

MANUAL

OIT***-F113-B12-CB*

Identification system for high temperatures up to 500 °C



CE

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 chosen a device manufactured by Pepperl+Fuchs. Pepperl+Fuchs develops, produces and distributes electronic sensors and interface modules for the market of automation technology on a worldwide scale.

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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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 Symbols relevant to safety



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 devices and any connected facilities or systems, or result in their complete failure.

3.2 Intended use

The OIT system is an identification system designed exclusively for identifying codes that are stamped as a matrix of holes in metal plates. With the use of robust metal plates, the code carriers can be used in rough ambient conditions, such as those found in production and painting lines, with temperatures to 500°C (932°F).

3.3 General safety instructions

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.

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.

User modification and or repair are dangerous and will void the warranty and exclude the manufacturer from any liability. If serious faults occur, stop using the device. Secure the device against inadvertent operation. In the event of repairs, return the device to your local Pepperl+Fuchs representative or sales office.

4 Product Description

4.1 Optical Identification Terminal - Use and application areas

The Optical Identification Terminal, or OIT system for short, is an optical identification system that employs methods of industrial image processing and is used in automated manufacturing processes, especially in harsh ambient conditions, where the use of code carriers with electronic components is made difficult or even impossible by cyclic temperature changes, for example. For the high temperature OIT identification system, read only tags of solid metal plates with a perforated matrix are applied, which are designed for use in temperatures up to 500°C and suitable for high mechanical stress. Simple installation and commissioning without complicated, time-consuming TEACH-IN processes enable rapid entry. Pluggable connections for the rapid exchange of devices and a controller with simple command set via the Ethernet interface guarantee simple operation. A scratch-resistant, replaceable quartz glass panel and sturdy metal housing make the OIT a robust, efficient identification system.



Figure 4.1 OIT systems

The OIT system is integrated in a single compact component: The camera, illumination unit and a DSP board for digitalizing and processing captured image information are enclosed in one housing.

Metal plates with a unique perforated matrix are attached for the identification of individual objects. The perforated matrix stamped into the metal plates contains a code carrier ID, which is detected by the identification system, processed digitally and transmitted to a computer via a network interface.

Data such as the type designation, lacquer color, etc. can be determined for each identified object using the code carrier ID. The OIT system is mounted directly in the system so that the code carriers are detected successfully.

4.2 Model series

4.2.1 OIT200-F113-B12-CB

The OIT200-F113-B12-CB is designed for a read distance between 140 mm to 200 mm to the read only codes (measured from the lower edge of the OIT system). The OIT system is equipped for this task with a wide-angle lens camera as well as a built-in infrared LED board for correct illumination of the metal plates.

4.2.2 OIT300-F113-B12-CB2

The OIT300-F113-B12-CB2 is designed for a read distance between 100 mm and 270 mm to the read only codes (measured from the front lens on the OIT system). The OIT system is equipped for this task with a standard-lens camera as well as a built-in infrared LED board for correct illumination of the metal plates. The OIT300-F113-B12-CB2 is specially designed to recognize small code sheets (OIC-.....-CB2).

4.2.3 OIT500-F113-B12-CB

The OIT500-F113-B12-CB is designed for a read distance between 200 mm and 450 mm to the read only codes (measured from the front lens on the OIT system). The OIT system is equipped for this task with a standard-lens camera as well as a built-in infrared LED board for correct illumination of the metal plates.

4.2.4 OIT1500-F113-B12-CB

The OIT1500-F113-B12-CB is designed for a read distance between 750 mm and 1700 mm to the read only codes (measured from the front lens on the OIT system). The OIT system is equipped for this task with a standard-lens camera as well as a external infrared LED lighting for correct illumination of the metal plates.

4.3 Displays and controls

The illumination unit contains 7 LED indicators that give information on the status of the OIT system.

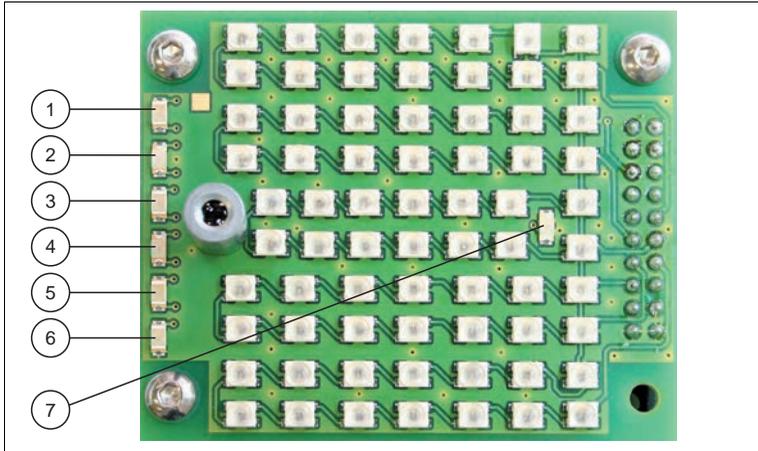


Figure 4.2 Illuminatiion unit of the OIT system

- 1 **Code OK (Code OK)**
Code read successful; flashes approximately 5 seconds for successful programming.
- 2 **Error**
Lights red when a read error occurs.
- 3 **Trigger**
Lights yellow when a trigger sensor is connected.
- 4 **Stability of image information**
Lights red even if the image taken is recognizable. However, when ambient conditions worsen (camera image too bright/dark, too many structures in the image, object almost too far/too near, low contour, object just barely in image area), a read error can be expected.
- 5 **Ready**
Flashes while initializing approximately 30 seconds. During this time a Data Matrix code can be read in to (re)program the unit. No network connection to the OIT system can be established in the first 30 seconds. The LED lights up once the system is ready for operation.
- 6 **Power**
Lights green when power is supplied to the OIT system.
- 7 **Infrared-illumination control**
Lights up red when the infrared illumination is active

4.4 Interfaces and Connections

The device includes the following connections:



Figure 4.3 Device connections on the OIT300, OIT500 and OIT 1500 systems

- 1 Grounding screw
- 2 Power supply (Harting HAN Q 8/0 F plug)
- 3 Network (RJ45 network socket with push pull connector for IP65)
- 4 Trigger sensor (4-pin M12 socket)
- 5 External illumination (4 in M12 socket)



Figure 4.4 Device connection on the OIT200 system

- 1 Grounding screw
- 2 Trigger sensor (4-pin M12 socket)
- 3 Network (RJ45 network socket with push pull connector for IP65)
- 4 Power supply (Harting HAN Q 8/0 F plug)

Connection for the external illumination unit

There is a 4-pin M12 socket on the side of the OIT system housing (not on the OIT200 system) for connecting the external illumination. The following diagram shows the pin assignment:



Figure 4.5 External illumination pin assignments

- 1 24 V illumination power supply
- 2 External laser control (LAS)
- 3 Ground (GND)
- 4 External illumination control (BEL)

Connection for a trigger sensor

A 4-pin, M12 socket is located on the side of the housing of the OIT system for connecting a trigger sensor. The pin assignments are shown in the following illustration:

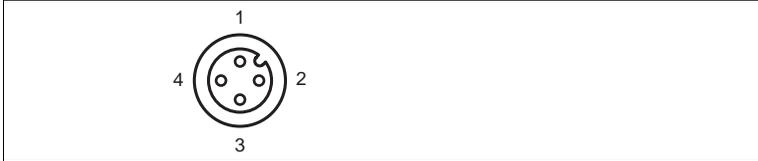


Figure 4.6 Trigger sensor pin assignments

- 1 24 V trigger sensor power supply
- 2 Not assigned
- 3 Ground (GND)
- 4 Trigger signal (TRIG)

Network connection

On the side of the housing of the OIT system is a network jack for connecting an RJ45 network plug. The pin assignments are shown in the following illustration:

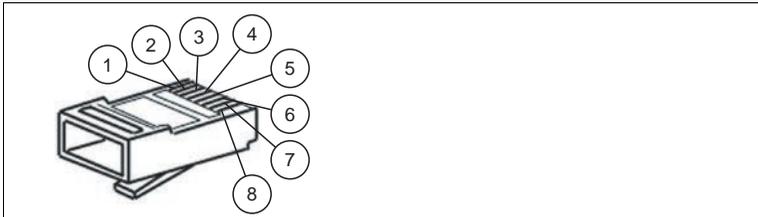


Figure 4.7 Network connection pin assignments

- 1 Transmit data (+)
- 2 Transmit data (-)
- 3 Receive data (+)
- 4 Not assigned
- 5 Not assigned
- 6 Receive data (-)
- 7 Not assigned
- 8 Not assigned

Power supply

The side of the housing of the OIT system has an 8-pin Harting HAN Q 8/0 F connector for the power supply. The pin assignments are shown in the following illustration:

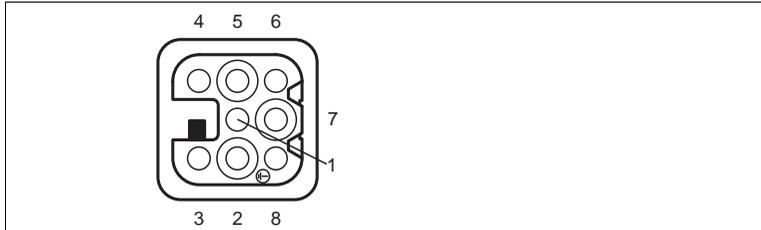


Figure 4.8 Power supply connection layout

- 1 n.c. (reserved)
- 2 Ground for separate I/O supply (GND IO)
- 3 Mode bit 1 (MOD 1)
- 4 Mode bit 0 (MOD 0)
- 5 24 V supply for separate I/O (24V_IO)
- 6 24 V supply to device (24 V)
- 7 n.c. (reserved)
- 8 Device ground (GND)

Mode bit 0 and mode bit 1 are digital inputs.



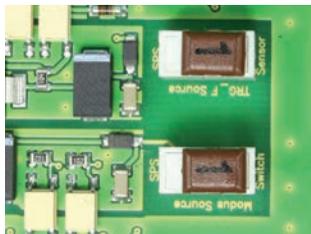
Note!

Resetting the Parameterization Lock

You can reset the activated parameterization lock by applying a logical high to the pin 3 mode bit 1 (MOD 1) and a simultaneous logical low to the pin 4 mode bit 0 (MOD 0). After applying this logic level to the inputs, the locking bit in the parameter byte can be reset to "0".

Galvanic isolation

There is no galvanic isolation between the supply line and the signal line in the factory settings. Both switches are positioned to the right in the factory presets. To galvanically isolate, both switches must be positioned to the left. After that, Pin2 and Pin5 must be powered by a different power supply than the OIT.



4.5 "OITControl" software

OITControl provides you with a user-friendly interface for convenient and easy operation of the OIT system. With the use of an XML configuration file, OITControl can be adapted to the particular requirements of your plant.

Tasks of OITControl include establishing connections to OIT systems, the programming of operating parameters and system maintenance, as well as the transfer and display of data and error diagnostics.

The software provides the following functions, among others:

- Visualization of the read code carrier ID and display of the transmitted data and control bits
- Operator terminal for troubleshooting incorrect reading operations
- Parameterization and maintenance of the OIT system
- Diagnosis of the OIT system

You can download the latest version of the OITControl software and view additional information at <http://www.pepperl-fuchs.com>.

4.6 Delivery package

- OIT***-F113-B12-CB*
- Mounting base – pre-assembled on the enclosure
- CD ROM including manual and OITControl software (You can download the latest version of the OITControl software and view additional information at <http://www.pepperl-fuchs.com>.)

4.7 Accessories

Various accessories are available.

4.7.1 Power supply

Part	Description
V8HAN-G	Socket, screw terminal
V8HAN-G-10M-PUR-ABG	Socket, screened PUR cable, 10 m

4.7.2 Connecting cables for trigger sensor and external illumination

Use the following cables to connect a trigger sensor and external illumination unit to the OIT system.

M12 connecting cables

	Material	Length	M12 plug, straight 	M12 plug, angled 
M12 socket, straight, 4-pin 	PUR	2 m	V1-G-2M-PUR-V1-G	V1-G-2M-PUR-V1-W
		5 m	V1-G-5M-PUR-V1-G	V1-G-5M-PUR-V1-W
		10 m	V1-G-10M-PUR-V1-G	V1-G-10M-PUR-V1-W
M12 socket, straight, 4-pin 	PVC	2 m	V1-G-2M-PVC-V1-G	V1-G-2M-PVC-V1-W
		5 m	V1-G-5M-PVC-V1-G	V1-G-5M-PVC-V1-W
		10 m	V1-G-10M-PVC-V1-G	V1-G-10M-PVC-V1-W
M12 socket, angled, 4-pin 	PUR	2 m	V1-W-2M-PUR-V1-G	On request
		5 m	V1-W-5M-PUR-V1-G	On request
		10 m	V1-W-10M-PUR-V1-G	On request

Field-attachable M12 connectors

Order number	Description	mm ²	Cable Ø
V1-G	Straight M12 socket, 4-pin	max. 0.75	4 to 6 mm
V1-G PG9	Straight M12 socket, 4-pin	max. 0.75	6 to 8 mm
V1-W	Angled M12 socket, 4-pin	max. 0.75	4 to 6 mm
V1-WV2A	Angled M12 stainless steel socket, 4-pin	max. 0.75	4 to 6 mm
V1S-G	Straight M12 plug, 4-pin	max. 0.75	4 to 6 mm
V1S-W	Angled M12 plug, 4-pin	max. 0.75	4 to 6 mm
V1-G-Q2	Straight M12 socket, 4-pin	0.34 to 0.75	7 to 7.5 mm
V1S-G-Q2	Straight M12 plug, 4-pin	0.34 to 0.75	7 to 7.5 mm
V1-G-Q3	Straight M12 socket, 4-pin	0.14 to 0.34	4 to 6 mm
V1S-G-Q3	Straight M12 plug, 4-pin	0.14 to 0.34	4 to 6 mm

Other/alternative lengths available on request.

4.7.3 Network cable



Note!

Protecting the network connection to IP65

Using a commercially available RJ45 network plug to connect to the network socket of the OIT system does not ensure IP65 protection and the regular removal of the network plug may not be possible. In order to ensure IP65 protection, use a **HARTING RJ Industrial IP67 Push Pull Connector**. Do not use the connector style "Variant 14".

The OIT system is connected to the network by an RJ45 network jack.

Model	Description
V45-G	RJ45 network jack, without cable
V45-GP	RJ45 network jack with push pull connector (IP65), without cable
V45-GP-10M-PUR-ABG-V45-G	Connecting cable 10 m, RJ45 network jack with push pull connector (IP65)/RJ45 network jack

4.7.4 Code Sheets

Various code sheets are available. You can see which read-only tag is suitable for which OIT type by looking at the ending of the model number (-CB1 or -CB2).

Designation		Description
OIC-C10ST-CB1		Read-only tag for optical high-temperature identification system, steel. Value range: 6-digit number between 000,000 and 999,999, plus one check digit. This steel code sheet is suitable only for applications in which the surface of the code sheet is protected against corrosion by means of a coating (e.g., paint). Rust will have a considerable impact on the quality of the reading.
OIC-C10V2A-CB1		Read-only tag for optical high-temperature identification system, stainless steel. Value range: 6-digit number between 000,000 and 999,999, plus one check digit.
OIC-C11V4A-CB2		Small read-only tag for optical high-temperature identification system, stainless steel. Value range: 4-digit number between 1 and 4095, plus a 6 bit check digit.

Code sheets can be ordered with the numbers of your choice. A minimum order of > 100 units is required. When reordering individual numbers, you cannot select the numbers. However, we guarantee that no numbers that already exist will be delivered.



Note!

Soiling of the Code Sheet

Please ensure that the code sheet is kept free of excess dirt. The code sheet can be cleaned using aggressive or abrasive cleaning agents.

Ensure that no other markings are made on the code sheets. Such markings may significantly impair code recognition.

5 Installation

5.1 Preparation



Unpacking the unit

1. Check that all package contents are present and undamaged.
 - ↳ If anything is damaged, inform the shipper and contact the supplier.
2. Check that all items are present and correct based on your order and the shipping documents.
 - ↳ If you have any questions, please contact Pepperl+Fuchs.
3. Keep the original packing material in case you need to store or ship the unit at a later time.

5.2 Mounting the Device

The device has a preassembled mounting base with four M6 threads positioned symmetrically on the base of the housing to allow easy installation of the OIT system in your plant.

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

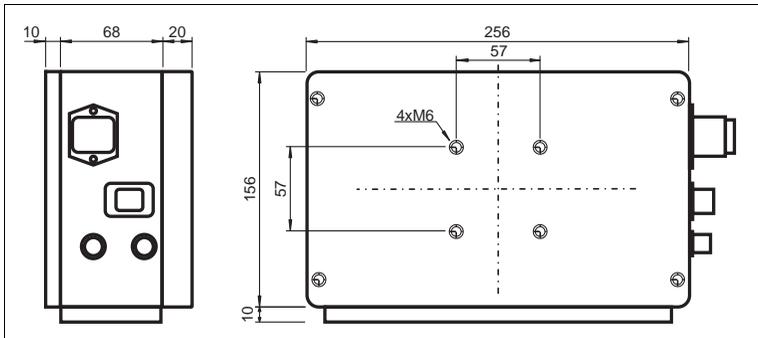


Figure 5.1 Dimensions of the OIT300 and OIT500 system

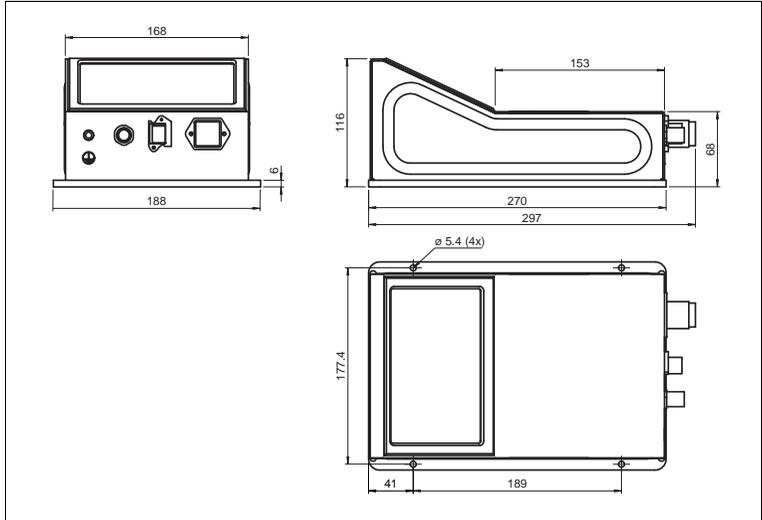


Figure 5.2 Dimensions of the OIT200 system

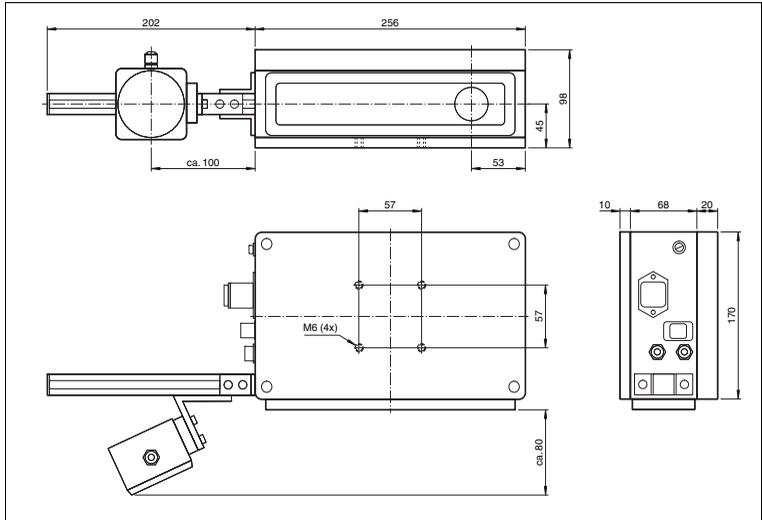


Figure 5.3 Dimensions of the OIT1500 system

The following illustration shows the mounting distance of the code sheets in mm:

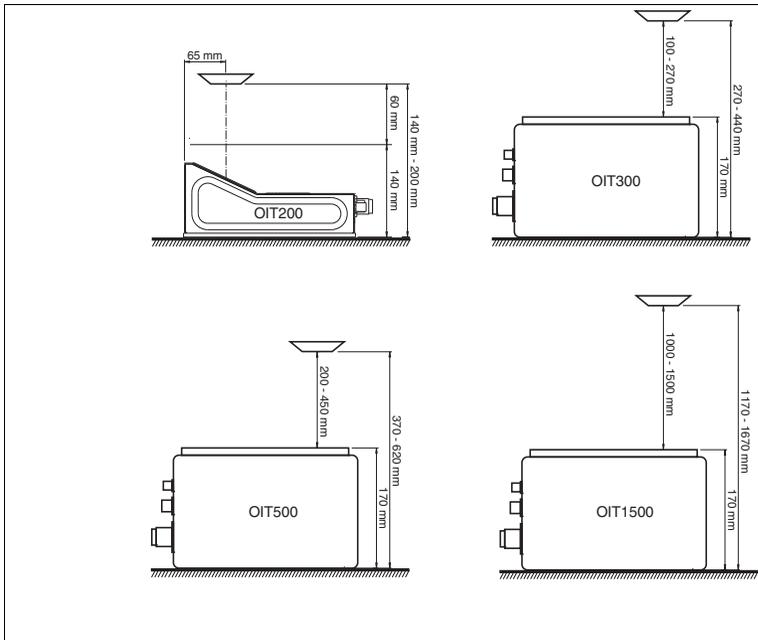


Figure 5.4 Mounting code sheets



Note!

Mounting Code Sheets on the OIT300, OIT500, and OIT1500

Ensure that the code sheet is mounted perpendicular to the camera lens in the OIT system housing. A maximum tilt angle of 10° applies; this angle must not be exceeded.

5.3

Connecting the unit



Connecting the supply voltage

To connect the OIT system to a voltage supply source, proceed as follows:

1. Plug the Harting HAN Q 8/0 F-connector into its corresponding plug on the side of the housing.
2. Pull the protective sleeve over the connector until it locks in place.

↳ This protects the supply cable from being inadvertently pulled out.



Note!

Documenting the network configuration

The OIT system uses the TCP/IP protocol to communicate with the PLC. To ensure error-free communication, always keep notes on all changes that you make to the network configuration.



Note!

Protecting the network connection to IP65

Using a commercially available RJ45 network plug to connect to the network socket of the OIT system does not ensure IP65 protection and the regular removal of the network plug may not be possible. In order to ensure IP65 protection, use a **HARTING RJ Industrial IP67 Push Pull Connector**. Do not use the connector style "Variant 14".



Note!

Network cables

To connect the OIT system to a computer directly, use a crossover network cable. If you are using the OIT system on a network, connect it using a twisted-pair network cable.



Establishing a network connection

To establish a network connection, proceed as follows:

1. If you use a standard RJ45 network plug, plug the RJ45 network plug into the network jack on the side of the housing; be sure the plug clicks into place within the jack. To remove the RJ45 network plug, you need a small flat-head screwdriver to press the plastic tab down while pulling the RJ45 network plug out.
2. If you use a network cable that is equipped with a Harting RJ Industrial IP67 Push Pull connector, plug it into the network jack located on the side of the housing until the black case latches into the jack. The network connection is protected to protection class IP65.
3. The OIT system has a factory-set, default IP address (192.168.0.65). You have to configure your network to enable the system to communicate on the network. To do so, use the configuration data provided in the "Network configuration overview" table (see table "Network configuration overview OIT" on page 29).



Connecting a trigger sensor

To connect a trigger sensor, proceed as follows:

Plug the 4-pin M12 plug into its corresponding jack on the side of the housing.

5.4 Storage and transport

For storage and transport purposes, package the unit using shockproof packaging material and protect it against moisture. The best method of protection is to package the unit using the original packaging. Furthermore, ensure that the ambient conditions are within allowable range.

6 Commissioning

6.1 Alignment/Adjustment



Note!

Mounting Code Sheets on the OIT300, OIT500, and OIT1500

Ensure that the code sheet is mounted perpendicular to the camera lens in the OIT system housing. A maximum tilt angle of 10° applies; this angle must not be exceeded.

Illumination angle

To optimally detect the matrix of holes, the code carriers must be illuminated by the LED board from a specific angle that achieves the greatest possible contrast between the holes and the metal plate. The angle of correct illumination must be set based on the reading distance. The illumination unit is attached to a rail in the housing of the OIT system and can be slid to the correct position based on a scale.

The OIT200 system is preset to a distance of 170 mm between the read-only tag and OIT system

The OIT300 system is preset to a distance of 200 mm between the read-only tag and OIT system.

The OIT500 system is preset to a distance of 380 mm between the read-only tag and OIT system.

The OIT1500 system is preset to a distance of 1500 mm between the read-only tag and OIT system.

If you will be using this distance, you can disregard the following settings see chapter 5.2.

Setting optimal illumination angle

In order to set the optimal illumination angle, proceed as follows:

1. Unscrew the OIT enclosure cover.
2. Loosen the 2 screws at the base of the illumination unit (see Position 1).

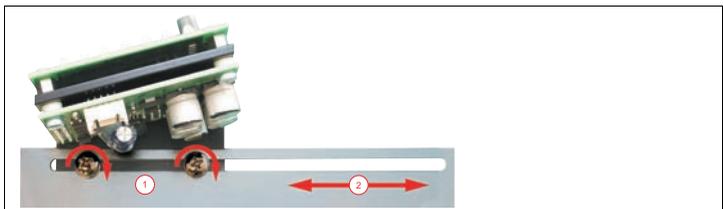


Figure 6.1 Setting the illumination angle

3. Slide the illumination unit to the same distance as the OIT to the read-only tag (see Position 2). The number on the dial will correspond to the distance from the read-only tag in mm. **Align the screw that is closest to the camera (the left screw in the picture above) so that it is in line with the dial.** The further the illumination unit is from the camera system, the greater the read distance.
4. Once the correct distance has been set, tighten the screws at the base of the illumination unit.
5. Screw the OIT enclosure cover back down.



Setting image sharpness



Note!

The device is preset. Image sharpness should only be adjusted if the image in OITControl is not optimal.

In order to optimize image sharpness, proceed as follows:

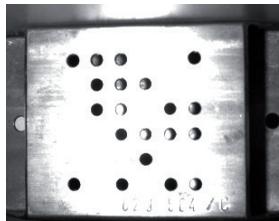
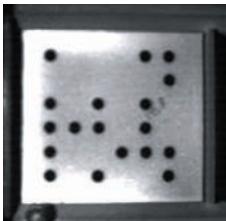
1. Unscrew the enclosure cover.
2. Loosen the first screw on the lens (see Position 1).
3. Position the focus ring on the lens by using the screw (see Position 2).
4. Check the image sharpness by means of the Live-image function in OITControl (see "Set up OIT system with live image" on page 41). The edges of the holes in a code sheet should be reproduced as sharply as possible.
5. Screw 3 and ring 4 do not normally need to be moved. These adjust the aperture of the lens. This only needs to be done for very fast code sheet movements, even when changes to the camera-shutter time and camera gain in OITControl do not lead to the desired results. (Read-only tag too dark)



Figure 6.2 Focusing the image

6. Once the image sharpness has been correctly set, gently tighten the screws on the lens.
7. Screw the enclosure cover back down.

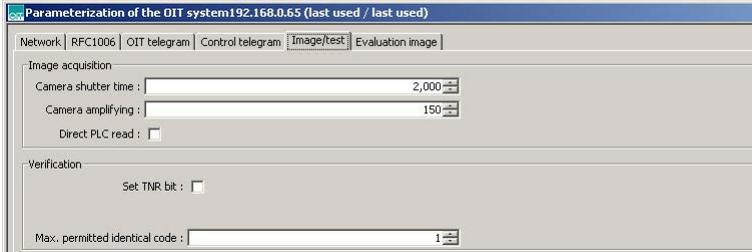
The following images show a picture with high contrast between hole and metal plate at optimal lighting through the LED board, and correctly adjusted image sharpness as well as a too highly illuminated image and incorrect adjustment of the code sheet (the lighting comes back out of the holes).





Adjusting the camera shutter time and camera gain

Select the **Configuration > Configure OIT system** menu item from the main bar and open the tab **Image/Testing**.



1. Set the camera shutter time to 2000 and the camera gain to 1.
2. Pass the code carrier in front of the OIT system. The speed should be the same as it will be in normal operation.
3. Now check the captured image. The holes in the code sheet should appear sharp. If the holes are not precisely round, reduce the camera shutter time and repeat the procedure.
 - ↳ If the holes in the code sheet appear sharp, then changes to the camera shutter time are complete.
4. Check the illumination of the code carrier. If the camera image is too dark, increase the camera gain.
 - ↳ Also check the LED display on the illumination unit (Stability) or the LED indicator in the OITControl software (OIT warnings) (both have the same functions). If the LED lights up, then the gain is set too high.

The settings made can be applied to all other OIT systems in the same environment. The OIT system uses infrared illumination and is therefore not susceptible to interference from other types of illumination. Direct sunlight or very high temperatures (> 800 °C) only can cause disturbances to the code sheet. The settings can be used when there are slight deviations from the preset distance (\pm 50 mm).

Default Values

	Shutter time	Gain
OIT200	300	1
OIT300	1000	100
OIT500	1000	100
OIT1500	2500	150

Table 6.1 Camera shutter time and camera gain default values

6.2 Programming

The OIT system is provided with default parameters see chapter 11.2. The operating parameters from these default parameters are stored in a file on the flash memory of the OIT. The operating parameters may be configured with the help of OITControl.

The operating parameters of the OIT system can be imported using a Data Matrix code that contains the required parameters. Use the Data Matrix code in the appendix to reset the OIT system to its default settings: see chapter 11.2

Parameterizing the device with a Data Matrix code

Correctly configure the OIT system for your equipment as follows:

1. Supply power to the OIT system.
 - ↳ Once the OIT system has been powered, it loads the data from the most recently saved parameter file; or the default parameters. The LED "Ready" will then flash for approx. 30 seconds.
2. Hold a Data Matrix code containing the new encoded operating parameters at a defined distance in the field of the OIT system. Hold the Data Matrix code at a distance of about 300 ... 350 mm in front of the OIT system.
 - ↳ Once the OIT system detects the code, the data is adopted as the new operating parameters and is written into the parameter file. The "COK" LED flashes for approx. 5 seconds. The OIT system will then restart. The "RDY" LED will flash again for approx. 30 seconds. Make sure that there are no Data Matrix codes in the image field when restarting the OIT system. Only then can a connection to the OIT system be established.

Data Matrix code resistant to dirt

You can make the default Data Matrix code or any other code resistant to dirt by sealing the code in a non-reflective film.



Note!

Network connections between OITControl and OIT system

After connecting the power, no network connection to the OIT system can be established in the first 30 seconds. During this time, the OIT system can be programmed with a Data Matrix code.

7 Communicating with the OIT system

The following sections point out the different ways to communicate with the OIT system. Of note is the Easy Mode option, since this version requires the least prior knowledge.

- **TCP/IP communication:** This deals with a detailed communicating and logging of the communication between the OIT system and a PLC. Individual actions must be initiated separately see chapter 7.1.
- **TCP/IP communication as per RFC1006 standard:** a protocol extension for the TCP protocol see chapter 7.2.
- **TCP/IP communication with Easy Mode:** the simplest connection between a PLC and an OIT system. The connection is made through a simplified set of instructions see chapter 7.3.
- **TCP/IP communication over a web browser (Diagnosis):** Here a connection to the internal OIT system web browser can be made on which different information about the OIT system is located see chapter 7.4.
- **TCP/IP communication over FTP (diagnosis):** a connection to the internal FTP server of the OIT system can be made on which the fault patterns are located see chapter 7.5.

7.1 TCP/IP communication:

The TCP/IP protocol enables communication between the PLC and OIT system. Refer to the network configuration overview to view the configuration data (see table "Network configuration overview OIT" on page 29). The individual telegrams that are exchanged in this bidirectional communication are arranged as follows:

Data telegram PLC -> OIT without RFC1006

Byte	1 ... n	n + 1	n + 2	n + 3	n + 4
hex		0xmm	0xmm	Control byte	Control byte
	Data	ID number		SAL	SAH
	0 ... 550 Byte	2 bytes		1 byte	1 byte
	max. 554 bytes (Default: 228 bytes)				

The data telegram from PLC to OIT is divided into the following 3 blocks:

Block	Description
Data (0 ... 550 bytes)	The data in this block is transmitted to OITControl for display. (Default: 224 bytes)
ID number (2 bytes)	This block can transmit an ID number that uniquely identifies the respective data telegrams.
Control byte SAL (1 byte)	the control byte SAL is not currently being used and can be filled in with zeros.
Control byte SAH (1 byte)	The following control bits are transmitted from the PLC to the OIT system in the control byte SAH: <ul style="list-style-type: none"> ■ 0 = Default state to OIT (prompts a reset of the OIT system) ■ 1 = Read to OIT (prompts a read operation) ■ 2 = Current data to OIT (Info to OIT system that matches a data set in the data sent to the OIT system. Afterwards the read cycle ends.) ■ 3 = No data to OIT (info to OIT system that does not match a data set in the data sent to the OIT system. Afterwards the read cycle ends.) ■ 4 = Not assigned ■ 5 = Not assigned ■ 6 = Not assigned ■ 7 = Not assigned

The length of the data block is variable. For error-free communication between the OIT system and PLC, a **concrete size** must be defined for the length of the data block (default: 228 bytes).

Data telegram OIT -> PLC

Byte	0	1	2	3	4 ... 17	18 ... 23	24 ... 27
hex	0xmm	0xmm	Control byte	Control byte			Fault
	ID number (mirrored by PLC). If still no telegram from PLC, then: 0x0000		STL	STH	Manual entry: ■ 6 bytes ID ■ 8 bytes UID If not manually entered, for every byte: "-"	Read ID number of the code carrier (6 bytes). If ID/UID entered manually, for every byte: "x"	Fault messages see chapter 7.3
	2 bytes		1 byte	1 byte	14 bytes	6 bytes	4 bytes
	28 bytes						

The data telegram from OIT to PLC has a fixed size of 28 bytes and is divided into the following 5 blocks:

Block	Description
ID number (2 bytes)	the ID number that is transmitted from the PLC is mirrored in this block.
Control byte STL (1 byte)	The following control bits are transferred from the OIT system to the PLC in the control byte STL: <ul style="list-style-type: none"> ■ 0 = Request default state (OIT requests a reset from the PLC (control bit 0 in byte n+4=initial state to OIT)) ■ 1 = Not assigned ■ 2 = Read error ■ 3 = Not assigned ■ 4 = Waiting for data (read was successful, OIT system expects feedback from PLC) ■ 5 = Not assigned ■ 6 = Only TNR (additional parity bit that transfers the value "0" or "1") ■ 7 = Not assigned
Control byte STH (1 byte)	The individual control bits that are transmitted from the PLC in the control byte SAH are mirrored in the control byte STH.
Manual entry ID/UID (14 bytes)	Manually captured data is transmitted in this block during a failed read. ID: up to 6 bytes are available. UID: up to 8 bytes are available. If the data was not entered manually, a "-" is transmitted for every byte.
read ID number (6 bytes)	The ID number read by the OIT system is transmitted in this block. If the data was entered manually, as in the case of an error, an "x" is transmitted for every byte.
Fault (4 bytes)	Fault messages see chapter 7.3

Network configuration overview OIT

Designation	value
IP address OIT system	192.168.0.65
Port (communication TCP/IP standard)	10005 (alterable)
Port (communication as per RFC1006/IP standard)	102 (fixed)
Port (OITControl)	10050 (alterable)
Port (web browser)	80 (fixed)
Port (TCP/IP, EasyMode)	10100 (fixed)
Port (Replay server)	2006 (alterable)

Network configuration overview PC

Designation	Value
IP address	192.168.0.x (x = any number except 65 and 0)
Subnet mask	255.255.255.0

7.1.1 For example: Successful read of a read-only tag

Below the communication between PLC and OIT system is more clearly illustrated through a successful read cycle:

1. The PLC sends the command to the OIT system to read out the read-only tag ("Read to OIT" (SAH 1)).
2. Depending on the settings, the OIT system either immediately captures an image or the OIT system waits for a trigger signal and only then captures the image.
After the successful image capture, the OIT system decodes the data stored on the read-only tag and sends it to the PLC. At the same time, the OIT system sends the message, "Wait for data" (STL 4) to the PLC.
3. At the end of the read operation, the PLC prompts resetting of the the OIT system to the 'zero setting' with the command "Starting position to OIT" (SAH 0)".

If a visualization of the process interface is to take place over OITControl, then the following item may also be taken instead of item 3:

The PLC determines which data set matches the input data and sends it to the OIT system together with the message "Current data to OIT" (SAH 2). If the PLC does not find a matching data set for the data input from the OIT system, the PLC will send the message "No data to OIT" to the OIT system (SAH 3).

This will end the complete read cycle.

7.1.2 Example: Read error in a read-only tag read

The communication for a read error between the PLC and the OIT system is illustrated below:

1. The PLC sends the OIT system the command to read out a read-only tag ("Read to OIT" (SAH 1)).
2. Depending on the settings, the OIT system either immediately captures an image or the OIT system waits for a trigger signal and only then captures the image.

Once the image is captured, the OIT system determines a read error (the LED Error lights up on the illumination unit of the device; i.e. the left display area in OITControl in **OIT LED status**), and transfers the message "read error" (STL 2) to the PLC.

The read cycle is interrupted. Once the source of the error has been removed, the read may be repeated. Otherwise, the data may be manually entered.

3. Once the read operation has been repeated or the data has been manually entered, the OIT system will send the data to the PLC. At the same time, the OIT system sends the message, "Wait for data" (STL 4), to the PLC.
4. At the end of the read operation, the PLC prompts a reset of the the OIT system to the 'zero setting' with the command "Starting position to OIT" (SAH 0)".

If a visualization of the process interface is to take place through OITControl, then the following may happen instead of item 3:

The PLC determines which data set matches the input data and sends it to the OIT system together with the message "Current data to OIT" (SAH 2). If the PLC does not find a matching data set for the data input from the OIT system, the PLC will send the message "No data to OIT" to the OIT system (SAH 3).

This will end the complete read cycle.

7.2 TCP/IP communication (as per RFC1006 standard)

RFC 1006 (ISO Transport service through TCP) is a protocol extension of the TCP protocol. In addition to the TCP data, further information is transmitted between the participants in order to provide certain services to the operator. Data transfer normally takes place data-oriented over the TCP protocol. Neither information on the length nor information on the beginning or end of a communication is transmitted. This cannot be used in automation technology. Here, specific data packets that indicate length, beginning, and end must be used. Data transfer takes place message-oriented with RFC1006. Thus, only closed message blocks are sent through a connection and are recognized as such by the receiver. RFC 1006 now specifies which information must be added to the transmitted data in the form of a header in order to ensure this. So RFC 1006 makes message-oriented transmission available to applications set up on the data-stream oriented TCP protocol.

The TCP/IP protocol enables communication between the PLC and OIT system. For communication as per the RFC1006 standard, a block of 7 bytes, structured as follows, gives access to the data telegram.

Byte	0	1	2	3	4	5	6
hex	0x03	0x00	0x00	0xEB	0x02	0xF0	0x80
RFC1006 header					TSAP header		
7 bytes							

The telegram blocks that attach to the RFC1006 block are created without RFC1006, in accordance with the telegram definition, (see chapter 7.1), so that the following sizes for data telegrams result as per the RFC1006 standard:

Data telegram orientation	Data telegram length
SPS -> OIT	max. 561 bytes
OIT -> SPS	35 bytes

7.3 TCP/IP Communication with Easy Mode:

The TCP/IP protocol enables communication between the PLC and OIT system.

For communication in Easy Mode, the host system connects to the OIT system via **port address: 10100**. The OIT system initially waits for a trigger signal when starting communication in Easy Mode. There are two different trigger signals:

- Trigger signal from an external trigger sensor (positive edge)
- or
- Trigger signal via the PLC telegram.

Once one of the two trigger signals has been triggered, the OIT system captures an image. After the image has been successfully captured, the OIT system decodes the data stored on the read-only tag and sends this data to the PLC. If the read-only tag was not successfully read, the OIT system sends a "read error" to the PLC. The OIT system then waits for another trigger signal.

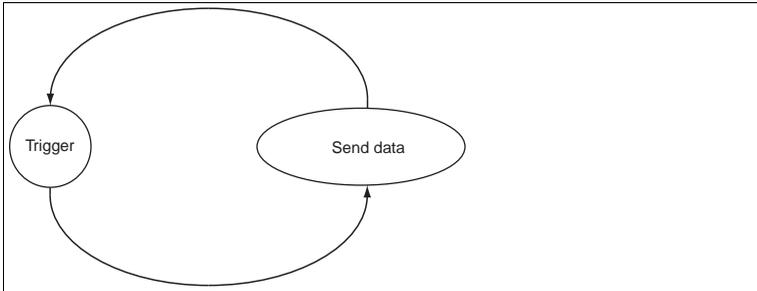


Figure 7.1 Easy Mode flow chart

Telegram structure:

The data telegram has a fixed length. The code read on the read-only tag is sent to the PLC in ASCII characters. If the code read on the read-only tag has less than six characters, leading zeros are added to the code. For example, the number 123 is sent as 000123.

Successful Read of the Read-only Tag

Byte 0	Bytes 1–6	Bytes 7–10	Byte 11	Byte 12	Byte 13
Start character	Code number	Status	Checksum	End character 1	End character 2
#(23 hex)	000001 to 999999	See status table	Value x	CR (0D hex)	LF (0A hex)

Unsuccessful Read of the Read-only Tag

Byte 0	Bytes 1–6	Bytes 7–10	Byte 11	Byte 12	Byte 13
Start character	Code number	Status	Checksum	End character 1	End character 2
#(23 hex)	NOREAD (ASCII)	See status table	Value x	CR (0D hex)	LF (0A hex)

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Trigger Telegram (via Port 10100 for Software Triggering)

Byte 0	Byte 1	Byte 2	Byte 3
Start character	Command: read code	End character 1	End character 2
#(23 hex)	R (52 hex)	CR (0D hex)	LF (0A hex)

Status Table: Bytes 7–10

Byte				Group description	Subgroup description
7	8	9	10		
bin	bin	bin	hex		
Bit 0					OITControl client connected
Bit 1					Parameterization lock active
	Bit 0			Function could not be started or is not running	HTTP server not available
	Bit 1				FTP server not available
	Bit 2				NTP server not available
	Bit 3				Logging program not running
	Bit 4				Data Matrix decoder not active
	Bit 5				Decoder not active
	Bit 0			OIT warnings (The read-only tag could still be read)	Camera image too bright
	Bit 1				Camera image too dark
	Bit 2				Too many structures in image
	Bit 3				The distance between the read-only tag and OIT system is too great
	Bit 4				The distance between the read-only tag and OIT system is too small
	Bit 5				Not enough contrast
	Bit 6				The read-only tag is outside of the detection/capture range
		0x01		OIT status (The read-only tag could no longer be read)	No punched holes found
		0x02			Few punched holes found, first loop
		0x03			Few punched holes found, second loop
		0x04			No check marks found in range, check 1
		0x05			Decryption not possible, check 1
		0x06			No check marks found in range, check 2
		0x07			Poor contrast
		0x08			No check marks found in range, check 3
		0x0A			No check marks found in range, check 4
		0x0B			Decryption not possible, check 2
		0x0F			Checksum error
		0x2A			Timeout
		0x31			Poor read-only tag (too many possible hole structures)
		0x32			Timeout while determining the corner points
		0x33			Timeout while decoding
		0x99			Maximum repeat read reached Double code-reading
		0x9A		Disconnect in process	
		0xFE		No usable data from the PLC	

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Calculating the Checksum

The individual bytes of the data telegram (byte 0 to byte 10) are calculated with the XOR function. The resulting value is then transmitted as a checksum. The receiver of this data telegram can also calculate a checksum using the data and compare this checksum with the checksum transmitted by the sender. If the two checksums are not identical, a transmission error has occurred.

Definition x = unsigned byte

X =	Byte 0	XOR	Byte 1
X =	X	XOR	Byte 2
X =	X	XOR	Byte 3
...			
X =	X	XOR	Byte 9
X =	X	XOR	Byte 10
Byte 11 = checksum value X			

7.4 TCP/IP communication over web browser

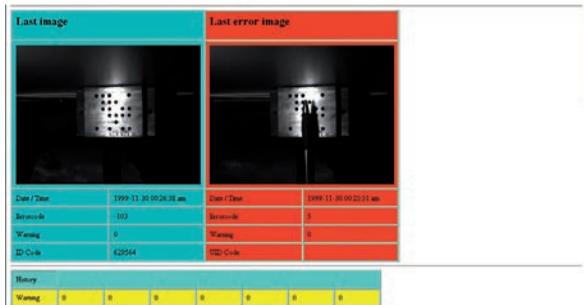
The OIT system contains a web browser that can be accessed over a normal interface. The web browser includes:

- **Last image:** Displays last image processed .
- **Last error image:** Displays last error image.
- **History:** Displays history
- **Results:** statistical evaluation of reads and read errors in the last days/weeks/months and total.

Permanently-set parameters:

- **OIT:** OIT system information
- **Decoding (Image capturing / Inspection):** Image capture and testing information.
- **Ethernet:** Network connections information
- **Communication:** TSAP_Host and TSAP_OIT information
- **Data telegram layout (SPS / OIT):** OIT telegram and control telegram settings information

Launching the browser does not require a password. No data can be changed and transferred to the internal server over the web browser.



7.5 TCP/IP communication through FTP

The OIT system includes an FTP server that can be accessed over a normal FTP connection. The following files are stored in the device:

- **OIT_FW**: text file that contains the series number of the firmware.
- **OIT_OS**: text file that contains the series number of the operating system.
- **OIT_SN**: text file that contains the series number of the device.
- **log_0**: text file in which all log data is stored. As soon as the file becomes too large, another log file with a higher number is created.
- **errimg_000000001**: program file that stores the fault patterns. If there are more fault patterns, they are filed under an ascending number.
- **oitdat**: files all set parameters as a binary file.

A password is necessary to establish an FTP connection to the OIT system. No data can be stored in the OIT system.

File format .pgm

The file format .pgm (portable gray map image) is an uncompressed gray-scale file. The color depth amounts to 8 bit and contains 256 gray scales (binary). The format is not compressed.

8 OITControl

OITControl provides you with a user-friendly interface for convenient and easy OIT operation. With the use of an XML configuration file, OITControl can be adapted to the particular requirements of your plant.

Tasks of OITControl include establishing connections to OIT systems, the programming of operating parameters and system maintenance, as well as the transfer and display of data and error diagnostics.



8.1 Installing OITControl



Note!

Minimum hardware and software requirements

Before you begin installing the software, check that all minimum hardware and software requirements are met.

The minimum hardware and software requirements are detailed below:

- Processor: Pentium III 1 GHz
- Working memory: at least 512 MB RAM
- Hard disk space: at least 10 GB
- Java Runtime Environment version 1.5 or later

The latest version of the software can be found on our homepage at www.pepperl-fuchs.com.



Installing OITControl

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

Open the file "OITControl_setup.exe".

↳ Follow the instructions for the installation process.

8.2 Starting the program



Starting OITControl

Once installed successfully onto the computer (see chapter 8.1) launch the program as follows:

Double click the program's icon on the desktop.

↳ OITControl starts.

8.3 User interface

OITControl is designed to be similar to most Windows applications.

There is also an option – along with several unalterable standard functions – to adapt the OITControl user interface to your equipment by modifying the file **OITControl.xml**). The following refer to the software version in its initial state.

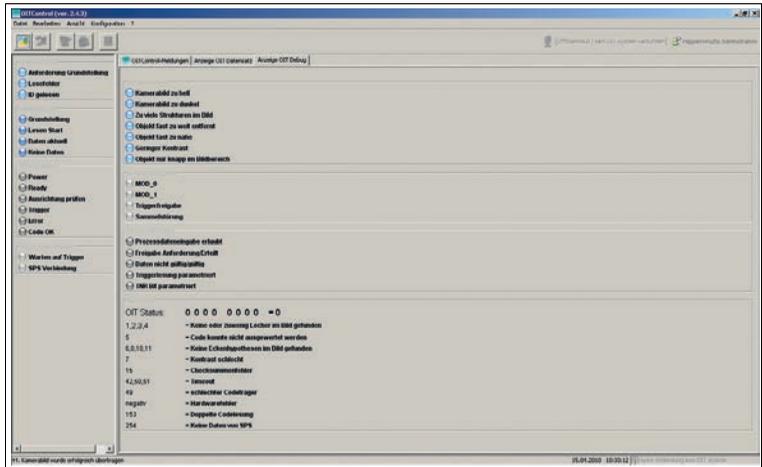


Figure 8.1 Start screen of OITControl

The header is displayed at the top of the screen. The right part of the header contains the familiar icons to minimize, maximize, and close the program. The left side of the header shows OITControl information for the software version next to the program name.

The menu bar with the menus **File**, **Process**, **Display**, **Configuration** and **?** is displayed under the header.

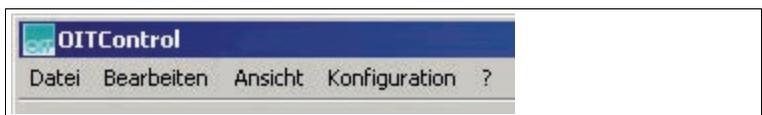


Figure 8.2 OITControl menu

The tool bar is displayed under the menu bar. All tool bar commands can also be activated from the menu bar.

Button	Description
	Connect to the OIT system (camera) Alternatively: Select File > Connect to OIT or use the shortcut Ctrl+Q .
	Disconnect from OIT system Alternatively: Select File > Disconnect or use the shortcut Alt+Q .
	Manual entry of ID/UID number(s) Alternatively: Select Process > Manual entry This function is only available if a failed read occurs.
	Repeat read operation Alternatively: Select Edit > Repeat read This function is only available if a failed read occurs.
	Display current camera image Alternatively: Select Process > Camera image

The current registered user name and the ID of the computer connected to the OIT system are displayed on the right side of the tool bar. If there is no connection to the OIT system, you will see the message: Offline mode / No OIT system connected.

Most of the start screen is taken up by the display area. The display area is divided into two areas: an overview on the left side and individual tabs on the right side provide all necessary information on the OIT system in a clearly structured way.

- **Left display area:** with the OIT default configuration, the left display area provides a visualization of the communication between the PLC and the OIT system. The current PLC and OIT system control bits are transmitted from the OIT system to OITControl and arranged and displayed there as individual information blocks. The following information is displayed in the default configuration:
 - **Read cycle OIT**, including the individual control bits: Request reset, read error, ID read
 - **Read cycle PLC**, including the individual control bits: Reset, read start, current data, no data
 - **OIT LED status**, including the status LEDs: Power, ready, check alignment, trigger, error, code OK
 - **OIT status information**, including the status LEDs: Wait for trigger, SPS connection

- **Right display area:** with the OITControl default configuration, the right side display area provides detailed information on the connected OIT system. This information is arranged into tabs. The following tabs are available in the default configuration:
 - **OITControl messages:** All OITControl actions are logged here and saved in a file on the computer hard drive.
 - **OIT data set:** In the default configuration, the numbers of the evaluated code carrier and the manually entered numbers are displayed here. If no OIT system is connected, the values in braces provide information on start position and the number of characters from the data set to be read. **ID number: {26216}** means that the ID number in the data telegram begins at Position 262 and is 6 characters long. The most recently generated image is also displayed.
 - **OIT debug display:** The OIT system evaluates the captured images with regard to several factors. If the captured image is recognizable and a read error occurs due to a deterioration of the ambient conditions, then the tab **OIT debug display** OIT Debug display will provide further information as to possible causes.

Fault messages

- No holes or not enough holes found [1, 2, 3, 4]
- Code sheet cannot be decoded [5]
- Insufficient contrast on code sheet [7]
- Corner holes on code sheet not found [6, 8, 10, 11]
- Invalid check sum [15]
- Sheet quality insufficient [49]
- Timeouts [42*, 50, 51]
- Intern software error [negative value]

The status bar is displayed at the bottom of the screen. The left side of the status bar shows the last action executed along with date and time. The connected OIT system appears on the right side of the status bar.



Figure 8.3 OITControl status bar

8.4 Basic program operation

Establish connection to OIT systems

In order to establish a connection to an OIT system, proceed as follows:

1. Click  or select **Connect > file to OIT**.

↳ The dialog window **Choose OIT system...** will open:

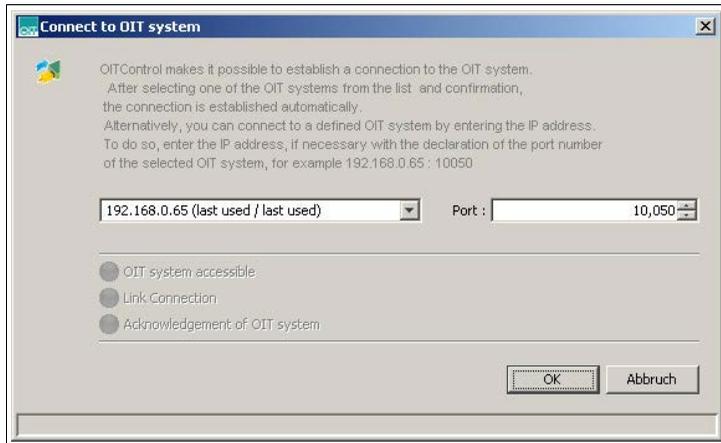


Figure 8.4 **Select OIT system...** dialog box.

2. Select the desired OIT system from the drop-down list or manually enter the IP address of the OIT system. More OIT systems may be added to the drop-down list (by changing the file OITCamera.XML see chapter 11.1). If a new connection to an OIT system is established, at the next program start, the most recently used connection will be offered by default in the drop-down list (last used/last used).
3. Click **OK**.

↳ OITControl checks whether the desired OIT system is available, establishes the connection, and waits for confirmation from the OIT system. Each successful step in the connection is confirmed with a green checkmark in the dialog window. If an error occurs, a red cross will appear in the dialog window. After the connection has been established, the button **Disconnect** is activated.

Possible errors in establishing connections

Error	Remedy
"The connection request was denied by the OIT system. The following OITControls are already connected to the OIT system:"	A connection between OITControl and an OIT system is called a socket connection. No more than 2 socket connections are possible at any one time. If attempting a third socket connection, the following error message is generated: "The connection request was denied by the OIT system. The following OITControls are already connected to the OIT system:" . The connected OITControl socket connections will be displayed. Close one of the existing socket connections and make a new attempt to connect to the desired OIT system.
IP address incorrect	Enter a valid IP address or select a connection from the drop-down menu (see "Establish connection to OIT systems" on page 40).
OIT system not enabled	Supply power to the OIT system (see "Connecting the supply voltage" on page 20).
OIT system not accessible over network	Test the OIT system accessibility with the ping command.



Set up OIT system with live image

With the help of the Live-image function in OITControl, the administrator or primary user has the option of checking the alignment of the OIT system, the display window and its sharpness, image brightness and contour and, if appropriate, adapting them to the needs of their equipment. Proceed as follows:

1. Click  or select **Process > camera image**.

↳ The dialog window **camera image** will open.

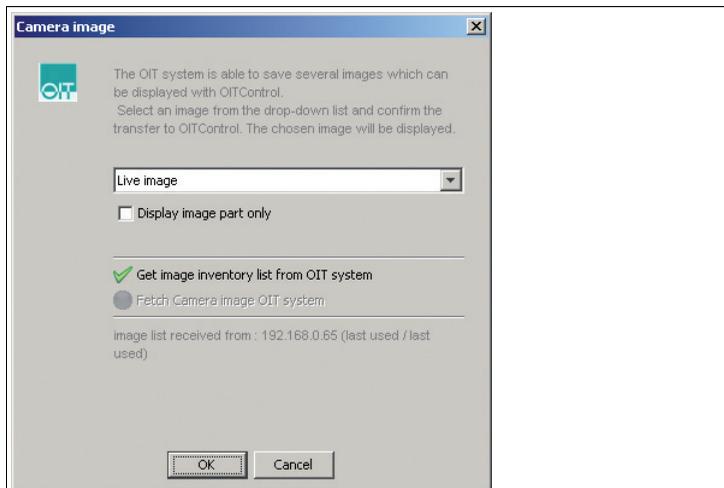


Figure 8.5 **Camera image** dialog box

2. Select **Live image** from the drop-down list.
3. Click **OK**.

↳ The dialog window **Live image** will open. The current live image will be displayed in the left part of the dialog window. The OIT system date and the OIT system time will be displayed in the right side. Previous selections can also be seen here whether in full or partial image.

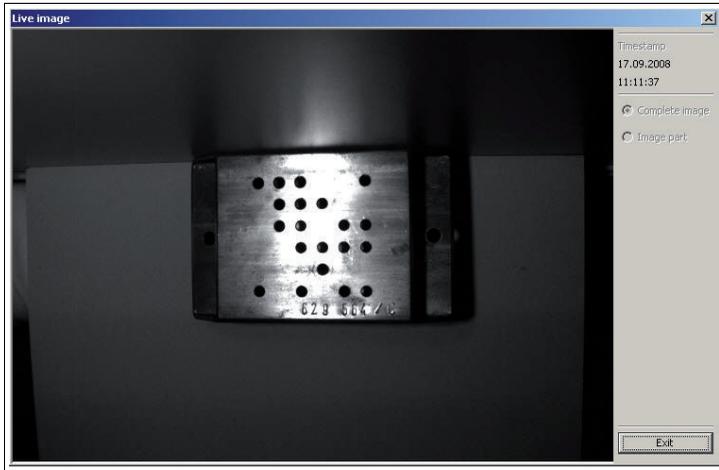


Figure 8.6 **Live image** dialog box

4. Since the Live-image function burdens the network with a higher volume of data transfer, a maximum of 10,000 live images can be taken in the default setting. The display of live images then stops and the dialog window is closed. If needed, start the Live image set-up over. The number of live images can be changed in the menu at **Configuration > Configure OIT system** .
 - ↳ Align the OIT system and adapt, if needed, the settings (field of view, sharpness, brightness, image contour, etc.) to the requirements of your equipment and check the settings by means of the live images in OITControl.
5. Once the OIT system has been optimally aligned and set up, close the dialog window **Live image** by clicking on **Cancel**.

▶ OIT system start-up

Before putting the OIT system into operation and integrating it into your PLC, the interaction between the OITControl and the OIT system should be checked. For this, the administrator or primary user will be able to test the OIT system independent of the PLC. Proceed as follows:

Select **Configuration > Start-up**.

↳ The dialog window **Start-up OIT system** will open. The current image will be displayed in the left part of the dialog window. In the right side of the dialog window in the area **Read mode**, the read mode can be switched to either direct read or trigger read. If the trigger-read mode has been selected but the trigger is missing, then the button **Normal position** will take you back to the start screen. A complete read process can be run in the area **Automatic**. Here the number of seconds after which a new read process is started can be set. Make sure that no previously read or incorrectly read reads are sent to the PLC.

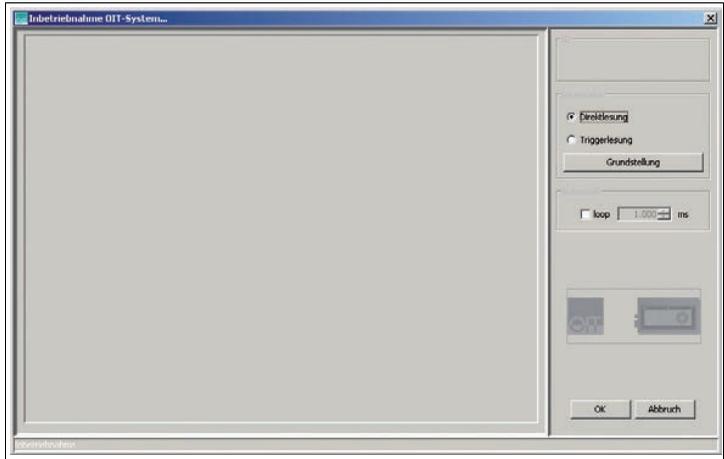


Figure 8.7 Dialog box **Commissioning OIT system...**



Correct read errors: Repeat read operation

An instance may occur when the OIT system cannot read the data from a read-only tag in a read operation through the PLC. In this case, the buttons **Manual entry of ID/UID number(s)** and **Repeat read operation** will flash in the tool bar. Proceed as follows in order to correct the read error by repeating a read operation:

1. Check possible causes of the error: Is the read-only tag correctly positioned in the field of view of the camera (too close/too far to the lens/too tight in the field of view of the camera)? Remove any obstacles that could interfere with proper image taking. Check whether the lighting of the read-only tags is correct (too bright/too dark) and provide sufficient contrast.

2. Click  or select **Process > Repeat read operation**.

↳ The read operation is repeated.



Correct read errors: Manual entry

A instance may occur when the OIT system cannot read the data from a read-only tag. In this case, the buttons **Manual entry of ID/UID number(s)** and **Repeat read operation** will flash in the tool bar. Proceed as follows in order to correct the read error by manually entering the data:

1. Click  or select **Process > Manual entry**.

↳ The dialog window **Manual data entry** will open:

Figure 8.8 OITControl **Manual data input**

2. Enter the ID number of the read-only tag into the box **Entry box for ID number**. Enter the check digit of the read-only code into the second box. Optionally, the UID number may also be entered. For example: a defective read-only tag is replaced by a new read-only tag that merges with the UID number to create a unique identification code.
3. Click **OK**.

↳ The entered data is checked and subsequently sent to the OIT system. The manually entered data is displayed in the **Manual UID Number** and **Manual ID number** on the tab **OIT data set readout**. "XXXXXX" is displayed for **ID number**.



Change users

OITControl provides many user administration options. To change users, proceed as follows:

1. Select **Configuration > User management > Change users**.

↳ The dialog window **Choose user...** will open:



Figure 8.9 **Select user...** dialog box

2. From the drop-down list, click on **User name** for the desired user.
3. Enter the appropriate password into the box **Password**.
4. Click **OK**.

↳ The user change can be seen on the right side of the tool bar.

Predefined user roles

OITControl comes with the following, predefined user roles:

User roles	Password	User permissions
Pepperl+Fuchs	pf	<ul style="list-style-type: none"> ■ View all information ■ Manual input for failed reads ■ Set the date and time on the OIT system
Pepperl+Fuchs Primary User	pfhaupt	<ul style="list-style-type: none"> ■ View all information ■ Manual input for failed reads ■ Set the date and time on the OIT system ■ Configure the OIT system excluding frame definitions ■ Configure OITControl
Pepperl+Fuchs Administrator	pfadmin	<ul style="list-style-type: none"> ■ View all information ■ Manual input for failed reads ■ Set the date and time on the OIT system ■ Configure the OIT system including frame definitions ■ Configure OITControl ■ Create and delete users



Disconnect from OIT system

In order to disconnect an OITControl from an OIT system, proceed as follows:

1. Click  or select **File > Disconnect**.

↳ The dialog window **Disconnect from OIT system...** will open:



Figure 8.10 **Disconnect** dialog box

2. Click **OK**.

↳ The connection to the OIT system is disconnected and the socket connection is closed.

8.5 Parameterizing the OIT system

The OIT system is parameterized using an existing Data Matrix code see chapter 6.2.



Note!

User role

In order to program the OIT system; i.e. to change settings in OITControl, log on as an administrator or primary user in OITControl (**Configuration > User management > Select user**).



Open the parameter file

It is possible to load previously stored parameters into OITControl and transfer them to the OIT system. Proceed as follows:

1. Select **Configuration > configure OIT System**.

↳ The window **invalid parameters...** will open saying that no valid parameter data is yet available:



Figure 8.11 Invalid parameter dialog box

2. Close the window **invalid parameters...** by clicking on **OK**.

↳ A dialog window **Parameterization of the OIT system** will open:

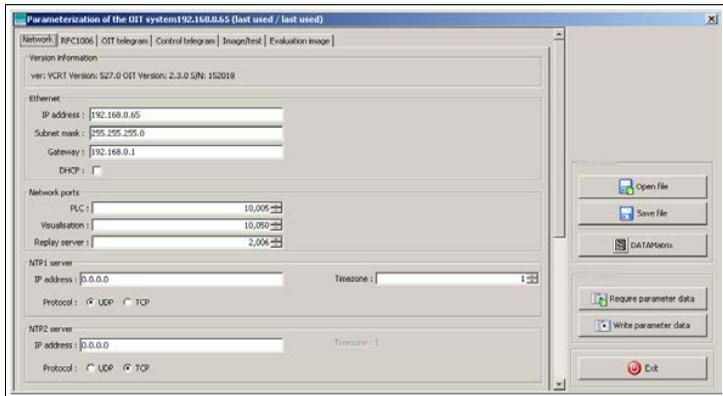


Figure 8.12 Network tab

3. Click the button **open file** in **Parameter set**.

↳ The dialog window **Open** will open.

4. Select the stored parameterization.
5. To confirm the selection click on **Open**.

↳ The dialog window **Open** will close. The settings from the parameter file are displayed in the dialog window **Parameterization of the OIT system**.

6. In order to send the settings to the OIT system, click the button **Write parameters** in the **OIT system**.
7. In order to close the **parameterization of the OIT system** dialog window, click on **end**.



Transferring the current settings from the OIT system

It is possible to transfer the current parameter settings from the OIT system to OITControl. To do so, proceed as follows:

1. Choose **Configuration > OIT system configuration**.
2. If the **Invalid parameter data...** window opens, close it by clicking **OK**.
↳ The **OIT system parameterization** dialog box opens.
3. Click **Require parameter data** in the **OIT system** area.
↳ The current parameter settings are now transferred from the OIT system to OITControl.



Configuring network settings

In order to adapt the network settings to the requirements of your network, proceed as follows:

1. Select **Configuration > Configure OIT System**.
2. If the window **Invalid parameters...** pops up, close it by clicking on **OK**.

↳ A dialog window **Parameterization of the OIT system** will open:

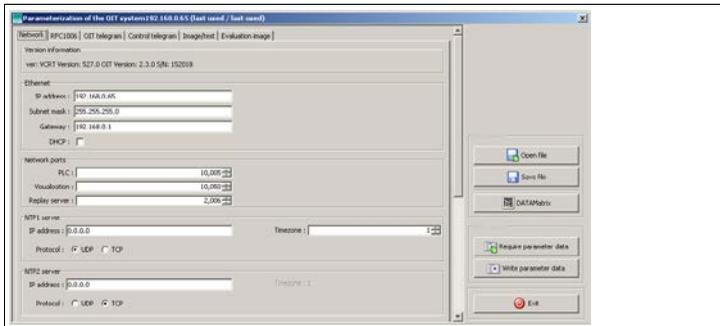


Figure 8.13 Network tab

3. In the area **Ethernet** change the settings for **IP address**, **Subnet Mask**, and **Gateway** in the appropriate fields according to the requirements of your network.
4. If a clock server is going to be used, enter the IP address of the clock server into the area **NTP1-Server**. As a backup, another clock server can be entered into **NTP2-Server**.
5. Take all remaining values as the default values.
6. In order to send the settings to the OIT system, click the button **Write parameters** in the **OIT system** area.
7. In order to close the **Parameterization of the OIT system** dialog window, click on **END**.



Note!

Acceptance only after restart

In order to accept the changes in the system, the OIT system must be restarted.



Changing ISO-on-TCP settings

To change the ISO-on-TCP settings, proceed as follows:

1. Select **Configuration > configure OIT System**.
2. If the window **invalid parameters...** pops up, close it by clicking on **OK**.
3. Go to the tab **RFC1006**:

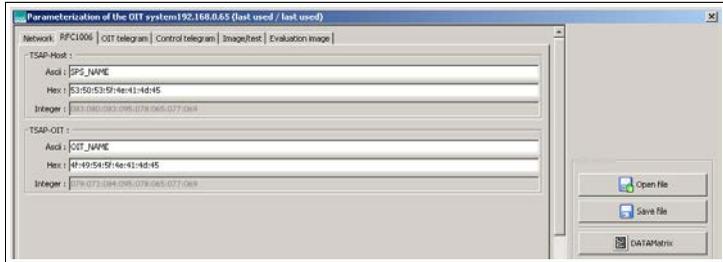


Figure 8.14 RFC1006 tab

4. Enter the appropriate PLC values into the box **TSAP-Host**.
5. Enter the appropriate OIT-system values into the box **TSAP-OIT**.
6. In order to send the settings to the OIT system, click the button **Write parameters** in the **OIT system**.
7. In order to close the **parameterization of the OIT system** dialog window, click on **end**.



Activate TNR

To activate the TNR bit in the STL block of the data telegram to the PLC, proceed as follows:

1. Select **Configuration > Configure OIT System**.
2. If the window **Invalid parameters...** pops up, close it by clicking on **OK**.
3. Go to the tab **Image/Check**:

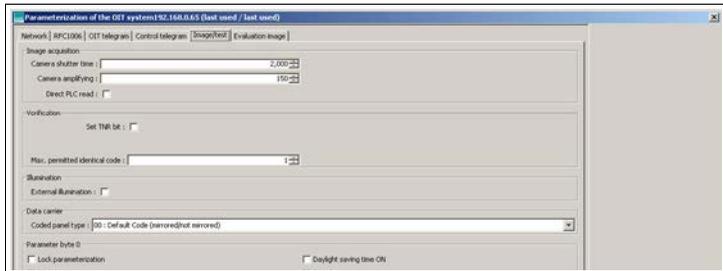


Figure 8.15 Image/testing tab

4. Activate the box **Set TNR bit** in the area **Testing**
5. In order to send the settings to the OIT system, click the button **Write parameters** in the **OIT system** area.
6. In order to close the **Parameterization of the OIT system** dialog window, click on **end**.



Direct read/read with trigger signal activated

A read-only tag read takes place either through an appropriate command from the PLC or through a trigger signal from an attached sensor.

1. Select **Configuration > configure OIT System**.
2. If the window **Invalid parameters...** pops up, close it by clicking on **OK**.
3. Go to the tab **image/check**:

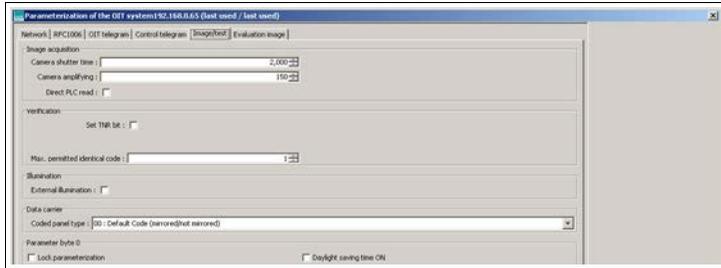


Figure 8.16 Image/testing tab

4. In order to trigger the read command by PLC, check the box **PLC direct read** in the image capture area. The OIT system will trigger a read operation immediately after receiving the command. In order to use the trigger sensor to read after an appropriate PLC command, deactivate **SPS direct read**. The OIT system will then trigger a read operation with a rising edge at the trigger entrance.
5. In order to send the settings to the OIT system, click the button **Write parameters** in the **OIT system**.
6. In order to close the **parameterization of the OIT system** dialog box, click on **end**.



Saving a parameter file

It is possible to save the settings in the OIT system parameterization dialog box for future use. To create a parameter file, proceed as follows:

1. Choose **Configuration > OIT system configuration**.
2. If the **Invalid parameter data...** window opens, close it by clicking **OK**.
↳ The **OIT system parameterization** dialog box opens.
3. Change any settings as necessary.
4. Click **Save file** in the **File system** area.
5. The **Save** dialog box opens.
6. Choose the location where you want the parameter file saved.
7. Confirm by clicking **Save**.
↳ The **Save** dialog box closes.
8. To close the **OIT system parameterization** dialog box, click **Exit**.

9 OITControl menu structure

The menu for the OITControl software looks like this:

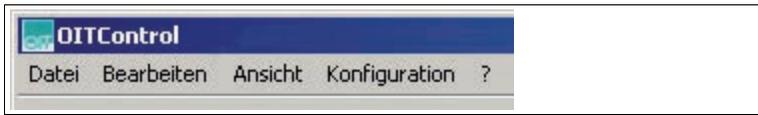


Figure 9.1 OITControl menu

All setting options are available in the menu:

- Under **File**, files can be uploaded from your PLC, connections can be made to the OIT system, and programs can be closed.
- Under **Process**, commands can be sent to the OIT system.
- Under **Display**, the interface language can be set.
- Under **Configuration**, all configurable parameters can be set.
- Under **?**, help can be found.

9.1 OITControl file menu

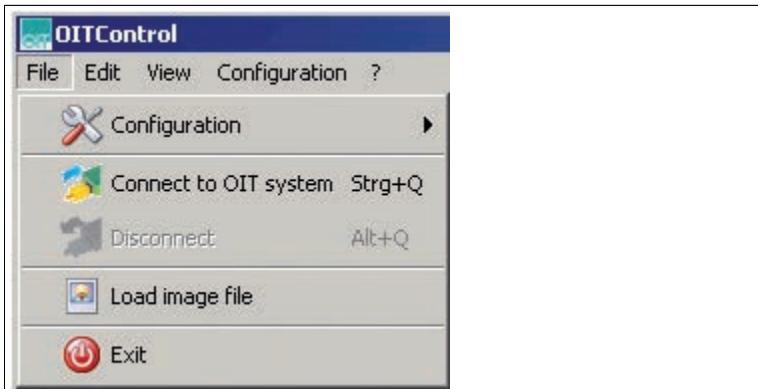


Figure 9.2 Menu bar OITControlFile

- **Configuration:** loading XML files.
- **Connect to the OIT system:** establishing connections to the OIT system.
- **Disconnecting:** an available connection to the OIT system is disconnected.
- **Load image file:** an available image is loaded.
- **End:** the OITControl program is ended.

9.1.1 OITControl file menu > Configuration

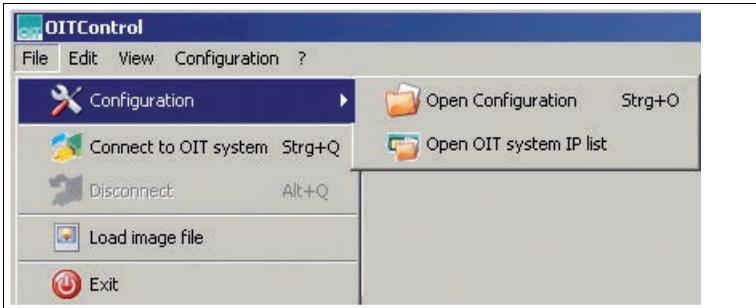


Figure 9.3 Menu bar OITControl **File > Configuration**

- **Open configuration:** Using an XML configuration file, you can adapt the appearance of the OITControl to the requirements of your plant. These configuration files can be opened in this menu.
- **Launch OIT system:** Various IP Configuration files can be created and opened in this menu. Different OIT systems with their different IP addresses can be stored in one configuration file. When cueing the function **Connect to the OIT system** all available IP addresses for selection will be displayed.

9.1.2 ITControl file menu > Connect to OIT system



Figure 9.4 **Select OIT system...** dialog box.

- **left input area:** Either the IP address last used or the IP address of the OIT system can be manually entered using the drop-down list in the left input area. More OIT systems can be added to the drop-down list (by changing the file OITCamera.XML see chapter 11.1). If another connection to an OIT system is established, during the next program start-up, the most recently-used connection will be offered by default in the drop-down list (last used/last used).
- **right input area:** The port number may be entered in the right input area.

9.1.3 OITControl file menu > Disconnect



Figure 9.5 Disconnect dialog box

The OIT system is disconnected and the socket connection closed by selecting the menu item **Disconnect**.

9.1.4 OITControl file menu > Load image file

A dialog window opens in which the image file to be opened can be selected.

9.1.5 OITControl file menu > Exit

The connection to the OIT system is disconnected, the socket connection is closed and the program ended.

9.2 Edit OITControl menu

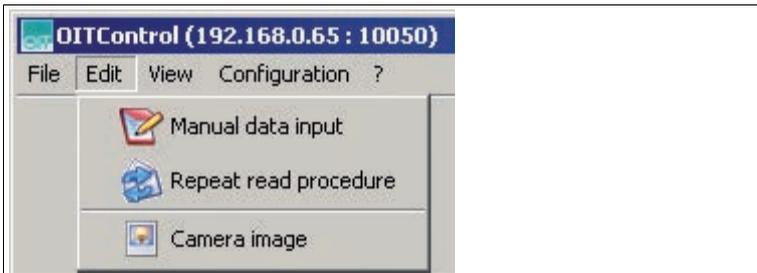


Figure 9.6 Menu bar OITControl Edit

- **Manual entry** If a read-only tag is not recognized, the code may be manually entered here.
- **Repeat read operation:** If a read-only tag is not recognized, the tag can be read here.
- **Camera image:** Displays camera image.

9.2.1 Process OITControl menu > Manual entry

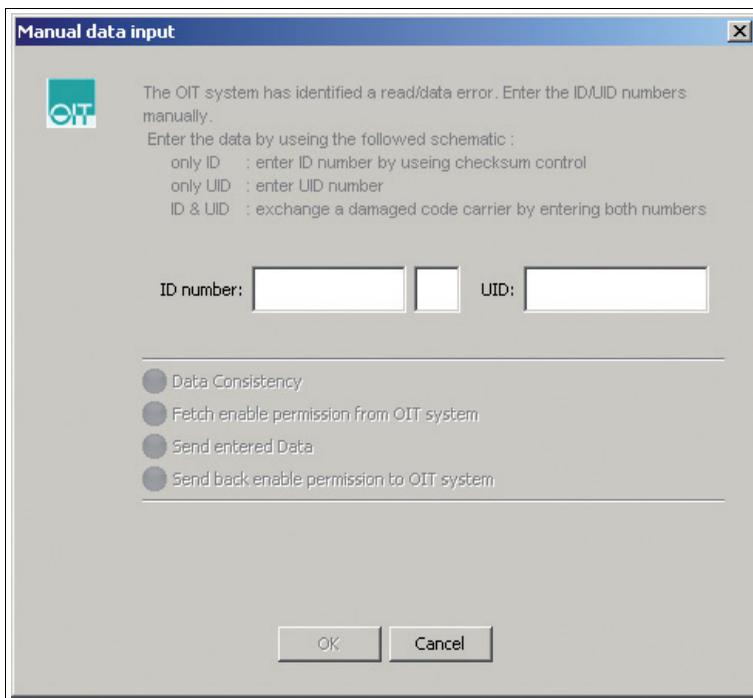


Figure 9.7 OITControl **Manual data input**

The **Manual entry** dialog box consists of three input boxes:

- **Left input box:** the ID number of the read-only tag is manually entered here.
- **Center input box:** the check digit of the read-only tag is manually entered here.
- **Right input box:** The UID code is entered here. For example: a defective read-only tag is replaced by a new read-only tag that merges with the UID number to create a unique identification code.

The input boxes can still be defined under **Configuration > Configure OITControl > Manual entry**. There an optional preliminary check of the entered number(s) can be set before they are sent to the OIT system. see chapter 9.4.3.3

9.2.2 Edit OITControl menu > Repeat read operation

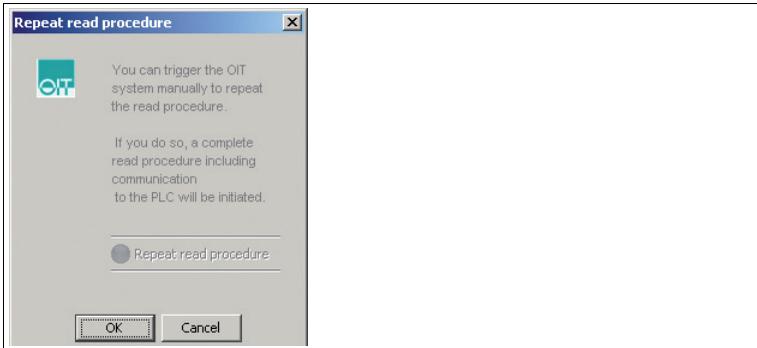


Figure 9.8 OITControl Repeat read procedure

The read operation of the connected OIT system can be repeated here. This initiates a complete read operation, including communication to the PLC host computer.

9.2.3 OITControl menu Process > Camera image

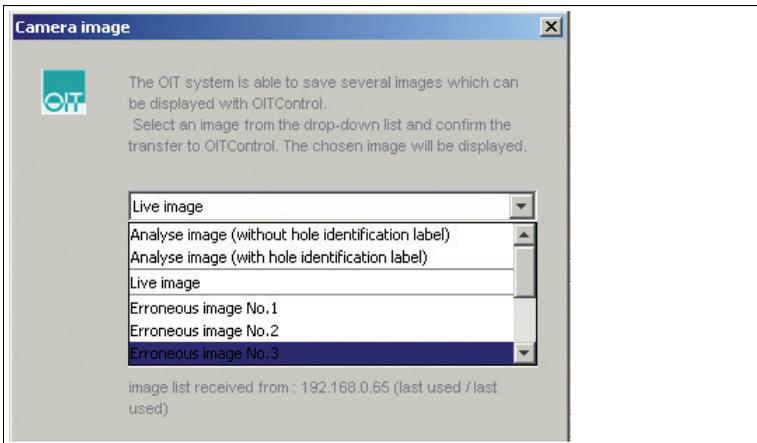


Figure 9.9 Camera image dialog box opened

With the help of the live image function in OITControl, the administrator or primary user has the option of checking the alignment of the OIT system, the display window and its sharpness, image brightness and contrast, and, if necessary, adapting them to the needs of their equipment. There is also the option in the drop-down menu to display fault patterns and an evaluation with or without the hole recognition markings. A partial image can be pre-defined in the menu **Only display partial image** under **Configuration > Configure OITControl > Image display tab**. You also have the option of saving the images in pgm format so that you can send these images to P+F in the event of a support query, for example.

9.3 OITControl file menu



Figure 9.10 Menu bar OITControl **View**

- **Customize language:** Selection of different interface languages.

9.3.1 Display OITControl menu > Adjust language



Figure 9.11 **Adjust language...** dialog box

Change the language to be used in the menu bar and the dialog windows here. The left and right display areas are customized to your particular needs through an XML file which also controls the language.

9.4 OITControl Configuration menu

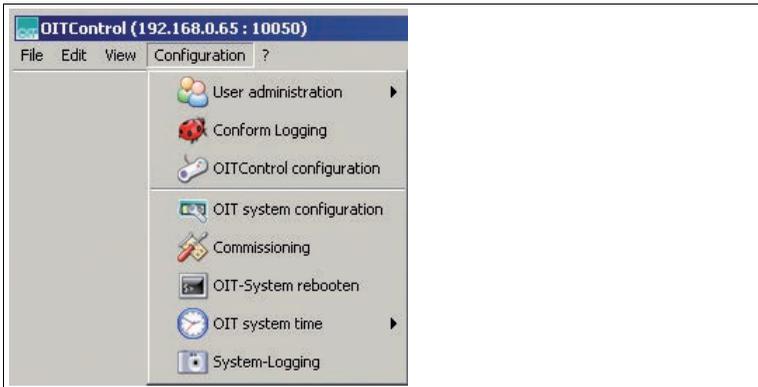


Figure 9.12 Menu bar OITControl **Configuration**

- **User administration:** select, change, log out, and delete users.
- **Customize login:** customizing the login.
- **Configure ITControl:** all OITControl parameters can be set.
- **Configure OIT system:** all OIT system parameters can be set.
- **Start-up:** start-up support of an OIT system.
- **Reboot OIT system:** OIT system is restarted.
- **OIT system time:** set the OIT system time
- **System log** display OIT system communication.

9.4.1 OITControl configuration menu > User administration

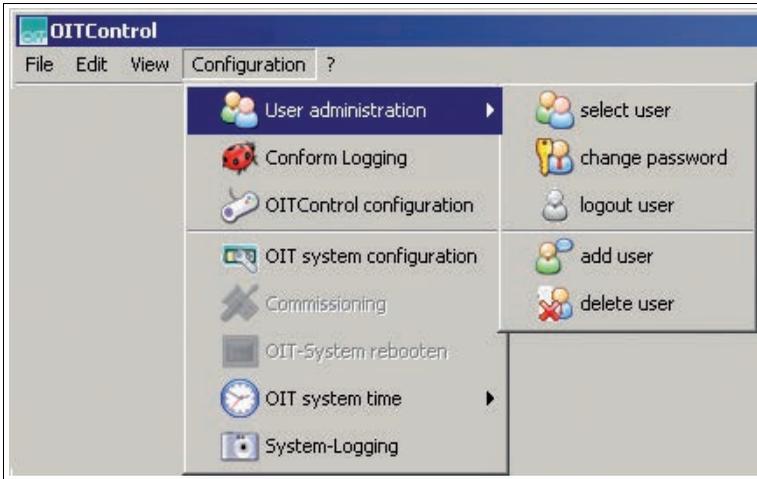


Figure 9.13 Menu bar OITControl **Configuration > User administration**

- **Select user:** select users with password access.
- **Change password:** Change current user password.
- **Log-off:** logs off the current user.
- **Adding users:** adding new users. This can only be done by an administrator or primary user.
- **Deleting users:** deleting a user with password access.

9.4.1.1 OITControl configuration menu > User administration > Select user



Figure 9.14 **select user** dialog box

The current user is logged off and another user is logged on. Select the new user to be logged on from the drop-down menu. Additional actions can only be carried out depending on the clearance level of the new user.

Predefined user roles

OITControl comes with the following, predefined user roles:

User roles	Password	User permissions
Pepperl+Fuchs	pf	<ul style="list-style-type: none"> ■ View all information ■ Manual input for failed reads ■ Set the date and time on the OIT system
Pepperl+Fuchs Primary User	pfhaupt	<ul style="list-style-type: none"> ■ View all information ■ Manual input for failed reads ■ Set the date and time on the OIT system ■ Configure the OIT system excluding frame definitions ■ Configure OITControl
Pepperl+Fuchs Administrator	pfadmin	<ul style="list-style-type: none"> ■ View all information ■ Manual input for failed reads ■ Set the date and time on the OIT system ■ Configure the OIT system including frame definitions ■ Configure OITControl ■ Create and delete users

9.4.1.2

OITControl configuration menu > User administration > Change password

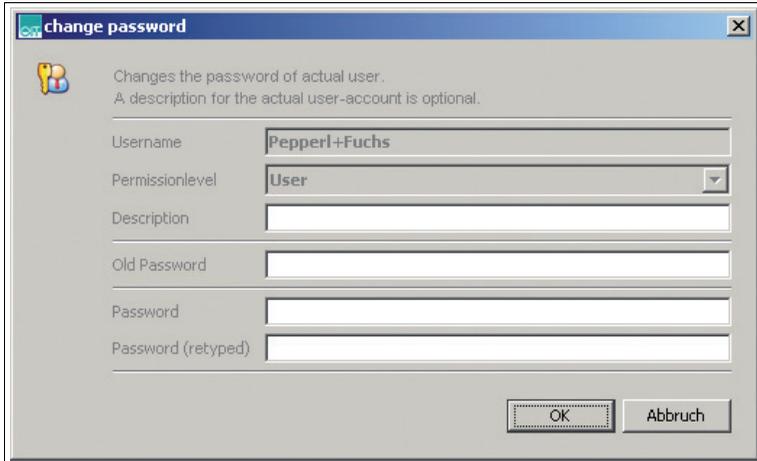


Figure 9.15 **change password** dialog box

Change the current user password here. A concise description is recommended.

9.4.1.3 OITControl configuration menu > User administration > User log-off

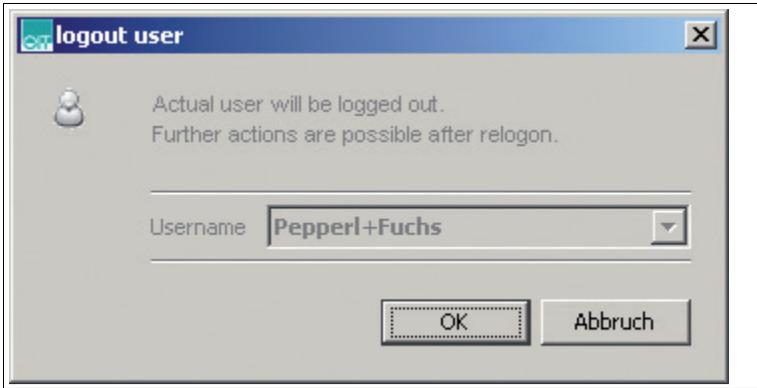


Figure 9.16 **logout user** dialog box

The current user is logged off and another user is logged on. Further actions can only be carried out after logging on again.

9.4.1.4 OITControl configuration menu > User administration > Add user

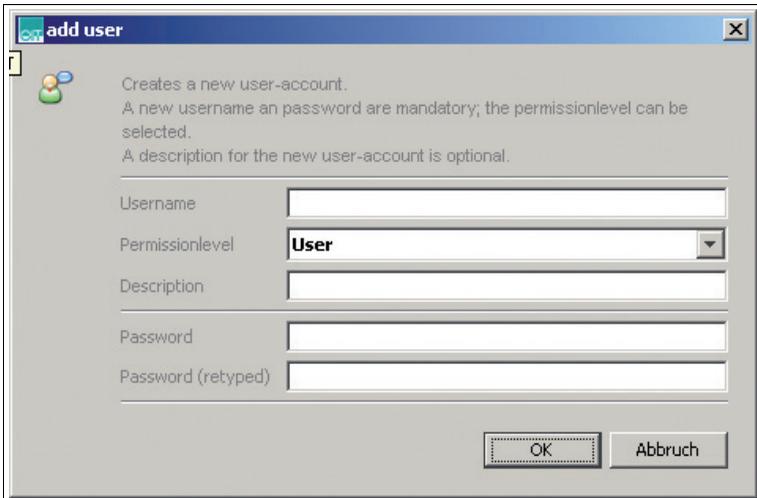


Figure 9.17 **add user** dialog box

Add new users here. It will be necessary to enter a (new) user name and password. The clearance level of the new user can be selected directly from the drop-down menu Clearance level. A concise description is recommended.

User levels

For the OITControl Software, the following user levels are defined:

Level	User rights
deactivated	<ul style="list-style-type: none"> ■ none
guest	<ul style="list-style-type: none"> ■ View all information
User	<ul style="list-style-type: none"> ■ View all information ■ Manual entry for failed/incorrect reads ■ Set date and time in OIT system
Primary user	<ul style="list-style-type: none"> ■ View all information ■ Manual entry for failed/incorrect reads ■ Set date and time in OIT system ■ Configure the OIT system with exception of the telegram definition ■ Configure OITControl
Administrator	<ul style="list-style-type: none"> ■ View all information ■ Manual entry for failed/incorrect reads ■ Set date and time in OIT system ■ Configure the OIT system including the telegram definition ■ Configure OITControl ■ Create and delete users

9.4.1.5

OITControl configuration menu > User administration > Delete user



Figure 9.18 delete user dialog box

The current user account will be completely deleted. Further actions can only be carried out after logging on again (under a different user account). An administrator can delete other user accounts.

9.4.2 OITControl configuration menu > Customizing the log view



Figure 9.19 Select Logging category... dialog box

Specify here whether you wish to only receive the INFO notices or also the DEBUG notices in the tab **OITControl notices** on the main page of the OITControl software see chapter 9.4.8.

9.4.3 OITControl configuration menu > Configure OITControl

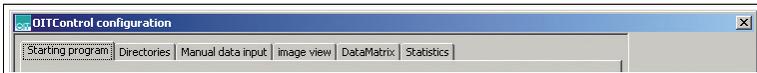


Figure 9.20 OITControl konfigurieren... dialog box

- **Launch program:** Display of all important components at the start of the program.
- **Directories:** Information on the directory structure can be found here.
- **Manual entry** Definition of the dialog window input mask **Manual entry**.
- **Image display:** sets the size of the partial image and the number of live images.
- **Data Matrix:** settings for the print-out of the Data-Matrix code.
- **Statistics:** displays of statistical values.

9.4.3.1

OITControl configuration menu > Configure OITControl > Program start tab

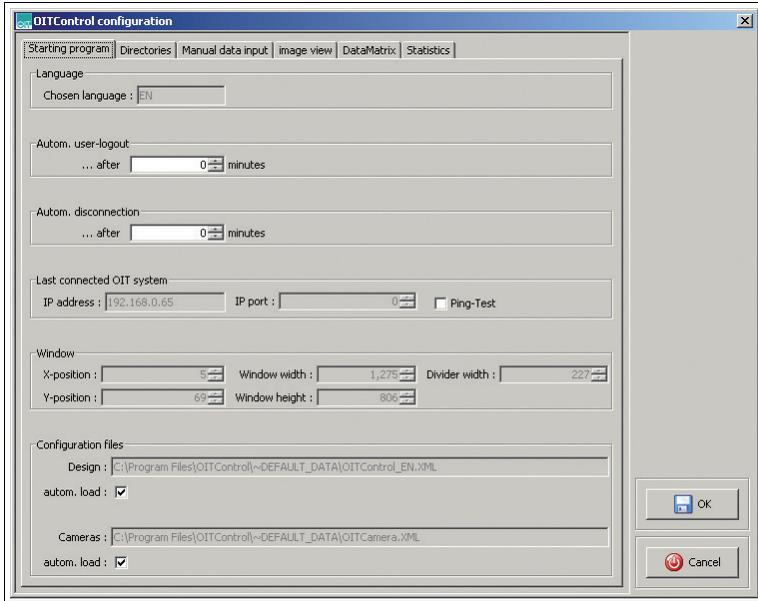


Figure 9.21 Starting program tab

- **Language:** display currently selected language
- **Autom. user log-off:** changes the time after which the administrator or primary user is logged off and only a standard user remains active.
- **Autom. disconnection:** change the time after which OITControl disconnects from the OIT system.
- **Last connected OIT system:** displays the IP address and IP port of the last connected OIT system. A Ping test can be activated here.
- **Window:** displays the program window position.
- **Configuration files:** set the configuration files that automatically launch for the user interface and cameras when the software is started.

9.4.3.2 OITControl configuration menu > Configure OITControl > Directories tab

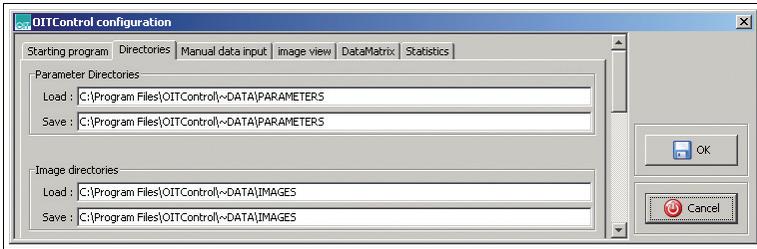


Figure 9.22 Directoriestab

- **Parameter directories:** Here you set up the folder for the program directories to be loaded and the parameter directories to be stored.
- **Image directories:** Here you set up the folder for the image directories to be loaded and the image directories to be stored.

9.4.3.3 OITControl configuration menu > Configure OITControl > Manual entry tab

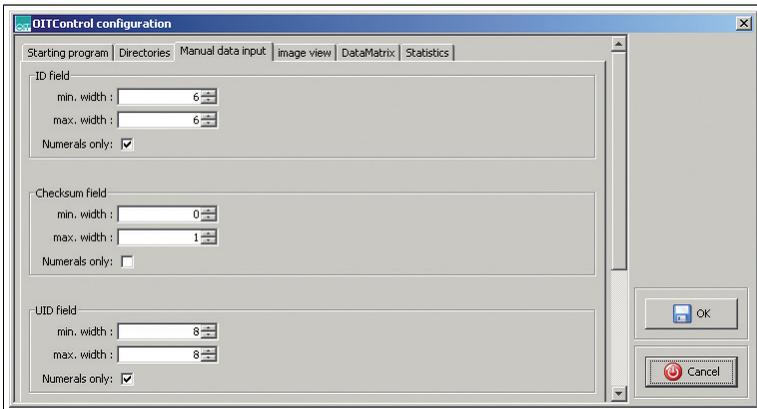


Figure 9.23 Manual data input tab

- **ID box:** Definition of the ID box in the dialog window **Manual entry**.
- **Checksums box:** Definition of the checksum box in the dialog window **Manual entry**.
- **UID box:** Definition of the UID box in the dialog window **Manual entry**.

9.4.3.4 OITControl configuration menu > Configure OITControl > Display image tab

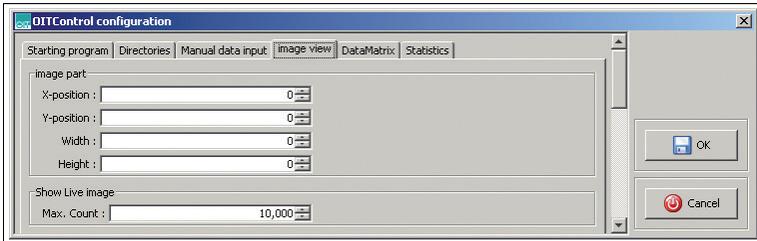


Figure 9.24 image view tab

- **Partial image:** instead of displaying the entire CCD camera field of view, only an adjustable part of it may be shown.
- **Live image display:** sets the maximum number of live images. The **Live image** dialog box closes after showing the number of live images.

9.4.3.5 OITControl configuration menu > Configure OITControl > Data Matrix tab

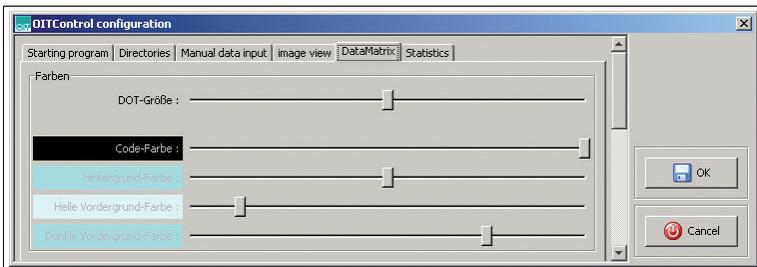


Figure 9.25 DataMatrix tab

The settings in the menu **Configure OIT system** can be printed out in a Data Matrix code. The DOT size of the Data Matrix code and the print color can be selected here.

9.4.3.6 OITControl configuration menu > Configure OITControl > Statistic tab

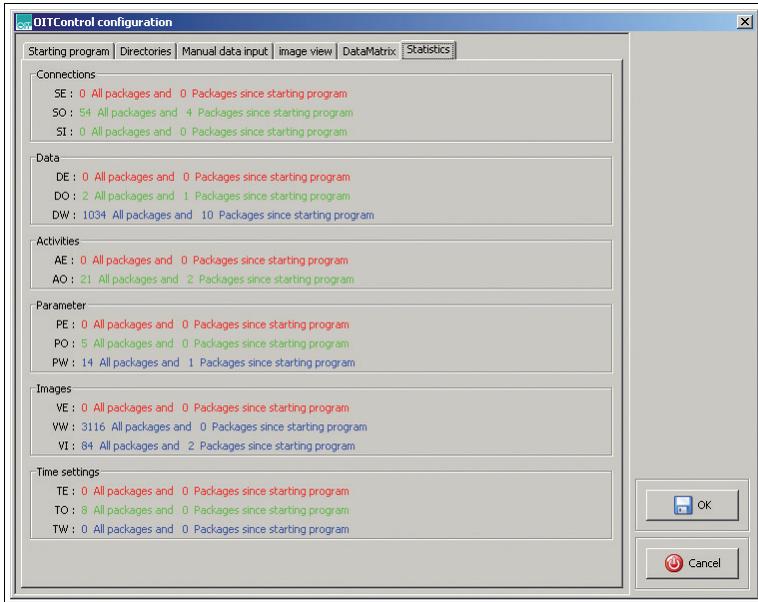


Figure 9.26 Statistics tab

The OITControl compiles connection statistics between OITControl and the OIT system.

9.4.4 OITControl configuration menu > Configure OIT system



Figure 9.27 Parameterization of the OIT system dialog box

- **Network:** network connections information.
- **RFC1006:** sets the TSAP-HOST and TSAP-OIT identifiers.
- **OIT telegram:** OIT telegram settings.
- **Control telegram:** control telegram settings.
- **Image/Testing:** settings for all code recognition.
- **Image:** defines the area in which the code sheet should be read out.

9.4.4.1

OITControl configuration menu > Configure OIT system > Network tab

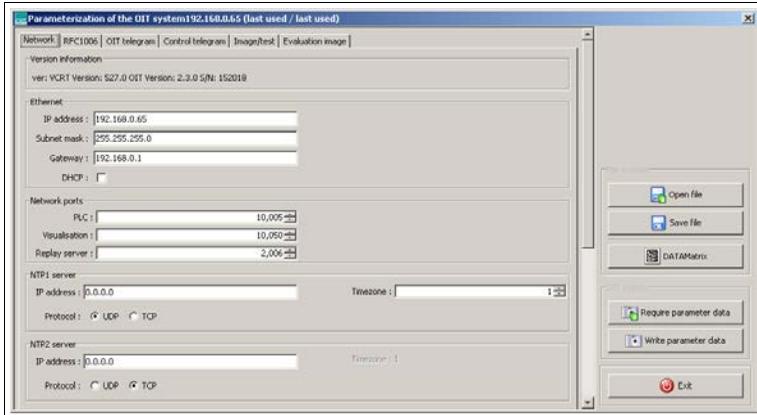


Figure 9.28 Network tab

- **Version information:** Displays OIT system version.
- **Ethernet:** Displays the current network IP address with subnet mask and gateway. If a connection to a DHCP is to be established, it may be activated here.
- **Network ports** Displays current network ports for PLC, visualization (OITControl), and replay server (another server to aid logging). The port addresses can be freely chosen.
- **NTP1 server:** Displays the IP address of an NTP server. The Network Time Protocol (NTP) is a standard to synchronize clocks in computer systems through packet-based communication nets. As a rule, NTP uses the transport protocol UDP. It was specially developed to give reliable clock-time in networks with variable packet run-time. But the transport protocol TCP can also be used. Moreover, the right time zone can be set here.
- **NTP2 server:** see NTP1 server description. Another Network Time Protocol Server can be added here. Adding another NPT server provides a backup in the event of the first server failing, but it is not essential.



Note!

Acceptance only after restart

In order to accept the changes in the system, the OIT system must be restarted.

9.4.4.2 OITControl configuration menu > Configure OIT system > RFC1006 tab

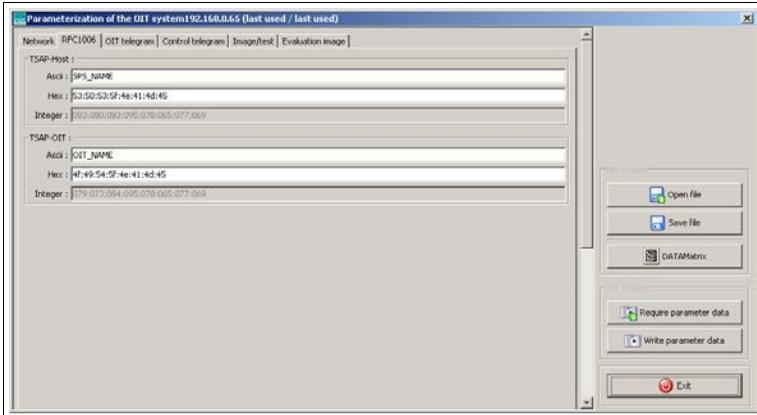


Figure 9.29 RFC1006 tab

- **TSAP host:** Displays communication access point on the host page in Ascii characters or Hex characters
- **TSAP-OIT:** Displays of communication access point on the OIT system page in Ascii characters or Hex characters

9.4.4.3 OITControl configuration menu > Configure OIT system > OIT telegram tab

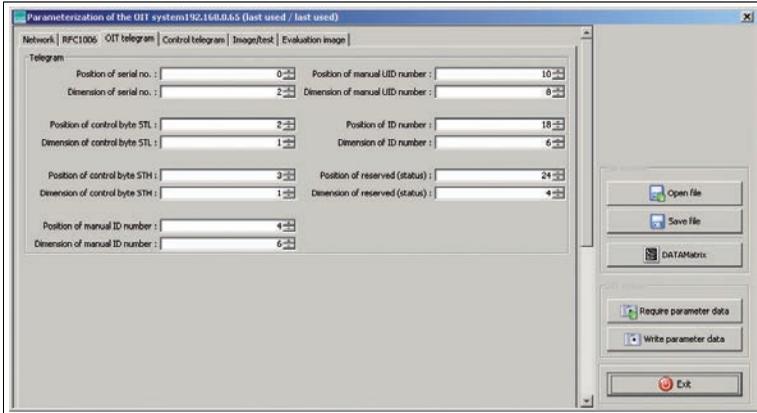


Figure 9.30 OIT telegram tab

- **Telegram:** Adapting the OIT telegram to the present OIT system.

Note!

No changes to the default values

Make no changes to these values if possible. That would change the protocol and could prevent new connections to the systems from being established.





Note!

Changes only with administrator rights

Changes can only be entered here when logged on as an administrator.

9.4.4.4

OITControl configuration menu > Configure OIT system > Control telegram tab

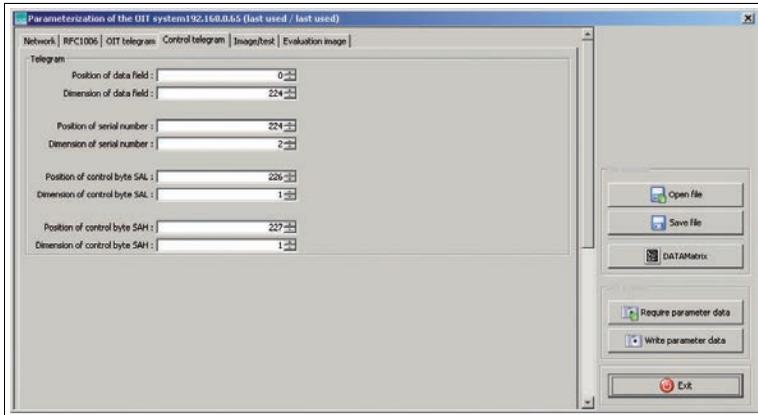


Figure 9.31 Control telegram tab

- **Telegram:** Adapts the control telegram to the present control.



Note!

No changes to the default values

Make no changes to these values if possible. That would change the protocol and could prevent new connections to the systems from being established.



Note!

Changes only with administrator rights

Changes can only be entered here when logged on as an administrator.

9.4.4.5

OITControl menu Configuration > Configure OIT system > Image/testing tab

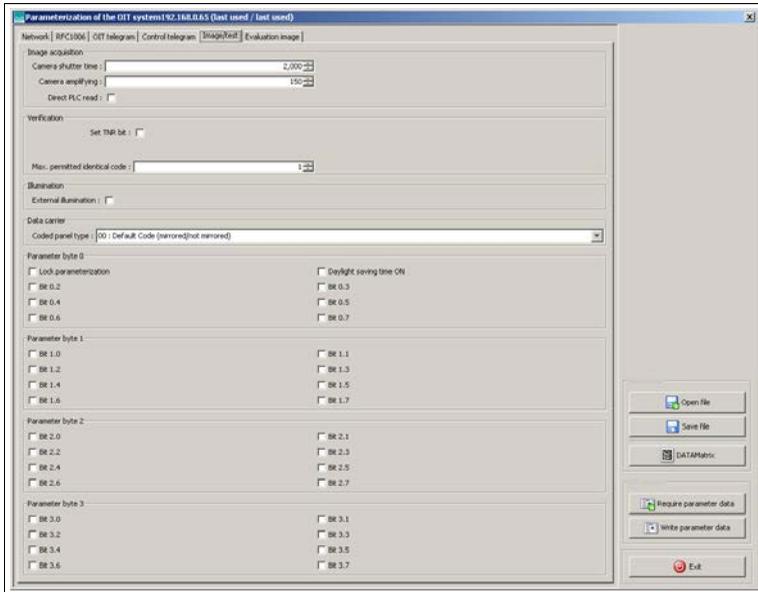


Figure 9.32 Image/testing tab

- **Image capture:** Input camera shutter time and camera gain. In order to trigger the read command through the PLC, check the box **PLC direct read** in the image capture area. The OIT system will then trigger a read operation immediately after receiving the command. In order to trigger a read through the trigger sensor after an appropriate PLC command, deselect the check box **PLC direct read**. The OIT system will then trigger a read operation with a rising edge at the trigger input after an appropriate PLC command. see "Connection for a trigger sensor" on page 12
- **Testing:** You can specify whether the TNR bit should be transmitted to the control as "0" or "1" under Set TNR bit. The maximum number of identical codes that can be detected in succession can be set under Max. permitted identical code. If you set this to two, the system will read a code twice consecutively before generating an error message. If a 0 is entered then the function is disabled.
- **LED illumination:** the external illumination is switched on here. To do this, an external illumination must be connected to the external 4 pin M12 socket. See "Connection for the external illumination unit" on page 11
- **Data carrier:** type and specification of code sheet position. All possible positions of the sheet are tested in the default state. Here an 11 must be set in order to read small code sheets. See chapter 4.7.4. **Note:** The codes are read in inverted because of the internal mirror in the OIT200.
- **Parameter bytes 0 to 3:** Changes to parameters in the OIT system can be blocked with the parameter byte **Lock programming** . The change of time can be automated in countries on summertime/ daylight savings time with the parameter byte **Summertime on** .



Note!

Resetting the Parameterization Lock

You can reset the activated parameterization lock by applying a logical high to the pin 3 mode bit 1 (MOD 1) and a simultaneous logical low to the pin 4 mode bit 0 (MOD 0). After applying this logic level to the inputs, the locking bit in the parameter byte can be reset to "0".

9.4.4.6

OITControl Configuration Menu Bar > Configure OIT System > Evaluation Image Tab

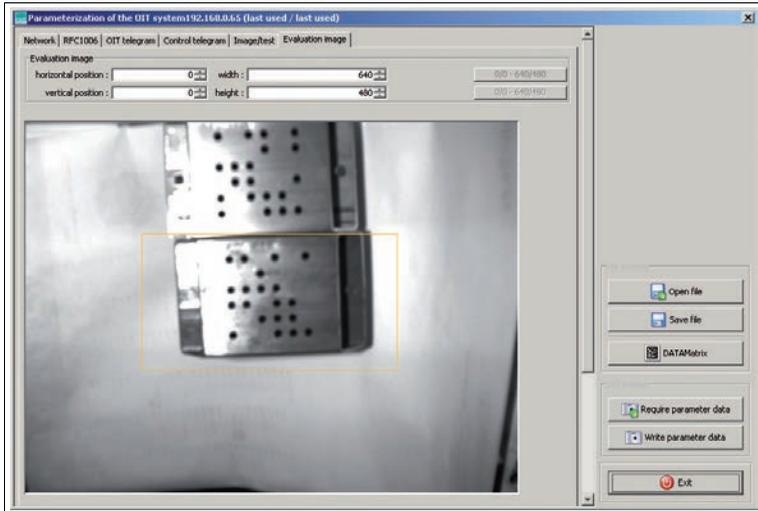


Figure 9.33 Evaluation image tab

- **Evaluation image:** This tab allows a specific section in the image shown to be selected. Only this section is used by the camera for the code search. To select a section, draw a box around the area required for evaluation using the mouse.

9.4.5 OITControl configuration menu > Start-up

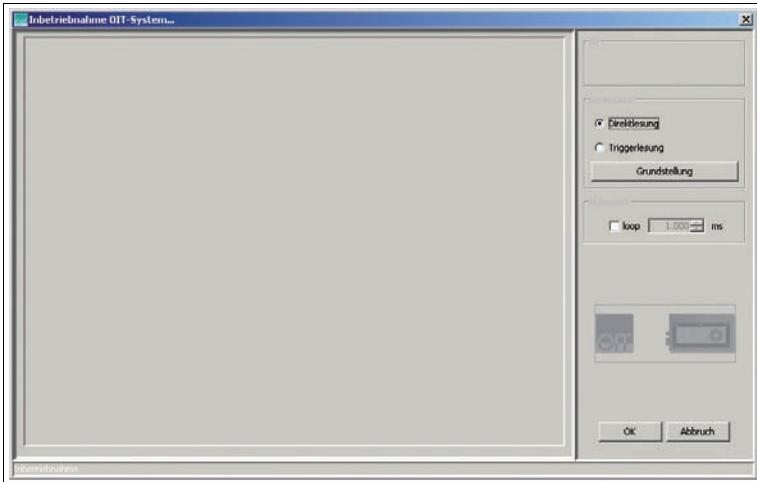


Figure 9.34 Dialog box **Commissioning OIT system...**

The current image will be displayed in the left part of the dialog window. The read ID number will appear on the right side of the dialog window in the ID area, and in the **Read mode** area, the read mode can be switched to either direct read or trigger read. If the trigger-read mode has been selected but the trigger does not appear, then the button **Normal position** will lead back to the initial situation. A complete read operation can be run in the **Automatic** area. Here you can set the number of seconds after which a new read operation will start. If no image is displayed, click on OK to start a read-in of an image. see "OIT system start-up" on page 42

9.4.6 OITControl configuration menu > Reboot OIT system



Figure 9.35 OIT-System rebooten... dialog box

The OIT system can be restarted through this menu item (reboot). Upon confirmation, the open socket connection to the OIT system is closed through OITControl. The system must be rebooted after changes to the IP address or language.

9.4.7 OITControl configuration menu > OIT system time

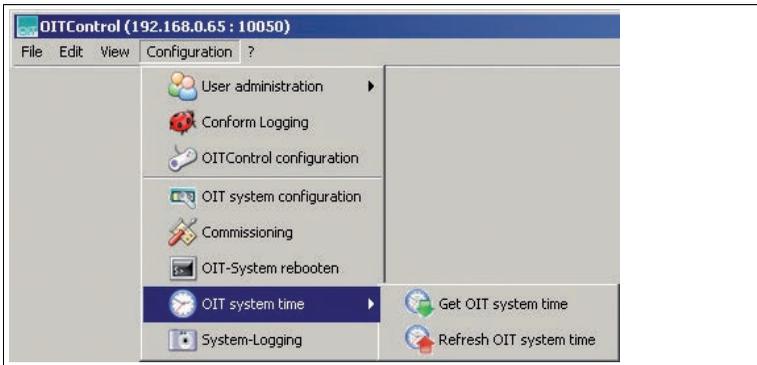


Figure 9.36 Menu box OITControl Configuration > OIT system time

- **Read OIT system time:** The currently set system time of the OIT system can be read out. Check the indicated data after successful data transmission (date and time). If the difference is too great, then the time between the OIT system time and computer time can be synchronized.
- **Update OIT system time:** The currently set system time of the OIT system can be synchronized to the current computer time. This should only take place when the OIT system time difference and unavailable time server (NTP1 server / NTP2 server) is too great.



Note!

The OIT system time settings are lost when the system is restarted.

9.4.8 OITControl configuration menu > System login

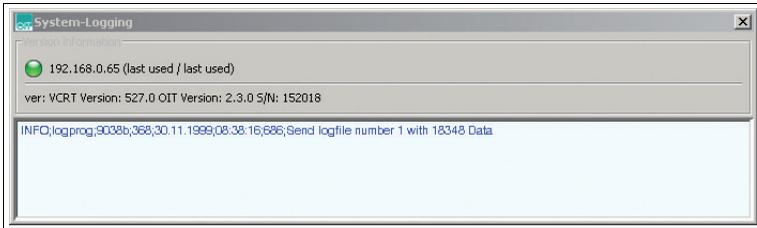


Figure 9.37 **System-Logging** dialog box

The OIT system log file is displayed in this dialog window.

9.5 OITControl help menu

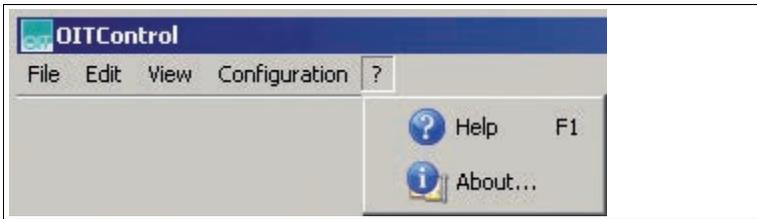


Figure 9.38 Menu bar OITControl ?

- **Help:** starting Online help.
- **through...:** Display all relevant program information.

9.5.1 OITControl ? menu > Help



Figure 9.39 **Help** dialog box

Part of the documentation may be accessed as online help.

9.5.2 OITControl ? menu > over...

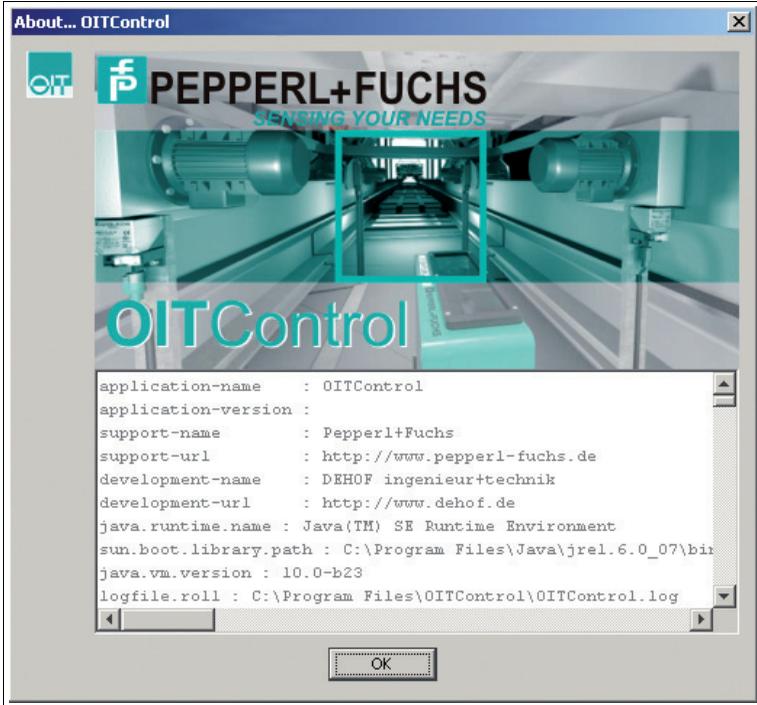


Figure 9.40 **About...** dialog box

Displays all relevant program information.

10 Troubleshooting

10.1 What to do in the event of an error

Before requesting a service call, please check that the following actions have been taken:

- Test the equipment according to the following checklists,
- Telephone assistance from the Service Center in order to isolate the problem.



Checklist

1. Save the fault pattern with the ending .pgn. Both options are provided in the **Save as** dialog window. Also, save the image with hole recognition marking and without hole recognition marking to simplify subsequent error diagnosis.
2. Check the LED display **Check alignment** on the right side of the OITControl user interface. If the LED lights up, please check the illumination and alignment of the code carrier using the live image display.
3. Open the tab **OIT debug display** on the right side of the OITControl user interface. All important messages concerning the entire OIT system appear there.
4. Analyze the fault pattern. Look at the fault pattern with the hole recognition markings. This image shows what the OIT system sees and which code it does or does not recognize.
5. Check the OIT system standard values. See chapter 9.4.4
6. Contact the Service Center. Please have the fault patterns and version numbers of the OIT system at hand. The version number can be found under **Configuration > Configure OIT system** in the Network tab.

11 Appendix

11.1 Structure of the OITCamera.XML file

All network addresses for all desired OIT systems can be stored in the OITCamera XML file. This makes it easier to select individual OIT systems, since a selection of OIT systems is already displayed when making a connection request to OITControl.



Structure of the XML file:

The subfolder **Cameras** is in **OITCamera**. Do not change this file name. Any number of OIT systems with their IP addresses can now be added to the subfolder **Cameras**.



Adding a new OIT system

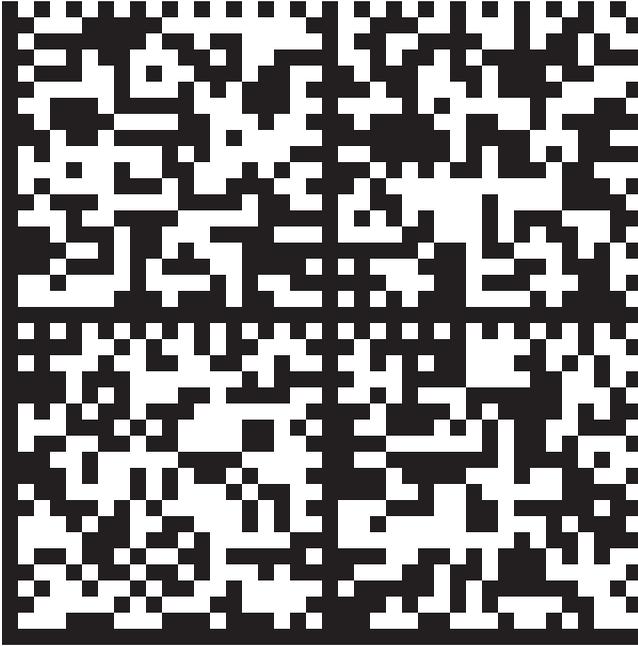
1. Copy one of the two already-existing folders.
2. Write the IP address of the new OIT system in the copied folder.
3. Set the IP port to the value at which the OIT system was configured. (default: 10050)
4. Any OIT system name can be entered under CameraName.
5. The location of the camera can be entered for CameraLocation.

↳ If several cameras are to be entered, repeat steps 1 - 5. Otherwise, the file can be saved and loaded to OITControl.

11.2 Default values of the OIT system

Ethernet	
IP address	192.168.0.65
Subnet mask	255.255.255.0
Gateway	192.168.0.1
DHCP	false
Network ports	
PLC	Port: 10005
Visualization	Port: 10050
Replay server	2006
NPT1 server: IP address	84.16.227.207
NPT1 server: Protocol	UDP
NPT1 server: Time zone	1
NPT2 server: IP address	71.40.128.148
NPT2 server: Protocol	UDP
NPT2 server: Time zone	1
TSAP host / TSAP-OIT	
Host	SPS_NAME
OIT:	OIT_NAME
OIT telegram	
Message counter position / Size	0 / 2
Control byte STL position / Size	2 / 1
Control byte STH position / Size	3 / 1
TNR number manual position / size	4 / 6
FSNR number manual position / size	10 / 8
ID number position / size	18 / 6
Status fault message	24 / 4
Control telegram	
Data set position / size	0 / 224
Message counter (SPS) position / size	224 / 2
Control byte SAL position / size	226 / 1
Control byte SAH position / size	227 / 1
Image capture	
Camera shutter time	2000
Camera gain	150
PLC direct read	false
Testing	
Set TNR bit	false
Max. permitted identical code	0
Illumination	
external illumination	false
Data carrier	
Code sheet type	00
Parameter byte 0	
Lock parameterization	false
Summertime on	false

The following Data Matrix code may also be used to set the default values. See chapter 8.5 and See chapter 6.2



11.3 FTP connection using FileZilla software

When using "FileZilla" software, make sure you configure the following settings:

- Use active mode
- Only allow one connection

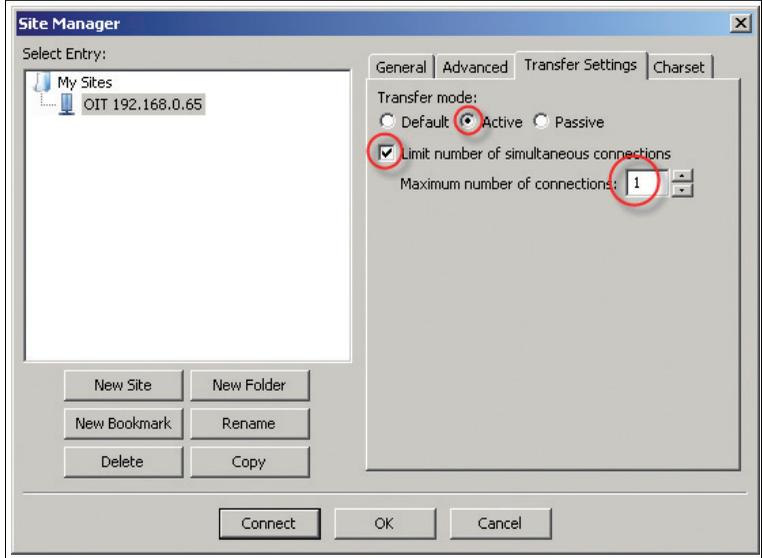


Figure 11.1 Adjustment FileZilla

FACTORY AUTOMATION – SENSING YOUR NEEDS



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