ibaPDA-Interface-Raytek

Data Interface for Raytek Temperature Scanners

Manual

Issue 2.0

Measurement Systems for Industry and Energy

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2.0	10-2024	New version ibaPDA v8	nm	8.0.0

Contents

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 manual 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 *Logic diagram*
Calling the menu command	*Step 1 – Step 2 – Step 3 – Step x* Example: Select the menu *Logic diagram – Add – New function block*.
Keys	<Key name> Example: <Alt>; <F1>
Press the keys simultaneously	<Key name> + <Key name> Example: <Alt> + <Ctrl>
Buttons	<Key name> Example: <OK>; <Cancel>
Filenames, paths	`Filename`, `Path` Example: `Test.docx`

1.3 Used symbols

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

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.

Tip

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

Other documentation

Reference to additional documentation or further reading.

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 and the supported operating systems, please refer to the *ibaPDA* documentation.

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. It is therefore recommended to purchase additional licenses for *ibaQPanel* and/or *ibaHD-Server*.

The 2D top view is included as standard in the offline analysis with *ibaAnalyzer*.

License information

Order no.	Product name	Description
31.001013	ibaPDA-Interface-Raytek	*ibaPDA* data nterface 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

3 Raytek interface

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 samples per line and they can scan at 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.

3.1 System topologies

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

No further software is necessary for operation.

Note

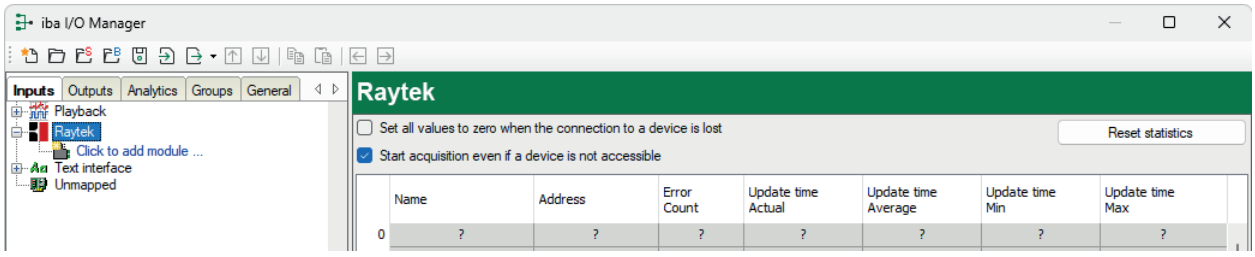
It is recommended carrying out the TCP/IP communication on a separate network segment to exclude a mutual influence by other network components.

3.2 Configuration and engineering ibaPDA

The engineering for *ibaPDA* is described in the following. If all system requirements are fulfilled, *ibaPDA* displays the *Raytek* interface in the interface tree of the I/O Manager.

3.2.1 Interface settings

The interface itself has the following functions and configuration options:



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 data in memory at the time the connection was interrupted.

Start acquisition even if an 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.

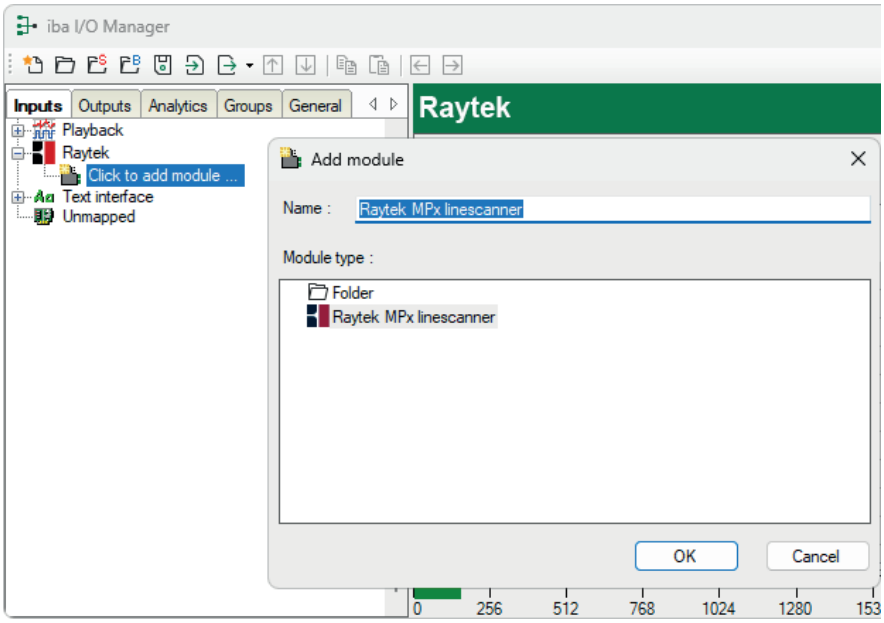
<Reset statistics>
Click this button to reset the calculated times and error counters in the table to 0.

Connection table
For each connection, the table shows the connection status, the current values for the update time (actual value, average, min. and max.) as well as the data size. In addition, there is an error counter for the individual connections during the acquisition.

See ↗ *Connection table*, page 16

3.2.2 Adding a module

Procedure
1. Click on the blue link *Click to add module* located under each data interface in the *Inputs* or *Outputs* tab.
2. Select the desired module type in the dialog box and assign a name via the input field if required.
3. Confirm the selection with <OK>.



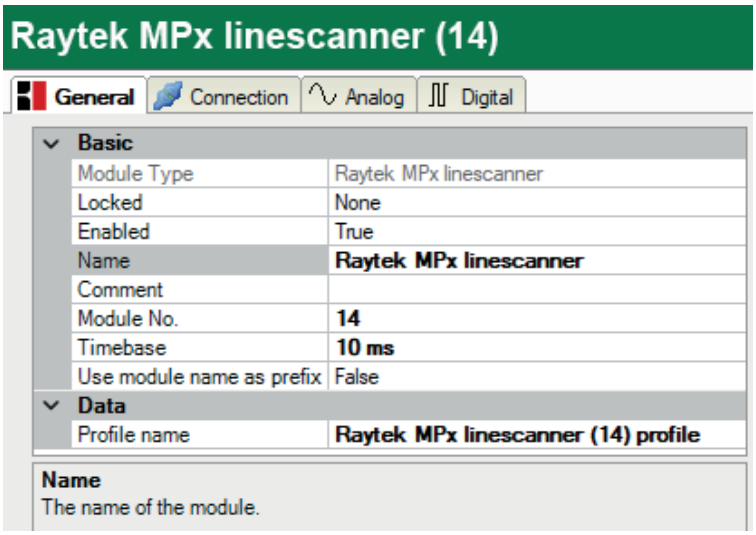
Module type
You need one module per device:

- Raytek MPx linescanner

3.2.3 General module settings

To configure a module, select it in the tree structure.

All modules have the following setting options.



Basic settings

Module Type (information only)
Indicates the type of the current module.

Locked
You can lock a module to avoid unintentional or unauthorized changing of the module settings.

Enabled
Enable the module to record signals.

Name
You can enter a name for the module here.

Comment
You can enter a comment or description of the module here. This will be displayed as a tooltip in the signal tree.

Module No.
This internal reference number of the module determines the order of the modules in the signal tree of *ibaPDA* client and *ibaAnalyzer*.

Timebase
All signals of the module are sampled on this timebase.

Use module name as prefix
This option 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.

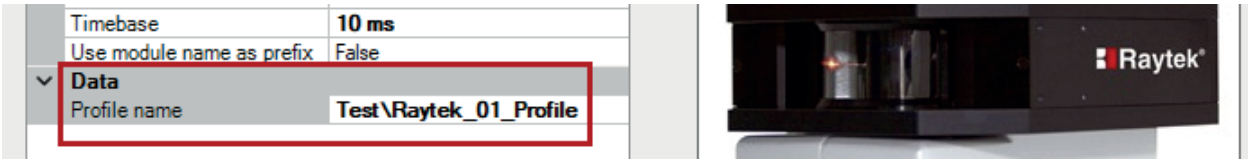
You can determine the name of this vector signal by entering it into the *Profile name* field. You can use the '\' character to put the vector signal in a subgroup.

Tip

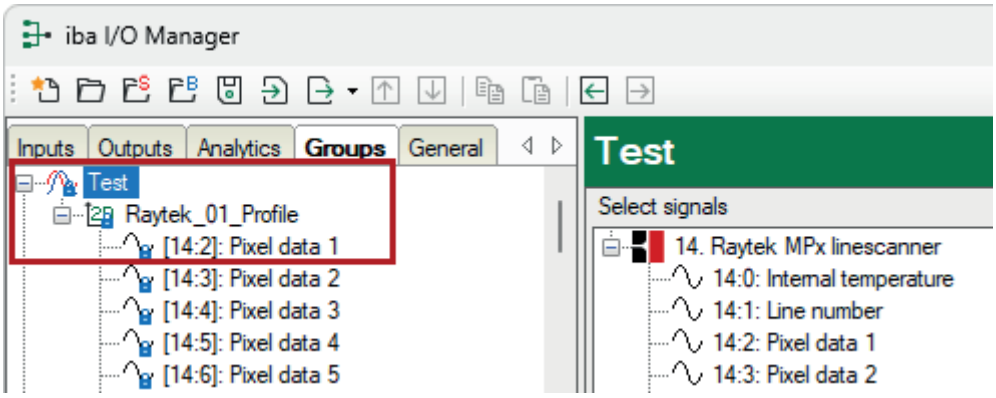
The vector is easy to use for 2D top view of the temperature profile either in *ibaQPanel* and/or *ibaAnalyzer.*

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.



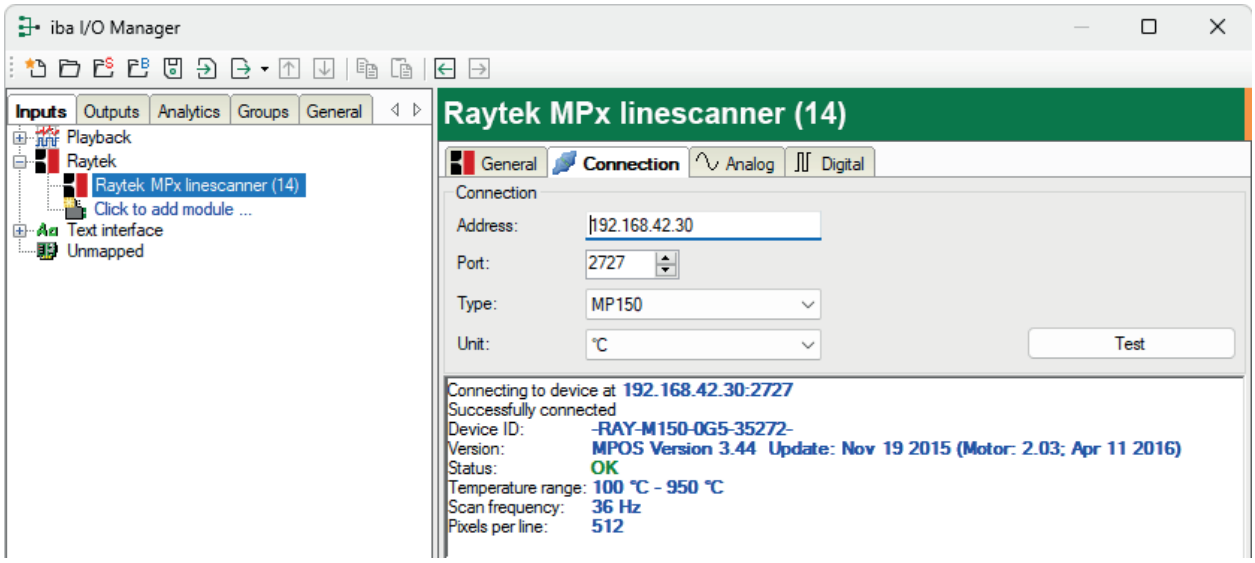
Profile name setting in the general module settings



Group and profile vector signal

3.2.4 Connection settings

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



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.

Note

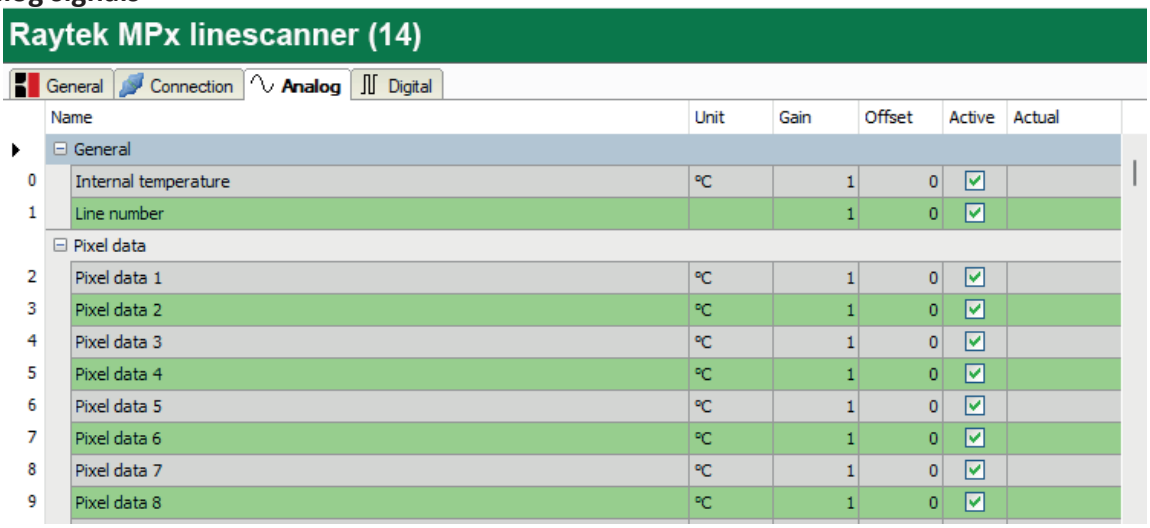
Changes to the parameters, e.g. the number of pixels per line or scan frequency, can only be made on the device using Raytek software.

3.2.5 Signal configuration

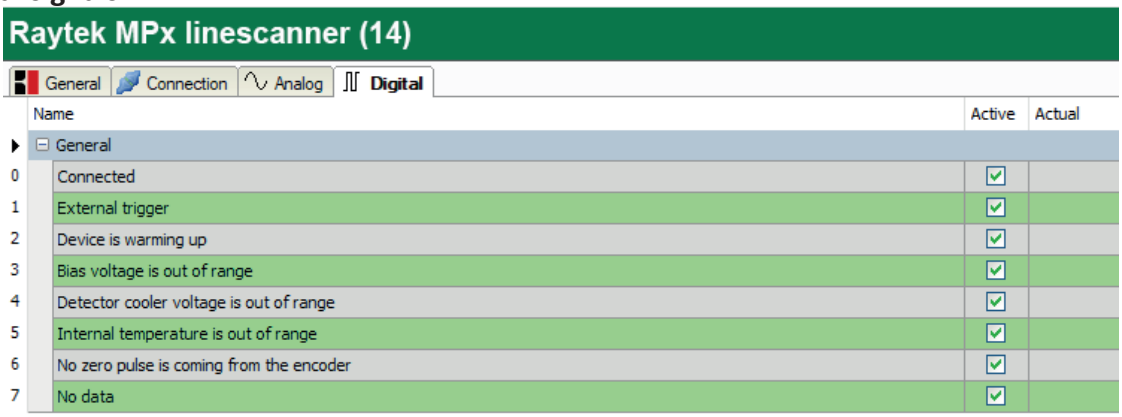
The module contains all analog and digital signals that the scanner sends. The complete set of signals of a Raytek device is automatically created for every module.

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.

Analog signals



Digital signals



Name
Enter a meaningful plain text name for the signal.

Unit (analog signals only)
Assignment of a physical unit for the signal

You can enter a maximum of 11 characters, the field is only considered a comment field. The unit is always displayed in conjunction with a numerical display of the values.

Gain, Offset (analog signals only)
Specification of gain and offset for scaling the incoming values

The values describe a linear characteristic curve for scaling. If incoming values are specified in physical units, you can ignore this function, i.e. Gain = 1 and Offset = 0.

Active
Activation or deactivation of the respective signal

Actual
Display of the current actual value of the signal

Other documentation

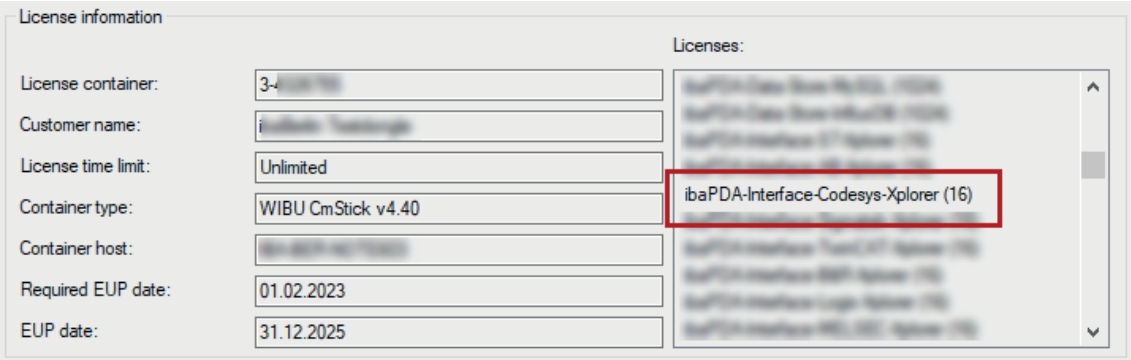
Detailed descriptions of the columns and how to fill in the signal tables can be found in the documentation for *ibaPDA*.

4 Diagnostics

4.1 License

If the interface is not displayed in the signal tree, you can either check in *ibaPDA* in the I/O Manager under *General – Settings* or in the *ibaPDA* service status application whether your license for the interface *ibaPDA-Interface-Raytek* has been properly recognized. The number of licensed connections is shown in brackets.

The figure below shows the license for the *Codesys Xplorer* interface as an example.



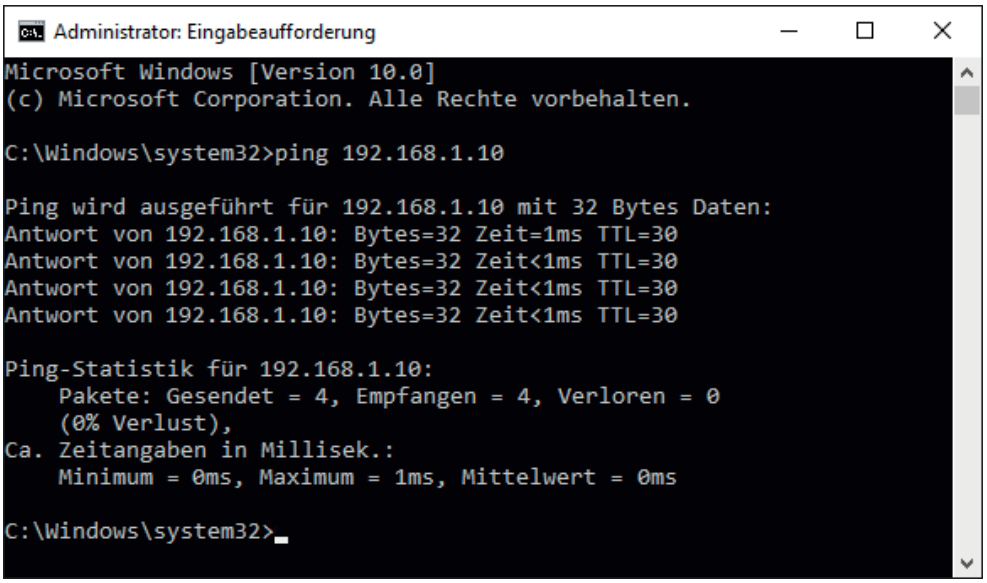
4.2 Connection diagnostics with PING

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

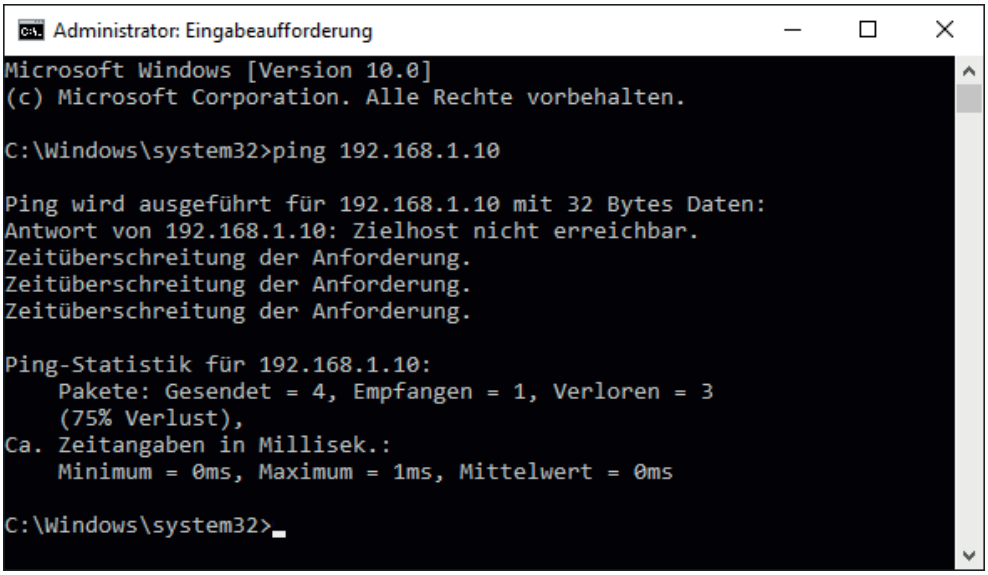
1. Open a Windows command prompt.

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

→ With an existing connection you receive several replies.

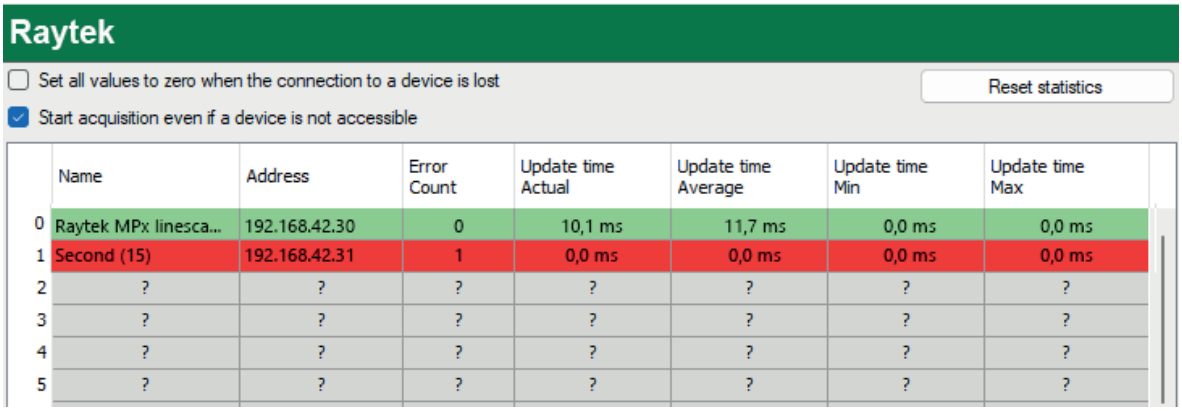


→ With no existing connection you receive error messages.



4.3 Connection table

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



	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	0,0 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	?	?	?	?	?	?	?

The table columns 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.

5 Support and contact

Support

Phone: +49 911 97282-14

Email: support@iba-ag.com

Note

If you need support for software products, please state the number of the license container. For hardware products, please have the serial number of the device ready.

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