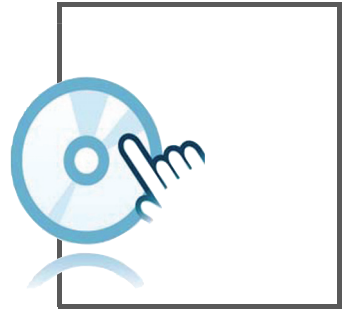


MANUAL

BIS-Visualizer
Software



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

Congratulations

You have decided to purchase software for a Pepperl+Fuchs device. Pepperl+Fuchs develops, produces and markets electronic sensors and interface modules worldwide for the automation technology market.

Before you install and start this software, please read these operating instructions thoroughly. The instructions and notes contained in this operating manual will guide you step-by-step through the installation procedure and how to use the program so that you can enjoy trouble-free use of this software. By doing so, you:

- will be confident in your use of the software
- can utilize the entire range of software functions
- avoid faulty operation and associated errors

Store this operating manual somewhere safe in order to have it available for future reference.

Symbols used

The following symbols are used in this manual:



Note!

This symbol draws your attention to important information.



Handling instructions

You will find handling instructions beside this symbol

Contact

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

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2

Conventions

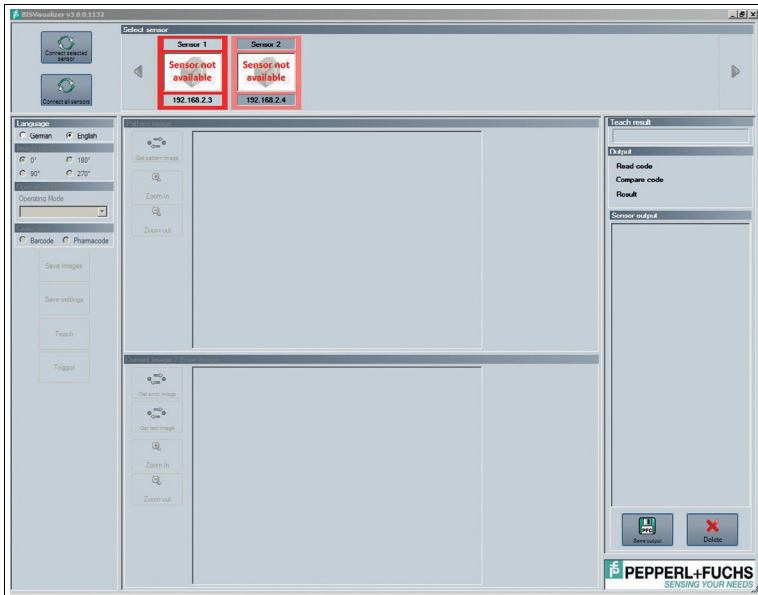
To help you locate and interpret information easily, Pepperl+Fuchs software manuals always use the same visual orientation aids. See below:

Style	Meaning
"Entry"	Words in "quotation marks" are entered where specified.
Button	Bold Words formatted in this way are buttons or titles on your screen.
KEY	Words written in UPPER CASE are keys on your keyboard.

3 Product Description

3.1 BISVisualizer

BISVisualizer is a software tool for operating one or more BIS vision sensors via the VSX interface. The connection between sensor and PC enables you to display and modify various sensor parameters via the graphical user interface. The BISVisualizer interface contains status messages as well as visualization and evaluation features.



Features

- Switch between stations
- Error image automatically displayed when error detected
- Display of captured "pattern images", "error images", and "current images"
- Switch between "image comparison", "barcode reading", and "barcode comparison" operating modes (depending on sensor)
- Switch between "manual" and "automatic" teach modes
- Display of "Teach-in status" and "comparison result", e.g., decoded barcodes in the barcode operating mode
- Display of sensor outputs
- Button for triggering a Teach-in process
- Button for saving sensor settings to the nonvolatile memory (depending on settings)
- Button for saving sensor images to the PC

4 Installation

4.1 Minimum Hardware and Software Requirements

Before you install the software, check that all the minimum hardware and software requirements have been met.

The software must be installed locally and cannot be run from a network drive.

The minimum hardware and software requirements are detailed below:

Operating system	Windows XP, Windows 7, or Windows 8
Processor	1 GHz or higher
Resolution	1024 x 768
Working memory	1 GByte
Software platform	.NET 2.0 or .NET 3.5



Note!

If the software platform is not installed, you will have to install it yourself. The software can be found on the Pepperl+Fuchs website www.pepperl-fuchs.com under Software. The Download link will be displayed during installation.

4.2 Installation

Software installation

To install the software on the computer, proceed as follows:

1. Download the software from the Pepperl+Fuchs website or insert the data storage device into the CD/DVD drive.

↳ If you downloaded the file from the Internet, the file will first have to be unzipped.

2. Double-click on the setup file to start it.

↳ A dialog box to select a language will open.

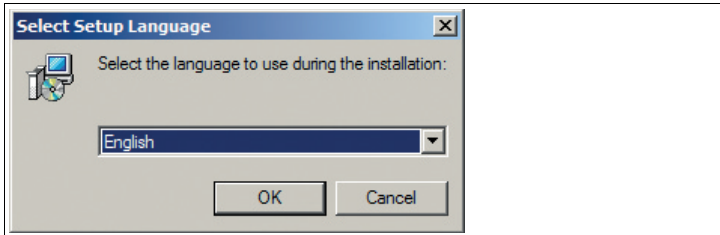


Figure 4.1 Dialog box for selecting a language

3. Confirm by clicking on **OK**.

↳ The Setup wizard starts.

4. Follow the instructions in the wizard by clicking on **Next**.

↳ The software is installed.

5. Press the **Finish** button.

↳ The software was successfully installed.

5 Operation

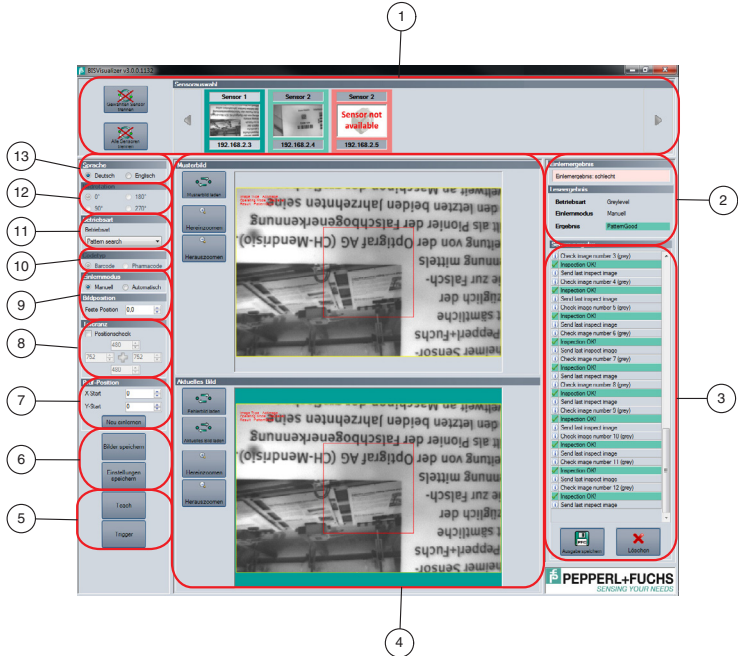
5.1 Application window structure



Note!

The number of menu items depends on the selected sensor; not all menu items will be available. Only those menu items required to configure the sensor will be displayed.

The software is designed to be similar to most Windows applications.



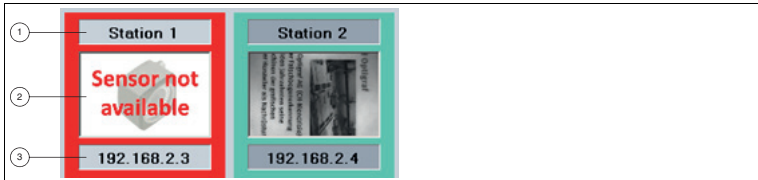
1	Select sensor
2	"Teach result and output" status indication
3	Sensor output
4	"Pattern image and current image" display
5	Teach button and Trigger button
6	"Save images" button and "Save settings" button
7	Search position
8	Tolerance
9	Teach mode and image position
10	Code type
11	Operating mode
12	Image rotation
13	Language

Sensor Selection

The **Select sensor** pane displays the pattern images of all sensors in the configuration at a reduced size. If it is not possible to display all sensors due to space restrictions, scroll left and right using the arrow buttons.

Unavailable sensors are identified as "Sensor not available" by a red outline. The currently active sensor is identified by a dark green outline; all other stations are identified by a light green outline.

Select a sensor by clicking on the corresponding image in the sensor selection pane. The pattern image is then shown in full size in the image display and the values set for the sensor are displayed. The settings for this station can then be modified.



- 1 Sensor name
- 2 Pattern image
- 3 IP address

Status Indication

This is where the following statuses for the sensor are displayed:

Teach Result

Teach result: good	(green background). The field of view is ideally suited for the comparison process.
Teach result: average	(white background). The field of view is suitable for the comparison process, but not ideal.
Teach result: bad	(pink background). The field of view is not suitable for the comparison process. It is recommended that the Teach-in process be performed again in a different position.
Barcode mode	
Teach-in failed	Barcode to be taught in could not be read. The barcode must be taught in again.

Read Result

PatternGood	(green background): the read image and the comparison image are identical.
PatternBad	(pink background): the read image and the comparison image are not identical.
Barcode mode	
BarcodeGood	(green background): the read barcode and the comparison barcode are identical.
BarcodeNoRead	(white background): the read barcode and the comparison barcode are not identical.

Sensor Output

Messages for the selected sensor are displayed in the barcode operating modes:

Teach OK!	Teach-in process successful
Parameter saved	The taught-in values were stored permanently in the sensor
Inspection OK	Inspection complete; result: "good"
Inspection not OK	Inspection complete; result: "bad"

Image Display

The image display area is split into two sections. In the upper section, you can use the corresponding buttons to load the taught-in image of the selected station. In the lower section, you can use the corresponding buttons to load the error image or the current image (the most recently analyzed image) of the selected station. Current images are identified by a green outline and error images are identified by a red outline.

Use the **Zoom in** and **Zoom out** buttons to make the image larger or smaller.

If an error is detected in one of the connected sensors, the program automatically switches to this sensor and its error image is displayed.

In the image comparison mode, two areas are displayed on the images:

- Comparison area (in a turquoise frame)
- Anchor area (in a blue frame)

In barcode mode, the decoded barcode is identified by a blue frame.

If a position check is activated, the target position is identified by a green frame.

Use the selection buttons for the **Image rotation** button to rotate the image display by 90° at a time.

Teach Button and Trigger Button

Press the **Teach** button to start a Teach-in process on the sensor.

Press the **Trigger** button to start a trigger on the sensor.

"Save Images" Button and "Save Settings" Button

The **Save images** button enables you to save the images of the selected station to the hard drive of your PC. Each time the button is pressed, a directory can be selected in which the BISVisualizer creates a new directory. The BISVisualizer names the new directory according to the current time stamp and stores the following files:

lastimg.bmp	Most recently captured image
errimg.bmp	Error image
patterning.bmp	Pattern image

You must confirm that you wish to save the images using the following window:



The **Save settings** button enables you to save the sensor settings in the nonvolatile memory of the sensor.

Search Position

In image comparison mode, you can move the position of the area of the pattern image to be compared.

The **Teach** button enables you to teach in the existing pattern image without capturing any more images.

It is possible to hide the **Search position** section in the **Parameter.xml** configuration file.



Note!

Attention

After every change, the image must be taught in again!

Tolerance

In addition to checking a taught-in pattern or barcode, you can also perform a position check. This checks whether the position of the pattern or barcode in the current image lies within the specified tolerance range around the taught position. If the position check is enabled, the tolerance range is shown as a blue frame in the current image and in the pattern.

All positions are checked and specified in pixels.

It is possible to hide the **Tolerance** section in the **Parameter.xml** configuration file.

Teach Mode and Image Position

There are two teach modes available: automatic and manual. These modes function as follows:

Manual This mode enables you specify a position for the sheet to be taught in. This position is where the image will be captured and can be set in the **Image position** window. During the Teach-in process, the sensor captures one image per sheet in a set of three consecutive sheets using different lighting. The image with the best modulation is then selected as the pattern image and is taught in.

Automatic The first step in the Teach-in process is to determine the sheet length. A maximum of five images per sheet in a set of three consecutive sheets are then captured. These images are spread evenly across the length of the sheet. The lighting is changed from sheet to sheet. From a maximum of 15 images captured, the image that is best modulated and best suited to the comparison process is selected as the pattern image and taught in.

It is possible to hide the **Teach mode and Image position** section in the **Parameter.xml** configuration file.

Code Type

In the code operating modes, it is possible to work with standard barcode symbols or with pharmacode symbols.

Barcode:	2 of 5 interleaved
	Code39
	Code128 (EAN128)
	EAN13
Pharmacode	Pharmacode according to Laetus specification

It is possible to hide the **Code type** section in the **Parameter.xml** configuration file.

Operating mode

You can switch between the operating modes supported by the connected sensor:

- Image comparison
- Barcode comparison
- Barcode reading (optional)
- Data matrix comparison (optional)
- Data matrix reading (optional)

It is possible to hide the **Operating mode** section in the **Parameter.xml** configuration file.



Note!

Restart

Each time the comparison operating mode is changed, the BIS sensor must be taught in again!

Image rotation

It is possible to rotate the displayed images. The rotation can be selected if it is set in the Stations.ini configuration file for the corresponding station.

It is possible to hide the **Image rotation** section in the **Parameter.xml** configuration file.

Language

The interface can be displayed in either German or English.

6 Appendix

6.1 Parameterization

The **Parameter.xml** XML file in the **config** subdirectory is used to configure the BISVisualizer. This file contains the **ALL_STATIONS**, **VISIBILITIES**, **TEACHMODES**, and **CUSTOM_BUTTONS** nodes.



Caution!

Altering the node points

Entries in the **VISIBILITIES**, **TEACHMODES**, and **CUSTOM_BUTTONS** nodes should only be altered following consultation with Pepperl+Fuchs.

VISIBILITIES

The **VISIBILITIES** node contains the sections visible to the user:

```
<ELEMENT Id="Operating mode" Visible="true" />
<ELEMENT Id="Code type" Visible="true" />
<ELEMENT Id="Image rotation" Visible="true" />
<ELEMENT Id="Teach mode" Visible="true" />
<ELEMENT Id="Image position" Visible="true" />
<ELEMENT Id="Position check" Visible="true" />
<ELEMENT Id="Search position" Visible="true" />
```

Visible =	true	Section visible
	false	Section not visible

TEACHMODES

The `TEACHMODES` node contains the commands to be sent to the vision sensor for switching between the operating modes of the teach mode:

```
<BARCODE_INSPECTION
NonEncoderManual="TEACH_MODE_1_1_1"EncoderManual=
"TEACH_MODE_FIX_POSITION_1P" />

<BARCODE_INSP_READ
NonEncoderManual="TEACH_MODE_1_1_1"EncoderManual=
"TEACH_MODE_FIX_POSITION_1P" />

<DATAMATRIX_INSPECTION
NonEncoderManual="TEACH_MODE_1_1_1"EncoderManual=
"TEACH_MODE_FIX_POSITION_1P" />

<DATAMATRIX_INSP_READ
NonEncoderManual="TEACH_MODE_1_1_1"EncoderManual=
"TEACH_MODE_FIX_POSITION_1P" />

<PATTERN_INSPECTION
NonEncoderManual="TEACH_MODE_1_1_1"EncoderManual=
"TEACH_MODE_FIX_POSITION_3P"EncoderAuto=
"TEACH_MODE_IMAGE_AUTO" />
```

ALL_STATIONS

The `ALL_STATIONS` node contains the names of the individual stations as well as the IP addresses of the vision sensors working in each station. Each station is assigned a row containing the following entries:

<STATION Name="Sensor 1" IP="192.168.2.3" Rotate="Custom" />	
Name = Sensor 1	Sensor name
IP = 192.168.2.3	IP address of the sensor
Rotate = Custom	Image rotation can be selected
Rotate = 0	Images rotated by 0°
Rotate = 90	Images rotated by 90°
Rotate = 180	Images rotated by 180°
Rotate = 270	Images rotated by 270°

CUSTOM_BUTTONS

The `CUSTOM_BUTTONS` node contains assignments for additional buttons. Up to the three buttons can be defined:

<code><CUSTOM_BUTTON_1 Visible="true" Text="Teach" File="Search.xml" /></code>		
Visible =	true	Section visible
	false	Section not visible
Text =	Teach	Text for the button
File =	Search.xml	XML file to be sent to the sensor (the file must be located in the config directory)

<code><CUSTOM_BUTTON_2 Visible="true" Text="Trigger" File="TriggerStart.xml" /></code>		
Visible =	true	Section visible
	false	Section not visible
Text =	Trigger	Text for the button
File =	TriggerStart.xml	XML file to be sent to the sensor (the file must be located in the config directory)

FACTORY AUTOMATION – SENSING YOUR NEEDS



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