: 32 bytes	Input data	16 words data (32 bytes)	Result of the last reading Length: 32 bytes
Result string: 64 bytes	Input data	32 words data (64 bytes)	Result of the last reading Length: 64 bytes

Configuration Modules

The configuration modules allow you to parameterize the reader using PROFINET.

Module	Type	Size	Description
Configuration data	Output data	1 word ID + 2 words data (2 + 4 bytes)	Changing the parameters of the sensor during runtime Byte 1: ID of the parameter to be changed, byte 2 + byte 3: value of the parameter
Software trigger	Output data	1 word (2 bytes)	Causes a software trigger. Any change to this value (not equal to 0) triggers an image capture with evaluation.

Position Modules

Using the position modules, you can request data from the reader via PROFINET.

Module	Type	Size	Description
X position	Input data	2 words (4 bytes)	Position of the read code in the image in the X-direction (value in pixels)
Y position	Input data	2 words (4 bytes)	Position of the read code in the image in the Y-direction (value in pixels)

Quality Modules

Using the quality modules, you can read and evaluate data via PROFINET.

Module	Type	Size	Description
Evaluation time	Input data	1 word (2 bytes)	Evaluation time of the decoding routine of the last measurement
Firmware version	Input data	1 word (2 bytes)	Firmware version Byte 1: major version, byte 2: minor version
Grayscale value	Input data	1 word (2 bytes)	Current grayscale value/contrast Byte 1: current contrast, byte 2: current grayscale value

Module	Type	Size	Description
Read quality	Input data	1 word (2 bytes)	Quality of the last evaluation Byte 1: length of the code last read, byte 2: reading successful (1) or no code found (0)
Parameter data	Input/output data	1 word ID + 2 words data (2 + 4 bytes)	Reading a specific parameter during runtime Parameter ID submodule: ID of the parameter to be read Configuration value submodule: output of the value of the relevant parameter

Counter Modules

Using the counter modules, the number of successful or failed readings can be retrieved via PROFINET.

Module	Type	Size	Description
Result counter: good measurements	Input data	1 word (2 bytes)	Counts all successful readings. After an overflow, the counter starts at 0 again. Can be used to indicate that a new result is present.
Result counter: bad measurements	Input data	1 word (2 bytes)	Counts all failed readings. After an overflow, the counter starts at 0 again. Can be used to indicate that a new result is present.

Parameter Arrangement

The current reader parameters are shown in the properties in the configuration software of your control system.

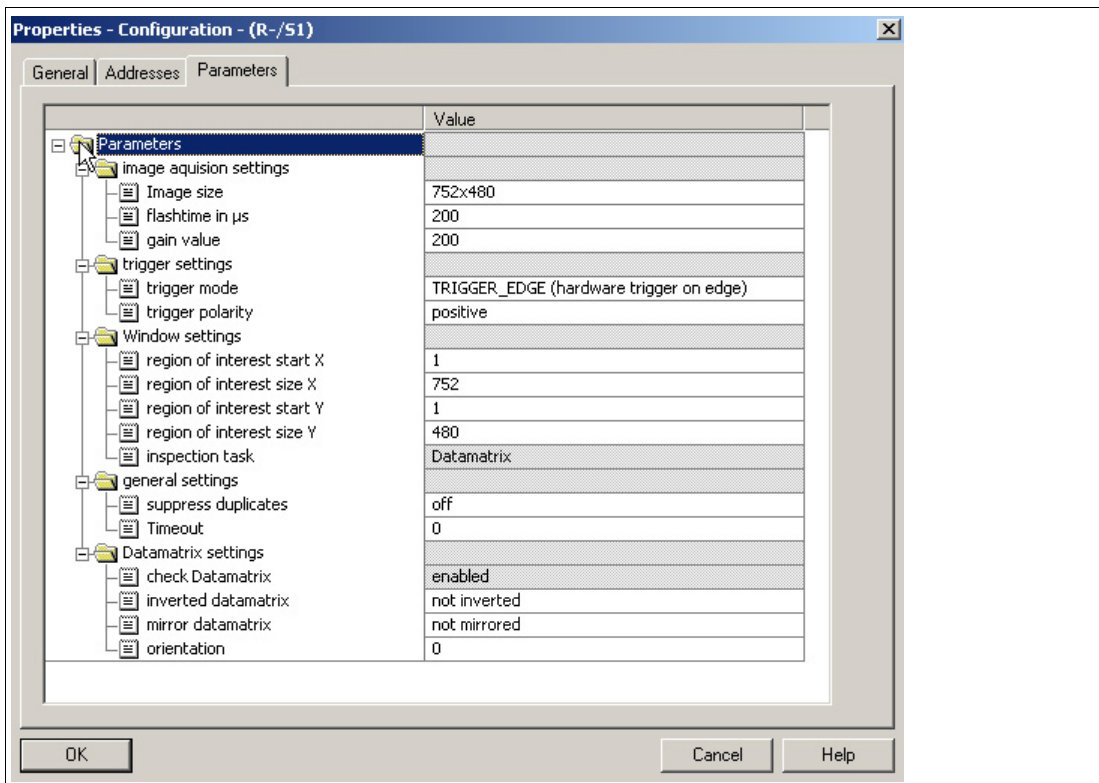


Figure 7.4 Parameters tab in the Properties window

Parameters	Factory default setting	Min. value	Max. value	Description
Image size	752x480	752x120	752x480	Size of the recorded image in pixels. Possible sizes are 752x480, 752x240, 752x160, 752x120
Flash duration	200	50	2000	Flash duration (exposure time of the image capture) in µs
Gain	200	0	250	Gain factor for image capture
Trigger mode	Edge	-	-	Operating mode for the hardware trigger
Trigger polarity	Positive	-	-	Selection of edge for external trigger (positive/negative)
ROI start X	1	1	752	First pixel for the search area within the image in the X-direction (from left)
ROI size X	752	0	752	Size of the search area in the X-direction
ROI start Y	1	1	480	First pixel for the search area within the image in the Y-direction (from above)
ROI size Y	480	0	480	Size of the search area in the Y-direction
Inspection mode	Data Matrix	-	-	Code type to be read (currently Data Matrix codes only)

2014-12

Parameters	Factory default setting	Min. value	Max. value	Description
Duplicate suppression	Off	-	-	If active, the evaluation is ignored if the result is consistent with the previous evaluation.
Timeout	0 (deactivated)	0	255	Timeout of the evaluation in ms. If no Data Matrix code is read after this time, the process is canceled and an incorrect reading is output.
Data Matrix evaluation	Activated	-	-	Search for Data Matrix codes is active
Inverse Data Matrix	Deactivated	-	-	Reading of inverse Data Matrix codes (white pattern on a black background)
Mirrored Data Matrix	Deactivated	-	-	Reading of mirrored Data Matrix codes
Orientation	0 (any)	0	15	Specification for orientation of the Data Matrix code

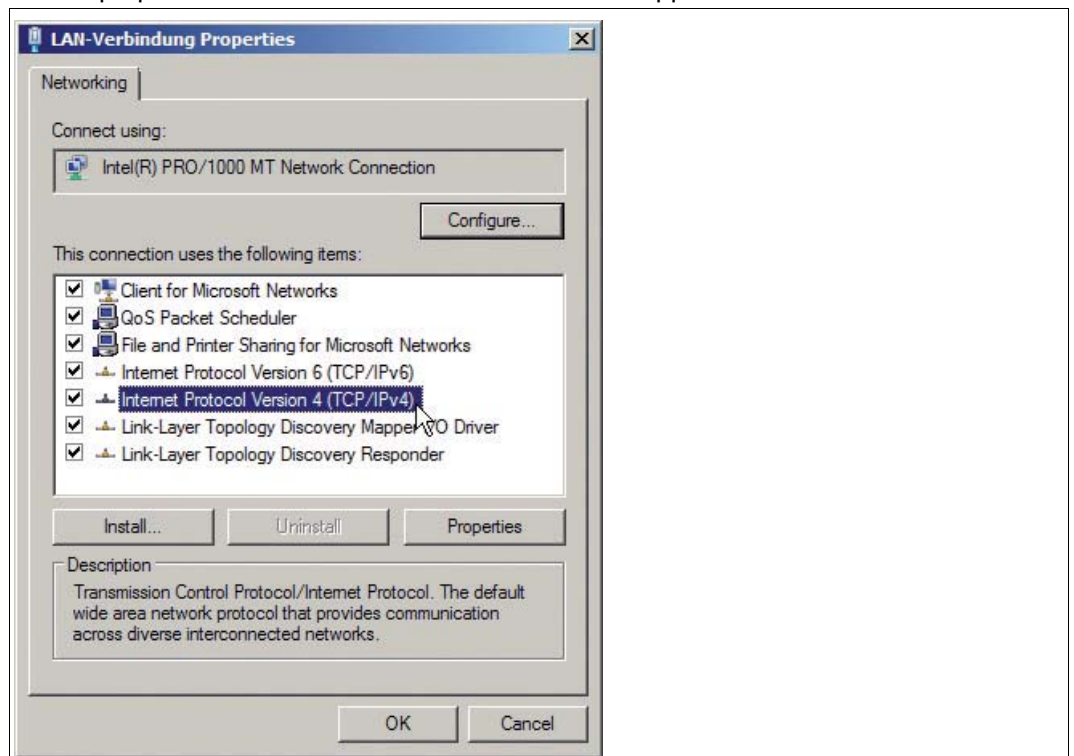
7.2 Establishing a Connection to the PC



Configuring the IP Address of the PC (Windows 7)

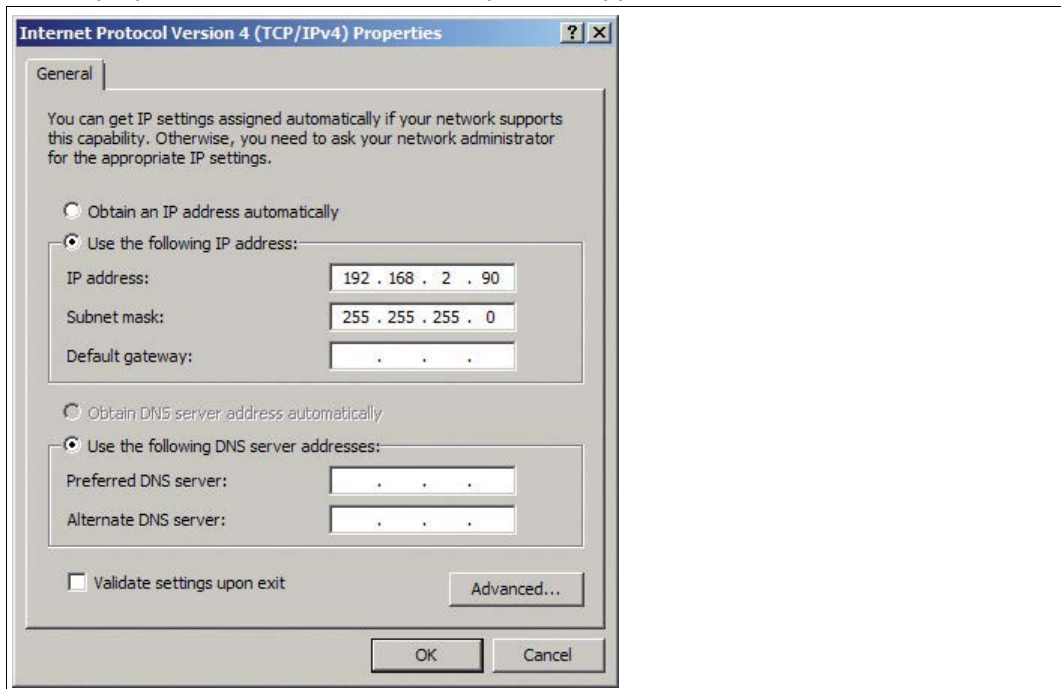
1. Select **Start > Control Panel**.
2. Select **Network and Sharing Center**.
3. Select **Change adapter settings** in the Network and Sharing Center view.
4. Double-click on the required connection.

↳ The properties window for the selected connection appears.



5. Double-click on **Internet Protocol version 4 (TCP/IPv4)**.

↳ The properties window for the TCP/IP protocol appears.



6. Select **Use the following IP address**.

7. Enter an IP address with a network portion (the first three segments) that is identical to that of the sensor, e.g., 192.168.002.090. The device portion (the last segment) must be different to the IP address of the sensor. In the event that you do not know the IP address of the sensor, you can assign a new IP address to the sensor using a control code. See chapter 7.3.8

8. Enter 255.255.255.0 as the network mask.

9. Click **OK** and **Close**.

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

7.3 Configuration Process Using Vision Configurator

The sensor is usually configured exclusively using the machine control system. For test purposes and to work out the optimum settings, the sensor can be configured using Vision Configurator.



Note!

As soon as the sensor has established a PROFINET connection to the machine control system, the settings that were made using Vision Configurator, including the network configuration, are overwritten by the machine control system settings.

The Vision Configurator software makes it easy to operate the sensor with its user-friendly interface. Standard functions include making connections to the sensor, specifying the operating parameters, saving data sets, and displaying data and error diagnostics.

Downloading Vision Configurator

You can find the current version of Vision Configurator in the **Software** section of the product detail page for the sensor.

To access the product detail page for the sensor, go to <http://www.pepperl-fuchs.com> and type information about the device (e.g., the product description or the item number) into the search function.

The following user roles are predefined in Vision Configurator.

User	Description	Password
Default	View all information Create users at same or lower level	A password is not required
User	View all information Sensor configuration Create users at same or lower level	User
Admin PFAdmin	View all information Sensor configuration Create and delete users	Request the Admin password from Pepperl+Fuchs

The application screen opens after the log-in process. Certain functions are not available depending on which user is selected during the log-in process.

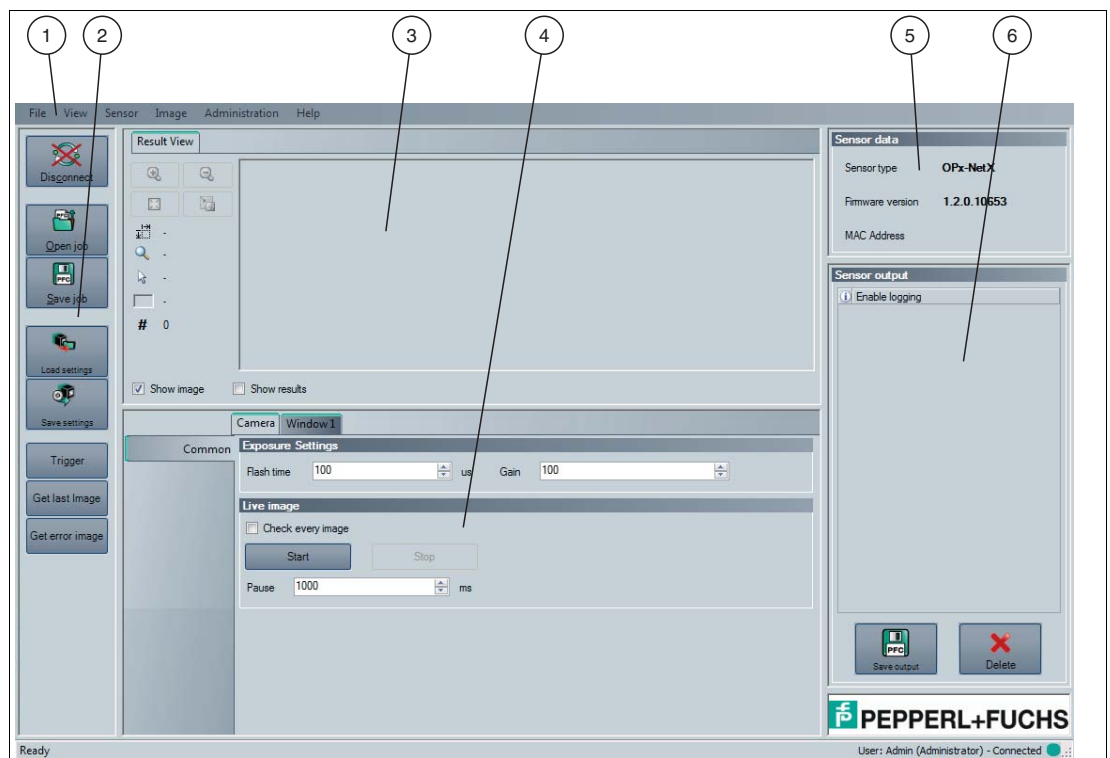


Figure 7.5 Application screen

1	Menu bar	The menu bar contains all program options.
2	Toolbar	The toolbar contains buttons for all standard functions.
3	Image display	The image display shows images that have been captured and result information.
4	Configuration window	The configuration window contains sensor-specific parameters that can be set.
5	Sensor data window	The Sensor data section contains information about the connected sensor.
6	Sensor output window	The Sensor output section contains a protocol about the most recently performed actions.



7.3.1 Menu Bar

The menu bar contains a list of menu items. The functionality depends on the type of sensor that is connected and the permissions of the user logged in.

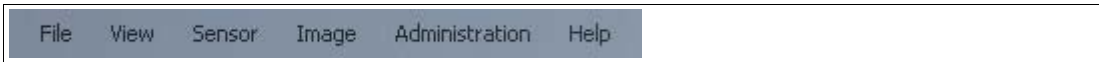





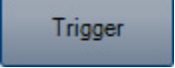
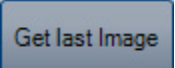
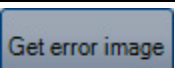


Figure 7.6 Menu Bar

7.3.2 Toolbar

The toolbar contains various function icons.

 Disconnect	Disconnects the connection between the PC and the sensor.
 Open job	Loads the settings from a configuration file.
 Save job	Saves the settings that have been made in a configuration file.
 Load settings	Loads the settings from the sensor.
 Save settings	Transfers the settings that have been made to the sensor.
 Trigger	Triggers the sensor.
 Get last Image	Loads the most recently captured image in the image display.
 Get error image	Loads the last image in the image display where the reading failed.

7.3.3 Image Display

In the image display, there are different options for displaying the captured data. You can show and hide the image display in the left-hand section and the results display in the right-hand section using the checkboxes **Show image** and **Show results**.

The image display shows the image captured by the sensor. If a code can be read from the image inside the read range, the results display shows the reading result, the code type, and the required decoding time.

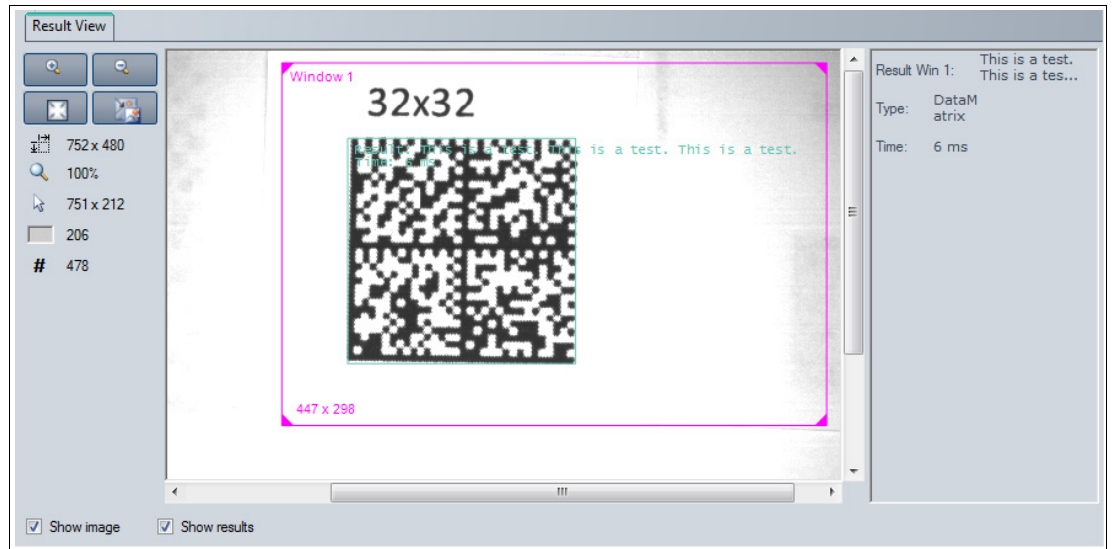


Figure 7.7 Image and results display

To open a context menu containing additional options, right-click on the image display.



Figure 7.8 Context menu

Context Menu

Load image file...	Loads a previously saved image in the image display
Open image folder	Opens the storage location
Save image	Saves the current image

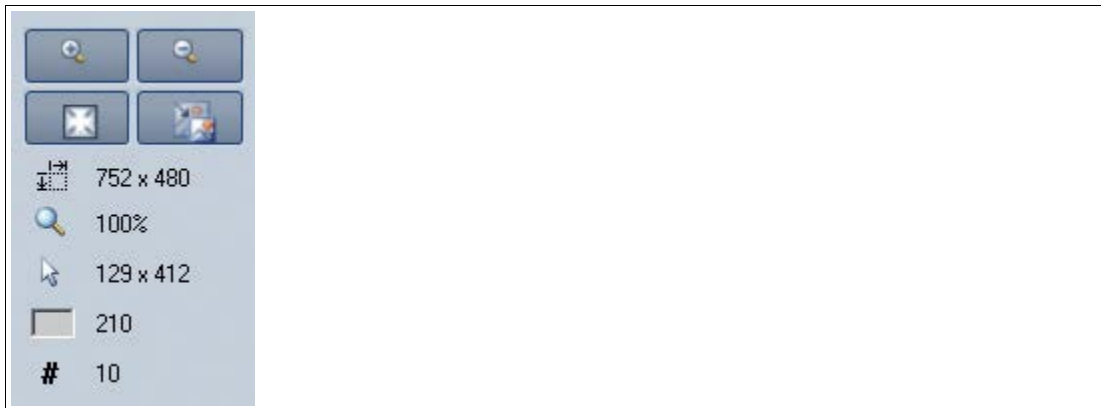


Figure 7.9 Toolbar

Toolbar

Magnifier +	Zooms in on sensor image
Magnifier -	Zooms out on sensor image
Fit to window	Fits the sensor image to the window
Original size	Set original image size
Size details	Specify the size of the sensor image
Zoom factor	Displays the zoom factor. Zoom factor 1 is the original size
Position details	Specify the position of the cursor
Grayscale value details	Grayscale value details for the pixel indicated by the mouse cursor
Image number	Specify the image number



Tip

You can use the mouse wheel to zoom in to or out of the sensor image.

7.3.4 Configuration Window

Various parameters are specified in the configuration window. The individual parameters depend on the type of sensor connected and the permissions of the user logged in. Depending on the parameters set and the firmware, some fields will be grayed out.

Camera – Common Configuration Window

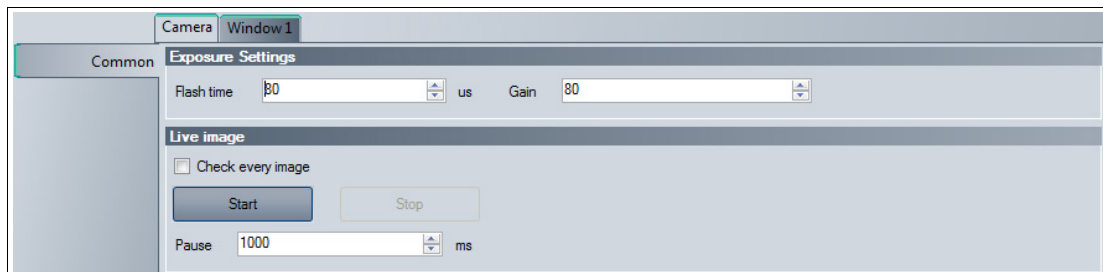




Figure 7.10 Camera – Common configuration window

Exposure Settings

Flash time	Increases or decreases brightness by changing the exposure time. A longer exposure time can increase brightness while also reducing the amount of image noise. However, very long exposure times are not suitable for moving objects. The length of exposure can be set from 1 to 255 μ s.
Gain	<p>Increases or reduces brightness by amplifying the image signal. Amplifying the image signal allows the brightness to be increased while keeping the exposure time constant. However, image noise is also increased as a result of amplifying the image signal. The amplification can be between 1 and 255.</p> <p>■ Gain = 1</p>  <p>■ Gain = 255</p> 

Live Image

Check every image	If continuous capture mode is activated, every time an image is captured, a check will be performed to see if a code can be read inside the read range. Please note that the read range Window active in the Window 1 – Window Setup tab must be activated for this process. Otherwise no codes will be read. In the Sensor output area, you can check if a code has been recognized or not.
Start	Activates continuous capture mode. A preview is shown in the image display for every image that is captured. If you wish to view the last image in full resolution, click Get last Image in the toolbar.
Stop	Stops continuous capture mode.
Pause	Defines the interval in ms between two sequential images.

Window 1 – Window Setup Configuration Window

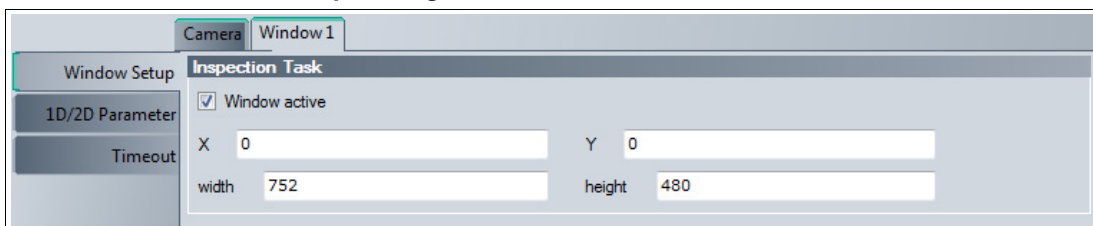


Figure 7.11 Window 1 – Window Setup configuration window

Inspection Task

Window active	Activates or deactivates the read range in which codes are read. The read range is shown as a pink frame in the display area. Usually, the read range covers the entire detection range of the sensor. Codes located outside of the read range are not read. If the read range is deactivated, no codes are read.
X	Enables the read range to be moved along the X axis.
Y	Enables the read range to be moved along the Y axis.
width	Enables the width of the read range to be entered. The width can be between 64 and 752 pixels.
height	Enables the height of the read range to be entered. The height can be between 64 and 480 pixels.



Tip

You can modify the size and position of the read range directly in the image display. Click on the pink frame with the mouse and drag the frame to the required size and position.



Window 1 - 1D/2D Parameter Configuration Window

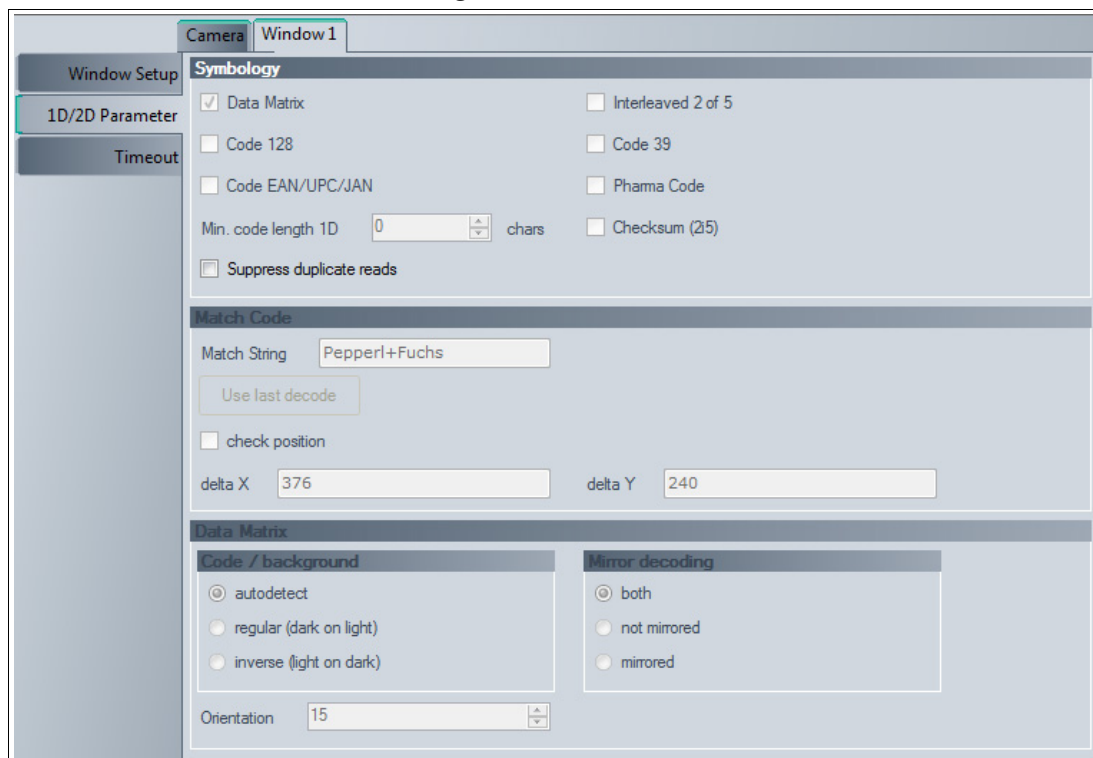


Figure 7.12 Window 1 - 1D/2D Parameter configuration window

Symbology

Data Matrix	Activates or deactivates reading of Data Matrix codes. This option is a factory default setting and cannot be deactivated.
Interleaved 2 of 5	Activates or deactivates reading of interleaved 2 of 5 codes. This option is currently unavailable.
Code 128	Activates or deactivates reading of code 128 codes. This option is currently unavailable.
Code 39	Activates or deactivates reading of code 39 codes. This option is currently unavailable.
Code EAN/UPC/JAN	Activates or deactivates reading of EAN, UPC, and JAN codes. This option is currently unavailable.
Pharma Code	Activates or deactivates reading of Pharma Code codes. This option is currently unavailable.
Min. code length 1-D	Allows the user to define the minimum length of 1-D codes. This option is currently unavailable.
Checksum (2i5)	Activates or deactivates the checksum for interleaved 2 of 5 codes. This option is currently unavailable.
Suppress duplicate reads	If this option is activated, the same code cannot be read numerous times immediately one after another.

Match Code

Match String	Allows the user to enter a comparison value. This option is currently unavailable.
check position	Activates or deactivates the position check for the comparison value. This option is currently unavailable.
delta X	Deviation in X direction. This option is currently unavailable.
delta Y	Deviation in Y direction. This option is currently unavailable.

Data Matrix

Code/background	Controls the reading of inverse Data Matrix codes. This option is a factory default setting and cannot be changed. <ul style="list-style-type: none"> ■ autodetect: The sensor checks whether it is dealing with a regular or inverse Data Matrix code and reads the code accordingly. ■ regular: The sensor reads regular Data Matrix codes on a light background ■ inverse: The sensor reads inverse Data Matrix codes on a dark background
Mirror decoding	Controls the reading of mirrored Data Matrix codes. This option is a factory default setting and cannot be changed. <ul style="list-style-type: none"> ■ both: The sensor checks whether it is dealing with a regular or inverse Data Matrix code and reads the code accordingly. ■ not mirrored: The sensor reads regular Data Matrix codes ■ mirrored: The sensor reads mirrored Data Matrix codes
Orientation	Provides the orientation of the code. This option is currently unavailable.

Window 1 – Timeout Configuration Window



Figure 7.13 Window 1 – Timeout configuration window

Timeout Settings

Timeout 1-D/2-D [ms]	Enables time limits to be entered for the recognition of 1-D and 2-D codes.
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7.3.5 Sensor Data

This area shows the type of sensor connected, the firmware version of the connected sensor, and the MAC address.



Figure 7.14 Sensor data

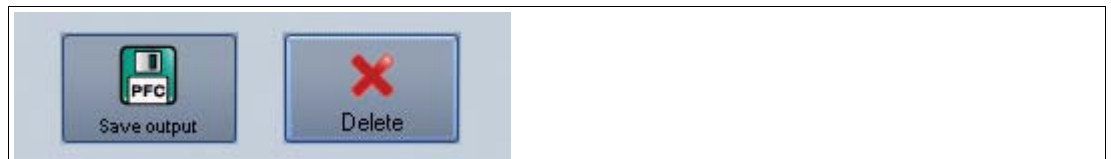
7.3.6 Sensor Output

This area shows the communication between the control system and the connected sensor. To select which messages are to be displayed, select **View > Displayed message types**.



Figure 7.15 Sensor output

Two buttons are located in the lower area.



Save output	Saves the content of the window to a text file.
Delete	Deletes the contents of the window.



7.3.7 Generating Control Codes

Using the Vision Configurator software, you can create control codes that can assign a device name and an IP address to the sensor.



Tip

It is also possible to generate control codes when no sensor is connected to Vision Configurator. In this case, you can generate a control code to assign a particular IP address to a sensor and then establish a connection with a PC. See chapter 7.2



Generating an AENABLE Control Code

This control code activates parameterization using control codes.

1. In the menu bar, select **Administration > Create reader programming code**.
2. Choose **AENABLE** in the **Select function** section.
 - ↳ The control code is displayed in different sizes in the **Control Code** section.
3. To print out the control code, click **Print** or **Print preview**.
To save the control code, click **Save image**.



Generating a Control Code for an IP Address

This control code assigns an IP address to the sensor.

1. In the menu bar, select **Administration > Create reader programming code**.
2. Select **Input IP** in the **Select function** section and enter the required IP address into the text box. Enter the network mask as a CIDR notation into the **Network mask** section, e.g., if the CIDR notation is 24, enter the network mask 255 . 255 . 255 . 0.
 - ↳ The control code is displayed in different sizes in the **Control Code** section.
3. To print out the control code, click **Print** or **Print preview**.
To save the control code, click **Save image**.



Generating a Control Code for Device Names

This control code assigns a device name to the sensor.

1. In the menu bar, select **Administration > Create reader programming code**.
2. Select **Input device name** in the **Select function** section and enter the device name for the sensor into the text box.
 - ↳ The control code is displayed in different sizes in the **Control Code** section.
3. To print out the control code, click **Print** or **Print preview**.
To save the control code, click **Save image**.

7.3.8 Setting Device Parameters via Control Code

You can assign the device name and IP address via a control code. Use Vision Configurator to generate control codes. See chapter 7.3.7



Note!

Parameterization mode can be activated only within ten minutes of the sensor being switched on.



Activating Parameterization Mode

1. Hold down the **2** button on the back of the sensor for more than two seconds.
 - ↳ The trigger LED flashes yellow and the sensor's camera system begins to flash.
2. Position the **AENABLE** control code in the sensor's field of view.
 - ↳ A red light in the sensor's field of view confirms that the control code was correctly detected. Parameterization mode is activated.



Setting Parameters

To assign a parameter, position the relevant control code in the sensor's field of view.

↳ A red light in the sensor's field of view confirms that the control code was detected and the parameter has been set.



Deactivating Parameterization Mode

Press the **2** button on the back of the sensor.

↳ The trigger LED goes out and the camera system stops flashing.

8 Maintenance and Repair

8.1 Maintenance

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

Observe the following instructions when cleaning:

- 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 fluids.
- 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 (not soaked).
- Remove any residual alcohol using a cotton or paper cloth moistened with distilled water (not soaked).
- Wipe the surface of the device dry using a lint-free cloth.

9 Troubleshooting

9.1 Troubleshooting

If the following steps do not resolve the fault, contact the service center. Keep the version number of the sensor ready.

Fault Repair

Fault	Possible Cause	Remedy
RUN LED does not light up	The power supply is switched off.	Check whether there is a reason why it is switched off (installation or maintenance work, etc.). Switch the power supply on if appropriate.
	Wiring fault in the splitter or switch cabinet.	Check the wiring and repair any wiring faults as necessary.
No connection to the device	Network cable not connected.	Connect the network cable.
	Wrong network cable used.	Direct connection between PC and device: use a crossover network cable. Connection via an existing network: use a straight-through network cable.

FACTORY AUTOMATION – SENSING YOUR NEEDS



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