



ibaM-COM

Communication module for the ibaMAQS modular system

Manual

Issue 1.4

Measurement Systems for Industry and Energy

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The current version is available for download on our website www.iba-ag.com and can be found in the iba Help center docs.iba-ag.com.

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Certification

The product is certified according to the European standards and directives. This product meets the general safety and health requirements.

Other international and national standards were observed.

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1 About this documentation

This documentation describes the design, application and operation of the device *ibaM-COM*.

1.1 Target group

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 they are capable of assessing safety and recognizing possible consequences and risks on the basis of their specialist training, knowledge and experience and knowledge of the standard regulations.

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>
Filenames, paths	<i>Filename, Path</i> Example: <i>Test.docx</i>

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 About ibaM-COM

The *ibaM-COM* communication module is part of the ibaMAQS Modular Acquisition System. *ibaM-COM* can be used as an alternative to the *ibaM-DAQ* processor module to build a module series. In contrast to the *ibaM-DAQ* processor module, *ibaM-COM* does not offer an integrated *ibaPDA* system.

This module is designed for applications that do not require local measured value processing and recording as with *ibaM-DAQ*. *ibaM-COM* allows the transmission of decentrally acquired measured values via Ethernet to a central *ibaPDA* system.

ibaPDA systems with widely branched I/O peripherals can be built up in this way. In addition to measurement data acquisition, *ibaM-COM* is also used for outgoing communication, as well as for configuration of the individual modules in *ibaPDA*.

Thanks to the two ibaNet connections, the iba network can be extended from module node to module node. Since the communication via ibaNet-E can also use a computer's standard network interface, I/O, bus and technological modules can also be connected to a virtual *ibaPDA* server. ibaNet-E capable devices can also be integrated via the ibaNet interfaces.

Use of additional iba devices via fiber optics

The *ibaM-FO-2IO* interface module offers the functionality of the proven ibaFOB-io board, and supports the 32Mbit Flex and 32Mbit ibaNet protocols. If corresponding iba devices are already available, or if no suitable ibaMAQS modules are available for certain tasks, then devices like the ibaPADU family, iba bus monitors or system interfaces can be connected to the ibaMAQS system via *ibaM-FO-2IO*.

The *ibaBM-COL-8i-o* data concentrator can also be used to connect iba devices with the 3Mbit ibaNet protocol.

Beginning with *ibaPDA* v8.13.0, the *ibaM-COM* communication module supports up to four *ibaM-FO-2IO* modules. With *ibaPDA* < v8.13.0, the *ibaM-COM* communication module supports up to two *ibaM-FO-2IO* modules.

At a glance

- max. 15 modules can be mounted
- data throughput typ. 512 Mbit/s
 - depending on the number of modules installed, the time base of the modules set in *ibaPDA*, and the signal selection or number of signals in the *ibaPDA* configuration, among other factors
 - display of utilization in *ibaPDA*
- ibaNet-E HP (High Performance) capable in combination with an *ibaN-2E* card (PCI Express card for ibaNet-E connections)

3 Scope of delivery

After having unpacked the delivery, please check it for completeness and possible damage. The scope of delivery comprises:

- *ibaM-COM* device
- Covering caps for Ethernet
- 3-pin connector, push-in (power supply)
- ibaM-CoverPlate end cover
- "iba Software & Manuals" data medium

4 Safety and other instructions

Note



Work on the system, as well as mounting and dismounting, must only be carried out by trained and qualified specialists.

Careful working methods and compliance with safety measures when working with electrical devices of all types must be observed.

Note



Observe this danger sign:



In all cases where this danger sign is displayed, refer to the manual to find out more about the nature of the potential hazards and the measures that must be taken to avoid them.

4.1 Intended Use

The device is an electrical operating resource. It must only be used for the following applications:

- Measurement data acquisition and analysis
- Applications of software products (*ibaPDA*, *ibaLogic* etc.) and hardware products from iba AG

The device must only be used as specified in the *Technical data* chapter, and is designed and approved for continuous operation.

Danger!



Electric shock

If the device is used or operated in a manner other than specified in the *Technical data* chapter, the protection supported by the device may be impaired.

4.2 Special safety instructions

Danger!



Operation

- The system must only be operated permanently connected and not touchable, only in a building (in-door) and only in a fire protection housing in accordance with IEC 61010-1.
- The system must only be operated with a mounted end cover.
- The external power supply/power supply unit for supplying the central unit and thus for the complete system must be tested for use with this system in accordance with IEC 61010-1.
- Modules from this system must only be operated with a central processing unit from this system.
- The supply voltage for this system must only be fed from this system via a central unit.
- The supply may only be provided via an energy-limited circuit in accordance with IEC 61010-1 and must either include a fuse that trips after 120 s at the latest in the event of an overcurrent greater than 4 A or limit the total current of the system to 4 A.
- In addition to their own current consumption from the supply voltage via the module-module interface, the central units and the modules also pass on the supply voltage for other connected modules, so that the module-module interfaces may have to carry the maximum specified total current of the system.
- Only a maximum of 15 modules may be installed next to the central unit.

Danger!



Duty of care

Take care when working on the system and always check that the system and the modules themselves are in perfect condition, as well as ensuring that they are properly installed and correctly attached to the DIN rail.

If damage to cables, devices, supplies or enclosures is detected before commissioning or during operation, the system must not be put into operation or must be taken out of operation immediately.

Warning!**Compliance with the supply voltage range**

A higher supply voltage may destroy the device!

Never supply the device with a voltage other than 24 V DC!

Warning!

This is a class A device. This equipment can cause harmful interference in a residential area. In this case, the operator will be required to take appropriate measures.

Warning!**Mounting and dismounting / Disconnection from the grid**

Work on the device or system may only be carried out when the power is switched off!

Due to the modular concept of this system, modules connected in series with this module can also carry dangerous voltages.

All energized components of all modules in the system must therefore be disconnected from the grid before mounting and dismounting.

In addition to disconnecting the power supply at the system's central unit, the signal plugs and connections of all modules in the system must also be de-energized or disconnected from the grid.

Caution!

A suitable disconnecting device for this system must be available and disconnect all energized components of this system.

This disconnecting device must include a switch or circuit breaker that is easily accessible at a suitable location in the vicinity and is also clearly marked as a disconnecting device for this system.

Note

Do not switch off the device in an uncontrolled way, such as by disconnecting the supply voltage. This can lead to data loss. So always shut down the device properly.

Note

A power supply unit with safety extra-low voltage and corresponding power limitation must be provided.

Protect the device against uncontrolled voltage dips/drops of the power supply unit with an uninterruptible power supply (UPS) or at least with an external buffer module.

Note

Do not open the device! Opening the device results in a loss of warranty!

Note

The device does not require any special cleaning or maintenance!
However, if you want to carry out an inspection, return the device to iba.

5 System requirements

Hardware

For operation

- Power supply 24 V DC SELV

For device parameterization and operation

- *ibaPDA* client via network connection

Software

- *ibaPDA* version 8.14.1 or higher for device configuration and for measuring and recording data

Firmware

- ibaMAQS version 01.07.001 or higher

6 Mounting and dismounting

Danger!



Operation

- The system must only be operated permanently connected and not touchable, only in a building (in-door) and only in a fire protection housing in accordance with IEC 61010-1.
- The system must only be operated with a mounted end cover.
- The external power supply/power supply unit for supplying the central unit and thus for the complete system must be tested for use with this system in accordance with IEC 61010-1.
- Modules from this system must only be operated with a central processing unit from this system.
- The supply voltage for this system must only be fed from this system via a central unit.
- The supply may only be provided via an energy-limited circuit in accordance with IEC 61010-1 and must either include a fuse that trips after 120 s at the latest in the event of an overcurrent greater than 4 A or limit the total current of the system to 4 A.
- In addition to their own current consumption from the supply voltage via the module-module interface, the central units and the modules also pass on the supply voltage for other connected modules, so that the module-module interfaces may have to carry the maximum specified total current of the system.
- Only a maximum of 15 modules may be installed next to the central unit.

The modular system is designed as follows and is to be mounted on the DIN rail:

- Central unit on the far left
- Up to 15 modules to the right of the central unit
- End cover on the far right to protect the contacts

Make sure that the modules

- are properly secured to the DIN rail and
- are correctly positioned in the side guide rails.

Check the correct fitting of the modules after mounting by a visual inspection.

Note

An end cover is included in the scope of delivery of the central unit.
The end cover is also available as an accessory or spare part from iba.

Installation clearances

Ensure a minimum clearance of the entire system of 30 mm upwards and downwards and 10 mm to the right and left for sufficient ventilation of the device.

6.1 Disconnection from the grid

To enable safe, hazard-free work on the system, all live components in the system must be disconnected from the grid.

Warning!**Mounting and dismounting / Disconnection from the grid**

Work on the device or system may only be carried out when the power is switched off!

Due to the modular concept of this system, modules connected in series with this module can also carry dangerous voltages.

All energized components of all modules in the system must therefore be disconnected from the grid before mounting and dismounting.

In addition to disconnecting the power supply at the system's central unit, the signal plugs and connections of all modules in the system must also be de-energized or disconnected from the grid.

Caution!

A suitable disconnecting device for this system must be available and disconnect all energized components of this system.

This disconnecting device must include a switch or circuit breaker that is easily accessible at a suitable location in the vicinity and is also clearly marked as a disconnecting device for this system.

6.2 Central unit

Mounting

- Lift the green lever upwards and place the device onto the rail.
- Hold the device firmly and push the lever down again to lock the device onto the rail.
- If no further modules are mounted, mount the end cover.



Connecting

- Connect the Ethernet cable(s) to one of the network interfaces X2 or X3.
- Connect the 24 V DC power supply with the correct polarity and switch on the device.

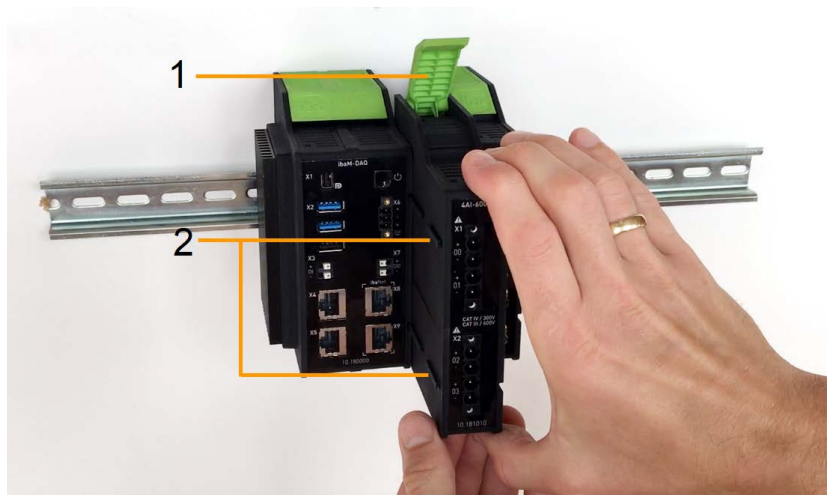
Dismounting

- Shut down the processor module and switch off the power supply.
- Remove all connections from the processor module.
- Grasp the module at the top and bottom with one hand and lift the green lever upwards to release the lock on the DIN rail.
- Pull the module forward.
- Push down the green lever.

6.3 Modules

Mounting

- Shut down the system and/or switch off the power supply.
- Disconnect the power supply and the entire system from the mains as instructed in chapter [↗ Disconnection from the grid, page 16](#).
- Remove the end cover, if present.
- Lift the green lever of the module upwards.
- Push the module backwards along the guide rails onto the DIN rail.
- Push down on the green lever.
- To protect the side contacts from dirt and damage, install the end cover on the last module.
- Switch on the power supply.
- Start the system.



- 1 Green lever for locking and releasing the modules
- 2 Guide rails

Dismounting

- Shut down the system and/or switch off the power supply.
- Disconnect the power supply and the entire system from the mains as instructed in chapter [↗ Disconnection from the grid, page 16](#).
- Remove all connections from the module that is to be dismantled.
- If you want to dismount the module on the far right, first remove the end cover. This is mounted again on the last module on the right after the module has been dismantled.

- Grasp the module at the top and bottom with one hand and lift the green lever upwards to release the lock on the DIN rail.
- Pull the module forward along the guide rails.
- Push down on the lever.

6.4 End cover

The rightmost module is terminated on the right side with the end cover ibaM-CoverPlate.

Mounting

- Push this end cover along the guide rail until the cover snaps into place.

Dismounting

- Push this end cover forward along the guide rail.

Note



An end cover is included in the scope of delivery of the central unit.
The end cover is also available as an accessory or spare part from iba.

6.5 Connection technology connector

Caution!



You must only connect one conductor to each terminal connection.

Several individual conductors, whether single-wired or fine-wired, are not permitted.

Only connectors classified by iba may be used for connecting conductors.

Connection technology power supply connector

Connection technology	Push-in			
Clamping range	0.14 - 1.5 mm ²			
Cable cross-sections				
Single wired	0.14 - 1.5 mm ²			
Fine wired	0.14 - 1.5 mm ²			
With wire end ferrule	0.25 - 1.5 mm ²			
With wire end ferrule/ collar	0.25 - 1.0 mm ²			
Stripping length				
Cross-section	0.5 mm ²	0.75 mm ²	1.0 mm ²	1.5 mm ²
Single wired	9 mm			
Fine wired				
With wire end ferrule	10 mm			
With wire end ferrule/ collar	12 mm			-
Recommended cables				
Single wired	H05V-U; H07V-U			
Fine wired	H05V-K; H07V-K			
Screwdriver blade	0.4 mm x 2.5 mm			
Tightening torque connector	0.3 Nm			

Caution!



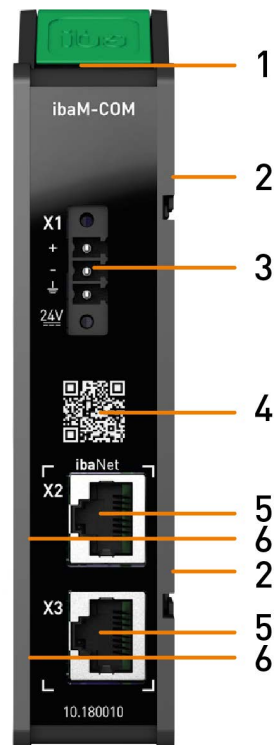
Supply and measuring cables

- Do not use damaged supply and measuring cables.
- Do not connect or disconnect supply and measuring cables when the device is connected to the power.
- Supply and measuring cables must be suitable for the corresponding voltages.

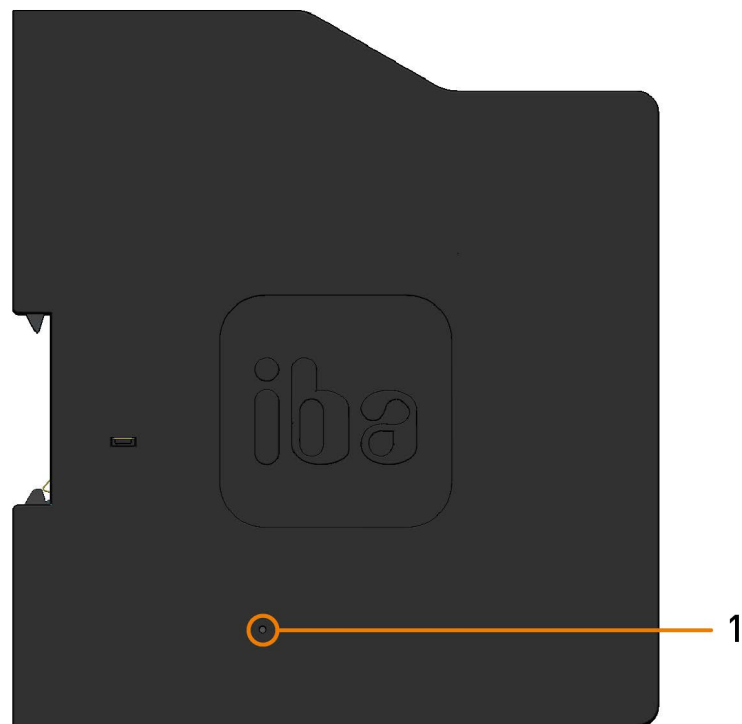
7 Device description

Here you will find views and descriptions of the *ibaM-COM* device.

7.1 View



- | | | | |
|---|----------------------------------|---|-------------------------------------|
| 1 | Operating status indicator | 4 | QR code for installation notes |
| 2 | Contacts module-module interface | 5 | Connectors ibaNet interfaces X2, X3 |
| 3 | Connector 24 V power supply X1 | 6 | ibaNet interface indicator |



- 1 Reset button

7.2 Indicating elements

Colored LEDs on the device indicate the operating status of the device.

7.2.1 Operating status

Color	Status	Description
--	off	down, no power supply
Green	on	ready for operation
	flashing slowly	device is booting
	flashing quickly	update is running
Red	on	error, reset

7.2.2 ibaNNet interface

LED	Status	Description
ibaNet X2, X3	green on	connectivity OK
--	off	no connectivity

7.3 Operating elements

Below you will find further information on the operating elements of the device *ibaM-COM*.

7.3.1 Reset button

You can use the reset button to reset the device to the factory settings. For further information see chapter [↗ Reset to factory settings, page 26](#).

7.4 Connectors

You will find the following connections and interfaces on the device *ibaM-COM*.

7.4.1 Power supply X1

The external power supply is provided via a 3-pin plug.

Caution!



Power supply

Only connect the device to an external 24 V DC power supply!
Ensure correct polarity!

Note



ibaM-COM is not grounded when mounted on a grounded DIN rail.

ibaM-COM can only be grounded via the ground terminal of the 3-pin power supply plug X1.

7.4.2 iBaNet connections X2, X3

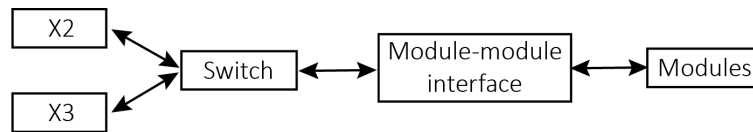
The iBaNet X2 and X3 connections are intended for dedicated use with high-performance iBaNet-E connections, which can record data with an accuracy of up to 1 µs.

The two 1GbE interfaces are **with switch function** and support:

- Autonegotiation (100/1000 Mbit, full duplex)
- Auto-MDI(X)

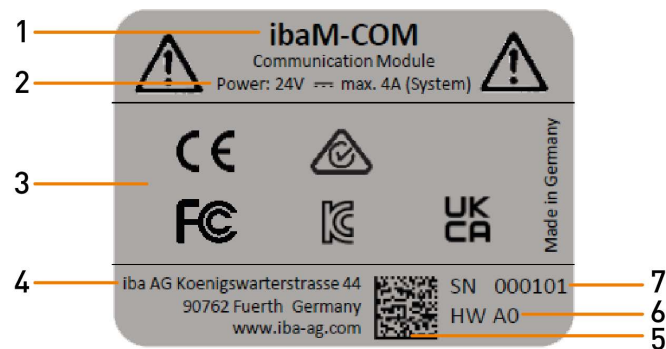
7.5 Flow chart

The following block diagram visualizes the internal communication of the device.



7.6 Type label

The type label provides the following information:

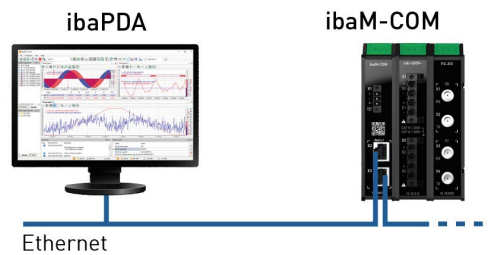


- | | | | |
|---|-------------------------|---|--------------------------------|
| 1 | Product name | 5 | DataMatrix code (iba internal) |
| 2 | Power supply | 6 | Hardware version |
| 3 | Certificates, standards | 7 | Serial number |
| 4 | Manufacturer | | |

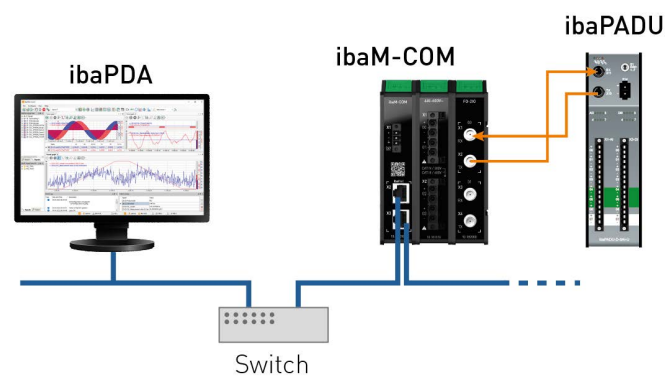
8 System integration

8.1 System integration examples

ibaM-COM is connected to the *ibaPDA* computer via a standard Ethernet network. It does not matter which of the two Ethernet interfaces is used. The device works with the *ibaNet-E* protocol to transfer configuration and measurement data.

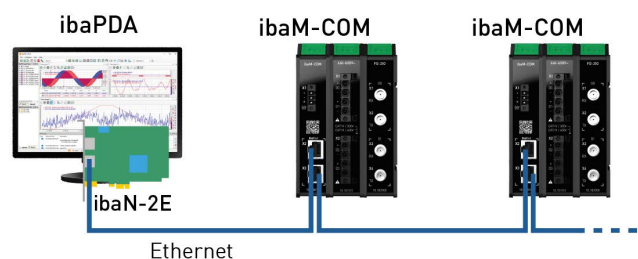


Any network topology can be used to do this. The device can either be connected to the *ibaPDA* computer directly (P2P), as shown above, or via a switch or router, as shown below. The modules connected to *ibaM-COM* are only examples.



If the *ibaPDA* computer is connected to the network via a standard network adapter card, synchronous data sampling between multiple network devices at 1 ms is possible.

If an *ibaN-2E* card is used in the *ibaPDA* computer, synchronous data sampling at up to 1 μ s is possible. To do this, the *ibaPDA* computer and *ibaM-COM* must be in the same LAN (without switch).



8.2 Default settings

Below you will find the factory settings of the device and how to reset the device to the factory settings.

8.2.1 Default settings of the device

Owner	none
Settings locked	no
Device name	MCOM-xxxxxx xxxxxx = 6-digit serial number, e.g. MCOM-000036
IP settings	disabled
IP address	0.0.0.0
Subnet mask	0.0.0.0
Gateway	0.0.0.0
DHCP	no

Note



By default, the device settings are not locked and no IP settings are enabled or configured.

No IP settings are normally required for operation in undivided local networks. They are required for network routing however.

8.2.2 Reset to factory settings

The device can only be reset by a hardware reset on the device itself. The reset button is located on the side of the device; see chapter [↗ View](#), page 21.

Note



When resetting to the factory settings,

- the device settings are reset, and
- the module configuration, including its owner, is deleted.

1. With the device switched off, press and hold down the reset button using a suitable object (such as a paper clip; maximum diameter 1.2 mm).
2. Switch the device on.
3. When the operating status indicator LED starts blinking rapidly, you can release the reset button.

→ When the rapid blinking stops, the device has been reset to its factory settings.

The device is ready for operation again when the operating status indicator is statically on.

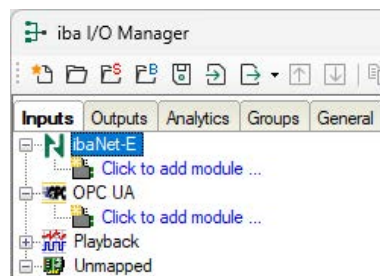
9 Configuration in ibaPDA

With *ibaPDA*, the devices can be found and configured for operation in the network. The analog and digital signals to be acquired and recorded are also configured in *ibaPDA*.

Set up an Ethernet connection to the *ibaPDA* computer first. Start ibaPDA and open the I/O Manager.

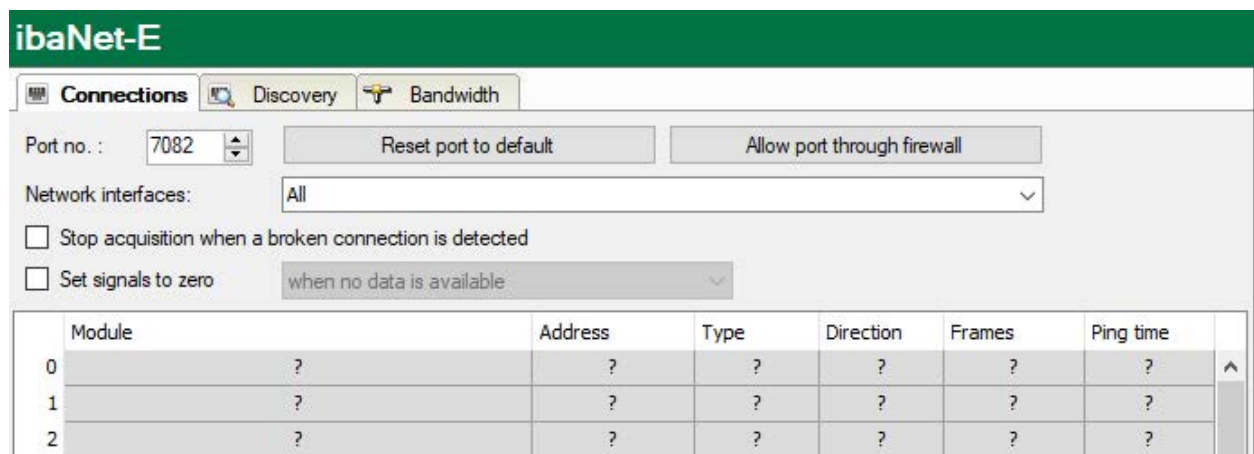
9.1 ibaNet-E interface

ibaM-COM is connected via a standard Ethernet network card installed in the *ibaPDA* computer, and the *ibaPDA* ibaNet-E interface. Standard Ethernet infrastructure components can be used.



9.1.1 ibaNet-E – Connections tab

General configuration settings for the ibaNet-E interface can be made on the *Connections* tab.



Port

Set the port for communication with the device here. Default setting: 7082

<Reset port to default>

If you have changed the port, you can reset it back to the default port.

<Allow port through firewall>

When installing *ibaPDA*, the default port numbers of the protocols used are automatically entered in the firewall. If you change the port number here, you must allow this port through the firewall using this button.

Network interfaces

From the *Network interfaces* drop-down list select which network adapter on the computer you want to use for this interface. The communication ports are only opened on the selected network adapters. At least one network adapter must be selected for the interface configuration to be validated. If you select "None", an error message is displayed when validating the I/O configuration. All network adapters are selected by default.

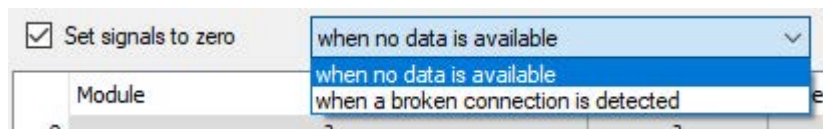
Stop acquisition when a broken connection is detected

If a connection to an ibaNet-E device is broken, acquisition is stopped.

Set signals to zero

If the ibaNet-E connection is broken, all signals in the acquisition process are set to zero. Otherwise, the signal values would display the last current value before the connection was broken. You can choose when the signals are set to zero:

- when no data is available
- when a broken connection is detected.



All ibaNet-E connections are displayed in an overview:

Module

The name of the connected module or device.

Address

Address of the target device. If the device is connected via DHCP, the host name is displayed. Otherwise, its IP address is displayed.

Type

Type of the ibaNet-E connection.

- ACQ: Receive connection; isochronous acquisition of all values; with telegram repetitions
- PLC: Send connection; only the most recent value is sent without any repetitions if there are transmission errors

Direction

Input or output direction

- Input direction: Receiving data from the ibaNet-E device
- Output direction: Sending data to the ibaNet-E device

Frames

Number of telegrams for this connection.

Ping time

Current ping time for this connection.

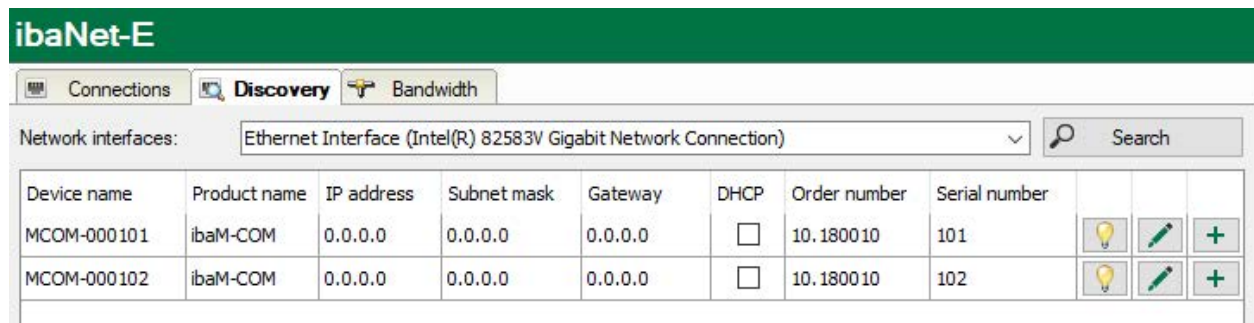
While a valid ibaNet-E receive connection is live, a ping is sent cyclically to the ibaNet-E device. The measured time is displayed here, and indicates the connection quality of the Ethernet net-

work. The shorter this time is, the better the connection quality, and the more secure the data transmission. If the connection quality is poor, the connection in question is highlighted in orange.

9.1.2 ibaNet-E – Discovery tab

Set the network interfaces via which to search for ibaNet-E devices on the *Discovery* tab.

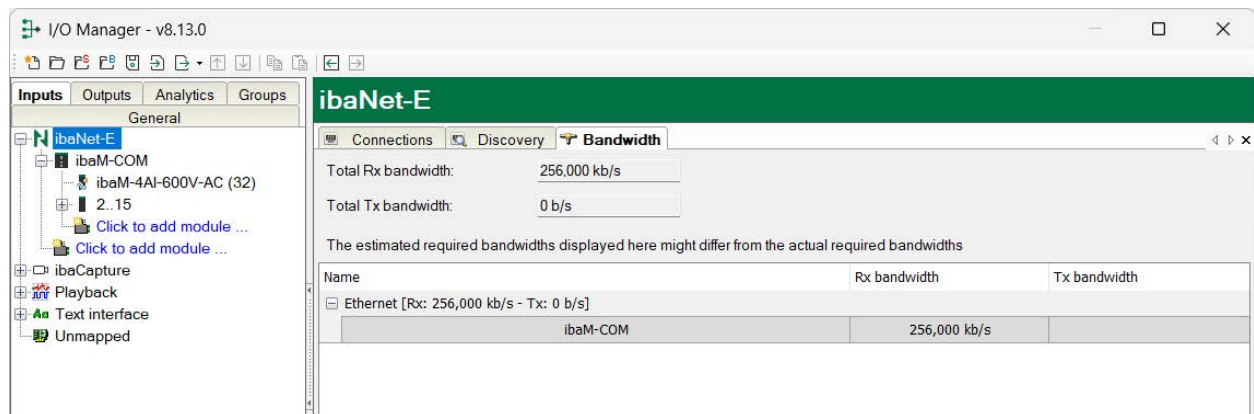
Note that this search can only be successful if the device is located in the same LAN as the *ibaPDA* computer, and has been preconfigured for that LAN. From the *Network interfaces* drop-down menu select the network adapter(s) via which you can reach the ibaNet-E devices, and start your search by clicking <Search>.



Device name	Product name	IP address	Subnet mask	Gateway	DHCP	Order number	Serial number			
MCOM-000101	ibaM-COM	0.0.0.0	0.0.0.0	0.0.0.0	☐	10.180010	101			
MCOM-000102	ibaM-COM	0.0.0.0	0.0.0.0	0.0.0.0	☐	10.180010	102			

9.1.3 ibaNet-E – Bandwidth tab

The *Bandwidth* tab provides information about the data throughput of the ibaNet-E interface. It displays the estimated total data throughput in the transmit and receive directions, as well as the data throughput by the connected ibaNet-E devices.



Name	Rx bandwidth	Tx bandwidth
Ethernet [Rx: 256,000 kb/s - Tx: 0 b/s]		
ibaM-COM	256,000 kb/s	

9.2 Device configuration

If *ibaM-COM* is not yet configured for the network, or you do not know the configuration, you can search for it in the *ibaPDA* I/O Manager.

Note that this search can only be successful if the device is located in the same LAN as the *ibaPDA* computer, and has been preconfigured for that LAN.

9.2.1 Searching for devices

1. Start *ibaPDA* and open the I/O Manager.
2. Highlight the *ibaNet-E* interface and select the *Discovery* tab.
3. From the *Network interfaces* drop-down list select the network adapter(s) via which you can reach the *ibaM-COM* device, and start your search by clicking <Search>.

→ The devices found are listed in a table, and cannot be changed in that display.

ibaNet-E									
Connections		Discovery							
Network interfaces:		Ethernet Interface (Intel(R) 82583V Gigabit Network Connection)						Search	
Device name	Product name	IP address	Subnet mask	Gateway	DHCP	Order number	Serial number		
MCOM-000101	ibaM-COM	0.0.0.0	0.0.0.0	0.0.0.0	☐	10.180010	101		
MCOM-000129	ibaM-COM	0.0.0.0	0.0.0.0	0.0.0.0	☐	10.180010	129		

Device name

Device name, or host name of the device.

Product name

ibaM-COM

IP address

The IP address of the device.

Subnet mask

The subnet mask of the IP settings.

Gateway

The gateway of the IP settings.

DHCP

The IP settings are obtained from a DHCP server (enabled), or not

Order number

The iba order number of the *ibaM-COM* device

Serial number

The serial number of the *ibaM-COM* device

Meanings of the buttons:



"Identify device"

When you click this button, the status indicators (LEDs) on the front of the device start blinking for a short time. This makes it possible to identify the device directly.



"Edit device settings"

Click this button to open the window for the device and IP settings.

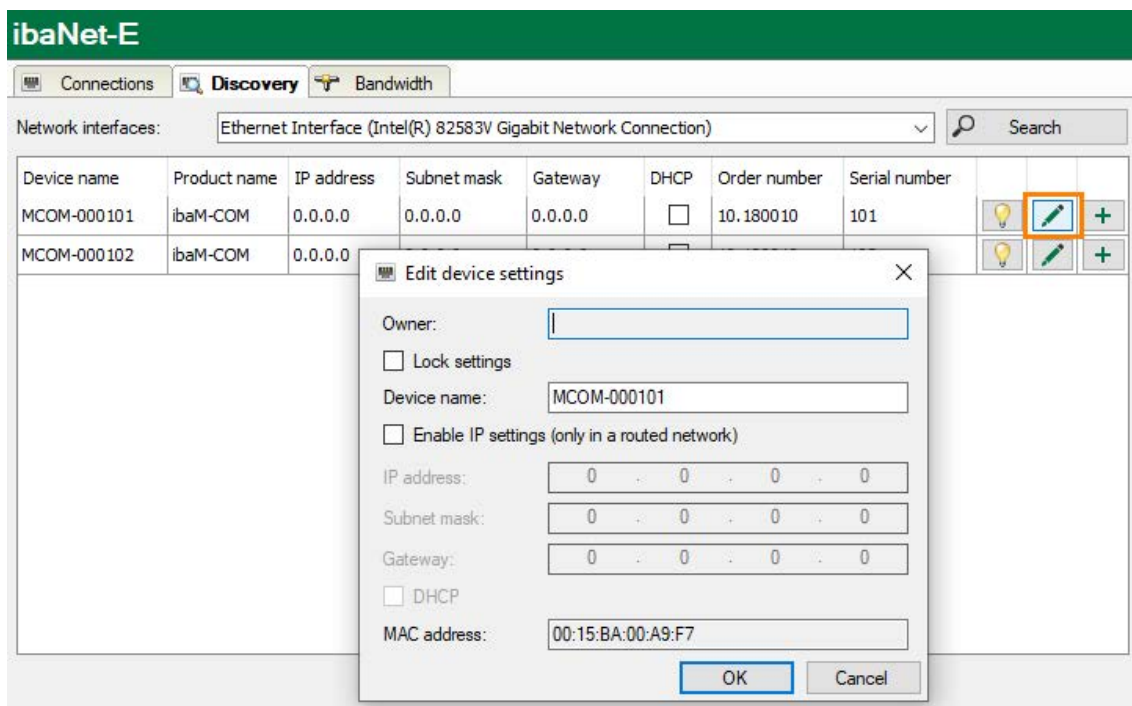


"Add device to I/O configuration"

Click this button to add the device to the I/O configuration of the ibaNet-E-interface in *ibaPDA*. Connected modules are identified and added automatically as far as possible.

9.2.2 Device settings

To open the *Edit device settings* dialog, click the button . Device-specific values mainly required for the Ethernet network connection are entered in the device settings.



Owner

If the *ibaM-COM* device has already been configured, the last owner is displayed here; otherwise it is empty (when shipped, or after resetting defaults). The owner corresponds to the computer name on which *ibaPDA* is installed and from which this device was last configured. The entry is made automatically, and is read-only.

Lock settings

When this function is enabled, read and write access to the device configuration is blocked for other *ibaPDA* systems.

Device name

The name of the device. If DHCP is enabled, and there is a DHCP/DNS server in the network, the device can be connected via this name.

Enable IP settings (only in a routed network)

If the IP settings are activated, you can enter the IP address of the device, subnet mask and gateway. The IP settings are required in the routed network, i.e. if the device and the *ibaPDA* computer are not in the same LAN.

This option is not enabled by default and the fields are grayed out.

IP address

The IP address of the device. If DHCP is enabled, this field is read-only.

Subnet mask

The subnet mask of the IP settings. If DHCP is enabled, this field is read-only.

Gateway

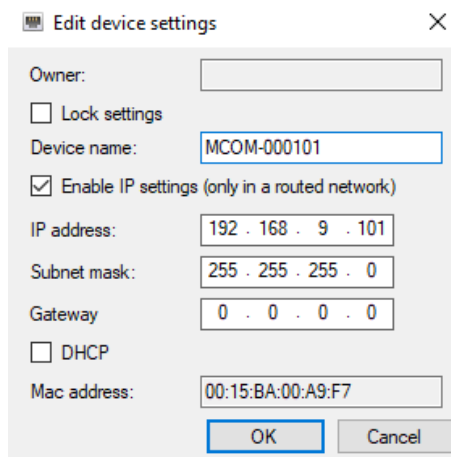
The gateway of the IP settings. If DHCP is enabled, this field is read-only.

DHCP

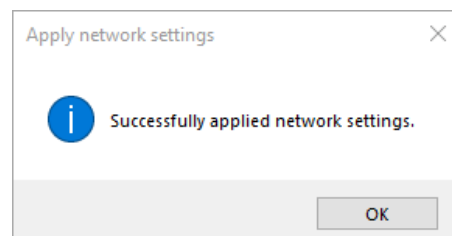
If DHCP is not enabled, a static IP address must be selected. If DHCP is enabled, the IP address of a DHCP server in the network is obtained if possible.

DHCP can only be enabled if the IP settings are enabled.

Example of a device setting (with fixed IP address, without DHCP):



When you click <OK> to apply the settings, the following message appears and the dialog window closes:



The *Discovery* tab displays the configured *ibaM-COM* device.

9.2.3 Owner

When you re-open the device settings after configuring as per chapter [↗ Device settings, page 31](#), an owner is displayed because the *ibaM-COM* device has already been configured:

If the device settings are opened by the same owner, all configuration settings can still be changed here.

There are also other use cases:

Another ibaPDA computer has set the settings and the settings are not locked:

If the settings have last been **set and not locked** by another *ibaPDA* computer, the following message is displayed after confirming:

As the configuration is not locked, it can be changed and applied.

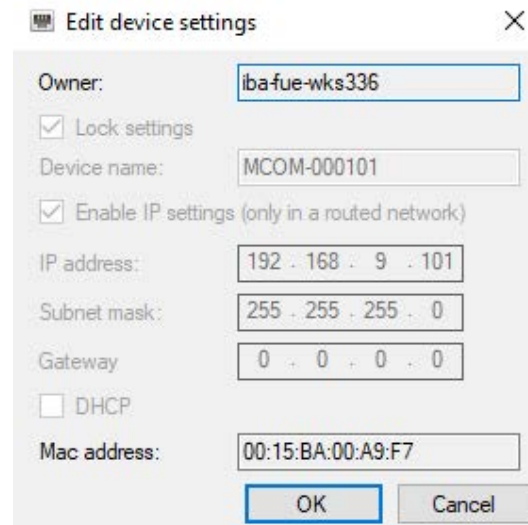
Another ibaPDA computer has set and locked the settings:

If the settings have been **set and locked** by another *ibaPDA* computer, the window would look like this:

As the configuration was locked by the other *ibaPDA* computer, it cannot be changed or applied. A locked device configuration can only be changed or reset by the original owner, or by resetting to the default values (see chapter [↗ Default settings of the device, page 26](#)).

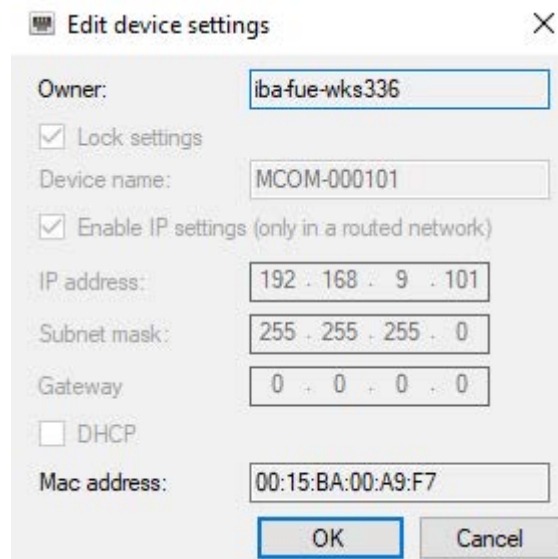
Another ibaPDA computer accesses an ibaM-COM device with locked settings:

The device settings are as follows and cannot be edited:



The screenshot shows a dialog box titled "Edit device settings" with a close button (X) in the top right corner. The settings are as follows:

- Owner: iba-fue-wks336
- ☒ Lock settings
- Device name: MCOM-000101
- ☒ Enable IP settings (only in a routed network)
- IP address: 192 . 168 . 9 . 101
- Subnet mask: 255 . 255 . 255 . 0
- Gateway: 0 . 0 . 0 . 0
- ☐ DHCP
- Mac address: 00:15:BA:00:A9:F7
- Buttons: OK, Cancel



This is a duplicate of the screenshot above, showing the same "Edit device settings" dialog box with the same configuration and locked state.

9.2.4 Adding an ibaM-COM device

There are several ways to add the *ibaM-COM* device to *ibaPDA*:

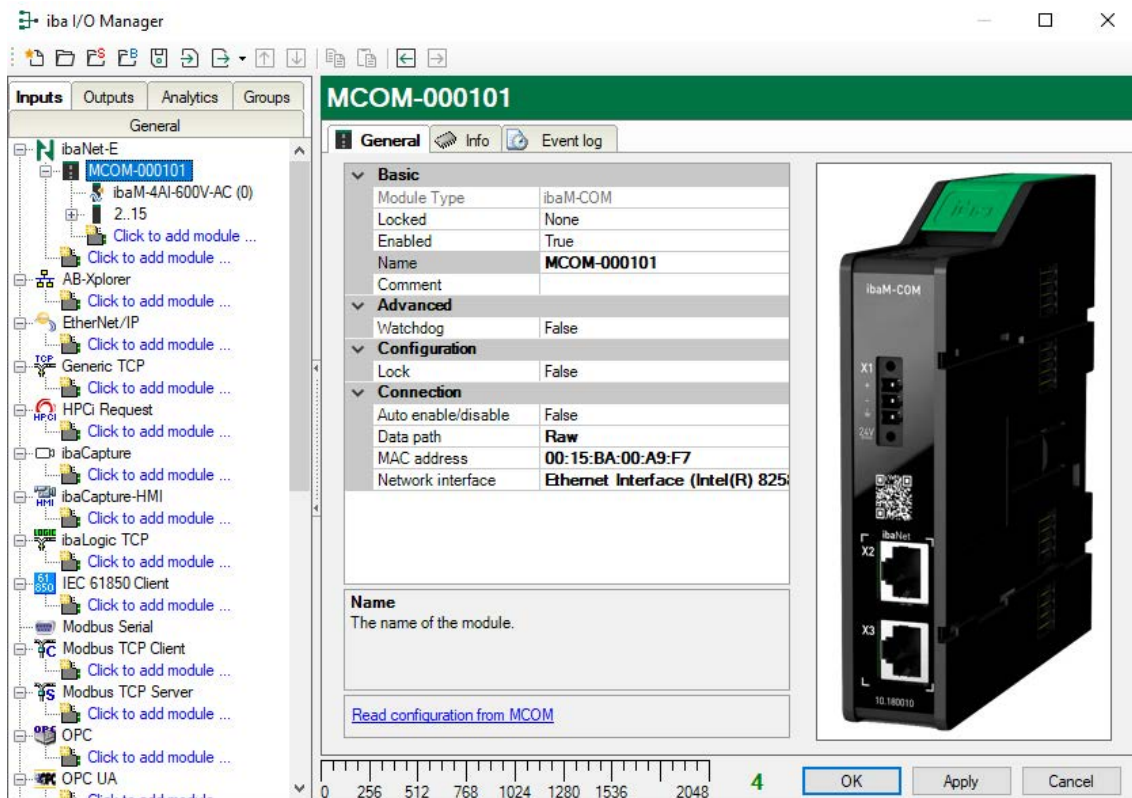
- Automatically – the device is in the same LAN
See chapter [➤ Adding a device automatically, page 35](#).
- Manually – the device is not in the same LAN
See chapter [➤ Adding a device manually, page 36](#).
- Offline – without connecting a device
See chapter [➤ Adding a device offline, page 37](#).

9.2.4.1 Adding a device automatically

Proceed as follows to add the device as a module to the I/O configuration in *ibaPDA*:

Prerequisites:

- You have searched for existing devices in the same LAN; see chapter [↗ Searching for devices](#), page 30
 - The device has been configured; see chapter [↗ Device settings](#), page 31.
 - ▶ On the *Discovery* tab of the ibaNet-E interface, highlight the *ibaM-COM* device and click the <+> button.
- The device appears in the I/O Manager's module tree.



→ Connected modules are detected with their default settings and added to the *ibaPDA* configuration.

→ If the module has already been configured for acquisition in *ibaPDA*, the existing *ibaPDA* configuration will be retained.

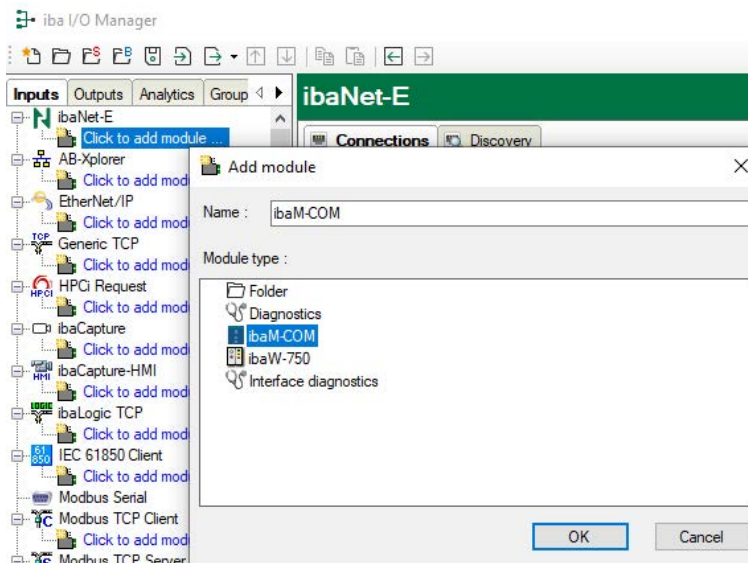
9.2.4.2 Adding a device manually

If the *ibaM-COM* device is not to be operated in the same LAN as the *ibaPDA* system, meaning it cannot be automatically located, identified and added, you can also add the device manually to the ibaNet-E interface in the I/O Manager.

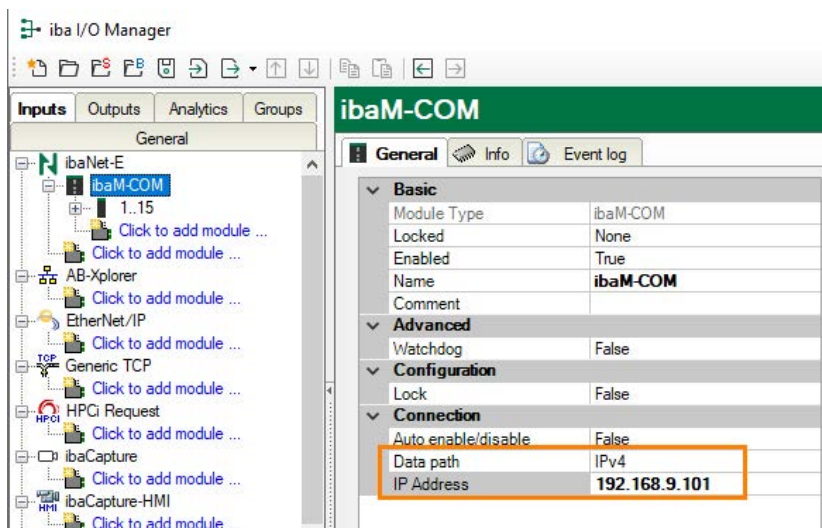
Prerequisite:

The device must first have been configured separately in advance. The configuration can only be made within the same LAN. It can, however, be run by another *ibaPDA* system. For information on configuration, see chapter [↗ Device settings, page 31](#).

1. Click on the link *Click to add module ...*
2. Select the *ibaM-COM* module type.



3. Once you have added the *ibaM-COM* module, to ensure a successful connection first enter the (network) address via which *ibaM-COM* can be reached.



The address can either be a (fixed) IP address or the host name ("Hostname"). It is advisable to use the host name if the device is located in a DHCP network in which the network devices have not been assigned fixed IP addresses.

4. Provided the *ibaM-COM* device can be reached in the network via Ethernet without restriction using the address entered, you can now either only add the connected modules or also read out the module configuration, if available on the device.

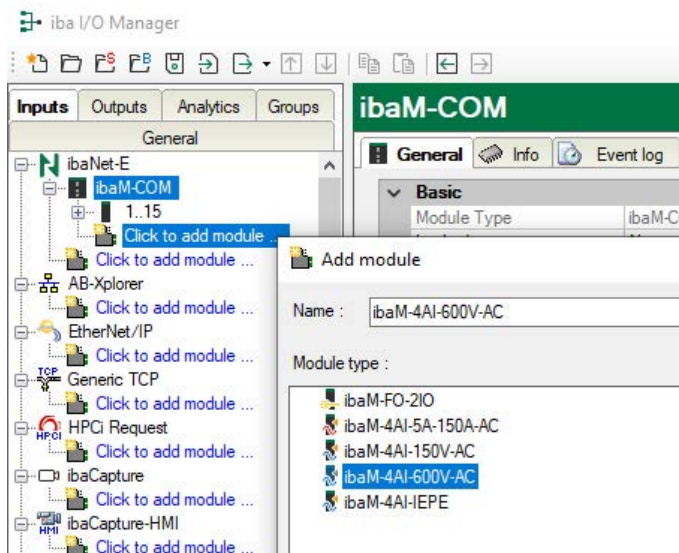
To do this, use on the link at the bottom of the *General* tab and click "Read configuration from the device".

9.2.4.3 Adding a device offline

It is also possible to add the *ibaM-COM* device to the I/O Manager and configure it without connecting the device at the same time.

To do this, follow the procedure described in chapter [➤ Adding a device manually, page 36](#), though in this case the modules, and/or the configuration, cannot be automatically identified and read out at the end, but must be added manually.

1. Highlight the *ibaM-COM* module and click on the link *Click to add module ...*
- The module selection dialog appears:



2. Highlight the module you want, and either click <OK> or double-click on the module.

This offline option makes it possible, for example, to export a device and module configuration, or to save the entire I/O configuration of the I/O Manager.

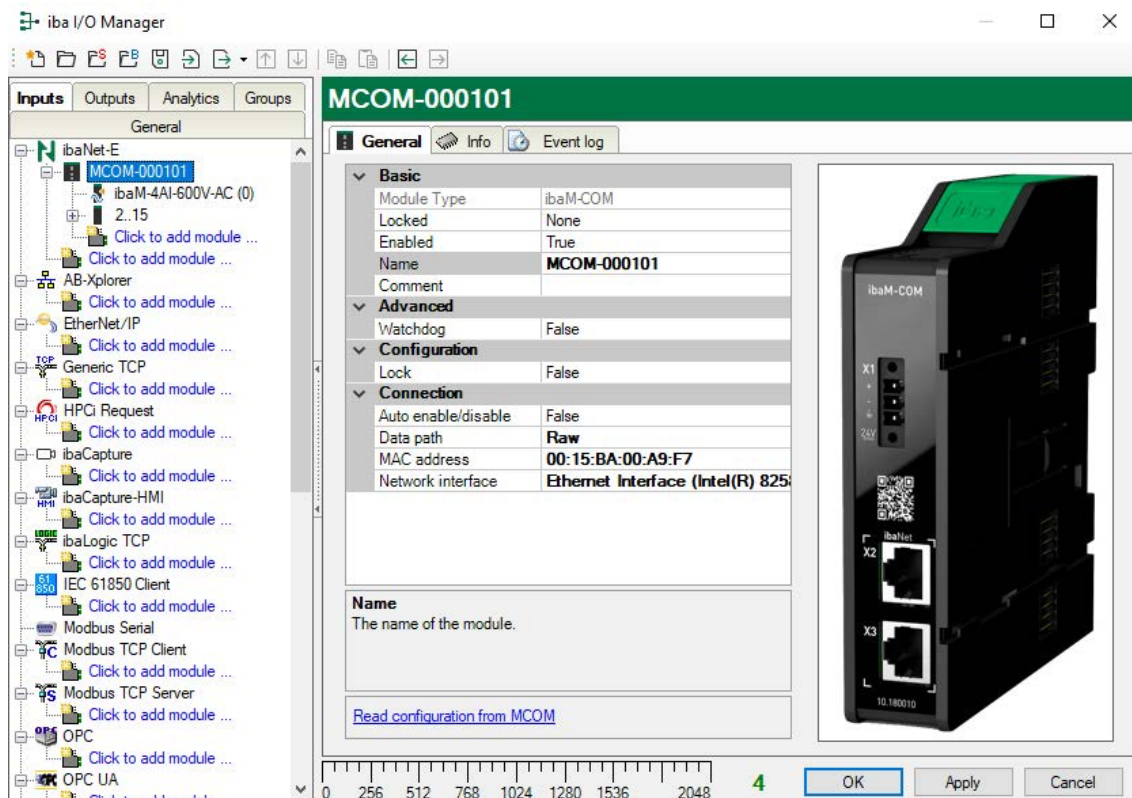
For a detailed description, refer to the current *ibaPDA* manual.

9.3 Configure ibaM-COM

The *ibaM-COM* device module and the diagnostic module are described below.

9.3.1 ibaM-COM – General tab

In the *General* tab, you can make basic settings and settings for the connection to the device.



Basic

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

Enable the module to record signals.

Name

You can enter a name for the module here.

Comment

Extra description about the module. This will be displayed as tooltip in the signal tree.

Advanced

Watchdog

You can enable watchdog for attached modules.

If an error occurs on the I/O bus that would prevent data acquisition from continuing, this watchdog triggers immediately. This means that data acquisition is stopped and the modules are restarted. The acquisition of other modules continues in the meantime. If the error could be reset by restarting the I/O modules, data acquisition with the I/O modules will continue.

Only one attempt is made to reset the I/O bus. If the error persists after this, the system remains in error mode.

Configuration

Lock

This property determines if the configuration should be locked in the ibaNNet-E device. When the configuration is locked, only the owner that sets the lock can change the configuration or remove the lock.

Connection

Auto enable/disable

When this option is enabled and *ibaPDA* cannot connect to this device during the start of the acquisition then it will disable this module and start the acquisition without it. During the acquisition it will try to reconnect to the device. When it succeeds it will automatically restart the acquisition with this module enabled.

If this option is not enabled then *ibaPDA* will not start the acquisition when it cannot connect to the device.

Data path

Select the transport protocol you want to use for data transfer between *ibaPDA* and the ibaNNet-E device. The following are available:

- **MAC:** Based on layer 2 of OSI model the communication runs without an IP address. It is used in pure ibaNNet-E networks or non-routed networks. The data path MAC offers higher bandwidth with highly synchronous data.

Enter the MAC address of the device in the field *MAC address* and select the appropriate network interface.

Only with data path MAC, an ibaNNet-E acquisition with High Performance (HP) is possible.

- **IPv4:** Based on layer 4 of OSI model IP addresses are needed for UDP/IP communication. It must be used in routed networks.

Enter the IP address of the device in the field *IP address*.

MAC address, Network interface

These fields appear when the data path MAC is selected.

IP Address

The field appears when the data path IPv4 is selected.

More functions

Read configuration from MCOM

Reads the most recently saved *ibaPDA* configuration from the device and adds it to the *ibaPDA* configuration. The *ibaPDA* module numbers cannot be read out. Therefore, new module numbers are created or free module numbers are assigned.

Note



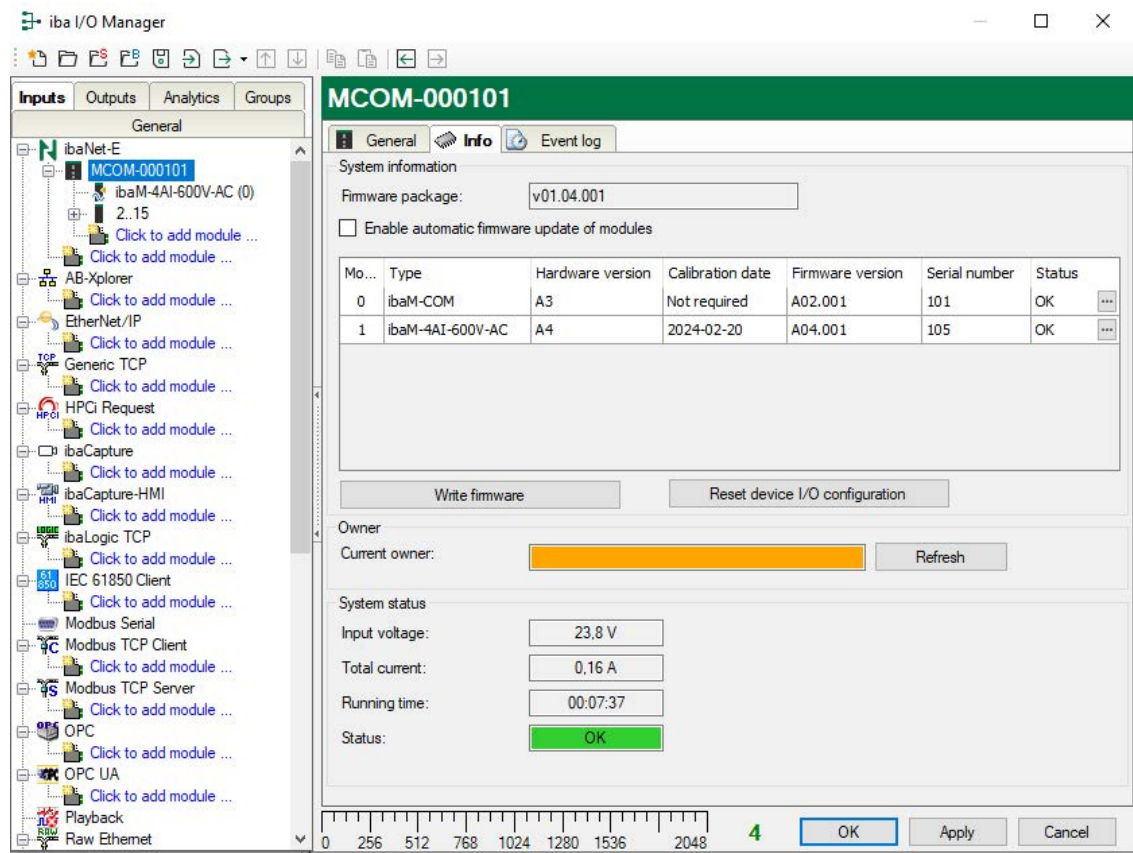
The *Read configuration from MCOM* command does not compare the actual hardware configuration with the *ibaPDA* configuration last saved on the *ibaM-COM* device. It is therefore possible that the hardware configuration does not match the last *ibaPDA* configuration. In this case, an error message will appear when the configuration is validated.

The *Autodetect* command detects all modules with the default settings and adds them to the *ibaPDA* configuration. Modules already present in the *ibaPDA* configuration retain their settings. The *Autodetect* command can be found in the context menu when you select the *ibaM-COM* module in the module tree.

Modified settings are applied by clicking on <OK> or <Apply>.

9.3.2 ibaM-COM – Info tab

In the *System information* area you will find the firmware version and information on the individual modules connected to the I/O bus.



Enable automatic firmware update of modules

If a module's firmware version does not match the *ibaM-COM* firmware package, *ibaM-COM* will perform an automatic firmware update on the module.

Do not turn off the device during the update.

Calibration date

The following information can be displayed in the *Calibration date* column:

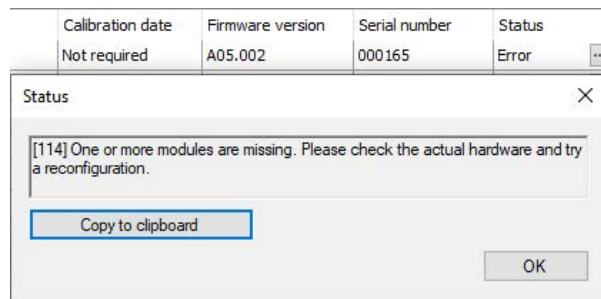
- Not required: The module does not need to be calibrated.
- Unknown: The state of the calibration cannot be determined.

In this case, restart the device or the IO bus. If “Unknown” continues to be displayed, contact the iba support.

- YYYY-MM-DD: Date of last calibration (in year-month-day format)

Status

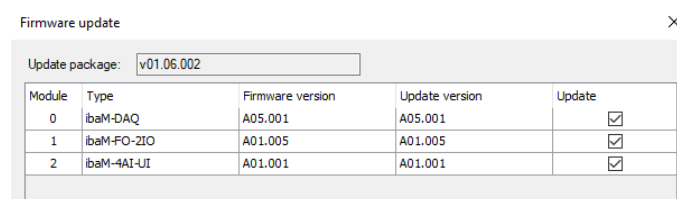
If an error is displayed here, click <...> to see information about the cause of the error.



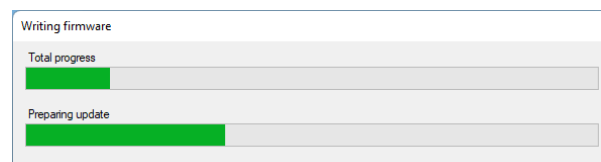
Write firmware

With this button it is possible to perform firmware updates. Select the update file [ibaM_v\[xx.yy.zzz\].iba](#) in the browser and start the update process by clicking <Open>.

In the following dialog, you can specifically select which modules you want to update or whether you want to update the overall system.



The update process is started by clicking on <OK>. The following dialog informs you about the progress of the update.



Note

This process may take several minutes and must not be interrupted. After an update, the I/O bus will restart automatically.

If the firmware version of a module does not match the version included in the firmware package or if no firmware is included for this module in the firmware package, an exclamation mark appears.

System information

Firmware package:

v01.05.001

☐ Enable automatic firmware update of modules

Module	Type	Hardware version	Calibration date	Firmware version	Serial number	Status
0	ibaM-DAQ	A1	Not required	A04.001	000113	OK
1	ibaM-FO-ZIO	A1	Not required	A01.005	000124	OK
2	ibaM-4AI-UI	A3	2025-06-25	A01.001	000111	OK

Reset device I/O configuration

You can use this button to reset the entire module configuration.

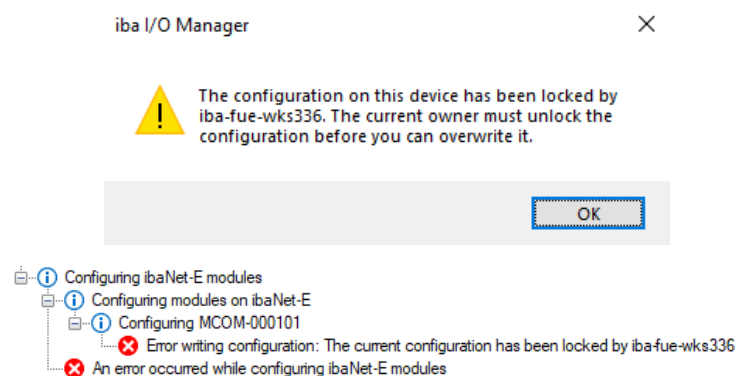
Owner

If a module configuration has already been carried out on the *ibaM-COM* device, the last owner of this module configuration is displayed here.

After delivery or resetting to factory settings, this field is empty.

The owner corresponds to the computer name on which *ibaPDA* is installed and from which this device was last configured.

If a module configuration is locked or blocked and another *ibaPDA* system wants to access this module or use it for recording, the following messages appear depending on the situation:



The <Refresh> button can be used to call up the current owner of the module configuration from the device at any time.

Meaning of the colors:

Green The *ibaPDA* system that is currently accessing it is the owner.

Owner
Current owner: iba-fue-wks336 Refresh

The *ibaPDA* system system that is currently accessing it is the owner and has locked the module configuration.

Owner
Current owner: iba-fue-wks336 (locked) Refresh

Orange Another *ibaPDA* system is the owner, but has not locked the module configuration.

Owner
Current owner: iba-fue-wks336 Refresh

No owner is displayed (on delivery or reset to factory settings).

Owner
Current owner: Refresh

Red Another *ibaPDA* system is the owner and has locked the module configuration.

Owner
Current owner: iba-fue-wks336 (locked) Refresh

The following information is displayed in the *System status* area:

Input voltage

Internal supply voltage, deviates minimally from the supply voltage at the power supply connector due to the internal circuitry.

Total current

The power consumption of the entire system including all modules (with an accuracy of $\pm 10\%$).

Running time

The total running time of the I/O bus since the last start in the format [d].hh:mm:ss

Status

The status of the entire system incl. all modules.

9.3.3 ibaM-COM – Configuration tab

The *Configuration* tab displays information about the module-module interface and its configuration:

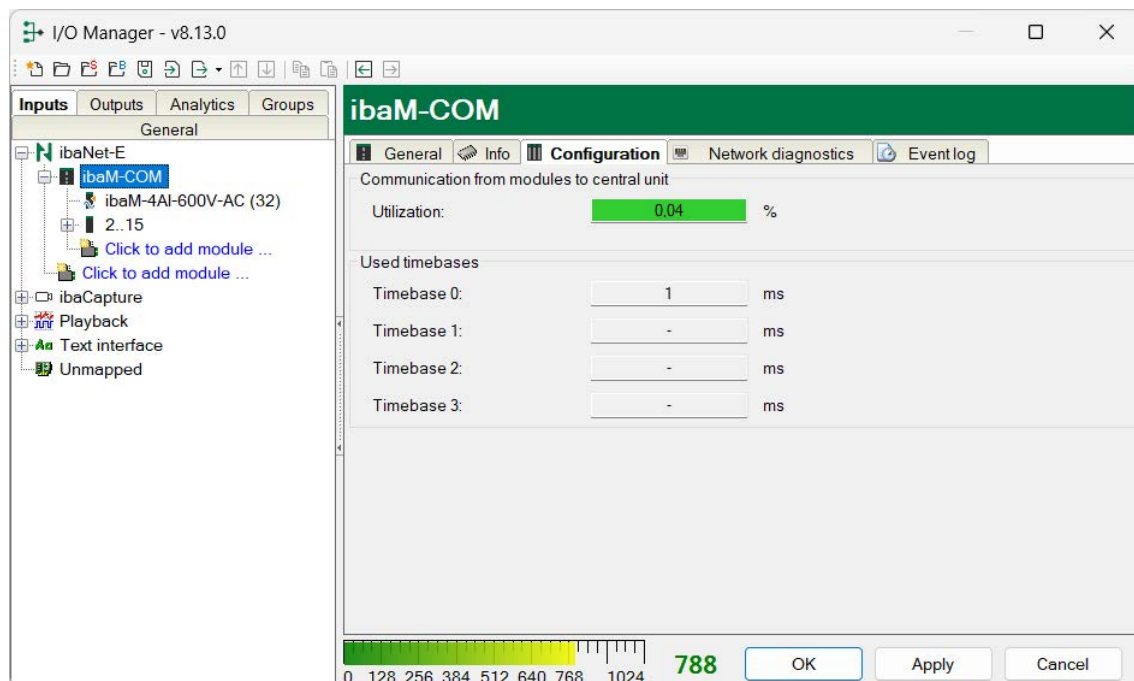
- Utilization of the module-module interface in percent

The utilization of this interface depends on various factors, mainly the typical data throughput of 512 Mbit/s, the timebases used, and the signals configured in *ibaPDA*.

The utilization indicator is green from 0 to 90%; above 90%, it turns orange, indicating imminent overload. If the module-module interface utilization exceeds 100% (the indicator turns red), data acquisition can no longer be started.

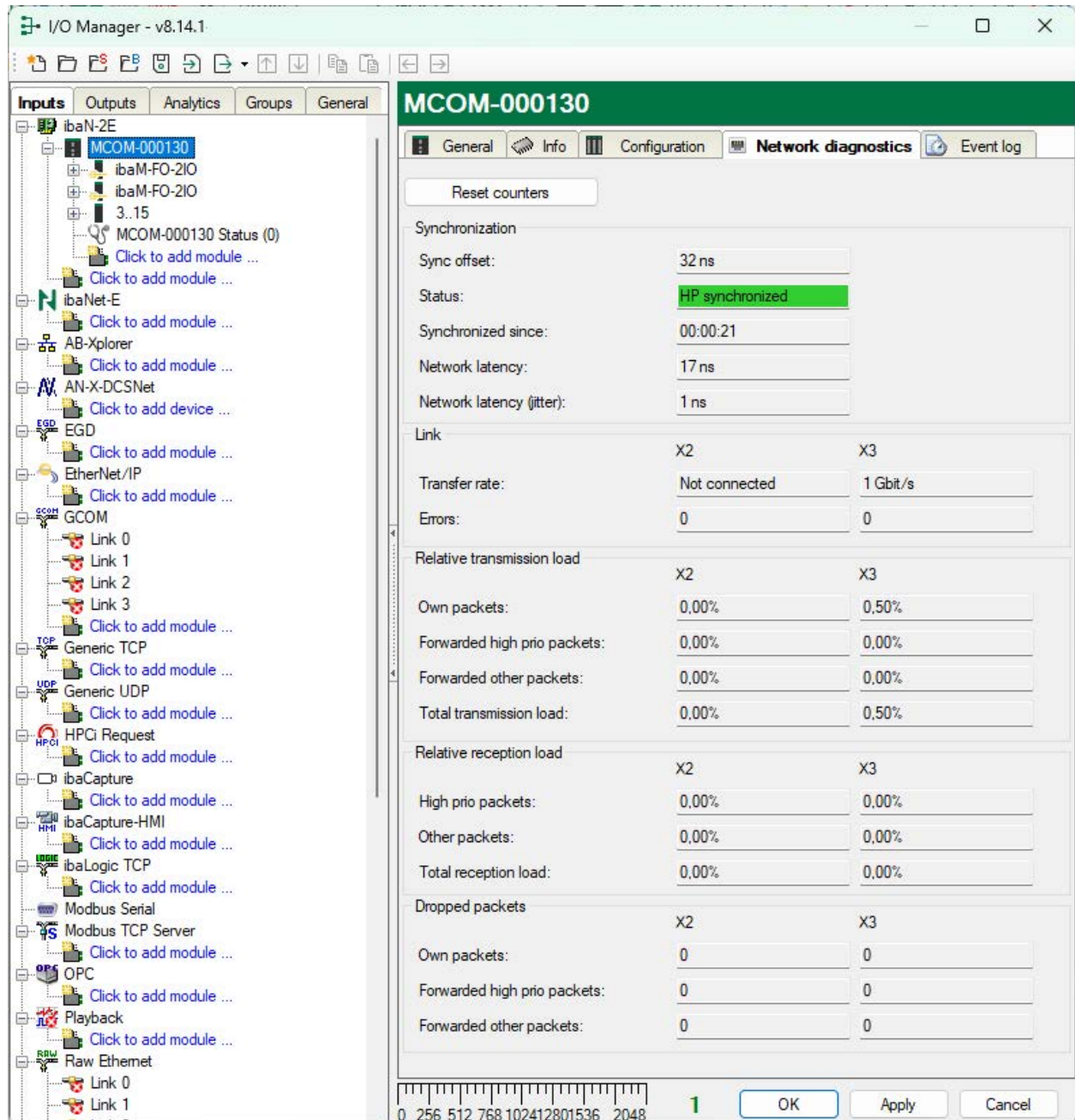
- Used timebases

Each *ibaM-COM* device can have four different timebases for module configuration and communication. This overview shows the use of the timebases with the corresponding configured time in ms.



9.3.4 ibaM-COM – Network diagnostics tab

The *Network diagnostics* tab contains information about the network.



The <Reset counter> button resets the contents of the fields that contain a counter value.

Synchronization

The *ibaM-COM* system is synchronized with a master in the ibaNet-E network.

The following information is displayed:

- *Sync offset*: average absolute value of the time offset relative to the synchronization master, with a resolution of 32 ns.
- *Synchronized since*: synchronization duration in the format [d].hh:mm:ss

- *Network latency*: average network latency (resolution: 1 ns)
- *Network latency (jitter)*: time deviation of the averaged delay time (resolution: 1 ns)

The following states can be displayed:

- *Not synchronized*: The system could not be synchronized.
- *Synchronized*: The system is synchronized.
- *HP synchronized*: The system is synchronized with an ibanet-E HP synchronization accuracy.

Link

In the *Link* section, you will find information about the transmission speed of the individual interfaces and an error counter.

Relative transmission load

In the *Relative transmission load* section, you will find information on load in the transmission direction for each interface.

Relative reception load

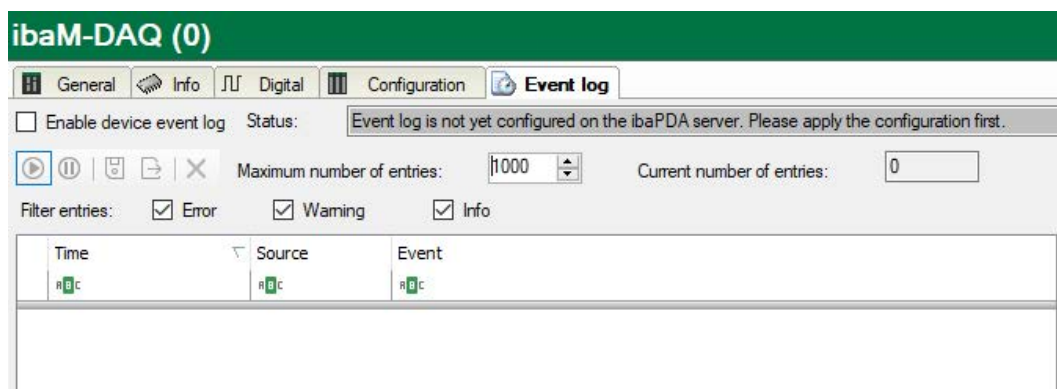
In the *Relative reception load* section, you will find information on load in the receive direction for each interface.

Dropped packets

In the *Dropped packets* section, you will find information about the various dropped packets in case of overload.

9.3.5 ibaM-COM – Event Log tab

In the *Event log* tab, the status changes of the *ibaM-COM* device are documented in a list.



The following settings and operation modes are available:

Enable device event log

Here, you enable the event log for the device. You have to enable the event log separately for each individual device.

Status

The status of the connection between *ibaPDA* and *ibaM-COM* for reading the events is displayed here.

Maximum number of entries

Here you can set the maximum number of saved entries (100 - 100,000).

Current number of entries

The currently saved number of entries.

Operating elements

	When pressing the button, the list of events is automatically updated
	The automatic update is paused
	Continuously save messages in a file
	Export visible entries to a text file
	Clear diagnostic buffer

The list of events can be filtered in a customized way. If you want to filter the events according to a type, just select one or more types above the list: error, warning, info.

For further filtering, enter the filter text you are searching for in the desired field in the top line. All events containing the entered search text, will be displayed.

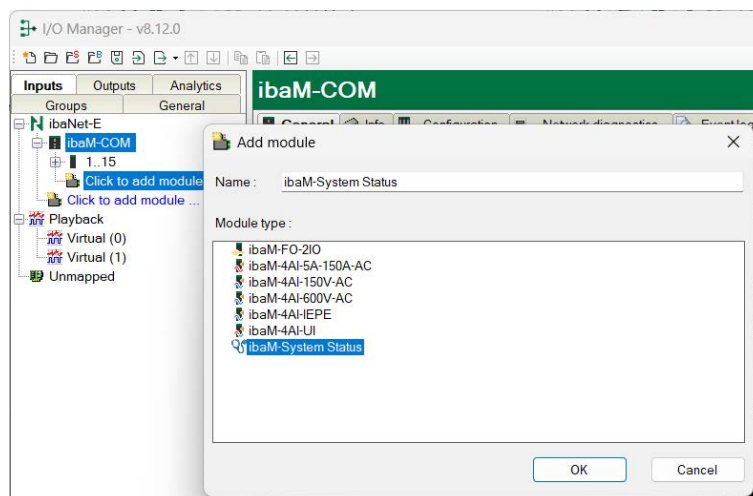
9.3.6 ibaM-COM system status

The *ibaM-System Status* module can be used to record information about the system status of the *ibaM-COM* system as signals.

9.3.6.1 Add system status module

Procedure

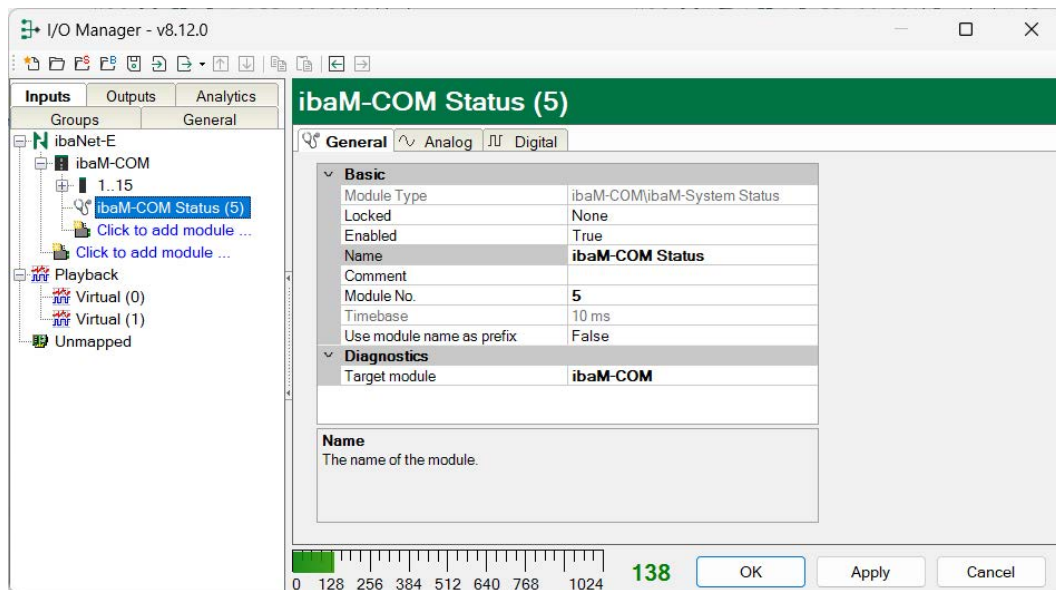
1. Click on the link *Click to add module* under *ibaM-COM*.
2. Select *ibaM-System Status*.



Note: The system status signals reduce the *ibaPDA* signal license.

9.3.6.2 ibaM-COM Status – General tab

The following settings can be made in the *General* tab.



Basic

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

The time base is preset and cannot be changed here.

Use module name as prefix

This option puts the module name in front of the signal names.

Diagnostics

Target module

The target module *ibaM-COM* is already preset.

9.3.6.3 Status signals

The available signals are automatically generated in the *Analog* and *Digital* tabs.

ibaM-COM Status (5)						
General ~ Analog Digital						
Name	Unit	Gain	Offset	Active	Actual	
100 Input voltage	V	0,00390625		0 ☐		0
101 Total current	A	0,000244140625		0 ☐		0
102 Running time	s		1	0 ☐		0 s
103 Sync offset	ns		1	0 ☐		0 ns
104 Network latency	ns		1	0 ☐		0 ns

ibaM-COM Status (5)			
General ~ Analog Digital			
Name	Active	Actual	
100 System state	☐		0
101 Synchronized	☐		0
102 HP synchronized	☐		0

Analog status signals

Signal name	Description
Input voltage	Internal supply voltage, deviates minimally from the supply voltage at the power supply connector due to the internal circuitry
Total current	The power consumption of the entire system including all modules (with an accuracy of $\pm 10\%$)
Running time	The total running time of the IO bus since the last start in the format [d].hh:mm:ss
Sync offset	Absolute value of the time offset relative to the synchronization master, with a resolution of 32 ns and an update interval of 100 ms in the ibaNet-E HP network; otherwise, 1 s
Network latency	Network latency (resolution: 1 ns; update interval: 1 s)

Digital status signals

Signal name	Description
Status	The status of the entire system incl. all modules
Synchronized	The system is synchronized.
HP synchronized	The system is synchronized with ibaNet-E HP synchronization accuracy.

9.3.7 ibaNet-E Diagnostics

With the *Diagnostics* module at *ibaM-COM* level, information about the *ibaNet-E* connection can be recorded as signals.

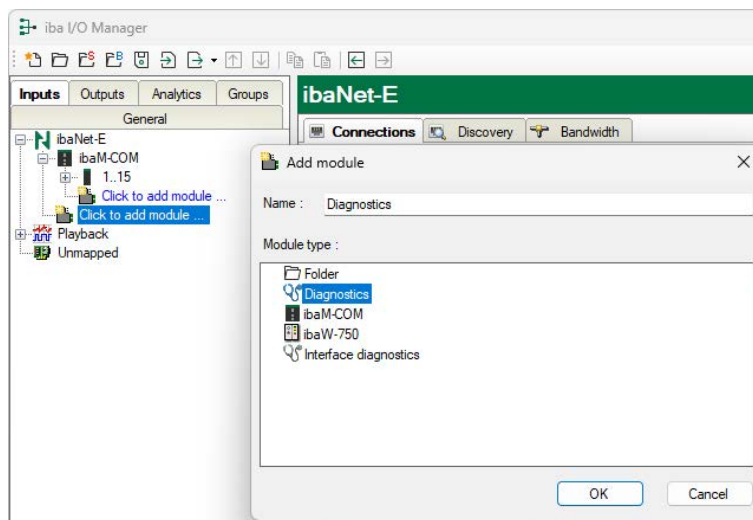
9.3.7.1 Add and assign a diagnostic module

A diagnostic module only becomes active after it has been assigned to an *ibaM-COM* module and provides its connection information.

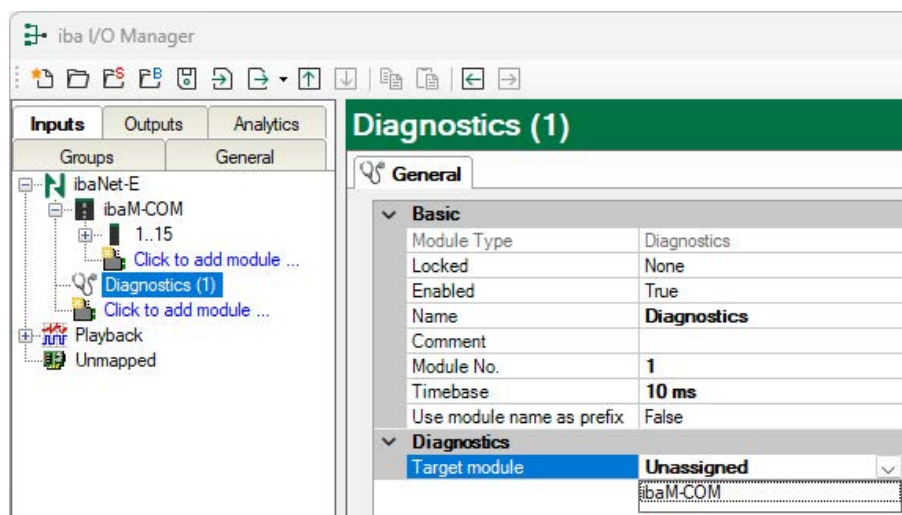
Diagnostic modules do not require an additional license, since they do not establish their own connection, but refer to another module.

Procedure

1. Click on the link *Click to add module* under ibaNet-E.
2. Select *Diagnostics*.



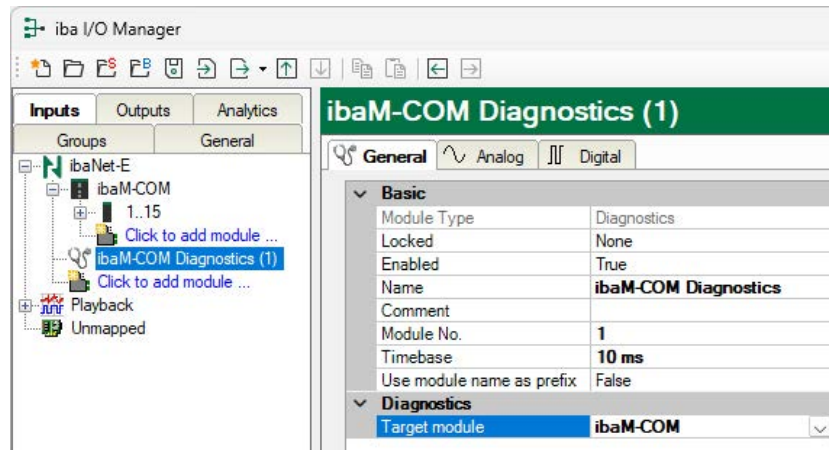
3. Assign the target module.



Note: The diagnostic signals reduce the *ibaPDA* signal license.

9.3.7.2 General tab

After the assignment, the following settings can be made in the *General* tab:



Basic

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.

Diagnostics

Target module

By selecting the target module, you assign the diagnostic module to the module whose connection information is to be recorded.

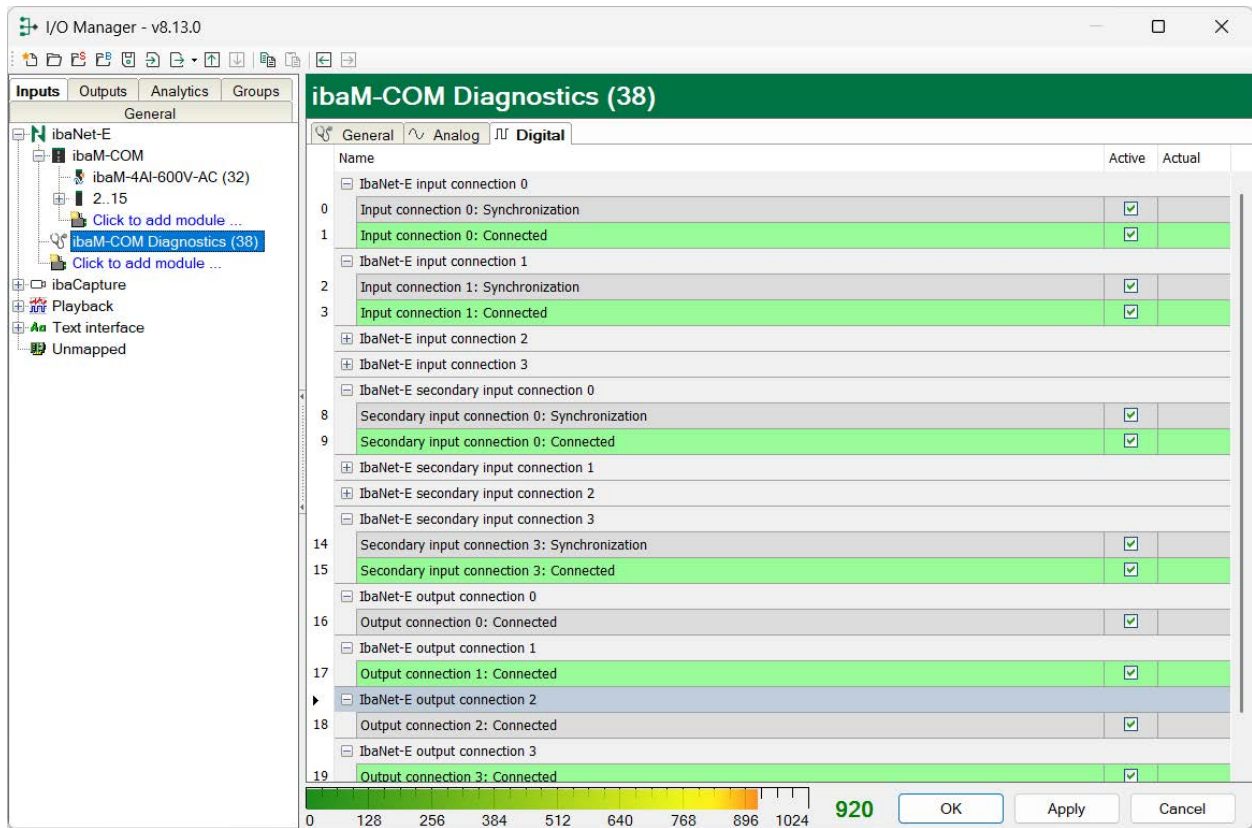
9.3.7.3 Diagnostic signals

After assignment, the available diagnostic signals are automatically generated in the *Analog* and *Digital* tabs.

IbaM-COM Diagnostics (38)

Name	Unit	Gain	Offset	Active	Actual
IbaNet-E input connection 0					
Input connection 0: Messages since connection start		1	0	☒	
Input connection 0: Connection attempts		1	0	☒	
Input connection 0: Connections established		1	0	☒	
Input connection 0: Retransmission requests		1	0	☒	
Input connection 0: Connection phase		1	0	☒	
Input connection 0: Ping time (actual)	ms	1	0	☒	
Input connection 0: Time offset (actual)	ms	1	0	☒	
Input connection 0: Lost images		1	0	☒	
Input connection 0: Last received frame counter		1	0	☒	
Input connection 0: Frame interval (actual)	ms	1	0	☒	
Input connection 0: Frame interval (min)	ms	1	0	☒	
Input connection 0: Frame interval (max)	ms	1	0	☒	
IbaNet-E input connection 1					
IbaNet-E input connection 2					
IbaNet-E input connection 3					
IbaNet-E secondary input connection 0					
Secondary input connection 0: Messages since connection start		1	0	☒	
Secondary input connection 0: Connection attempts		1	0	☒	
Secondary input connection 0: Connections established		1	0	☒	
Secondary input connection 0: Retransmission requests		1	0	☒	
Secondary input connection 0: Connection phase		1	0	☒	
Secondary input connection 0: Ping time (actual)	ms	1	0	☒	
Secondary input connection 0: Time offset (actual)	ms	1	0	☒	
Secondary input connection 0: Lost images		1	0	☒	
Secondary input connection 0: Last received frame counter		1	0	☒	
Secondary input connection 0: Frame interval (actual)	ms	1	0	☒	
Secondary input connection 0: Frame interval (min)	ms	1	0	☒	

0 128 256 384 512 640 768 896 1024 **920** OK Apply Cancel

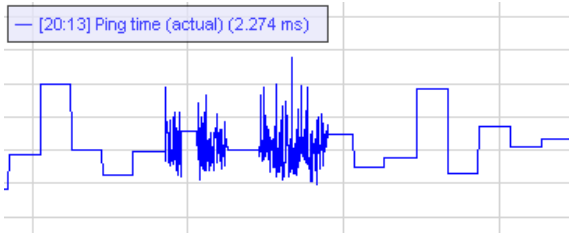


The signals are all enabled by default.

The signals are grouped by connection type:

- Input connection: connection diagnostics of the measurement signals
- Secondary input connection: connection diagnostics of diagnostic, status and additional signals
- Output connection: connection diagnostics of the output signals

Examples of diagnostic signals:

Name	Signal type	Description
Ping time (actual)	analog	A feature of the connection quality for the Ethernet: In regular operation, a ping to the ibaNet-E device is performed every one second and the measured time is displayed here. The shorter this time is, the better the connection quality and the more reliable the data transmission. For the synchronization at the start of the acquisition and sporadically during the acquisition, this ping is performed at a much higher frequency. 
Time offset	analog	Measured time difference of synchronicity between <i>ibaPDA</i> and the ibaNet-E device
Lost images	analog	Number of lost images that were not received even after a retransmission
Synchronization	digital	The device is synchronized for isochronous acquisition. This is always mandatory at the start of data acquisition, but can also be performed sporadically during data acquisition.

10 Technical data

Danger!



Electric shock

If the device is used or operated in a manner other than specified in the *Technical data* chapter, the protection supported by the device may be impaired.

Short description

Product name	ibaM-COM
Module label	ibaM-COM
Description	Communication module for the ibaMAQS modular system
Order number	10.180010

Module-module interface

Number	1
Connection technology	2x 8 sliding contacts
Number of modules	15
Data throughput	
General	typically 512 Mbit/s; depends, among other things, on the time base in ibaPDA, the number of modules, and the signal selection or number of signals.
Display	capacity utilization display integrated in ibaPDA in %

Sample calculations:

Timebase	No. of modules	Signal selection / no. of signals per module			Utilization
2 μ s	4x 4AI	4 ADC signals	and	4 filter signals	86 %
2 μ s	8x 4AI	4 ADC signals	or	4 filter signals	86 %
4 μ s	8x 4AI	4 ADC signals	and	4 filter signals	96 %
10 μ s	15x 4AI	4 ADC signals	and	4 filter signals	90 %

ibaNet interface

Number	2; switched
Design	copper
ibaNet protocol	ibaNet-E / ibaNet-E HP
Connection technology	2 RJ45 socket; 1GbE, Base-T
Cable length (P2P)	max. 100 m
Cable type	min. Cat. 6a, S/FTP

Supply

Power supply	DC 24 V SELV; 4 A; external buffer module recommended
Voltage range	21.6 V ... 26.4 V DC
Current consumption (max.)	
ibaM-COM	0.18 A
ibaM-COM with modules	4 A
Electrical isolation	
Supply – system	none
Connection technology	3-pin header, 3.81 mm pitch
Connector	included in delivery; push-in, conductor max. 1.5 mm ² , protected against reverse polarity, screw connection; information on conductor and stripping length see chapter ➤ Connection technology connector , page 20; order number 52.000031

Further interfaces, operating and indicating elements

Indicators	LEDs for operation and errors
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Operating and environmental conditions

Temperature range	
Operation	14 °F to 131 °F (-10 °C to +55 °C)
Storage	-13 °F to 185 °F (-25 °C to +85 °C)
Mounting	DIN rail according to EN 50022 (TS 35, DIN rail 35)
Cooling	passive
Relative humidity	15 % ... 95 % (indoor), no condensation
Operating altitude	0 m ... 2000 m above sea level
Protection type	according to IP20; without test certificate according to IEC 60529
Certifications / standards	CE, C-Tick, UKCA, FCC, KC Safety: IEC 61010-1, IEC 61000-6-5 Interface range 4 Vibration: IEC 60068-2-6, IEC 60068-2-64, IEC 60068-2-27
Pollution degree	2
MTBF ¹⁾ (+25 °C)	5,102,664 hours / 582 years
Dimensions	
Width x height x depth	28 mm x 133 mm x 120 mm
Height with open lever	160 mm
Height unit	3

¹⁾ according to: Telcordia Issue 4 SR332 (Reliability Prediction Procedure of Electronic Equipment; Issue Mar. 2016) and NPRD (Non-electronic Parts Reliability Data 2011)

Installation clearances	
Top / bottom	30 mm / 30 mm
Left / right (system)	10 mm / 10 mm
Mounting position	vertical, lever up
Weight / incl. packaging	0.25 kg / 0.55 kg

10.1 Declaration of conformity

Supplier's Declaration of Conformity

47 CFR § 2.1077 Compliance Information

Unique Identifier: 10.180010, ibaM-COM

Responsible Party - U.S. Contact Information

iba America, LLC
 370 Winkler Drive, Suite C
 Alpharetta, Georgia
 30004

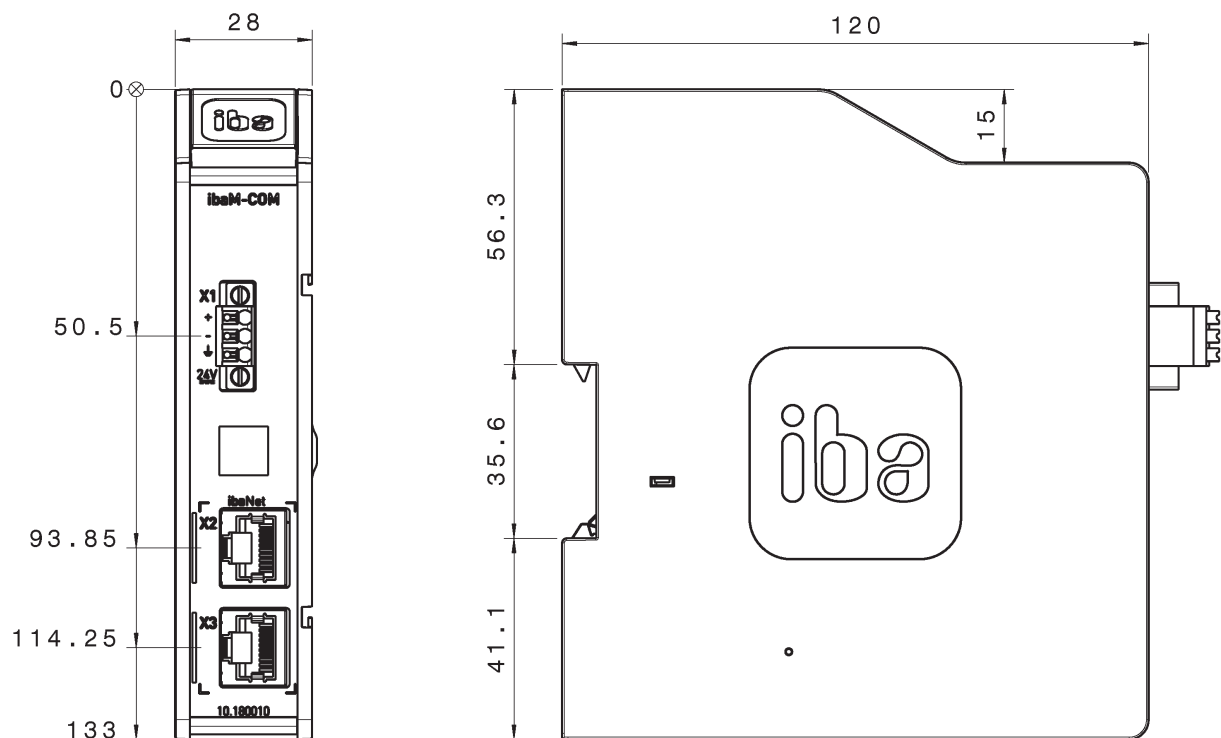
(770) 886-2318-102

www.iba-america.com

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

10.2 Dimensions



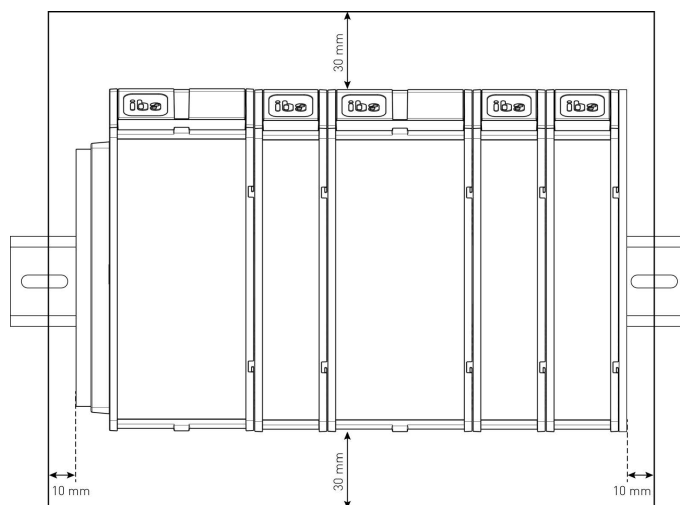
Dimensions *ibaM-COM*, dimensions in mm

Note



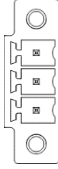
Ensure a minimum clearance of 30 mm above and below the housing and 10 mm to the right and left of the cooling fins to ensure sufficient ventilation of the device.

If the device has been extended with further modules, the above-mentioned clearances apply to the entire system.



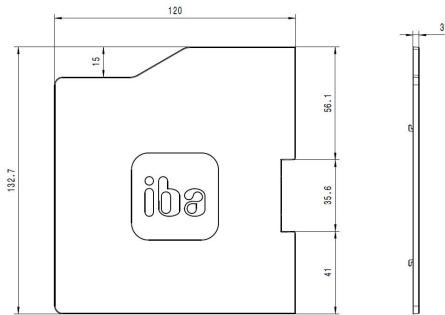
10.3 Connection diagram

Pin assignment power supply X1

Pin	Connector	
1	+ 24 V	
2	0 V	
3	Ground	

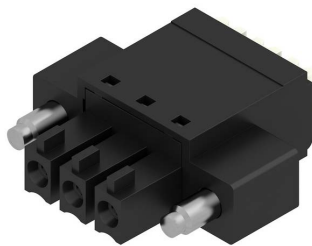
11 Accessories

End cover for MAQS modules



Short description	
Name	ibaM-CoverPlate
Description	End cover for MAQS modules
Order number	10.180020
Design	
Dimensions (w x h x d)	3 mm x 132.7 mm x 120 mm
Weight	0.05 kg

Connector for power supply



Short description	
Name	3-Pin Terminal Block MAQS-PWR RM3.81 Push-In SF
Description	3-pin socket connector/plug for power supply, push-in, screw connection
Order number	52.000031

12 Appendix

12.1 Useful information about ibaNNet-E

In the following you will find information on the connections with the ibaNNet-E protocol.

12.1.1 Connection phases

Each ibaNNet-E connection can be in different connection phases. The connection phases are displayed in different colors in the *Connections* tab.

ibaNet-E connection phase	Color	Description
ONLINE	green	Connection; connection quality is OK
	orange	Connection; connection quality is not optimal
STOP_WAIT	red	Connection timeout; waiting for reinitialization
SEND_TADJUST	red	Connection setup; time synchronization
WAIT	red	Connection setup
WAIT_SYNCRESP	red	Connection interruption

Phase ONLINE

ibaNet-E							
Connection	Phase	Connections Established	Connection Attempts	Disconnects	Ping time		
					Actual	Min	Max
IN (ACQ)	ONLINE	1	1	0	5,069 ms	2,384 ms	88,354 ms

ibaNet-E							
Connection	Phase	Connections Established	Connection Attempts	Disconnects	Ping time		
					Actual	Min	Max
IN (ACQ)	ONLINE	1	1	0	25,108 ms	2,384 ms	88,354 ms

Phase STOP_WAIT

ibaNet-E							
Connection	Phase	Connections Established	Connection Attempts	Disconnects	Ping time		
					Actual	Min	Max
IN (ACQ)	STOP_WAIT	2	1	2	3,084 ms	2,434 ms	80,104 ms

Phase SEND_TADJUST

ibaNet-E							
Connection	Phase	Connections Established	Connection Attempts	Disconnects	Ping time		
					Actual	Min	Max
IN (ACQ)	SEND_TADJUST	6	0	6	5,485 ms	2,395 ms	17,557 ms

Phase WAIT

ibaNet-E							
Connection	Phase	Connections Established	Connection Attempts	Disconnects	Ping time		
					Actual	Min	Max
IN (ACQ)	WAIT	5	1	5	7,252 ms	2,347 ms	26,804 ms

Phase WAIT_SYNCRESP

ibaNet-E							
Connection	Phase	Connections Established	Connection Attempts	Disconnects	Ping time		
					Actual	Min	Max
IN (ACQ)	WAIT_SYNCRESP	1	0	1	0,000 ms	0,000 ms	0,000 ms

12.1.2 Connection type

There are different connection types of an ibaNet-E connection:

- **ACQ:** Connection for receiving data
All values are received, acquired isochronously and also repeated if there are transmission errors.
- **PLC:** Connection for sending data
Only the most recent value is sent without any repetitions if there are transmission errors.
- **MGT:** Configuration connection

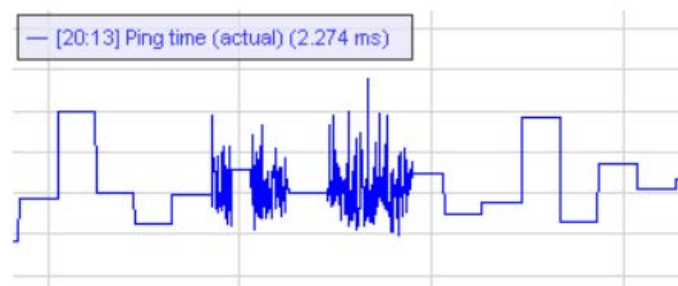
12.1.3 Ping time / connection quality

The ping time is a characteristic of the connection quality for the Ethernet network used by the ibaNet-E connection.

During a valid ibaNet-E receiving connection, a ping to the ibaNet-E device is executed cyclically.

The measured duration, i.e. the round trip time of the ping telegram, is a marker for the physical condition of the network and therefore a benchmark for the connection quality of the Ethernet connection. The shorter this time is, the better the connection quality and the more secure the data transmission.

For synchronization at the start of acquisition and sporadically during acquisition, this ping is executed at a much higher frequency:



If the ping time is longer and therefore the connection quality of the Ethernet connection is not optimal, the corresponding connection is no longer highlighted in green in the connection overview, but in orange:

ibaNet-E

Connections

Discovery

☐ Stop acquisition when a broken connection is detected
 ☐ Set signals to zero when no data is available

	Module	Destination	Type	Direction	Messages	Ping time
0	ibaW-750-DHCP (0)	ibaW-750-DHCP	ACQ	IN	3139	3,296 ms
1	ibaW-750-DHCP (0)	ibaW-750-DHCP	PLC	OUT	233	2,044 ms
2	ibaW-750-WLAN (5)	192.168.41.201	ACQ	IN	2977	74,049 ms
3	ibaW-750-LAN (10)	192.168.1.50	ACQ	IN	3141	3,108 ms
4	ibaW-750-LAN (10)	192.168.1.50	PLC	OUT	233	1,782 ms
5	?	?	?	?	?	?
6	?	?	?	?	?	?

If the connection is highlighted in orange, it is more likely that measured values may be lost.

12.2 Tips for using ibaPDA

Here you will find useful tips on how to use *ibaM-COM* and *ibaPDA*.

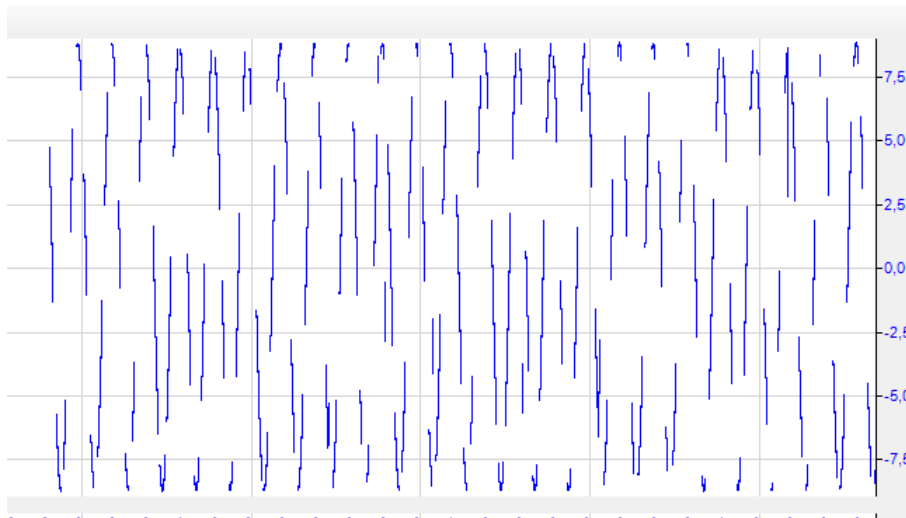
12.2.1 Gaps in the trend graph

How can gaps in the trend graph display be avoided?

Problem:

Gaps appear in the trend graph if the time base in *ibaPDA* is set too low for data acquisition.

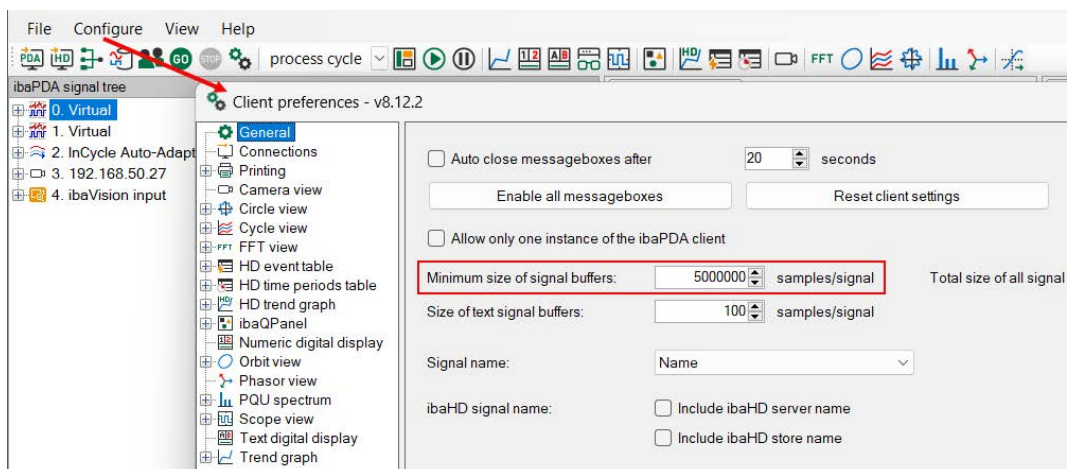
However, the values are recorded correctly and without gaps in the DAT file or in the ibaHD-Server.



Remedy:

To obtain a complete display of the trend graph, the minimum size of the signal buffer must be increased in the client preferences (default 100,000). The maximum size is 100,000,000.

You can find the client preferences in the *Configuration* menu.



12.2.2 Error message Interrupt buffer overflow

How can you avoid an interruption of the acquisition that is indicated by the error message *Interrupt buffer overflow*?

Problem:

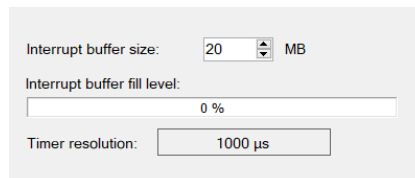
Acquisition stops, especially when data recording is activated. The following error message is displayed in the *ibaPDA* event log: *Recording stopped due to error... Interrupt buffer overflow*.

ibaPDA event log		
Type	Date and Time	Description
	12/10/2025 2:46:13 PM	Acquisition stopped
	12/10/2025 2:46:13 PM	Data store stopped
	12/10/2025 2:46:12 PM	Acquisition stopped with error : Error reading from driver: [Data read] Interrupt buffer overflow. System performance is insufficient for the requested configuration. Please lower the number of signals or increase module time bases.

Remedy:

The size of the interrupt buffer may be set too low. The size of the interrupt buffer is set in the I/O Manager, in the *General* tab, in the node *Interrupt Info*.

The maximum size is 1000 MB.

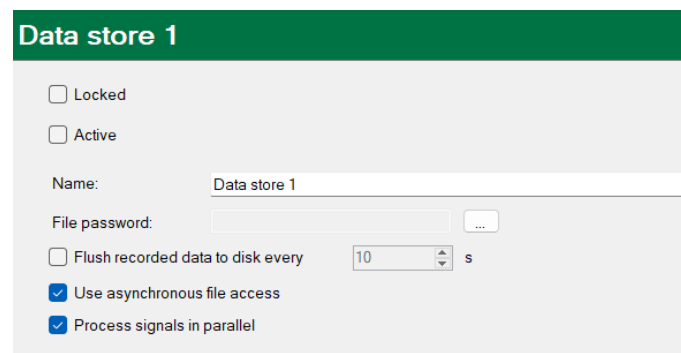


Interrupt buffer size: 20 MB

Interrupt buffer fill level: 0 %

Timer resolution: 1000 µs

Another way to avoid the error is to enable asynchronous file access during data recording. This setting can be found in the Data Store Manager, under the *Data Store* node.



Data store 1

☐ Locked

☐ Active

Name: Data store 1

File password:

☐ Flush recorded data to disk every 10 s

☒ Use asynchronous file access

☒ Process signals in parallel

13 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.

Product Security Incident Response Team (PSIRT) at iba

Current advisories: www.iba-ag.com/en/security

Email: psirt@iba-ag.com

Contact

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90762 Fuerth
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www.iba-ag.com