



# ibaPDA-Interface-Raytek

## Data Interface for Raytek Temperature Scanners

Manual

Issue 1.2

Measurement Systems for Industry and Energy

[www.iba-ag.com](http://www.iba-ag.com)

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The current version is available for download on our web site [www.iba-ag.com](http://www.iba-ag.com).

Version	Date	Revision - Chapter / Page	Author	Version SW
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# 1 About this manual

This document describes the functions of the software interface *ibaPDA-Interface-Raytek* and how it is used.

This documentation is a supplement to the *ibaPDA* manual. Information about all the other characteristics and functions of *ibaPDA* can be found in the *ibaPDA* manual or in the online help.

## 1.1 Target group and previous knowledge

This documentation is aimed at qualified professionals, who are familiar with handling electrical and electronic modules as well as communication and measurement technology. A person is regarded as professional if he/she is capable of assessing the work assigned to him/her and recognizing possible risks on the basis of his/her specialist training, knowledge and experience and knowledge of the standard regulations.

This documentation in particular addresses persons who are concerned with the configuration, test, commissioning or maintenance of Raytek temperature linescanners. For the handling of *ibaPDA-Interface-Raytek* the following basic knowledge is required and/or useful:

- Windows operating system
- Basic knowledge of *ibaPDA*
- Knowledge of configuration and operation of the relevant measuring devices/measuring systems

## 1.2 Notations

In this manual, the following notations are used:

Action	Notation
Menu command	Menu <i>Logic diagram</i>
Calling the menu command	<i>Step 1 – Step 2 – Step 3 – Step x</i> Example: Select the menu <i>Logic diagram - Add - New function block</i> .
Keys	<Key name> Example: <Alt>; <F1>
Press the keys simultaneously	<Key name> + <Key name> Example: <Alt> + <Ctrl>
Buttons	<Key name> Example: <OK>; <Cancel>
File names, paths	"Filename", "Path" Example: "Test.doc"

## 1.3 Used symbols

If safety instructions or other notes are used in this manual, they mean:

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### Danger!



**The non-observance of this safety information may result in an imminent risk of death or severe injury:**

- Observe the specified measures.
- 

### Warning!



**The non-observance of this safety information may result in a potential risk of death or severe injury!**

- Observe the specified measures.
- 

### Caution!



**The non-observance of this safety information may result in a potential risk of injury or material damage!**

- Observe the specified measures
- 

### Note



A note specifies special requirements or actions to be observed.

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### Tip



Tip or example as a helpful note or insider tip to make the work a little bit easier.

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### Other documentation



Reference to additional documentation or further reading.

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## 2 System requirements

The following system requirements are necessary to use the Raytek data interface:

- *ibaPDA* v6.38 or higher
- License for *ibaPDA-Interface-Raytek*  
(supports up to 2 devices, i.e. 2 connections)
- If you need more than 2 connections, you will require additional *one-step-up-Interface-Raytek* licenses for each additional 2 connections. You can have a total of 16 connections.

For further requirements for the computer hardware used and the supported operating systems, please refer to the *ibaPDA* documentation.

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### Note



The 2D top view is particularly suitable for displaying the measured values. This display is possible with live data but only with the trend graph and HD trend graph objects of the *ibaQPanel* software. Therefore it is recommended to purchase additional licenses for *ibaQPanel* and/or *ibaHD* server.

In the offline analysis with *ibaAnalyzer*, the 2D top view is included as standard.

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### License information

Order no.	Product name	Description
31.001013	ibaPDA-Interface-Raytek	ibaPDA data interface for connecting up to 2 Raytek temperature linescanners
31.101013	one-step-up-Interface-Raytek	Extension license for 2 more Raytek connections (maximum of 7 licenses permissible)
30.670040	ibaQPanel-V7-Add-On	Additional package for an ibaPDA client to display process/quality data in an HMI image

Table 1: Available Raytek interface licenses

## 3 Raytek interface

### 3.1 General information

The Raytek interface is suitable for recording measurement data from Raytek MP40, MP50 and MP150 type (Fluke Process Instruments) temperature linescanners. The scanners generate 1024 measurement points per line and they can scan up to 150 lines per second. The scanners automatically send their data to *ibaPDA* via an Ethernet TCP/IP connection. *ibaPDA* does not need to request the measuring data. The scanners only support one connection per device.

### 3.2 System topologies

The connections to the devices can be established via the computer's standard Ethernet interfaces.

No further software is necessary for operation.

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#### Note



It is recommended carrying out the TCP/IP communication on a separate network segment to exclude a mutual influence by other network components.

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### 3.3 Configuration and engineering ibaPDA

Open the I/O manager, e.g. from the toolbar .

If all system requirements are met (see above), the "Raytek" interface will be displayed in the signal tree.

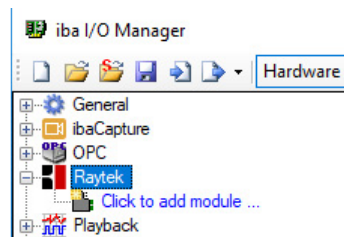


Fig. 1: Raytek interface in the I/O manager

### 3.3.1 Interface settings

The interface itself has the following functions and configuration options:

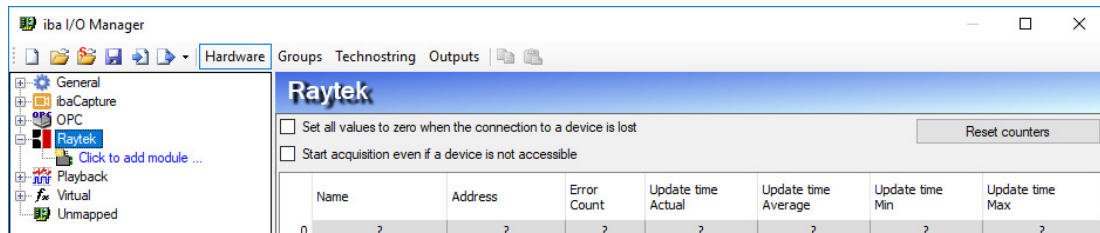


Fig. 2: Raytek interface settings

#### Set all values to zero when the connection to a device is lost

If this option is enabled, all measured values of a Raytek device are set to zero as soon as the connection is lost. If this option is disabled, *ibaPDA* will keep the last valid measured value at the time the connection was lost in its memory.

#### Start acquisition even if a device is not accessible

If this option is enabled, the acquisition will start even if the Raytek device is not accessible. In case of an error, a warning is indicated in the validation dialog. If the system has been started without a connection to the device, *ibaPDA* will periodically try to connect to the device.

#### Connection table

The table shows the cycle times and error counters for the individual connections during data measurement. To reset the calculated times and error counters to zero, simply click on the <Reset counters> button.

### 3.3.2 Adding a module

For each device you need one module. *ibaPDA* supports one module type:

#### Raytek MPx linescanner

Add a module by clicking below the interface. Select the desired module type and click <OK>.

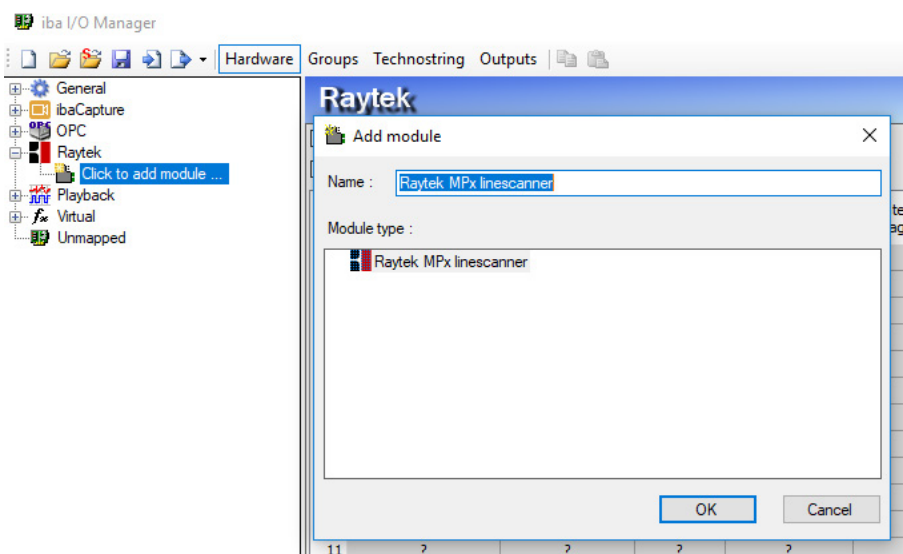


Fig. 3: Adding a Raytek module



### 3.3.3 General module settings

The modules have the following setting options.

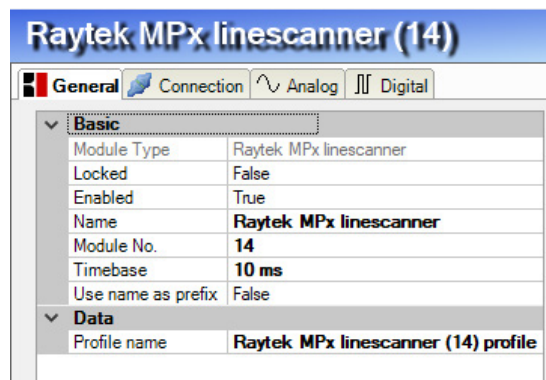


Fig. 4: General settings of a Raytek module

#### Basic settings

##### Module Type (information only)

Indicates the type of the current module.

##### Locked

A module can be locked to avoid unintentional or unauthorized changing of the module settings.

##### Enabled

Disabled modules are excluded from signal acquisition.

##### Name

The plain text name should be entered here as the module designation.

##### Module No.

Internal reference number of the module. This number determines the order of the modules in the signal tree of *ibaPDA* client and *ibaAnalyzer*.

##### Time base

All signals of the module will be sampled on this time base.

##### Use name as prefix

Puts the module name in front of the signal names.

#### Data

##### Profile name

For each Raytek module, *ibaPDA* generates a vector signal with the measured line data. The vector signal can be found in the 'Groups' section of the I/O manager.

The name consists of the module name and the module number as standard.

You can determine the name of this vector signal by entering it into the *Profile name* field. You can use the '\' character to put the vector signal in a subgroup.

**Note**

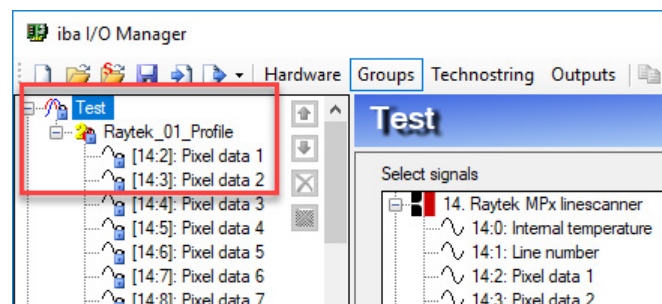
The vector signal can be used directly in the 2D top view (color-coded display) of the temperature profile in *ibaQPanel* and/or *ibaAnalyzer*.

**Example**

Entering "Test\Raytek\_01\_Profile" as the profile name will result in a subgroup named "Test" with a vector signal named "Raytek\_01\_Profile" as a group element.



*Profile name setting in the general module settings*



*Group and profile vector signal*

### 3.3.4 Connection settings

In the *Connection* tab, carry out the relevant setting to establish a connection:

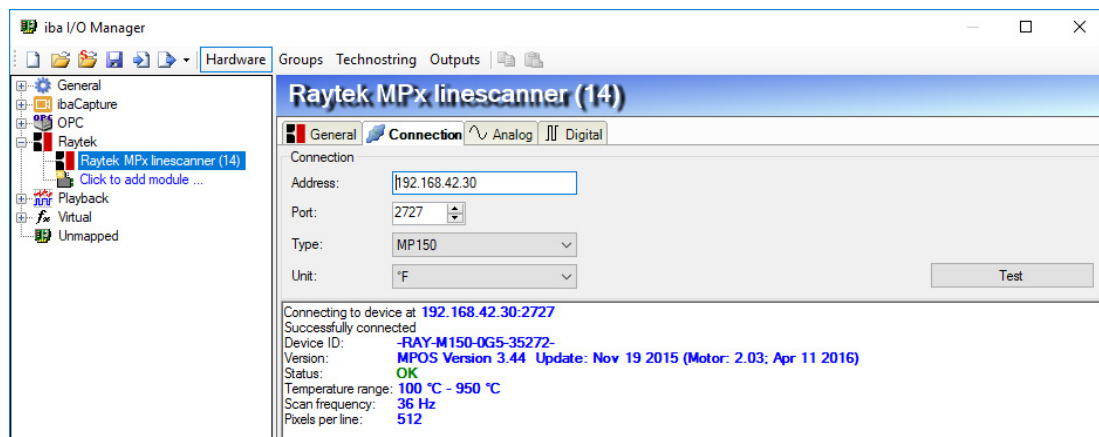


Fig. 5: Raytek connection settings

**Address**

Enter the IP address of the Raytek device here.

**Port**

This is the port number that the device uses to communicate with *ibaPDA*. Default setting: 2727. You can change the port number as required. The port number must be the same on both sides (*ibaPDA* and Raytek).

**Type**

Here, you can select the scanner type. However, this is usually not necessary when you click on the <Test> button after entering the IP address. If the scanner is connected and switched on, the type is automatically detected by *ibaPDA*.

**Unit**

Here, you can select between the temperature units °C and °F. *ibaPDA* then uses the correct factors for scaling.

**<Test> button**

When you click on the <Test> button, *ibaPDA* attempts to establish a connection to the device and to read out various data, such as:

- Device ID
- Device version
- Current device status
- Temperature range
- Scan frequency
- Number of pixels per line

If the connection is successful, the data is displayed in the dialog window. Part of this information is used to automatically adjust the number of analog signals in the signal table.

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**Note**

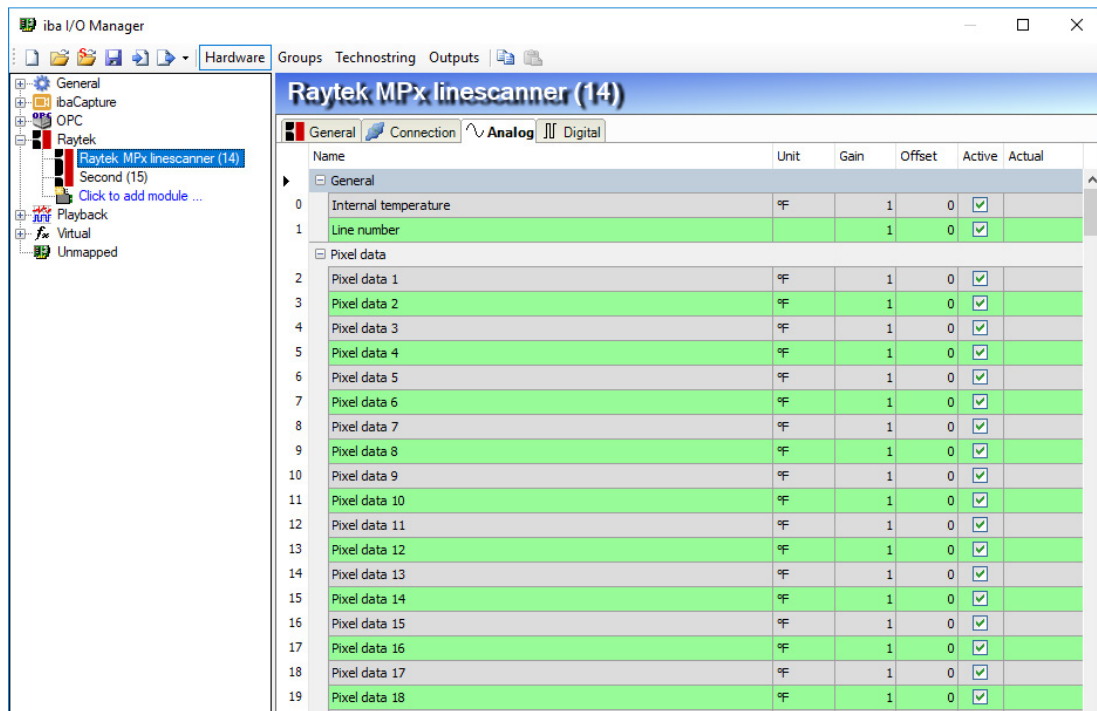
Changes to the parameters, e.g. the number of pixels per line or scan frequency, can only be made on the device using Raytek software.

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### 3.3.5 Signal configuration

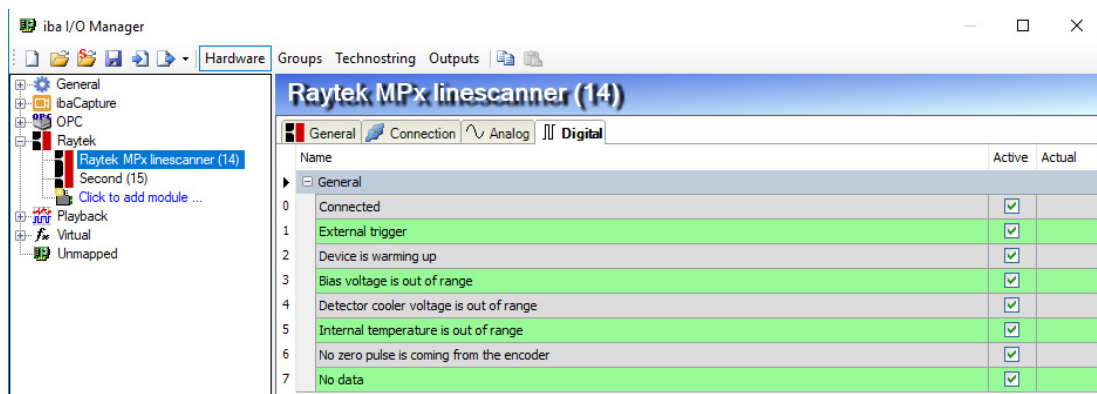
The module contains all analog and digital signals that the scanner sends. The complete set of signals of a Raytek device is automatically created for every module.

They are grouped by functionality in the signal table. There is no need to select any other signals. However, you may disable/enable the signals individually if you want.



Name	Unit	Gain	Offset	Active	Actual
<b>General</b>					
0 Internal temperature	°F	1	0	<input checked="" type="checkbox"/>	
1 Line number		1	0	<input checked="" type="checkbox"/>	
<b>Pixel data</b>					
2 Pixel data 1	°F	1	0	<input checked="" type="checkbox"/>	
3 Pixel data 2	°F	1	0	<input checked="" type="checkbox"/>	
4 Pixel data 3	°F	1	0	<input checked="" type="checkbox"/>	
5 Pixel data 4	°F	1	0	<input checked="" type="checkbox"/>	
6 Pixel data 5	°F	1	0	<input checked="" type="checkbox"/>	
7 Pixel data 6	°F	1	0	<input checked="" type="checkbox"/>	
8 Pixel data 7	°F	1	0	<input checked="" type="checkbox"/>	
9 Pixel data 8	°F	1	0	<input checked="" type="checkbox"/>	
10 Pixel data 9	°F	1	0	<input checked="" type="checkbox"/>	
11 Pixel data 10	°F	1	0	<input checked="" type="checkbox"/>	
12 Pixel data 11	°F	1	0	<input checked="" type="checkbox"/>	
13 Pixel data 12	°F	1	0	<input checked="" type="checkbox"/>	
14 Pixel data 13	°F	1	0	<input checked="" type="checkbox"/>	
15 Pixel data 14	°F	1	0	<input checked="" type="checkbox"/>	
16 Pixel data 15	°F	1	0	<input checked="" type="checkbox"/>	
17 Pixel data 16	°F	1	0	<input checked="" type="checkbox"/>	
18 Pixel data 17	°F	1	0	<input checked="" type="checkbox"/>	
19 Pixel data 18	°F	1	0	<input checked="" type="checkbox"/>	

Fig. 6: Raytek "Analog" signal table



Name	Active	Actual
<b>General</b>		
0 Connected	<input checked="" type="checkbox"/>	
1 External trigger	<input checked="" type="checkbox"/>	
2 Device is warming up	<input checked="" type="checkbox"/>	
3 Bias voltage is out of range	<input checked="" type="checkbox"/>	
4 Detector cooler voltage is out of range	<input checked="" type="checkbox"/>	
5 Internal temperature is out of range	<input checked="" type="checkbox"/>	
6 No zero pulse is coming from the encoder	<input checked="" type="checkbox"/>	
7 No data	<input checked="" type="checkbox"/>	

Fig. 7: Raytek "Digital" signal table

## 4 Diagnostics

### 4.1 License

If the "Raytek" interface is not displayed in the signal tree, you can either check in *ibaPDA* under *General - Settings - License info* in the I/O manager or in the *ibaPDA* service status application to see whether your license "Interface Raytek" has been properly recognized. The number of licensed connections is indicated in brackets.

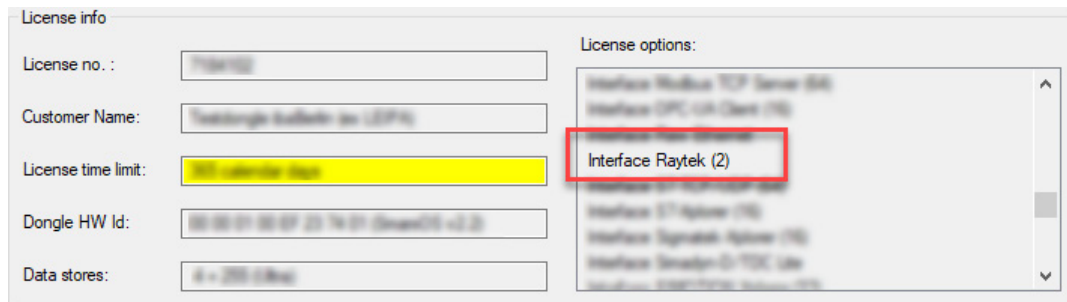


Fig. 8: License display in the ibaPDA I/O manager

## 4.2 Connection diagnostics with PING

PING is a system command with which you can check if a certain communication partner can be reached in an IP network.

Open a Windows command prompt.



Enter the command “ping” followed by the IP address of the communication partner and press <ENTER>.

With an existing connection you receive several replies.

```
Administrator: C:\Windows\system32\cmd.exe

C:\Users>ping 192.168.21.120

Pinging 192.168.21.120 with 32 bytes of data:
Reply from 192.168.21.120: bytes=32 time<1ms TTL=128
Reply from 192.168.21.120: bytes=32 time<1ms TTL=128
Reply from 192.168.21.120: bytes=32 time<1ms TTL=128
Reply from 192.168.21.120: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.21.120:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users>
```

Fig. 9: PING successful

With no existing connection you receive error messages.

```
Administrator: C:\Windows\system32\cmd.exe

C:\Users>ping 192.168.21.121

Pinging 192.168.21.121 with 32 bytes of data:
Reply from 192.168.21.104: Destination host unreachable.
Reply from 192.168.21.104: Destination host unreachable.
Reply from 192.168.21.104: Destination host unreachable.
Reply from 192.168.21.104: Destination host unreachable.

Ping statistics for 192.168.21.121:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\Users>
```

Fig. 10: PING unsuccessful

### 4.3 Connection table

The Raytek interface shows all connections in a table. There is one row per connection to a scanner.

The screenshot shows the 'Raytek' window in the 'Hardware' tab. It contains a table with the following data:

	Name	Address	Error Count	Update time Actual	Update time Average	Update time Min	Update time Max
0	Raytek MPx linesca...	192.168.42.30	0	10,1 ms	11,7 ms	0,0 ms	36,7 ms
1	Second (15)	192.168.42.31	1	0,0 ms	0,0 ms	0,0 ms	0,0 ms
2	?	?	?	?	?	?	?
3	?	?	?	?	?	?	?
4	?	?	?	?	?	?	?
5	?	?	?	?	?	?	?

Fig. 11: Raytek connection table

The columns in the table and their meaning:

- Name: Name of the module
- Address: IP address of the scanner
- Error counter: The number of communication errors that occurred
- Current update time, average, minimum, maximum:

The update time is the time between two subsequent telegrams.

Additional information is provided by the background color of the table rows:

Color	Meaning
Green	The connection is OK and the data is read.
Red	The connection has failed or was interrupted
Gray	No connection configured.

Table 2: Meaning of background colors of the connection table

## 5 Support and contact

### Support

Phone: +49 911 97282-14  
Fax: +49 911 97282-33  
Email: support@iba-ag.com

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#### Note



If you require support, indicate the serial number (iba-S/N) of the product or the license number.

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### Contact

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