ibaDaVIS

Data Visualization and Information Service

Manual

Issue 3.4

Measurement Systems for Industry and Energy

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Version	Date	Revision	Author	Version SW
3.4	02-2026	Tile document display; conditional colors for value display, table, and scatter chart; virtual functions DigitalPulse() and Abs(); free tile positioning on dashboard, dashboard background	nm	3.4.0

Contents

1 About this documentation

This documentation describes the function and use of the *ibaDaVIS* **Da**ta **V**isualization and **I**nformation **S**ervice for the analysis of product and process data.

1.1 Target group and previous knowledge

This documentation is aimed at qualified professionals who are familiar with handling electrical and electronic modules as well as communication and measurement technology. A person is regarded as professional if he/she is capable of assessing safety and recognizing possible consequences and risks on the basis of his/her specialist training, knowledge and experience and knowledge of the standard regulations.

1.2 Notations

In this manual, the following notations are used:

Action	Notation
Menu command	Menu *Logic diagram*
Calling the menu command	*Step 1 – Step 2 – Step 3 – Step x* Example: Select the menu *Logic diagram – Add – New function block*.
Keys	<Key name> Example: <Alt>; <F1>
Press the keys simultaneously	<Key name> + <Key name> Example: <Alt> + <Ctrl>
Buttons	<Key name> Example: <OK>; <Cancel>
Filenames, paths	`Filename`, `Path` Example: `Test.docx`

1.3 Images

The screenshots show mainly desktop views. The views may differ for tablets and smartphones as well as for different browsers.

1.4 Presentation of notes and warnings

When safety and warning notices or other notices are used in this documentation, they mean:

Note

A note specifies special requirements or actions to be observed.

Tip

Tip or example as a helpful note or insider tip to make the work a little bit easier.

Other documentation

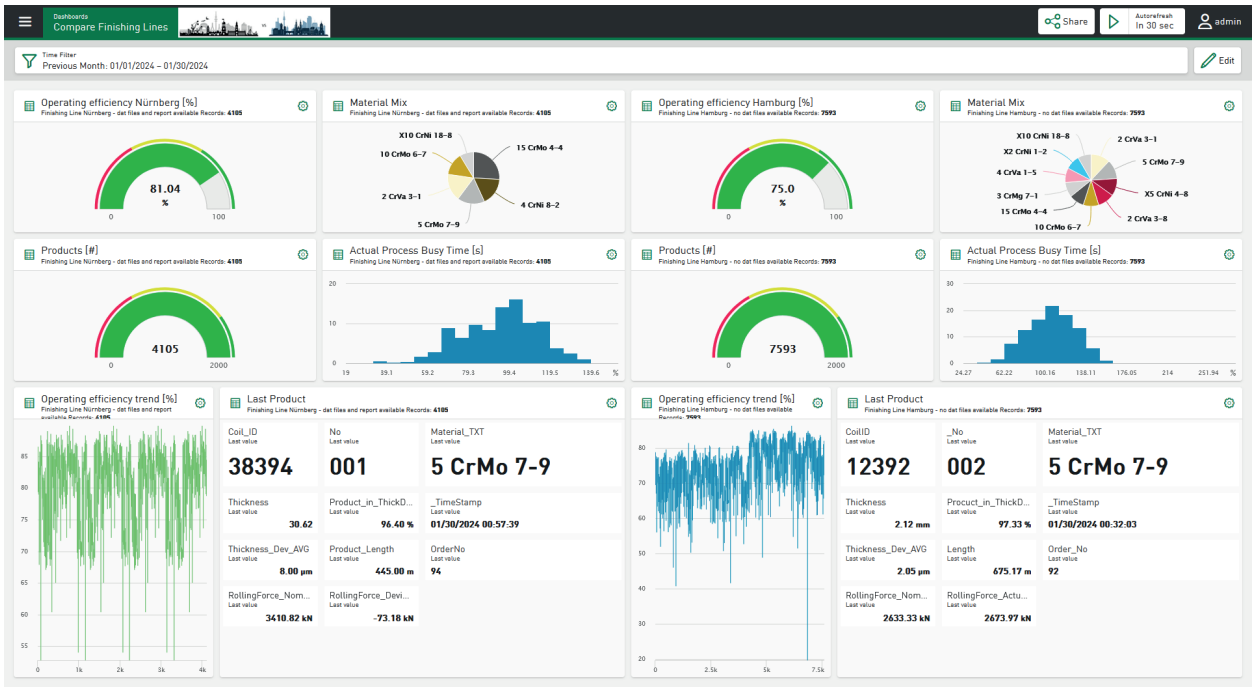
Reference to additional documentation or further reading.

2 About ibaDaVIS

With the **Da**ta **V**isualization and **I**nformation **S**ervice *ibaDaVIS,* you can visualize and analyze measurement, process and quality data web-based. *ibaDaVIS* enables both the long-term analysis of product and process data across measurement files and the root cause analysis by drilling down to high-resolution measurement data.

ibaDaVIS offers a completely new overview and clarity via in-depth insight into data and processes. Systems and machines can be compared with each other based on their characteristic values. The precise information required to monitor systems and machines and to identify weak points and optimization potentials can be quickly and easily displayed.

The production or process can be viewed over long periods of time. Long-term trends, histograms, tables or pie charts are visualization and filter elements in one. Plant operators, process technologists or decision makers see the same data with *ibaDaVIS* regardless of whether on a PC, mobile tablet or smart phone.



ibaDaVIS uses the latest web technologies and supports all common web browsers such as Google Chrome or Mozilla Firefox. The responsive design enables convenient operation including via tablets or smartphones. Here, only a web browser is needed to connect to *ibaDaVIS*. Installation of an additional app is not necessary.

Flexible configuration

In the navigation area of *ibaDaVIS,* the dashboards can be organized hierarchically by location, machine or user groups in order to achieve views of specific assets or production sites or a problem- or user-specific view of the plant or machine. The dashboards can be accessed from anywhere on the web via the structure tree and visualize in tiles the assigned quality or characteristic values from databases or the high-resolution measured values from iba measurement files. With the help of virtual functions, signals or trends can be easily compared and statistical and other values can be calculated. For example, exceeded limit values can be quickly displayed

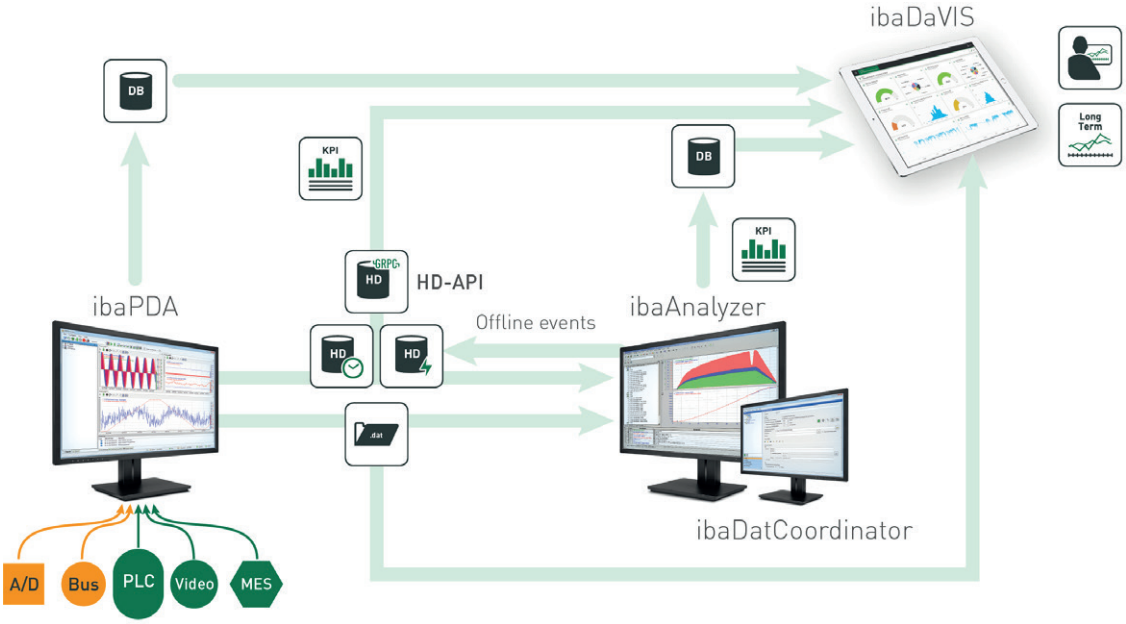
and detected. A wide variety of tile types, such as trend displays, scatter charts, histograms, tables, gauges, pie charts, or bullet graphs are available. The data can be displayed directly or in aggregated form depending on the selected tile. All tiles can be quickly and easily resized and individually positioned by dragging and dropping.

Interactive filter and search functions

ibaDaVIS shows characteristic values or measured values from the same defined time range on all tiles. The time range can be selected directly with date and time or relatively, for example for the last 7 days. All tiles are updated directly after selection and show values from the desired time range. The tiles can also be used as filter objects. For example, by clicking on a segment in the pie chart, the filter is automatically set to the selected group. In this way, a specific material group can be selected, for example. Due to the implicit filter function of *ibaDaVIS*, all tiles of the dashboard now show the data points or trends that are part of the selected material group.

By zooming in a trend graph, the time range for all displayed characteristic values on the dashboard can be narrowed down very quickly. To track the characteristic values of a specific product, for example, simply enter the product number in the table. The table immediately displays the product-related characteristic values and offers a download of the iba measurement file or the previously created product report.

In the following figure the data flow within the iba system is shown.



2.1 System requirements

Please note the following requirements for the use of *ibaDaVIS*.

Hardware

Central Windows based PC (or VM) for *ibaDaVIS* service with access to a database system or *ibaHD-Server*.

Software

- Operating system for *ibaDaVIS* service: Windows 10 (64 Bit), Windows Server 2012 R2 (64 Bit), Windows Server 2016 (64 Bit), Windows Server 2019 (64 Bit), Windows Server 2022 (64 Bit), Windows Server 2025 (64 Bit), Windows 11 (x64)
- .NET Framework 8.0.11

  The framework is included in the installation package of *ibaDaVIS*.
- For *ibaDaVIS* v3.0.0 or higher: License service CodeMeter Runtime for Windows v7.21a or higher from WIBU-SYSTEMS AG. The latest version of CodeMeter Runtime is included in the installation package of *ibaDaVIS*.

Other documentation

Further information on CodeMeter Runtime can be found in the separate documentation "WIBO CodeMeter for iba products". This can be found in the download area on the iba website or in the iba help center at https://docs.iba-ag.com.

Supported data sources

- *ibaHD-Server* v2.5 or higher
- Database systems: Microsoft SQL Server, MySQL, MariaDB, SQLite, Oracle and PostgreSQL for storing the tables in iba format or open databases

For PCs or tablets accessing the ibaDaVIS service

Supported HTML5 capable web browser under: Windows, iOS and Android like e.g. Google Chrome, Mozilla Firefox, Microsoft Edge etc.

Tip

Further information on the system requirements and compatibility of the different versions of *ibaDaVIS* with other iba products can be found in the administration menu of *ibaDaVIS*. Tap on *About* > version number > *Version compatibility* tab.

2.2 Licensing and software maintenance

ibaDaVIS can only be used with a license. The license must be activated on the computer on which the *ibaDaVIS* service is running.

The licensing of *ibaDaVIS* is carried out with the WIBU system. The WIBU system uses so-called license containers. A license container can be a USB dongle or a soft license.

When using *ibaDaVIS* on a VM, the soft license is recommended. A USB dongle can also be connected to a VM using a USB dongle server in the network.

Other documentation

A detailed description of the installation and use of CodeMeter Runtime, as well as information on the use of *ibaDaVIS* on a VM can be found in the documentation "WIBU CodeMeter for iba users". This can be found in the download area on the iba website or in the iba help center at https://docs.iba-ag.com.

The licenses are differentiated according to the number of configurable tiles. The base version of *ibaDaVIS* contains the configuration of up to 12 tiles. You can extend the number of tiles with upgrade licenses by 12 tiles each. The number of dashboards and logged in users in *ibaDaVIS* are not subject to licensing. The number of data sources is also not limited.

Software maintenance and support conditions

You can use the software maintenance and support services free of charge for the first two years after purchasing the software. After that, you will need to purchase an EUP (Extended Update Period) as part of a maintenance contract, with which you can extend the update period by 1 year at a time.

Available licenses

Order no.	Product name	Description
34.040010	ibaDaVIS	Data Visualization and Information Service (12 tiles)
34.040100	ibaDaVIS-upgrade by 12 Tiles	Upgrade by 12 tiles
34.041010	ibaDaVIS-EUP	Extended Update Period – 1 year
34.041100	ibaDaVIS- EUP upgrade by 12 Tiles	Extended Update Period – 1 year
Optional		
30.800001	ibaHD-Server-API-Read	gRPC-API interface to query saved signals, events and time periods from existing HD stores

3 First steps

From installation to visualization of your process data in 5 steps

Carry out at least the following steps to visualize initial data in *ibaDaVIS*:

1. ↗ *Installing ibaDaVIS, page 14*
2. ↗ *Logging in, page 18*
3. ↗ *Datasource configuration, page 21*
4. ↗ *Dashboard configuration, page 42*
5. ↗ *Tile configuration, page 63*

3.1 Installation

You have the following options for installing *ibaDaVIS*:

- **Installation with installation wizard**

  See chapter ↗ *Installing ibaDaVIS, page 14*

- **Installation via command line**

  This procedure is helpful for centralized software administration or when using deployment systems. You can control how the installation is to be carried out and which components are to be installed using the command line switches that are set after the installation program is called.

  You can find an overview in chapter ↗ *Notation for installation via command line, page 16*.

Note

Install *ibaDaVIS* on the computer on which the *ibaDaVIS* service is to be started. Make sure that the computer has sufficient memory.

3.1.1 Installing ibaDaVIS

In the following you will learn how to install *ibaDaVIS* with the installation wizard.

Requirement: The USB- dongle or soft license is available.

1. Run the `ibaDaVIS_vx.y.z.exe` file and follow the instructions in the installation wizard.

   Note

   CodeMeter Runtime is included in the installation of ibaDaVIS v3.0.0 or higher. You also have the option of installing the *ibaManagementStudio* software.

   a) Define a specific IP address (optional) and determine a free port number under which the *ibaDaVIS* service will be accessible as an application.

   b) Select the user account (optional).

   Local system account is selected by default. This is sufficient if the server process works only on the local computer and does not need any other special user-related rights.

   Select the option *This user*, if the server process requires other user-specific rights. The user account that you enter here must have the appropriate rights (Windows user administration).

   Other documentation

   Further information on creating and using service accounts can be found in the “IT security guide”. You can find the guide in the download area on the iba website or in the help center at https://docs.iba-ag.com.

2. After successful installation, select whether you want to open *ibaDaVIS* with the current standard browser.
3. Complete the installation with <Finish>.

→ After installing *ibaDaVIS*, the tray icon  for the *ibaDaVIS Status* App appears in the taskbar, see ↗ *ibaDaVIS Status App, page 17*.

Note

If *ibaDaVIS* service could not be started correctly, a corresponding message is displayed. The ibaDaVIS service may have to be started under a different system account or there may be a problem with the license.

3.1.2 Installing ibaDaVIS as progressive web app

In the following you will learn how to install *ibaDaVIS* as progressive web app (PWA). Depending on the browser or end device, different installation options are possible.

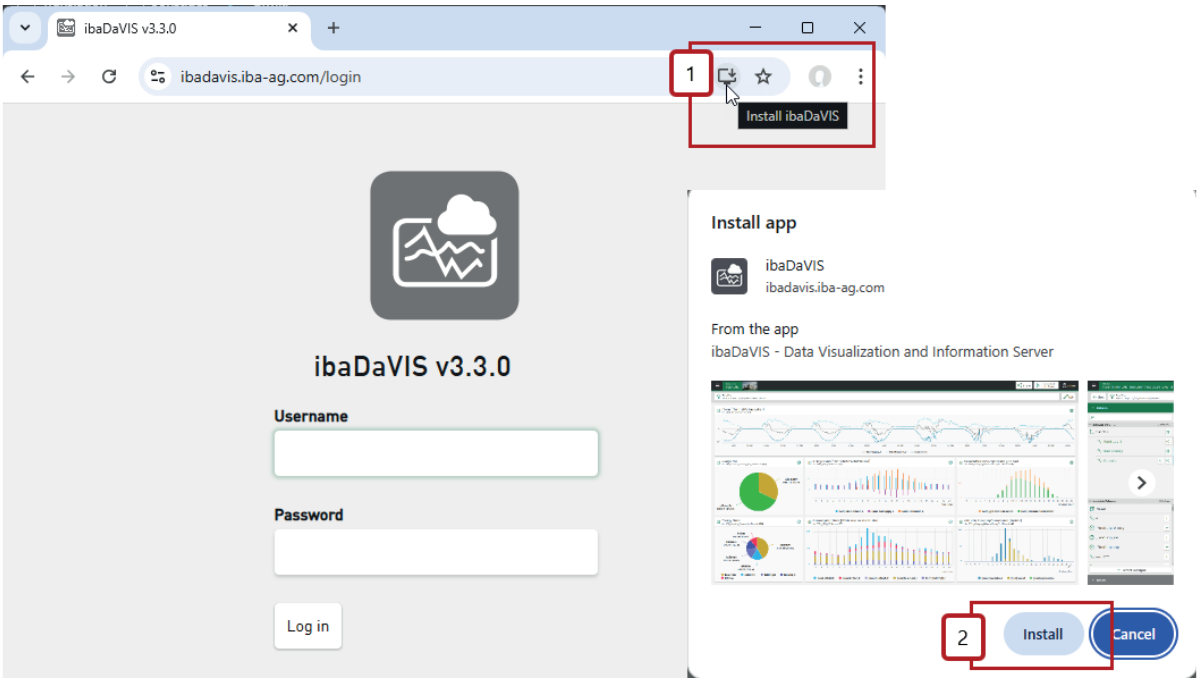
1. Make sure that *ibaDaVIS* is running on a secure server.

   A valid SSL/TLS certificate issued by a trusted certification authority must be installed on the server hosting the PWA. Access to the *ibaDaVIS* web service by other client PCs or end devices is secured via SSL encryption, i.e. *ibaDaVIS* is configured as an HTTPS endpoint.

2. Open *ibaDaVIS* in the desired browser.

3. Install the app from the browser.

   The following image shows the installation in Google Chrome. First click on the icon in the address bar and then on <Install>.



→ The installer of the PWA is listed in the installation directory of *ibaDaVIS* in addition to *ibaDaVIS* v3.3.0 as an installed application. The *ibaDaVIS* PWA installation is independent and can be installed or uninstalled separately.

3.1.3 Notation for installation via command line

Below you will find an overview of the command line switches for the installation of *ibaDaVIS* via command line.

Example notation

```
ibaDaVIS_vx.y.z.exe [/SILENT /SUPPRESSMSGBOXES] [/LANG="xx"]
```

/HELP	This switch shows a message box containing all supported command line parameters.
/SILENT	This switch installs the software in "silent mode", i.e., interaction is not required during installation. All installer pages are skipped except the Installing page showing the installation progress. The installer runs without specifying additional parameters, as if <Next> were always pressed in the dialog.
/VERYSILENT	Works like "/SILENT" but nothing is shown.
/SUPPRESSMSGBOXES	Suppresses all pop-up messages. Use this option especially in combination with /VERYSILENT to guarantee a completely GUI free installation.
/TASKS=	This switch allows you to specify whether a desktop icon should be created during installation. Examples: /TASKS=desktopicon /TASKS=nodesktopicon
/DIR=	Use this switch to specify the installation folder, i.e. the program folder. Example: /DIR="C:\Programme (x86)\iba\ibaProduct"
/LANG=	This switch sets the language of the installer (by default, the language of the operating system is used). Possible options: de, en, es, fr, it, ja, pt, ru, zh. Examples: /LANG=en /LANG=de

3.1.4 ibaDaVIS Status App

You will find the *ibaDaVIS Status* app in the Windows taskbar: 

The icon shows the current status of the application; you can also select the following options via the context menu:

Option	Description
Open in browser	Open *ibaDaVIS* in the current standard browser via the URL of the local *ibaDaVIS* service
Start/stop/restart service	
Open log/configuration folder	Open the Windows file explorer under the following path: ~ ProgramData\iba\ibaDaVIS see ↗ *Administration, page 145*
Help and support	In the submenu, you can choose between the following options: ■ Open help: Opens the online help for *ibaDaVIS* in the browser ■ Create support file: Compiles application-related information, e.g. log and project files, as a ZIP file for iba support requests ■ Contact to iba support: Opens a list of iba subsidiaries and partners worldwide ■ Show version history ■ About ibaDaVIS: Opens information about the version and licenses of *ibaDaVIS* in the browser
Exit	Close *ibaDaVIS Status* App

3.2 Logging in

Below you will learn how to initially log in to *ibaDaVIS* as an administrator, or as another user.

1. To open the configuration and user interface of *ibaDaVIS*, enter the address http://localhost:80 in your web browser, or http://[PC name]:[Port] if you are using a different port.

   Tip

   Alternatively, you can open *ibaDaVIS* directly in the browser via the *ibaDaVIS Status* app, see ↗ *ibaDaVIS Status App, page 17*.

2. Log in initially as an administrator or with your personal user.

   The access data for the initial login as an administrator is as follows:

Username	admin
Password	Admin#1

   Note

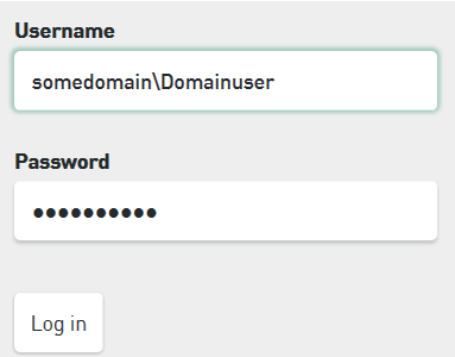
   The “admin” user cannot be changed or removed. To avoid unauthorized use of the system, change the password after logging in for the first time.

   See ↗ *User Profile, page 138*

   Note

   If you log in as a domain user, you do not have to enter the domain name in the *User* field. It is sufficient if you use the user name or e-mail address of a user.

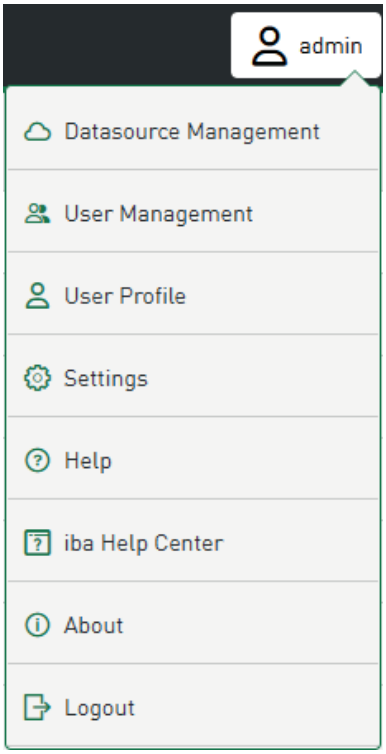
   If *ibaDaVIS* is running in an environment with several Active Directory domains, you should still prefix the user name with the domain name. If you have any questions, please contact your administrator.

→ The dashboard overview opens.

3.3 Administration menu

Various options for data source management and configuration of *ibaDaVIS* are available via the administration menu. The administration menu shows the name of the logged-in user, e.g. "admin".



Datasource Management
Configuration of the data sources, see ↗ *Datasource configuration, page 21*

User Management
Management of local users/domain users and groups, see ↗ *User management, page 130*

User Profile
Personal user settings for the *ibaDaVIS* interface, see ↗ *User Profile, page 138*

Settings
Settings for the configuration of analyses, work shifts and color schemes, see ↗ *Settings, page 140*

Help
Opening the online help for *ibaDaVIS* in the browser

Alternatively, you can also open the online help via the *ibaDaVIS Status* App, see ↗ *ibaDaVIS Status App, page 17*.

To open the content of the currently displayed *ibaDaVIS* window, press <F1>.

iba Help Center
Opens the iba Help center in the browser

Here you have access to all current documentation on iba products.

About
Information on version and licenses of *ibaDaVIS*

- Further information on licenses and maintenance can be found in chapter ↗ *Licensing and software maintenance*, page 12.
- If you click on the version number, the version history of *ibaDaVIS* opens in the browser.
- If you need help, you will find iba offices and partners worldwide under *Contact Information*.

Logout
Log out of *ibaDaVIS*

3.4 Symbols in the software

You will find the following symbols on the software interface of *ibaDaVIS*.

	Analog signal		Digital signal
	Visible		hidden
	Edit		Copy
	Clear		Add
	Save		Cancel
	Add tile		Filter
	Open function menu		Open configuration view for tile
	Print		Download
	Share dashboard		Markers
	Start autorefresh		Stop autorefresh
	Database closed		Database
	ibaHD-Server		Time-based HD store
	Event-based HD store		iba File Table
	General table		Segment table
	Text signal, character field in databases and data of type string		Column of type Date, DateTime or Time

4 Datasource configuration

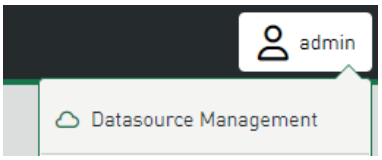
For product and process analysis, *ibaDaVIS* uses visualizable data from databases, data from the *ibaHD-Server* or signals from DAT files as data sources.

First establish the connection to the databases or to *ibaHD-Server*. You can create connections to several databases or *ibaHD-Servers*.

4.1 Configuring a database connection

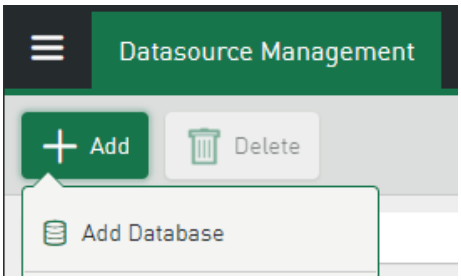
In order to visualize data from databases or signals from DAT files on a dashboard, first establish the database connection.

1. Tap <Datasource Management> in the administration menu.



→ If connections to databases already exist, these are displayed with the selected tables in the left-hand window area. You can use the search field to search for an existing database connection.

2. To add a new database connection, tap <Add> – <Add Database>.



→ A new database connection is added in the left-hand pane.

3. Enter a *Name* for the database connection.
4. Select a database type from the drop-down list and enter the connection information for your database.

   The following database types are available:

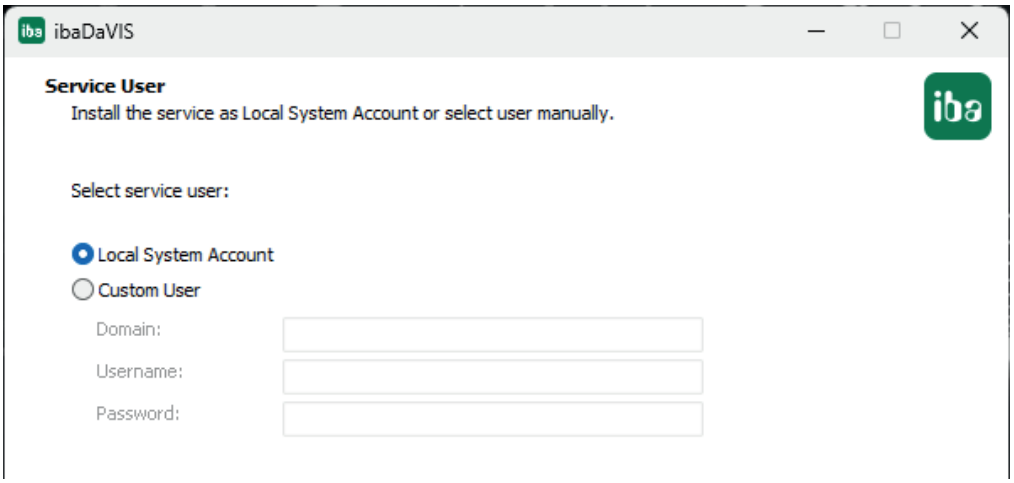
   - Microsoft SQL Server
   - MySQL/MariaDB
   - SQLite
   - PostgreSQL
   - Oracle Database

   Examples for the different database types and the database-specific connection parameters can be found in chapter ↗ *Examples for database connections, page 27*.

5. To check whether the connection has been successfully established, tap <Test>.

Note

In some cases, you must run the service under a user account other than the system account in order to establish a connection. You can manage the account under which the *ibaDaVIS* service runs at any time during installation or in the Windows system services.

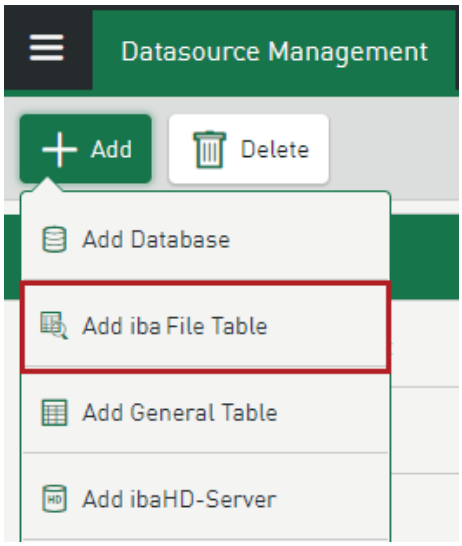


6. To apply the settings, tap <Save>.

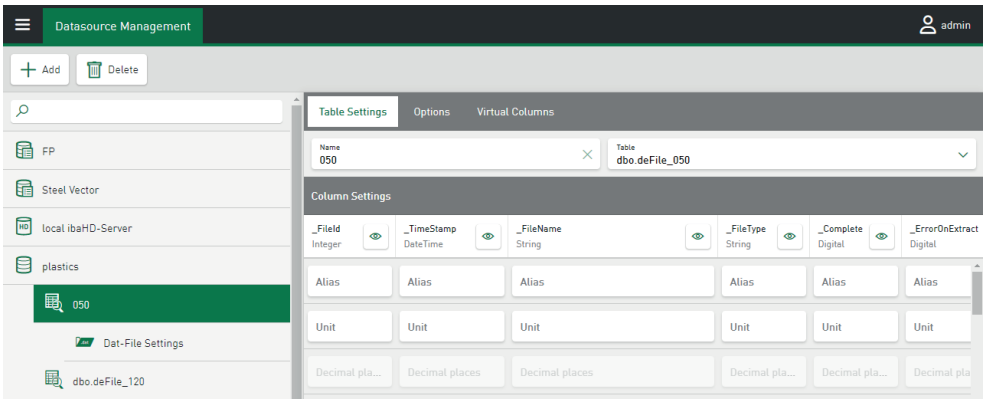
4.1.1 Adding an iba file table as datasource

iba file tables contain values that were entered into the file table of the database using the DB functionality of *ibaAnalyzer*. This gives you access to the signals of the underlying DAT files.

1. In *Datasource Management* mark the database.
2. Tap on <Add> – <Add iba File Table>.



→ A new table is inserted below the database connection in the left-hand pane and the *Table Settings* tab is displayed.



3. Enter a *Name*.
4. Select the *Table* to be used as the datasource

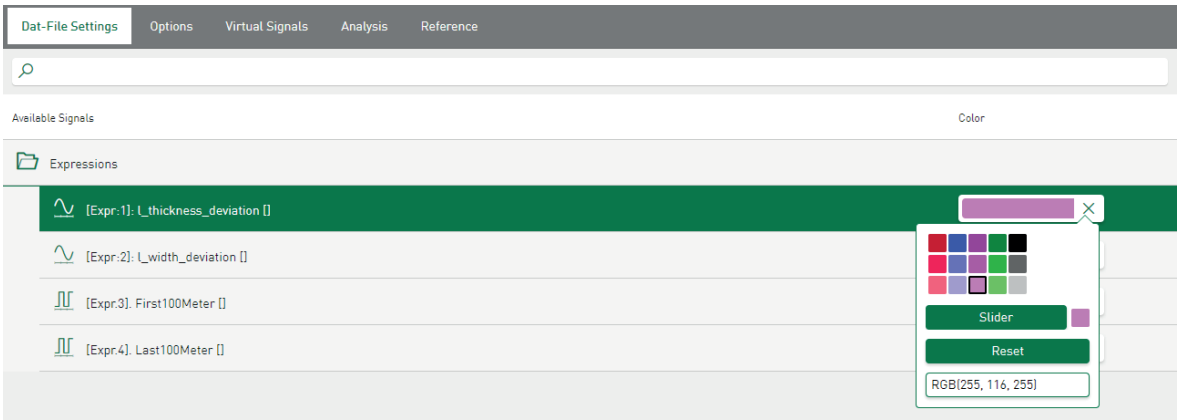
Note

ibaDaVIS, filters the tables displayed for selection. For the datasource type *iba File Table,* only tables that are recognized as file tables in iba format are available for selection. The default name of the file table is preset in *ibaAnalyzer* as "deFile" and can be changed for the user. If the name of the file table currently in use is not known, it can be read in the analysis rule that is used for database extraction. In the *ibaAnalyzer* area *Database link*, the names of the tables can be changed and read in iba format. Further information on this can be found in the *ibaAnalyzer* documentation.

5. Make the desired table settings, see ↗ *Table settings, page 29*.
6. To complete the configuration, save the current settings.

4.1.1.1 DAT File Settings

A *DAT File Settings* folder is generated for each newly added *iba File Table*. The tab of the same name displays the signal names of the last valid DAT file in a signal tree. You can define a default color for signals from DAT files for each configured *iba File Table*.



You can use the color field to specify the default color for the listed file signals, see ↗ *Color selection in datasources, page 30*. In each tile that displays signals from DAT files of this datasource, these color settings are used to visualize the signal trends. You can change the signal color at any time in the corresponding tile view, see ↗ *Color selection in tiles, page 73*.

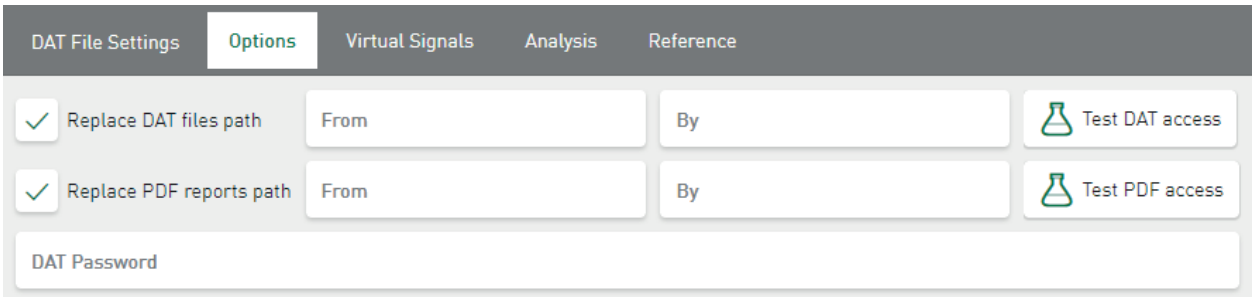
Note

Changes in the color scheme are also applied to default colors for DAT files, see ↗ *Settings – Color Scheme, page 143*.

For information on editing virtual signals, see chapter ↗ *Configuration of virtual signals, page 112*.

4.1.1.2 DAT File Settings – Options tab

You can configure file paths for DAT files and PDF report files in the *Options* tab.



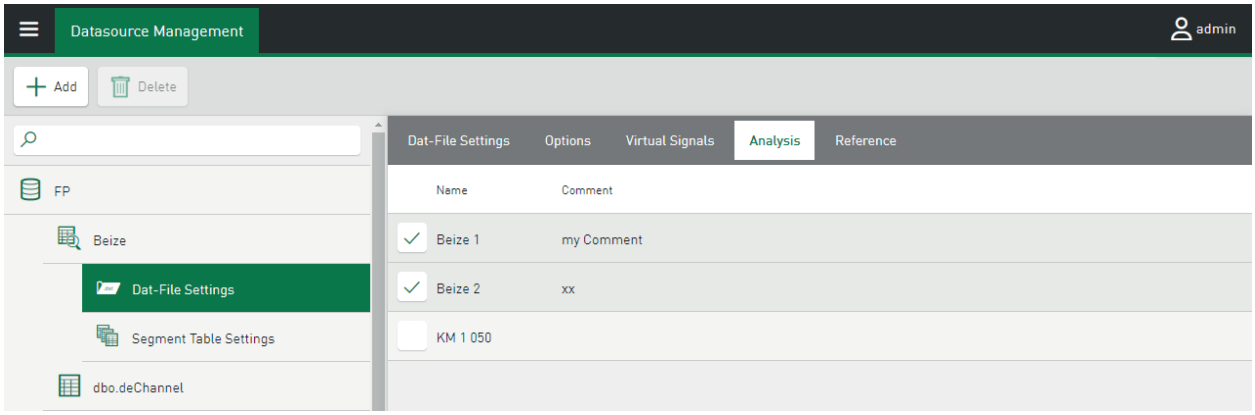
Replace DAT files path
Enable this option if the DAT files are generally saved in a different location than the original location at the time of extraction. This may, for example, be the case if the files are moved or copied to a network drive after the extraction task.

Replace PDF reports path
Enable this option if the PDF report files are generally saved in a location that is different than that of the extracted DAT files.

DAT Password
Enter a datasource-related password here for the automatic opening of the password-protected DAT files.

4.1.1.3 Analysis tab

A configured analysis contains an analysis file (*.pdo). You can connect one or more configured analyses in the *Analysis* tab to the currently selected file table. DAT files or ibaHD data can then be downloaded together with an analysis and opened with *ibaAnalyzer* directly after the download.



For more information on the configuration of the analyses, see ↗ *Settings – Analysis Configuration, page 140*.

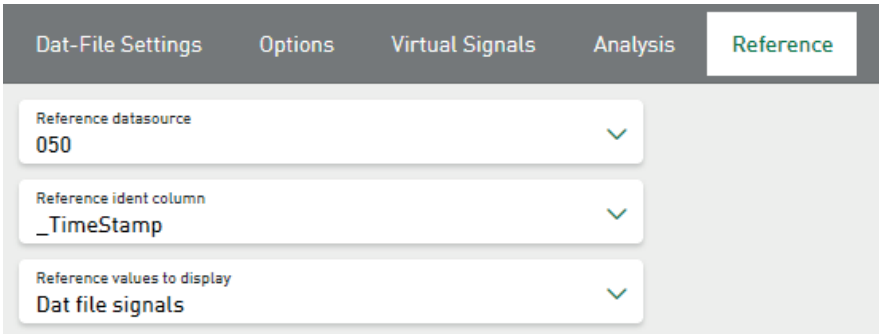
For more information on the use of the analyses, see ↗ *Downloading data with analysis (PDC file), page 98*.

4.1.1.4 DAT File Settings – Reference tab

This function allows you to compare signals from DAT files with signals from a selected reference file and display them in one tile on the dashboard.

You can add a reference datasource to each datasource of type *iba File Table*. You can use any datasource of the *iba File Table* type as a reference datasource.

For this, select the datasource in the *Datasource Management* that you have created with the DB functionality of *ibaAnalyzer*.



Reference datasource
You can select the datasource type *iba File Table* as the datasource.

Reference ident column
Displays the values that were selected to display different reference files on a dashboard for visual comparison.

Reference value for display

- *DAT file* signals: The displayed reference signals are read from the linked DAT file.
- *Segment table values*: The displayed reference signals are read from segment tables

Other documentation

For further information about the correct extraction of measuring channels and segment tables with the DB functionality of *ibaAnalyzer*, please refer to the *ibaAnalyzer* documentation.

For more information on the use of process-relevant reference signals, see ↗ *Visualizing reference signals, page 80*.

Note

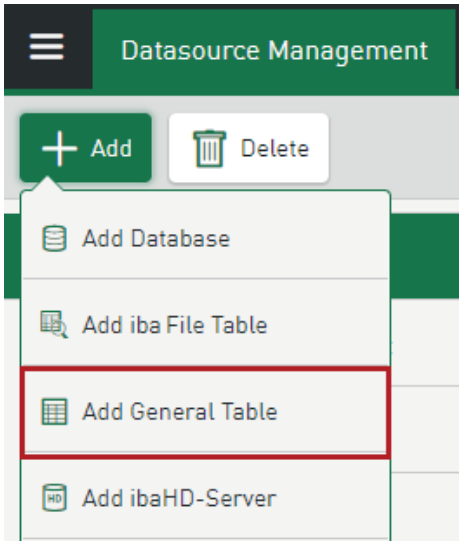
Reference – Migration of ibaDaVIS v2 to v3
If you are using *ibaDaVIS* version 2 and have already configured the *Reference* function, a change or reaccess is required.

In case of installation and project migration of *ibaDaVIS* version 3, the pre-selection "_TimeStamp" is set for the reference ident column. Due to some changes in the backend of the datasource configuration, this pre-selection has to be made. If "_TimeStamp" has not been used as the ident column so far, the configuration will need to be carried out again. For this, select the applicable column under *Reference ident column*. Afterwards, functionality is restored.

4.1.2 Adding a table from any database as datasource

You can add values from an open database table as a data source that contain a date/time column. For example, you can visualize data that *ibaPDA* writes to your database by using the cloud/database storage.

1. In *Datasource Management* mark the database.
2. Tap <Add> – <Add General Table>.



→ A new table is inserted below the database connection in the left-hand pane and the *Table Settings* tab is displayed.

3. Enter a *Name*.
4. Select the desired *Table* from the selection list.

Note

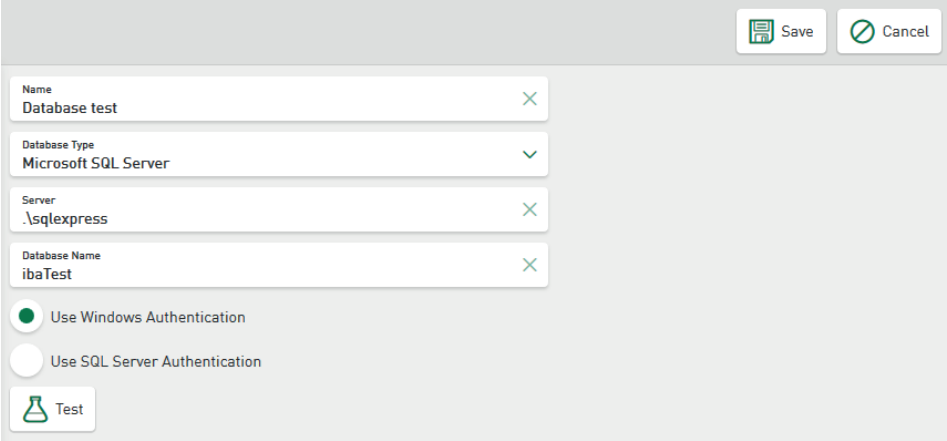
For the *General Table* datasource type, all available tables and database views that contain a date/time column can be selected from a list.

5. Select the correct *Timestamp column* in your table.
6. Make the desired table settings, see ↗ *Table settings, page 29*.
7. To complete the configuration, save the current settings.

4.1.3 Examples for database connections

Depending on the database type, you have to make different entries. Examples of the following database types are shown below: Microsoft SQL, MySQL/MariaDB, SQLite and Oracle Database

Microsoft SQL connection



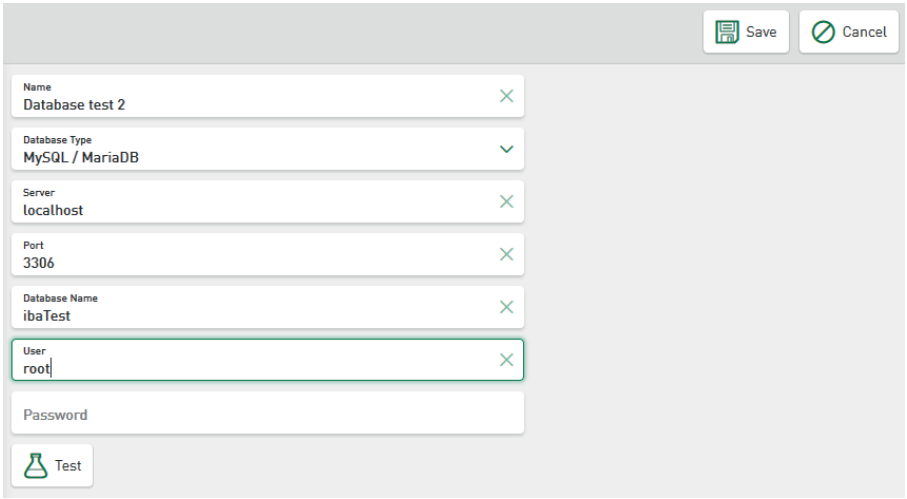
Windows authentication

The user account under which the *ibaDaVIS* service runs is used to connect to the MSSQL server instance. This is normally the system account. The user can also be changed to another user with administrator rights.

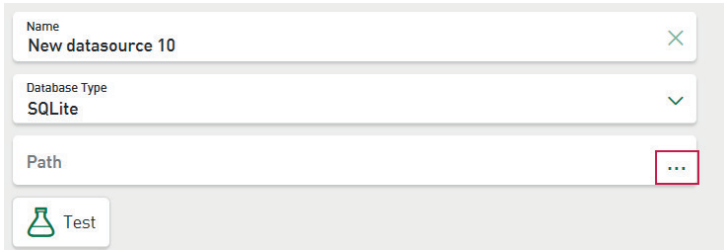
Note

When using the local system account, the corresponding NT-AUTHORITY\SYSTEM login in the MSSQL server must be provided with additional permissions that are not set up by default. Required are the rights to connect to the database, to create and modify a table, and to write to a table. Clarify in advance with your DB administrator whether the extension of rights is possible or whether a different login or authentication should be selected.

MySQL/MariaDB connection

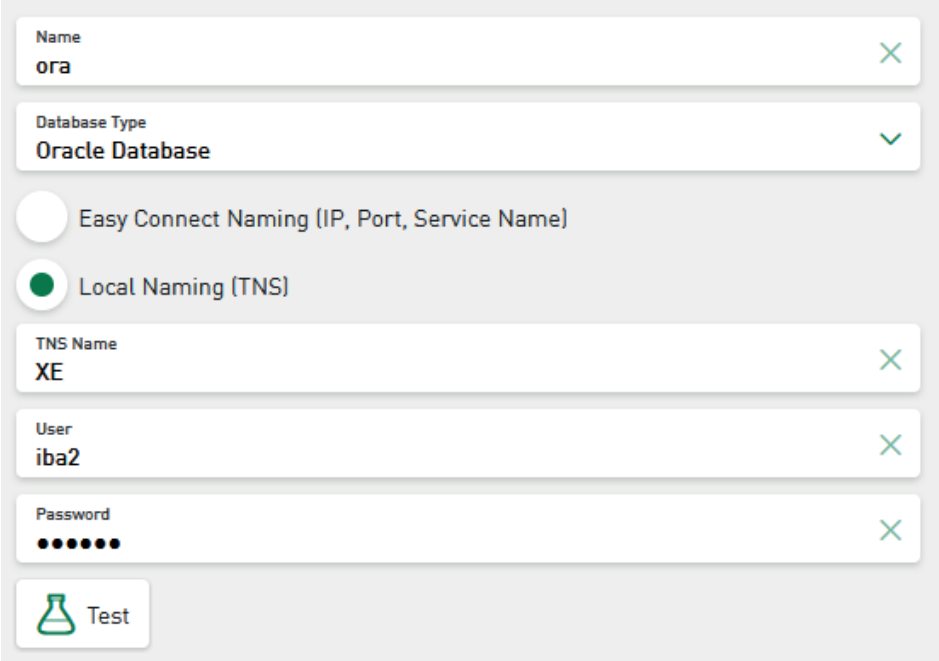


SQLite connection



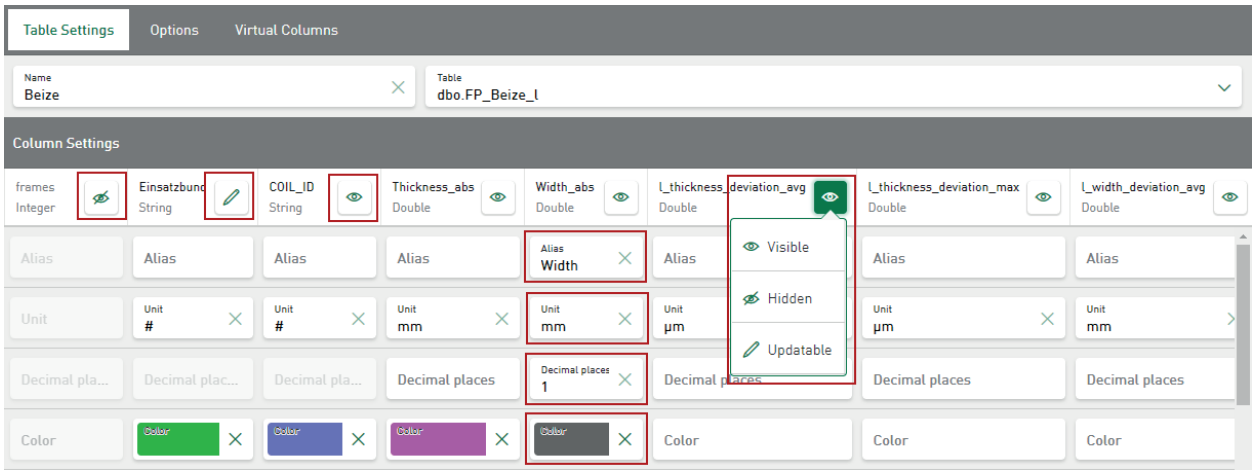
The storage destination of the SQLite file is specified in the field *Path*.Tap in the field to open the file selection dialog and simplify the specification of the SQLite database file. The search in the browser refers to the server-side system.

Oracle database connection



4.1.4 Table settings

You have the following setting options in the table settings of *iba File Tables* and *General Tables*.



Name
Name of the table

Table
Selection of the table to be used as the datasource

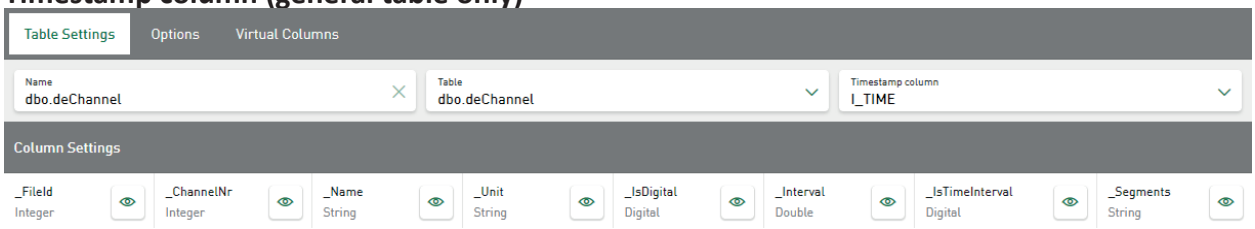
Note

ibaDaVIS, filters the tables displayed for selection. For the datasource type *iba File Table,* only tables that are recognized as file tables in iba format are available for selection. The default name of the file table is preset in *ibaAnalyzer* as "deFile" and can be changed for the user.

If the name of the file table currently in use is not known, it can be read in the analysis rule that is used for database extraction. In the *ibaAnalyzer* area *Database link*, the names of the tables can be changed and read in iba format. Further information on this can be found in the *ibaAnalyzer* documentation.

For the *General Table* datasource type, all available tables and database views that contain a date/time column can be selected from a list.

Timestamp column (general table only)



Column of the data type *Date Time*

The default is the column name "I_TIME". All database tables that contain a date/time column are permitted as a *General Table*. The currently available columns and a reduced data set are visualized as a preview.

Visible/hidden
Tapping on the icon opens a drop-down menu for showing and hiding the table column.

If the table column is hidden in the table settings, it is also not selectable in the dashboard pane.

Updateable
If activated, the values of selected data records can be updated directly in the dashboard.

Exception: iba columns _Field, _TimeStamp, etc., see ↗ *Update data records in database tables, page 99*.

For this, the user must be authorized to change the contents of datasources, see ↗ *User – User Permissions tab, page 132*.

Alias
Alternative name for the table column

This name appears instead of the original name in the dashboard pane.

Unit
Unit of measurement for the measured value

This unit is displayed in the dashboard view together with the name of the table column or alias.

Decimal places
The number of decimals displayed on the dashboard for the measured value

You can only enter whole numbers.

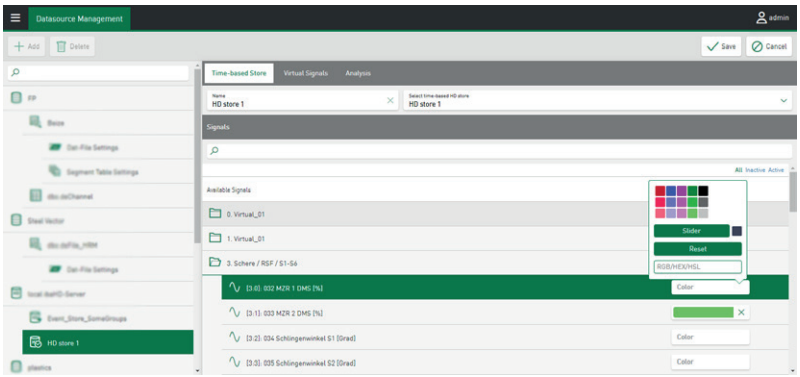
Color
Here it is possible to assign individual colors to signals and values in diagrams, see ↗ *Color selection in datasources, page 30*.

4.1.5 Color selection in datasources

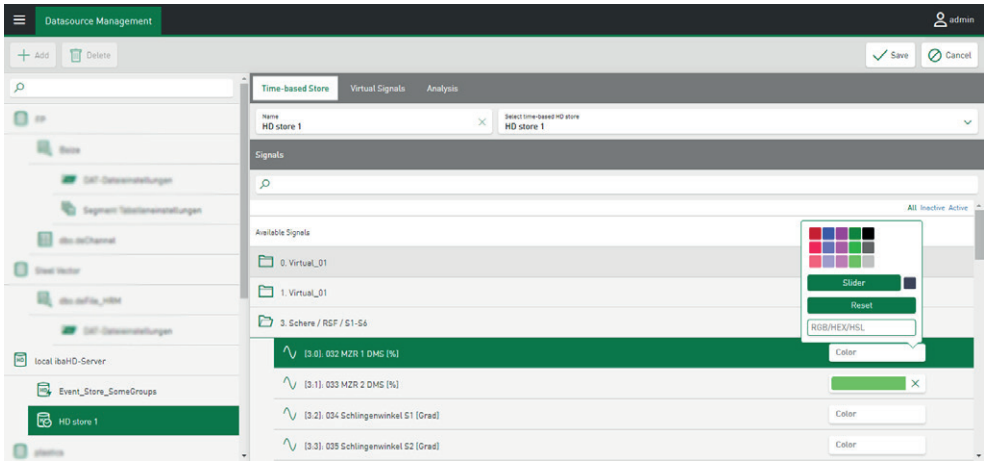
Under *Datasource Management*, you can define a color for a signal, a value or a virtual signal for display in the tiles. The color is then used for this signal on all tiles and dashboards. The color definition at this point increases the recognition effect of individual signals and saves the individual color configuration in the individual tiles on every dashboard.

The color selection is made at the table settings level or the time-based or event-based HD store of a datasource and is transferred to the corresponding tile types.

Example for “iba File Table”



Example for “Time-based HD store”



If you tap on the corresponding color field, the color selection dialog opens, which displays the colors from the currently defined color scheme. If none of the predefined colors match the specific value, you can also define the color selection using a slider or by entering an RGB, HEX or HSL color code.

Tapping on the cross in the color field deletes the individual color definition and the original color scheme of *ibaDaVIS* is enabled.

Ranking of the color definition

For different tile types (e.g. line chart), you can define the color for signals or values in the datasource management or in the tile, see also ↗ *Color selection in tiles, page 73*.

The color definitions differ here in that the assignment in the datasource management always applies for all tiles of this datasource. However, the assignment in the tile only applies individually for the respective tile and also only as long as the color definition in the datasource management is not changed.

Color definitions that are subsequently made in the datasource configuration also affect existing tiles and change them accordingly.

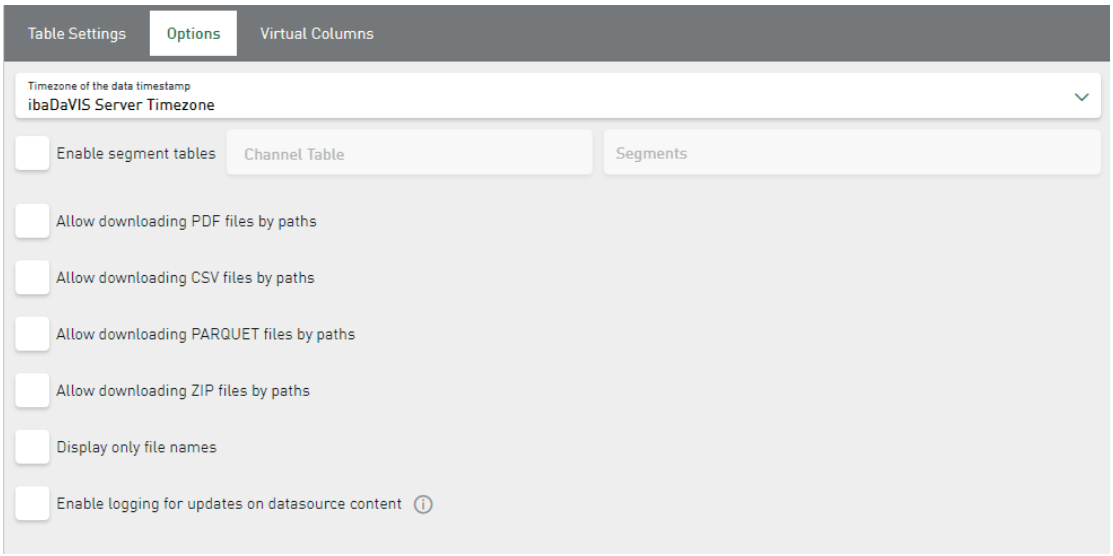
If you do not define a color in datasource management or in the tile, the default color selection of *ibaDaVIS* applies.

Automatic color definition
The colors for newly added signals or values are automatically assigned in the diagrams and can then be changed individually afterwards. The colors automatically assigned to the signals are based on the color sequence of the respective color scheme.

Characteristic of the line chart
Signals with the same unit are not only shown together on one axis in a line chart, but also in the same main color in different shades. You also have the option of changing the color of a signal depending on conditions, see ↗ *Configuring conditional colors, page 74*.

4.1.6 Options

In addition to the table settings, the following options are available for datasources of type *iba File Table* and *General Table*.



Timezone of the data timestamp
Selecting a different timezone (optional)

As a preference, the same timezone is set for each datasource as for *ibaDaVIS* service. However, when data is recorded in a different timezone and the time stamps in the table show the local time, there can be time shifts for the events mapped on the dashboards. These time shifts can be avoided by adjusting the time zone in the datasource.

Tip

For *ibaHD-Server* configurations, adapting the time zone is not necessary, since data is sent to *ibaDaVIS* in UTC format.

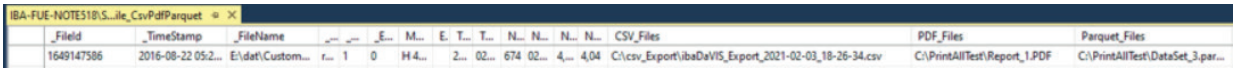
Enable segment tables (iba file table only)
Enable this option if the measurement signals from the DAT files were extracted directly into the database segment table using the DB functionality of *ibaAnalyzer*. See also ↗ *DAT File Settings – Options tab, page 24*.

Other documentation

Additional information on the extraction of measurement signals from data files can be found in the *ibaAnalyzer* documentation.

Allow download of the PDF, CSV, ZIP and PARQUET files via path
Assign permissions for a direct download of PDF, CSV, ZIP or PARQUET files

For this purpose, the name of the file must be registered as the reference in the database table and *ibaDaVIS* must have read rights to the directory in which the reference file is located.



The respective string is then signed with the ending .csv, .pdf, .zip or .parquet as a download link in the tile type *Table.*

See also ↗ *Displaying download link for PDF, CSV, ZIP, PARQUET files, page 99*.

Display only file names
If enabled, the information displayed in the dashboards is reduced to the file name and the associated file paths are hidden.

Enable logging for updates on datasource content
Activation of logging for user-controlled updates

If a user modifies table contents via the update function, the user name and the current time stamp are registered by default in two additional columns under the designations TOM (TimeOfModification) and UOM (UserOfModification).

Note

An already existing date/time column can also be used as a log column for the time of modification (TOM); likewise, an already existing string or varchar column can be selected for the modification user (UserOfModification - UOM).

Additional columns can only be created if the currently used database login includes the authorization to change the data source table.

For information on the update function, see ↗ *Update data records in database tables, page 99*.

4.1.6.1 DAT file signals in segment tables

DAT file signals in segment tables can be read directly from the database instead of from the referenced DAT file. This function requires the extraction of selected signal data with the DB functionality of *ibaAnalyzer* into the segment table. In addition to the characteristic values from the index table, the DB functionality of *ibaAnalyzer* also inserts signal values in a structure defined by the user into the tables.

Other documentation

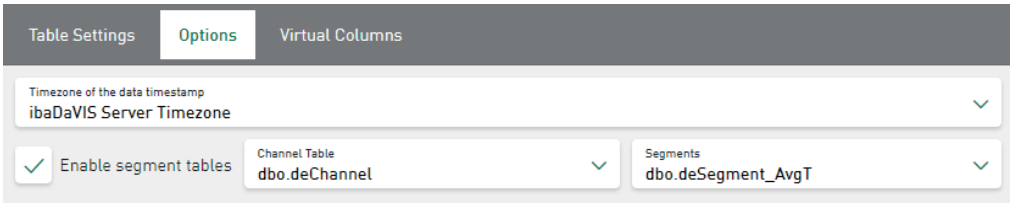
For further information about the correct extraction using the DB functionality of *ibaAnalyzer*, please refer to the *ibaAnalyzer* documentation.

1. Select a table in the *Datasource Management* under <Add iba File Table> to retrieve signal data in the segment table.
2. Open the *Options* tab and select the <Enable segment tables> option.
3. Select the *Channel Table* and the *Segments* in the specified fields.

   The specified table names are filtered according to the supported table format.

Note

If you work with the DB functionality of *ibaAnalyzer*-, it is possible to store the data in multi-column format (MC format). This format works on the basis of several tables, which all have the segment table name and differ in suffix. Select the table with the suffix "_AvgT" as the segment table if you are working with the MC format.



→ Now, signals from the database tables are visualized instead of those from DAT files.

→ When enabled, a new menu item Segment Table Settings additionally appears below the selected table. When disabled, the menu item is removed again.

Here, a default color for signals from segment tables can be defined for each configured *iba File Table.* In each tile (e.g. line chart) that displays signals from segment tables of this datasource, these color settings are used to visualize the signal trends. The signal color can be changed at any time in the respective tile.

Note

Changes in the color scheme are also applied to default colors for DAT file signals from segment tables, see ↗ *Settings – Color Scheme, page 143*.

4.2 Configuring a ibaHD-Server connection

Time-based signals, events and time periods from HD stores can be queried directly from the *ibaHD-Server* and transferred, visualized and analyzed in *ibaDaVIS* dashboards. This requires an additional license for the programming interface*ibaHD-Server-API-Read* (for *ibaHD-Server* v2.5.0 or higher), see ↗ *Available licenses*, page 12.

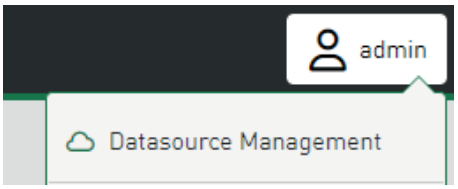
Note

The *ibaHD-Server* user specified during the *ibaDaVIS* connection setup must be assigned the necessary access permissions (permissions for API store, user-related permissions) in *ibaHD-Server*.

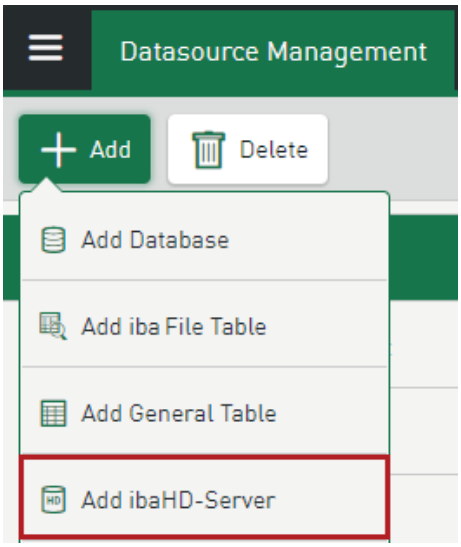
Further information on this can be found in the *ibaHD-Server* documentation.

Proceed as follows to add the *ibaHD-Server* as a datasource:

1. Tap <Datasource Management> in the administration menu.



2. Tap <Add> – <Add ibaHD-Server>.



3. Establish the connection to the *ibaHD-Server*:
   - Enter the connection data for the interface manually.

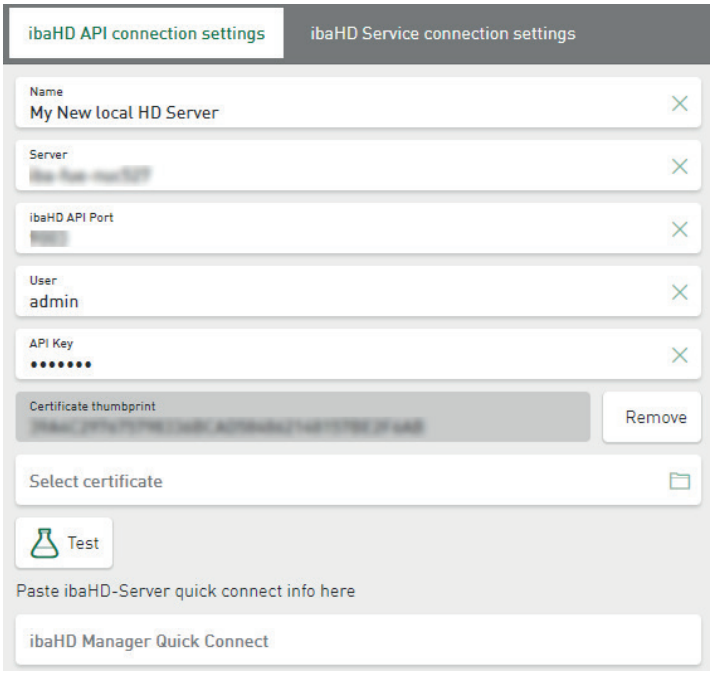
     See ↗ *IbaHD API connection settings, page 36*.
   - Use the "ibaHD Manager Quick Connect" function for a quick connection.

     See ↗ *ibaHD API Quick Connect, page 37*.
4. Add a *Name* for the *ibaHD-Server* connection and optionally add the IP address under *Server*.
5. To ensure that the connection has been established, tap <Test>.
6. Save the current settings.
7. Add time-based or event-based HD stores to the datasource.

   See ↗ *Adding a time-based HD store, page 38* or ↗ *Adding an event-based HD store, page 41*.

4.2.1 ibaHD API connection settings

Both the *API Key* and the *Certificate thumbprint* are already provided in the ibaHD Manager user interface and transferred directly to read-only fields. Enter the further connection parameters directly in this view of *ibaDaVIS*.



Name
Hist name or IP of *ibaHD-Server*

Server
Name of the active *ibaHD-Server* connection

ibaHD API Port
Communication port of *ibaHD-API* (standard value 9003)

User
User name for *ibaD-Server* with access to HD data stores

API Key
Read-only field displaying the user-dependent key for higher security levels. This key is only used if the user management is disabled on *ibaHD-Server* side.

Certificate thumbprint
Read-only field displaying the thumbprint of the currently applied certificate.

<Remove>
Deletes the currently used certificate from the connection parameters of the datasource.

Select certificate
Selection field for the certificate file.

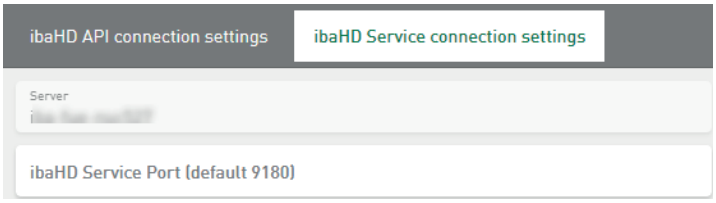
<Test>
Once all of the required information has been entered, you can check here whether your connection information is correct. After tapping on the button, the list of the HD stores is requested. The connection test is successful if the list of available stores contains at least one entry.

Other documentation

The required ibaHD API connection settings can be found in the *ibaHD Manager* user interface in the *ibaHD API* tab.

ibaHD Manager Quick Connect
See ↗ *ibaHD API Quick Connect, page 37*.

ibaHD Service connection settings

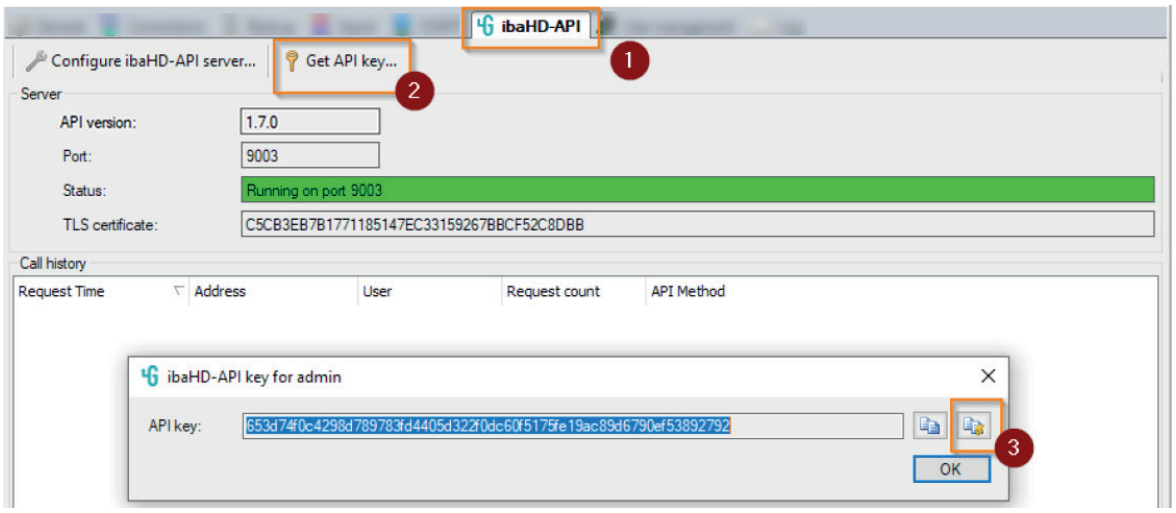


The connection settings of the ibaHD service for further analysis with *ibaAnalyzer* are displayed here. Changes can be entered directly in the input fields and adopted for the connection setup.

4.2.2 ibaHD API Quick Connect

To quickly establish a connection between the *ibaHD-Server* and *ibaDaVIS*, use the "ibaHD API Quick Connect" function.

1. In the ibaHD Manager, open the *ibaHD-API* tab (1).



2. Click on the command *Get API key for admin...* (2).

→ The *ibaHD-API key for admin* dialog opens.

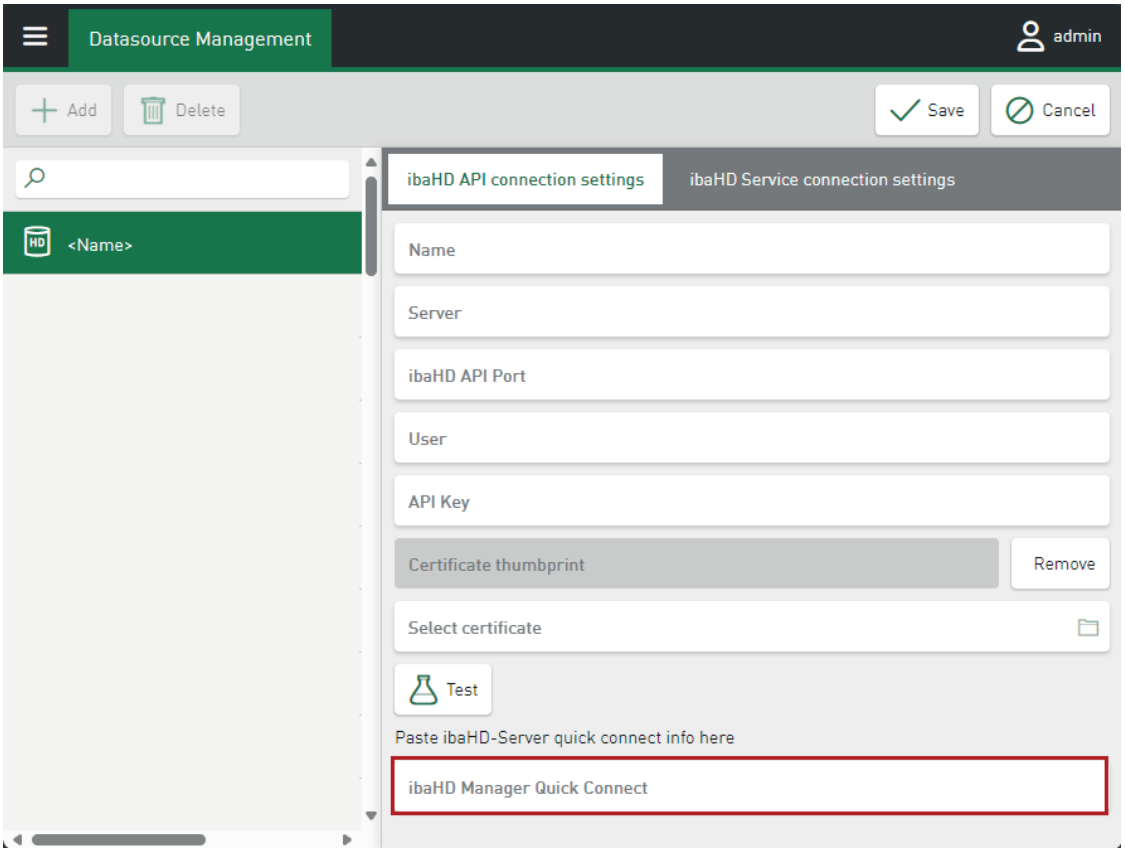
3. Click on the quick connect button (3).

→ The connection information is copied to the clipboard as a string.

Tip

To simplify the transfer of the connection information from the clipboard, open the browser of the computer on which the *ibaHD-Server* is installed and log in to *ibaDaVIS* here.

4. In *ibaDaVIS*, call up the tab *ibaHD API connection settings*.
5. Insert the connection information as a string in the *ibaHD Manager Quick Connect* input field.



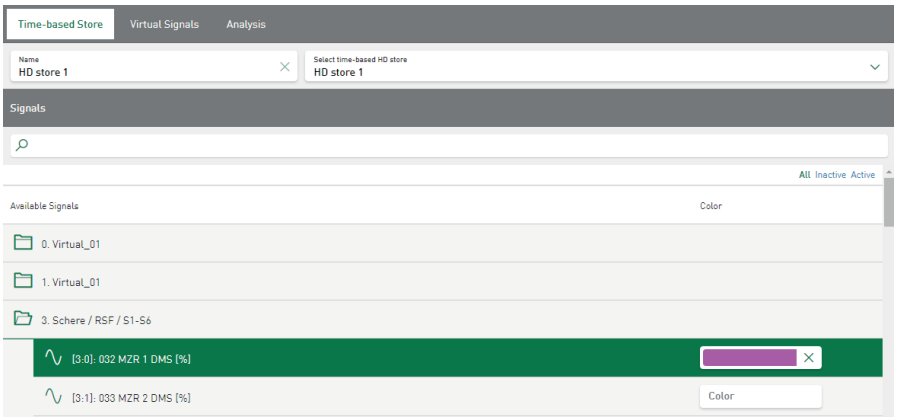
6. Proceed as described in the chapter ↗ *Configuring a ibaHD-Server connection, page 34*.

4.2.3 Adding a time-based HD store

To add a time-based HD store to a stored *ibaHD-Server* connection, proceed as follows.

1. In *Datasource Management*, tap <Add> – <Add Time-based HD Store>.
2. In the *Select time-based HD store* field, select one of the displayed HD stores as the datasource.
3. Optionally, change the default name based on the currently selected HD store name.
4. To complete the setup of the time-based HD store as a datasource, tap <Save>.

→ *Signals* displays the signal tree of the selected HD store. Use the color field to assign a certain color to the respective signal.



5. Select the desired display mode for the HD-related signal tree:
   - <All> to display all signals
   - <Inactive> to display the currently inactive signals
   - <Active> to display the active signals

→ The signal tree is refreshed immediately after selecting the type of display.

6. In the *Virtual Signals* tab, you can also add and edit virtual functions, see ↗ *Configuration of virtual signals, page 112*.
7. The *Analysis* tab lists the configured analyses. see ↗ *Settings – Analysis Configuration, page 140*.
8. Optionally configure *Time Periods* for time-based HD store, see ↗ *Time-based HD store – Time periods, page 39*.

4.2.3.1 Time-based HD store – Time periods

Time periods mark a time range within a time-based HD file. The time period data is generated by *ibaPDA* and saved as a table in *ibaHD-Server*. Time period data is useful to store and mark production data for analysis purposes or to mark the data belonging to work shifts.

The start and end time and a unique identifier are stored for each time period. In addition to these standard parameters, calculated values or meta data from the production system can also be saved to enrich the information for a time period. You can then use the data for filtering or for any type of statistical process analysis.

ibaDaVIS can read the data via the standard ibaHD API read interface. All tile types support the visualization of time period data.

Prerequisite for the use of time periods

Before you can use HD time periods, you must establish a connection between the *ibaDaVIS* and the *ibaHD-Server* on which the time periods are recorded. The time period function is supported by *ibaHD-Server* v3.1 or higher.

See ↗ *Configuring a ibaHD-Server connection, page 34*.

In addition, timebased HD stores must be configured with time periods.

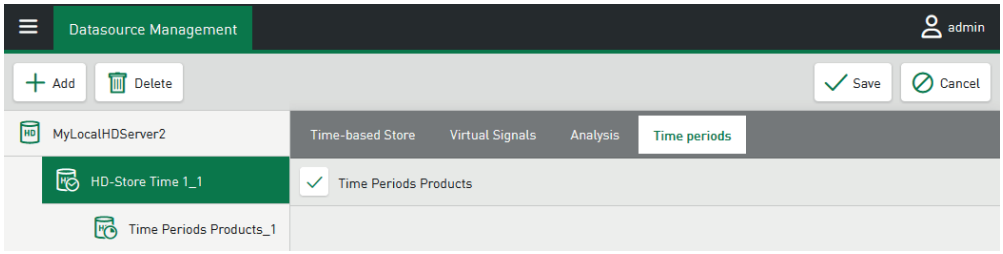
Configuring time periods from time-based HD store as data source

1. First add a timebased HD store, see ↗ *Adding a time-based HD store, page 38*, or use an already configured timebased HD store.

   The selected HD store must already contain time periods.

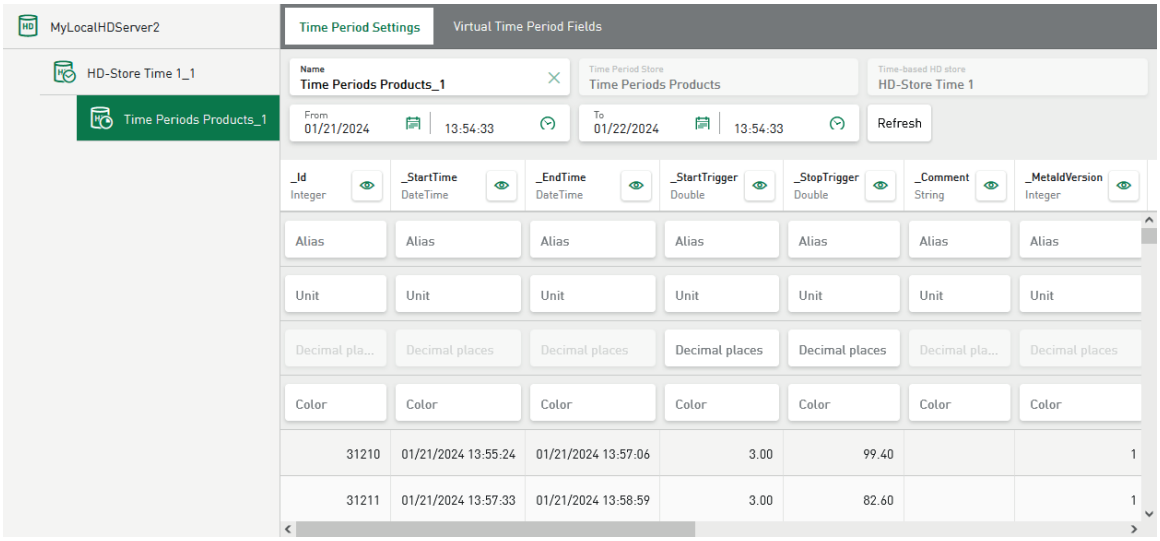
2. In the configuration dialog of the datasource, select the time periods from the HD clipboard in the *Time periods* tab.

→ The selected time periods then appear in the datasource tree under the time-based HD store.



3. To finish setting up the time period as a datasource, tap <Save>.
4. Select the time period in the datasource tree.

→ A preview of the time period data is displayed in the *Time Period Settings* tab. If no time period data is displayed, you can change the displayed time range and update the preview manually.



5. Optionally adjust the table settings, see ↗ *Table settings, page 29*.

   You can also adjust the time range.

6. In the *Virtual Time Period Fields* tab, you can also add and edit virtual functions, see ↗ *Configuration of virtual signals, page 112*.

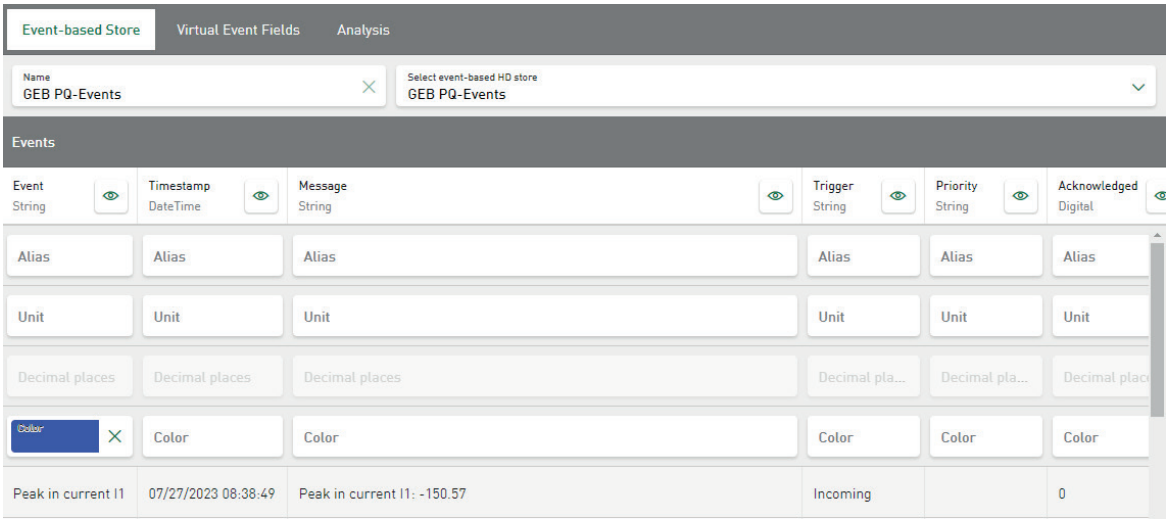
→ The configuration is immediately applied and completed by pressing <Save>.

4.2.4 Adding an event-based HD store

To add an event-based HD store to a stored *ibaHD-Server* connection, proceed as follows.

1. In *Datasource Management*, tap <Add> – <Add Event-based HD Store>.
2. In the *Select event-based HD store* field, select one of the displayed HD stores as the datasource.
3. Optionally, change the default name based on the currently selected HD store name.
4. To complete the setup of the event-based HD store as a datasource, tap <Save>.

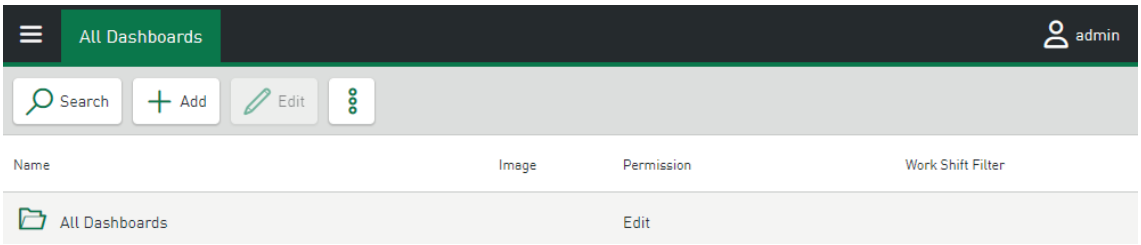
→ A series of recently added events is displayed under *Events*. You can optionally add an *Alias* name, add a *Unit*, change the number of *Decimal places* for formatting the numerical values, or assign a color, see ↗ *Table settings, page 29*.



5. In the *Virtual Signals* tab, you can also add and edit virtual functions, see ↗ *Configuration of virtual signals, page 112*.
6. The *Analysis* tab lists the configured analyses. See 140.

5 Dashboard configuration

You can manage and edit your dashboards in the dashboard overview. This view is empty when logging in for the first time.



Main menu
You can use the main menu to open the dashboard overview or directly open the desired dashboard from the list of available dashboards.

<Search>
Opens the search field to search for dashboards

As soon as you enter a search term, the search results are displayed. To end the search, remove the search term or tap on the cross.

<Add>
Add folders or new dashboards

See ↗ *Adding a folder to the dashboard overview, page 43* and ↗ *Adding a dashboard, page 44*.

<Copy>
Creates a copy of the selected folder or dashboard

A copy is inserted under the original name with the addition "copy" at the same folder level as the original. You can optionally change the name via <Edit>.

<Edit>
Opens the respective editing dialog for the selected folder or the selected dashboard (highlighted in green).

To select a folder or a dashboard, tap on the respective line, but not on the icon or the name. Otherwise, the folder or dashboard is opened.

<Delete>
Deletes the selected folder or the selected dashboard

<Save>
Saves changes to the dashboard configuration

The button only becomes visible when you make changes to the dashboard configuration (e.g. new folders or dashboards).

<Cancel>
Cancels the editing of the dashboard configuration

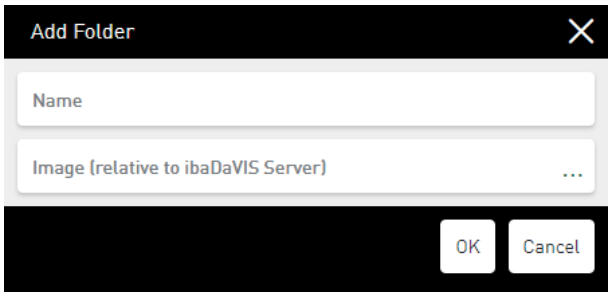
The button only becomes visible when you make changes to the dashboard configuration (e.g. new folders or dashboards).

5.1 Adding a folder to the dashboard overview

Create specific folders to group your dashboards thematically and add custom images. You can create as many folders as you like and create folders in other folders.

1. In the dashboard overview tap on <Add> – <Add Folder>.

→ The *Add Folder* dialog opens.



2. Enter a *Name* for the folder.
3. Optionally, enter the file path to the user-defined image in the *Image (relative to ibaDaVIS Server)* field or tap ... to select the image in the corresponding directory.

   You can insert schematic representations such as photos or pictograms in common image formats such as *.png, *.bmp, *.jpg, etc.

→ The image is displayed directly in the editing dialog in a preview.

4. Confirm the settings with <OK>.

→ The dialog is closed and the new folder appears in the dashboard overview.

→ If you have defined an image for the folder, it is displayed in the *Image* column at the height of the folder. Tap on the image to open a larger image preview.

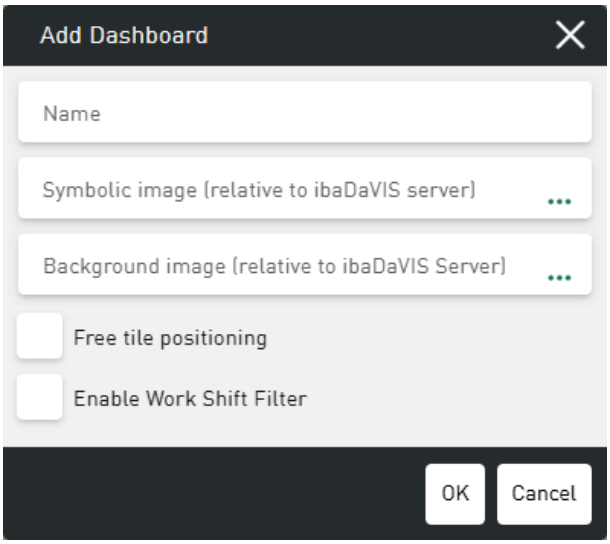
5. If necessary, move the folder to the desired location in the dashboard tree using drag & drop.

5.2 Adding a dashboard

Create as many dashboards as you like in the dashboard overview, organize the dashboards in folders and add custom images.

1. In the dashboard overview tap on <Add> – <Add Dashboard>.

→ The *Add Dashboard* dialog opens.



2. Enter a *Name* for the dashboard.
3. Optionally, enter the file path to a user-defined image in the field *Symbolic image (relative to ibaDaVIS server)* or tap … to select the image in the corresponding directory.

   If the dashboard is inserted in a folder with a defined image, it automatically receives the image of the folder unless you select a different image for the dashboard.

   You can insert schematic representations such as photos or pictograms in common image formats such as *.png, *.bmp, *.jpg, etc.

→ The image is displayed directly in the editing dialog in a preview.

4. Optionally, select an image in the field *Background image (relative to ibaDaVIS server)* that you want to appear as the background on the dashboard.
5. If you want to freely arrange and move the tiles on the dashboard, enable the *Free tile positioning* option.

   When disabled, you can move and arrange the tiles using a predefined grid.

6. If necessary, activate the option *Enable Work Shift Filter*, see ↗ *Setting a work shift filter, page 51*.
7. Confirm the settings with <OK>.

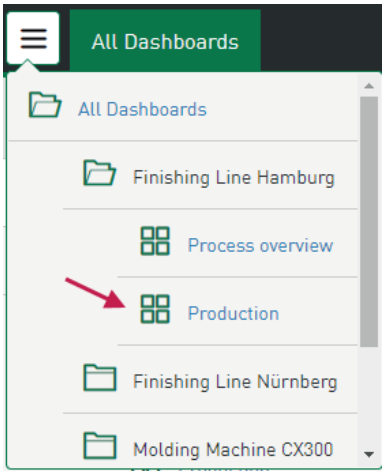
→ The dialog is closed and the new dashboard appears in the dashboard overview. The new dashboard is arranged in alphabetical order.

8. If necessary, move the dashboard to the desired location in the dashboard tree using drag & drop.

5.3 Editing a dashboard

Add tiles to your dashboards and organize them on the dashboard.

1. Open the dashboard from the dashboard overview or via the main menu.



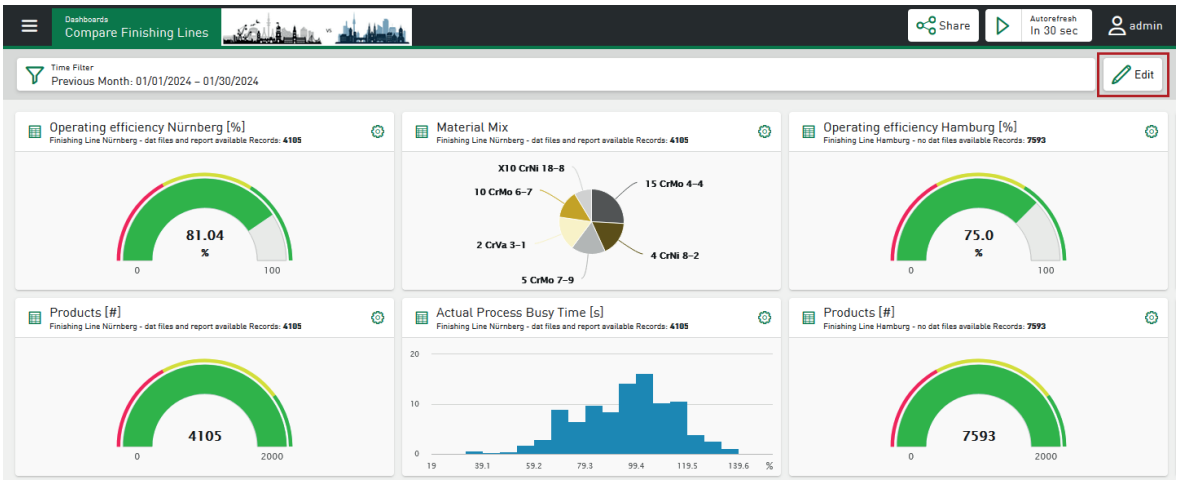
→ The dashboard shows the current configuration. You will find the following information and functions in the header:

Time filter
Shows the currently set time range, see ↗ *Setting a time filter, page 48*.

<Share>
See ↗ *Sharing dashboards as a link, page 61*.

<Autorefresh>
See ↗ *Refresh dashboard automatically, page 61*.

2. To activate to edit mode, tap <Edit>.



→ The following actions are now available to you:

A dialog opens where you can change the properties of the dashboard, such as the dashboard name, symbol image, and background image. Here you can also enable or disable free tile positioning and the work shift filter.

<Add Tile>

See ↗ *Adding a tile, page 63*.

<Save>

Saves changes and closes the edit mode.

<Cancel>

Discards changes and closes the edit mode.

5.4 Filter options

You can define various filters in the tile view and in the dashboard view.

- The **time filter** defines the time range for which the data is displayed.

  You can set the time filter in the dashboard view or in the tile view. If you set the time filter in a tile, it is applied to the entire dashboard, including the other tiles. See ↗ *Setting a time filter, page 48*.

- With the **zoom filter**, you can display a displayed area in time-based diagrams step by step in ever higher resolution.

  The zoom filter appears as an additional filter in the dashboard, displays the interactively selected time range and allows you to jump back and forth within this range in equal zoom steps, see ↗ *Using zoom filters, page 49*.

- The **work shift filter** is an additional time filter. For each dashboard, you can add a work shift filter that shows or hides the selected time ranges. Starting from the current work shift, you can apply the defined shifts directly to all dashboards as visual filters. Like all filters, the work shift filter also goes back from the current time by the respective time range. This filter does not act as a zoom filter on graphs of line or scatter charts.

  See ↗ *Setting a work shift filter, page 51*.

- Further filter options are possible depending on the tile type:

  ↗ *Filtering DAT files, page 52*

  ↗ *Using the DAT file event filter, page 54*

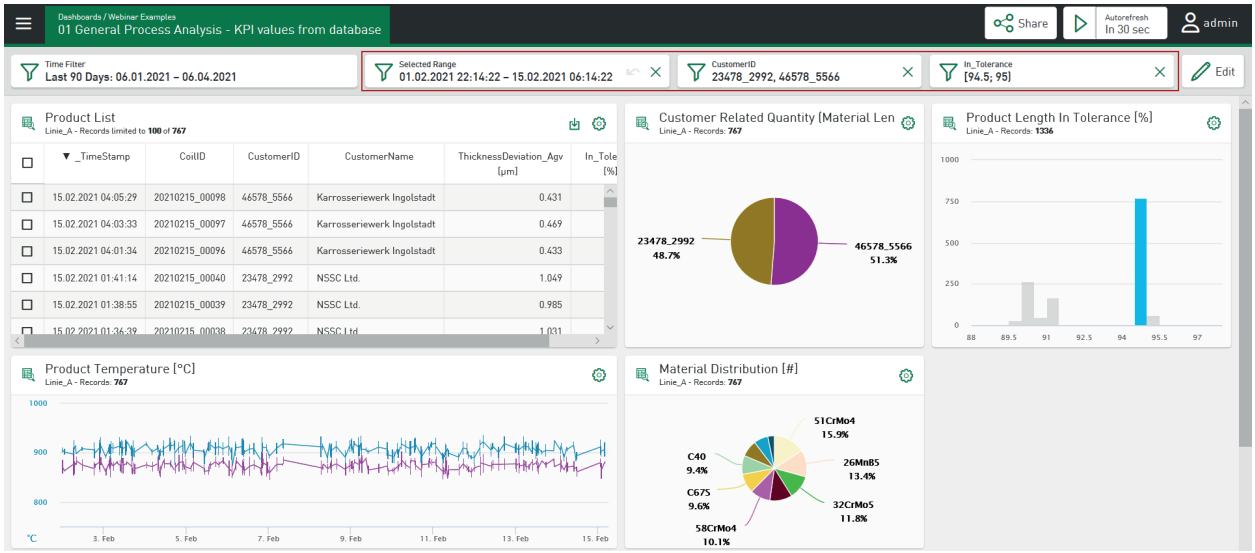
  ↗ *Using class filters, page 55*

  ↗ *Using the circle segment filter, page 56*

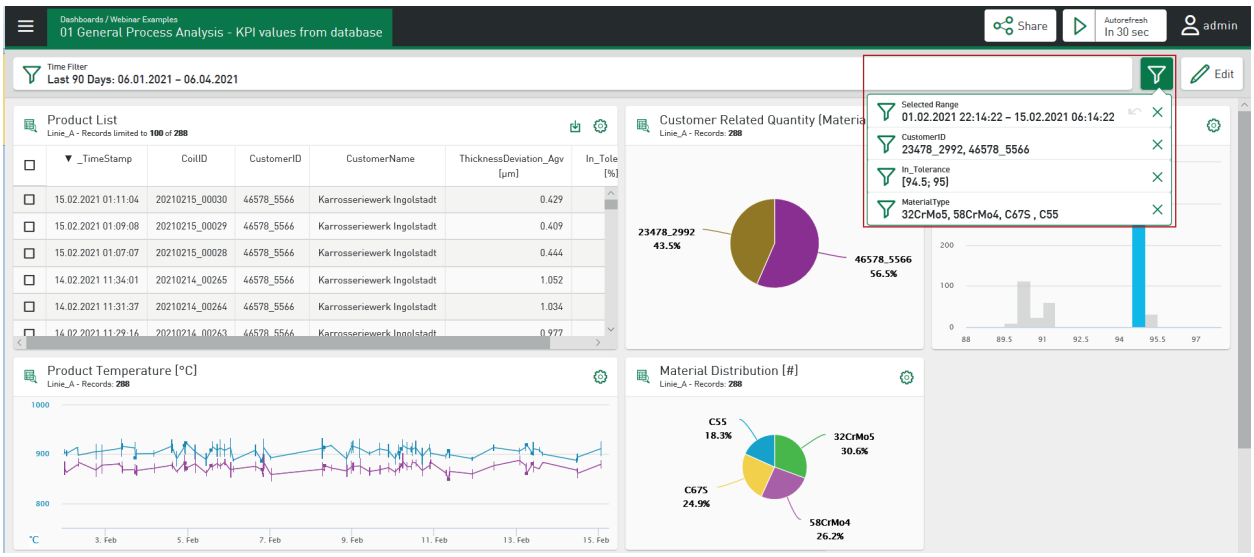
  ↗ *Using bar filters, page 58*

  ↗ *Filtering time periods, page 55*

You can set several filters at the same time. All set filter options are applied simultaneously (AND-link) and shown in filter fields via the dashboard.



If the width of the browser is not sufficient to display all currently configured filters, these filters are grouped together under a filter icon. Tapping on the filter icon displays the configured dashboard filters together.

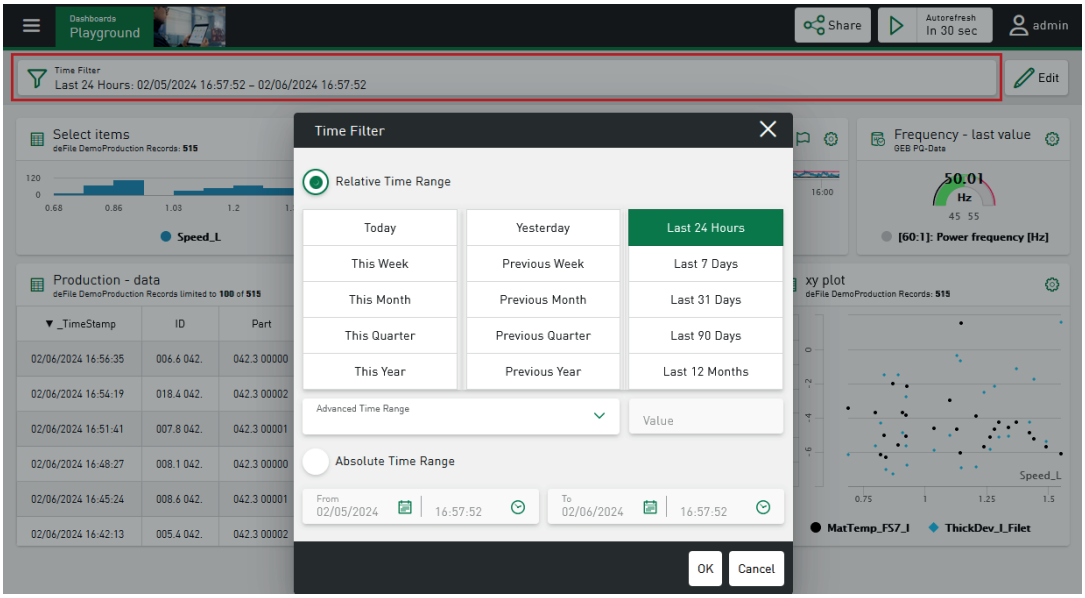


5.4.1 Setting a time filter

You can set the time filter in the dashboard view or the tile view.

1. Tap in the *Time Filter* field.

→ The *Time Filter* dialog opens.



2. To select a predefined time range, select the *Relative Time Range* option.

   You can use the *Advanced Time Range* field to define the range more precisely, e.g. "Last N Minutes". "N" is an integer value here.

   If you have set a work shift filter, you can also set the associated time range as a time filter using the "Last N work shifts - [name]" parameter.

Note

All filters go back from the current time by the respective time range.

3. To set a user-defined time range, select the *Absolute Time Range* option.

   You can enter the start and end time to the second.

4. Confirm the entries with <OK>.

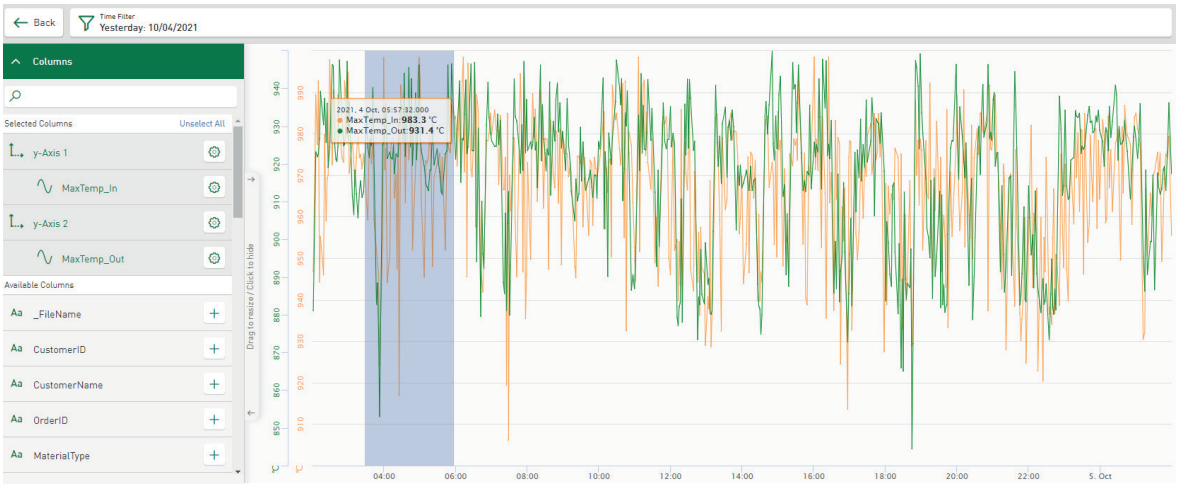
→ The time filter is applied to the entire dashboard.

5.4.2 Using zoom filters

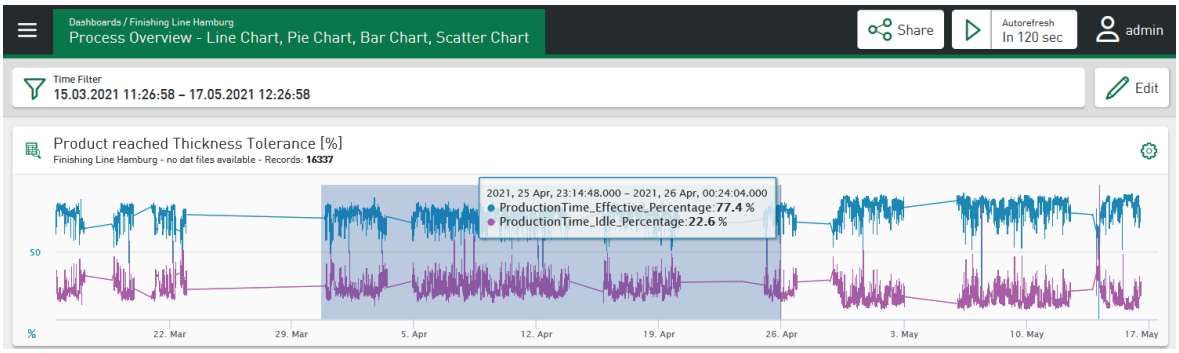
In time-based diagrams, you can set a zoom filter to display a selected area in higher resolution.

Use zoom filter in line chart

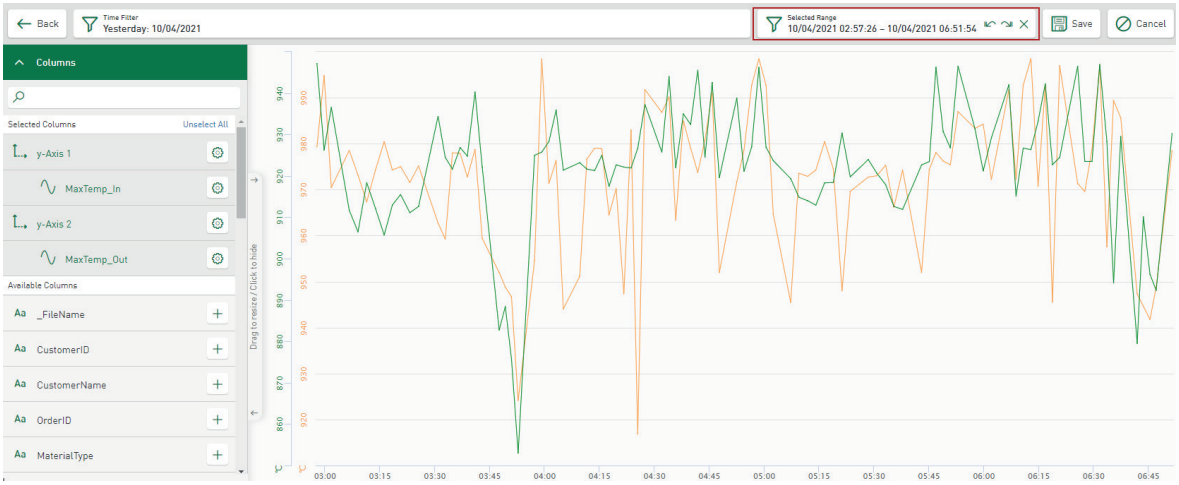
1. In the tile view or in the dashboard view, drag a rectangle directly onto the tile diagram with the mouse button held down.



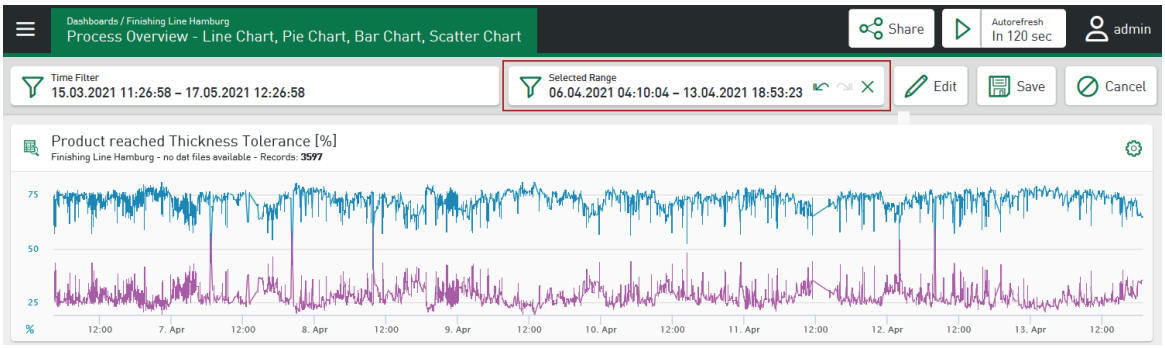
Dashboard view:



→ The zoomed time range is displayed in a new *Selected Range* filter and applied to the entire dashboard.



Dashboard view:



2. Optionally zoom further into the area.

→ The filter area is updated in the *Selected Range* field.

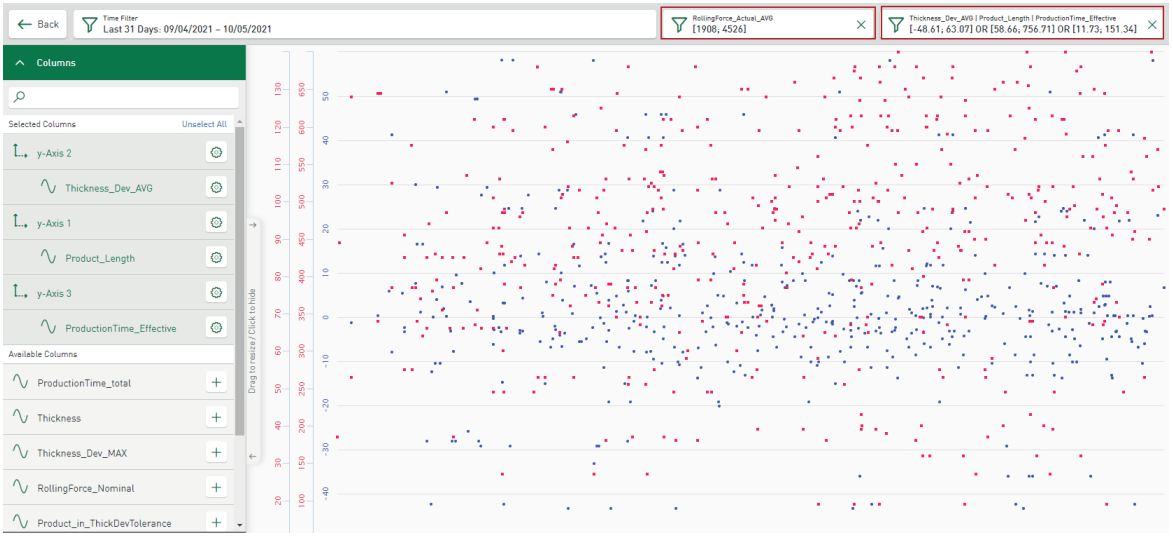
→ The  button appears. You can use this to jump forwards and backwards in equal zoom steps.

Use zoom filter in scatter chart

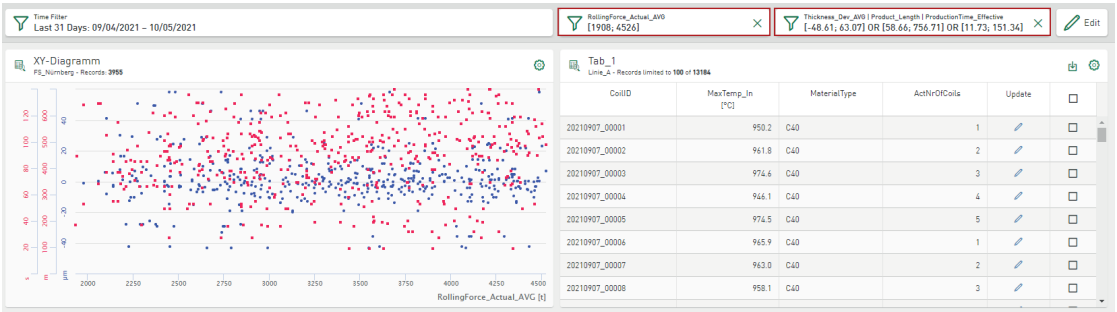
1. In the tile view or in the dashboard view, drag a rectangle directly onto the tile diagram with the mouse button held down.

→ The zoomed area is displayed and the fields corresponding to the filter selection are shown.

→ If several values are selected for display in the Y-axis, the areas filtered together by zooming are displayed together in a filter cell.



Dashboard view:



2. To define the filter more precisely, tap the filter button .

→ A menu opens in which the selected value range is displayed and can be edited.

Note

A maximum of 2000 data points are displayed. If more than 2000 data points are to be displayed, these are reduced by an algorithm. The range limits in which the points are summarized are then displayed in the tooltip.

The maximum number of points displayed can be defined individually, see ↗ *Configuration file, page 145*.

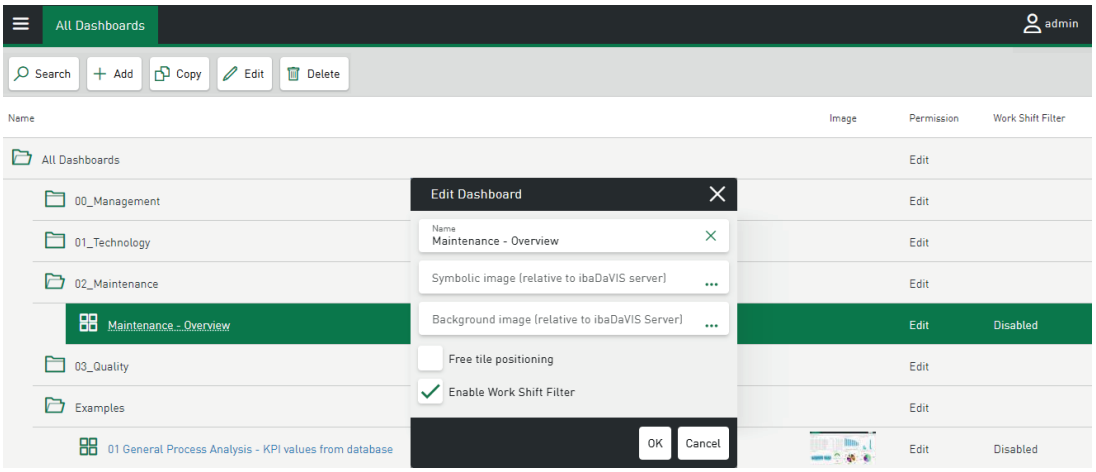
5.4.3 Setting a work shift filter

You can enable defined work shift filters on dashboards in order to use them for filtering.

Requirement: Work shifts are defined in the *ibaDaVIS* settings, see ↗ *Settings – Work Shift Definition, page 141*.

You can enable the work shift filter when creating a new dashboard or edit an existing dashboard.

1. Open the dashboard overview.
2. Select the dashboard for which a work shift filter is to be enabled.
3. Tap on <Edit>.
4. Under *Work Shift Filter* select the *Enabled* value.

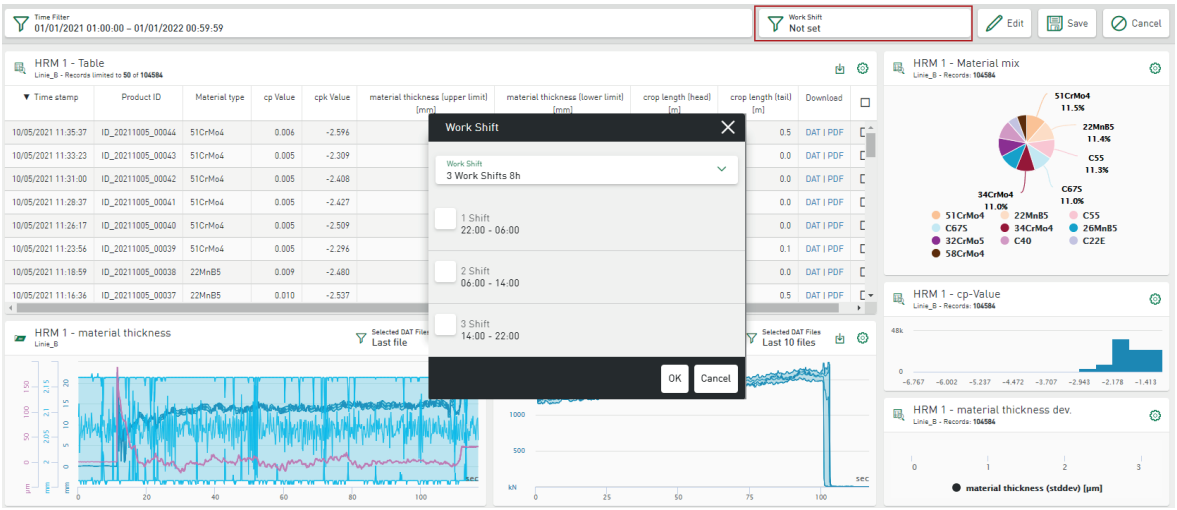


5. Confirm the settings with <OK> – <Save>.
6. Open the dashboard.

→ An additional filter field is displayed in the dashboard view, which lists the available work shift models in the *Work Shift* selection list.

7. Select the desired work shift model.

→ The defined shifts are displayed below the field and can be enabled for filtering.



8. Confirm the filter with <OK>.

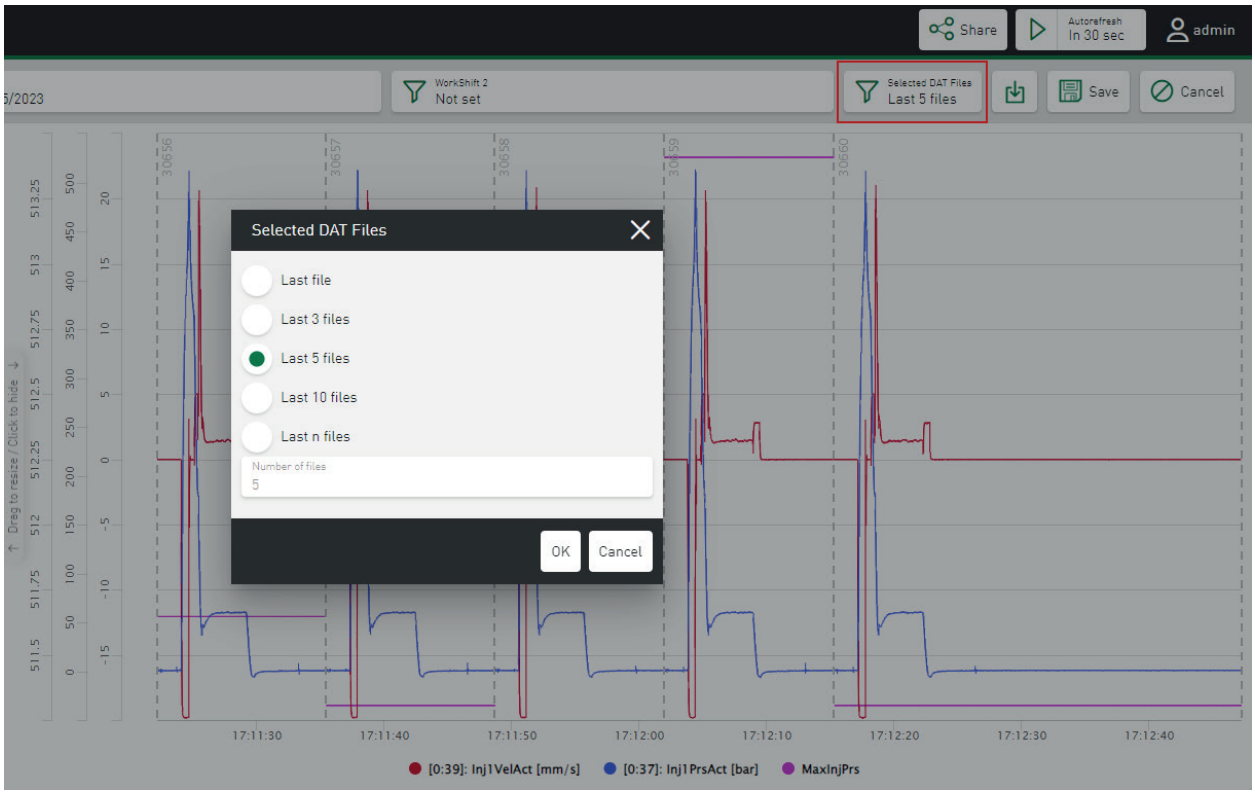
5.4.4 Filtering DAT files

In tiles that visualize signal data from DAT files, you can filter the number of DAT files displayed. The visualization of DAT files is possible in the tile types *Line chart*, *Histogram*, *Gauge*, *Bullet graph* and *Heatmap* if you select a datasource configured as an iba file table or activate a segment table, see ↗ *DAT file signals in segment tables*, page 33.

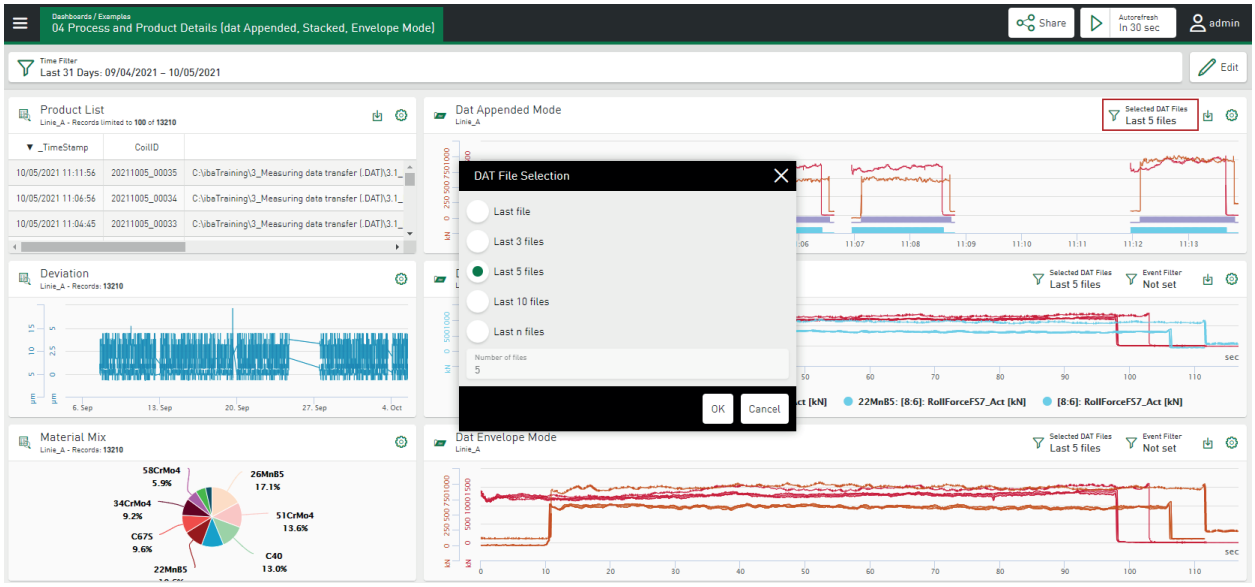
1. To open the DAT file selection dialog, tap on the filter symbol in the *Selected DAT Files* input field.
2. Select from the suggested options.

   If you select the *Last n files* option, also enter the *Number of Files*. You can display a maximum of the last 50 DAT files.
3. Confirm the changes with <OK>.

If signals are displayed in stacked view or envelope view, the labels of the X-axis show the relative time in seconds or the distance, depending on the length unit, in centimeters or meters.



Dashboard view:



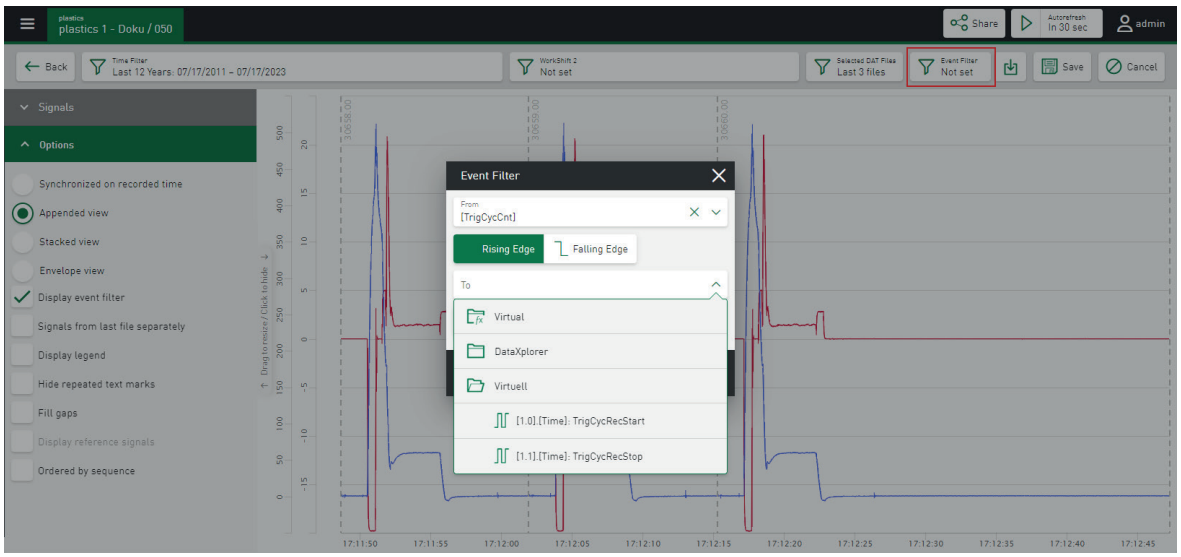
Note

If an analysis configuration is linked to the data source used, you can also select the Download analysis as PDC menu item in the dashboard view, see ↗ *Settings – Analysis Configuration, page 140*.

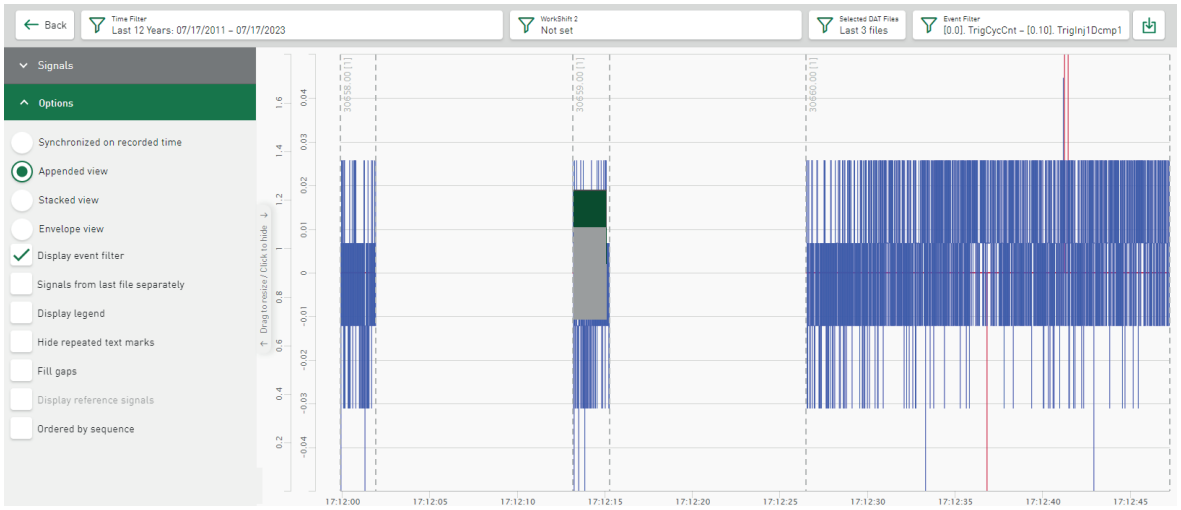
5.4.5 Using the DAT file event filter

Events defined in virtual functions can be selected as start or stop events using a filter function. The visualized area displaying signals from the currently selected DAT files can be limited by this.

1. Enable *Display event filter* in the tile options.
2. Tap on the *Event Filter* field.
3. Select the desired filter events from the drop-down list .



Signals from the selected DAT files are now synchronized. The signals are displayed in the defined area in the selected view, starting with the selected start event up to the selected stop event.



5.4.6 Filtering time periods

If you display time periods from time-based HD sore in a line chart, you can filter the number of time periods displayed.

1. To open the dialog for selecting time periods, tap on the filter symbol in the *Selected Time Periods* input field.
2. If several time periods are configured and available, you can select which ones are to be displayed in the *Time Periods* field. You can select none, one or more time periods.
3. Alternatively, select from the suggested options.

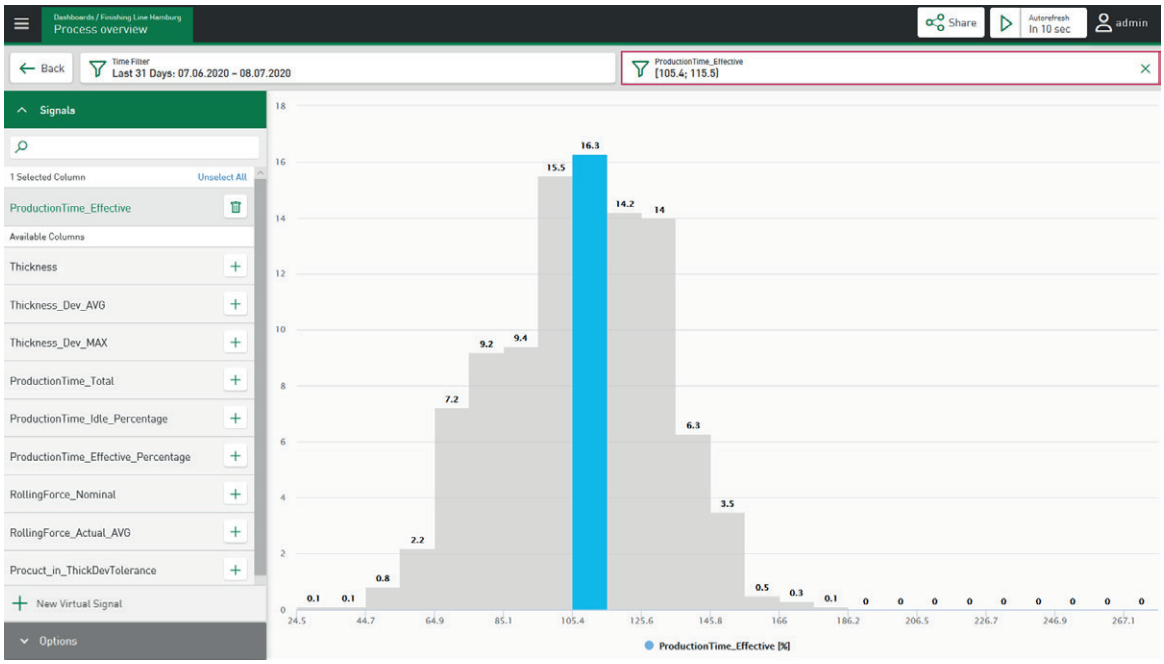
   If you select the *Last n time periods* option, also enter the *Number of Time Periods*. You can display a maximum of the last 50 time periods.
4. Confirm with <OK>.

5.4.7 Using class filters

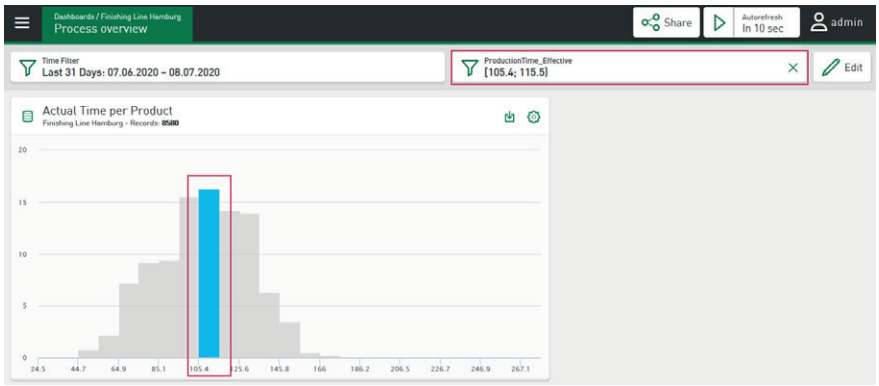
In the *Histogram*, you can filter according to the underlying classes (bars).

1. To set the filter, tap on one or more bars.

→ The *Histogram* then shows the filtered bars in color, the other bars are greyed out. A new field corresponding to the filter selection appears.



Dashboard view:



2. To define the value range more precisely, tap on the filter symbol .

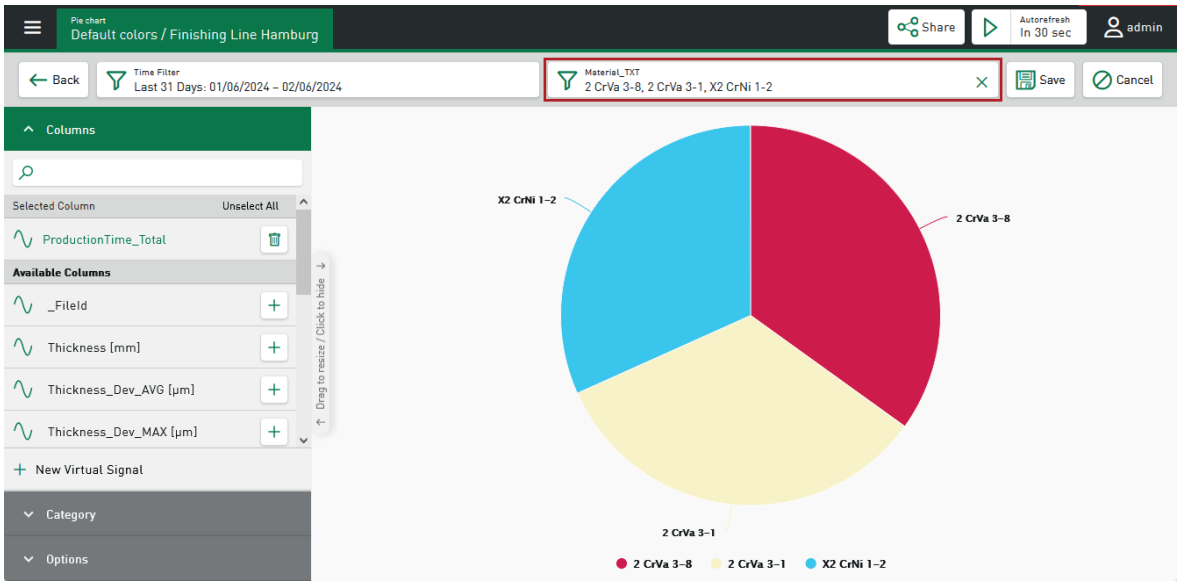
→ A dialog opens in which you can adjust the *From* and *To* values for the value range.

5.4.8 Using the circle segment filter

In the pie chart, you can filter according to the underlying groupings (circle segments).

1. To set the filter, tap on one or more circle segments.

→ The appearance changes accordingly. The filtered materials appear in a field above the display.

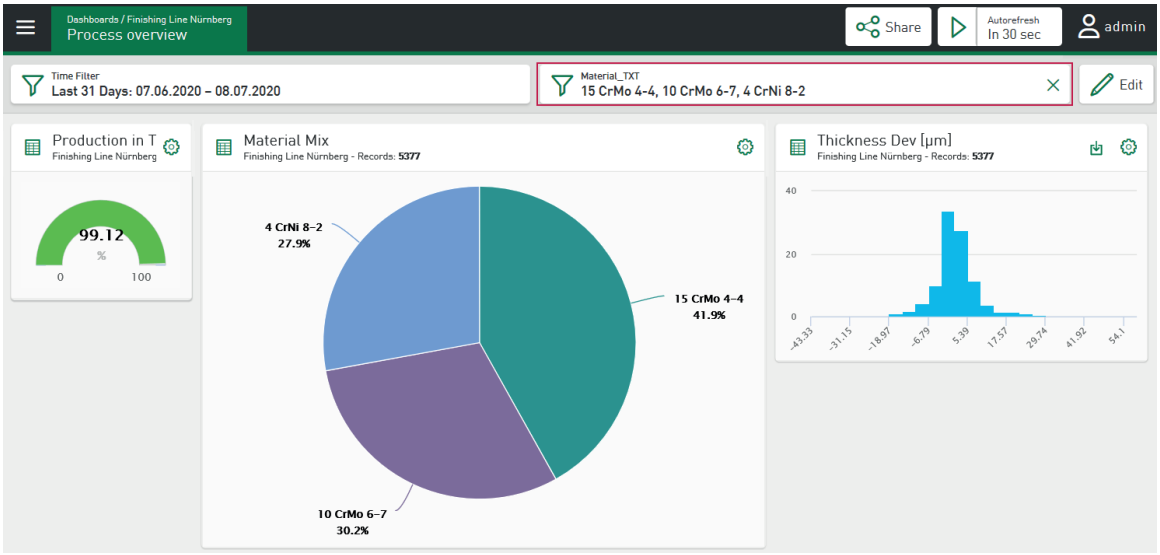


2. To change the filter values, tap on the filter symbol .

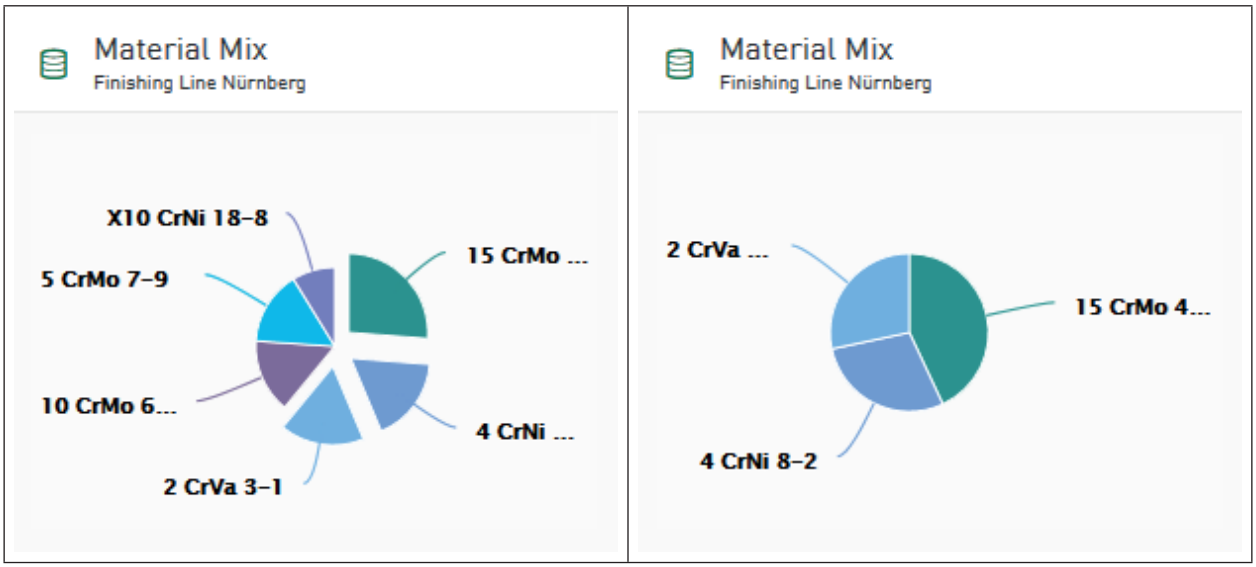
→ A dialog opens in which you can adjust the values. Current filter values are displayed in a list and can be enabled or disabled using the relevant option. Disabled values are no longer mapped; however, they are not removed from the list and can be accessed at any time.

3. To permanently remove values from the filter, tap the symbol.

Dashboard view



The filtered categories appear in a field above the dashboard. As in the tile view, you can also set the filter by tapping on one or more circle segments (left image below). The pie chart only shows the filtered segments (bottom right image). The display of all tiles changes accordingly. Here too, you can use the filter icon to open a dialog to adjust the filters.

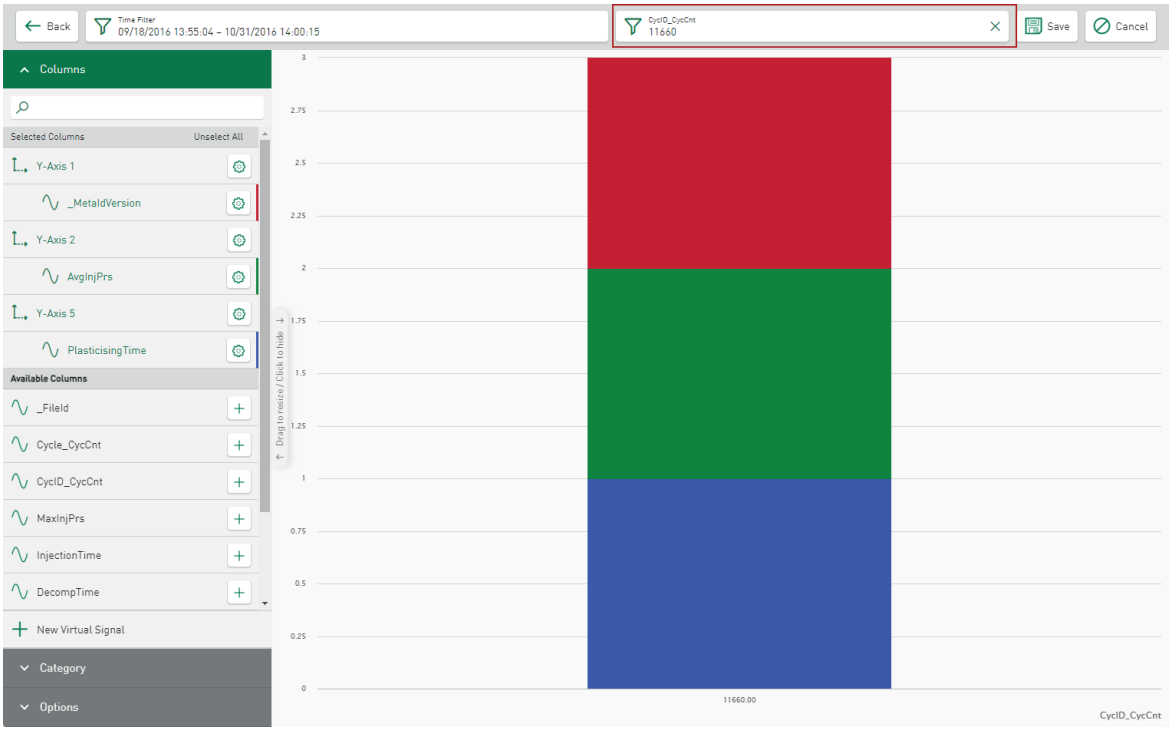


5.4.9 Using bar filters

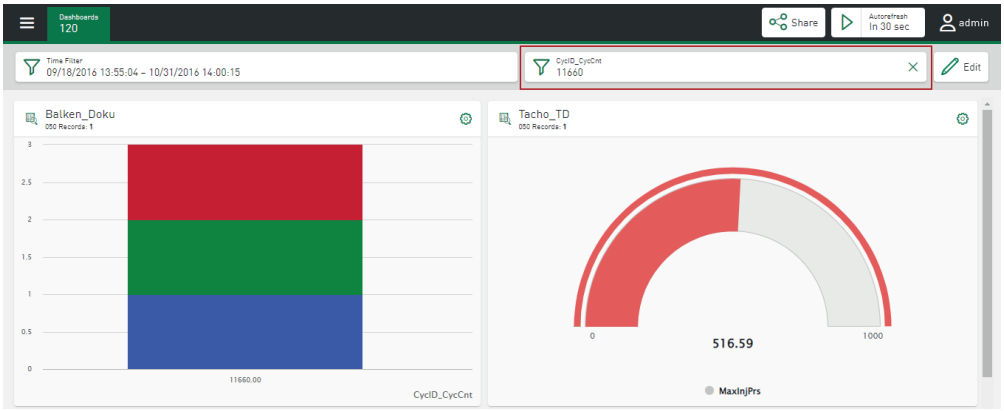
In *Bar chart* tiles, you can filter using the time range and the bar filter.

1. To set the bar filter, tap on the bar.

→ The display changes accordingly, the filtered area appears in a field above the display.



Dashboard view:



2. To change the filter values, tap on the filter symbol .

→ A dialog opens. Current filter values are displayed in a list and can be enabled or disabled using the relevant option. Disabled values are no longer mapped; however, they are not removed from the list and can be accessed at any time.

3. To add further filter criteria, tap the <Add Value> button.

4. To permanently remove values from the filter, tap the icon.

5.4.10 Defining filters via URL

Add specific filters to the URL of the dashboard or tile and define filter parameters for time or value specifications. An overview of the supported filter functions and parameters can be found in chapter ↗ *Supported filter functions and parameters for URL filters, page 60*.

Example call for the specification of a time range filter
Filter and parameter:

DateTimeRange([Start_Time],[Stop_Time],[Time_Zone])

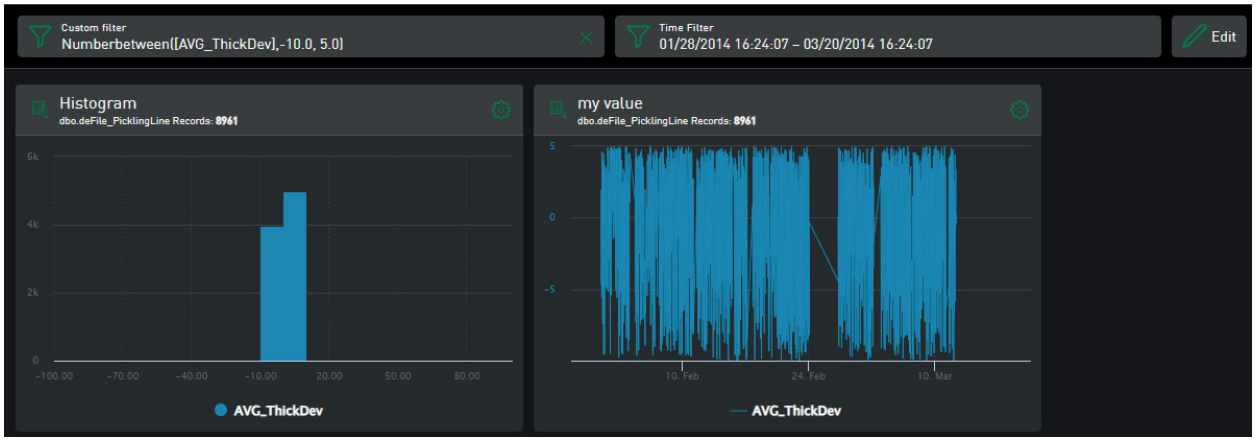
Start_Time and Stop_Time have the format YYYY-MM-DDTHH:mm:ss.SSS.

The following is an example call for the dashboard filter specification for a specific date and time range:

http://ibaDaVIS-PC/dashboard/2?filter=DateTimeRange("2025-04-21T00:01:00.000","2025-04-31T23:59:59.000","Europe/Berlin")

The Start_Time and Stop_Time are specified according to the desired time zone. If you do not specify a time zone as a parameter, the Start_Time and Stop_Time are used as UTC times.

When the URL is called up, the filter defined in the URL is displayed in the dashboard filter line instead of the interactive filter.



Please note:

- The filter parameters always refer to a time range filter. If no call for the time range (DateTimeRange()) is defined in the URL, the time range saved for the dashboard is used.
- Spaces lead to errors in the execution of the function.
- Control characters such as "" or commas are automatically replaced by URL-compliant expressions.
- The maximum supported character length for a URL may vary depending on the browser. Microsoft Edge supports a maximum of 2,083 characters, while Google Chrome, Mozilla and Safari can handle much longer URL calls.

  Further information can be found in the documentation of the browser used.

Combining filter functions

You can logically link different filter functions with the operators BoolEq, OR and AND.

Example of combining filter functions

- And(BoolEq(...), DateTimeGt(...), ...)
- Or(BoolEq(...), DateTimeGt(...), ...)
- BoolEq([Input], 1)

Use of alias names for table columns

If you have assigned alias names for database table columns, a separate name resolution function is required for effective filtering of the table columns. The OneOf([nput], [AliasInputName]) function allows the alias name to be resolved within the filter call.

Example

StringContains(OneOf([nput], [AliasInputName]), "1234.5")

Deleting URL filter

► To delete the URL filter, click on the cross.

→ The interactive filter saved with the dashboard is applied to the dashboard.

5.4.10.1 Supported filter functions and parameters for URL filters

Below you will find an overview of the supported filter functions and parameters for URL filters.

- DateTimeRange("YYYY-MM-DDTHH:mm:ss.SSS", "YYYY-MM-DDTHH:mm:ss.SSS", "Europe/Berlin")
- DateTimeBetween([Input], "YYYY-MM-DDTHH:mm:ss.SSS", "YYYY-MM-DDTHH:mm:ss.SSS", "Europe/Berlin")
- DateTimeGt([Input], "YYYY-MM-DDTHH:mm:ss.SSS", "Europe/Berlin")
- DateTimeGte([Input], "YYYY-MM-DDTHH:mm:ss.SSS", "Europe/Berlin")
- DateTimeLt([Input], "YYYY-MM-DDTHH:mm:ss.SSS", "Europe/Berlin")
- DateTimeLte([Input], "YYYY-MM-DDTHH:mm:ss.SSS", "Europe/Berlin")
- TimeRange("11:28", "18:28", "Europe/Berlin")
- NumberBetween([Input], 10.123, 20.675)
- NumberGt([Input], 2e-10)
- NumberGte([Input], 2e+10)
- NumberLt([Input], 0.12)
- NumberLte([Input], 13)
- NumberIn([Input], 12, 13, 15, 17, ...)
- StringContains([Input], "ABC")

- StringEq([Input], "ABC")
- StringIn([Input], "ABC", "BCD", ...)

The parameters labeled "Input" are the value fields, alias names, columns or signal names that can be used as filters. It is not necessary to specify the data source as a parameter, e.g. the name of the HD store or database table.

5.4.11 Reset filter

To reset a filter, tap on the cross ✕ in the corresponding filter field.

→ The filter will be removed.

5.5 Refresh dashboard automatically

You can use the *Autorefresh* function to automatically update the data on the dashboard or in the tiles at set intervals. The default refresh time is set to 30 seconds. You can define shorter and longer intervals for refreshing.

The updating of the data shown in the tiles depends on the data response times of the requested datasources. Large amounts of data tend to require a longer response time, which can exceed the selected refresh time.

1. Open the dashboard via the dashboard overview or the main menu.
2. To set the time interval for the automatic refresh, tap <Autorefresh>.

→ A selection menu opens from which you can choose from the predefined intervals.

3. To start the autorefresh, tap the ▷ button.

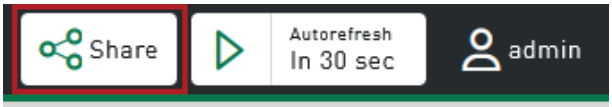
→ The defined time value is counted down and the data on the dashboard is refreshed after the time has elapsed.

4. To end or pause the autorefresh, tap the ⏸ button.

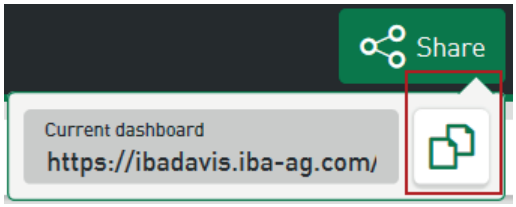
5.6 Sharing dashboards as a link

ibaDaVIS makes it possible to share dashboards as links and make them available to other users. Other users can open the link to the shared dashboard in the browser and see your dashboard with the current filter settings at the time the link was created. This allows you to easily pass on your analysis results to other users. Based on your dashboard, further detailed analyses can be carried out and new filters can be set.

1. Open the dashboard via the dashboard overview or the main menu.
2. Tap on the <Share> button.



→ A link to the current dashboard with the associated filter settings is generated and provided as text for copying to the clipboard.

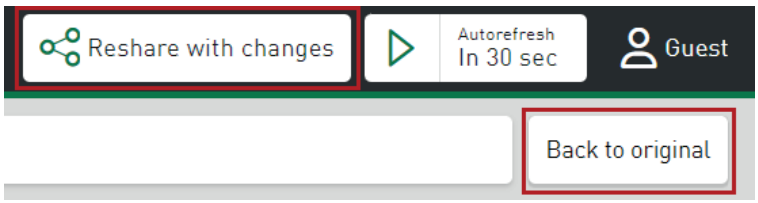


The dashboard link provided is available for 100 days.

3. In the sub-menu tap on the copy button to copy the link as text to the clipboard. You can insert the link into e-mails, for example.

Editing a shared dashboard

1. To open a shared dashboard, tap on the shared link.
2. Make the changes, see ↗ *Editing a dashboard, page 45*.
3. To send the revised dashboard status back or share it with other users, tap <Reshare with changes>.



4. To reset the changes and return to the original dashboard, tap <Back to original>.

Note

Although other users can use the original dashboard for analysis, they cannot change it permanently.

6 Tile configuration

In the dashboard view, you can see all currently configured tiles. Various functions are available via the respective tile header, depending on the tile type and data source type.

Configure tile
Open tile view, see ↗ *Editing a tile, page 65*

Further functions
The menu only becomes visible when you edit the dashboard. You have access to the following functions:

- <Edit>

  Opens the *Edit Tile* dialog, see ↗ *Adding a tile, page 63*.

- <Copy>

  Creates a copy of the tile.

  The *Edit Tile* dialog opens in which you can edit the tile name.

- <Delete>

  Deletes the tile.

Download
See ↗ *Downloading DAT file and analysis for datasource, page 73*.

Print
Direct printing of a PDF report of the referenced DAT file, see ↗ *Options, page 92*.

Filter options
See ↗ *Filtering DAT files*, page 52 and ↗ *Using the DAT file event filter*, page 54.

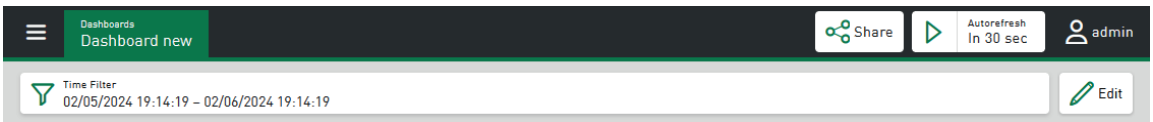
Markers
See ↗ *Using markers in HD stores, page 82*.

6.1 Adding a tile

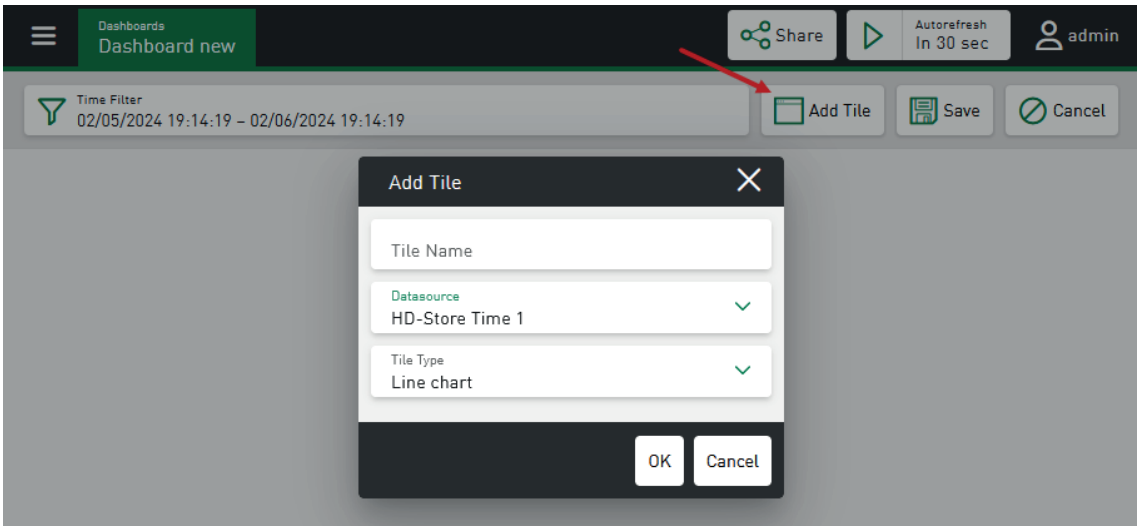
Below you will learn how to add a new tile to the dashboard.

Requirement: You have already created the data source and the dashboard.

1. To open the dashboard, tap on the dashboard name or dashboard icon.
2. To switch to edit mode, tap <Edit>.



3. Tap on <Add Tile>.



4. Enter a *Tile Name*.
5. Select a *Datasource*.

   The tables defined as datasource or *ibaHD-Server* data are available for selection, see ↗ *Datasource configuration*, page 21.
6. Select the desired *Tile Type* from the drop-down menu.

   This selection depends on the previously selected datasource and can vary accordingly.

   For an overview of all tile types and datasources that can be displayed, see ↗ *Tile types – overview, page 66*.
7. Confirm the settings with <OK>.

→ The tile opens in edit mode.

8. Configure the tile settings and display options.

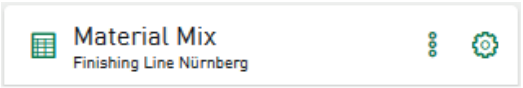
   Which settings are possible depends on the datasource and the tile type.
9. Tap <Back> to switch to the dashboard.
10. Confirm the changes with <Save>.

6.2 Editing a tile

You have various options for editing tiles in the dashboard editing mode.

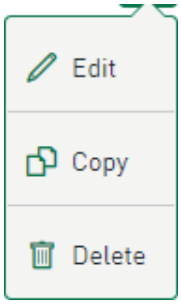
1. Open the dashboard via the dashboard overview or the main menu.
2. Tap on <Edit>.

→ The tile header shows the following icons:

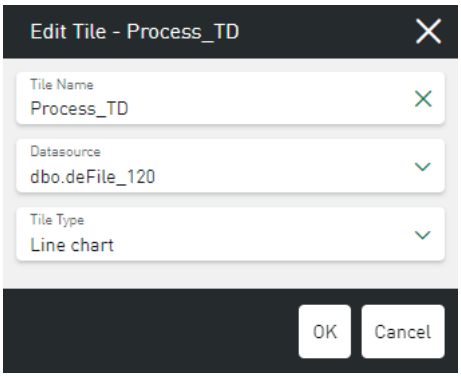


3. To open the detailed view for configuring the tile properties, tap on the icon .
4. To edit, copy or delete the tile, tap the icon .

→ A menu with the editing functions opens.



<Edit>
Opens a dialog in which you can change the *Tile Name*, the *Datasource* and the *Tile Type*:



<Copy>
Creates a copy with the original name and the addition "copy"

<Delete>
Removes the tile from the dashboard.

5. Confirm the changes with <Save>.

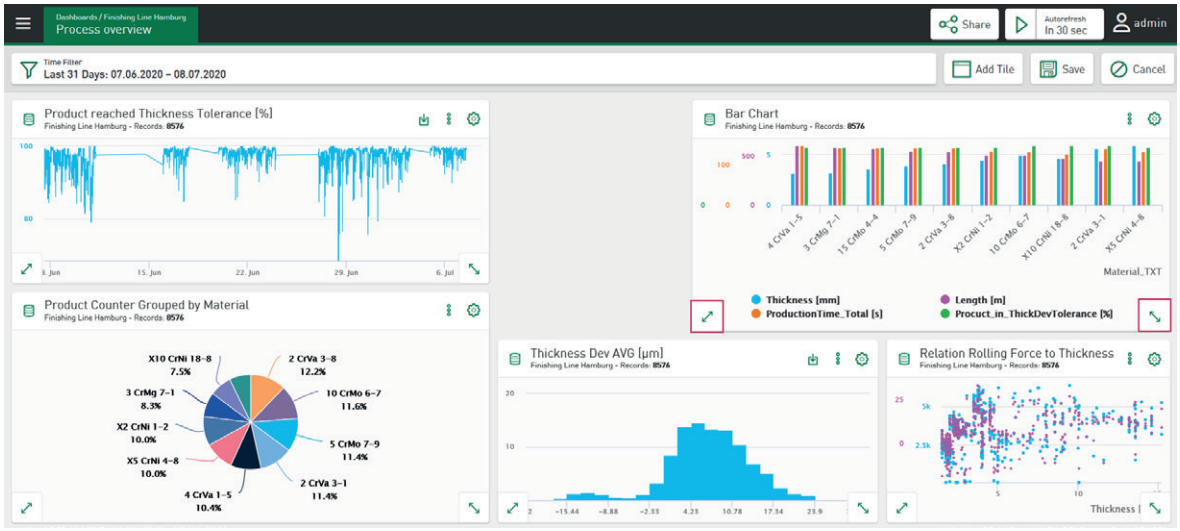
6.3 Organizing tiles on the dashboard

You can flexibly arrange and resize tiles in the dashboard's editing mode. Please note that the display and resolution automatically adapt to the end device (desktop, tablet or smartphone) thanks to responsive design.

1. Open the dashboard via the dashboard overview or the main menu.
2. Tap on <Edit>.
3. Tap on the tile name and drag & drop the tile to the desired position.

   Hold down the left mouse button in the desktop view.

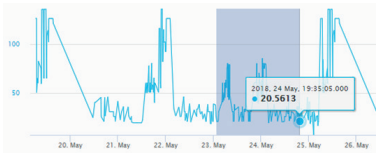
   If *Free tile positioning* is enabled in the dashboard settings, you can arrange the tiles as you wish. Otherwise, the tile will be aligned to a defined grid.
4. To change the tile size, tap on one of the double arrows at the bottom of the tile and drag the tile to the desired size.

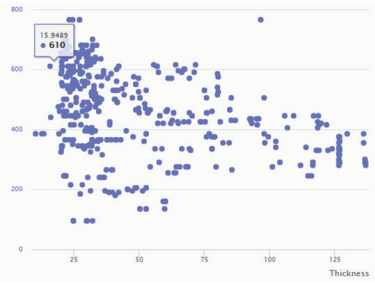
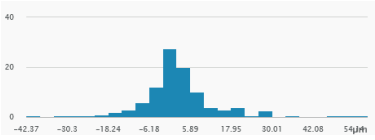
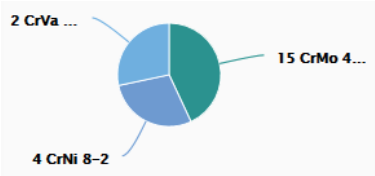
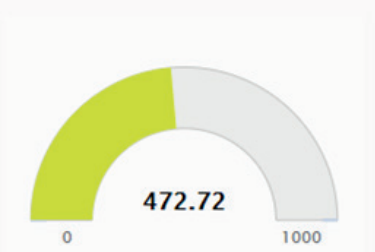
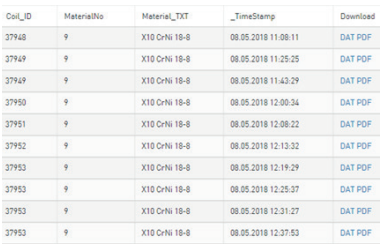


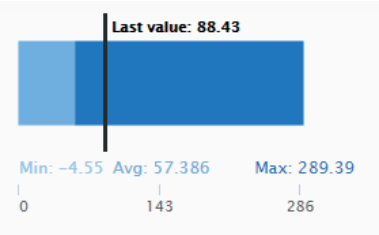
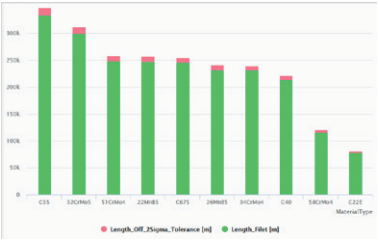
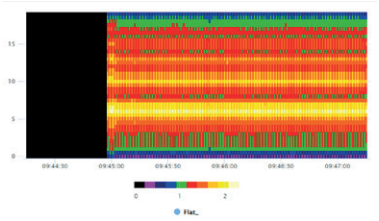
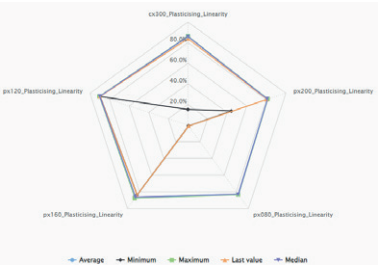
   If *Free tile positioning* is enabled in the dashboard settings, you can adjust the tile size as desired. Otherwise, the tile size will be adjusted to a defined grid.
5. Confirm the changes with <Save>.

6.4 Tile types – overview

ibaDaVIS offers different tile types for visualizing data and value series.

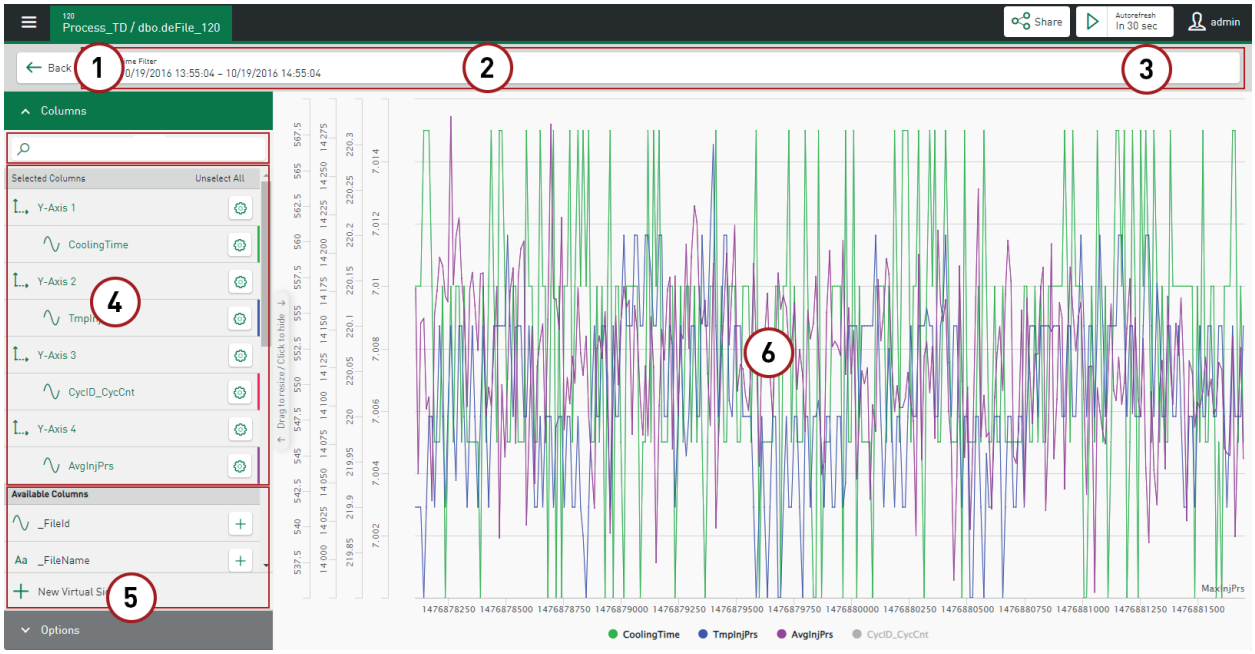
Tile type	Applicable for	Comment
Line chart 	Detection of parameter trends Visualization of interruption times or limit value violations Visual detection of abnormal trend developments	Zoom function used as interactive filter for all tiles on the dashboard Y-axis manually scalable and positionable

Tile type	Applicable for	Comment
Scatter chart 	Visualization of correlations Monitoring of process deviations Visual detection of outliers	Switching the X-axis from time to one of the selected value columns Viewing the relationship e.g. between speed and momentum X- and Y-axis manually scalable
Histogram 	Visual detection of process deviations Visualization of process stability	Switching between total and percentage aggregation Displayed value range configurable
Pie chart 	Display of the distribution of data through non-numerical values, i.e. values represented by a text. This can be used, for example, to display the number of products per material class or the production output per customer.	Tapping on a segment applies the filter for the selected category to all tiles in the dashboard. The selected category is summarized by sum, number, average, maximum or minimum.
Gauge 	Visualization of individual values, e.g. average license time limit, total number of products or other characteristic values.	Aggregation of the selected value column by sum, count, average, max or min operator and display of the last determined value.
Table 	Display of selected columns of your data table or display of a file list	Sorting the displayed values by tapping on the table header. Tapping the table header also opens a column-based filter that is applied to all tiles in the dashboard. Download the DAT file or a PDF report.

Tile type	Applicable for	Comment
Bullet Graph 	Visualization of a selected individual value	Max, min and average values as well as the last determined value of a selected value series are displayed in a horizontal bar.
Bar chart 	Visualization of characteristic values	Characteristic values can be sorted by time or grouped by selected categories and displayed side by side or stacked in the bar chart.
Value display 	Visualization of single values in grid format	Single cells represent texts or numerical values and their position and size can be changed within the tile.
Heatmap 	Visualization of a signal vector	Selection of an ident column from the datasource, use of the *ibaAnalyzer* standard colors for 2D plots
Radar chart 	Visualization of statistical data, such as maximum, minimum and average values	Selection of several columns or signals possible
Document display 	Visualization of images and documents	Select individual images/PDF files or folders containing files and display the images/document contents.

6.4.1 Basic tile properties

ibaDaVIS offers different tile types for visualizing data and value series. The displayed options and selection fields are based on the selected datasource and tile type.



1	<Back>	Back to the dashboard pane
2	Time filter and tile-specific filter options	see ↗ *Setting a time filter*, page 48
3	<Save>/<Cancel>	Save or discard changes to the settings
4	Available and selected columns or signals	see ↗ *Adding and deselecting signals, page 70* see ↗ *Adding a virtual signal to a tile, page 115*
5	Options	depending on tile type and datasource type
6	Preview	Visualization of the selected columns and options

Depending on the tile type and datasource type, further tile-related buttons are available:

- File idents
- Category
- X-axis Column
- Color axis
- Markers
- Tooltips

Customize view

You can change the width of the area by dragging the control bar <Drag to resize/Click to hide>. For example, signal names can be fully displayed, which were previously not visible.

Tap on the control bar to hide the tile properties and display the preview across the entire width of the screen. To show the tile properties again, tap the control bar again.

6.4.2 Adding and deselecting signals

In the edit dialog of all tiles, the names of the table columns are shown in the *Columns* or *Signals* section.The basis for this is the data table selected under *Datasource Management*. The table columns contain signals from iba measurement files or value series of characteristic values, which can be shown in the respective tile.

1. To visualize the values of a column, tap on the + button under *Available Columns* next to the column name.

   You can select several columns or only one column, depending on the tile type.

→ The column disappears from the *Available Columns* group and appears under *Selected Columns*.

→ The signal appears in the preview.

Tip

If no data is displayed, the time range may not be selected correctly. A time range must be selected in the time filter in which there is data.

2. To deselect a column or signal, tap the button.

   Alternatively, tap on the button ans tab on <Unselect>

3. To add virtual signals for comparative calculations, tap on <+ New Virtual Signal>, see ↗ *Adding a virtual signal to a tile, page 115*.

Search signals

You can search for column names in the search field. If you enter the column name or only a part of the name, the matching columns appear in the list *Available columns*. To reset the search filter, delete the entry in the search field.

Show and hide signals

If signal names and their corresponding color assignment are listed in the lower area of the display field, you can hide the signal and make it visible again by tapping on the signal name. The name of the hidden signals is displayed in light gray.

6.4.3 Axis scaling and signal assignment

In diagrams with axis scaling (e.g. line chart) you can select signals listed in the *Available Columns* area for display by tapping on the button +. A new axis is created for the selected signal in the *Selected Columns* area. The signal is assigned to this axis and a new axis is created for each additional signal selected. Signals that have the same unit are initially combined on a common axis as standard. However, you can select a different axis at any time via the signal settings. You can also drag and drop selected signals to a new position in the signal tree and thus reassign them. The color of the Y-axis always corresponds to the color of the first signal that you have assigned to the respective axis.

If you delete an axis, all associated signals are also removed from the range of selected columns and added back to the list of available columns.

You can define the axis and signal settings via an input dialog. Tapping on the ⚙ button in the respective line opens a properties window and the current settings are shown.

Axis settings

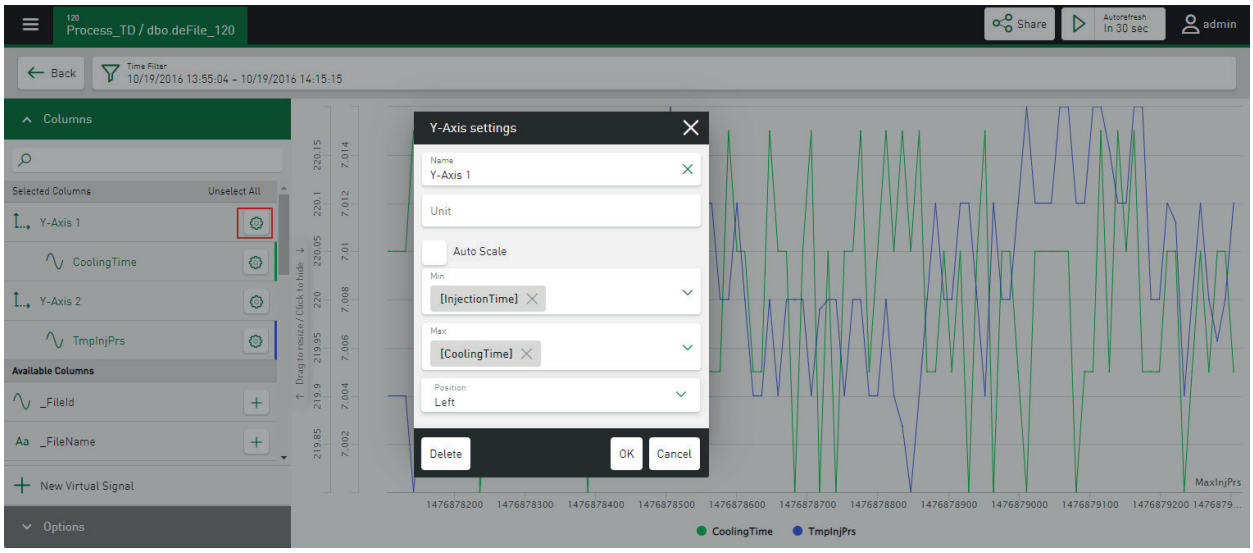
In the properties window of the axis settings, you can define the following settings for the display of the axes:

Name
Name of the axis

Unit
Editable unit of the axis

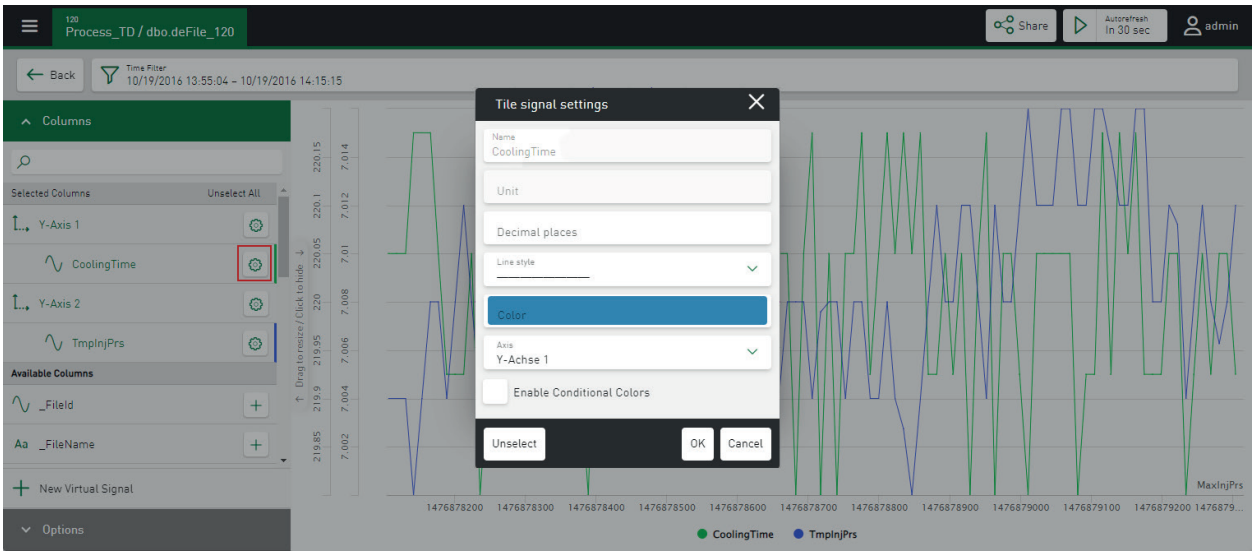
Auto Scale, Min, Max
Specify the type of scaling for the axis. If you enable the *Auto Scale* option, the axis is automatically selected according to the displayed values. Alternatively, use the *Min* and *Max* fields to define fixed minimum and maximum values to determine the value range. The selection list shows the available numerical column values from the iba file table.

Example of axis settings
The following example shows the settings for the *line chart* tile type.



To enable dynamic scaling of trends and signals, you can also use other signals as the basis for the y-axis. To do this, select the minimum and maximum signal for scaling in the y-direction. The prerequisite for this is that all columns/signals are assigned to the same axis.

Position
The Y-axis is displayed on the left-hand side by default. Change this option if you want the Y-axis to be displayed on the right-hand side.



Signal settings
You can configure the display of the signals in the properties window of the signal settings.

Name, Unit
Display of the name and the physical unit of the signal (read-only).

Decimal places
Number of decimal places

Line style
Select the style in which the lines of the signal are to be displayed, e.g. dotted or dashed. Lines are solid by default.

Color
Display color for this signal, see also ↗ *Color selection in tiles, page 73*.

If no default color is defined in the *Datasource Management*, a color is automatically assigned to the selected values.

Axis
You can use this option to select a different axis for the signal. A selection list lists all available axes. If necessary, you can also create a new axis here.

Enable Conditional Colors (line charts only)
If you enable this option, you can display the line in freely definable colors depending on conditions.

For information on the configuration of conditional colors, see ↗ *Configuring conditional colors, page 74*.

6.4.4 Downloading DAT file and analysis for datasource

You can download DAT files in ZIP format or together with an analysis as a PDC file from the tile.

Tip

For more information on the PDC format (Process Data Container), see ↗ *Glossary, page 159*.

Requirement: An analysis has been configured for the data source of the currently displayed values.

1. Tab on the button .
2. To download the DAT files, tap on <Download DAT as ZIP>.

   To download the DAT files together with the analysis configuration, tap <Download with Analysis as PDC>.

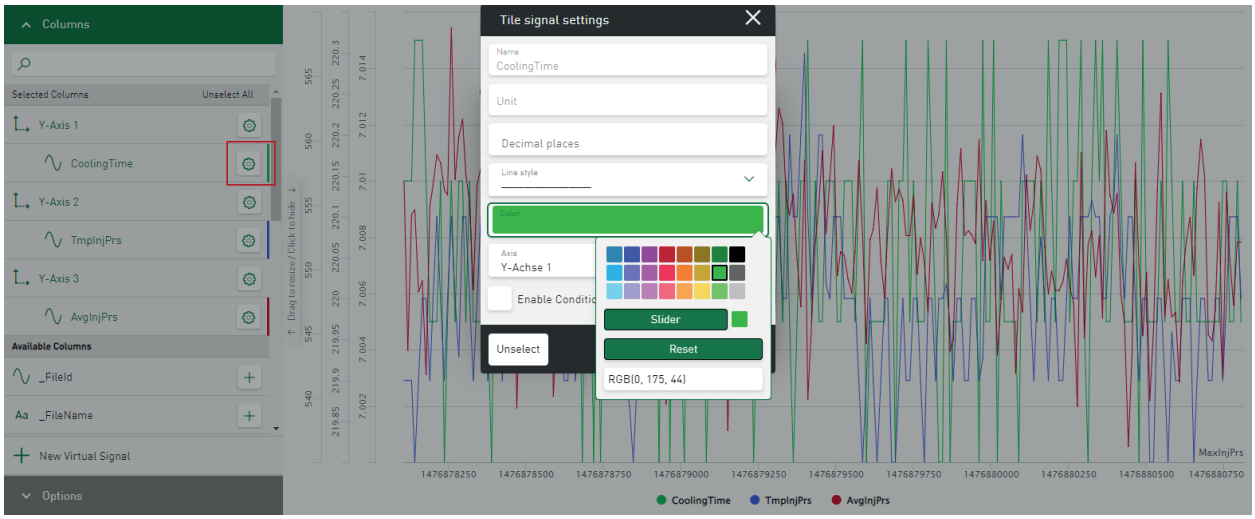
→ A dialog for further information opens.

3. Select the *ibaAnalyzer view mode* and, if necessary, the analysis configuration.
4. Confirm with <Download>.

6.4.5 Color selection in tiles

You can change the colors of values or trends that are displayed as a chart (e.g. line chart) in the tile view.

A color selection field is assigned to each selected column/signal via the properties window of the signal settings or in the *Options* section of the respective tile type.



You can select various standard colors or color shades directly. Tapping on the *Slider* field opens a color field and a color scale for additional color spectra. You can also enter an RGB value, HEX code or HSL color code directly in the input field provided. Use *Reset* to reset the current color selection to the last saved color selection.

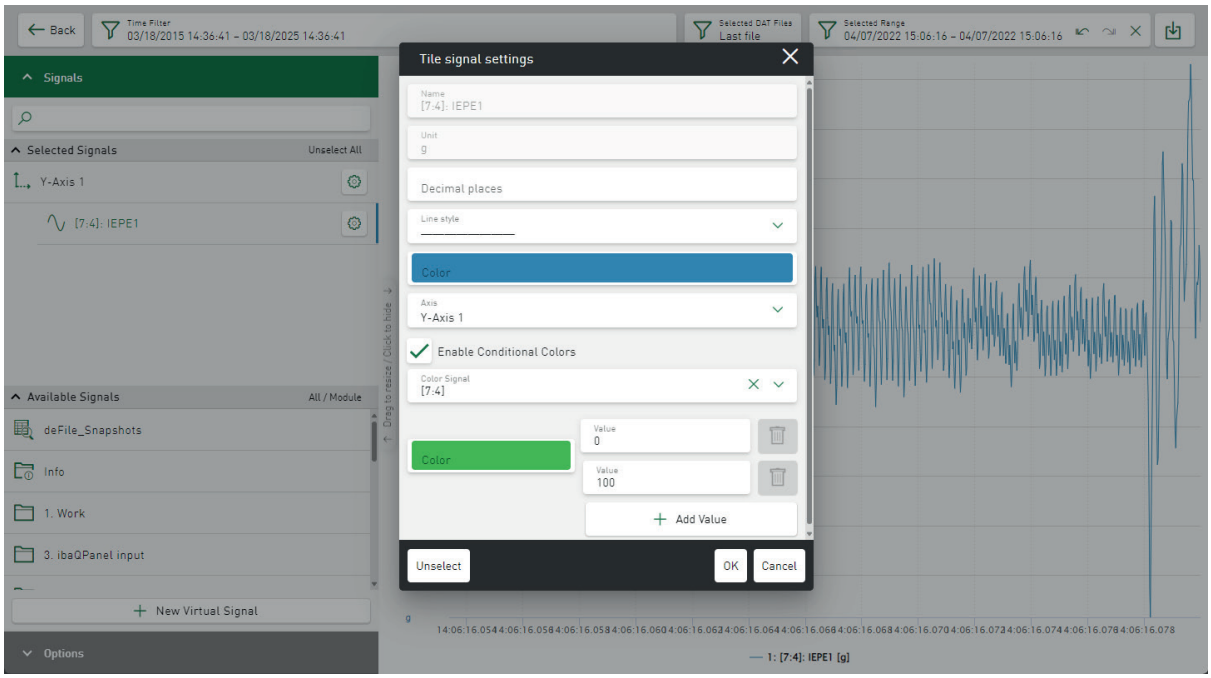
The newly selected colors are immediately applied in the chart.

6.4.6 Configuring conditional colors

You can display signal curves and values in different colors based on defined conditions. This allows you to visually highlight limit violations or certain conditions, for example. Conditional color configuration is available for signal curves in line charts, signal points in scatter charts, values in tables, and the value display. Value ranges, another signal or a specific value of a text or digital signal are possible as conditions.

The configuration is described below using the line chart as an example:

1. Open the signal settings in the tile view.
2. Enable the *Enable Conditional Colors* option.

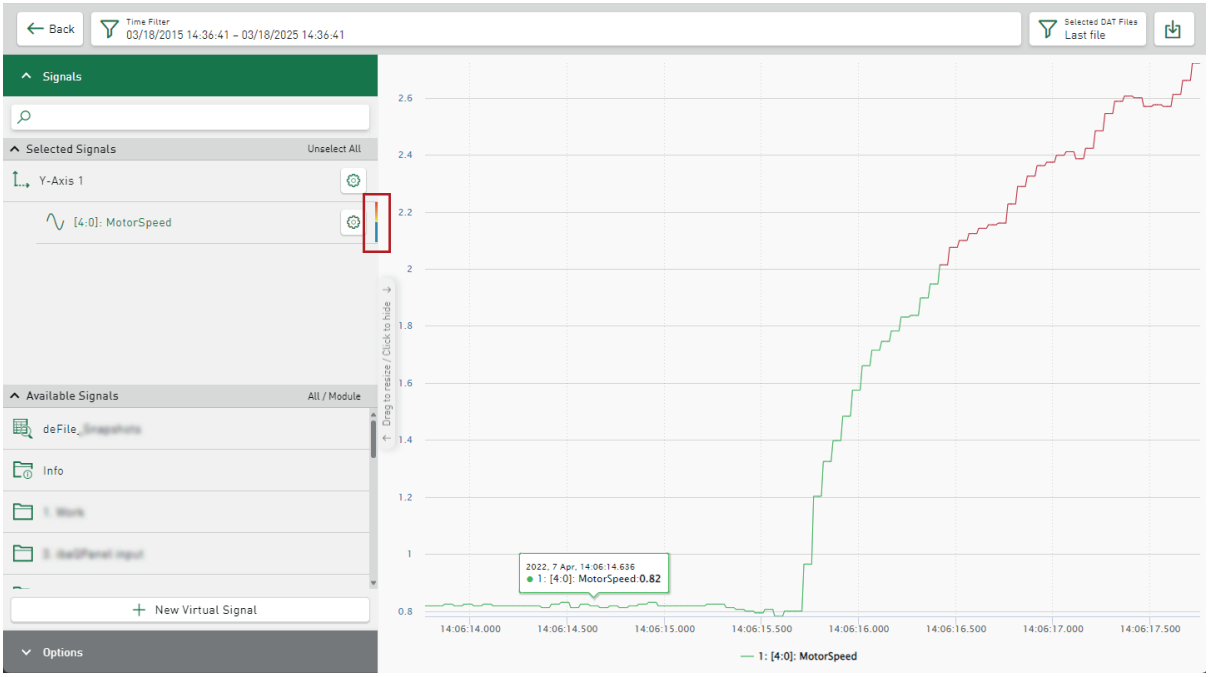


→ By default, the signal for which you have opened the signal settings is displayed in the *Color Signal* field.

3. If the conditional coloring is to be determined by a different signal, select this in the *Color Signal* field.
4. Use the *Value* fields to enter the lower and upper limits for the first value range.
5. If necessary, change the color for the value range in the color selection field.
6. To add further value ranges, click on the <Add Value> button.
7. Repeat the settings for range limits and color for the new range.
8. Confirm the settings with <OK>.

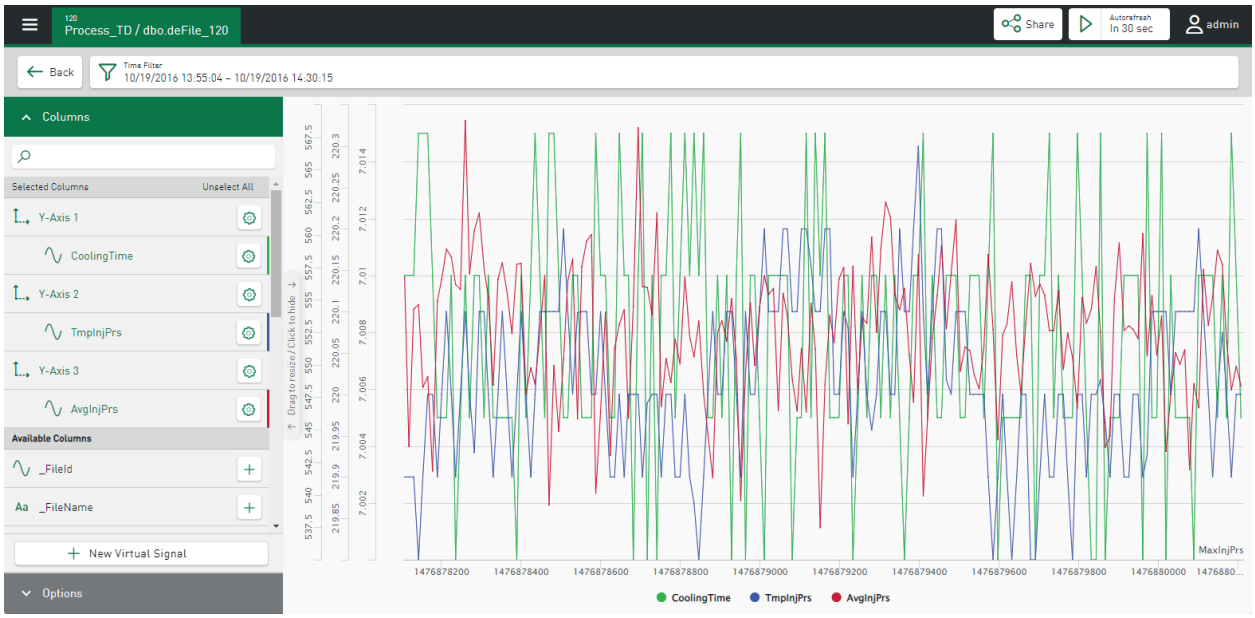
→ The signal is displayed according to the settings.

→ A multi-colored stripe is displayed next to the signal in the signal tree.



6.4.7 Tile type Line chart

In the *line chart*, the signals or characteristic values are displayed as a trend over time. This makes it possible, for example, to identify parameter trends or interruption times.



Columns

Select the signals for the display by tapping on the names under *Available Columns*. Selected signals are directly assigned to an axis and displayed in the trend display.

Use the button ⚙ to define the axis and signal settings in a property window, see ↗ *Axis scaling and signal assignment, page 71*.

When you move the cursor over a trend, a tool tip appears specifying the time and measured values at the cursor position.

Options

Appended view – recorded time
Data files are displayed synchronously with the recording time according to their real position on the time-based X-axis.

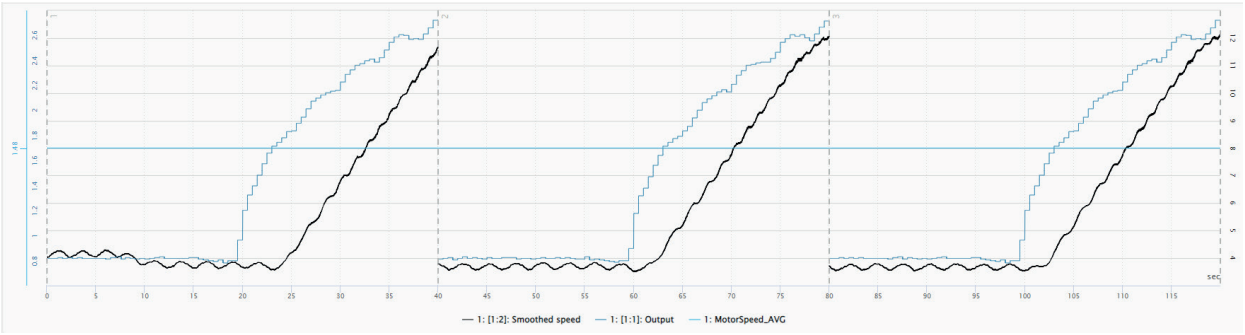
The signals are displayed according to the file start time and measurement signal duration; the start of a new file is visualized by interrupting the measurement signal curve.

Vertical separators are shown at the file end when visualizing length-based signals.

Tip

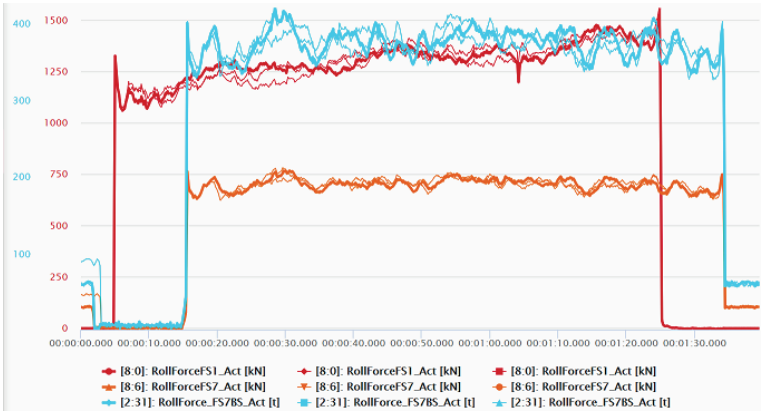
This display is suitable for visualizing the signal progression over time in the measurement signals or, in the case of length-based signals, for the length-based display of the measurement signals per unit length.

Appended view – relative time
Data files are displayed one after the other in chronological order and on the relative time axis.



Stacked view
Display of the same measurement signals from different measurement files

The measurement signals are all synchronized to the same starting time 0:00:00 and are displayed. The displayed time range is derived from the respective longest data file.



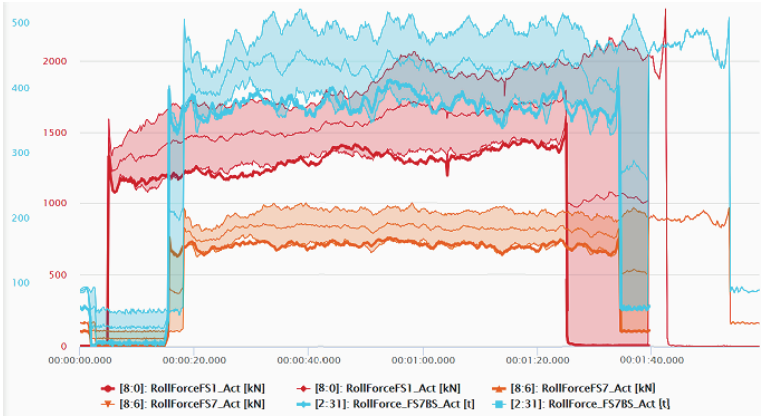
Tip

This display is suitable for the direct comparison of the same measurement signals from different files, or of sequences that are to run synchronously in all selected data files.

Envelope view

Display of the envelope curve from the same analog measurement signals from different data files

The measurement signals are synchronized to the same starting time 0:00:00, as in the stacked view. In addition to the maximum and minimum, the calculated average is shown.



Tip

The display is suitable for comparing many measurement signals from different data files, the display is reduced to a flat representation. The maximum, minimum and average values can be read directly. Deviations in repetitive process sequences become immediately apparent.

Display event filter

You can select configured events using a filter function as start or stop events from DAT files, see ↗ *Using the DAT file event filter*, page 54.

Signals from the last file separately

See ↗ *Highlighting signals from DAT files, page 80*.

Display legend
The currently selected signal names appear not only in the tile's trend view, but also in the dashboard view.

Hide repeated text marks
Duplicate text marks are no longer displayed.

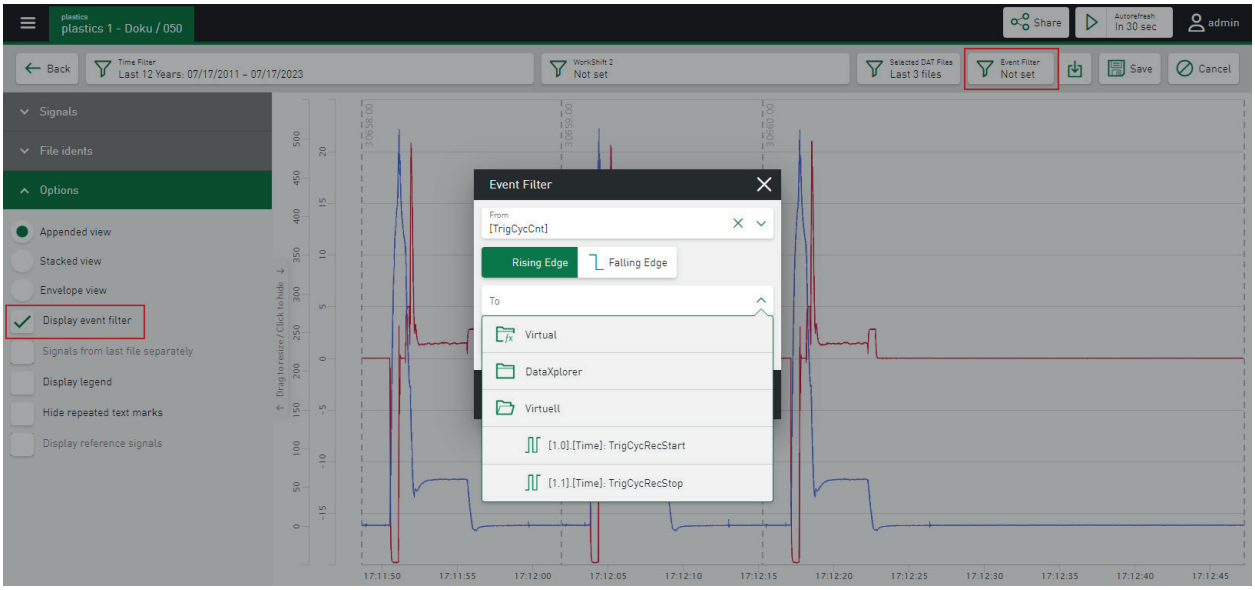
Fill gaps
Signal data from segment tables can be visualized if they were extracted based on the DB functionality of *ibaAnalyzer*. In this case, "ZERO" values in the data evaluation lead to gaps between the measuring points in the trend display. Enable this option if you want to connect the measuring points with a line to close the gaps.

Display reference signals
See ↗ *Visualizing reference signals, page 80*.

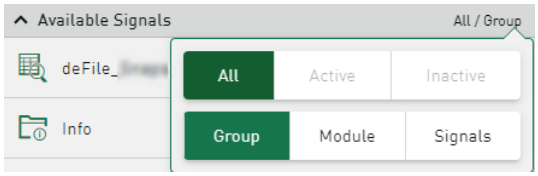
Ordered by sequence
The value trend is ordered in ascending order by time. The x-position of the result values in the trend corresponds to the sequential number in the query result.

6.4.7.1 Display DAT file signals

The *Line chart* tile type enables the visualization of length-based and time-based signals from DAT files.



1. Under *Signals – Available Signals*, tap on the *Group* option.



The list of available signals from each DAT file is displayed by default in a module-based tree structure.

→ The measured signals are shown in the module view with the module number and module name. The assigned analog and digital signals are listed under the modules with the corresponding signal numbers and signal names. Analog and digital signals are identified by different icons, see ↗ *Symbols in the software*, page 20.

2. Tap on the respective signal in the tree structure to enable the visualization in the diagram.

   The visualization of length-based signals in the line diagram always starts at 0 m.

→ If the DAT files are recorded with *ibaQDR*, then the signals are generally shown as length-based signals. In the *Options* area, a function that is only available for QDR files is available that switches the currently selected signals to the time-based view. A chart can also display signals with different timebases.

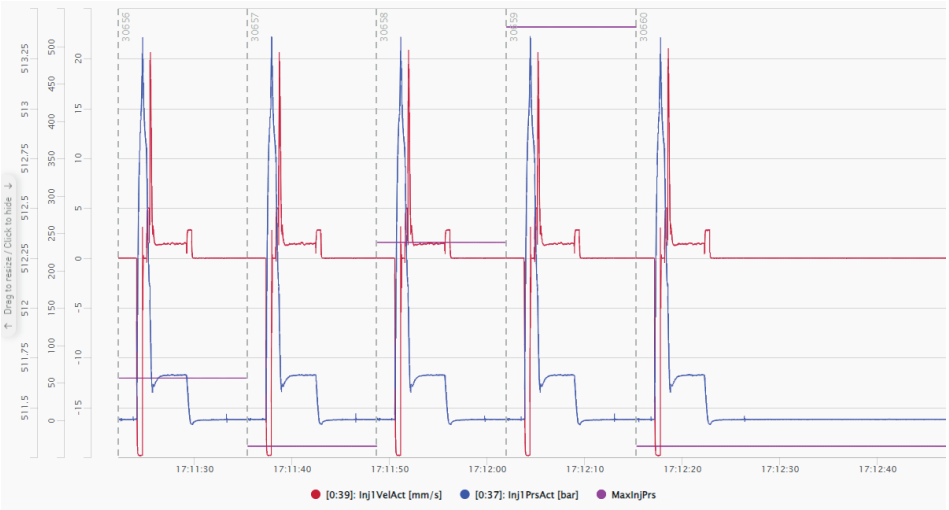
Note

Time-based and length-based signals cannot be visualized together in a view. If, for example, a length-based signal is already selected, this view is cleared as soon as a time-based signal is selected.

3. Select the columns from the database index table.

→ In addition to the name for the currently displayed measurement signals, additional values are shown in the legend, such as material designations. The signal values are displayed either in appended or stacked view.

   In the appended view, the file idents are shown together with the beginning and end marking of the DAT file.



Tip

Proven method

Under *Optionen* select *Stacked view*. Then select your ident table column. Together with the signal name, the identification value of the currently displayed DAT file signals is shown in the legend.

4. Optionally select a different signal view under *Options*, see ↗ *Options, page 76*.

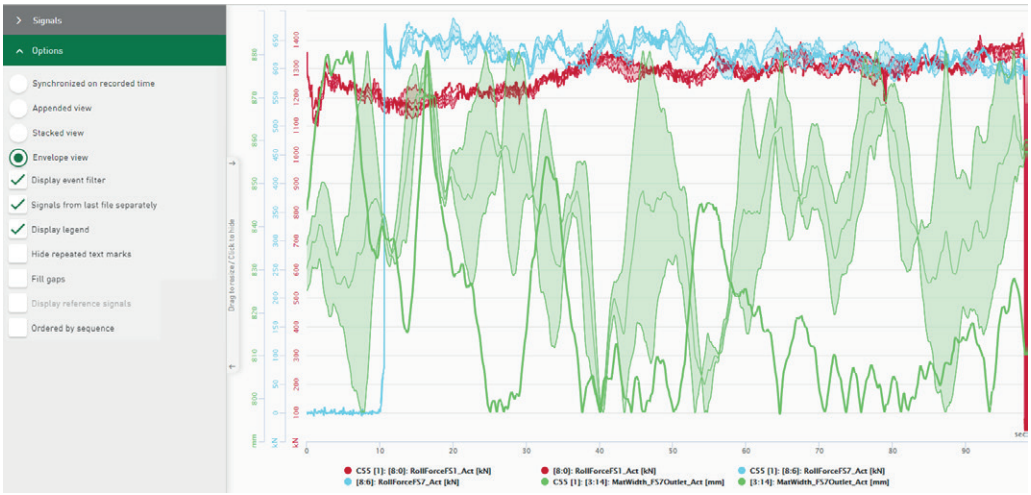
6.4.7.2 Highlighting signals from DAT files

You can display signals from the last DAT file separately in the *line chart* tile type if you use the *Stacked view* or *Envelope view* option for visualization.

► Activate the option *Signals of the last file separately*.

→ The trend line for signals from the last DAT file is displayed wider than the trend lines for signals from previous DAT files.

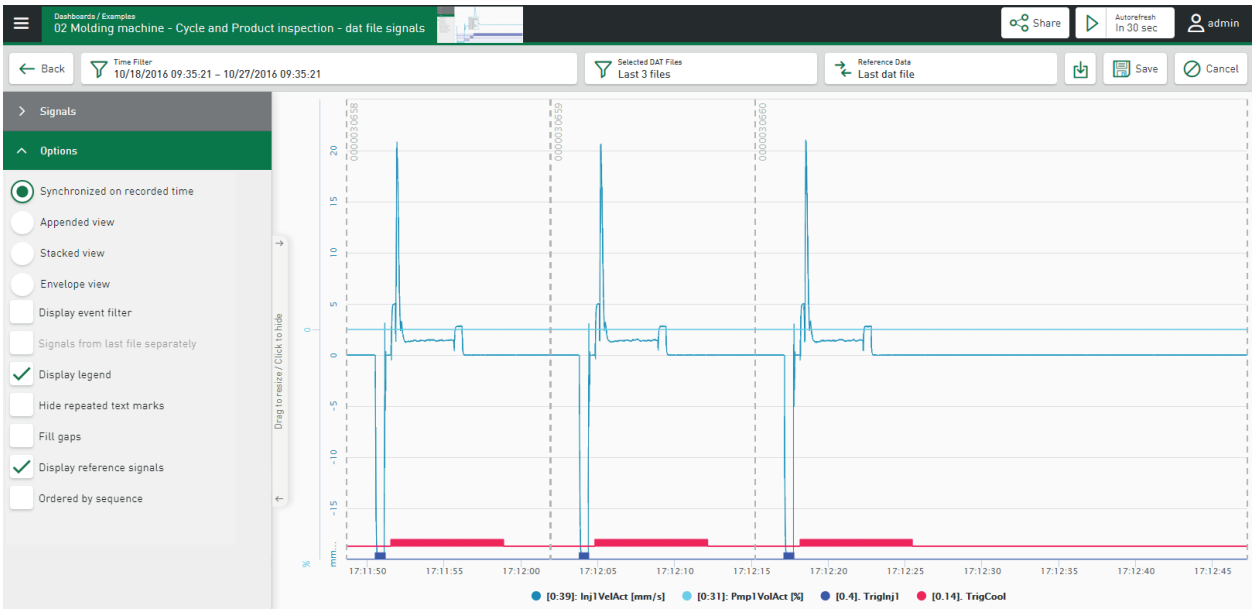
Example



In the example, the DAT file filter is set in an envelope view so that signals from the last 3 files are visualized. The signals from two previously calculated DAT files are displayed unchanged, but the signals from the last DAT file determined are clearly highlighted.

6.4.7.3 Visualizing reference signals

The tile type *Line chart* enables the visualization of signals from DAT files together with signals from reference files.



Requirement: Reference columns are defined for the datasource, see ↗ *DAT File Settings – Reference tab*, page 25.

1. Under *Options* enable the *Display reference signals* function.

→ The *Reference data* selection filter is displayed. The filter shows the values from the ident column.

2. Tap in the selection filter.

→ The *Select reference by ident* dialog is displayed.

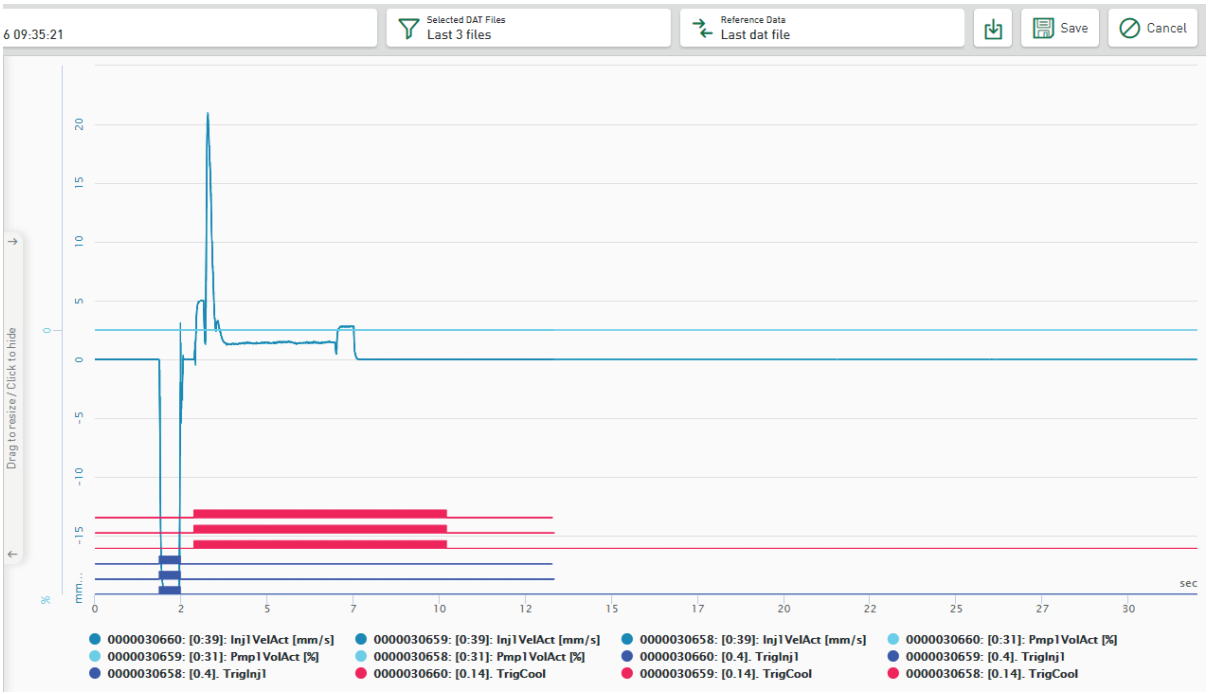
3. Select the desired Reference from the selection list.

   Information on the configuration of ident columns can be found in the *Reference* tab, see ↗ *DAT File Settings – Reference tab*, page 25.

→ If the reference defined in the drop-down menu changes, the selectable signals in the *Reference* tab are also updated according to the selected reference file.

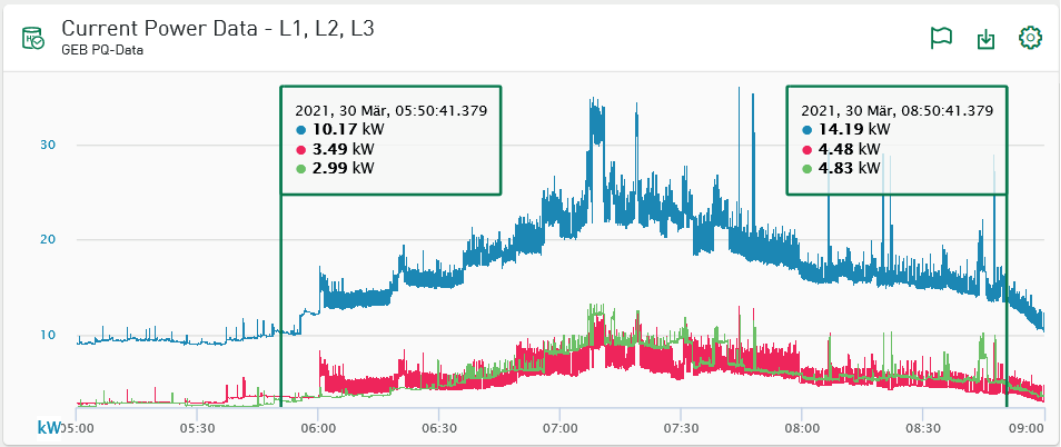
4. Select signals from this reference file as reference signals for display.

→ The selected reference signals are displayed highlighted together with the signals from the last produced or manually selected file signals. The rules for axis-related visualization of the reference files are applied.



6.4.7.4 Using markers in HD stores

In Diagrams (e.g. line charts) showing signals from time-based or event-based stores and allowing interaction with *ibaAnalyzer*, you can display markers and place them freely.. For further analysis, you can transfer the time range between the markers directly into *ibaAnalyzer*.

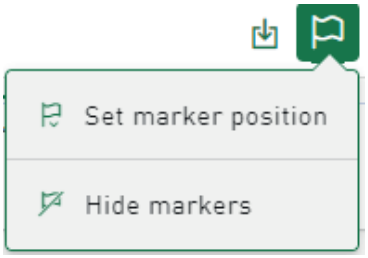


1. Tab on the button .

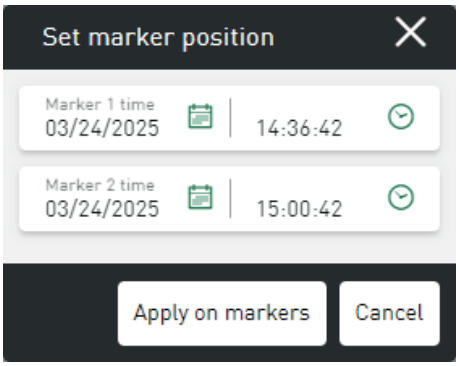
→ The signal values of the respective marker position are displayed in labeling fields.

2. To position the markers manually and interactively, drag the label field for the respective marker to any position in the diagram.

   To position the markers exactly, tap the button and select *Set marker position*.



→ An input dialog shows the current time position of the two markers.

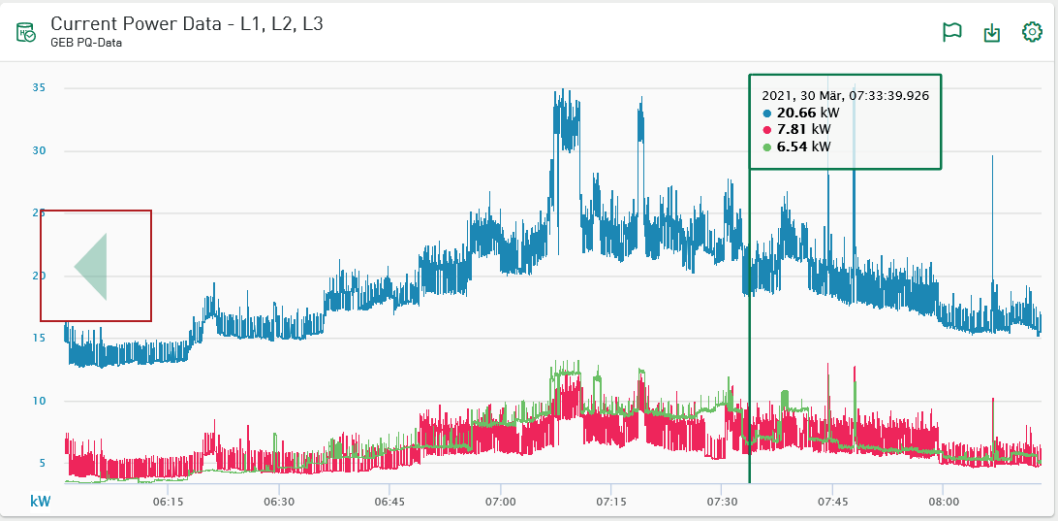


Adjust the values and confirm your entry with <Apply on markers>.

3. To hide the markers again, tap the button again and select *Hide markers*.

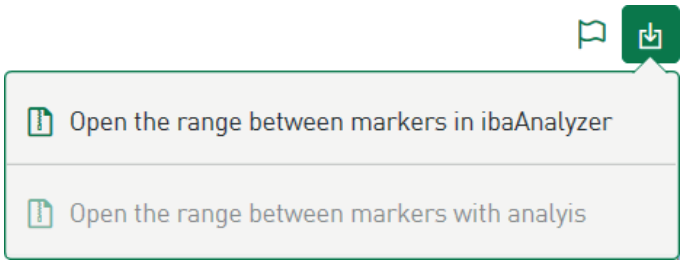
Zoom behavior of markers

The markers remain at the selected position when zooming until they are hidden. If a marker is placed outside the currently displayed time range, a transparent arrow indicates the direction in which the marker is positioned.



Open time range for analysis in ibaAnalyzer

If the markers are set, you can transfer the time range between the markers to *ibaAnalyzer* for detailed analysis. Tapping on the download icon in the header of the diagram tile shows the following options:



Open the area between the markers in ibaAnalyzer

Selecting this option generates an HDQ file for download, which opens the time range between the markers in *ibaAnalyzer*. The HDQ file takes the connection information of the *ibaHD-Server* from the data source configuration and the times for start and stop from the current marker positions. If the *ibaHD-Server* is accessible via *ibaAnalyzer*, the HDQ file displays the time range selected in *ibaDaVIS*.

Open the area between the markers with analysis

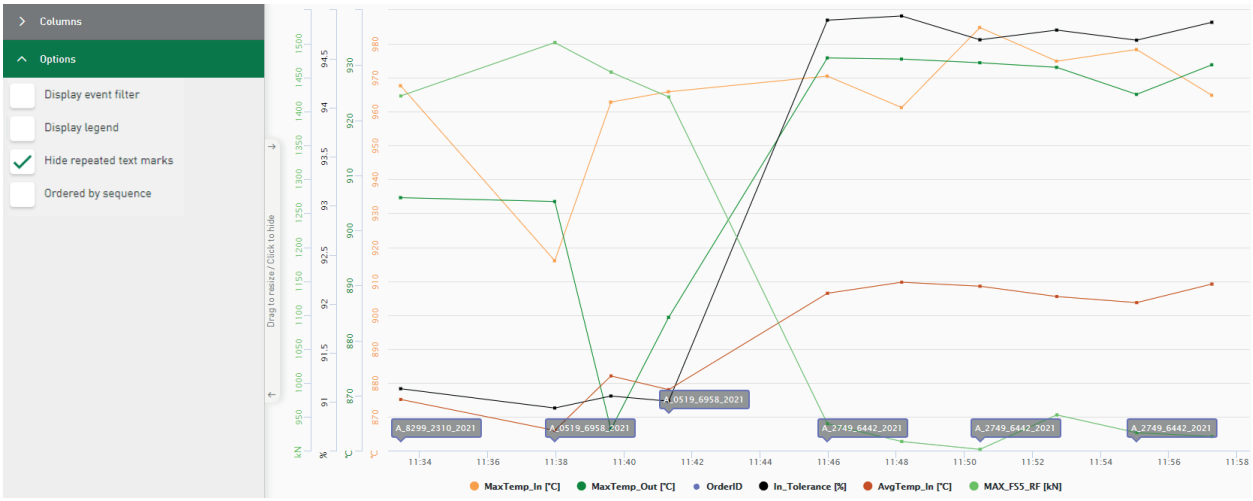
Selecting this option generates an PDC file for download, which opens the time range between the markers in *ibaAnalyzer*. The analysis file applies parts of the PDC file directly to the HD data. To do this, you must first add the corresponding analysis in the data source configuration of *ibaDaVIS* in the *Analysis* tab for the HD stores, see ↗ *Analysis tab*, page 25.

6.4.7.5 Display text signals

You can add character columns or character string columns as labels to the *Line chart* tile type, which are specified in the list of available columns. Select the columns as you would select other numerical columns to add them to the line chart.

Note

For a better overview, you can hide texts that are repeated in immediate succession. To do this, select the *Hide repeated text marks* function under *Options*, see ↗ *Options, page 76*.



In the signal settings for the text signals, you can also use the *Ident style* field to specify how the text signal is displayed: as a speech bubble, as a label at the start of a section or both.

Text channels from DAT files can also be used as text labels in the line chart.

The number of labels displayed is set to a maximum of 50 text labels per selected column or signal. No labels are displayed in the chart if the currently applied dashboard filter outputs more than 50 values.

Note

You can adjust the number of visualized text signals in the configuration file of *ibaDaVIS*, see ↗ *Configuration file, page 145*.

6.4.8 Tile type Scatter chart

You can use a *Scatter chart* to display the relationship between two signals or value series by controlling the X and Y position of the points of two signals. A signal is selected as the x-axis here and one or more other signals can be set in relation to this.

Columns

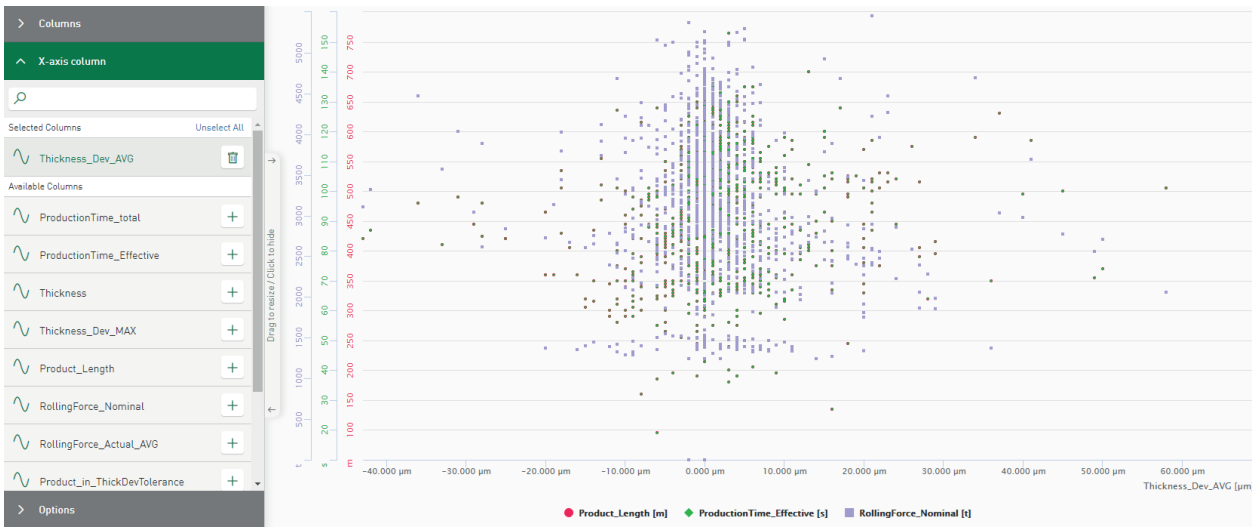
In the Columns section, select the signals that are to be shown in the scatter chart. The signals are shown in the chart first as points in relation to the time axis.

Use the ⚙ button to define the value range for each axis and signal individually, see also ↗ *Axis scaling and signal assignment, page 71*.

When you move the cursor over the points, a tool tip appears specifying the X and Y value at the cursor position.

X-axis Column

In the *X-axis Column* section, you can define a selected signal as X-axis.



Options

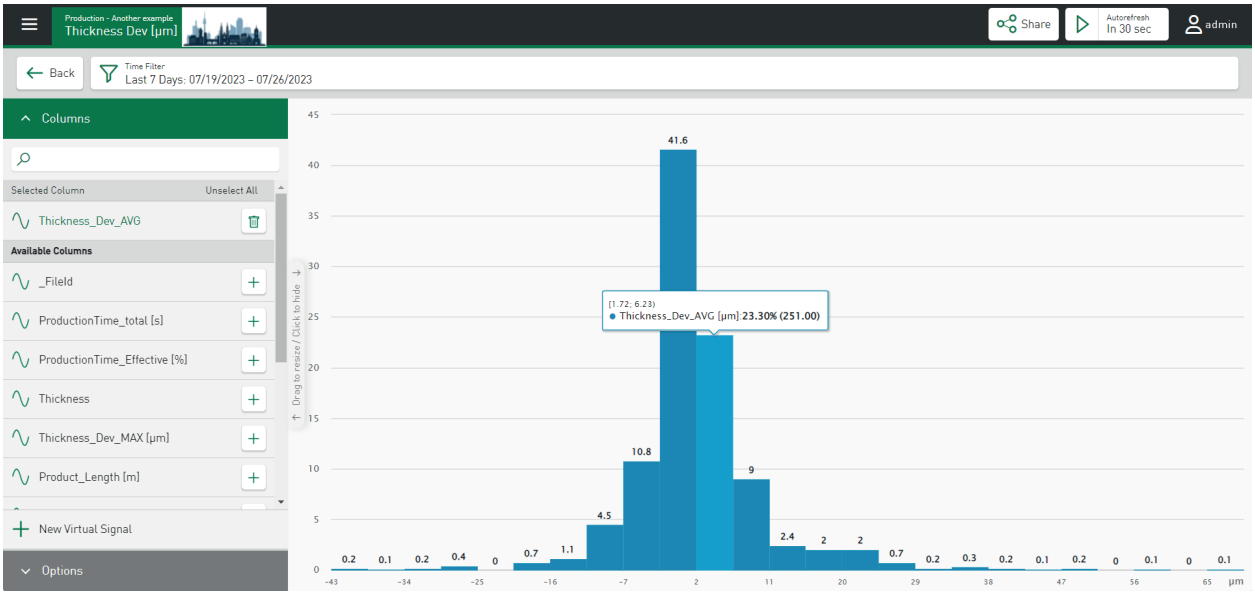
Ordered by sequence
The value trend is ordered in ascending order by time. The x-position of the result values in the trend corresponds to the sequential number in the query result. This function is only supported if no value is selected as the X-axis.

Display legend
Displays the names of the selected columns as a legend

Show Lines
Connects the displayed points in chronological order.

6.4.9 Tile type Histogram

The *Histogram* is suitable for displaying the value distribution of a characteristic value. The value distribution can be displayed as an absolute value or as a percentage. A histogram can be used, for example, to make statements about process stability or deviations.



Columns
In the *Columns* section a signal or characteristic value for the display can be selected. You can only select one signal. If a second signal is selected, the previously selected one will be removed.

Options

Color
You can assign any color to each value using the color field, see ↗ *Color selection in tiles, page 73*.

Auto Range
Display of the entire value range

You can also manually define the range by specifying a minimum and maximum value.

Histogram (Number of Bins)

The division can be made based on the number of bins. For this, enter the desired number in the *Bin Count* field. The width of the columns is then automatically calculated from the number of bins. The larger the number, the finer the subdivision.

Histogram (Width of Bins)

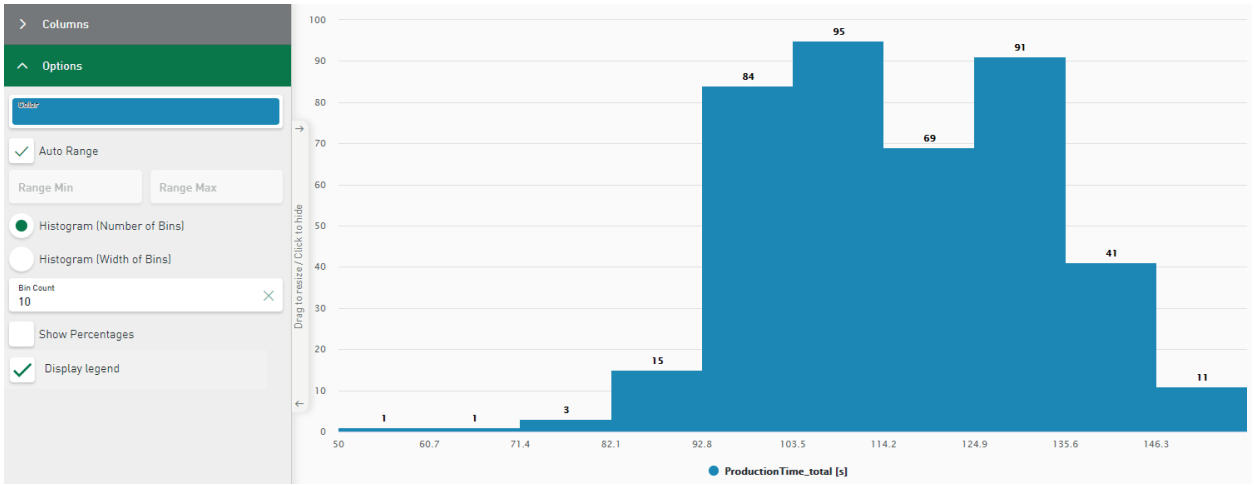
The division can also be made based on the width of a bin. For this, enter the desired width in the *Bin Width* field. The number of bins (number of bars displayed) is calculated from the bin width and the value range of the currently collected data.

Show Percentages

The value distribution of a bin is displayed directly above the column. You can change from absolute values to percentages.

Display legend

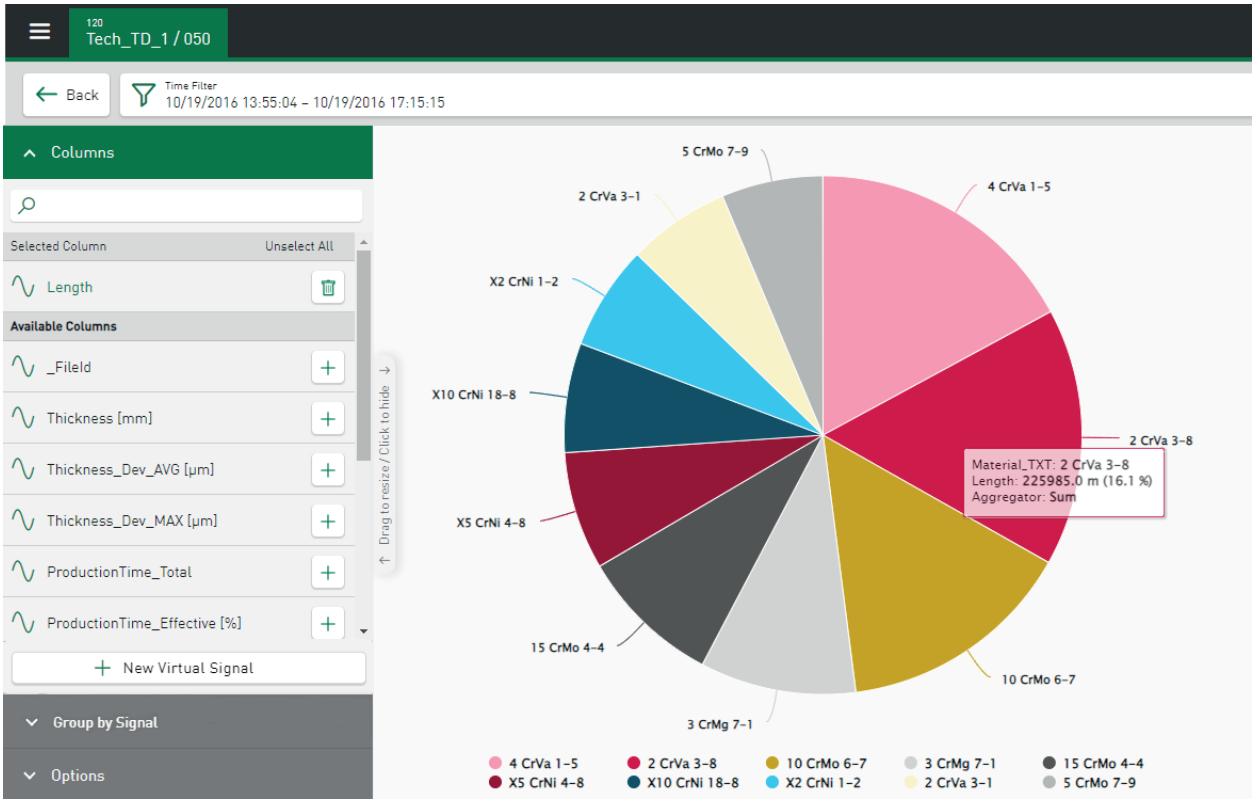
Shows the name of the displayed signal



6.4.10 Tile type Pie chart

A *Pie chart* is suitable for showing the distribution of a whole into parts (segments) corresponding to the frequency of a category or characteristic.

The following example shows the distribution of the produced product length (in total) related to the different materials used. The product length is selected under *Columns* and the material designation is selected as the *Category.* The pie chart shows the product lengths added up per material group within the considered time range in descending order.



Columns

Select the measured value or the value series whose distribution is to be displayed, e.g. the length of the produced material.

Group by Signal

Select the category to which the distribution refers, e.g. material thickness.

Options

Aggregation

Aggregation function to be applied to the value series selected under *Columns*

- *Count*: Quantity of values of the selected value series
- *Sum*: Sum of values of the selected value series
- *Average*: Average of values of the selected value series
- *Minimum*: Minimum value of the selected value series

- *Maximum*: Maximum value of the selected value series
- *Last value*: Parameter display of the last acquired value
- *StdDev*: Standard deviation of the selected value series
- *Median*: Median of the selected value series

Number of categories
Define how many categories should be displayed here

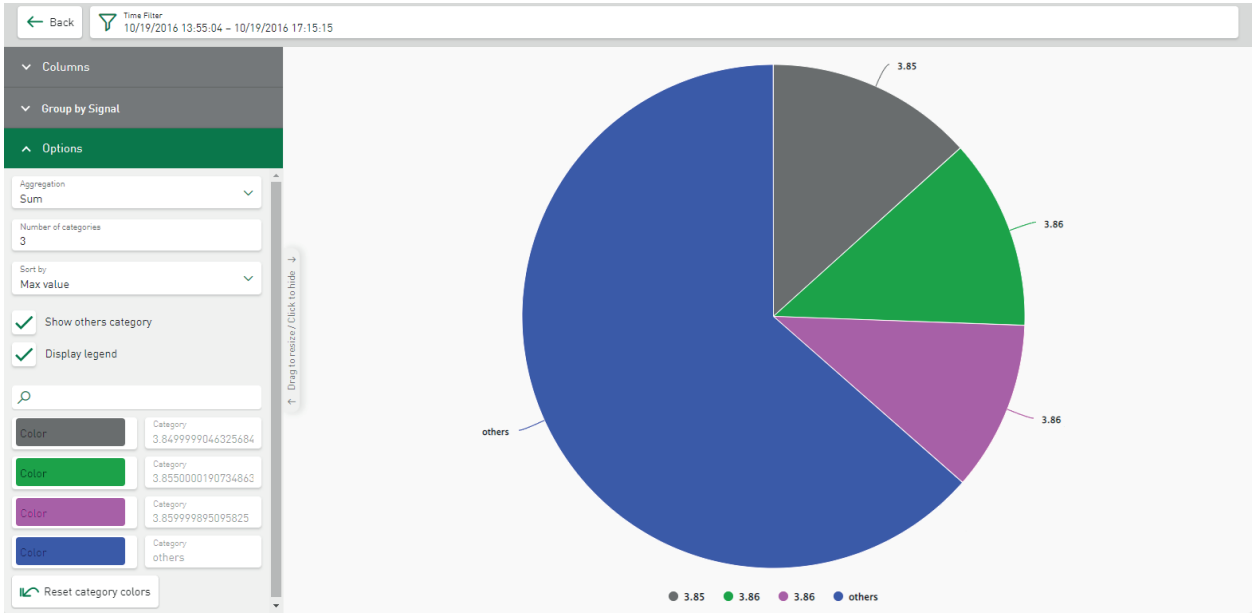
Sorted by
The following sort options are supported for displaying the respective aggregation function:

- *Category asc*: sort alphanumerically by category in ascending order
- *Category desc*: sort alphanumerically by category in descending order
- *Max. value*: sort visualized categories by maximum value in descending order
- *Min. value*: sort visualized categories by maximum value in ascending order

Show other category
All categories that have not been recorded under *Number of categories* are summarized under *Other*.

Display legend
Displays the names of the segments as a legend

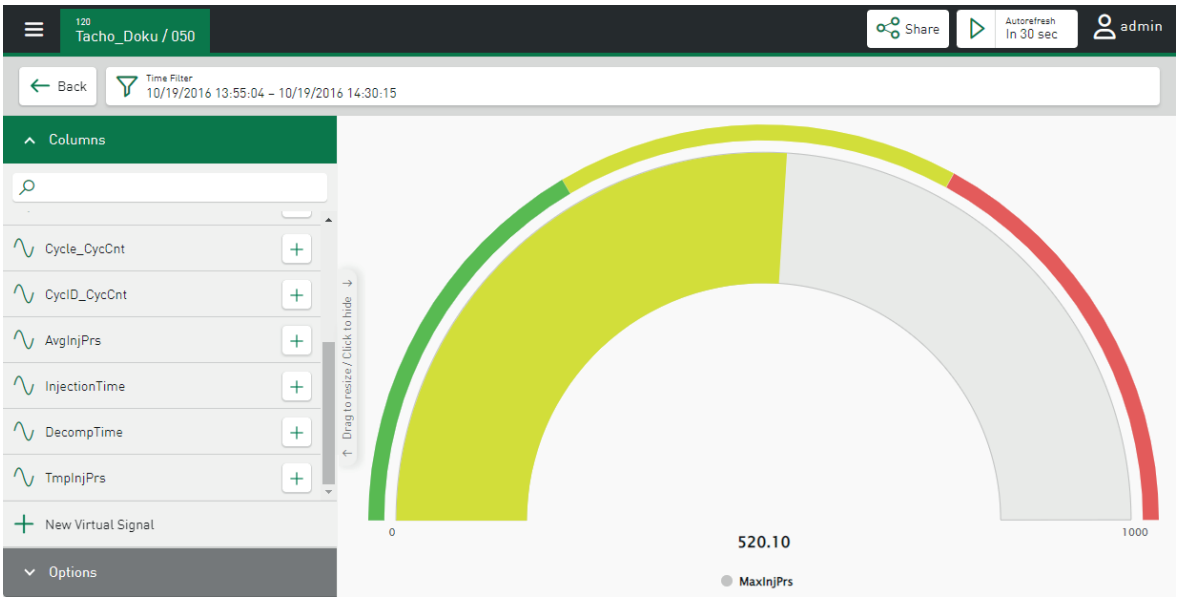
Colors
You can change the colors of the displayed segments via the respective color field. Use the <Reset category colors> button to restore the original colors. See also ↗ *Color selection in tiles, page 73*.



6.4.11 Tile type Gauge

Using the *Gauge*, you can display individual values. For a select value series, you can use statistical features to calculate and display a value, such as the average value of a parameter over a selected time period. The colored range always starts with the value “0” to make deviations more easily visible.

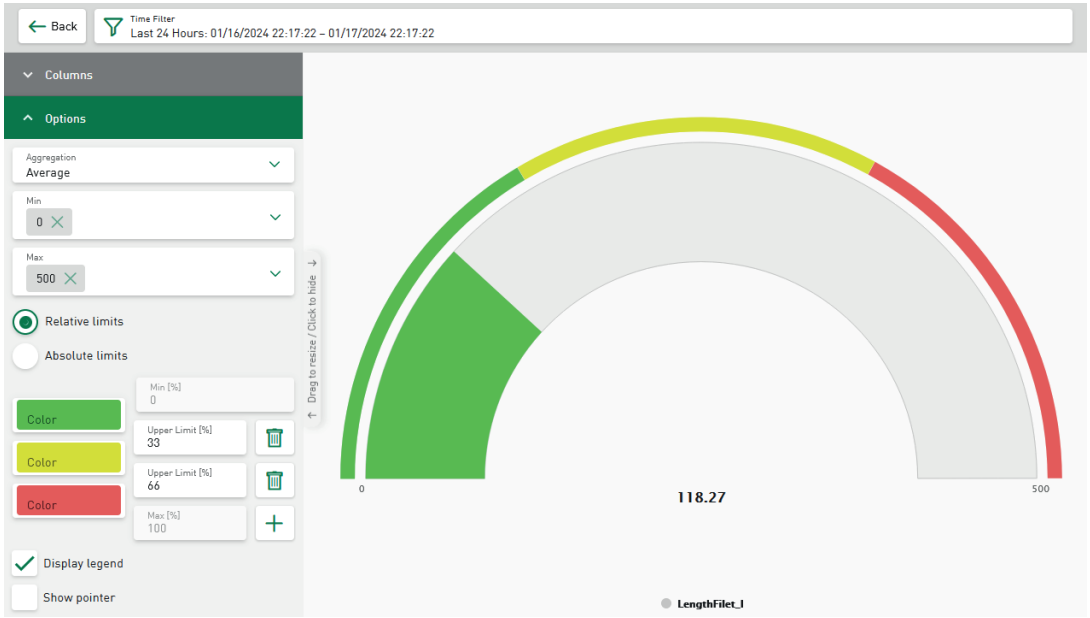
You can select constant values or signals or even virtual signals as minimum or maximum values. In the gauge, the minimum and maximum values of all configured parameters appear as the minimum and maximum of the spectrum arc, and the currently calculated value for the selected signal.



Signals

Selection of the signal or value series to be displayed. You can only select one signal. The displayed range is set from 0 to 1000 by default, but you can adjust this in the *Options* section.

Options



Aggregation
Aggregation function to be applied to the selected signal or value series:

- *Count*: Quantity of values of the selected value series
- *Sum*: Sum of values of the selected value series
- *Average*: Average of values of the selected value series
- *Minimum*: Minimum value of the selected value series
- *Maximum*: Maximum value of the selected value series
- *Last value*: Parameter display of the last acquired value
- *StdDev*: Standard deviation for the selected value series
- *Median*: Median of the selected value series

Min/Max
Setting the displayed range

The display color changes from green to yellow to red, depending on whether the displayed value is in the range of the minimum, in the middle or at the maximum.

Relative limits/Absolute limits
You can define the colors and limits for the color change individually. *Relative limits* are set as percentage values by default. With the buttons <Add Value> and  , you can add or delete value ranges You can define the colors for the range using the color field, see also ↗ *Color selection in tiles, page 73*.

If you select the *Absolute limits* option, the currently set range limits are converted into absolute values in relation to the current minimum and maximum values and displayed.

You can define a maximum of 7 value ranges. The representation of the color bar begins with the value “0.”

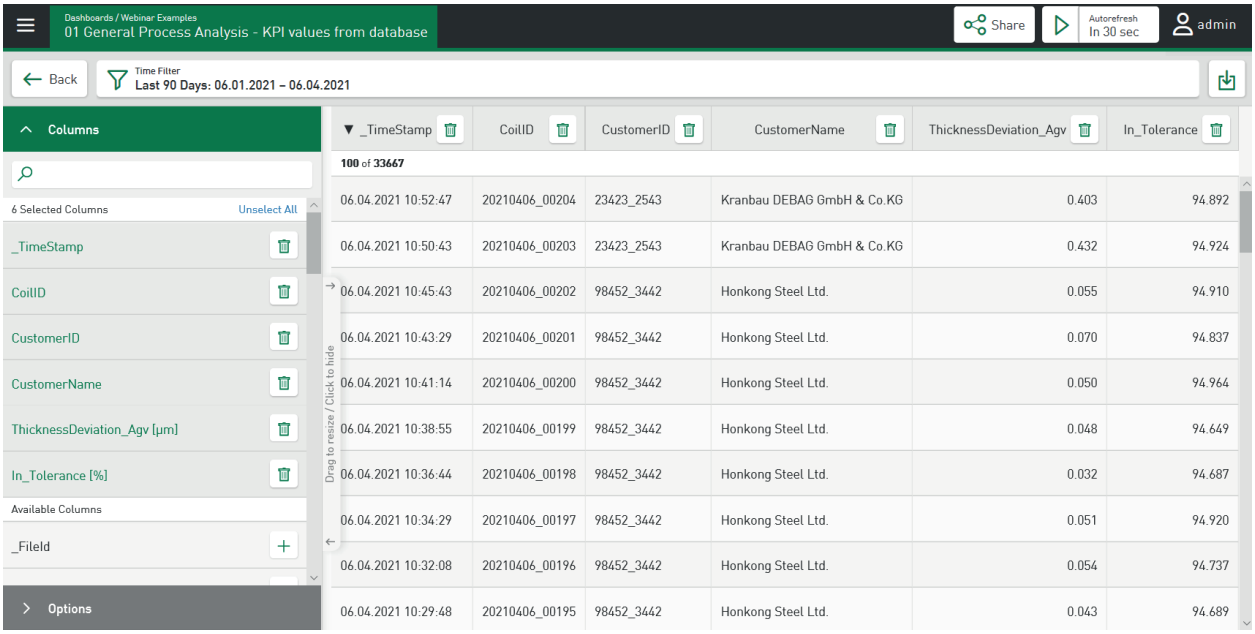
Display legend
Shows the name of the displayed signal

Show pointer
Instead of the default display, which resembles a fill level, a pointer shows the current value. And a scale for the displayed range appears.

6.4.12 Tile type Table

The table shows selected columns from a database table or time period table. You can select and arrange the columns as you wish. You can also sort and filter the individual columns.

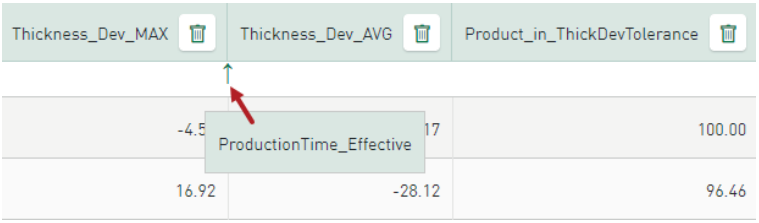
If the characteristic value in the table is calculated from a DAT file, you can download the corresponding DAT file and open it with *ibaAnalyzer*. A drill down on the measurement signals is thus possible for a detailed analysis. In addition, you can open an export menu to download CSV files. Depending on the table type and the settings in the options, it is also possible to download PDF reports or HDQ files.



Columns

From *Available columns*, select the columns that are to be shown in the table. The column is inserted in the display all the way to the right by default. Tapping on the button the column header removes the column from the display.

You can move a column by tapping in the column header and inserting the column in the desired position using drag & drop.



Options

Use large text size on dashboard

Here you can increase the text size of the values displayed in the table. This text size setting is also transferred to the dashboard view.

Enable DAT File Download

If enabled, you can download and save the DAT file on which the characteristic value is based or open it with *ibaAnalyzer*. An additional *Download* column appears.

See also ↗ *Downloading selected DAT files and PDF reports, page 97*.

Enable PDF Report Download

If enabled, PDF reports on measurement series can be downloaded via the tile. The prerequisite is that the report is available as a PDF file for this measurement series.

See also ↗ *Downloading selected DAT files and PDF reports, page 97*.

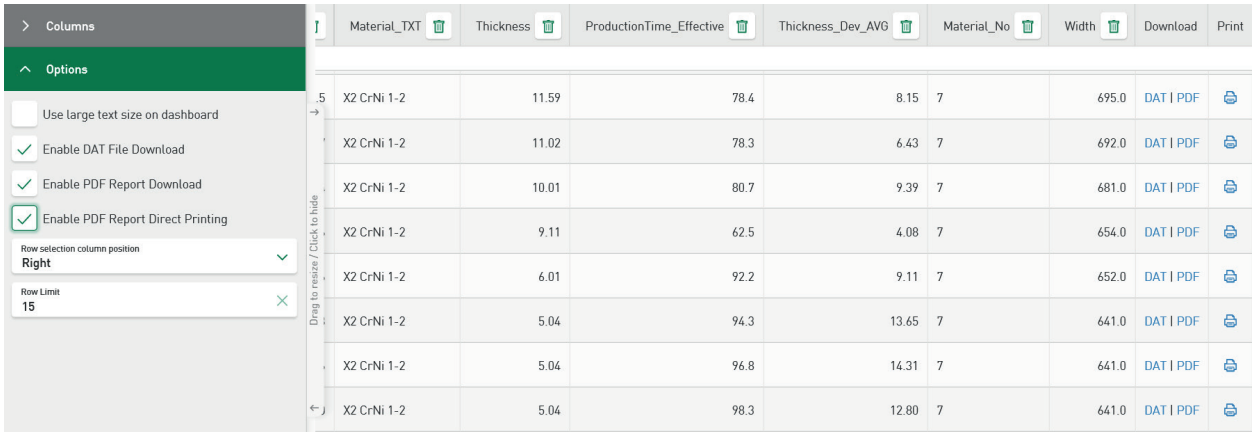
Enable PDF Report Direct Printing
If enabled, a printer symbol appears after each row. Tapping on the icon starts the direct printing of the report. In addition, a printer symbol appears in the tile header, which enables direct printing of several reports. To do this, you must select the reports in the dashboard view using the respective checkbox.

Enable HDQ File Download
If enabled, time periods can be downloaded as HDQ files. An additional *Download* column appears and the *Download HDQ as ZIP* option in the download menu of the tile is active.

See also ↗ *Downloading time period data as HDQ file, page 98*.

Row selection column position
The checkboxes for selecting individual table rows are displayed either as the first or last column in the tile.

Row Limit
To limit the number of rows displayed, enter the desired number here. The preference is 100 lines.



Note

The data base contains a reference to the DAT file, not the file itself. It is only possible to download the DAT file if the file is in its original storage location.

The PDF report must have the same name and be in the same folder as the DAT file so that it is possible to access it.

The installation of the *ibaDatCoordinator* software enables the automatic creation of a report. More information can be found in the documentation of *ibaDatCoordinator*.

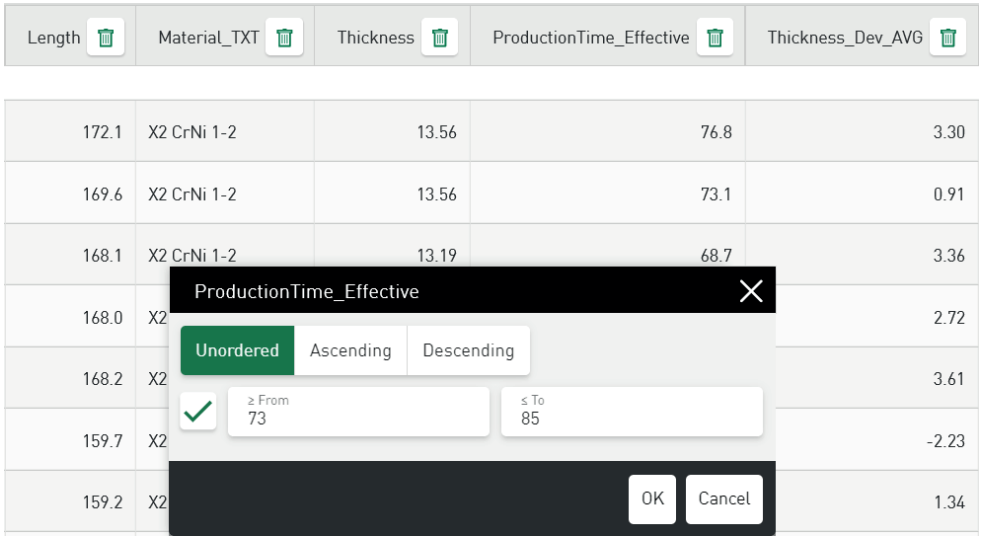
For more information on downloads, see ↗ *Export data from tables, page 96*.

6.4.12.1 Sorting and filtering tables

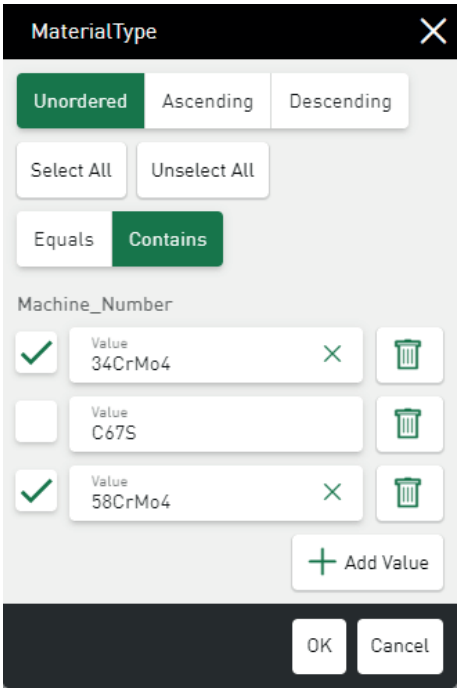
Sorting and filtering options are available via the column header. You can set the sort order and filters for several columns at the same time.

1. Tap on the header of the column you want to sort or filter by.

→ A dialog appears.



2. To change the sort order, choose between the options *Unsorted*, *Ascending* and *Descending*.
3. To set a filter to a value range, enter the corresponding values in the *From* and *To* fields.
4. If the column does not contain any numerical values, but rather text fields, you can filter according to the first letter or number.



Tap the <Add Value> button to add further filter criteria. For each filter criterion, choose between the *Contains* and *Equals* options.

Current filter values are displayed in a list and can be enabled or disabled using the relevant check box. Disabled values are no longer mapped; however, they are not removed from the list and can be accessed at any time. Use the button to permanently remove a value from the list.

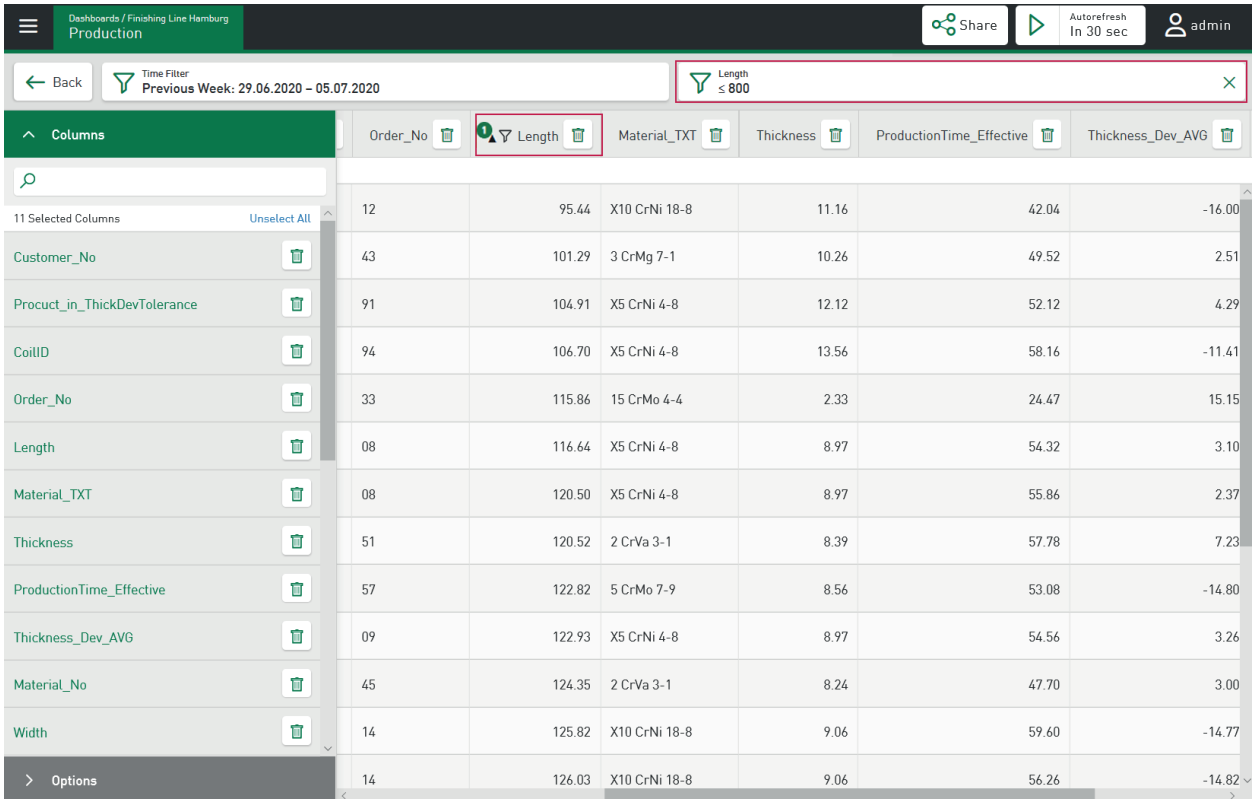
5. Confirm the settings with <OK>.

Hinweis

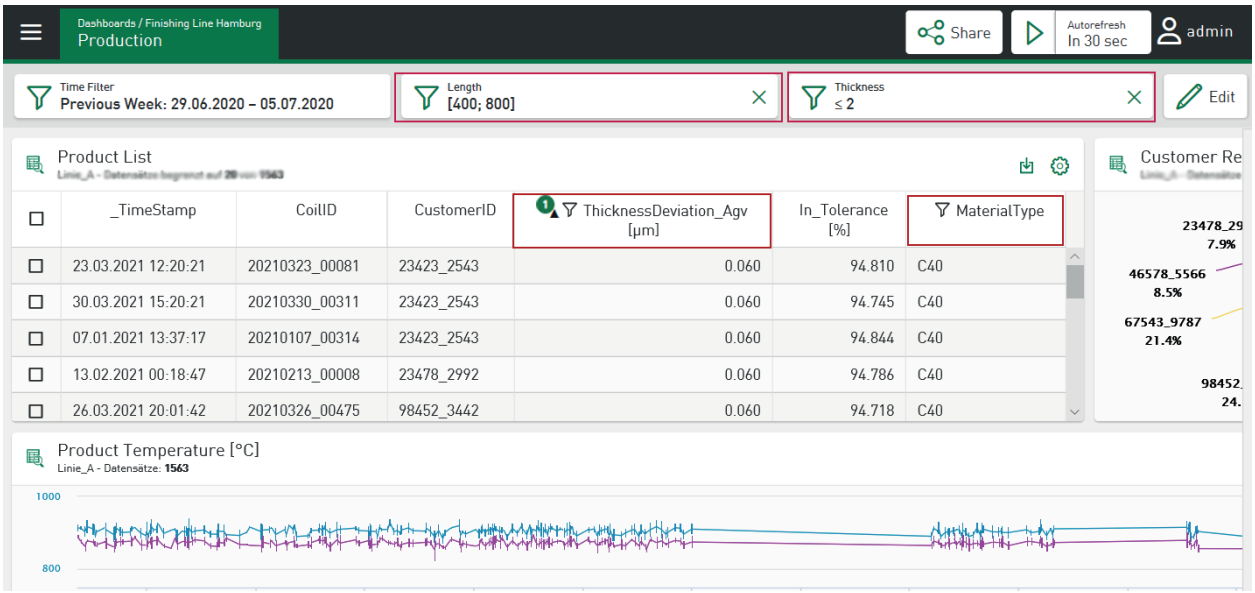
Sorting the data by date and time or other table columns may take some time depending on the size of the currently loaded data set. The data set is sorted in the front end (browser).

6. Optionally, repeat the steps for further columns.

→ If a column is sorted, you will see a triangle in the column header. If several columns are sorted, the sort sequence is also displayed using a number. A set filter is indicated by a filter symbol. In addition, a filter field appears over the table specifying the filtered value range.



Dashboard view:



6.4.12.2 Export data from tables

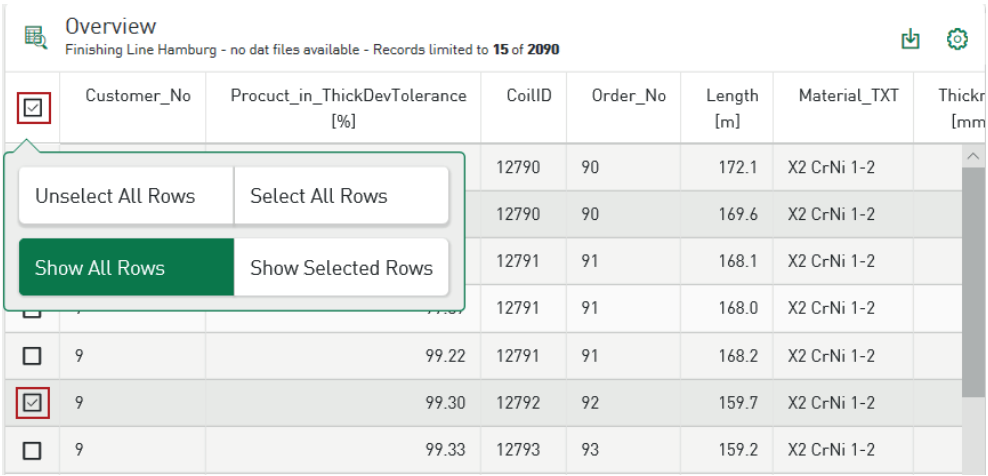
The *Table* tile type supports the download of CSV, DAT and PDF files. In addition, you can download files in the dashboard view directly in PDF, CSV, ZIP, PAQUET and HDQ format via a download link.

Exporting data to a CSV file

The download files are selected in the dashboard view.

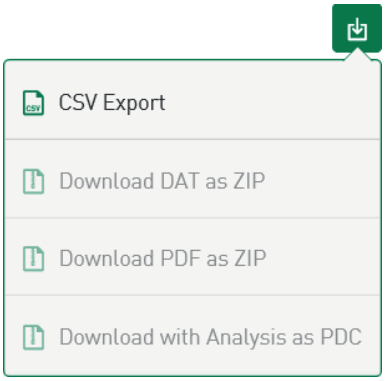
1. Select the rows to be exported.

   The row selection is made either via the checkbox at the edge of the table or via a context menu that opens by tapping on the checkbox in the table header. The context menu offers the option of selecting or deselecting all table rows and displaying all or individual rows.



2. Tap on the download icon in the display bar of the tile.

→ The CSV export menu opens.



3. Select <CSV Export>.
4. Specify which *Field separators* (comma, semicolon, tab), *Decimal separators* (comma, point) and *String quotes* should be used for string [Yes, No].
5. Start the export with <OK>.

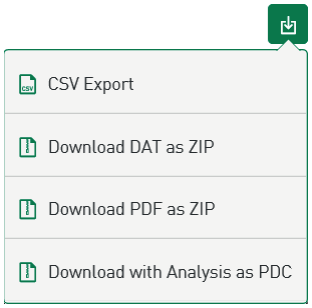
→ A CSV file is downloaded in which the contents of the currently selected table columns are displayed.

Downloading selected DAT files and PDF reports

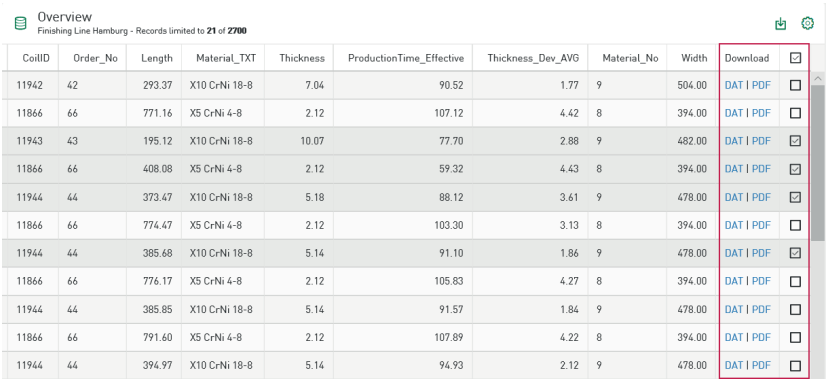
Downloads for DAT files and PDF reports in ZIP format are available for table contents selected in the dashboard view.

Requirement: Under *Options*, the functions *Enable DAT File Download* and/or *Enable PDF Report Download* are activated, see ↗ *Options, page 92*.

In the CSV export menu you can then select the options *Download DAT as ZIP* and/or *Download PDF as ZIP*, they are no longer grayed out.



The rows are selected and deselected via the corresponding option or also via the context menu, which opens by tapping on the option in the table header.



CoilID	Order_No	Length	Material_TXT	Thickness	ProductionTime_Effective	Thickness_Dev_AVG	Material_No	Width	Download	
11942	42	293.37	X10 CrNi 18-8	7.04	90.52	1.77	9	504.00	DAT | PDF	☐
11866	66	771.16	X5 CrNi 4-8	2.12	107.12	4.42	8	394.00	DAT | PDF	☐
11943	43	195.12	X10 CrNi 18-8	10.07	77.70	2.88	9	482.00	DAT | PDF	☑
11866	66	408.08	X5 CrNi 4-8	2.12	59.32	4.43	8	394.00	DAT | PDF	☑
11944	44	373.47	X10 CrNi 18-8	5.18	88.12	3.61	9	478.00	DAT | PDF	☑
11866	66	774.47	X5 CrNi 4-8	2.12	103.30	3.13	8	394.00	DAT | PDF	☐
11944	44	385.68	X10 CrNi 18-8	5.14	91.10	1.86	9	478.00	DAT | PDF	☑
11866	66	776.17	X5 CrNi 4-8	2.12	105.83	4.27	8	394.00	DAT | PDF	☐
11944	44	385.85	X10 CrNi 18-8	5.14	91.57	1.84	9	478.00	DAT | PDF	☐
11866	66	791.60	X5 CrNi 4-8	2.12	107.89	4.22	8	394.00	DAT | PDF	☐
11944	44	394.97	X10 CrNi 18-8	5.14	94.93	2.12	9	478.00	DAT | PDF	☐

Downloading time period data as HDQ file

You can download individual time periods from a time period table as HDQ files or several time periods zipped together.

Requirement: *Enable HDQ File Download* is activated in the tile options, see ↗ *Options, page 92*.

As with the export of DAT files and PDF files, you can export individual files via the Download column, or several selected lines via the export menu of the tile.

Note

The HDQ file contains the access information to the selected server, the time period data and information on HD store, the timestamp, as well as the ID and name of the time period.

```
[HDQ file]
portnumber=9180
server=ibaDavis3-pm22
store=HD store 1
timebase=auto
type=time
timePeriodId=2790
timePeriodStoreName=Time period Number 1

```

Downloading data with analysis (PDC file)

If an analysis is also configured for the data source of the currently displayed values, you can also download the DAT files together with the analysis as a PDC (Process Data Container) file. In the download menu, you can also select the option *Download with Analysis as PDC*. You can use *ibaAnalyzer* to open the analysis and DAT file directly together.

See also the following chapters:

↗ *Analysis tab*, page 25

↗ *Downloading data with analysis (PDC file), page 98*

↗ *Glossary, page 159*

Displaying download link for PDF, CSV, ZIP, PARQUET files

To enable the download via a download link, the file name must be registered as a reference in a database table, see ↗ *Options*, page 32.

Based on the settings in the datasource configuration, the strings are named with the endings *.csv, *.pdf, *.zip or *.parquet. The text in the table row is then shown highlighted as a download link.

The referenced file is downloaded as soon as you tap on the link.

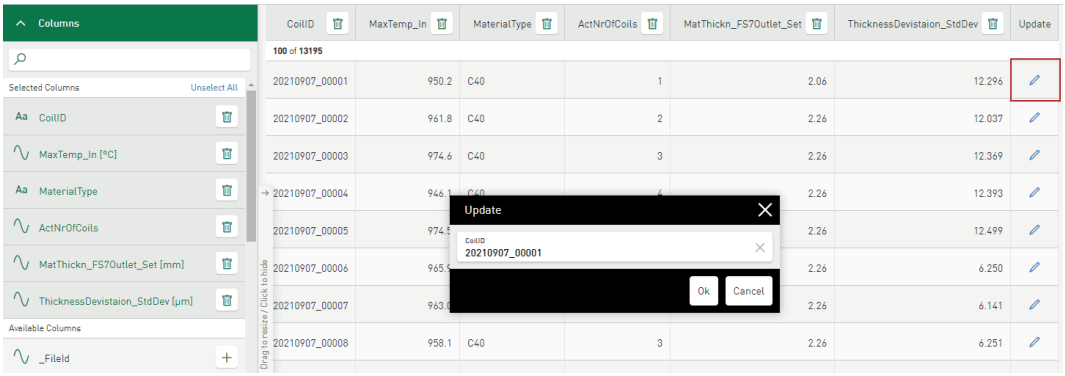
6.4.12.3 Update data records in database tables

If the currently logged in user or user group is authorized to edit datasources, table contents can be changed record by record and database tables can be updated.

For information on user permissions, see ↗ *User – Datasource Permissions tab, page 135*.

1. To edit individual data records, tap on the icon.

   The *Update* window opens.



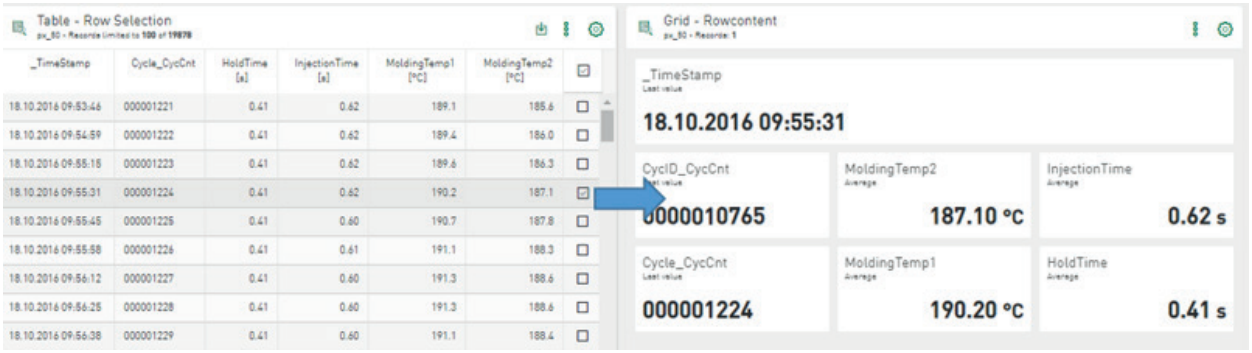
2. Enter the new value and optionally a comment.
3. Confirm the changes with <OK>.

→ The content of the database table is updated for the selected data record. After a successful update, the dashboard is automatically adjusted.

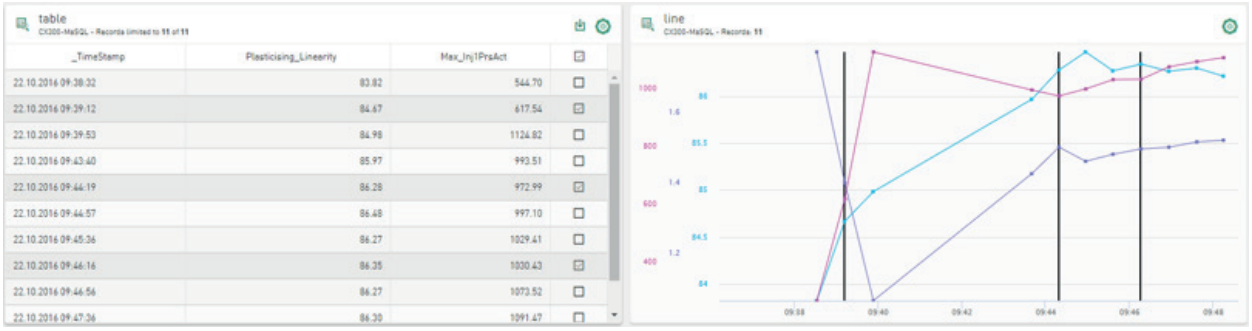
6.4.12.4 Interaction row selection

If you select rows in the dashboard in the *Table* tile type, this affects the display of data in other tiles. Below you will find examples of different tile types.

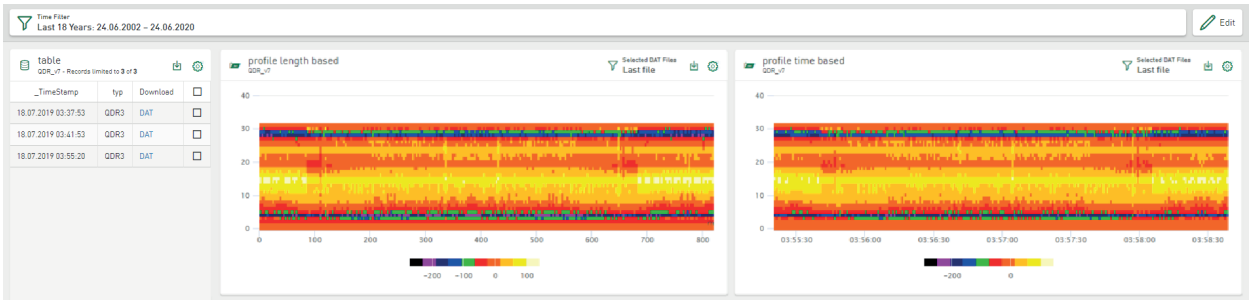
Example: Value display
By selecting a row in the *Table* tile type, the associated content can be shown in all cells of the *Value display* tile type displaying the content of the same datasource. You can also select multiple rows in the table.



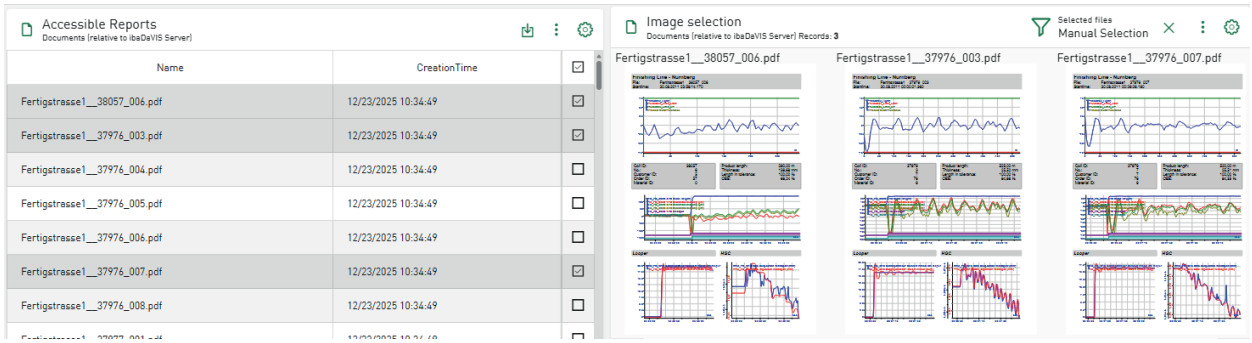
Example: Markers in time-based charts
Selecting a table line takes the time stamp of the selected line and places a marker on all time-based charts for the selected time. You can also select multiple rows in the table.



Example: Heatmap
By selecting one or more rows in the table, *Heatmap* tiles can display the data of the selected DAT files referenced in the table. This feature is supported if *Table* and *Heatmap* use the same datasource.

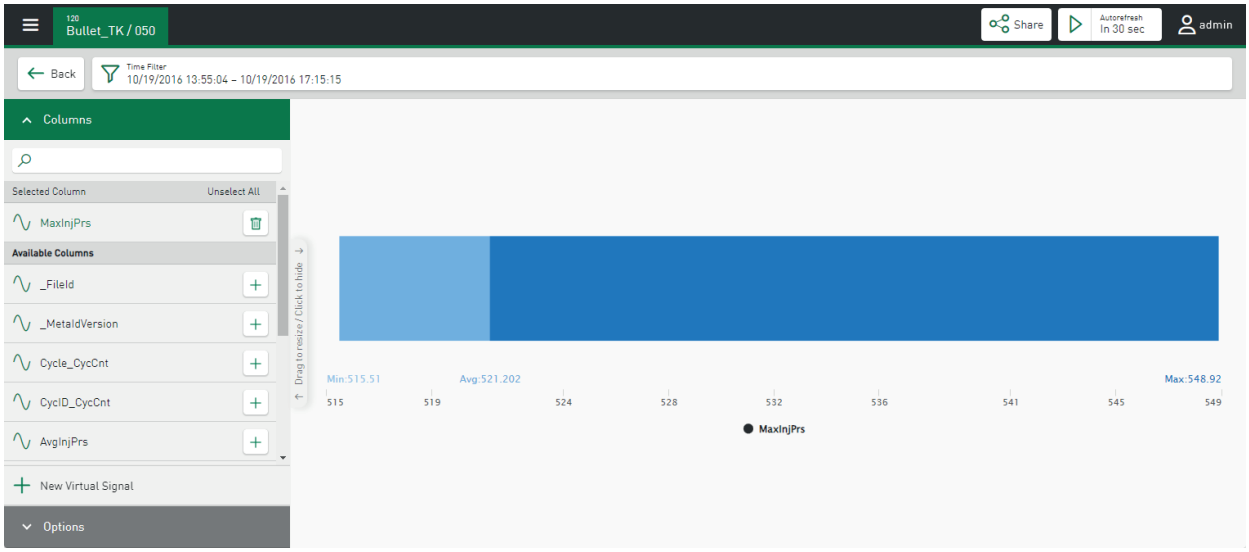


Example: Document display
If you have selected *Documents (relative to ibaDaVIS server)* as the data source for the table, you can select one or more rows in the table to visualize the corresponding file contents in the document display.



6.4.13 Tile type Bullet graph

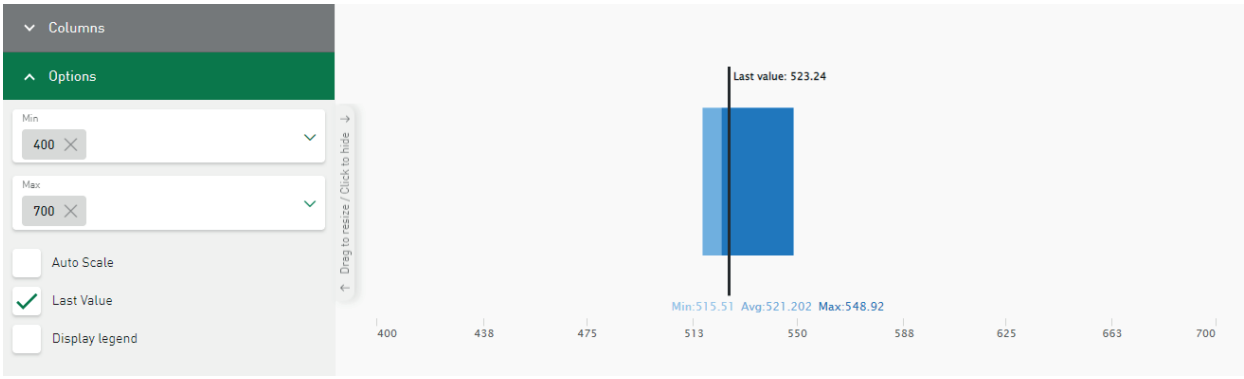
With the *Bullet graph*, several statistical characteristic values of a value series can be displayed. The minimum, average and maximum values from the selected column as well as the last registered value from the value range currently defined via the time filter are displayed.



Columns

In the *Columns* section, select the signal or a value series for the display. You can only select one signal/value series. The range is set from 0 to 1000 by default.

Options



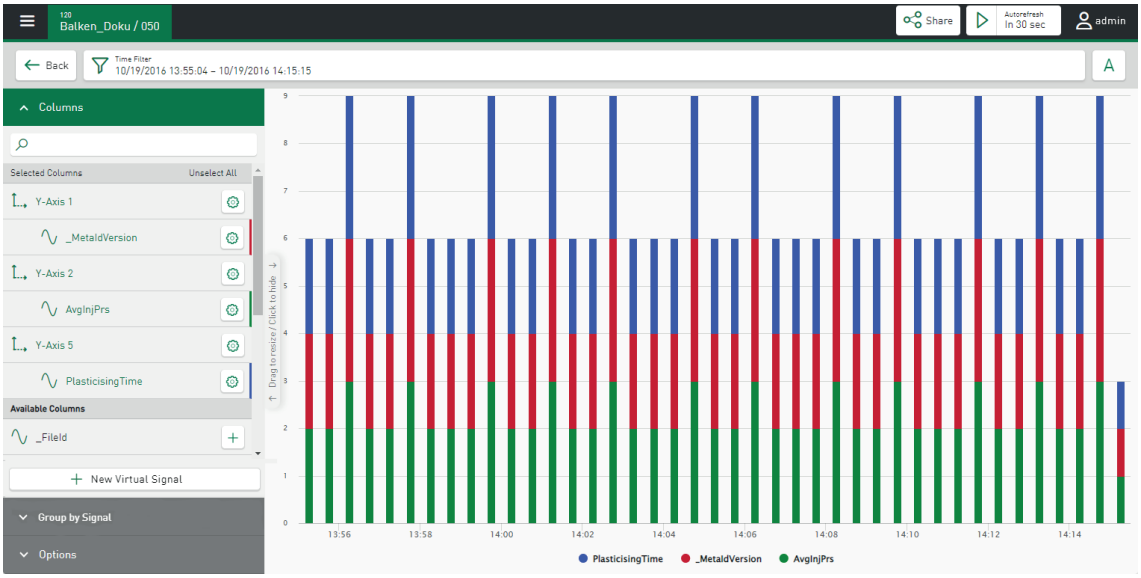
Auto Scale
If activated, the entire value range is displayed. If you disable this option, you can enter a minimum and maximum value to set the scaling range.

Last value
Here you can activate the parameter display of the last recorded value. This parameter is marked by a black line that runs vertically through the value range at the corresponding position.

Display legend
Shows the name of the displayed signal

6.4.14 Tile type Bar chart

You can use the *Bar chart* to display characteristic values from a database in bars and group them into selected time periods and categories. You can display the data side by side or as a stacked diagram.



Columns

In this section, select the measured values or the value series that are to be sorted or grouped. Use the button to open the axis and signal settings in a property window, see ↗ *Axis scaling and signal assignment, page 71*.

Group by Signal

Select the category to which the visualized data should be grouped, e.g. material.

Options

Default Aggregation

Determines which operator is used to summarize the values in the aggregation interval:

- *Count*: Quantity of values of the selected value series
- *Sum*: Sum of values of the selected value series
- *Average*: Average of values of the selected value series
- *Minimum*: Minimum value of the selected value series
- *Maximum*: Maximum value of the selected value series
- *Last value*: Parameter display of the last acquired value
- *StdDev*: Standard deviation of the selected value series
- *Median*: Median of the selected value series

Aggregation Interval

Defines which time range is to be summarized and represented by a bar.

This option allows you to specify a selected time range for the selected value sequence in the bar chart. By default, the bar display is automatic depending on the selected time filter and tile size.

Instead of automatically summarizing the values (A), time-based aggregation allows you to make a targeted selection in time intervals, e.g. year (Y), month (M), day (D) or hour (H). The graph is updated directly. Unlike automatic aggregation, settings made here do not change even if the time range is redefined using the time or zoom filter. Switching is not possible if the grouped view has been selected for a category.

View

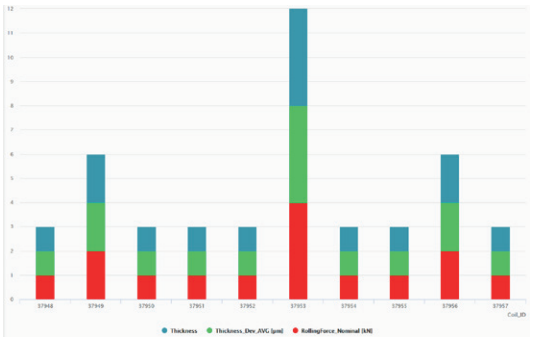
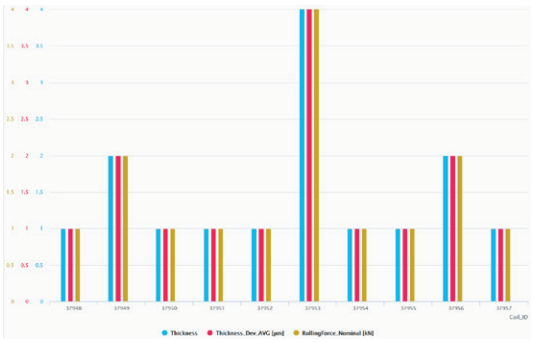
Defines the time range that is displayed in the diagram on the time axis:

- *Continuous (C)*: The view operator is deactivated and the data is displayed continuously over the time range selected as the dashboard filter.
- *Yearly/Monthly/Weekly view*: The X-axis represents the selected range (one day, one year or one week).

View Aggregation

Determines which operator is used to summarize the individual values of the intervals in the displayed area (*Weekly view*, *Monthly view* or *Yearly view*).

Staked bars/Grouped bars
Display of the data in the bar chart:

Stacked view	Grouped view
	

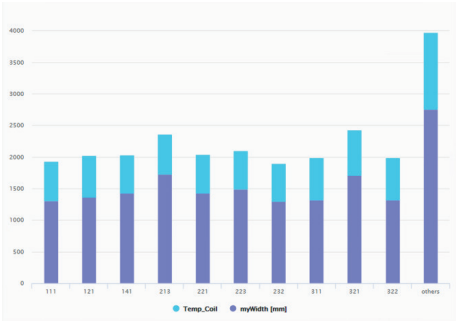
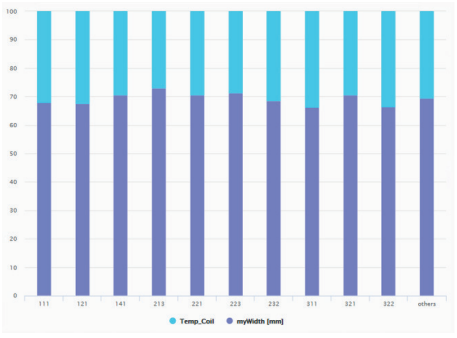
Sort by
The following sort options are supported for displaying the respective aggregate function:

- *Category asc*: sort alphanumerically by category in ascending order
- *Category desc*: sort alphanumerically by category in descending order
- *Max. value*: sort visualized categories by maximum value in descending order
- *Min. value*: sort visualized categories by maximum value in ascending order

Number of categories
Define how many categories should be displayed here.

Show other category
All categories that have not been recorded under *Number of categories* are summarized under *Other*.

Show Percentages
Here, the percentage values of the visualized values in relation to the total quantity can be set (only possible in stacked view).

Show Percentages **not enabled**	*Show Percentages* **enabled**
	

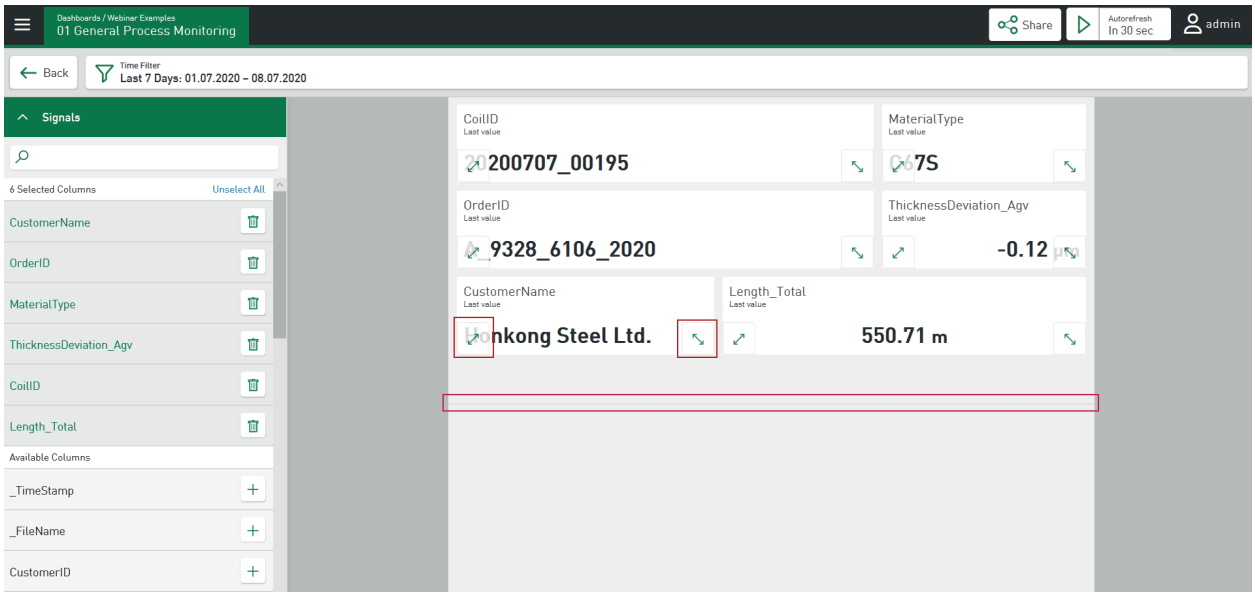
Display legend
Shows the name of the displayed signal and the standard aggregation used.

Display difference
When enabled, the differences from the previous value series or bar are displayed.

6.4.15 Tile type Value display

You can use the *Value display* tile type to visualize several individual values on a tile as cells on the dashboard. It is also possible to display values from info fields. For each selected column, a separate cell is created, the cell size and cell position can be individually adjusted and changed here. The size of the cell content shown depends on the height of the cell and whether the cell displays further statistical information.

If you have selected columns for display, they automatically appear in the visible area of the tile. The width of the area in which the cell can be positioned corresponds to the width of the value display on the dashboard. The current tile height is marked by the dotted line in the editing area, but is not limited.



All cells located below this dotted line are not shown on the dashboard and can be accessed via a tile-related scrollbar. The height of the visible area can be changed by changing the height on the dashboard. Therefore, increase the width and height of your tile on the dashboard if you have configured cells that are not completely visible.

The size and position of a cell can be changed in the same way as any tile is changed on the dashboard, i.e. by tapping on the left and right double arrows at the bottom. The font size of the values increases or decreases with the size of the cell. If the cell width is insufficient for completely displaying the cell contents, ellipses will indicate that the content is not fully displayed.

The width and position of the cell remains the same if you go back to the dashboard. When designing your layout, you can use the full width of the design area.

Cell definitions

For the selected columns, specific options are available via a context menu directly in the respective cell.

In the *Aggregator* field for numerical values, it is possible to display the selected column values via a drop-down menu instead of the last value (default) of the calculated average, minimum, maximum or total value (sum).

The position of the value shown in the respective cell (left, center or right) can be determined in the *Alignment* field.

For numerical values, you can define the number of *Decimal places* displayed.

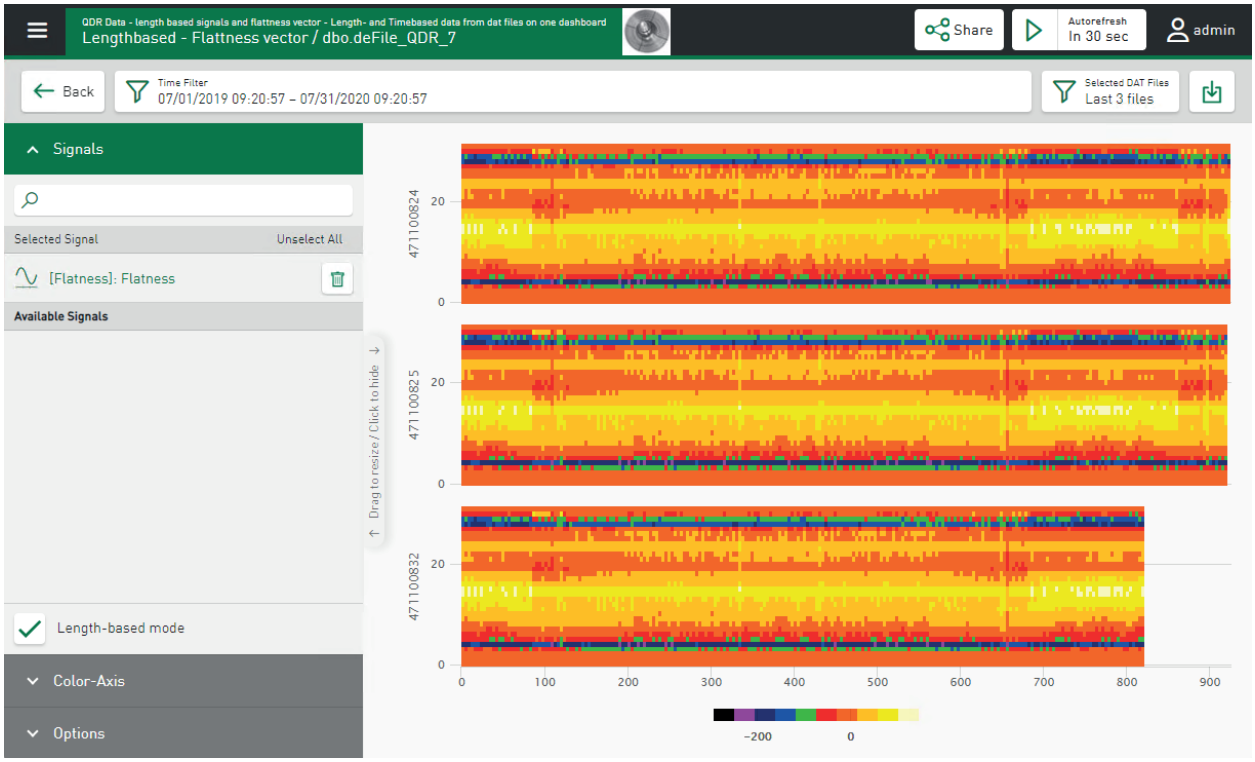
In the *Statistic aggregators* field, you can select statistical information that should also be displayed in the cell.

Options

Display table style
The selected columns are listed in tabular form.

6.4.16 Tile type Heatmap

Signals from DAT files that are combined as a vector group can be visualized as a *Heatmap*. This is useful for signals from flatness or profile inspection systems. You can apply the *Heatmap* to time-based and length-based vectors.



Signals

Select the vector group from the signal list. The *Heatmap* visualizes the signal vector using the *ibaAnalyzer* and *ibaQPanel* default colors for 2D plots.

You can also display vector data from measured values tables. For this purpose, you have to extract signals that are assigned to the vector into the database using the DB functionality of *ibaAnalyzer*.

As in the other DAT file views, it is possible to select a file ident column from the data source. The current file ident column is displayed before the signal name of the visualized vector group name.

Color Axis

Auto Scale

After deselecting automatic scaling, you can specify minimum and maximum values for analysis.

Automatic coloring

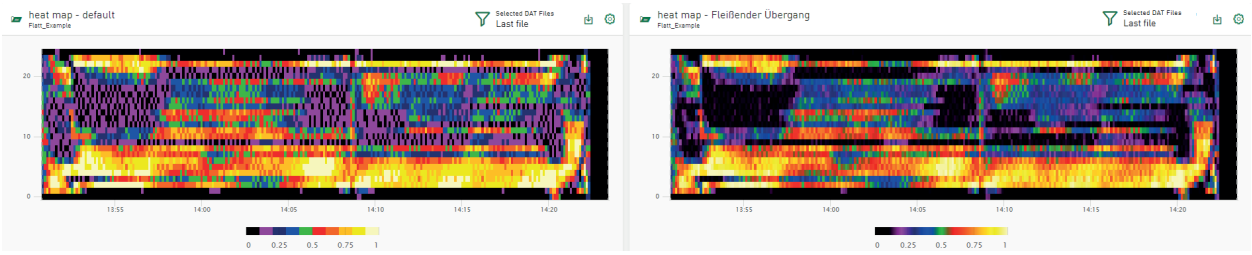
The default color setting is the same as in *ibaAnalyzer*. It is possible to change the color range by disabling the checkbox. To change the color, tap on a color field and select one of the default colors directly from the editing window that appears. You can also use the *Slider* or enter an RGB value/HEX code/HSL color code to make a color selection. The value in the Z-axis is colored according to the resulting gradient.

Relative limits/Absolute limits

Colors and limits for the color selection can be precisely specified and set. The basic setting specifies the color ranges with the relevant equal distribution in the set value range. Using the buttons + and 🗑, you can add or delete value ranges You can define the colors for the range using the color field. The ranges are initially set as percentage value ranges via the *Relative limits* option. You can switch to absolute values. The currently set range limits can then be converted in relation to the current minimal and maximum values.

Smooth transitions between colors

Select this option if you find the color transitions between value ranges too abrupt. When enabled, the color transitions occur in gradations due to an optical softening effect in the graphics. The following example shows the same values without (figure left) and with (figure right) smooth color transitions:



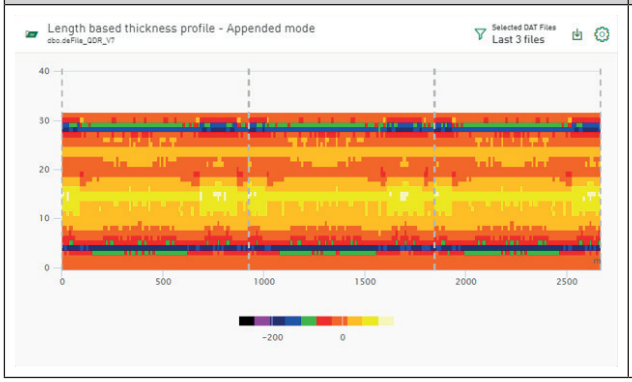
Options

Number of ranges in X direction/Number of zones in Y direction:

You can influence the display accuracy and display speed with these 2 parameters. Signals grouped as a vector are distributed evenly in the Y direction over the number of zones, initially 25 zones. Along the X-axis, the measured values are initially distributed over 250 areas. A higher number of zones and areas increases the display accuracy, but reduces the display speed.

Appended/Stacked view:

You can choose between 2 different display formats.

Appended view:	Stacked view
	

In the appended view, you also have the choice between the display on the X-axis synchronized with the recorded time (*Appended view - recorded time*) and a relative time axis (*Appended view - relative time*).

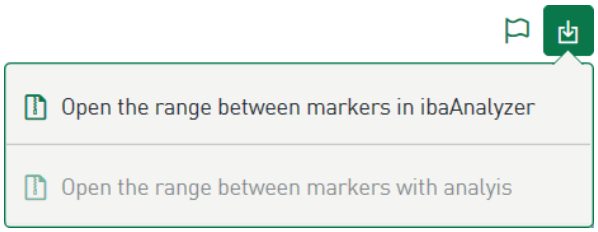
Display event filter
To limit the visualized range from the selected DAT files, you can use an event filter that has already been set, see ↗ *Using the DAT file event filter*, page 54.

Display legend
Shows the name of the displayed signal

Download DAT files and analysis for data source
Under *Download DAT as ZIP*, downloads are available in ZIP format for selected DAT files. If an analysis is configured for the data source of the currently displayed values, you can download the DAT files together with the analysis as a PDC (Process Data Container) file, see ↗ *Analysis tab*, page 25.

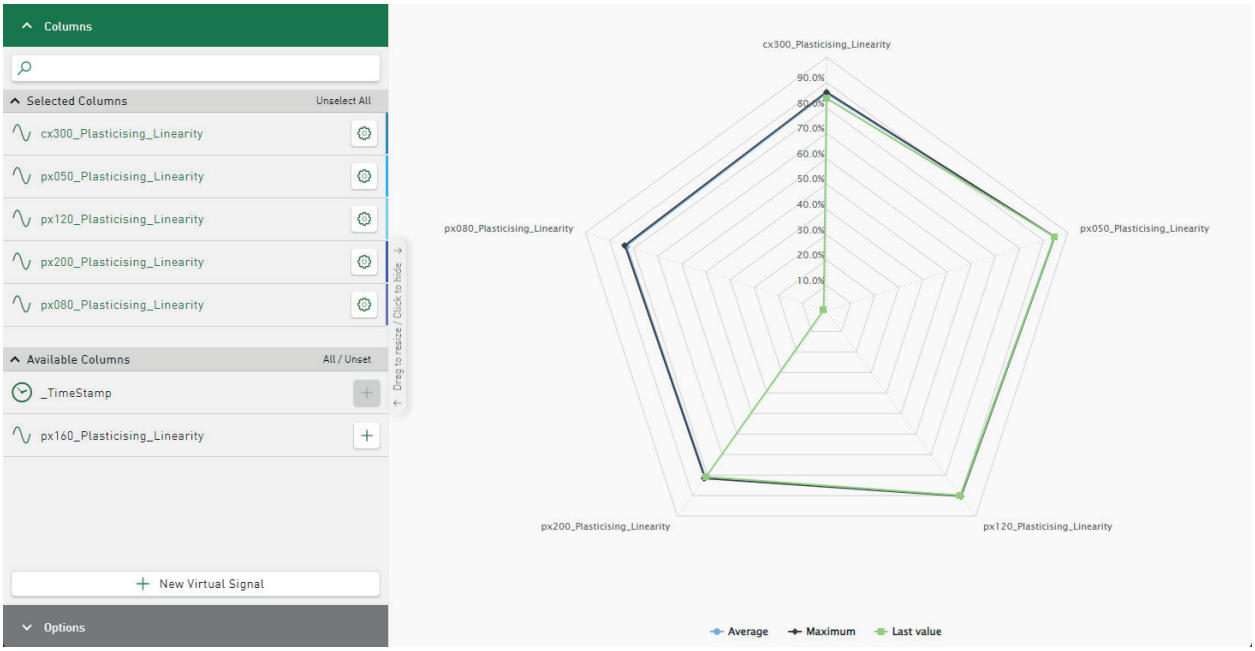
Markers in HD stores and interaction with ibaAnalyzer

If the *Heatmap* visualizes time-based HD data, you can place markers using the button, which opens a specific time range directly in *ibaAnalyzer*. As with the tile type *Line chart*, the interaction with *ibaAnalyzer* starts via a context menu which you enable by tapping on the download icon. In the download, you can thus include both a file containing the connection information to HD store and time range, and an analysis file which opens HD data and the analysis together in *ibaAnalyzer*. For additional information, please see ↗ *Using markers in HD stores, page 82*.



6.4.17 Tile type Radar chart

You can use the R*adar chart* tile type to display data from database tables, ibaHD-Servers or DAT files. Use the radar chart, for example, to display statistical data such as maximum, minimum and average values of several selected columns or signals.



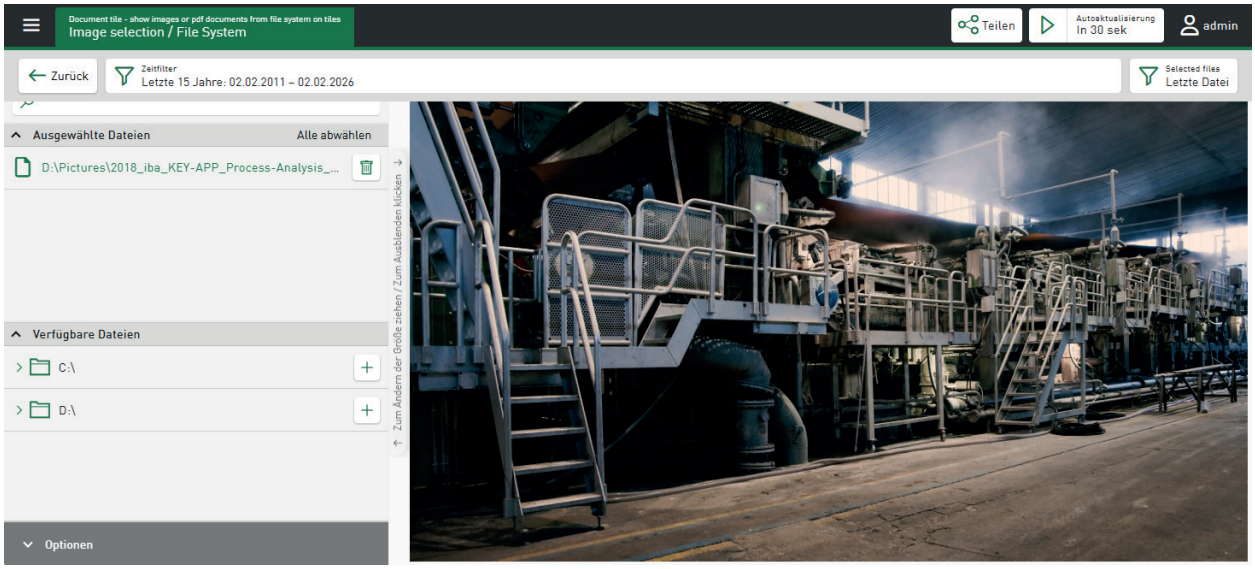
Options

Aggregators
Selection of the statistical values to be displayed for the signals or columns.

Display legend
Displays the name of the aggregators shown.

6.4.18 Tile type Document display

The document display allows you to display one or more images or PDF files on a tile. You can only use the tile type with the data source *Documents (relative to the ibaDaVIS server)*. This is available by default and does not need to be configured in data source management.



The following configuration options are available for document display.

Files

Here you can select specific files or folders that contain files for display. You can select multiple files or folders. Only images or PDF files whose formats are compatible are offered.

Options

Next to each other/On top of each other/Gallery mode
Choose how the files or images are arranged.

If you select the *Gallery mode* option, the file contents are displayed as thumbnails on the tile. When you click on a thumbnail, the detailed view opens in the foreground.

Behavior of the tile on the dashboard

If you have selected one or more folders as the file source, the files they contain will be sorted according to their creation date and displayed on the tile. Initially, the tile always displays the last or most recent file. If the tile does not display a document, check the time range set in the dashboard filter.

In addition to the time filter, which filters files by their creation date, you can use the *Selected files* filter to define the number of documents displayed. Choose between the predefined filters "Last 3/5/10 files" or select the option "Last n files" and enter a custom value.

7 Configuration of virtual signals

Virtual functions allow you to compare signals or trends in the data from one or more datasources in order to aggregate database values and calculate statistical values. Data from database tables, values from DAT files as well as time-based signals or event-based data from *ibaHD-Server* can be used as basis for comparisons and calculations.

A configured virtual signal is appended to the datasource as a calculation rule during the saving process. You can visualize the results of a virtual function in charts and combine them with data from databases, HD stores or values from DAT files. The results shown by a virtual signal are not stored and are determined in the dashboard view based on the current dashboard filters. You can also use virtual signals as input signals for other virtual signals and in dashboard views for scaling the Y-axes or color changes.

In both datasource management and dashboard tiles, you can add and edit virtual functions, see ↗ *Adding a virtual signal to a datasource, page 113* and ↗ *Adding a virtual signal to a tile, page 115*.

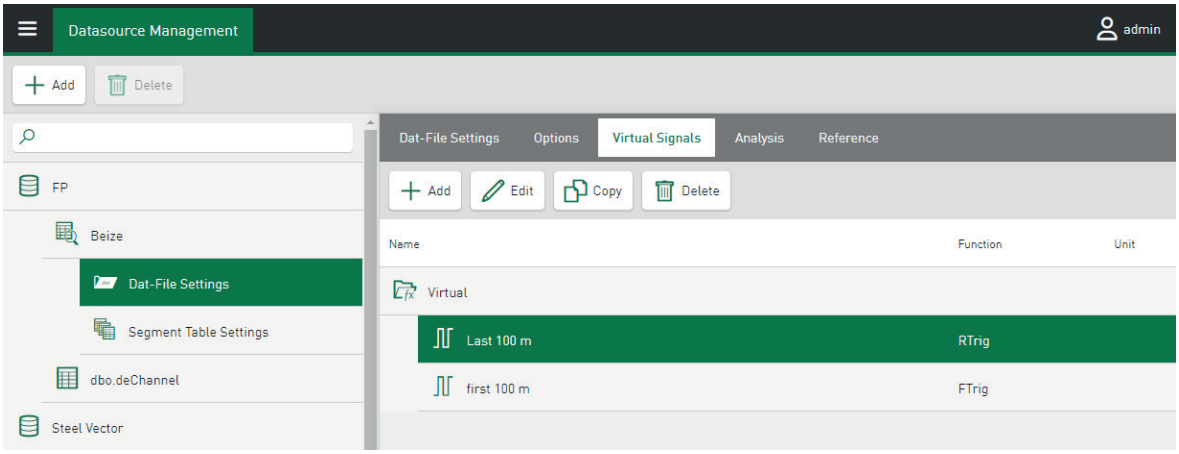
In user management, configuring, modifying and deleting virtual functions is integrated into a permission. Along the permission to configure datasources or to modify dashboards, the user also gets the right to define virtual functions. See ↗ *User – User Permissions tab, page 132* and ↗ *User – Dashboard Permissions tab, page 134*.

Note

If you are switching from *ibaDaVIS* version 2 to version 3, observe the instructions in chapter ↗ *Migration of ibaDaVIS v2 to v3, page 157*.

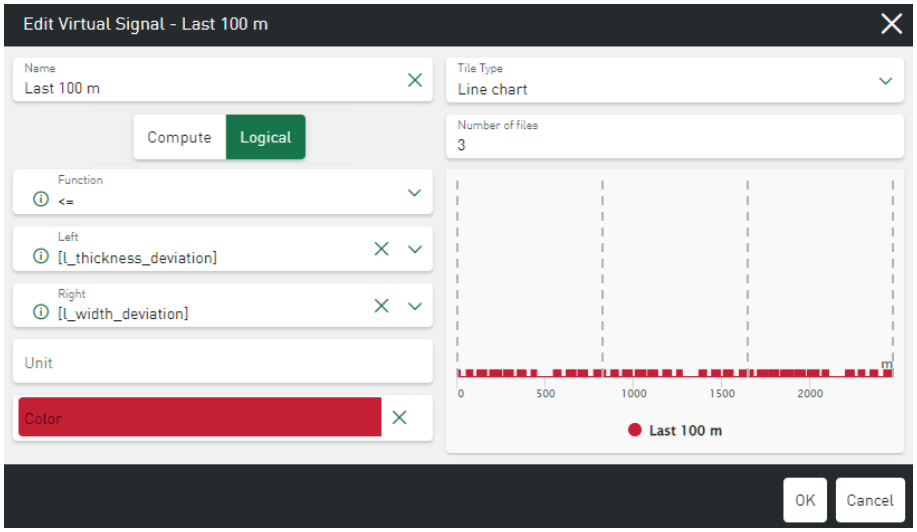
7.1 Adding a virtual signal to a datasource

In the *Datasource Management*, you can add and edit virtual signals from different datasources to display comparison values for database tables, DAT files and HD stores. Virtual functions that have already been configured are displayed in tabular form. The currently selected and edited function is always highlighted in green.



1. In *Datasource Management*, open the *Virtual Signals* tab in the datasource settings.
2. To add a new virtual signal, tap <Add>, to edit an existing virtual signal, tap <Edit> accordingly.

→ A dialog window opens, which is divided into a configuration area and a preview area.



3. In the configuration area, define a name, the function, signal parameters and input values for each virtual signal.

   For more information on the possible functions, see ↗ *Virtual signals overview, page 117*.

→ In the preview area, the currently determined result for the virtual signal is displayed in accordance with the current datasource and the selected functions. The virtual signal is displayed in a line chart as a default view.

4. To change the *Tile Type* for the display, select it from the drop-down list.

   Only the tile types that are compatible with the function are available for selection.

5. Optionally assign a *Unit* to the virtual signal.

   The default setting of the unit is useful to apply the automatic axis settings in dashboard tiles and to quickly create useful visualizations.

6. Optionally assign a standard color to the virtual signal.

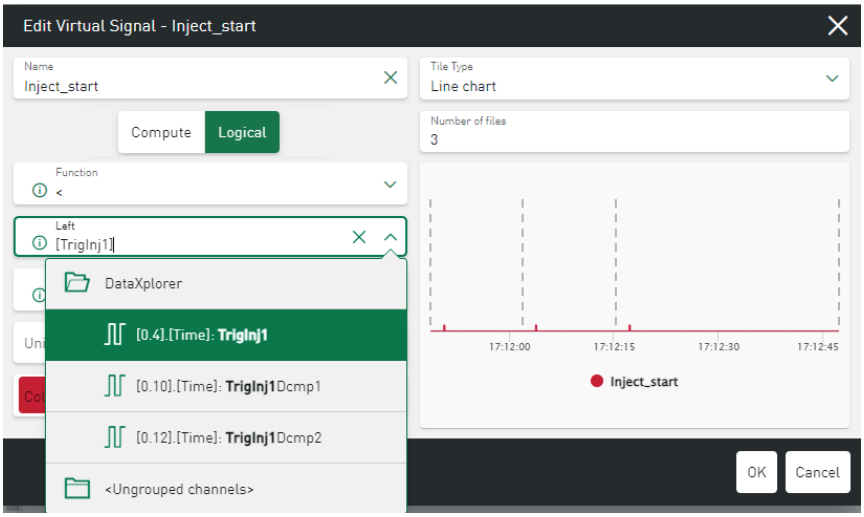
   This default color is used in all charts in which this signal is shown.

7. Confirm your entries with <OK>.

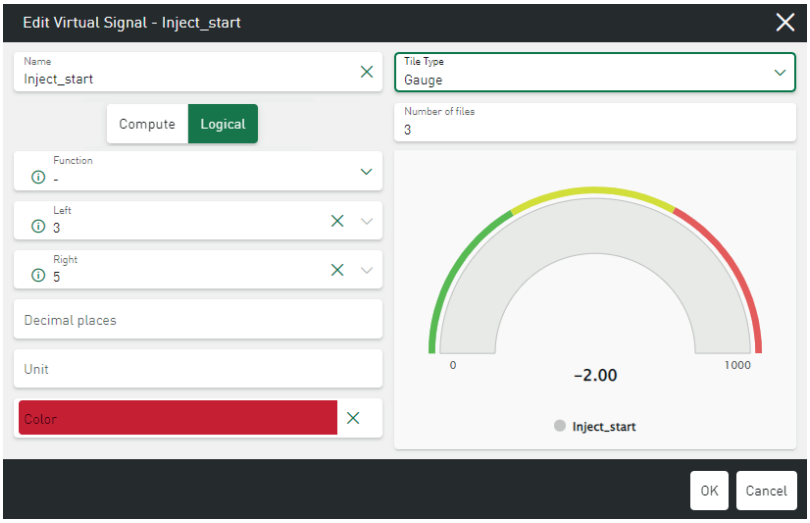
→ The virtual signal is visible under the selected name in the signal tree of the dashboard tiles and can be used for display or for scaling tasks.

Notes on input and parameter values

The number of input and parameter input fields displayed in the dialog changes according to the selected function group. In the respective input fields, you can access the signal tree of the stored datasource via a drop-down menu. Tap on a name in the signal tree and select a specific value for the respective parameter field of the virtual signal. Depending on the selection, several values can also be selected.



You can filter the signal list available for selection by simply entering text in the input field. You can also enter numerical values directly in parameter input fields.

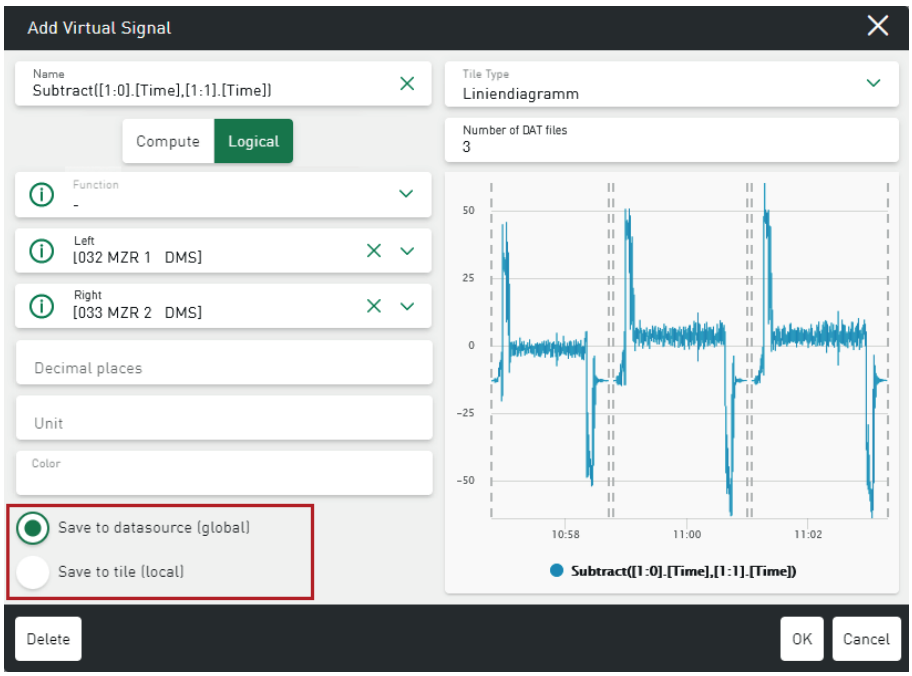


7.2 Adding a virtual signal to a tile

You can add virtual signals in the dashboard tiles.

1. In the configuration view, open the column or signal selection of the tile and tap <New Virtual Signal>.

→ A dialog window opens, which is divided into a configuration area and a preview area.



2. In the configuration area, define a name, the function, signal parameters and input values for each virtual signal.

   For more information on the possible functions, see ↗ *Virtual signals overview, page 117*.

→ In the preview area, the currently determined result for the virtual signal is displayed in accordance with the current datasource and the selected functions. The virtual signal is displayed in a line chart as a default view.

3. To change the *Tile Type* for the display, select it from the drop-down list.

   Only the tile types that are compatible with the function are available for selection.

4. Select the area of use

   - The virtual signal can be saved in the datasource and is therefore also available in other dashboard tiles with the same datasource.
   - The virtual signal can only be used within this tile.

5. Optionally assign a *Unit* to the virtual signal.

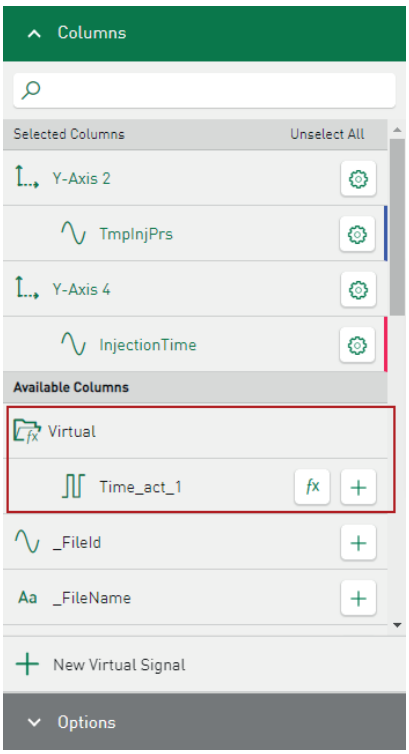
   The default setting of the unit is useful to apply the automatic axis settings in dashboard tiles and to quickly create useful visualizations.

6. Optionally assign a standard color to the virtual signal.

   This default color is used in all charts in which this signal is shown.

7. Confirm your entries with <OK>.

→ The virtual signal is initially listed in the signal tree under *Available Signals* in a separate *Virtual* folder.



8. When tapping on the + button next to the signal name, the virtual signal appears in the display.

   The signals listed in the *Virtual* folder can be used in the same way as the signals from the *ibaHD-Server*, DAT files or values from database tables.

   You can edit or delete virtual signals using the <fx> button. You can use virtual signals in the same way as signals from the datasource for automatic scaling of the Y-axis.

7.3 Virtual signals overview

Various functions are available for virtual signals in the *Compute* and *Logical* function groups, see ↗ *Adding a virtual signal to a datasource, page 113*.

7.3.1 Mathematical functions

The *Compute* group contains functions that either calculate information such as the average value from input signals or perform calculations on multiple signals. Analog virtual signals are the result of this.

Below you will find the descriptions of the functions in the *Compute* group.

7.3.1.1 Fundamental arithmetic operations +, -, *, /

e.g. 'Expression1' + 'Expression2'

You can use all signals and expressions with the basic arithmetic operations (addition, subtraction, multiplication and division).

If digital signals or expressions are used as operands in fundamental arithmetic operations, *ibaDaVIS* translates the TRUE value as 1.0 and FALSE as 0.0.

The result of a fundamental arithmetic operation is always an analog expression.

Arguments

Give at least the following arguments.

Function	+	Addition
	-	Subtraction
	*	Multiplication
	/	Division
Left	Left operand, 'Expression1'	
Right	Right operand, 'Expression2'	

7.3.1.2 Power function ^

e.g. Pow('Expression1','Expression2')

This function increases 'Expression1' (basis) to the power of 'Expression2' (exponent).

Arguments

Give at least the following arguments.

Function	^ (power function)
Left	Basis
Right	Exponent

7.3.1.3 Abs

e.g. Abs('Expression')

The absolute function returns the absolute value (= |value|) of 'expression'.

Arguments

Give at least the following arguments.

Function	Abs
Input (expression)	Signal or expression for which the absolute value is to be returned

7.3.1.4 Ceiling, Floor and Round

The Ceiling, Floor and Round functions are available for rounding.

Ceiling

e.g. Ceiling('Expression')

This function returns the smallest integer value that is greater than or equal to 'Expression'.

Floor

e.g. Floor('Expression')

This function returns the largest integer value that is less than or equal to 'Expression'.

Round

e.g. Round('Expression')

This function rounds 'Expression' up or down to the nearest whole number (integer).

Arguments

Give at least the following arguments.

Function	Ceiling	Floor	Round
Input (expression)	Signal or expression to be rounded		

7.3.1.5 Count

e.g. Count('Expression','Level','Hysteresis','EdgeType','Reset=0')

The function counts the crossings of 'Expression' through 'Level'.

The 'Hysteresis' parameter can be used to define a tolerance band which is above and below 'Level' by equal amounts. Only complete crossings through the tolerance band are counted.

The 'EdgeType' parameter determines which kind of edges are counted.

The 'Reset' parameter is used to reset the counter value to 0. 'Reset' can also be formulated as an expression.

Note

The 'Reset' condition must not be related to the *Count* function itself.

Tip

You can also use the count function for digital signals. Enter 0.5 as the level and 0.1 as the hysteresis, for example. This then means that all changes from FALSE to TRUE and vice versa will be detected and counted.

Arguments

Give at least the following arguments.

Function	Count	
Input (expression)	Signal or expression for which the crossings are to be counted	
Level	Specification of the level value	
Hysteresis	Specification of a hysteresis band	
Edge type	Indication of whether rising, falling, or rising and falling edges should be counted	
	'EdgeType' < 0	Only falling edges (leaving hysteresis band in negative direction)
	'EdgeType' > 0	only rising edges (leaving hysteresis band in positive direction)
	'EdgeType' = 0	Falling and rising edges
Reset	Optional digital parameter that can be used to reset the counter. ‘Reset’ can also be an expression itself.	
	'Reset' > 0	Counter is reset
	'Reset' = 0	Counter value is retained / continues to count (default)

7.3.1.6 Average (Avg)

e.g. Avg('Expression')

This function returns the average of 'Expression' as its result. It is displayed as a constant value (horizontal line) in the graph.

Arguments

Give at least the following arguments.

Function	Avg
Input (expression)	Signal or expression, for which to form the average

7.3.1.7 Duration

e.g. Duration('StartTrigger','StopTrigger')

This function returns the duration in seconds between Start Trigger TRUE and Stop Trigger FALSE.

Arguments

Give at least the following arguments.

Function	Duration
StartTrigger	Specification of the start trigger
StopTrigger	Specification of the stop trigger

7.3.1.8 Integral (Int)

e.g. Int('Expression','Reset')

This function returns the integral of 'Expression' as its result. With the 'Reset' parameter, you can reset the integral to zero or suppressing the integration process, e.g. to integrate the same signal for periodical occurrences or reversing processes a number of times. *Reset* can be an expression as well.

Arguments

Give at least the following arguments.

Function	Int	
Input (expression)	Signal or expression, for which to form the integral	
Reset	Optional digital parameter, which can be used to reset the integral or suppress the integration process. *Reset* can be an expression as well.	
	Reset > 0	Integral is reset
	Reset = 0	Integration released (default)

7.3.1.9 Inverse

e.g. Inverse('Expression')

This function returns the inverse value of the specified signal or measured value as the result.

Arguments

Give at least the following arguments.

Function	Inverse
Input (expression)	Signal or expression for which to compute the inverse value

7.3.1.10 Constant value

e.g. ConstantValue('Expression')

This function returns a constant value as its result.

Arguments

Give at least the following arguments.

Function	Constant value
Value (expression)	Specification of a value

7.3.1.11 Constant tolerance band

e.g. ConstantToleranceBand('Expression','Value')

This function returns a tolerance band around the input value as a result, which is based on a constant value.

Arguments

Give at least the following arguments.

Function	Constant tolerance band
Input (expression)	Signal or expression to be used as input value
Value	Specification of a value

7.3.1.12 Last value

e.g. LastValue('Expression')

This function returns the last valid value of 'Expression'.

Arguments

Give at least the following arguments.

Function	Last value
Input (expression)	Signal or expression to be used as input value

7.3.1.13 MakeVector

e.g. MakeVector('Expression1','Expression2',...)

This function generates a vector from the input channels.

Arguments

Give at least the following arguments.

Function	MakeVector
Inputs (expressions)	Signals from which the vector is to be generated

7.3.1.14 Max

e.g. Max('Expression')

This function returns the maximum value of 'Expression' as its result. The result is displayed as a constant value (horizontal line).

Arguments

Give at least the following arguments.

Function	Max
Input (expression)	Signal or expression for which the maximum value is to be calculated

7.3.1.15 Median

e.g. Median('Expression')

This function returns the median of 'Expression' as its result. The median is the measured value for which 50 % of all measured values are smaller and 50 % are larger. The result is displayed as a constant value (horizontal line).

Arguments

Give at least the following arguments.

Function	Median
Input (expression)	Signal or expression for which to form the median

7.3.1.16 Min

e.g. Min('Expression')

This function returns the minimum value of the 'Expression' signal. The result is displayed as a constant value (horizontal line) in the graph.

Arguments

Give at least the following arguments.

Function	Min
Input (expression)	Signal or expression for which to form the minimum

7.3.1.17 XMirror

e.g. XMirror('Expression')

You can use this function to mirror a complete graph (exchanging the beginning and end). The graph is mirrored around the vertical central axis of the entire signal graph.

You can use the function for time based signals as well as for length based signals.

In this way, you can compare measuring graphs of reversing processes (direction reversal) more easily. In rolling mills, for example, the head and tail end of the strip can be exchanged during (even) reversing passes in order to graphically neutralize the direction reversal.

Arguments

Give at least the following arguments.

Function	XMirror
Input (expression)	Signal or expression whose graph is to be mirrored

7.3.1.18 Mod

e.g. Mod('Expression1','Expression2')

This function returns the modulo of 'Expression1' and 'Expression2' as its result. Internally, the function uses the fmod C-function, which permits the use of floating-point values for 'Expression1' and 'Expression2'.

Modulo r is the remainder of the division Expression1 / Expression2 so that the following relationship applies in the opposite direction: Expression1 = Expression2 * i + r, where i is an integer number (integer). Modulo r always has the same sign as 'Expression1' and the absolute value of r is always smaller than the absolute value of 'Expression2'. If Expression1' < 'Expression2', the function returns the value of 'Expression1' as its result. Mathematically speaking, the modulo can also be described as "Expression1 modulo Expression2".

Arguments

Give at least the following arguments.

Function	Mod
Dividend (Expression1)	Dividend of the modulo function
Divisor (Expression2)	Divisor of the modulo function

7.3.1.19 Percentile

e.g. Percentile('Expression','Percentile'=0.5)

This function returns the defined percentile of 'Expression'.

The p% percentile is the smallest value of a set of measured values which is greater than p% of the number of values measured.

A typical percentile is the 50 % percentile, the so-called median. The median divides the set of values measured into two equal halves: 50 % of all values measured are smaller than the median value, the remaining 50 % are greater than or equal to it. Further typical percentiles are 25 % and 75 % which, together with the median, enable the division of a set of values measured into four groups, the so-called quartiles. (< 25 %, < 50 %, < 75 %, ≥ 75 %).

The Percentile function determines the percentile value from the total number of measuring points of a signal. Enter the percentile as a decimal value, i.e.:

- 50 % > 'Percentile' = 0.5 (default value)
- 75 % > 'Percentile' = 0.75
- 95,9 % > 'Percentile' = 0.959

This function is, for example, particularly useful when assessing the quality of a product where a particular property must comply with a defined classification.

Arguments

Give at least the following arguments.

Function	Percentile
Input (expression)	Signal or expression for which to form the percentile
Percentile	Percentile as decimal value

7.3.1.20 Percent tolerance band

e.g. PercentToleranceBand('Expression','Percent')

This function returns a tolerance band around the input value as a result, which is based on the percentage value of the input value.

Arguments

Give at least the following arguments.

Function	Percentage tolerance band
Input	Signal or expression on the basis of which and for which the tolerance band is to be calculated
Percent	Percentage for the tolerance band

7.3.1.21 Count samples

e.g. CountSamples('Expression')

This function determines the number of individual signal points regardless of whether the signal points are equidistant or not. Invalid signals are not counted. If the input signal is invalid, the constant value 0 is output as the result.

Arguments

Give at least the following arguments.

Function	Count samples
Input (expression)	Signal or expression for which the number of signal points is determined

7.3.1.22 Sigma tolerance band

e.g. SigmaToleranceBand('Expression','Sigma')

This function returns a tolerance band around the input value as a result, which is based on the standard deviation of the input value.

Arguments

Give at least the following arguments.

Function	Sigma tolerance band
Input (expression)	Signal or expression on the basis of which and for which the tolerance band is to be calculated
Sigma	Specification of the standard deviation

7.3.1.23 Standard deviation (StdDev)

e.g. StdDev('Expression')

This function returns the standard deviation of 'Expression' as its result.

The standard deviation is calculated by the following formula:

$$s_x = \sqrt{\frac{\sum_{i=1}^{n}(x_i - \bar{x})^2}{n-1}}$$

s_x = standard deviation
$\bar{x}$ = average
n = number of samples

Arguments

Give at least the following arguments.

Function	StdDev
Input (expression)	Signal or expression for which to form the standard deviation

7.3.1.24 TotalSum

e.g. TotalSum('Expression')

This function returns the running total of the valid measured values of 'Expression'.

Arguments

Give at least the following arguments.

Function	TotalSum
Input (expression)	Signal or expression for which the measured values are to be counted

7.3.1.25 If

e.g. If('Condition','Expression1','Expression2')

The If-function can be used for a conditioned execution of further calculations. Depending on the Boolean result of a 'Condition', which can itself be an operation, the operation 'Expression1' will be executed if the result is TRUE and the operation 'Expression2' if the result is FALSE.

In conclusion, different process-controlled calculations can be performed. You can use this function of course in an interlaced form to realize further branches. Text signals are supported.

Arguments

Give at least the following arguments.

Function	If
If (Condition)	Condition as an operation with the Boolean results, TRUE or FALSE
Then (Expression1)	Operation is performed if 'Condition' is TRUE
Else (Expression2)	Operation is performed if 'Condition' is FALSE

7.3.1.26 XRange

e.g. XRange()

This function returns the current time range that is set as the dashboard filter in seconds.

Arguments

Give at least the following arguments.

Function	XRange

7.3.1.27 XSize

e.g. XSize('Expression')

This function returns the total length of 'Expression' in units of the x-axis (time in s or distance in m). The result is constantly 0 if the input signal is invalid.

Arguments

Give at least the following arguments.

Function	XSize
Input (expression)	Signal or expression for which the length is to be calculated

7.3.2 Logical functions

Only digital input signals are permitted for functions from the *Logical* group. Edge detections, such as for rising and falling edges of a digital signal or the logical linking of two or more digital signals via the OR operator or AND operator, are available. Digital signals are returned as a result.

Rising and falling edge functions are used in particular for the use of the event filter for referenced DAT files, see ↗ *Using the DAT file event filter*, page 54.

Below you will find the descriptions of the functions in the *Logical* group.

7.3.2.1 Comparative operations

e.g. 'Expression1’< Expression2'

You can use the comparative operations >, >=, <, <=, <> and = to compare the values of two expressions (operands) with each other. As operands, you can enter original signals, calculated expressions or constant values.

The result of such an operation is the Boolean value TRUE or FALSE. You can present and evaluate the result as a new expression like a signal. This way, you can easily generate binary signals and use them then as conditions for other functions.

Note

If the crossing point of two charts is located between two measuring points, the result of the comparative operation of the last two measured values is retained until the next measuring point. This means that any change from TRUE to FALSE (or vice versa) is always located at a measuring point.

The line which connects two measuring points in the presentation of analog values is just a graphic approximation.

Arguments

Give at least the following arguments.

Function	<	less than
	<=	less than or equal
	<>	unequal
	=	equal
	>	greater than
	>=	greater than or equal
Left (Expression1)	Left expression (operand)	
Right (Expression2)	Right expression (operand)	

7.3.2.2 Boolean functions

e.g. 'Expression1' AND 'Expression2'

AND	Logical AND
OR	Logical OR
NOT	Logical NOT, negation

Description

You can use the Boolean functions AND, OR and NOT to link binary expressions, such as digital signals. As parameters, you can enter digital signals, calculated (binary) expressions or the numerical values 0 or 1.

According to the rules of Boolean logic, the functions return the value TRUE or FALSE as their result. You can present and evaluate the result as a new expression like a signal. This way, you can easily generate binary signals and use them then as conditions for other functions.

Logical functions, truth table:

A	B	A AND B	A OR B	NOT A
0	0	0	0	1
1	0	0	1	0
0	1	0	1	
1	1	1	1	

7.3.2.3 Falling and rising trigger

e.g. F_Trig ('Expression')

The *Falling trigger* (F_Trig) function returns TRUE for a sample if a transition from TRUE to FALSE (falling edge) occurs in 'Expression'.

The *Rising trigger* (R_Trig) function returns TRUE for a sample if a transition from FALSE to TRUE (falling edge) occurs in 'Expression'.

Arguments

Give at least the following arguments.

Function	Falling trigger or Rising trigger
Input (expression)	Signal or expression to which the function is to be applied

7.3.2.4 DigitalPulse

e.g. DigitalPulse('Expression')

The *DigitalPulse* function generates a trigger from a specified start time (*input*), either within a defined period or at fixed intervals (in seconds).

You can then use this trigger to generate a digital edge, for example.

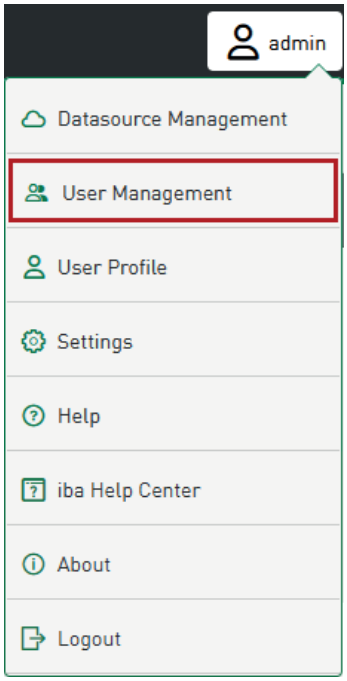
Arguments

Give at least the following arguments.

Function	DigitalPulse
Input (expression)	Date and time from which the trigger should be generated
PeriodInSeconds	Period in seconds during which the trigger should be generated regularly
LengthInSeconds	Length of the signal value

8 User management

In the *User Management*, you set up the various user accounts, organize them into groups and define the respective permissions. You can access the user management via the administration menu.



A difference is made between local users/groups and domain users/domain groups.

Local Users/ Local Groups	The access information is only valid for logging in to *ibaDaVIS* and is set up and managed by the admin user.
Domain Users/ Domain Groups	The admin user registers the domain groups or domain users in the *ibaDaVIS* user administration. Thus, the access information for the domain can also be used to log in to *ibaDaVIS*.

You can assign different permissions to the users and groups. A user can be a member of one or more groups. The groups can have different permissions. The user-specific permissions and the permissions of the groups complement each other to create effective rights for the user.

When the computer where *ibaDaVIS* runs is joined to a domain, it is possible to add users and user groups of that domain. Please consider, that the integration of a domain group also provides access to *ibaDaVIS* to all domain users. If an individual domain user is integrated even though their domain group has already been set up, they can be assigned special and extended authorizations for their domain group.

Note

ibaDaVIS uses a Microsoft API for the connection to the Active Directory, which supports Active Directory Domain Services (AD DS), Active Directory Lightweight Directory Services (AD LDS) and Machine SAM (MSAM).

LDAP is not supported.

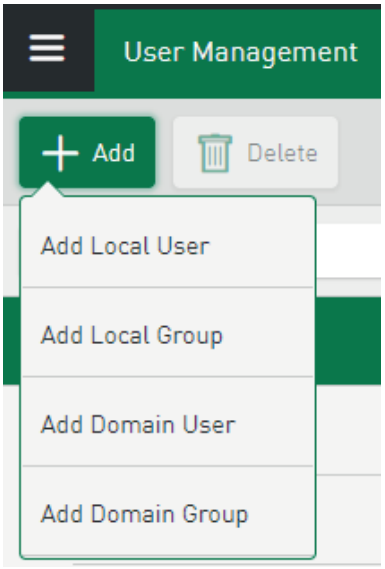
Note

In most scenarios, *ibaDaVIS* runs under the system account. If the system account is very restricted in terms of domain rights, it is recommended to use the *ibaDaVIS* service under a dedicated account with domain access.

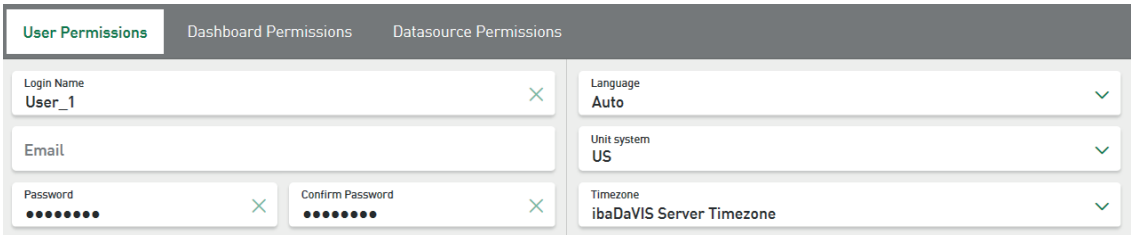
8.1 Adding users

After the initial installation, there is only one administrator user, called *admin*, who has all rights. He is not subject to any restrictions and can set up, remove or change the rights of other users. The name *admin* cannot be changed. All users or domain users added later can be assigned the same rights as the administrator user.

1. To add a new user, tap <Add> in the user management.



2. Tap on <Add Local User> or <Add Domain User>.



3. If it is a local user, enter the name and password and optionally an e-mail address.

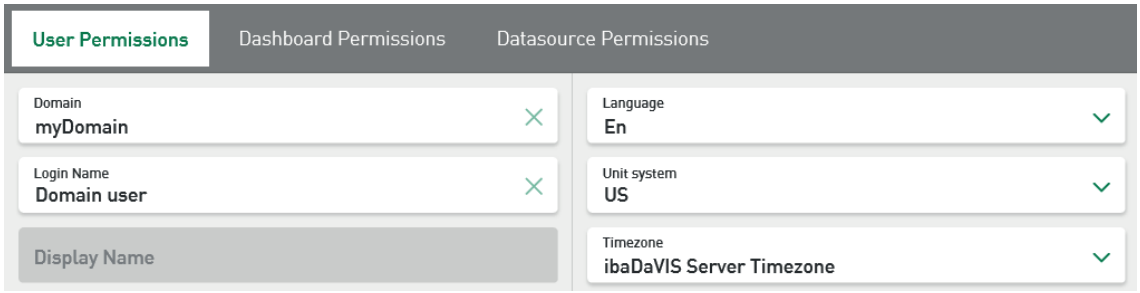
Note

The name of the user may only consist of letters and numbers. Spaces and special characters are not supported.

Note

The password must be at least 6 characters long. It must be case-sensitive and contain numbers and special characters.

4. If the user is a domain user, enter the full name of the domain and the user name.



Note

The domain user name must not be identical to the local user name, otherwise the domain user cannot be saved.

5. Make optional settings for the *Language*, the *Unit system* and the *Timezone*.

   These settings can later be changed individually via the *User Profile*, see ↗ *User Profile, page 138*.

6. Define the user permissions, see here:

   ↗ *User – User Permissions tab, page 132*

   ↗ *User – Dashboard Permissions tab, page 134*

   ↗ *User – Datasource Permissions tab, page 135*

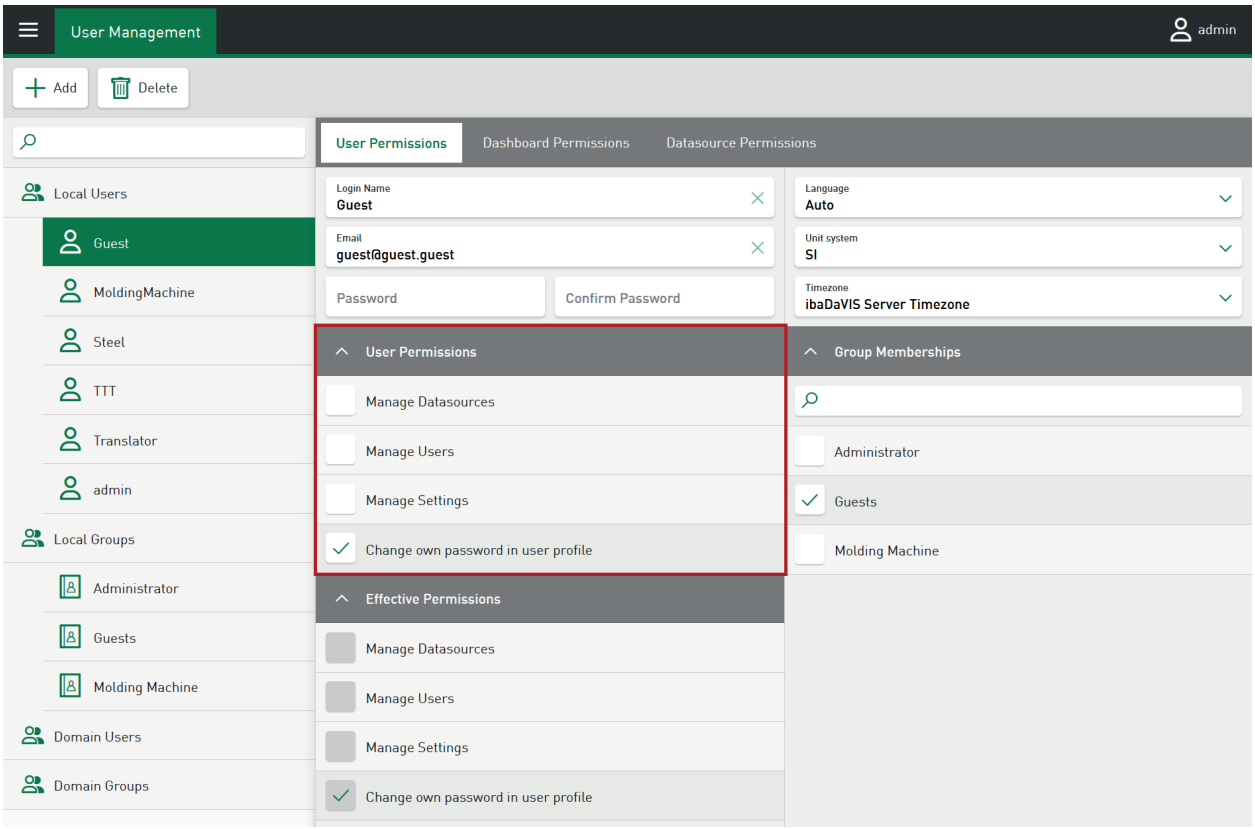
7. Confirm the settings with <Save>.

8.1.1 User – User Permissions tab

If a user is a member of a group, they receive the group's permissions. If a user belongs to several user groups, the rights of the user group with the most permissions apply to the user. If a user has more permissions than the user group, they retain their authorizations.

Note

The user rights cannot be changed for the *admin* user, as he has all rights.



User Permissions

Option	Description
Manage Datasources	Enables the creation, modification and deletion of datasources, including virtual signals
Manage Users	Enables the creation, modification and deletion of datasources, including virtual signals
Manage Settings	Enables access to the *Settings* menu and thus the configuration of the *Analysis Configuration* and *Work Shift Definition*
Change own password in user profile	By default, the permission to change your own password is set for all users, i.e. the check mark is set. If you no longer want to allow users or groups to change their own password, the checkbox must be unchecked. Users who do not have the *Effective Permission* to change their own password cannot change their password in the user profile.

Group Memberships

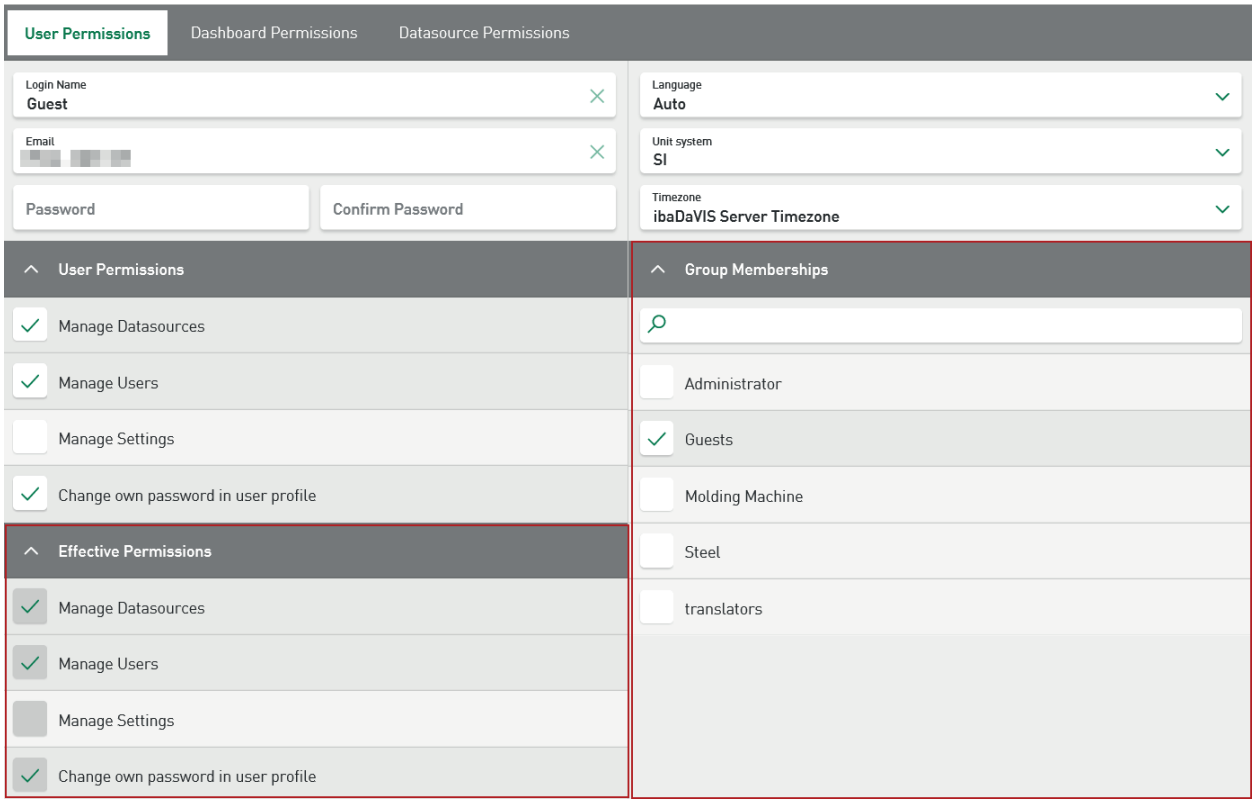
The groups that have already been created are listed under *Group Memberships*. To create new groups, see chapter ↗ *Adding a user group, page 136*. If a user is selected, you can define the user's membership to this group by tapping on a group name.

Local users can only be assigned to local groups. The group membership for domain users is fixed. If a domain group has been integrated and the individually created domain user is in this group, the group membership is only displayed; it cannot be changed (except in the IT domain administration).

With the group membership, the user receives the rights of this group. A user can belong to several groups. The user then has the sum of the permissions of all groups to which they belong.

Effective rights

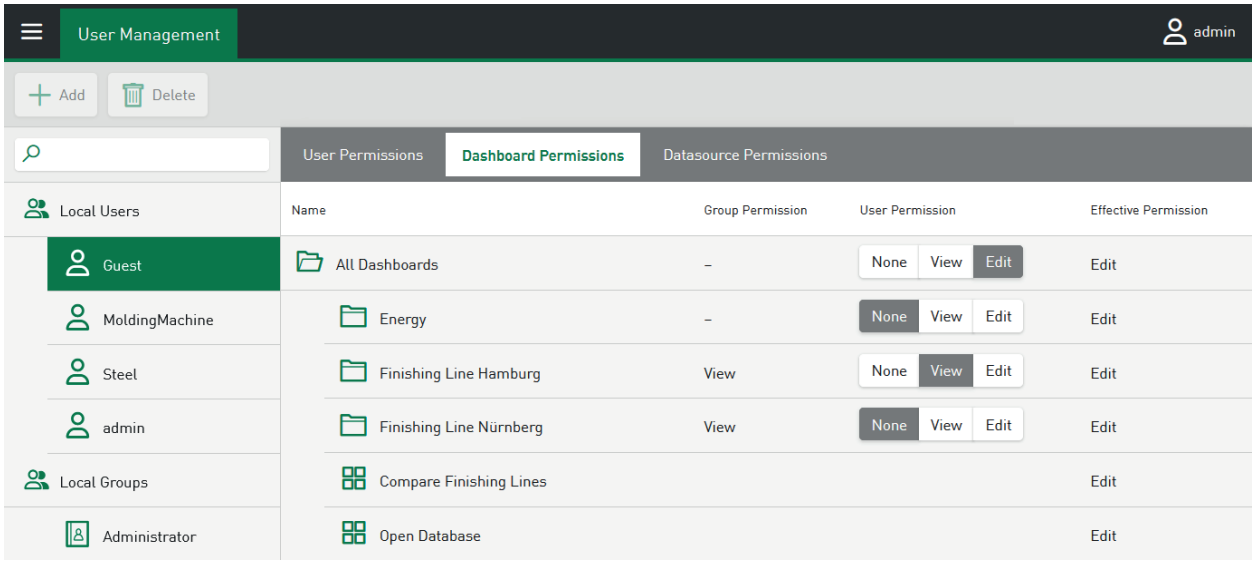
The rights from user permissions and group permissions that apply to the currently selected user are displayed as *Effective Permissions*. These are the actual permissions that have been assigned to a user.



Group permissions therefore apply to all group members and cannot be withdrawn from individual group users. However, additional permissions can be assigned to individual group users.

8.1.2 User – Dashboard Permissions tab

You can give individual users or user groups permissions to edit or view folders and the corresponding dashboards. You can also hide folders and the dashboards they contain for users or user groups.



After opening the tab, a dashboard tree is displayed and the admin user can set the access permissions for each directory (folder/dashboard) to <None>, <View> or <Edit> per selected user or user group. The selected permission is inherited from the higher to the lower directory level. The set dashboard access permissions always relate to the currently selected user or user group.

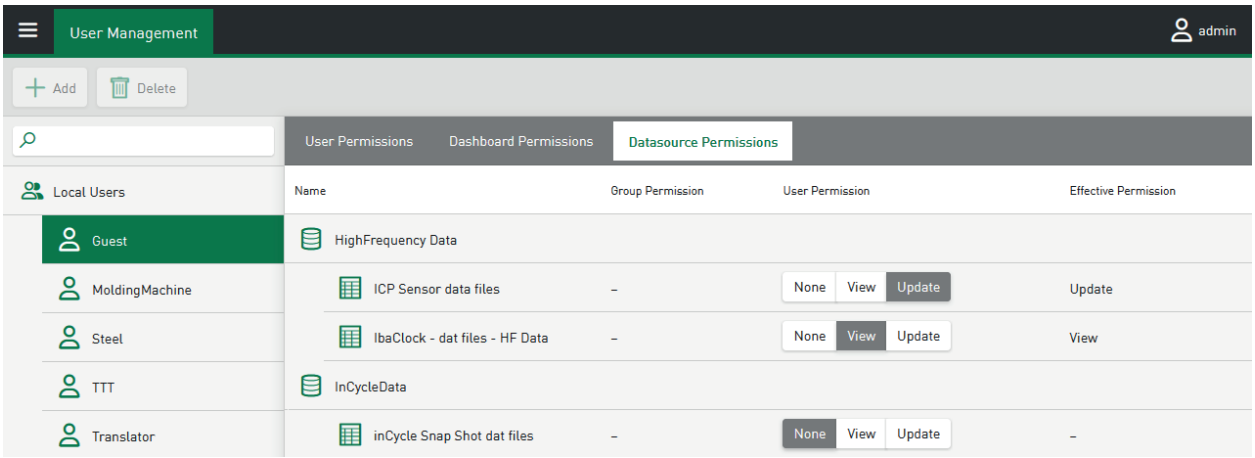
The dashboard access permission from belonging to a group (*Group Permission*) and the individual permissions of the user (*User Permission*) result in the *Effective Permission* to dashboards and folders.

Users or groups with the permission to edit dashboards can define and save virtual signals at tile level, see ↗ *Adding a virtual signal to a tile*, page 115.

The dashboard access permissions replace the general user permissions to view and edit all dashboards in previous versions of *ibaDaVIS*.

8.1.3 User – Datasource Permissions tab

You can grant individual users or user groups permission to view and edit data from configured datasources.



The configured datasources are displayed in an overview and the permission to edit data from these datasources can be assigned here. The <View> function only allows this data to be displayed.

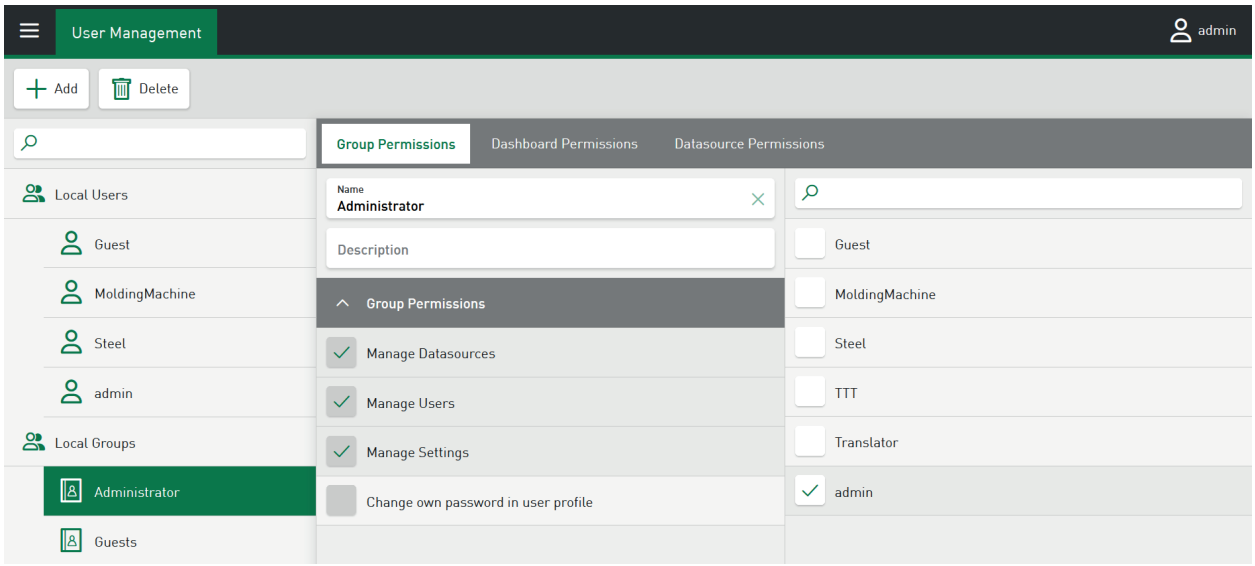
In order to be able to edit the content of datasources, users must first be assigned the authorization to manage datasources under *User Permissions* or *Group Permissions* as individual permission, see ↗ *User – User Permissions tab, page 132*. This automatically includes the authorization to view data from the configured datasources.

<Update>
By selecting the <Update> function, authorized users or members of authorized user groups can change the values of selected data records directly on the dashboard. To do this, the permission to update content in database tables must be activated in *Datasource Management*, see ↗ *Table settings*, page 29.

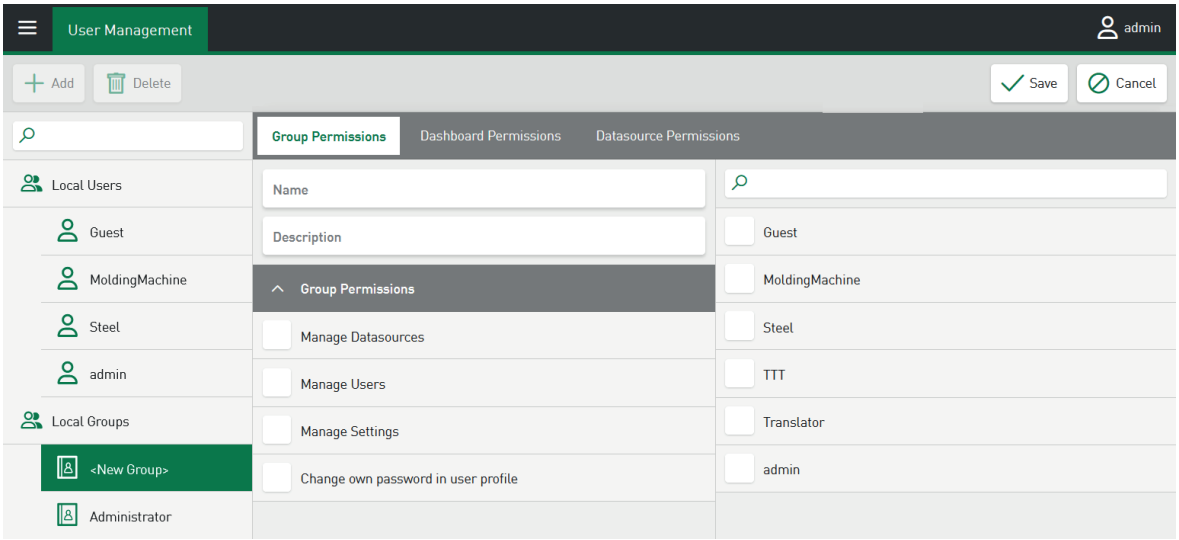
The datasource access permissions from belonging to a group and the individual user permissions of the user result in the effective right to datasources.

8.2 Adding a user group

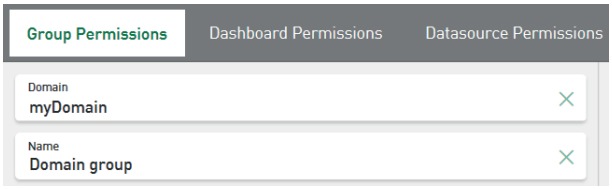
In addition to the users, groups can be created and assigned different permissions. A user can belong to several groups. With the initial installation, the "Administrator" group is available, which has all permissions. The right to change the password cannot be changed as the permission generally exists for the "Administrator" group.



1. In the user management tap <Add>.
2. Select <Add Local Group> or <Add Domain Group>.

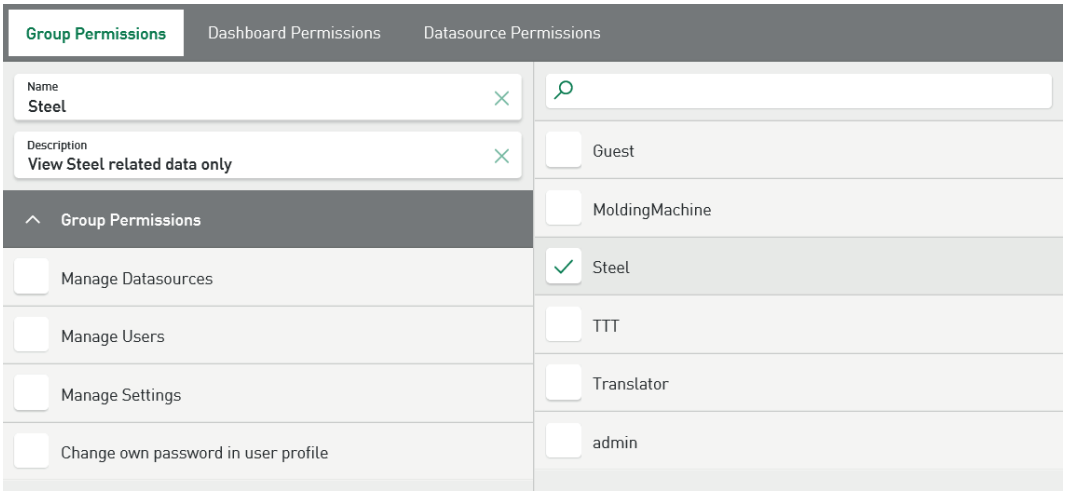


3. In the *Name* field, enter a group name, and optionally a *Description* or a comment.
4. If it is a domain group, additionally enter the domain name.



In case the specified group is not in the domain, an error message appears.

5. Assign the group permissions.
   a) First, mark the desired group.
   b) Then activate the corresponding *Group Permissions*.

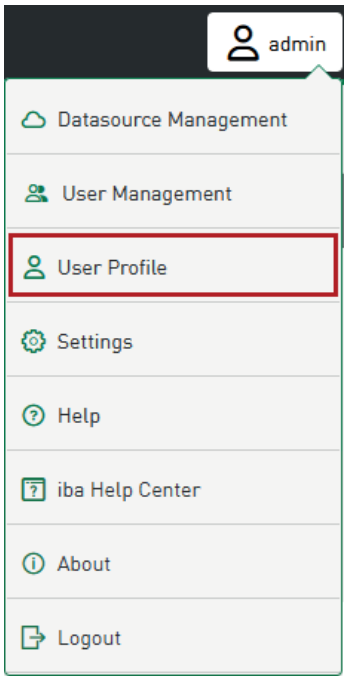


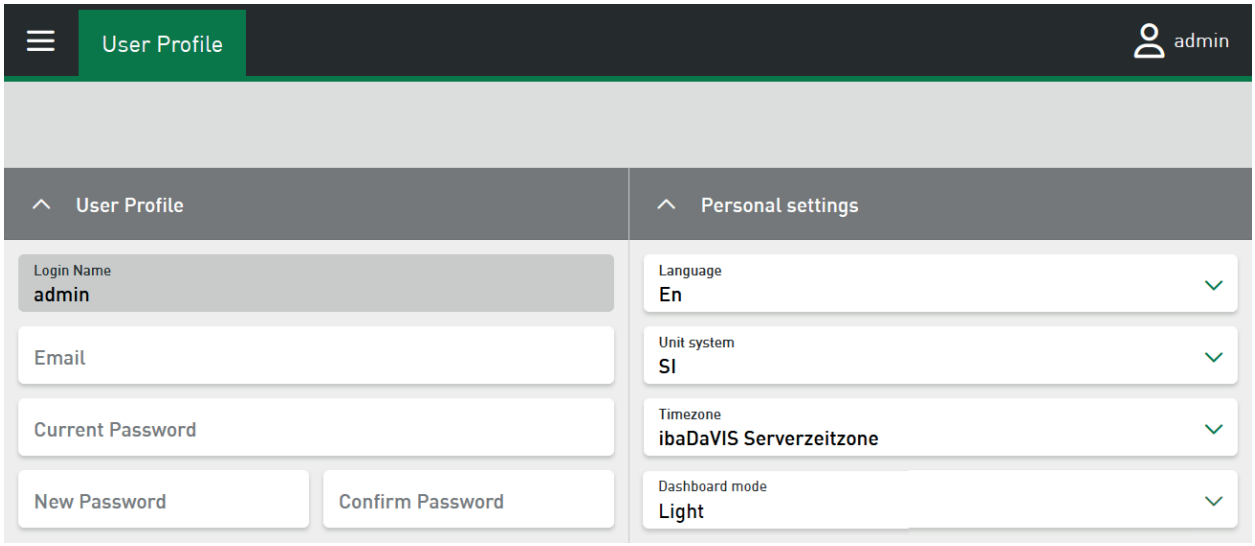
The group membership of a user can also be defined in the *User Permissions* tab in the *Group Memberships* area, see chapter ↗ *User – User Permissions tab, page 132*.

6. Confirm your entries with <Save>.

8.3 User Profile

In *ibaDaVIS* you can make individual settings for you own user.





User Profile

The user can define their own password here. Entering the e-mail address is optional. The prerequisite for this is that the user has been assigned the corresponding user right, see ↗ *User – User Permissions tab, page 132*.

Note

The password must be at least 6 characters long. It must be case-sensitive and contain numbers and special characters.

Personal settings

Language
Selection of the display language in *ibaDaVIS*

The “Auto” selection corresponds to the preset browser language.

Unit system
Switching from SI units (metric) to US units (imperial)

The conversion of the displayed signals from DAT files takes place automatically. For example, the temperature for a signal is converted from Celsius °C to Fahrenheit °F if the profile is set to US units.

Note

You can extend the list on converted units according to your needs. The basis for the conversion are formulas in the `units.json` file.

You will find a list of the currently supported units at:

`C:\ProgramData\iba\ibaDaVIS\assets\units.json`

Timezone
Selection of the client-side timezone

Dashboard mode
Selection between the “Light” and “Dark” mode. The setting currently affects the dashboards, settings, and login page.

The "Light" mode is selected by default.

9 Settings

The *Settings* allow you to make general configurations for analyses, work shifts and the color scheme used in *ibaDaVIS*.

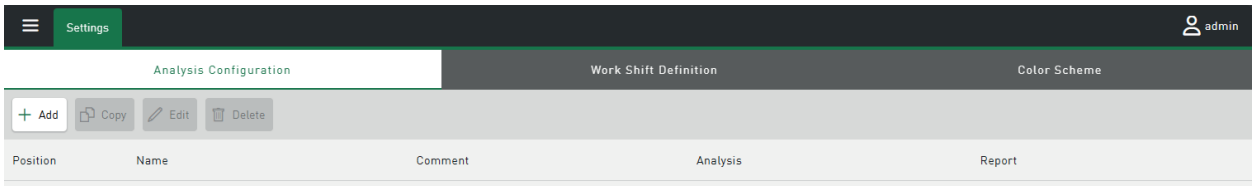
↗ *Settings – Analysis Configuration, page 140*

↗ *Settings – Work Shift Definition, page 141*

↗ *Settings – Color Scheme, page 143*

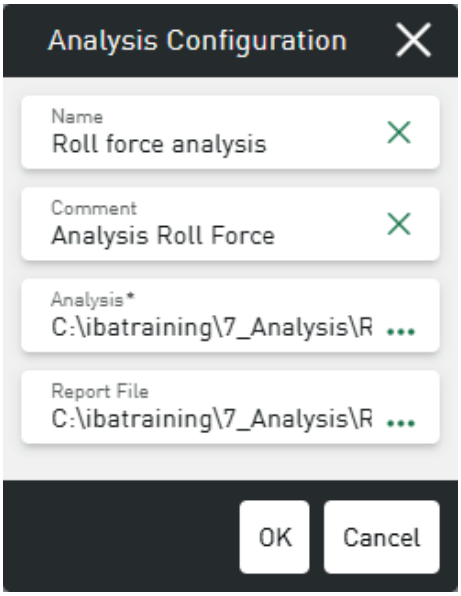
9.1 Settings – Analysis Configuration

ibaDaVIS makes it possible to download DAT files or ibaHD data together with an assigned analysis file (.pdo) as a Process Data Container (.pdc). The Process Data Container is supported with *ibaAnalyzer* v7.1 or higher. If you open a PDC file with *ibaAnalyzer*, e.g. by double-clicking, the contained DAT file is opened and the analysis file contained in the PDC file is automatically applied to it. If the PDC file contains several DAT files, these are opened in parallel in *ibaAnalyzer*.



Adding an analysis

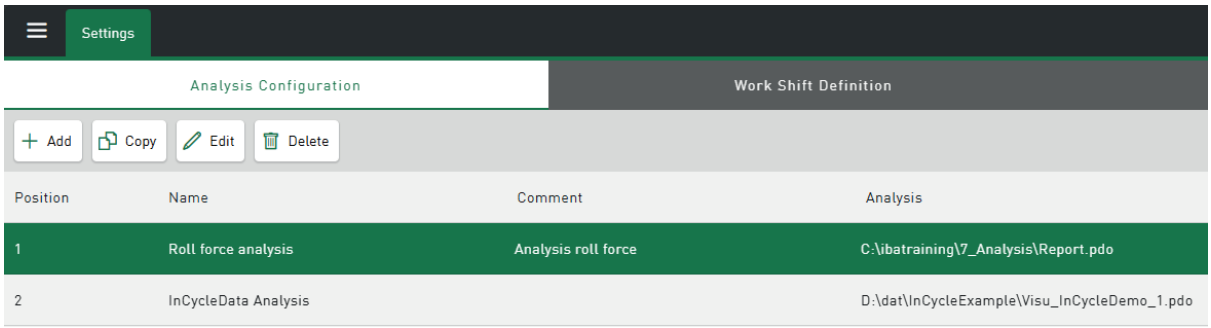
1. To add an analysis reference (*.pdo) and an optional report file (*.lst) to your analysis configuration, tap <Add>.



2. Enter a *Name* for the database connection.
3. Select a PDO file in the *Analysis* field.
4. Enter an optional *Comment*.
5. Optionally select a *Report File*.

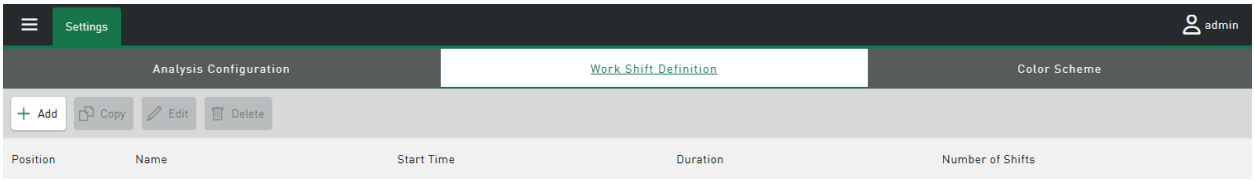
6. Confirm your entries with <OK>.

→ The analysis is displayed in the analysis configuration list and can be linked to a data source, see ↗ *Analysis tab*, page 25. The current settings are then saved directly in the project.



9.2 Settings – Work Shift Definition

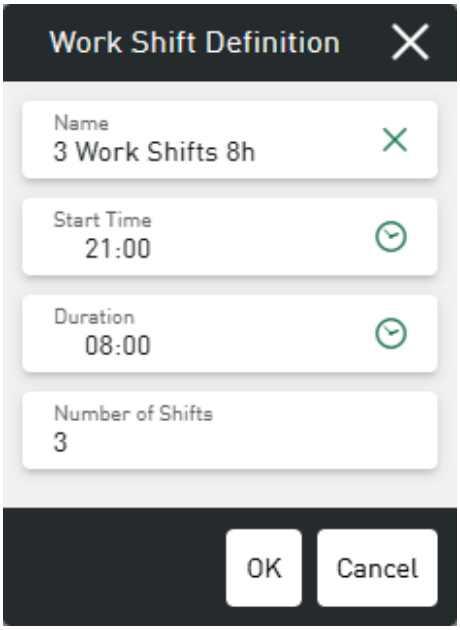
With the additional *Work Shift Definition* time filter you can easily enable or disable a specified work shift. In this way, you reduce the displayed data to a selected time period. All defined work shifts together cover a maximum of 24 hours.



Adding or editing a work shift

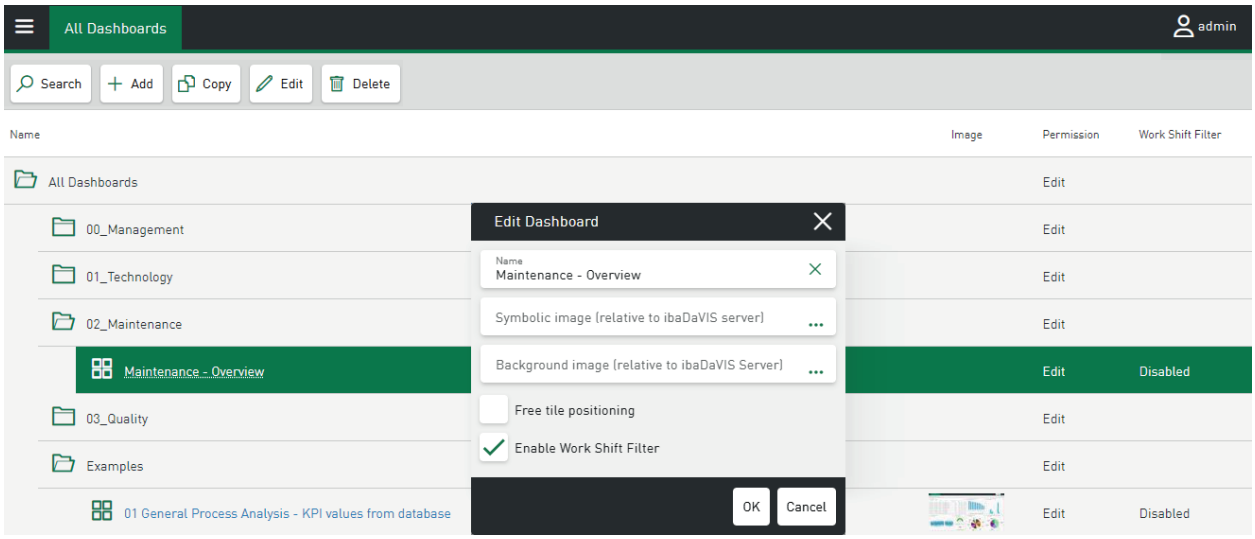
1. Tap on <Add>.

   To edit an already existing work shift, tap on it to select it and make the changes via <Edit>.

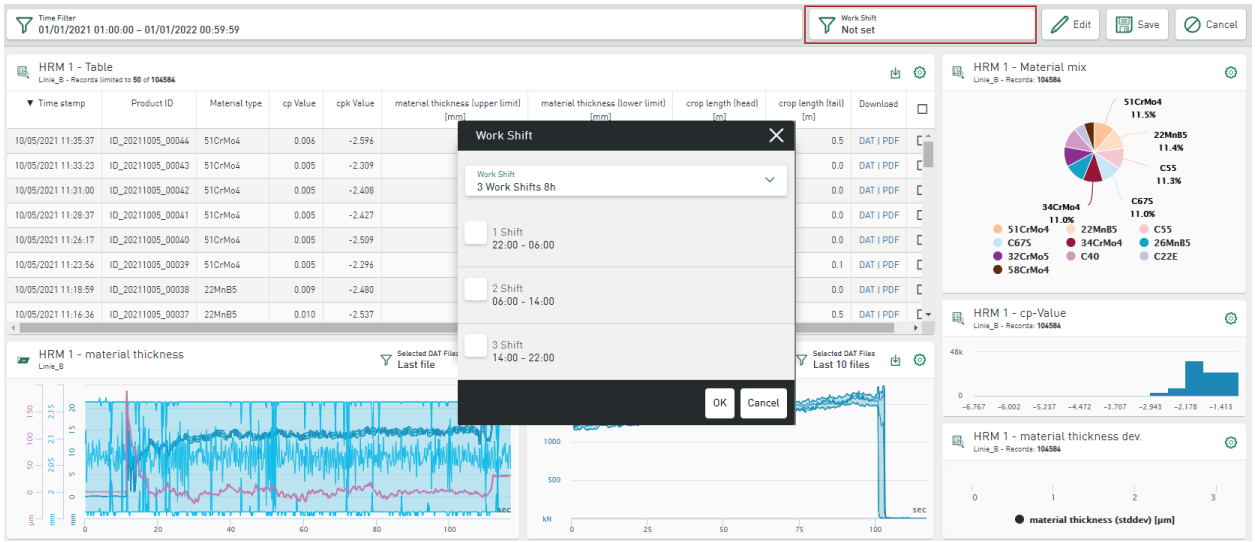


2. Enter a *Name* for the work shift definition, as well as *Start Time*, *Duration* and the *Number of Shifts*.

3. Confirm the settings with <OK>.



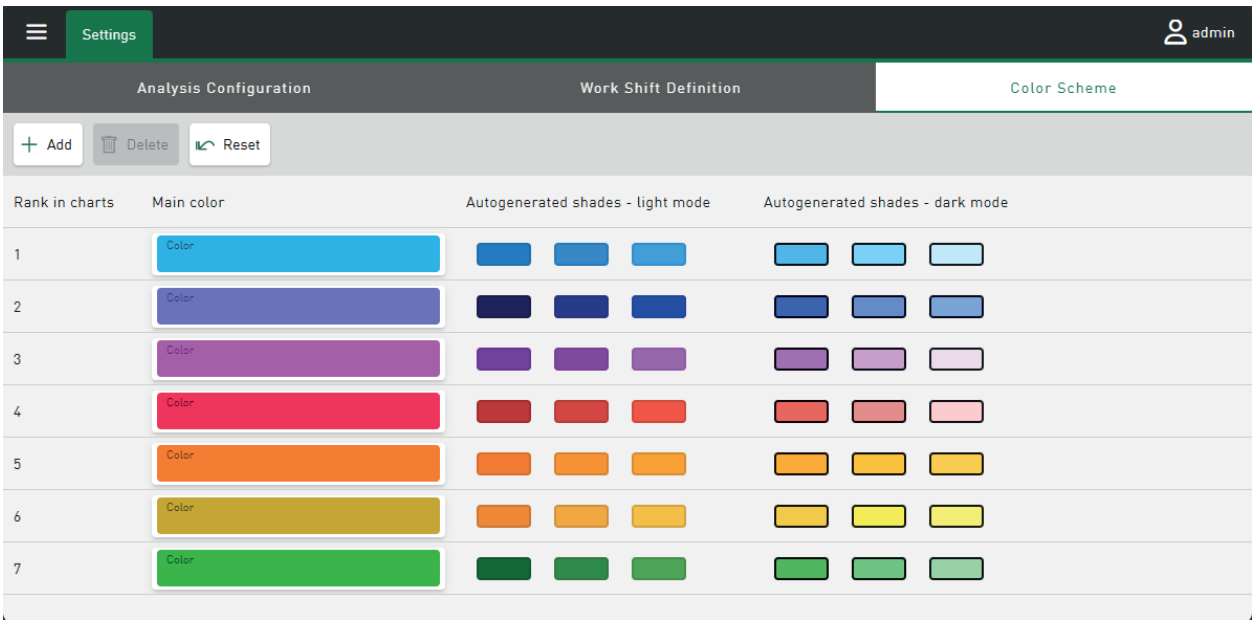
An additional filter field is activated on the current dashboard, which lists the available work shifts in a drop-down menu. After selecting the desired shift, the individual time periods are displayed and can be set individually or together as an active filter for this dashboard.



9.3 Settings – Color Scheme

The *Color Scheme* tab lists the standard colors of *ibaDaVIS*, which you can use as individually definable colors for values and trends in tile charts (e.g. line chart).

Users can manually change the currently applied color scheme if access permission is given in the *Settings*, see ↗ *User – User Permissions tab*, page 132.

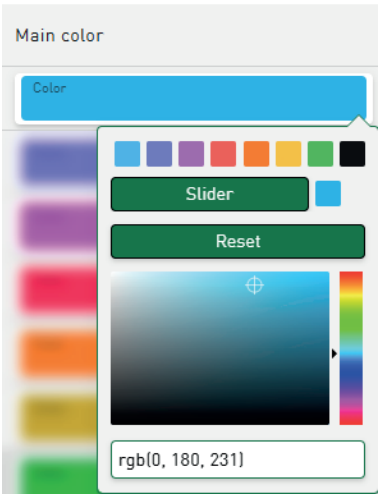


Position

You can change the position of the colors in the list and thus the rank of the colors in the diagram using drag & drop. The rank of the color corresponds to the order of the colors that are automatically assigned when you add new signals or values in tiles.

Main color

There are 7 different *Main colors*. You can adjust each color individually by tapping on the respective color field. In addition to the main colors, the editing window that appears also offers an interactive color selection via the <Slider> and a text input field for defining the color using an RGB value, HEX code or HSL color code.



To use additional color spectra via a color field and a color scale, tap the <Slider> button.

Use <Reset> to reset the current color selection to the last saved color selection.

Autogenerated shades – light mode/dark mode
For each primary color, you can use up to two *autogenerated shades* for both the "Light" and "Dark" view modes. These are derived from the main colors, for example to differentiate between several signals with the same unit in the tile view.

<Add>
You can use this function to insert an additional line to define a new color in the existing color list. An extension up to 24 main colors is possible.

<Reset>
Use this function to return to the standard color scheme.

10 Administration

Here you will find specific information on setting up and configuring *ibaDaVIS*.

10.1 Configuration options and project files

After installation, the following data is available in the folder `C:\ProgramData\iba\ibaDaVIS`:

- Project (*.db) incl. data sources, dashboards, filters and user administration

  `C:\ProgramData\iba\ibaDaVIS\db\*.db`

- Log files

  `C:\ProgramData\iba\ibaDaVIS\log`

- Configuration file in JSON format

  `C:\ProgramData\iba\ibaDaVIS\config.json`

Configuration file

You can make various settings for *ibaDaVIS* in the `config.json` configuration file:

- URL and port number

  Example: `"Urls": "http://*:80"`

- Log level project file

  Example: `"LogLevel": "info"`

- Maximum number of points displayed in the scatter chart

  Example: `"MaxPlottedScatterchartPoints":500`

- Number of visualized text signals in the line chart

  Example: `"MaxPlottedLabelPoints":10` sets the maximum number of text labels displayed for a signal in line charts to 10.

- Configure HTTPS for *ibaDaVIS*

  see ↗ *Activating HTTPS protocol, page 147*

- Change the basic color of the application

  see ↗ *Changing the basic color of the application, page 148*

- Configure custom login page

  see ↗ *Creating a custom login page, page 146*

Note

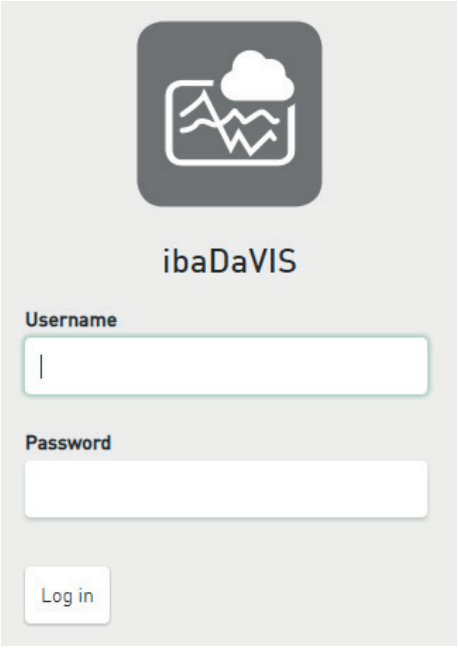
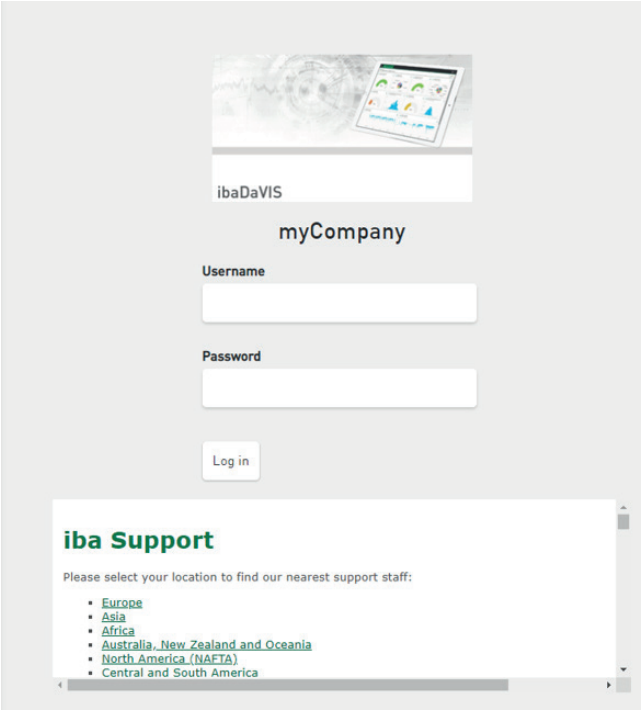
If you make changes to the mentioned configuration files or the service settings, the *ibaDaVIS* service must be restarted for the changes to take effect.

10.1.1 Creating a custom login page

You can use the `config.json` configuration file to configure the *ibaDaVIS* login page according to your requirements. The following adjustments are possible:

- Replace the *ibaDaVIS* product icon with a user-defined image
- Replace the *ibaDaVIS* product name with a user-defined text line, e.g. your company's name
- Insert an additional HTML page containing the contact address of your administrator or support, for example

  For security reasons, only simple HTML pages are supported.

ibaDaVIS **login page**	**Custom login page**
	

Customize configuration file

Information about the custom icon, the header text and the HTML page are optional settings that you can add in the configuration file `C:\ProgramData\iba\ibaDaVIS\config.json`.

```
{
"Urls": "http://*:80",
"LogLevel": "info",
"LoginPage": {
    "IconPath": "C:\\ibaDaVIS\\2.8\\Captured_TopPage.PNG",
    "HeaderText": "myCompany",
    "HtmlContentPath": "C:\\ibaDaVIS\\2.8\\support.html",
    "HtmlContentMinHeight":"100",
    }
}
```

"IconPath"
Local file path to the user-defined image that replaces the *ibaDaVIS* product icon. The size of the displayed image is limited in order to keep the login fields in the visible area (image width max. 300 pixels).

"HeaderText"
Replaces the product name *ibaDaVIS*, e.g. with your own company name

"HtmlContentPath"
File path to the HTML page that is displayed below the login fields

"HtmlContentMinHeigthHtmlContentWidth"
Limit the visible area of the HTML page as a numerical value in pixels

10.1.2 Activating HTTPS protocol

To activate support for the HTTPS protocol, you must provide an SSL certificate. It is also recommended to use the standard HTTPS port 443. After setting up the configuration, it is necessary to restart *ibaDaVIS*. You must prefix the URL for accessing the web interface in the browser with https:// instead of http://.

There are two options for configuring HTTPS for *ibaDaVIS* using the `config.json` file, which is located at the following path:

`C:\ProgramData\iba\ibaDaVIS\config.json`

`config.json` **when using a file-based SSL certificate in PFX format**

```
{
"LogLevel": "info",
   "Kestrel":{
      "Endpoints":{
          "HttpsInlineCertFile":{
              "Url":"https://*:443",
              "Certificate":{
                  "Path":"D:\\localhost.pfx",
                  "Password":"1234"
              }
          }
      }
   }
}
```

`config.json` when using an SSL certificate that has been imported into the Windows certificate store

```
{
"LogLevel": "info",
   "Kestrel": {
      "Endpoints": {
          "HttpsInlineCertStore": {
              "Url": "https://[ip-address/localhost]:443",
              "Certificate": {
                  "Subject": "Certificate Subject (CN)",
                  "Store": "My",
                  "Location": "LocalMachine",
                  "AllowInvalid": "false"
              }
          }
      }
   }
}
```

Valid values for "Location" are: *CurrentUser, LocalMachine*

Source:https://docs.microsoft.com/en-us/dotnet/api/system.security.cryptography.x509certificates.storelocation?view=netframework-4.7.2

Valid values for "Store" are: *AddressBook, AuthRoo, CertificateAuthority, Disallowed, My, Root, TrustedPeople, TrustedPublisher*

Source:https://docs.microsoft.com/en-us/dotnet/api/system.security.cryptography.x509certificates.storename?view=netframework-4.7.2

The value under "Subject" must correspond to the name of the certificate.

The configuration file `config.json` contains an entry for the JSON port number.

10.1.3 Changing the basic color of the application

The basic color green is preset for menus and icons. However, you can change to a different color at any time. The JSON configuration file supports the following data set to change the base color, for example to the color blue:

```
"theme": {
   "primaryColor": "blue"
}
```

The colors can be named according to supported X11 color names in hex code.

A list of all supported colors can be found on the following websites:

https://en.wikipedia.org/wiki/X11_color_names

https://www.w3.org/TR/css-color-3/

Note

To apply the changes, restart *ibaDaVIS*.

10.2 Localization files

The texts shown in the software for menus or dialogs are available in several languages. You have the option of translating the software interface into other languages or customizing the texts to your specific needs using the basic texts in English. You also have the option of adding user-specific conversions so that these are available for selection in the user profile alongside SI and US units.

You will find the data for translation in JSON format in the following directories

- `C:\ProgramData\iba\ibaDaVIS\assets`:

  Conversions: `units.json`

- `C:\ProgramData\iba\ibaDaVIS\assets\i18n`:

  Shown contents, such as table columns, signal names or the file-related event filters: `signals.json`

- `C:\Program Files\iba\ibaDaVIS\wwwroot\i18n`:

  Texts from menus and dialogs: `application.json`

Note

To make changes to the texts effective, restart the *ibaDaVIS* service.

If you make changes to the localization files, these are retained when installing higher versions of *ibaDaVIS* and are not automatically reset during a new installation.

Other documentation

For information on the "i18next" framework for internationalization and localization, seehttps://www.i18next.com.

10.3 Embedding ibaDaVIS

ibaDaVIS web pages can be embedded into other applications via HMI systems, such as WinCC or standard HTML pages. The behavior of the embedded browser is similar to a common browser.

1. Switch to an SSL based communication.
2. Add the following tag to the *ibaDaVIS* configuration file (`config.json`) at the install directory:

   `"CookieSameSiteMode": None`

   Example: config.json

```
{
  "LogLevel": "info",
  "CookieSameSiteMode": "None",
   "Kestrel":{
      "Endpoints":{
         "HttpsInlineCertFile":{
            "Url":"https://*:443",
            "Certificate":{
               "Path":"C:\\temp\\[redacted].pfx",
               "Password":[redacted]
            }
         }
      }
   }
}
```

3. Add a web browser container at your HMI screen and navigate to the *ibaDaVIS* address.
4. Log in to *ibaDaVIS*.

Note

The same steps are required if you want to embed *ibaDaVIS* in HTML5 pages, e.g. Using iFrame.

```
<!DOCTYPE html>
<html>
    <body>
        <h2>Target the link</h2>
        <iframe src="https://localhost:443" height="800" width="1200" style="border:none;"></iframe>
    </body>
</html>
```

11 Troubleshooting

In the following you will find help on possible errors when using *ibaDaVIS*. If you have any further questions, please contact the iba support.

11.1 Functions not available

If expected functions are not available after an update or the dashboard views differ on different end devices, this may have the following causes.

Cause
ibaDaVIS is a web service whose presentation level is accessible and visualized by web browsers. For this reason, unexpected displays or unexpected behavior may occur after updates or if several users are working on the roof board view at the same time.

Corrective action
To clear the browser cache and reload the program or the views, press the key combination <Ctrl> + <F5>.

11.2 ibaDaVIS service does not start

If the *ibaDaVIS* service cannot be started correctly during installation, this may have the following causes.

Possible cause

- The system account under which *ibaDaVIS* service is to be started does not have sufficient permissions.
- There is a problem with the license used.
- There is a problem with the TCP/IP port used for *ibaDaVIS*.

Corrective action
For troubleshooting, possible causes can be localized via the log files. Open the *Log Files* folder under `C:\ProgramData\iba\ibaDaVIS\log`.

Other documentation

Further information on creating and using service accounts can be found in the “IT security guide”. You can find the guide in the download area on the iba website or in the help center athttps://docs.iba-ag.com.

Information on the subject of licensing can be found in chapter ↗ *Licensing and software maintenance*, page 12.

11.3 ibaDaVIS Status App not available

If the *ibaDaVIS Status App* is not displayed in the Windows taskbar, this may have the following causes.

Cause
The *ibaDaVIS Status App* may have been closed.

Corrective action
Restart the app, see ↗ *ibaDaVIS Status App*, page 17.

11.4 ibaHD server connection failed

If the connection test fails when setting up the connection to the *ibaHD-Server*, proceed as follows.

Corrective action

- In the *ibaHD API connection settings* tab, enter the IP address instead of the DNS name of the active *ibaHD-Server* connection in the *Server* input field.
- Please contact iba support.

11.5 No data visible

If no data is displayed on the tile, this may have the following causes.

Possible cause

- The time range in the time filter is not set correctly.
- Another filter is set for which no data is available.
- The configured data source is not accessible or is loading slowly due to large amounts of data.
- You do not have the necessary permissions.

Corrective action

- Select a time range in which there is definitely data refer to, see ↗ *Setting a time filter*, page 48.
- Check whether other filters are set, see ↗ *Filter options*, page 46.
- If you have any questions about permissions, please contact your administrator.

11.6 Time shift in ibaDaVIS

Different times are displayed in *ibaDaVIS* than in the source system in which the data was recorded.

Possible cause
The timezone set for the user in *ibaDaVIS* does not correspond to the timezone of the source system, e.g. *ibaHD-Server* or *ibaPDA*.

Corrective action
Check the settings in the user profile and adjust the *Timezone* if necessary, see ↗ *Personal settings*, page 139.

12 Application examples and FAQ

Here you will find useful application examples and answers to frequently asked questions about the *ibaDaVIS*.

12.1 Compare raw data

What options are there for visualizing raw data from different products?
Raw data from DAT files can be visualized as measurement signals in three ways:

- In appended mode, the measurement signals of the DAT files intended for display are displayed in chronological order according to the start time of the measurement signals, alternatively directly one after the other on a relative time axis.
- In envelope mode, the signals with the same module and signal number are visualized as an envelope curve on a relative time axis in seconds starting with 0.
- In stacked mode, the signals of the DAT files selected for display are visualized separately but superimposed on a relative time axis in seconds starting with 0.

For additional information, see ↗ *Options*, page 76.

12.2 Comparison with reference signals

How can I compare measured signals from DAT files with reference signals?
General

Signals from DAT files can be visually compared with reference signals from DAT files or segment tables. It is necessary that both the reference datasource and the comparison datasource are of type iba file table. Any iba file table with valid references to DAT files or values in segment tables can be defined as a source for reference signals.

Configuration

see ↗ *DAT File Settings – Reference tab*, page 25

Use on the dashboard

see ↗ *Visualizing reference signals*, page 80

When the reference signals are enabled, an additional filter field is active in the tile filter. The filter field shows the values of the reference ident column and allows you to switch to the selected data set of reference signals by changing the value. The last data record entered in the reference data table is selected initially – "last file".

12.3 Comparison of plant values

How can I use ibaDaVIS to compare production data across different locations?
You can compare the plant values of a common period on a dashboard. You have the following options:

- If the data of two or more production plants are available in a **common database table**, the values of the different plants can be visualized and filtered in common graphs. An additional

column is required as a distinguishing criterion for the values in the table, which indicates to which installation or to which part of the installation the available data belongs. With the bar chart or pie chart tile type, the table column for the system or system part is used as a grouping column to enable a comparison.

- If the values of the different production plants are recorded in **different database tables**, the data of the individual plants is also shown in separate dashboard tiles. You can filter the data according to common criteria, e.g. by product type or material identifier. To do this, make sure that the columns for product type or material identifier in the data tables also have the same table column names. If this is not the case, you can standardize the table column names within *ibaDaVIS* by assigning alias names in the data source configuration.

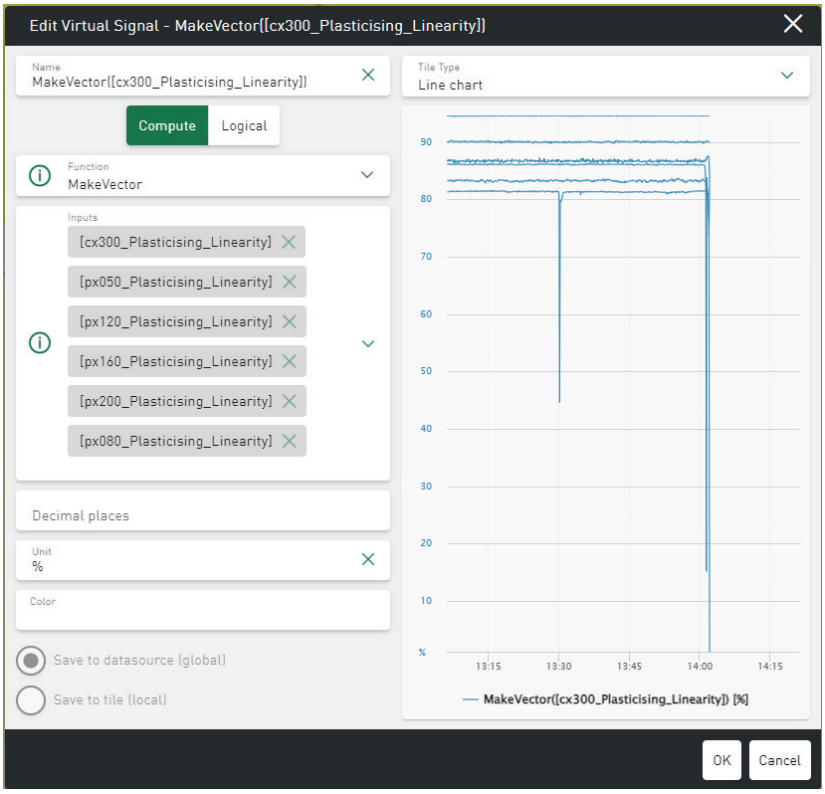
12.4 Visualization of anomalies with the heat map

How can I visualize spontaneous anomalies or changes for many signals over a long period of time?

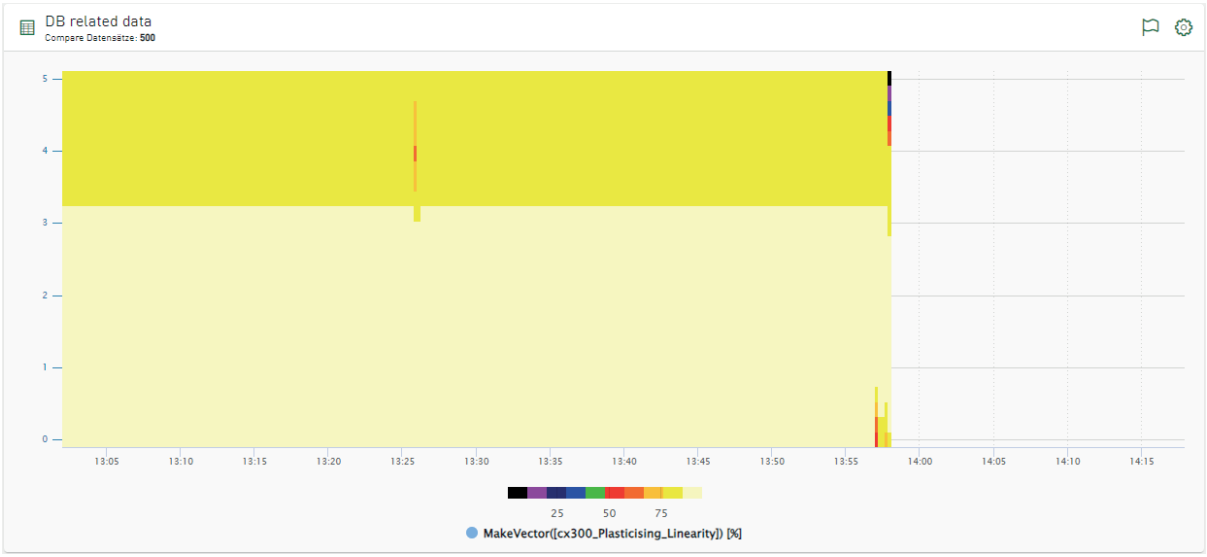
The MakeVector() function allows you to combine signals from DAT files or columns of a database table into logical signal groups and display them in a heatmap. Proceed as follows:

1. Create a new tile of the type *Heatmap*.
2. Create a virtual signal and select the *MakeVector()* function under *Calculate*. In the *Inputs* field, select at least two signals that you want to combine.

   The order in the list is used as a sequence in the generated vector, starting with "0".



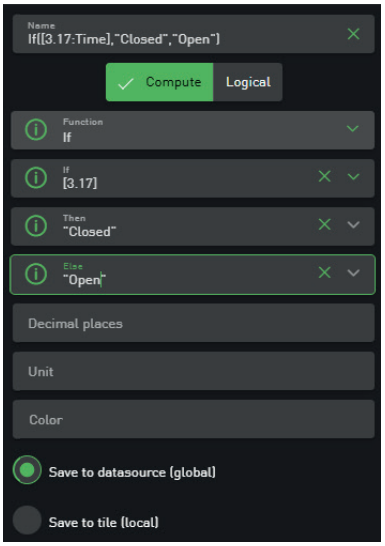
3. Select the virtual signal under *Available Signals*.



12.5 Visualization of the process status

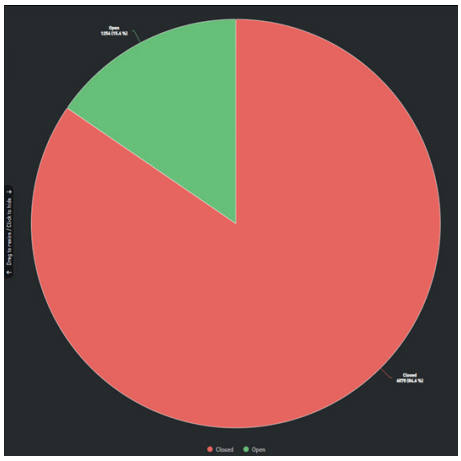
Example of visualizing the process status in a pie chart
A pie chart is used to show the ratio of the time a valve was closed or open. The base signal is a digital signal in the *ibaHD-Server*.

1. Create a virtual signal in the pie chart tile using the "If" function.



   Based on the status, the strings "Closed" or "Open" should be returned.
2. Under *Available Signals*, select a signal that has values for this range.
3. Under *Group by Signal*, select the virtual signal you created earlier.
4. In the options, select the "Count" function in the *Aggregation* field.
5. If necessary, change the category colors.

→ The pie chart shows the ratio of "Closed" (red) to "Open" (green).



For further information on the pie chart, see ↗ *Tile type Pie chart*, page 88.

12.6 Display limit values

What options do I have in ibaDaVIS to define and display limit values?
The following options are available to you in *ibaDaVIS*:

1. Specify the limit value as a constant value in the line chart.

   Create a virtual signal with the *Constant value* function and show the virtual signal in the line chart.

   For additional information, see ↗ *Configuration of virtual signals*, page 112.
2. Show a limit value from a database in the line chart.

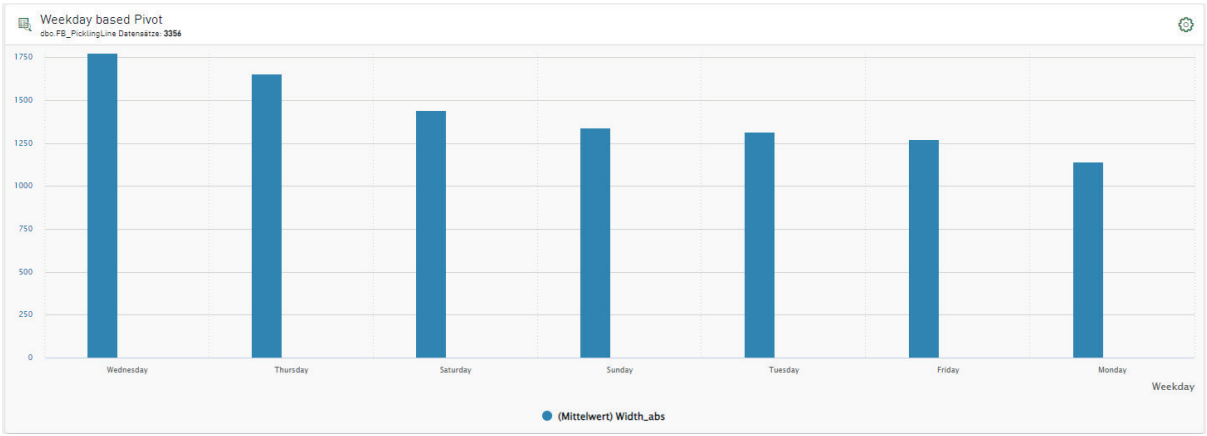
   If numerical characteristic values are available in the selected datasource, you can select them for display.
3. Visualize limit value violations with conditional colors, see ↗ *Configuring conditional colors*, page 74.

12.7 Create a Pareto chart

How do I create a Pareto chart in ibaDaVIS?
In *ibaDaVIS*, a Pareto chart corresponds to a bar chart in which the bars are sorted by size.

Example:

1. Create a tile of the *Bar chart* type and select the desired data source, see ↗ *Tile type Bar chart*, page 102.
2. Under *Signal* or *Column*, select the signal or column to be displayed in the diagram.
3. Select the *Category* according to which the data is to be grouped.
4. Select "Max. Value" in the *Sorted by* field.



12.8 Migration of ibaDaVIS v2 to v3

What do I have to consider when migrating ibaDaVIS from version 2 to version 3?

Event definitions

In previous *ibaDaVIS* versions, events based on digital signal values were defined in the *Event Definitions* tab for referenced DAT files. Event definitions can be used in line charts as markers to control the displayed zoom area via a filter.

When *ibaDaVIS* version 3 is installed, the configured events are transferred into virtual functions. The virtual functions have the names of the already configured events and are used in the same way as events defined in version 2.

Reference function

If you are using *ibaDaVIS* version 2 and have already configured the *Reference* function, a change or reaccess is required.

In case of installation and project migration of *ibaDaVIS* version 3, the pre-selection "_TimeStamp" is set for the reference ident column. Due to some changes in the backend of the datasource configuration, this pre-selection has to be made. If "_TimeStamp" has not been used as the ident column so far, the configuration will need to be carried out again. For this, select the applicable column under Reference ident column. Functionality is then restored.

12.9 Project migration during version change

What happens to my existing ongoing project when I install a new version?

Before *ibaDaVIS* performs the necessary migration to the project file `ibaDaVISv2.db` in the folder `C:\Program Data\iba\ibaDaVIS\db`, the existing project is saved as a copy (backup) with a version designation and the current time stamp in the same folder. The changes are then automatically made to the project file to enable the newer *ibaDaVIS* version to run.

12.10 Project migration to another PC

How do I migrate an existing project to another PC?
Proceed as follows:

1. First, install *ibaDaVIS* on the new computer.
2. Then stop the *ibaDaVIS* service on this PC using the context menu of the *ibaDaVIS* Status app.
3. Now copy the project database `ibaDaVISv2.db` from the previous computer.

   You can find the database at the following path: `C:\ProgramData\iba\ibaDaVIS\db\`
4. Paste the copied database into the same directory on the new PC.

   Overwrite the existing file.
5. Now start the service via the context menu of the *ibaDaVIS* Status app.

→ The project database has been completely migrated.

12.11 Import and export of the configuration

Why can I no longer export and import the configuration and color scheme?
Due to changes in the program structure of *ibaDaVIS* with version 3.2, the import and export of dashboard configuration and color scheme have been temporarily deactivated.

In one of the next versions, import and export will be available again in a revised form.

13 Glossary

Below you will find an explanation of the most important iba terms.

Drill down

Drill-down refers to the process of changing the view. Starting from an aggregated level, which tends to show an overview of a large section, to a high-resolution, more detailed data level, e.g. individual measurement data.

PDC format

The PDC format is a special archive format in the context of ibaAnalyzer.

PDC stands for "Process Data Container". These files are normal ZIP archives with a different file extension, but otherwise the same functionality as the standard archives.

The advantage of these files is that the .pdc extension is registered by ibaAnalyzer and the files can be opened by double-clicking in Windows Explorer. This allows ibaAnalyzer to be set as the default application for these files.

Time period

Time periods mark a range of time inside a time-based HD store. The time period data is generated by *ibaPDA* and stored as a table in the *ibaHD-Server*. Time period data is useful for storing and labeling production data for analysis purposes or for marking data belonging to work shifts.

The start and end times and a unique identifier are stored for each time period. In addition to these standard parameters, calculated values or metadata from the production system can also be stored to enrich the information. You can then use the data for filtering or for any type of statistical process analysis.

14 Support and contact

Support

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Note

If you need support for software products, please state the number of the license container. For hardware products, please have the serial number of the device ready.

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