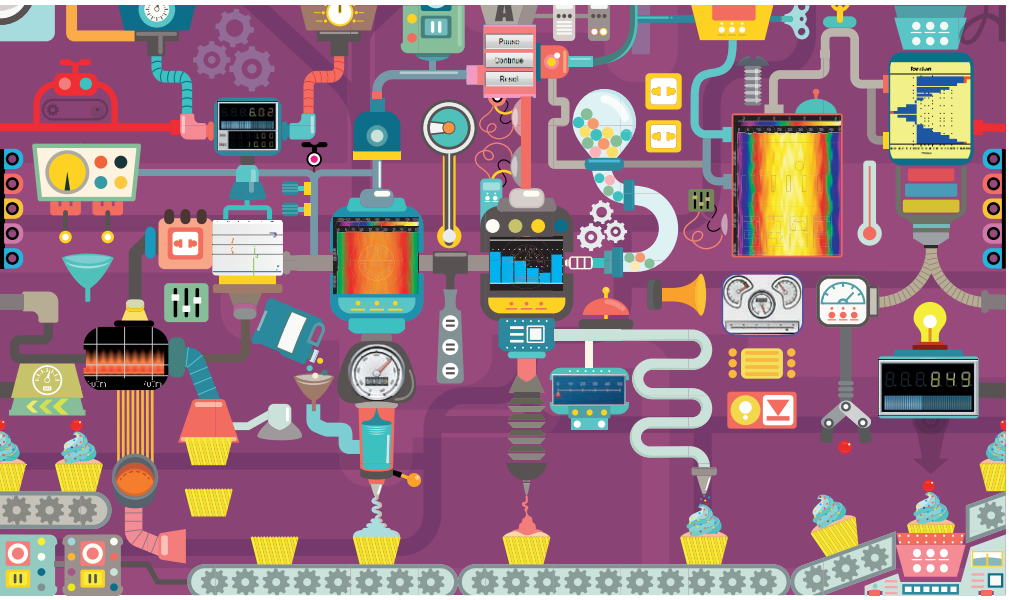
1/2017

EINblick international

News, Products, Dates, Tips and Services.

Pimp your screen!

Over the last few years, we have continuously improved ibaQPanel, as a supplement to ibaPDA, used for designing HMI like surfaces. Beside from enhancing the graphic and aesthetic design options, we also introduced solid functional improvements that allow a customized measurement and data visualization suitable for any process.



No matter if you produce cupcakes or strip steel - with the new ibaQPanel, you can visualize every process.

The digital transformation in the processing and production industries is gaining speed. It aims at the autonomous communication between machines and trades. Nonetheless, it is still man who must keep full control. To retain full control in spite of the enormous data amounts that we are facing today, we need to provide all relevant data and information reliably and in a convenient format. All process stakeholders, albeit technologists, maintenance staff, quality and production managers, are supported by a powerful visualization system when controlling and optimizing their process. In the following, we introduce some of the innovations and improvements on ibaQPanel.

Planning

We have turned the windows for the design mode into dockable windows. This way, the ibaQPanel displays can be edited easier and in a more efficient way. Now, users can dock the windows for tools, properties and the library on any position on the screen. The properties window always displays the properties of the currently marked object and allows the user to change the settings.

The properties window offers a special feature for grouping of objects. In design mode, you can mark and group several objects, e. g. for moving them jointly or copying them via the clipboard. In the properties window, the properties of all marked objects are displayed. Identical properties are summarized. Thus, certain settings for all relevant objects can be adapted easily. You can e. g. configure the same background color or same dimensions.

There is an object library that allows the user to reuse objects he has created once. The user can fill this library with own objects via drag & drop. Also groups of objects can be stored in the library and be reused at any time. So you can configure frequently recurring object combinations (e. g. switches, display and label) in an efficient way.

Dear Reader,

in the previous issue of the "EINblick" company magazine, I have indicated the new opportunities for monitoring individual machines and mobile systems together with the new compact measurement and analysis unit ibaDAQ-S and how to make these machines "IoT" capable. In this context, a really essential aspect is the display and the analysis of measurement data on mobile devices, like e. g. on tablet computers. In the course of the last two years, we have pushed the development of such a web-based solution with vigor and high efforts in development. Meanwhile mobile applications run on various platforms with different display sizes. This is why we focussed on platform independence and a responsive design from the beginning, which we have optimized for touchscreen operation. For this purpose, we needed intensive preliminary studies concerning the operational concept. Unfortunately, it was not sufficient to just transpone the mouse-oriented user interfaces of ibaPDA, ibaAnalyzer and co.

Recently, we released the first version of the product we named ibaDaVIS (**Da**ta **Vi**sualization and **I**nformation **S**ervice). A pilot customer is currently testing the product. In order to support application scenarios in interactive process analysis, it is our goal, to offer the functionality of the ibaDatManager in the next version which will be available from the middle of the year. Later on, automatic trend monitoring regarding exceeded limit values with alarm functions (process monitoring), the representation of live data from ibaPDA and quality specific representations, will follow.

It is very important for us to integrate our customers at an early stage of the development process. This is why we are always glad to have courageous pilot users and appreciate their suggestions and wishes. Please do not hesitate to contact us in case you are interested!

Yours sincerely

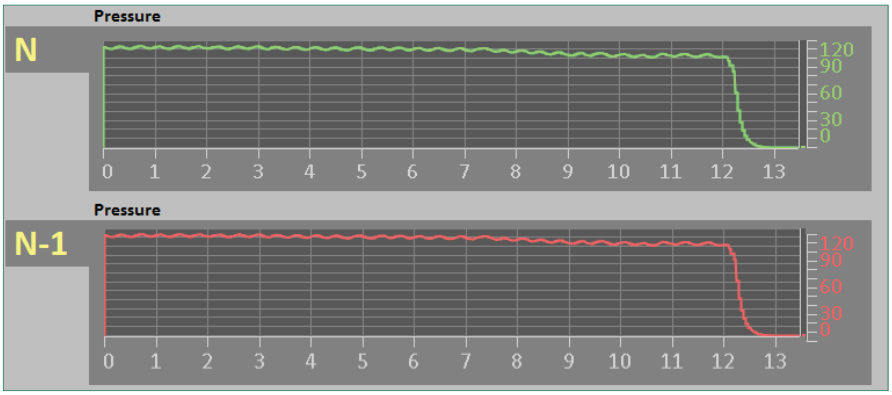
Regional settings

We also considered the demands of commissioning engineers, service technicians and suppliers who operate on an international basis. You can link all static texts that have been configured in an ibaQPanel application, as there are e. g. labels, titles, status texts in radio buttons, titles of check boxes etc. to a dictionary. This dictionary is structured project-specific, i. e. all required languages can be selected and all texts are entered with their translations. Using the "button" element, you can toggle "on-the-fly" between the languages during operation. During assignments abroad, service technicians can ease their work significantly by switching the ibaQPanel display to a language he understands. A machine manufacturer can standardize his visualization for all his target markets. When adding another language, only the dictionary needs to be expanded and you have to add another button for the new language. Apart from that, the application remains unchanged.

Example for regional settings English - Russian

File scanner and file picker

An essential function for an automated analysis of the acquired data, is the identification of newly created data files. With the data scanner tool, you can constantly monitor a selected file directory. Whenever a new file is generated in the directory, the file scanner will automatically detect it. As soon as a new file has been detected, the file scanner writes the whole path- and file name to a Technostring. This Technostring can be used later for accessing the file directly. If you use the file scanner e. g. for data files, the current file can always be loaded automatically to an offline trend view. Moreover, the file scanner can discern the order of the files generated in the directory: last, second last, third last, etc. Thus, the trend graphs of the last three products can be displayed as a combination of various offline trend views. With every new data file, the trend graphs "shift" to the next view.



Display of the last and second last measurement file detected by the file scanner

However, the application is not just limited to measurement files. The file scanner does not discern which type of file is placed in the directory.

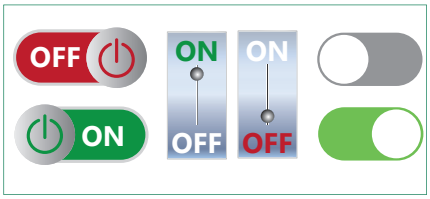
With the file picker tool, you can manually search for a file in a specific directory and then select this file. Here as well, the path- and file name are written to a Technostring.

Offline trend view

The extension which allows to use the Technostring for loading the data file, is not the only innovation in the offline trend view. The following might be interesting for manufacturers of long products: There is now the opportunity of a length-based display of measurement values in the offline trend view. For this purpose, you only need a speed- or length signal. The curve will immediately show the signal curve over the whole product length.

Switch

The switch is a new element. Its only purpose is to set a digital target signal from 0 to 1 or from 1 to 0 with a single mouse-click. The special thing about it is: The switch design can be defined using any desired graphics or image file. You can assign different graphics for the on and off states as well as for the deactivated status of the switch.



Examples for switch states ON and OFF

Radio buttons and check boxes

We use radio buttons for selecting options in a list which are mutually exclusive. The user chooses one of these options with a single mouse-click. In ibaQPanel, one radio button object can contain one option or a whole group of options. It is the selection which determines the value of an analog target signal.

By means of check boxes, individual or various options can be activated or deactivated.

Shapes and symbols

With the shaping tool, any element can be created on the basis of the four basic geometric shapes: line, rectangle, ellipse and polygon. You can configure size, color of the lines, line width, fill color and color gradient in a similar way as in common graphic programs. Moreover, you can configure a filling degree for the two dimensional shapes and define the directional angle and the number of corners for polygons. In addition, you can define specific blink parameters.

The symbol tool allows you to integrate .svg vector graphics in a QPanel view. So e. g. high-quality technical drawings can be used in the view. Unlike bitmaps, vector graphics can be scaled in size without quality losses. Moreover, some of the graphics properties like colors, line strength, rotation etc. can be influenced by the symbol tool.

Dynamics

The new dynamics function is a real milestone in the development of ibaQPanel. With the dynamics function, you can dynamically design each attribute shapes and symbols shall have and hence realize an animated display. No matter if size, position, color or direction - the different properties are linked to an analog value and can be configured in a stunningly easy way. Basically, the user only has to configure initial state and final state. The change according to the development of the values is calculated automatically to the runtime. Thus, movements, like e. g. in positioning processes can be integrated in the HMI image in an easy way.

Is everything running well?

The new software solution ibaRotate raises the possibilities for analyzing processes with rotating and oscillating movements to a new level. With unique methods, i. e. on the basis of existing measurement data files, you can analyze sound and vibrations offline. This is an essential contribution to machine diagnosis.

Powerful offline analysis

ibaRotate provides unique methods for high-resolution frequency- and order-based spectral analysis of your data that allow you to analyze the malfunction causes in your plant in detail. ibaRotate is the perfect complementary tool to ibaAnalyzer for difficult machinery problems requiring additional detailed analysis. ibaRotate uses iba data files (*.dat) as a standard. An extended license allows you to process almost every other common file type for vibration signals.

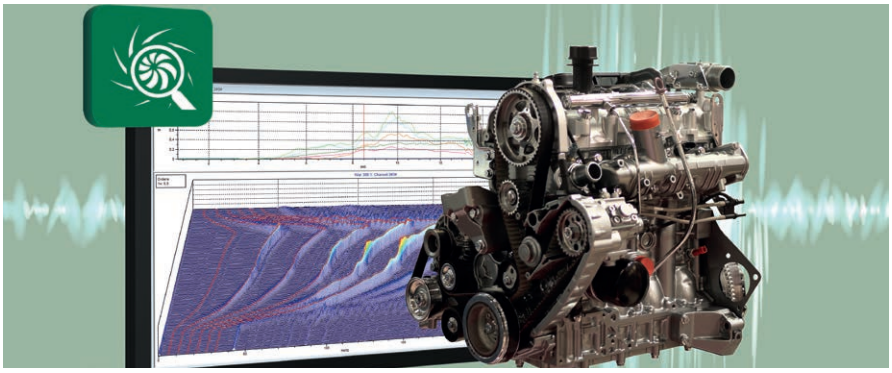
And the best thing about it is: You do not have to take special measures, like e. g. special/additional vibration measurements for analyzing a vibration-related problem. With ibaRotate you can use the existing data files for analyzing and verifying relations between vibration and plant speed or rotational speed.

Thus e. g. a damaged bearing can be identified and therefore the cause of the failure can be found.

One solution for many demands

With ibaRotate, you can meet a number of requirements. Here just a small selection:

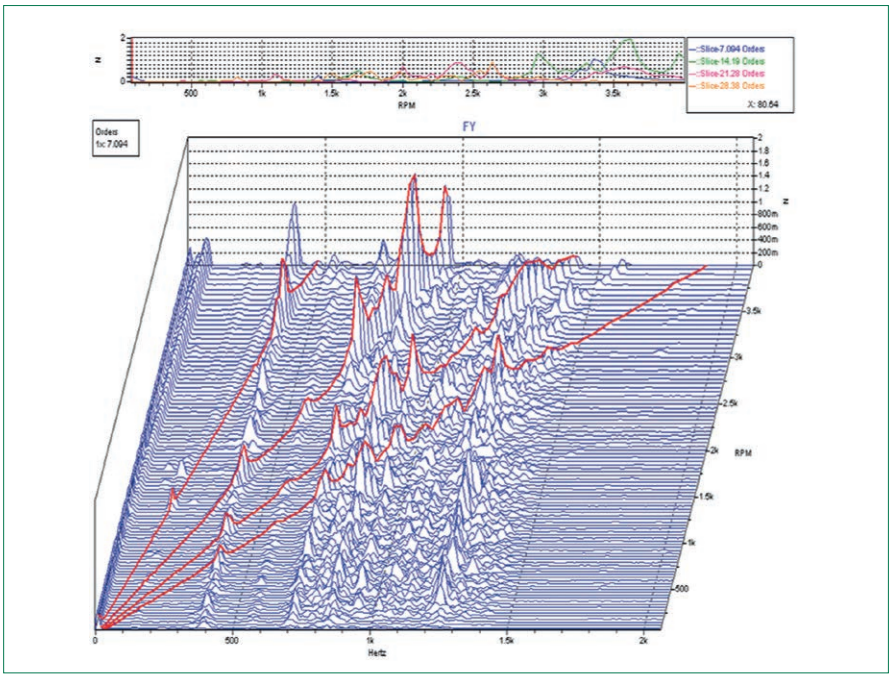
The software can distinguish individual vibration frequencies in Hz, min^{-1} or orders and identify resonance effects. This is sufficient for evaluating whether vibrations are relevant at all for the problem.



For modules that are mounted on spring-bearings, you can perform dynamic analyses. Also a torsional vibration analysis without the use of slip rings, shaft-mounted transducers, or telemetry can be done.

Due to its mode of operation that is based on measurement data files, ibaRotate is especially suited for troubleshooting in case of intermittent problems that may require hours of data recording.

With the help of special algorithms, a convincing analysis can even be performed when there are noisy signals from gearboxes. This is also valid for entire plants when there are noisy speed signals or no speed signals at all.



The waterfall diagram shows a run-up with inner ring fault

ibaRotate offers special tools for accomplishing the above mentioned tasks:

- *Tachometer processing* creates a smoothed machine speed curve
- *Waterfall analysis* of data for order- and frequency analysis
- *Computed order tracking* for determining the amplitude and phase of the data at each order as a function of time, RPM, or frequency.
- *Torsional analysis* creates a spectral waterfall plot of the torsional vibration.
- *Vold-Kalman filter* for order tracking in order to determine amplitude and phase of the data and for extracting the time signal of individual orders, also for rapidly changing speeds.

Moreover the range of functions includes: signal processing, A, B, and C weighting for acoustic analysis, whole body and hand arm weighting for job safety analysis.

Comprehensive displays

The functional spectrum is complemented by powerful display functions like: trend, waterfall, 2D contour, spectrogram and Bode plots and the audio playback of vibration signals. For an informative documentation, you can generate diagrams and tables for reports and presentations.

ibaRotate is the perfect solution for engineers, service technicians and researchers who need to analyze vibration and noise data from plants with rotating or oscillating components. ibaRotate is suitable for a variety of industries such as automotive, aviation, pulp and paper, rolling mills, power generation, manufacturing, and more. Application areas include, but are not limited to, motor testing, predictive maintenance, troubleshooting, and product development.

Innovations at ibaPDA and ibaAnalyzer

ibaPDA V6.37.1 - 6.37.6

New AVG function: As of version 6.37.2, the AVG function is available in the expression editor. The function continuously calculates the average value of a signal from the beginning of the measurement or from the last value reset. The optional reset parameter can be used to reset the result value to the instantaneous value of the input signal.

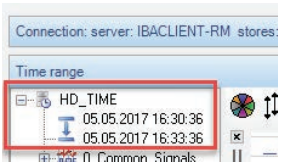
S7-1200 and S7-1500: The S7 address books can be loaded directly using the SIMATIC S7-1200 and S7-1500 controls into ibaPDA. It is therefore no longer necessary for ibaPDA to have access to the S7 project. The S7 address book is required in order to be able to select the symbols to be measured with the S7-Xplorer or S7-Request interfaces.

FFT display: The base axis of the FFT presentation can be inverted. The axis then displays the period duration and not the frequency.

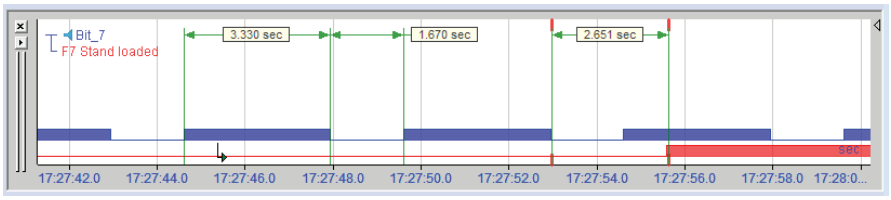
.NET Framework 4.7: As of version 6.37.6, ibaPDA supports .NET Framework 4.7.

ibaAnalyzer V6.9.0 - 6.9.2

Access to HD backups: With version 2.0 of ibaHD-Server, you have the option to make existing backups from ibaHD records accessible to ibaAnalyzer and to analyze them even without an ibaHD-Server license. After you have installed the ibaHD-Server program, you can mount existing HD backups. If you then select the relevant ibaHD-Server in ibaAnalyzer for the HD query, the mounted backups are offered for the storage selection. You can access the data stored in the backup via HD query as usual after selecting the desired backup.



Interval function: The new interval function greatly simplifies the measurement of digital signals and intervals between events. The duration of TRUE and FALSE states, specified in X-units, is directly displayed by double clicking.



Measurement of digital signals with the click of a mouse

Double click on a signal in the TRUE state to display the duration between the rising edge and the next falling edge in the form of dimension lines.

Double clicking again removes the measurement information. If you double click on the signal in an area where the signal is FALSE, the duration between the falling edge and the next rising edge will be displayed.

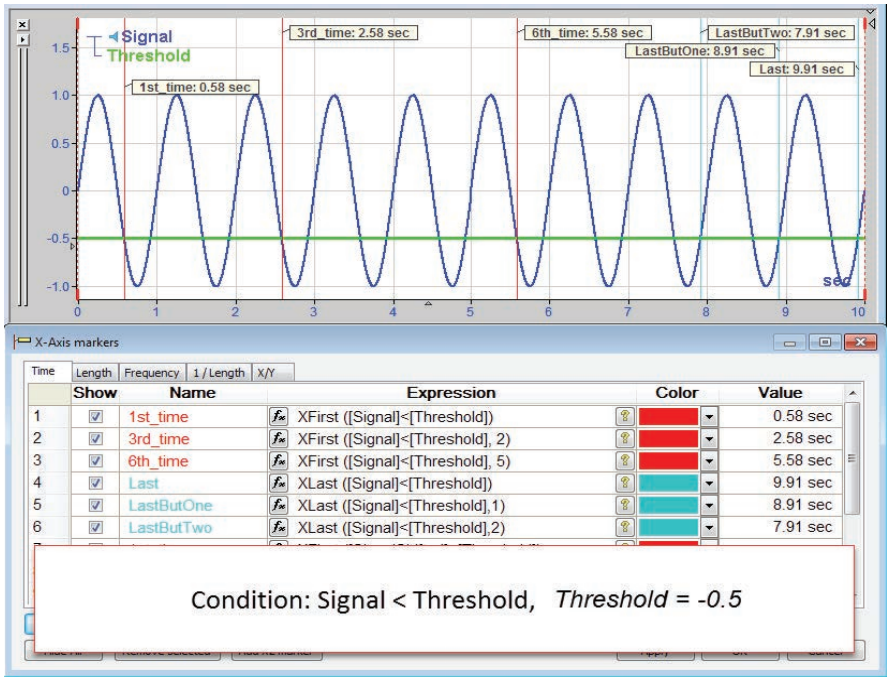
In order to display the distance between the edges of different signals, position the two standard markers, X1 and X2, on the desired edges and then press <Ctrl> + <I>. Alternatively, you can also use the corresponding command in the context menu.

If you drag the markers to other edges, the previous dimensions remain so that various intervals can be provided with dimensions one after the other. The interval function is available in all X-axis modes.

XFirst and XLast functions: The XFirst and XLast functions in the expression editor have been extended by parameters to determine other positions on the X-axis where a condition is met. Instead of determining only the first (XFirst) or last (XLast) position where a condition is met, you can now specify how many other positions where the condition is met should be ignored.

XFirst can therefore also be used to determine the position where a condition is met for the n-th time from the beginning of the data file, e. g., for the third or sixth time.

With XLast, the positions where a condition is met for the penultimate or antepenultimate time can be determined, i. e. for the n-th time from the end of the data file.



Example: Identification of positions using the X-axis markers where the signal value falls below -0.5 for the first, third and sixth time or increases above -0.5 for the last, penultimate and antepenultimate time.

ibaNet goes USB

Today a decreasing number of notebooks provide a slot for express cards. We have developed the ibaFOB-io-USB USB adapter that transfers all ibaNet protocols to the USB interface. Thus the iba measurement data can still be acquired with the notebook via fiber optic cables.

ibaNet protocols are identified automatically

The ibaFOB-io-USB adapter is suited for USB 2.x and USB 3.0 interfaces and provides a fiber optics interface with one input and one output. The fiber optics interface supports all ibaNet protocols 2Mbit, 3Mbit, 5Mbit, 32Mbit and 32Mbit Flex. Function and performance are comparable to that of the ibaFOB-io-ExpressCard. The protocol of the incoming data stream is identified and configured automatically.

Plug & Play

When plugging the adapter for the first time on the USB interface of the notebook, the device driver will be installed automatically. The USB adapter is supplied

ibaFOB-io-USB

with power via the USB port. Hence, no additional power supply unit is required. The user will be informed about operational status, connection status, data transfer rate and errors by means of LEDs.

Though this should be observed: You can only use one ibaFOB-io-USB adapter for each notebook or PC. You cannot use this adapter in combination with an ibaFOB-D card. The adapter is planned to be available from the 3rd quarter in 2017. ■

Hit list

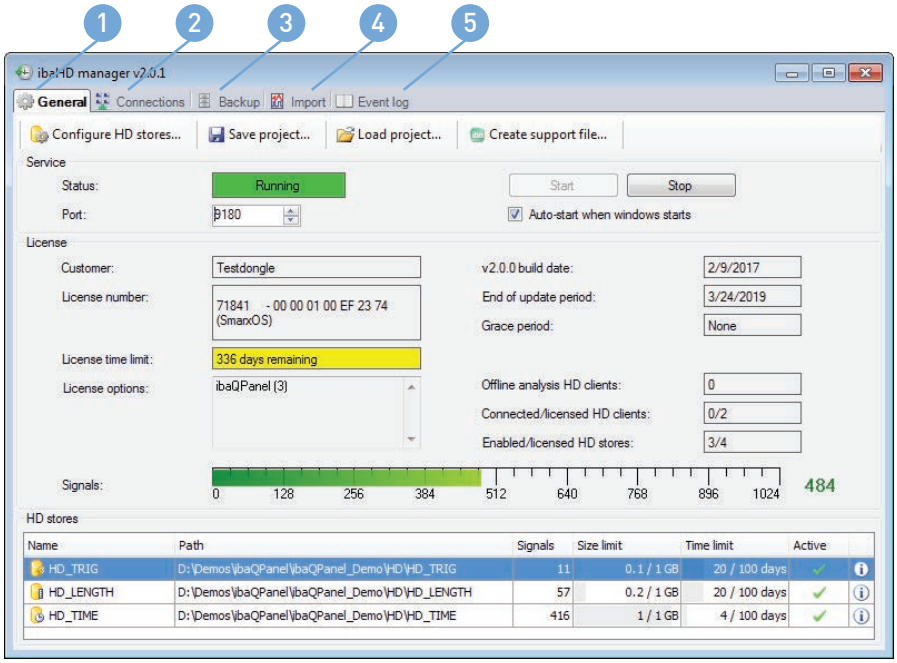
In our new **FAQ section** on the website, our colleagues from the support department gather the most frequently asked questions related to iba software and hardware.
These questions came from our customers and we would like to share the answers with you. You can find the currently most-visited entries from our FAQ section below:

1. What is the difference between ibaPDA-PLC-Xplorer and ibaPDA?
2. Which operating systems are supported by ibaPDA?
3. Does ibaPDA-S7-Analyzer / ibaPDA-PLC-Xplorer / ibaPDA-Interface-S7-Xplorer work with PLCSIM?
4. How do I keep my ibaCapture-Software up to date?
5. Is it possible to start the measurement in ibaPDA automatically after booting the computer?

You can find the FAQ at:
https://faq.iba-ag.com/index.php

ibaHD-Server with new management

With the 2.0 release of ibaHD-Server, the ibaHD Server Status utility program was significantly upgraded and renamed to ibaHD Manager. With ibaHD Manager, there is now a central user interface for ibaHD-Server that can be used to configure all the features that the program offers.



1. Under the 'General' tab, you will find information available on licenses, the number of signals and the configured HD stores as well as the option to stop and start the service.

   You will also find the functions for saving and loading projects here. If you need help for problems with ibaHD-Server, you can also create a file here with the support information that you can then send to our support experts.

2. The 'Connections' tab contains a broad overview of all the connected ibaHD-Clients and active HD stores.

3. All the functions for creating, restoring, mounting and attaching backups are summarized under 'Backup'. Here, you can also configure the schedule for automatic backups or manually trigger a backup.

4. Under the 'Import' tab, select the data files to import into an HD store and start the import. All import operations are displayed in detail.

5. You will find all the recorded processes, such as customer access, license checks, system events etc., in the 'Event log'. ■

ibaPQU-S is successfully certified

We have had our Power Quality Unit ibaPQU-S certified by the Institute of Electrical Power Systems and High Voltage Engineering of TU Dresden. The certification was carried out in accordance with Standard IEC 61000-4-30 Edition 3 Class A, the highest quality class. ibaPQU-S has successfully passed all the tests. Edition 3 of the standard was published in February 2015; Edition 2 is therefore obsolete. ibaPQU-S is one of the first measuring instruments to be certified according to this new standard.

ibaPQU-S therefore meets all the requirements for contract-relevant measurements of electrical energy quality and the resulting report can be used as evidence. Values not listed in the standard, e. g. power and energy, are also calculated with very high accuracy equivalent to the standard.

Through the synchronous measuring of electrical energy quality with ibaPQU-S and the measuring of process variables with ibaPDA, system operators can demonstrate, for example, whether and to what extent their system influences the power grid. The causes of grid disturbances triggered by the process can therefore be analyzed.

ibaPQU-S is a modular system for monitoring grid quality and carries out all the relevant measurements needed. The system measures raw values synchronous with the grid, such as current and voltage, and internally calculates all the parameters required by Standard EN 50160. ■

Dieter Kopp retires

After a long and fulfilling career, including 17 years at iba, our esteemed colleague, Dieter Kopp, is entering his well-deserved retirement.

As a graduate of the Friedrich-Alexander University Erlangen-Nuremberg in the still very new field of computer science at that time, he has worked with companies in the 'rolling mills' technical sector throughout his entire professional life. In this context, he encountered iba GmbH in 2000, resulting in a cooperative partnership which has continued to this day. Dieter Kopp and Horst Anhaus, our company's founder and today's chairman of the board have known each other personally from graduation on.

For nearly two decades of his career, Dieter has been automating rolling mills, thereby contributing his in-depth knowledge and fundamental understanding of software. During this time, he has experienced and – in terms of iba – influenced the development of programming, from the almost-forgotten assembler to high-level programming languages and graphical programming.

After iba has focussed on data acquisition in technological processes along with the required data retrieval from automation devices, Dieter's profound knowledge in this area played a crucial role in the continued development of iba.

What stands out when working with Dieter is his warm relationship with all colleagues and superiors alike. He has always been on hand with help and advice for customers and employees.

We will officially bid Dieter retirement farewell in June 2017.

We will be sad to see him go but share in his excitement to start his new stage of life as a retiree, able to fully dedicate himself to his wife, children and grandchildren.

We wish him and his family all the best.

The executive board of iba AG and all colleagues in Germany, the Gent development center and sales departments worldwide. ■


TECHNISCHE UNIVERSITÄT DRESDEN

COMPLIANCE TEST ACCORDING TO IEC 61000-4-30 Ed.3 (2015)

ibaPQU-S

Power Quality Parameter	Class A Compliance
Power frequency	Yes
Magnitude of supply voltage	Yes
Flicker	Yes
Voltage interruptions, dips and swells	Yes
Supply voltage unbalance	Yes
Voltage harmonics	Yes
Voltage interharmonics	Yes
Mains signalling	Yes
Flagging	Yes
Clock uncertainty	Yes
Variations due to external influence quantities	Yes
Magnitude of current	Yes
Current harmonics	Yes
Current interharmonics	Yes

Tested by

Dipl.-Ing. Robert Stiegler

Reviewed by:

Dr.-Ing. Jan Meyer

Confirmed by

Prof. Dr.-Ing. Peter Schegner

Dresden, 01.03.2017

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und Hochspannungstechnik
01062 Dresden

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EINblick
Current news, products, dates, tips and services.

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D-90762 Fuerth, Germany
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