INSTALLATION, CONFIGURATION AND OPERATION OF BLUEFRITZ! AP-X

English Edition

FRITZ!

ISDN/Bluetooth

BlueFRITZ! AP-X

HIGH-PERFORMANCE COMMUNICATION BY ... AVM

AVM BlueFRITZ! AP-X

Documentation release 09/2006

AVM Audiovisuelles Marketing
und Computersysteme GmbH
Alt-Moabit 95

10559 Berlin

AVM Computersysteme
Vertriebs GmbH
Alt-Moabit 95

10559 Berlin

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

Contents

Safety Instructions

- Do not open the housing of BlueFRITZ! AP-X. The device contains hazardous components and should only be opened by authorized repair technicians.
- All terminal equipment that is connected to the BlueFRITZ! AP-X must be approved for operation in public telephone networks in the European Union.
- Never let liquids get inside the BlueFRITZ! AP-X. Otherwise, electric shocks or short circuits may result.
- Do not install BlueFRITZ! AP-X during an electrical storm. Never plug in or unplug any cables during a storm.
- BlueFRITZ! AP-X is intended for indoor use only.
- Route all cables so that they cannot be stepped on or tripped over.
- Only operate AVM BlueFRITZ! AP-X with the AVM01024 or AVM01026 or AVM01031 mains adapter included with delivery.

Typographical Conventions

The following highlighting and icons are used to designate important information:

Highlighting

The following highlighting is used in this manual.

Highlighting	Function	Example:
Quotation marks	Keys, buttons, icons, tabs, menus, commands	“Start / Programs” or “Enter”
Capital letters	Path and file names in running text	SOFTWARE\INFO.PDF or README.DOC
Pointed brackets	Variables	‹CD-ROM drive›
Typewriter font	Information to be typed in using the keyboard	`a:\setup`
Gray italics	Tips, instructions and warnings	***... For more information, see...***

Symbols

The following icons are used in the manual:

The hand indicates important instructions that must be observed to avoid malfunctions.

FRITZ! marks useful hints to assist you in working with the product.

The Telephone Keypad

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

0…9	Numeric keys
*	Star key
R	Hold or Flash key
#	Pound sign key

Instructions for Operation at the Telephone

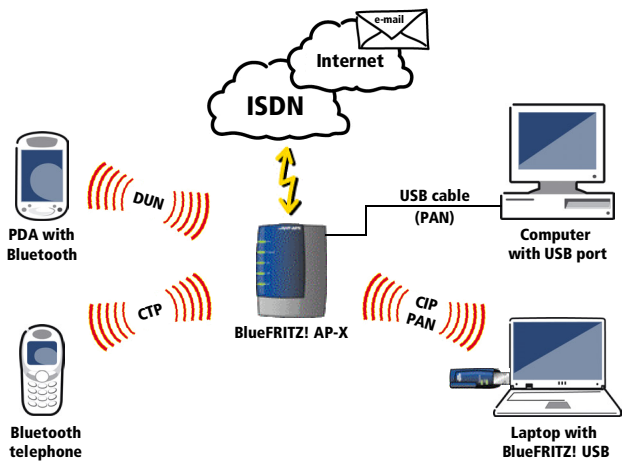
	Dial a number.
	Pick up the handset.
	Hang up the handset.
	Talk.
	Talk on a three-party conference call.
	Wait for the acknowledgement tone.
	You hear the ring tone.

1 General Remarks

1.1 This Is BlueFRITZ! AP-X

BlueFRITZ! AP-X is a combined PBX (Private Branch Exchange) extension and ISDN-Controller in one. This intelligent combination allows you to connect both your computer and your analog telephone equipment to the ISDN line. This means you can continue using your existing analog equipment, such as telephones, answering machines and fax machines, and enjoy a multitude of ISDN features. You can use both tone-dialing and pulse-dialing (touch-tone) terminal equipment.

BlueFRITZ! AP-X also has a Bluetooth interface. The Bluetooth interface allows you to network up to seven computers in a LAN and connect them all to ISDN by means of Bluetooth connections. One additional computer can also be connected to BlueFRITZ! AP-X by a conventional USB cable. Support for all common Bluetooth profiles means that you can use ISDN and the Internet wirelessly with a wide variety of devices.



Connecting various Bluetooth devices to BlueFRITZ! AP-X

For detailed information about the Bluetooth profiles supported and their application potentials, please see the section “Bluetooth Profiles” on page 20.

Thanks to the BlueFRITZ! AP-X PBX and the FRITZ! communication software, all the connected computers can use ISDN applications such as file transfer, telefax (Group 3), answering machine functions, PC telephony, and Internet services.

Once you have connected BlueFRITZ! AP-X to your computer, you can use the FRITZ!X configuration software to configure the PBX. It does not matter whether the computer is connected over Bluetooth or the USB cable. If you operate BlueFRITZ! AP-X without a computer, you can also configure it from a tone-dialing extension telephone. A detailed description of the configuration settings in FRITZ!X is provided in the Online Help. The configuration procedures using a telephone are described in detail in the PDF file TELEPHONE.PDF, located in the folder SOFTWARE\INFO\ on the BlueFRITZ! AP-X CD.

1.2 Package Contents

When you have opened and unpacked the product, you will have the following components in front of you:

- one PBX BlueFRITZ! AP-X
- one CD-ROM with the installation software for BlueFRITZ! AP-X
- one AC power adapter with cable
- one ISDN cable
- one USB cable to connect BlueFRITZ! AP-X to a computer's USB port
- one BlueFRITZ! AP-X manual
- one drilling template (supplied in the package)

1.3 Installation Requirements

In order to operate BlueFRITZ! AP-X, you must have the following:

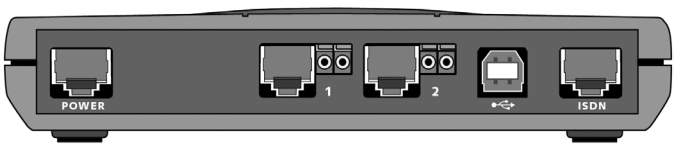
- Euro ISDN basic access (DSS1) as multi-terminal connection
- A computer with an Intel Pentium II processor (or comparable AMD processor), 64 MB RAM and a hardware configuration suitable for the operating system
- The operating system Microsoft Windows XP, Me, 2000 Professional or Windows 98

The "Stand-by" and "PC Wake-up over ISDN" functions are available with the operating systems Windows XP, Windows Me and Windows 2000 Professional if your computer supports ACPI and the CAPI driver is installed.

For more information about the requirements for ACPI, see the section "Does the Computer Support ACPI?" on page 70.

1.4 The BlueFRITZ! AP-X Connectors

The following illustration shows a back view of BlueFRITZ! AP-X. The connector panel includes sockets for the power adapter, the extension jacks and wire clips for analog terminal equipment, the USB connection to the computer, and the ISDN line.



Connectors on the back panel of your BlueFRITZ! AP-X

1.5 LEDs BlueFRITZ! AP-X

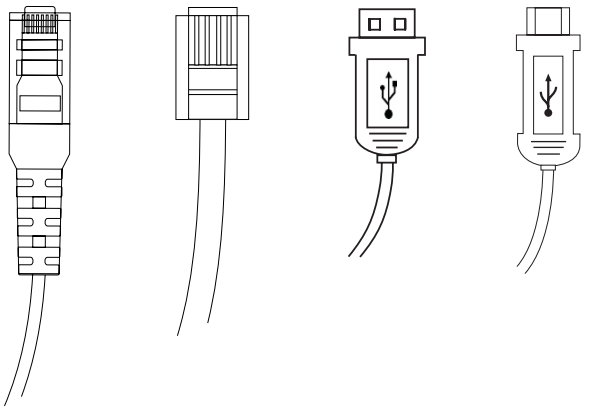
The LEDs on your BlueFRITZ! AP-X indicate the following conditions:

LED	color	Event type
Power	green	shows the operation status of BlueFRITZ! AP-X
		indicates that the device is connected to the power mains and to ISDN
		flashes if the device is connected to the power mains, but the connection to ISDN has been lost
Bluetooth	green	indicates that the connection between BlueFRITZ! AP-X and the computer is active
Phone	red	indicates the status of the extension lines:
		off: all terminal equipment on the extension lines is inactive, or no terminal equipment is connected
		on: at least one terminal device on an extension is active
		flashing: at least one extension is ringing or an MWI message has arrived (from a voice mail box)
B channel 1	green	indicates an active connection on the first B channel
B channel 2	green	indicates an active connection on the second B channel

Contact your ISDN provider for more information about MWI messages.

1.6 Connectors

BlueFRITZ! AP-X uses the following connectors:



RJ45 plug | RJ12 plug | USB connector Series A | USB connector Series B

The ISDN cable supplied with BlueFRITZ! AP-X has an RJ45 connector at each end. The power cord also has a RJ45 connector at one end.

Analog terminal devices are connected to BlueFRITZ! AP-X by means of RJ12 connectors. If your analog terminal device is equipped with a connector type other than RJ12, it can be connected to BlueFRITZ! AP-X by means of an appropriate adapter, generally available in most good electrical retail outlets.

The computer cable has a Series-A USB connector on one end and a Series-B USB connector on the other.

1.7 Cables

BlueFRITZ! AP-X is connected to ISDN by plugging the ISDN cable into the ISDN Network Terminator (NT). The ISDN cable has an RJ45 connector at each end.

The computer is connected to BlueFRITZ! AP-X with the computer cable. The flat, rectangular connector is a Series A connector. It connects to your computer's USB port. If the computer is connected to a USB hub, the Series A connector is plugged into the hub. The square plug is a Series B connector. It is connected to the USB socket on the back of BlueFRITZ! AP-X.

The AC power adapter cable connects BlueFRITZ! AP-X to the power mains.

1.8 Technical Specifications

- ISDN connector for Euro-ISDN (DSS1) lines
- (w x h x d) approx. 160 x 31 x 122 mm
- one Bluetooth access point with the Bluetooth profiles CIP, SPP, DUN, PAN and CTP
- two analog extension lines connected by RJ12 connectors or wire clips
- one USB interface for connecting a computer with a USB port
- one Euro-ISDN interface (RJ45 jack)
- five LED status indicators
- PC Wake-up over ISDN
- 16-kHz charge-unit pulse at the extensions
- Supply voltage: 230 V / 50 Hz
- Power consumption when idle: 2. 9 watts
- Maximum power consumption: 5.5 watts
- Bandwidth of analog extensions: 33,600 bit/s
- Conform to CE standard

1.9 Features

With BlueFRITZ! AP-X you can take advantage of many ISDN convenience features and functions.

ISDN Features Supported

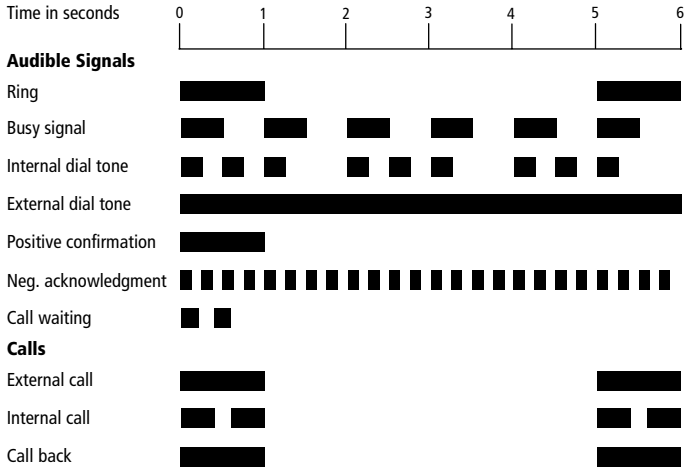
- Call holding, consultation mute (HOLD)
- Multiple Subscriber Numbers (MSN)
- Three-party conference calls (3PTY)
- Call-back on busy (CCBS)
- Call-back on No Response (CCNR)
- Call Tracing (MCID)
- Explicit call transfer (ECT)
- Signaling of messages waiting (MWI)
- Call forwarding / call diversion (CFU / CFB / CFNR)
- Call waiting (CW)
- Caller ID (CLIP)
- Outgoing caller ID suppression (CLIR)
- Charge information (AOCE / AOCD)
- Terminal portability (TP)
- Connected line identification presentation (COLP)
- Connected line identification restriction (COLR)
- Keypad messages

Convenience Features

- Three Multiple Subscriber Numbers (MSNs) configurable per extension
- Call pick-up
- Call bumping for 2-channel Internet connections
- Least Cost Routing (LCR)
- Call transfer
- Automatic outside dialing option
- Call Rejection on Busy (Busy on Busy)
- Dialing Restrictions
- SMS in fixed network (with terminal devices offering SMS support)
- Do Not Disturb
- Caller list
- Call forwarding over the second B channel
- Internal call diversion
- Call Waiting Option
- Caller ID at the extension (including date and time)
- Accounting
- Programmable speed-dial numbers
- Toll-free internal calls
- Internal group calls
- Baby Monitoring Phone Function
- Message on Hold
- Call-back on busy
- Call-back on no response
- Internal three-party conference
- MSNs assigned to specific terminal equipment

1.10 Audible Signals

The following diagrams illustrate the duration and intervals of the various handset tones and ring patterns of the BlueFRITZ! AP-X extension telephones.



Handset and ring patterns on BlueFRITZ! AP-X extension telephones

2 Hardware Installation

This chapter describes the hardware installation. This involves connecting BlueFRITZ!AP-X to the ISDN line and the power supply, connecting analog terminal equipment to the PBX extensions, and connecting BlueFRITZ! AP-X to the computer.

2.1 Preparations for Installation

BlueFRITZ!AP-X can be installed on any suitable horizontal or vertical surface. The unit should be installed in a dry, dust-free location out of direct sunlight. If you would like to connect the PBX to your computer using cable, remember to account for the lengths of the supplied cables. Position the device in the vicinity of the computer. If you want to mount BlueFRITZ!AP-X on the wall, you many use the drilling template on the last page of this manual.

2.2 Connection to the ISDN Line and the Power Supply

Proceed as follows to connect the necessary cables:

1. Position your BlueFRITZ!AP-X so that the sockets on the back panel are facing you.
2. To connect BlueFRITZ!AP-X to the ISDN line, take the ISDN cable from the package. Plug one end into the jack labeled “ISDN” at the right end of the BlueFRITZ!AP-X connector panel. Plug the other end into your ISDN jack.
3. To connect BlueFRITZ!AP-X to the power supply, take the AC power adapter from the package. Insert its RJ45 connector in the jack labeled “Power” on the BlueFRITZ!AP-X connector panel. Plug the other end into an AC power outlet. The green “Power” LED lights up, signaling that the “BlueFRITZ!AP-X” PBX is operational.

BlueFRITZ!AP-X does not have an on/off switch. The "Power" LED remains on continuously.

2.3 Connecting Analog Terminal Equipment to BlueFRITZ!AP-X

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

To connect analog terminal devices such as telephones, fax machines, answering machines or modems, proceed as follows:

1. insert the TAE connectors of these devices into the corresponding sockets of an adapter (not necessary if the terminal device is equipped with an RJ12 connector).
2. Then insert the adapter's RJ12 connector in one of the two extension line sockets on BlueFRITZ!AP-X.

If you want to install your analog terminal equipment and the PBX in different rooms, you can use a TAE cable to connect an extension phone jack to BlueFRITZ!AP-X. The extension line can then be connected to BlueFRITZ!AP-X using the wire clips beside the RJ12 sockets. Please note:

- The wire must be 0.5 to 1 mm in diameter .
- Strip the insulation from the wire to expose a length of 10 mm.

To connect a cable, press back the orange lever, insert a wire and release the lever. Repeat the procedure with the second wire of the cable.

2.4 Connecting a PC to BlueFRITZ!AP-X: Without a Cable

To establish a wireless connection from the computer to ISDN, two Bluetooth devices are needed: one connected by a cable to the ISDN line, and another installed in the computer. Bluetooth then provides the wireless link between the two devices.

The device installed in the computer is the Bluetooth client. The device connected to the ISDN line is the ISDN access point. As soon as a Bluetooth connection has been established between the two devices, the computer is connected with the ISDN. BlueFRITZ!AP-X is your ISDN access point. Every Bluetooth device is identified by a unique Bluetooth address. Access to the Access Point is restricted by a passkey. The passkey is printed on the sticker on the bottom of the access point housing. The client requires this information in order to connect to BlueFRITZ!AP-X.

Install the BlueFRITZ! USB as Bluetooth client in the computer that you want to connect to BlueFRITZ!AP-X over Bluetooth. During the installation, the client establishes the Bluetooth connection to BlueFRITZ!AP-X. For installation instructions, see the BlueFRITZ! USB manual.

Bluetooth Profiles

Bluetooth profiles are “agreements” between Bluetooth devices, negotiated when a Bluetooth connection is established between devices. This guarantees that all data are transmitted in the form needed by the application. When devices with the same capabilities, and thus the same profiles, are connected to each other, the profiles determine all parameters of the Bluetooth transmission. For the user this means that it is no longer necessary to configure the details of transmission.

BlueFRITZ!AP-X supports the profiles CIP, PAN, DUN, CTP and SPP. This means you can connect to all kinds of Bluetooth devices. A detailed description of how to connect devices is available in the manual of the respective Bluetooth client.

The following summary presents an overview of the Bluetooth profiles supported:

CIP

The ISDN CIP profile (Common ISDN Access Profile) controls the computer during Bluetooth connections so that it works as if a conventional ISDN adapter were installed. With CIP all ISDN services familiar from the terrestrial network can be used without restriction.

PAN

The PAN profile establishes a wireless LAN between the Bluetooth devices. This LAN uses the protocols known from the Internet (TCP/IP).

Even if you have connected your computer to BlueFRITZ!AP-X using the USB cable (see “Connecting a PC to BlueFRITZ!AP-X: With a Cable” on page 22), you can still connect your computer to a PAN network.

Using this network you can exchange data among the connected computers and take advantage of shared LAN resources like hard drives, CD read/write drives, Internet access, printers and scanners.

DUN

With the Dial-Up Networking Profile (DUN) you can dial into the Internet as with a modem. With this profile BlueFRITZ!AP-X allows a Bluetooth connection to be used to connect a PDA with the Internet, for instance.

CTP

The Cordless Telephony Profile (CTP) allows cordless telephones to be used with Bluetooth. BlueFRITZ!AP-X functions as the Access Point by monitoring registered phones, sending calls and organizing speech transmission. For such calls familiar ISDN features like CLIP, routing and three-party conferences are available.

SPP

The Serial Port Profile (SPP) simulates a serial interface in the computer and allows two terminal devices to establish a bit-serial connection.

2.5 Connecting a PC to BlueFRITZ!AP-X: With a Cable

BlueFRITZ!AP-X has a built-in ISDN-Controller. Together with the communications software FRITZ!, this ISDN-Controller permits the use of ISDN applications such as faxing, file transfer and Internet services. In order to use these features, you must connect BlueFRITZ!AP-X to your computer. Proceed as follows:

1. Switch off your computer.
2. Remove the enclosed USB cable from the package. Identify the cable's two different connectors as described under "Connectors" on page 13.
3. Insert the flat "series A" plug in your computer's USB port.
4. Then insert the square series B plug in the socket labeled "  " on the BlueFRITZ!AP-X connector panel.

This completes the hardware installation. In order to operate the PBX from your computer, you must now install the software components for BlueFRITZ!AP-X. See the following chapter for instructions.

3 Software Installation

BlueFRITZ! AP-X can be installed in the operating systems Windows XP, Windows Me, Windows 2000 Professional and Windows 98.

If you want to use ISDN from a computer connected over Bluetooth, you can do so without installing the software for BlueFRITZ! AP-X. However, if you want to configure the PBX or modify the Bluetooth properties of BlueFRITZ! AP-X, you must install FRITZ!X on the computer. To install FRITZ!X, run the file SETUP.EXE, found in the folder SOFTWARE\CONFIG on the CD (see also "Installing Individual Software Components" on page 33).

If you want to connect a computer to BlueFRITZ! AP-X using a USB cable, please follow the installation instructions in this chapter. Additional computers can use ISDN over Bluetooth connections without installing the BlueFRITZ! AP-X software. You can carry out all the necessary configuration work from the computer connected over USB.

3.1 What Is Installed?

Before you install the software components for BlueFRITZ! AP-X, please note the following:

If you install BlueFRITZ! AP-X and connect the PBX to your computer using the USB cable, then Windows' Hardware Wizard will assist you in the installation.

During the initial installation process, the setup program installs the following software components:

- the CAPI driver software for your BlueFRITZ! AP-X PBX

The exact steps taken to install the driver software differ among the operating systems Windows XP, Me, 2000 and 98. Read the section that describes the driver software installation for your operating system.

- the FRITZ! communications software
- the AVM ISDN CAPI Port Driver

- the FRITZ!X Configuration Software

If you have already installed individual software components, such as FRITZ!, read the instructions in section "Installing Individual Software Components" on page 33.

The section "Where to Find What After Installation" on page 32 explains where to find the individual software components on your computer after installation.

Please note that only one CAPI driver may be installed on your computer. If you have already installed the CAPI driver for another ISDN-Controller or other PBXs on your computer, you must first remove it before you can install the CAPI driver for your BlueFRITZ! AP-X.

3.2 Installing the Driver Software in Windows XP

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

Proceed as follows to install the driver software:

1. After connecting BlueFRITZ! AP-X, start your computer.

   Windows' Plug & Play automatically detects BlueFRITZ! AP-X. The driver software for BlueFRITZ! AP-X that is included with Windows XP is now installed.

2. After the driver included with Windows XP has been installed, you must next update the driver using the setup program supplied on the installation CD. Insert the installation CD and run the program SETUP.EXE in the WINDOWS.XP folder.

   The installation program for BlueFRITZ! AP-X starts.

3. In its sign-on window, select your language and click "Continue".

4. In the next dialog, select "Update" and confirm by clicking "Continue".

5. Depending on the driver signature options configured on your computer, the next window may display a message about the Windows logo test. Answer the question with “Continue Anyway”.

6. The next window informs you that the drivers have been updated successfully. Click “Finish” to close the installation program.

This concludes the installation of the BlueFRITZ! AP-X PBX. AVM BlueFRITZ! AP-X is now ready for immediate operation.

Then a message appears reporting that the FRITZ! communications software can be installed. Click the “Install” button, and skip ahead to the section “Installing the Communications Software FRITZ!” on page 29.

3.3 Installing the Driver Software in Windows Me

Proceed as follows to install the driver software:

1. After connecting BlueFRITZ! AP-X, start your computer.

2. Insert the BlueFRITZ! AP-X CD.

3. The Windows Me Plug & Play mechanism automatically detects the PBX. The “Add New Hardware Wizard” is started.

4. When asked: “What would you like to do?”, select the option “Automatic search for a better driver (Recommended)”.

5. The “Add New Hardware Wizard” lists the drivers found. In this list, confirm the existing selection by clicking “OK”, then “Finish”.

6. Next, the sign-on window of the installation program for BlueFRITZ! AP-X appears. Specify the folder in which the driver software of BlueFRITZ! AP-X is to be installed on your computer.

7. As a final step of the driver software installation, a message box is displayed showing the configuration of BlueFRITZ! AP-X. Click “Next”.

8. Next you will be prompted to reboot the computer. Click "Yes".

   The computer will be restarted automatically.

This concludes the installation of the BlueFRITZ! AP-X PBX. AVM BlueFRITZ! AP-X is now ready for immediate operation.

Then a message appears reporting that the FRITZ! communications software can be installed. Click the "Install" button, and skip ahead to the section "Installing the Communications Software FRITZ!" on page 29.

3.4 Installing the Driver Software in Windows 2000

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

Proceed as follows to install the driver software:

1. After connecting BlueFRITZ! AP-X, start your computer.

   The Windows Plug & Play mechanism automatically detects the BlueFRITZ! AP-X PBX. The "Found New Hardware Wizard" is started.

2. Now you are prompted to specify a D-channel protocol. "European ISDN (DSS1)" is already selected. Confirm this selection by clicking "Next".

3. If desired, enter your ISDN line's multiple subscriber numbers in the "ISDN Multisubscriber Numbers" window. Click "Next".

Remember that the MSNs configured here are valid only for WAN connections, RAS and Internet access. These settings have no effect on other software that uses the CAPI 2.0 interface.

   The driver software for BlueFRITZ! AP-X that is included with Windows 2000 is now installed.

4. After the driver included with Windows 2000 has been installed, you must next update the driver using the set-up program supplied on the installation CD. Insert the installation CD and run the program SETUP.EXE in the WINDOWS.2K folder.

   The installation program for BlueFRITZ! AP-X starts.

5. In its sign-on window, select your language and click “Continue”.

6. In the next dialog, select “Update” and confirm by clicking “Continue”.

7. At this point Windows may warn you that the “digital signature” for AVM BlueFRITZ! AP-X was not found. Click “Yes” to continue the installation.

   Further messages then inform you that no digital signatures were found for the AVM Bluetooth PAN Adapter and the AVM ISDN NDIS WAN CAPI Driver. Again, click “Yes” in each dialog to continue.

8. The next window informs you that the drivers have been updated successfully. Click “Finish” to close the installation program.

This concludes the installation of the BlueFRITZ! AP-X PBX. BlueFRITZ! AP-X is now ready for immediate operation.

Then a message that the FRITZ! communications software can be installed appears. Click the “Install” button, and continue reading with the following section.

3.5 Installing the Driver Software in Windows 98

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

Proceed as follows to install the driver software:

1. After connecting BlueFRITZ! AP-X, start your computer.
2. Insert the BlueFRITZ! AP-X CD.
3. The Windows 98 Plug & Play mechanism automatically detects the PBX. The “Add New Hardware Wizard” is started. Proceed as follows and observe the instructions displayed on your screen:
4. When asked: “What do you want Windows to do?”, select the option “Search for the best driver for your device. (Recommended).”
5. When the program asks where the driver is located, activate only the option “CD-ROM drive”. All other options must be deactivated.

Specifying the driver location in Windows 98

6. Acknowledge the message by clicking “Next” and “Finish”.

7. Next, the sign-on window of the installation program for BlueFRITZ! AP-X appears. Specify the folder in which the driver software of BlueFRITZ! AP-X is to be installed on your computer.
8. As a final step of the driver software installation, a message box is displayed showing the configuration of BlueFRITZ! AP-X. Click “Next”.
9. Next you will be prompted to reboot the computer. Click “Yes”.

   The computer will be restarted automatically.

This concludes the installation of the BlueFRITZ! AP-X PBX. BlueFRITZ! AP-X is now ready for immediate operation.

Then a message that the FRITZ! communications software can be installed appears. Click the “Install” button, and continue reading with the following section.

3.6 Installing the Communications Software FRITZ!

After driver software for the BlueFRITZ! AP-X PBX has been installed, the setup program reports that the FRITZ! communications software can be installed.

1. Click the “Next” button to proceed.
2. Specify the folder in which the FRITZ! communications software is to be installed on your computer.
3. The next step is to specify the program folder for FRITZ! in the Start menu.
4. Choose the FRITZ! module you want to install.
5. Specify in the next window whether your BlueFRITZ! AP-X is connected to a PBX.

   If your line is a PBX extension that requires a prefix for outside dialing, check the “Private Branch Exchange” option. This activates the additional options below.

Outside Line Access
Enter your outside dialing prefix (the digit you must dial to obtain an outside line, usually "0").

Minimum length of external numbers
Enter the minimum number of digits that external numbers have. For example, if extension numbers in your PBX have three digits, enter "4".

The FRITZ! modules use this entry to determine whether the numbers you dial are extensions within your PBX or outside calls, and add the outside dialing prefix where appropriate.

6. In the next dialog Windows may prompt you to install software not digitally signed by Microsoft. This request depends on the driver signature options set on your computer. Answer the question with "Continue Anyway".

7. A message appears reporting that installation has been concluded. Click "Next".

The next message reports that the AVM ISDN CAPI Port Driver can be installed. Click the "Install" button, and continue reading with the following section.

3.7 Installing the AVM ISDN CAPI Port Driver

Upon conclusion of the FRITZ! communications software installation, you can install the AVM ISDN CAPI Port Driver. A window with three settings pages is displayed.

- Modems

  Select here the CAPI Port modems you would like to install, such as "AVM ISDN Internet (PPP over ISDN)" for a connection to an Internet Service Provider using Windows' Dial-Up Networking. For more information about the individual virtual modems, select one of the modems and then press "F1".

- MSN

  On the “MSN” settings page, you can enter a specific MSN to be used for outgoing connections over the two virtual modems “AVM ISDN Internet (PPP over ISDN)” and “AVM ISDN RAS (PPP over ISDN)”. This can be useful for keeping track of online costs. More information is available in the Online Help once you have installed the AVM ISDN CAPI Port Driver.

- Ports

  On this settings page you can assign specific COM ports to the virtual modems. If no special COM port settings are required in your system, simply confirm the default settings.

- AVM Test Connection / Fast Internet over ISDN

  Define here whether you want two new connections to be automatically created in Dial-Up Networking on installation: AVM Fast Internet and AVM Intranet. Dial-Up Networking must already be installed on your computer.

This concludes the installation of the AVM ISDN CAPI Port Driver.

3.8 Installing the Configuration Software FRITZ!X

After installing the FRITZ! communications software and the AVM ISDN CAPI Port Driver, a message informs you that the PBX configuration software can be installed. FRITZ!X, the PBX configuration program, allows you to set up and customize your BlueFRITZ! AP-X conveniently from your PC. Furthermore, this program allows you to modify the Bluetooth properties of BlueFRITZ! AP-X. To install the driver software, proceed as follows:

1. Specify the folder in which you want to install FRITZ!X on your computer.
2. Next, specify the program group for FRITZ!X in the Start menu.

3. In the next dialog, enter the area code of your location and confirm by clicking “Continue”. The program files are now copied to your hard disk.

4. Click “Finish” to close the installation program.

This concludes the software installation for BlueFRITZ! AP-X. Restart your computer.

3.9 Errors During Installation: What to Do

If any errors occurred during installation and the software components of BlueFRITZ! AP-X were not installed correctly, proceed as follows:

1. Remove all of the installed BlueFRITZ! AP-X components by following the instructions in the section “Removing Software Components” on page 34.

2. Restart your computer.

3. Repeat the complete installation.

If you want to install individual BlueFRITZ! AP-X software components, please read the instructions in the section “Installing Individual Software Components” on page 33.

3.10 Where to Find What After Installation

After installation you will find the software components of BlueFRITZ! AP-X at the following locations:

The driver software for the PBX BlueFRITZ! AP-X is loaded automatically when the computer is started. The Windows “Start” menu now includes a program group “AVM” in the “Programs” group which contains three items:

- “FRITZ!X” starts the PBX configuration program. For instructions on using the configuration program, please see the chapter “Configuring BlueFRITZ! AP-X” on page 38.
- “BlueFRITZ! AP-X Readme” contains the latest information about the driver software installation.

- The “BlueFRITZ! AP-X Setup” program allows you to permanently activate or deactivate data compression with CAPI SoftCompression X75/X42.

In Windows XP and 2000, a program group is created for BlueFRITZ! AP-X only when the BlueFRITZ! AP-X configuration software is installed. This program group is named “AVM”.

Shortcuts to the FRITZ! modules are found in the “FRITZ!” program group. Information on features and operation of the FRITZ! modules can be found in the FRITZ! Online Help, and in the PDF document FRITZ!.PDF in the SOFTWARE\INFO folder on the BlueFRITZ! AP-X CD.

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 to connect to your Internet Service Provider (ISP), for example, or in other data communication programs. A link is created on the desktop to the Online Help file for the AVM ISDN CAPI Port Driver.

3.11 Installing Individual Software Components

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

- To install the BlueFRITZ! AP-X driver software, follow the instructions in the section for your operating system.
- To install the FRITZ! communications software, run the SETUP.EXE file in the directory SOFTWARE\FRITZ! folder on the installation CD.
- To install the AVM ISDN CAPI Port Driver, run the file SETUP.EXE in the SOFTWARE\CAPIPORT\CAPIPORT.‹operating system› folder on the CD.
- The FRITZ!X configuration software is installed by running the SETUP.EXE file found in the SOFTWARE\CONFIG folder on the CD.

4 Removing Software Components

The steps required to remove the software vary depending on your computer's operating system. See the section below that describes uninstallation in your operating system.

4.1 Removing Software in Windows XP

Proceed as follows to remove the BlueFRITZ! AP-X **driver software** in Windows XP:

1. Open the Windows "System Properties" by clicking through "start / Settings / Control Panel / Performance and Maintenance / System" and select the "Device Manager" button on the "Hardware" dialog page.
2. In the "Network Adapters" section of the Device Manager, select the "BlueFRITZ! AP-X" entry.
3. Select the "Uninstall" command in the "Action" menu.
4. Confirm the uninstallation in the following security prompt. BlueFRITZ! AP-X will be removed.

This completes uninstallation of the driver software of AVM BlueFRITZ! AP-X in Windows XP.

Proceed as follows to remove the **software components** in Windows XP:

1. Click the "Add or Remove Programs" icon in the "start / Control Panel".
2. Make sure that the "Change or Remove Programs" button is selected in the column at left.
3. The installed components are found in the list of installed software. The software components of AVM BlueFRITZ! AP-X are identified in the list of installed software by these names:

- AVM FRITZ!
- AVM FRITZ!X
- AVM ISDN CAPI Port

4. Select the software component you want to remove.
5. Click the “Change/Remove” button. All of the selected component’s files and settings are deleted from your computer.
6. Repeat this process to remove another software component of BlueFRITZ! AP-X.

This completes the uninstallation of the selected components.

4.2 Removing Software Components in Windows Me/98

To remove some or all of the BlueFRITZ! AP-X software components, proceed as follows:

1. Select “Start / Settings / Control Panel”, then double-click the “Add/Remove Programs” icon.
2. The components of AVM BlueFRITZ! AP-X are found in the list of installed software. They appear in the list as follows:
   - AVM FRITZ!
   - AVM FRITZ!X
   - AVM ISDN CAPI Port
   - BlueFRITZ! AP-X
3. Select the components to be removed.
4. Click the “Add/Remove...” button. The uninstall program is started. All of the selected component's files and settings are deleted from your computer.
5. Repeat this process to remove another software component of BlueFRITZ! AP-X.
6. Restart your computer.

Rebooting the computer concludes the uninstallation.

4.3 Removing Software in Windows 2000

Proceed as follows to remove the BlueFRITZ! AP-X **driver software** in Windows 2000:

1. Open the system properties of Windows by clicking through “Start / Settings / Control Panel / System” and select the “Device Manager” button on the “Hardware” settings page.
2. In the “Network adapters” section of the Device Manager, select the “BlueFRITZ! AP-X” entry.
3. In the “Action” menu, select the “Uninstall...” command.
4. Confirm the uninstallation in the following security prompt. BlueFRITZ! AP-X will be removed.

This completes uninstallation of the driver software of BlueFRITZ! AP-X in Windows 2000.

Proceed as follows to remove the **software components** in Windows 2000:

1. Select “Start / Settings / Control Panel”, then double-click the “Add/Remove Programs” icon.
2. Make sure that the “Change or Remove Programs” button is selected in the column at left.
3. The installed components are found in the list of installed software. The software components of AVM BlueFRITZ! AP-X are identified in the list of installed software by these names:
   - AVM FRITZ!
   - AVM FRITZ!X
   - AVM ISDN CAPI Port
4. Select the software component you want to remove.
5. Click the “Change/Remove” button.

All of the selected component's files and settings are deleted from your computer.

6. Repeat this process to remove another software component of AVM BlueFRITZ! AP-X.

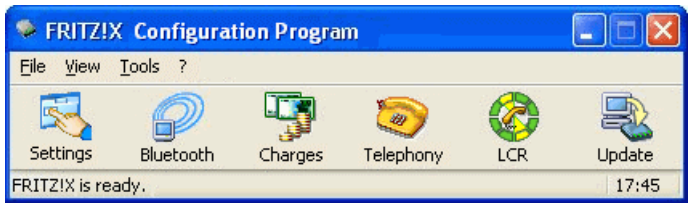
This completes the uninstallation of the selected components.

5 Configuring BlueFRITZ! AP-X

The FRITZ!X configuration software is provided for convenient configuration of your BlueFRITZ! AP-X. Use this program to adapt your telecommunications system to your individual needs and avoid more complicated programming by telephone.

5.1 FRITZ!X Functions

All available commands of the configuration software are provided in the “Settings”, “Bluetooth”, “Charges”, “Telephony”, “LCR” and “Update” menus. The individual menus are presented below. For more information, see the Online Help.



Main window of the FRITZ!X configuration software

Settings

Use the commands in this menu to configure the telecommunications system. Here you can assign MSNs to the extensions and define properties for the extensions. Extension properties are features that can be activated or deactivated as you require. See section “Factory Settings” on page 41 for information about how the individual BlueFRITZ! AP-X features are configured when the device leaves the factory.

This menu also provides commands for call diversion to another extension and for call forwarding via the central exchange. You also have the options of defining which external numbers can be reached by any given extension and configuring the Do Not Disturb feature.

Bluetooth

On the settings pages of the "Bluetooth" menu command you have the option of changing the features of BlueFRITZ! AP-X as an Access Point. The settings made here affect primarily the administration and control of the Bluetooth client. If no changes are made to these settings, any Bluetooth client can log in to the Access Point. The only requirement is that the user must know the passkey printed on the sticker on the bottom of the ISDN Access Point Housing and in the Quick Start manual.

Access Point

Here the Access Point currently in use is displayed, complete with device name, Bluetooth address and features. The device name can be changed here.

Settings

The settings options on this page are used to control access to the Access Point.

- Here you can specify whether the device should continue to allow unknown clients to log in to the Access Point: unrestricted, for the next 15 minutes, or not at all.
- The clients accepted by the Access Point can be displayed in a list and entries from this list may be deleted. Accepted clients are those who have logged in to the Access Point successfully at least once and have not been deleted from the list of accepted clients.
- The password for logging in to the Access Point can be changed here.

If you forget the new Bluetooth passkey you entered, disconnect the PBX briefly from the mains. Then register at the Access Point within two minutes using the passkey printed on the sticker of the device base.

- The option of ISDN use can be switched on or off.

Connections

This list registers all clients currently connected to the Access Point. The clients are shown with their Bluetooth address. The list displays the parameters of the Bluetooth connection: duration, transmitter power, field intensity, link quality, error rate, number of packets sent and number of bytes sent.

Click the “Update” button to update the list.

Version

This settings page contains the version number of the application started when you click the “Bluetooth” command.

Charge per unit

FRITZ!X logs all charges incurred at the PBX and provides statistical evaluations. This provides an overview of the monthly charges incurred by the PBX. The charge statistics can be displayed in tables and also as a graph. The charge lists can also be exported to a file for further processing.

Telephony

This menu includes everything you need to call internal or external parties from your computer. With these commands you can maintain the Address Book and view the Event Log and the Caller List. The Event Log records all events that take place at the extensions. All incoming calls are registered in the Caller List.

LCR

FRITZ!X provides an LCR (Least Cost Routing) feature. With this function, the most economical provider for a connection is selected automatically, depending on the number dialed and the time of day. You can configure schedules to select the best provider for calls to the given area code at the given time of day.

Update

Use this menu to update the PBX software (firmware) to keep your PBX up with the latest technology.

5.2 Factory Settings

Your BlueFRITZ! AP-X telecommunications system is ready for operation with the factory settings.

The following settings are configured upon delivery:

- The Bluetooth passkey will be reset to the value printed on the sticker on the bottom of the device base.
- No Multiple Subscriber Numbers (MSNs) are assigned to the individual extensions. All extensions ring for all incoming calls.
- All extensions are set to automatic outside dialing. You hear the external dial tone immediately when you pick up the receiver.
- Call waiting is deactivated for all extensions.
- Reject calls when busy (Busy on Busy) is deactivated for all extensions.
- Call forwarding via the second B channel is deactivated for all extensions.
- Call forwarding is disabled for all MSNs.
- Suppression of the outgoing Caller ID is deactivated for all extensions.
- Incoming Caller ID display is activated for all extensions.
- The Do Not Disturb function is disabled for all extensions.
- The LCR function is disabled for all extensions.
- The Group Call function is disabled for all extensions.
- For terminal devices that support SMS, the acceptance of SMS messages is activated for all extensions.

- Dialing restrictions are disabled for all extensions.
- Connected Line Identification Presentation (COLP) is enabled for all extensions.
- The 16 kHz charge-unit pulse is disabled for all extensions.
- The Quick-Dial memory of the PBX is empty.

5.3 Starting the Configuration Program

Start the configuration software by selecting "Start / (All) Programs / AVM / FRITZ!X".

The first time you start the configuration program, the Configuration Wizard opens with a welcome window. Follow the instructions on the screen of the Configuration Wizard to make the basic settings for your BlueFRITZ! AP-X.

You can also start the Configuration Wizard at a later point in time by selecting "File / Wizard..." from the main window of the configuration program.

5.4 Adapting Settings

In order to use all of the commands of your telecommunications system, you should adapt the settings as follows:

- Assign names to extensions
- Define the local dialing prefix
- Change the charge unit
- Enter MSNs
- Assign MSNs to the extensions
- Assign numbers for outgoing calls

If you configured your telecommunications system using the Configuration Wizard, than these settings are already configured.

The following sections explain how to go about configuring the settings. Perform the settings in the order presented here.

Have ready the documents in which your ISDN provider supplied the Multiple Subscriber Numbers (MSNs) for your ISDN line.

Assigning Names to the Extensions

Two extensions are available on the BlueFRITZ! AP-X PBX. You can enter a description for each extension.

1. Select the “General” settings page in the “Settings” menu.
2. Enter a name for each extension in the window area labelled “Assigning Internal Parties/Devices to the Extensions”.
3. As a final step, click “Apply” to implement the changes on the PBX.

Checking the Charge Unit

If you would like to use the charge statistics of FRITZ!X, make sure that the charge unit entered here is correct for your ISDN line. The charges are calculated on the basis of this value.

1. Select the “General” settings page in the “Settings” menu.
2. In the “Charge Unit” section of the window, enter the cost of one unit. The currency symbol displayed depends on your computer’s currency settings (“Control Panel / Regional Settings”). This setting can be changed to the symbol appropriate for your location.
3. As a final step, click “Apply” to implement the changes on the PBX.

If you would like to use the charge record feature, make sure that your ISDN provider has enabled the transmission of charge information on your line.

Entering MSNs

Your ISDN provider supplied 3 to 10 numbers for your ISDN line. These numbers are known as Multiple Subscriber Numbers (MSNs). The Multiple Subscriber Numbers facilitate the direct dialing of connected devices like telephones, answering machines or fax machines. A terminal device can only be dialed directly when it has been assigned its own MSN.

Before assigning the MSNs to individual extensions, you must first tell the FRITZ!X software which MSNs are available. To do so, perform the following steps:

1. Select the “MSNs” settings page in the “Settings” menu.
2. Enter the MSNs you received from your ISDN provider in the number fields. It is not necessary to enter the MSNs in any particular order.
3. As a final step, click “Apply” to implement the changes on the PBX.

Extensions Assign MSNs

To assign MSNs to extensions:

1. Select the “Extensions” settings page in the “Settings” menu.
2. Up to three MSNs can be assigned to each extension. Three list fields labelled “1st MSN”, “2nd MSN” and “3rd MSN” are provided for each extension. The MSNs configured on the “MSNs” settings page are available for selection in these list boxes. Select the desired MSNs for each extension.

Defining Outgoing Numbers

The outgoing number is the one to which all costs for outgoing calls will be charged. For outgoing calls the MSN entered will be transmitted to the party called, unless Caller ID suppression (CLIR) has been activated.

1. Select the “Extensions” settings page in the “Settings” menu.

2. You have already assigned the MSNs to the extensions. The MSN entered in the list field labeled “1st MSN” is automatically the number used for outgoing calls. If there is no entry in the “MSN 1” field, this extension will be defined as the “Main MSN” and outgoing number of your ISDN line.
3. If you want an extension to be limited to outgoing calls only, activate the “only for outgoing calls” option.
4. As a final step, click “Apply” to implement the changes on the PBX.

5.5 Advanced Settings

The advanced settings allow you to use ISDN features at your analog extensions.

The three advanced settings used most frequently are explained in detail here. For information about how to configure additional settings, see the “Guide” section in the FRITZ!X Online Help.

Configuring Extension Properties

The following properties can be activated for the extensions:

- Automatic Outside Dialing
- Busy on Busy
- CLIP (displaying the Incoming Caller ID)
- CLIR (local number will not be transmitted)
- COLR (Connected Line Identification Restriction)
- Use charge-unit pulse
- Answering machine
- Call Waiting option
- Use LCR (Least Cost Routing)
- Group call
- Accept SMS

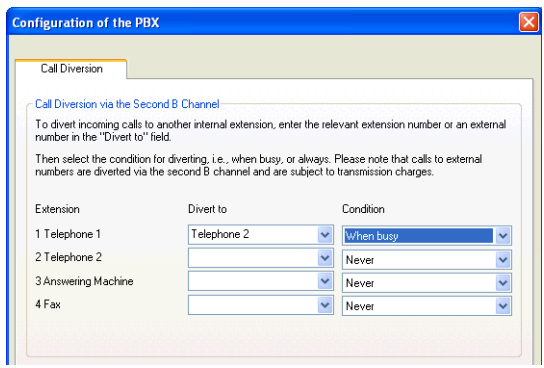
To assign different features to the extensions, proceed as follows:

1. Select the “Extension Properties” settings page in the “Settings” menu.
2. Activate the features desired for each extension.
3. As a final step, click “Apply” to implement the changes on the PBX.

Configuring Call Forwarding

This kind of call forwarding lets you forward calls for an extension either to a different extension or to an external line. Telecommunications providers generally charge for this service.

1. Select the “Call Diversion” settings page in the “Settings” menu.
2. Enter the number to which the calls are to be forwarded in the “Forward to” field. If calls are to be forwarded to a different extension, enter the number of the other extension here (1 or 2), not the MSN assigned.



Example for internal call forwarding to extension 2

3. Define in the list field “Condition” when and under what circumstances the call should be forwarded.

Configuring Call Forwarding

With call forwarding you can forward incoming calls for one Multiple Subscriber Number (MSN) to an external line. This means that calls are forwarded depending on which MSN of your line was dialed.

Ask your ISDN provider whether "Call Forwarding" is available on your ISDN line. Enabling call forwarding is subject to charges.

1. Select the "Call Forwarding" settings page in the "Settings" menu.
2. Select from the list field "Number (MSN)" the MSN for which calls are to be forwarded.
3. Enter the outside number to which the calls are to be forwarded in the "Forward to" field.
4. Define in the list field "Condition" when and under what circumstances the call should be forwarded.

It is not possible to activate both kinds of call diversion at the same time.

5.6 Updating the PBX Software

The version of the software currently in use and the date of the last update are displayed in the "Update" window of the menu.

With FRITZ!X you can update your PBX and bring it up to the latest state of technology by simply loading the new PBX software to your computer and perform an update.

There are a number of ways to load new PBX software to your computer.

From the AVM Data Call Center (ADC)

1. Start FRITZ!data and dial the number of the ADC:

   `030 / 39 98 43 00`

2. The CARDWARE\‹DEVICE NAME›\FIRMWARE folder contains a file with the suffix EXE. Load this file to your computer.

From the AVM Internet server

1. Go to the AVM web site:

   http://www.avm.de/en

2. Click “Download”.

3. Under “Product Finder:”, choose BlueFRITZ! AP-X and under “Operating System:” your operating system.

   Click “Send”.

4. Click “Start download” in the “Firmware” section.

Performing the update

Once you have loaded new firmware on your computer and unpacked it (by double-clicking), proceed as follows:

1. Start the configuration software by selecting “Start / (All) Programs / AVM / FRITZ!X”.

2. Select the “Update” settings page in FRITZ!X.

3. In the text field, enter the path to the location where you have saved the update file on your hard drive. This entry can also be selected using the “Browse ...” button. The file ends with the suffix DAT. If you clicked “Browse...”, the lower window will report whether the selected file is a valid update file, and, if so, which version it contains. If the update file is a later version than the currently active firmware, it is recommended that you install the update.

4. Click the “Update” button. A safety prompt appears. If you are sure you want to perform the firmware update, confirm the message. If the update version 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 BlueFRITZ! AP-X from the computer during a firmware update, and do not unplug the BlueFRITZ! AP-X power cord! If the firmware update is interrupted, your BlueFRITZ! AP-X may become unusable! In that case, repeat the update procedure.

A message indicates that the update has been completed successfully. The PBX is then reset and its new version number is displayed.

Restoring Factory Settings

Please note that restoring the factory settings deletes all the configuration settings made for BlueFRITZ! AP-X, both in the PBX and in your computer. This operation cannot be reversed!

If you have not configured any settings for BlueFRITZ! AP-X yet, the factory settings are active (see the section “Factory Settings” on page 41).

If you have configured settings for BlueFRITZ! AP-X and would like to restore the factory settings, proceed as follows:

1. Click “Load Factory Settings...” from the “Tools” menu.
2. Confirm that you want to remove the selected component by clicking “Yes” at the safety prompt.

   This activates the factory settings in BlueFRITZ! AP-X and loads them to your computer. This operation may take several seconds.

If it is not possible to restore the factory settings with FRITZ!X, another possibility is to reset BlueFRITZ! AP-X using a connected analog telephone with touch-tone dialing. Dial the keypad sequence #99**.

6 Operating BlueFRITZ! AP-X

This chapter describes the use of features available on BlueFRITZ! AP-X extension telephones. Some of the functions described cannot be performed by pulse-dialing telephones. For details, see the section “BlueFRITZ! AP-X and Pulse-Dialing” on page 62.

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 for 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.
0	Dial “o”. Now you hear the external dial tone.
	Dial the desired external number.

External dialing while suppressing the local number (CLIR = Calling Line Identification Restriction)

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

	Pick up the handset.
*#31#	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”, regardless of whether your extension is set for automatic outside dialing.

The CLIR sequence described above must be dialed before each call for which your outgoing Caller ID is to be suppressed. To activate CLIR permanently, see the configuration program's Online Help.

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

6.2 Dialing Internal Calls

Dialing internal calls with automatic outside dialing

	Pick up the handset. You hear the external dial tone immediately, since the extension is set for automatic outside dialing.
R or ✱✱	Press the hold key or the star key twice. You 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 Transferring Calls

The “Call Transfer” function allows you to transfer an active call to the second BlueFRITZ! AP-X extension. To do so, proceed as follows:

Call 1	You are talking to Caller No.1.
R	Press the Hold button. Caller No. 1 is now on hold.
	To announce the call to another internal user, dial her or his extension number.
Call 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.

6.4 Call Waiting

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 connection with the new caller within 30 seconds. If you ignore the signal, the waiting call is rejected after 30 seconds.

R2	To accept a waiting call, dial the sequence shown at left. Your original call is now on hold.
R1	To return to your original connection, dial the sequence shown at left. You can also accept to the waiting call by hanging up your existing connection. In this case the phone rings as soon as you have hung up. Pick up the handset again to accept the waiting call.
R0	To reject a waiting call, dial the sequence shown at left.

Call waiting can be activated or deactivated for each extension. See the Online Help for details.

6.5 Consultation / Hold

The “Consultation / Hold” feature allows you to hold a current call to allow consultation with a second conversation partner. You then may the consult someone else at your workplace or dial a second call. The party on hold does not hear the second conversation. Once you have finished the consultation, 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 to Caller No.1.
R	Press the Hold button. Caller No.1 is now on hold and you can consult someone else.
	To dial a second call, simply dial either the desired extension number or the outside line access “o” followed by the desired external number.
Call 2	If the call is answered, you can consult on this line.
	The original caller is still on hold.
R	If the number you dialed is busy or the call is not answered, press the Hold button again to return to Call 1.
R1	To switch back to Call 1 after talking on Call 2, 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. Connection charges continue to accrue.

	Instead of pressing the key sequence shown above, you can also return to Call 1 by hanging up the handset to end the second connection. Your
Call No. 1	telephone rings, and when you pick up the handset
	Call 1 is active again.
	Hang up the handset to end the connection.

6.6 Call Holding

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 to Caller No. 1.
	Press the Hold button. Call No. 1 is now on hold.
	To dial a second call, simply dial either the desired extension number or the outside line access “0” followed by the desired external number.
Call No. 2	If the call is answered, you can consult on this line. The original caller is still on hold.
	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.
	To switch back from Call No. 2 to Call No. 1, dial the same sequence again. In this way you can alternate between the Calls 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.
	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.
Call	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 hang up. Pick up the handset again to return to the last call that was on hold.

6.7 Three-Party Conference Call

BlueFRITZ! AP-X allows you to hold telephone conferences with two other people at once. Two external and one internal party, or two internal and one external party can conduct a conference call with each other.

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

	Pick up the handset.
	Dial the external number of the first party. Talk.
R	Press the Hold button.
	To dial a second call, simply dial either the desired extension number or the outside line access “0” followed by the desired external number.
R3	Dial the sequence shown at left.
	Now all three participants can confer together. If either of the other two parties hangs up, your connection with the remaining participant remains active.
	You can end the three-party call by hanging up the handset.
R2	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. This ends the three-party conference. The connection that was active last before your initiated the three party conference is now active again. The second external call is on hold. You can alternate between the two connections by dialing the same sequence again.

6.8 Call-back on Busy

When you dial a number and it is busy, activate this feature. As soon as the line is free, your telephone will ring for 20 seconds as it would for an incoming call. When you pick up your handset, the number of desired party will be dialed automatically.

This feature is supported for both external and internal connections.

Note that this feature must be enabled for your line by your ISDN provider. Once the function has been enabled, you can activate it using your telephone.

To activate this feature, proceed as follows:

	You have just dialed a number and now you hear the busy signal.
	Within 20 seconds, dial "5". Wait for the acknowledgement tone.
	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.

Call-back requests will be deleted after 45 minutes (in the Deutsche Telekom AG network) or once they have been completed successfully.

6.9 Call-back on No Response

This function can be used when you dial a number and the party does not respond. Once the party can be reached again and conducts a call from her or his phone, this function recognizes when this conversation is ended. When the subscriber you dialed hangs up, your telephone rings for 20 seconds, as it would for an incoming call. When you pick up your handset, the number of the desired party is automatically dialed again.

This feature is supported for both external and internal connections.

Note that this feature must be enabled for your line by your ISDN provider. Once the function has been enabled, you can activate it using your telephone.

To activate this feature, proceed as follows:

	You have just dialed a number and hear a ring tone.
5	If the call is not answered, dial the number “5”. Wait for the acknowledgement tone.
	Hang up the handset. As soon as the party you dialed conducts a conversation from her or his phone and this call is ended, your phone rings.
	Pick up the handset. The number of the remote party is dialed automatically.

6.10 External Transfer

With this ISDN feature you can connect two external parties with each other, when one connection has been active and the other has been on hold. Then you can end your own connection while the other two parties continue their conversation.

You can also connect external parties from a three-party conference. (Please see the instructions in the file CONFGTEL.PDF on the BlueFRITZ! AP-X CD for further details.)

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

Proceed as follows to connect two external parties, one from an active connection and the other from a call on hold:

	Pick up the handset of your telephone.
	Dial the number of the external subscriber and begin a normal call.
R	Press the Hold button.
0	To dial a second call, simply dial either the desired extension number or the outside line access “o” followed by the desired external number. You can now talk to the second subscriber while your first call is on hold.
R4	Dial the sequence shown at left. The connection on hold and the active connection are connected with each other. The external parties continue the call after you clear the connection.
	Hang up the handset.

6.11 Picking Up Calls from Another Extension

The pickup function allows you to respond to a call ringing on another extension at your own phone.

	Pick up the handset.
✱09	Dial the sequence shown at left.
	The call will be picked up. You are now connected to the caller.

This function can also be used to pick up incoming calls that have already been accepted by an answering machine at another number. A call that has already been answered can only be picked up if the “Answering Machine” option has been enabled on the extension to which the answering machine is connected.

6.12 Suspend/Resume

The “Suspend/Resume” feature, also known technically as “Terminal Portability”, allows you to suspend an existing connection and resume it at another point on the S_0 bus. The connection can be resumed at a different ISDN terminal device (such as an ISDN telephone) that is connected to your BRI line alongside BlueFRITZ! AP-X.

To suspend a call, proceed as follows:

	You are talking to Caller No.1.
R	Press the Hold button. Call No. 1 is now suspended.
✱1 PC ✱	Dial the sequence shown at left. Type in the Suspend ID as “PC” (Park Code). The Suspend ID consists of either a one-digit number between 0 and 9 or a two-digit number between 00 and 99.

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

	After the acknowledgement tone, the connection is suspended. You can hang up the handset. 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, BlueFRITZ! AP-X will attempt to suspend it.
✱1 PC ✱	Dial the sequence shown at left. Type in the Suspend ID as "PC". The suspend ID, which must consist of either a one-digit number between 0 and 9 or a two-digit number between 00 and 99, must be exactly the same as the one entered to suspend the call.

6.13 Tracing

The "Call Tracing" feature, technically known as "Malicious Caller Identification" or MCID, must be enabled for your line by your ISDN provider. Once the function has been enabled, you can activate it using your telephone.

During a call or after the caller hangs up, dial the following sequence:

R✱39#	Activating the "Call Tracing" feature.

For more information about this feature, contact your ISDN provider.

6.14 Using Keypad Messages

BlueFRITZ! AP-X offers the “keypad” function. This function allows ISDN services and features to be controlled by entering characters and strings on the telephone keypad. These keyboard entries are called keypad messages. Keypad sequences allow you to use ISDN services and features that may not be included directly in BlueFRITZ! AP-X.

Ask your ISDN provider for the specific keypad messages to access ISDN features.

Entering Keypad Messages on an Extension with Automatic Outside Dialing:

	Pick up the handset.
✱# Seq	Dial the sequence shown at left. “Seq” stands for the keypad sequence you received from your ISDN Service Provider.

To enter a keypad message on an extension without automatic outside dialing:

	Pick up the handset.
0✱# Seq	Dial the sequence shown at left. “Seq” stands for the keypad sequence you received from your ISDN Service Provider.

6.15 BlueFRITZ! AP-X and Pulse-Dialing

Only some of the features of BlueFRITZ! AP-X can be used with a pulse-dialing telephone. The following features are available:

- external dialing
- internal dialing (unless automatic outside dialing is enabled)
- answering internal and external calls
- answering waiting calls by dialing “0”
- alternating between calls by dialing “0”
- holding calls by dialing “0”

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

- programming BlueFRITZ! AP-X
- picking up a call from another extension

6.16 Adjusting the Hold Button Function

Make sure the hold button function is set to “Short Flash” on your analog telephone. BlueFRITZ! AP-X supports flash times of 80 to 310 ms.

7 FRITZ!: Internet and ISDN Software

FRITZ! is the gateway to the entire world of ISDN communication: surfing the Internet, sending faxes, transmitting data and much more. This software grants you freedom of connectivity, allowing communication not only with remote partners equipped with an ISDN line, but also connections to analog lines.

7.1 The Many Facets of FRITZ!

FRITZ! consists of the following modules:

The module FRITZ!web allows the user to dial into the Internet simply and directly. Thanks to channel bundling and data compression, Internet connections with extremely high data transmission speeds can be established. The option of automatically clearing down idle connections saves connection costs if you are charged by connection up-time.

With FRITZ!fax you can send and receive faxes in accordance with the G3 fax standard (analog fax). You can send fax documents directly from your text processing program. FRITZ!fax can also poll fax servers, or work as a fax-polling server itself.

With FRITZ!fon plus a full-duplex sound adapter and a headset or other speech input/output device, telephone conversations can be conducted directly from your PC — with convenient phone book management and a note pad function. Three parties can be connected in a conference call. You can use short messaging service via SMS centers to send SMS to terrestrial lines. FRITZ!fon includes an answering machine. Different messages can be configured for specific numbers, callers and times of day.

Using the ISDN file manager FRITZ!data, files can be transferred quickly and securely, and your computer can be configured to receive files from outside callers. Access rights to your files can be defined individually for each user.

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

For comprehensive information about FRITZ!, see the Online Help.

7.2 Blocking Numbers with ISDNWatch

ISDNWatch is a program that supports you by monitoring your ISDN connections.

Besides displaying the B-channel activities and the option of logging all ISDN connections, ISDNWatch also offers a number filter.

With the ISDNWatch number filter you can block individual numbers or whole groups of numbers for all incoming and outgoing connections on your computer. For instance, you can block foreign numbers, long-distance numbers or costly service numbers. By blocking expensive service numbers you can prevent web dialers from establishing costly connections from your computer.

For more information about the number filter and configuration instructions, see the ISDNWatch Online Help.

ISDNWatch cannot be used to block numbers for telephones connected to the analog extensions. For terminal devices at extensions you can use the FRITZ!X configuration program to set up number restrictions.

7.3 Going Online with FRITZ!web

With BlueFRITZ! AP-X and the FRITZ!web module you can go online fast for easy surfing. You can explore the World Wide Web, exchange e-mail and enter chat rooms.

A wizard simplifies access to the Internet and helps you to manage your Internet connections and settings:

- Select the "Connect to the Internet" button in the wizard and open a web browser to establish a connection to the Internet using the pre-configured Internet connection.
- Click "Manage Internet Connections" to go to the dialog for creating and editing Internet connections and schedules.
- Click "Settings" to open the settings of FRITZ!web. Here you can make general settings for FRITZ!web and settings that are valid for all Internet connections.

Custom settings for individual Internet connections can be made with the "Edit Connection / Advanced Settings" command.

Channel Bundling

Channel bundling allows data to be transmitted from the Internet using both channels. With this feature data can be downloaded more quickly, but transmission costs are accrued for both channels. You can activate the second channel manually or have it switched on automatically for high data loads. The second channel can be released for incoming calls to other FRITZ! modules so that you can be reached even when channel bundling is active.

Network Sharing

With the "Network Sharing" feature, every computer in a network can connect to the Internet via FRITZ!web.

Clearing Idle Connections Automatically (Timer Bar)

In the FRITZ!web settings you can specify how many seconds the line is allowed to remain idle before the existing connection to the Internet is automatically cleared down. An example: Suppose you have loaded a Web page in your browser. While you are reading, no further data is requested over the Internet connection. After the delay you have specified in the settings, FRITZ!web hangs up the idle connection. Now you can continue reading the Internet page without accruing any further charges. The connection is not re-established until you click a link or enter another URL. Thanks to FRITZ!web's fast dial-up, you will hardly notice that the connection is being restored.

Call bumping for 2-channel Internet connections

FRITZ!web can be configured to clear the second B channel for an incoming call during a 2-channel Internet connection. When an incoming call is signaled, one B channel is cleared down so that the call can be answered by the appropriate terminal equipment. When the connection with the incoming call is ended, the second B channel is switched back to the Internet connection automatically.

For more information, see the FRITZ!web Online Help on the "Channel Bundling" settings page in the "Settings" dialog.

See the Online Help for detailed information about all features and operation of FRITZ!web.

7.4 Multiple Subscriber Numbers (MSNs) for the FRITZ! Modules

To receive fax and data calls with FRITZ!, it is not necessary to assign distinct Multiple Subscriber Numbers (MSNs) to FRITZ!datadata and FRITZ!fax, 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 and FRITZ!fon both use the “voice” service indicator. If you want these modules to respond to calls meant for them, you must assign distinct MSNs for call acceptance to FRITZ!fax and FRITZ!fon, and to any telephones or fax machines connected to analog extensions.

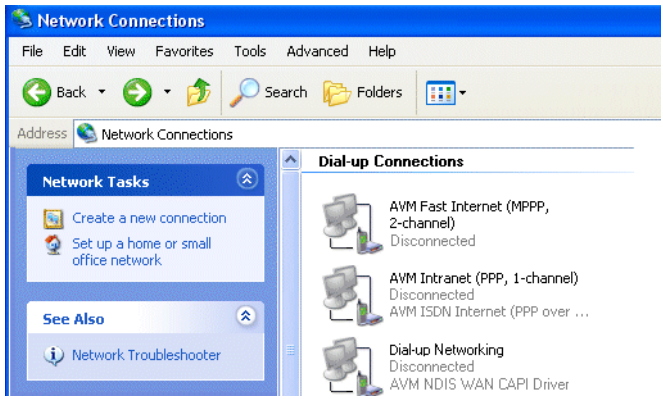
7.5 ISDN and the Internet with Windows System Services

As an alternative to FRITZ!, you can use Windows Systems Services for Internet access and faxing. For this you need the AVM system drivers ISDN NDIS WAN CAPI Driver, ISDN TAPI Services for CAPI and ISDN CAPI Port Driver.

During the FRITZ! installation you can specify whether you want to add FRITZ!web to the Startup group. If you select this option, FRITZ!web is used for every connection to the Internet. If you want the Windows system drivers to connect to the Internet, you must first exit FRITZ!web or remove it from the Startup group.

Internet Access Through the AVM ISDN NDIS WAN CAPI Driver

AVM ISDN NDIS WAN CAPI Driver is automatically installed along with the operating systems Windows XP and 2000. The Dial-Up Networking connection for the NDIS WAN CAPI Driver is located in the “Network Connections” area of the Windows Control Panel.



Dial-Up Networking via the AVM ISDN NDIS WAN CAPI Driver in the Network Connections

To connect to the Internet using the AVM ISDN NDIS WAN CAPI Driver, double-click on this entry.

The TAPI Application Windows XP Fax Service

TAPI (Telephony Application Programming Interface) is a telephony interface by Microsoft which allows telephony programs to be controlled from within the Windows operating system. Using AVM ISDN TAPI Services for CAPI you can make telephone calls, control voice mail systems and use the Windows XP fax service.

To use the Windows XP Fax service, make sure to perform the following steps in order: Install Windows XP fax service first, and then AVM ISDN TAPI Services for CAPI.

BlueFRITZ! AP-X as a Virtual Modem

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

The ISDN CAPI Port Driver generates a number of virtual modems in your system. The virtual modems are pre-configured so that they can be used immediately in most conventional implementations without any further configuration required.

The modem settings can be customized using AT commands.

For detailed information about configuration and operation of the AVM system drivers, see the Help files for the system drivers on the BlueFRITZ! AP-X CD.

7.6 Ready to Receive on Standby

If your computer supports ACPI (Advanced Configuration Power Interface), you can take advantage of the energy-saving features of standby and hibernation.

These two conditions differ in the following ways:

- Standby: all devices that consume large amounts of energy are turned off, such as the monitor, hard disks and other devices.
- Hibernation: also stores the contents of main memory to the hard disk. In this condition energy consumption is even lower than on standby.

Computers on standby or in hibernation appear to be switched off. Both conditions are ended by operating the keyboard or the power switch. Standby can also be ended upon the request of a hardware component or an external device, for instance, when a fax arrives at BlueFRITZ! AP-X. When the fax program activates to accept the incoming fax, standby mode is ended.

BlueFRITZ! AP-X thus offers you the option of ending standby operation for incoming faxes and calls by using the “PC Wake Up over ISDN” command. Once the computer is reactivated, it checks whether a suitable program is ready to accept the incoming call.

Does the Computer Support ACPI?

Use the following checklist to determine whether your computer supports ACPI:

- You work with Windows XP, Me or 2000.
- Windows XP: ACPI-capable components are listed under “System devices” on the “Device Manager” settings page accessed from the “Hardware settings” page (“start / Control Panel / Performance and Maintenance / System / Hardware”).
- Windows Me: ACPI-capable components are listed under “System devices” on the “Device Manager” settings page (“Start / Settings / Control Panel / System”).
- Windows 2000: ACPI-capable components are listed under “System devices”, accessed by clicking the “Device Manager” button on the “Hardware” settings page (“Start / Settings / Control Panel / System”).
- The command “Stand by” appears along with “Hibernate” in the “Shut Down” window, opened through the “Start” menu.

“PC Wake Up over ISDN” can only be used if the hibernation option is available on your computer but deactivated.

- All of the devices installed on your computer support ACPI.

A single device that does not support ACPI is enough to make your computer incapable of ACPI support!

For more information on ACPI, see Windows Help, the documentation on the BlueFRITZ! AP-X CD in the SOFTWARE\INFO folder or the manuals for your computer and motherboard.

Always ready with "PC Wake-up"

Please note the following to keep BlueFRITZ! AP-X and FRITZ! ready to receive at all times in standby operation.

- Deactivate the "Hibernation" option. The "PC Wake-up over ISDN" command is not available when the system is hibernating.
- For an incoming call to "wake up" the computer from standby, at least one ISDN application must indicate to the CAPI driver that it is ready to receive. Make sure that a suitable application is started.

The computer will be "woken up" when BlueFRITZ! AP-X receives information about an incoming call during standby (hence the name "PC Wake-up"). The program checks the service indicator and phone number of the incoming call; if a suitable program is active, the call will be accepted.

Depending on the power options set, the computer may return to standby after checking the call parameters.

8 Information, Updates and Support

AVM provides numerous sources of information to assist you if any questions or problems arise. Here you will find the important information you need, in the form of manuals, updates and support.

In many cases problems which arise during operation can be resolved by installing the current Microsoft Service Pack for your operating system. The current service pack can be obtained directly from Microsoft.

8.1 Sources of Information

To take advantage of all commands and features of your BlueFRITZ! AP-X, consult the following information resources:

Documentation

The following documentation is provided for all components of AVM BlueFRITZ! AP-X:

- The Readme file on the AVM BlueFRITZ! AP-X
  The Readme file contains current information which was not yet available at the time the manual was printed. The Readme is located at “Start / Programs / AVM”.

  In Windows XP and 2000, the current Readme file for BlueFRITZ! AP-X can be found on the BlueFRITZ! AP-X CD in the WINDOWS.XP or WINDOWS.2K folder, respectively.

- Help on the FRITZ!X configuration program
  You can open the detailed Online Help by pressing “F1” or clicking the Help button.

- Configuring by Phone
  For complete instructions, see the file configuration program CONFGTEL.PDF in the folder \SOFTWARE\INFO on the BlueFRITZ! AP-X CD.

- Help for FRITZ!
  In all FRITZ! modules you can open the detailed Online Help by pressing “F1” or clicking the Help button.

- The FRITZ! manual
  A printed version of the manual is included in the BlueFRITZ! AP-X package, and a PDF version is in the folder on the CD called \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 SOFTWARE\INFO folder on the CD.

- 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› on the BlueFRITZ! AP-X CD.

Internet

AVM GmbH provides comprehensive information in the Internet. Enter the following address:

www.avm.de/en/

- Click “Products” for the latest information about all AVM products as well as announcements of new products and product versions.
- The current driver software for all AVM ISDN-Controllers can be downloaded from the “Download” area.

8.2 Updates

New drivers and software updates for your AVM BlueFRITZ! AP-X are available for downloading free of charge from AVM's Internet site or the AVM Data Call Center (ADC).

Internet

To download updates from the Internet, please enter the following URL:

www.avm.de/en/download

Driver software for AVM BlueFRITZ! AP-X can be downloaded from this location.

The AVM FTP server can also be used to download current driver software. Click the "FTP Server" link in the download area, or enter the following address:

www.avm.de/ftp

AVM Data Call Center (ADC)

All programs and drivers available on AVM's Internet site can also be downloaded from the AVM Data Call Center (ADC).

Dial the AVM Data Call Center using Connect32 or FRITZ!data (IDtrans or FTP protocol) at:

+49 (0) 30 / 39 98 43 00

For faster file transfer, enable the options "2-channel transfer" and "data compression". No user name or password is required for access to the ADC.

8.3 Assistance from AVM Support

Please take advantage of the information sources described above before you contact AVM support.

AVM's Support team is at your service with direct help when problems arise, during installation, the initial configuration and your first steps in operating the AVM BlueFRITZ! AP-X.

The support desk can be reached by e-mail or by fax. AVM Support then will contact you to assist in solving your problem. You will receive an e-mail or a fax.

Should problems establishing connections to ISDN remote sites arise, please try to establish a test ISDN connection to the ADC before contacting support. For more information, see the section "How Can I Dial Up a Connection" in the FRITZ!data Help. As the ADC receives a great number of calls, please try several times if the line is busy. 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 can be sent to AVM by e-mail. Please use the AVM Support request form at:

www.avm.de/en/service/support

Select the product for which you require technical support. Fill out the form and send it to AVM support by clicking the "Send" button.

Support by Fax

If necessary, you can reach AVM Support at the fax number:

+49 (0)30 / 39 97 62 66

Have your "Product Identification Code" ready when you call. This code is printed on the FRITZ! CD case. Support staff will always check this number to ensure that you are a registered user.

The following information should be included in your fax:

- An e-mail address or fax number at which you can be reached.
- Your name and address.
- The operating system you are using, such as Windows 2000 or Windows 98.
- The D-channel protocol used on your ISDN line
- Is your BlueFRITZ! AP-X operating on a PBX line?
- At what step of the 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 message?
- Include the version number and build number of the driver used. The version number and build number are found in the README file.
  - In the operating systems Microsoft Windows Me and 98, the README file can be found in the “AVM” program group after the software installation.
  - In the operating systems Microsoft Windows XP and 2000, the current README file can be found on the BlueFRITZ! AP-X CD in the WINDOWS.XP or WINDOWS.2K folder.

Index

Declaration of CE Conformity

The manufacturer	AVM GmbH GmbH
Address	Alt-Moabit 95
	D-10559 Berlin

herewith declares that the product

Product	BlueFRITZ! AP-X
Type	Wireless ISDN-Controller

complies with the following directives:

- 1999/5/EC: R&TTE Directive: Telecommunications Terminal Equipment and Satellite Earth Station Equipment
- 89/336/EEC EMC Directive: Electromagnetic Compatibility
- 73/23/EEC Low Voltage Directive: Electrical equipment designed for use within certain voltage limits

The following norms were consulted to assess conformity:

- EN 60950-1:2001/A11
- CTR 3/1998.06.17
- EN 301 489-17 V1.2.1 (2002)
- EN 301 489-1 V1.5.1 (2004)
- EN 55024/9.98 + A1/10.01 + A2/01.03
- EN 300 328 V1.6.1 (11.2004)

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

Berlin, 19.09.2006 Peter Faxel, Technical Director

Indication of Countries

This device is designed for use in all countries of the European Union and in Switzerland, Norway and Iceland. In France only indoor operation is permitted.

Drilling Template