

Simons  Voss

# RouterNode 2

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## Manual

11.09.2019

**Simons  Voss**  
technologies

## Contents

<b>1</b>	<b>General</b> .....	<b>3</b>
<b>2</b>	<b>General safety instructions</b> .....	<b>4</b>
<b>3</b>	<b>Product-specific safety instructions</b> .....	<b>7</b>
<b>4</b>	<b>Scope of delivery</b> .....	<b>8</b>
4.1	Accessories .....	8
<b>5</b>	<b>Connections</b> .....	<b>9</b>
5.1	IO connector.....	10
<b>6</b>	<b>Installation</b> .....	<b>12</b>
6.1	Antenna .....	13
<b>7</b>	<b>Initial operation</b> .....	<b>16</b>
7.1	IPsettings.....	16
7.2	RouterNode 2 in the WaveNet Manager .....	17
<b>8</b>	<b>Maintenance</b> .....	<b>18</b>
<b>9</b>	<b>Signalling</b> .....	<b>19</b>
<b>10</b>	<b>Fault rectification</b> .....	<b>20</b>
10.1	Reset .....	20
<b>11</b>	<b>Technical specifications</b> .....	<b>22</b>
11.1	Optional external antenna .....	24
11.1.1	Electrical specifications .....	24
11.1.2	Connection specifications.....	25
11.1.3	Mechanical specifications and dimensions .....	25
<b>12</b>	<b>Declaration of conformity</b> .....	<b>26</b>
<b>13</b>	<b>Help and other information</b> .....	<b>27</b>

## 1 General

RouterNode 2 supports WaveNet networking at 868 MHz. This allows you to control your System 3060 components wirelessly and centrally:

- Programme remotely. You no longer have to go physically to the lock, but can programme the changes to the components directly via WaveNet.
- Import access lists remotely. If you have many locks with an access protocol, you save a lot of time by being able to read out all locks centrally.
- Perform emergency openings. Allow users access without having to physically go to the lock in question.



### IMPORTANT

#### Compatibility with System 3060

The device is also used with other firmware in other product families. You can only use the device with this firmware (=RouterNode 2) in System 3060.

- Check the article number.
- ↳ If the part number is WNM.RN2.XX, it is a RouterNode 2.

## 2 General safety instructions



### WARNING

#### Blocked access

Access through a door may be blocked due to incorrectly fitted and/or incorrectly programmed components. SimonsVoss Technologies GmbH is not liable for the consequences of blocked access such as access to injured or endangered persons, material damage or other damage!



### WARNING

#### Blocked access through manipulation of the product

If you change the product on your own, malfunctions can occur and access through a door can be blocked.

- Modify the product only when needed and only in the manner described in the documentation.

### ATTENTION

#### Damage resulting from electrostatic discharge (ESD)

This product contains electronic components that may be damaged by electrostatic discharges.

1. Use ESD-compliant working materials (e.g. Grounding strap).
2. Ground yourself before carrying out any work that could bring you into contact with the electronics. For this purpose, touch earthed metallic surfaces (e.g. door frames, water pipes or heating valves).

### ATTENTION

#### Damage resulting from liquids

This product contains electronic components that may be damaged by liquids of any kind.

- Keep liquids away from the electronics.

### ATTENTION

#### Damage resulting from aggressive cleaning agents

The surface of this product may be damaged as a result of the use of unsuitable cleaning agents.

- Only use cleaning agents that are suitable for plastic or metal surfaces.

**ATTENTION****Damage as a result of mechanical impact**

This product contains electronic components that may be damaged by mechanical impacts of any kind.

1. Avoid touching the electronics.
2. Avoid other mechanical influences on the electronics.

**ATTENTION****Damage as a result of overcurrent or overvoltage**

This product contains electronic components that may be damaged by excessive current or voltage.

- Do not exceed the maximum permissible voltages and/or currents.

**ATTENTION****Damage due to polarity reversal**

This product contains electronic components that may be damaged by reverse polarity of the power source.

- Do not reverse the polarity of the voltage source (batteries or mains adapters).

**ATTENTION****Interference to operation as a result of radio interference**

This product may be subject to interference from electromagnetic fields.

- Do not place the product directly next to devices that can cause electromagnetic interference (switching power supplies!).

**ATTENTION****Communication interference due to metallic surfaces**

This product communicates wirelessly. Metallic surfaces can significantly reduce the reach of the product.

- Do not place the product on metallic surfaces.

**IMPORTANT****Intended use**

SimonsVoss-products are designed exclusively for opening and closing doors and similar objects.

- ❑ Do not use SimonsVoss products for any other purposes.

**IMPORTANT**

Modifications or further technical developments cannot be excluded and may be implemented without notice.

**IMPORTANT**

This documentation has been compiled based on the best knowledge available to us. Nevertheless, errors cannot be ruled out. SimonsVoss Technologies GmbH is not liable in such cases.

**IMPORTANT**

Should there be differences in the content of other language versions of this documentation, the German version applies in cases of doubt.

**IMPORTANT**

You must follow all instructions precisely when connecting and installing the product. The person installing the system should hand these instructions as well as any maintenance instructions over to the user.

### 3 Product-specific safety instructions



#### CAUTION

##### Risk of burns due to hot circuit board

If you power the device with Power-over-Ethernet (PoE), the board can become very hot.

- Allow the unit to cool down before opening the housing.



#### CAUTION

##### Risk of electric shock from connected power supply

The device is supplied with power during operation. Opening the housing and touching live parts may result in electric shock.

1. If the power supply is connected, do not open the housing.
2. Disconnect the power supply (or disconnect the network cable) before opening the housing.



#### IMPORTANT

##### Further documentation

Further documentation on SimonsVoss products can be found on the SimonsVoss website (<https://www.simons-voss.com/de/downloads/dokumente.html>).

## 4 Scope of delivery

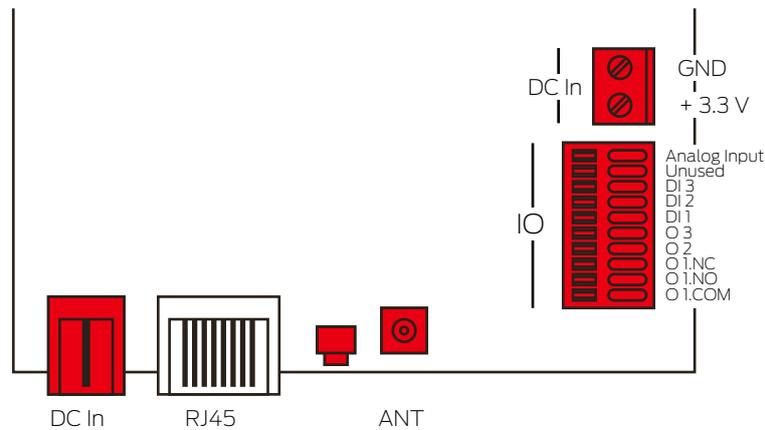
- RouterNode 2: Cover, base plate with circuit board and three pre-assembled strain reliefs
- Removable sticker with Chip-ID
- Quick guide

### 4.1 Accessories

You can use optionally available accessories to adapt your device to different applications.

Order code	Name	Purpose
ANTENNA.EXT.868	External antennas	You can connect the external antenna to the FME connector of the circuit board and improve reception (see <a href="#">Antenna [▶ 13]</a> ).
POWER.SUPPLY.2	Power supply (12 V <sub>DC</sub> , 500 mA)	You can use this power supply unit to power your device.

## 5 Connections



### IMPORTANT

#### IO connector only for RouterNode 2

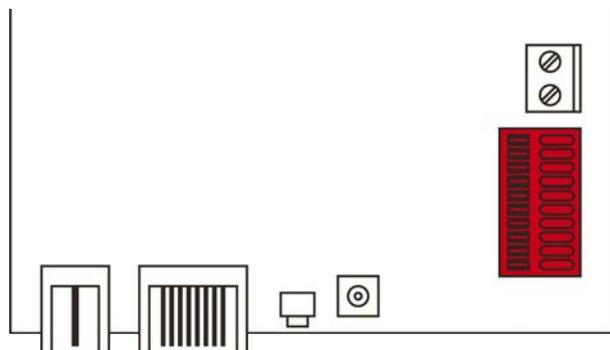
You can only use the connectors of the IO connector at RouterNode 2.

Connection	Meaning
DC In	Pin connector Terminal block: GND Terminal block: +3.3 V
RJ45	Power supply with round plug connector Power supply with single wires - Earth connection Power supply with single wires - Positive pole Network connection
ANT	Connector for external antenna (see <i>Antenna</i> [▶ 13])

Connection	Meaning
Analogue input	Connection of an analogue signal from 0 V <sub>DC</sub> to 2.5 V <sub>DC</sub> .
Unused	Unused.
DI 3	The connection of a digital signal from 0 V <sub>DC</sub> to 3.3 V <sub>DC</sub> .
DI 2	The connection of a digital signal from 0 V <sub>DC</sub> to 3.3 V <sub>DC</sub> .
DI 1	The connection of a digital signal from 0 V <sub>DC</sub> to 3.3 V <sub>DC</sub> .

Connection	Meaning
O3	Open drain output (for details, see <i>IO connector</i> [▶ 10] und <i>Technical specifications</i> [▶ 22]).
O2	Open drain output (for details, see <i>IO connector</i> [▶ 10] und <i>Technical specifications</i> [▶ 22]).
O1.NC	Potential-free relay output: Normally Closed (NC). This output is electrically connected to output O1.COM in the idle state.
O1.NO	Potential-free relay output: Normally Open (NO). This output is electrically connected to output O1.COM when energised.
O1.COM	Potential-free relay output: Common (COM). This output is either connected to output O1.NC or O1.NO, depending on the switching state of the relay.

### 5.1 IO connector



The IO connector enables you to communicate with external devices. Use a screwdriver to push the spring-loaded terminal downwards to connect or disconnect cables. Details and application examples for wiring the IO-Connector can be found in the RouterNode-2 manual.

#### Evaluation of digital signals

Changes in the voltage level are detected as a signal. You can evaluate signals between 0 V<sub>DC</sub> and +3.3 V<sub>DC</sub>. Signals from 0 V<sub>DC</sub> to +0.8 V<sub>DC</sub> are detected as *Low*, whereas signals from +2.0 V<sub>DC</sub> to +3.3 V<sub>DC</sub> are detected as *High*. You can respond to signals and trigger actions in the LSM.

## **Evaluation of an analogue signal**

The RouterNode 2 digitises the voltage level and compares the values with a threshold value. You can configure this threshold value in the WaveNet Manager and trigger an analogue event. In LSM event management, you specify how the system is to respond to the occurrence of this event.

## **Use of the relay**

The relay offers two potential-free outputs and a common earth connection. You can use the relay to control external devices.

## **Using the open drain outputs**

In the switched state, the open drain outputs establish an electrical connection to the ground potential of RouterNode 2.

## 6 Installation

The device can be mounted horizontally or vertically. You can carry out the horizontal mounting easily and safely with the integrated mounting holes.

### ATTENTION

#### Adverse effect on reception due to interferences

This device communicates wirelessly. Wireless communication can be affected or may fail due to metal surfaces or interference.

1. Do not fit the device to metal surfaces.
2. Keep the device away from sources of electrical or magnetic interference.

### ATTENTION

#### Unauthorised access

If the electrical contacts in the device are short-circuited by unauthorised persons, undesired reactions may occur.

- Mount the device in an environment that is protected from unauthorised access.

### ATTENTION

#### Malfunctions due to weather conditions

This device is not protected against splash water and other weather influences.

- Mount the device in an environment that is protected from the weather.

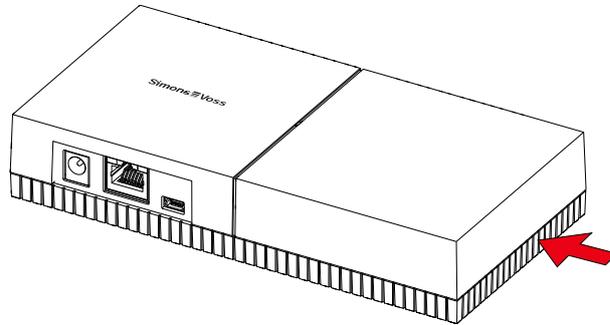
#### Wiring to device

You can install the cables both on (surface-mounted) and under (flush-mounted) plaster.

- If you install the cables under the plaster, then use the opening integrated in the base plate.
- If you lay the cables on the plaster, then you must modify the housing.

✓ Power supply disconnected.

1. Push the ribbed area laterally inwards and remove the housing cover.



2. Check the required width of the housing opening. The height of the opening is approx. 7 mm. Each removed bar widens the opening by 4 mm.

3. Select a location where you want to remove the bars.

### ATTENTION

#### Insufficient fit due to removed clips

The housing cover is positioned and held by clips on the webs. If you saw off or break off these clips, the housing cover will no longer be held at this point.

1. Do not remove any bars that have a clip over them.

2. Do not damage clips during sawing.

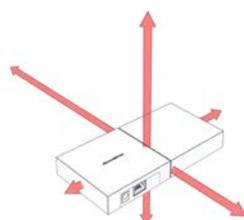
4. Use a suitable saw to saw through the bars at both ends of the desired opening to the base plate.

5. Bend the bars back and forth at the desired opening until the bars break.

↳ The housing is prepared for surface mounting.

## 6.1 Antenna

The internal antenna has a spherical radiation characteristic (omnidirectional antenna). The transmitting and receiving power is therefore the same in all positions and directions, but may be influenced by the surroundings (sources of interference and/or metallic surfaces).



## External antennas



Use the external antenna if any of the following problems occur.

- Transmission and reception behaviour not stable
- Range too short
- Transmission and reception outdoors (LockNodes available outdoors)

The external antenna is suitable for outdoor use. This allows you to place the device in the protected area while the antenna is outdoors.

The scope of delivery of the external antenna includes:

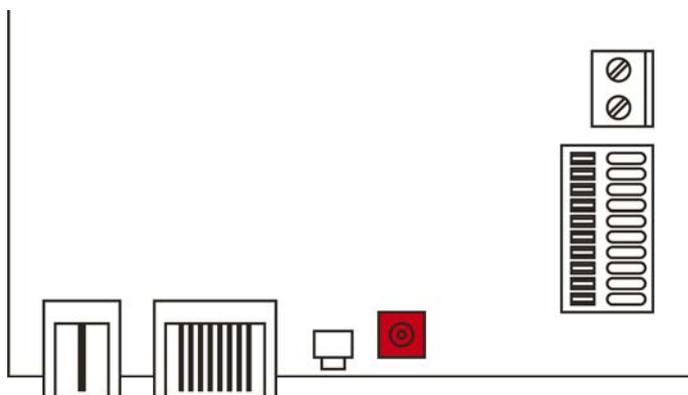
- Integrated magnetic base
- Wall mounting material
- Dowels and screws

You do not need to change any settings after connecting the external antenna. When the external antenna is connected, the device transmits via the internal and external antennas (the internal antenna is not disabled by connecting the external antenna).

- ✓ Power supply disconnected.

1. Open the housing.

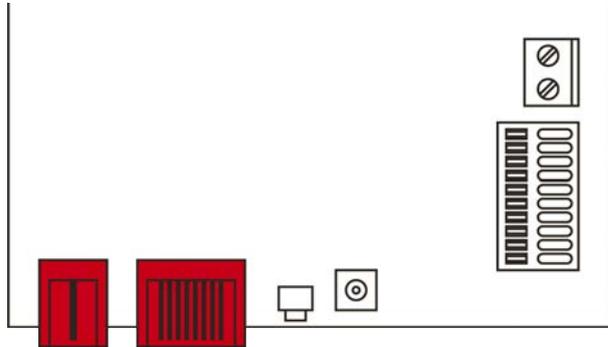
2. Locate the connector socket on the circuit board.



3. Connect the external antenna to the connector socket.  
↳ The external antenna is connected.
4. Close the housing again.  
↳ The device transmits via internal and external antenna.

## 7 Initial operation

1. Mount the device (see *Installation* [▶ 12]).
2. Supply the device with power.



3. Connect the device to your network.
  4. Use the OAM-Tool to determine the IP address of your device in the network (see OAM-Tool manual).
  5. Connect the device to your system (see *RouterNode 2 in the WaveNet Manager* [▶ 17] as well as the WaveNet manual).
- ↳ The device has been put into operation and is now flashing green slowly (see *Signalling* [▶ 19]).

### Also see

- ▶ *RouterNode 2 in the WaveNet Manager* [▶ 17]

### 7.1 IPsettings

Your device can be addressed via an IP address in the network. There are two ways to integrate your device into the network:

- Automatic assignment of an IP address by a DHCP server in the network: Unless you make other settings, an IP address is automatically assigned to your device by a DHCP server. You can change this IP address manually later. If you do not know the IP address, you can determine the IP address with the OAM tool.
- Manual assignment of an IP address: Assign the IP address manually.

You can change the IP settings in the WaveNet Manager.

If you reset the network settings in your device (see *Reset* [▶ 20]), the default IP address will only be restored if you assign it manually. However, if the IP address was assigned by a DHCP server, the IP address will be reassigned by the DHCP server directly following reset.

## 7.2 RouterNode 2 in the WaveNet Manager

- ✓ LSM is open.
  - ✓ RouterNode 2 is supplied with power.
  - ✓ RouterNode 2 is connected to network.
  - ✓ IP address is known/DHCP server is available.
1. Via | Network | select the entry **WaveNet Manager**.
    - ↳ The window "Start WaveNet Manager" opens.
  2. Click on the button **Start**.
  3. If necessary, enter user name and password.
  4. Right-click your WaveNet.
    - ↳ The window "Administration" opens.
  5. Select the option  Add: IP oder USB router.
  6. Click on the **OK** button.
    - ↳ The window "Add: IP oder USB Router" opens.
  7. Select the option  IP address.
    - ↳ The input mask for the IP address opens.
  8. Enter the IP address that you have previously determined with the OAM tool.
  9. Click on the **OK** button.
    - ↳ The window "Network options" opens.
  10. Click on the **Yes** button.
    - ↳ RouterNode 2 is imported in the WaveNet topology.

You can then expand your WaveNet with WaveNet-enabled locks and import the WaveNet topology. For more information, refer to the WaveNet and WaveNet Manager manuals.

## 8 Maintenance

The device itself is maintenance-free. However, the performance of radio networks will always depend on environmental influences. These influences can change and affect the performance of your radio network. You should therefore check the network configuration and performance of your radio network at regular intervals.



### CAUTION

#### Network failure in critical situations

With the System 3060 and WaveNet you can implement emergency functions such as amok protection. These emergency functions are critical.

1. Test locking systems in which critical emergency functions are implemented at least once a month.
2. If necessary, also comply with other standards and regulations according to which your system is operated.

## 9 Signalling

Signal	Meaning
Green flashing (~1.5 Hz)	Configured and ready to use.
Green flashing (~0.3 Hz)	Not configured, but ready for operation
Red flashing (briefly)	Restart
Green flickering	Data transfer

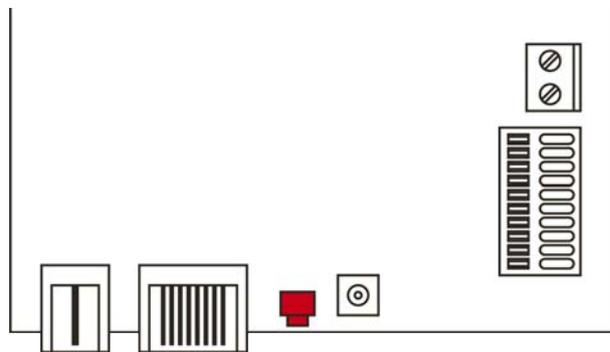
## 10 Fault rectification

If problems occur during operation, you may be able to rectify them yourself:

1. Check the power supply of the affected devices.
2. Check the network connection.
3. Check the authorisations assigned.

### 10.1 Reset

If problems should occur or you want to reset the device to its initial state, you can reset the device with the reset button.



Make a distinction between them:

- Reset WaveNet configuration: Reset all WaveNet settings.
- Reset network configuration: Reset all network settings (IP address, DHCP settings, host name).



#### IMPORTANT

##### IP address recovery

If the IP address is assigned by a DHCP server (default setting), the DHCP server assigns the IP address again directly after resetting.

##### Reset WaveNet configuration

1. Disconnect the power supply (round plug or network cable for PoE).
2. Wait 20 seconds.
3. Press and hold the reset button.
4. Reconnect the power supply (round plug or network cable for PoE).
5. Release the reset button after one second.
  - ↳ Device flashes green again (see *Signalling* [▶ 19]).
  - ↳ WaveNet configuration is reset.

### Reset network configuration

1. Disconnect the power supply (round plug or network cable for PoE).
2. Wait 20 seconds.
3. Press and hold the reset button.
4. Reconnect the power supply (round plug or network cable for PoE).
5. Release the reset button after five seconds.
  - ↳ Device flashes green again (see *Signalling* [▶ 19]).
  - ↳ Network configuration is reset.



#### IMPORTANT

##### Unauthorised access with standard access data

The standard access data can be viewed freely. Unauthorised persons cannot change the access authorisations, but they can change the network configuration. You will then no longer be able to reach the device via the network and will have to reset it.

- Change the default password.

You receive the device with the following factory configuration:

IPaddress	192,168,100,100
User name	SimonsVoss
Password	SimonsVoss

The IP address of your device on your network can be determined using the free OAM tool (<https://www.simons-voss.com/de/downloads/software-downloads.html>). Please refer to the manual for more information.

## 11 Technical specifications

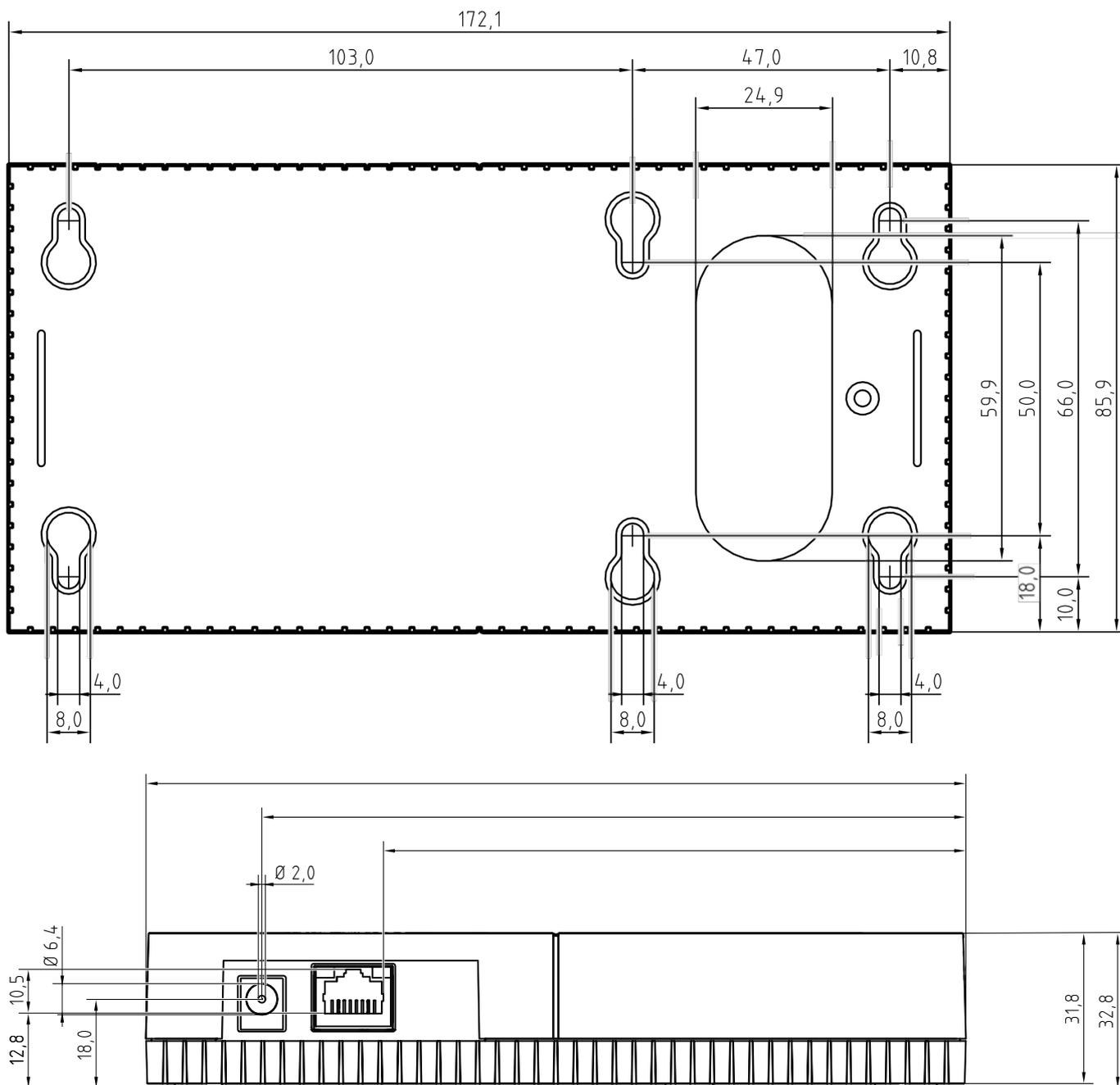
General	
Dimensions	172 mm × 86 mm × 33 mm
Weight	About 100 g
Material	ABS plastic, UV-stable
Colour	White (like RAL 9016 "Traffic white")
Installation	<ul style="list-style-type: none"> <li>■ horizontal</li> <li>■ vertical</li> <li>■ Wall mounting possible</li> <li>■ Integrated strain relief (3x)</li> </ul>
	<ul style="list-style-type: none"> <li>■ RJ45 (Network/PoE)</li> <li>■ Round plug Ø 5.5 mm, Ø pin 2.0 mm (power supply)</li> <li>■ Screw terminal block 2-pole, wire diameter 0.14 mm<sup>2</sup> to 1.5 mm<sup>2</sup> (power supply for external applications)</li> </ul>
	<ul style="list-style-type: none"> <li>■ FME socket (optional external antenna)</li> </ul>
	<p>Power supply via PoE and round plug possible simultaneously: round plug &gt; 12 V<sub>DC</sub> → Round plug used, round plug &lt; 12 V<sub>DC</sub> → PoE used</p>
Connections	
Connections (can only be used on RouterNode 2)	<ul style="list-style-type: none"> <li>■ Spring terminal block 10-pin, wire diameter 0.14 (rigid) or 0.2 (flexible) mm<sup>2</sup> to 0.5 mm<sup>2</sup> (IO connector, can only be used with RouterNode 2)</li> </ul>
Environment	
Temperature	<ul style="list-style-type: none"> <li>■ Operational: -10 °C to +55 °C</li> <li>■ Storage: -20 °C to +60 °C</li> </ul>
Humidity	Max. 90%, non-condensing
Standard protection rating	IP20
Electric	
Operating voltage	9 V <sub>DC</sub> to 32 V <sub>DC</sub> (reverse polarity protected) or PoE according to IEEE 802.3af
	<p>Power supply via PoE and round plug possible simultaneously: round plug &gt; 12 V<sub>DC</sub> → Round plug used, round plug &lt; 12 V<sub>DC</sub> → PoE used</p>

Output	max. 3 W
Output VOUT	3.0 V <sub>DC</sub> to 3.3 V <sub>DC</sub> , max. 200 mA
Relay output O1	<ul style="list-style-type: none"> <li>■ Max. switching voltage 30 V<sub>DC</sub>/24V<sub>AC</sub> (resistive load)</li> <li>■ Max. switching current 1 A (resistive load)</li> </ul>
Digital outputs O2/O3	Max. switching voltage 12 V <sub>DC</sub> , max. switching current 100mA (resistive load)
Interfaces	
RJ45	<ul style="list-style-type: none"> <li>■ Network interface</li> <li>■ 10T/100T</li> <li>■ HP Auto_MDX</li> <li>■ DHCP-Client (DHCP: on)</li> <li>■ IPv4</li> <li>■ Service <ul style="list-style-type: none"> <li>■ TCP: 1x at Port 2101</li> <li>■ UDP: 1x for Digi-Scan (OAM tool)</li> </ul> </li> <li>■ Web server: Enable</li> </ul>
868 MHz radio	WaveNet interface
Analogue input	1x with 12-bit resolution from 0 to 3.3 V <sub>DC</sub>
Digital inputs	<p>3x. An external contact connected to VOUT changes the logic state from 0 to 1.</p> <ul style="list-style-type: none"> <li>■ Low/Logical 0: 0 V<sub>DC</sub> to 0.8 V<sub>DC</sub></li> <li>■ High/Logical 1: 2.0 V<sub>DC</sub> to 3.3 V<sub>DC</sub></li> </ul>
Digital outputs	2x open drain.
Relay contacts	1x change-over contact, potential-free.
Signalling	
LED	RGB LED (centre of housing)
Software	
Programming	via TCP/IP interface
Memory (internal)	1 MB

#### Radio emissions

SRD (WaveNet)	868.000 MHz) - 868.600 MHz	<25 mW ERP
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There are no geographical restrictions within the EU.



### 11.1 Optional external antenna

#### 11.1.1 Electrical specifications

Type	Multiband antenna
Frequencies	■ AMPS (824 - 894MHz)
	■ GSM (900MHz)
	■ DCS (1800MHz)
	■ PCS (1900MHz)
	3G (UMTS 2,1GHz)
Impedance	50 Ω

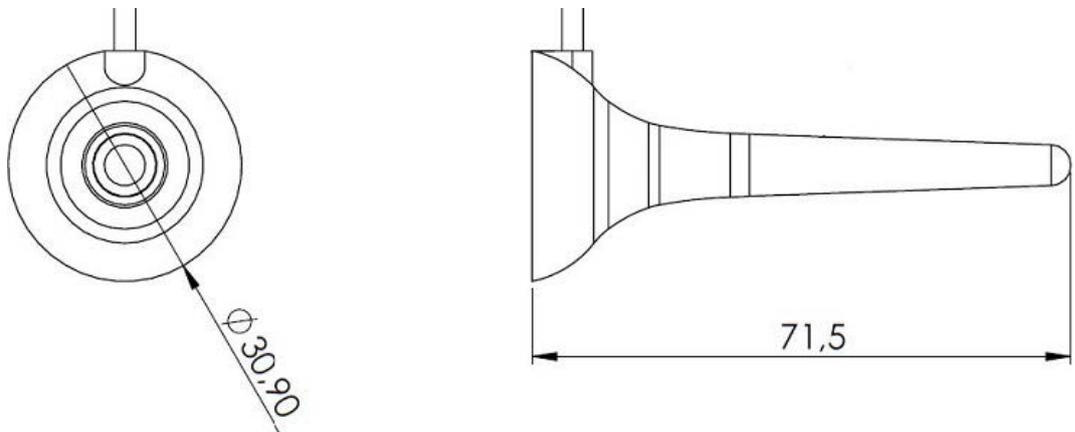
Polarization	Linear
Gain	2,2dBi max.
VSWR	< 3:1
Operating temperature	-40°C to +85°C

### 11.1.2 Connection specifications

Connector type	FME female
Cable	RG174U
Cable length	250cm

### 11.1.3 Mechanical specifications and dimensions

Mounting	Magnetic Mount
Material	ABS
Max. dimensions	30,9mm x 71,5mm (Ø x H)
Weight	50g 'weight with connection above'
Colour	Black



## 12 Declaration of conformity

The company SimonsVoss Technologies GmbH hereby declares that article WNM.RN2 complies with the following guidelines:

- 2014/53/EU "Radio equipment"
- 2014/30/EU "EMC"
- 2011/65/EU "RoHS"
- 2012/19/EU "WEEE"
- and regulation (EG) 1907/2006 "REACH"

The full text of the EU Declaration of conformity is available at the following internet address: <https://www.simons-voss.com/en/certificates.html>.



## 13 Help and other information

### Information material/documents

You will find detailed information on operation and configuration and other documents under Informative material/Documents in the Download section on the SimonsVoss website (<https://www.simons-voss.com/en/downloads/documents.html>).

### Declarations of conformity

You will find declarations of conformity for this product in the Certificate section on the SimonsVoss website (<https://www.simons-voss.com/en/certificates.html>).

### Information on disposal

- Do not dispose the device (WNM.RN2) in the household waste. Dispose of it at a collection point for electronic waste as per European Directive 2012/19/EU.
- Recycle defective or used batteries in line with European Directive 2006/66/EC.
- Observe local regulations on separate disposal of batteries.
- Take the packaging to an environmentally responsible recycling point.



### Hotline

If you have any questions, the SimonsVoss Service Hotline will be happy to help you on +49 (0)89 99 228 333 (German fixed network; call charges vary depending on the operator).

### Email

You may prefer to send us an email.

[support@simons-voss.com](mailto:support@simons-voss.com)

### FAQs

You will find information and help for SimonsVoss products in the FAQ section on the SimonsVoss website (<https://faq.simons-voss.com/otrs/public.pl>).

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85774 Unterföhring  
Germany



## This is SimonsVoss

SimonsVoss is a technology leader in digital locking systems.

The pioneer in wirelessly controlled, cable-free locking technology delivers system solutions with an extensive product range for SOHOs, SMEs, major companies and public institutions.

SimonsVoss locking systems unite intelligent functions, optimum quality and award-winning German-made design. As an innovative system provider, SimonsVoss attaches great importan-

ce to scalable systems, effective security, reliable components, high-performance software and simple operation.

Our commercial success lies in the courage to innovate, sustainable thinking and action, and heartfelt appreciation of employees and partners. With its headquarters in Unterföhring, near Munich, and its production site in Osterfeld, eastern Germany, the company employs around 300 staff in eight countries.

SimonsVoss is a company in the ALLEGION Group, a globally active network in the security sector. Allegion is represented in around 130 countries worldwide ([www.allegion.com](http://www.allegion.com)).

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