

ISDN FOR THE PC, TELEPHONE AND FAX

English Edition

MANUAL **FRI~~TZ~~X**
PC

v2.0



High-Performance ISDN by ...



FRITZ!X PC

This manual and the software it describes are protected by copyright. The manual and software as presented are the object of a license agreement and may be used only in accordance with the license conditions. The licensee bears all risk in regard to hazards and impairments of quality which may arise in connection with the use of this product.

This manual and the software it describes may not be transmitted, reproduced or altered in whole or in part, in any form, by any means, nor may they be translated into any other natural or computer language. The creation of a backup copy for personal use is excepted. The information hereby made available to the licensee may be communicated to third parties only with the written permission of AVM Berlin.

This software and documentation have been produced with all due care and checked for correctness in accordance with the best available technology. AVM Berlin disclaims all liability and warranties, whether express or implied, relating to this product's quality, performance or suitability for any given purpose which deviates from the performance specifications contained in the product description.

AVM will not be liable for damages arising directly or indirectly from the use of the manual or related software, nor for incidental or consequential damages, except in case of intent or gross negligence. AVM expressly disclaims all liability for loss of or damage to hardware, software or data as a result of direct or indirect errors or destruction and for any costs, including ISDN, GSM und ADSL connection charges, related to the software and manual supplied and due to incorrect installations not performed by AVM itself.

The information in this manual and the software it describes are subject to change without notice for the purpose of technical improvement.

The product identification code is part of the license agreement.



© AVM GmbH 2001. All rights reserved.
Documentation release 10/2001

AVM Audiovisuelles Marketing
und Computersysteme GmbH
Alt-Moabit 95
10559 Berlin
Germany

AVM Computersysteme
Vertriebs GmbH
Alt-Moabit 95
10559 Berlin
Germany

AVM in the Internet: www.avm.de/en

Trademark notice: FRITZ! and AVM are registered trademarks of AVM GmbH. Windows is a registered trademark of Microsoft Corporation. All other trademarks are trademarks or registered trademarks of the respective owners.

Contents

1	Introduction	8
1.1	Package Contents	9
1.2	System Requirements	10
1.3	Connectors	11
1.4	FRITZ!X PC LEDs	11
1.5	Connectors	12
1.6	Cables	12
1.7	Technical Specifications	13
1.8	Features.	13
1.9	Signal Tones	15
2	Hardware Installation	16
2.1	Where to Install FRITZ!X PC	16
2.2	Cable Connections	17
2.3	Connecting Analog Terminal Equipment.	18
3	Software Installation	19
3.1	The Software Components of FRITZ!X PC	19
3.2	Beginning the Installation	20
3.3	Continuing the Installation	24
3.4	Installing Individual Software Components	26
3.5	Program Installation Folders	26
3.6	Error During Installation: What Now?	27
3.7	Removing Software Components	28
4	FRITZ!: Internet and ISDN Software	31
4.1	The Many Facets of FRITZ!	31
4.2	Connecting to the Internet with FRITZ!web	32
4.3	Using ISDN Services with FRITZ!	34
4.4	Internet Connections using the AVM System Drivers	34

5	FRITZ!X PC Configuration	37
5.1	Configuration Program Functions.	37
5.2	Factory Settings	38
5.3	Configuring FRITZ!X PC	38
5.4	The ‘MSNs’ Settings Page.	39
5.5	Call Forwarding	42
5.6	Call Forwarding: The ‘Forwarding’ Settings Page	43
5.7	Call Diversion: The ‘Diversion’ Settings Page	44
5.8	Updating the Firmware: The ‘Update’ Settings Page	46
5.9	Factory Settings	48
6	Operation	49
6.1	Dialing External Calls	49
6.2	Dialing Internal Calls.	51
6.3	Call Waiting	51
6.4	Hold	52
6.5	Alternating Between Calls	53
6.6	Transferring Calls	54
6.7	Three-Party Calls	54
6.8	Call-back on Busy	55
6.9	Picking Up Calls from Another Extension	56
6.10	Group Calls	56
6.11	Suspend/Resume	57
6.12	Using Keypad Messages.	58
6.13	Adjusting the Hold Button Function.	58
6.14	Using Pulse-Dialing Telephones with FRITZ!X PC	59
7	Support	60
7.1	Information and Updates	60
7.2	Tips & Tricks	62
7.3	Troubleshooting	63
7.4	Assistance from FRITZ!X PC Support	66
	Declaration of CE Conformity	68

Safety Instructions

- Do not open the housing of your ISDN-Connector. The device contains hazardous components and should only be opened by authorized repair technicians.
- All terminal equipment that is connected to the ISDN-Connector must be approved for operation in public telephone networks in the European Union.
- Never let liquids get inside the ISDN-Connector. Otherwise, electric shocks or short circuits may result.
- Do not install the ISDN-Connector during an electrical storm. Do not connect or disconnect any cables during an electrical storm.
- The ISDN-Connector is intended for indoor use only.
- Route all cables so that they cannot be stepped on or tripped over.

Typographical Conventions

The following symbols and highlighting conventions are used in this manual to make reading easier and to emphasize important information.

Highlighting

The table below explains the highlighting used in this manual.

Highlighting	Text elements	Example
Quotation marks	Keys, pushbuttons, icons, tabs, menus, commands	“Start / Programs”; “Enter”
Capitals	Path and file names in running text	SOFTWARE\INFO.PDF or README.DOC
Angle brackets	Variables	<CD-ROM drive>
Typewriter font	Information to be typed in at the keyboard	a:\setup
Gray italics	Hints, instructions and warnings, always accompanied by a symbol in the margin	<i>... For more detailed information please see ...</i>

Symbols

Certain instructions and warnings in the manual are set in gray italics and highlighted by the following symbols:



***FRITZ!** Indicates useful tips and background information.*



The hand indicates warnings and instructions that you should always observe in order to avoid damage, high connection costs or other undesirable consequences.

The following symbols are used in explaining how to configure and operate FRITZ!X PC using a tone-dialing telephone:

The Telephone Keypad

0...9	Numeric keys
*	Asterisk key
R	Hold or Flash key
#	Pound sign key

Instructions for Operation at the Telephone

☎	Dial a number
↑	Pick up the handset
↓	Hang up the handset
🗣	Talk
🗣🗣	Three-party conference
⋯	Wait for the acknowledgment tone

1 Introduction

FRITZ!X PC is an ISDN-Connector: a combination ISDN-Controller and ISDN PBX (Private Branch Exchange). This intelligent combination allows you to connect your computer and four analog devices to ISDN. In this way you can continue using your existing analog equipment, such as telephones, answering machines and fax machines, while taking advantage of ISDN features. You can use both tone-dialing and pulse-dialing terminal equipment.

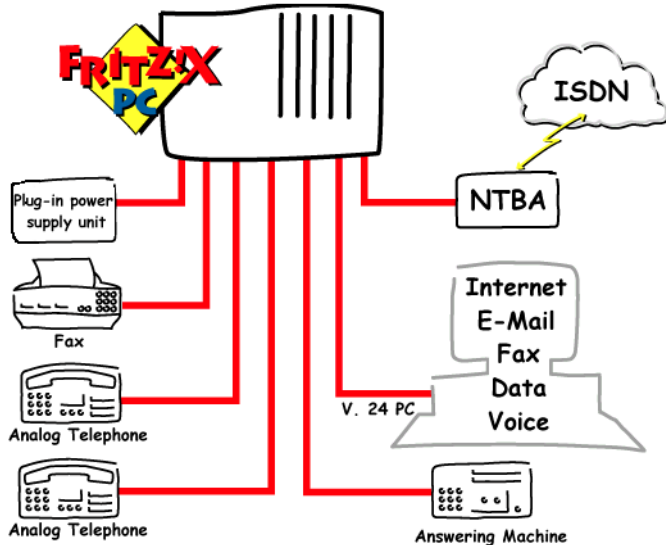
FRITZ!X PC's built-in ISDN-Controller and the FRITZ! communication software allow you to use ISDN applications such as Internet access, file transfer, Group 3 telefax, answering machine functions and PC telephony with your computer.

The PBX configuration can be performed either using the configuration program FRITZ!X on your PC, or from a touch-tone (DTMF: dual-tone multifrequency dialing) telephone.



*This manual describes how to configure the PBX using the configuration program FRITZ!X. For instructions on configuring FRITZ!X PC from an extension telephone, please see the file *ConfigTel.PDF* in the *\software\info* folder on the FRITZ!X PC CD.*

The following illustration shows a sample ISDN line configuration using FRITZ!X PC.



Computer and analog terminal equipment connected to an ISDN line using FRITZ!X PC

1.1 Package Contents

The FRITZ!X PC product includes the following:

- 1 AVM ISDN-Connector FRITZ!X PC
- 1 CD-ROM with the installation and configuration software for FRITZ!X PC
- 1 AC power adapter with cable
- 1 S₀ cable to connect FRITZ!X PC to the ISDN line
- 1 V.24 cable to connect FRITZ!X PC to the computer
- 1 FRITZ!X PC manual
- 1 drilling template

1.2 System Requirements

This section describes the conditions that must be met in order to install and use your FRITZ!X PC.

- FRITZ!X PC is designed for use with point-to-multipoint ISDN lines with the “Euro-ISDN” signaling protocol DSS1. Connection to other line types is contrary to the intended use of the product and may cause malfunctions. Trouble-free operation of the product is not guaranteed in such cases.

The following minimum PC configuration is required for installation of the FRITZ! communications software and for Internet access using FRITZ!X PC:

- IBM or 100% compatible PC; Pentium CPU clocked at 90 MHz or higher; at least 16 MB system memory
- CD-ROM drive
- Operating system: Microsoft Windows Me, 98, 95, Windows 2000 (Professional), or Windows NT 4.0 (Workstation i386)
- A free serial interface (COM port) with a 16550 UART chip and maximum throughput of at least 115 kbit/s. PCs manufactured in 1996 or later are generally equipped with such interface chips. In case of questions, ask your dealer or the manufacturer of your PC.

1.3 Connectors

The following illustration shows a back view of FRITZ!X PC. The back panel has a row of connectors, including jacks for the power cord, for the analog telephone extension lines, for the connection to the PC and for the ISDN line.



FRITZ!X PC Connector Panel

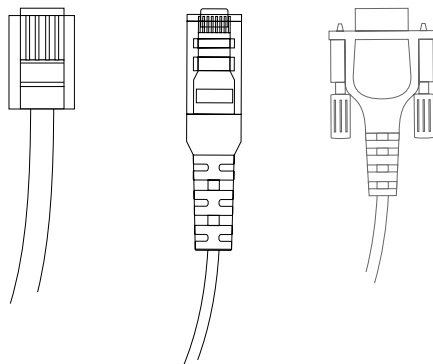
1.4 FRITZ!X PC LEDs

The current operational state of FRITZ!X PC is indicated by five LEDs (light-emitting diodes) on the front. The various LEDs indicate specific conditions as listed in the following table:

LED	Color	Significance
Power	Green	Indicates that FRITZ!X PC is operational
PC	Orange	Indicates that the connection between FRITZ!X PC and the computer is active
Phone	Orange	Indicates the status of the extensions: LED out: all terminal equipment on the extension lines is inactive, or no terminal equipment is connected LED lit: at least one terminal device on an extension is active LED blinking: at least one extension line is ringing
B1	Orange	Indicates an active connection on the first B channel
B2	Orange	Indicates an active connection on the second B channel

1.5 Connectors

FRITZ!X PC uses the following connectors:



RJ12 plug

RJ45 plug

Nine-pin sub-D
plug

The ISDN cable supplied with FRITZ!X PC has an RJ45 plug at each end. The power cord also has a RJ45 plug at one end.

Analog terminal devices are connected to FRITZ!X PC by means of an RJ12 plug.

FRITZ!X PC is connected to your computer's serial interface by means of the cable with the nine-pin sub-D plug.

1.6 Cables

FRITZ!X PC is connected to the ISDN line using the ISDN cable, which has an RJ45 plug at each end.

FRITZ!X PC is connected to your computer's serial interface by means of the serial cable with a nine-pin sub-D plug at one end.

The AC power adapter cable connects FRITZ!X PC to the electric outlet.

1.7 Technical Specifications

- ISDN PBX for Euro-ISDN (DSS1) lines
- Approximate dimensions: 15 × 22 × 3 cm
- Four analog (a/b) extensions (RJ12 jacks)
- One V.24 interface for connection to a PC
- One Euro-ISDN interface (RJ45 jack)
- 5 LED status indicators
- Supply voltage: 230 V, 50 Hz
- Power consumption (idle): 5 W
- Peak power consumption: 9 W
- Bandwidth of analog extensions: 33,600 bit/s
- CE approval

1.8 Features

Supported ISDN features:

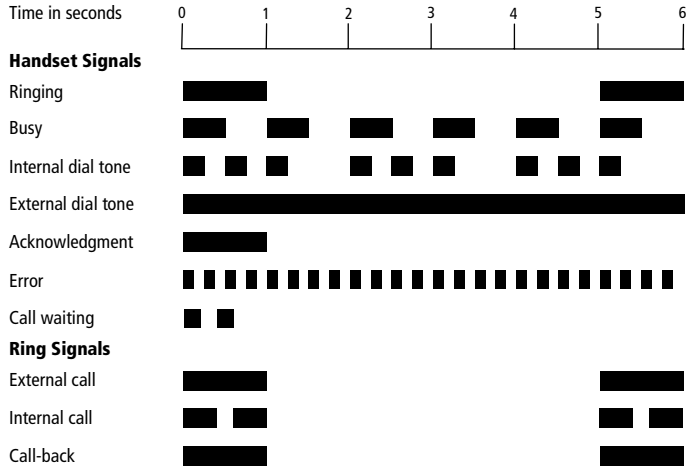
- Multiple Subscriber Numbers (MSNs)
- Call holding; simultaneous connections
- Three-party calls
- Call-back on busy
- Call Forwarding
- Call Waiting
- Caller ID (CLIP)
- Outgoing Caller ID suppression (CLIR)
- Charge information (AOCE/AOCD)
- Terminal Portability (Suspend/Resume)
- Keypad messages

Convenience features

- Three dial-in numbers (MSNs) configurable per extension
- Call pick-up
- Call transfer
- Automatic outside dialing option
- Call forwarding over the second B channel
- Internal call forwarding
- Call waiting option
- Caller ID at analog extensions
- Accounting
- Programmable speed-dial numbers
- Toll-free internal calls
- Internal group calls

1.9 Signal Tones

The following diagram illustrates the duration and intervals of the various handset and ring signals generated by FRITZ!X PC.



Handset and Ring Signals at FRITZ!X PC Extension Telephones

2 Hardware Installation

This chapter describes the installation procedure for the FRITZ!X PC hardware, including the connections to the ISDN line, the PC and the power supply, as well as instructions for connecting analog terminal equipment to the PBX.

When the FRITZ!X PC installation has been completed, the analog extensions (for telephones, fax machines etc.) are ready to use.



If you want to use the full capabilities of FRITZ!X PC (such as Internet and ISDN file transfer), you should also install the corresponding software components. The complete software installation includes not only the driver software, but also the FRITZ! communications software and the PBX configuration program FRITZ!X (see the chapter “Software Installation” on page 19).

The installation is performed in the following order:

1. Verify that the package contents are complete.
2. Install the hardware.
3. Install the software components of FRITZ!X PC.
4. Perform the necessary PBX configuration.

2.1 Where to Install FRITZ!X PC

FRITZ!X PC can be installed on a suitable horizontal or vertical surface. The unit should be installed in a dry, dust-free place out of direct sunlight. If you want to mount your FRITZ!X PC on the wall, use the drilling template supplied in the package.

The extension jacks on the back panel of your FRITZ!X PC should be readily accessible. Make sure that the connected cables are not kinked, stretched or otherwise subjected to mechanical stress.

2.2 Cable Connections

To connect the necessary cables for your FRITZ!X PC, proceed as follows:

1. Position your FRITZ!X PC so that the sockets on the back panel are facing you.
2. To connect FRITZ!X PC to the ISDN line, take the ISDN cable with an RJ45 plug at each end from the package. Plug one end into the jack labeled “ISDN” at the right end of the FRITZ!X PC connector panel. Plug the other end into the S₀ jack of your ISDN line.
3. Take the serial cable with the nine-pin sub-D connector at each end. Connect one end to the V.24 socket labeled “SERIAL” on the FRITZ!X PC connector panel. Connect the other end to an available serial interface (COM port) on your PC.
4. To connect FRITZ!X PC’s power supply, take the AC power adapter from the package. Insert its RJ45 plug in the jack labeled “POWER” at the left end of the FRITZ!X PC connector panel. Plug the other end into an AC power outlet.

Now observe the LEDs on your FRITZ!X PC. The green “Power” LED should light up, indicating that FRITZ!X PC is operational.



FRITZ!X PC is ready for operation.

Upon completion of the hardware installation, FRITZ!X PC’s default factory configuration settings are active. To configure your FRITZ!X PC according to your personal requirements, please see the chapter “FRITZ!X PC Configuration” on page 37.

2.3 Connecting Analog Terminal Equipment

FRITZ!X PC has been tested and CE-certified in accordance with European Union directives. All analog telecommunication devices with CE certification can be connected to its extensions.

3 Software Installation

The software for FRITZ!X PC can be installed in Windows Millennium, Windows 98, Windows 95, Windows 2000 or Windows NT 4.0.

After FRITZ!X PC has been installed and connected to your computer, your analog terminal equipment, and the ISDN line, you can install all the software components for FRITZ!X PC using a single setup program.

This chapter describes the initial installation of all software components. If one of the components is already installed, such as the FRITZ! communication software, please see the instructions in the section “Installing Individual Software Components” on page 26.

3.1 The Software Components of FRITZ!X PC

The first time you run the installation program, the following software components are installed:

- The FRITZ!X PC driver software
- The FRITZ! communications software (please see “FRITZ!: Internet and ISDN Software” on page 31 and the FRITZ! software manual)
- The AVM ISDN CAPI Port Driver (please see the section “Internet Connections using the AVM System Drivers” on page 34)
- The FRITZ!X configuration program (please see the chapter “Configuring FRITZ!X PC” on page 38)



In the section “Program Installation Folders” on page 26 you will find information about the installation locations of the various software components on your computer.

If one or more of the components is already installed, such as the FRITZ! communication software, and you now want to install other software components, please turn to the instructions in Section “Installing Individual Software Components” on page 26.

3.2 Beginning the Installation

The software installation procedure is somewhat different for the various operating systems, Windows Me, 98, 95, 2000 and NT, due to the different driver software. This part of the installation is described separately for each operating system. Once the driver software has been installed, the remaining installation steps are the same for all operating systems, and are described in the section “Continuing the Installation” on page 24.

The software components for FRITZ!X PC are installed by means of a single setup program.



Please note that only one CAPI driver may be installed on your computer. If you have installed another ISDN-Controller or ISDN-Connector on your computer in the past, you must first remove its driver software before you can install FRITZ!X PC's CAPI driver.

Beginning the Installation in Windows Me, 98 or 95

Proceed as follows and observe the instructions displayed on your screen:

1. After connecting your FRITZ!X PC, start the computer.
2. Once the Windows start-up procedure has been completed, insert the FRITZ!X PC CD in your CD-ROM drive. The installation Help program starts automatically.
3. Click the FRITZ! icon in the first Help page.
4. In the Help page that appears, choose the operating system in which the software is to be installed by clicking on the corresponding button.

A page with instructions for installing FRITZ!X PC appears. Please read these carefully and then click the “Start Installation” button at the bottom of the page.

5. The Setup program starts. In its sign-on window, click “Continue”.
6. Specify the folder in which you want to install the driver software for FRITZ!X PC, or confirm the default folder. Confirm your choice by clicking “Continue”.
7. In the next dialog, select an available COM port for FRITZ!X PC and click “Continue”.

When the driver software installation is complete, a message box appears displaying the configuration of FRITZ!X PC.

After the driver software for the FRITZ!X PC ISDN-Connector has been installed, the Setup program reports that the FRITZ! communications software can be installed. Click the “Install” button, and skip ahead to the section “Continuing the Installation” on page 24.



Windows 98 includes an ISDN Configuration Wizard. However, this Wizard only performs the configuration procedure for a previously installed NDIS WAN CAPI driver (an AVM system driver). The Wizard cannot be used to install ISDN hardware and software correctly, nor to set up an ISDN connection.

Beginning the Installation in Windows 2000



Administrator rights are required to install the driver software in Windows 2000.



The dialogs described in the following instructions are part of the Windows 2000 operating system. Consult the Windows 2000 manual wherever necessary.

1. After connecting FRITZ!X PC, start your computer.

When the Windows start-up procedure has been completed, insert the FRITZ!X PC CD in your CD-ROM drive. The introductory Help program starts automatically.
2. Click the FRITZ! icon in the first Help page.

3. In the Help page that appears, choose the operating system in which the software is to be installed by clicking the corresponding button.
4. The welcome page for your operating system appears. Click “Continue”.
5. Please read the installation instructions in the next Help page, then click “Continue”. The Setup program starts.
6. A message appears informing you that the Setup program was unable to find the “digital signature” for FRITZ!X PC. Click “Yes” to continue the installation.
7. A second message then informs you that no digital signature was found for the AVM NDIS WAN CAPI driver. Click “Yes” once again to continue.
8. In the next dialog, select an available COM port for FRITZ!X PC and click “Continue”.
9. When the driver software installation is complete, a message box appears displaying the configuration of FRITZ!X PC. Click “Exit” to close the driver software installation.

After driver software for FRITZ!X PC has been installed, the Setup program for the FRITZ! communications software is started. Please skip ahead to the section “Continuing the Installation” on page 24.

Beginning the Installation in Windows NT 4.0



Administrator rights are required to install the driver software in Windows NT.



Make sure the latest Windows NT Service Pack is installed on your computer before installing the driver software! The Service Pack is available from Microsoft.

Proceed as follows and observe the instructions displayed on your screen:

1. After connecting FRITZ!X PC, start your computer.
2. When the Windows start-up procedure has been completed, insert the FRITZ!X PC CD in your CD-ROM drive. The installation Help program starts automatically.
3. Click the FRITZ! icon in the first Help page.
4. In the Help page that appears, choose the operating system in which the software is to be installed by clicking the corresponding button.
5. The Setup program starts. In its welcome window, click “Continue”.
6. Specify the folder in which you want to install the driver software for FRITZ!X PC, or confirm the default folder. Confirm your choice by clicking “Continue”.
7. In the next dialog, select an available COM port for FRITZ!X PC and click “Continue”.

When the driver software installation is complete, a message box appears displaying the configuration of FRITZ!X PC.

Once the driver software for the FRITZ!X PC ISDN-Connector has been installed, the Setup program reports that the FRITZ! communications software can be installed. Click the “Install” button, and skip ahead to the section “Continuing the Installation” on page 24.

3.3 Continuing the Installation

The installation procedure for the software components FRITZ!, AVM ISDN CAPI Port Driver and FRITZ!X is the same in all operating systems. Proceed as follows:

Installing the FRITZ! Communications Software

1. After driver software for the FRITZ!X PC ISDN-Connector has been installed, the Setup program reports that the FRITZ! communications software can be installed. Click on the “Install” button if you want to install FRITZ!.
2. Specify the folder in which you want to install the FRITZ! communications software on your computer.
3. Next, specify the program group in which you want FRITZ! to appear in the Start menu.
4. The next dialog asks you to choose whether you want just to install the software, or to enter certain configuration settings during the installation.

If you select the simple **Installation**, the FRITZ! modules are installed in the specified folder with the default settings. You can adjust the settings for all FRITZ! modules as needed after the installation. Please read the pertinent sections in the FRITZ! manual or see the On-line Help for instructions.

If you select **Installation with Configuration**, you will be prompted to enter certain basic configuration settings, including outside dialing settings in case your ISDN line is itself a PBX extension.

Installing the AVM ISDN CAPI Port Driver

Finally, the Setup program allows you to install the AVM ISDN CAPI Port Driver. A dialog with three pages appears:

1. On the “Modems” page, select the desired CAPI Port modems, such as “AVM ISDN Internet (PPP over ISDN)” for an ISDN connection to an Internet provider using

Windows' Dial-Up Networking. For more information on the various modems, click a modem in the list and then press "F1".

2. On the "Ports" dialog page you can assign the selected virtual modems to communication ports. Unless your system requires special port settings, you can simply confirm the default selections.
3. On the "AVM Test connection/Fast Internet over ISDN" dialog page, you may specify that the CAPI Port Driver Setup program should create two new Dial-Up Networking connections, "AVM Fast Internet" and "AVM Intranet". Note that Dial-Up Networking must already be installed on your computer.

Installing the FRITZ!X Configuration Software

Now you may install the FRITZ!X configuration software as follows:

1. After the installation of the FRITZ! communications software and the ISDN CAPI Port Driver has been completed, a message box informs you that the configuration program for your FRITZ!X PC can now be installed. Click the "Continue" button to proceed.
2. Specify the folder in which the FRITZ!X configuration software is to be installed on your computer.
3. Next, specify the program group in which the configuration program FRITZ!X is to appear in the Start menu.
4. In the next dialog, enter the area code of your ISDN line and confirm by clicking "Continue". The program files are now copied to your hard disk.
5. Click "Exit" to close the Setup program.

This completes the software installation for FRITZ!X PC. Restart your computer.

3.4 Installing Individual Software Components

Certain software components supplied with FRITZ!X PC may already be installed on your computer, such as the FRITZ! communication software for example. In this case you may want to install only certain individual components from the FRITZ!X PC CD. You can do so as follows:

- To install the FRITZ!X PC driver software, follow the instructions in the section “Beginning the Installation” on page 20.
- To install the FRITZ! communications software, start the program SETUP.EXE in the directory \SOFTWARE\FRITZ! on the FRITZ!X PC CD.
- To install the AVM ISDN CAPI Port Driver, run the program SETUP.EXE in the directory \SOFTWARE\CAPIPORT\CAPIPORT.<operating system> on the CD.
- To install the FRITZ!X configuration program, run the program SETUP.EXE in the folder \SOFTWARE\CONFIG\DISK1 .

3.5 Program Installation Folders

After the installation has been completed using the default paths, the FRITZ!X PC software components for the operating systems Windows Me, 98, 95 and NT 4.0 are found in the locations described below.

The driver software for the ISDN-Connector FRITZ!X PC is loaded automatically when Windows is started. During the driver software installation in the operating systems named above, the program group “AVM” is created under “Programs” in the Start menu. This group contains four items:



- “AVM Internet Home Page” is a link to AVM’s web site (requires a web browser and a connection to the Internet).
- The FRITZ!X configuration program.
- “FRITZ!X PC Readme” contains the latest information about the product.

- In Windows 98, 95 and NT, the “AVM” group also contains the program “FRITZ!X PC Setup”. This program allows you to activate CAPI SoftCompression X.75/V.42bis.



In the Microsoft Windows 2000 operating system, the “AVM” program group is only installed under “Programs” in the Start menu when FRITZ!X is installed, and the group contains only the program “FRITZ!X”. The current Readme file for FRITZ!X PC can be found on the FRITZ!X PC CD in the folder \WINDOWS.2K.



Shortcuts to the FRITZ! modules are found in the “FRITZ!” program group. The number of FRITZ! modules installed depends on whether you performed the default or the full installation. For information on features and operation of the FRITZ! modules, see the chapter “FRITZ!: Internet and ISDN Software” on page 31 and the FRITZ! manual.



The AVM ISDN CAPI Port Driver installation creates new entries under “Modems” in the Windows Control Panel. You can use these virtual modems in Dial-Up Networking or in other data communication programs to set up ISDN connections to your Internet Service Provider (ISP), for example. A link is created on the desktop to the on-line help file for the AVM ISDN CAPI Port Driver.

3.6 Error During Installation: What Now?

If errors occurred during the software installation and the software components for FRITZ!X PC were not correctly installed, proceed as follows:

- Remove all of the installed FRITZ!X PC software components by following the instructions in the section “Removing Software Components” on page 28.
- Restart your computer.
- Repeat the complete installation.



If you want to install individual FRITZ!X PC software components, read the instructions in the section “Installing Individual Software Components” on page 26.

3.7 Removing Software Components

The software components of FRITZ!X PC are identified in Windows by these names:

- AVM FRITZ!
- AVM ISDN CAPI Port
- AVM ISDN-Controller FRITZ!X PC
- AVM FRITZ!X Configuration

Removing Software in Windows Me/98/95 or NT

To remove some or all of the FRITZ!X PC software components, proceed as follows:

1. Open the Control Panel under “Settings” in the Start menu and double-click the “Add/Remove Programs” icon.

Those components of FRITZ!X PC which have been correctly installed are found in the list of installed software. Select the component you want to remove, then click the “Add/Remove” button.

2. The “Uninstall” program starts. All of the files and system settings for the selected software component are removed from your computer.
3. Repeat this process if you want to remove another software component of FRITZ!X PC. When you have finished, restart your computer.

Removing Software in Windows 2000

The procedure for removing software in Windows 2000 is not the same for all software components.

Removing the FRITZ! Communications Software, the Configuration Program FRITZ!X and the AVM ISDN CAPI Port Driver



Removal of the FRITZ! communications software deletes the database files containing your Address Book entries and other personal settings. If you want to retain these databases, then copy all .dbf files from the FRITZ! installation folder to another folder before you proceed.

1. Open the Control Panel under “Settings” in the Start menu and double-click the “Add/Remove Programs” icon.
2. Select “Change or Remove Programs” in the left portion of the window. The main panel shows a list of the correctly installed programs. Select the component you want to remove, then click the “Change/Remove” button.
3. Confirm that you want to remove the selected component by clicking on “Yes” at the safety prompt.
4. Follow the instructions displayed on the screen. When a message box informs you that the software has been successfully removed, close the Change/Remove Programs applet by clicking “OK”.

Removing the Driver Software for the AVM ISDN-Connector FRITZ!X PC

1. Open the Control Panel under “Settings” in the Start menu and double-click the “Add/Remove Hardware” icon.
2. The Windows 2000 Hardware Wizard starts. Click “Continue”.
3. In the next dialog, select “Uninstall a device” and confirm by clicking “Continue”.
4. The next dialog displays a list of the hardware components installed in the computer. Select the driver to be removed and confirm your selection by clicking “Continue”

5. At the security prompt, select the option “Yes, I want to uninstall this device” and click “Continue”.
6. When a message box informs you that the device has been successfully removed, close the Hardware Wizard by clicking “Finish”.

4 FRITZ!: Internet and ISDN Software

FRITZ! opens the door to a whole world of communication: file transfer, telefax, Web surfing and much more.

4.1 The Many Facets of FRITZ!

Once you have completed the FRITZ!X PC installation, your computer is equipped with the CAPI 2.0 application interface. The FRITZ! communications software uses this interface to access the ISDN hardware.

FRITZ! includes the following modules:



The module FRITZ!web provides a simple, immediate dial-up connection to the Internet. With channel bundling and data compression, it permits Internet access with very high throughput rates. Its ability to clear down an idle connection automatically saves costs, depending on your provider's rate structure.



The ISDN file manager FRITZ!data allows you to transfer files quickly and securely over ISDN, and to provide files on your computer to outside callers. You can assign individual access rights as desired.



FRITZ!fax allows you to send and receive fax documents in accordance with the analog Group 3 Fax standard, at speeds up to 14,400 bit/s. You can send faxes directly from your word processing application. FRITZ!fax also allows you to poll fax servers, and can function as a fax polling server itself.



Using FRITZ!fon, a full-duplex sound adapter and a sound input/output device (such as a headset), you can telephone directly from your PC—with convenient phone book management and a notepad. Three parties can be connected together for a conference call.



FRITZ!vox lets your computer act as an answering machine. You can record different greetings for specific dial-in numbers, specific callers or different times of day.



In the FRITZ! Address Book you can store all the information needed to dial up connections with all FRITZ! modules. The Address Book can be opened directly from any FRITZ! module.



Detailed information about FRITZ! can be found in the program's On-line Help and in the FRITZ! manual. The manual is supplied as a PDF file in the folder \software\info on the FRITZ!X PC CD. If you need to install the Acrobat Reader to read the PDF file, you can use the installation program in the same folder on the FRITZ!X PC CD.

4.2 Connecting to the Internet with FRITZ!web

In addition to the traditional ISDN services such as file transfer or telefax, FRITZ!X PC also supports Internet access. You can use FRITZ!X PC to explore the World Wide Web, exchange E-mail or join in chat groups.

There are many ways to set up Internet connections. The following section explains the capabilities and advantages of the Internet access module FRITZ!web.



For detailed information on configuring and using FRITZ!web, please see the FRITZ! On-line Help.

Another way to set up an ISDN connection to the Internet is by using Windows' Dial-Up Networking with the AVM system drivers. For further information, please see the section "Internet Connections using the AVM System Drivers" on page 34.

Choosing the Default Connection

After installing FRITZ!web, specify which of your Internet Service Providers (ISPs) is your default connection to the Internet. The default connection is automatically on stand-by

when FRITZ!web starts. When data from the Internet is requested— for example, when your Web browser starts up—the connection is dialed up automatically .

All Information at a Glance

The FRITZ!web window displays all the important information about the current connection:

- Four connection LEDs indicate whether a connection has been selected, whether the B channels are active, inactive or in the process of being dialed up, and whether the active connection has been established using data compression.
- The throughput chart displays the data transfer rates for incoming and outgoing data.
- A timer column indicates how much time remains before the connection will be automatically cleared down if it remains idle.

Automatic Idle Timeout

In the FRITZ!web settings you may specify how many seconds the active Internet connection can remain idle (i.e., with no data flowing in either direction) before it is automatically cleared down. An example: You request a page and read it in your browser. After the specified delay, FRITZ!web clears down the ISDN connection to your Internet Service Provider (ISP), and dials it up again when you click on a link to another page or type in another URL. Thanks to ISDN's almost instantaneous call set-up, this procedure is hardly noticeable, yet it can reduce your on-line costs dramatically.

Specifying an Outgoing Caller ID

In order to keep track of the on-line costs incurred, you can designate one of your ISDN line's MSNs as the outgoing Caller ID in the FRITZ!web settings (click with the right mouse button on the FRITZ!web window and select "Settings" in the context menu). Your FRITZ!web connections are then billed to the specified number by your ISDN provider.

4.3 Using ISDN Services with FRITZ!

ISDN integrates all the telematics services, such as telephony, telefax, data and video communication, in one digital telecommunications network. The PC with FRITZ! is a communications hub that makes all of these services convenient to use.



You can also use third-party application programs that support CAPI 2.0.

Multiple Subscriber Numbers for the FRITZ! Modules

To receive fax and data calls with FRITZ!, it is not necessary to assign distinct Multiple Subscriber Numbers (MSNs) to the different modules, since FRITZ!fax answers calls with the service indicator for voice telephony, while FRITZ!data responds only to calls with the “data” service indicator.

However, FRITZ!fax, FRITZ!vox and FRITZ!fon all use the “voice” service indicator. If you want these modules to respond to specific calls, you must assign distinct MSNs for call acceptance to FRITZ!fax and FRITZ!fon, and to any telephones or fax machines connected to FRITZ!X PC’s analog extensions. For instructions, please see the information on “The ‘MSNs’ Settings Page” on page 39.

4.4 Internet Connections using the AVM System Drivers

As an alternative to FRITZ!web, you can configure a connection to the Internet using the AVM ISDN CAPI Port Driver and Dial-Up Networking. The system driver from AVM allows you to use CAPI-based ISDN applications alongside communication programs that do not have built-in CAPI support.



During the FRITZ! installation you can specify whether you want to add FRITZ!web to the Startup group. If so, then FRITZ!web acts as your computer’s default connection to the Internet as soon as you start your computer. If you want to use Dial-Up Networking to connect to the Internet, you must exit FRITZ!web and remove it from the Startup group.

AVM ISDN CAPI Port Driver

The AVM ISDN CAPI Port Driver allows you to use an ISDN-Controller as if it were a modem.

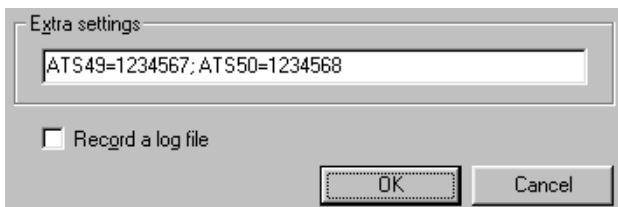
Programs designed to communicate with modems can use the AVM ISDN CAPI Port Driver to address the ISDN interface. In this way, all AVM ISDN-Controllers can be used with Windows' many communication functions. For example, you can use Dial-Up Networking and the TCP/IP protocol to set up a dial-up connection to your Internet provider.

The AVM ISDN CAPI Port Driver creates a number of virtual modems in your system with default settings that can be used for the most common applications with no additional configuration. These modems can be selected in Windows applications such as Dial-Up Networking, or Microsoft Exchange/Outlook. Simply select a previously configured destination, and ISDN communication can begin.

Furthermore, the modem settings can be customized by means of AT commands. To set specific MSNs for incoming call acceptance and the virtual modem's outgoing Caller ID, for example, proceed as follows:

- Open the Control Panel under "Settings" in the Start menu and double-click the "Modems" icon. Select the desired modem in the list.
- Click the "Properties" button.
- On the "Connection" dialog page, click the "Advanced..." button.

- In the “Extra settings” field, enter **ATS49=<MSN>;ATS50=<MSN>**, where the first MSN is the desired outgoing Caller ID and the second is the number the CAPI Port Driver should respond to for incoming calls.



MSN Settings for the AVM ISDN CAPI Port Driver

5 FRITZ!X PC Configuration

The configuration program FRITZ!X makes it easy to configure your FRITZ!X PC PBX to meet your personal requirements. The intuitive dialogs in this program can save you the time and trouble of configuring each setting from an extension telephone.

5.1 Configuration Program Functions

The configuration program FRITZ!X has a number of functions.

Its built-in **dialer** allows you to dial a connection to an internal extension or an external telephone line from your computer. For external calls from your analog extensions you can store up to 40 **speed dialing numbers**. FRITZ!X provides an **Address Book** to help you manage frequently dialed numbers, speed dialing numbers and connection parameters.

The **Call Journal** window displays a detailed list of all outgoing calls with the connection charges for each one, as well as a summary of the monthly charges for each of the past 12 months.



For detailed information on the “Dialer” and “Call Journal” functions, please see the configuration program’s on-line Help.

Select “**Settings**” in the “File” menu to adjust FRITZ!X PC to suit your requirements. You can set the following options:

1. Assign Multiple Subscriber Numbers (MSNs) to the extensions
2. Activate any of several Call Forwarding variants
3. Activate or deactivate Call Waiting for each extension
4. Activate or deactivate the outgoing Caller ID (CLIR)
5. Activate or deactivate incoming Caller ID (CLIP)
6. Restore FRITZ!X PC to the original factory settings

7. Specify the outside dialing mode for each extension
8. Enable or disable group calls for each extension
9. Update the PBX firmware

5.2 Factory Settings

FRITZ!X PC is shipped with the following settings:

- No Multiple Subscriber Numbers are defined (MSNs) or assigned to the extensions. All extensions ring for all incoming calls.
- All extensions are set for automatic outside dialing: the outside line's dial tone is heard when the handset is picked up.
- Call Waiting is deactivated on all extensions: a second incoming call is not signaled on an extension that already has an active connection.
- Call Forwarding is deactivated on all extensions.
- Call Diversion is deactivated for all MSNs.
- Suppression of the outgoing Caller ID is deactivated on all extensions.
- Incoming Caller ID display is activated on all extensions.

5.3 Configuring FRITZ!X PC

To adjust your FRITZ!X PC for your individual requirements, set the necessary options in the FRITZ!X configuration program, then transmit the settings to FRITZ!X PC.

Starting FRITZ!X

Start the configuration program from the Windows "Start" menu by selecting "Start / Programs / AVM / FRITZ!X".

In the FRITZ!X window, select “Settings” in the “File” menu. The “FRITZ!X Settings” dialog appears with five pages on which you can set the configuration options. The options on the various dialog pages are described in the following sections.

Transmitting New Settings to FRITZ!X PC

In order for the settings you have changed to take effect, you must transmit them to your FRITZ!X PC by clicking the “Transmit” button.



Please note that you must click the “Transmit” button after making changes on any dialog page in order to save the new settings in your FRITZ!X PC. (The “General” page in the “Settings” dialog is an exception: the settings on this page are only used by the FRITZ!X program and are not stored in the ISDN-Connector.)

Loading the Current Settings

To load the currently active settings from FRITZ!X PC into the configuration program, click the “Load” button. This may be necessary if you have changed settings in the configuration program, but do not want to save your changes. The options shown in the “Settings” dialog then reflect the active settings.



Please note that loading the current settings from the ISDN-Connector deletes any changes you may have made in the configuration program’s “Settings” dialog!

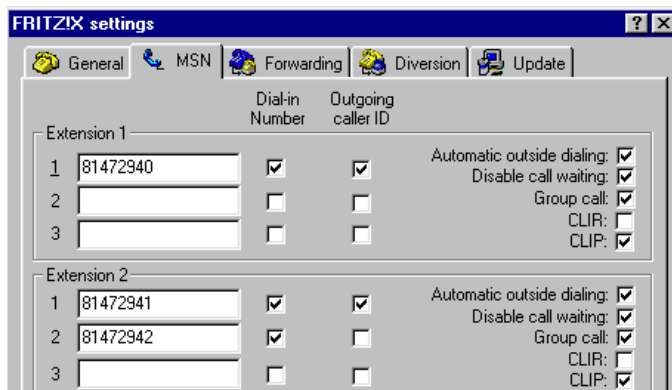
5.4 The ‘MSNs’ Settings Page

On the “MSNs” dialog page, your ISDN line’s individual dial-in numbers can be assigned to the specific FRITZ!X PC extensions. On this page you can also activate or deactivate various ISDN features for each extension.

FRITZ!X PC can save up to three dial-in numbers for each extension. When an external subscriber dials one of these numbers, all terminal devices connected to the corresponding extension line ring.

One of the dial-in numbers is also used as the outgoing Caller ID. The extension's outgoing Caller ID is the number that appears in the display of the subscriber called, and in detailed connection charge information. The outgoing Caller ID can also be deactivated as a dial-in number. In this case, the number is displayed to subscribers called from the given extension, but the extension does not ring when the number is dialed by an outside subscriber.

The outgoing Caller ID is also the MSN to which the extension's connection charges are attributed.



"MSNs" Settings Page

Assigning MSNs

To assign MSNs to the extensions, proceed as follows:

1. Have the list of your line's MSNs handy. You should have received such a list from your ISDN provider.
2. Select the menu command "Settings" in the "File" menu of the configuration program's main window. In the "Settings" dialog, click the "MSNs" tab.
3. The "MSNs" dialog page is divided into sections for each extension. In the section for "Extension 1", enter the numbers to be assigned to this extension line.
4. Click the "Dial-in number" checkbox for each number that should make Extension 1 ring.

5. Click the “Outgoing Caller ID” radio button beside the MSN which outside subscribers should see when they receive calls from Extension 1.



Only one number can be selected to serve as the outgoing Caller ID.

6. Repeat these steps for the remaining extensions.
7. To save and activate these settings, click the “Transmit” button. The configuration information is then sent to FRITZ!X PC and stored in its on-board memory. To abandon your changed MSN settings and reload the existing settings from FRITZ!X PC, click the “Load” button.

Specifying the Outside Dialing Mode

In FRITZ!X PCs original factory settings, automatic outside dialing is activated for all extensions. This means that the outside dial tone is heard as soon as you pick up the handset of an extension telephone.

To switch an extension from automatic outside dialing to internal dialing, deactivate the “Outside dialing” radio button. When the handset is picked up on the corresponding extension, the PBX’s internal dial tone is heard. A zero must be dialed before any external number.

Call Waiting

The ISDN feature “Call Waiting” informs you during a call if a second caller is dialing your line. An acoustic signal in your telephone handset notifies you that a second call is waiting. Call Waiting can be activated or deactivated for each extension individually.



For further information on the ISDN feature “Call Waiting”, see the section “Call Waiting” on page 51.

Some older fax machines and modems may not interpret the Call Waiting signal correctly. If communication errors occur, you should disable Call Waiting for fax and modem extensions.

CLIR (Calling Line Identification Restriction)

When the “CLIR” option is activated, your telephone number will not be displayed to the subscriber you call.

If you want others to be able to see your Caller ID, deactivate the “CLIR” checkbox.



The CLIR option on the MSNs settings page suppresses the Caller ID for all outgoing connections. To suppress your Caller ID for a single call, see the section “Call Waiting” on page 51.



In order for this option to take effect, the feature “CLIR” must be enabled for your ISDN line!

CLIP (Calling Line Identification Presentation)

When the “CLIP” option is activated, the phone number from which an incoming call (external or internal) originates is shown in the display panel of your telephone.

If you do not want your extension to display the caller’s number when it rings, then deactivate the “CLIP” checkbox.

This feature is only effective if your telephone supports CLIP. It may also be necessary to activate a CLIP option in your telephone.

5.5 Call Forwarding

Incoming calls for any FRITZ!X PC extension can be forwarded to a different extension or to an external number. Call forwarding can take place in one of two ways:

- Call Forwarding

Call forwarding is performed by FRITZ!X PC, whether to a different extension or to an external number. Call forwarding to a different extension is toll-free, but if the forwarding destination is an external number, FRITZ!X PC dials a connection using your ISDN line’s second B channel to forward the incoming call back out again, and connection charges are incurred for this out-

going call. For further information, please see the section “Call Forwarding: The ‘Forwarding’ Settings Page” on page 43.

- Call Diversion

Call Diversion is performed by the ISDN operator’s switching equipment. Call Diversion forwards calls for one of your line’s MSNs to a different one, or to another subscriber’s number. ISDN providers generally charge for this service. For more information, please see the section “Call Diversion: The ‘Diversion’ Settings Page” on page 44.

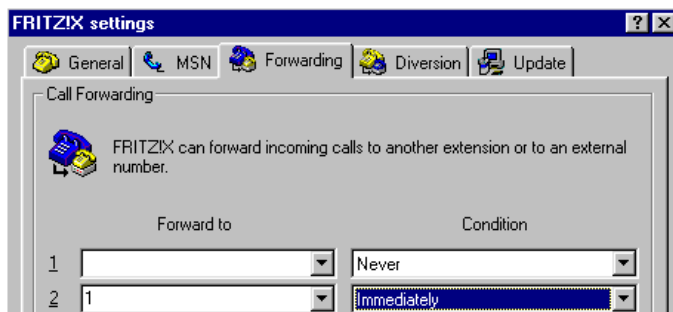


Avoid activating both Call Forwarding (by FRITZ!X PC and Call Diversion (by the ISDN operator’s switching equipment) at the same time.

Ask your ISDN provider whether Call Diversion is available on your ISDN line.

5.6 Call Forwarding: The ‘Forwarding’ Settings Page

To configure call forwarding, select the menu command “Settings” in the “File” menu of the configuration program’s main window. In the “Settings” dialog, click the “Forwarding” tab.



“Forwarding” Settings

On this dialog page you can configure call forwarding for each extension individually. The numbered lines correspond to the extension numbers.

Forward to

Enter the desired telephone number or internal extension number in the “Forward to” field

Condition

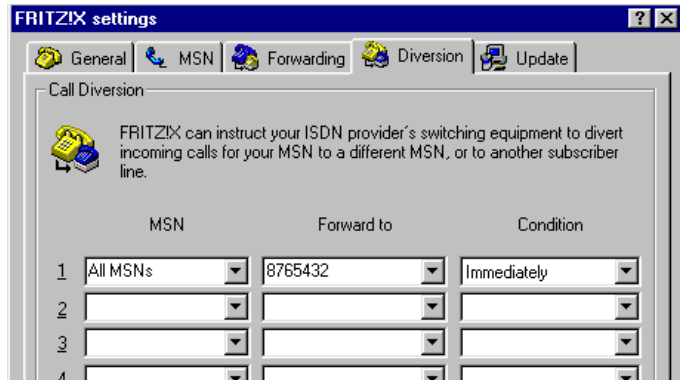
In the “Condition” list box, choose the conditions under which incoming calls should be forwarded:

- Always forward incoming calls without ringing the extension actually dialed
- Forward the call if the extension originally dialed is not answered within 15 seconds (about three rings)
- Forward new calls whenever the extension dialed is busy
- Forward incoming calls if the extension is busy **or** if it is not answered within 15 seconds

5.7 Call Diversion: The ‘Diversion’ Settings Page

FRITZ!X can instruct your ISDN provider’s local switch to divert calls for any of your MSNs to a different one, or to another subscriber line. ISDN providers generally charge for this service.

To activate Call Diversion, select the “Settings” command in the “File” menu of the configuration program’s main window. In the “Settings” dialog, click the “Diversion” tab.



“Diversions” Settings



If your ISDN provider is Deutsche Telekom, you can use Call Diversion to send calls to your T-NetBox. To do so, enter the number 0800-330 2424 as the destination under “Divert to”.

MSNs

In list boxes in the MSNs column, enter each Multiple Subscriber Number whose calls you want to send to a different number. You can enter any one of your line’s MSNs, or select the list entry “All MSNs”. Note that Call Diversion is applied to all calls for the specified number, and thus may affect both analog terminal equipment connected to FRITZ!X PC extensions and other terminal equipment connected directly to your ISDN line.

Divert to

In the “Divert to” column, enter the number to which you want the MSN’s calls to be sent. Note that only digits may be entered here: do not include spaces or punctuation.

Condition

In the “Condition” list box, choose the conditions under which incoming calls should be diverted to the specified number:



- Always divert incoming calls without ringing the MSN actually dialed
- If there is no answer at the number dialed within 20 seconds (about five rings)

The exact timing of Call Diversion depends on your ISDN provider's switching equipment.

- Divert new calls whenever the number dialed is busy
- Divert incoming calls if the MSN is busy, or if it is not answered within 20 seconds

5.8 Updating the Firmware: The 'Update' Settings Page

The configuration program FRITZ!X allows you to bring your ISDN-Connector up to date as new technical advances are made in ISDN communication. All you need to do is to update the ISDN-Controller's firmware.

You can obtain the new firmware from the AVM Data Call Center (ADC), or over the Internet from AVM's FTP server.

The new firmware is installed in your ISDN-Connector by the FRITZ!X configuration program. To update the firmware, proceed as follows:

1. Dial the ADC in FRITZ!data (+49-30-399 84 300), or point your browser or FTP client to AVM's FTP server, ftp.avm.de. In the directory "CARDWARE/<product name>/FIRMWARE", find the file "FIRMW.EXE" and download it to your computer. Double-click this file in the Windows Explorer to unpack the new firmware file.
2. Start the configuration program FRITZ!X.
3. In the "Settings" dialog, click the "Update" tab.
4. In the "File" text field, enter the full path name of the firmware file that you downloaded and unpacked.

Alternatively, click the "Browse" button to search for the file, which has the file name extension .DAT. When you have entered the file name, the information field at

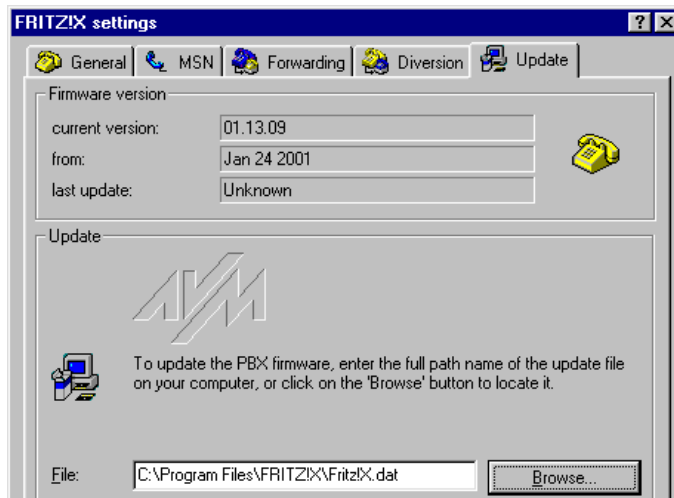
the bottom of the “Update” dialog page shows which firmware version the update file contains. If the update file is a later version than the currently active firmware, it is recommended that you install the update.

5. To do so, click the “Transmit” button.
6. A safety prompt appears. If you are sure you want to perform the firmware update, confirm the command. If the firmware version in the update file is the same or older than the currently active version, you are prompted again to confirm that you want to install it nonetheless.



Do not disconnect FRITZ!X PC from the computer during a firmware update, and do not unplug the FRITZ!X PC power cord! If the firmware update is interrupted, your FRITZ!X PC may become unusable! In that case, repeat the update procedure.

7. A message appears announcing that the update has been successfully completed.



Settings, “Update” Page

This completes the update operation. The “Firmware version” panel now shows the new version number.

5.9 Factory Settings

Before the configuration of FRITZ!X PC is adjusted by the user, it uses the original configuration set at the factory.



For details on the factory settings, please see the section “Factory Settings” on page 38.

FRITZ!X PC can be reset to its factory settings at any time by clicking the “Factory Settings” button in the Settings dialog, and then clicking “Yes” at the safety prompt. FRITZ!X PC is then reset to its original configuration, and the factory settings are also loaded in the FRITZ!X configuration program. This operation may take several seconds.



Restoring the factory settings deletes all your personal configuration settings, both in FRITZ!X PC and in the FRITZ!X configuration program! This operation cannot be reversed!

6 Operation

For complete instructions on dialing calls from your computer using the FRITZ!X configuration program, see the On-line Help.



This chapter describes the use of features available on FRITZ!X PC extension telephones. Some of the functions described cannot be performed by pulse-dialing telephones. For details, see the section “Using Pulse-Dialing Telephones with FRITZ!X PC” on page 59.






The “Hold” button may be designated differently on different telephone models (“R”, “Hold”, “Flash” etc.). Please read the section “Adjusting the Hold Button Function” on page 58.

6.1 Dialing External Calls

Dialing External Calls with Automatic Outside Dialing







	Pick up the handset. You can hear the external dial tone immediately, since the extension is set to automatic outside dialing.
	Dial the desired external number.

Dialing External Calls with the Outside Line Prefix

	Pick up the handset. You hear the internal dial tone.
	Dial the digit “0”. Now you hear the external dial tone.
	Dial the desired external number.

Dialing External Calls with No Outgoing Caller ID (CLIR)

This function prevents your number from being displayed on the telephone of the subscriber you call. Proceed as follows:

	Pick up the handset.
   	Dial the sequence shown at left. Now you hear the external dial tone.
	Dial the number you want to call.



After the CLIR sequence you do not need to dial the outside line prefix “o”, even if your extension is not set for automatic outside dialing.





The CLIR sequence must be dialed before each call for which your outgoing Caller ID is to be suppressed. To activate this feature for all your calls, set the CLIR option for your extension in the configuration program FRITZ!X.





This feature must be enabled for you ISDN line by your ISDN provider.

6.2 Dialing Internal Calls

Dialing Internal Calls with Automatic Outside Dialing

	Pick up the handset. You can hear the external dial tone immediately, since the extension is set for automatic outside dialing.
 or 	Press the Hold button, or press the Asterisk button twice. You now hear the internal dial tone
	Dial the desired extension number.

Dialing Internal Calls Without Automatic Outside Dialing




	Pick up the handset. You hear the internal dial tone.
	Dial the desired extension number.

6.3 Call Waiting



Call Waiting can be enabled or disabled for each extension individually.

The “Call Waiting” feature informs you during a call if a second caller is dialing your line. An acoustic signal in your telephone handset notifies you that a second call is waiting. You can accept the new call within 30 seconds. After this delay the waiting call is rejected.







	Dial the sequence shown at left to accept a waiting call.
	To return to your original connection, dial the sequence shown at left. You may also switch to the waiting call by ending your existing connection (i.e., by hanging up the handset). In this case the phone rings as soon as you have hung up. Pick up the handset again to accept the waiting call.
	To reject a waiting call, dial the sequence shown at left.

6.4 Hold

The “Hold” feature allows you to free your extension momentarily without ending the connection.



When your connection is on hold, you can talk to someone else in the room with you or dial a second telephone call without the original caller hearing you. When you have finished, you can return to the original connection.

To place a call on hold and then reactivate it, proceed as follows:

Call No. 1	You are talking on an active connection.
	
	Press the Hold button. Call No. 1 is now on hold.
	To begin a connection to Caller No. 2, dial the desired number.
Call No. 2	When Caller No. 2 answers, you can talk.
	
	If Caller No. 2 is busy or does not answer, press the Hold button again to return to Call No. 1.
	To switch back to Call No. 1, dial the sequence shown at left. Call No. 1 is now active again.










If you return to Caller No. 1 by pressing the Hold button, the connection to Caller No. 2 is not cleared down until Caller No. 2 hangs up. You are charged for the connection.

Call No. 1	You can also return to Caller No. 1 by hanging up the handset: this ends the connection to Caller No. 2. In this case the phone rings as soon as you have hung up. Pick up the handset again to return to Call No. 1.
	
	Hang up the handset to end the connection.




6.5 Alternating Between Calls

Whenever you have one active connection and one caller on hold, you can switch from one call to the other as often as you want using the Hold button.

To alternate between two connections, proceed as follows:






Call No. 1	You are talking on an active connection.
	
	Press the Hold button. Call No. 1 is now on hold.
	To begin a connection to Caller No. 2, dial the desired number.
Call No. 2	When Caller No. 2 answers, you can talk.
	
 2	To switch from Call No. 2 to Call No. 1, dial the sequence shown at left.
Call No. 1	Call No. 1 is now active again and Call No. 2 is on hold.
	
 2	To switch back from Call No. 2 to Call No. 1, dial the same sequence once more. In this way you can alternate between Calls No. 1 and 2.

The alternating connections can be ended in a number of ways:

	The caller on hold hangs up. You can continue talking on the active connection.
 1	You end the active connection by dialing the sequence shown at left. The call that was on hold is now active again, and there is no call left on hold.
	You can also return to the call on hold by hanging up the handset: this ends the currently active connection. In this case the phone rings as soon as you have hung up. Pick up the handset again to return to the last call that was on hold.

6.6 Transferring Calls






The “call transfer” function allows you to transfer a connection from one FRITZ!X PC extension to another. To do so, proceed as follows:

Call No. 1	You are talking on an active connection.
	
	Press the Hold button. Call No. 1 is now on hold.
	To announce the call to another internal user, dial his or her extension number.
Call No. 2	You can now talk with the other internal user.
	
	To transfer the original call to the other internal extension, simply hang up the handset.

6.7 Three-Party Calls

FRITZ!X PC allows you to hold telephone conferences with two other people at once. The participants may be two external subscribers and one internal user.

You can set up a three-party call as follows:

	Pick up the handset of your telephone.
	Dial the number of the external subscriber and begin a normal call.
	Now press the Hold button.
	Dial “o” followed by the number of a second external subscriber. You can now talk to the second subscriber while your first call is on hold.
	Dial the sequence shown to the left.

Ⓜ	Now all three participants can talk to and hear one another. If either of the other two callers hangs up, your connected with the remaining participant remains active.
Ⓜ	You can end the three-party call by hanging up the handset.
Ⓜ②	You can also switch from the three-party call back to the original two-party connection. To do so, press the Hold button followed by “2”. The three-party conference is now ended, and the connection that was active last before you initiated the three-party call is now active again. The other external call is on hold. You can alternate between the two connections by dialing the same sequence again.

6.8 Call-back on Busy

If an external number that you dial is busy, you can request a signal to tell you when the line you dialed is available. When the external subscriber hangs up, your telephone rings for 20 seconds as it would for an incoming call. If you pick up your handset, the number that was busy before is automatically dialed again.



This feature must be enabled on your ISDN line by your ISDN provider.

To activate this feature, proceed as follows:

Ⓜ	You have just dialed a number and now you hear the busy signal.
⑤	Within 20 seconds, dial “5”.
Ⓜ	Hang up the handset. As soon as the subscriber you dialed hangs up, your telephone will ring.
Ⓜ	Pick up the handset. The subscriber’s number is dialed again automatically.






The call-back request is automatically cleared once the connection has been successfully completed. Such requests are also cleared by the ISDN provider after a given delay (Deutsche Telekom clears the call-back request after 45 minutes). Only one call-back request may be active at a time.

6.9 Picking Up Calls from Another Extension

If another extension is ringing and no one answers it, you can pick up the call at your extension, whether or not you know the number of the extension ringing. (Please see the instructions in the file ConfigTel.PDF on the FRITZ!X PC CD for further details.)



This feature can also be used to take incoming calls that have already been answered by an answering machine at a different extension, provided that the “group call” feature is deactivated and Call Waiting is enabled for the answering machine’s extension.

To pick up a call from another extension, proceed as follows:

	Pick up the handset.
  	Dial the sequence shown to the left.
	The call is now connected to your extension, and you can talk with the caller.

6.10 Group Calls

FRITZ!X PC’s Group Call feature allows you to allows you to ring all other extensions at the same time. To do so, you must first obtain the internal dial tone. Your call is connected with whichever extension is answered first.

	Pick up the handset.
	Instead of an extension number, dial “9”. All extensions that are not busy ring.








Group calls do not ring at extensions for which the feature has been deactivated. Group calls can be enabled or disabled for each extension individually.


6.11 Suspend/Resume

The “Suspend/Resume” feature (also known as “Terminal Portability” or TP) allows you to suspend a call and resume it from another terminal device connected to your ISDN line alongside FRITZ!X PC.





To suspend a call, proceed as follows:

	You are talking on an active connection.
	Press the Hold button. The call is on hold.
  ID 	Dial the sequence shown to the left, using any number between 0 and 99 as the Parked Call ID (ID). You will need to enter this ID again when you resume the call.

You will hear an acknowledgment signal to indicate that the call has been successfully suspended. If you hear the failure signal, this may indicate that you made a mistake, or that the Suspend/Resume feature is disabled, or that the Parked Call ID you chose may already be in use.

	After the acknowledgment tone you can hang up the handset without clearing down the connection. The call remains suspended at the ISDN provider's local switch for two minutes.
--	---

To resume the connection, proceed as follows:

	Pick up the handset again. (You must not have a call on hold. Otherwise, FRITZ!X PC will attempt to suspend it.)
  ID 	Dial the sequence shown at left. Use the Parked call ID (ID) that you entered when you suspended the call.




6.12 Using Keypad Messages

FRITZ!X PC allows you to use keypad sequences.





Your ISDN provider may allow you to access additional or future ISDN features, which may not be directly supported by your terminal equipment, by dialing Keypad Messages. Keypad Messages are sequences of keys to press on your telephone. In order for the ISDN PBX to interpret these sequences correctly, it must support the “Keypad Messages” feature.

Ask your ISDN provider for the specific Keypad Messages to access ISDN features.

To enter a Keypad Message on an extension with automatic outside dialing:

	Pick up the handset.
  Seq	Dial the sequence shown at left, where “Seq” stands for the Keypad Message supplied by your ISDN provider.

To enter a Keypad Message on an extension without automatic outside dialing:

	Pick up the handset.
   Seq	Dial the sequence shown at left, where “Seq” stands for the Keypad Message supplied by your ISDN provider.

6.13 Adjusting the Hold Button Function



Make sure the Hold button function is properly adjusted on your analog terminal equipment. FRITZ!X PC supports a hook flash interval of 80 ms (short hook flash) to 310 ms (long hook flash).

See the operating instructions accompanying your terminal equipment.

6.14 Using Pulse-Dialing Telephones with FRITZ!X PC

Not all of FRITZ!X PC's features can be used with a pulse-dialing telephone.

The following functions are accessible from a pulse-dialing telephone:

- External dialing
- Internal dialing (unless Automatic Outside Dialing is activated)
- Answering internal and external calls
- Answering waiting calls by dialing "o"
- Alternating between calls by dialing "o"
- Holding calls by dialing "o"

The following operations cannot be performed from a pulse-dialing telephone:

- Programming FRITZ!X PC
- Picking up a call from another extension



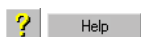
Please see the additional information for your PBX in the section "Tips & Tricks" on page 62.

7 Support

This chapter contains helpful hints to add to the convenience of FRITZ!X PC and solve minor problems that may arise. In case you need new drivers, further information or customer support, you will also find the addresses and phone numbers of AVM and FRITZ!X PC Support.

7.1 Information and Updates

Information on all FRITZ!X PC components can be found in the following documents:



- Help on the FRITZ!X configuration program: Open the detailed on-line Help by pressing “F1” or by clicking on the Help buttons.



- Configuration from an extension telephone: for complete instructions, see the file configuration program ConfigTel.PDF in the folder \software\info on the FRITZ!X PC CD.



- FRITZ! manual: The manual is included in PDF format on the CD in the folder \software\info. If you need to install the Acrobat Reader to read the PDF file, you can do so using the installation program included in the same folder on the FRITZ!X PC CD.



- Help for the FRITZ! communication software: In all FRITZ! modules you can open the detailed on-line Help by pressing “F1” or by clicking on the Help buttons.



- Help files for the AVM system drivers: If you install an AVM system driver, such as the CAPI Port Driver, a shortcut to the corresponding Help file is created on your desktop. The Help files can also be found in the folders SOFTWARE\CAPIPORT\CAPIPORT.<operating system> and SOFTWARE\NDISWAN\NDISWAN.<operating system> on the CD.



- Readme file for the ISDN-Connector FRITZ!X PC: The Readme file contains current information which was not yet available at the time the manual was printed.
 - In the operating systems Microsoft Windows Me, 98, 95 and NT 4.0, the file “FRITZ!X PC Readme” can be found in the “AVM” program group after the software installation.
 - In the operating system Microsoft Windows 2000, the file README.DOC is found in the folder WINDOWS.2K on the FRITZ!X PC CD.
- AVM also provides detailed information and free software updates on its Internet site:
www.avm.de/en/FRITZ/index.html
Click “Service” for answers to frequently asked questions (FAQs), and for AVM support.
- The “Service” page also contains a link to the latest driver software for your FRITZ!X PC ISDN-Connector, as well as other software such as the newest AVM system drivers.
- All the programs and drivers available on AVM’s Internet site can also be downloaded from the AVM Data Call Center (ADC). Dial the ADC at the number +49 (0)30 / 39 98 43 00. No user name or password is necessary for access to the ADC.



For maximum throughput, use FRITZ!data with the IDtrans protocol to download programs, drivers etc.

7.2 Tips & Tricks

This section contains configuration hints for FRITZ!X PC.

Configuration to Ensure a Busy Signal

If you are talking on a given extension when a second caller dials your number, and you cannot answer the call, the caller may or may not receive a busy signal, depending on your FRITZ!X PC settings.

Example: Extension 1 has an active connection. An external caller dials the MSN assigned to Extension 1. The caller receives the busy signal only if Extensions 2, 3 and 4 have all been assigned at least one MSN as a dial-in number, and none of them has been assigned the same dial-in number as Extension 1.

Modem Software and FRITZ!X PC Extensions

If you have connected a modem to one of your FRITZ!X PC extensions, please note the following:

Settings that you configure in FRITZ!X PC for the modem's extension must be coordinated with settings configured in the modem software. For example, if you leave the default setting for automatic outside dialing activated for the modem's extension, then the modem software should not be set to dial an outside line prefix. If you have trouble establishing modem connections, then make sure the settings in the modem software match the FRITZ!X PC settings for the modem's extension.

This information does not apply to your PC's direct serial port connection to FRITZ!X PC. In the FRITZ! modules, you should deactivate the "Private Branch Exchange (PBX)" option, unless your ISDN line is itself a PBX extension.

7.3 Troubleshooting

Not all errors indicate defects in FRITZ!X PC or your terminal equipment. This section describes the most common error conditions with their most likely causes and remedies.

Begin by performing the following checks:

- Do the LEDs on your FRITZ!X PC indicate normal operation? The LED signals are described in the section “FRITZ!X PC LEDs” on page 11.
- Is FRITZ!X PC operational? The green LED labeled “Power” should be lit.
- Test the “Phone” LED for each extension:

If you pick up the handset of an extension phone, or if the extension has an active connection, this is indicated by an amber LED. Incoming calls are indicated by a blinking LED.

If the LED does not light up when you pick up the handset, this probably indicates a fault in the telephone cord or a wiring error in the connector. Test all the extensions one after another.

- Is the V.24 cable securely connected between the computer and FRITZ!X PC?
- Is the power adapter securely connected to the AC outlet and FRITZ!X PC?
- Is the ISDN cable securely inserted in the S₀ sockets of your NT (Network Terminator) and FRITZ!X PC?
- Are your terminal devices—telephones, modems, fax machines—correctly connected to FRITZ!X PC?
- Is your terminal device defective? Test it on a different FRITZ!X PC extension or on a different PBX or analog telephone line.

No external dial tone when you pick up the telephone handset

Check whether automatic outside dialing is set for the extension. If not, see if you can obtain a dial tone by dialing “o”.

No internal dial tone when you pick up the handset

Check whether automatic outside dialing is disabled for the extension.

Busy signal when...

- You pick up the handset (if automatic outside dialing is activated for your extension)
- You dial the outside line prefix (if automatic outside dialing is not activated for your extension)

In both of these cases, the busy signal indicates that both of your ISDN line's B channels are busy with active connections. At the moment you cannot dial an external call. Wait until a B channel is free.

Your fax machine indicates that the line is busy

Both of your ISDN line's B channels are busy with active connections. At the moment you cannot dial an external call. Wait until a B channel is free.

Automatic outside dialing is deactivated for your extension, and you hear a busy signal 30 seconds after you pick up the handset or switch on your fax machine

This is not an error. FRITZ!X PC sounds the busy signal if your handset is off the hook for 30 seconds and no number is dialed. If you begin dialing the desired phone or fax number within 30 seconds, there should be no problem.

The extension does not ring for an incoming external call

Check whether the terminal device that you expect to receive an external call is connected to the right extension. Then make sure that the MSN which your caller is dialing is assigned to that extension. If not, either connect the terminal device to the extension to which the MSN is actually assigned, or assign the MSN to the extension to which the terminal device is actually connected.

- A common mistake is that the extension has been assigned an MSN as its outgoing Caller ID, but not as a dial-in number. In order for the extension to ring, you must either assign it a valid MSN as a dial-in number, or clear all of its MSN settings, both outgoing Caller ID and dial-in numbers.
- Check whether the FRITZ! communication software responds to incoming calls.

All incoming calls are answered by the ISDN-Controller

Check the program settings in FRITZ!fax and FRITZ!vox. Is FRITZ!fax standing by for incoming calls? If you have selected the call acceptance option “All incoming fax calls” on the “ISDN” settings page, then no calls can be answered by FRITZ!X PC’s analog extensions.

If FRITZ!vox is standing by for incoming calls and you have selected the call acceptance option “All incoming calls” on the “ISDN” settings page, then FRITZ!vox takes all incoming calls after a certain delay. In this case, no calls can be answered by FRITZ!X PC’s analog extensions. The delay after which FRITZ!vox answers calls can be specified in the “Answering Profile” dialog, opened from the “Answering Profiles” page in the program’s Settings dialog. The delay setting in effect is the one configured in the answering profile that is activated on the “ISDN” settings page.

FRITZ!X PC after a power failure

When you restart FRITZ!X PC after a power failure, its configuration corresponds to the last settings saved in the PBX’s on-board memory.

If you have changed settings but not saved them in FRITZ!X PC, then the PBX starts up with its original factory settings.

No acknowledgment tone is heard when you program FRITZ!X PC from an extension phone

Only tone-dialing (DTMF) telephones can be used to program FRITZ!X PC. Pulse-dialing telephones are not suitable for programming functions.



Some terminal devices can operate with either tone or pulse dialing. Check your terminal equipment.

7.4 Assistance from FRITZ!X PC Support



Please use the information sources listed above before contacting FRITZ!X PC Support!

For direct assistance, AVM offers FRITZ!X PC Support to provide help when problems arise during installation and the first steps of operation with FRITZ!X PC.

The support desk can be reached by E-mail or by fax. FRITZ!X PC Support then will contact you to assist in resolving your problems. You will receive an E-mail or a fax.

Should problems establishing connections to remote sites arise, please try to establish a test connection to the AVM Data Call Center (ADC) before contacting support. See the instructions in the FRITZ! manual („FRITZ!data“ chapter). As the ADC receives a great number of calls, please try several times. In the case of an error, write down the exact wording of the error message. Support requires this information to rectify the error.

Support by E-mail

Support requests may be submitted to AVM by E-mail. Please use the support request form on the AVM Internet pages at:

<http://www.avm.de/en/service/support/>

Fill out the form and send it to AVM support by clicking the „Send“ button.

Support by Fax

If necessary, FRITZ!X PC Support also can be reached at the fax number:

+49 (0)30 / 39 97 62 66

Please include the following information in your fax:

- An E-mail address or fax number at which you can be reached
- Personal information like your name and address
- The Product Identification Code printed on the back of your CD case. Support staff will always check this number to ensure that you are a registered user.
- The operating system you use, e.g. Windows 2000 or Windows 98
- The D-channel protocol used on your ISDN line
- Is your ISDN-Controller operated on a PBX extension line?
- At what point during installation or in which FRITZ! application does an error message appear? What is the exact wording of the message?
- Which software are you having problems with? What is the exact wording of the error message?
- Include the version number and build of the driver used. The versions number and build are listed in the README file.
 - In the Microsoft Windows Me/98/95 and Windows NT 4.0 operating systems, the README file is located in the „AVM“ program group.

In the Microsoft Windows 2000 operating system the README file is located in the WINDOWS.2K folder on the FRITZ!X PC CD.

Declaration of CE Conformity

The manufacturer AVM GmbH
Address Alt-Moabit 95
 10559 Berlin

herewith declares that the product

Type ISDN-Connector
Product FRITZ!X PC

complies with the following directives:

- 1999/5/EC Radio Equipment and Telecommuni-
 cations Terminal Equipment
- 89/336/EEC EMC Directive:
 Electromagnetic Compatibility
- 79/23/EEC Low Voltage Directive:
 Electrical equipment designed for use
 within certain voltage limits

The following norms were consulted to assess conformity:

- CTR 3/1998.06.17
- EN 55022/9.98 Class B
 EN 55024/9.98
- EN 60950/1992+A1+A2+A3+A4+A11
 EN 41003/1998



The CE symbol confirms that this product conforms with the above mentioned norms and regulations.

A handwritten signature in blue ink, appearing to read 'P. Foxel', is placed above the printed name of the technical director.

Berlin, 01.12.2000

Peter Foxel, Technical Director