See the Big Picture

Get 360° Transparency with the iba System

2019

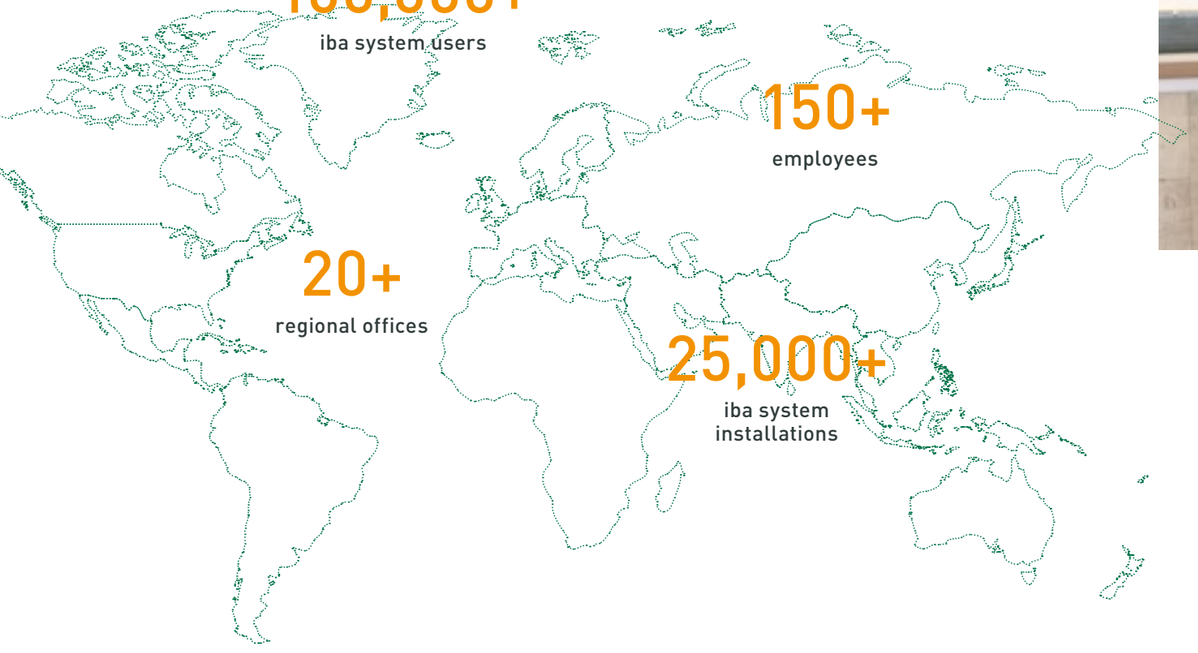
Measurement Systems for Industry and Energy

www.iba-ag.com

Content

Experts for Measurement Systems for Industry and Energy

It is our mission to bring transparency to the world of industrial production, power generation and energy distribution plants. Using an iba system, you can be sure that your plants and machines are captured 360° and every single process within can be 24/7 seamlessly recorded and made visible.



Cutting Edge
For more than 30 years, our area of expertise has been the development of high-quality systems for process data acquisition, analysis and signal processing.

iba is one of the few manufacturers offering the complete technology chain from hardware to software to database and cloud connectivity.

Only those manufacturers who understand the whole process of digitalization in detail can foster innovation and provide competent advice and support to customers.

Communicative
The essential feature of our hardware and software products is, beside their practice-oriented functionality, a distinct connectivity to automation systems.

Various manufacturers and system generations are taken into account and even legacy systems can be integrated as well: A clear benefit in the life cycle of the plant.

iba System
With the iba system you will have interference-free processes and maximum transparency on all technical processes in your plant - and beside that - almost infinite possibilities to optimize your processes.

Autonomous, modular, scalable

The iba System

Our data acquisition and software solutions for measuring, validating and analyzing machine, production and energy plants are scalable and can be perfectly extended at any time. They can not only grow along with increasing requirements but also get along with all common industrial control systems.

2 Record Data

Like a flight recorder, the iba system acquires and stores various measurement data for long-term availability by using the ibaPDA system (process data acquisition). The data is recorded continuously (24/7) or triggered by certain defined events. Signals chosen by the user can be visualized online, combined with each other and analyzed.

1 Acquire Data

The basis for an efficient process data analysis is the time synchronous acquisition of relevant data at characteristic places within an automated plant. Data from different signal sources can be acquired synchronously. Due to the isochronous measurement, causal relations can be detected and understood also in complex and distributed systems.

4 Optimize

By deriving Key Performance Indicators (KPI), the user gains valuable information about the acquired process. You document your process in customer specific reports, recognize trends and receive an alarm when limit values are exceeded.

3 Analyze Data

Depending on it's objective, recorded data are individually analyzed after measurement: either interactively or automatically on base of pre-defined analysis rules. Also long-term analysis of HD data is possible. With ibaAnalyzer you have a flexible tool with a free license which can be installed and deployed several times.

Your company will benefit from our iba ystem:

- Increasing productivity
- Saving energy and raw materials
- Minimizing plant downtimes
- Documentation and increasing product quality
- Optimizing processes
- Avoiding critical machine conditions

Area of Application

Troubleshooting

Failures in automated plants lead to production interruptions and products of poor quality. Thus, it is extremely important to find these failures. In case of a failure, the maintenance engineers needs to have access to the measurement data which have been recorded during the disturbance. By analyzing these data, the engineer finds the root cause and eliminates the failure in the plant in a targeted way.

Recording Data continuously
For localizing failures, the plant behavior needs to be recorded continuously and hence be made transparent.

ibaPDA provides a global view on the plant and also allows for analyzing interactions between individual system components and several controls. An autonomous, but stationary integrated acquisition system in the plant provides the data immediately in case of a failure.

With ibaPDA-PLC-Xplorer you have a powerful tool at your disposal which records signals from PLCs in a flexible and mobile way.

Convenient Data Analysis with Video Images
Values which cannot be acquired with the existing sensor technology, will be acquired with ibaCapture time synchronously to the measured signals - a valuable help for analysis, since measurement data and video images can be analyzed jointly.

Offline Analysis of Measurement Data
ibaAnalyzer offers various functions to analyze failures based on recorded measuring data. Signal trends, signal intervals, and delays are measured and outliers as well as causal connections can immediately be detected.

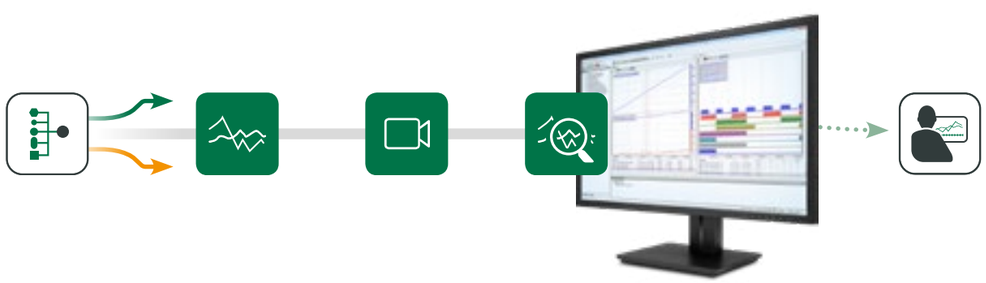
"Troubleshooting by iba. Find the causes of process errors with a few clicks."

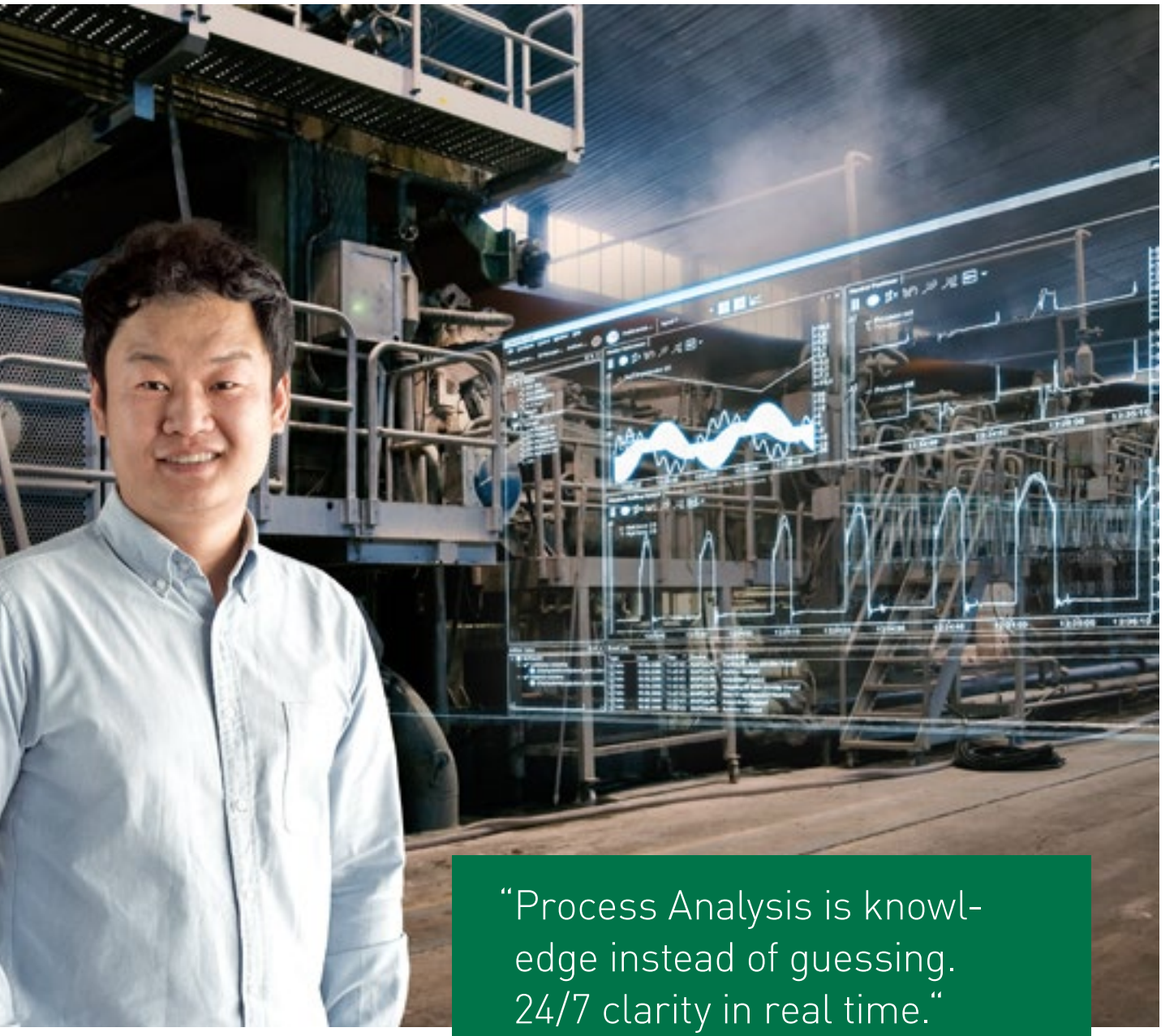
Ahmet Kösereisoglu, Consultant, iba Turkey

Your Benefits at a Glance:

- Reducing production downtime
- Efficient commissioning
- Find root causes of errors and disturbances

iba System for Troubleshooting





> “Process Analysis is knowledge instead of guessing. 24/7 clarity in real time.“
>
> **Mayday Yoon,** General Manager, iba Korea

Your Benefits at a Glance:

- Enhanced productivity through more efficient processes
- Optimized processes through continuous data recording
- Improvement of product quality

Area of Application

Process Analysis

Process analysis is the prerequisite for process optimization and is always required when e.g. new products are launched, the process is modified or improvements in quality should be achieved. The process analysis is most successful when it is based on unaltered long-term data and statistical data allow conclusions about the process behavior and the production at any time.

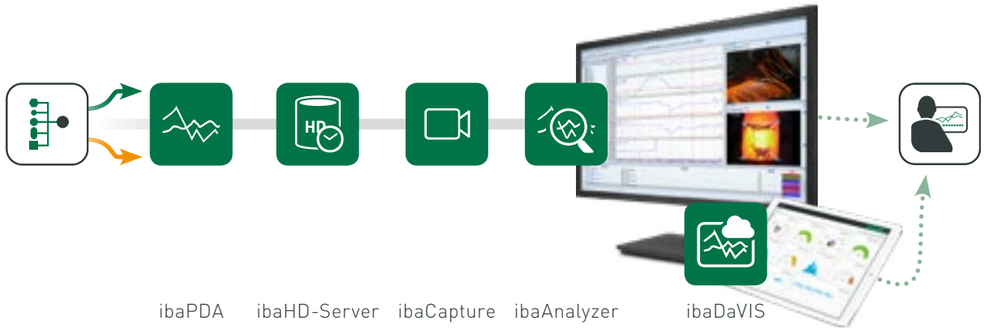
Efficient long-term Data Acquisition
In product analysis, the long-time behavior of a process is being reflected upon different aspects and for various product groups.

For analysis, the product- or time-related measurement files generated with ibaPDA or the data and events stored in ibaHD-Server can be used. The videos recorded with ibaCapture and the automatically generated individual images help to understand and analyze the process behavior.

Flexible and reproducible Analyses
With ibaAnalyzer and ibaDaVIS you have powerful analysis tools at your disposal for answering technological questions and performing long-term analyses with drill-down to the high resolution measurement data.

Process Optimization
Benefit from an enhanced productivity through more efficient processes, an improved product quality as well as saved energy and raw materials. Hence increase your customer satisfaction.

iba System for Process Analysis



Area of Application

Quality Documentation

For documenting an automated production, quality data and characteristic values need to be calculated and stored reliably in a quality management system. With the iba system, customer specific reports can be generated for product documentation and product release by automatically transforming measurement data into quality data and storing these data in an open format in databases or cloud systems.

"Production Managers can relax knowing iba is on the job."

David Kober, Sales Engineer, iba America

Your Benefits at a Glance:

- Automatically calculating characteristic values
- Creating production and quality reports
- Root cause analysis by drill down to the measurement data

Automatically Calculating characteristic Values

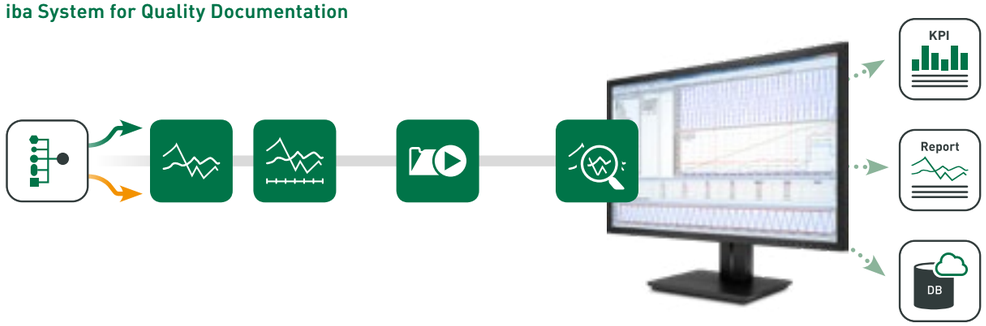
With ibaPDA measuring data are recorded time-related and then stored product-related in measurement files. With ibaQDR values measured with ibaPDA are assigned to the corresponding measuring locations and translated into product-specific, length-based measuring values, standardized to the length of the final product. This allows an efficient calculation of quality data for line products. With ibaAnalyzer and ibaDatCoordinator characteristic values and quality data can be calculated comprehensively and automatically from the high resolution measurement data.

ibaAnalyzer-DB allows the further aggregation of the measured data length or time related and storing them along with the calculated characteristic values in databases or cloud systems.

Generate Quality Documentation automatically

After a product has been finished, the customer specific report is being filled automatically with the current measurement and quality data. On the basis of defined layout templates, it is filed as PDF or HTML or sent automatically via e-mail. For long-time analyses and cross-product documentation,ibaAnalyzer has access to the data in different databases. Hence, a powerful, flexible and always transparent reporting system can be easily implemented.

iba System for Quality Documentation



ibaPDA ibaQDR ibaDatCoordinator ibaAnalyzer

"We acquire and monitor Power Quality according to binding standards."

Dries Boone, General Manager, iba Benelux

Your Benefits at a Glance:

- Analyzing faults efficiently
- Documenting power quality according to standards
- Avoiding fines

Area of Application

Power Quality

In the field of electrical power technology, the iba system is used as Transient Fault Recorder and for the acquisition, recording, and calculation of power quality variables according to standards.

Acquiring dynamic Processes rapidly

With the iba system, fast transient signal transitions can be acquired and recorded up to 100 kHz at a high resolution. Since measurement data are to be recorded only in case of failure here, ibaPDA initially stores the data in an internal buffer. When a failure condition occurs, the data is recorded in a triggered way.

Prove Power Quality according to Standards

ibaPQU-S is a certified measuring system that measures raw values like current and voltage grid-synchronously and calculates the characteristic values that are relevant for the power quality according to IEC 61000-4-30 3 Class A and thus is suitable for analyzing purposes according to EN 50160.

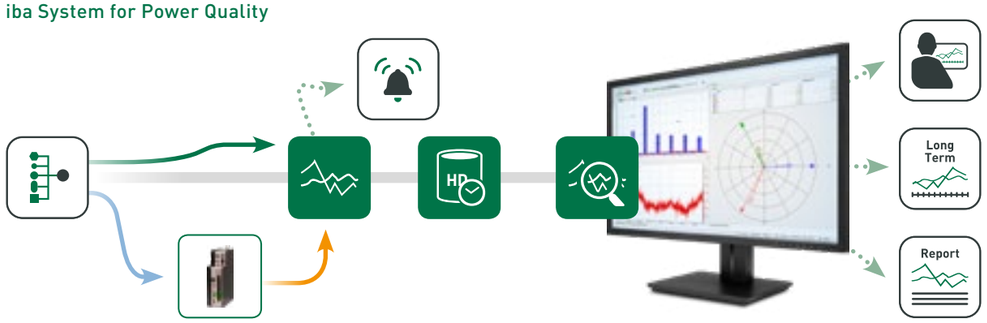
Analyzing Power Quality and Fault Evaluation with one System

Protective devices in the plant can be integrated via the standardized transfer protocol IEC61850 for protection and control technology. If several thousand high-resolution signals have to be acquired synchronously in complex plants, several ibaPDA systems can be connected via fiber optic cable. The data is recorded with sample precision (multistation functionality).

Analyzing Measurement Data

Triggered and recorded measurement files are interactively analyzed offline to root cause the error situation. Providing evidence for the power quality, standard-conforming analyses and reports on base of the continuously over a long period of time (e.g. one month) recorded measurement data, are generated automatically.

iba System for Power Quality



Area of Application

Condition Monitoring

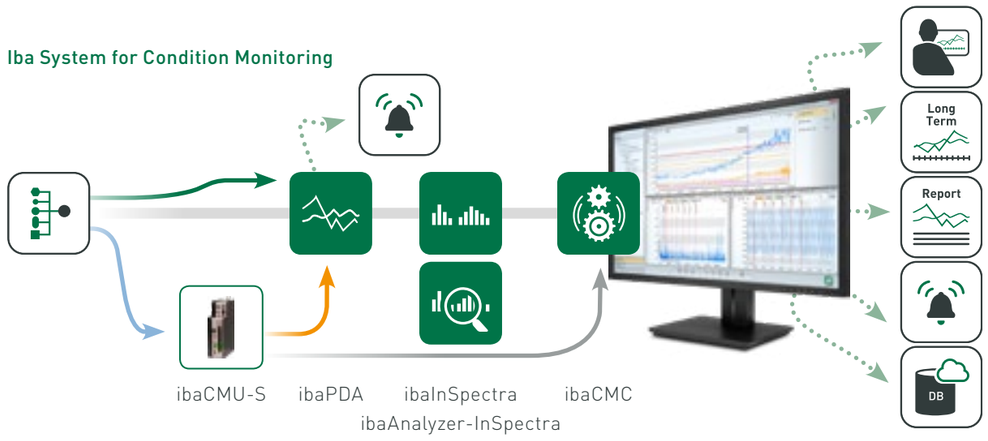
Condition Monitoring Systems (CMS) use vibration measurement in combination with intelligent analysis procedures for detecting wear and tear on mechanical components at an early stage. These systems are the basis for the transition from a preventive to a condition-oriented maintenance. Thus, mechanical components are optimally used over their real service life and the costs for unexpected downtimes and spare parts are reduced.

Enhanced Reliability
In terms of complex plants, varying load states and materials exert a great influence on the vibration measurement and the analyzed damage levels are strongly fluctuating. Often false alarms that arise as a consequence are often responded with an increase of the alarm limits - this reduces the lead time and voids out the benefit of the system. To obtain a reliable function of the CMS system in this context, it is necessary to know the relevant operating parameters.

With the Condition Monitoring Center ibaCMC and the Condition Monitoring Unit ibaCMU-S, iba offers powerful functions for monitoring the wear of machines and setting the results into relation to process information.

Online Monitoring
ibaSpectra is an integrated technological module for online vibration monitoring for ibaPDA which continuously processes vibration signals in real time. Using spectrum analyses, vibrations can be monitored online and set into relation to other process parameters. When vibrations become critical, the plant operator is informed via alarm message or email. Beside that, also a feedback to the plant control is possible to automatically adjust certain parameters to optimize processes and increase product quality.

Iba System for Condition Monitoring



"Simply reduce costs for unplanned downtimes and replacement parts."

Shraddha Patel, CEO, iba India

Your Benefits at a Glance:

- Optimal planning of maintenance works
- Avoiding unplanned downtimes
- Vibration analysis in real time

Area of Application

Digitalization

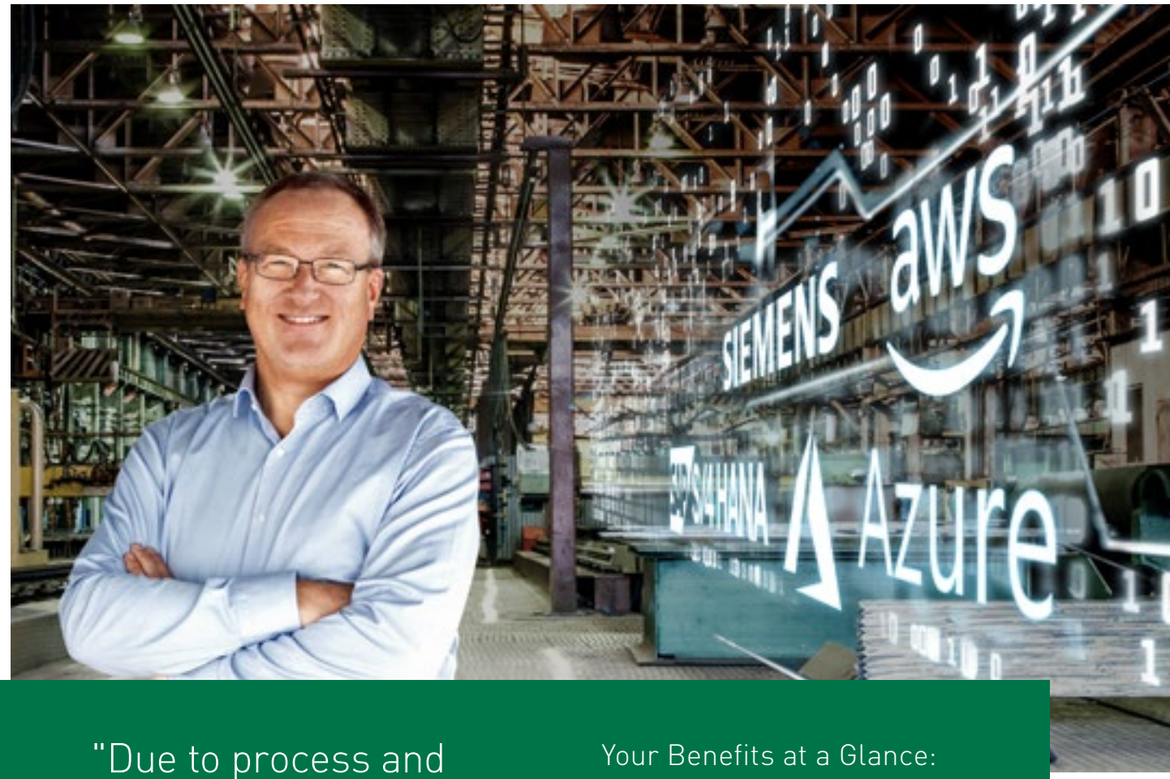
The acquisition of measurement data in machines and plants is a prerequisite for your digitalization strategy. Measurement data give you a digital image, which can be used for optimization, evaluation and long-term analysis. Meaningful characteristic values (Key Performance Indicators, KPIs) can flexibly be calculated based on raw data and be stored in databases or cloud systems. This allows you to optimize plants and identify process anomalies at an early stage.

Data Acquisition
The processes of your machines and plants can be acquired by ibaPDA in high-resolution using comprehensive process connectivity. This allows you to acquire control and machine data, energy and vibration data with a central time stamp from different data sources and store them in measurement files: The base for the efficient analysis of your processes.

Online Streaming
Measurement data can also be aggregated online and then be output to databases or cloud systems. By this you have immediate access to measurement data in your superordinate system.

Calculating characteristic Values flexibly and automatically
The digital image is the base for calculations of meaningful and individual characteristic values. These characteristic values can be calculated automatically product- and batch-specifically with ibaAnalyzer synchronously to the process. You decide how and where the characteristic values are stored. The Northbound connectivity of the iba systems allows a flexible storing in databases or cloud systems.

ibaDAQ – the ideal Edge Device
With the ibaDAQ family, iba AG offers an ideal edge device which allows you acquire data locally and to store aggregated characteristic values in your superordinate system. With ibaDAQ, data acquisition as well as the calculation of characteristic values can take place directly at the machine. An advantage for the digitalization of your machines and plants in the context of your industry 4.0 strategy. ibaDAQ provides the necessary interfaces for acquiring high-resolution measurement data (Southbound) as well as for data output (Northbound).



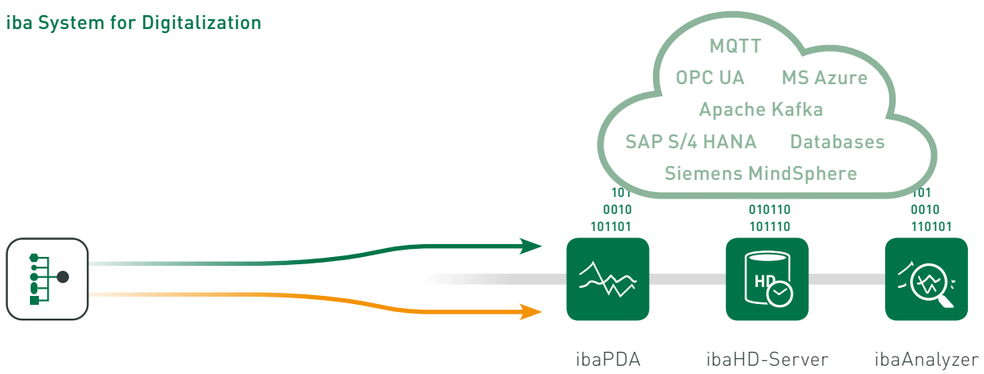
"Due to process and cloud connectivity, we can help you digitalize your processes."

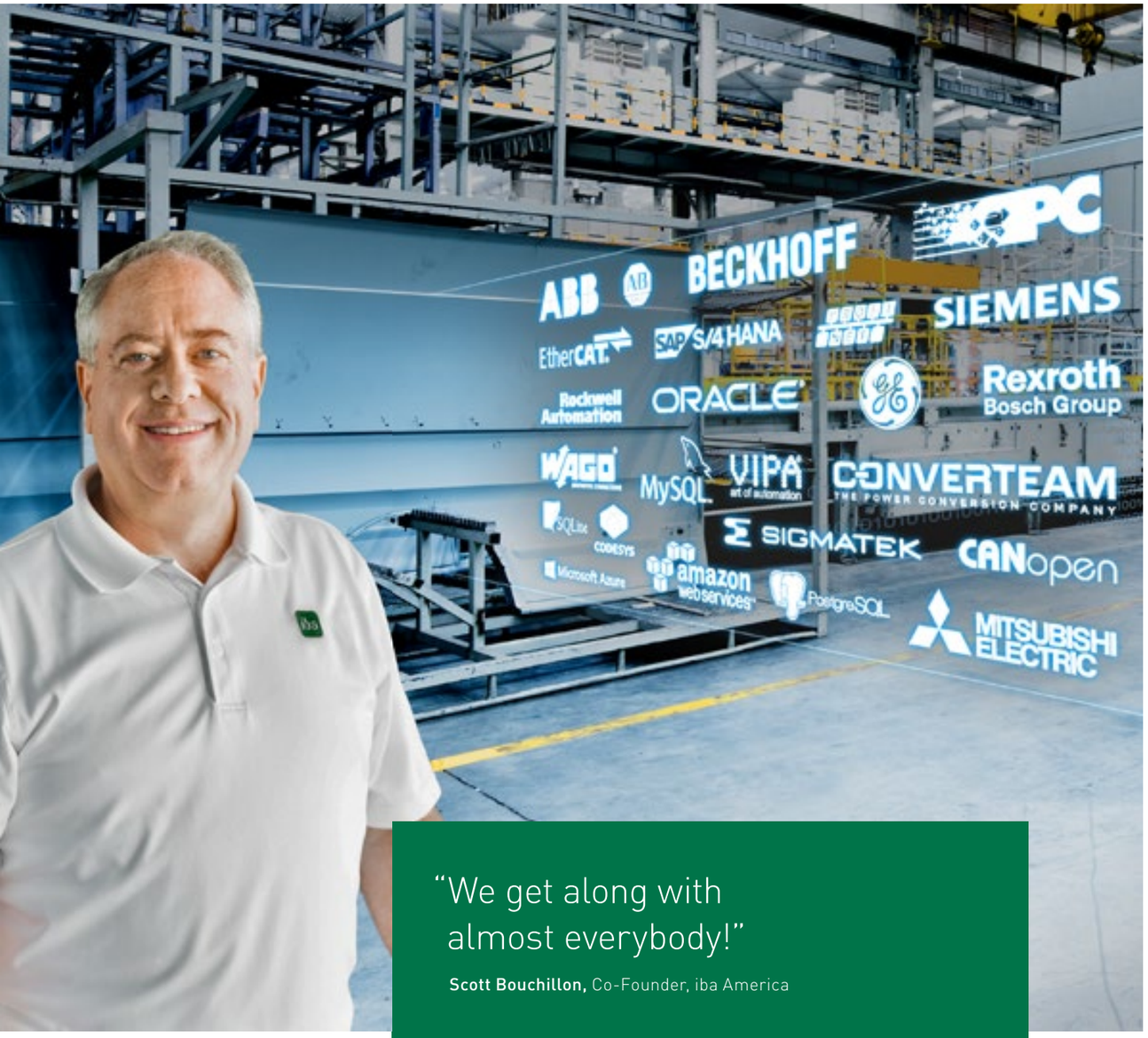
Dr. Andreas Quick,
Head of Product Management, iba Germany

Your Benefits at a Glance:

- Digital image of your processes
- Automatic calculation of individual characteristic values
- Realization of your Industry 4.0 strategy

iba System for Digitalization





"We get along with almost everybody!"

Scott Bouchillon, Co-Founder, iba America

Your Benefits at a Glance:

- Combination of different signal sources, data types and manufacturers
- Time-synchronous acquisition of all relevant data
- Different acquisition rates up to 100 kHz

Complete View on the entire Process

Connectivity

The iba system acquires all relevant data in automated plants. Independently, whether fast analog values (up to 100kHz) are coming directly from sensors, data exchanged via field buses or variables from automation systems. Everything can be acquired together and set into relation. You decide what is relevant! Through the broad connectivity, your machines and plants can be completely acquired.

Thanks to the broad process connectivity of the iba system, data from different sources throughout the entire manufacturing process are available consistently and in a synchronized way. The user gets a complete view on the entire process and can detect reciprocal effects between the specific components. This is difficult to analyze in local PLC-internal data loggers.

Different Data Types

The consistent acquisition of different process signals such as analog and digital IO signals, signals from field and drive buses, data from automation systems, communication data, camera data, product data from MES systems etc., is the great strength of an iba system.

Different Acquisition Methods

Via FO connections you can connect analog and digital IO modules directly. Also data from different field and drive buses can be sniffed and system interconnections can be realized. Control systems that communicate e.g. via PROFIBUS or PROFINET can be connected via the corresponding bus monitor. In addition, numerous Ethernet-based interfaces like TCP/IP, UDP or OPC are available for the acquisition of signals from different sources and access methods (direct communication, Xplorer interface, request)

Record Camera Images time-synchronously

With ibaCapture camera images are captured and recorded with measurement data synchronously. Hence, you can analyze video and measurement data online as well as offline.

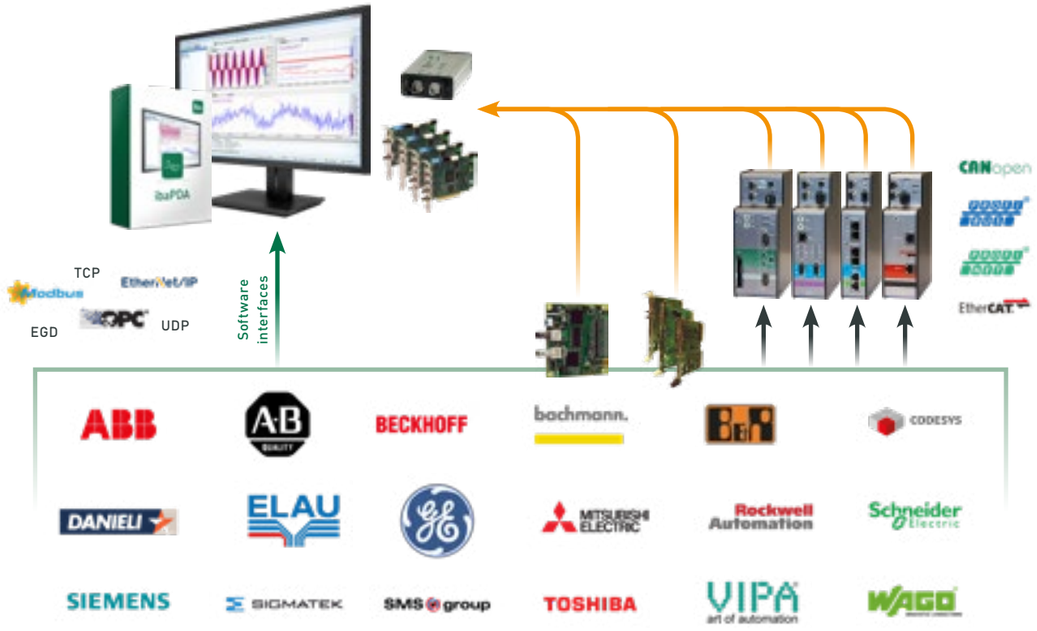
Acquire Data from PLCs

Traditional measurement systems acquire electronic sensor signals with the help of A/D converters. In the era of digital control systems, most measurement values that are of interest are already present in the automation system. This is why iba offers various methods for accessing the internal values of control systems directly.

Your Connection to almost every System
A main characteristic of the iba system is the broad connectivity to automation systems. Via field bus connections, Ethernet protocols or system interfaces, an iba system can be connected to almost every automation system independently of manufacturer and device generation.

Requesting Measurement Data during running Operation
For many systems, Xplorer interfaces and request method are available. This method allows you to optionally request internal variables of the PLC.

Thus, you can newly select measurement values without having to stop the PLC and adapt these to the respective requirement. The measurement values are addressed with their symbolic name. Sending data is done by a software request block in the PLC which has to be integrated once. Data transmission is done via UDP or field buses.



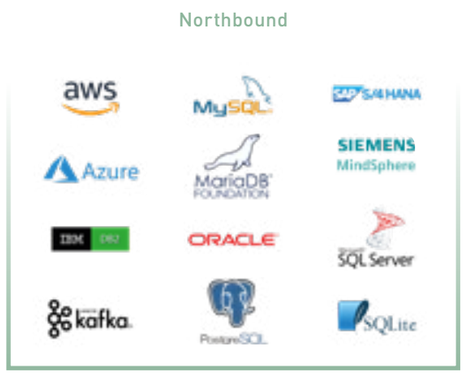
Northbound Connectivity

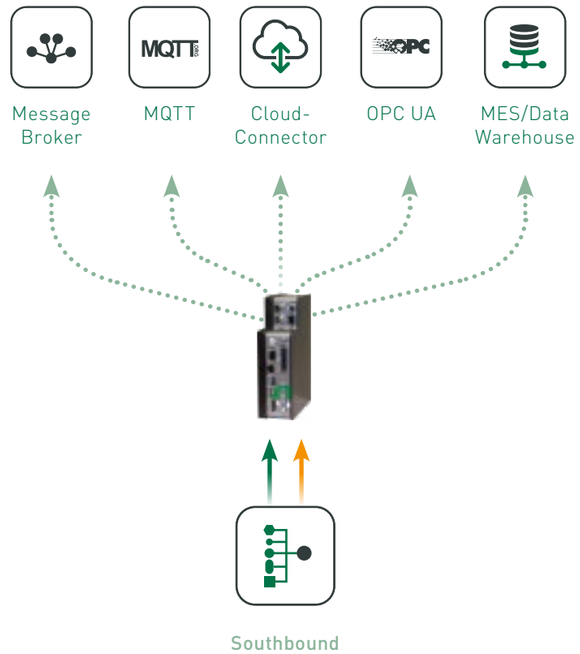
With the broad northbound connectivity measurement and quality data can also be processed outside the iba system. With connections to databases and cloud systems, data acquired with iba can be stored, evaluated and analyzed in your system.

Process Monitoring
ibaPDA offers various streaming interfaces for online monitoring of processes captured with ibaPDA such as: OPC UA, MQTT, SAP S/4 HANA, Apache Kafka. Further interfaces are being planned.

Storing and Analyzing characteristic Values
For long-term storage and analysis of length- or time-based aggregated data or characteristic values calculated in ibaAnalyzer, the iba system offers an open database interface to SQL databases (SQL Server/MS Azure, Oracle, MySQL, PostgreSQL, ...) via OLEDB or ODBC.

Open Ecosystem
Using these interfaces you can easily create a performant reporting system or use the data for your data analytics applications.





Scalable at any Time

Apart from its comprehensive connectivity, scalability is another main feature of an iba System. It is extendable at any time and can grow with increasing requirements. Starting from troubleshooting of a PLC with 64 signals to monitoring of a large plant with over 100,000 signals, camera systems with machine vision applications and quality data loaded into databases for automated product release and other features.

Data Acquisition

Data acquisition with iba can exactly be customized to your situation and aims. You only configure those interfaces and signals which you need for capturing your process. This allows you to start on a small base and add further interfaces, signals, data stores or camera systems, when your requirements grow.

Data Analysis

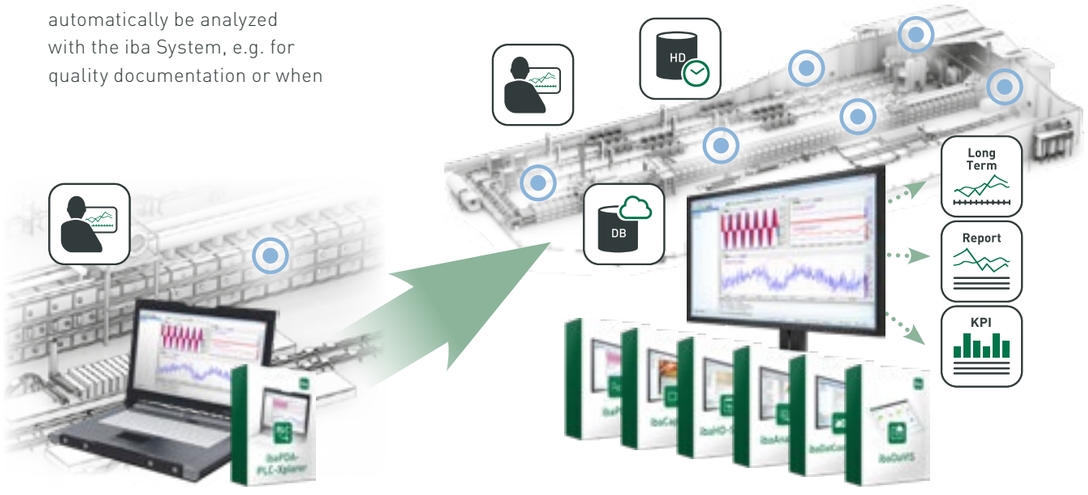
At the beginning, analysis in general is interactive and signal-oriented. Nonetheless, measurement data can automatically be analyzed with the iba System, e.g. for quality documentation or when machines are compared on base of characteristic values. The calculation is done interactively once and then, basing on analysis rules automatically updated for every product or fixed time intervals. The results can automatically be documented in reports or loaded in databases - no matter whether they are OEE values or product details.

Optimizing

With the web-based application ibaDaVIS the plant or machine behavior can be visualized user-specific on dashboards. The analysis delivers important results concerning the optimizing of processes and machines for different user groups.

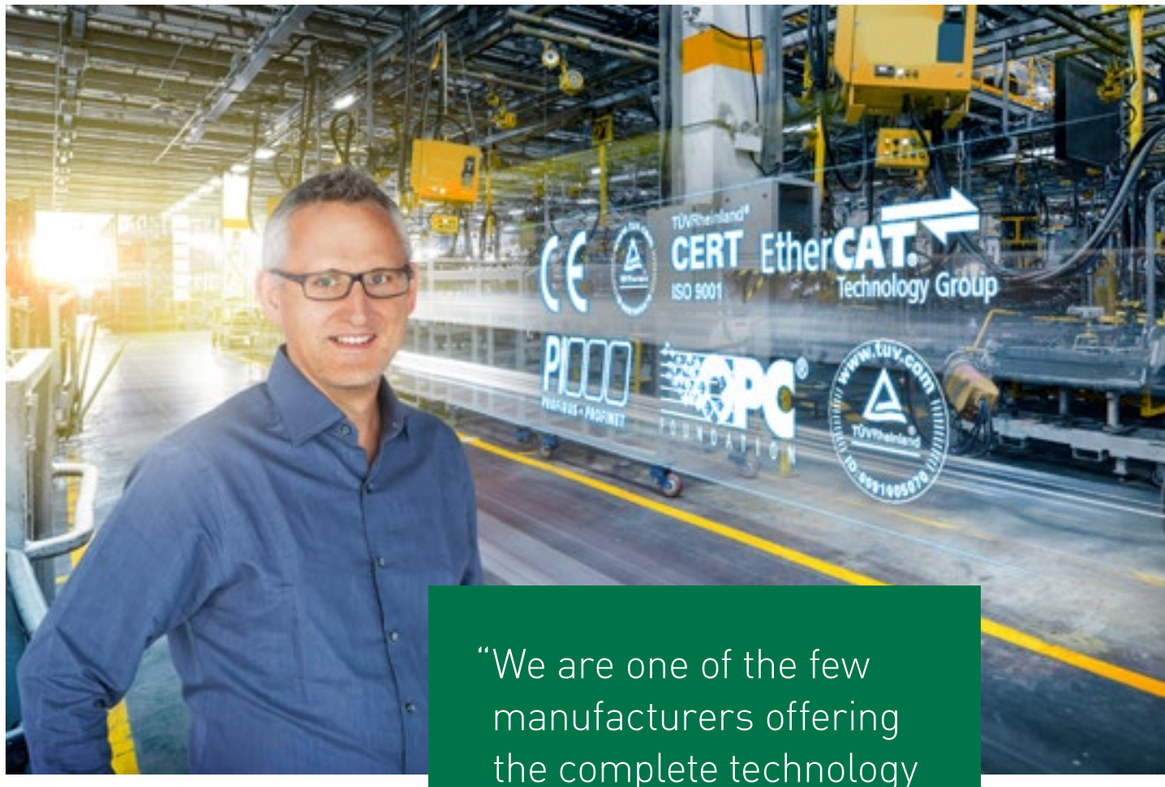
The iba System – an open Ecosystem

If products of the iba system do not fully meet your requirements, you can also publish data recorded with iba via our Northbound interfaces and use them in your environment.



Software and Hardware

A main feature of our hardware and software products is, beside its practice-oriented functionality, its convincing connectivity to automation systems. Therefore different manufacturers and system generations are taken into account and even legacy systems can be integrated - which is a huge advantage in the life cycle of the plant.



"We are one of the few manufacturers offering the complete technology chain from hardware to software to database and cloud connectivity."

Oliver Soukup,
Head of Development, iba Germany

Field and Drive Bus Monitors

All bus monitors are coupled without interference to the bus and facilitate the monitoring and recording of data traffic between automation and peripherals, without compromising or straining the automation.

Different Modes
iba bus monitors normally have two operating modes. In sniffer mode (= monitoring), the values communicated via the bus are read and recorded as signals.

Configuration changes are not required in this case. In the active mode, known as „active slave", the bus monitor can receive the values sent to it from the control system. The bus monitor can be specifically addressed by the master and supplied with any values. By this, all internal values of a PLC can be acquired without having to output them to an analog or digital terminal. Data recorded from the buses are converted in the bus monitor, transfered via the ibaNet fiber optic protocol and sent to ibaPDA.

Diagnostics
The iba bus monitors offer a substantial amount of diagnostic information about the status of the field bus in order to be able to quickly detect bus errors. Information on the slaves is also displayed.

Convenient Configuration in ibaPDA
The configuration of signals conveniently takes place in the I/O manager of ibaPDA. By using automatic detection in ibaPDA, all connected devices are detected in ibaPDA and displayed in the I/O manager.

The required signal configurations can be made quickly thanks to the simple user interface.

Compact Measurement Modules

Using the ibaPADU (Parallel Analog Digital Unit) device family, analog and digital signals can be acquired and recorded with high precision by the data acquisition system ibaPDA. Fast and synchronous sampling of all signals enables a detailed analysis of all processes.

ibaPADU Device Family
The measurement modules of the ibaPADU family are used for measuring analog and digital signals. Analog inputs are available as current and voltage inputs with different measurement ranges.

Each channel is galvanically isolated and equipped with its own A/D converter for real parallel data acquisition. The resolution of the A/D converter is 16 bit. Furthermore analog and switchable digital filters void out reliantly alias disturbances.

Various Devices available
Using the devices ibaPADU-D-8AI-U and ibaPADU-8AI-I up to 8 devices can be connected in series via FO and transmit up to 64 analog and 64 digital signals at a fixed sampling rate of 1kHz.

The sampling rate of the devices ibaPADU-D-8AI-U and ibaPADU-D-8AI-I can be configured in the range from 1 kHz to 40 kHz.

A sampling rate of even 100 kHz is possible with ibaPADU-4-AI-U in a point-to-point connection. These three device families work with the 32Mbit Flex protocol that allows a flexible transmission of up to 4060 Bytes in a FO ring.

System Interfaces

Direct Data Acquisition

To acquire measurement data from VME-based systems, Simatic MMC and Simady-D systems, different system interfaces are available. ibaLink-io-embedded allows you to connect ibaNet-FO to arbitrary proprietary systems.

Special Components

Fast Transfer

Special components for acquiring data from the control system Simatic TDC and Simadyn-D are available. Measurement data can be acquired with a direct FO connection between the ibaPDA system and the control system with a high sample rate.

Terminal Blocks

Integrating decentralized A/D Terminals into the iba System

The I/O modules of the WAGO 750 series are an ideal supplement to the compact measurement modules of iba. ibaNet750-BM-D module connects the WAGO I/O modules with the optical ibaNet transmission protocol, which is used to transmit values to the ibaPDA system. This module supports up to 255 I/O terminals.

The following terminals are supported:

- Analog and digital I/O terminals
- Counters
- SSI sensors
- Resistance thermometers
- Thermocouples
- Measurement bridges
- Terminals for power measurement

ibaDAQ Family

The devices of the ibaDAQ family allow a local data acquisition with ibaPDA integrated and data storage onboard. With its comprehensive output options, relevant data and information are always available where they are needed.

Perfect for the local Use in every Environment
The devices of the ibaDAQ family are ideal out-of-the-box-solutions for acquiring and recording measurement data. Both devices offer the functionality of a PC with ibaPDA integrated for up to 64 signals, an internal solid state disc for data storage, a performant CPU and interfaces to acquire measurement values.

In contrast to the classic industrial PC, these devices are small, compact and fanless and require no additional ibaFOB board to record analog signals or data from iba bus monitors The devices fit perfectly in rough environments and can be used for local measurements directly at the plant or machine or in remote locations, such as cranes. They will find space even in tight control cabinets.

ibaDAQ
ibaDAQ is part of the iba modular system and can be combined with up to 4 I/O modules. It has two Ethernet interfaces and one FO connector providing the functionality of an ibaFOB-io board.

ibaDAQ-C
Those who merely intend to acquire data via Ethernet based protocols, will find a perfect solution in the compact DIN-rail device ibaDAQ-C with 2 Ethernet interfaces.

The standard delivery of ibaDAQ-C contains additionally to the integrated ibaPDA system, the license ibaPDA-Interface-PLC-Xplorer and ibaPDA-OPC-UA-Server This allows you to acquire signals directly from different PLC systems and export data via OPC UA.

PCs & FO Infrastructure

Industrial Computers

iba offers high performant industrial computers for data acquisition and analysis that meet highest requirements. The computers are characterized by a high product quality paired with the latest technology and are designed for longevity in rough industrial environments.

Fiber Optics Connections: fast and reliable

The boards of the ibaFOB family are communication boards for ibaNet fiber optical links. The ibaFOB cards connect iba peripherals, such as: e.g. ibaPADU compact measurement modules, ibaLink system couplings and iba bus modules with PCs.

iba Modular System

The iba modular system acquires and processes measurement signals and is perfectly suitable with the appropriate signal output modules for control applications. The decisive advantage of the system is the modular concept that can be freely configured: On a module rack with backplane bus, one central unit and up to four other input and output modules can be plugged. Various operational scenarios can be realized with application-specific central units.

Broad Range of Modules
The system includes several I/O modules for analog and digital inputs and outputs as well as for SSI and pulse transmitters. All I/O modules work with sampling rates of up to 40 kHz absolutely time-synchronously. Due to the modular technology and the broad range of I/O modules, the iba modular system can be flexibly adapted to the respective requirements.

Central Units for each Application
- ibaPADU-S-CM is a pure communication unit for the input and output of different signals.
- ibaPADU-S-IT is suitable not only for the fast acquisition of measurement values but also for intelligent processing of signals and algorithms.
- ibaCMU-S is the central unit for Condition Monitoring applications.
- ibaPQU-S serves as a Power Quality Unit for monitoring the grid quality according to highest precision standards.
- ibaDAQ is equipped with an integrated ibaPDA system and can acquire data as stand-alone data acquisition device and store them locally - ideal for the operation in control cabinets or on cranes.

Measurement Box (ibaMBox)

iba Modular System for mobile Use

Flexible use everywhere- this is an increasingly important requirement for measurement systems, especially in the fields of commissioning, troubleshooting, service and maintenance.

With ibaMBox iba offers a mobile, robust system to acquire highly precise data, regardless of location. ibaMBox modular system allows you to individually customize the infrastructure to meet various application requirements.

Record Data

As central component of the iba system ibaPDA has proven for years as one of the most versatile measurement value acquisition systems for maintenance and production. Client server architecture, flexible recording, and the simple configuration due to “auto-detect” functionality are only a few of the convincing features.

The modern Classic of Data Acquisition
ibaPDA is an extremely powerful, PC-based acquisition and recording system for different measurement data in automated technical processes. The modular product concept allows highly flexible configurations and offers customized solutions for individual requirements. This might be the continuous long-term acquisition of measured value to further optimize automation processes or the use as a fault recorder in energy plants with triggered recording in case of failures. ibaPDA is scalable and suited for individual machines as well as for cross-plant systems.

Systematic Transparency
A special feature of ibaPDA is the extraordinarily broad connectivity to all common automation systems. Many acquisition methods allowing the connection of systems of various manufacturers and generations are available. This allows a consistent data acquisition of an entire system usually consisting of heterogeneous components. ibaPDA can handle several recordings simultaneously which are tailored to different user groups. This enables different use cases, for instance, if different signals, characteristic values or sampling rates are required or measurement files with different trigger conditions have to be created.

Available Add-ons

Length-based Recording of Quality Data

ibaQDR allows the recording of quality data for strip products. Time-based measured values with ibaPDA are converted into product specific and length-based data.

Display Quality Data - Live and in Color

ibaQPanel allows the live view of process and quality data, conditions, events and camera images in a technology-based display. Configuration is intuitive and flexible.

Store historical Data on a long-term Base

With ibaHD server you can store data acquired with ibaPDA for long-term availability. Find historical events with a single mouse click, navigate and zoom quickly from the annual, monthly or weekly overview into the millisecond range. Use ibaHD-Server to automatically generate longterm reports (e.g. an energy report for the last month).

The application ibaHD-Server (Historical Data Server) allows that measured data are recorded continuously over a long period of time and continuously displaying it afterwards.

Beside recording signals, events can be recorded and displayed in the event table. The event messages are automatically generated by a trigger signal and can be used for storing the event of product changes or events to analyze failures. These events can easily be filtered in the event table and serve as a base for an effective navigation towards the next entry. Additionally, annotations on events or dates can be stored also retrospectively as predefined or free text in the signal trend. These annotations can easily be complemented with additional information like images, reports or documents and be made available for other users.

ibaAnalyzer offers a wide range of options to analyze and evaluate HD-data with a wide set of functions. This application is license-free for processing HD-data as well as for the analysis of measurement data.

Record Videos and Measurement Data time-synchronously

The video recording system ibaCapture records video and HMI images synchronously to measurement data - either continuously or triggered by events. Important events can be automatically stored as still images. The simultaneous display of recorded measurement data and visual information with ibaAnalyzer offers a completely new quality of process analysis.

Everything at a Glance
With ibaCapture live images of video cameras and HMI systems can be synchronized to measurement data, acquired and recorded with ibaPDA. Unlike conventional video systems, ibaCapture not only records videos, but links measurement data recorded with the ibaPDA time-synchronously with the visual information.

A frame-accurate Display
The video information can be viewed frame by frame with the exact matching to process signals. As a result, relationships which are not evident at first sight can be understood more easily.

Errors can be detected more quickly and root causes can be better identified. The use of cameras improves the process monitoring where ever it is difficult to measure processes or where process steps cannot be reliably captured by sensors. This refers e.g. to material feeds from tool machines or plants with overly exposed steam, dust or heat, like in steel works or in rolling mills.

Available Add-ons

Automatic Generation of visual Signals

ibaVision integrates professional, industrial image processing into the iba system and enables visual monitoring and analysis of processes. Quality checks can be automated in real time during the production and allow early intervention in the process before major errors occur. ibaVision allows the creation of image processing applications with the library HALCON® and offers interfaces to ibaCapture and ibaPDA. Values calculated with ibaVision can be acquired as visual signals in ibaPDA and be visualized online.

Analyze Data

Within the iba system, ibaAnalyzer is the key element in the field of data analysis. It is a very powerful tool for analyzing measurement data efficiently as well as for deriving information without additional costs. Analysis procedures can be created flexibly and adapted individually, in a way that different users get the appropriate analysis for their special purposes.

Analyzing and Evaluating without additional Costs
ibaAnalyzer is characterized by broad functionalities for analyzing and evaluating. The application offers intuitive operation with complex functions at the same time. ibaAnalyzer is licensed free of charge for processing measurement data generated with the iba system.

Stay flexible and efficient
Analysis rules can be created flexibly and be adapted individually. This allows users to create appropriate analyses for their purposes, such as for analyzing faults, but also performing long-term analyses to validate and to further optimize processes. The wide-ranging analysis features comprise the automatic computing of specific characteristic and statistical values, but also product-related quality data that can be used for a superordinate quality management system. Moreover, using powerful mathematical and technological functions, signals can be combined, calculated or set into relation to the raw values. Further features amongst others are: filter designer, FFT analysis, macro editor, time- or length based display, X/Y diagram.

Automatized Generation of Reports
The integrated report generator is a powerful tool that allows creating individual reports in a very flexible way. With the report generator, efficient options for creating templates are available in order to present results in an correct form.

Available Add-ons

Importing third-party Formats

Measurement files which are not in the iba-dat format can be read and analyzed with ibaAnalyzer using the ibaAnalyzer-E-Dat module.

Exporting iba Measurement Files

With ibaAnalyzer-DAT-Extraktor measurement data in the iba-dat-format can be exported to other formats or into reduced measurement data. The export with ibaDatCoordinator can also be set automatically.

Loading characteristic Values into Databases

With ibaAnalyzer-DB quality data calculated in ibaAnalyzer and characteristic values (KPIs) can be extracted in databases.

Additionally, values can be read from databases and analyzed in ibaAnalyzer.

Offline Vibration Analysis

ibaAnalyzer-InSpectra offers the functionality of ibaInSpectra for offline analysis. Thus, e.g. frequency bands or shaft motions can be analyzed with the expert or orbit module and ibaInSpectra profiles can be configured offline basing on recorded data.

Automatic Processing of Measurement Data

ibaDatCoordinator is an efficient tool for processing and managing measurement data automatically. Typical fields of application are the automatic extraction of product-related characteristic values in databases as well as the report creation. In synergy with ibaAnalyzer, various tasks can be run fully automatic and employees can be relieved of routine tasks.

Analyzing data, calculating parameters or just managing the measurement files is often time-consuming, especially in heterogeneous system environments with numerous influencing factors.

With ibaDatCoordinator you have a tool at hand that allows you to run different task fully automatically. Using the integrated tools, data management can be set up individually. So, for instance, measurement files can be copied from the data acquisition systems, to file servers and thus be provided centrally to all authorized users.

ibaDatCoordinator offers the following functions:

- **Copy Task**
  With a copy task, measurement files can be copied or moved to a file server.
- **Report Task**
  The report task allows an automated generation of reports. Reports can be created and printed fully automatically, depending on the time or after completion of a product or batch, or output as a file in various file formats.
- **Extraction Task**
  With an extraction task data can be transfered from a measurement file to a database or another file format. Additionally, data can be extracted from an ibaHD server into a measurement file.
- **Scripting Task**
  A scripting task can execute self-provided scripts. This task provides an open interface for free processing of the measurement files.
- **Add Condition**
  Conditions can be used to control the execution of subsequent tasks. This can be used to find "outlier signals" or to compile measurement files of specific product groups.
- **Pause Task**
  The pause task allows the delayed execution of an update task.
- **Update Task**
  An update task can also insert information fields into a measurement file or rename them using a database entry.
- **Split Task**
  With the split task, a measurement file can be split into several measurement files with shorter time ranges.
- **ibaHD Import**
  With the ibaHD import task, measurement files can be imported into an HD store of an ibaHD-Server.
- **S7-Writer**
  With the S7-Writer task, it is possible to extract or calculate data from a measurement file and to write this data in data blocks (DB) within an S7-PLC.

Web-based Visualization and Analysis

ibaDaVIS allows the visualization of your process data and characteristic values in the web browser. You can interactively access detailed data from the overview on the dashboard.

See the Big Picture
With ibaDaVIS, you get a completely new overview and clarity through in-depth insights into your data and processes. Plants and machines can be compared with each other based on their characteristic values. The information that you need to monitor systems and machines and to identify weak points and potential for optimization can be shown quickly and easily.

Changes in the process can be tracked directly or displayed over long periods of time. Long-term trends, histograms, tables or pie charts are visualization and filter elements in one. Plant operators, process engineers or decision-makers are looking at the same data with ibaDaVIS, no matter when on a PC, mobile tablet or smartphone.

The latest Web Technology
ibaDaVIS uses the latest web technologies to connect clients to the back-end server. All common web browsers, such as Google Chrome, or Mozilla Firefox, are supported. The responsive design allows a convenient operation, even on tablets or smartphones. For clients only a web browser is required in order to connect to ibaDaVIS server. The installation of an additional app and software maintenance is not necessary on the client computer.

ibaDaVIS and the Cloud
ibaDaVIS currently offers access to iba measurement data and databases. A database that is managed via a cloud service can also be used to access data and information, such as a locally hosted database.

Condition Monitoring and Vibration Analysis

Condition Monitoring Systems (CMS) use vibration measurement in combination with intelligent analysis procedures for detecting wear and tear on mechanical components at an early stage. These systems are the basis for the transition from a preventive to a condition-oriented maintenance.

Monitoring Process Vibrations in Real Time
With ibaInSpectra any vibrations are monitored continuously and possible error sources can be detected at an early stage.

As the ibaInSpectra library is integrated in ibaPDA, not only mere vibration analyses can be performed, but also possible relations between vibrational effects and process behavior can easily be detected.

Detailed offline Vibration Analysis
ibaAnalyzer-InSpectra offers the functionality of ibaInSpectra for offline vibration monitoring in ibaAnalyzer. Analysis configurations can first be created and tested offline in ibaAnalyzer and then being transferred to ibaPDA for real-time vibration monitoring. In addition, existing ibaInSpectra installations can be checked and online calculations be optimized.

Analysis of Vibration and Noise Signals
ibaRotate is a software for the analysis of time domain measurements with speed-dependent patterns, such as vibrations and sound. ibaRotate processes measurement data in iba format and other file formats. ibaRotate is the perfect solution for engineers, service technicians and developers to analyze data with rotating or oscillating motions or acoustic signals.

Condition Monitoring of complex Plants
The Condition Monitoring Center ibaCMC is a high-end web-based desktop application for trending, alarming and reporting. The only software needed on the client side is a web browser. Furthermore ibaCMC is used for the configuration of the condition monitoring units ibaCMU-S that acquire data locally.

Automatic Monitoring of the Coil Tracking

With ibaDatawyzer-ICC (Inline Coil tracking Certifier) coils in the metal producing industry can be identified by characteristic geometrical features.

The production of flat products is a multi-step process. Normally, the individual process steps are not directly connected to each other but decoupled via storage and transport routes. If the coils are fed to the next process step, there is a risk of selecting the wrong coil.

In order to detect these mismatches, measurement data are acquired and stored with ibaPDA and processed with the evaluation tools of the iba system. ibaDatawyzer-ICC checks the identity of the coil based on the measured data.

By automatically detecting and reporting coil mismatches just-in-time, ibaDatawyzer-ICC helps to detect errors and weaknesses in logistics material tracking systems.

Signal Processing and Automation

ibaLogic is mainly used in measurement and control technology for fast and dynamic processes as a system for signal processing, simulation and as a communication gateway.

Short program cycle times up to 1 ms and deterministic time response make this possible. Thanks to the easy handling, seamless integration of iba-products for measurement technology, ibaLogic is applicable in many scenarios. Based on the architecture of a Programmable Automation Controllers (PAC) ibaLogic uses both powerful PCs and special runtime environments such as ibaPADU-S-IT-2x16, to solve the problems of a classical PLC. The programming follows the IEC61131 standard.

Application & Consulting

Our specialists help you finding a tailored solution for your project. To us, consulting means a comprehensive support: beginning with problem analysis up to implementation and commissioning.

Customized Solutions
This is why for us individual consulting plays an essential role from the very beginning. For working out a specific solution for you, our consulting specialists will give you advise - also on-site at your company.

Our specialists know your industry, your requirements and your tasks and support you in finding a customized solution with iba products.

Integration with iba
In this way, we support you in integrating the iba system at your site and configuring the interfaces to the process and output together with you. If necessary, iba products can be adapted to your environment or infrastructure by using plug-in extensions. Our support also includes the adaptation of ibaQPanel displays, the creation of individual reports or the creation of programs according to IEC61131 for ibaLogic.

We also support you in designing the appropriate database architecture and realize a solution with you.

To us, consulting does not only mean presenting solutions. We provide you with the necessary know-how for understanding the functionalities of the iba system in order to use it efficiently.

Support

We offer technical support to our customers so they can efficiently use our products and prevent failures during operation. Our experienced support team will attend your requests. Also worldwide via our affiliates and partners.

Competent technical Support
If you have questions concerning our products, we provide fast and competent support. Our support is provided by competent engineers who exactly know the different areas of application of the iba system and the individual products. They are familiar with the broad connectivity and have access to a comprehensive knowledge database. Thus, many questions can be answered on the phone; we try to simulate complex failure situations in our test laboratory for being able to get the root cause and giving you concrete advice.

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- You can find the latest video tutorials on our products on our YouTube channel: iba-ag.com/youtube
- Sign in for our newsletter and the „Product information" for your products.

Training & Workshops

In our modern training center based in Fuerth or on-site in your company, we offer various trainings and workshops.

Experienced users deepen their knowledge about iba products, while new users get a compact introduction to the various areas of application of the iba system with many practical examples

and exercises. We deal with your topics in customer-specific workshops. Based on the workshop results, you will be able to do the following steps alone on-site and use the iba products to their full extent.

Upon request, we offer thematic and customized trainings and workshops - of course also on-site at your company.

Basic Courses

Data acquisition and data analysis using iba tools
2 days

Analyzing iba measurement data
2 days

Graphical programming using ibaLogic
2 days

Long-term acquisition of data and events using ibaHD-Server
2 days

Synchronous acquisition of video together with process data using ibaCapture
2 days

Analysis of vibration and noise signals
2 days

Monitoring and analysis of vibration data with ibaInSpectra
2 days

Advanced Courses

Automated generation of fault and quality reports with ibaAnalyzer-Reportgenerator
2 days

Web-based visualization and analysis of iba measurement data with ibaDaVIS
1 day

Visualization of measurement data and quality data using ibaQPanel
2 days

Data acquisition from a SPS SIMATIC S7
1 day

Compact Course

Measuring, analyzing and automatic report generation with iba
3 days

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