

ibaBM-SiLink

Bus monitor for Siemens SINAMICS Controller



Manual

Issue 1.3

Measurement and Automation Systems



Manufacturer

iba AG
Koenigswarterstr. 44
90762 Fuerth
Germany

Contacts

Main office +49 911 97282-0
Fax +49 911 97282-33
Support +49 911 97282-14
Engineering +49 911 97282-13

E-Mail: iba@iba-ag.com

Web: www.iba-ag.com

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The current version is available for download on our web site <http://www.iba-ag.com>.

Protection note

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Certification

The device is certified according to the European standards and directives. This device corresponds to the general safety and health requirements. Further international customary standards and directives have been observed.



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 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
1.3	01/25/2017	Supported SINAMICS Link profile	2	SNG	

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1 About this manual

This manual describes the construction, the use and the operation of the device ibaBM-SiLink.

1.1 Target group

This manual addresses in particular the qualified professionals who are familiar with handling electrical and electronic modules as well as communication and measurement technology. A person is regarded to 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
Menu command	Menu „Logic diagram“
Call of menu command	„Step 1 – Step 2 – Step 3 – Step x“ Example: Select menu „Logic diagram – Add – New logic diagram“
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 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:

- 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 a potential risk of death or severe injury!

CAUTION

The non-observance of this safety information may result in a 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 device ibaBM-SiLink can be used for sniffing and recording of control signals transmitted over SINAMICS Link using ibaPDA. Up to 64 Siemens SINAMICS Controllers are connected via SINAMICS Link. One ibaBM-SiLink device can monitor all connected controllers simultaneously. The device can be connected to the SINAMICS Link via PROFINET IRT at any position of the link without influencing the network, because the PROFINET interface uses an Ethernet TAP (Telegram Access Point). Even when ibaBM-SiLink is switched off, the communication on the SINAMICS Link will not be interrupted.

ibaBM-SiLink is able to acquire 16 data words of each controller per millisecond. The sample time can be decreased down to 50 µs when less controllers are connected or the amount of data words to be measured is small.

Generally, the configuration of the device and the data words can be performed in the I/O manager of the software application ibaPDA. For this purpose a bidirectional fiber optic connection to a PC is required, which is provided by a fiber optic card of the ibaFOB-D family (e. g. ibaFOB-io-D).

A brief overview:

- Bus monitor for Siemens SINAMICS Control Units (CU320-2PN and CU320-2DP or CUD, equipped with a CBE20 option board)
- To be used for reactionless recording of the communication between SINAMICS Controllers due to interference free integrated TAP function
- To be connected at any place on the link; no further adapters needed
- Acquisition and recording of up to 16 data words per controller and millisecond
- Supported SINAMICS Link profiles: 64 controllers, 16 words, 1 or 2 ms (other profiles are not supported)
- Easy configuration and data recording with ibaPDA
- Unidirectional or bidirectional fiber optic connection, e. g. via ibaFOB-io-D boards
- Rugged housing, easy mounting



Other documentation

The description of the SINAMIC Link protocol can be found in the Siemens Function Manual SINAMICS S120 (6SL3097-4AB00-0BP2).

<https://support.industry.siemens.com/cs/de/en/view/109740020>

Order data

Order no.	Product designation	Description
13.127010	ibaBM-SiLink	Bus monitor for SINAMICS Link protocol (PROFINET)

3 Scope of delivery

After unpacking check the completeness and intactness of the delivery.

The scope of delivery includes:

- Device ibaBM-SiLink
- Manual

4 Safety instructions

4.1 Designated use

The device is electrical equipment. It may be used only in the following applications:

- Measurement data logging and analysis
- Applications of iba-software products (ibaPDA, ibaLogic etc.)

The device may not be operated in mains supply circuits!

4.2 Special advices

⚠ CAUTION

The device may not be operated at voltages exceeding +24 V DC ($\pm 10\%$)! An overly high operating voltage destroys the device.

**Important note**

Do not open the device!

There are no serviceable parts inside the device.

Opening the device will void the warranty.

**Note**

Cleaning

To clean the device, use a dry or slightly moistened cloth. A note specifies special requirements or actions to be observed.

5 System requirements

5.1 Hardware

For operation:

- 24 V DC ($\pm 10\%$) power supply

To set the device's parameters:

- Bidirectional fiber optic connection to a PC running ibaPDA

For measuring:

- PC as recommended for use with ibaPDA:
 - At least one free PCI/PCIe slot (PC) or ExpressCard slot (notebook)
 - Min. 512 MB RAM
 - 4 GB free disk space for measured values

For further information on PC requirements, visit our homepage
<http://www.iba-ag.com>.

- At least one fiber optic card of type ibaFOB-D or ibaFOB-X (only unidirectional connection; device will only run in default configuration, see page 13), e. g.
 - ibaFOB-io-D
 - ibaFOB-2io-D
 - ibaFOB-2i-D optional with extension module ibaFOB-4o-D
 - ibaFOB-4i-D optional with extension module ibaFOB-4o-D
 - ibaFOB-io-ExpressCard
- One ibaNet fiber optic patch cable for connecting ibaBM-SiLink and ibaPDA-PC. A bidirectional connection requires a double fiber optic patch cable.

5.2 Software

- ibaPDA version 6.27.0 or later, ibaQDR for measuring and recording data

6 Mounting and dismantling

The device can be mounted on a DIN rail.

6.1 Mounting and connecting

1. Locate the DIN rail mounting clip on the rear side of the device. Place the device on the DIN rail so that the top part of the mounting clip engages the top part of the rail appropriately. Slowly push down and in so that the bottom part of the mounting clips snaps onto the bottom part of the rail and firmly fixes the device to the DIN rail.
2. Once fixed, connect the 24 V DC power supply to the termination shown on the device. Ensure that the polarity is correct prior to applying power. Then install the other connections like:
 - Fiber optical link to the ibaPDA system
 - Connection to the SINAMICS Controllers via the PROFINET interfaces.

6.2 Dismounting

1. Disconnect all external connections from the device.
2. Grasp the device with one hand firmly on the top side. With your free hand, grasp the bottom of the device.
3. Lightly push down with the hand on the top side of the device and simultaneously pull forward with your other hand. With this action, the device should free itself from the DIN rail.

7 Device description

7.1 Properties

- ❑ Data recording: up to 64 Siemens SINAMICS Controllers (CU320-2PN and CU320-2DP or CUD) with 32 bytes each.
- ❑ Default sample rate 1 ms
- ❑ Sampling time down to 50 μ s, depending on the number of connected controllers and the amount of data words to be measured.
- ❑ Configuration and data recording with ibaPDA.

7.2 Device view

7.2.1 Front view

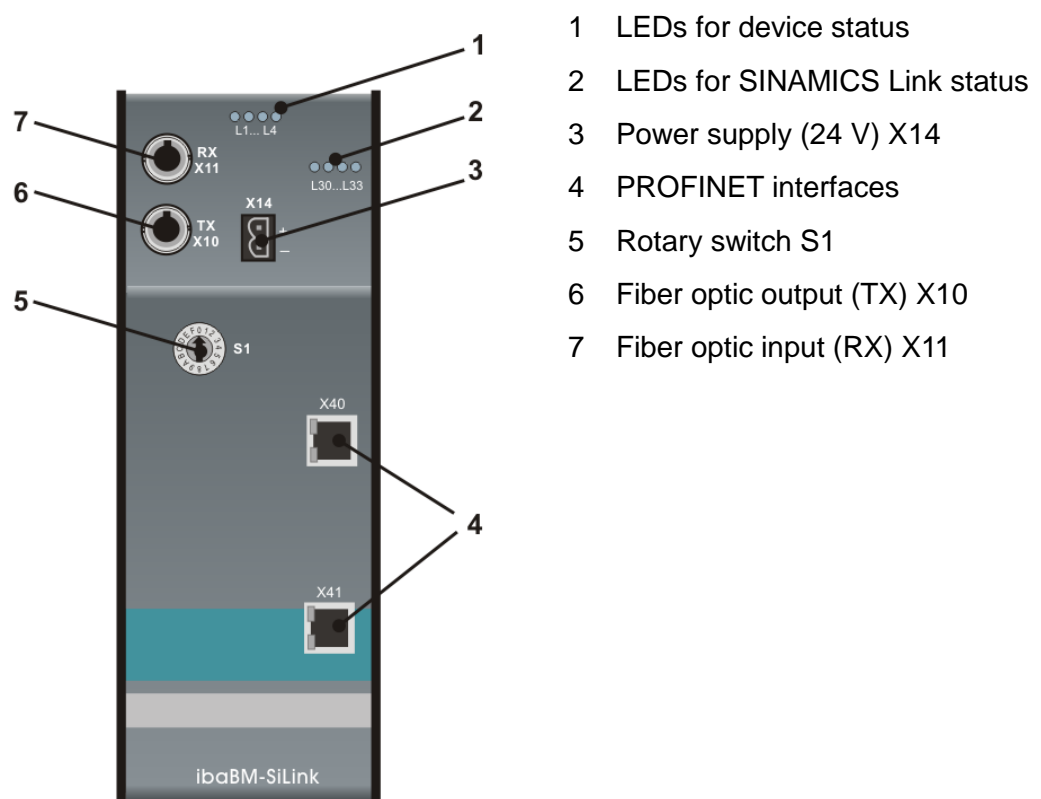


Figure 1: Device layout

7.2.2 Operating status display (status LEDs)

LED	Status	Description
L1	blinking green	Device is working; irregular blinking rate indicates device is over-loaded
	on (red)	Device is booting
	off	No power
L2 (yellow)	on	Device is measuring, backplane communication is on
	off	No backplane communication
L3 (white)	on	The protocol on the RX FO link corresponds with the configuration (32Mbit Flex for S1=1-15 and 32Mbit for S1=0)
	blinking	The protocol on the RX FO link doesn't correspond with the configuration
	off	No signal on RX FO link
L4 Stop (red)	on	Error
	off	Normal, everything OK

Table 1 Status LEDs

7.2.3 SINAMICS Link status display

LED	Status	Description
L30 (green)	blinking	FPGA is loaded OK
	off	otherwise
L31 (yellow)		Not in use
L32 (white)	on	Valid SINAMICS Link packets are being received
	off	No valid SINAMICS Link packets are being received
L33 (red)	on	An invalid SINAMICS Link packet is received

Table 2 Status LEDs

7.2.4 24 V Power supply (3)

The ibaBM-SiLink device requires an external DC 24 V power supply (unregulated) and should be operated at a maximum of 0.3 A. The operating voltage should be run through the provided 2-pin Phoenix threaded coupling connector.

7.2.5 PROFINET interfaces (4)

PROFINET IRT interface: a standard 100 Mbit/s 802.3 (Ethernet) connection with RJ45 jacks.

All PROFINET devices feature the automatic cable cross-over feature, so the used network cables can be straight or crossed.

7.2.6 Rotary switch S1 (5)

The fiber optic transmission protocol is adjusted with the rotary switch:

Position 1 ... F	ibaNet 32Mbit Flex
Position 0	ibaNet 32Mbit

32Mbit Flex protocol

Using 32Mbit Flex you need 2 FO cables, 1 RX and 1 TX. This way the PC can send data to the device and the device can send data to the PC. The signals to be measured can be individually configured. The sample time can be decreased down to 50 μ s when less than 64 controllers are connected or the amount of data words to be measured is small. **Additional diagnostic data can be captured only with 32Mbit Flex protocol.**

32Mbit protocol

In normal 32Mbit mode you only need 1 cable (TX on device, RX on ibaFOB-D or ibaFOB-X card). Now only the device is able to send data to the PC. The PC can't send anything to the device. **The device will now always send the default configuration of 64 control units with each 16 words of data at 1 ms.**

7.2.7 Fiber optic cable connectors RX (7) / TX (6)

X11: Fiber optic reception interface (RX)

X10: Fiber optic transmission interface (TX)

ibaPDA requires a fiber optic card of the ibaFOB-D family to receive and transmit data.

The fiber optic ports and transmitters are the physical base for a simple send-and-receive connection to an ibaFOB card. The ports are designed for cables with 62.5/125 μ m multi-mode fibers and ST couplings which are available at iba too.

8 System integration

SINAMICS Link is a concept to exchange PROFINET IRT data between the Siemens CU320-2 SINAMICS controllers. To avoid an extensive configuration and parameterization of the PROFINET network, SINAMICS Link is based on a strict and simple straight forward network topology. The SINAMICS Link **consists of a chain of maximum 64 PN controllers**.



Note

SINAMICS Link allows data exchange between the Control Units CU320-2PN and CU320-2DP or CUD. For this purpose they must be equipped with the CBE20 option board as illustrated below. In this configuration ibaBM-SiLink can be inserted between any two controllers in the SINAMICS “chain” and read data **as a sniffer**.

For guaranteeing a non-reactive way of operating, the PROFINET-connection of the device is an Ethernet-TAP. Hence, switching off the bus monitor or a failure does not have any disturbing effect on the SINAMICS Link topology.

In order to integrate the device into the SINAMICS Link, connect the PROFINET interface X40 with the P2 port of the CBE20 option board and the PROFINET interface X41 with the P1 port of the following CBE20 option board.

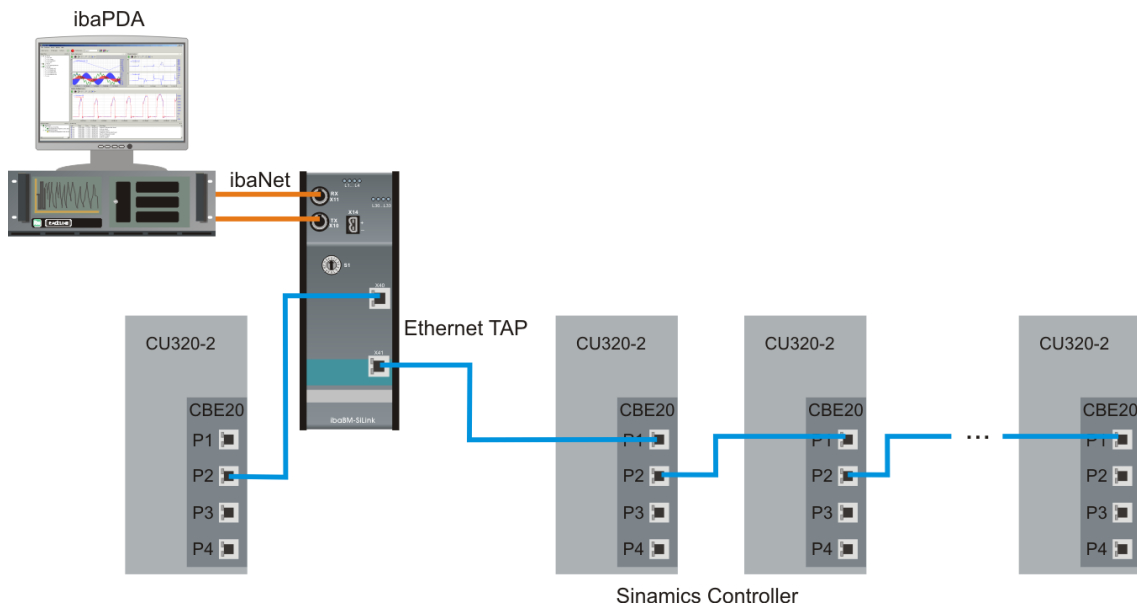


Figure 2: System integration ibaBM-SiLink



Important note

Measuring with ibaBM-SiLink is only possible, if there are at least 2 CU320 devices connected. With only one CU320 device, there is no data traffic which can be measured.

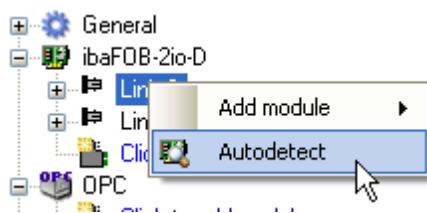
9 Configuration with ibaPDA

1. Integrated in SINAMICS Link, connect the device according to your required mode 32Mbit Flex or 32Mbit.

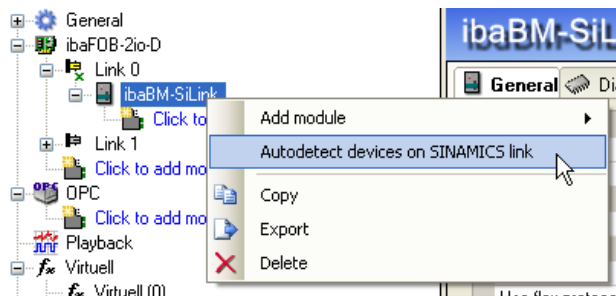
Using 32Mbit Flex you need bidirectional FO connection and the S1 switch needs to be 1-F. Connect the fiber optic input of the device X11 (RX) with the TX port of the ibaFOB-D card and the fiber optic output X10 (TX) with the RX port of the FOB-D card.

In 32Mbit you only need unidirectional communication and the S1 switch needs to be 0. Connect TX on device and RX on ibaFOB-D or ibaFOB-X card.

2. Connect the power supply.
3. Start ibaPDA on the PC and open the I/O Manager (hardware).
4. Find the appropriate link of the ibaFOB card to which ibaBM-SiLink is connected. Click on the link with the right mouse button, which opens a submenu. Select „Autodetect“.



5. „ibaBM-SiLink“ will be shown below the link of your ibaFOB card.



6. Add the control units with “Autodetect devices on SINAMICS Link”. You can do this via right-click on ibaBM-SiLink node in the tree or via link on the general tab of ibaBM-SiLink device.



Note

If there was already a configuration stored in the device then “Autodetect” will read out the configuration if the device is connected via 32Mbit Flex.

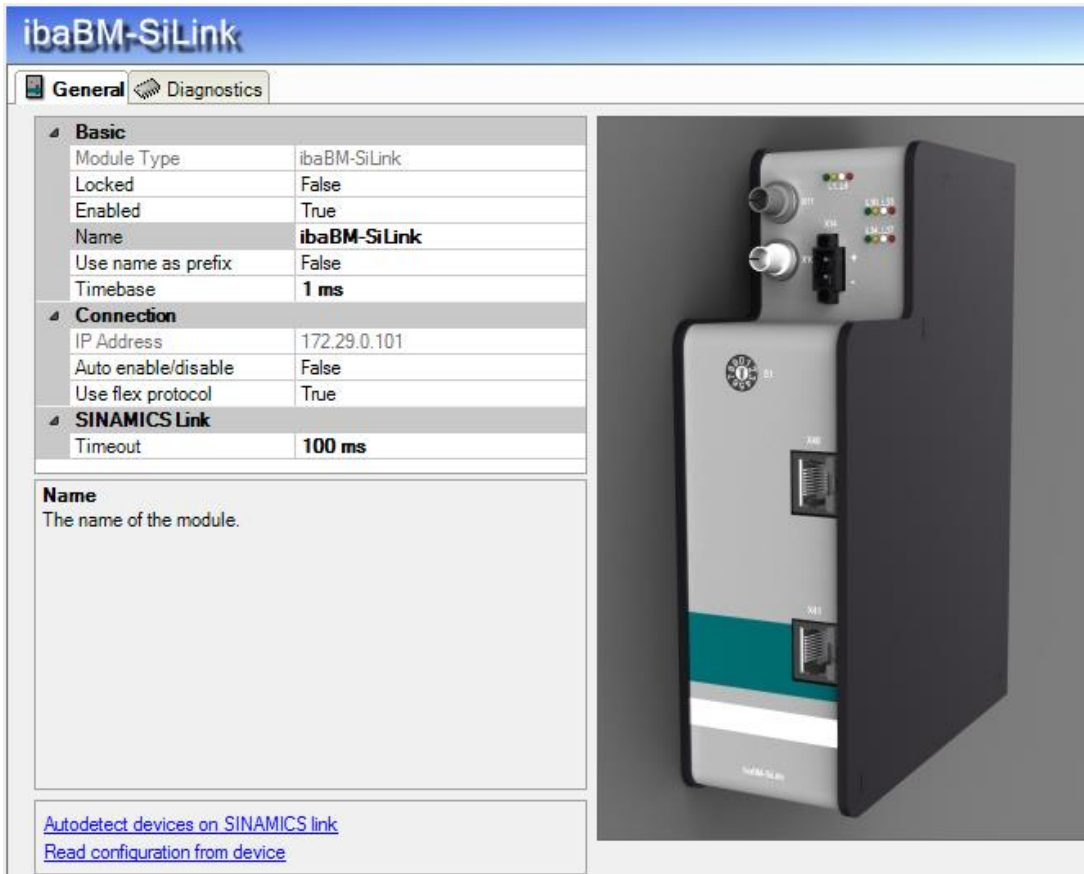


Note

If there is no connection to ibaBM-SiLink at the time of configuration, you can manually add and configure the device module and the submodules.

9.1 ibaBM-SiLink – General Tab

A click on the link „ibaBM-SiLink“ opens the General tab.



ibaBM-SiLink

General Diagnostics

Basic	
Module Type	ibaBM-SiLink
Locked	False
Enabled	True
Name	ibaBM-SiLink
Use name as prefix	False
Timebase	1 ms

Connection	
IP Address	172.29.0.101
Auto enable/disable	False
Use flex protocol	True

SINAMICS Link	
Timeout	100 ms

Name
The name of the module.

[Autodetect devices on SINAMICS link](#)
[Read configuration from device](#)

Basic

- Module type** (only read)
Displays the module type
- Locked**
True: only authorized users can change the module.
False: any user can make changes
- Enabled**
True: data acquisition for this module is active
False: data acquisition for this module is not active
- Name**
You can enter a name of the module
- Use name as prefix**
The module name is placed in front of the signal name as prefix.
- Timebase**
Acquisition timebase used for this module



Note

Default value is 1 ms. When 32Mbit Flex is used the sample time can be decreased down to 50 μ s when less than 64 controllers are connected or the amount of data words to be measured is small.

Connection

- The IP address is only valid in 32Mbit Flex mode.** It is determined by the board number and the link number of the FO input the device is connected to. TCP/IP is used by ibaPDA to set the configuration and to read the diagnostic data.
- Auto enable/disable**
True: ibaPDA starts acquisition, although it cannot connect to the module.
False: ibaPDA won't start acquisition, when it cannot connect to the module.
- Use flex protocol**
Select if the 32Mbit Flex protocol is used on the fiber optic link. This value must correspond with the rotary switch S1 on the device.
S1 set to 1 - F: 32Mbit Flex protocol is used
S1 set to 0: 32Mbit protocol is used.

SINAMICS Link

- Timeout**
When ibaBM-SiLink does not receive data from a controller during timeout (in ms), then the measured values of the controller will be set to 0. If you set the timeout to 0 the timeout will be ignored.

Several links are available in the field at the bottom of the general tab:

- Autodetect devices on SINAMICS Link**
All controllers connected to the SINAMICS Link will be detected automatically.



Note

When a controller was already detected, but isn't active anymore, it will remain in the module tree. Those inactive controllers will be indicated with a red color in the diagnostics tab.

If you want to remove the inactive controllers from the module tree, select the controller and delete it with the key or click with the right mouse button on the controller and select "delete" from the submenu.

- Read configuration from the device**
Reading the configuration from the device.

Using the buttons <OK> or <Apply> the current configuration will be written to the device.



Note

The functions <Read configuration from the device> and <Write firmware> are not available when 32Mbit protocol is used. While using 32Mbit protocol always the default configuration is used.

9.2 ibaBM-SiLink – Diagnostics tab

The screenshot displays the 'Diagnostics' tab of the ibaBM-SiLink software. It features three main sections:

- General:** Contains fields for Hardware version (A0), FPGA version (1.1 build 14), Firmware version (v00.00.002-rc0), and Serial number (987602). It includes buttons for 'Write firmware' and 'Reset to factory defaults'.
- Network info:** Shows network statistics for ports X40 and X41, including 'Dropped packets' and 'Bad packets'. A 'Reset counters' button is present.
- Devices on SINAMICS link:** A grid of 64 numbered boxes representing device status. Some boxes are highlighted in green (4, 6, 8, 9), some in red (7, 13, 16), and others in grey. To the right of the grid are fields for network parameters: Source MAC (00:BA:00:12:34:56), Destination MAC (01:0E:CF:00:01:01), PN cycle time (1 ms), PN cycle counter (51), PN data status (0x35), State (Primary), Data valid (Valid), Provider state (Run), Station problem indicator (Ok), and PN transfer status (0x00).

At the bottom, a progress bar shows a value of 120, with 'OK', 'Apply', and 'Cancel' buttons.

The field „General“ gives information about hardware version, firmware version, FPGA version and the serial number of the device.

Using the <Write firmware> button you can install a firmware update. A click on this button opens a browser window, where you can select the update file. The update may take some minutes and must not be interrupted. After an update the device will be automatically rebooted.

Using the <Reset to factory defaults> button the configuration settings will be deleted.

The field „Network info“ gives information about the SINAMICS Link communication: number of dropped packets on port X40 and X41 and number of bad packets. A click on the button <Reset counters> resets all counters to 0.

The field „Devices on SINAMICS Link“ shows 64 devices, which can be connected at most to a SINAMICS Link. The different states of the devices are indicated by different colors and edges:

Color	Meaning
Green and thick edge	The controller is configured and active
Green and thin edge	The controller is active but not configured
Red and thick edge	The controller is configured but not active
Grey	The controller is neither active nor configured

If you select an active control unit, the corresponding diagnostic data is shown on the right side:

- Source MAC: The MAC address of the selected controller
- Destination MAC: The MAC address the selected controller is sending to.
- PN cycle time: The time between 2 PROFINET/SINAMICS Link messages from the selected controller.
- PN cycle counter: The value of the PROFINET cycle counter embedded in the last received PROFINET/SINAMICS Link message from the selected controller.
- PN data status: The PROFINET status byte embedded in the last received PROFINET/SINAMICS Link message from the selected controller. The relevant bits in this status byte are expanded as State, Data valid, Provider state, Station problem indicator.
- State: Primary or Backup
- Data valid: Valid or Invalid
- Provider state: Run or Stop
- Station problem indicator: Ok or Problem
- PN transfer status: The PROFINET transfer status byte embedded in the last received PROFINET/SINAMICS Link message from the selected controller. This should be always 0.

**Note**

When 32Mbit protocol is used diagnostic data is not displayed (on the right side).

9.3 ibaBM-SiLink – Analog tab

ibaBM-SiLink				
General Analog Digital Diagnostics				
Name	Address	DataType	Actual	
Source: (1) Control unit 63				
0	[1:1] Analog 1	63.1	INT	280
1	[1:2] Analog 2	63.2	INT	0
2	[1:3] Analog 3	63.3	INT	0
3	[1:4] Analog 4	63.4	INT	0
4	[1:5] Analog 5	63.5	INT	0
5	[1:6] Analog 6	63.6	INT	0
6	[1:7] Analog 7	63.7	INT	0
7	[1:8] Analog 8	63.8	INT	0
8	[1:9] Analog 9	63.9	INT	0
9	[1:10] Analog 10	63.10	INT	0
10	[1:11] Analog 11	63.11	INT	0
11	[1:12] Analog 12	63.12	INT	0
12	[1:13] Analog 13	63.13	INT	0
13	[1:14] Analog 14	63.14	INT	0
14	[1:15] Analog 15	63.15	INT	258
Source: (2) Control unit 1				
15	[2:0]	1.0	INT	4608
16	[2:1]	1.1	INT	278
17	[2:2]	1.2	INT	0
18	[2:3]	1.3	INT	0
19	[2:4]	1.4	INT	0
20	[2:5]	1.5	INT	0

The Analog tab shows the analog signals configured in the submodules “Control unit” (see 9.5.2 Control Unit – Analog tab): the given names, the addresses, data types and the current measured value.

9.4 ibaBM-SiLink – Digital tab

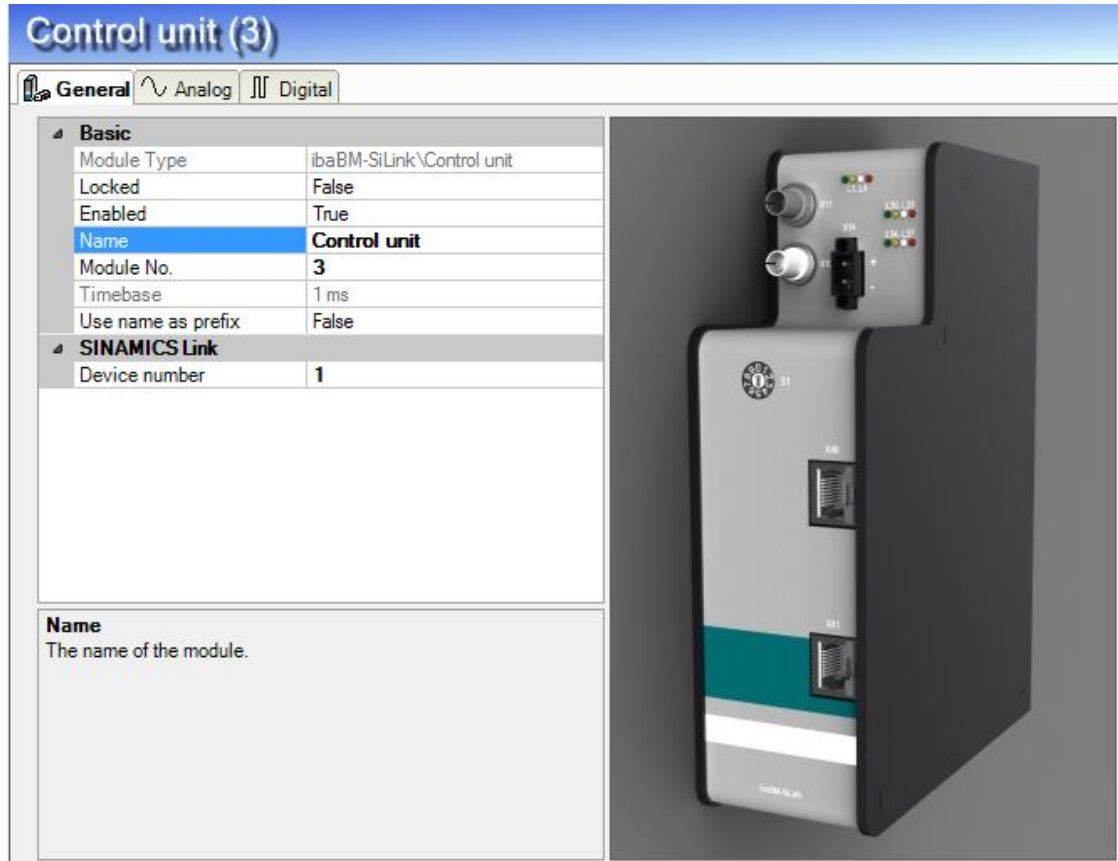
ibaBM-SiLink				
General Analog Digital Diagnostics				
Name	Address	Actual		
Source: (2) Control unit 1				
0	[2:0] Status	1.status	1	
Source: (5) Control unit 2				
1	[5:0] Status	2.status	0	
Source: (4) Control unit 62				
61	[4:0] Status	62.status	1	
Source: (1) Control unit 63				
62	[1:0] Status	63.status	1	
Source: (3) Control unit 64				
63	[3:0] Status	64.status	1	

The Digital tab shows the digital signals configured in the submodules “Control unit” (see 9.5.3 Control Unit – Digital tab): the given names, the addresses, and the current measured value.

9.5 Submodule Control Unit

Each SINAMICS Controller is a submodule “Control unit” in ibaPDA. The active control units are shown, if you have selected “autodetect”. Each controller is identified by an own ID and sends 16 data words (16 analog signals) and a status bit (1 digital signal).

9.5.1 Control Unit – General tab



The screenshot shows the configuration window for 'Control unit (3)'. It has three tabs: 'General', 'Analog', and 'Digital'. The 'General' tab is active and contains two sections: 'Basic' and 'SINAMICS Link'.

Basic	
Module Type	ibaBM-SiLink\Control unit
Locked	False
Enabled	True
Name	Control unit
Module No.	3
Timebase	1 ms
Use name as prefix	False
SINAMICS Link	
Device number	1

Below the table, there is a 'Name' field with the description: 'The name of the module.'

To the right of the configuration table is a 3D rendering of the physical control unit. It is a vertical, grey and black device with a teal stripe near the bottom. It features a rotary knob, several indicator lights (green, red, yellow), and two RJ45 ports labeled 'X1' and 'X2'.

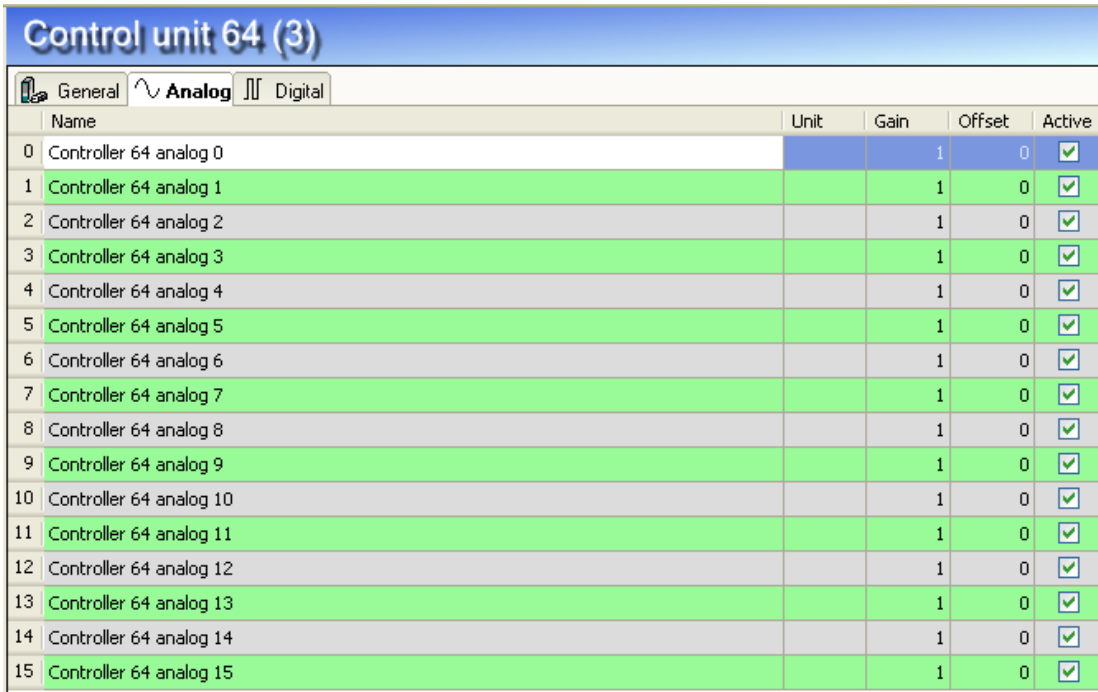
Basic

- Module type, Locked, Enabled, Name, Timebase, Use name as prefix**
see chapter 9.1 “ibaBM-SiLink – General Tab”.
- Module No.**
Serial number, which is assigned by ibaPDA in increasing order. It can be changed by the user.

SINAMICS Link


- Device number**
ID number of the controller in the SINAMICS Link.

9.5.2 Control Unit – Analog tab



	Name	Unit	Gain	Offset	Active
0	Controller 64 analog 0		1	0	<input checked="" type="checkbox"/>
1	Controller 64 analog 1		1	0	<input checked="" type="checkbox"/>
2	Controller 64 analog 2		1	0	<input checked="" type="checkbox"/>
3	Controller 64 analog 3		1	0	<input checked="" type="checkbox"/>
4	Controller 64 analog 4		1	0	<input checked="" type="checkbox"/>
5	Controller 64 analog 5		1	0	<input checked="" type="checkbox"/>
6	Controller 64 analog 6		1	0	<input checked="" type="checkbox"/>
7	Controller 64 analog 7		1	0	<input checked="" type="checkbox"/>
8	Controller 64 analog 8		1	0	<input checked="" type="checkbox"/>
9	Controller 64 analog 9		1	0	<input checked="" type="checkbox"/>
10	Controller 64 analog 10		1	0	<input checked="" type="checkbox"/>
11	Controller 64 analog 11		1	0	<input checked="" type="checkbox"/>
12	Controller 64 analog 12		1	0	<input checked="" type="checkbox"/>
13	Controller 64 analog 13		1	0	<input checked="" type="checkbox"/>
14	Controller 64 analog 14		1	0	<input checked="" type="checkbox"/>
15	Controller 64 analog 15		1	0	<input checked="" type="checkbox"/>

Name

You can enter signal names and additionally two comments when clicking on the  symbol in the field "Name".

Unit

You can enter a unit for the measured signal.

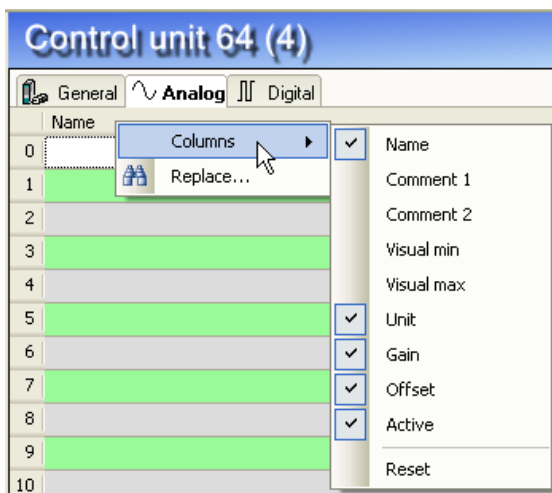
Gain/Offset

The settings in the columns Gain and Offset are useful to scale normalized values to physical values.

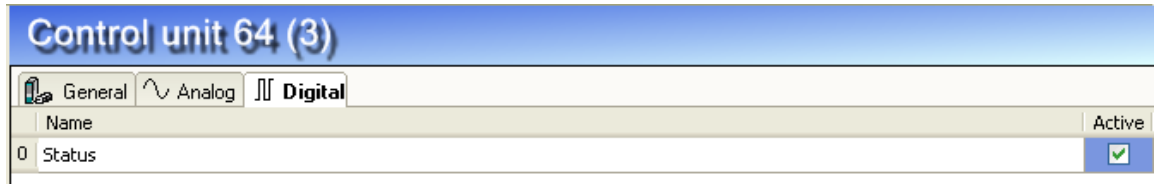
Active


Activate/deactivate the signal.

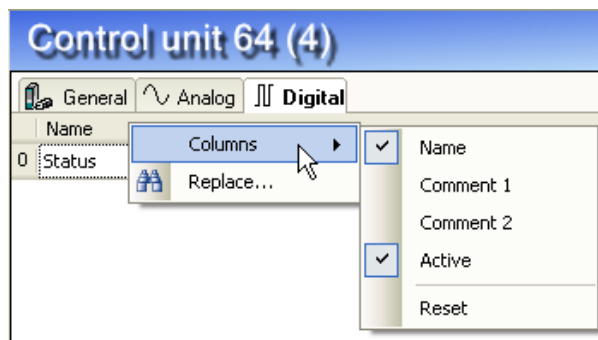
- Further columns can be shown or hidden by using the context menu (right mouse click in the table header):



9.5.3 Control Unit – Digital tab



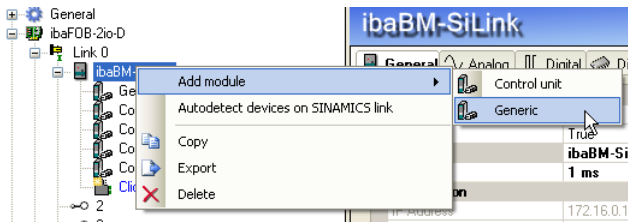
- Name**
You can enter a signal name and additionally two comments when clicking on the  symbol in the field "Name".
- Active**
Activate/deactivate the signal.
- Further columns can be shown or hidden by using the context menu (right mouse click in the table header):



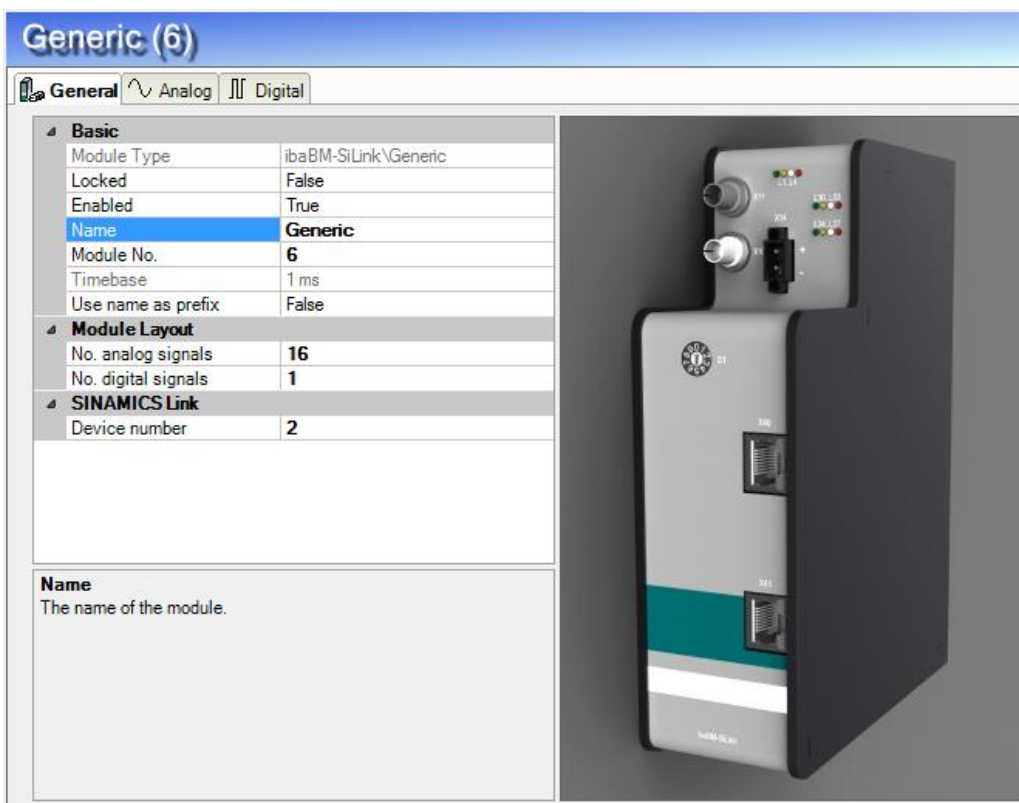
9.6 Submodule Generic

The “Generic” submodule gives you the flexibility to completely determine how to interpret the 32 bytes of data that each controller is sending. You can e.g. use other datatypes than INTEGER for the analog signals and you can define bits in the payload data.

Click with the right mouse button on the link „ibaBM-SiLink“ and select „Add module“ and then the submodule „Generic“.



9.6.1 Generic – General tab



Basic

- Module type, Locked, Enabled, Name, Module No., Timebase, Use name as prefix**
see chapter 9.1 “ibaBM-SiLink – General Tab”

Module Layout

- You can define the number of analog and digital signals. These settings determine the table length in the „Analog“ and „Digital“ tabs.

SINAMICS Link

- Device number**
Device number on SINAMICS Link.

9.6.2 Generic – Analog tab

Name	Unit	Gain	Offset	Data area	Address	DataType	Active
0		1	0	Data	0	INT	✓
1		1	0	Data	1	INT	✓
2		1	0	PN data status	0	INT	✓
3		1	0	PN cycle time	3	INT	✓
4		1	0	PN cycle counter	0	INT	✓
5		1	0	PN data status	0	BYTE	✓
6	ms	0,03125	0	PN cycle time	0	INT_B	✓
7		1	0	PN cycle counter	0	INT	✓
8		1	0	Data	8	INT	✓
9		1	0	Data	9	INT	✓
10		1	0	Data	10	INT	✓
11		1	0	Data	11	INT	✓
12		1	0	Data	12	INT	✓
13		1	0	Data	13	INT	✓
14		1	0	Data	14	INT	✓
15		1	0	Data	15	INT	✓

- ❑ **Name, Unit, Gain/Offset, Active**
see chapter 9.5.2 “Control Unit – Analog tab”.
- ❑ **Data area**
By clicking on the combobox you can select payload data or diagnostic data:
Data (normal payload data), PN data status, PN cycle time, PN cycle counter.
- ❑ **Address**
The address of payload data is between 0 and 15. It is a word address within the 16 words of data from a controller. The address of diagnostic data is 0.
- ❑ **Data Type**
If “Data” is selected in the column “Data area”, you can define here the data type:
INT, WORD, DINT, DWORD, FLOAT.
Otherwise the data type is selected automatically.
- ❑ You can choose further columns by using the context menu.

9.6.3 Generic – Register Digital

Name	Data area	Address	Bit no.	Active
0	Status	0	0	✓

- ❑ **Name, Active**
see chapter 9.5.3 “Control Unit – Digital tab”.
- ❑ **Data area**
By clicking on the combobox you can select the diagnostic info:
Status: status bit (=1, if Controller is OK; =0, if Controller is not OK)
Data: normal payload data,
PN data status: PROFINET data status byte (only with 32Mbit Flex).

❑ Address

It is a word address within the 16 words of data from a controller.

❑ Bit no.

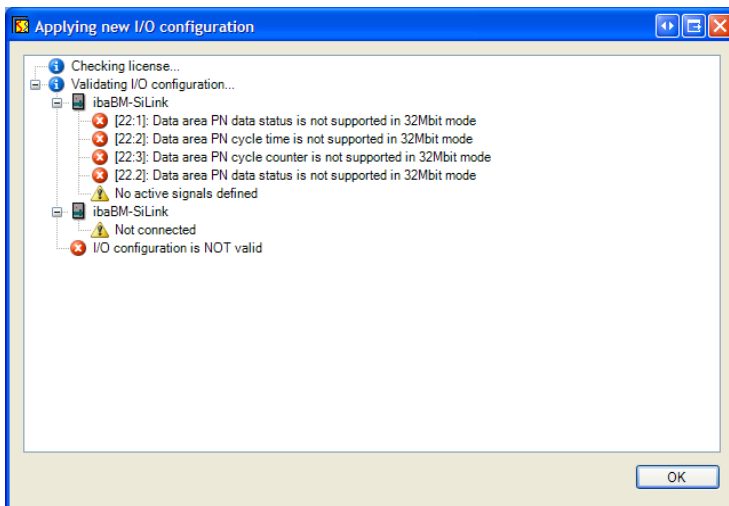
The bit number (0 – 15) within the 16 bit word or in case of PN data status it is the bit within the status byte.

- bit7 (Ignore): 1=Ignore 0=Evaluate
- bit6 (Reserved):
- bit5 (StationProblemIndicator): 1=Ok 0=Problem
- bit4 (ProviderState): 1=Run 0=Stop
- bit3 (Reserved): normally zero
- bit2 (DataValid): 1=Valid 0=Invalid
- bit1 (Reserved): normally zero
- bit0 (State): 1=Primary 0=Backup

❑ You can choose further columns by using the context menu.

**Note**

In 32Mbit mode you only can capture the controller status bit, no diagnostic signals, like PN data status, etc. If you define diagnostic signals in 32Mbit mode then you will get an error during validation.



10 Technical Data

10.1 Main data

Short description	
Designation	ibaBM-SiLink
Description	Bus monitor for SINAMICS Link protocol (PROFINET)
Order number	13.127010
PROFINET Interfaces	
Number	2 for 1 SINAMICS Link
Connector type	2x RJ45 socket, PROFINET IRT physical layer (100 Mbit/s 802.3 Ethernet)
Data recording	Sniffer for up to 64 controllers with 32 bytes each
Supported signal types	Configurable (default value analog 16 bit)
ibaNet interface	
Number	1 (e. g. for the connection to ibaPDA)
ibaNet protocols	Sampling time
	32MBit Flex
	From 0.5 ms up to 2 ms
	32Mbit
	1 ms
Data transmission rate	32 Mbit/s
Connector type	2 ST connectors (62.5/125 µm) for RX and TX, up to 2000 m cable length without repeater
Power supply, operating controls and indicators	
Power supply	+24 V DC (±10 %), not stabilized
Power consumption	Up to 4.8 W
Rotary switch	Device address (in a cascade)
Indicators	4 LEDs for device status 4 LEDs for SINAMICS Link status
Operating and environmental conditions	
Cooling	Passive
Operating temperature	32 °F to 122 °F (0 °C to 50 °C)
Storage and transport temperature	-13 °F to 158 °F (-25 °C to 70 °C)
Humidity class (DIN 40040)	F, no condensation
Protection class	IP20
Mounting	DIN rail, vertical

Certification	EMC: IEC 61326-1 FCC part 15 class A
Dimensions and weight	
Dimensions (width x height x depth)	2.13 in x 7.40 in x 5.55 in (54 mm x 188 mm x 141 mm), including mounting rail clip
Weight (incl. packaging and documentation)	Approx. 2.43 lbs (1.1 kg)

10.2 Dimension sheet

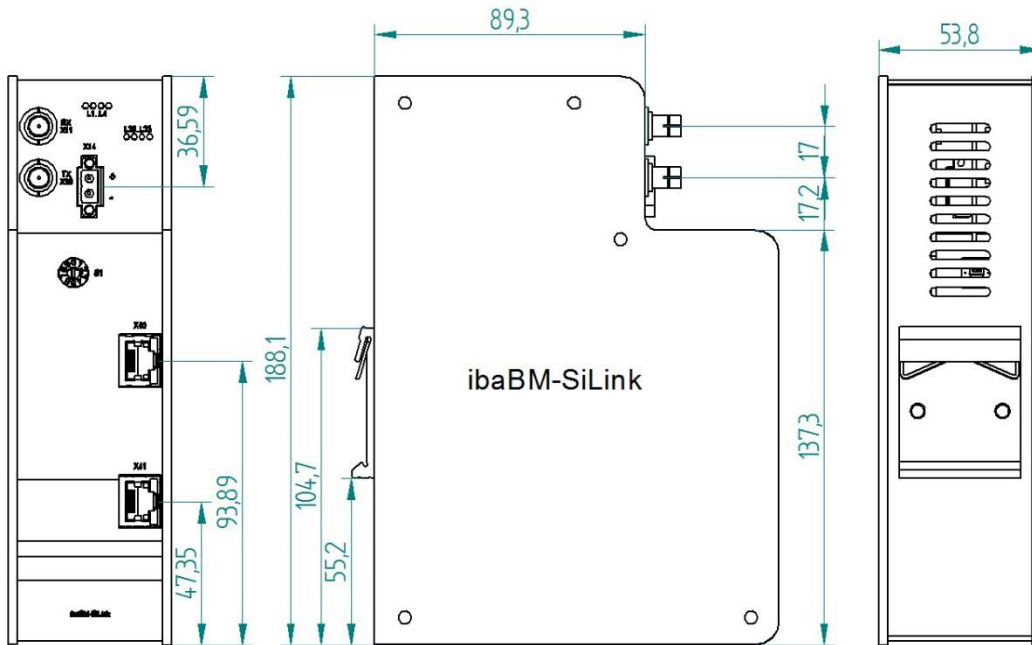


Figure 3: Dimension sheet (dimensions in mm)

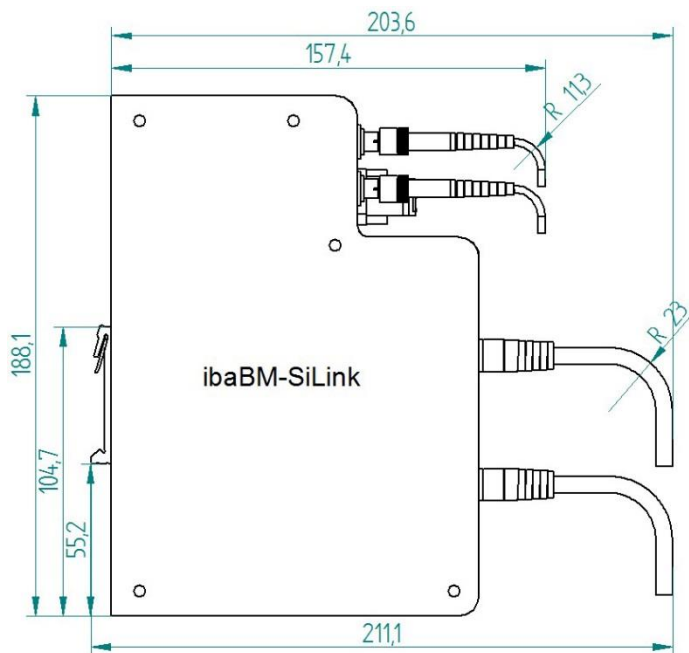


Figure 4: Dimension sheet with cables (dimensions in mm)

11 Support and contact

Support

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



Note

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

Contact

Headquarters

iba AG
Koenigswarterstr. 44
90762 Fuerth
Germany
Phone: +49 911 97282-0
Fax: +49 911 97282-33
Email: iba@iba-ag.com
Contact: Mr. Harald Opel

Regional and Worldwide

For contact data of your regional iba office or representative please refer to our web site **www.iba-ag.com**.