



Sauter GmbH

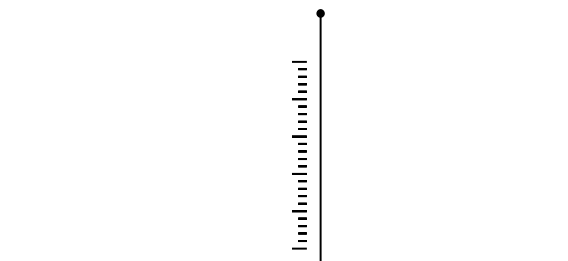
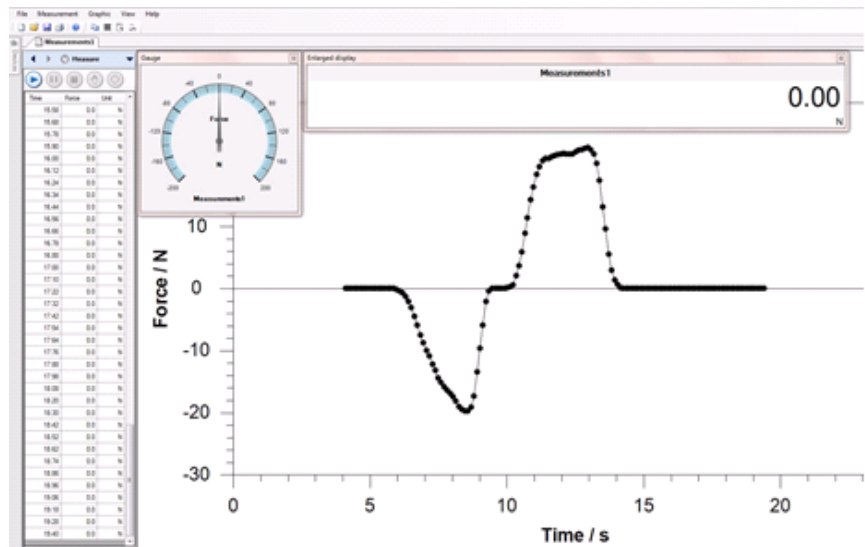
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Instruction Manual Software

SAUTER AFH Fast/FD

Version 2.0
04/2020
GB



PROFESSIONAL MEASURING

AFH_FAST_FD-BA-e-2020



SAUTER AFH Fast/FD

V. 2.0 08/2020

Instruction Manual Software

The AFH-FAST/FD program is used to transfer measured values from a Sauter force gauge to a PC. The connection is made via a serial cable to the RS-232 interface of the PC, or with the USB converter supplied to the USB interface on the PC. The measured data can be saved as an XML file and thus imported into any XML-compatible software.

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1 What's new?

Version 1.0.8.7 allows the control of the test bench within the AFH-FAST/FD software (only for FH and FL instruments), it is possible to search for newly connected measuring instruments and to define a safety stop. Furthermore, the graphic can be mirrored horizontally and an action can be defined if the limit values are exceeded.

- Flip graphic horizontally
- Find connected devices
- Safety stop
- - Control test bench

2 Installation

AFH-FAST/FD is distributed as a standard installation package. The product has been developed for the Microsoft Windows platform and has special requirements for the software and hardware of the system (see system requirements).

2.1 How is AFH-FAST/FD installed?

Run the downloaded installation program and follow the instructions of the setup wizard. On Windows Vista/7, administrator rights must be available during installation. When the installation program starts, you will be prompted to select the language to be installed in the AFH-FAST/FD. The choices are:

German and English

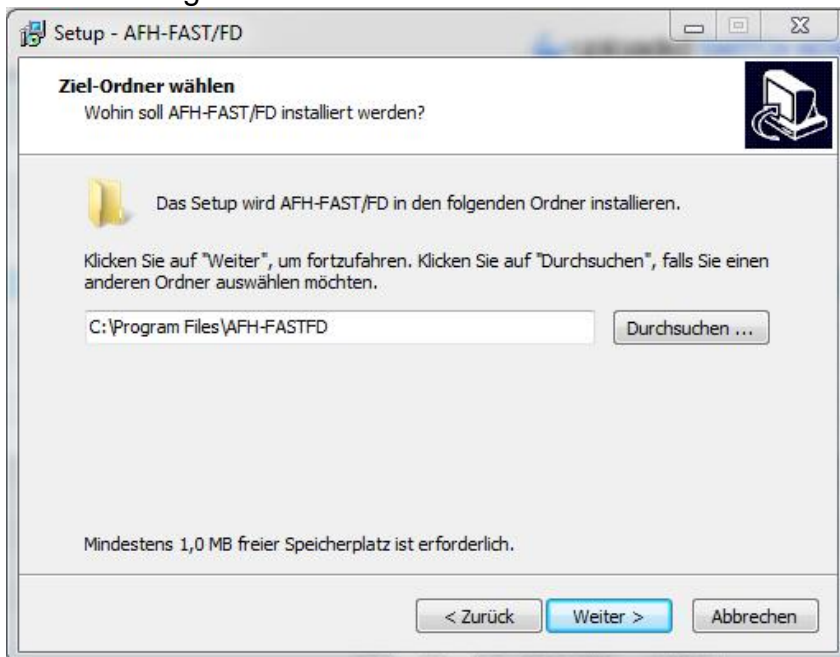
- Select the desired language and press OK.



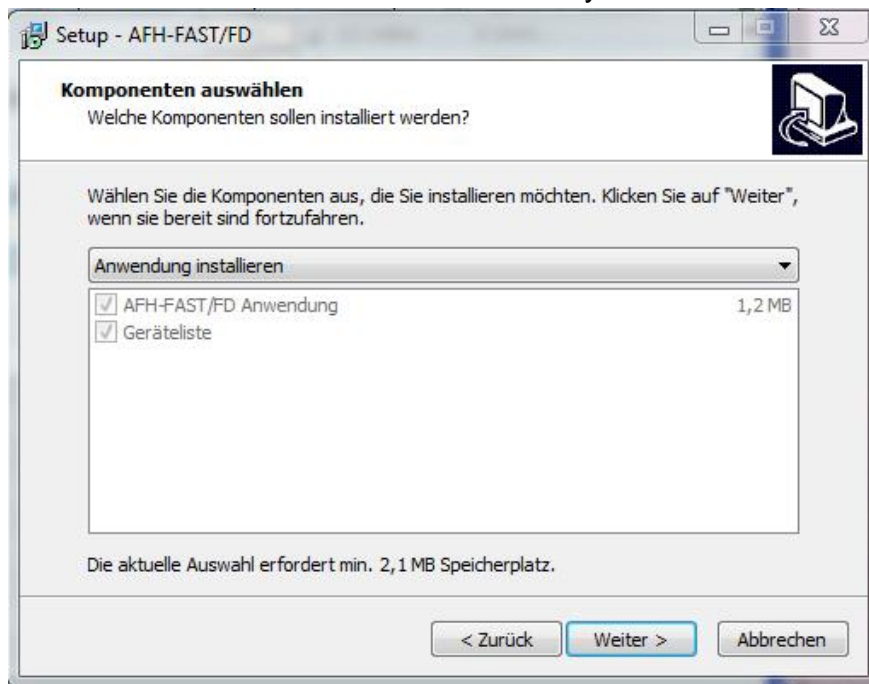
- Next, the welcome window of the setup wizard appears.



- Press the Next button to display the destination directory dialog. Here you can change the folder where AFH-FAST/FD is to be installed.



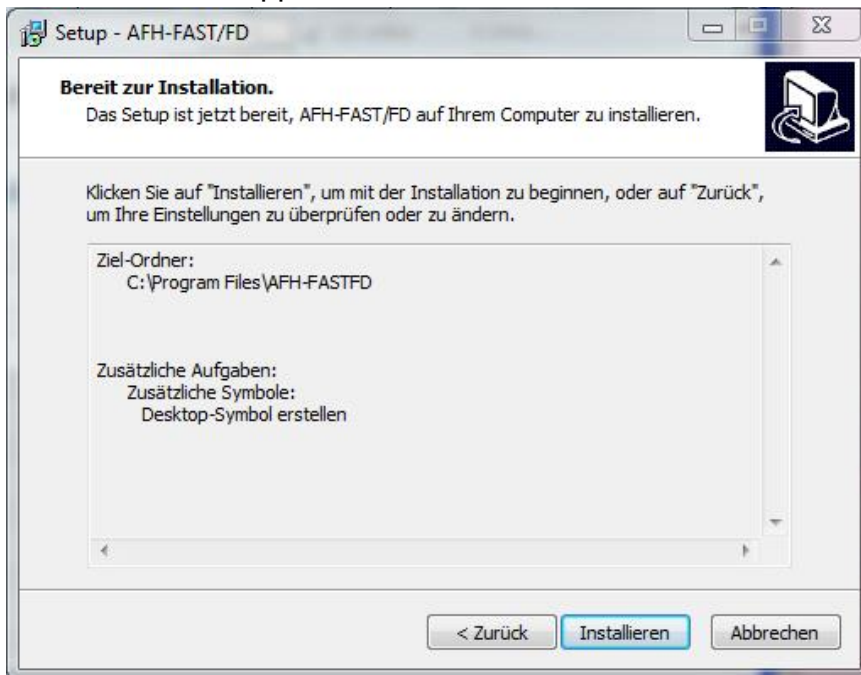
- The next window gives you the opportunity to select the installation type.
 - The choices are:
 - The application and the corresponding device list are installed.
 - Install device list Only the device list is installed→



- Press the Next button to choose whether to create a desktop and/or quick start icon.



- The next window displays a summary of the installation options. Click Install to install the application.



- After installation, you have the option to start AFH-FAST/FD while the setup procedure is being completed.



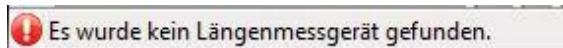
- Click the Finish button to complete the installation.

2.2 Preparations

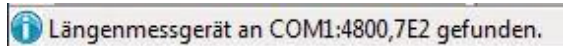
Before recording measurement data from the SAUTER FH, there are a few preparatory steps to be taken.

- Connect the force measuring device (or the test stand and displacement encoder) to the PC with the original cable (either directly to a serial interface or with one USB-serial converter each for the length measuring device and the test stand)
- Switch on the measuring instrument
- Start the AFH-FAST/FD program

When started, the program searches for all serial ports to which a SAUTER FH or a displacement encoder is connected. If no displacement encoder can be found, a message is displayed in the status bar.



Otherwise, if a displacement encoder is found, the following message appears:



Hint:

If you do not have a test stand with a displacement measuring device, you will not be able to perform force-displacement measurements. You can then only perform force-time measurements. If you connect the devices after starting AFH-FAST/FD, you must close and restart AFH-FAST/FD to search again for all connected devices.

2.3 Systemrequirements

AFH-FAST/FD has been developed for Microsoft Windows and places special demands on the software and hardware of the system. The software is distributed as a standard installation package. More about installing the software can be found in the Installation chapter.

2.3.1 Hardware:

- IMB-compatible PC
- At least one serial port (RS-232) or USB-to-serial converter
- 256 MB RAM
- 5 MB free space on the hard disk
- A SAUTER force measuring device (optionally with test stand and displacement measuring device)

2.3.2 operating system:

- Microsoft Windows 2000/XP/Vista/7 (32 or 64 bit)
- Further requirements: NET Framework 2.0

3 Main features

Here is an overview of important and interesting product features of the AFH-FAST/FD software. The complete list of product features can be found here:

3.1 Managing the serial interface

To manage serial ports, you must display the Serial Ports window. You can change the settings, such as baud rate, parity, etc. If the Serial Ports Management window is not visible, it can be displayed using the View→Serial Ports menu function.

3.2 Managing the measuring instruments

To manage measuring instruments, you must display the Measuring Instruments window. You can create new devices, delete devices, change their properties, or check the connection to the device. If the window for managing encoders is not visible, it can be displayed with the menu function View→Encoders.

3.3 Check connection to the measuring instrument

To check the connection to the meter, you must display the connection check dialog. You can do this by double-clicking a device icon or by right-clicking the device icon and selecting Check Connection from the context menu.

3.4 Control test bench

To control the test bench with the AFH-FAST/FD program, the Test Bench Control dialog must be displayed. You can display this dialog with the menu function View→Test Bench in the main menu.

3.5 Recording of measurement series

To record measurement series, you must create a new measurement document with the menu function File→New.

When recording measurement series with more than 500,000 measuring points, no further measurement series should be open.

4 List of all characteristics

Here is the list of all features of the AFH-FAST/FD product. A detailed description of individual features can be found in the User Interface chapter.

4.1 Basic features

- Recording of several force-time and/or force-displacement measurement series
- Managing the serial interfaces
- Managing the measuring instruments
- Display or print the recorded measurement data in a diagram
- Save the recorded measurement series in an XML file
- Multilingual user interface (see installation) with context-sensitive help function
- Modern user interface, simultaneous working with several diagrams using tabs
- see User Interface

4.2 Recording of measurement series

- Several series of measurements can be recorded (force-time and/or force-displacement) - (Series of measurements with up to 500 000 measured values should be recorded individually)
- Print and print preview for the displayed measurement data
- Analogue display of the current value
- Diagram display of the entire measurement series with zoom function

4.3 Save / Export

- XML: Use the "Save" or "Save as" command to save the measurement data in an XML file
- EMF: Use the "Save image as" command to save the measurement data in an EMF file
- PNG: Use the "Save image as" command to save the measurement data in a PNG file
- BMP: Use the "Save image as" command to save the measurement data in a BMP file

4.4 User interface

- Modern user interface, large number of settings
- for colors, window layout, etc. Working with multiple documents using tab pages
- Support of the Windows clipboard and Drag & Drop function

4.5 Miscellaneous

- The context sensitive help can be displayed at any time with the F1 key
- The product has special requirements for the hardware and software of the system - see system requirements

4.6 License

This product is distributed as a single user license (see license agreement).

5 The user interface

The goal of this chapter is to give a brief overview of the use and functionality of the application depending on where the user is.

If you cannot find the help you need here, please try the "How can I...? "Chapter.

5.1 Basic elements of the user interface

- Main menu
- Register bar
- Status bar

5.2 Further windows and dialogs

- Control test bench
- Serial interfaces
- Devices
- Settings
- Analogue display
- Large display
- "Info about" dialog

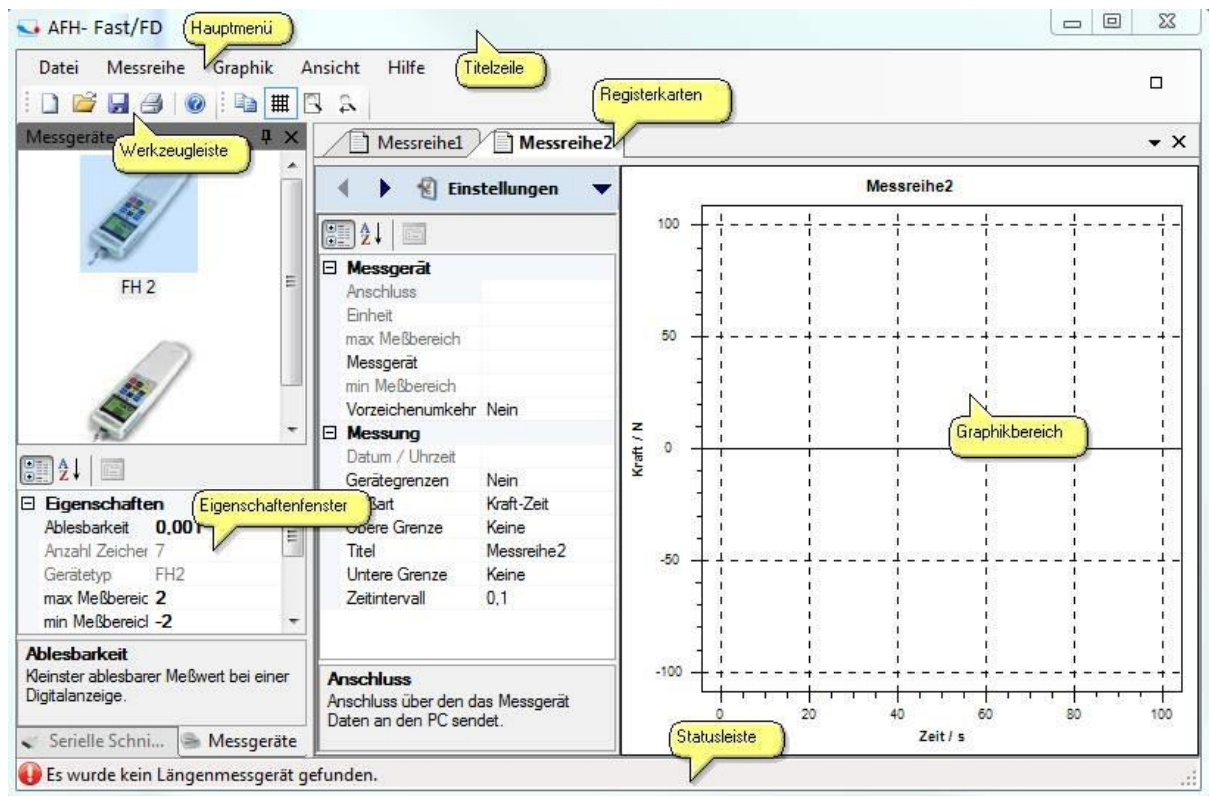
5.3 Extensions (Addins)

The interpretation of the various device protocols is managed by separate program parts (add-ins). There is an add-in for each special device type.

To download the current Addins use the Settings dialog.

6 Basic elements of the user interface

The following figure shows the basic elements of the AFH-FAST/FD product user interface.



6.1 Overview of the elements of the user interface

- Main menu
- Toolbars
- Tab bar
- Graphics area
- Properties window
- Status bar

7 Main menu

The main menu consists of the following submenus:



- File menu
- Measurement series menu
- Graphics menu
- View menu
- Help menu

7.1 File menu

The File menu contains the following commands:

- New - Creates a new document
- Open - Opens an existing document
- Close - Closes an open document
- Save - Saves the current document with its file name
- Save As - Saves the current document under a new name
- Page Setup - Allows you to select a printer format
- Print - Prints the current document
- Printer Preview - Allows you to preview the document to be printed
- Exit - Exits AFH-FAST/FD

7.1.1 New

Command **New** (File menu)

Use this command to create a new document in AFH-FAST/FD To open an existing document, use the Open command.


- Toolbar: → 
- Keyboard: CTRL+N →

7.1.2 Open

Open command (File menu)

Use this command to open an existing document in a new window. You can open several windows at once. Use the Window List menu to switch between the opened documents.

New documents can be created with the New command.

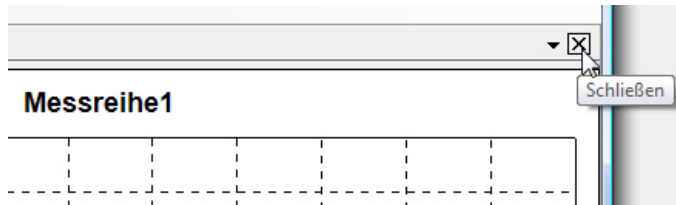
- Toolbar: → 
- Keyboard: CTRL+O →

7.1.3 Close

Close command (File menu)

Use this command to close all windows containing the current document. AFH-FAST/FD recommends that you save any changes you have made to the document before closing the document. If you close a document without saving, all changes since the last save are lost. Before you close an unnamed document, AFH-FAST/FD displays the Save As dialog to name and save the document.

You can also use the close icon as shown below:



7.1.4 Save

Save command (File menu)

Use this command to save the current document under its current name. When a document is saved for the first time, AFH-FAST/FD displays the Save As dialog so that you can name the document. If you want to change the name or directory of an existing document, you can also use the Save As command.

- Toolbar: → 
- Keyboard: CTRL+S →

7.1.5 Save under

Save As command (File menu)

Use this command to name and save the active document. AFH-FAST/FD displays the Save As dialog box, allowing you to enter a name for the document. To save a document under its current name, use the Save command.

7.1.6 Save under Dialog

The following entries allow you to specify the location and name under which the document is saved:

- File name: Enter a new name to save the document under a different name. AFH-FAST/FD adds the file extension to the file name, which can be found in the File Type field.

- Drives: Select the drive where the file is to be saved

- Directories: Select the directory where the document is to be saved.

- Network: Use this button to access your network.

7.1.7 Search for measuring instruments

Search measuring instruments command (File menu)

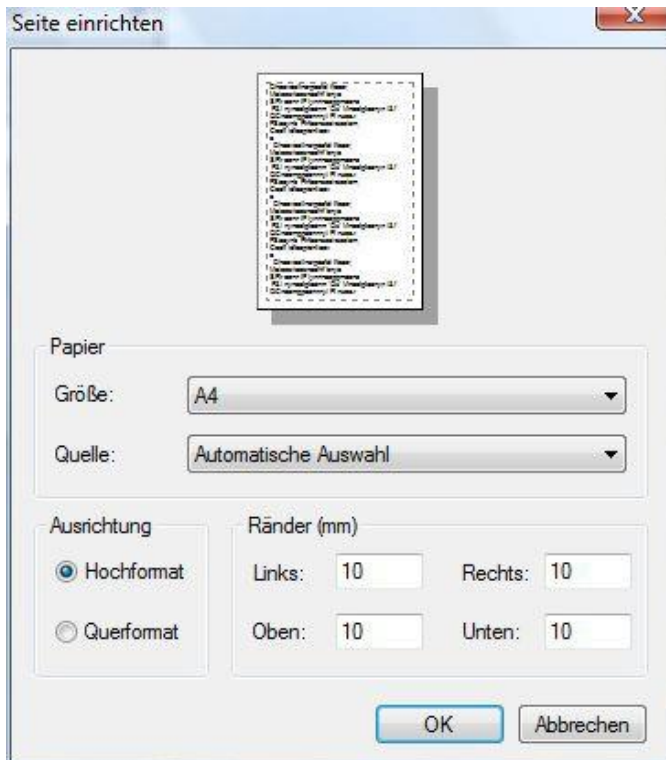
Use this command to search for newly connected measuring instruments and serial interfaces.

- Toolbar: → 

7.1.8 Set up pages

Page Setup command (File menu)


This dialog allows you to change the printer settings and the paper size.



7.1.9 Print

Print command (File menu)

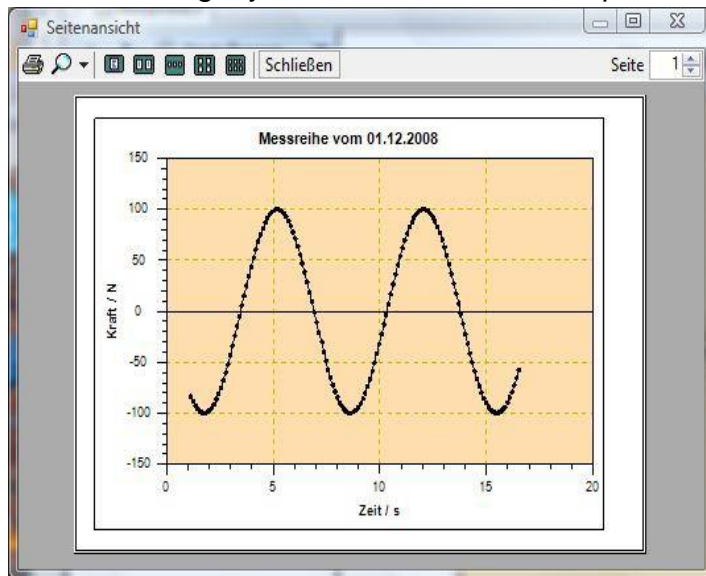
Use this command to print a document. When you use this command, the printer dialog appears where you can select the number of pages, the printer and the printer settings.

- Toolbar: → 
- Keyboard: CTRL+P →

7.1.10 Printer Preview

Command **Printer Preview** (File menu)

Use this dialog if you want to see how the printed document will look on paper.



7.2 Measurement series menu

The **measurement series menu** contains the following commands:

- **Start:** Starts the recording of measurement data
- **Interrupt:** Interrupts the recording of measurement data
- **Exit:** Ends the recording of measurement data
- **Send manually:** Sends the defined device command to the measuring device
- **Time-controlled transmission:** Sends the defined device command to the measuring device at regular intervals

These commands are also available in the Measure toolbar:



Force/time measurements



Force/displacement measurements

7.3 Graphics menu

The **Graphics menu** contains the following commands:

- **Display grid:** Show or hide a grid in the graphics window
- **Save image as:** Saves the image to a file (EMF, PNG, BMP)
- **Copy:** Copies the graphic area to the Windows clipboard

7.4 View menu

The **View menu** contains the following commands for managing serial ports and meters and changing program settings:

- **Serial interfaces:** Shows or hides the window for managing serial ports
- **Encoders:** Shows or hides the window for managing the encoders
- **Settings:** Opens the window for managing the program settings
- **Status bar:** Shows or hides the status bar
- **Test bench:** Shows or hides the test bench dialog

7.5 Help menu

The **Help menu** contains the following commands:

- **Contents:** Shows the table of contents of this help file.
- **Index:** Shows the index of this help file
- **Search:** Allows you to search for specific terms in this help file
- **Inf about:** Shows further information about the AFH-FAST/FD program.

7.6 Toolbars

There are two different toolbars in the AFH-FAST/FD program. One for the main menu commands and one for the graphic commands.



7.7 Main menu commands

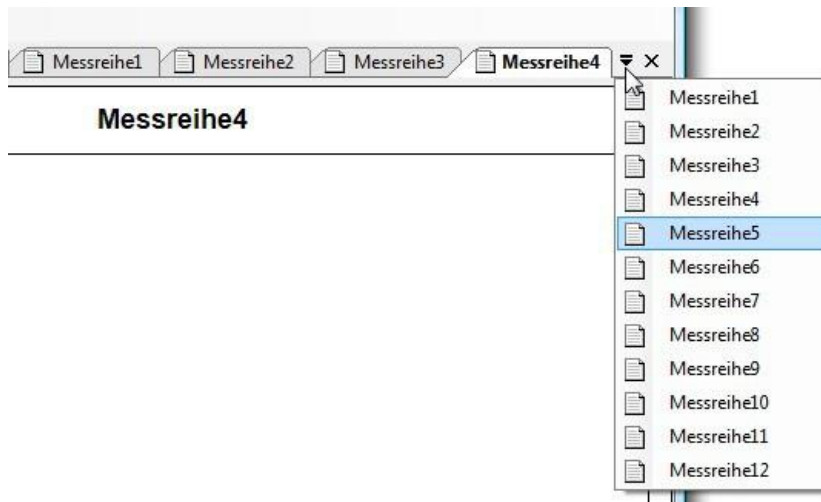
- **New:** Creates a new document
- **Open:** Opens an existing document
- **Save:** Saves the active document under its file name
- **Print:** Prints the active document
- **Find meters:** Searches recently connected meters
- **Help:** Displays this help file

7.8 Graphic commands

- **Copy:** Copies the graphic to the Windows clipboard
- **Grid:** Shows or hides the grid in the graphic display
- **Zoom all:** displays the entire measurement series in the graphics window
- **Zoom before:** Returns to the previous zoom setting

7.9 Window bar

Use this menu to switch between the individual windows



7.9.1 Tab bar

The tab bar is used to switch between the currently opened measurement series documents.



You can switch between the visible tabs (pages) or remove (close) them from the window list.

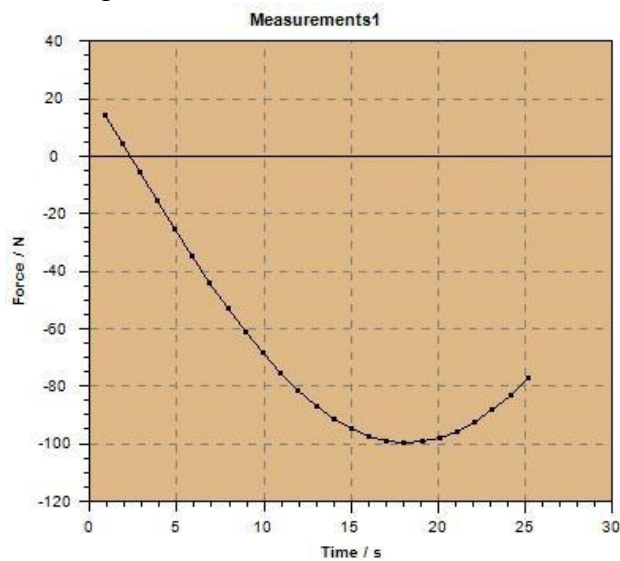
Switching between documents can be done (except by clicking with the mouse) with the keyboard - using the key combination **Ctrl+Tab** and **Shift+Ctrl+Tab**. The key combination for closing a tab (page) is **Ctrl+F4**. The order of the tabs can be changed by dragging them with the mouse.

If you right-click on a tab, a context menu opens, which you can use to display an analog or enlarged view of the current measured value.

- - Meter: Shows the current measured value in an analog meter display
 - Large display: Displays the current measured value enlarged in a separate window

7.10 Graphic view

The **graphic view** displays the measurement series in diagram form. The appearance can be changed using the settings dialog. There you can adjust the background color, the diagram color etc.



7.11 Status bar

The status bar is displayed at the bottom of the AFH-FAST/FD program window. You can show or hide the status bar with the Status Bar command in the View menu.

7.12 Further windows and dialogs

The application includes other windows and dialogs that have not been described in the previous chapters. Here are the links to the corresponding chapters.

The settings dialog is especially worth mentioning.

7.13 List of the different windows and dialogs

- Test bench control dialogue
- Serial interfaces
- Measuring instruments
- Settings

7.13.1 Test bench control dialogue

This dialog is used to control the test bench. It is only available if a displacement encoder was found at program start. If no displacement measuring device was found, the corresponding menu item is inactive.



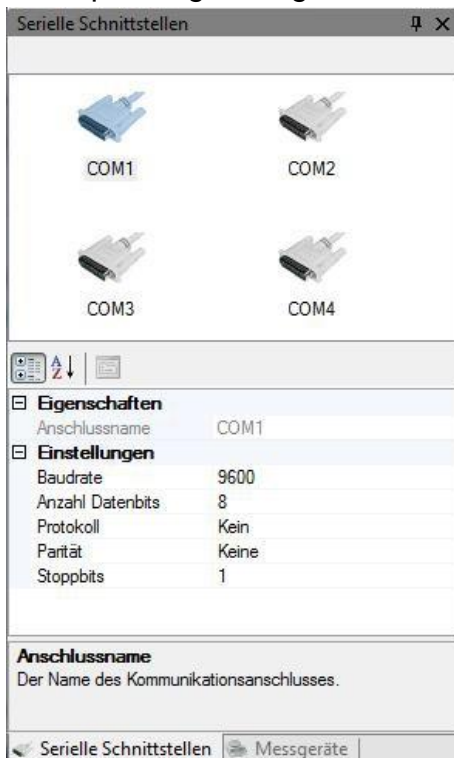
The dialog contains three buttons to control the movement of the test stand, one to zero the force gauge and a display that shows the current direction of the test stand movement.

Hint:

If you connect devices after starting AFH- FAST/FD, then AFHFAST/FD must be closed and restarted or the menu item Find measuring devices must be executed in order for the measuring devices to be recognized.

7.13.2 Serial interfaces

This window shows all serial interfaces available in the PC. To view or change the settings, the corresponding interface must be selected. In the lower window the corresponding settings can then be adjusted.



7.13.3 Measuring instruments

This window displays all the instruments created. To change the properties of a specific device, the device must be selected and the desired properties adjusted.



7.13.4 Settings

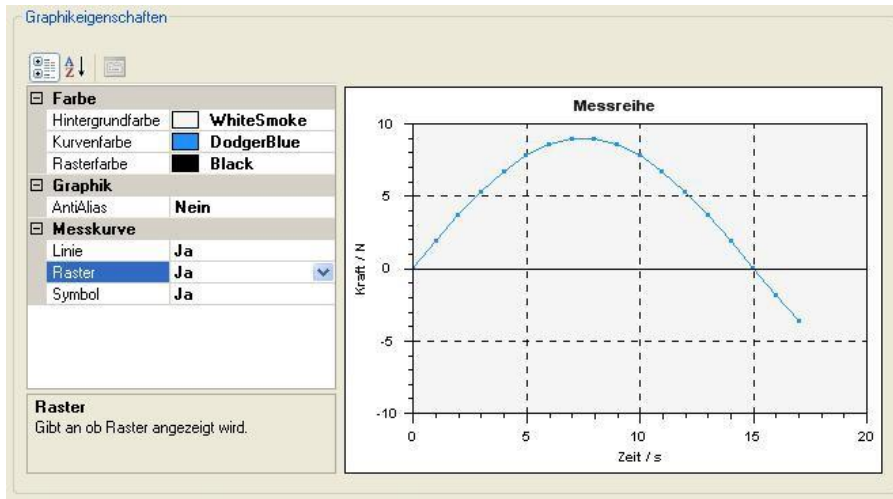
The settings dialog is the place where the application parameters can be changed. Some parameters (e.g. changes in device properties) are automatically saved and others (the appearance of the diagram display) are additionally available via the AFH-FAST/FD toolbars. But the most important settings of the application can be found in this dialog.

This dialog is divided into different categories (Graphic, Display and Add-In), according to the content and importance of the parameters. In this chapter you will find a description of each of these categories and each parameter.

7.13.5 Graphic

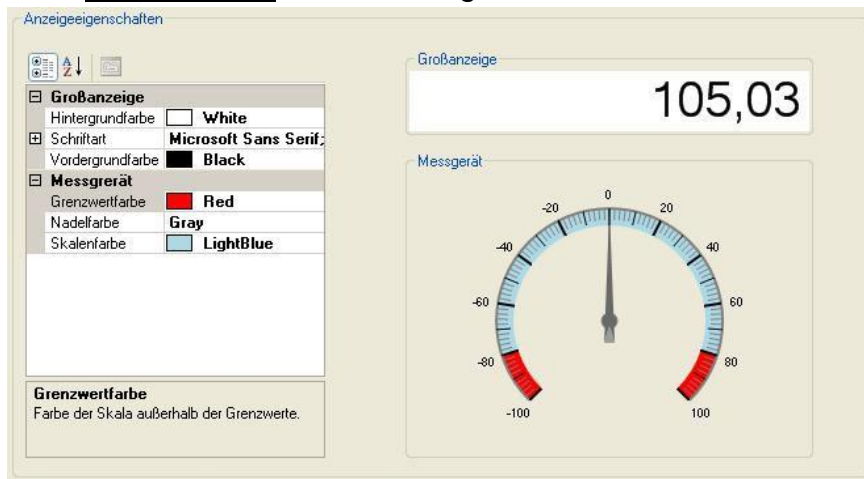
Changing the background of the graphic display, the color of the trace or the color of the grid

- - Graphic: Switching on/off the Anti Alias function to improve the quality of the trace
 - Measurement curve: switch grid on or off, switch lines between the measurement points on or off, display of the measured values as point symbols.



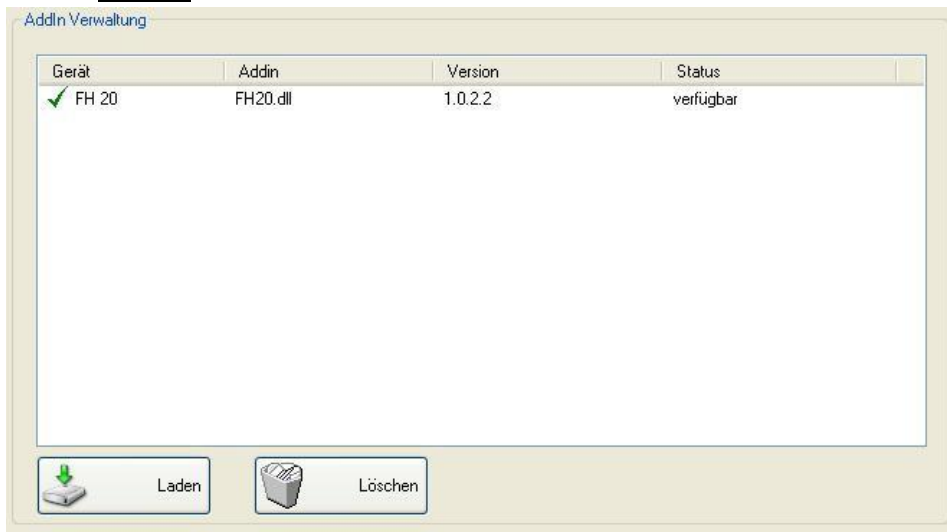
7.13.6 Display

- - Measuring instrument: Adjust limit value color, color of the scale and needle of the analog measuring instrument
 - Large display: Select background color, font and font color of the large display



7.13.7 Add-in

- Download - Download the latest add-ins for the interpretation of the measuring instrument protocols (an Internet connection is required)
- Delete - Delete unneeded add-ins from the hard disk

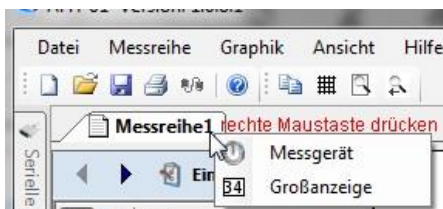


7.13.8 Analogue display

This window displays the current measured value in the form of an analog meter. The limit value range can be indicated by a different color with help of the settings dialog.



- To switch on the window, press the right mouse button above the measurement series



7.13.9 Enlarged display

This window displays the current measured value in enlarged form. The font and color can be changed using the settings dialog.



8 information on



This dialog shows the logo, version and possibly additional information about the AFH-FAST/FD product.

8.1 How can I...?



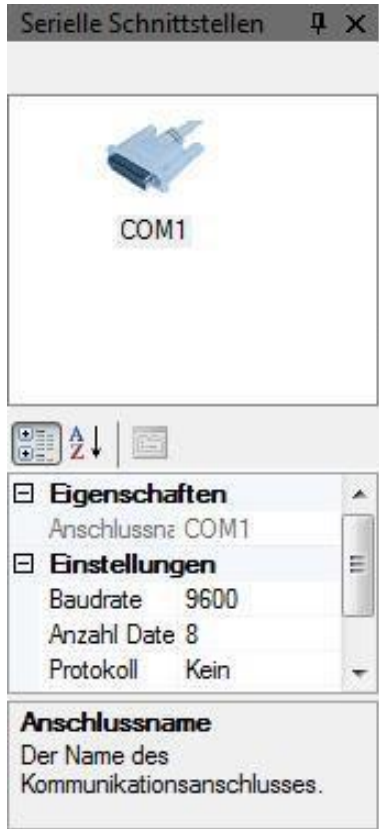
In this help chapter you will find examples to help you understand the tasks you can perform with the AFH-FAST/FD product. The list below contains links to these examples.

8.2 Exporting measurement results

You can export measurement series to EXCEL

8.3 Manage serial interfaces

The program displays all existing serial interfaces. To change the settings of an interface, select the icon of the interface and then adjust the corresponding values (baud rate, parity, etc.) in the lower part of the window. If the window for managing serial ports is not visible, it can be displayed using the View->Serial ports menu



function.

8.4 Manage measuring instruments

The program displays all created measuring instruments. In this window you can create new gauges, delete gauges, change their settings or check the connection to the gauge. If the window for managing encoders is not visible, it can be displayed with the menu function View→ Encoders.

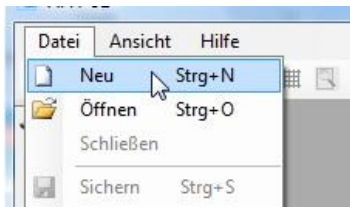
8.5 Record measurement series

To record measurement series you must carry out the following steps:

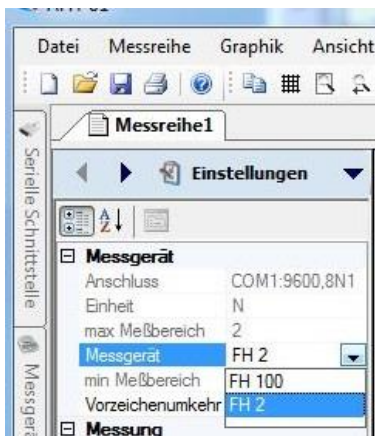
- Create a new measurement series document with menu item File->New of the main menu
- Select a measuring instrument from which the measured data are received
- Adjust settings of the measuring device and the measurement
- Switch to the measuring menu
- Start measurement, record measured values manually or time-controlled
- Stopping the measurement and saving or printing the data
- Closing the measurement series document

8.6 Record measurement series

8.6.1 Create a new measurement series document



8.6.2 Select the meter from the device list



8.6.3 Change the properties of the meter and/or measurement according to your needs

The only device property that can be changed is the sign inversion. When this property is set to Yes, the sign of the measured value is reversed, e.g. if the meter sends 40 N, the measured value is changed to -40 N. All other device properties are taken from the device properties window.

The following measurement series properties can be changed:

- Date/time is automatically entered at the start of the measurement
- Device limits allow to record only measured values within a predefined bandwidth
- Mirror Horizontally allows the graphic view of the measured values to be mirrored horizontally
- Measurement type can be either force-time, force-displacement or memory readout
- Upper limit of measurement series (only active if device limits are set to yes)
- Title of the measurement series for saving and displaying the measurement data
- Lower limit of the measurement series (only active if device limits are set to yes)

Travel reversal is used to invert the travel values (only visible if measurement type is set to force travel) Time interval in which the device command to request a measured value is sent (this setting influences the number of stored measured values for long-term measurements and thus also the maximum test time. A maximum of 500,000 measured values can be stored for force/displacement or force/time measurements).

8.6.4 Switch to the measuring menu

After switching to the measuring menu you are able to record series of measurements.



Depending on the measurement type, this menu looks slightly different:



Force Time



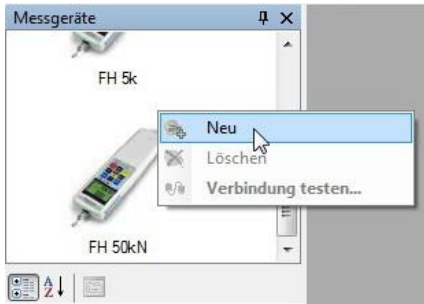
Force-Distance

8.6.5 Export measured data to EXCEL

To export measurement data to EXCEL (or any other XML-compatible software), you only need to save the document with Save or Save as. The file is then loaded into EXCEL with the Open command (file menu) by selecting the document type XML when loading.

8.6.6 Create device

- To create a new gauge, right-click in the gauge window to display the shortcut menu. Then select the menu item New. The "Create Measurement Device" dialog appears.

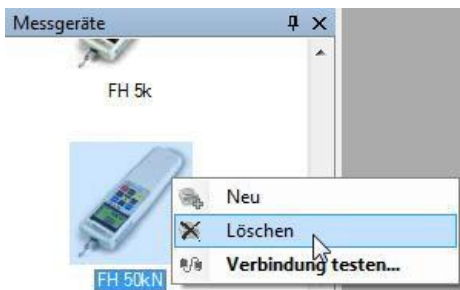


- Select the device type from the list and enter the name for the device (or accept the default name), then press the OK button. The created measurement device should now appear in the measurement device window.



8.6.7 Delete device

- To delete a meter, right-click on the meter icon to display the context menu. Then select the menu item Delete. A message confirming the deletion appears.



- To confirm, press the Yes button in the message window.



8.6.8 Changing device settings

All device-specific settings can be changed in this properties window. On the left side is the name of the property and on the right side are the corresponding property values. The lower area displays a short description of the property.



8.6.8.1 The measuring instruments have the following characteristics:

- Device command for a stable measured value
- Device type
- Max, min Measuring range
- Device name
- Number of data bytes sent by the device
- Readability
- Sign reversal (the received measured values are inverted)
- Connection (COM port to which the device is connected)
- Unit
- Safety stop

8.6.9 Test device connection HERE

With this dialog you can check whether a connection to the respective measuring device is present and the device communicates with AFH-FAST/FD without errors.

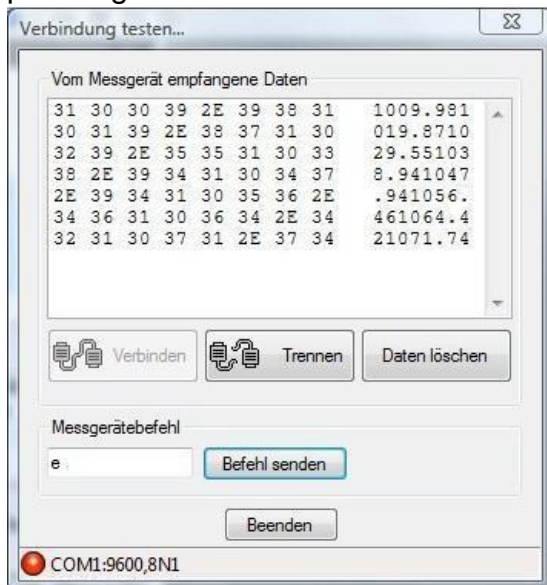
To establish the connection, press the Connect button. The red LED indicates whether the COM port has been opened without error. The current connection parameters are displayed to the right of it.

When the instrument sends data, it is displayed in the window (Data received from the instrument) in hexadecimal form and as ASCII characters.

Use the Clear Data button to delete all data received from the window.

Use the Send command button to send the encoder command to the measuring instrument.

Before you close this dialog, terminate the connection to the measuring instrument by pressing the disconnect button.



8.6.10 Change interface properties

All interface-specific settings can be changed in this properties window. On the left side is the name of the property and on the right side are the corresponding property values. The lower area displays a short description of the property.



8.6.10.1 The serial interface has the following properties:

- COM Port Port Number
- Baud rate (the transmission speed in bits/ sec)
- Number of data bits (number of data bits per byte)
- handshake protocol
- Parity
- Number of stop bits

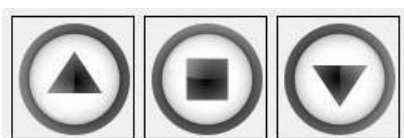
8.6.11 Control test bench

The test stand dialog allows you to control the movement of the test stand and reset the force gauge to zero. It can only be displayed if a displacement encoder was found at program start. Otherwise the respective menu item is inactive.



8.6.12 Controlling the movement of the test bench

With these three buttons you can move the test bench up or down and stop it. The movement display shows the current movement status.



8.6.13 Set measuring instrument to "zero"

Use this button to set the meter to "zero".



8.6.14 Display of the current movement status of the test bench

This motion indicator shows whether the test bench is moving up or down or is at rest.



8.6.15 Additional sources of assistance

Here you will find links to further help sources (operating instructions etc.).

Reference Manual

- AFH-FAST/FD Documentation
- Measuring Instruments Manual

8.6.16 Links

Sauter GmbH, <http://www.sauter.eu/>

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