



# **2N<sup>®</sup> SIP Speaker**

## **SIP audio**



## **Installation Manual**

**Version: 2.9**

**[www.2n.cz](http://www.2n.cz)**

The 2N TELEKOMUNIKACE a.s. is a Czech manufacturer and supplier of telecommunications equipment.



The product family developed by 2N TELEKOMUNIKACE a.s. includes GSM gateways, private branch exchanges (PBX), and door and lift communicators. 2N TELEKOMUNIKACE a.s. has been ranked among the Czech top companies for years and represented a symbol of stability and prosperity on the telecommunications market for almost two decades. At present, we export our products into over 120 countries worldwide and have exclusive distributors on all continents.



2N<sup>®</sup> is a registered trademark of 2N TELEKOMUNIKACE a.s. Any product and/or other names mentioned herein are registered trademarks and/or trademarks or brands protected by law.



2N TELEKOMUNIKACE a.s. administers the FAQ database to help you quickly find information and to answer your questions about 2N products and services. On [www.faq.2n.cz](http://www.faq.2n.cz) you can find information regarding products adjustment and instructions for optimum use and procedures „What to do if...“.



2N TELEKOMUNIKACE a.s. hereby declares that the 2N<sup>®</sup> product complies with all basic requirements and other relevant provisions of the 1999/5/EC directive. For the full wording of the Declaration of Conformity see the CD-ROM (if enclosed) or our website at [www.2n.cz](http://www.2n.cz).



This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



The 2N TELEKOMUNIKACE a.s. is the holder of the ISO 9001:2009 certificate. All development, production and distribution processes of the company are managed by this standard and guarantee a high quality, technical level and professional aspect of all our products.

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# 1. Product Overview

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In this section, we introduce the **2N<sup>®</sup> SIP Speaker, Wall Mounted** product, outline its application options and highlight the advantages following from its use. The section also includes safety precautions.

Here is what you can find in this section:

- **1.1 Components and Associated Products**
- **1.2 Terms and Symbols**

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## Basic Properties

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**2N<sup>®</sup> SIP Speaker, Wall Mounted** is a versatile sound transmission system for IP networks. It is designed as a universal VoIP telephone with an audio output. It finds a variety of applications - in schools, hospitals, office buildings, hotels, production halls, shopping centres, bus terminals, airports and so on.

**2N<sup>®</sup> SIP Speaker, Wall Mounted** is a stand-alone SIP-based sound decoder and converter with an amplifier. **2N<sup>®</sup> SIP Speaker, Wall Mounted** communicates with the other audio system components via the SIP Proxy or directly via a specified address.

You can manage your **2N<sup>®</sup> SIP Speaker, Wall Mounted** unit via a configuration web interface.

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## Advantages of Use

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- Operable in the Ethernet network
- Ethernet-based power supply - PoE
- SIP
- Integrated administration web server
- Streamed audio support
- Applicable as standard VoIP telephone/communicator
- DTMF detection according to RFC2833, in-band and SIP-INFO

## Basic Features

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- 10/100Base-TX LAN interface
- 12 V DC / 1,8 A or PoE 802.3af supply
- Integrated 12 W amplifier
- Line output



## 1.1 Components and Associated Products

### Basic Unit

Part No. 914421B



- 2N<sup>®</sup> SIP Speaker, Wall Mounted
- Black colour

Part No. 914421W



- 2N<sup>®</sup> SIP Speaker, Wall Mounted
- White colour

## Power Supply

<p>Part Numbers:</p> <p>91378100</p> <p>91378100E</p> <p>91378100US</p> 	<ul style="list-style-type: none"><li>• PoE injector - without cable</li><li>• PoE injector - with EU cable</li><li>• PoE injector - with US cable</li><li>• For power supply of intercom via ethernet cable when PoE switch is not available.</li></ul>
<p>Part No. 91341481E</p> 	<ul style="list-style-type: none"><li>• Stabilised 12 V / 2 A power supply needs to be used when no PoE is available.</li></ul>
<p>Part No. 932928</p> 	<ul style="list-style-type: none"><li>• For external power supply of the lock with 12 V AC voltage.</li></ul>

## VoIP Telephones

Part No. 91378357



- Grandstream GXV3240 VoIP video telephone
- GXV3240 is the successor to the popular GXV3140 model, which allows comfortable video calls in the IP network. Touchscreen and keyboard control.

Part No. 91378358



- Grandstream GXV3275 VoIP telephone
- GXV3275 is the successor to the popular GXV3175 model, which allows comfortable video calls in the IP network. Touchscreen control.

## Accessories

Part No. 914034B/W



- Wall-mounted loudspeaker
- A wall-mounted 8 Ohm loudspeaker can be connected as an loudspeaker to the 2N<sup>®</sup> SIP Speaker, Wall Mounted. Available in black and white.

Part No. 9137410E



- External IP Relay - 1 output
- Standalone IP device which can be controlled by HTTP commands sent by Helios IP intercom, which can thus control devices on unlimited distance.

Part No. 9137411E



- External IP Relay - 4 outputs, PoE
- Standalone IP device which can be controlled by HTTP commands sent by Helios IP intercom, which can thus control devices on unlimited distance.

Part No. 9159014EU/US  
/UK



- 2N<sup>®</sup> 2Wire
- (set of 2 adaptors and power source for EU/US/UK)
- The 2N<sup>®</sup> 2Wire converter allows you to use existing wiring (2 wires) from your original door bell or door intercom to connect any IP device. You don't have to configure anything, and you only need one 2N<sup>®</sup> 2Wire unit at each end of the cable and a power source connected to at least one of these units.

The 2N<sup>®</sup> 2Wire unit then provides PoE power not only to the second converter, but also to all other connected IP end devices.

✔ **Tip**

- For more accessories and particular advice please contact your local distributor of 2N products.

## 1.2 Terms and Symbols

The following symbols and pictograms are used in the manual:

### **Safety**

- Always abide by this information to prevent persons from injury.

### **Warning**

- Always abide by this information to prevent damage to the device.

### **Caution**

- Important information for system functionality.

### **Tip**

- Useful information for quick and efficient functionality.

### **Note**

- Routines or advice for efficient use of the device.

## 2. Description and Installation

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In this section, we describe the 2N<sup>®</sup> SIP Speaker, Wall Mounted product and its installation.

Here is what you can find in this section:

- 2.1 Before You Start
- 2.2 Mechanical Installation
- 2.3 Electric Installation
- 2.4 Product Description

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## 2.1 Before You Start

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### Product Completeness Check

Before installing this product, check whether the product delivery includes:

- 1x 2N<sup>®</sup> SIP Speaker, Wall Mounted
- Quick User Manual

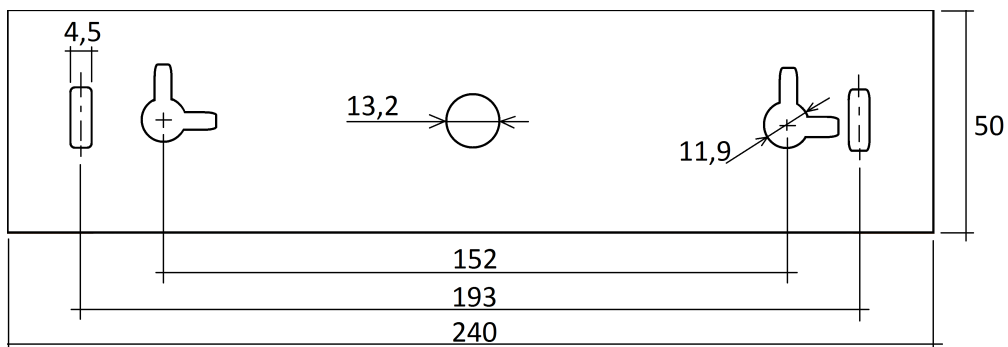
### Installation Conditions

- 2N<sup>®</sup> SIP Speaker, Wall Mounted is to be connected to the LAN.
- 2N<sup>®</sup> SIP Speaker, Wall Mounted is designed for indoor use.
- 2N<sup>®</sup> SIP Speaker, Wall Mounted may not be operated in damp environment.



## Surface Mounting

To mount your 2N<sup>®</sup> SIP Speaker, Wall Mounted unit on a wall or another solid surface use the speaker holder. This holder fits with screws to keep the device in place. Follow the figure below while drilling the mounting holes.



Mounting holes



Speaker Holder

## 2.3 Electric Installation

### Electric Installation Step by Step

It is very easy to connect 2N<sup>®</sup> SIP Speaker, Wall Mounted electrically. Follow the steps below to avoid equipment damage or electrical injury:

- Connect the additional speaker
- Connect the UTP cable.
- Connect a 12 V power supply (unless PoE is used).

#### Caution

- Be sure to connect the 2N<sup>®</sup> SIP Speaker, Wall Mounted power supply as the last step. The same applies to PoE supply from the LAN.

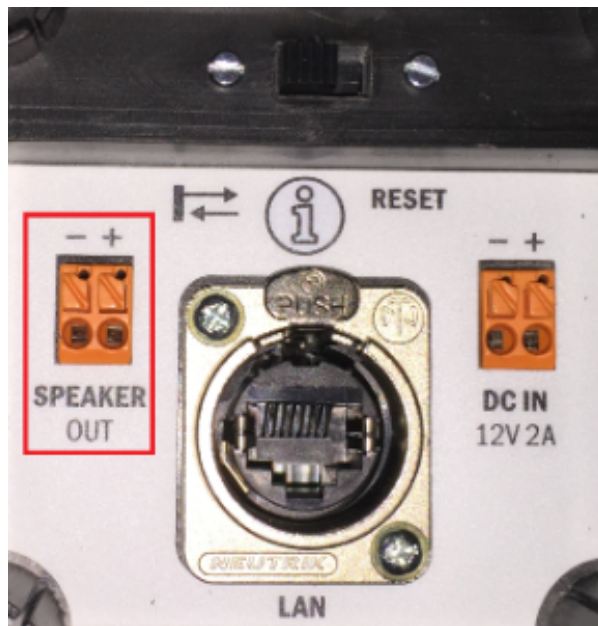
### Loudspeaker Connection

2N<sup>®</sup> SIP Speaker, Wall Mounted is equipped with a power amplifier for 1 or 2 loudspeakers. The loudspeakers to be used must have the nominal impedance of 4–8 Ω each. Refer to the table below for possible configurations and related maximum power outputs (sinus, THD < 1 %):

Loudspeaker(s)	12 V / 2 A	PoE
Two 4 Ω	2x 10 W	2x 5 W
Two 8 Ω	2x 9 W	2x 5 W
One 4 Ω	1x 18 W	1x 10 W
One 8 Ω	1x 12 W	1x 10 W

**⚠ Caution**

- Use an external power supply to maximise the power output. Make sure that the maximum Master volume value is +6 dB in the Hardware / Audio menu if you use PoE and 4Ω speaker.



Loudspeaker Connection

**LAN Connection**

2N<sup>®</sup> SIP Speaker, Wall Mounted can be connected to a standard local area network using a LAN interface via the RJ-45 connector on the back panel. Always use CAT-5d or higher class cables for reliability reasons.



### LAN Connection

The LAN interface is equipped with the Auto MDIX function for automatic straight or cross-over cable detection.

The LAN interface can also be used for the **2N<sup>®</sup> SIP Speaker, Wall Mounted** power supply through active network elements or injectors meeting the IEEE 802.3af standard.

#### **Note**

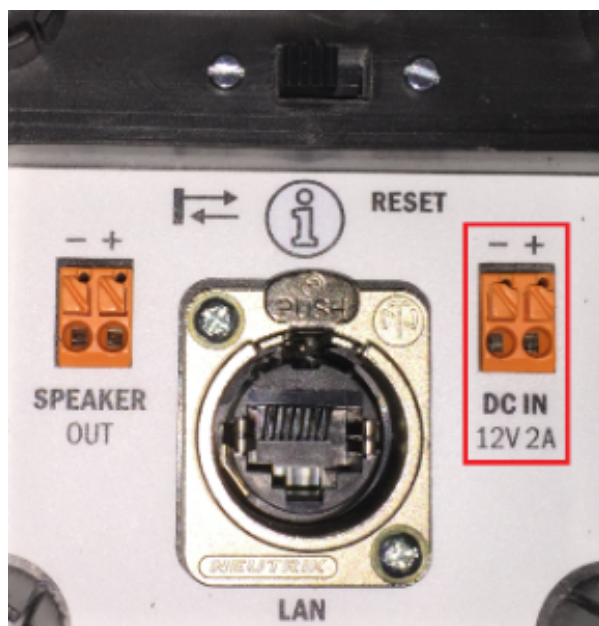
- With PoE, the integrated amplifier power output is limited to 10 W. To utilise the maximum power output of the amplifier, feed **2N<sup>®</sup> SIP Speaker, Wall Mounted** from a 12 V DC / 1.8 A external power supply.

#### **Caution**

- We recommend the use of a LAN surge protection.

## Power Supply Connection

2N<sup>®</sup> SIP Speaker, Wall Mounted can be fed using active network elements or PoE injectors via the LAN interface. In case this option is unavailable, use a 12 V DC / 2 A (Part No. 914102E) power supply or another power supply on condition that you keep the nominal values included in the Mechanical and Electrical Parameters subsection. Connect the 12 V DC power supply either to the back panel supply connector marked DC IN, or terminals marked DC IN + and DC IN -.



Power Supply Connection

### ⚠ Warning

- If you use an adapter other than the recommended one, do not exceed the nominal supply voltage value of 12 V. Also make sure that the supply voltage polarity is correct. Exceeding nominal values and/or incorrect connection may lead to irreversible damage of the equipment.

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## 2.4 Product Description

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**2N<sup>®</sup> SIP Speaker, Wall Mounted** is an Ethernet audio converter designed for public sound distribution. It is connected to and communicates with the SIP Proxy server via telephone calls. This guarantees compatibility with all SIP-based systems.

The main principle of the **2N<sup>®</sup> SIP Speaker, Wall Mounted** operation is to convert an audio signal between the Ethernet and audio interfaces. Therefore, **2N<sup>®</sup> SIP Speaker, Wall Mounted** is equipped with an integrated 2x 10 W amplifier for direct loudspeaker connection.

You can control **2N<sup>®</sup> SIP Speaker, Wall Mounted** with two buttons on the front panel or using an infrared remote controller.

**2N<sup>®</sup> SIP Speaker, Wall Mounted** is equipped with a digital input and output, which extend the converter options and may be helpful in special applications.

Use an integrated web interface for **2N<sup>®</sup> SIP Speaker, Wall Mounted** configuration.

Apply the **2N<sup>®</sup> Helios IP Network Scanner** to search all the **2N<sup>®</sup> SIP Speaker, Wall Mounted** units connected.

## 2N<sup>®</sup> SIP Speaker, Wall Mounted Back Panels



### 2N<sup>®</sup> SIP Speaker, Wall Mounted Back Panel

#### Connectors and Controls:

- LAN: 10/100BASE-TX RJ-45 connector
- Speaker: Integrated amplifier output terminals for one loudspeaker
- RESET button
- DC IN: 12 V DC / 2 A power supply adapter connector

## 3. Function and Use

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This section provides the basic and extended functions of the 2N<sup>®</sup> SIP Speaker, Wall Mounted product.

Here is what you can find in this section:

- [3.1 Configuration](#)
- [3.2 Default Reset](#)
- [3.3 Basic Functions](#)
- [3.4 Downloads](#)



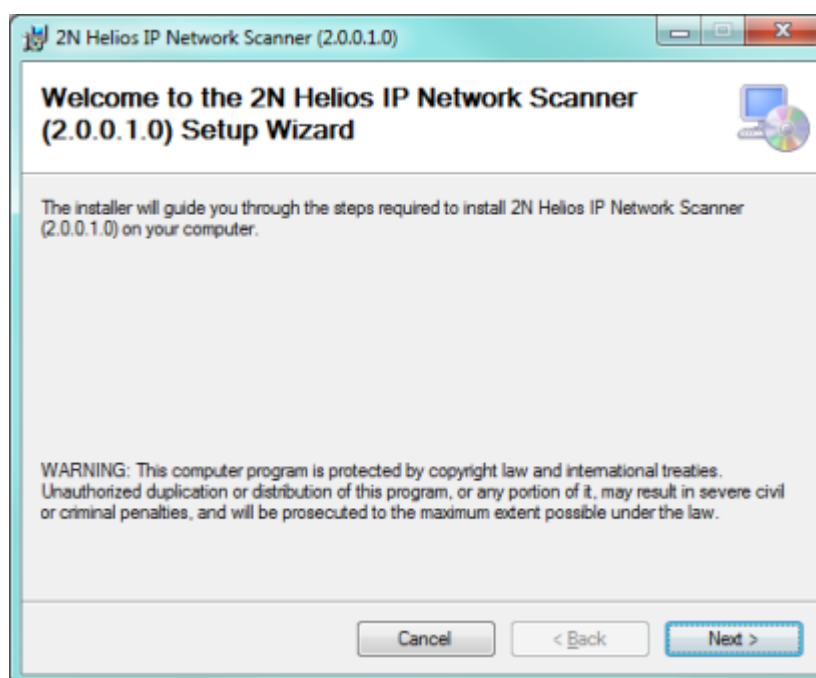
## 3.1 Configuration

2N<sup>®</sup> SIP Speaker, Wall Mounted is configured through an integrated administration web server. Connect 2N<sup>®</sup> SIP Speaker, Wall Mounted to the IP network and make sure that 2N<sup>®</sup> SIP Speaker, Wall Mounted is powered.

### Description of 2N<sup>®</sup> Helios IP Network Scanner

The purpose of this application is to find the dynamic IP address of 2N<sup>®</sup> SIP Speaker, Wall Mounted in the local IP network. The application can be downloaded from the 2N web sites [www.2n.cz](http://www.2n.cz).

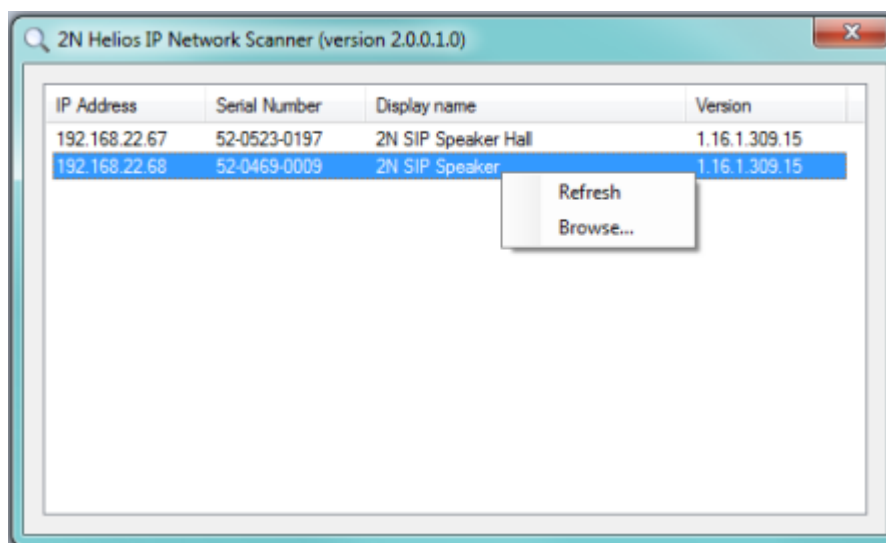
1. Run the 2N<sup>®</sup> Helios IP Network Scanner installer.
2. The installation wizard will guide you through the installation.



### 2N<sup>®</sup> Helios IP Network Scanner Installation Wizard

3. After installing the 2N<sup>®</sup> Helios IP Network Scanner application, run the application using the *Start* menu of the Microsoft Windows operating system.

4. Upon launch, the application starts searching the LAN automatically for all **2N<sup>®</sup> SIP Speaker, Wall Mounted** with an assigned or statically set IP address. The devices are then listed in a table.



2N<sup>®</sup> Helios IP Network Scanner Window

5. Select the **2N<sup>®</sup> SIP Speaker, Wall Mounted** to be configured. Click on it with the right-hand mouse button and select *Browse...* to open the web browser window, log in to **2N<sup>®</sup> SIP Speaker, Wall Mounted** and start configuring as described in the Login subsection below.

## Login

In the web browser enter the IP address of **2N<sup>®</sup> SIP Speaker, Wall Mounted** . Subsequently, a login screen will be displayed. The default login username and password are as follows:

- Username: Admin
- Password: 2n

If the login screen does not appear, an incorrect IP address was entered into the web browser or the **2N<sup>®</sup> SIP Speaker, Wall Mounted** administration web server was turned off. If you are not sure of the IP address of **2N<sup>®</sup> SIP Speaker, Wall Mounted**, use the **2N<sup>®</sup> Helios IP Network Scanner** application as described in the Description of

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2N<sup>®</sup> Helios IP Network Scanner subsection. Find how to switch on the administration web server in the Administration Web Server Switch-On subsection. Please check the IP address entered, or, if applicable, check the way the IP address was obtained as described at the beginning of subsection **3.1 Configuration**.

## Language Selection

You can select the language using the tag menu in the right-hand upper corner as shown in Figure below.

2N SIP Speaker CZ | EN | DE | FR | IT | ES | RU Logout

Language Selection

## 3.2 Default Reset

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### Factory Default

The following factory default parameters are available:

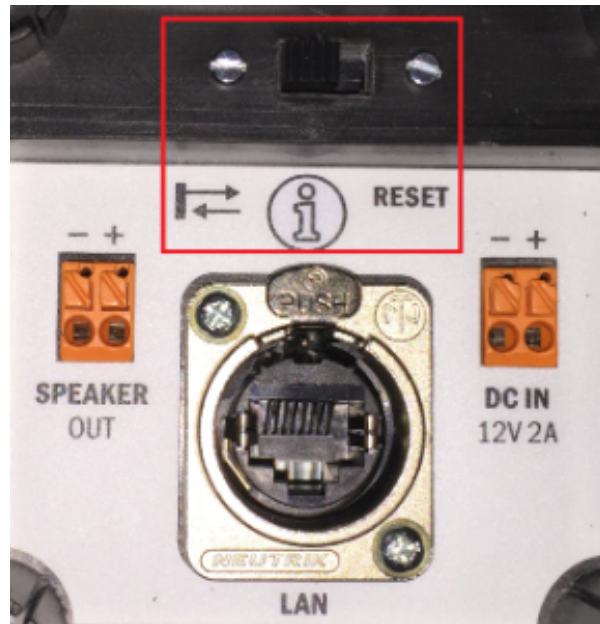
Parameter	Default
DHCP	Off
IP address	192.168.1.100
Mask	255.255.255.0
Default gateway	192.168.1.1
User name	Admin
Password	2n

### Factory Default Reset

In some cases, it may be useful to reset the 2N<sup>®</sup> SIP Speaker, Wall Mounted factory default values using the RESET switch on the back panel. Do so, for example, if 2N<sup>®</sup> SIP Speaker, Wall Mounted ceases to respond due to, for example, incorrect LAN settings, LAN configuration changes, forgotten password and so on.

### Factory Default Reset with Static IP Address

1. Move the switch to the position RESET. Do not disconnect the device from the power supply while resetting.






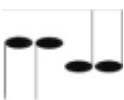

#### Reset with Static IP Address


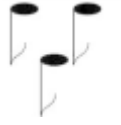


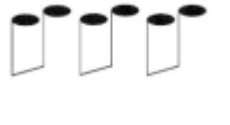
2. Wait until you can hear a beep (for approx. 18 s).
3. Now move the RESET switch to the opposite position.



## 3.3 Basic Functions

### Operational Status Signalling

2N<sup>®</sup> SIP Speaker, Wall Mounted signals acoustically changes of and transitions between variable operational statuses. There are different tone combinations for each status change. Refer to table below for the list of signals.

Tones	Meaning
	<p><b>User activated</b></p> <p>Used when the user activation code is entered. The activation code is used for user (telephone directory position) activation. Refer to the Users subsection in configuration manual for activation code settings.</p>
	<p><b>User deactivated</b></p> <p>Used when the user deactivation code is entered. The deactivation code is used for user (telephone directory position) deactivation. An inactive user cannot be called, but the call may be forwarded to the user substitute if predefined. Refer to the Users subsection in configuration manual for deactivation code settings.</p>
	<p><b>Calendar activated</b></p> <p>Used for calendar activation. Use this function, for example, to enable user group ringing in an office. Refer to the Time Profiles subsection in configuration manual for activation code settings.</p>
	<p><b>Calendar deactivated</b></p> <p>Used for calendar deactivation. Use this function, for example, to disable user group ringing in an office and forward the call(s) to a predefined telephone number (reception desk or user mobile phones). Refer to the Time Profiles subsection in configuration manual for deactivation code settings.</p>
	<p><b>Call prolongation confirmation signalling</b></p> <p>The maximum call duration is set in 2N<sup>®</sup> SIP Speaker, Wall Mounted for security reasons; refer to Phone subsection in configuration manual.</p>

Tones	Meaning
	<p><b>Internal application launched</b></p> <p>Upon <b>2N<sup>®</sup> SIP Speaker, Wall Mounted</b> power up or restart, the <b>2N<sup>®</sup> SIP Speaker, Wall Mounted</b> internal application is launched. A successful launch is signalled by this tone combination.</p>
	<p><b>Connected to LAN, IP address received</b></p> <p>When the internal application has been launched, <b>2N<sup>®</sup> SIP Speaker, Wall Mounted</b> logs into the LAN. A successful login is signalled by this tone combination.</p>
	<p><b>Disconnected from LAN, IP address lost</b></p> <p>This tone combination signals that the UTP cable has been disconnected from <b>2N<sup>®</sup> SIP Speaker, Wall Mounted</b>.</p>
	<p><b>Invalid telephone number or invalid switch activation code</b></p> <p><b>2N<sup>®</sup> SIP Speaker, Wall Mounted</b> allows you to store an extension number or enter the switch opening code. If the number/code is invalid, this tone combination is used.</p>
	<p><b>Default reset of network parameters</b></p> <p>Enter the default reset code for the network parameters within a 30-second timeout after power up. Refer to Factory Default Reset with Static IP Address and Factory Default Reset with DHCP Client ON for details.</p>

Tones	Meaning
	<p><b>Call end advance signalling</b></p> <p>You can set a call time limit in <b>2N<sup>®</sup> SIP Speaker, Wall Mounted</b> to avoid call blocking. Push a button on your VoIP telephone to prolong the call.</p>
	<p><b>Connected call when calling from a telephone to 2N<sup>®</sup> SIP Speaker, Wall Mounted</b></p> <p>When calling from your VoIP telephone to <b>2N<sup>®</sup> SIP Speaker, Wall Mounted</b> , you get a short call connection tone.</p>



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## Software

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2N<sup>®</sup> Helios IP network scanner 3.0.4

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## 4. Technical Parameters

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### Mechanical and Electrical Parameters

- **Dimensions:** (250 x 176 x 143) mm
- **Weight:** 3 kg
- **External power supply:** 12 V DC / 1,8 A
- **LAN supply:** PoE IEEE 802.3af
- **LAN connection:** RJ-45 connector on back panel, 10/100BASE-TX with Auto-MDIX function
- **Supported protocols:** SIP2.0, SIPS (TLS), DHCP opt. 66, SMTP, 802.1x, RTSP, RTP, SRTP, TFTP, HTTP, HTTPS, Syslog, ONVIF
- **Operating temperature:** 0 °C to 40 °C (32 °F to 104 °F)
- **Operating humidity:** 10 to 85 % (not condensing)
- **Permitted temperature range for product transport:** -25 °C to 60 °C (-13 °F to 140 °F)
- **Loudspeaker impedance:** 8 Ω
- **Frequency range:** 75 Hz - 20 kHz (±0,5 dB)
- **Harmonic distortion:** 0,05 % @ 1 kHz
- **Signal-to-noise ratio:** 91 dB
- **Sound Pressure Level (SPL max):** 100 dB (for 1 kHz, distance 1 m)
- **Output Power:** 12 W
- **Audiocodecs:** G.711 (PCMA, PCMU), G.729 (Annex A, B), G.722, L16 / 16 kHz

## 5. Supplementary Information

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Here is what you can find in this section:

- 5.1 Troubleshooting
- 5.2 Directives, Laws and Regulations
- 5.3 General Instructions and Cautions

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## 5.1 Troubleshooting

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For the most frequently asked questions refer to [faq.2n.cz](http://faq.2n.cz).

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## 5.2 Directives, Laws and Regulations

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### Europe

2N<sup>®</sup> SIP Speaker, Wall Mounted conforms to the following directives and regulations:

Directive 1999/5/EC of the European Parliament and of the Council, of 9 March 1999 - on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity

Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits

Directive 2004/108/EC of the Council of 15 December 2004 on the harmonisation of the laws of Member States relating to electromagnetic compatibility

Commission Regulation (EC) No. 1275/2008, of 17 December 2008, implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment

Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

Directive 2012/19/EC of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment.

### Industry Canada

This Class B digital apparatus complies with Canadian ICES-003. / Cet appareil numérique de la classe B est conforme a la norme NMB-003 du Canada.

### FCC

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

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This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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## 5.3 General Instructions and Cautions

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Please read this User Manual carefully before using the product. Follow all instructions and recommendations included herein.

Any use of the product that is in contradiction with the instructions provided herein may result in malfunction, damage or destruction of the product.

The manufacturer shall not be liable and responsible for any damage incurred as a result of a use of the product other than that included herein, namely undue application and disobedience of the recommendations and warnings in contradiction herewith.

Any use or connection of the product other than those included herein shall be considered undue and the manufacturer shall not be liable for any consequences arisen as a result of such misconduct.

Moreover, the manufacturer shall not be liable for any damage or destruction of the product incurred as a result of misplacement, incompetent installation and/or undue operation and use of the product in contradiction herewith.

The manufacturer assumes no responsibility for any malfunction, damage or destruction of the product caused by incompetent replacement of parts or due to the use of reproduction parts or components.

The manufacturer shall not be liable and responsible for any loss or damage incurred as a result of a natural disaster or any other unfavourable natural condition.

The manufacturer shall not be held liable for any damage of the product arising during the shipping thereof.

The manufacturer shall not make any warrant with regard to data loss or damage.

The manufacturer shall not be liable and responsible for any direct or indirect damage incurred as a result of a use of the product in contradiction herewith or a failure of the product due to a use in contradiction herewith.

All applicable legal regulations concerning the product installation and use as well as provisions of technical standards on electric installations have to be obeyed. The manufacturer shall not be liable and responsible for damage or destruction of the product or damage incurred by the consumer in case the product is used and handled contrary to the said regulations and provisions.

The consumer shall, at its own expense, obtain software protection of the product. The manufacturer shall not be held liable and responsible for any damage incurred as a result of the use of deficient or substandard security software.

The consumer shall, without delay, change the access password for the product after installation. The manufacturer shall not be held liable or responsible for any damage incurred by the consumer in connection with the use of the original password.

The manufacturer also assumes no responsibility for additional costs incurred by the consumer as a result of making calls using a line with an increased tariff.

## **Electric Waste and Used Battery Pack Handling**



Do not place used electric devices and battery packs into municipal waste containers. An undue disposal thereof might impair the environment!

Deliver your expired electric appliances and battery packs removed from them to dedicated dumpsites or containers or give them back to the dealer or manufacturer for environmental-friendly disposal. The dealer or manufacturer shall take the product back free of charge and without requiring another purchase. Make sure that the devices to be disposed of are complete.

Do not throw battery packs into fire. Battery packs may not be taken into parts or short-circuited either.





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