ibaMBox

Mobile measuring system

Manual

Issue 1.4

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The content of this publication has been checked for compliance with the described hardware and software. Nevertheless, deviations cannot be excluded completely so that the full compliance is not guaranteed. However, the information in this publication is updated regularly. Required corrections are contained in the following regulations or can be downloaded on the Internet.

The current version is available for download on our website, www.iba-ag.com.

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Realtek is a trademark of Realtek Semiconductor Corporation. This product is covered by one or more of the following patents: US6,570,884, US6,115,776, and US6,327,625.

Certification

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

Further international customary standards and directives have been observed.

$C\,E$

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Issue	Date	Revision	Chapter	Author	Version HW / FW
1.4	26/04/2018	Exchange of modules (modified mechanical construction fom SN 000046)	8	st	

Contents

1   About this manual

This manual describes the construction, the use and the operation of the device, ibaMBox. You can find a general description of the iba modular system and further information about the design of the modules and how to use and operate them in separate manuals.

1.1   Target group

This manual is particularly intended for 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.

1.2   Notations

The following designations are used in this manual:

Action	Notations
Command menu	*Logic diagram* menu
Call of menu command	*Step 1 – Step 2 – Step 3 – Step x* Example: Select *Logic diagram – Add – New logic diagram* menu
Keys	\<Key name\> Example: \<Alt\>; \<F1\>
Press keys simultaneously	\<Key name\> + \<Key name\> Example: \<Alt\> + \<Ctrl\>
Buttons	\<Button name\> Example: \<OK\>; \<Cancel\>
File names, paths	'File name', 'Path' Example: "Test.doc"

1.3   Symbols used

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

⚠ DANGER

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

- by an electric shock;
- due to the improper handling of software products which are coupled to input and output procedures with control function.

⚠ WARNING

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

⚠ CAUTION

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

Note

A note specifies special requirements or actions to be observed.

Important note

Note if some special features must be observed, for example exceptions from the rule.

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   Introduction

The ibaMBox mobile measuring system is based on the iba modular system, which is integrated in a compact and sturdy aluminum case. The same modules are used in ibaMBox as are in the iba modular system; the backplane has been newly designed for ibaMBox. In ibaMBox, a central unit can be combined with up to 4 I/O modules; the central units and I/O modules available for ibaMBox are listed in the table below. The communication and power supply of the modules is provided via a backplane bus built into the case. ibaMBox is supplied pre-configured.

Central units	I/O modules
- ibaPADU-S-CM (for modular data acquisition system) - ibaPQU-S (for power quality monitoring applications) -ibaCMU-S (for condition monitoring applications) -ibaDAQ-S / ibaDAQ (for stand-alone data acquisition)	ibaMS3xAI-1A ibaMS3xAI-5A ibaMS3xAI-1A/100A ibaMS4xAI-380VAC ibaMS8xAI-110VAC ibaMS16xAI-10V (-HI) ibaMS16xAI-24V (-HI) ibaMS16xAI-20mA ibaMS16xDI-220V ibaMS16xDI-24V ibaMS32xDI-24V ibaMS16xDIO-24V ibaMS4xADIO ibaMS8xICP ibaMS8xIEPE ibaMS4xUCO

Data acquisition

With the central units, ibaPADU-S-CM or ibaPQU-S, ibaPDA is required as an external data acquisition system, which runs, for example, on a notebook. The notebook is connected to the central unit via an ibaFOB-io-ExpressCard and a bidirectional fiber optic connection.
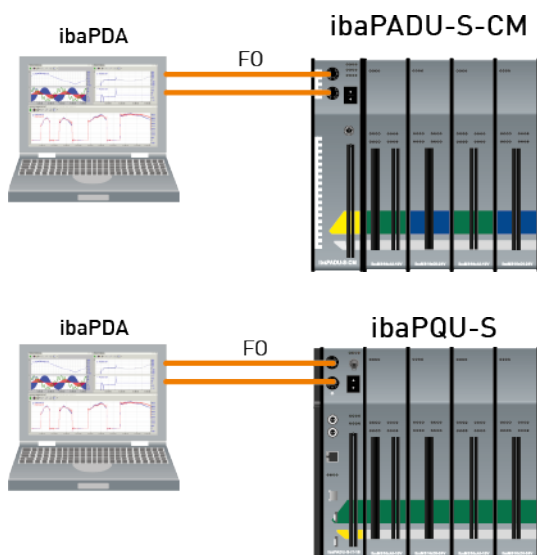

Figure 1:   Data acquisition with ibaPDA and notebook

With the ibaCMU-S central unit, the ibaCMC condition monitoring center is required for configuration and visualization. The measurement with ibaCMU-S can run autonomously without ibaCMC.
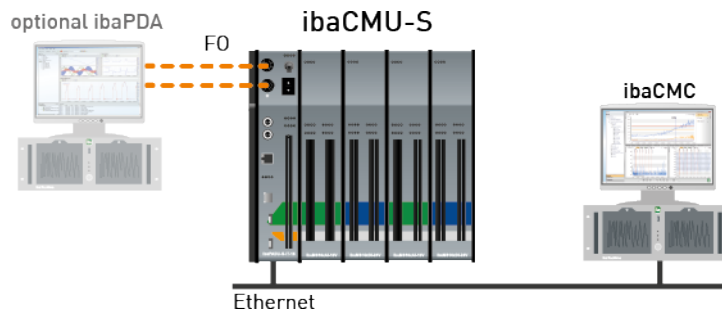

Figure 2:   Stand-alone data acquisition with ibaCMU-S, configuration with ibaCMC

The ibaDAQ-S and ibaDAQ central unit is equipped with an integrated ibaPDA system and can capture and record data as a stand-alone device. For configuration and operation, a monitor, keyboard and mouse are required, or the configuration can be done via an ibaPDA client that has access to the device over the network.
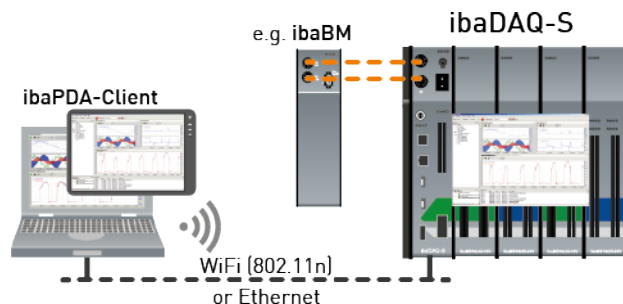

Figure 3:   Stand-alone data acquisition with ibaDAQ-S (or ibaDAQ), configuration optional with ibaPDA client

Other documentation

The handling and configuration of central units, I/O modules and ibaCMC are described in the relevant device manuals. You can find the device manuals on the iba Software & Manuals DVD supplied.

ibaMBox at a glance

❑   Based on the reliable iba modular system

❑   Central unit with up to 4 freely configurable input modules

❑   Clearly arranged connections on connector panel

❑   Practice-oriented connection technology (BNC, banana or Phoenix connectors)

❑   Compact, sturdy aluminum case in a modern design

❑   Suitable for industrial use in harsh environments

❑   Ideally suited for start-up, troubleshooting, service and maintenance

❑   CE approved

Fields of application

The capture of analog input signals in the fields of:

- ❏ measurement data acquisition
- ❏ power generation and distribution
- ❏ test benches
- ❏ condition monitoring

2.1   Connections

All connections and interfaces of the built-in modules are clearly connected and labeled on a connector panel. The connections are designed as BNC, banana or Phoenix connectors depending on the I/O module. The different module types are marked using the same color code as in the classic iba modular system. The assignment of connections to the individual modules can therefore be seen clearly.

Connectivity of the modules

Central unit	Inputs/outputs	Banana (contacts)	BNC connectors	Number of Phoenix connectors (pins)
ibaPADU-S-CM	8 digital inputs	-	-	1 (16) + 1(2)
ibaPQU-S	8 digital inputs	-	-	1 (16) + 1(2)
ibaCMU-S	8 digital inputs	-	-	1 (16) + 1(2)
ibaDAQ-S ibaDAQ	2 digital inputs, 2 digital outputs	-	-	2 (4) + 1(2)

Module	Inputs/outputs	Banana (contacts)	BNC connectors	No. of Phoenix connectors (pins)
ibaMS3xAI-1A	3 analog inputs, 1 A AC	3x2	-	-
ibaMS3xAI-5A	3 analog inputs, 5 A AC	3x2	-	-
ibaMS3xAI-1A/100A	3 analog inputs, 1 A AC/100 A DC	3x2	-	-
ibaMS4xAI-380VAC	4 analog inputs, 380 V AC	4x2	-	-
ibaMS8xAI-110VAC	8 analog inputs, 110 V AC	8x2	-	-
ibaMS16xAI-10V	16 analog inputs, ±10 V	16x2	16	2 (16)
ibaMS16xAI-10V-HI	16 analog inputs, ±10 V (high impedance)	16x2	16	2 (16)
ibaMS16xAI-24V	16 analog inputs, ±24 V	16x2	16	2 (16)
ibaMS16xAI-24V-HI	16 analog inputs, ±24 V (high impedance)	16x2	16	2 (16)
ibaMS16xAI-20mA	16 analog inputs, ±20 mA	16x2	16	2 (16)
ibaMS16xDI-220V	16 digital inputs, ±220 V	-	-	2 (16)
ibaMS16xDI-24V	16 digital inputs, ±24 V	16x2	-	2 (16)
ibaMS32xDI-24V	32 digital inputs, ±24 V	-	-	4 (12)
ibaMS16xDIO-24V	16 digital inputs, ±24 V 16 digital outputs, Load voltage range +10 V...+30 V	-	-	4 (12)
ibaMS4xADIO	4 analog inputs, ±10V / ±20mA 4 digital inputs, ±24 V 4 analog outputs, ±10 V 4 digital outputs, Load voltage range +10 V...+30 V	-	-	1 (6) + 1 (8) + 1 (10) + 1 (12)
ibaMS8xICP	8 inputs for ICP/IEPE vibration sensors	-	8	2 (12)

| ibaMS8xIEPE | 8 inputs for ICP/IEPE vibration sensors | - | 8 | 2 (12) |
| ibaMS4xUCO | Counter module, 4 inputs | - | - | 1 (6) + 1 (16) + 2(18) |

3   Scope of delivery

After unpacking the delivery, please check everything is there and that none of the parts are damaged.

The scope of delivery comprises:

❑   ibaMBox with built-in central unit, I/O modules and connector panels, according to order

❑   Power cord

❑   Covering caps for FO cables and USB

❑   Manual ibaMBox

❑   Manuals central unit and I/O modules, according to customer's equipment

❑   Plug components for Phoenix connectors, according to customer's equipment

❑   iba Software & Manuals DVD

4   Safety instructions

4.1   Proper use

The device is an electrical apparatus. It may only be used for the following applications:

❑ Measurement data acquisition and analysis

❑ Applications of the software products (such as ibaPDA) and hardware products of iba AG.

The device is only to be used as shown in chapter 'Technical Data.'

4.2   Special safety instructions

Be sure to follow the safety instructions of each module in the relevant manuals. The following notes also apply for ibaMBox.

⚠ CAUTION

Observe the operating voltage range.

Only connect the device to a supply voltage corresponding to the specifications on the built-in power supply.

Never use the device with a damaged power cord.

⚠ CAUTION

The device is approved for the CAT II measurement category.

The device must not be connected to CAT III or CAT IV categories.

Important note

Repairs must only be carried out by the manufacturer.

Note

Clean the case only on the outside with a dry or slightly damp and statically discharged cloth.

5   System requirements

5.1   External data acquisition

When using the ibaPADU-S-CM or ibaPQU-S central units, an external notebook (or PC) with ibaPDA is required for data acquisition.

❏ AC 100 / 240 V (±10%) power supply

❏ Notebook with the following minimal requirements:

- ▪ 2 GHz Core2Duo or better
- ▪ At least 2 GB RAM
- ▪ At least 10 GB of free space on the hard disk for measurement values
- ▪ ExpressCard slot

You can find suitable notebooks on our homepage, http://www.iba-ag.com.

❏ ibaFOB-io-ExpressCard or ibaFOB-io-USB adapter

❏ An ibaNet fiber optic patch cable (duplex) for connecting the central unit and notebook

❏ ibaPDA from version 6.36.0

5.2   Internal data acquisition

The ibaDAQ-S and ibaDAQ central units enable data acquisition and storage on the device. External input devices are required for operation and configuration. Alternatively the configuration can be done using an ibaPDA client that has access to ibaDAQ-S or ibaDAQ over the network.

❏ AC 100 / 240 V (±10%) power supply

Optional

❏ External input devices for operation: monitor, keyboard and mouse

❏ ibaNet fiber optic patch cable (duplex) for connecting additional iba devices

With the ibaCMU-S central unit, the data is also stored on the device. However, the ibaCMC condition monitoring center, which is connected via the network, is required for configuration and visualization.

❏ AC 100 / 240 V (±10%) power supply

❏ ibaCMC Condition Monitoring Center (only for configuration)

❏ Network connection to ibaCMC

6   Assembly, connection, disassembly

6.1   Connection

1. Disconnect ibaMBox from the power supply.

2. Connect all measuring cables.

3. If you are using an external notebook, connect the central unit to the notebook via an ibaNet fiber optic patch cable (duplex) either with an ibaFOB-io-ExpressCard in the notebook or with an ibaFOB io-USB adapter:

   ▪ the RX input (X11) of the central unit with the TX interface of the ibaFOB-io-ExpressCard in the notebook or the ibaFOB-io-USB adapter,

   ▪ the TX output (X10) of the central unit with the RX interface of the ibaFOB-io-ExpressCard in the notebook or the ibaFOB-io-USB adapter.

4. If you have connected all the necessary cables, switch the voltage supply on at the on/off switch.

6.2   Start-up

Refer to the information on setup and configuration with ibaPDA (or ibaCMC) in the manual of your central unit.

6.3   Disassembly

1. Disconnect ibaMBox from the power supply.

2. Remove all cables.
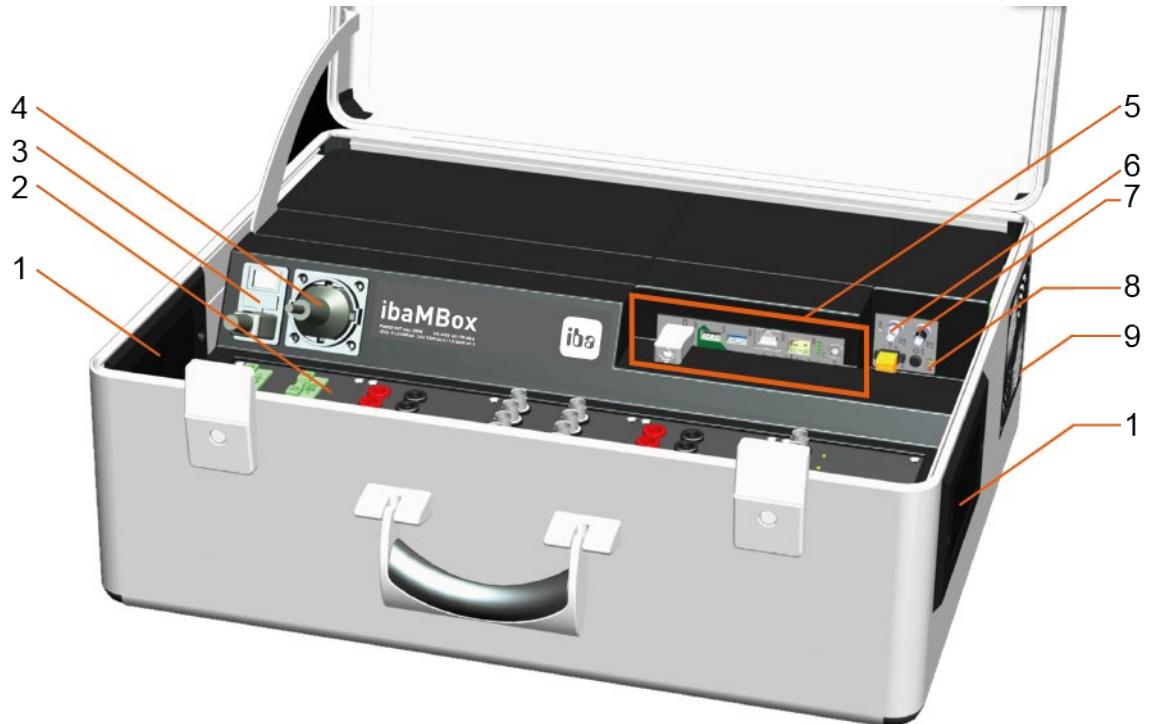
7   Device description

7.1   Device image

Figure 4:   Open ibaMBox

1   Cable entry

2   Connector panels (depending on the order)

3   Voltage supply

4   Electrical socket

5   Interfaces of the built-in central unit

6   FO output (TX) X10

7   FO input (RX) X11

8   Operating status display of the central unit L1... L4

**9**   Fan

7.2   Connector panels

Depending on the modules built in, the connector panels are optionally available with BNC, banana or Phoenix connectors.

The following figures show each type of connector panel as an example. The number of connectors depends on the modules actually built in.

7.2.1   Central units

The connector panels of the central units are only available with Phoenix connectors. In addition to the digital inputs and outputs, a 2-pin Phoenix connector is used for the power supply for other iba devices (power out: 24 V, max. 20 W).

The connectors of the ibaPADU-S-CM, ibaCMU-S and ibaPQU-S central units are the same.

Example: ibaPADU-S-CM central unit
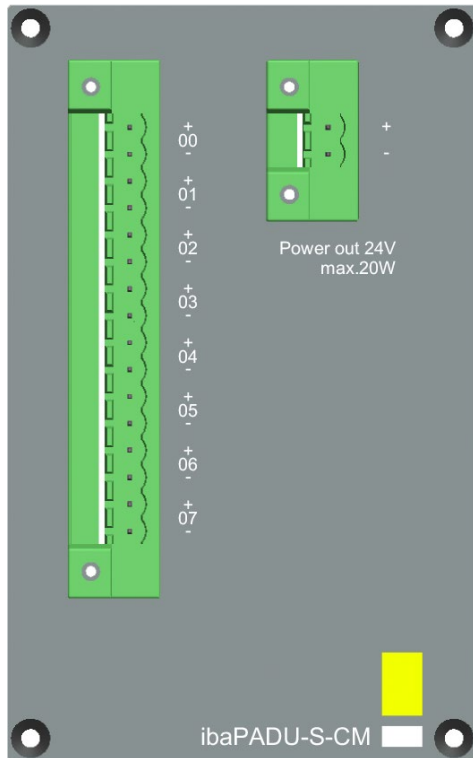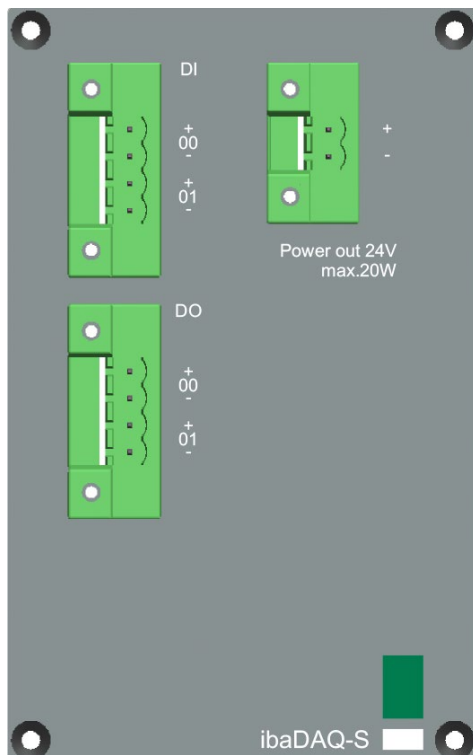

Connections:

8 digital inputs:
16-pin connector

Power out:
2-pin connector
24 V, max. 20 W

⚠️

Ensure the correct polarity when connecting the power supply.

Figure 5:   ibaPADU-S-CM connector panel

ibaDAQ-S and ibaDAQ central unit

Connections:

2 digital inputs DI:
4-pin connector

2 digital outputs DO:
4-pin connector

Power out:
2-pin connector
24 V, max. 20 W

⚠️

Ensure the correct polarity when connecting the power supply.

Figure 6:   ibaDAQ-S and ibaDAQ connector panel

7.2.2   I/O modules

Phoenix connector model
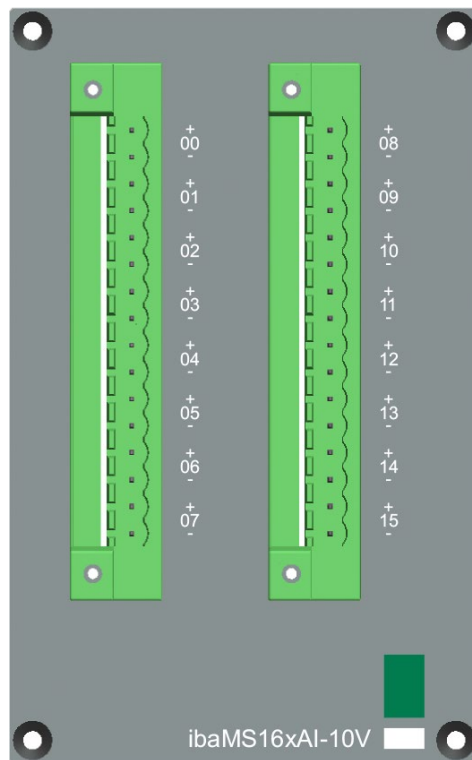
❏ Example: ibaMS16xAI-10V

Figure 7:   ibaMS16xAI-10V connector panel with Phoenix connector

Connection technology of the I/O modules with Phoenix connectors:

I/O modules	Connection technology
ibaMS16xAI-10V (-HI) ibaMS16xAI-24V (-HI) ibaMS16xAI-20mA ibaMS16xDI-220V ibaMS16xDI-24V	2 x 16-pin connector
ibaMS32xDI-24V	4 x 12-pin connector
ibaMS16xDIO-24V	4 x 12-pin connector
ibaMS4xADIO	1x 12-pin connector 1x 8-pin connector 1x 10-pin connector 1x 6-pin connector
ibaMS8xICP ibaMS8xIEPE	2 x 12-pin connector

Note

Detailed type designation and part numbers of the built-in Phoenix base strips and information about the corresponding Phoenix plug components can be found in chapter 9.

❏ ibaMS4xUCO
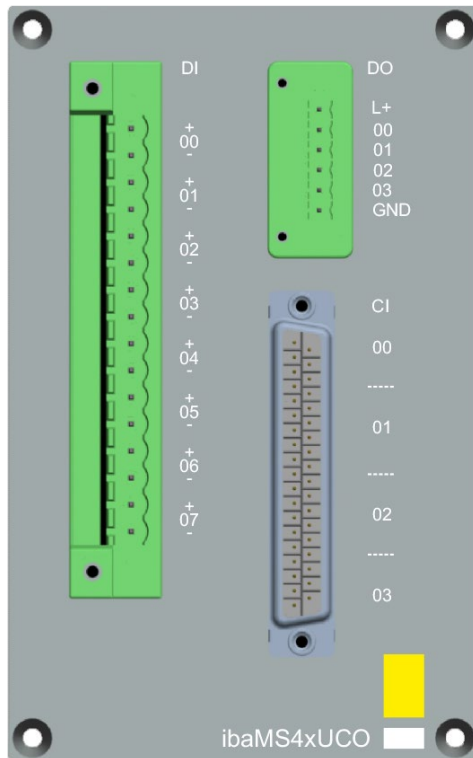
Connections:

8 digital inputs DI:
16-pin connector

4 digital outputs DO:
6-pin connector

Counter inputs:
37 pin D-Sub connector

Figure 8:   ibaMS4xUCO connector panel

Banana connector model

Analog input modules and the digital input module ibaMS16xDI-24V are available with banana connectors. Each input has 2 contacts (+,-).
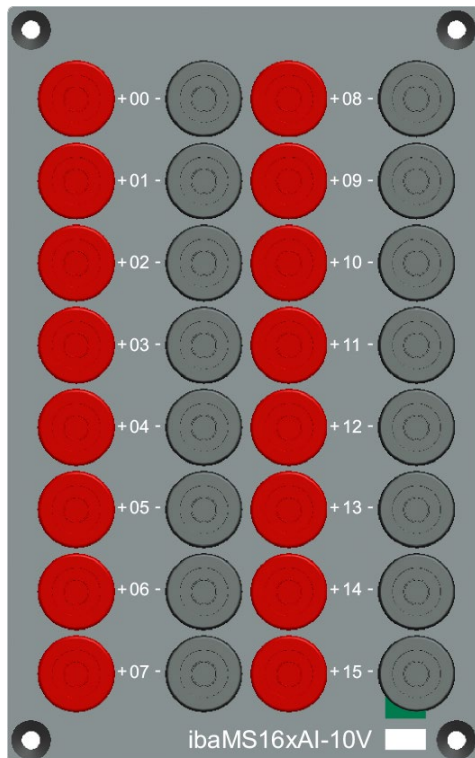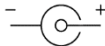
❏ Example: ibaMS16xAI-10V

Figure 9:   ibaMS16xAI-10V connector panel with banana connector

BNC connector model

A BNC connector is available for each input.
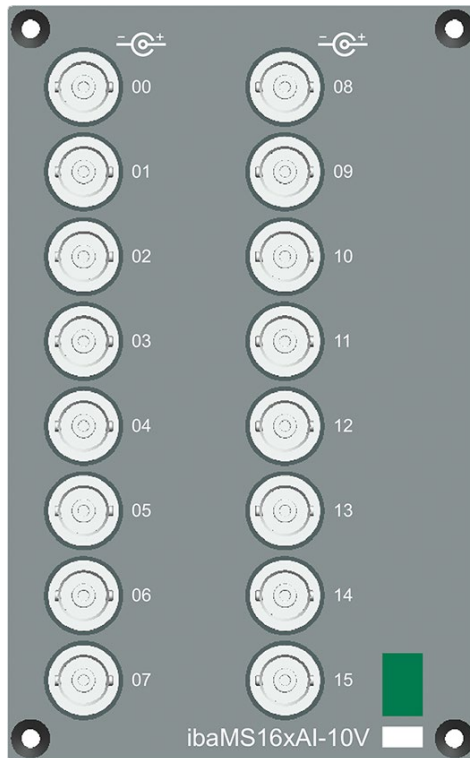
BNC connector assignment:

❑ Example: ibaMS16xAI-10V

Figure 10: ibaMS16xAI-10V connector panel with BNC connectors
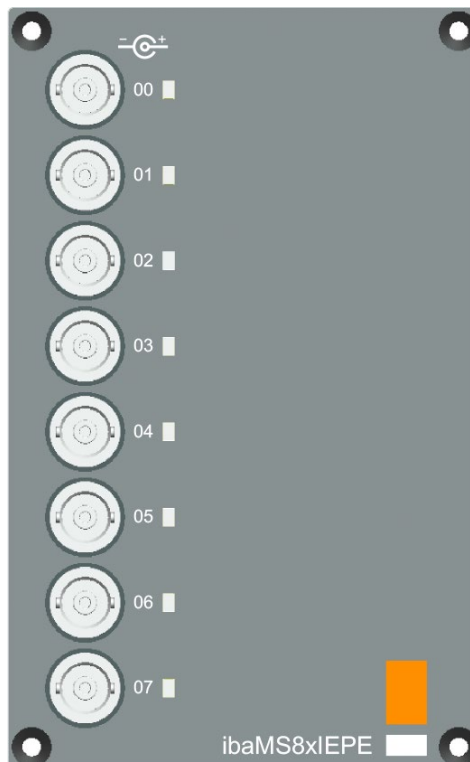
❑ Example: ibaMS8xIEPE

Figure 11: ibaMS8xIEPE connector panel with BNC connectors and LED display

Each input of modules ibaMS8xIEPE and ibaMS8xICP with BNC connector is equipped with an LED. The LEDs indicate the following states of the measured signal:

LED per channel	Meaning
Green	3 V … 20 V within measurement range
Red	Wire not connected or broken

7.3 Interfaces and displays

7.3.1 Voltage supply

Power supply feed AC 100/240 V with panel plug for non-heating appliances and switch.

Maximum power consumption 3.0 A (100 V) / 1.5 A (240 V)

Built-in microfuse: 1.6 A / 250 VAC, time-lag

7.3.2 Electrical socket

Built-in socket for the power supply of external devices, such as a notebook.

Power out: max. 250 W

7.3.3 Interfaces of the built-in central unit

The interfaces available here vary depending on the built-in central unit. Please see the corresponding device manual.

7.3.4 FO connections X10 (TX) and X11 (RX)

X11 (RX): FO receive interface

X10 (TX): FO send interface

❑ Function in the central units, ibaPADU-S-CM, ibaPQU-S, ibaCMU-S (optional)
Measurement and configuration data are exchanged with the external ibaPDA system (e.g. notebook) through fiber optic connections. An ibaFOB-io-ExpressCard is needed in the notebook or an ibaFOB-io-USB adapter in order to receive and send data.

❑ Function in the ibaDAQ-S and ibaDAQ central unit
The FO connections function as an ibaFOB-io card. Other iba devices can be connected via it, such as the ibaPADU family, iba bus monitors and system connections.

The FO connections are designed for cables with 62.5/125 µm multimode fibers with ST connectors. Suitable FO patch cables are available from iba.

Supported ibaNet protocols of the central units:

	32Mbit Flex	32Mbit	5Mbit	3Mbit
ibaPADU-S-CM	✓	-	-	-
ibaCMU-S	✓	-	-	✓
ibaPQU-S	✓	-	-	-
ibaDAQ-S / ibaDAQ	✓	✓	✓	✓

7.3.5   Cable entry

The cables can be led out through openings on both sides of the case. The openings are protected against dust by brushes.

7.3.6   Indicator elements

The light-emitting diodes (LED) of the central unit are visible and show the operating status of the central unit.

LED	Status	Description
L1 Red	Off	Out of operation, no supply voltage
		Hardware failure, controller is off
L1 Green	Blinking slowly	Ready for operation
		Irregular blinking indicates an overload or device startup. The startup process can take up to 90 s.
	Blinking quickly	System programming mode
		Firmware update active
	On	Controller in overload
L2 Yellow	Off	No backplane bus access
	On	Backplane bus access on I/O modules
L3 White	Off	No FO signal detected
	Blinking	Fiber optic signal detected, configuration error, the received ibaNet protocol is not compatible with the one configured in the device
	On	FO signal detected
L4 Red	Off	No error
	Blinking	Disturbance, internal device applications are not running.
	On	Hardware error

Important note

If the LED L4 indicates a failure, please contact iba Support.

8   Exchange built-in modules

The opening of the module cover or the connection fields as well as the exchange of modules must only be carried out as described below, otherwise the warranty for the measuring case becomes void.

If you exchange modules on your own responsibility, observe the following description. All works must only be carried out by qualified professionals. The following description is valid for measuring cases from serial number 000046.

Necessary tools

❑ ESD shoes, dressed

❑ ESD sheets

❑ Long crosstip screwdriver M3 and M4

❑ Slotted screwdriver M3

❑ Long hexagon screwdriver M4

Proceeding

1. Open ibaMBox and remove all 20 screws of the connector panels. Carefully remove the connector panels and make sure that the connections of the inner cables are not disconnected.
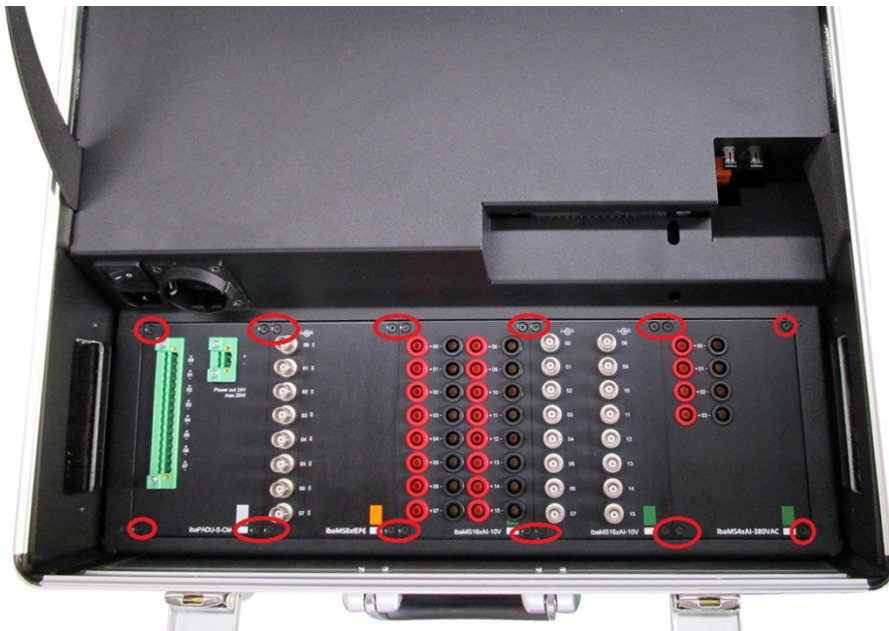
2. Place the connection panels in the case and then loosen the 4 screws to the right and left of the connection panels.

**3.** Loosen the two silver screws on the back of the case.

4. Now lift the black covering hood slightly and release the lever on the left, which holds the cover.

5. The covering can then be completely removed and folded up. Always pay attention to the connected cables.

6. Unfasten and remove the screw which fixes the bracket of the modules. It is to find between the devices at the bottom of ibaMBox.
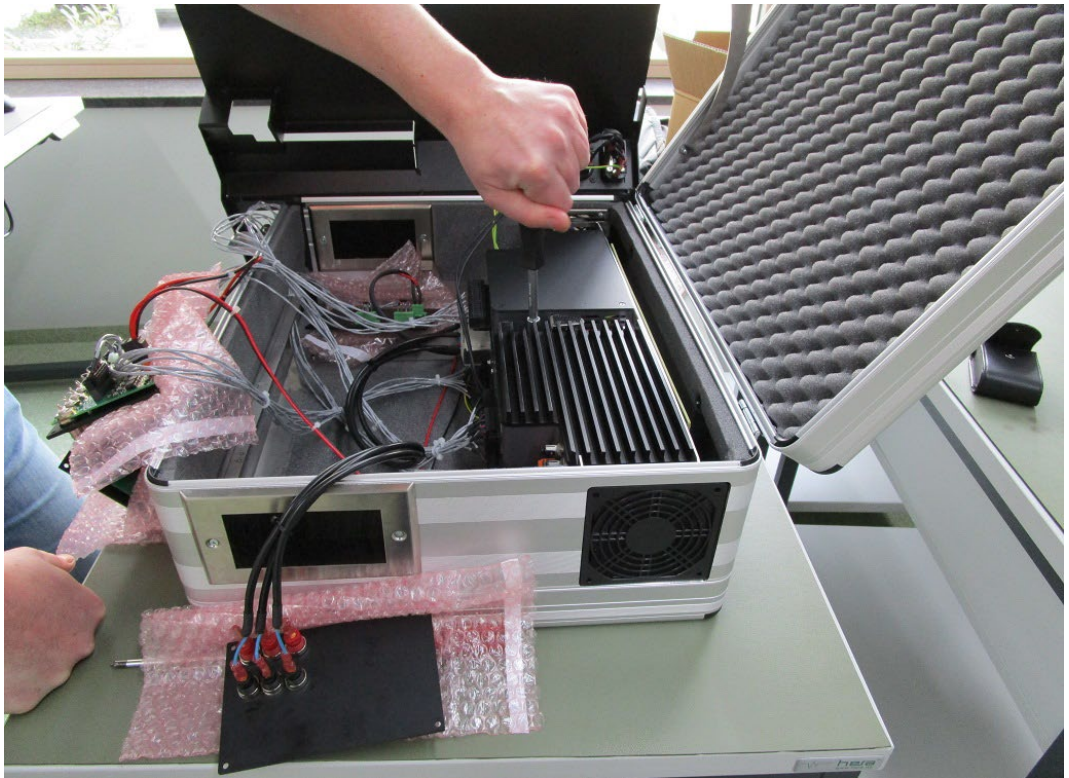
7. To disassemble the modules unfasten the screws fixing the devices to the backplane. Remove the modules carefully.
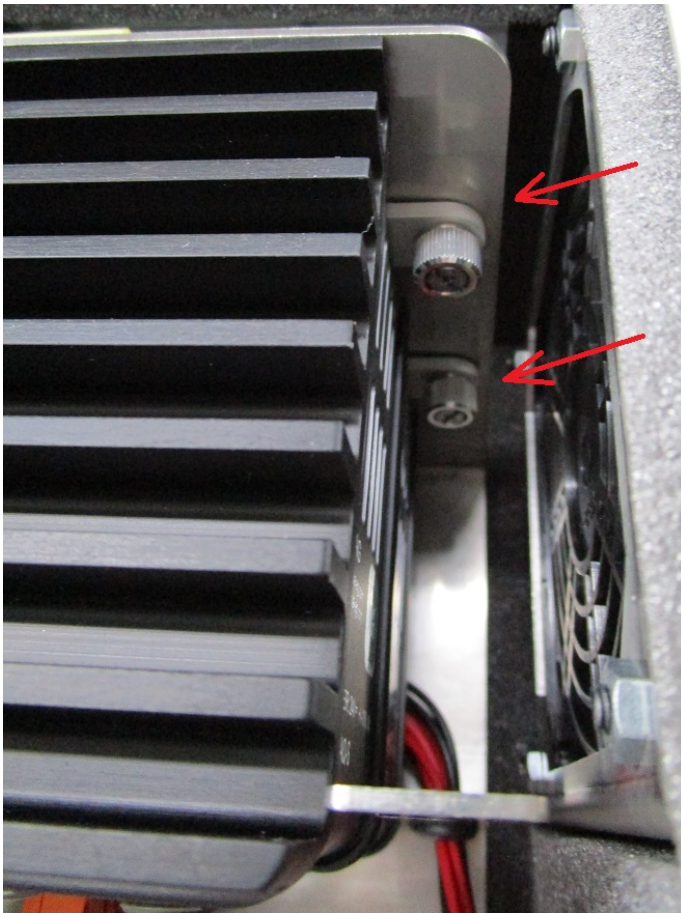
Take care – a grounding cable can be fixed to the module!
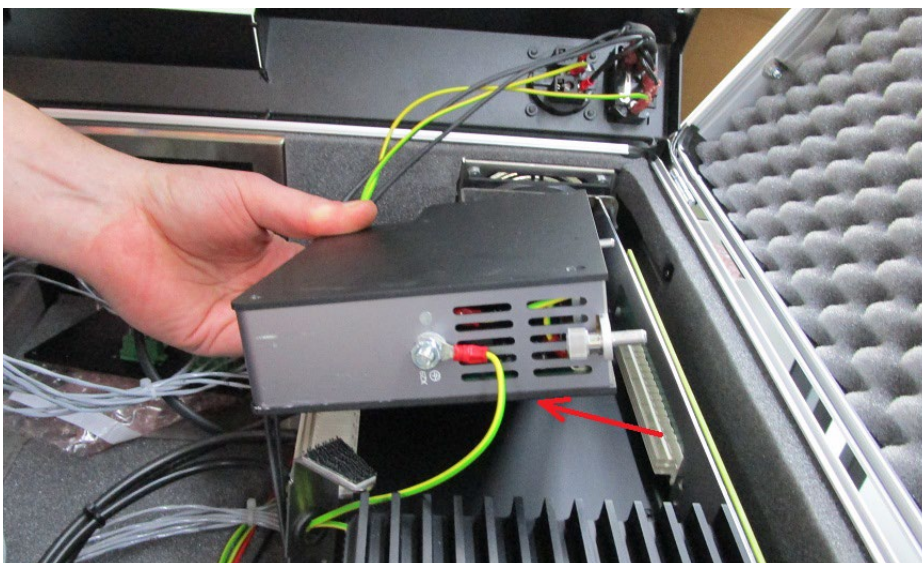
8. Remove the grounding cable and the connector with the cables.

Important note

Never pull at the cables, but always at the connector! Ensure that the cables are not disconnected.

9. **Always work from top to bottom!**
   To change only a module in a lower position (pos. 2, 3 or 4) can turn out to be problematic. The modules above should also be removed.

Position 5	Position1 (central unit)
Position 4	Position 2
Position 3	
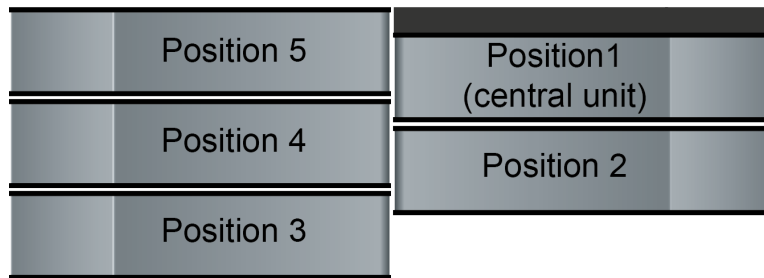
10. Mounting of ibaMBox again is done in reverse order.
    Take care of the black cables connected to the coverage – they should stay above the modules!
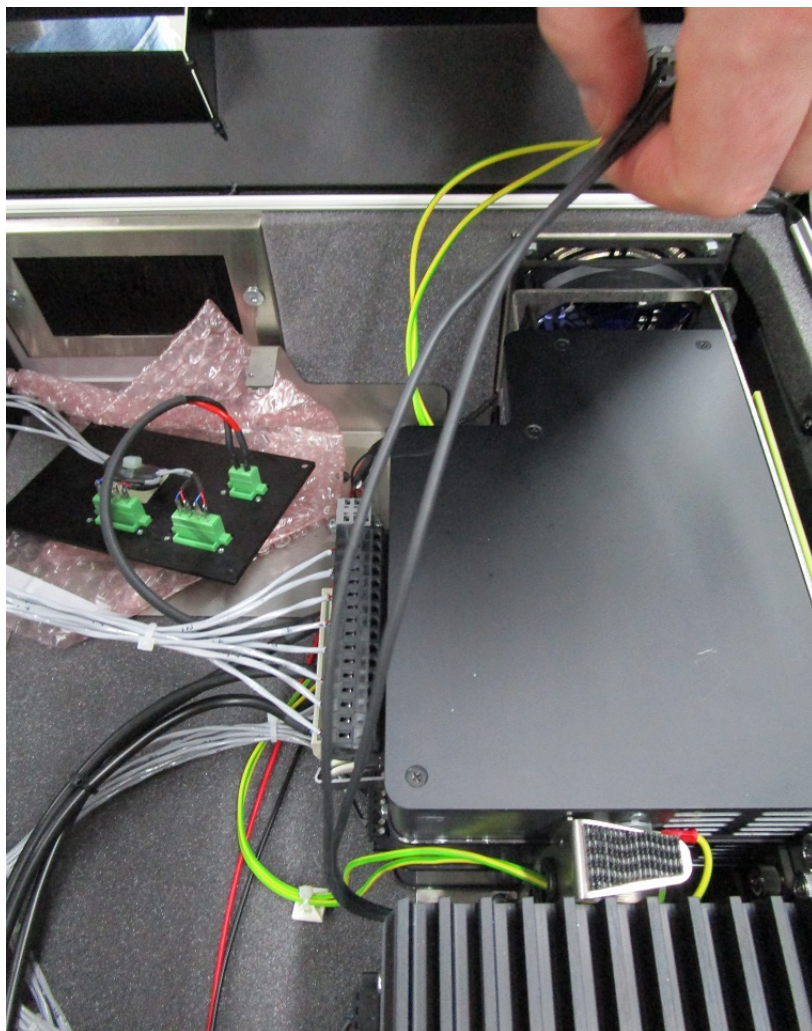
9   Order information

Order no.	Name	Description
10.124800	ibaMBox	Measuring case for iba modular system
10.124803	ibaMBoxCP-BlankCover	Connector panel blank

Connector panels with Phoenix connectors

Note

The manufacturer Phoenix Contact offers several plug components with different connection methods (e.g. screw connection with tension sleeve, crimp connection, etc.) that fit to the built-in base strips. You will find the selection of suitable plug components on the Phoenix website www.phoenixcontact.com. Enter the part number in the search field and select the accessories tab on the product site.

You find the part number of the built-in Phoenix base strips for each connector panel in the table below in the description column.

Order no.	Name	Description
10.124805	ibaMBoxCP-S-CM-Phoenix	Connector panel Phoenix connectors: 1x DFK-MSTB 2,5/16-GF-5,08 1x DFK-MSTB 2,5/2-GF-5,08
10.124806	ibaMBoxCP-PQU-S-Phoenix	Connector panel Phoenix connectors: 1x DFK-MSTB 2,5/16-GF-5,08 1x DFK-MSTB 2,5/2-GF-5,08
10.124807	ibaMBoxCP-CMU-S-Phoenix	Connector panel Phoenix connectors: 1x DFK-MSTB 2,5/16-GF-5,08 1x DFK-MSTB 2,5/2-GF-5,08
10.124808	ibaMBoxCP-DAQ-S-Phoenix	Connector panel Phoenix connectors: 2x DFK-MSTB 2,5/4-GF-5,08 1x DFK-MSTB 2,5/2-GF-5,08
10.124810	ibaMBoxCP-MS16xAI-10V-Phoenix	Connector panel Phoenix connectors: 2x DFK-MSTB 2,5/16-GF-5,08
10.124811	ibaMBoxCP-MS16xAI-10V-HI-Phoenix	Connector panel Phoenix connectors: 2x DFK-MSTB 2,5/16-GF-5,08
10.124812	ibaMBoxCP-MS16xAI-24V-Phoenix	Connector panel Phoenix connectors: 2x DFK-MSTB 2,5/16-GF-5,08
10.124813	ibaMBoxCP-MS16xAI-24V-HI-Phoenix	Connector panel Phoenix connectors: 2x DFK-MSTB 2,5/16-GF-5,08
10.124814	ibaMBoxCP-MS16xAI-20mA-Phoenix	Connector panel Phoenix connectors: 2x DFK-MSTB 2,5/16-GF-5,08
10.124815	ibaMBoxCP-MS8xICP-Phoenix	Connector panel Phoenix connectors: 2x DFK-MC 1,5/12-GF-3,81
10.124816	ibaMBoxCP-MS8xIEPE-Phoenix	Connector panel Phoenix connectors: 2x DFK-MC 1,5/12-GF-3,81

Order no.	Name	Description
10.124817	ibaMBoxCP-MS4xUCO-Phoenix	Connector panel Phoenix connectors: 1x DFK-MSTB 2,5/16-GF-5,08 1x DFK-MC 1,5/6-GF-3,81
10.124818	ibaMBoxCP-MS16xDI-220V-Phoenix	Connector panel Phoenix connectors: 2x DFK-MSTB 2,5/16-GF-5,08
10.124819	ibaMBoxCP-MS16xDI-24V-Phoenix	Connector panel Phoenix connectors: 2x DFK-MSTB 2,5/16-GF-5,08
10.124820	ibaMBoxCP-MS32xDI-24V-Phoenix	Connector panel Phoenix connectors: 4x DFK-MC 1,5/12-GF-3,81
10.124821	ibaMBoxCP-MS16xDIO-24V-Phoenix	Connector panel Phoenix connectors: 4x DFK-MC 1,5/12-GF-3,81
10.124828	ibaMBoxCP-ibaMS4xADIO-Phoenix	Connector panel Phoenix connectors: 1x DFK-MC 1,5/ 6-GF-3,81 1x DFK-MC 1,5/ 8-GF-3,81 1x DFK-MC 1,5/ 10-GF-3,81 1x DFK-MC 1,5/ 12-GF-3,81

Connector panels with banana and BNC connectors

Order no.	Name	Description
10.124829	ibaMBoxCP-MS16xDI-24V-Banana	Connector panel banana connectors
10.124830	ibaMBoxCP-MS16xAI-10V-Banana	Connector panel banana connectors
10.124831	ibaMBoxCP-MS16xAI-10V-HI-Banana	Connector panel banana connectors
10.124832	ibaMBoxCP-MS16xAI-24V-Banana	Connector panel banana connectors
10.124833	ibaMBoxCP-MS16xAI-24V-HI-Banana	Connector panel banana connectors
10.124834	ibaMBoxCP-MS16xAI-20mA-Banana	Connector panel banana connectors
10.124835	ibaMBoxCP-MS3xAI-1A-Banana	Connector panel banana connectors
10.124836	ibaMBoxCP-MS3xAI-5A-Banana	Connector panel banana connectors
10.124837	ibaMBoxCP-MS3xAI-1A/100A-Banana	Connector panel banana connectors
10.124838	ibaMBoxCP-MS4xAI-380V-Banana	Connector panel banana connectors
10.124839	ibaMBoxCP-MS8xAI-110V-Banana	Connector panel banana connectors
10.124840	ibaMBoxCP-MS16xAI-10V-BNC	Connector panel BNC connectors
10.124841	ibaMBoxCP-MS16xAI-10V-HI-BNC	Connector panel BNC connectors
10.124842	ibaMBoxCP-MS16xAI-24V-BNC	Connector panel BNC connectors
10.124843	ibaMBoxCP-MS16xAI-24V-HI-BNC	Connector panel BNC connectors
10.124844	ibaMBoxCP-MS16xAI-20mA-BNC	Connector panel BNC connectors
10.124845	ibaMBoxCP-MS8xICP-BNC	Connector panel BNC connectors
10.124846	ibaMBoxCP-MS8xIEPE-BNC	Connector panel BNC connectors

10　　Technical data

Brief description	
Name	ibaMBox
Order number	10.124800
Description	Flexible measuring system for mobile use

iba modular system	Freely configurable, constisting of a central unit and up to 4 I/O modules
Central units	ibaPADU-S-CM ibaPQU-S ibaCMU-S ibaDAQ-S ibaDAQ

I/O modules	ibaMS3xAI-1A	ibaMS16xDI-220V
	ibaMS3xAI-5A	ibaMS16xDI-24V
	ibaMS3xAI-1A/100A	ibaMS32xDI-24V
	ibaMS4xAI-380VAC	ibaMS16xDIO-24V
	ibaMS8xAI-110VAC	ibaMS4xADIO
	ibaMS16xAI-10V (-HI)	ibaMS8xICP
	ibaMS16xAI-24V (-HI)	ibaMS8xIEPE
	ibaMS16xAI-20mA	ibaMS4xUCO

Supply, interfaces and display elements	
Voltage supply	AC 100 V / 240 V 3.0 A / 1.5 A 50 Hz – 60 Hz
Fuse	Microfuse 1.6 A / AC 250 V, time-lag
Output power	
Electrical socket	Power out max. 250 W
2-pin connectors (central unit)	24 V, max. 20 W
Connections	BNC or banana connectors, Phoenix connector
Indicators	LEDs of the central unit and BNC connectors of ICP, IEPE connector panels

Operating and environmental conditions	
Cooling	Fan
Operating temperature	0 ˚C to 50 ˚C
Storage and transport temperature	-25 ˚C to 70 ˚C
Humidity class acc. to DIN 40040	F, no condensation
Protection class	IP20
Certification/standards	EN 61010-2-030:2010. CAT II measurement category

Dimension and weight

Dimensions (width x depth x height)	520 mm x 450 mm x 215 mm
Weight	Approx. 13.5 kg with 1 central unit + 4 I/O modules

11   Support and contact

Support

Phone: +49 911 97282-14

Fax: +49 911 97282-33

Email: support@iba-ag.com

Note

If you require support, please specify the serial number (iba-S/N) of the product.

Contact

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