

# dLAN® pro 1200+ triple



*devolo*

---

devolo dLAN® pro 1200+ triple

---

---

© 2017 devolo AG Aachen (Germany)

While the information in this manual has been compiled with great care, it may not be deemed an assurance of product characteristics. devolo shall be liable only to the degree specified in the terms of sale and delivery.

The reproduction and distribution of the documentation and software supplied with this product and the use of its contents is subject to written authorization from devolo. We reserve the right to make any alterations that arise as the result of technical development.

#### Trademarks

Linux® is a registered trademark of Linus Torvalds.

Ubuntu® is a registered trademark of Canonical Ltd.

Mac® and Mac OS X® are registered trademarks of Apple Computer, Inc.

Windows® and Microsoft® are registered trademarks of Microsoft, Corp.

devolo, dLAN®, Vianect® and the devolo logo are registered trademarks of devolo AG.

All other names mentioned may be trademarks or registered trademarks of their respective owners. Subject to change without notice. No liability for technical errors or omissions.

#### devolo AG

Charlottenburger Allee 60

52068 Aachen

Germany

[www.devolo.com](http://www.devolo.com)

Aachen, May 2017

# Contents

1	Preface	5
1.1	About this manual	5
1.1.1	Intended use	6
1.1.2	CE conformity	6
1.1.3	Safety notes	6
1.2	devolo on the Internet	7
2	devolo dLAN pro	8
2.1	devolo—Up to speed on green IT	9
2.2	The dLAN pro 1200+ triple	10
2.3	All about the network	11
2.3.1	Internet standalone solution	11
2.3.2	dLAN Peer-to-Peer	12
2.3.3	dLAN MDU	13
3	Installation	14
3.1	Package contents	14
3.2	System requirements	14
3.3	Functions	15
3.3.1	Monitoring light	15
3.3.2	Network connection	15
3.3.3	Encryption button	15
3.3.4	Integrated electrical socket	16
3.3.5	Standby mode	16
3.4	Connecting the dLAN pro 1200+ triple	16
3.5	dLAN AVpro manager	17
3.5.1	Software for Windows	18
3.5.2	Software for Linux	18

## Contents

4	dLAN pro network .....	19
4.1	Security in the dLAN .....	19
4.2	dLAN pro network encryption at the touch of a button .....	19
5	Appendix .....	22
5.1	Bandwidth optimization .....	22
5.2	Disposal of old devices .....	22
5.3	Warranty conditions .....	23

# 1 Preface

*Thank you for placing your trust in this product.*

*devolo dLAN business solutions are a favourably priced option for using the power grid infrastructure in a building to establish a broadband IP network. The advantage this brings is obvious: no new cables have to be laid – expenditure and costs remain low. dLAN can be used as an easily scalable, primary network as well as to supplement an existing infrastructure.*

*The dLAN pro 1200+ triple allows you to set up your own home network with almost no effort. Because the clever dLAN technology transmits the data over the electrical wiring, you do not have to lay any new cables.*

## 1.1 About this manual

Carefully read all instructions before setting up the device and store the manual and/or installation guide for later reference.

After a brief introduction to "dLAN" and "Green IT" basics and a presentation of the dLAN pro 1200+ triple in **Chapter 2**, **Chapter 3** will cover successfully setting up your dLAN pro 1200+ triple. **Chapter 4** explains how to configure your dLAN pro network. Tips for

bandwidth optimization, information of environmental compatibility of the device and our warranty conditions can be found in **Chapter 5** and conclude the manual.

You can find the technical data for the dLAN pro 1200+ triple in the product information sheet on the enclosed product CD.

### Description of the symbols

Here we briefly describe the meaning of the symbols used in this manual, on the label and/or packaging.



**Very important note. Failure to observe this note may result in damage.**



**Important note that should be observed.**



Additional information, background material and configuration tips for your device.



**The device is designed for indoor use only.**



With the CE marking the manufacturer declares that the product complies with all valid European directives and that it has been the subject of the applicable conformity assessment procedures.



The WEEE Directive 2012/19/EU is used to prevent the occurrence of waste electrical and electronic equipment and to reduce this type of waste through reuse, recycling and other forms of utilisation. It establishes minimum standards for handling waste electrical and electronic equipment in the EU.

### 1.1.1 Intended use

Use the device as described in these instructions to prevent damage and injuries.

### 1.1.2 CE conformity

This product complies with the technical requirements of the EMC directive 2014/30/EC and the other relevant provisions of the FTEG.



***This product is designed for use in the EU, Switzerland and Norway.***

The product is class B equipment.

You can find the CE declaration of this product under [www.devolo.com](http://www.devolo.com).

### 1.1.3 Safety notes

It is essential to have read and understood all safety and operating instructions before the devolo device is used for the first time; keep them safe for future reference.



#### DANGER due to electricity

Users should never **open** devolo devices. **Opening the device poses a risk of electric shock!**

Users do not need to carry out any maintenance on devolo devices. In the event of damage, disconnect the devolo device from the mains supply by pulling it or its plug out of the power outlet. Then contact qualified specialist personnel (after-sales service) exclusively.

**Damage** is deemed to have occurred, for example,

- if the power plug is damaged
- if the devolo device has been showered with liquid (e.g. rain or water).
- if the devolo device is inoperable.
- if the housing of the devolo device is damaged.

devolo devices may only be operated using a **mains power supply**, as described on the **nameplate**.



### DANGER due to electricity

devolo devices must be connected to an electrical power outlet with a protective ground.

To disconnect devolo devices from the mains supply, pull the device itself or its mains plug from the power outlet. **The power outlet and all connected network devices should be easily accessible so that you can pull the mains plug quickly if needed.**



devolo devices are designed for indoor use only.

Only use devolo devices at a dry location.

**Disconnect devolo devices from the mains supply to clean!** Avoid solvent cleaning agents since they can cause damage to the housing. Only use a dry towel for cleaning.



### DANGER due to overheating

Multiple devolo devices must not **be interlocked**.

devolo devices should only be installed at locations that guarantee adequate ventilation. Slots and openings on the housing are used for ventilation:

- Do not **cover** devolo devices when operating.
- Do not place **any objects on** devolo devices.
- Do not insert **any objects** into the **openings** of devolo devices.
- devolo devices must **not** be placed directly **next to** an open **flame** (such as fire or candles). devolo devices must **not be exposed to direct heat radiation** (e.g. radiator, direct sunlight).

## 1.2 devolo on the Internet

For detailed information on our products, visit [www.devolo.com/en/business-solutions](http://www.devolo.com/en/business-solutions).

The devolo business area not only contains product descriptions and documentation, but also updates of devolo software and your device's firmware. We especially recommend the descriptions of the "dLAN pro network," which are arranged according to **Application**, **Sectors** and **Integration**, where you can find lots of interesting background information.

If you have any further ideas or suggestions related to our products, please don't hesitate to contact us at [support@devolo.com!](mailto:support@devolo.com)

## 2 devolo dLAN pro

**devolo dLAN business solutions** are a favourably priced option to establish a broadband IP network in a

building—using the power grid or according to the dLAN pro product also coax lines or two-wire lines.

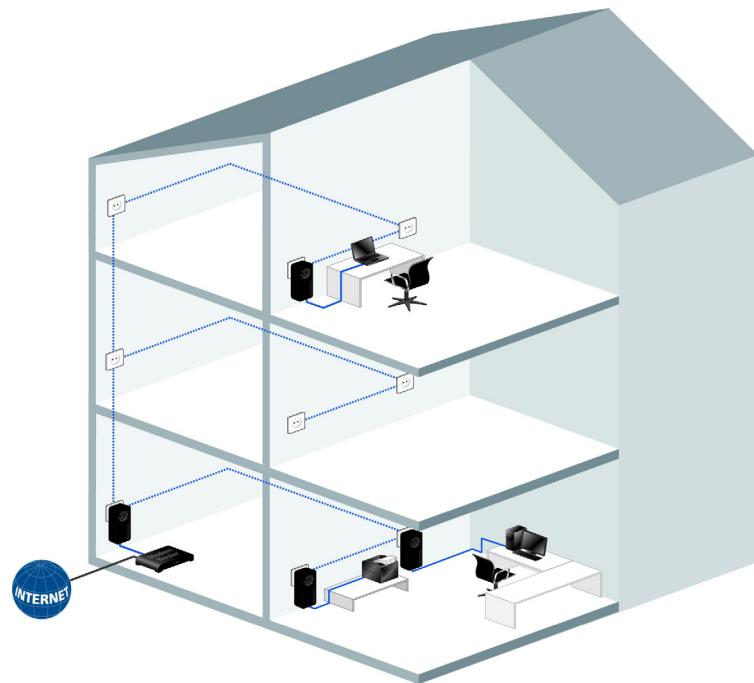


Fig. 1

Positioning anywhere in a building is possible due to the flexibility of dLAN pro networking over an existing power line: even areas without a network connection are perfectly integrated this way. dLAN can be used as an easily scalable, primary network as well as to supplement an existing infrastructure. The advantage this brings is obvious: no new cables have to be laid—expenditure and costs remain low.



***The energy-saving mode is disabled for the dLAN pro 1200+ triple in the factory defaults.***

***If you would like to ensure that a dLAN device switches to energy-saving mode, this function can be activated in the dLAN AVpro manager software.***

## 2.1 devolo—Up to speed on green IT

Developers at devolo, have for a long time kept a close eye on how much power dLAN devices may consume. After all, a devolo network via electrical sockets should not only be convenient, but also require as little energy as possible—particularly during times when it is not being used.

That devolo can satisfy the demand for energy efficiency is evidenced by the patented **energy-saving mode** in the devices. **It automatically reduces the energy consumption** when the computers in the dLAN pro network or connected equipment are switched off.

The energy-saving mode in the devices is not only a tribute to **environmental protection** but also a real service to the customer. Most people tend to forget to regularly press the standby button on the hardware.

**The patented technology in devolo devices allows you to save energy without having to do anything.** And if less energy is consumed, your electric meter will turn more slowly. In other words, every minute the device is in power saving mode, you will save money.



**A dLAN device connected to a computer can only go into energy saving mode if the network card of the switched-off computer is also inactive. If you are using a network card that remains active even when the computer is switched off, we recommend connecting the computer to an on/off switch using a multiple socket so that both the computer and the integrated network card are de-energised.**

ment at the highest level. The **range+ technology** provides an even more stable Internet connection with significantly longer range.

- 3 Gigabit Ethernet ports
- Optimal dLAN security with a 128-bit AES key
- Supports Quality of Service (QoS) for automatic data prioritisation
- Long range of up to 400 meters with a connection over the power line
- Patented energy-saving technology for cost-efficient operation
- The dLAN pro 1200+ triple is provided with the **dLAN AVpro manager** configuration tool, which enables reliable, fast and convenient integration of the dLAN pro 1200+ triple into dLAN pro networks with different architecture ('Peer-to-Peer' or 'MDU').

## 2.2 The dLAN pro 1200+ triple

- Developed for professional use in small networks with high demands on reliability and performance
- dLAN technology from the world's market leader, developed for professional use
- Professional remote management using the devolo AVpro manager software with comprehensive configuration options
- Reliable security in public areas: PowerSave functions, LED status display and encryption button can be switched off by remote management
- The **fast transfer rate** and dLAN speeds up to **1200 Mbps** allow you to experience entertain-

## 2.3 All about the network

### 2.3.1 Internet standalone solution

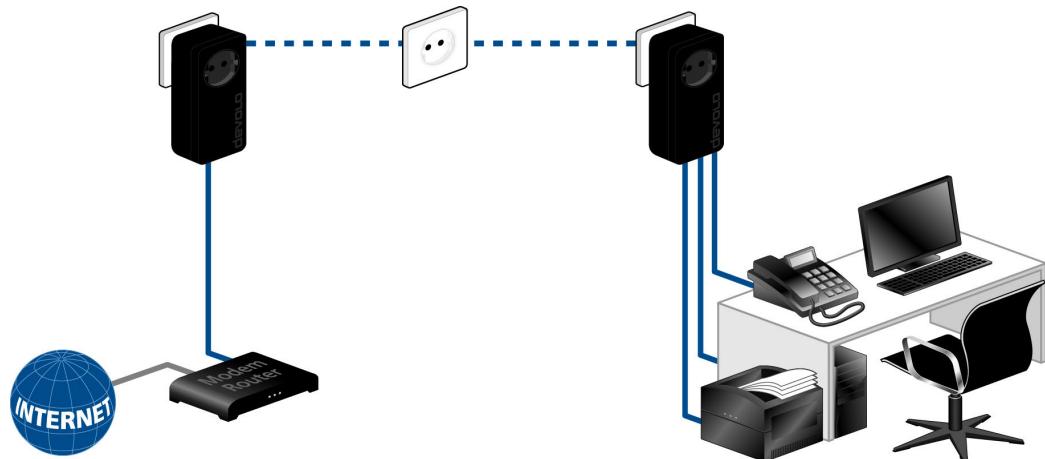


Fig. 2

### 2.3.2 dLAN Peer-to-Peer

If the network is configured as a 'Peer-to-Peer' network ('P2P'), all dLAN pro devices within it are equal to each other. The connected network nodes can communicate with one another freely and directly. The dLAN pro device which is most easily accessible from all dLAN pro

devices in the network is automatically designated by these as the Central Coordinator ('CCo') and from then on coordinates the communication between the nodes. By default, dLAN pro devices are configured as a Peer-to-Peer network.

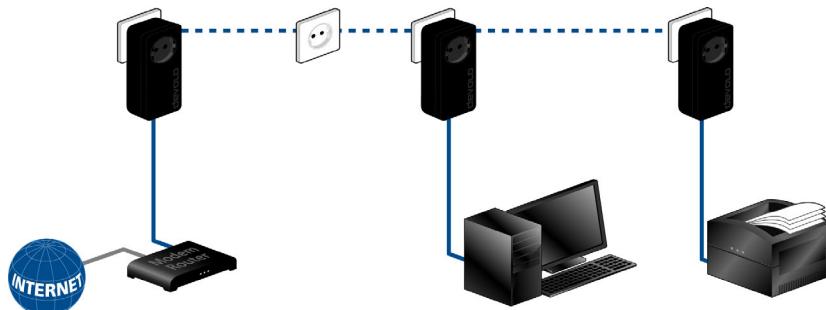


Fig. 3

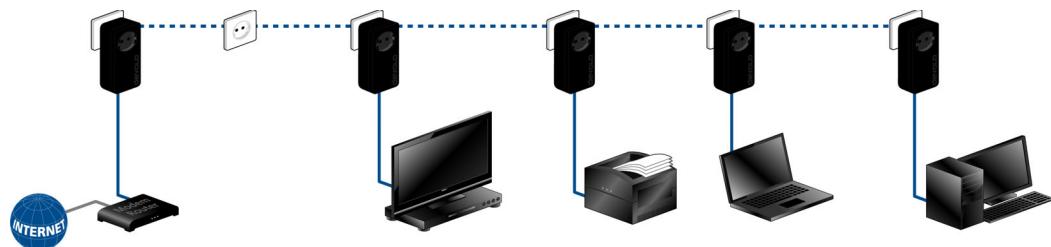
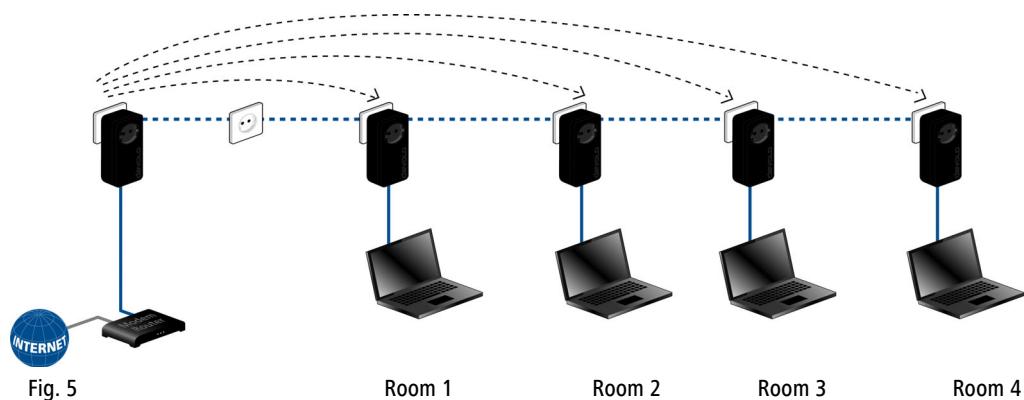


Fig. 4

### 2.3.3 dLAN MDU

If the network is configured as an 'MDU' network (MDU: 'Multiple Dwelling Unit'), the connected network nodes are linked as 'slaves' to a 'master' and form a logical dLAN pro network segment along with their 'master'. Each slave sends data only to its master. At the technical level, communication between the

slaves of the MDU dLANs is not possible. The masters of the MDU dLANs are interconnected via Ethernet switches. Thus MDU dLANs are ideally suited for floor-by-floor networking (such as in hotels). MDU dLANs can be configured only in the expert mode of the **dLAN AVpro manager**.



## 3 Installation

This chapter covers everything you need to know to set up your dLAN pro 1200+ triple. It will explain connecting the dLAN pro 1200+ triple and its functions. We will also briefly introduce the devolo software.



Fig. 6 is country-specific

### 3.1 Package contents

Please ensure that the delivery is complete before beginning with the installation of your dLAN pro 1200+ triple:

- **Single Kit:**

- dLAN pro 1200+ triple
- Network cable
- Hard copy of installation guide
- Hard copy of declaration of conformity

or

- **Starter Kit:**

- dLAN pro 1200+ triple
- dLAN pro 1200+
- Two network cables
- Hard copy of installation guide
- Hard copy of declaration of conformity

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

### 3.2 System requirements

- **Operating systems:** Windows 7 Professional SP1 (x86/x64), Windows 8.1 Pro (x86/x64), Windows 10 (x86/x64), Ubuntu 12.04 LTS „Pre-

cise Pangolin" (x86/x64), Ubuntu 13.04 „Raring Ringtail" (x86/x64), Ubuntu 14.04, OpenSuse 12.3 (x86/x64)

- **Network connection**

**i** Please note that your computer or other device must feature a network device with a network port.

To set up a dLAN pro network, you need two dLAN pro devices 200 Mbps, 500 Mbps and 1200 Mbps.

### 3.3 Functions

The dLAN pro 1200+ triple has a monitoring light (LED), three network jacks and an encryption button.

#### 3.3.1 Monitoring light

The monitoring light (LED) shows all of the statuses for the dLAN pro 1200+ triple by illuminating and/or flashing in different ways:

- The LED **flashes quickly in red** at uniform intervals if the dLAN pro 1200+ triple is connected to the **mains supply** but there is **no dLAN connection**.

- The LED **lights up in white** if the dLAN pro 1200+ triple is **ready to operate** and there is a **dLAN connection**.
- The LED **flashes quickly in white** at uniform intervals if the encryption process (**pairing**) is being performed in the dLAN pro network.
- The LED **flashes in white** at **irregular** intervals if the dLAN pro 1200+ triple is in **energy-saving mode**.
- The LED **flashes in red** at uniform intervals if the data transmission rate of the dLAN pro 1200+ triple is not optimal. For information to improve the data transmission rate, please see the chapter **5.1 Bandwidth optimization**.



*The function of the LED status display can be deactivated in the dLAN AVpro manager software.*

#### 3.3.2 Network connection

These are the connection points on the dLAN pro 1200+ triple for connecting it to computers or other network devices with network cables.

#### 3.3.3 Encryption button

Data encryption at the touch of a button; For more information on the functions of the encryption button,

please see the chapter **4.2 dLAN pro network encryption at the touch of a button**.



*For safety reasons, you can deactivate the encryption button in the dLAN AVpro manager software.*

### 3.3.4 Integrated electrical socket

If you connect additional network devices using a multiple socket, plug this multiple socket into the electrical socket of the dLAN pro 1200+ triple. The integrated mains filter eliminates any noise of connected devices and significantly improves data transmission in the home network.

### 3.3.5 Standby mode

A dLAN pro device switches to Standby mode after a short while if no active network device such as a computer is connected to the network port. **In Standby mode, the dLAN pro device cannot be accessed via the power supply grid.** As soon as the network device (e.g. computer) connected to the network interface is switched on again, your dLAN pro device can also be reached again via the electrical wiring.

The energy-saving mode is disabled for the dLAN pro 1200+ triple in the factory defaults.

If you would like to ensure that a dLAN device switches to energy saving mode, this function can be activated in the dLAN AVpro manager software. More information concerning "energy-saving mode" can be found in the chapter **2.1 devolo—Up to speed on green IT**.

## 3.4 Connecting the dLAN pro 1200+ triple

This section describes how to connect your dLAN pro 1200+ triple to computers or other network devices.



*For the permitted voltage range for operating the device and the power consumption, refer to the label on the rear side of the device. Additional technical information is available in the download area at [www.devolo.com](http://www.devolo.com).*



*The device is designed for indoor use only.*

- ① Use network cables to connect the dLAN pro 1200+ triple to the network ports of your running computers or other network devices.



**Prevent tripping hazards when cabling.**



**DANGER due to electricity!** *The dLAN pro 1200+ triple must be connected to an electrical power outlet with a protective ground.*

② Plug the dLAN pro 1200+ triple into a free electrical outlet.



**The power outlet and all connected network devices should be easily accessible so that you can pull the mains plug quickly if needed.**

**To disconnect the device from the mains supply, pull the device itself or its mains plug from the power outlet.**



*Additional network devices that are connected via a multiple socket are connected to the mains power supply by plugging the multiple socket into the integrated electrical socket of the dLAN pro 1200+ triple.*

③ Once you have connected at least two dLAN pro devices as described above, your dLAN

pro network has been set up. To secure your dLAN pro network, continue with the configuration as described in chapter **4 dLAN network**.

**i** For detailed information about connecting other devolo dLAN devices, visit our website: [www.devolo.com](http://www.devolo.com)

### 3.5 dLAN AVpro manager

The **dLAN AVpro manager** provides advanced dLAN functions, such as:

- Management software to support the user during configuration and monitoring
- Central administration interface
- Real time monitoring of all the dLAN pro devices in the network
- Global or individual assignment of security settings for databases and devices
- MDU mode for master/slave networks and peer-to-peer networks
- VLAN configuration for subnet management

**i** For detailed descriptions and information on configuration of your dLAN pro network, please consult the devolo dLAN AVpro manager manual at [www.devolo.com/en/business-solutions](http://www.devolo.com/en/business-solutions).

### **3.5.1 Software for Windows**

The dLAN AVpro manager software is available at [www.devolo.com/en/business-solutions](http://www.devolo.com/en/business-solutions). After you have downloaded the installation file to your PC, start it by double-clicking on it.

Then you will find the link to the configuration interface as well as the installed dLAN AVpro manager in the program group Start ⇨ All Programs ⇨ devolo.

### **3.5.2 Software for Linux**

The dLAN AVpro manager software is available at [www.devolo.com/en/business-solutions](http://www.devolo.com/en/business-solutions). OpenSuse and Linux are currently supported.

## 4 dLAN pro network

### 4.1 Security in the dLAN

Before you can use the dLAN pro 1200+ triple in your dLAN pro network, first you have to connect it to other dLAN pro devices as a network. Two specific pieces of information are especially important for this:

- Shared use of a dLAN password results in a delimited dLAN network.
- Shared use of the dLAN password serves as access control to the dLAN pro network as well as the encryption, and thereby the interception protection, of the transmitted data.

The dLAN password can be specified automatically via the **encryption button** or manually using the **dLAN AVpro manager** program. Please note the following basic principle when choosing your encryption method:

- In dLAN pro networks, data encryption is as **simple as touching a button**, since **all corresponding dLAN pro devices are equipped with an encryption button**.
- For dLAN pro networks that include devices **with and without encryption buttons**, data encryp-

tion must be set up using the **dLAN AVpro manager**.

### 4.2 dLAN pro network encryption at the touch of a button

To encrypt a dLAN pro network, in which all associated devices are equipped with an encryption button, simply press the encryption button that is located on the device. Pressing this button will encrypt your dLAN pro network with a randomly generated password.



*For security reasons, you can deactivate encryption button in the dLAN AVpro manager software.*

The following section contains exact instructions of encryption on the basis of possible network scenarios:



***dLAN devices cannot be configured while in Standby mode.***

### Encrypting a new dLAN pro network with a dLAN pro 1200+ triple and an additional dLAN pro device

Once both dLAN pro devices have been successfully connected, press each encryption button for >one second within two minutes of one another.

That's it! Your dLAN pro network is now protected against unauthorised access.

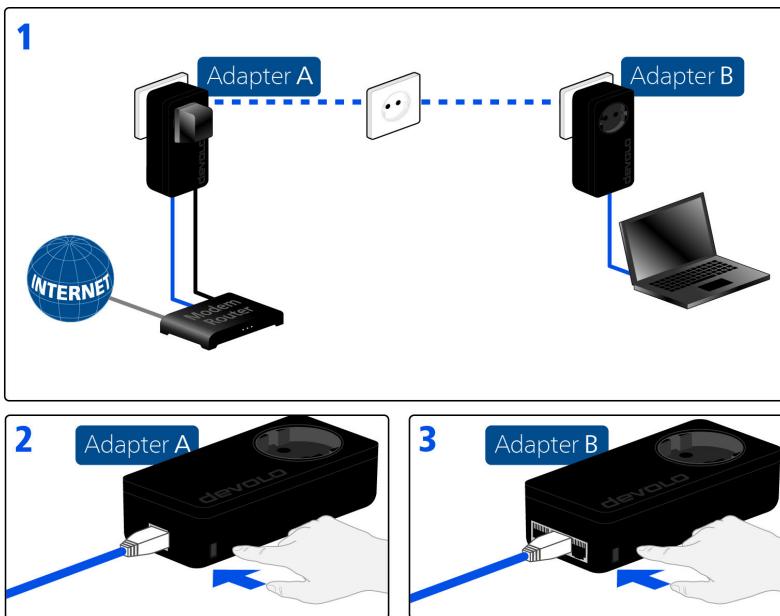


Fig. 7

## **Expanding an existing dLAN pro network by adding another dLAN pro device**

If you have already secured your existing dLAN pro network using the encryption button, use the same method to integrate further devices. Once you have successfully connected the new dLAN pro device, first press the encryption button (> one second) of one of your network's existing devices, then press the encryption button (> one second) of your new dLAN pro device within two minutes.

That's it! The new dLAN pro device is now integrated in your network. To integrate additional dLAN pro devices in your network, repeat the above steps.

## **Removing a dLAN pro device from a network**

To remove a dLAN pro 1200+ triple or another dLAN pro device from an existing network, press its encryption button for at least ten seconds. The device will be assigned a new randomly generated password and will thus no longer be able to access the network. To integrate the device into a different dLAN pro network, follow the steps described above, depending on whether you are setting up a new network or adding the device to an existing one.

## 5 Appendix

### 5.1 Bandwidth optimization

To significantly improve the transmission capacity of the network, we recommend that you comply with the following "connection rules":

- Plug the device directly into a wall socket. Avoid multiple sockets.

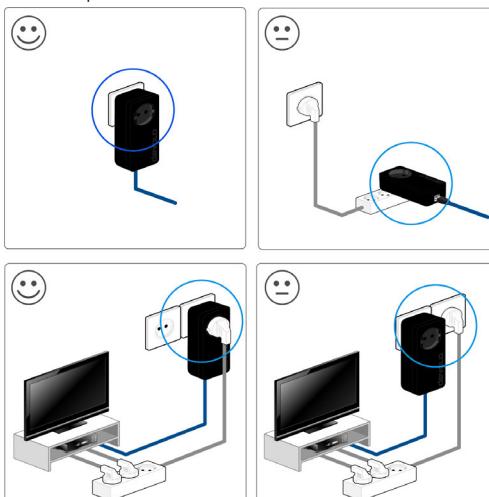


Fig. 11

- You should connect all additional network devices that are connected to a multiple socket to the mains power supply via the electrical socket integrated into the dLAN pro 1200+ triple.
- To take full advantage of the filter function of the dLAN pro 1200+ triple and to improve data transmission in the network, always plug the multiple socket into the electrical socket of the dLAN pro 1200+ triple.

### 5.2 Disposal of old devices

To be used in the countries of the European Union and other European countries with a separate collecting system:



The icon with crossed-out wastebasket on the device means that this product is an electrical or electronic device that falls within the scope of application of the European Community WEEE Directive. These types of devices may no longer be disposed of with household waste. Rather they can be given to a municipal collection point free of charge. Contact your municipal government to find out the address and hours of the nearest collection point.

## 5.3 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

The above conditions define the complete scope of devolo's legal liability.

- a) 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.
- b) Claims for compensation of lost profits, indirect or consequential detriments, are excluded.
- c) devolo is not liable for lost data or retrieval of lost data in cases of slight and ordinary negligence.
- d) 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.
- e) The warranty is valid only for the first purchaser and is not transferable.
- f) 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.
- g) The law of the Federal Republic of Germany is applicable. The UN commercial law does not apply to dealings between devolo and the purchaser.

# Index

## C

CCo 12

CE declaration 6

Central Coordinator 12

## D

Disposal of old devices 22

dLAN pro device 12

dLAN pro network 19

## E

Encryption button 15, 19

energy saving mode 9

Expert mode 13

## I

Integrated electrical socket 16

## M

Master 13

MDU 13

Monitoring light (LED) 15

Multiple Dwelling Unit 13

## N

Network connections 15

Network segment 13

## P

P2P 12

Package contents 15

Peer-to-peer 12

## S

Safety notes 6

Slave 13

## W

Warranty 23