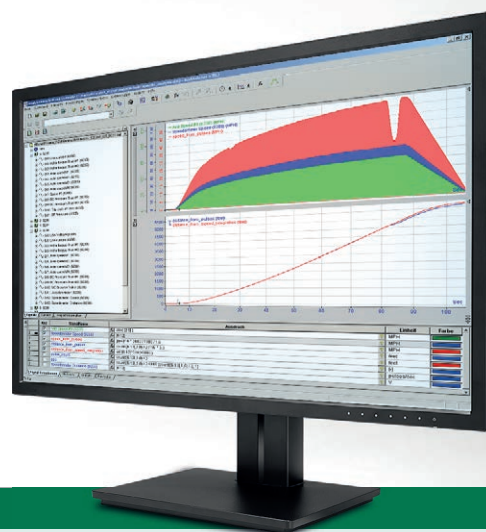![iba logo]

Powerful Analysis and Evaluation of Measurement Data

ibaAnalyzer

ibaAnalyzer
Powerful analysis and evaluation of measurement data

ibaAnalyzer-Reportgenerator
Automatic generation of individual reports

ibaAnalyzer database functionality
The database interface for ibaAnalyzer

ibaAnalyzer maps view
Display of GPS positions and routes

ibaAnalyzer-InSpectra
Detailed offline vibration analysis

ibaAnalyzer-InCycle
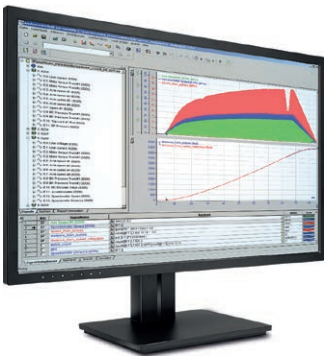Detailed offline analysis of cyclic processes

ibaDatCoordinator
Automated data processing

Measurement Systems for Industry and Energy
www.iba-ag.com

Powerful analysis with ibaAnalyzer

ibaAnalyzer is the central component for data analysis in the iba system. It offers broad functionality for computing and evaluating while being intuitive to operate. ibaAnalyzer is licensed free of charge, add-on products are available to enhance the functionality of ibaAnalyzer.

Flexible, powerful, free of charge

As the key element for data anlysis within the iba system, ibaAnalyzer is a very powerful and efficient tool for interactive and automated measurement data analysis. ibaAnalyzer is licensed free of charge providing a cost-neutral possibility to ana-lyze data acquired with iba soft-ware such as ibaPDA, ibaQDR, ibaLogic or ibaHD-Server.

ibaAnalyzer is a versatile tool for offline analysis offering a wide range of analyzing fea-tures. In combination with ibaDatCoordinator, it offers an automatic, process synchronous evaluation of measurement data. Any analysis can be saved, flexibly adapted, reused, and shared with

At a glance

› Comprehensive offline analysis
› Intuitive user interface including dockable windows
› Data from different sources or measurement processes can be easily combined
› A broad set of mathematical and technological functions is avai-lable for the generation of derived signals or KPI values
› Integrated FFT analysis (frequency domain)
› Markers and intervals for straight-forward interactive analysis
› Additional components like reporting, map views or the automation of computations

other users in order to provide the right analysis for each indi-vidual purpose. From long-term analysis to process optimization, a variety of applications can be covered using a single tool. While the computation of characteristic

values and statistical quantities are easily possible, the auto-mation of such calculations is the key feature for the use in a sophisticated data automation toolchain. Product related quality data can be derived time-based
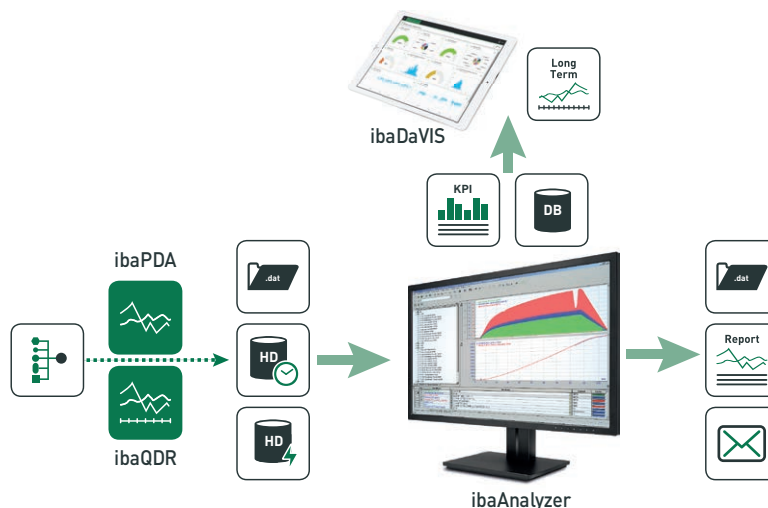
Using ibaAnalyzer and ibaDatCoordinator, various procedures can be executed automatically.
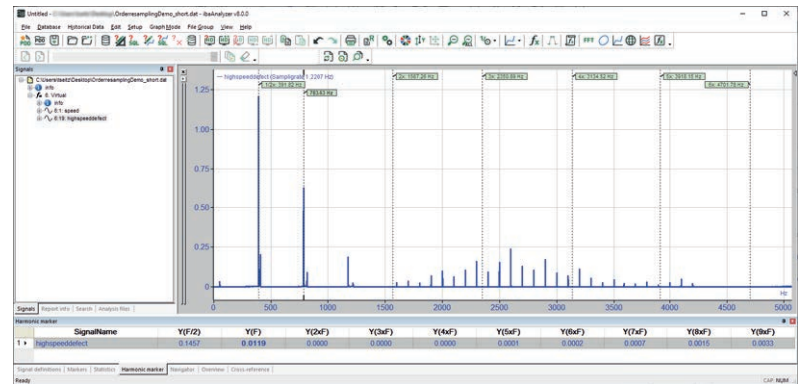
or length-based and are made available for superordinate quality management systems.

Determining results from powerful mathematical and technological functions in relation to the raw measurement values makes ibaAnalyzer such a unique tool. Any recurring analysis can be reused and easily automated.

Signal tables with FFT results (main frequency, harmonics)

Handling measurement data

No matter if data is stored file-based or continuously in ibaHD-Server, data can be viewed or analyzed with ibaAnalyzer immediately. Files can be read by several users simultaneously (e. g. when available on a file share) and can be easily copied and forwarded by email.

If reduced data sets or results need to be forwarded, data can be exported to DAT files or freely readable formats like text (CSV files), Comtrade, or Apache Parquet format. This can reduce the file size and remove sensitive information when forwarding files to third parties. A more flexible data extraction, which can also be automated by ibaDatCoordinator,

is available with the data extractor dialog and offers different extraction profiles.

Within one company, ibaAnalyzer can be installed as often as needed, allowing all users to analyze data under electrical, mechanical or technological aspects.

Hardcopy and reporting

The print function can be seen as a first simple report which is easily generated. In addition to the signal trends and signal table, the marker and statistical tables as well as the comments are printed. For higher demands, the integrated ibaAnalyzer-

Reportgenerator can be used to configure and automate the creation of reports. Individually defined contents and layouts can be created and saved. For further information see page 8.

User interface

The graphical user interface of ibaAnalyzer is organized in individual windows and tabs. All components can be positioned freely and docked using drag & drop. Different files and the contained signal channels are managed in a comprehensive tree view. An arbitrary number of different signals can be displayed

All sub-windows like signal tree, signal strips, value tables, search dialog etc. can be positioned freely. Markers can be used to measure signal characteristics quickly and easily.

4
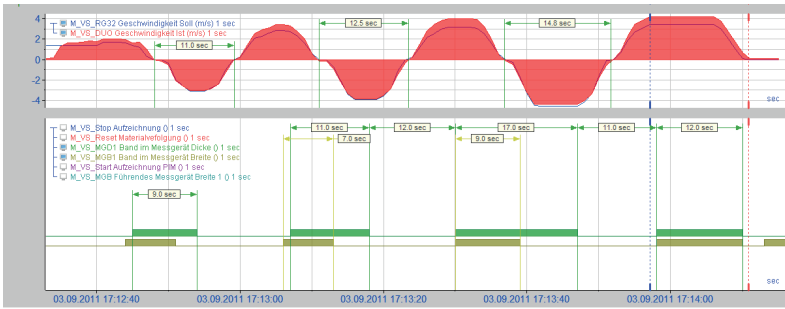
With the interval function, the duration or length of analog and digital signals can be measured with a simple mouse click.
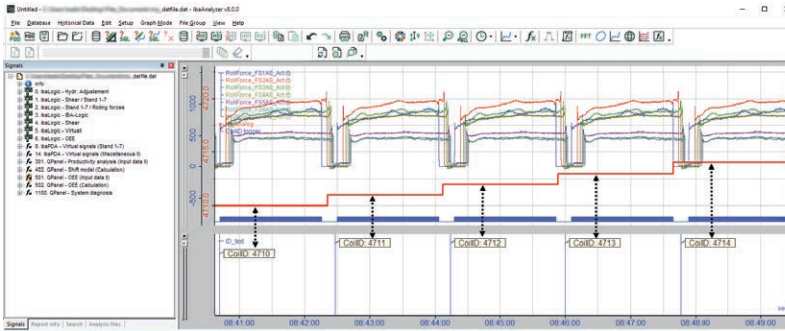
Display of text channels in the signal stripes facilitate e. g. the product assignment

Signal-oriented analysis with markers

Signal trends, values and distances can be easily measured with two interactive markers. The results, which depend on the marker position, are shown in a comprehensive table. Further, statistical information for each signal are available for the range between the markers like e. g. maximum, minimum, average, or standard deviation. Once any interesting marker position is identified, so-called computed markers can be placed easily. As the name suggests, the marker positions can also be calculated from the measurement data. For example, a marker can be shown where a certain limit value has been exceeded for the first time.

Intervals

If a complete time range is of interest rather than individual positions within a trend, this can be handled with so-called intervals. Similar to the markers, intervals can be easily added, e. g. by double-clicking on a TRUE or FALSE state of a digital signal.

on the screen. Signals can also be sorted freely within different graphs or different x- and sca-les. An intuitive zoom function offers immediate detail analysis down to single measurement values. Different colors, line types, and line sizes can be used for analog signals. A combina-tion with digital values is directly possible. In addition to that, text information can be shown along with the other signal types.
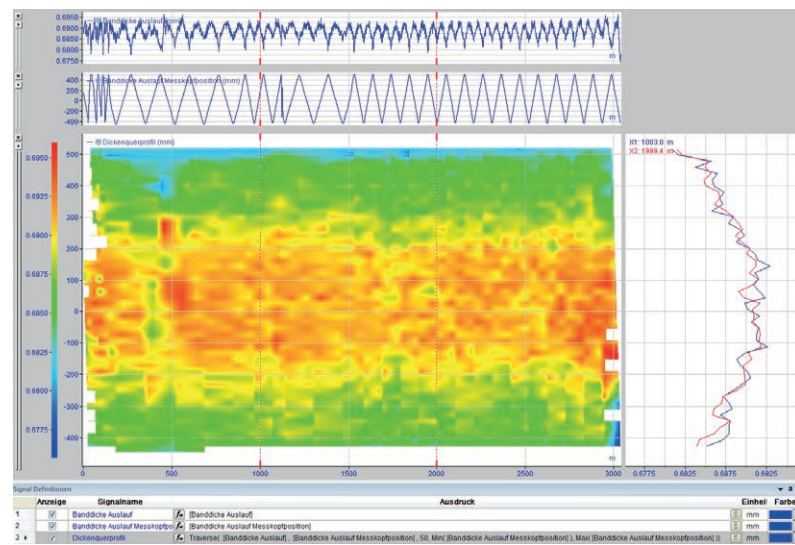
If data have not been recorded in a length based manner with e. g. ibaQDR, ibaAnalyzer offers various functions to convert to a length-based display from any available speed or length signal.

Length-based display

When analyzing production processes for long products, like in a rolling mill, ibaAnalyzer offers a length-based display in addition to the standard time-based display. This is especially useful when deriving product quality values like the excee-dance of tolerances or the total length of good quality products.

In the example above, the thickness profile of a rolling strip is shown as top view in false-color representation. On the right, the user can see the pro-gression of the measured values for the both marker positions.

The duration of the interval is immediately displayed. This is available for all x-axis modes and also length can be measured this way. When start and stop position of the intervals depend on analog signal values, this can again be realized by using all available ibaAnalyzer functions.

Formula editor

Every time values or virtual signals needs to be derived from available signal data, computations can be defined using the comprehensive formula editor. It offers a great overview over the available functions. Those include integral, differential and trigonometric functions, frequency filters, fourier transformation and statistical functions such as maximum, minimum, average, median, standard deviation, and many more.

Macros

If the same combination of functions needs to be used several times, it is possible to define and save such standardized calculations as macros. Macros offer additional documentation and commenting features to increase the clarity and show the purpose of certain computations. Macros can be used universally on any input data and can be made available to other users easily by import and export functions. Makros can be password-protected in order to protect know how or to avoid arbitrary changes by unauthorized users.

Grouping and logical expressions

Any resulting values or virtual signals which are used more than once, can be organized as so-called logical expressions. You can define groups and easily structure your results. Of course, important meta data like units or comments can be added and reused in other places. The grouped values can then easily be forwarded to the database extract or report generator dialog.

Reusing analyses

Evaluations and computations done with the measured data can be easily reused by storing all steps in an analysis file.

This is especially important for batch processes to ensure that files are always analyzed in exactly the same way. Depending on the purpose, different analysis files can be created and even managed with ibaAnalyzer. This functionality allows analysis files to be created and forwarded e. g. for maintenance staff, process engineers or quality managers, so that the same evaluation can be carried out by other users.

Pictures say more

When using ibaCapture to record videos synchronously with high-resolution process data, ibaAnalyzer can be used to analyze those videos together with all other available information. The integrated video player shows the corresponding image for each measurement value. The video is synchronized with one of the markers which can be moved manually or in playback mode. Single pictures can directly be used in reports or complete sequences can be exported.
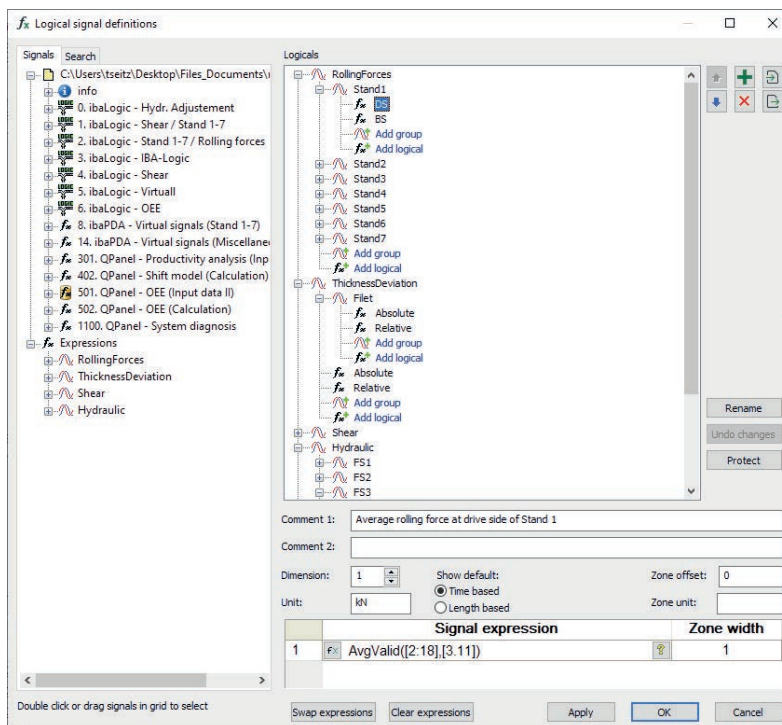
Definition of groups
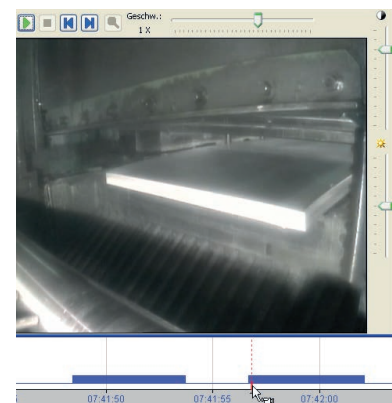
Display of the recorded videos including the triggering signal
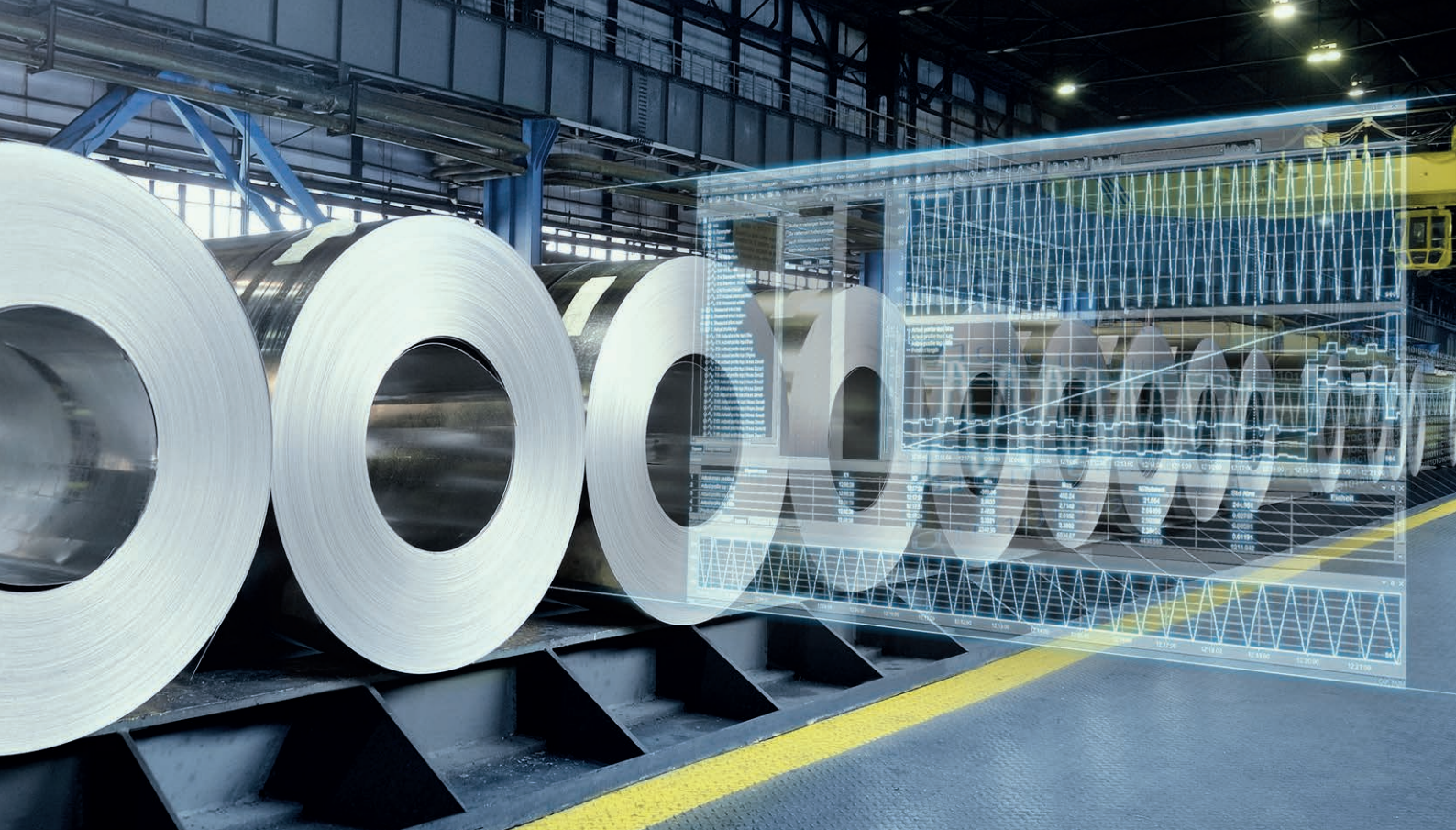
Access to ibaHD-Server

Data stored in ibaHD-Server can be analyzed using all available functions similar to the use of DAT files. The advantage of ibaHD-Server is that data is available over long periods of time.

Data from time-based and event-based HD stores or the information stored for time periods can be processed.

Time periods index the continuously recorded data in ibaHD-Server and thus combine the advantages of triggered DAT files with the continuous long-term storage in ibaHD-Server.

Time periods mark any time ranges, such as a product, a tool change or a shift.

Targeted finding of HD data

With the HD query editor, data can be queried either by a simple calendar function or by using conditions to search for specific occurences. With a simple preview window, data ranges can be searched and selected easily. Selected time-ranges can be analyzed, further processed (e. g. in reports) or can even be exported to DAT files for usage outside of ibaHD-Server.

An arbitrary number of users can access ibaHD-Server simultaneously.

When using conditions in HD queries, specific situations can be found within longer time-ranges. The start and stop times of the results can be based on signal values or combinations thereof. In addition to rising and falling edges of digital signals also limit exceedance of analyzed signals or events stored in an ibaHD event store can be used as conditions. By using suitable pre- and post-triggers, the results can be properly analyzed. Multiple results are treated like a group of DAT files and can be shown or analyzed in a flexible way.
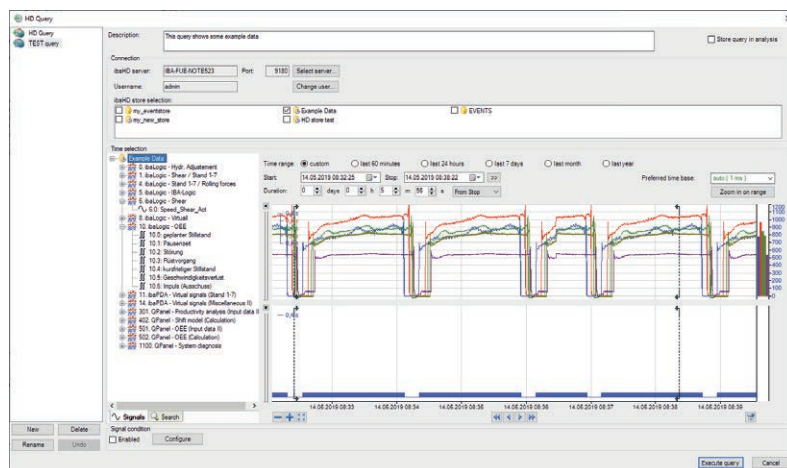
HD query dialog

ibaAnalyzer-Reportgenerator

ibaAnalyzer-Reportgenerator is a powerful component of ibaAnalyzer that allows flexible creation of individual reports. It offers efficient options for creating templates and can present analysis results in individual and informative manner.

At a glance

› Generates customized quality documentation automatically
› Batch, shift, weekly or monthly reports
› Failure reports with notification
› Issued as printout or file export in different formats
› Can be configured flexibly
› Display of the measurement values as signal graph, diagram or table
› Display of barcodes and images
› Display of values calculated in ibaAnalyzer, text information, comments, etc.

Creating reports individually

Different divisions like production, quality management or controlling have different demands on reports. With ibaAnalyzer-Reportgenerator, reports can be created product or shift-related or across products over a long period of time. Moreover, it is possible to automatically generate failure reports when a certain event occurs and send them as email. The ibaAnalyzer-Reportgenerator offers numerous elements that allow the user to design customized analysis reports. The measurement data can be displayed as signal trends, tables or diagrams. Product related data can be integrated dynamically as variable or comment.

Reports at the push of a button

Once, the creation has been configured, the reports can be virtually generated at the push of a button. The reports can be printed directly or issued as files in many different file formats, e.g. pdf, rtf, xml, html, jpg, tiff etc.

The reports can be created automatically by means of command-line command or ibaDatCoordinator, sent via email or stored at a defined storage location.

Flexible layout

The enormous flexibility of ibaAnalyzer-Reportgenerator becomes apparent when looking at the various elements and layout options:

The signal trends of selected signals as displayed in ibaAnalyzer, can be applied to the report, including the display of markers, limit values, minima, maxima and average values. The options offered by ibaAnalyzer can be fully exploited.

The measurement values can also be displayed as table. The length of the table is variable, it adapts dynamically to the number of chosen measurement values in the measurement file. If statistical or temporal correlations are to be shown, the measured values can be edited as charts - as there are bar, scatter or pie charts.

Also graphical objects like product images, images of the plant or logos can be positioned freely. Barcodes can also be generated and displayed in the report.

All information in the measurement file can be used in the report: start time, measurement duration, signal names, units, text information like product ID,

batch number, etc. Moreover, also characteristic values which have been calculated in ibaAnalyzer before, can be shown in the report. Text fields that can be freely formatted are available for additional comments. If a plant is being monitored with ibaCapture, images from the video file can also be displayed in the report - either the first image from the video file, an image at a defined time or controlled by a trigger signal.
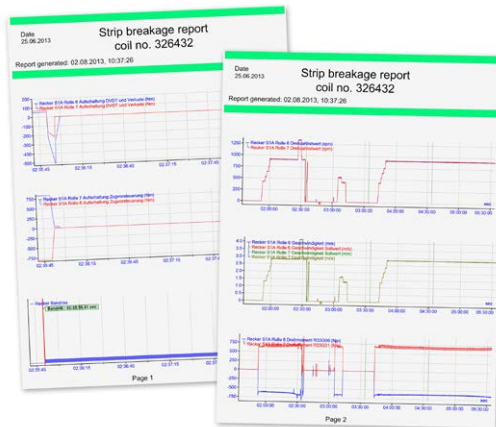
Application examples
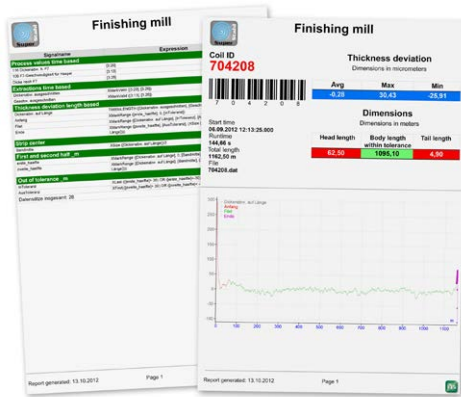
Thickness deviations on the production line

› Thickness deviations of the strip as length-based signal graph
› Strip number as bar code and numerical display
› Calculated values like minimum, maximum and average value of the thickness deviations, length of the different strip qualities.

Failure report

› Automatically generated failure report in case of strip breakage
› Representation of further time-correlated signal trends provide information about the cause of the failure

Product related report with display of exceeded limits

› Tables show characteristic values from text channels or values calculated in ibaAnalyzer
› Marking of limit values with colored lines show deviations in the signal trend
› Statistical distribution of the thickness deviation as bar chart and table
› Tabular list of characteristic values per 100 meter segment (minimum, maximum, average value and standard deviation)
› Table length dynamically adapts to strip length
› Values outside the tolerance limit are highlighted in colors

Training program

ibaAnalyzer-Reportgenerator is included as standard in ibaAnalyzer and not subject to extra costs. As the application is quite complex, we recommend to book an iba training.

For information about the training program, please see page 19 and www.iba-ag.com/training.

ibaAnalyzer database functionality

With the database functionality of ibaAnalyzer, it is possible to further aggregate the measurement data in terms of length or time and to store the characteristic values (KPIs) calculated in ibaAnalyzer in databases.

At a glance

› Database extraction via ADO.NET connectors
› Integration of basic process data into the production and quality management
› Transparent and comprehensible calculation and extraction of quality data and characteristic values (KPI) from high-resolution raw data into databases
› Using ibaAnalyzer and ibaAnalyzer-Report-generator based on database queries
› Answering process-related questions by database analysis
› Flexible drill-down to raw data

Measured data and quality data

With iba applications such as ibaPDA, ibaQDR or ibaLogic, data from automated production plants and technical processes can be acquired flexibly and stored in a measurement file. Data is generally recorded with a high time resolution in order to provide information as detailed as possible.

Based on this data, the time behavior of the recorded process can be analyzed. This is particularly indispensable for the commissioning and maintenance of a plant. The reason for any dynamic behavior can only be determined if data with sufficient resolution is available for the analysis.

In contrast, different requirements apply to production and quality data: First, a significantly lower time resolution is required and second, the measured data must be assigned to the product rather than to the time of measurement requiring a conversion of the recorded data from time to material length. In addition, it is sometimes necessary to restrict the calculation of the characteristics to certain parts of the product (e.g. hiding the head and tail end of a coil).

Calculation of quality data

With the iba system, production and quality data can be generated directly from data recorded with high resolution taking into account the above-mentioned requirements. For this purpose, high-resolution data must first be prepared appropriately with ibaAnalyzer, then aggregated and loaded into a database with ibaAnalyzer-DB.

Before data is loaded into the database, it can be fully „pre"-processed with the well-known analysis functions of ibaAnalyzer. In this process, existing analysis specifications can be used to extract a variety of data into the database, such as, for example:

› measured signals
› derived and calculated signals (virtual signals)
› statistical values, such as maxima, minima, averages, standard deviations
› characteristic values related to the product, such as violations of limits, product blocking note, customer IDs, length calculations (e. g. undercoating length, prime piece length), etc.
› text information.
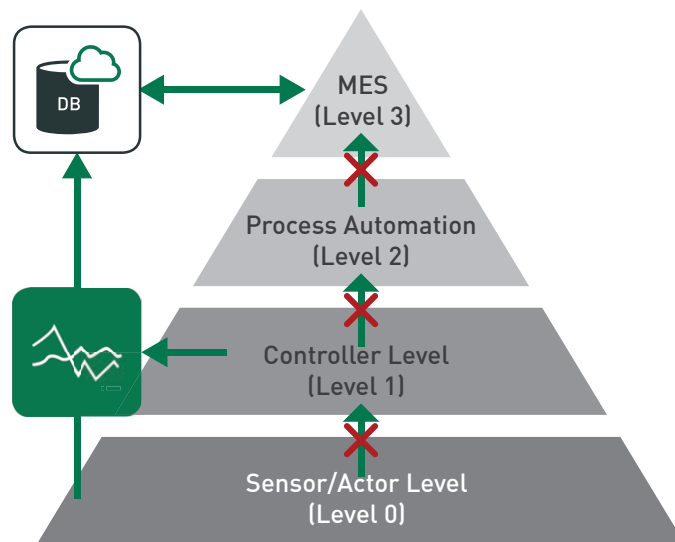
Layer model of communication in automated manufacturing

All values available in an analysis file (PDO file) can also be written into the database. Thus, characteristic values required for later analysis can be calculated from the raw data with ibaAnalyzer already before data is loaded into the database. On the basis of these values, the database can be searched and the evaluation can be focused accordingly. This is how the iba system allows the extraction of quality data from high-resolution production data. The classic layer model of communication in production automation (see figure above) is consciously broken through in order to be able to offer the following advantages:

› versatile connectivity
› fast data acquisition
› data pre-processing right after generation
› calculation of KPIs direct at the source
› source of KPI data is known and traceable
› drill down to raw data possible
› flexibility in case of changes - if different or more data have to be extracted into the database, only the configuration but not the communication interfaces between the individual levels need to be adapted.

Standard interface for databases

ibaAnalyzer uses the standard ADO NET connectors for communication with the databases. Based on this concept, ibaAnalyzer can work with many different databases, such as, for example:

› Microsoft SQL Server
› Oracle
› IBM DB2 UDB
› MySQL / MariaDB
› PostgreSQL
› SQLite
› Microsoft Access

Automatic table creation

The database in use can be located on the same system as ibaAnalyzer or on a server in the network. The connection between ibaAnalyzer and the database has to be configured once; the tables will then be created automatically by ibaAnalyzer at the click of a button. The information concerning the measurement file is stored in the file table, the channel table contains information concerning the signals, e.g. channel name and unit. ibaAnalyzer supports two possible table structures in order to store the measuring values:

Standard format

In this structure, all single values of the series of measurement will be stored in one single table.

Multi-Column format (MC format)

This multi-column structure is optimized for the extraction of a large amount of measurement series with the same resolution. Additional values, such as minima, maxima, standard deviations as well as time- and length-based values will be stored in separate tables.

Loading data into database – scalable extraction

The user can define any number of archiving profiles for extraction in order to reduce the data volume to a small but informative amount. Each measured signal can be individually assigned to an archiving profile. Besides the aggregated mean values for a data segment (length or time), also the values of maximum, minimum and standard deviation within the summarized segment can be stored additionally in the database.
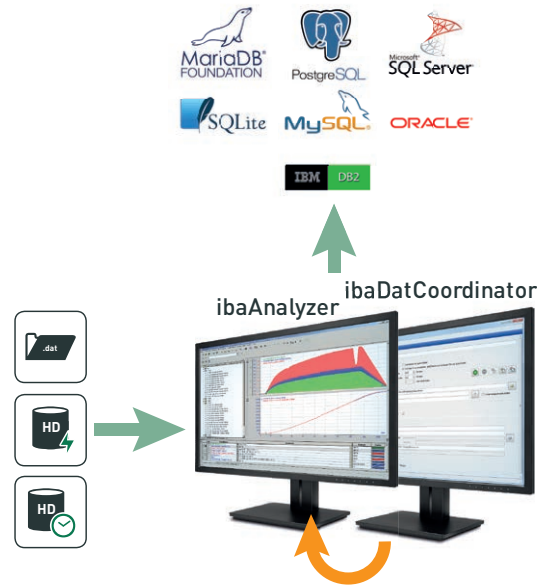
Automated data extraction
wit ibaDatCoordinator

The different requirements on the extraction speed can be met by several solutions:

› Standard extraction of datasets and storage in the database as single values
This extraction type is well-suited for slower processes or small amounts of data. Data is subsequently also available to external tools (SQL) in the database tables.
› Fast extraction of datasets through storage as BLOBs (Binary Large OBjects)
This extraction type is ideal for fast processes or large amounts of data. The duration of this extraction type is only a fraction of that of the single-value extraction.

In order to read out data from the database and display it, ibaAnalyzer is required. If data is to be read out with other tools, routines must be programmed for reading out the BLOBs. The BLOB format is an open format.

Automated data extraction

Although ibaAnalyzer uses completed measurement files as a source, analysis and extraction can be automated in a very process-oriented way. Using the post-processing function in ibaPDA or ibaLogic, the analysis can be started immediately after a measurement file has been created. Additional utilities, such as ibaDatCoordinator or batch files, are available for more so-

phisticated solutions. These utilities realize another decoupling of file creation and database extraction, which is inevitable when high availability is required. All settings for the database interface are saved in the analysis file.

Topology – from local to plant-wide analyses

When using ibaAnalyzer with a local database, e.g. quality data of a plant can be analyzed, traced and managed clearly. MSSQL Express or MS Access databases are often used for such systems.

Moreover, in distributed and networked systems, e. g. several ibaPDA systems can write their data from different plant components into the same database with ibaAnalyzer. Thus, the datasets of a product collected during the various stages of production can be compared and assessed in relation to each other. In this case, database server based on e.g. Oracle, MSSQL Server, IBM DB2 UDB, MySQL or PostgreSQL are used.
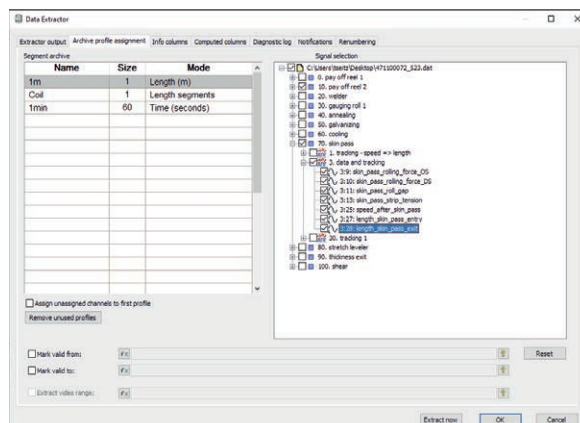
Definition of archiving profiles

In addition, the use of existing database systems would be another option. In particular, linking data from iba-DB extractions to existing systems such as MES, ERP, DataWarehouse, etc. offers an excellent analysis and reporting platform. Moreover, an automated data extraction can also be used as data source for higher-level systems, e. g. for quality approval.

Thanks to the open database architecture, ibaAnalyzer offers a highly efficient and cost-effective option for displaying the data flow from the sensor or the automation system into the database of higher-level systems.
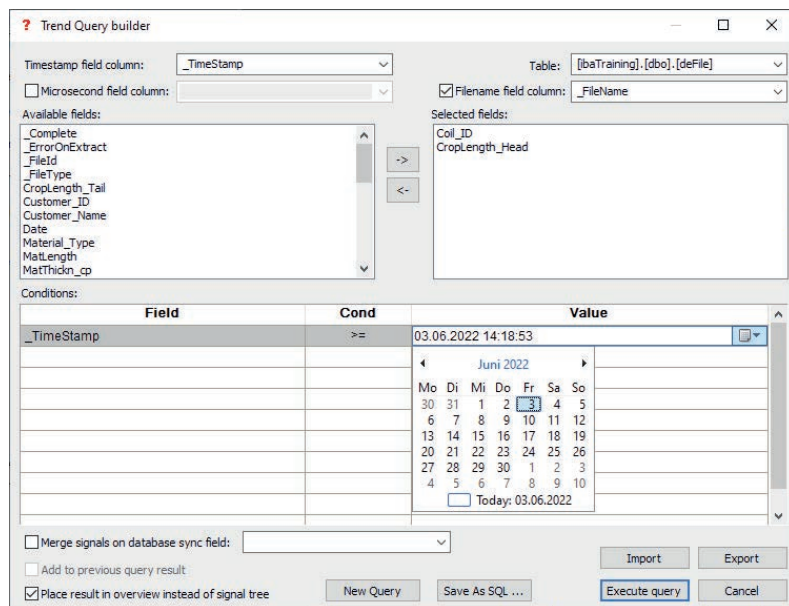

Trend queries

Database query
The standard query wizard of ibaAnalyzer assists the user during database query or in searching for specific data using different criteria. Queries can be saved for later use and managed with ibaAnalyzer.

More sophisticated queries can be defined directly in SQL statements, whereas saved queries from the Query Builder serve as templates.

A separate dialog is available for trend queries. Here, any time series (DB tables or views) can be used. One column each for date and time is a prerequisite for the query results to be displayed properly.

Database analysis
Data read from databases can be viewed and analyzed in the usual way with ibaAnalyzer. It is particularly interesting to note that analyses can also be carried out directly on the basis of the prepared characteristic values of the database. Thus, long-term analyses, analyses of working days or shifts but also trend analyses are possible.

For navigation in trend queries, ibaAnalyzer offers an overview option for long-term recordings. As the reference to the raw data (iba measurement file) is also stored in the database, a drill down from the overview to high-resolution raw data is possible.

Of course, all analyses and data available in ibaAnalyzer can also be used for reporting. So, the report generator integrated in ibaAnalyzer can be configured and operated with the database-based analysis just as with the analysis based on the measurement files only.

Using the iba applications ibaDatCoordinator and ibaAnalyzer-Reportgenerator in combination with ibaAnalyzer, a very efficient, flexible and always transparent information and reporting system can be implemented from measurement files.

Licensing
Extracting into databases can be used interactively with ibaAnalyzer without license. Appropriate licenses are required for automation with ibaDatCoordinator, see brochure „Automated processing and management of measurement data".
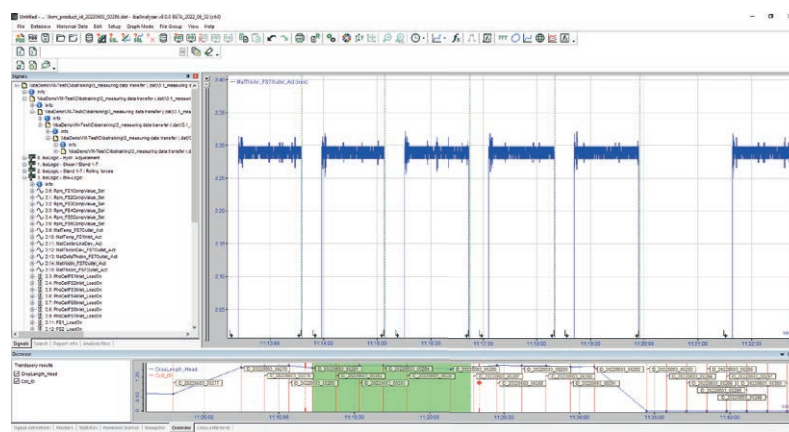
Example for drill-down to high-resolution data

Display of GPS positions and routes

ibaAnalyzer maps view

The maps view in ibaAnalyzer displays geographic positions and movement based on GPS coordinates. Therefore, ibaAnalyzer can be used to not only know when something happened but also where. Simply record longitude and latitude signals and start tracking your assets.

At a glance

› Display configurable routes on different map types
› Analysis of geographic positions together with high-resolution measurement data
› Two-way coupling of marker positions
› Use maps in ibaAnalyzer-Reportgenerator
› Integrated playback function

The world at a glance

ibaAnalyzer is tailored to analyze high-resolution measurement data stemming from industrial processes. For moving vehicles and machines it is common to also track the GPS positions. These position signals can be used to display the corresponding route on various map types in the maps view. This enables you to know where the measurements were collected and find correlations between location and process behavior.

Flexible and easy to use

The maps view is a freely dockable view which can be easily integrated in your existing analyses. For every map you can select individual map-types, the shown area, as well as route color and thickness.

Any number of assets can be displayed on each map. The map section can be dynamically adapted to the asset position with the coupling to the movable ibaAnalyzer markers. The integrated playback function also enables an analysis of the time trend.

Configuration of position and labeling data for any number of vehicles or ships

Display of routes of vehicles/ships or moving machines on different maps

Playback area

Support for external file formats

For the integration of data from external systems or in order to provide data to superordinate systems, ibaAnalyzer supports to read and also to create files in non-iba formats. A huge variety of different file formats is supported and is partially also available for automatic analysis with ibaDatCoordinator.

ibaAnalyzer-E-Dat

With ibaAnalyzer-E-Dat it is possible to read various external file formats with ibaAnalyzer and build your analysis based on these files. For many of the supported file formats it is also possible to add meta-data information to the files which can be understood by ibaAnalyzer. All supported file formats can be easily opened either by drag & drop or the standard open file dialog which offers additional options for analyzing multiple files or loading file groups.

Supported formats for reading are:
› Text (CSV)
› TDMS
› Vista
› Comtrade
› Danieli FDA
› Apache Parquet
› Matlab
› Wave (*.wav)
› PQDIF
› Universal 58
› Vold files

Extracting measurement files

ibaAnalyzer is capable to create new measurement files based on exisiting data or computed time-series and others like KPIs or length-based data. While a basic export functionality is available for individual graphs or the complete data file, more complex requirements can be handled with the data extractor component. Additionally, the configuration for the data extractor can be used by ibaDatCoordinator to automate the extraction for larger sets of available data files.

Of course, data can also be extracted in the iba DAT format e.g. if data sets need to be reduced or if external files need to be converted to DAT files.

Supported formats for extracting are:
› DAT files
› Text (CSV) files
› Comtrade
› TDMS
› Apache Parquet
› Matlab

At a glance

› Automated extraction of iba data to standard formats
› Easy import via the normal "Open file dialog"
› Support of length-based data (ibaQDR)
› Additional meta-data information (info fields) is supported for many formats
› Automation via ibaDatCoordinator

Licensing

An additional license ibaAnalyzer-E-Dat is required for reading external formats.

The extraction of measurement files can be used interactively with ibaAnalyzer without license. Appropriate licenses are required for automation with ibaDatCoordinator, see brochure „Automated processing and management of measurement data".

ibaAnalyzer

Text TDMS Vista Comtrade
Danieli FDA Apache Parquet Matlab
Wave PQDIF Universal 58 Vold files

MATLAB
IEEE COMTRADE
CSV
Parquet
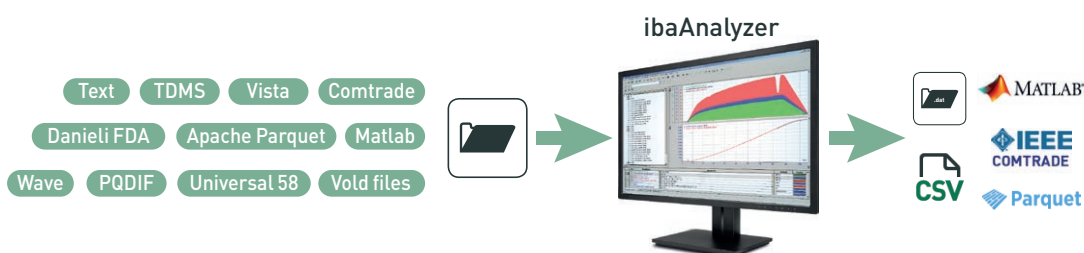
ibaAnalyzer-InSpectra+

ibaAnalyzer-InSpectra is an additional component of ibaAnalyzer to utilize the powerful ibaInSpectra library offline. Analysis configurations can first be designed and tested offline within ibaAnalyzer and transferred to ibaPDA for real-time vibration monitoring. It can also be used to verify existing ibaInSpectra installations to help tune the online calculations.

At a glance

› Configure ibaInSpectra profiles offline without interfering ibaPDA data collection
› Fine-tune your vibration and orbit monitoring configuration offline
› Validate alarm threshold definitions
› Correlate process and machine behavior
› Perform frequency band analysis using the expert module
› Analyze shaft motion using the orbit module

From online monitoring to offline analysis

The ibaInSpectra* plug-in in ibaPDA offers various options of online monitoring of vibrations and shaft motions. ibaAnalyzer is a powerful analysis tool to analyze recorded data and to recognize root causes of faults. With the new ibaAnalyzer-InSpectra a gap is bridged between ibaPDA and ibaAnalyzer and a consistent tool chain from online monitoring to offline detail analysis is offered. The two most important modules in this context are the expert module for the frequency band analysis of vibrations and the orbit module for the analysis of shaft motion.

Configuration tool for ibaInSpectra

ibaAnalyzer-InSpectra allows you to configure calculation rules offline in the form of profiles and to test them with recorded data. Profiles can be transfered between ibaInSpectra and ibaAnalyzer-InSpectra by using the export and import functions in ibaInSpectra.

Validation and offline analysis

The powerful ibaInSpectra library can now be used offline within ibaAnalyzer. Thus, it is possible to perform the calculations of ibaInSpectra offline. Characteristic values that have triggered an alarm can be validated and the problem can be analyzed in detail.
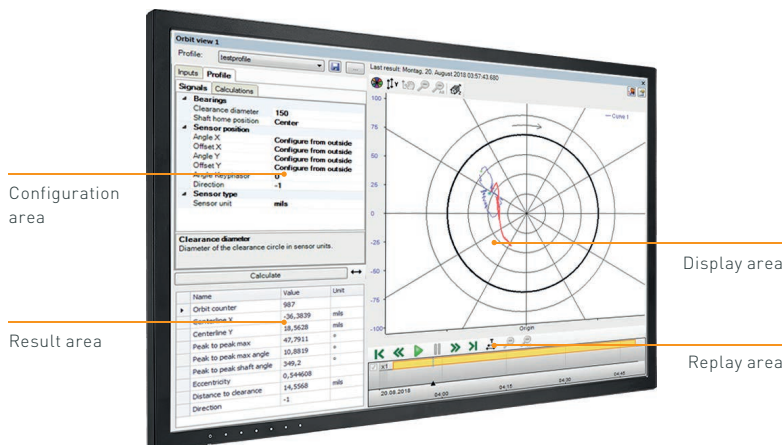
Licensing

The InSpectra expert view is available in ibaAnalyzer without additional license. With the ibaAnalyzer-InSpectra+ license, the results of the InSpectra calculations will be available in ibaAnalyzer as signals, can be exported to databases and used for further processing in reports or with ibaDatCoordinator.

Configuration area

Result area

Display area

Replay area

* The function of ibaInSpectra is described in detail in the brochure „Acquisition, recording and online visualization of measured data"

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ibaAnalyzer-InCycle+

ibaAnalyzer-InCycle offers the functions of ibaInCycle for monitoring cyclic processes offline. Analysis configurations can first be designed and tested offline within ibaAnalyzer and transferred to ibaPDA for real-time monitoring. It can also be used to verify existing ibaInCycle installations to help tune the online calculations.

At a glance

› Configure ibaInCycle profiles offline based on recorded data
› Fine-tune the cycle monitoring offline
› Validate warnings and alarms
› Detailed analysis of process and machine behavior while taking into account all process parameters
› Analyze cycles using the expert module

From online monitoring to offline analysis

The ibaInCycle plug-in in ibaPDA offers various possibilities for online monitoring of rotating or cyclically recurring processes. ibaAnalyzer is a powerful analysis tool to analyze recorded data and to recognize root causes of faults. With ibaAnalyzer-InCycle a gap is bridged between ibaPDA and ibaAnalyzer and a consistent tool chain from online monitoring to offline detail analysis is offered.

Configuration tool for ibaInCycle

ibaAnalyzer-InCycle allows you to configure calculation rules offline in form of profiles and test them with recorded data. These profiles can be transferred to ibaInCycle via import and export and used there.

Validation and offline analysis

With ibaAnalyzer-InCycle, the calculations of ibaInCycle can be carried out offline. Characteristic values that triggered an alarm can be validated and the problem can be analyzed offline.

By integrating ibaInCycle in ibaAnalyzer, you can easily correlate process values and machine characteristic values to gain an overall picture of the process and machine states.

Licensing

The InCycle expert view is available in ibaAnalyzer without additional license. With the ibaAnalyzer-InCycle+ license, the results of the InCycle calculations will be available in ibaAnalyzer as signals, can be exported to databases and used for further processing in reports or with ibaDatCoordinator.

Configuration area

Result area

Display area

Replay area
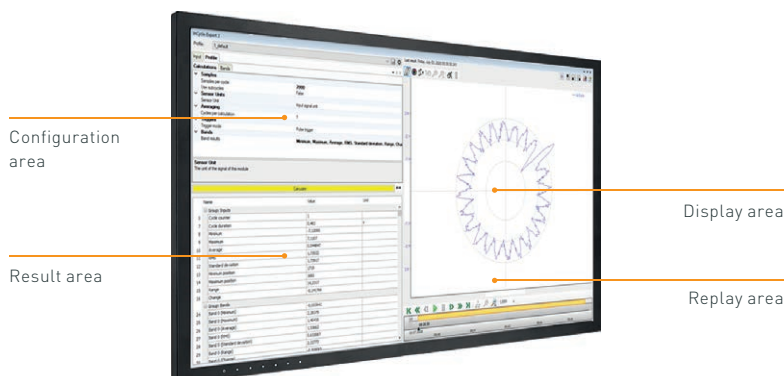
ibaDatCoordinator
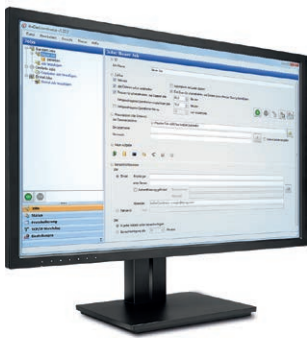
ibaDatCoordinator is a powerful tool for processing and managing measurement data automatically. Typical fields of application are automatic data management, creating reports or the extraction of product-related characteristic values in databases or other systems. In synergy with ibaAnalyzer, various tasks can be done fully automatically and routine procedures can be simplified.

ibaDatCoordinator is the central component for the automatic processing of measurement data and thus decisive for the use of the iba system in production systems. Measurement data files generated with ibaPDA, ibaQDR or ibaLogic as well as measurement data from ibaHD-Server can be processed. With the integrated tools, data management and other tasks can be set up individually, such as transferring measurement data to central locations, extraction into databases and calculation of characteristic values.

ibaDatCoordinator can be used as a stand-alone program or installed as client and server. The client-server principle allows distributed, decentralized servers in the network to be configured from a central location.

At a glance

› Powerful tool for automated data processing
› Automated processing of measurement data recorded with the iba system - measurement files, data from ibaHD-Server or 3rd party files
› Automatic extract of time-series data to databases or files
› Publish batch-wise aggregated data via different protocols
› Automatic generation of quality and fault reports, triggered or timebased
› Notifications based on measurement data (e.g. limit exceedance)
› Copy DAT-files based on different criteria
› Integrated status monitoring
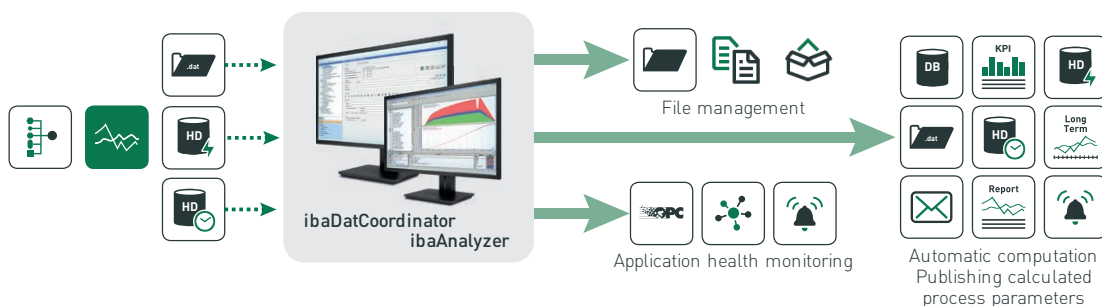› Script function as open interface for free processing of data files

Easy and intuitive data flow design

ibaDatCoordinator processes data files by means of the so-called "jobs". Each job is made up of one or more tasks. With just a few mouse-clicks, you can generate and edit new jobs and the related tasks.

By using the endless possibilities of ibaAnalyzer for computing and analyzing in the background, ibaDatCoordinator can retrieve any information from your acquired data automatically and without further interaction. Notifications and alarms can be configured easily and data clean up can be set up. Further, tasks like copying or uploading files to other systems can be configured.

ⓘ For more information, see the brochure "Automated processing and management of measurement data"

ibaDatCoordinator
ibaAnalyzer

File management

Application health monitoring

Automatic computation
Publishing calculated
process parameters

Order information

ibaAnalyzer

Order no.	Name	Description
33.010000	ibaAnalyzer	Offline analysis tool[1]
33.010003	ibaAnalyzer-DB-Read	Offline analysis: read data from SQL databases
33.010008	ibaAnalyzer-DB-Read-5	Offline analysis: read data from SQL databases, 5 users
33.010410	ibaAnalyzer-InSpectra+	Offline vibration analysis: trend and output of InSpectra results in ibaAnalyzer
33.010411	ibaAnalyzer-InCycle+	Offline analysis of cyclic processes: trend and output of InCycle results in ibaAnalyzer
33.010445	ibaAnalyzer-E-Dat	Offline analysis for external data formats
33.010456	ibaAnalyzer-Add-On-TDMS-Extract	Offline data extraction from an original DAT file into a TDMS format (free of charge)

ibaDatCoordinator

Order no.	Name	Description
34.010550	ibaDatCoordinator	Tool for data management automation
34.010510	ibaDatCoordinator-DB	Automatically extract data to databases (per task)
34.010520	ibaDatCoordinator-DB-10	Automatically extract data to databases (10 tasks)
34.010511	ibaDatCoordinator-File-Extract	Automatically extract data to datfiles or other file formats such as CSV, COMTRADE, Parquet, Matlab, TDMS (per task)
34.010521	ibaDatCoordinator-File-Extract-10	Add-on bundle for automated file extract (10 tasks)
34.010512	ibaDatCoordinator Convert-CSV-to-dat	Automatically convert CSV files to datfiles (per job)
34.010513	ibaDatCoordinator Convert-DAS-to-dat	Automatically convert DAS files from Danieli FDA systems to datfiles (per job) limited to the 32-bit version of ibaAnalyzer
34.010514	ibaDatCoordinator Convert-COMTRADE-to-dat	Automatically convert COMTRADE files to datfiles (per job)
34.010516	ibaDatCoordinator Convert-PARQUET-to-dat	Automatically convert PARQUET files to datfiles (per job)
34.010515	ibaDatCoordinator-Publish	Publish computed values via OPC UA, SNMP, Apache Kafka or SQL database (per task)
34.010525	ibaDatCoordinator-Publish-10	Add-on bundle to publish computed values (10 tasks)
34.010552	ibaDatCoordinator-Update Data Task	Plugin for input function, subsequent entries in measurement files
34.010556	ibaDatCoordinator S7 Writer	Plugin for extracting data from a measurement file and writing it to data blocks (DB) of an S7-SPS

Training

Order no.	Name	Description
61.100000	Measurement, data evaluation and automatic reporting with iba	3-day compact course
61.000100	Evaluating iba measured data	2-day basic course
61.000200	Measuring and analyzing with the iba measuring system	2-day basic course
61.000700	Monitoring and analysis of vibration data with ibaInSpectra	2-day basic course
61.000120	Automated generation of reports and quality documentation with ibaAnalyzer-Reportgenerator	2-day advanced course

The entire training program is available under www.iba-ag.com/training

[1] Software is licensed free of charge for analyzing measurement data generated with the iba system.

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