

MicroLink™ 56k PCI

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Aachen, April 2003

Preface

Thank you for placing your trust in this devolo product.

With the MicroLink 56k PCI, you will be able to access the Internet and take advantage of a variety of other data communications applications by using the included software package.

Exacting manufacturing standards and stringent quality control are the basis for high product standards and consistent quality to ensure your fullest satisfaction with this modem.

About this manual

This manual will inform you about all aspects of your MicroLink 56k PCI and help you get it operating. In addition, you will find some answers to frequently asked questions in this manual.

This documentation was compiled by several members of our staff from a variety of departments in order to ensure you the best possible support when using your devolo product

Additional information in the Internet at 'www.devolo.de'.

Our online services www.devolo.de are available to you around the clock should you have any queries regarding the MicroLink 56k PCI.

Package contents

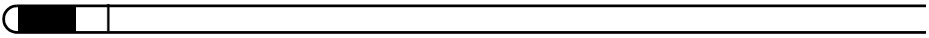
Please ensure that the delivery is complete before beginning with the installation of your MicroLink 56k PCI:

- MicroLink 56k PCI
- Country-specific telephone connection cable
- CD-ROM including manual, drivers, Norman firewall and virus scanner* and BVRP communications software*
- Installation guide (in print)*

devolo reserves the right to change the package contents without prior notice.

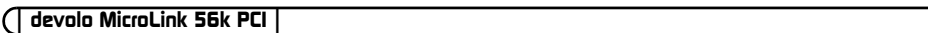
* Additional software and the printed installation guide are only supplied with the retail product.



**CE conformity**

This product meets the requirements of the 1999/5/EG Directive R&TTE and is designed for connection to public telecommunications networks in the EU and Switzerland.

The declaration of conformity can be found in the appendix of this manual.



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1 Introduction

This chapter is intended to present you the MicroLink 56k PCI and its most important features. It also includes a brief description of the communications software Classic PhoneTools of BVRP* and the firewall and anti-virus software Norman Internet Control*.

1.1 Features

The MicroLink 56k PCI card for the PCI bus supports all modern data communications applications: Internet downloads at up to 56,000 bps, sending and receiving faxes and home banking are just as easy to use as e-mail or home shopping. The use of the PCI bus ensures ease of installation with true plug&play.

1.1.1 V.92 standard

Your MicroLink 56k PCI card also supports the following features of the V.92 standard:

- Much faster initiation of dial-up connections
The dial-up sequences to the Internet Service Provider (ISP) are temporarily saved in quick connect to speed up the establishment of a new connection.
- V.44 data compression
Data throughput can be increased by a factor of six, e. g. when downloading web sites.



Please note that your telecommunications and Internet service provider must offer the V.92 standard before you can use these features with your MicroLink 56k PCI!

1.2 Communications software*

The MicroLink 56k PCI is supplied with the BVRP software package Classic PhoneTools. Classic PhoneTools is a communications program which provides you with the most important data communications applications in a convenient, easy-to-use package.

The included software Classic PhoneTools provides the following features in conjunction with your modem:

- fax operation: send and receive up to 14,400 bps
- answering machine
- address book (e.g. fax and telephone numbers)

1.3 Firewall and virus scanner*

The MicroLink 56k PCI is supplied with the Norman Internet Control software. Norman Internet Control is a firewall and anti-virus program that monitors your PC for malicious software, also referred to as malware. The most common types of malware are viruses, worms, and trojans. For the sake of simplicity, we often use the term virus as a collective description.

Norman Internet Control can detect and remove known and unknown viruses from hard disks, floppy disks, e-mail attachments, etc. Norman Internet Control checks files when they are accessed, and possible viruses are removed automatically. If Norman Internet Control is unable to clean an infected file, you will receive a warning and instructions on how to proceed.

*Additional software is only supplied with the retail product.

2 Installation

This chapter is intended to help you activate your MicroLink 56k PCI. You will find a brief description of the installation procedure under Windows 98, Windows Me, Windows 2000 and Windows XP.

2.1 System requirements

Your computer must meet the following requirements to operate with your MicroLink 56k PCI:

- **Operating systems:** Windows 98, Windows Me, Windows 2000 or Windows XP
- **Free PCI slot**

2.2 Installation of the MicroLink 56k PCI



Disconnect the AC power cable and the connection to the telephone network before opening your computer. This is necessary to ensure that the device is no longer live.

Do not touch any electronic parts! Static charges could destroy the electronics. You should, therefore, briefly touch the computer housing to discharge any static electric charge built up on your body.

- ① **The first step**
Safety First! Disconnect the power cord from the PC before removing the housing. The PC card may only be installed or removed if the PC has been disconnected from the AC power supply.
- ② **Loosen the screws**
Loosen the retaining screws on the housing and remove it.
- ③ **Remove the blind bracket**
Remove the blind bracket of a free PCI slot.
- ④ **Insert the MicroLink 56k PCI card**
Plug your PCI card into the slot. Ensure that the PCI card is correctly seated in its slot and tighten the screw of the mounting plate.
- ⑤ **Replace PC housing**
Replace the housing and screw it tight.



Close the PC before connecting it to the telephone network! Make sure that the case of the PC has been closed properly before connecting it to the telephone network.

⑥ **Connection to the telephone network**

Connect the included connection cable to the socket on the mounting bracket and the appropriate telephone line socket.

⑦ **Connection to AC power**

Reconnect the power cord to your computer and switch the computer on.

⑧ **Installing the drivers**

Continue by installing the drivers as described for the corresponding operating system.

Deinstallation is performed in the reverse order.



2.3

Installation of drivers

Plug&play installation

The MicroLink 56k PCI supports plug&play. Plug&play simplifies the installation considerably. Windows wizards will guide you through the installation and asked you for required data.

There are differences between the installation procedures for the described Windows versions. The driver installation will be described separately for each version for the sake of clarity.

2.3.1

Installation under Windows 98

- ① Restart your computer after inserting the PC card.
- ② Insert the supplied devolo product CD into your CD-ROM drive.
- ③ Windows starts the hardware wizard and reports that new hardware has been detected. Confirm this message with **Next**.
- ④ Windows offers you two different ways of searching for drivers. Select the 'Search for the best driver for your device (Recommended)' option and click **Next**.
- ⑤ The suitable driver can be found on the devolo product CD. Activate the 'CD-ROM drive' option and deactivate all other boxes. Confirm with **Next**.

- ⑥ When the driver 'PCI Modem Enumerator' has been found, confirm by clicking **Next** in order to initiate installation.
- ⑦ In the subsequent dialog box, click **Finish**.
- ⑧ Windows detects the MicroLink 56k PCI card. Confirm this message with **Next**.
- ⑨ Windows offers you two different ways of searching for drivers. Select the 'Search for the best driver for your device (Recommended)' option and click **Next**.
- ⑩ The suitable driver can be found on the devolo product CD. Activate the 'CD-ROM drive' option and deactivate all other boxes. Confirm with **Next**.
- ⑪ Confirm the search results with **Next**. Windows will install the driver.
- ⑫ When the wizard is ready, click **Finish**.
- ⑬ Windows detects the 'Wave Device for Voice Modem'. Confirm this message with **Next**.



The modem is entered in the Device Manager as 'MicroLink 56k PCI' and as audio device with the 'Voice Modem Serial Wave Device' hardware component to ensure voice functionality.

- ⑭ Windows offers you two different ways of searching for drivers. Select the 'Search for the best driver for your device (Recommended)' option and click **Next**.
- ⑮ The suitable driver can be found on the devolo product CD. Activate the 'CD-ROM drive' option and deactivate all other boxes. Confirm with **Next**.
- ⑯ Finally, exit the installation by clicking **Finish**.

2.3.2

Installation under Windows Me

- ① Restart your computer after inserting the PC card.
- ② Insert the supplied devolo product CD into your CD-ROM drive.
- ③ Windows starts the hardware wizard and reports that new hardware has been detected. The wizard offers you two different ways of searching for

drivers. Select the 'Automatic search for a better driver (Recommended)' option and click **Next**.

- ④ Windows will install the 'PCI Modem Enumerator' driver. When the wizard is ready, click **Finish**.
- ⑤ Windows now detects the MicroLink 56k PCI card and offers you two different ways of searching for drivers. Select the 'Automatic search for a better driver (Recommended)' option and click **Next**.
- ⑥ Windows will install the 'MicroLink 56k PCI' driver. When the wizard is ready, click **Finish** to confirm the second part of the installation.
- ⑦ Windows detects the 'Wave Device for Voice Modem' and offers you two different ways of searching for drivers. Select the 'Automatic search for a better driver (Recommended)' option and click **Next**.



The modem is entered in the Device Manager as 'MicroLink 56k PCI' and as audio device with the 'Voice Modem Serial Wave Device' hardware component to ensure voice functionality.

- ⑧ When the wizard is ready, click **Finish** to exit the installation.

2.3.3

Installation under Windows 2000

- ① Restart your computer after inserting the PC card.
- ② Insert the supplied devolo product CD into your CD-ROM drive.
- ③ Windows starts the hardware wizard and reports that new hardware has been detected. Confirm this message with **Next**.
- ④ Windows offers you two different ways of searching for drivers. Select the 'Search for a suitable driver for my device (recommended)' option and click **Next**.
- ⑤ The suitable driver can be found on the devolo product CD. Activate the 'CD-ROM drives' option and deactivate all other boxes. Confirm with **Next**.
- ⑥ Confirm the search results with **Next**. Windows will install the driver.
- ⑦ When the wizard is ready, click **Finish** to exit the installation.



The modem is automatically entered in the Device Manager as 'MicroLink 56k PCI' and as audio device with the 'Unimodem Half-Duplex Audio Device' hardware component to ensure voice functionality.

2.3.4

Installation under Windows XP

- ① Restart your computer after inserting the PC card.
- ② Insert the supplied devolo product CD into your CD-ROM drive.
- ③ Please wait a minute, Windows XP starts the hardware wizard and reports that new hardware has been detected.
- ④ Select the 'Install Windows XP drivers' menu item from the CD Setup options. The driver installation is started.



*Windows will inform you that the software that you are installing has not passed the Windows logo test. Always continue with the installation by selecting '**Continue Anyway**' in the Windows Logo Certification' dialog box.*

- ⑤ Windows will continue with the driver installation and complete it automatically.



The modem is automatically entered in the Device Manager as 'MicroLink 56k PCI' and as audio device with the 'Unimodem Half-Duplex Audio Device' hardware component to ensure voice functionality.



*If you want to use the MicroLink 56k PCI card **anymore** and it is **no** longer to be recognized by your operating system, we recommend to deinstall it.*

3 Appendix

3.1 Technical data

This table has detailed information on the MicroLink 56k PCI for those interested.

	MicroLink 56k PCI
Transfer rates	Receive: 56 000–300 bps asynchronous; Send: 33 600–300 bps asynchronous (V.90, V.34, V.32bis, V.32, V.22bis, V.22, V.21, V.23) with V.92: Receive: 56 000–300 bps asynchronous; Send: 48 000–300 bps asynchronous
Command set	AT command set according to V.250/V.25ter
Power supply	Via PCI, no external power adapter required
Data compression	V.42bis and V.44
Error correction	V.42
Power consumption	Transmission phase (online) 700 mA typ. Command phase (offline) 350 mA typ.
Environment	5..40°C, humidity 0..80%, non-condensing
Voice operation	Voice command set in accordance with V.253
Fax operation	14,400..2400 bps according to V.17, V.29, V.27ter and V.21; Fax command set Class 1 (TIA/EIA-578) and Class 1 (T.31)
Dialing method	Multifrequency dial
Bit rate adaptation	Automatic in accordance with V.8
Computer interface	PCI
CE conformity	Tested under EN 50022, Class B; EN 55024, EN 60950; technical requirements in accordance with R&TTE for all European countries and Switzerland
System requirements	Windows 98, Windows Me, Windows 2000 and Windows XP Free PCI interface to connect a modem to the PC Analog telephone connection
Warranty	3 years

3.2 Declaration of conformity



KONFORMITÄTSERKLÄRUNG

gemäß dem Gesetz über Funkanlagen und Telekommunikationsendeinrichtungen (FTEG) und der Richtlinie 1999/5/EG (R&TTE)

EC- DECLARATION OF CONFORMITY appropriate to the law of radio and telecom terminalequipment and Directive 1999/5/EC (R&TTE)

Die Firma:
The Company: **devolo AG**
Sonnenweg 11
52070 Aachen

erklärt, daß das Produkt:
declares that the product: **MicroLink™ 56k PCI**

Telekommunikations (TK-) Endeinrichtung
telecommunications terminal equipment radio equipment

Verwendungszweck:
intended purpose: **analoges Modem**

den grundlegenden Anforderungen des § 3 und den übrigen einschlägigen Bestimmungen des FTEG (Artikel 3 der R&TTE) entspricht.
complies with the appropriate essential requirements of the FTEG (Article 3 of R&TTE) and the other relevant provisions.

Harmonisierte Normen: Gesundheit und Sicherheit gemäß §3 (1) 1. (Artikel 3 (1) a))
Harmonised Standards: Health and Safety requirements contained in §3 (1) 1. (Article 3 (1) a))

EN 60 950: 1992 +A1: 1993 +A2: 1993 +A3: 1995 +A4: 1997 +A11: 1997

Harmonisierte Normen: Schutzanforderungen in Bezug auf die EMV §3 (1) 2, Artikel 3 (1) b))
Harmonised Standards: Protection requirements with respect to EMC §3 (1) 2, (Article 3 (1) b))

EN 55 022: 1998 Class B
EN 55 024: 1998

Diese Erklärung wird verantwortlich abgegeben durch:
This declaration is submitted by:

Aachen, 29. Juli 2002
Aachen, 29th July 2002

Heiko Harbers
Vorstandsvorsitzender
CEO

3.3 Warranty conditions

The devolo AG warranty is given to purchasers of devolo products in addition to the warranty conditions provided by law and in accordance with the following conditions:

1 Warranty coverage

- a) The warranty covers the equipment delivered and all its parts. Parts will, at devolo's sole discretion, be replaced or repaired free of charge if, despite proven proper handling and adherence to the operating instructions, these parts became defective due to fabrication and/or material defects. Alternatively, devolo reserves the right to replace the defective product with a comparable product with the same specifications and features. Operating manuals and possibly supplied software are excluded from the warranty.
- b) Material and service charges shall be covered by devolo, but not shipping and handling costs involved in transport from the buyer to the service station and/or to devolo.
- c) Replaced parts become property of devolo.
- d) devolo is authorized to carry out technical changes (e.g. firmware updates) beyond repair and replacement of defective parts in order to bring the equipment up to the current technical state. This does not result in any additional charge for the customer. A legal claim to this service does not exist.

2 Warranty period

The warranty period for this devolo product is three years. This period begins at the day of delivery from the devolo dealer. Warranty services carried out by devolo do not result in an extension of the warranty period nor do they initiate a new warranty period. The warranty period for installed replacement parts ends with the warranty period of the device as a whole..

3 Warranty procedure

- a) If defects appear during the warranty period, the warranty claims must be made immediately, at the latest within a period of 7 days.
- b) In the case of any externally visible damage arising from transport (e.g. damage to the housing), the person carrying out the transportation and the sender should be informed immediately. On discovery of damage which is not externally visible, the transport company and the sender are to be immediately informed in writing, at the latest within 3 days of delivery.
- c) Transport to and from the location where the warranty claim is accepted and/or the repaired device is exchanged, is at the purchaser's own risk and cost.
- d) Warranty claims are only valid if a copy of the original purchase receipt is returned with the device. devolo reserves the right to require the submission of the original purchase receipt.

4 Suspension of the warranty

All warranty claims will be deemed invalid

- a) if the label with the serial number has been removed from the device,
- b) if the device is damaged or destroyed as a result of acts of nature or by environmental influences (moisture, electric shock, dust, etc.),
- c) if the device was stored or operated under conditions not in compliance with the technical specifications,
- d) if the damage occurred due to incorrect handling, especially to non-observance of the system description and the operating instructions,
- e) if the device was opened, repaired or modified by persons not contracted by devolo,

- f) if the device shows any kind of mechanical damage, or
- g) if the warranty claim has not been reported in accordance with 3a) or 3b).

5 Operating mistakes

If it becomes apparent that the reported malfunction of the device has been caused by unsuitable hardware, software, installation or operation, devolo reserves the right to charge the purchaser for the resulting testing costs.

6 Additional regulations

- a) The above conditions define the complete scope of devolo's legal liability.
- b) The warranty gives no entitlement to additional claims, such as any refund in full or in part. Compensation claims, regardless of the legal basis, are excluded. This does not apply if e.g. injury to persons or damage to private property are specifically covered by the product liability law, or in cases of intentional act or culpable negligence.
- c) Claims for compensation of lost profits, indirect or consequential detriments, are excluded.
- d) devolo is not liable for lost data or retrieval of lost data in cases of slight and ordinary negligence.
- e) In the case that the intentional or culpable negligence of devolo employees has caused a loss of data, devolo will be liable for those costs typical to the recovery of data where periodic security data back-ups have been made.
- f) The warranty is valid only for the first purchaser and is not transferable.
- g) The court of jurisdiction is located in Aachen, Germany in the case that the purchaser is a merchant. If the purchaser does not have a court of jurisdiction in the Federal Republic of Germany or if he moves his domicile out of Germany after conclusion of the contract, devolo's court of jurisdiction applies. This is also applicable if the purchaser's domicile is not known at the time of institution of proceedings.
- h) The law of the Federal Republic of Germany is applicable. The UN commercial law does not apply to dealings between devolo and the purchaser.

4

Frequently Asked Questions

This section provides solutions to problems regarding your MicroLink 56k PCI, which our support team has already worked through for other customers.

Question

How can I configure an analog modem for a private branch exchange (PBX)?

The analog modem is connected to a PBX. A connection cannot be established. Every time a dial sequence is run, the following messages are displayed:

- 'Error 680: No dial tone'
- 'Error 678: The dialed computer is not answering' or 'Error 678: No answer'

Cause

A PBX requires a number for accessing an outside line. Usually this is specified with a single digit (0-9), while some systems use several digits or the flash button. When you first setup your Internet connection, Windows prompts you to enter this number in the 'General Information'. Even if the number for accessing an outside line is entered, problems can occur when trying to establish a connection. If this is the case, check the following settings:

Solution (1. disable dial tone detection)

With the Windows standard configuration, the modem waits for a dial tone before dialing. This function has to be disabled.

Windows 98

Under **My Computer** ► **Dial-Up Networking**, click the dial-up connection you have created with the right mouse button. Under the 'Properties' entry, click **Configure**. On the 'Settings' tab, disable the 'Wait for dial tone before dialing' option.

Windows Me

Under **Start** ► **Settings** ► **Dial-Up Networking**, select your dial-up connection using the right mouse button. Under the 'Properties' entry, click **Configure**. On the 'Connection' tab, disable the 'Wait for dial tone before dialing' option.

Windows 2000

Click **Start** ► **Settings** ► **Control Panel** ► **Phone and Modems Options**. On the 'Modems' tab, select your modem. Click on **Properties**. On the 'General' tab, disable the 'Wait for dial tone before dialing' option.

Windows XP



There are various ways to configure this aspect under Windows XP. For more information, please refer to your Windows XP documentation.

Click **Start ▶ Control Panel ▶ Printers and Other Hardware ▶ Phone and Modems Options**. On the 'Modems' tab, select your modem. Click on **Properties**. On the 'General' tab, disable the 'Wait for dial tone before dialing' option.



*For advanced users: The dial tone can also be ignored by using the AT command **X3**. This is entered in the modem properties under 'Advanced' in the 'Extra Settings' field.*

*Solution
(2. specify
numbers for
outside lines)*

A PBX requires a number for accessing an outside line in order for a connection to be established.

Windows 98

Select **Start ▶ Settings ▶ Control Panel ▶ Modems** and select your modem. Click **Dialing Properties** and enter the numbers needed for accessing an outside line for both local and long-distance calls.

Windows Me

Select **Start ▶ Settings ▶ Control Panel ▶ Modems** and select your modem. Click **Dialing Properties** and enter the numbers needed for accessing an outside line for both local and long-distance calls.

Windows 2000

Under **Start ▶ Settings ▶ Control Panel ▶ Network and Dial-up Connections**, select the connection you have created by clicking it using the right mouse button. Under 'Properties', enable the option to **Use dialing rules**. Click **Rules** and then **Edit**. Now enter the numbers needed for accessing an outside line for both local and long-distance calls.

Windows XP



There are various ways to configure this aspect under Windows XP. For more information, please refer to your Windows XP documentation.

Under **Start ▶ Control Panel ▶ Network and Internet Connections ▶ Network Connections**, click the connection you have created using the right mouse button. Under 'Properties', enable the option to **Use dialing rules**. Click **Dialing Rules** and then **Edit**. Now enter the numbers needed for accessing an outside line for both local and long-distance calls.



For advanced users: Numbers for accessing outside lines and wait commands can also be typed in manually in front of the phone number. Because a delay can occur after the number for an outside line is dialed and before the outside

line is connected by the PBX, you may have to specify pauses between the outside line number and the phone number (indicated by one or more commas, for example: 0,,12345), or better yet, use the wait command (w). For most private branch exchanges, **0w** (e.g. 0w12345) is sufficient. Under Windows 2000, letters cannot be used in dialing parameters. Instead, use commas after the outside line number (e.g. 0,,12345).

Question

What are driver and software signatures?

When installing software under the Windows 2000 and Windows XP operating systems, messages may appear, respective of the operating system, regarding driver and software signatures (Windows logo testing). Simply continue the installation regardless, and confirm any and all such prompts by clicking **Yes** or **Continue Installation**.



Anytime a new device is installed, Windows checks by default whether the drivers are Microsoft-certified. Very few drivers are actually certified with Microsoft, however, because driver certification with Microsoft is quite consuming. The drivers that you receive directly from devolo have all been subjected to extensive testing, so you can ignore the Windows warnings with complete confidence.

Question

Why does my Internet connection suddenly disconnect without me wanting it to, and why is it so slow (slower than on other analog connections)?

Causes

- The hardware installation within the computer case has to be clean and correct. By clean and correct, we mean: few junction boxes, and tightly, cleanly and correctly connected electrical connections (using screws and fasteners), etc. Magnetic and electric fields, such as halogen desk lamps placed on the modem, can cause interference.
- For lack of enough available phone jacks, two devices may have to share the same physical line. To this purpose, multiplexers are installed at the customer junction line point. Often, these are labeled, for example with "PCM-2" (for two users). If a multiplexer is in use, fast V.90 connections are not possible. Instead, the top transfer rate will be 33.6 Kbps. You can contact your telephone service company for more information and to find out if a multiplexer is installed on your line. In Germany, business subscribers call Telekom at 0800/3301172, and residential subscribers call 0800/3302000.
- Find out whether any additional services are enabled for the analog network, such as call charge metering, call waiting, etc. The signals sent

over your line by such services have little effect on voice calls. However, they act as noise interference on a data line and should be disabled for the duration of data connections. In apartment buildings especially, many phone jacks are installed and used on many floors. Often, the installations of these terminals are parallel, which is a code violation in Germany. Germany's telephone networking codes require that the house connection is nonreflecting at a specific impedance. Connecting several devices having the same impedance in parallel reduces the total impedance. This should be avoided as much as possible. A clean technical solution to this is the so-called telephone toggle switches, which prevent a second phone to listen in on an existing call, or small branch exchange systems, which usually allow you to make in-house calls as well.



The fast transfer protocols based on V.90 and 56kflex cannot be compared to the classic modulation protocols. Unlike, for example, V.34, these protocols are based on a different technology. In principle, the maximum achievable speed is determined by the amount of available line bandwidth. This can vary greatly from one line to the next and therefore, the actual connection speed can vary significantly.