



User manual

Voxnet

219 room amplifier + 10
218 keypad

OM V2.0.1_m3

SW 80-2.0.1

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WELCOME

Voxnet is an Ethernet-based multiuser / multiroom audio system developed by Revox with a new, unique operating philosophy and an impressive audio quality. This is characterised by streaming at CD level quality and with the smallest latency periods, so that music can be heard in its purest form, with practically no delay, in each room.

The hardware audiophile core of the system is represented by the modular Voxnet 219 stereo amplifier. Its powerful 2 x 50 watt outputs can even provide enough power to drive column speakers. The integrated DSP (Digital Signal Processor) allows adjustments to be made to handle all Revox speakers. You just have to select the corresponding Revox speaker in the Configurator list and then define the positioning and/or the installation method. This is all you need to achieve the optimum in sound quality for a clean reproduction. In addition, a professional 8 band equaliser (parameters: Q, Fc, Gain) allows you to balance the system to meet your personal preferences.

Traditional music sources, both analogue and digital, can be connected through the optional I/O module. Needless to say, this is possible in HD quality with data rates of up to 192 kHz/24 bit. In order to deliver even more comfort, all inputs are equipped with freely definable detector switching to permit automatic switch-on, for example,

as soon as an audio signal is detected on the corresponding input.

One of the Voxnet system's powerful tools is the range of trigger options available, that make it possible to control the system in many ways externally, using, for example, the five input triggers: Infrared (RC5), Audio, Room, Source and Voltage (IN). In the opposite direction, other devices can be controlled and/or addressed through the output trigger (OUT / 12 VDC).

As well as the triggers, the Voxnet system also offers proxy servers that can be used to control devices outside the Voxnet world, using IP commands.

Revox can supply corresponding 1 U height shelves to accommodate 2 Voxnet 219s, for quick and secure installation in a 19" rack (Article no.: 1.563.090.00). A single bracket (Article no.: 1.563.091.00) is also available for wall-mounting.

This product innovation from Revox stands out as a true system for life, thanks to its legendary robustness and longevity, which the brand is known for throughout the world.

VOXNET 219 ROOM AMPLIFIER

Commissioning

Please check the unit and accessories after unpacking, to ensure that everything is there and that there are no signs of transit damage. Read the User manual through carefully before starting to use the unit. Keep the manual for later reference. A unit that shows signs of mechanical damage or which has had liquid in it may not be connected to the mains supply.

Only use the mains cable supplied. If a different cable has to be used, it must comply with the values 10A/125V. Any alternative power cable used must have corresponding certification (UL/CSA/VDE).

The unit's power supply and connections values (mains voltage, frequency) must be checked before connecting it to the mains.

Use of switch-on current limiter

In the case of the installation of more than 4 Voxnet 219s per secured 16A circuit, Revox recommends the use of a switch-on current limiter.

This provides effective protection against a mains circuit breaker being tripped during switch-on following a power outage or an overnight shutdown.

Scope of delivery

- Voxnet 219 Room Amplifier (1x)
- Power cable (1x)
- Network cable (1x)
- 4 self-adhesive rubber feet

Safety

Take note of the label on the back of the unit.



In order to avoid the risk of an electric shock, do not open the housing. Maintenance and repairs should only be carried out by qualified experts.

Fuse

The Voxnet 219 does not have any fuses that can be replaced by the user. The special fuse in the power supply unit may not be exchanged by the user.

In this case of a fault, please contact your nearest Revox Service Point.

General safety instructions

- Please follow the instructions in the User manual supplied.
 - Do not position the unit close to strong heat sources or in direct sunlight.
 - Please take note of the following, if the Multiroom amplifier is to be installed in a cabinet or closed shelves: Allow at least 5 cm of free space around the device, so that the air can circulate freely and so that there is no build up of heat. Do not cover openings on the back or front walls of the unit.
 - It must be ensured that the correction functioning of the unit's ventilation openings is not affected by being covered, e.g. by curtains, newspapers, table cloths, or similar.
 - This unit conforms to protection class 2. This means that with this unit, the ground cable is not connected to the housing, in order to effectively eliminate sound-damaging ground-loops. With these Multiroom amplifiers however, Revox uses the ground cable for the reduction of noise fields. For this reason, both the supplied cable and the connection panel are fitted with a ground cable.
 - Unplug the unit if you are going to be absent for a longer period of time.
 - Unplug the unit from the mains during storms. Voltage peaks through the mains power supply caused by lightning strikes can damage the unit.
 - There must be easy access to the power plug so that the unit can be unplugged at all times.
 - Lay the power cable such that it cannot be damaged. The power cable should not have kinks or be laid over sharp edges. It should not be walked on or be exposed to any chemicals. The last point is valid for the whole unit. A power cable with damaged insulation can lead to electric shocks and represents a fire hazard.
 - Never pull on the cable when plugging the unit in or out. Always hold the plug.
 - Liquids, flammable or other objects should not be inserted in the unit's openings as this can lead to faults, fire or an electrical shock.
 - Do not expose the device to splash water or high levels of humidity. Do not stand containers filled with liquid, e.g. flower vases, on the device.
 - It is only designed for operation in temperate, non-tropical climates.
- Take note of and follow the safety advice on the following pages.

Safety measures

Read and take note of the following safety advice for your own safety and to avoid unnecessary damage to your equipment. Please keep this safety advice in a safe place for future reference.

Avoid locating the unit in a position which:

- is exposed to direct sunlight
- is directly next to a source of heat
- has poor ventilation
- has a dusty atmosphere
- is unstable
- has high humidity

The guarantee covers intended usage of the device.

High build-ups of dust and humidity cause creepage current in the device that can cause a risk of shocks when touching the unit or lead to a fire.

If you have moved the unit from a cold to a warm environment, leave it switched off for about two hours because of a possible build up of condensation dampness.

You should always switch your Voxnet 219 off before connecting or disconnecting other devices or speakers.

Protect your unit from:

- Damp, dripping or splash water and steam
- Knocks and mechanical loads.
- Magnetic and electrical fields
- Cold, heat, direct rays of the sun and severe changes of temperature

- Dust
- Interventions in the inside of the device
- Do not stand any articles with open flames, e.g. lit candles on the unit.

Please note

In order to exclude the risk of an electric shock, do not remove the housing. Only have any repair work carried out by a Revox specialist dealer.

Volume

Loud music can cause hearing damage. Avoid extremes of volume, particularly over longer periods of time.

Supervision

Do not allow children to handle the equipment without supervision. Do not allow children in close proximity to the unit. Do not operate the Multiroom amplifier without supervision. Unplug the unit if you are going to be absent for a longer period of time.

Cleaning

The unit should be cleaned using just a damp, soft and clean cloth without any abrasive cleaning agents.

Regulations pertaining to the unit

In EU and EEC countries, Revox offers a guarantee on units bought in the EU, over and above the statutory rights of guarantee claims against the seller. The guarantee covers material and labour during the period of the guarantee, which is defined by the Revox Sales Partners in the individual countries that make up the EU.

In all countries, the guarantee services offered by the Revox Sales Agent are over and above the statutory regulations. They are only valid in the country of purchase. Proof of purchase from an authorised Revox Partner must be produced to make a claim on the guarantee.

The guarantee is made null and void in the case of incorrect intervention measures or non-professionally executed repairs.

Rack installation

The Voxnet 219 is designed for installation in a 19" rack. A shelf / tray (Revox Article no.: 1.563.090.00) is available as an accessory, which can take two Voxnet amplifiers. The height of the shelf is 1 U.

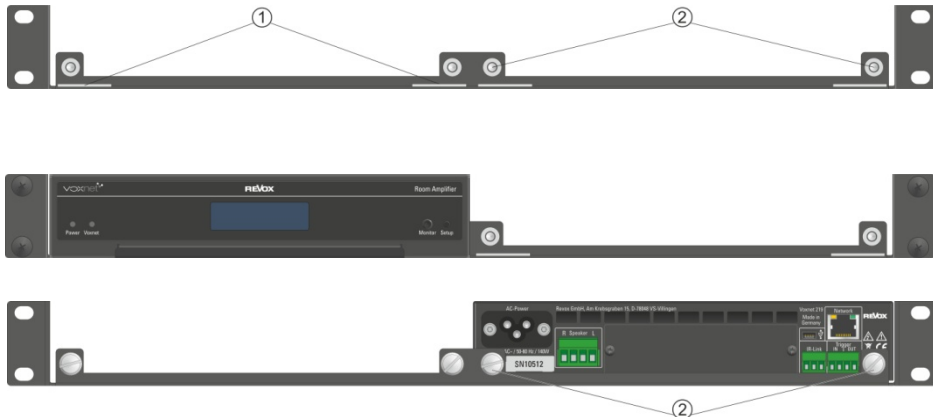
The tray can be built into the rack with and without Voxnet amplifiers. Both options are possible depending on the installation environment.

The Voxnet 219 has a recess to the left and right of the front edge which the metal lugs of the tray (upper picture / ①) fit into. Locate the amplifier, lined up with the right or the left of the tray and push it backwards until it reaches the

back wall of the tray. The amplifier is now fixed in place horizontally at the front and vertically.

Now turn your attention to the rear of the tray. Two knurled thumb screws are provided with each amplifier for fixing it into place (lower picture / ②). Screw the amplifier into place with these until they are hand-tight.

This completes the installation of the Voxnet 219.



Environmental conditions in the rack

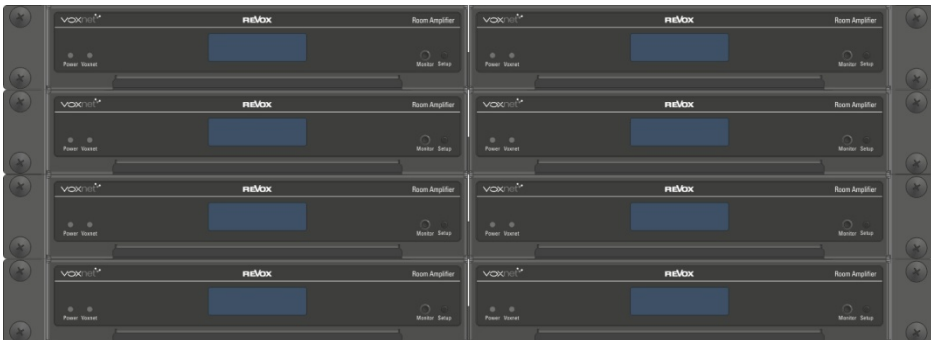
In the case of a rack installation, you must ensure that the inside temperature of the rack does not exceed $+40^{\circ}\text{C}$ / $+104^{\circ}\text{F}$. If necessary, the rack must be actively cooled using a fan.

The Voxnet amplifier itself is fitted with an active fan control and controls its own inner temperature. Cool air is sucked in at the front of the amplifier, drawn through the unit and blown out of the slots at the back. For this reason, cool air must be able to get to the front of the amplifier to be drawn in, even if the rack door is closed. Multiple trays can be mounted underneath each other in the rack, without having to leave any gaps between them.

Use of switch-on current limiter

In the case of the installation of more than 4 Voxnet 219s per secured 16A circuit, Revox recommends the use of a switch-on current limiter.

This provides effective protection against a mains circuit breaker being tripped during switch-on following a power outage or an overnight shutdown.



Stack of 8 Voxnet 219s

Heat dissipation Voxnet 219

Typically: 13 W / 88 BTU/hr

Installation with wall-mounting bracket

An optional wall-mounting bracket is available (Revox Article no.: 1.563.091.00), which can take one Voxnet amplifier. In this case, the Voxnet 219 connections are directed downwards. The front panel with the display is directed upwards.

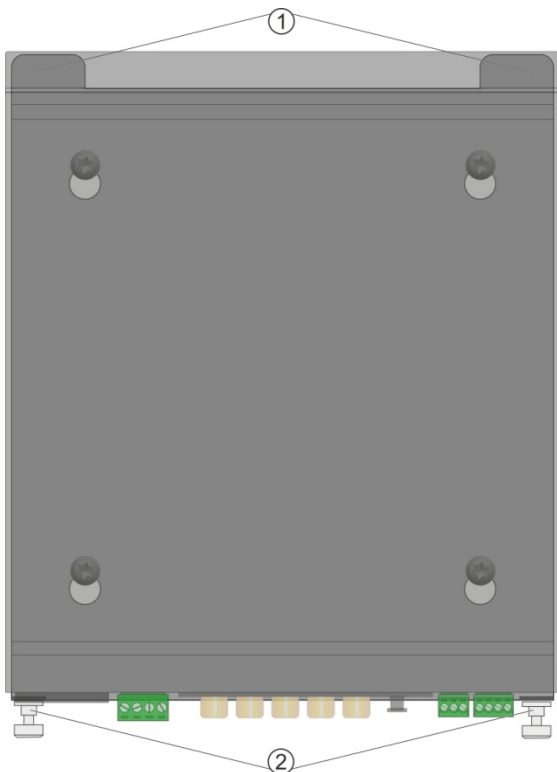
The 4 x 30 mm pan head screws supplied are used for mounting the bracket on the wall, as shown in the assembly instructions. Then, you can simply hang the bracket on the screws.

It is advisable to complete the cabling of the Voxnet 219 before mounting it on the wall-mounted bracket as the connections are very close to the wall.

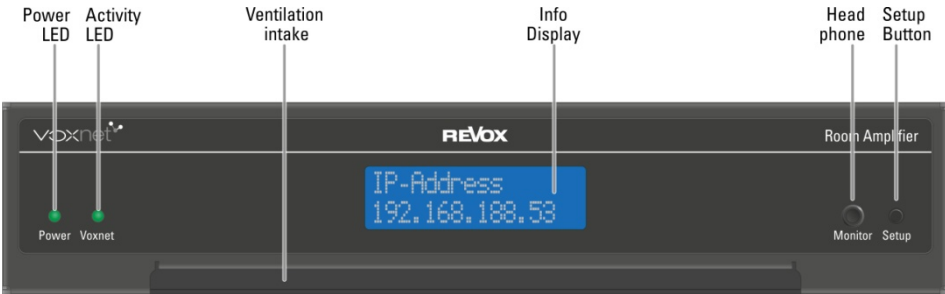
The amplifier can now be placed on the bracket. It must be ensured that the Voxnet 219 lies flush against the bracket and that its two lugs are located in the recesses beneath the front of the Voxnet 219 (lower picture / ①).

Finally, the two knurled thumb screws (lower picture / ②) are screwed into the amplifier's locking threads and hand-tightened.

The picture shows the positioning of the Voxnet 219 (transparent) on the wall-mounted bracket (dark in the background).



Front of the Voxnet 219



Name	Function
Info display	Displays various operating data details. Called through the Setup button
Ventilation intake	Do not cover the opening - required for fresh air intake
Monitor [socket]	Headphone output - 3.5 mm, stereo jack
Power [LED]	Operational state status display
Setup [button]	For calling up various operational data in the info display [activate bootloader]
Voxnet [LED]	Voxnet system activity display

Status LED

Power	Voxnet	Display	Function
●	●	LCD: OFF	Standby
●	●	LCD: ON	Bootloader activate: [Press and hold the Setup button and power up the Voxnet 219]
●	●	LCD: ON	Voxnet 219 is switched on: IP not assigned or has been subsequently separated from the network
●	●	LCD: OFF	Voxnet 219 active in the background: one or more inputs from an optional module are in sensitive mode and/or are being streamed from other amplifiers.
●	●	LCD: ON	Voxnet 219 is switched on: IP is assigned

Display

Various operational data can be called up through the Setup button.

```
Revox Voxnet 219
Bootloader 88%
```

The Voxnet 219 is supplied with the current Voxnet server firmware over the bootloader.

```
Revox Voxnet 219
Starting...
```

The Voxnet 219 starts up after the firmware has been 100% updated. This state is shown briefly in the display.

```
Revox Voxnet 219
Waiting for DHCP
```

After start-up, the Voxnet 219 receives its IP address from the router via DHCP. This can take a few seconds.

```
R0004A3D29D3C0
!.....
```

```
r.peter
##### !.....
```

When the unit is delivered, the **Room** is displayed with the corresponding MAC address from the Voxnet 219. The room identifier is completed with a (0). After configuration through the Voxnet Configurator, the display shows the assigned "Room alias". A level display gives information about the amplifier / output volume status.

```
S0004A3D29D3C0
CO!.....
```

```
s.peter
CO##### !.....
```

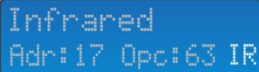
As with the room, the **Source** is defined as a combination with the MAC address. The source identifier is completed with a (0). After configuration through the Voxnet Configurator, the display shows the assigned "Source alias". A level display gives information about the input level of the current source.

Source index: **CO**: coaxial **OP**: optical **AN**: analogue

```
T0004A3D29D3C0
In:Off Out:Off
```

```
t.peter
In:Off Out:Off
```

The **Trigger** ([IN/OUT]) is also defined as a combination with the MAC address. The trigger is completed with an indexing value. After configuration through the Voxnet Configurator, the display shows the assigned "Trigger Alias". The status of the IN and/or OUT trigger is shown in the bottom line of the display.



```
Infrared
Adr:17 Opc:63 IR
```

You can read off through the infrared display which RC5 code (address / command) was received last. A current RC5 reception is indicated by the display of [IR], shown in a light colour here.



```
Version
080-02.00.00
```

The version number shows the current firmware version of the Voxnet 219.



```
Module
1.563.080.00
```

If a module is installed in the Voxnet 219, its identity can be determined through the display article number, here for example, 1.563.080.00 from the I/O module.



```
IP-Address
192.168.188.53
```

The Voxnet 219's IP address that it received from the router via DHCP is shown here.




```
MAC-Address
0004A3D29D3C
```

Display of the Voxnet 219's own MAC address.



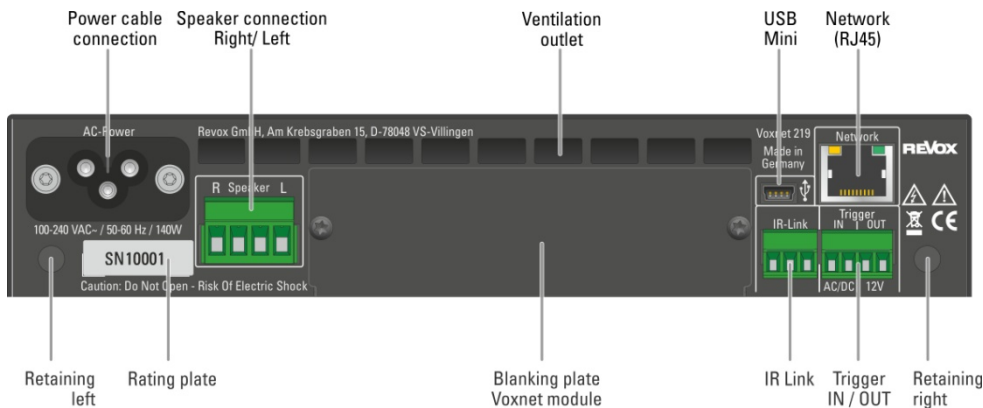
```
System Time
Mon 15:19:52
```

Display of the system time of the Revox Sever.



The Voxnet 219 switches itself off after the display loop is completed assuming that no audio input has detected a signal. Otherwise, the next time the Setup button is pressed, the room identifier is displayed.

Connection panel



Name	Function
AC Power	Power cable connection (class 1 with ground cable) Please take note of the connection specifications: 100-240 VAC~ / 50-60 Hz / 140 W max.
[Retaining]	M4 threaded hole for locking the unit in place on the rack-assembly shelf or on the wall-mounted bracket.
[Blanking plate]	Opening for the installation of optional Voxnet modules, e.g. I/O module
IR Link*	Connection for Voxnet 218 wall-mounted keypad or various other Revox IR receivers.
[Ventilation outlet]	Do not cover the opening - required for expelling heated air
Network	RJ45 socket for LAN cabling in the Voxnet network (100 Mbit)
R Speaker L	Speaker connection / Impedance: at least 4 Ω DSP correction profiles available for all Revox speakers in the Configurator
Trigger IN	Voltage trigger input: 5 - 48 VAC/VDC. Potential-free. Ri: approx. 1000 Ω
Trigger OUT*	Voltage trigger output 12 VDC (configurable)
[Rating plate]	Unit-specific information
USB mini	USB mini socket for uploading bootloader

* Max. overall current from IR Link and Trigger OUT: 80 mA

Detailed description /Connection panel

IR Link

Various Revox products can be connected to the IR Link:

- Voxnet 218 wall-mounted keypad (I = 23mA)
- M204 IR Receiver (I = 7mA)
- M204 IR Receiver flange (I = 7mA)
- M204 IR Receiver aluminium housing (I = 7mA)

All products have one thing in common, that they send and/or forward RC5 commands to the Voxnet 219. The Voxnet 218 is described in more detail in a separate chapter in this manual.

If the Voxnet 219's Trigger OUT is not being used, devices with an overall current of up to 80 mA may be connected to the IR Link. The individual current requirements in [mA] are listed above.

Please note that cables with small cross-sections or long cable lengths can impact both qualitatively and quantitatively on the data signal to such an extent, that it is no longer recognised by the Voxnet 219.

Max. lengths: 100 m at $\geq 0.25\text{mm}^2$ / cable strand (\leq AWG 23)

* Overall current

(IR-Link + Trigger Out): max. 80 mA

Network

Network connection to the Voxnet network. This has to be separated from other domestic networks physically or through a VLAN. Minimum requirement: 100 Mbit; preferably a 1 Gbit network.

Trigger IN

Voltage-controlled input trigger (room trigger) that is given its function through the Voxnet Configurator. It can be used both for the ON and the OFF state of different actions.

Input voltage can be between 5 and 48 volts, DC or AC. The IN trigger applies a load of approx 1000 Ω to the supplying source.

Trigger OUT

The output trigger supplies 12 VDC. Its function can be defined through the Configurator or by using Voxnet text. The OUT trigger can deliver an overall current* of up to 80 mA, assuming that the IR Link is not being used.

USB

USB mini connection for uploading the Voxnet 219 bootloader as a fall-back solution if the firmware should no longer work correctly.

VOXNET PERIPHERALS

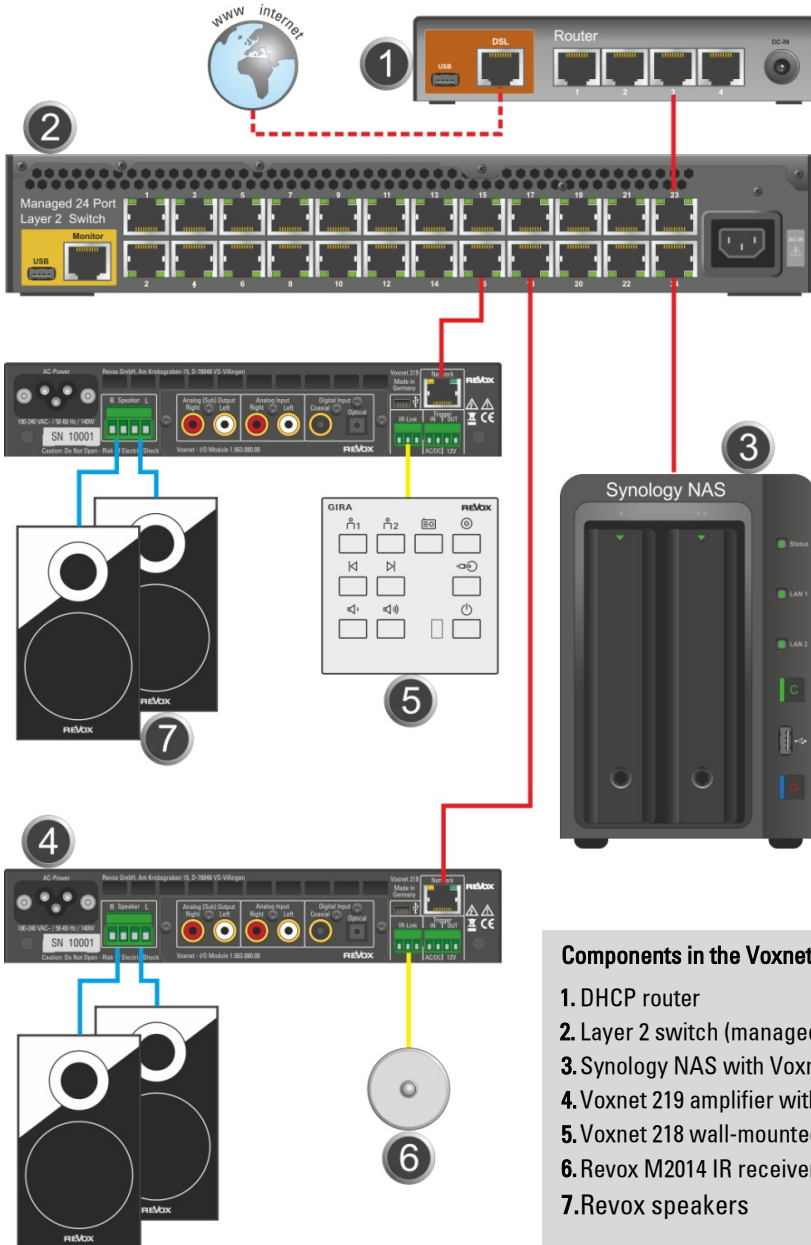
The Voxnet 219 is a network-based amplifier that is assigned its functionality and its operating mode configuration through the Revox Voxnet Configurator. This is described in a separate operating manual, "*Voxnet Configurator*".

The following hardware peripherals are needed for the Voxnet system:

- DHCP router for the assignment of IP addresses and for access to the Internet for iRadio streams.
- Synology NAS, as specified by Revox. Contains a Voxnet server software in the DSM package centre. This includes all Voxnet services, the rights management and the licence server. The Synology NAS can be ordered from Revox in a pre-configured state, including the Voxnet server software.
- Managed layer 2 switch (or higher) with IGMP snooper functionality. Revox has a list of recommended switches to select from.
- Fixed-cabling 1 Gbit LAN - 100 Mbit to the clients (Voxnet 219) is sufficient.
- Separation of the Revox Voxnet system in a VLAN or in a physically separated network. In order to ensure correct functioning, no other clients, e.g. Smart TVs,

tablets, streaming products, etc. should be present in the same network. IP-controlled products such as IP-serial converters or IP-IP converters as offered by the *Global Caché* company for example, can of course be operated in the Voxnet network.

Multiroom example: Voxnet with 2 rooms



- Components in the Voxnet system**
1. DHCP router
 2. Layer 2 switch (managed)
 3. Synology NAS with Voxnet software
 4. Voxnet 219 amplifier with I/O
 5. Voxnet 218 wall-mounted keypad
 6. Revox M2014 IR receiver
 7. Revox speakers

Voxnet Configurator

Revox offers a web-based GUI for the configuration of the Voxnet system, which can be called up through all commonly used browsers such as Firefox, Internet Explorer, Chrome etc.

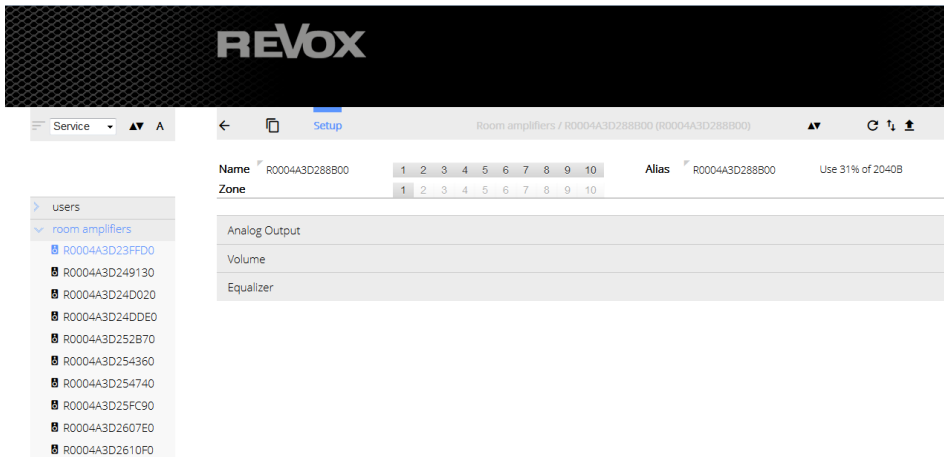
This approach has the advantage that the installer or system integrator has the flexibility of choice and can use platforms such as a Win-PC, Mac, iPad, Android tablet or even in an emergency, a Smartphone.

The Configurator communicates with the Voxnet server that is located on the Synology NAS. All configuration data from the entire Voxnet system is stored there.

Areas that affect the individual Voxnet 219 amplifiers are also stored locally there.

All setup options are described in detail in the separate "Voxnet Configurator" and "Voxnet Text Protocol" operating manuals. Here there follows just a small glimpse into the options, in order to give an overview of the new operation and configuration philosophy of the Voxnet system.

All the relevant settings for the Voxnet system and its components are made in the Configurator.



Voxnet Configurator "General info"

Alongside the simple selection menus such as those for the definition of the analogue output of a Voxnet 219, more extensive settings are carried out in the "Voxnet Text" programming language. This greatly increases the level of freedom of how the amplifier can operate. You can decide, for example, what should happen when a signal is detected at the *Coaxial* digital input. In such a case, a traditional solution is that the amplifier simply switches on automatically and plays the signal received over the *Coaxial* input.

This would be achieved with the following Voxnet text command in the audio trigger:

Room dependent command:

@room:room:select:@local;stream:coaxial

User dependent command:

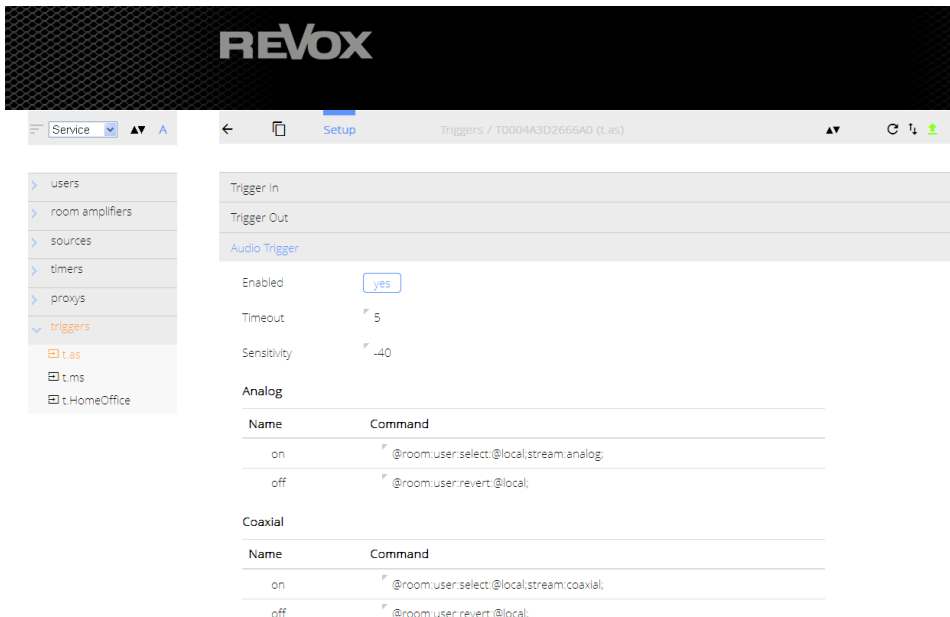
@room:user:select:@local;stream:optical

In the examples above the local (i/o) source *optical* will be assigned to the actual room/ user.

In the same way, it would also be possible to switch on a television through an external IP-RS232 converter when a signal is identified, by using the Voxnet IP Proxy. In such a case, the following Voxnet text command would have to be entered for the corresponding audio trigger:

\$p.sonytv:power_on (Voxnet IP-Proxy)

These two examples are just two examples of the diversity of functions offered by the Voxnet system.



Technical data

Output	Measured value	Measuring conditions
Max. output performance	2 x 50 W	1 kHz, 4 ohms [RMS]
Frequency range	20 Hz – 20 kHz	-3 dB
SNR	> 80 dB / typ. 85 dB	1 kHz, -8 dBFS coaxial
Channel separation	> 68 dB / typ. -80 dB	5 kHz, -8 dBFS coaxial
THD	< 0.04 % / typ. 0.025%	1 kHz, -8 dBFS coaxial
Headphones		
Frequency range	20 Hz – 20 kHz	-1dB
SNR	> 78dB	1 kHz at 650 mV Aux-IN
Channel separation	> - 62 dB	10 kHz at 650 mV Aux-IN
THD	< 0.015 % / typ. 0.008%	1 kHz at 650 mV Aux-IN
Triggers		
Input voltage Trigger IN	5 - 48 VAC or VDC	
Trigger input impedance IN	Approx. 1000 Ω	
Output voltage Trigger OUT	12 VDC	Configurable through <i>Voxnet text</i>
Max. output voltage OUT	80 mA ¹	
Device		
Dimensions	44 x 218 x 255	H x W x D ²
Weight	1.9 kg	Without packaging
Temperature range	+10°...40°C	DIN 40040
Heat dissipation	44 BTU/hr	Pink noise, linear, vol 30, 4 ohms LS
Voltages supply	100-240 VAC / 50-60 Hz	
Power consumption ³	2.5 W 5.5 W Approx. 9 W 140 W	OFF Sleep mode ⁴ Normal mode Theoretical max. performance

¹ Overall current [Trigger Out] + [IR-Link] = max. 80 mA

² A further 50 - 60 mm have to be calculated in for cable and plugs

³ Measured without any speakers or external devices, e.g. Voxnet 218 connected

⁴ Voxnet 219 is switched off; input detector from the module inputs is active however

I/O MODULE

Traditional music sources, both analogue and digital, can be connected to the Voxnet system through the optional I/O module. Needless to say, this is possible in HD quality with data rates of up to 192 kHz/24 bit. In order to deliver even more comfort, all inputs are equipped with freely definable detector switching to permit automatic switch-on, for example, as soon an audio signal is detected on the corresponding input. However, the audio trigger cannot only be used to switch the corresponding audio input on. Rather it is freely configurable for the execution of other actions. Which actions these are can be defined in the Voxnet Configurator and/or Voxnet text.

The analogue output works as a Line out, parallel to the amplifier output and is muted together with it. Through the Voxnet Configurator, you can select whether the analogue output signal is produced with (a) a variable output level or (b) a fixed output level or (c), whether it should be available as a mono-signal for external active subwoofers.

There is no band limitation with version (c), which means that the low pass filtering is done in the subwoofer.

Installing modules

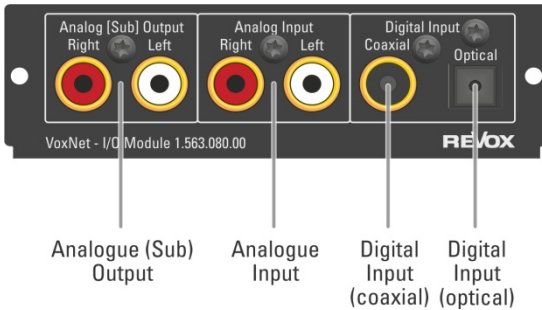
The Voxnet I/O module is equipped with the latest electronics and should be handled with care. Before you install the module, the Voxnet 219 must be switched off and separated from the power supply, by plugging the unit out.

Loosen the two screws with a TX-10 TORX screwdriver and remove the blanking plate.

Before removing the module from its packaging, you should make sure that you do not have any static electricity. This could cause a damaging discharge of voltage when you touch the module. You should get rid of any static charge by touching an earthed metal object like a radiator, for example.

Remove the module from its packaging and feed it into its plug-in position. The two tracks inside the Voxnet 219 are the mechanical guides for you to use. Shortly before the plug-in card is fully locked into position in its slot, you will feel a mechanical resistance, caused by the internal module socket contact strip. Push the module fully in by applying pressure in the area of the two screw holes and fix the module in place with both screws, including the toothed locking washers. All further steps for registering the new module are carried out automatically the next time you switch on.

Connections



Connection description

Name	Function
Analogue [Sub] Output	<p>Analogue audio output, e.g. for external output</p> <p>Can be programmed with various modes in the Voxnet Configurator:</p> <ul style="list-style-type: none"> - Fixed output (line level) - Variable output (level parallel with amplifier output) - Mono output [Sub] (R+L, full frequency range) <p>The <i>Analogue output</i> is synchronised with the speaker outputs and is muted together with them.</p>
Analogue input*	Analogue audio input, max. input voltage: 2.0 V eff.
Digital input coaxial*	Digital audio input through coaxial cable (SPDIF max. 192 kHz)
Digital input optical*	Digital audio input through fibre optic - TosLink (SPDIF, max. 96 kHz)

* With detector function

Technical data

Inputs		
Optical input		
Data format	16, 20, 24 bit PCM - SPDIF up to 96 kHz ¹	
Frequency response	20 Hz – 20 kHz	-1 dB
THD	< 0.02% / typically 0.01%	1 kHz / -12 dBFS
SNR	> 75 dB / typically 78 dB	1 kHz / -12 dBFS
Channel separation	> -90 dB / typically -97 dB	10 kHz / -12 dBFS
Coaxial input		
Data format	16, 20, 24 bit PCM - SPDIF up to 192 kHz ²	
Frequency response	20 Hz – 20 kHz	-1 dB
THD	< 0.02% / typically 0.006%	1 kHz / -12 dBFS
SNR	> 75 dB / typically 80 dB	1 kHz / -12 dBFS
Channel separation	> -90 dB / typically -98 dB	10 kHz / -12 dBFS
Analogue input		
Max. input voltage	700 mV ³	For full power
Input impedance	25 kOhm	
Outputs		
Analogue output ⁴	1 x Analogue output	Max. 2.0v / Stereo

¹ Supported sampling rates: 22.05, 24, 32, 44.1, 48, 88.2, 96 [kHz]

² Supported sampling rates: 22.05, 24, 32, 44.1, 48, 88.2, 96, 176.4, 192 [kHz]

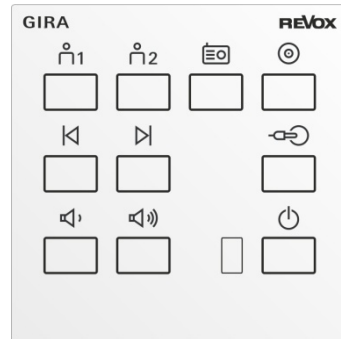
³ With the Configurator setting [- 6dB]

⁴ Can be defined as sub-out in the Voxnet Configuration, both outputs L+R are supported

VOXNET 218 KEYPAD

IR triggers that are stored in the Voxnet server and/or the Voxnet 219 can be activated with the Voxnet 218 wall-mounted keypad. The function that should be triggered by the transmitted RC5 address is defined in the Configurator itself. In addition, different behaviour can be defined for a short and for a long button press. RC5 codes from IR remote controls can be received by the integrated IR receiver (left of the Power button) and forwarded to the IR trigger system.

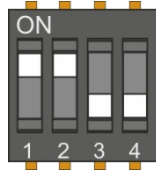
Using the DIL on the rear of the Voxnet 218 wall-mounted keypad the basic settings can be adjusted – see next page.



Voxnet 218 wallmounted keypad

DIP switch

The Code Page option for the Voxnet 218 wall-mounted keyboard was introduced with software version 218-2 1.00 (Voxnet programme software). Four different Code Pages can be selected through DIL switches 3 and 4 on the rear of the Voxnet 218 wall-mounted keyboard - see next page. To access the switches, uninstall the keyboard and remove the plastic cover on the rear. The desired Code Page can now be set using a small screwdriver. When the cover has been removed, you should observe the current ESE regulations, in order not to damage the electronics.













DIL	Function	Description	Factory setting
1	IR Eye	Internal IR receiver on/ off	On
2	LED	LED switch on/off	On
3+ 4	RC5 Code pages	RC5 address combinations 00: Code Page 1 01: Code Page 2 10: Code Page 3 11: Code Page 4	Off + Off [00]

Table: DIL switch settings

RC5 codes Voxnet 218

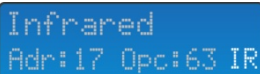
[Address] [Command]

Button	Name	Code Page 1 *	Code Page 2	Code Page 3	Code Page 4
	User 1	[17] [63]	[24] [63]	[25] [63]	[26] [63]
	User 2	[20] [63]	[24] [55]	[25] [55]	[26] [55]
	Radio	[07] [63]	[24] [56]	[25] [56]	[26] [56]
	Disc	[21] [63]	[24] [57]	[25] [57]	[26] [57]
	Local input	[19] [63]	[24] [51]	[25] [51]	[26] [51]
	Track_down	[**] [33]	[24] [19]	[25] [19]	[26] [19]
	Track_up	[**] [32]	[24] [18]	[25] [18]	[26] [18]
	Volume_down	[**] [17]	[24] [21]	[25] [21]	[26] [21]
	Volume_up	[**] [16]	[24] [20]	[25] [20]	[26] [20]
	Power	[**] [12]	[24] [39]	[25] [39]	[26] [39]

* Code Page 1 corresponds to the standard RC5 codes of the M series

** RC5 code is combined with the current user / source address

The defined RC5 codes can be checked through the display on the Voxnet 219. The infrared mode can be selected with its Setup button, the received signals from the IR Link inputs can be detected and its RC5 address and command can be displayed.



Infrared
Adr:17 Dpc:63 IR

IR-Display Voxnet 219

Cabling

The Voxnet 218 is connected to the Voxnet 219 over a 3-pin, screwable plug connector.

With the cabling between the Voxnet 219 and the Voxnet 218 wall-mounted keypad, care must be taken that in the case of a CAT cable (S/FTP, F/FTP), the screening is connected to the GND cable on both sides. In addition, a pair of cables for one signal should be closed together. Both these measures raise the cable cross section and thereby reduce the voltage drop-off. Cable lengths of up to 100 metres can be achieved with this cabling method.

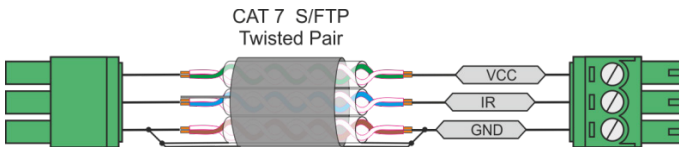
Parallel switching

In the case of larger rooms it can be advisable to place two Voxnet 218 wall-mounted keypads at two different locations in the room. Two Voxnet 218s can be operated in parallel, i.e. all 3 signal cables (GND, IR and VCC) are connected in parallel.

In order to avoid command duplication when using remote controls, we recommend deactivating one of the IR receivers in a Voxnet 218 wall-mounted keypad. This is done through a DIL switch (DIL 1) on the rear of the keypad (please refer also to the next chapter "Technical data").

The maximum permissible loading on the IR link, including the Voxnet 219 OUT trigger, is 80 mA. The nominal power requirement of one Voxnet 218 is 23 mA.

CAT cable cabling plans



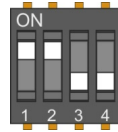
Technical data

Protection class in acc. with IEC 60529 IP20, dry installation

Ambient temperature Operation -5 °C to +45 °C
 Storage: -25 °C to +70 °C

Connection type Screwable plug connector
 3 x 0.15 - 1.50 mm²

DIL switch factory 1: IR on
 Setting: 2: LED on
 3: Code page 1-4
 4: Code page 1-4



Cable¹ Installation cable
 S/FTP or F/FTP
 or
 U72 ABG 1 x 4 x 0.5 mm²
 Screened

Maximum cable lengths
 to Revox Voxnet 219
 Multiroom amplifier Max. 100 m

Power consumption 17 mA (passive) /
 23 mA (button pressed)

Parallel operation Max. 2 wall-mounted keypads
 can be switched in parallel

NETWORK TERMINOLOGY GLOSSARY

DHCP

DHCP is an abbreviation for **D**ynamic **H**ost **C**onfiguration **P**rotocol. DHCP is primarily used to enable clients to fetch their network configuration automatically from a server or router. The Voxnet 219 supports DHCP.

DNS

The **D**omain **N**ame **S**ystem (DNS) is one of the most important services in the Internet. Its main task is that of converting Internet addresses like `www.revox.de` for example, into its corresponding IP address. As a rule, the router in home networks also fulfils the function of the DNS. If you should decide for the manual network configuration (without DHCP), just enter the address of your router as the DNS address during network configuration.

Ethernet network

A switch or a router with an integrated switch ensures the correct connections of the individual components within a network. In order to make this possible, each device within a network must be capable of being uniquely identified. Each component therefore, is given its own address, the so-called IP address. The IP address is made up of four blocks of numbers, each of which can contain up to three digits. These blocks of numbers are separated by a full stop, e.g. `192.168.1.1`.

Each of the individual blocks of digits can have a value between 1 and 254. The values 0 and 255 are in part reserved for special functions and therefore shouldn't be used. In order to ensure a secure function of your network, addresses from a pre-defined range should be used, i.e. fundamentally, the first two blocks should be `192.168.xxx.xxx`; the third block can be selected from the values in the range mentioned above (must be the same for all the devices within a network

however) and the fourth block should be used to differentiate each device, e.g.:

Voxnet 219	192.168.001.001
NAS:	192.168.001.002
PC:	192.168.001.003

If you don't just want to use devices within the local network but also music sources from the Internet (Internet radio), the client must have the possibility of being able to access the Internet. This can be achieved, for example, through a router with a connection to a DSL network. This router is also a part of the network and will be assigned its own IP address. It must be ensured that the first three blocks of the Device IP, the Gateway IP and the DNS 1 are within the same address range, e.g. `192.168.0.xxx`. The fourth block assigns a unique address ("house number") to the components in the local network. This number may only occur once within the local network. The device IP mask should always be given the address `255.255.255.0`.

Gateway

The computer or router in your network through which the data traffic with the world outside your network, i.e. the Internet, is handled.

IP address

Network address. Each device in the network needs an IP address through which it can be reached and uniquely identified. Network addresses may not occur twice. This is important if network addresses are assigned manually. If addresses are issued in your network through DHCP, you don't need to worry about the IP address assignment as the DHCP server automatically handles the question of address management.

LAN

Local Area Network – Local cabled network. A LAN connection is the most fault-tolerant and problem free transmission technology, which offers much more security against eavesdropping than WLANs or Power LANs.

MAC Address

The MAC address (Media Access Control) is the unique hardware address that is used for the unambiguous identification of the device in the network.

The MAC address of the Voxnet 219 can be read out directly from the front display of a unit that is switched and from the MAC label on the rear of the amplifier.

NAS

Network Attached Storage. As a rule, this is a storage device with a very large capacity > 500 GB, which other devices can access.

Power line – LAN

With the power line LAN, data is transmitted through the existing power cable network. So-called power line modems are required on the transmitter and receiver side. As a rule, power line LANs offer reasonably fault-free data transmission with a data rate sufficient for audio streaming. We recommend power line modems with bit rates of 200 or 200 MBit/s.

Proxy server

General

A proxy or proxy server is a computer in the network that makes data transfer quicker and more efficient and that can also increase security by deploying access control mechanisms.

Voxnet IP proxy

This is a server service in the Voxnet system that can be used to control third-party devices through an IP communication, e.g. with an IP-RS232 converter.

Router (WLAN Router)

Central network device that establishes and manages the communication between the network devices.

Current devices increasingly combine the function of the router with the function of an access point for wireless data communication. These combi-devices are often referred to as WLAN routers. Normally, the (WLAN) router in a network takes on the function of the gateway to the outside world.

Server

Network device that makes data and services available for other devices in the network. A UPnP-AV server stores for example, audio and video media data and makes this data available to other devices, the streaming clients. Often, UPnP-AV servers also offer functions for the cataloguing and easy identification of medial content according to criteria such as artist, album name, genre, etc.

Streaming (client)

Network device that draws data out of the network, decodes it and converts it for example, into analogue music signals, which then can be played through amplifiers and speakers. Streaming clients

also contain functions for displaying media content and for navigating the Internet or servers.

VLAN

A **Virtual Local Area Network (VLAN)** is a logical network segment within a switch or within a complete physical network. It can extend over one or more switches. A VLAN separates physical networks into network segments by ensuring that VLAN-capable switches do not forward the frames (data packets) from one VLAN to another VLAN, even though the network segments may be connected to a common switch.

Copyright reference

Explanations and descriptions used in the "Network terminology glossary" chapter originate in part or in full from "Wikipedia - The Free Encyclopaedia".

APPENDIX

Warranty

Warranty covers a period of 24 months from the purchasing date. Your specialist dealer is your first contact if you need service help. If he is unable to assist you, send your device, carriage free, without accessories to your national Sales Office.

Please supply a complete description of the fault together with your address.

Copyright

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Environmental protection

Packaging

We recommend keeping the original box and packaging material so that if required, the device can be transported safely.

Voxnet 218/ 219



Please note: The EU Directive 2002/96/EC governs the correct return, handling and recycling of used electronic devices. For this reason, electronic used devices must be disposed of separately. This device should not be disposed of with normal domestic waste. You can take your used device to recognised disposal points. You can get further information about the return of such devices from your local authority, also in non-EU countries.

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