



dLAN[®] 200 AVdesk

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Aachen, September 2006

Preface

Thank you for placing your trust in this devolo product.

The dLAN 200 AVdesk from devolo is the home plug-in device for high requirements on data transfer, such as HDTV streaming, Internet telephony and fast Internet. With a transfer rate of 200 Mbps, the dLAN 200 AVdesk transforms the home electrical system in no time into a fast network – thanks to the powerful 128-bit AES encryption with maximum data security. Whether in the office or at home – devices such as modem, router, set-top box or the computer can be connected with the dLAN 200 AVdesk using the available Ethernet interface. On top of that, the range of 200 meters creates a high degree of flexibility.

About this manual

This manual contains all the information you need about your dLAN 200 AVdesk from devolo. It tells you how to set up and configure your dLAN 200 AV device. The 'All about the network' chapter also contains examples of applications for the dLAN 200 AVdesk.

Exact manufacturing standards and stringent quality control are the basis for high product standards and consistent quality to ensure your fullest satisfaction with this dLAN 200 AVdesk.

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 product.

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

Our online services (www.devolo.com) is available to you around the clock should you have any queries or require any further support.

Package contents

Please ensure that the delivery is complete before beginning with the installation of your dLAN 200 AVdesk:

- dLAN 200 AVdesk
- Power cable
- Ethernet cable
- Printed information leaflet
- CD with online documentation and software

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



Description of the symbols

Here we briefly describe the meaning of the symbols used in this manual.



Very important notice which, if ignored, may lead to damage.



Important notice which should be heeded.



Additional information which is useful to know, but not vital.

Contents

1	Introduction	6
1.1	What exactly is dLAN?	6
1.2	What does the dLAN 200 AVdesk have to offer?	7
2	Connection and startup	8
2.1	System requirements	8
2.2	Connection and display elements	8
2.3	Connecting the dLAN 200 AVdesk.....	9
3	devolo dLAN 200 AV software	10
3.1	Overview of the devolo software	10
3.1.1	devolo dLAN 200 AV configuration wizard	10
3.1.2	devolo Informer	10
3.1.3	devolo EasyShare	10
3.1.4	devolo EasyClean	10
3.2	Installing the devolo dLAN 200 AV software	11
3.2.1	Configuration of the dLAN 200 AV network using the devolo dLAN 200 AV configuration wizard	11
3.3	Overview in the dLAN 200 AV network with the devolo Informer	12
3.4	Communication in the network using devolo EasyShare	13
3.4.1	Configuration	13
3.5	Maintain your privacy with devolo EasyClean	15
4	All about the network	17
4.1	Internet standalone solution—Option 1	17
4.2	Networking—Option 2	17
4.3	Networking—Option 3	18
4.4	Networking—Option 4	18
5	Appendix	19
5.1	Technical data	19
5.2	Important safety instructions	20
5.3	CE conformity	20
5.4	Declaration of conformity	21
5.5	Warranty conditions	22

1 Introduction

In this chapter, we will provide an overview of the new dLAN technology and introduce the dLAN 200 AVdesk briefly.

1.1 What exactly is dLAN?

There is now a new alternative to the well-known wired LAN and Wireless LAN network technologies currently used in home and office networking: **dLAN** (**d**irect **L**ocal **A**rea **N**etwork, i.e. directly networked). dLAN is home and office networking using the electric wiring already installed in the building.

Cost factor and transmission quality

dLAN is an economical and easy-to-use networking technology. You don't need to lay cables and you can connect to the home network at every power point.

The dLAN standard modulates and demodulates additional frequencies on the power lines. Modulation and demodulation is a well-known and proven method of data transmission, which has been in use in other applications for a number of years. Now it is used to set up Internet and network accesses in the home or office. Depending on the damping factor, distances of at least 200 meters can be covered.

With a maximum data rate of 200 Mbps and symmetrical upload and download speeds, dLAN is comparable to traditional Ethernet network solutions and the current WIFI™ wireless standard for home applications.

Data security and radiation

128-bit AES encryption is used, which guarantees secure data transfer within the network.

dLAN devices from devolo meet the stringent EU industrial standards and comply with the current standards for electromagnetic radiation.

1.2

What does the dLAN 200 AVdesk have to offer?

Powerful and flexible

For the first time, the dLAN 200 AVdesk offers a transfer rate of 200 Mbps which makes it ideal for high requirements, such as HDTV streaming, Internet telephony and fast Internet. When connected to an electrical outlet, it changes the home-based electrical system in no time into a fast network with high data throughput. And all of that with optimum transfer and maximum data security using the powerful 128-bit AES encryption. Whether in the office or at home – devices such as modem, router, set-top box or the computer can be connected with the dLAN 200 AVdesk using the available Ethernet interface. On top of that, the range of 200 meters creates a high degree of flexibility.

You can find examples of possible networks in the chapter 'All about the network'.



Simple installation

- Connect the dLAN 200 AVdesk to the mains power via the supplied power cable.
- Connect the dLAN 200 AVdesk to the computer or to another network device via the supplied Ethernet cable.
- Install the devolo dLAN 200 AV software.
- That's it!

Ethernet connection

The dLAN 200 AVdesk has an Ethernet port for connecting to a device in the network (e.g. computer, notebook, modem, router, switch, set-top box etc.).

Status display

The control lamps (LEDs) of your dLAN 200 AVdesk display the connection status, and provide status regarding the function of the data transmission. The dLAN 200 AVdesk features 5 status lights.

2 Connection and startup

This chapter covers the connectors and display elements of your dLAN 200 AVdesk and explains how to connect the device.

2.1 System requirements

- **Operating systems:** Windows 98, Windows Me, Windows 2000, Windows XP, Linux, Mac OS X and any other operating system with network support
- **Ethernet connection**



Please note that your computer or other device must feature a network adapter with an Ethernet port.



To set up a dLAN 200 AV network, you need two dLAN 200 AV devices.

2.2 Connection and display elements

The dLAN 200 AVdesk features 5 control LEDs as well as an Ethernet and a power connection:



Power	Is lit when the dLAN 200 AVdesk is ready for operation, flashes if the dLAN 200 AVdesk is in standby mode.
dLAN Link/Act	Is lit if connected to the dLAN 200 AV network, flashes when data are being sent or received over the power lines.
ETH 100/Act	Is lit whenever an Ethernet connection of 100 Mbps exists; flashes when data are being sent or received.

ETH 10/Act	Is lit whenever an Ethernet connection of 10 Mbps exists; flashes when data are being sent or received.
Col	Flashes at a faster rate if the network is experiencing increasing use.



ETH	This is the connection point on the dLAN 200 AVdesk for connecting it to a computer or another device with the network cable (included).
AC	Here you connect the dLAN 200 AVdesk to the power supply using the supplied power cable.



Make sure that all of the dLAN 200 AV devices that you want to add to your network are also connected to the power supply grid. After about 20 minutes, a dLAN 200 AVdesk switches into stand-by mode unless there is an active device (e. g. computer) connected to the Ethernet interface. dLAN 200 AV devices in stand-by mode are not accessible over the power supply grid. As soon as device (e.g. computer) connected to the Ethernet interface is switched on again, your dLAN 200 AVdesk can also be reached again via the electric supply.

2.3

Connecting the dLAN 200 AVdesk

In this section, we will show you how to connect the dLAN 200 AVdesk to a computer.

- ① Use the included power cable to connect the dLAN 200 AVdesk to a power outlet.
- ② With the computer running use the included network cable to connect the dLAN 200 AVdesk to an Ethernet port of the computer.
- ③ Continue with the installation of the devolo dLAN 200 AV software. For more information, refer to the chapter on 'devolo dLAN 200 AV software'.



No drivers are required for running the dLAN 200 AVdesk.

3 devolo dLAN 200 AV software

This chapter introduces you to the dLAN 200 AV configuration wizard, Informer, EasyShare and EasyClean devolo tools and describes how to install them.

3.1 Overview of the devolo software

3.1.1 devolo dLAN 200 AV configuration wizard

The dLAN 200 AV configuration wizard helps you to build and change your encrypted dLAN 200 AV network. With its help, you can add your dLAN 200 AV device to your network. For the encryption process, you need a network password of your choosing, which you will assign. The password set up initially by devolo is **HomePlugAV** (case-sensitive).



You will find the software and notes about the installation of the dLAN 200 AV configuration wizard for Linux and Mac on the supplied devolo product CD under 'Software/Linux' or 'Software/Mac'.

3.1.2 devolo Informer

The Informer displays information about all dLAN 200 AV devices in your network, such as their MAC addresses for dLAN and current transfer speeds.



The MAC address (Media Access Control) is a serial number and unique. It is programmed into the hardware and cannot be changed. The MAC address for dLAN can be found on the underside of the dLAN 200 AV device.

3.1.3 devolo EasyShare

EasyShare is a file-sharing and chat tool for your local network. It allows you to exchange files easily between local Windows computers. The chat function allows instant communication between all network users.

3.1.4 devolo EasyClean

Microsoft Internet Explorer stores files in a cache on your hard drive while you surf the Internet. With EasyClean, you can determine which of these unwanted files you would like to delete.

3.2 Installing the devolo dLAN 200 AV software

- ① Put the enclosed devolo product CD in your CD-ROM drive.
- ② From the CD setup, select 'Install dLAN 200 AV'. Windows starts the wizard. Confirm by clicking **Next**.
- ③ Select 'Standard Installation' to install the complete devolo dLAN software package. Then, click **Next**.



*If you would like to choose the software components to be installed yourself, select 'Custom Installation'. Then, click **Next**.*

- ④ Terminate the installation by clicking **Finish**.



Windows may prompt you to reboot your computer after the installation has been completed.

- ⑤ After the installation has been completed successfully, start the devolo tools by clicking **Start ► Programs ► devolo ► dLAN 200 AV configuration wizard, EasyClean, EasyShare or Informer**.

3.2.1 Configuration of the dLAN 200 AV network using the devolo dLAN 200 AV configuration wizard

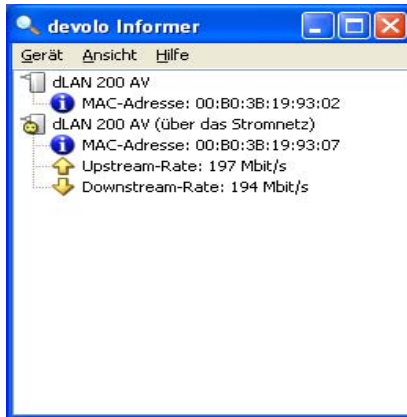
- ① Start the dLAN 200 AV configuration wizard under **Start ► Programs ► devolo ► dLAN 200 AV configuration wizard**.
- ② Now the dLAN 200 AV configuration wizard will guide you through the configuration process.



*The password set up initially by devolo is **HomePlugAV** (case-sensitive).*

3.3 Overview in the dLAN 200 AV network with the devolo Informer

Due to the Informer you always have an overview of all dLAN 200 AV devices in your dLAN 200 AV network. The Informer shows the dLAN 200 AVdesk connected directly to the computer as well as all dLAN 200 AV devices that are included into the same dLAN 200 AV network.



The Informer displays information about all dLAN 200 AV devices in your network, such as their MAC addresses for dLAN and current transfer speeds. Via **Device ► Rename** you can change the name of the selected device.

Right-clicking on one of the dLAN 200 AV devices opens a context menu in which the following commands are available:

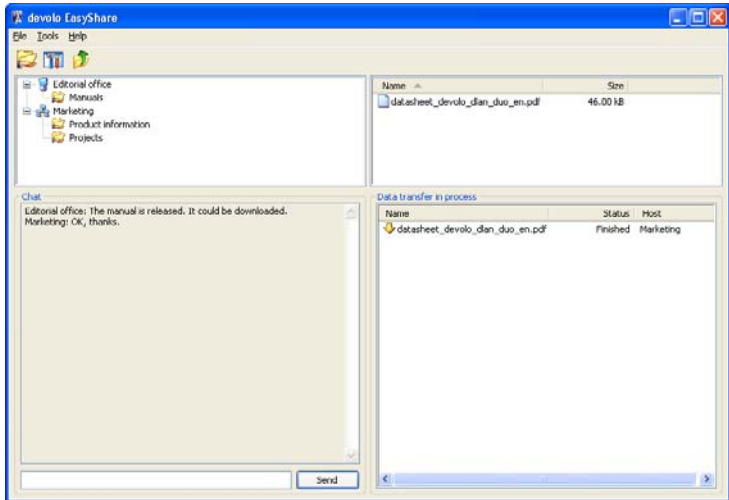
- 'Rename' opens a dialog in which you can assign a new name to the device.
- 'Start dLAN 200 AV configuration wizard' opens a dialog in which you can add new dLAN 200 AV devices to the dLAN 200 AV network and assign the network password.



Informer displays only those dLAN 200 AV devices which are connected to the power supply and added to your dLAN 200 AV network. After about 20 minutes, a dLAN 200 AVdesk switches into stand-by mode unless there is an active device (e. g. computer) connected to the Ethernet interface. dLAN 200 AV devices in stand-by mode are not shown in Informer. As soon as the device (e. g. computer) that is connected to the Ethernet interface is switched on again, your dLAN 200 AVdesk can be accessed again via the power supply grid and is displayed in the Informer.

3.4 Communication in the network using devolo EasyShare

All users on the local network who have started EasyShare are automatically recognized by the program and listed:



3.4.1 Configuration

The EasyShare software provides two easy wizards, which will guide you quickly and easily through the configuration process: the first setup wizard, which starts automatically the first time the program is started, and the sharing wizard, which allows you to add shared items at any time. The individual functions of the EasyShare software are described here:

Folder sharing

To share data with others, a EasyShare network user has to make the data available in a shared folder. When a folder is shared, all of its files as well as the files of all its subdirectories become available to all users on the EasyShare network. Folders can be shared either by using the initial setup wizard, which opens automatically the first time the EasyShare is started, or by using the sharing wizard. You can open the sharing wizard by clicking the **Add share** button, or by selecting **File ► Add share** from the menu.



Options

Every computer has a name. When EasyShare is first installed, you can assign a new name to your computer or use the default name suggested by the operating system. Your computer is visible by this name to all EasyShare users.



The computer name can be changed at any time by clicking the **Options** button or by selecting **Tools ► Options** from the menu.

Refreshing shared folders

To view (newly) shared folders of other EasyShare network users, select **File ► Refresh** from the menu, or **Refresh** from the context menu (right mouse button). The contents of all shared folders will appear in the top right-hand window.

Downloading files

To download shared files from other EasyShare network users, select the computer belonging to the user and then mark the shared folder for that user. The upper-right window then lists all the contents of the folder. From the list, mark the files and/or folders that you want to download and then select **File ► Download** from the menu, or **Download** from the context menu (right mouse button). Choose a target folder on your computer and confirm by clicking **OK**. The files are now downloaded to your computer. The status of the download is displayed in the lower-right window entitled 'Data transfer in process'.

Data transfer in process

All 'Data transfer in process' are displayed in the lower right window and disappear from the screen once they are finished.

- The 'Name' column indicates the name of the file being downloaded.
- The 'Status' column shows the current transfer progress and the transfer speed.
- The 'Host' column shows the computer from which the file is being downloaded, or to which it is being uploaded from your computer.

You can cancel the current download by clicking the file and selecting **Cancel** from the context menu (right mouse button).

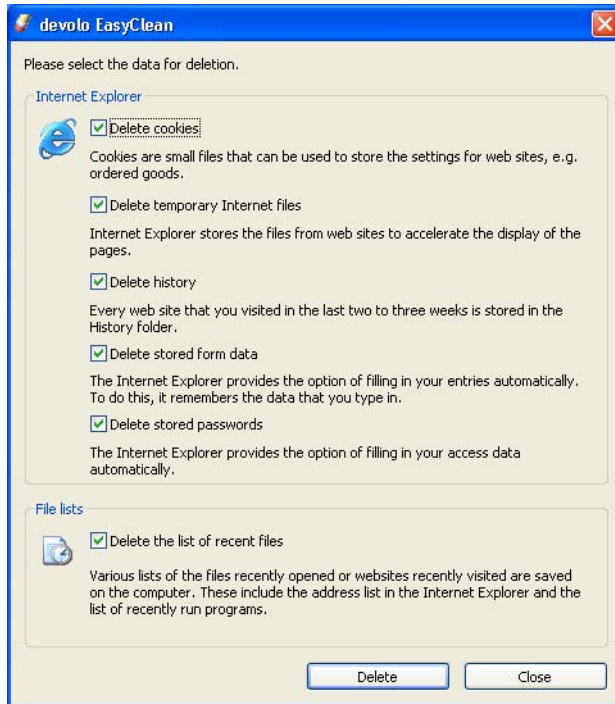
Chatting

The lower left window functions as a chat room, which is visible and accessible to all EasyShare users on the local network. Users can "chat" by writing messages and clicking **Send**.

3.5

Maintain your privacy with devolo EasyClean

With EasyClean, you can delete the cached files listed below. Select the checkboxes of the file types you would like to remove, then click **Delete**.



- **Cookies**—Many websites store small files on your computer, so-called cookies. These files may contain personal information such as log-in data, passwords or credit card numbers.
- **Temporary Internet files**—Temporary files are stored on your hard drive while you surf the Net. Over time, these files take up a considerable amount of space.

- **History files**—Internet Explorer records your surfing activity over a period of days or weeks. This can be practical, but it also takes up space and can be undesirable in many cases.
- **Stored form information**—Internet Explorer stores information that you enter in forms and can auto-complete this information in the future.
- **Stored passwords**—Passwords can also be stored and automatically inserted together with usernames in subsequent log-in procedures. While this is convenient, it's also dangerous—especially in connection with bank transactions. Sensitive information such as this should only be stored locally in special programs designed for this purpose.
- **Document history**—Internet Explorer maintains lists of open documents and visited websites. This information is generally no longer needed.



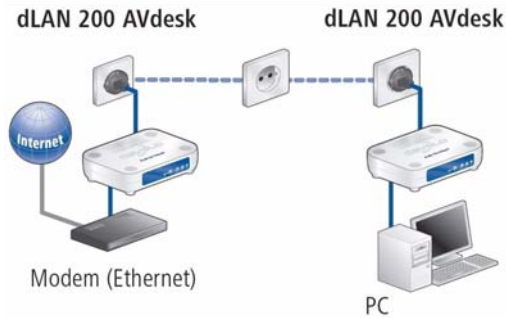
Please note that EasyClean only supports Microsoft Internet Explorer.

4 All about the network

This chapter contains examples for possible network designs in home or in office.

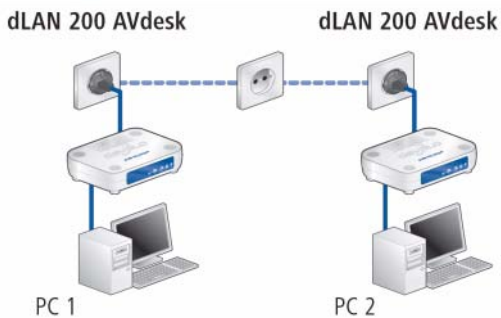
4.1 Internet standalone solution—Option 1

Workstation with Internet connection over a DSL modem



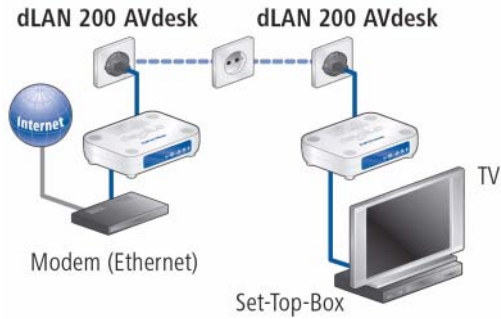
4.2 Networking—Option 2

Connection of two workstations



4.3 Networking—Option 3

Connection of a high-speed IP-TV application to the Internet via a DSL modem



4.4 Networking—Option 4

Connection of an IP telephone and a high-speed IP-TV application to the Internet via a DSL modem



For more answers to frequently asked questions (FAQs), please visit our website at www.devolo.com.

5 Appendix

5.1 Technical data

This table has detailed information for those interested.

	dLAN 200 AVdesk
Standards	Ethernet specification IEEE 802.3, IEEE 802.3x, IEEE 802.3u Auto MDI/X HomePlug AV
Protocols	TDMA, CSMA/CA
Transfer rate	200 Mbps
Transfer procedure	Asynchronous
Modulation	OFDM—1155 carrier, 1024/256/64-QAM, QPSK, BPSK
Data stream	Ethernet <-> power supply
Range	at least 200 m via power supply
Security	128-Bit-AES encryption via power supply
LEDs	Power dLAN Link/Act Ethernet 100/Act Ethernet 10/Act Ethernet Collision
dLAN connection	Standard power plug
Computer interface	RJ45
Power consumption	5.5 VA (max.)
Power supply	100 – 240 V AC, 50/60 Hz
Environment	Humidity (non-condensing): 10-90%
System requirements	Ethernet interface
Operating systems	Windows 98, Windows Me, Windows 2000, Windows XP, Linux, Mac OS X or any other operating system with network support
CE conformity	CE-compliant in accordance with the technical requirements of R&TTE for all EU countries and Switzerland
Design	Plastic housing 153 x 105 x 35 mm (height x width x depth)
Warranty	3 years

5.2 Important safety instructions

All safety and operating instructions should be read and understood before using the device, and should be kept for future reference.

- Never open the dLAN 200 AVdesk. There are no user-serviceable parts inside the dLAN 200 AVdesk.



Do not try to service this product yourself! Contact qualified technicians each and every time your device needs maintenance. There is a risk of electric shock!

- Use the dLAN 200 AVdesk in a dry location only.
- Do not insert any objects into the openings of the dLAN 200 AVdesk.
- To disconnect the dLAN 200 AVdesk from the power supply grid, pull the power plug.
- Do not keep the dLAN 200 AVdesk in direct sunlight.
- Slots and openings on the case serve as ventilation. Never block or cover them.
- Never set up the dLAN 200 AVdesk near a heater or radiator.
- The dLAN 200 AVdesk should be located only where sufficient ventilation according to the instructions of the manufacturer can be ensured.
- Disconnect the dLAN 200 AVdesk from the power supply grid before cleaning. Use a moist towel to clean the device. Never use water, paint thinner, benzene, alcohol or other strong cleaning agents when cleaning the device, as these could damage the case.
- Never use the dLAN 200 AVdesk with a power supply that does not meet the specifications provided on the rating plate. If you do not know what type of power supply you have at home, contact your dealer or energy supplier.
- In the event of damage, disconnect the dLAN 200 AVdesk from the power supply grid and contact customer service. This applies, for example, if
 - the power cable or plug is damaged.
 - liquid has been spilled on the dLAN 200 AVdesk or objects have fallen into the device.
 - the dLAN 200 AVdesk has been exposed to rain or water.
 - the dLAN 200 AVdesk does not work, even though the operating instructions have been followed properly.
 - the dLAN 200 AVdesk's case is damaged.

5.3

CE conformity



This product complies with the technical requirements of the 1999/5/EC Directive (R&TTE) and the other relevant provisions of the FTEG, and it is designed for use in the EU and Switzerland.

The product is class A equipment. This equipment may cause interference with radio waves in home use; if this occurs the operator may be required to take corrective action.

5.4 Declaration of conformity



KONFORMITÄTSERKLÄRUNG

DECLARATION OF CONFORMITY

Hersteller: **devolo AG**
Manufacturer: **Sonnenweg 11**
52070 Aachen

Produkt: **devolo dLAN[®]200 AVdesk**
Product:

Typnummer: **MT2091**
Type number:

Verwendungszweck: **PLC zu Ethernet**
Intended purpose: **PLC to Ethernet**

Richtlinie: **EMV 89/336/EWG**
Directive: **EMC 89/336/EEC**

Das Produkt entspricht den grundlegenden Anforderungen und Bestimmungen der folgenden Normen und Methoden:
The product complies with the essential requirements and provisions of following standards and methods:

Sicherheitsanforderungen: **EN 60950-1:2001**
Safety requirements:

Immunitätsanforderungen: **EN 50412-2-1:2005**
Immunity requirements:

Emissionsanforderungen: **EN 55022:1998+A1:2000+A2:2003 (class A)**
Emission requirements: **und Expert Opinion vom Competent Body EMC**
and Expert Opinion by Competent Body EMC

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

Aachen, 21. Juli 2006
Aachen, 21st July 2006

Heiko Harbers
Vorstandsvorsitzender
CEO

5.5 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.