

# Bedienhandbuch/Operating Manual

PC-Software für Spektrum Analysator R&S FS300/ PC Software for Spectrum Analyzer R&S FS300

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#### Licence Agreement

Rohde & Schwarz grants you the right to install the R&S FS300-K1 software package on one or more PCs of your choice. The licence included in the software package is tied to the serial number of the Spectrum Analyzer R&S FS300 selected by you and enables you to use R&S FS300-K1 for remote-controlling this instrument when connected to the PC. You must obtain a separate licence for each additional Spectrum Analyzer R&S FS300 you wish to remote-control by means of R&S FS300-K1.



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# **Chapter Overview**

General	Content of Manual Table of Contents
Chapter 1	Introduction
Chapter 2	Installation and Configuration
Chapter 3	Starting the Remote Control
Chapter 4	Getting Started
Chapter 5	Control Concept
Chapter 6	Overview of all Menus and Functions (Shortcuts)
Chapter 7	Saving/Exporting Data (File)
Chapter 8	Customizing the Working Window (View)
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## **Content of Manual**

## **Operating Manual for R&S FS300**

Contents

The operating manual for R&S FS300 provides information about:

- Technical characteristics of the instrument
- Safety instructions
- Support center address
- Control elements
- Putting into operation
- Basic operating procedures
- Instrument functions
- Instrument interfaces

By way of an introduction, a typical R&S FS300 measurement is described.

The operating manual also contains information about maintenance and troubleshooting based on the warnings and error messages issued by the instrument.

## Operating Manual for R&S FS300-K1

Contents

This operating manual contains information about:

- Installation and configuration of the PC software
- Installation of the remote control
- Basic operation steps and elements
- Operation via menus and toolbars

By way of an introduction, a typical R&S FS300 measurement is described.

The information in operating manual R&S FS300-K1 is almost similar to that of the R&S FS300 manual. Both manuals are structured in a similar manner to facilitate specific information searches.

■ Note For the purposes of this manual, it is assumed that the user is familiar with a PC and especially with the Windows<sup>™</sup> operating system. Therefore this operating manual does not elaborate on any Windows<sup>™</sup>-typical operating instructions.

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# 1 Introduction

# 1.1 Applications of PC Software R&S FS300-K1

Performance features

The PC Software R&S FS300-K1 allows convenient operation of the R&S FS300 by remote control via a PC. All the functions of the spectrum analyzer are supported. In addition, you can create test reports on your PC. Highlights of the software features are:

- Fast and simple transfer of measurements between the R&S FS300 and the PC
- Permanent analysis of ongoing sweeps to the PC with evaluation capabilities (Marker, Zoom, etc.)
- Practically unlimited memory capacity for storing traces and measurement information (comparison of current and previous information)
- Extended range of functions (Limit Lines, Log File)
- Export of trace values (700 points) in .txt format for import into Microsoft Excel<sup>TM</sup>
- Export of displayed data (screenshots) in JPEG format
- Printing the working window by standard Windows<sup>TM</sup> printer

Remote control using the keyboard and the mouse All functions and measuring parameters can be set with the keyboard and the mouse using menus, toolbars or short keys.

Large display on the The PC monitor mea

The current trace as well as parameters and status fields required for measuring result analysis are displayed clearly arranged on the monitor.

# **1.2 Supplied Accessories**

Contents

1 USB cable

1 manual German/English

1 CD (contents: manual German/English, PC software R&S FS300-K1, Acrobat Reader™)

# 2 Installation and Configuration

System requirements The PC software runs on Windows<sup>™</sup> 2000 and XP operating systems.

# 2.1 Installing the PC Software

Note	To install the PC software, you must have administrator rights on your PC. (↗ Windows™ help).		
Introduction	The PC software is installed in two steps. First the remote control program for the R&S FS300 is installed. The R&S FS300 should not be connected at this stage. Secondly the drivers are installed and the instruments has to be connected at this time.		

## 2.1.1 Installing the Program

Note	The <back> button enables the user to go back one step during installation. Installation can be interrupted by pressing <cancel>.</cancel></back>						
Installation steps	I. Place the CD ROM, which came with the product, in your installation drive. The autorun function automatically initiates installation. Alternatively you may also initiate the installation in the start menu of Windows <sup>TN</sup> Start\Run using the Setup.exe from the CD.						
	Run     ? ×       Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.       Open:     E:\SETUP.EXE						
	Cancel Browse						

The installation is prepared and the installation wizard appears.



2. Click **<Next>** to continue the installation.

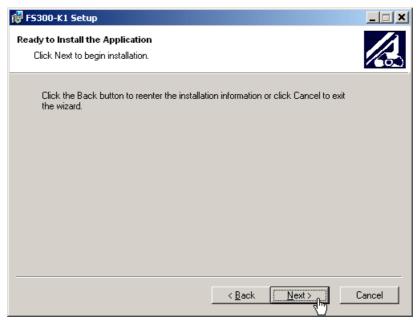
3. Click **<Browse>** to assign a new directory if you wish to install the program in another directory than proposed. Click **<Next>** to continue the installation.

🔂 F5300-K1 Setup	
Destination Folder Select a folder where the application will be installed.	
The installation wizard will install the files for FS300-K1 in the following folder.	
To install into a different folder, click the Browse button, and select another folder.	
You can choose not to install FS300-K1 by clicking Cancel to exit the installation wizard.	
_ Destination Folder	_
C:\Programs\Series300\	Ļ
	f l
< <u>B</u> ack <u>Next</u>	Cancel

#### PC Software R&S FS300-K1

#### Installing the PC Software

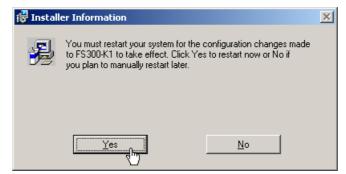
4. Click **<Next>** to continue the installation. Installation begins and the data are transferred to the PC.Please wait a moment.



5. Click **<Finish>** to successfully complete the installation.



6. Click <Yes> to restart the computer.



All new settings are now effective and the following appears in the Windows<sup>TM</sup> Start\Programs\Rohde&Schwarz\Series300 start-up menu:

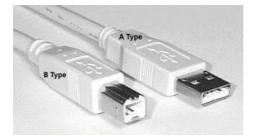
Ē	Series300	≯	۲	FS300 Help
			ж	F5300
			≣	ReadMe
			Serie	Service Series300

7. Install the device driver now (7 next section).

### 2.1.2 Installing the Device Drivers

#### 2.1.2.1 Installing Steps for Windows<sup>™</sup> 2000

Connecting R&S FS300 to the PC R&S FS300 is connected to the PC via the USB interface. The connection cable has two plug types. Plug A is connected to the computer (7 computer manual) and plug B is connected to the R&S FS300 (7 R&S FS300 manual, Ch. 2.2 Rear View).



The CD ROM must be in the installation drive in order to install the driver.

- **1.** Switch on the R&S FS300 and the PC.
- 2. Connect the instrument to the PC with the USB cable. The PC (Windows<sup>™</sup>) recognizes the connected instrument and reports new hardware. This message appears only when an R&S FS300 is installed for the first time.



If the R&S FS300 is not automatically recognized, check that the USB master switch of the R&S FS300 is at **AUTO** (7 R&S FS300 manual, Ch. 6.3.4.3 Configuring the Instrument Interfaces).

### PC Software R&S FS300-K1

#### Installing the PC Software

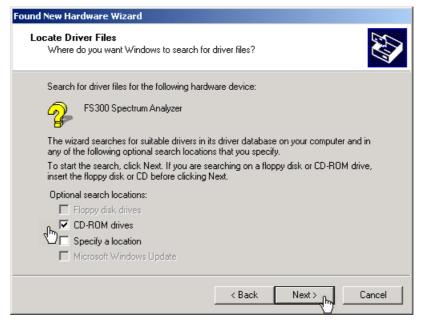
Installing device drivers 3. Click **<Next>** to continue the installation.



**4.** Select **Search for a suitable driver for my device** and click **<Next>** to continue the installation.

Found New Hardware Wizard
Install Hardware Device Drivers A device driver is a software program that enables a hardware device to work with an operating system.
This wizard will complete the installation for this device:
FS300 Spectrum Analyzer
A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.
What do you want the wizard to do?
പ്പിന്ന 🌀 Search for a suitable driver for my device (recommended)
✓ C Display a list of the known drivers for this device so that I can choose a specific driver
< Back Next > Cancel

5. Select CD-ROM drives and click <Next> to continue the installation.



Then the search results for the driver data are displayed.

6. Click **<Next>** to continue the installation.

Found New Hardware Wizard
Driver Files Search Results The wizard has finished searching for driver files for your hardware device.
Please wait while the wizard searches for driver files for the following hardware device:
FS300 Spectrum Analyzer
Search location:
e:\series300_windows_driver\usbio.inf
< Back Next > Cancel



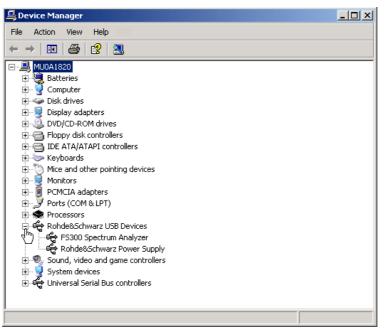
7. Click **<Finish>** to complete the installation.

This is followed by the installation of the device driver for the **Rohde & Schwarz Power Supply**. Windows generally "remembers" all the necessary information when installing the Spectrum Analyzer R&S FS300 and installs the Rohde & Schwarz Power Supply without a query. However, depending on the system, the installation assistant might be activated.



In this case, repeat instructions 3. to 7. to successfully complete the installation.

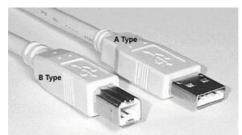
The drivers are now correctly installed and this can be checked using the device manager.



8. Enter now the key code for the computer software (7 2-20).

### 2.1.2.2 Installing Steps for Windows™ XP

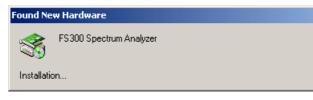
Connecting R&S FS300 to the PC R&S FS300 is connected to the PC via the USB interface. The connection cable has two plug types. Plug A is connected to the computer (7 computer manual) and plug B is connected to the R&S FS300 (7 R&S FS300 manual, Ch. 2.2 Rear View).



The CD ROM must be in the installation drive in order to install the driver.

- 1. Switch on the R&S FS300 and the PC.
- 2. Connect the instrument to the PC with the USB cable. The PC (Windows<sup>™</sup>) recognizes the instrument when it is connected and reports new hardware. This message appears only when an R&S FS300 is installed for the first time.

### PC Software R&S FS300-K1

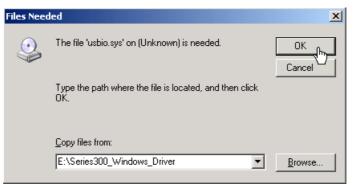


If the R&S FS300 is not automatically recognized, check that the USB master switch of the R&S FS300 is at **AUTO** (7 R&S FS300 manual, Ch. 6.3.4.3 Configuring the Instrument Interfaces).

- Installing device drivers
- 3. Select **Install the software automatically** and click **<Next>** to continue the installation.

Found New Hardware Wizard					
	Welcome to the Found New Hardware Wizard				
	This wizard helps you install software for:				
	FS300 Spectrum Analyzer				
	If your hardware came with an installation CD or floppy disk, insert it now.				
	What do you want the wizard to do?				
	$\mathbb{O}$ Install the software automatically (Recommended) $\mathbb{O}$ Install from a list or specific location (Advanced)				
	Click Next to continue.				
	< Back Next > Cancel				

4. Click **<OK>** to continue the installation.



Then the search results for the driver data are displayed.



This is followed by the installation of the device driver for the **Rohde & Schwarz Power Supply**. Windows generally "remembers" all the necessary information when installing the Spectrum Analyzer R&S FS300 and installs the Rohde & Schwarz Power Supply without a query. However, depending on the system, the installation assistant might be activated.



In this case, repeat instructions 3. to 5. to successfully complete the installation.

5. Click **<Finish>** to successfully complete the installation.

The drivers are now correctly installed and this can be checked using the device manager.

📮 Device Manager	_ 🗆 🗵
File Action View Help	
$\leftarrow \rightarrow   \blacksquare   \textcircled{=}   \textcircled{2}   \textcircled{3}$	
Image: Second state of the second s	

6. Enter now the key code for the computer software (7 2-20).

# 2.2 Entering the Key Code for the PC Software

Note	Please send the following information to: <u>registration.smart-instruments@rsd.rohde-schwarz.com</u> to receive a key code for the PC software.			
	<ul> <li>Company address, email address</li> <li>Instrument specification with serial number (e.g., R&amp;S FS300, 0000123456)</li> <li>Computer software registration number (7 rear view of manual)</li> </ul>			
	As soon as we receive this information, you will receive your key code. If it is not possible to send you the key code by email or if you have further ques- ions please contact your R&S distributor or the nearest R&S representative. Addresses for R&S representatives can be found in the R&S FS300 manual.			
Introduction	After the software has been installed, the following options are available in the Windows™ start-up menu under: Start\Programs\Rohde&Schwarz\Series300:			
	Image: Series300 →       Image: FS300 Help         Image: Series300       Image: FS300         Image: Series300       Image: Series300			
	The <b>FS300</b> program is only a simulation version without instrument conne tion. Before you can remotely control the R&S FS300, it is neccessary ent the software key code. Use the service program <b>Service Series300</b> for this.			
Starting the service program	<ol> <li>In the Windows<sup>™</sup> start-up directory select: Start\Programs\Rohde&amp;Schwarz\Series300\Service Series300</li> </ol>			
	The service program initializes. The program interface is divided into two areas:			
	<ul> <li>A list of all previously connected Smart instruments</li> <li>Information, status fields and command buttons for authorization</li> </ul>			

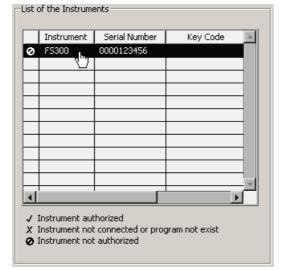
#### PC Software R&S FS300-K1

#### Entering the Key Code for the PC Software

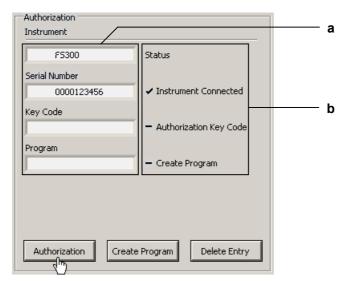
			Author	rization: PC	-Software	
List o	of the Instrum	ents			Authorization	
				_	Instrument	
	Instrument	Serial Number	Key Code			Status
0	F5300	0000123456				Status
					Serial Number	
						<ul> <li>Instrument Connected</li> </ul>
					Key Code	
						- Authorization Key Code
					Program	
					Frogram	- Create Program
					J	- Create Program
		h a star al				
	instrument au Instrument noi	tnorizea t connected or progr	am not exist			
	instrument no				Authorization Cr	reate Program Delete Entry

Entering the key code

2. In I click on the instrument for which you wish to enter the key code.



- In **II** the authorization information is displayed:
- (a) Current instrument information
- (b) Instrument status



3. Click on **<Authorization>**. The entry field for the key code opens.

🔤 Authorization	×
-Authorization - Input Key Code	1
Please enter the Key Code for the instrument	
with the Serial-Number: 0000123456	
You get it from support: registration.smart-instruments@rsd.rohde-schwarz.com	
Key Code	

**4.** Enter the key code and click **<OK>**. If the key code has been entered correctly, the instrument status in **II** changes from – to ✓.



Click <Create Program>. An authorized program is created and is displayed in II with the status ( 

 The program number is made up of the instrument designation (FS300) and the serial number (0000xxxxxx).



6. In II click <Exit> to close the service program. After correctly entering the key code, the option FS300 0000xxxxxx is available in the Windows<sup>™</sup> start-up menu Start\Programs\Rohde&Schwarz\Series300.

Ē	Series300	D 🥏	FS300 Help
			FS300
		Ē	ReadMe
		S	Service Series300
			F5300 0000123456

You may now start the **FS300 0000xxxxxx** program (7 2-23).

Creating the authorized program

## 2.3 Uninstalling the PC Software

Installation steps for Windows™ 2000 1. Place the CD ROM, which came with the product, in the installation drive. The autorun function automatically initiates installation. Alternatively you may also initiate the installation in the start menu of Windows<sup>™</sup> Start\Run using the Setup.exe from the CD. The uninstallation is prepared and the uninstallation assistant appears.



2. Click <Next> to continue the uninstallation.

🚏 F5300-K1 Setup		
	FS300-K1 has been successfully uninstalled.	
	Click the Finish button to exit this installation.	
	< Back Finish	Cancel

3. Click **<Finish>** to complete the uninstallation.

🖹 Note

The PC software can also be uninstalled using the Windows<sup>™</sup> control panel.

# 3 Starting the Remote Control

# 3.1 Connecting the Instrument to the PC

Note	PC software FS300-K1 must be installed before you can connect the R&S FS300 to the PC (7 2-9).		
Introduction	R&S FS300 is connected to the PC via the USB interface. The connection cable has two plug types. Plug A is connected to the computer (A computer manual) and plug B is connected to the R&S FS300 (A R&S FS300 manual, Ch. 2.2 Rear View).		
Prepare remote con- trol	1. Switch on the R&S FS300 and the computer.		
Connect instrument to PC	2. Connect the instrument to the computer with the USB cable. The computer recognizes the attached instrument and sets up a connection. The following message appears on the monitor of the R&S FS300:           Image: Comparison of the computer with the USB cable. The computer recognizes the attached instrument and sets up a connection. The following message appears on the monitor of the R&S FS300:           Image: Comparison of the computer vith the USB cable. The computer recognizes the attached instrument and sets up a connection. The following message appears on the monitor of the R&S FS300:           Image: Comparison of the computer vith the use of the computer vith the local set of the computer vith the local set of the R&S FS300 is not automatically recognized, please check that the USB master switch of the R&S FS300 is at position AUTO (7 R&S FS300 manual, Ch. 6.3.4.3 Configuring the Instrument Interfaces).		
Note	In remote control mode, control of the R&S FS300 is deactivated and can only be reactivated by pressing the SYS key at the front panel of the instru- ment. Switching from remote to local control takes approximately 5 seconds.		

# 3.2 Starting the Program

Starting the program

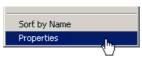
1. In the Windows<sup>™</sup> start-up directory click on: Start\Programs\Rohde&Schwarz\Series300\FS300 0000xxxxxx



- If the link is not available
- 2. If the program does not start, then click with the right mouse button in the Windows<sup>™</sup> start-up directory on:

Start\Programs\Rohde&Schwarz\Series300\FS300 0000xxxxxx

Click Properties.



Click **<OK>** to create a link between the programm and start-up directory.

F5300 0000123456 Properties ? 🗙			
General Shortcut Security			
FS300 0000123456			
Target type:			
Target location: C:\			
Target: rogram Files\Series300\FS300_0000123456.exe			
Run in separate memory space Run as different user			
Start in:			
Shortcut <u>k</u> ey: None			
<u>B</u> un: Normal window			
Comment:			
<u>Find Target</u> <u>Change Icon</u>			
OK Cancel Apply			

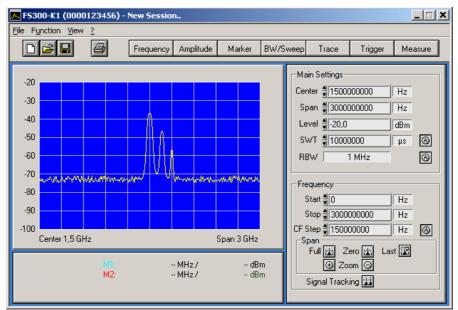
Start the program again (7 above, instruction 1.)

### Starting the Program

#### PC Software R&S FS300-K1

Program interface

The program starts up and you may begin using the R&S FS300 remote control.



Loading the current instrument settings

A new session opens automatically when you start the program. The current R&S FS300 settings are loaded. The following settings are display and evaluation functions and are not transferred to the PC software:

- Marker functions (7 6-46)
- Scale of measuring diagram (Range, Unit)
- Trace functions (7 6-49)
- Measure functions (↗ 6-50)

Note If the message **Device not connected** appears on the program interface, you need to check the connection to the instrument (73-24).

# 3.3 Closing the Remote Control

Closing the program 1. In Windows<sup>™</sup> click on the close symbol **x**.



You may also select the option Exit in the pull-down menu File.

🔼 F5300-K1 (0000	123456) -
File Function View	2
) <u>N</u> ew Session	Ctrl+N
Open Session	Ctrl+O
Save Session	Ctrl+S
Save Session <u>a</u> s	Ctrl+A
Logfile Export	•
Page Setup Print Window	Ctrl+P
	<b>CI 1. C</b>

Closing the remote control

**2.** Remove the USB cable from one side or press the SYS key at the front panel of the R&S FS300.

Switching between remote and local control takes approximately 5 seconds.

# 4 Getting Started

## 4.1 Level and Frequency Measurement

### 4.1.1 Measuring Task

Caution	The input stage of the R&S FS300 can be destroyed by overloads or DC components. If there is a possibility that the limits specified in the data sheet may be violated, the input must be protected with an attenuator and/or a DC block.			
Measurement problem	Determining the level and frequency of a signal is one of the most common measuring tasks which can be solved with a spectrum analyzer. When measuring an unknown signal the PRESET (factory) setting (7 R&S FS300 manual, Ch. 6.1 R&S FS300 Factory Settings) is used as a start-up setting.			
Solution	Important functions for the level and frequency measurement are setting the center frequency (CENTER) and the frequency display span (SPAN) as well as the MARKER functions.			

### 4.1.2 Measuring Sequence

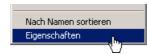
Introduction

In this example, a signal with a frequency of 200 MHz and a level of –30 dBm is applied to the HF input of the R&S FS300. The center frequency and the frequency display span are set manually. Carry out the following steps:

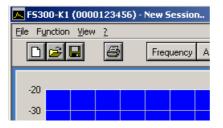
- Reset the R&S FS300
- Apply a signal to the R&S FS300
- Set the center frequency (Center) to 200 MHz
- Reduce frequency display span (Span) to 1 MHz
- Measure the level and frequency with the marker
- Measure the frequency with the built-in frequency counter

Resetting the R&S FS300

1. Start the PC software (FS300 0000123456.EXE) on your PC.



Alternatively you may also open a new session when the PC software is already started. To do so, press **<Ctrl+N>**. The default settings are now active (*¬* R&S FS300 manual, Ch. 6.1 R&S FS300 Factory Settings).



### PC Software R&S FS300-K1

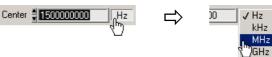
#### Level and Frequency Measurement

Applying a signal to the R&S FS300

2. Apply the measuring signal to the HF input socket.



- Setting the center frequency (Center) to 200 MHz
- 3. Use the mouse to set the measuring unit <MHz> for the input window Center.



4. Press <Ctrl+Shift+C>. The input window Center is active again.

Center	1500,000000	MHz

5. Enter the value <200> with the numeric keys. Complete the input by pressing <Enter>.

Reducing the frequency display span (Span) to 1 MHz 6. Use the cursor to set the measuring unit **<MHz>** for the input window **Span**.



7. Press <Ctrl+Shift+S>. The input window Span is active.

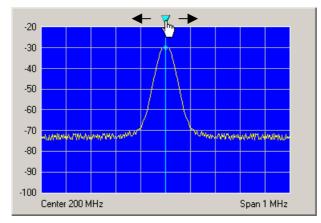


8. Enter the value <1> with the numeric keys. Complete the input by pressing <Enter>.

Span 🗍 1,000000	MHz
-----------------	-----

### Level and Frequency Measurement

Measuring the level and frequency with the marker **9.** Press **<Ctrl+Shift+M>**. The marker jumps to the signal peak. An arrow appears above of the diagram at the position of the marker.



**10.** You can change the position of the marker by moving the arrow with the left **<Mouse Button>**. The parameter field below shows the marker values M1.



- Measuring the frequency with the built-in frequency counter
- 11. In the Function display Marker click on <Counter> with the left <Mouse Button>



**12.** Set the resolution of the frequency counter in the selection window **<Res>**.



The exact frequency value C1 can be seen in the parameter field below.



#### **Control Concept** 5

#### **PC Monitor Display** 5.1

Introduction

The PC monitor provides continuous information about the results and parameters of the selected measuring functions. The display format for the measuring results and the insertion of the function displays depend on the current settings.

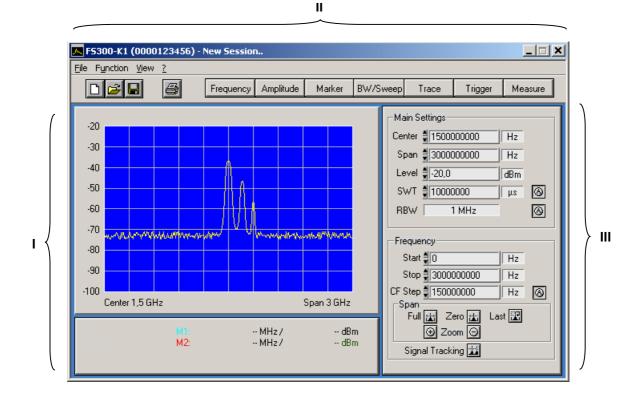
Structure of the program interface

#### The program interface is divided into three areas:

- L Diagram
- Ш Menus

ш

Functions

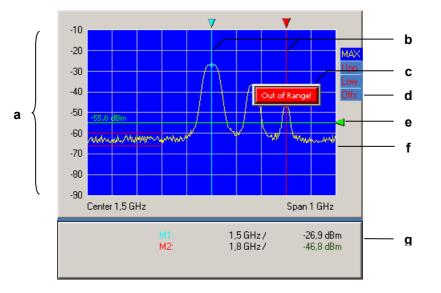


## 5.1.1 Diagram

**Diagram displays** 

The diagram area contains:

- Measuring diagram with scale (**a**) and traces (**f**)
- Measuring value displays, e.g., display lines (e) and markers (b)
- Limit lines (g)
- Parameter field (h) and status displays (c)
- Pop-up error messages (d)



Measuring diagram
Parameter field and
status display

A 10 x 8 grid is superimposed on the diagram to facilitate traces analysis.

The following values are displayed in the parameter field:

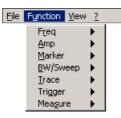
- M1: marker 1 with marker position and level value
- M2: marker 2 with marker position and level value

The status display provides information about:

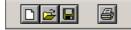
	Offs- level offset is switched onUpp- limit line Upp is switched onLow- limit line Low is switched onMAX- current trace display, e.g., maximum value.			
Note	When the message <b>Out of Range!</b> appears, close it with the mouse or the Enter key.			
	Further system messages and warnings in illegal modes of operation are described in detail in chapter 9 of the R&S FS300 manual.			

### 5.1.2 Menus

Calling up and displaying menus Different pull-down menus can be accessed in the menu area.



In addition, Windows^ $\ensuremath{^{\text{TM}}}\xspace$ -typical menu items can be called up via a toolbar (icons).



Menus for setting the measuring parameters and functions are also available as a toolbar and can be selected directly.

Frequency Amplitude	Marker	BW/Sweep	Trace	Trigger	Measure
---------------------	--------	----------	-------	---------	---------



The ▶ arrow after a menu option in the pull-down menu indicates that a submenu will appear after opening, e.g., Amp ▶.

### 5.1.3 Functions

Main functions display

The **main functions** of the FS300 are always displayed in the top part of the function display. These are:

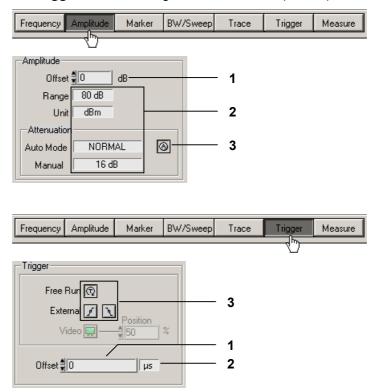
- Center frequency (Center)
- Frequency display span (Span)
- Reference level (Level)
- Sweep time (SWT)
- Resolution band width (RBW)

These may be changed at any time.

Main Settings	
Center #1500000000 Hz	
Span 🛔 3000000000 Hz	
Level 🚽 -20,0 dBm	
SWT 10000000 µs	0
RBW 1 MHz	0

# Inserting specific functions

In the lower part of the function display, different function displays with input fields (1), selection fields (2) and control buttons (3) are displayed e.g., **Amplitude** or **Trigger** etc., according to menu selection (75-39).



**Note:** If a selection is not highlighted, it has currently no function (current setting).

#### 5.2 Input via Keyboard and Mouse

Introduction

The R&S FS300 is remote controlled via PC keyboard and mouse with the help of menus. The most important keys are:

- 0...9 . Numeric keys
  - Arrow keys / ▶ / ▼ / ▲
  - Function keys F5 ... F11 Enter, Esc
  - Action keys
- Tab key .

.

.

.

- Space bar Space
- Mouse buttons left, right

#### **Numeric Keys** 5.2.1

**Function** 

The numeric keys are used to enter numerical parameters.

Tab

0 ... 9 At cursor, insert numbers <0> ... <9> \_

> Level 🛔 20 dBm

At cursor, insert commas <,>

Level 🛔 20 , dBm

At cursor, insert minus sign <->

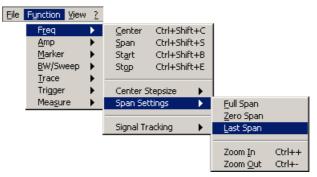
Level 📲 -20,0 dBm

#### 5.2.2 **Arrow Keys**

**Function** 

In addition to numeric keys, the arrow keys are used to enter parameters. They can also be used to navigate through the menus.

- The arrow keys have the following functions:
  - Navigating the pull-down menus with all arrow keys



– Navigating the selection fields with the ▼ / ▲ arrow keys

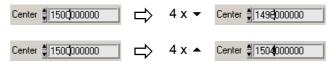


Positioning the cursor in the input fields with the ( / ) arrow keys

Center 🏺	150000000
----------	-----------

Increasing or decreasing numerical parameter inputs with the 

 arrow keys



## 5.2.3 Function Keys

**Function** 

Function keys open the menus to set the measuring parameters and measuring functions and insert the corresponding function display.

F5	_	Inserts the Frequency function display	(7 6-44)
<b>F6</b>	_	Inserts the Amplitude function display	(7 6-45)
F7	_	Inserts the Marker function display	(7 6-46)
F8	_	Inserts the <b>BW/Sweep</b> function display	(7 6-48)
F9	_	Inserts the <b>Trace</b> function display	(7 6-49)
F10	_	Inserts the Trigger function display	(7 6-50)
F11	-	Inserts the Measure function display	(7 6-50)

#### 5.2.4 Action Keys (Enter, Esc)

**Function** The action keys complete the menu-operated settings.

- Enter key This key closes the input or selection. The new value now applies.
  - Esc key This key closes the selection. The old value is preserved.

## 5.2.5 Tab Key

Function

The tab key activates the input fields, the selection fields and the buttons within a function display.

Tab key

– Jumps from one control element to another in a function display

Frequency	Frequency	
Start	Start 🛢 0	
Stop	Stop # 300000000	
CF Step # 150000000	CF Step # 15000000	
Span	Span	etc.

**Note:** The tab key can be only used to make selections when an input field, a selection field or a control button has been selected in the function display via a menu (75-39) or with the mouse (75-38).

## 5.2.6 Space Key

Function

After selecting an input field, a selection field or a control button with the tab key, different actions are initiated by pressing the space key:

Space key

- -Span-Full ∰ Zero ∰ Last ∰ ⊕ Zoom ⊖
- Toggle a setting, e.g., switch on/off signal tracking
   Signal Tracking 1
- **Open** selection fields, e.g., set the measuring unit for Span

Immediate function execution of the function e.g., Zoom +

Main Settings	
Center 🛔 1500000000	Hz
Span  300000000	J ↓ Hz
	kHz MHz
	GHz

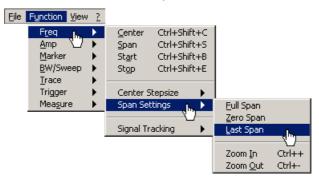
#### 5.2.7 Mouse Buttons

Function

Left mouse button

Placing the mouse pointer over and clicking on any program interface item will allow for different actions.

- Pull-down menus can be opened with the mouse



 The contents of input fields can be highlighted with mouse button pressed and held

 The cursor can be **positioned** in the input fields by clicking the mouse button



 Selection fields can be **opened** and settings can be **selected** with mouse button pressed and held



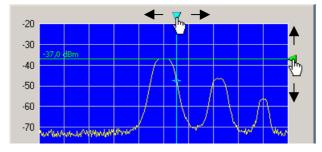
- Immediate **execution** of any function by clicking the mouse button



- Toggling a setting with multiple mouse clicks



Moving markers and limits, also in the diagram area, with mouse button pressed and held



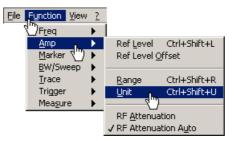
## 5.3 Calling up and Changing the Menus

Various methods are possible

The R&S FS300 is remote controlled via a menu. The keyboard and the mouse can be used to select a menu (7 5-35).

Instrument parameters (and program functions) can be selected in different ways on the PC interface, e.g., unit for the level display:

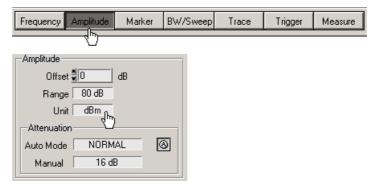
• Selecting with the pull-down menu



Selecting with short keys

Unit Ctrl+Shift+U

Selecting with the toolbar menu and selecting the selection field directly in the function display



B	Note	The > arrow after	r a menu option	in the	e pull-dow	n menu	indicates that a	a sub-
	Note	menu will appear a	after opening, e.g	g. !	<u>A</u> mp	▶		

## 5.4 Setting the Parameters

Introduction

Parameters can be set in different ways:

- Selecting an instrument function directly (command button)
- Selecting settings in the selection fields
- Inputting numerical parameters in the input fields
- Moving markers

The keyboard and mouse can be used for the settings (75-35).

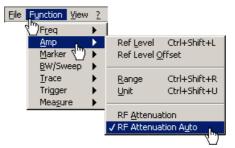
#### 5.4.1 Direct Selection of a Instrument Function

Various methods are possible

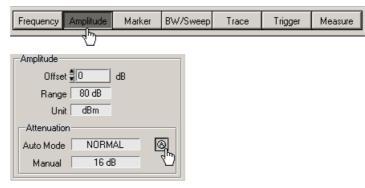
Some instrument functions are executed immediately after selection, e.g., automatic setting of the HF input attenuator.

Instrument parameters (control buttons) can be selected in different ways:

Selecting and switching on using a pull-down menu. The current setting is indicated by a tick mark ( < ).</li>



Selecting using a toolbar menu and switching on in the function display



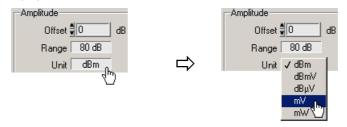
## 5.4.2 Selecting the Settings

Setting the instrument functions in selection windows Several settings are available for certain instrument functions, e.g., level display unit.

**The selection window** can be **reached** in a number of different ways (7539), e.g., selection using the toolbar menu.



**Opening the selection window** and **selecting the instrument functions** takes place in the **function** display. The current setting is indicated by a tick mark ( $\checkmark$ ).



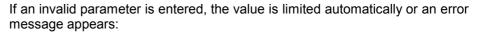
## 5.4.3 Inputting the Numerical Parameters

Setting instrument functions in the in- put window	<ul> <li>Two methods are available for entering the numerical parameters, e.g., inputting the frequency display range:</li> <li>Inputting a value with numeric keys</li> <li>Inputting a value with arrow keys</li> </ul>		
	You should use the arrow keys for inputting if the value to be measured can- not be determined accurately beforehand. Given that the screen is constantly updated while the values are changing, browsing is possible.		
Selecting input win- dow	The input fields can be selected in a number of different ways ( $7$ 5-39), e.g., using short keys:		
	_Main Settings Center ∯1500000000 Hz Span Ctrl+Shift+S ➡> Span <b>€000000000</b> Hz		
Selecting the unit	Inputting takes place in the active measuring unit. This is displayed behind the input field in the selection field and can be changed:		
	Span <b>‡ 3000000000 Hz</b> ↓ Hz ↓ Hz ↓ Hz ↓ Hz ↓ Hz ↓ Hz ↓ Hz ↓ Hz ↓ Hz ↓ Hz ↓ Hz ↓ Hz ↓ Hz		
	The selection field has to be selected again, e.g., using short keys:		
	<u>S</u> pan Ctrl+Shift+S		

#### Setting the Parameters

Inputting with nu-Inputting using the numeric keys can be done in a number of different ways: meric keys Highlighting and overwriting numbers Span Span 🛔 3000001234 Selecting a decimal point and inserting numbers Span 🛢 3001230000 Span 🛢 3000000 Inputting using the arrow keys can be done in a number of different ways: Inputting with arrow keys Selecting a decimal point and incrementation or decrementation with the / A arrow keys on the keyboard 4 x 🔻 Span 🛔 300000000 Span 🛢 2980000000 Incrementing or decrementing with the arrow keys on the user interface 29999999996 Span 🛢 300000000 4 x Span Note: When entering the center frequency, increment size can be set on the rotary knob (7 R&S FS300 manual, Ch. 6.2.1.3 Entering the Step Width of the Center Frequency). The value is then incremented or decremented according

Invalid parameter entry





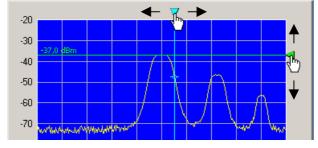
to this set value.

• Acknowledge the error message with the mouse or the Enter key and repeat the entry with the correct value.

## 5.4.4 Moving the Markers

Introduction

In the diagram area, lines (markers, limits, etc.) can be inserted to analyze the trace. In addition, an arrow is displayed at the edge of the diagram at the position of the corresponding line. The position of the line can be changed by moving the arrow with the left mouse button.



The marker values can be read in the parameter fields below.



#### **Overview of all Menus and Functions (Short-**6 cuts)

#### 6.1 File

Session

Menus to prepare for a The following options are available in the pull-down menu File: open, save and close a session; create a log file; export data; print screen.

New Session	Ctrl+N	Begin new session	(オ 7-52)
Open Session	Ctrl+O	Open saved session	(7 7-52)
Save Session	Ctrl+S	Save current session	(7 7-53)
Save Session <u>a</u> s	Ctrl+A	Save current session as	(7 7-53)
Logfile		Create a log file for the current session	(7 7-57)
Export	•	Export data	(7 7-59)
Page Se <u>t</u> up		Page setup for printing	(7 7-61)
Print Window	Ctrl+P	Print current window	(7 7-61)
E <u>x</u> it	Ctrl+Q	Exit program	(7 3-27)

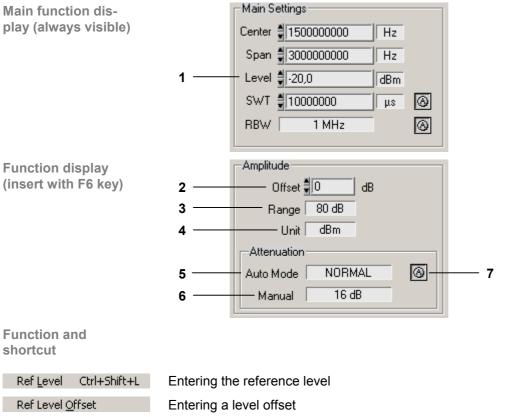
#### 6.2 **Function**

Note	Note Instrument functions are accurately described in chapter 6 of the R&S FS30 manual.				
Menus for configur- ing and starting measurements	The menus used to set the spectrum analyzer are displayed in the pull down menu <b>Functions</b> or in the toolbar menu. The order of the menus mirrors that of the procedure for configuring and starting measurements.				
F <u>r</u> eq 🕨	Selecting the frequency span (setting the x axis in the diagram area)				
<u>A</u> mp 🕨	Setting the level axis and the RF input (setting the y axis in the diagram area)				
<u>M</u> arker 🕨	Signal analysis with marker functions				
<u>B</u> W/Sweep	Setting the bandwidths and the sweep time				
<u>T</u> race	Displaying the trace				
Trigger 🕨	Triggering the measurement				
Mea <u>s</u> ure 🕨	Measurement functions				

## 6.2.1 Freq Menu

Main function dis- play (always visible)	1       Center       1500000000       Hz         2       Span       3000000000       Hz         Level       -20,0       dBm         SWT       10000000       μs         RBW       1 MHz       ⊗	
Function display (insert with F5 key)	3       Frequency         4       Start # 0         4       Stop # 300000000         5       CF Step # 15000000         6       Full # Zero # Last # 10         7       Ø         8       Signal Tracking # 12	
Function and		
shortcut <u>C</u> enter Ctrl+Shift+C	Entering the center frequency	(1)
<u>S</u> pan Ctrl+Shift+S	Entering the span	(2)
St <u>a</u> rt Ctrl+Shift+B	Entering the start frequency	(3)
Stop Ctrl+Shift+E	Entering the stop frequency	(4)
Center Stepsize	<b>Open submenu:</b> Entering the step width of the center frequency	
manual	Setting the step size manually	(5)
auto	Setting the step size automatically	(9)
= <u>C</u> enterfr		( • )
= <u>M</u> arkerfr		
Span Settings 🕨 🕨	<b>Open submenu:</b> Display modes for the frequency axis	
<u> </u>	Displaying the whole frequency range	(6)
<u>Z</u> ero Span	Switching over to the ZERO SPAN	(11)
Last Span	Restoring the previous setting	(10)
Zoom <u>I</u> n	Ctrl++ Reducing the span	(7)
Zoom <u>O</u> ut	Ctrl+- Increasing the span	(12)
Signal Tracking 🕨 🕨	<b>Open submenu:</b> Signal tracking	
	on Activating signal tracking	(8)
	off De-activating signal tracking	(8)

## 6.2.2 Amp Menu



Ref Level	<u>O</u> ffset	Entering a level offset	(2)
<u>R</u> ange	Ctrl+Shift+R	Selecting the level display range	(3)
<u>U</u> nit	Ctrl+Shift+U	Selecting a unit for the level display	(4)
RF <u>A</u> ttenu	ation	Setting the RF input attenuation manually	(6)
RF Attenu	ation A <u>u</u> to	Setting the RF input attenuation automatically	(5),(7)

(1)

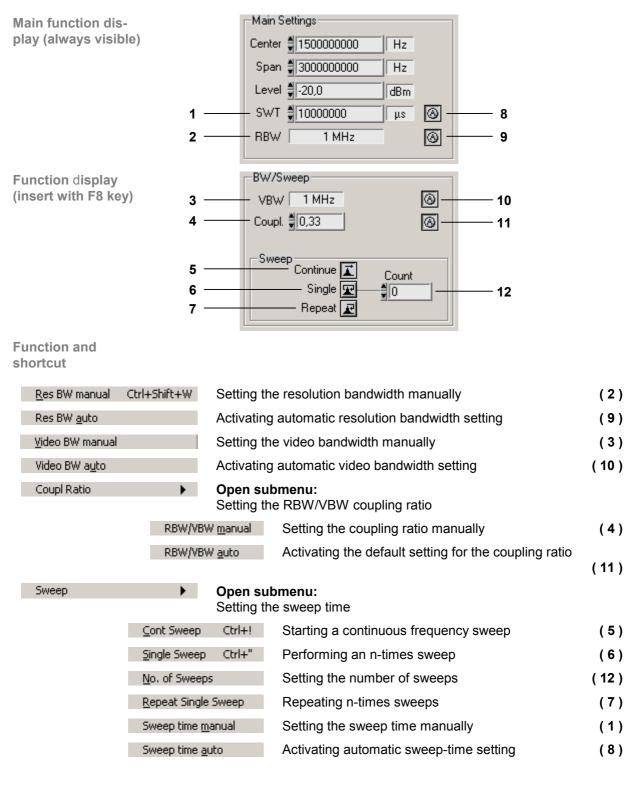
## 6.2.3 Marker Menu

Function disp (insert with F	7 key) 6 5 4 3 2 1		
Function and shortcut			
Marker 1		e marker 1	
<u>P</u> ea	ak Ctrl+Shift+M	Place marker 1 on the trace maximum	(6)
ne:	kt Peak <u>l</u> eft	Place marker 1 on the next trace maximum to the left	(7)
ne:	(t Peak right	Place marker 1 on the next trace maximum to the right	(8)
Sig	nal <u>C</u> ount	Measure the signal frequency: Start measurement	(10)
Sig	nal Count Re <u>s</u> olution	Measure signal frequency: Set resolution	(11)
off		De-activate marker 1	(6)
Marker 2		a <b>ubmenu:</b> e marker 2	
	<u>P</u> eak	Place marker 2 on the trace maximum	(5)
	next Peak <u>l</u> eft	Place marker 2 on the next trace maximum to the left	(7)
	next Peak <u>r</u> ight	Place marker 2 on the next trace maximum to the right	(8)
	Marker <u>n</u> orm	Set marker 2 as a normal marker (NORM)	(9)
Marker delta Set marker 2 as a delta marker (DELTA)		(12)	
	off	De-activate marker 2	(5)
Marker >		a <b>ubmenu:</b> ng marker values as settings	
<u>C</u> enter = I	Marker Freq	Set the center frequency to the marker frequency	(4)
<u>R</u> ef Level :	= Marker Level	Set the marker level as a reference level	(3)
Center <u>S</u> ta	epsize = Marker Freq	Set the step size for entering the center frequency to the marker frequency	(2)

#### PC Software R&S FS300-K1

Marker Functions		ubmenu: neasurement functions	
	<u>N</u> oise Marker	Measuring noise power density	(14)
	n dB down	Measuring signal bandwidth	(15)
D-Line Ctrl+Shift	+D Bring dis	splay line up on screen	(13)
Limit Line	Bring lim	nit line up on screen	(7 7-54)
Ref fixed		ubmenu: ce points for measuring level differences	
	o <u>n</u>	Activating the entry of arbitrary reference points	(1)
	off	Using M1 marker values as a reference point	(1)
	Ref Point <u>L</u> evel	Entering the reference-point level	(17)
	Ref Point F <u>r</u> eq	Entering the reference-point frequency	(16)
	Ref Point <u>T</u> ime	Entering the reference-point time	(18)

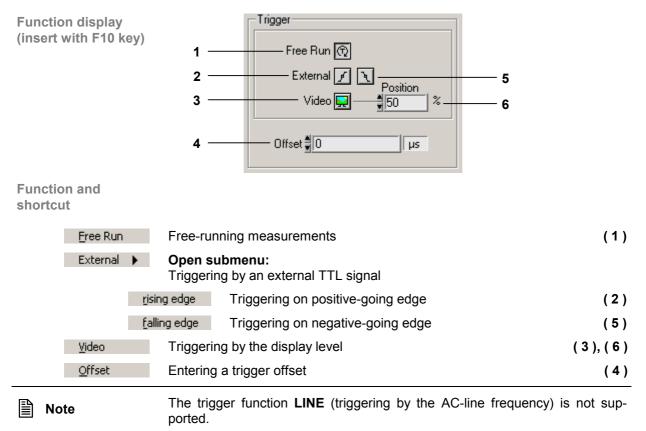
## 6.2.4 BW/Sweep Menu



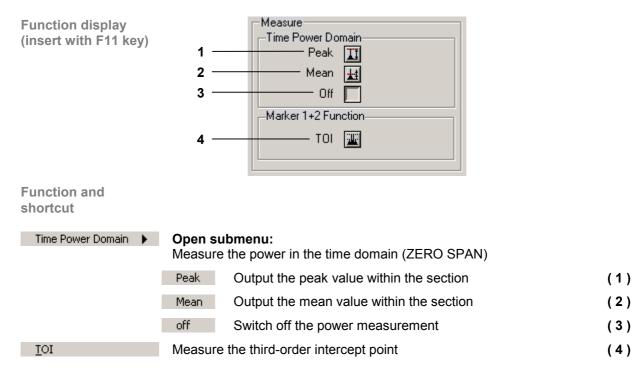
## 6.2.5 Trace Menu

Function display (insert with F9 key)	1       Image: Second state stat	
Function and shortcut		
Select Trace 🕨	<b>Open submenu:</b> Selecting the active trace	
	Trace 1 Turning on and activating Trace 1	(1)
	Trace 2 Turning on and activating Trace 2	(8)
<u>⊂</u> lear/Write	Trace display mode: Overwrite mode	(2)
Max <u>H</u> old	Trace display mode: Max. hold	(3)
Trace <u>A</u> verage	Trace display mode: Averaging	(4)
View	Freezing the trace	(5)
Blank	Blanking out the trace	(6)
Math 🕨 🕨	<b>Open submenu:</b> Trace difference	
<u>1</u>	-T2=>T1 Turning on the trace-difference mode	(7)
Tra	ace Pos Repositioning Trace 1 (result)	(9)
off	Turning off the trace-difference mode	(7)

## 6.2.6 Trigger Menu



#### 6.2.7 Measure Menu



## 6.3 View

Menus for configur-<br/>ing the program in-Menus for resizing the window and setting screen colors are available in the<br/>pull-down menu View.

large <u>W</u> indow	Ctrl+W	Switch on/off large window	(7 8-62)
C <u>o</u> lor	Ctrl+L	Set screen color	( <b>⊅</b> 8-63)

## 6.4 ? Help

Help menus

terface

nenus			Menus for opening the help function and displaying the program are available in the pull-down menu <b>Help</b> .	information
	<u>H</u> elp		Start help function	(7 9-64)
	Info	Ctrl+I	Display program information	(7 9-64)

# 7 Saving/Exporting Data (File)

# 7.1 Opening the Session

Application

A new session is opened automatically when the program is started (73-25). The current R&S FS300 settings are loaded. The following settings are display and evaluation functions and are not transferred to the PC software:

- Marker functions (7 6-46)
- Scale of measuring diagram (Range, Unit)
- Trace functions (7 6-49)
- Measure functions (7 6-50)

However, you may also open a new session while in remote control mode. Default settings are automatically loaded (7 R&S FS300 manual, Ch. 6.1 R&S FS300 Factory Settings).

You can save and load specific instrument settings if you plan to work with these on a regular basis.

#### 7.1.1 Beginning New Measurement

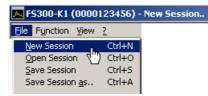
Beginning the measurement with current instrument setting

Eigenschaften

Nach Namen sortieren

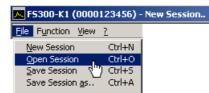
- Beginning the measurement with factory setting
- Select menu item: New Session.

Start the PC software on your PC.



## 7.1.2 Loading the Saved Settings

Beginning the measurement with saved instrument settings 1. Select menu item: Open Session.



2. Select a file from the directory and click <Open>.

Öffnen			<u>? ×</u>
Suchen in:	🔁 Series300		* 💷 *
Verlauf Verlauf Desktop Eigene Dateien	☐ data ☐ PlugIns ☐ USBIO ☐ Test.fs		
Netzwerkumg	j Dateiname: Dateityp:	Test.fs Custom Pattern (*.fs)	Öffnen     Abbrechen

## 7.2 Saving the Session

Application

You can save specific instrument settings if you plan to work with them on a regular basis (Save Session).

You may also change a previously saved instrument setting and save it under a different file name (Save Session as..).

1. Select menu item: Save Session or Save Session as...

Saving instrument settings

- F5300-K1 (0000123456) New Session..

   File
   Function
   View
   2

   New Session
   Ctrl+N

   Open Session
   Ctrl+O

   Save Session
   Ctrl+S

   Save Session
   2...
- 2. Select a directory, enter a file name and click **<Save>**.

Datei speichern	unter				? X
Spejchern in:	🔁 Series300		• 	(† 🖻 🔿	<b>11</b> •
<b>Verlauf</b>	🗋 data 🗋 PlugIns 🗋 USBIO				
Desktop					
Eigene Dateien					
Arbeitsplatz					
Netzwerkumg	Datei <u>n</u> ame:	Test		•	Speichern
	Datei <u>t</u> yp:	Custom Pattern (*.	.fs)	<b>•</b>	Abbrechen Y

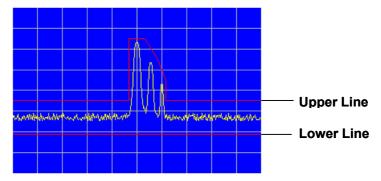
## 7.3 Monitoring the Measuring Values

Introduction If you wish to monitor deviation of measuring values you may set limit lines (Limit Lines) to monitor them. A logfile is created which can be opened with any text editor or with Microsoft Excel<sup>TM</sup>.

## 7.3.1 Inserting the Limit Lines

Application

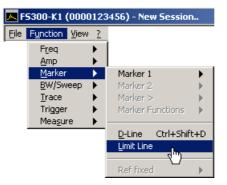
Measuring values which **overshoot** the limit lines are monitored with an **Upper Line** and measuring values which undershoot the limit lines are monitored with a **Lower Line**. The shape of the limit lines are entered into a table in value pairs (frequency, amplitude), they may then be inserted into the measuring diagram.



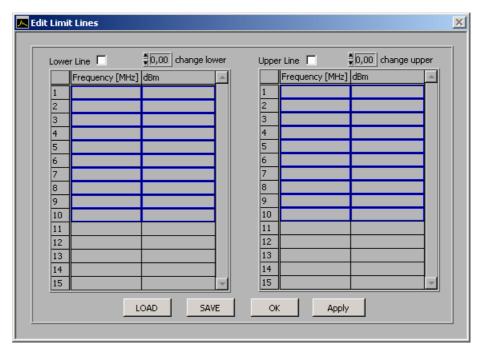
You can create limit lines with up to 50 value pairs, these may be saved and loaded for later use.

**Entering limit lines** 

1. Select menu item: Limit Line.



Edit Limit Lines window opens.



**2.** Use the left-hand table to enter the frequency and amplitude values for the lower lines and use the right-hand table to enter the upper lines.

Each row in the table describes a reference point on the limit line. At least 2 value pairs (reference points) per line must be entered, e.g., lower line: -80 dB for full span.

Lowe	er Line 🗖	0,00 change lov	ver	Uppe	r Line 🗖	0,00 change upp	er
	Frequency [MHz]	dBm			Frequency [MHz]	dBm	
1	0,000000	-80,000000		1	0,000000	-65,000000	
2	3000,000000	-80,000000	1	2	1400,000000	-65,000000	
3				3	1400,000000	-35,000000	
4			1	4	1600,000000	-35,000000	
5			1	5	1600,000000	-35,000000	
6				6	1750,000000	-45,000000	
7			1	7	1750,000000	-45,000000	
8			1	8	1850,000000	-55,000000	
9			1	9	1850,000000	-65,000000	
10				10	3000,000000	-65,000000	

**Note:** You may increase and decrease the amplitude values of a limit line for all value pairs with the input fields: **change lower/change upper**.

Lower Line 🗖 🚆 1,00 change lower					
Frequency [MHz]	<u>k</u>	*			
0,000000	-81,000000				
3000,000000	-81,000000				
	Frequency [MHz]	Frequency [MHz]n 0,000000 -81,000000			

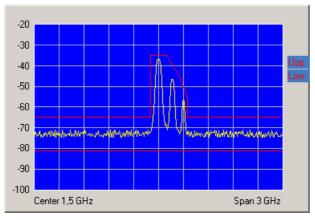
#### Monitoring the Measuring Values

Inserting limit lines

**3.** Tick the check boxes for **Lower Line** and/or **Upper Line** to activate the limit line(s).



4. Click **<APPLY>** to activate the limit line(s). The status information **Upp** and/or **Low** are displayed in the diagram.



- Saving and loading limit lines
- 1. Press **<SAVE>** if you plan to use the current settings again.



The Save File as window opens.

- 2. Select a directory, enter a file name and click **Save>**. The current settings are saved.
- 3. Press <LOAD> if you wish to use the saved settings again.



The File open window opens.

- **4.** Select the (.lim) file from your directory and click **<Open>**. The saved settings (frequency and amplitude values) are loaded.
- Press **<OK>** to close the **Edit Limit Lines** window. The current settings remain active in the diagram.



Closing the window

#### 7.3.2 Monitoring

Aim

A logfile is created during the monitoring process, which documents over- and undershooting of a limit line. This allows random events to be captured.

- Creating the logfile
- 1. Select menu item: Logfile.

🔼 F5300-K1 (0000	123456) -	New Sessio
File Function View	2	
New Session	Ctrl+N	
Open Session	Ctrl+O	
Save Session	Ctrl+S	
Save Session <u>a</u> s	Ctrl+A	
<u>L</u> ogfile		
Export 🖑	•	
Page Se <u>t</u> up		
Print Window	Ctrl+P	
E⊻it	Ctrl+Q	

The Logfile window opens.

🔼 Logfile		×
	Enable record	ling
Logfile		🔲 change
8		
Comment		
512	maximum file :	size in kByte
	ок са	NCEL

2. Click <change> if a logfile has not yet been created.

The **Save File as** window opens. Select a directory, enter a file name and click **<Save>**. The current logfile path is displayed.

Logfile gC:\Programme\Series300\test.log	Change

3. Click in the **Comment** window to enter a logfile comment.

Comment		
Test		
	40	

#### Monitoring the Measuring Values

Starting the monitoring

Enter the maximum logfile memory size in KB. The default setting is "512 4. KB".



5. Click <Enable recording> to start the monitoring process. The button lights up red.

📐 Logfile		×
Logfile	Enable recording	🔲 change

If an over- or undershoot of a limit is detected, the corresponding status information Upp and/or Low flashes in the diagram. The measuring values are monitored 10x per second and each over- or undershoot of a limit line is recorded.

Stopping the monitoring

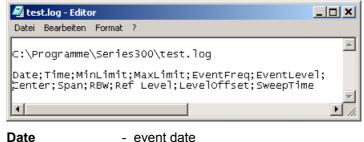
- Click <Enable recording> to finish the monitoring process. The button 6. no longer lights up red.
- 7. Click **<OK>** to close the **Logfile** window.



#### 7.3.3 Analyzing the Logfile

Logfile content

The logfile contains the measuring data, which were recorded during the monitoring process. A record is created from the following parameters when a limit line has been over- or undershot.



- limit line level Low

- center frequency

- reference level

- level offset

- resolution bandwidth

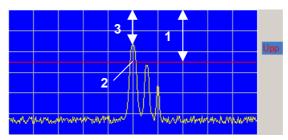
- Date - event time
- Time

.

- MinLimit (1) - limit line level Upp
- MaxLimit EventFreq
- (2) event frequency value EventLevel (3) - event maximum level
- Center
- - Span RBW
- .
- Ref Level
  - Leveloffset SweepTime
    - sweep time

- span

E-1008.0312.44



Analyzing the logfile If the logfile (.log) is saved as a text file (.txt) the data can be opened and analyzed in Microsoft Excel<sup>TM</sup>.

## 7.4 Exporting the Measuring Data

Application

To record the measurements, you can save the current diagram with the most important parameter settings in ASCII code or you can save a screenshot of the current window as a JPEG.

## 7.4.1 Creating the ASCII File

Creating the ASCII file

1. Select menu item: ASCII file.



The **Export ASCII** window opens.

2. Click in the **Please change comment** window to enter a logfile comment and click **<OK>**.

🔼 Export ASCII	X
Export curve into ascii file	
Please change comment	
Test	
- fbro	
<u></u>	
OK the CANCEL	

The Save File as window opens.

3. Select a directory, enter a file name and click <Save>.

ASCII File contents The ASCII file contains the following parameters:

🧟 test.asc - Ee	ditor				
Datei Bearbeite	en Format ?				
01.08.2003	C:\Programme\Series300\test.asc 01.08.2003 17:10:15 Center;Span;RBW;Pixel				
Center	- center frequency				
Span	- span				
RBW	<ul> <li>resolution bandwidth</li> </ul>				
Pixel	<ul> <li>level values of the trace</li> </ul>				

Note

The number of exported level values (pixels) depends on the setting for the size of the window. (7 8-62, small window: 310 pixels, large window: 700 pixels)

## 7.4.2 Creating the Screenshot

Creating the screenshot 1. Select menu item: JPEG picture.

K F5300-K1 (0000	123456) -	New Session
File Function View	2	
New Session	Ctrl+N	
Open Session	Ctrl+O	
Save Session	Ctrl+S	
Save Session <u>a</u> s	Ctrl+A	
Logfile		
Export	•	ASCII file
		JPEG picture
Page Se <u>t</u> up	1	
Print Window	Ctrl+P	
E <u>x</u> it	Ctrl+Q	

The Save File as window opens.

2. Select a directory, enter a file name and click <Save>.

## 7.5 Printing the Window

Page	setup
------	-------

1. Select menu item: Page setup.

l	🔼 F5300-K1 (0000)	123456) -	New Session
ĺ	File Function View	2	
	New Session	Ctrl+N	
	Open Session	Ctrl+O	
	Save Session	Ctrl+S	
	Save Session <u>a</u> s	Ctrl+A	
	Logfile		
	Export	•	
	Page Se <u>t</u> up		
	Print Window	Ctrl+P	
	E <u>x</u> it	Ctrl+Q	

The Page setup opens.

🔼 Page set	up	×
	eader (name/date/page #) fault margins from preferences n margins	
Left Right Top Bottom	0,00 0,00 0,00 0,00 0,00 Help	
ОК	Cancel Printer setup	

- 2. Check the <**Print header**> box ( ✓ ) to print a header with the file name, date and page number.
- **3.** Check **<Use default margins from preferences>** to print page with the presettings.

You may also check **<Custom margins>** to print page with user-defined settings. You may then adjust the page margins: **<Left>**, **<Right>**, **<Top>** and **<Bottom>**.

- 4. Click **<Printer setup>** to select your printer settings.
- 5. Click **<OK>** to close the **Page setup** window.
- Printing the window6. Select menu item: Print Window from the File pull-down menu to print the current program window.

# 8 Customizing the Working Window (View)

## 8.1 Adjusting the Window Size

Adjusting the window size 1. Select menu item: Large Window to enlarge the program window.



The diagram is enlarged by a factor of 2. In addition to the **Main Set-tings**, two function displays appear in the function display area. The first function display (e.g., **Amplitude**) refers to the current menu selection and the second function display (e.g., **Trace**) refers to the last menu selection.

	×
Measure	
	Main Settings         Center       1500000000         Hz         Span       300000000         Hz         Level       -20,0         dBm         SWT       10000000         Hz       Image: Comparison of the second sec
MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM	Trace

2. Select the Large Window menu item again to reduce the window size.

## 8.2 Changing the Window Color

Changing the window color 1. Select menu item: Color.



The **Screen Color** window opens. Colors for the listed window elements can be changed.

🔼 Screen Color 🛛 🔀
Windows Colors
Background
Diagram background
🔲 Diagram grid
📃 Diagram Trace 1
Diagram Trace 2
📕 Diagram Math Trace
📃 Diagram Marker 1
📕 Diagram Marker 2
📃 Diagram n dB Marker
📕 Diagram D-Line
OK Reset Cancel

**2.** Click on a color field to change the color for the corresponding windows element. A color scheme opens.

🔼 Screen Color	×
Windows Col	ors
Background	
No.	
History	System
	<u></u>

- **3.** Move the mouse over the color bars and click on your preferred color. The color scheme closes and the new color appears in the color field of the window element.
- 4. Click **<OK>** to close the **Screen Color** window and to activate the new window colors.

You may also click **<Reset>** and **<OK>** to revert to the default color settings.

# 9 Getting Help (?)

## 9.1 Starting the Help

• Select menu item: Help to start the Windows™ Help for program FS300 0000xxxxxx.



Acrobat Reader<sup>™</sup> (*¬* CD-ROM) starts up and the English R&S FS300-K1 operating manual opens.

## 9.2 Displaying the Program Version

Opening/closing the program version 1. Select menu item: Info for information about the FS300 0000xxxxxx program.



An information field opens.



2. Click in the information field with the mouse to close.

You may also wait approximately 10 seconds for the information field to close automatically.

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#### S

Save