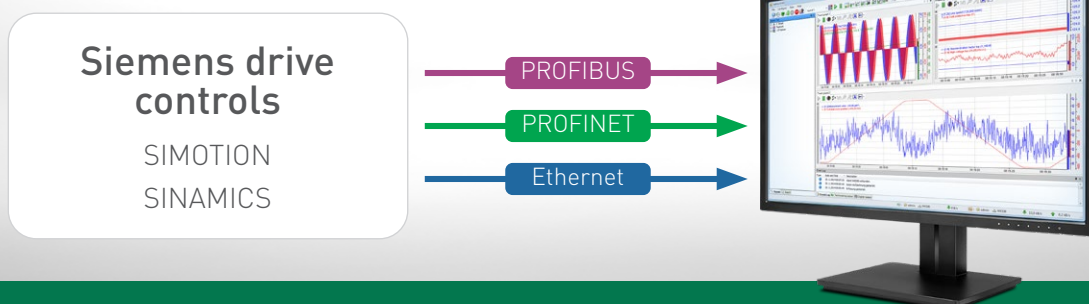


Customized Monitoring - Interfaces for SIMOTION and SINAMICS Systems

ibaPDA Connectivity



ibaBM-DP

Acquire data via PROFIBUS



ibaBM-PN

Acquire data via PROFINET



ibaPDA-Interface-Profinet-CP

Acquire data via PROFINET



ibaPDA-Interface-SIMOTION-Xplorer

ibaPDA-Interface-SINAMICS-Xplorer

Connection via Xplorer interface

ibaPDA Connectivity

Acquire data from SIMOTION motion controllers and
SINAMICS control units

3

Connectivity to SIMOTION D4x5:

Acquire data via bus monitor

ibaBM-PN (via PROFINET)

5

ibaBM-DP (via PROFIBUS)

6

Acquire data via PROFINET CP

CP1616, CP1626, ibaPDA-Interface-Profinet-CP

7

Acquire data via Xplorer interface

ibaPDA-Interface-SIMOTION-Xplorer

7

Connectivity to SINAMICS (CU320):

Acquire data via bus monitor

ibaBM-PN (via PROFINET)

8

ibaBM-DP (via PROFIBUS)

9

Acquire data via PROFINET CP

CP1616, CP1626, ibaPDA-Interface-Profinet-CP

10

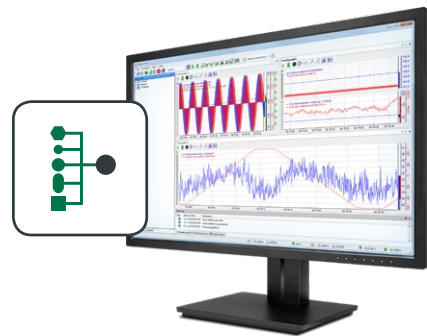
Acquire data via Xplorer interface

ibaPDA-Interface-SINAMICS-Xplorer

10

SIMOTION/SINAMICS Connectivity

The iba system offers various ways to acquire data from SIMOTION and SINAMICS drive controllers – the right solution for different requirements.



Connection to ibaPDA

The ibaPDA system offers different ways to acquire data from SIMOTION and SINAMICS drive controllers: via PROFINET, PROFIBUS or via Ethernet. Which way is the most suitable depends, among other things, on how quickly the data needs to be acquired, whether scan-cycle-synchronous data transmission is required and which hardware is available.

In addition, Xplorer interfaces offer the possibility to select signals via a symbol browser without programming effort.

ibaPDA can also run on a Windows PC or on the standalone devices ibaDAQ-C and ibaDAQ. Both compact devices differ with respect to their interfaces and the included software licenses. See order information on page 11.

Acquisition with the bus monitor on SIMOTION motion controllers

If data needs to be acquired quickly and precisely with each scan cycle, the drive controllers can be connected with the bus monitor ibaBM-PN via PROFINET or ibaBM-DP via PROFIBUS. ibaBM-PN can acquire data from SIMOTION motion controllers as an active device. The bus

At a glance

- ▶ Connection to SIMOTION and SINAMICS systems from Siemens via different interfaces: ibaBM-PN, ibaBM-DP, CP1616 or CP1626 and ibaPDA-Interface-Profinet-CP, ibaPDA-Interface-SIMOTION-Xplorer or ibaPDA-Interface-SINAMICS-Xplorer
- ▶ Scan-cycle-precise acquisition via PROFINET with the bus monitor ibaBM-PN or CP1616 / CP1626
- ▶ Scan-cycle-precise acquisition via PROFIBUS with the bus monitor ibaBM-DP
- ▶ Connection without additional hardware with software interfaces ibaPDA-Interface-SIMOTION-Xplorer or ibaPDA-Interface-SINAMICS-Xplorer
- ▶ Free signal selection with Xplorer interface
- ▶ Simple, cost-effective connection via Xplorer interface

monitor provides 2 independent internal PROFINET devices, which can be specifically supplied with data from PROFINET controllers. As a shared device, a bus monitor can communicate with up to 8 PN controllers.

In addition, as a sniffer, ibaBM-PN can read the data exchange between the SIMOTION controller and other PN participants at the TAP interface.

Acquisition with the bus monitor on SINAMICS control units

The ibaBM-PN bus monitor is also able to acquire data at a SINAMICS Link as a sniffer and therefore enables the connec-

tion of SINAMICS control units (with CU320 unit and CBE20 extension board). SINAMICS Link is a special version of the PROFINET communication to exchange PROFINET IRT data between SINAMICS control units. SINAMICS Link is based on a strict, straight network topology with a maximum of 64 SINAMICS CU320 controllers.

An ibaBM-PN usually needs to be connected between at least two participants on the SINAMICS Link. To enable data acquisition at the SINAMICS Link with just one controller, one of the two PROFINET devices can be switched to the SINAMICS emulation mode.

Connection via PROFINET CP

Connecting the SIMOTION and SINAMICS controllers via PROFINET CP requires a Siemens interface card CP1616 (PCI) or CP1626 (PCIe) in the ibaPDA computer as well as the data interface ibaPDA-Interface-Profinet-CP.

The CP1616 card offers a PROFINET interface with 4 ports and supports controller-controller and controller-device communication. The CP1626 card offers two PROFINET interfaces with 2 ports each and only supports controller-device communication.

The values to be recorded must be programmed in the controller and sent by the controller program. Any change of the values requires a program change.

Signal selection without programming

However, programming work can be avoided by using special iba solutions: The Xplorer interfaces can be used to flexibly select the measured values via an address book at the click of a button. In

addition, the values to be recorded can be changed without intervention in the programming while the controller is running.

How does the Xplorer interface work?

With the Xplorer interfaces, it is possible to easily and cost-effectively connect to SIMOTION and SINAMICS drive controllers. The Xplorer interface allows free access to internal data of a controller. The standard mechanisms of the controller are used. Additional hardware is not required. The measured values are cyclically requested and sent by the controller in a so-called polling procedure. Data acquisition is not scan-cycle-precise, since the data is only sent by the controller when the request can be processed.

Different Xplorer interfaces

The SIMOTION-Xplorer and SINAMICS-Xplorer interfaces can be licensed individually, but are also available in a bundle for ibaPDA: the

ibaPDA-Drive-Xplorer license includes all available Xplorer interfaces for drive controllers.

In addition to the Xplorer interfaces for drive controllers, Xplorer interfaces for many control systems are also available: SIMATIC S7, Allen Bradley, B&R, Bachmann M1, CODESYS-V2 and V3, Mitsubishi MELSEC, SIGMATEK controllers and Beckhoff TwinCAT controllers. The ibaPDA-PLC-Xplorer bundle includes all above mentioned interfaces and offers the full ibaPDA functionality for up to 64 signals. ibaPDA-PLC-Xplorer is therefore a cost-effective entry-level solution that is ideal, for example, for efficient troubleshooting during commissioning.

Detailed information about the Xplorer licenses can be found under order information on page 11.

Application areas of the different interfaces

Requirement	PLC	iba interface	Example
<ul style="list-style-type: none"> › Very short cycles › High deterministics 		ibaBM-PN ibaBM-DP ibaPDA-Interface-Profinet-CP + CP1616 or CP1626	<ul style="list-style-type: none"> › Fast, cycle-synchronous controls, e.g. drives, rolling force, etc. › Complex logic (cycle accuracy)
<ul style="list-style-type: none"> › Longer cycles › Low deterministics 		ibaPDA-Interface-SIMOTION-Xplorer ibaPDA-Interface-SINAMICS-Xplorer	<ul style="list-style-type: none"> › Control of thermal processes › Media control › "Quick glance" of a controller › Short term, fast service



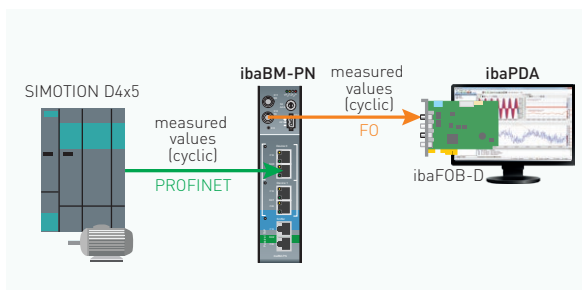
Connectivity to SIMOTION D4x5

ibaBM-PN

Acquire data with the bus monitor via PROFINET

The connection is established with the bus monitor ibaBM-PN via PROFINET. This enables a fast and (bus) scan-cycle-precise acquisition of measured values.

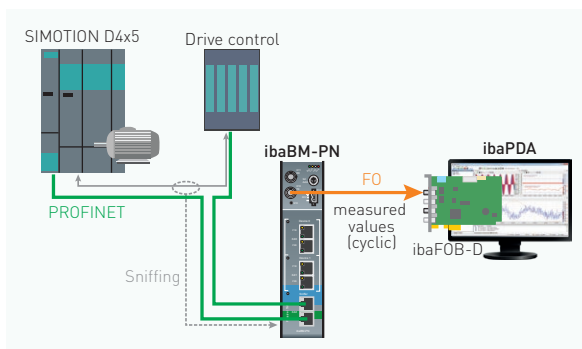
ibaBM-PN - Active device



- › (Bus) scan-cycle-precise transmission of measured values
- › Low additional load of the CPU
- › PLC program change needed for selecting the variables to be measured
- › RT and IRT communication possible
- › Acquisition as shared device possible

iba software	iba hardware
ibaPDA	ibaBM-PN
	ibaF0B-D card (in the PC)

ibaBM-PN - Sniffer



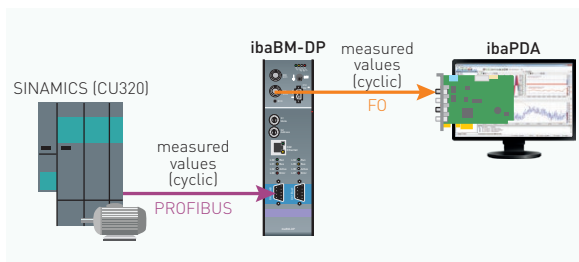
- › (Bus) scan-cycle-precise transmission of measured values
- › Low additional load of the CPU
- › PLC program change needed for selecting the variables to be measured
- › Only existing data exchange between controller/drive control via TAP interface can be acquired

iba software	iba hardware
ibaPDA	ibaBM-PN
	ibaF0B-D card (in the PC)

Acquire data with the bus monitor via PROFIBUS

The connection is established with the bus monitor ibaBM-DP via PROFIBUS. This enables a fast and (bus) scan-cycle-precise acquisition of measured values.

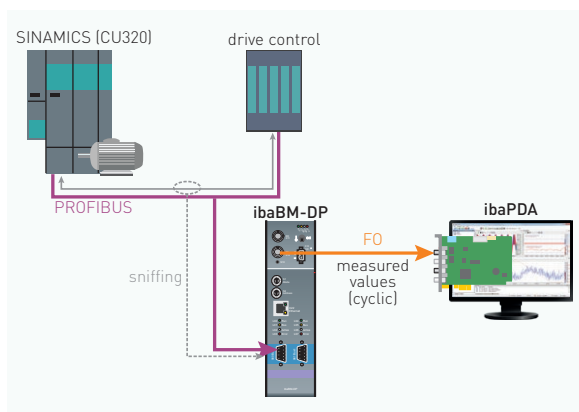
ibaBM-DP - Active slave



- › (Bus) scan-cycle-precise transmission of measured values
- › Low additional load of the CPU
- › PLC program must be changed for selecting the variables to be measured

iba software	iba hardware
ibaPDA	ibaBM-DP ibaFOB-D card (in the PC)

ibaBM-DP - Sniffer



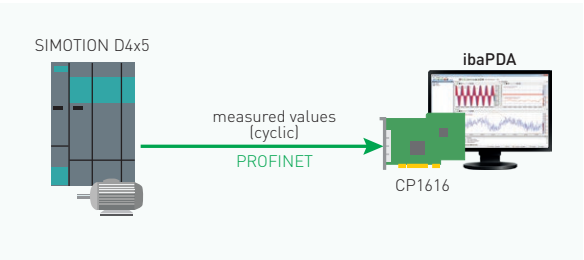
- › (Bus) scan-cycle-precise transmission of measured values
- › No programming and therefore no additional load of the CPU
- › Only existing data exchange between master/slave can be acquired
- › Analog values are transmitted as a raw value; variable selection may be difficult

iba software	iba hardware
ibaPDA	ibaBM-DP ibaFOB-D card (in the PC)

Acquire data via PROFINET CP

For data acquisition via PROFINET CP, one of the interface cards CP1616 or CP1626 from Siemens is required in the ibaPDA computer.

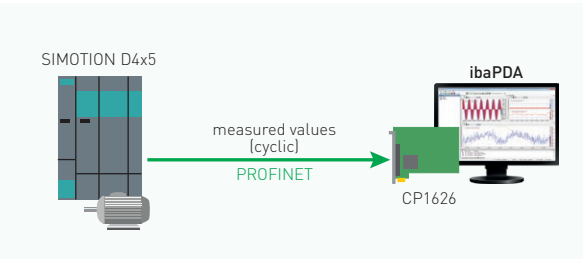
CP1616 and ibaPDA-Interface-Profinet-CP



- › (Bus) scan-cycle-precise transmission of measured values
- › PLC program must be changed for selecting the variables to be measured
- › Controller-controller communication
- › Controller-device communication

iba software	Hardware
ibaPDA ibaPDA-Interface-Profinet-CP	Profinet-CP1616 ¹ (from Siemens)

CP1626 and ibaPDA-Interface-Profinet-CP



- › (Bus) scan-cycle-precise transmission of measured values
- › PLC program must be changed for selecting the variables to be measured
- › Controller-device communication

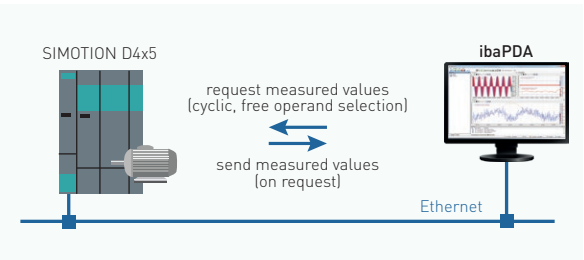
iba software	Hardware
ibaPDA ibaPDA-Interface-Profinet-CP	Profinet-CP1626 ¹ (from Siemens)

SIMOTION-Xplorer

Acquire data via Xplorer interface

The SIMOTION-Xplorer software interface in ibaPDA or the ibaPDA-Drive-Xplorer bundle is required for data acquisition with the Xplorer interface. Additional hardware is not necessary.

ibaPDA-Interface-SIMOTION-Xplorer



- › Simple configuration
- › No PLC program changes needed for selecting the variables (free selection)
- › Possible to change the variable selection during operation
- › Access possible via TCP/IP

iba software	iba hardware
ibaPDA and ibaPDA-Interface-SIMOTION-Xplorer or ibaPDA-Drive-Xplorer	-

¹ to be purchased from Siemens AG

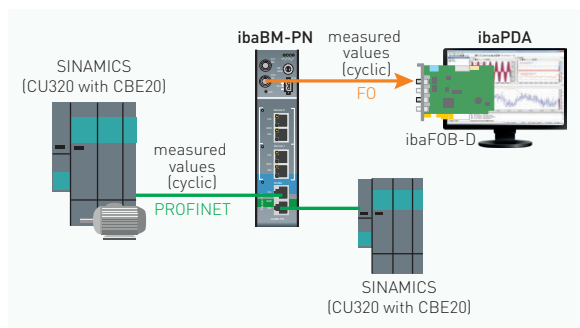
Connectivity to SINAMICS (CU320)

ibaBM-PN

Acquire data with the bus monitor via PROFINET

The connection is established with the bus monitor ibaBM-PN via PROFINET. This enables a fast and (bus) scan-cycle-precise acquisition of measured values.

ibaBM-PN - Sniffer with SiLink protocol



- › (Bus) scan-cycle-precise transmission of measured values
- › Low additional load of the CPU
- › PLC program change needed for selecting the variables to be measured
- › ibaBM-PN between at least 2 CU320 units (with CBE20 extension board)

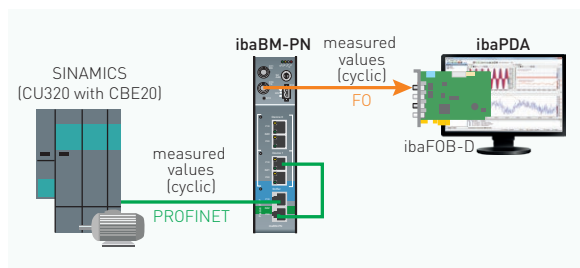
iba software

ibaPDA

iba hardware

ibaBM-PN
ibaFOB-D card (in the PC)

ibaBM-PN - Sniffer with SiLink protocol



- › (Bus) scan-cycle-precise transmission of measured values
- › Low additional load of the CPU
- › PLC program change needed for selecting the variables to be measured
- › ibaBM-PN between 1 CU320 unit (with CBE20 extension board) and one device of the ibaBM-PN

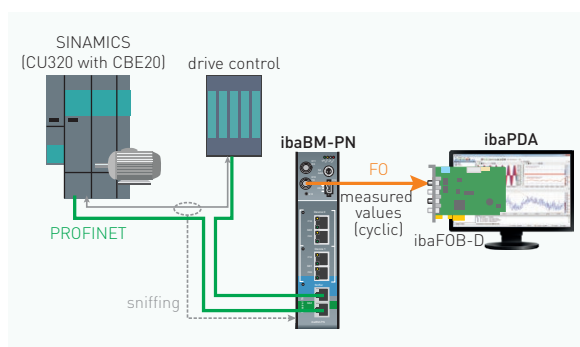
iba software

ibaPDA

iba hardware

ibaBM-PN
ibaFOB-D card (in the PC)

ibaBM-PN - Sniffer



- › (Bus) scan-cycle-precise transmission of measured values
- › Low additional load of the CPU
- › PLC program change needed for selecting the variables to be measured
- › Only existing data exchange between controller/drive control via TAP interface can be acquired.

iba software

ibaPDA

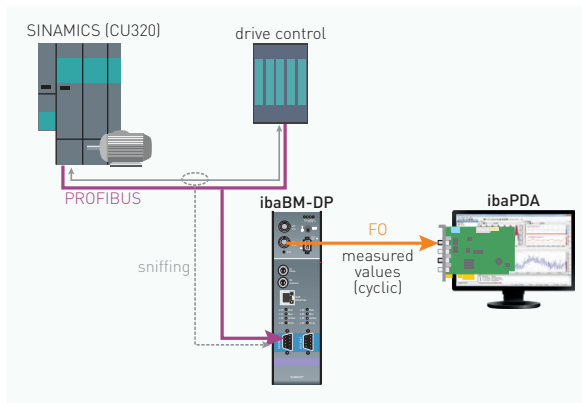
iba hardware

ibaBM-PN
ibaFOB-D card (in the PC)

Acquire data with the bus monitor via PROFIBUS

The connection is established with the bus monitor ibaBM-DP via PROFIBUS. This enables a fast and (bus) scan-cycle-precise acquisition of measured values.

ibaBM-DP - Sniffer



- › (Bus) scan-cycle-precise transmission of measured values
- › No programming and therefore no additional load of the CPU
- › Only existing data exchange between master/slave can be detected
- › Analog values are transmitted as a raw value; variable selection may be difficult

iba software

ibaPDA

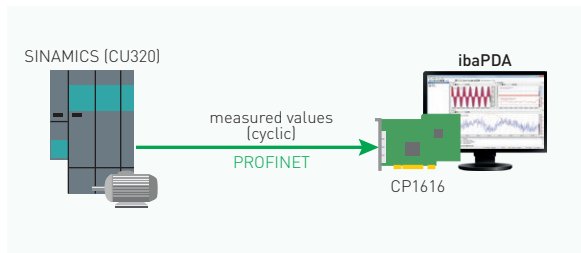
iba hardware

ibaBM-DP
ibaFOB-D card (in the PC)

Acquire data via PROFINET CP

For data acquisition via PROFINET CP, one of the interface cards CP1616 or CP1626 from Siemens is required in the ibaPDA computer.

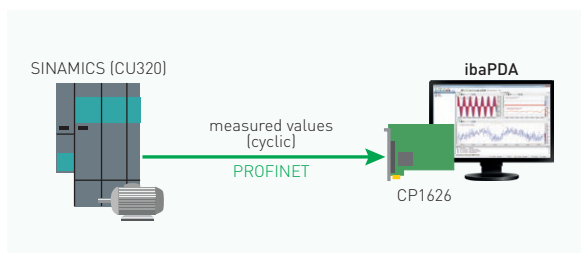
CP1616 and ibaPDA-Interface-Profinet-CP



- › (Bus) scan-cycle-precise transmission of measured values
- › PLC program must be changed for selecting the variables to be measured
- › Controller-device communication

iba software	Hardware
ibaPDA ibaPDA-Interface-Profinet-CP	Profinet-CP1616 ² (from Siemens)

CP1626 and ibaPDA-Interface-Profinet-CP



- › (Bus) scan-cycle-precise transmission of measured values
- › PLC program must be changed for selecting the variables to be measured
- › Controller-device communication

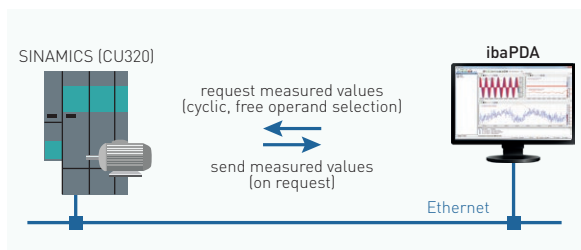
iba software	Hardware
ibaPDA ibaPDA-Interface-Profinet-CP	Profinet-CP1626 ² (from Siemens)

SINAMICS-Xplorer

Acquire data via Xplorer interface

The SINAMICS-Xplorer software interface in ibaPDA or the ibaPDA-Drive-Xplorer bundle is required for data acquisition with the Xplorer interface. Additional hardware is not necessary.

ibaPDA-Interface-SINAMICS-Xplorer



- › Simple configuration
- › No PLC program changes needed for selecting the variables (free selection)
- › Possible to change the variable selection during operation
- › Access possible via TCP/IP

iba software	iba hardware
ibaPDA and ibaPDA-Interface-SINAMICS-Xplorer or ibaPDA-Drive-Xplorer	-

Order information

Software

Order no.	Name	Description
30.770256	ibaPDA-V7-256 ³	Basic package for 256 signals, 2 clients, 2 data stores
31.001044	ibaPDA-Interface-Drive-Xplorer	License bundle of all current Xplorer interfaces to drive controllers (SIMOTION, SINAMICS) for an ibaPDA system
31.000030	ibaPDA-Interface-SINAMICS-Xplorer	License extension for ibaPDA system with a SINAMICS-Xplorer interface (max. 32 connections)
31.100030	one-step-up-Interface-SINAMICS-Xplorer	License extension for 32 more SINAMICS-Xplorer connections
31.000031	ibaPDA-Interface-SIMOTION-Xplorer	License extension for ibaPDA system with a SIMOTION-Xplorer interface (max. 32 connections)
31.100031	one-step-up-Interface-SIMOTION-Xplorer	License extension for 32 more SIMOTION-Xplorer connections
31.001350	ibaPDA-Interface-Profinet-CP	License extension for ibaPDA system for access to Profinet controller CP1616 or CP1626
30.681502	ibaPDA-V7-PLC-Xplorer	ibaPDA system for 64 signals, 2 clients, 2 data stores incl. S7-Xplorer, AB-Xplorer, B&R-Xplorer, Bachmann-Xplorer, Codesys-Xplorer, Logix-Xplorer, MELSEC-Xplorer, Sigmatek-Xplorer, TwinCAT-Xplorer

³ Other licenses are available for ibaPDA for a larger number of signals, clients and data stores.

Hardware

10.170001	ibaDAQ	Central unit for stand-alone data acquisition (incl. 2 Ethernet interfaces, 1 FO connection, ibaPDA-V7-64)
10.170002	ibaDAQ-C	Compact device for stand-alone data acquisition (incl. 2 Ethernet interfaces, ibaPDA-V7-64, ibaPDA-Interface-PLC-Xplorer, ibaPDA-OPC-UA-Server+, ibaPDA-Data-Store-MindSphere-16, ibaPDA-Interface-MQTT, ibaPDA-Data-Store-MQTT-16)
13.120000	ibaBM-PN	Bus monitor for PROFINET
13.121001	ibaBM-DP	Bus monitor for PROFIBUS
19.115200	Profinet-CP1616	Interface card for PROFINET IRT
11.118030	ibaFOB-2i-Dexp	FO card, PCI Express, 2 inputs
11.118020	ibaFOB-io-Dexp	FO card, PCI Express, 1 input, 1 output
11.118010	ibaFOB-2io-Dexp	FO card, PCI Express, 2 inputs, 2 outputs
11.118000	ibaFOB-4i-Dexp	FO card, PCI Express, 4 inputs
11.116200	ibaFOB-4o-D rackline-slot	FO card, 4 outputs, short design for ibaRackline
11.117010	ibaFOB-io-USB	FO adapter with USB interface for notebook, 1 input, 1 output



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