TeleWell ISDN
TA 128 USB
CE

User’s Manual

CE Approval

All CE approved ISDN devices may be connected to the Euro-ISDN in all countries of the EU.

USB ISDN TA has been approved by the German TÜV according to the new European procedure and may therefore be connected to the Euro-ISDN in all EU countries. This ISDN TA therefore complies with:

- CTR-3 (ISDN Basic Rate Access)
- Electromagnetic Compatibility Standards
- Safety Standards

CE/EMC Restriction of Liability

The product described in this handbook was designed, produced and approved according to the EMC-regulations and is certified to be within EMC limitations.

If the product is used in an uncertified PC, the manufacturer undertakes no warranty in respect to the EMC limits. The described product in this handbook was constructed, produced and certified so that the measured values are within EMC limitations. In practice and under special circumstances, it may be possible, that the product may be outside of the given limits if it is used in a PC that is not produced under EMC certification. It is also possible in certain cases and under special circumstances, which the given EMC peak values will become out of tolerance. In these cases, the user himself is responsible for compliance with the EMC limits.

The manufacturer refuses all liability claims and may not be liable in any cases, which may occur in the practical use of the product outside of the EMC limitation.

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Chapter 1
Introduction

1.1 An Overview of the USB ISDN TA

1.1.1 What is ISDN?

ISDN is an abbreviation for ***I***ntegrated ***S***ervices ***D***igital ***N***etwork. ISDN transfers information digitally and integrates all telecommunication services (such as telephone, teletext, videotex, etc.) into a single network. Using ISDN, you can transfer text, voice, data files, images, and even video.

Before the use of ISDN, telecommunications operated using analog devices, which limited the quality of telecommunication transfers. With ISDN technology, the telephone lines can transmit data digitally with much greater speed and clarity of transmission than with analog transmissions. The ISDN is capable of transmitting all kinds of information at greatly accelerated rates. A typical modem transmission has a rate of 56Kbps (*kilobits per second* or thousand bits per second). ISDN digital technology allows transfer rates of up to 128Kbps.

Because ISDN transmits data digitally, the data is virtually error free, *and* the transmission is much clearer, with fewer interruptions and slowdowns in facsimile transmissions. With ISDN devices implemented throughout the world, a truly digital

network will emerge, allowing everyone fast and easy access to the global information highway.

1.1.2 What is USB?

USB is an abbreviation for ***U****niversal* ***S****erial* ***B****us*. It is a new peripheral bus employing a single connector type for all low-speed and medium-speed devices, such as keyboard, mouse, monitor, floppy drive, printer, scanner, digital camera, modem and ISDN TA. It brings plug-and-play of computer peripherals outside the box, eliminating the need to install cards into dedicated computer slots and reconfigure the system. PCs equipped with USB allow computer peripherals to be automatically configured as soon as they are hot attached, without the need to reboot. USB also allows multiple devices, up to 127, to run simultaneously on a computer; some peripherals, such as monitors and keyboards, can act as additional plug-in hubs to make it easy for users to manage peripherals on the desktop. USB does offer unprecedented peripheral expandability and ease of use for PC users.

With better throughput of 12Mbps (*megabits per second* or million bits per second), USB is expected to rapidly become the preferred means of connecting ISDN TAs, though it will not replace the traditional PC ports (COM and LPT) overnight.

1.1.3 The USB ISDN TA

The USB ISDN TA is ideally suited to give your PC access to the world of the Integrated Services Digital Network. It is easy to install, and easy to configure because it is fully plug-and-play compatible. The Windows 98, Me, 2000 or XP operating systems will automatically install and configure the USB ISDN TA.

With the USB ISDN TA, you can have an ISDN telephone, answering machine, file transfer, videotex, G3/G4 Fax functions, and Internet access. This will bring you more versatility and efficiency in the ISDN era.

1.2 Package Contents

The product package comes with the following accessories:

1. One USB ISDN TA
2. One installation CD with drivers and utility software
3. One CD with bundled application software programs (optional)
4. One RJ-45 ISDN cable
5. One USB cable
6. One Quick Start Guide

1.3 The USB ISDN TA Features

The USB ISDN TA supports many standard and enhanced features, including the following:

- Fully plug-and-play compatible.
- Hot attach and detach without rebooting the PC.
- Bus-powered, no extra power adapter.
- Supports both 16-bit and 32-bit CAPI drivers.
- Supports TAPI and NDIS WAN miniport drivers.
- Supports Multilink PPP (MP) for 128Kbps (two B channels) internet access and data transfer.

- Supports X.75, T.70NL, ISO8208, T.90, and HDLC transparent protocols on the B channel for T-Online, AOL, CompuServe, BTX, BBS, Eurofile transfer, and G4 Fax.
- Has support for a bit-transparent driver on the B channel for answering machine, G3 Fax and soft-modem functions.
- Supports V.120 rate adaptation.
- Supports COM port simulation for modem-based application programs.

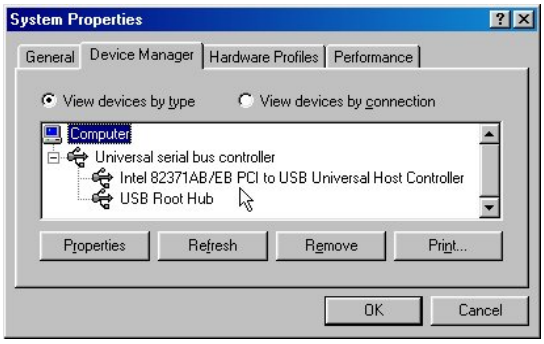
If you want to send and receive the Group 3 (G3) fax at 14.4Kbps, you should have a Pentium processor.

Chapter 2
Installation

2.1 Before Installing

Make sure that you have all you need to install the USB ISDN TA. You should have the following:

1. A PC that has USB connector and its USB controller is working properly as shown below.



2. Microsoft Windows 98, Me, 2000 or XP.
3. At least 30MB of free disk space for the driver and software.

4. An ISDN basic rate S_0 line released by PTT (Post, Telephone and Telegraph administration).

2.2 The Front Panel LEDs

LED	Meaning
USB	When this LED is lit, it indicates that the USB port is connected to the PC and working properly.
ISDN	When this LED is lit, it indicates that the ISDN S_0 bus is activated. It will flash when there is message transfer in the D channel.
B1	When this LED is lit, it indicates that the ISDN B1 channel is being accessed. It will flash when there is data transfer in the B1.
B2	When this LED is lit, it indicates that the ISDN B2 channel is being accessed. It will flash when there is data transfer in the B2.
PC	When this LED is lit, it indicates that there is at least one application program using the USB ISDN TA.

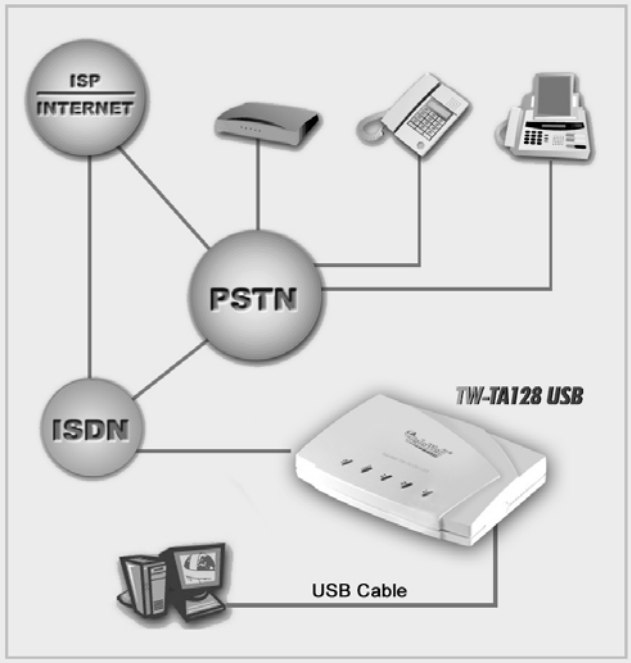
2.3 Connecting the USB ISDN TA

Please refer to the following instructions and figure for installing the USB ISDN TA:

1. Connect the ISDN S_0 line to the RJ-45 jack.
2. Connect the USB cable to the USB port and connect the other end of USB cable to the PC. Refer to the following figure.

NOTE: **You should not connect the USB ISDN TA to a bus-powered USB hub device, such as keyboard, because there could be not enough power for the ISDN TA.**

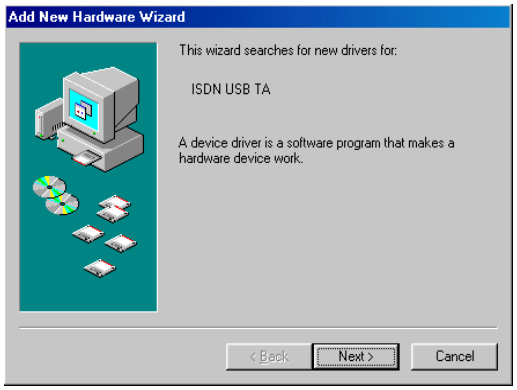
3. All the LEDs will be lit and, then, extinguished one by one. Please refer to ***Chapter 3 Troubleshooting*** if any LED is not lit or extinguished normally.



2.4 Driver Installation

For Windows 98:

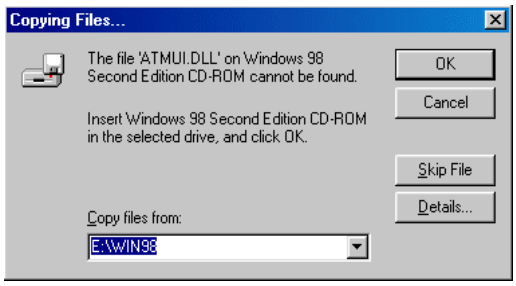
1. Start Windows. After the opening banner, Windows will tell you that the new device has been detected. You will then see the following screen. Click “Next >”.



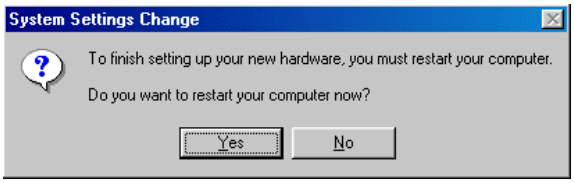
2. In the next window, select “Search for the best driver for your device” and click “Next >”.

3. Insert the installation CD into the CD-ROM drive and check "CD-ROM drive" in the next window.

4. Continue through the Wizard, clicking the "Next >" buttons. Windows will start copying files to your system. You will see the following screen prompting for the path of the Windows source files. Please specify a location. Click "OK". Then, click "Finish" in the next window to end the installation.



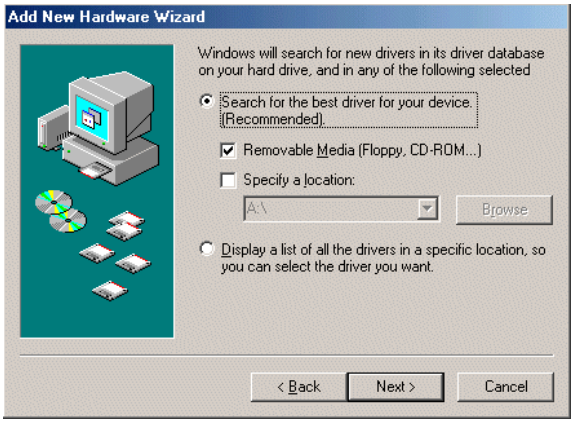
5. If you are prompted to restart the computer after Windows finishes installing the driver, press "Yes".



For Windows Me:

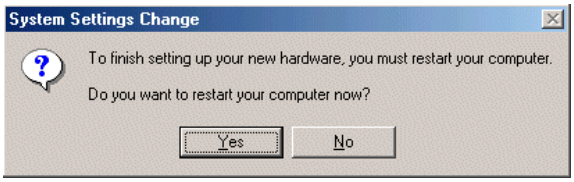
1. Start Windows. After the opening banner, Windows will tell you that the new device has been detected. Select "Specify the location of the driver" and click "Next >".

2. In next window, select "Search for the best driver for your device". Insert the installation CD into the CD-ROM drive and check "Removable Media". Click the "Next >" button.



3. Continue through the Wizard, clicking "Next >" at the following screens. Windows will start copying files to your system. Then, click "Finish" in the following window.

4. If you are prompted to restart the computer after Windows finishes installing the drivers, press "Yes".

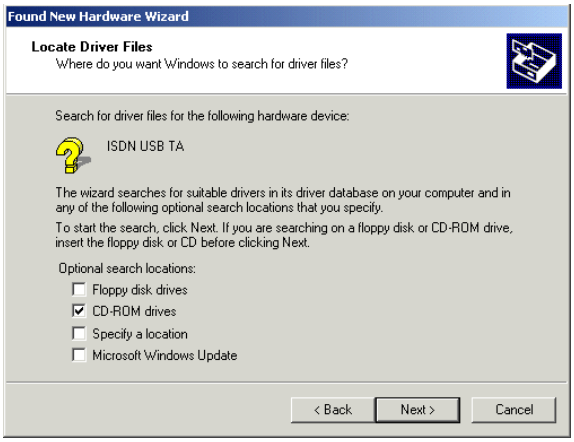


For Windows 2000:

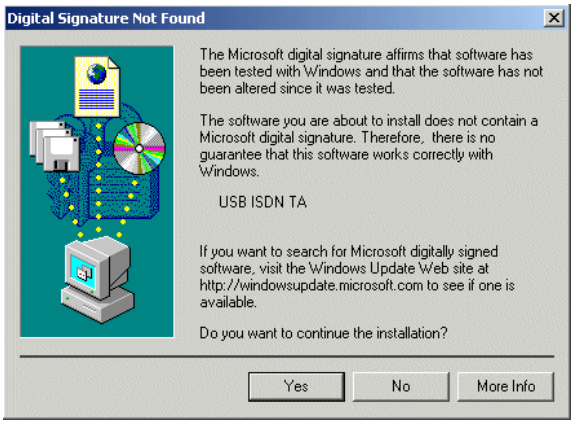
1. Start Windows. After the opening banner, Windows will tell you that the new device has been detected. Click "Next>".

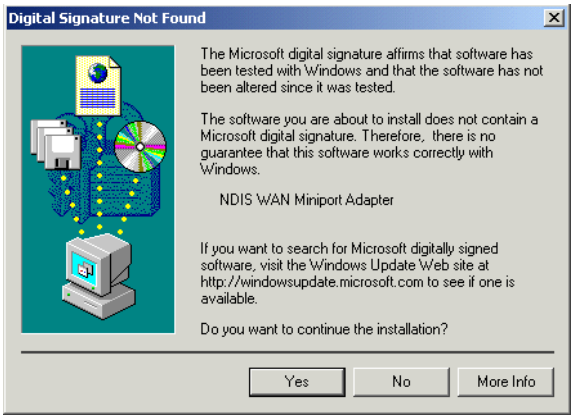
2. In next window, select "Search for a suitable driver for my device". Click "Next>".

3. Insert the installation CD into the CD-ROM drive, then in the next window check "CD-ROM drives" and click "Next>".



4. Click "Next>" to install the driver. When the following windows titled "Digital Signature Not Found" appear, press "Yes" to continue the installation.



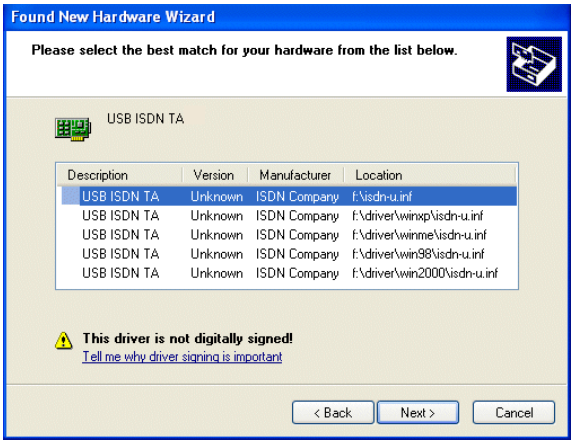


5. Press “Finish” to end the installation.

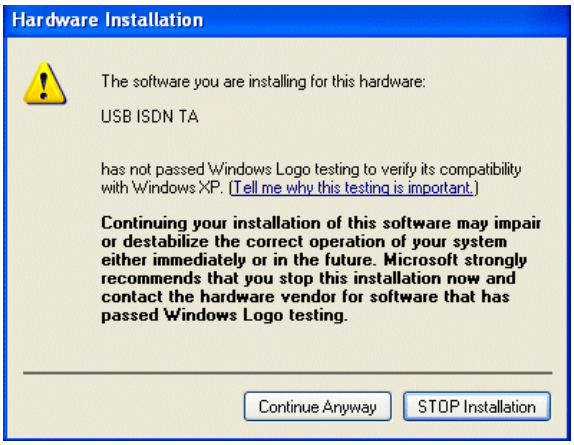
For Windows XP:

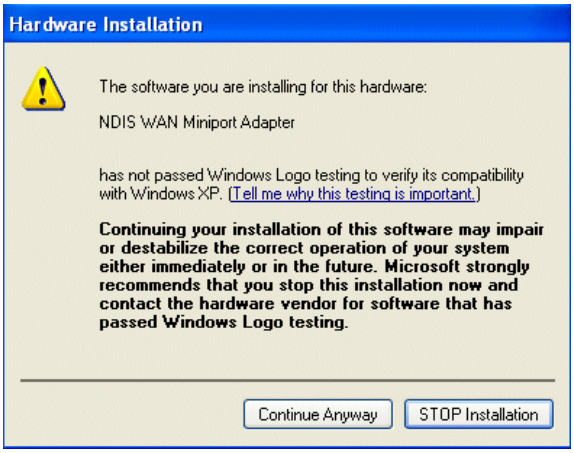
1. Start Windows. After the opening banner, Windows will tell you that the new device has been detected. Select "Install the software automatically". Insert the installation CD into the CD-ROM drive and click "Next >".

2. When next window appears, press "Next >" to continue the installation.

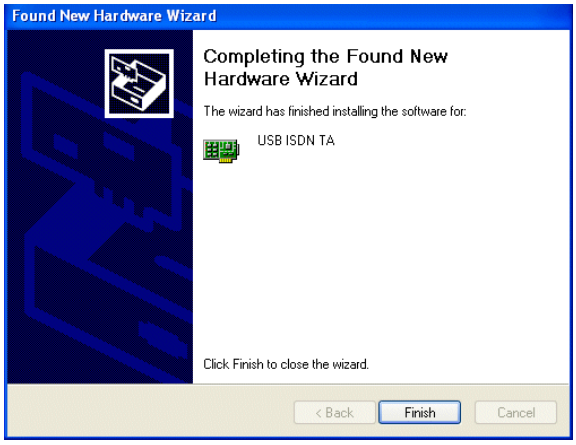


3. Click "Continue Anyway" when the following "Hardware Installation" windows appear.





4. Press "Finish" to end the installation.



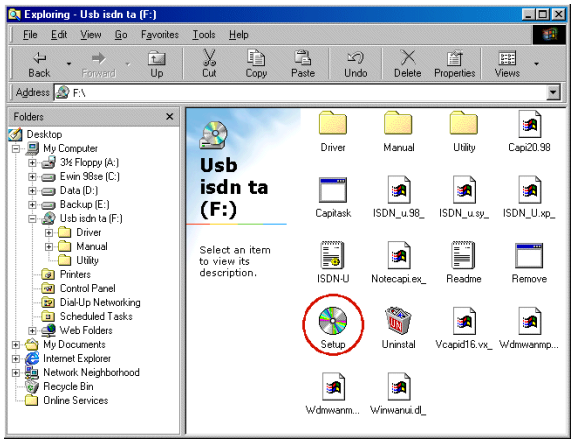
2.5 ISDN Utility Installation

The ISDN Utility includes helpful programs for the USB ISDN TA, such as diagnostic program, uninstallation program, and on-line manual.

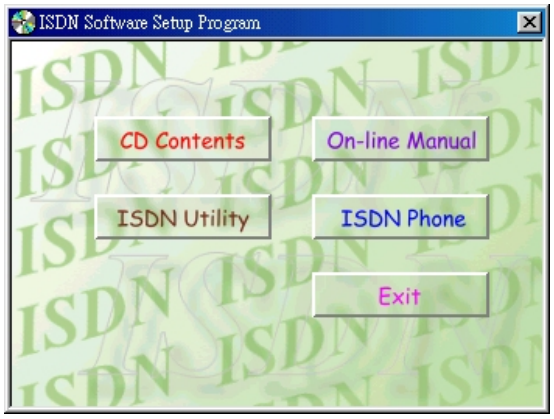
After Windows installs the driver of your USB ISDN TA, the ISDN Utility may be installed automatically. If the ISDN Utility is not installed, you may install it from the installation CD.

To install the ISDN Utility, please follow the instructions listed below.

1. Insert the installation CD into the CD-ROM drive.
2. Run Windows Explorer, and enter the directory of your CD-ROM drive. Double-click "Setup" to install the utility.



3. When the following window prompts, click on the "ISDN Utility" button.



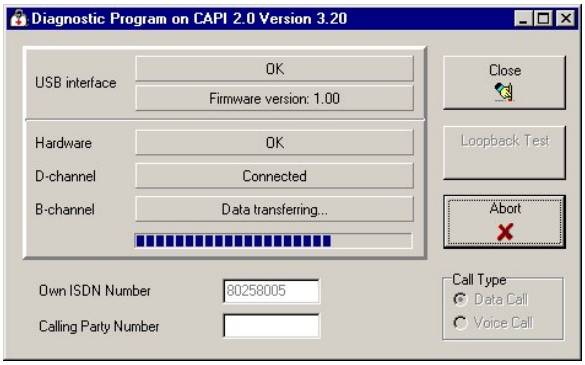
4. The Install Shield Wizard will load the ISDN utility installation program.

5. Press "Next>" to begin installing the ISDN Utility. Follow the instructions on the screen to complete the installation.

2.5.1 The Diagnostic Program

After you have installed your USB ISDN TA, you are highly recommended to use the diagnostic program to make sure the USB ISDN TA, its drivers and the ISDN line are all properly installed and connected. To run the diagnostic program please follow these instructions:

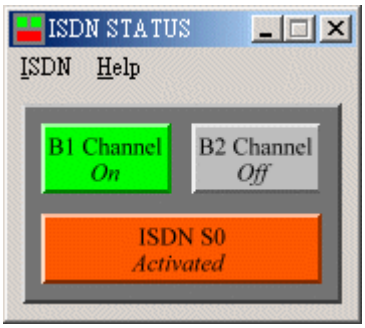
1. Open the "Programs" folder on the "Start" menu and click on the "ISDN Utility" program folder.
2. Click on the "Diagnostic Program" item to start the program.
3. In the "Own ISDN Number" box, type in the subscriber number of your own ISDN line.
4. Press "Loopback Test" to begin the diagnostic procedure. It will make a call from the B1 channel that returns through the B2 channel. The D and B channels will be tested for line integrity.
5. Please refer to ***Chapter 3 Troubleshooting*** if you see any error or warning message.



2.5.2 The ISDN STATUS Program

To know the status of ISDN line and B channels, you can start the ISDN STATUS program as below:

1. Open the "Programs" folder on the "Start" menu and click on the "ISDN Utility" program folder.
2. Click on the "ISDN STATUS" item to start the program.
3. You will see the status of ISDN S_0, B1 channel and B2 channel.



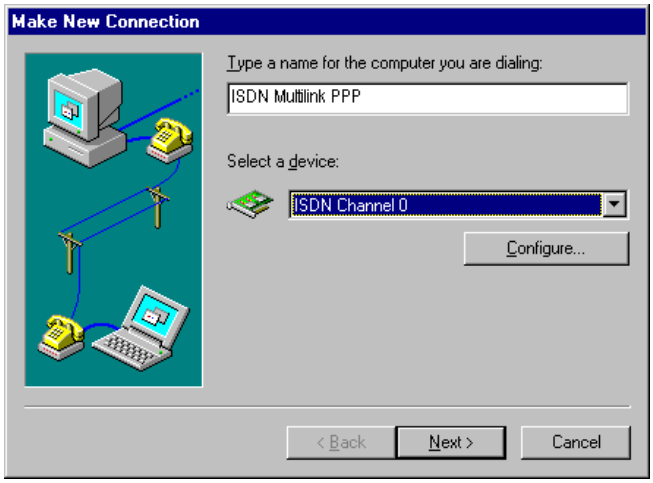
2.6 Using Multilink PPP

To have multilink PPP connections, the answering Internet Service Provider (ISP), online service or corporate LAN must provide multilink capabilities.

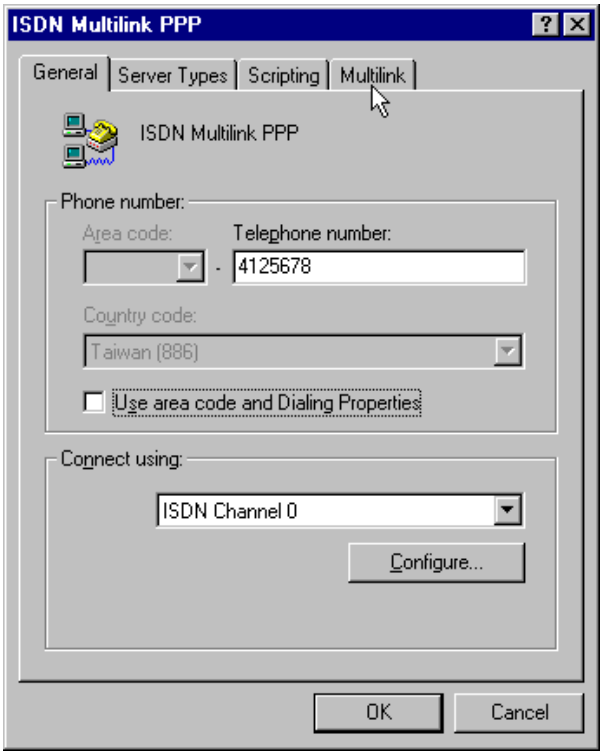
To configure multilink support, please follow these steps.

1. Double click on the "My Computer" icon on your Windows Desktop, and then double click on the "Dial-Up Networking" (DUN) folder.

2. The DUN folder displays an icon labeled "Make New Connection", plus icons for each of the connections that you have already created. If you have not yet created a connection, double click on "Make New Connection" to define a connection to the dial up service you wish to use.

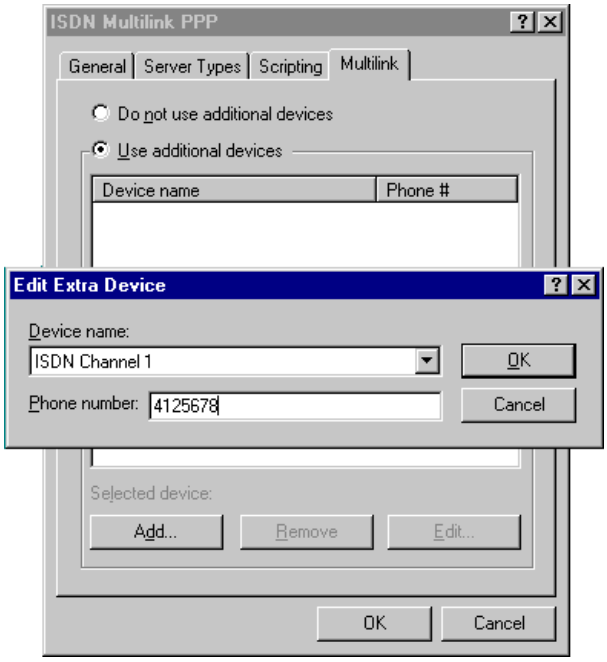


3. When you have created your connection, or if the connection you wish to use for multilink access already exists in the folder, use the mouse to right click on the connection icon. Choose the "Properties" option. This displays a dialog box with several category tabs at the top.



4. Select the "Multilink" tab and click on the "Use additional devices" radio button.

5. Press "Add..." to specify the device to be bundled together to form the multilink connection.



6. Use the "Add...", "Remove", and "Edit" buttons to change the list of additional devices.

7. You may enter a different phone number for each device, and the phone numbers will be stored. If you subsequently change the phone number for the connection icon, the phone numbers associated with additional devices on this page will not change.

After your additional devices are configured, you are ready to dial the multilink connection. Once the connection is established, you can view the status information by double clicking on the "communicating computers" icon displayed in the taskbar.

The status information includes the number of bytes sent and received, the network protocols negotiated for use on the connection and a list box showing each of the additional devices. As you highlight a device in the list box, a "Suspend" or "Resume" button is displayed.

If a "Suspend" button is displayed, the additional device is now in use and bundled into the multilink connection. Clicking on the "Suspend" button disconnects that device and removes the additional device from the bundled connections.

If the "Resume" button is displayed, then click on "Resume" to dial that connection and add that additional device to the bundle. You may suspend and resume individual additional device without dropping the connection.

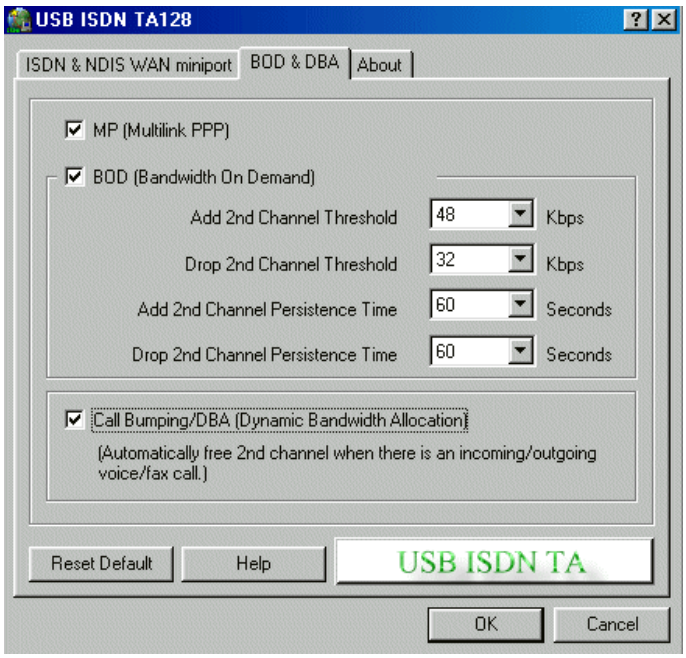
2.7 Using BOD and DBA

With BOD (Bandwidth On Demand) enabled, the second B channel can be automatically added or dropped according to the traffic load.

With "DBA (Dynamic Bandwidth Allocation)" or "Call Bumping" enabled, the second B channel will be automatically dropped when you are using both two B channels for Internet access and there is an incoming voice or fax call.

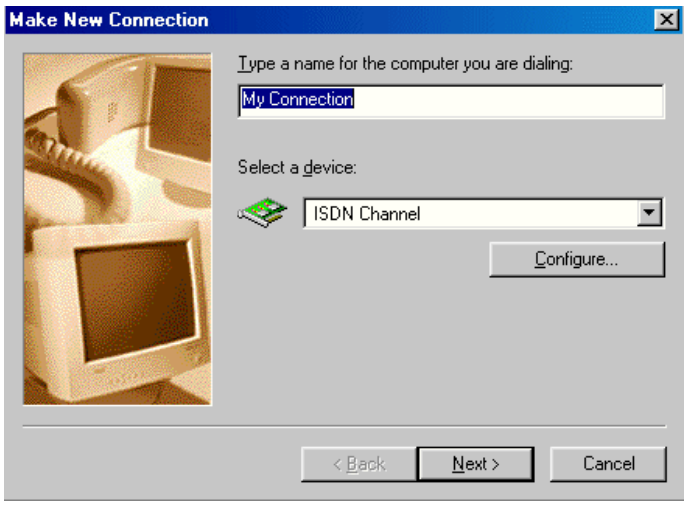
To have BOD or DBA function, you have to activate the MP (Multilink PPP) function that is built in the ISDN device. Follow the instructions below to configure the BOD or DBA function:

1. Open the "Programs" folder on the "Start" menu and click on the "ISDN Utility" program folder.
2. Click on the "Configuration Program" item to start the program.
3. Switch to the "BOD & DBA" tab.
4. The "MP (Multilink PPP)" must be enabled before you can configure BOD/DBA.
5. Input the values, as you want for BOD/DBA.



In the above example, the second B channel will be added when the average data traffic load is more than 48Kbps for 60 seconds; and, it will be dropped when the average traffic load is less than 32Kbps for 60 seconds.

After enabling the MP, you must restart the PC to make the settings take effect. You should also create a new connection in the Dial-Up Networking and change the communication device.



2.8 Uninstalling the USB ISDN TA

If you decide to permanently remove the driver and utility of the USB ISDN TA from your system, you must run the uninstallation program from the ISDN Utility program group as follows:

1. Open the "Programs" folder on the "Start" menu and click the "ISDN Utility" item.
2. Click the "Uninstall DRV & UTL" item. The following ISDN Uninstallation Program window opens.

3. Check the items that you want to completely remove from the Windows system and press "OK".

Chapter 3
Troubleshooting

If your USB ISDN TA does not work properly, run the Diagnostic Program to help you identify the problem.

Error Indication	Possible Cause	Remedy
"USB" LED is not lit. or "Fail" on USB interface panel. or The CAPI2032.DLL file cannot start.	1. The USB ISDN TA is not ready.	1. Make sure the USB cable is securely connected to PC or self-powered USB hub device.
	2. The PC is not USB-ready.	2. Examine your PC's hardware and software for USB capability.
You are not allowed to run this program.	The CAPI2032.DLL is not from the ISDN package.	Uninstall and then reinstall the ISDN device.
A required .DLL file, CAPI2032.DLL, was not found.	The CAPI2032.DLL is missing.	Uninstall and then reinstall the ISDN device.

Error Indication	Possible Cause	Remedy
CAPI driver is not loaded.	The Registration key has been destroyed.	Uninstall and then reinstall the ISDN device.
Please input your own number.	The subscriber number of your own ISDN line has not been entered.	Key in the subscriber number of your ISDN line in the *Own ISDN Number* box.
Cannot activate S0 interface ("ISDN" LED is always OFF)	The ISDN line is not connected.	Ensure that the ISDN S_0 line is securely connected to the RJ-45 jack.
Cannot establish LAPD link.	The ISDN line may be malfunctioning.	Ensure that the ISDN S_0 line is in good condition.
Connecting fail. (error code = xxxx)	1. *Own ISDN Number* is incorrect.	1. Ensure that your ISDN number is correct.
	2. Other devices on the same S_0 line are occupying the B channel.	2. Be sure no other device is on the same S_0 line and occupying the B channel.
	3. The ISDN protocol is wrong.	3. Check to see if the ISDN protocol configuration is correct.
Data transfer error.	The ISDN line is not in good condition.	Check the ISDN line.