

dLAN[®] pro 1200 DINrail



Manual

devolo

devolo dLAN[®] pro 1200 DINrail



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1 Preface

Thank you for placing your trust in this product.

devolo dLAN solutions are a favourably priced option to establish a broadband IP network in a building using the power grid.

The dLAN pro 1200 DINrail transmits data, voice and video over the power line at rates up to 1200 Mbps. Whether used in a simple home network or as a link between the power industry and telecommunications for transmission of consumption data—the dLAN pro 1200 DINrail is versatile. It can be connected to the mains supply in either a single-phase or three-phase connection.





1.1 About this manual





Having begun with the introduction to the "dLAN" topic and the functional description of the dLAN pro 1200 DINrail with corresponding networking examples in **Chapter 2**, in **Chapter 3** you will learn how to set up the dLAN pro 1200 DINrail successfully while taking into account the safety instructions. For information on configuring the dLAN network, please see **Chapter 4**. **Chapter 5** contains statements about the product's environmental compatibility as well as our warranty terms.

The technical data on the product can be found under www.devolo.com.

Description of the icons

This section contains a brief description of the icons used in this manual and/or on the rating plate, the device connector, as well as the icons used on the package:

Icon	Description
	Very important safety symbol that warns you of imminent electrical voltage which if not observed can result in serious injury or death.
	An important note that should be observed which can potentially lead to material damages.
	The installation may be performed by a qualified electrician only.
	The device may only be used indoors in dry conditions.

Icon	Description
	The manufacturer/distributing company uses the CE marking to declare that the product meets all applicable European regulations and has been subjected to the prescribed conformity assessment procedures.
	It 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.
	Additional information, background material and configuration tips for your device.
	Indicates a completed course of action

1.1.1 Intended use

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



CAUTION! Damage to the device caused by ambient conditions
Only use device indoors in dry conditions



The intended use of the dLAN pro 1200 DINrail is connecting devices in the installation area (e.g. intelligent power meter (MUC), Internet access device) to the household dLAN network for data transmission (e.g. consumption data, Internet data).

The dLAN pro 1200 DINrail is intended for installation on the top-hat rail in the installation area of overvoltage category 3 or lower.

1.1.2 CE conformity



The product conforms to the basic requirements of **directives 2014/35/EU, 2014/30/EU, 2011/65/EU** and **2009/125/EC**.

The product is intended for operation in the EU, Switzerland and Norway. The product is a Class B device.

- *A printout of the simplified CE declaration is included with the product. You can also find it online at www.devalo.com.*

1.2 devolo on the Internet

For detailed information on our products and dLAN, visit www.devalo.com. The **Powerline** area not only contains product descriptions and documentation, but also updates of devolo software and your device's firmware.

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

2 Introduction

dLAN is an intelligent, secure technology that lets you set up a home network easily, quickly and economically via your household electrical wiring, without the need for complex and expensive dedicated cabling. The available performance and effort required for the installation also compares favourably to traditional methods.

2.1 What exactly is dLAN?

dLAN (**d**irect **L**ocal **A**rea **N**etwork) uses the household power grid to transfer data between computers equipped with suitable adapters and other network components. As a result, any power outlet can be used as a network access point. The data is modulated prior to transfer and sent as a signal via household power lines. State-of-the-art technology ensures that the power and data networks do not interfere with one another. Networking via dLAN is fast and secure. The data is encrypted using a key (128-bit-AES encryption) to prevent interception by third parties.

2.2 dLAN pro 1200 DINrail

The dLAN pro 1200 DINrail combines the power industry and telecommunications and brings you one step closer to transparent cost statements for your consumption data. The energy data is transmitted from

the intelligent power meter to your computer via the household electrical wiring. With a transmission speed of up to 1200 Mbps, the dLAN pro 1200 DINrail is also ideally suited for high-speed Internet.

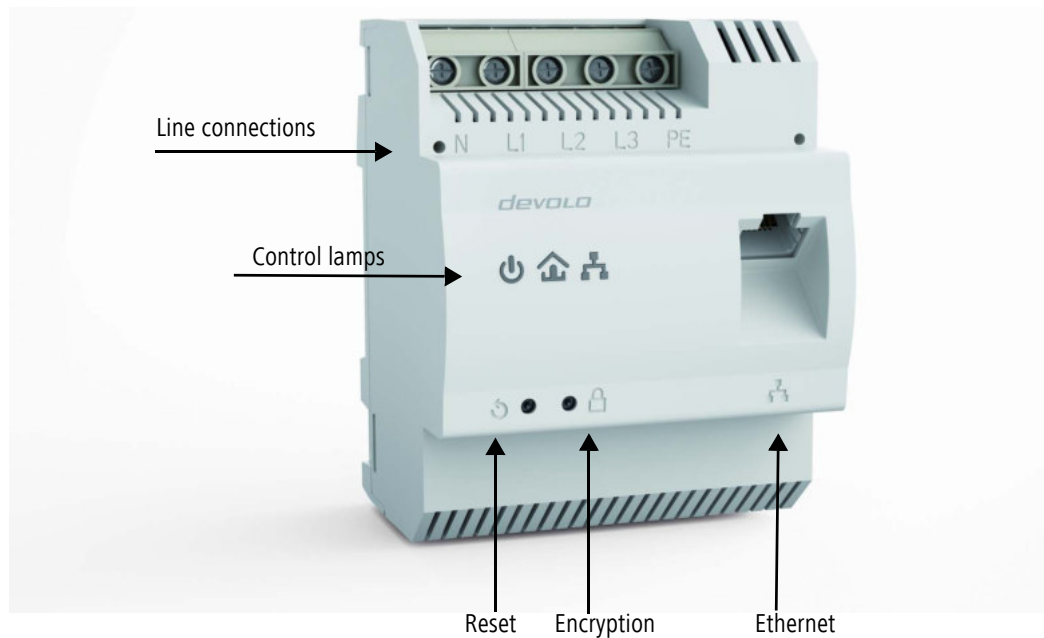


Fig. 1

2.2.1 Functions

- Direct installation in the control cabinet or power distribution box
- Optional: three-phase network connection for optimal network coverage
- Integrated Quality-of-Service functions (QoS) for automatic data prioritisation
- Quality indicator LED for determining broadband status
- Gigabit-Ethernet port with Auto MDI/X
- PE connection
- Master/slave or peer-to-peer architecture
- Segments possible with up to 63 slaves per master
- Data transmission with a range up to 400 metres in the power grid
- Powerful 128-bit AES security for securing data transmission against unauthorised access
- Further extensive configuration options (notching, output power etc.)
- VLAN configuration for subnet management
 - *Please note that some of the professional functions mentioned here can only be managed by the professional administration tool **dLAN AVpro manager**.*

2.2.2 Ports

Line connections (Fig. 1)

This is where you connect the conductors to the corresponding line connections.

NOTE:

Single-phase connection: Neutral conductors and external conductors are connected to terminals **N** and **L1**.

Three-phase connection: Neutral conductors and three external conductors are connected to terminals **N**, **L1**, **L2** and **L3**. The device is supplied with power via terminals **N** and **L1**.

PE connection: Connecting the earth wire to the PE terminal is optional.

The permitted **conductor cross-section** for connection to the terminals is **0.18 mm² to 6 mm²**.

Ethernet connection (Fig. 1)

This is where you connect the dLAN pro 1200 DINrail via an Ethernet cable to the intelligent power meter (MUC) or another Ethernet device (e.g. Internet access device).

2.2.3 Control lamps



Power (Fig. 1)

Illuminates **green** when the dLAN pro 1200 DINrail is ready to operate; flashes **green** when the dLAN pro 1200 DINrail is in standby mode.



dLAN (Fig. 1)

Illuminates **green** if the **bandwidth is optimal**, i.e. the network connection is suitable e.g. for **HD video streaming**; flashes when data is being transmitted.

Illuminates **orange** if the **bandwidth is good**, i.e. the network connection is suitable e.g. for **SD video streaming**; flashes when data is being transmitted.

Illuminates **red** if the **bandwidth is adequate**, i.e. the network connection is still suitable for **transmission of energy data** or **Internet access**; flashes when data is being transmitted.



Ethernet (Fig. 1)

Illuminates **green** if there is a connection to the Ethernet network; flashes when data is being transmitted.

2.2.4 Buttons

Encryption button (Fig. 1)

Data encryption at the touch of a button; for a functional description of the encryption button, please continue reading in chapter **4.1 dLAN network encryption at the touch of a button**.

Reset button (Fig. 1)

The device is restarted by pressing the reset button.

2.3 Sample applications

Use dLAN pro 1200 DINrail to set up a network easily, quickly and economically via the mains supply network

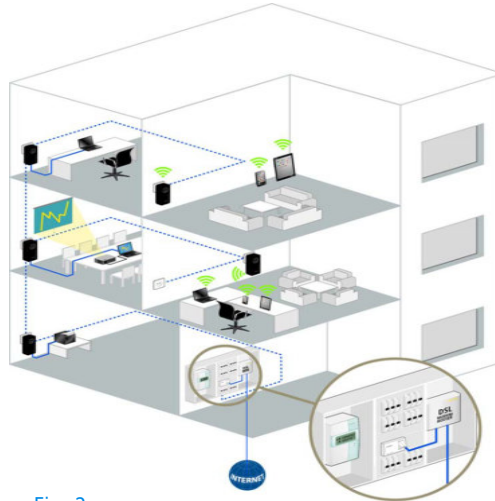


Fig. 2

dLAN pro 1200 DINrail as a link between the power industry and telecommunications for recording energy data

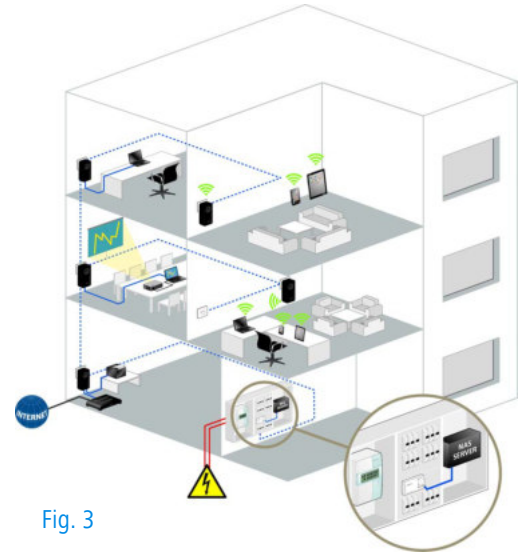


Fig. 3

3 Installation

In this chapter we describe the electrical installation of the dLAN pro 1200 DINrail on the top-hat rail in the power distribution box.

Package contents

Please ensure that the delivery is complete before beginning with the installation of your dLAN pro 1200 DINrail.

- dLAN pro 1200 DINrail
- Ethernet cable

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

System requirements

- **Operating systems:** Windows 7 (x86/x64), Windows 8.1 (86/x64), Windows 10 (x86/x64), Linux Ubuntu (x86/x64), Mac OS X) and all operating systems with network support
- **Gigabit-Ethernet connection**

3.1 Important safety instructions

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



DANGER! Shock hazard

Installations to the house wiring (230V or 400V) (*according to the German Low-Voltage Connection Ordinance—NAV § 13) are only permitted to be carried out by an installation company registered in an installation directory of the network operator.

The work must be performed by a suitably qualified electrician (according to DIN VDE 0105-100). The accepted rules of electrical engineering (pursuant to the German Energy Act § 49 and DIN VDE 0100) must be complied with. It is essential that the mains power supply (main switch/circuit breaker/switch off fuse) is disconnected and secured against being switched back on to avoid an electrical shock from the device. Use a suitable measuring instrument to verify safe isolation from the power supply before work is commenced.

*for Germany: NAV = Niederspannungsanschlussverordnung (Low-voltage Connection Ordinance) of 3 September 2010



DANGER! Shock hazard

Components powered by the mains supply have to be secured with a circuit breaker.

An easily accessible disconnecter (such as a circuit breaker) must be available for each connected external conductor.

- The device is intended for installation on the top-hat rail in the installation area of overvoltage category 3 or lower.
- Never open the device. There are no user-serviceable parts inside the device.
- Use the device in a dry location only.
- Do not insert any objects into the openings of the device.
- Slots and openings on the case serve as ventilation. Never block or cover them.
- Do not keep the device in direct sunlight.
- Never set up the device near a heater or radiator.
- The device should be located only where sufficient ventilation can be ensured.
- Never use the device with a power supply that does not meet the specifications provided on the rating plate.
- In the event of damage, contact customer service. This applies, for example, if

- liquid has been spilled on the device or objects have fallen into the device.
- the device has been exposed to rain or water.
- the device does not work, even though the operating instructions have been followed properly.
- the device's case is damaged.

3.2 Electrical installation

- ① Install the dLAN pro 1200 DINrail properly on the top-hat rail.

i *Take into account the vertical installation alignment of the device, so that the mains power supply comes from above.*

- ② Now connect the conductors according to the line connections.

i *When connecting to the sockets, make sure the conductor cross-section is 0.18 mm² to 6 mm².*

**DANGER!**

Risk of fire caused by incorrect conductor cross-section and improper installation of the power supply
Comply with the specified conductor cross-sections and ensure the power supply is correctly installed

- **Single-phase connection:** Neutral conductors and external conductors are connected to terminals **N** and **L1** (see Fig. 4).
- **Three-phase connection:** Neutral conductors and three external conductors are connected to terminals **N**, **L1**, **L2** and **L3**. The device is **supplied with power** via terminals **N** and **L1** (see Fig. 5).
- **PE connection:** Connecting the earth wire to the PE terminal is optional but it provides an even more stable network connection with significantly longer range (range+) thanks to MIMO technology.

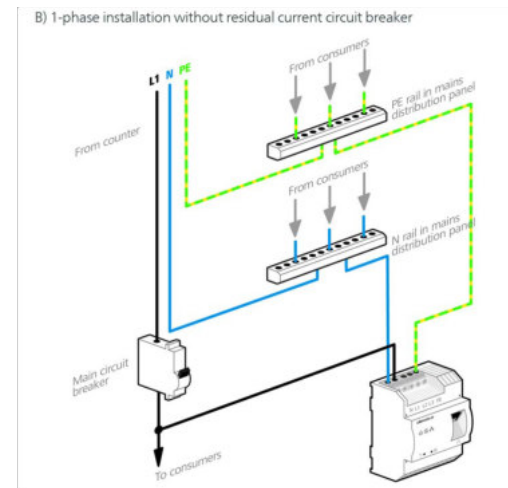
Single-phase connection without residual current circuit breaker

Fig. 4

In general, connection of the dLAN pro 1200 DINrail to one phase and to one neutral conductor is adequate, even for communicating over multiple phases. To optimise the data transmission, however, we recommend a connection with all three-phases and earth wire (PE).

Three-phase connection without residual current circuit breaker

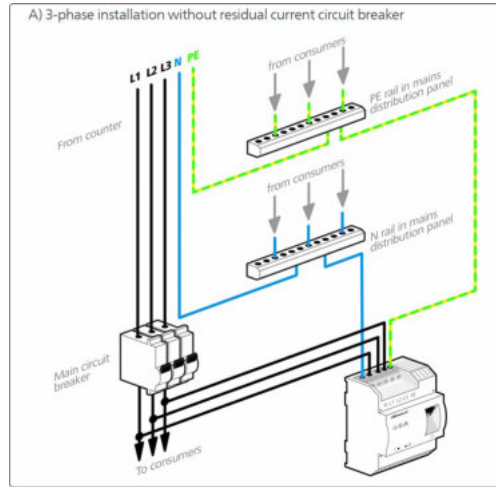


Fig. 5

- ③ After installing the protective cover, the dLAN pro 1200 DINrail can be connected via Ethernet to the desired network device (e.g. MUC, Internet access device).

As soon as at least one other dLAN pro device has been connected and plugged into the mains supply, a dLAN network is set up. Secure the dLAN network against unauthorised access by using the **devolo dLAN AVpro manager software** or the **encryption**

button. For information on how to proceed, refer to Chapter **4 dLAN network**.

■ *For detailed information about connecting other devolo dLAN devices, visit our website www.devolo.com.*

4 dLAN network

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

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

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

- In dLAN networks, data encryption is as **simple as touching a button**, since **all corresponding dLAN devices are equipped with an encryption button**.
- For dLAN networks that include devices **with and without encryption buttons**, data encryption must be set up using the dLAN AVpro manager or Cockpit.

4.1 dLAN network encryption at the touch of a button

To encrypt a dLAN 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 network with a randomly generated password.

I For security reasons, the function of the security button in the dLAN AVpro manager can be disabled.

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

I dLAN devices cannot be configured while in Standby mode.

Encrypting a new dLAN network with a dLAN pro 1200 DINrail and an additional dLAN device

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



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

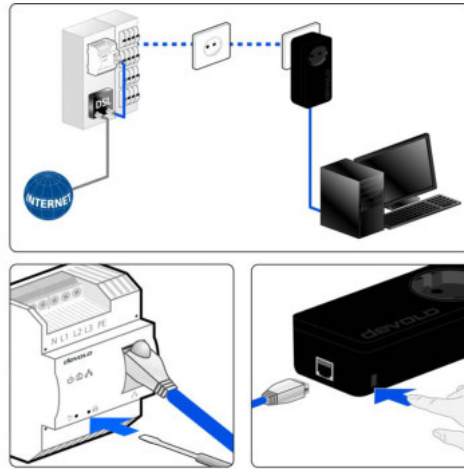


Fig. 6

Expanding an existing dLAN network by adding another dLAN device

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

button (**for one second**) of your new dLAN device **within two minutes**.



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

Removing a dLAN device from a network

To remove a dLAN pro 1200 DINrail or another dLAN 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 network, follow the steps described above, depending on whether you are setting up a new network or adding the device to an existing one.

4.2 devolo management software

Regardless of whether you want to manage simple dLAN home networks or the rather more complex (professional) dLAN networks, the devolo Cockpit and dLAN AVpro manager management software will support you:

4.2.1 devolo Cockpit

devolo Cockpit – as app or computer program – is a tool for monitoring and encryption, which you can use to search out all other accessible dLAN devices in your home network and connect them together into a secure network. Due to its logical graphic design, devolo Cockpit is easy and intuitive to operate.

The devolo Cockpit computer program is available for free [download](#) at the devolo websites.

4.2.2 dLAN AVpro manager

The **dLAN AVpro manager** supports you effectively while configuring and monitoring the various dLAN devices in your more complex and professional dLAN networks. It provides advanced dLAN functions, such as:

- Central administration interface with beginner and expert mode
- Real time monitoring of all the dLAN 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
- *For detailed descriptions and information on configuration of your dLAN network please consult the dLAN AVpro manager manual.*

The dLAN AVpro manager program is available for free [download](#) at the professional devolo websites.

Note for dLAN (pro) users

Avoid updating devices with devolo Cockpit to ensure the compatibility of a professional dLAN network with dLAN devices to the dLAN AVpro manager software. We therefore recommend dLAN (pro) users with existing professional dLAN networks to retain the previous network configuration method.

5 Appendix

5.1 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.

5.2 Warranty conditions

If your devolo device is found to be defective during initial installation or within the warranty period, please contact the vendor who sold you the product. The vendor will take care of the repair or warranty claim for you. The complete warranty conditions can be found at www.devolo.com/warranty.

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