



See the Big Picture



# ibaPDA-SNMP-Server+ SNMP-Server for Measurement Data

Manual  
Issue 1.1

**Measurement Systems  
for Industry and Energy**

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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 documentation describes the functionality and use of the SNMP-server in *ibaPDA* .

## 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 safety and recognizing possible consequences and risks on the basis of his/her specialist training, knowledge and experience and knowledge of the standard regulations.

In particular, this documentation is intended for personnel involved in the engineering, testing, commissioning or maintenance of PLCs and communication systems. For the handling of *SNMP-Server* in *ibaPDA* the following basic knowledge is required and/or useful:

- Windows operating system
- Basic knowledge of *ibaPDA*
- Experience of configuring an SNMP server

## 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 needed for using SNMP Server:

- *ibaPDA* V6.37.0 or higher
- Lizenz *ibaPDA-SNMP-Server+* when user-defined signals should be available as SNMP-objects.
- Network connection to one or more SNMP clients

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### Note



It is advisable to place the SNMP communications for data acquisition on a separate network to avoid interference to the SNMP-telegrams caused by the Ethernet data traffic between *ibaPDA* and other network nodes (file servers, data file requirements, etc.).

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Further requirements for the respective computer hardware and the supported operating systems can be found in *ibaPDA* documentation.

### License information

Order No.	Product designation	Description
30.670050	ibaPDA-SNMP-server+	Extension license for <i>ibaPDA</i> -System for enhanced SNMP Server functions

Table 1: Available SNMP Server+ licenses *ibaPDA*-V6.39.0

## 3 SNMP Server

*ibaPDA* has a built-in SNMP server.

SNMP (simple network management protocol) was designed to be able to monitor and control network elements (e.g., routers, switches, printers, computers, etc.) from a central station. By using the SNMP server, the *ibaPDA* system can be monitored by a network-monitoring tool, e. g., Paessler PRTG or Nagios.

The SNMP versions, V1, V2c and V3, are supported. By default, the SNMP server provides a set of diagnostic signals that give feedback about the state of the system and the various data records.

With the additional license (*ibaPDA-SNMP-Server +*, order no. 30.670050), you can also make any signal recorded via *ibaPDA* available as an object in the SNMP server.

### 3.1 Configuration tab

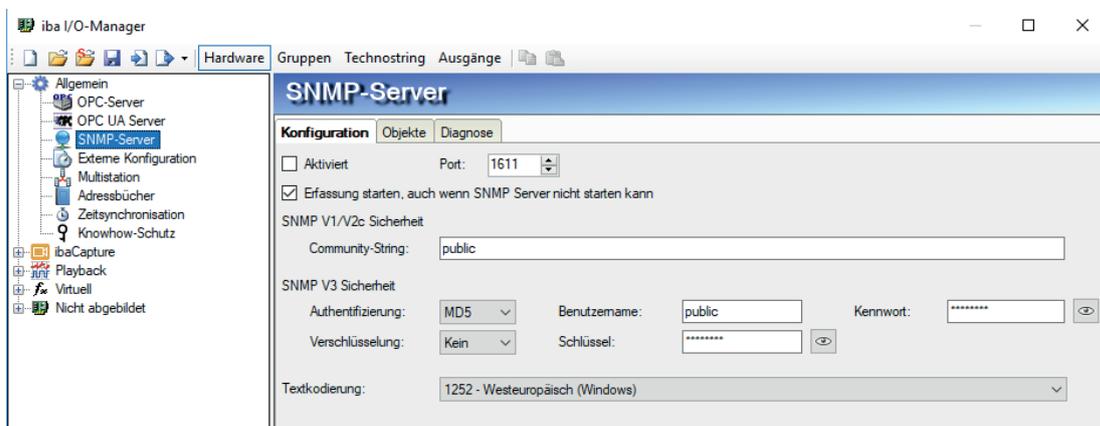


Fig. 1: Register configuration of the SNMP-server

#### Enabled

You can enable or disable the SNMP server here.

#### Port

The designated port for the communication of the SNMP Server. The default value is 1611.

#### Community string

For the protocol versions, V1 and V2c, only a "community string" can be predefined for authentication; it acts as a password for the data traffic between the SNMP server and SNMP client. The default value for the community string is "public".

#### Authentication, user name and password

For the V3 protocol version, the safety standard is higher and there are multiple methods of authentication and encryption for selection. Two standards are supported for the authentication:

- MD5 (message-digest algorithm 5, hash function, 128 bit)
- SHA (secure hash algorithm, SHA1 class, hash function, 160 bit)

In addition to selecting the authentication algorithm, you need to enter a user name and a password.

**Text encoding**

For a proper transmission of ASCII data (text channels) you can set here the appropriate text encoding regarding region and language.

**Encryption, key**

For encryption, you can choose between:

- no encryption
- DES (data encryption standard)
- AES (advanced encryption standard)

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**Note**

The best way to determine what settings should be used here is to consult your network administrator. Make sure that the configured port is not already used by other SNMP servers running on the computer.

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The button with the eye symbol  was implemented to show key and password.

## 3.2 Objects tab

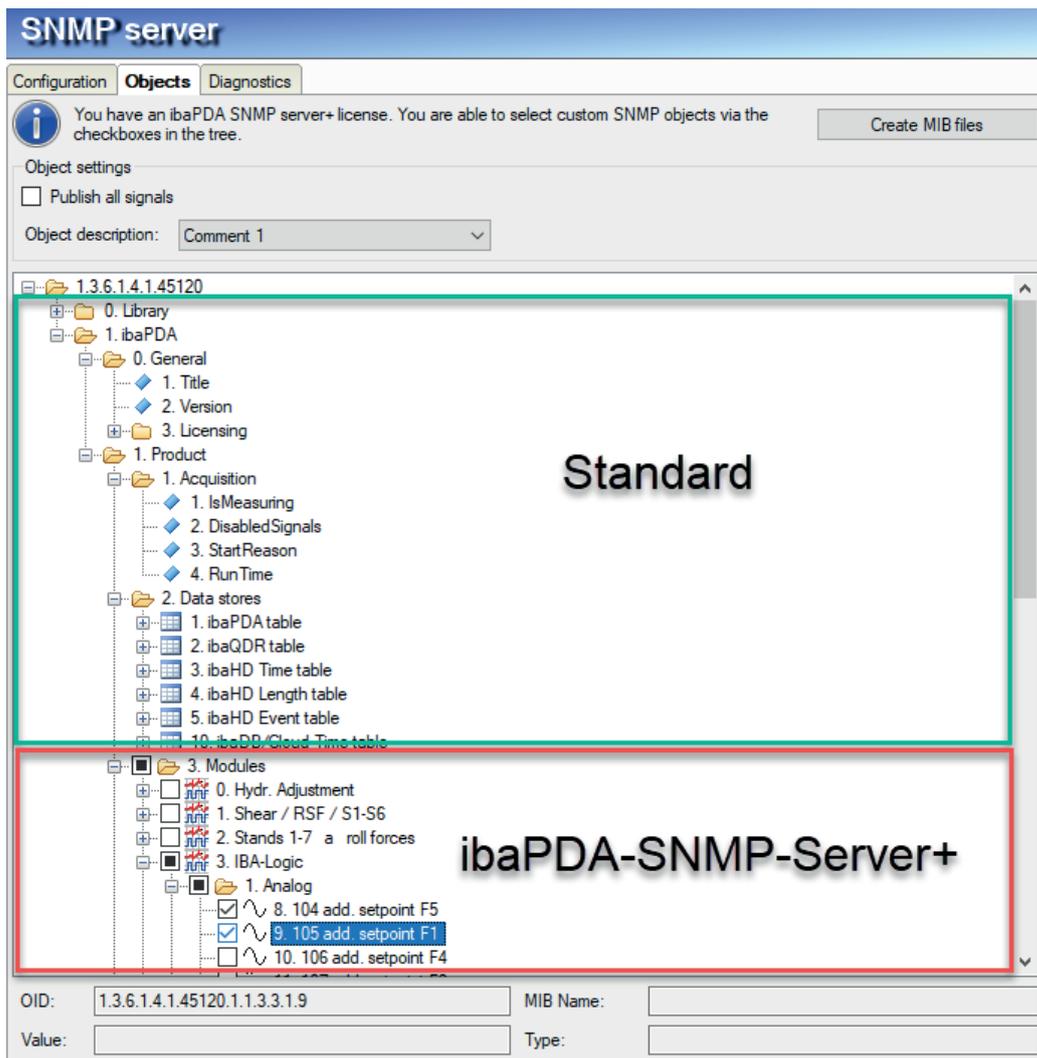


Fig. 2: SNMP-objects available by default and licensed

In this tab, you set what information and data are made available on the SNMP server. The tree structure shows the OID tree (object identification).

You can recognize the objects that are always available by default by the absence of a selection field. This includes:

- objects of the SNMP library
- objects for the general properties of *ibaPDA*, such as version and dongle information
- objects for acquisition, e.g., "IsMeasuring" object (measurement running)
- objects for various data records; these objects are grouped according to the data record type.

The use of these objects for monitoring the *ibaPDA* system can make the configuration, e.g., of a watchdog telegram, redundant.

The availability of the additional license for user-defined SNMP objects is displayed above the OID tree. If this license is available, you make any signal configured in *ibaPDA* available in the SNMP server. Check the requested signals in node "3 Modules" of the OID-tree.

#### <Create MIB files> button

You start the generation of **MIB (management information base)** files using this button. The MIB files are generated by the *ibaPDA* server.

If you have made changes to the object selection and would like to save these in MIB files, you have to click <Apply> in the I/O Manager dialog first. Then, after restarting acquisition, you can create the MIB files. After pressing the button, select a folder where the files are to be stored. Two MIB files are always generated:

- IBA-GENERAL-MIB.txt  
This file contains the objects that are common to all iba products.
- IBA-PRODUCT-IBAPDA-MIB.txt  
This file contains the *ibaPDA*-specific objects.

#### Publish all signals

If you enable this option, all signals existing in *ibaPDA* will be published automatically. Hence, newly defined signals will be published automatically when applying the configuration. You don't need to activate the new signals manually.

#### Object description:

This description is shown with the individual objects in the MIB file. When importing the MIB-file in an SNMP tool, the user sees the description together with the selection of objects. The user can select either option "Comment 1", "Comment2" or the combination of both "Comment1 | Comment 2".

**Object tree - node 1. ibaPDA - 1. Product - 1. Acquisition and - 3. Data Stores**

The essential *ibaPDA*-specific enumerations for the status values of the data stores and the reason for the data acquisition “StartReason” as as following

Enumeration	Description	Values
IbaEnumPDASStartReason	Possible reasons for the start of the data acquisition	0...none 1...start button (startButton) 2...new I/O-configuration (newIOConfig) 10...automatic start (automatic-Start) 11...remote configuration (remoteConfig)
IbaEnumDBTimeStoreStatus	The possible states of an DB/Cloud data storage	0...stopped 1...waiting for trigger 2...recording 3...stopCountDown
IbaEnumPDAStoreStatus	The possible states of an ibaPDA data storage	0...stopped 1...waiting for trigger 2...recording 3...stopCountDown
IbaEnumQDRStoreStatus	The possible states of an ibaQDR data storage	0...stopped 1...unsynced 2...synced
IbaEnumHDStoreStatus	The possible states of an ibaHD data storage	0...stopped 1...disconnected 2...recording

Table 2: Enumeration for the start reason of acquisition and status values of data store types

Regarding the currently selected node or object the following is displayed under the OID tree:

- Full OID
- MIB name
- Current value
- Data type

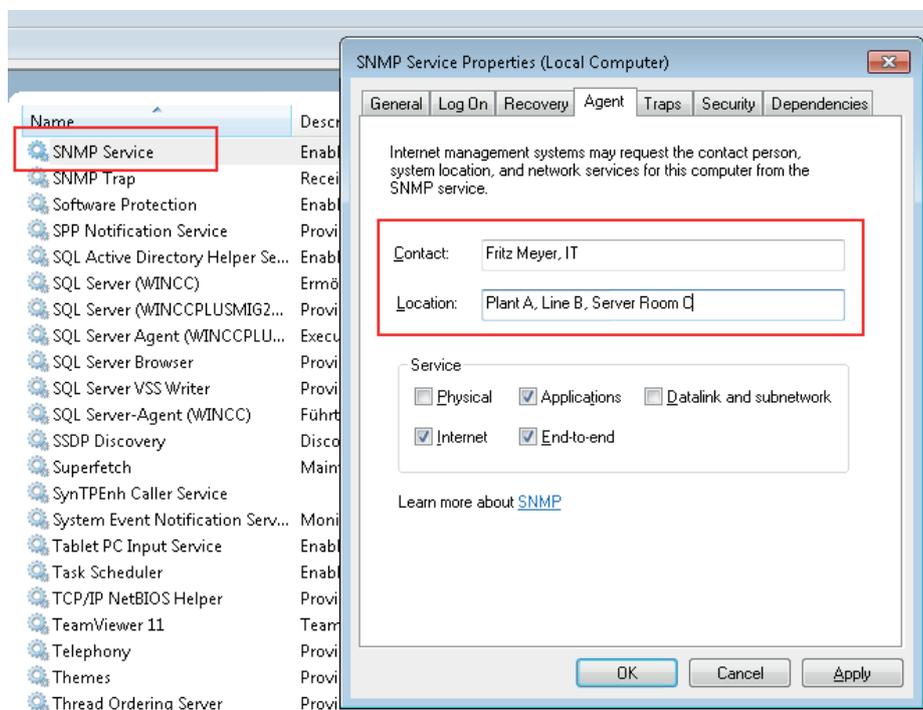
### 3.3 System-OIDs 1.3.6.1.2.1.1.

*ibaPDA* supports the system-OIDs 1.3.6.1.2.1.1.x, which are used by SNMP tools for automatic server detection.

OID	Description
1.3.6.1.2.1.1.1	sysDescr: sysDescr: fix value "ibaSNMP agent for ibaPDA"
1.3.6.1.2.1.1.2	sysObjectID: fix value "1.3.6.1.4.1.45120.1". This is iba AG OID +"1" for the product ibaPDA
1.3.6.1.2.1.1.3	sysUpTime: Dynamic:Time since starting ibaPDA service (in 1/100 seconds)
1.3.6.1.2.1.1.4	sysContact: Dynamic: Must be manually configured in the SNMP-service settings.
1.3.6.1.2.1.1.5	sysName: automatically generated: computer name plus domain suffix, e.g. iba-fue-wks123.iba-ag.local
1.3.6.1.2.1.1.6	sysLocation: Dynamic:Must be manually configured in the properties of the Windows SNMP-service
1.3.6.1.2.1.1.7	not supported

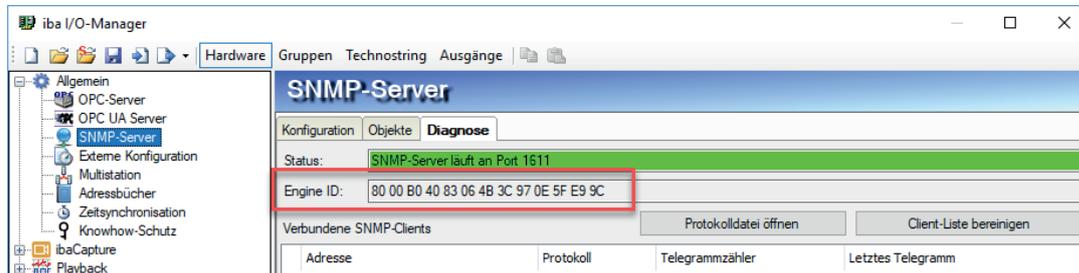
Table 3: Supported system-OIDs

Contents of the system-OIDs `sysContact` and `sysLocation` are set by default in the “agent” tab in the Windows service “SNMP-service”



### 3.4 Engine-ID

The SNMP server uses a unique Engine ID, which is indicated on the Diagnostics tab of the SNMP interface.



## 4 Diagnosis

### 4.1 License

If you cannot publish the configured signals as SNMP variables, check whether your “ibaPDA-SNMP-Server+” license is detected correctly in *ibaPDA I/O Manager* under *General – Settings – License Info* or in the *ibaPDA-service* status application.

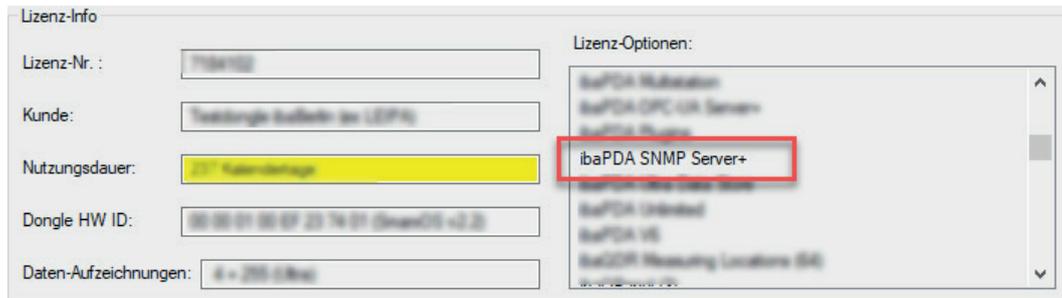


Fig. 3: License displayed in the ibaPDA I/O Manager.

If no license is available, you will be also be notified in the I/O Manager under branch *General – SNMP Server, Objects* tab

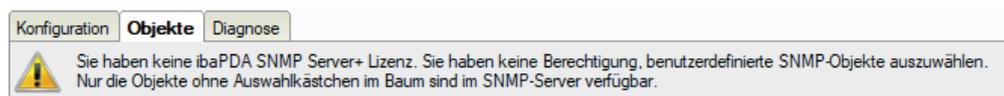


Fig. 4: Notice on missing license

### 4.2 Diagnostics tab

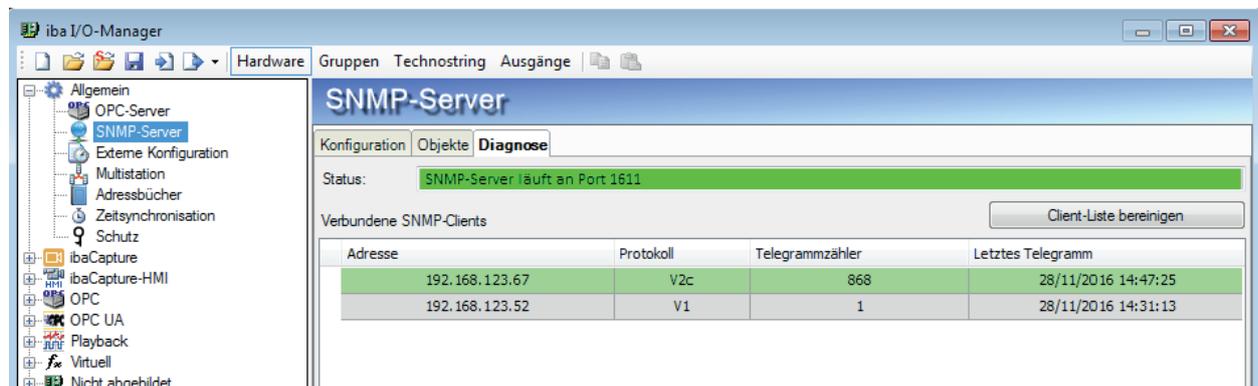


Fig. 5: Diagnostics tab of the SNMP-server.

In the Diagnostics tab you will receive information about the state of the SNMP server.

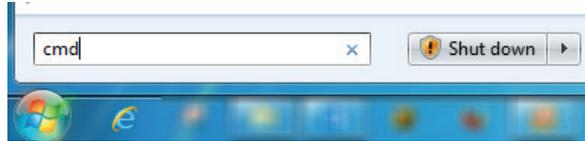
There is also a list of all the clients who have accessed the SNMP server within the last hour. Clients who have accessed the SNMP server within the past 10 minutes are highlighted in green and the rest in gray.

With the <Clear client list> button, you can remove all entries from the list.

### 4.3 Connection diagnostics with PING

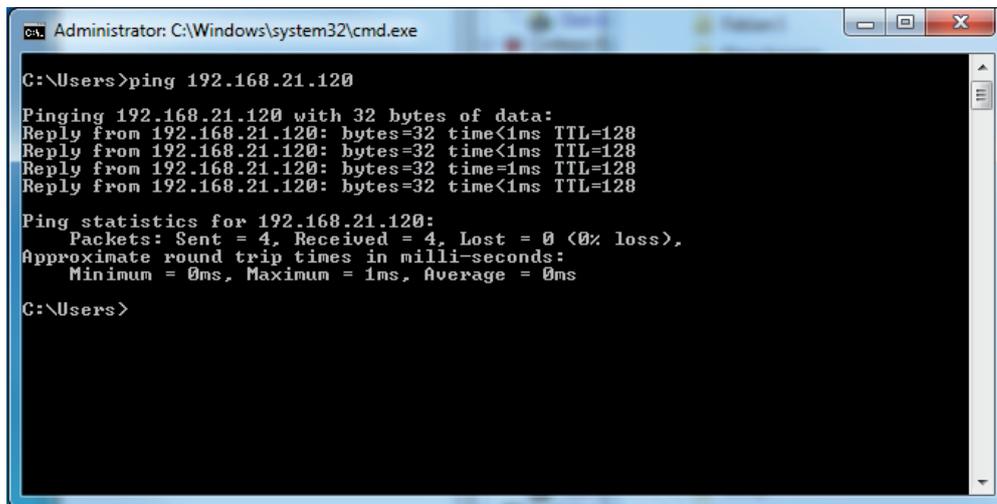
PING is a system command with which you can check if a certain communication partner can be reached in an IP network.

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.

A screenshot of a Windows command prompt window titled 'Administrator: C:\Windows\system32\cmd.exe'. The user has entered the command 'ping 192.168.21.120'. The output shows four successful replies from 192.168.21.120, each with 32 bytes of data, a time of less than 1ms, and a TTL of 128. Ping statistics for 192.168.21.120 are shown as: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 1ms, Average = 0ms.

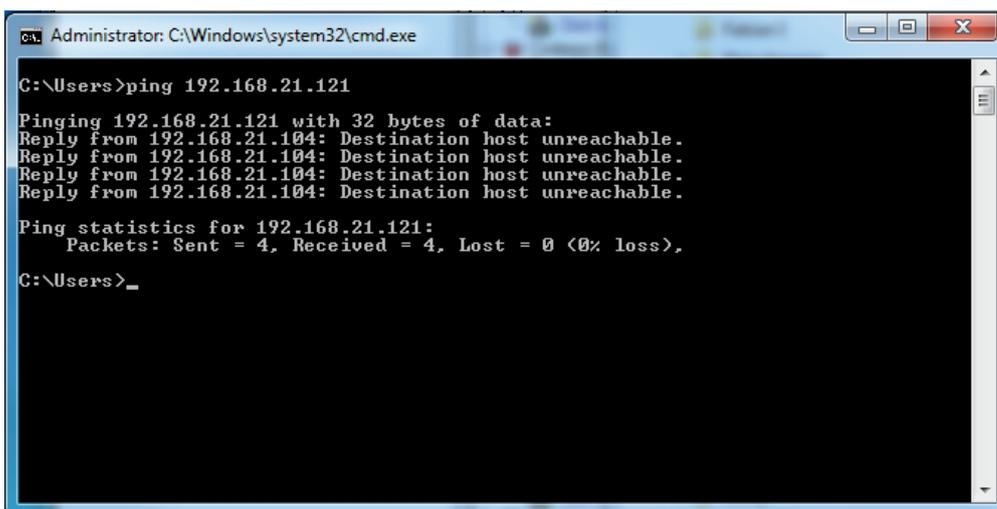
```
Administrator: C:\Windows\system32\cmd.exe
C:\Users>ping 192.168.21.120
Pinging 192.168.21.120 with 32 bytes of data:
Reply from 192.168.21.120: bytes=32 time<1ms TTL=128
Reply from 192.168.21.120: bytes=32 time<1ms TTL=128
Reply from 192.168.21.120: bytes=32 time=1ms TTL=128
Reply from 192.168.21.120: 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. 6: PING successful

With no existing connection you receive error messages.

A screenshot of a Windows command prompt window titled 'Administrator: C:\Windows\system32\cmd.exe'. The user has entered the command 'ping 192.168.21.121'. The output shows four 'Destination host unreachable' error messages from 192.168.21.104. Ping statistics for 192.168.21.121 are shown as: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss).

```
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.

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

C:\Users>_
```

Fig. 7: PING unsuccessful

## 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.

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