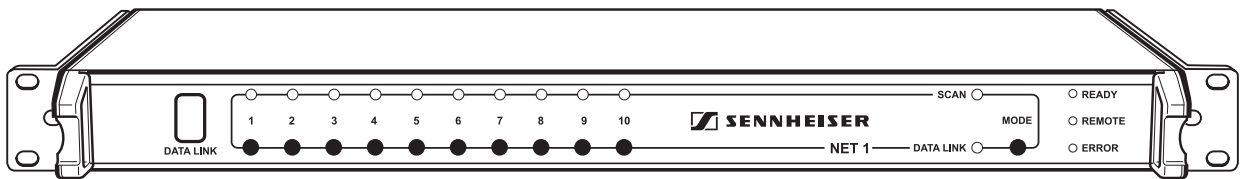


# NET 1

Instructions for use





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Thank you for choosing Sennheiser!

We have designed this product to give you reliable operation over many years. Over 60 years of accumulated expertise in the design and manufacture of high-quality electro-acoustic equipment have made Sennheiser a world-leading company in this field.

Please take a few moments to read these instructions carefully, as we want you to enjoy your new Sennheiser products quickly and to the fullest.

# Important safety instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, when the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



## Rack mounting

When installing the device in a closed or multi-rack assembly, please consider that, during operation, the ambient temperature within the rack may significantly rise above room temperature. However, the ambient temperature within the rack must not exceed the temperature limit specified in the specifications.

When installing the device in a rack, take good care not to affect the ventilation required for safe operation or provide additional ventilation.

Make sure the mechanical loading of the rack is even to avoid a hazardous condition such as a severely unbalanced rack.

When installing the device in a closed or multi-rack assembly, please note that intrinsically harmless leakage currents of the individual devices may accumulate, thereby exceeding the allowable limit value. As a remedy, ground the rack via an additional ground connection.

# Important safety information

## Warning

To reduce the risk of fire or electric shock, do not expose this device to rain or moisture. Do not open the cabinet; dangerous high voltage is present. Refer servicing to qualified personnel only.

## Caution

To prevent fire, shock hazard, or annoying interference, use only the recommended accessories. To reduce the risk of electric shock, do not remove the unit cover or back. There are no servicable parts inside. Refer servicing to qualified personnel only.



This symbol is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute risk of fire or electric shock.



This symbol is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying this product.

## Power sources

This device should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your dealer or local power company.

## Overloading

Do not overload wall outlets and extension cords as this may result in fire and electric shock.

## Objects and liquids

Never push objects of any kind through openings into this device as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill liquids of any kind onto the device. Should spillage occur, unplug the device and have it checked by a technician.

## Servicing

Do not attempt to service this device yourself as opening or removing covers may expose dangerous voltage or other hazards. Refer all servicing to qualified personnel only.

## Replacement parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or those having the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

### Safety check

Upon completion of any service or repairs to this device, ask the service technician to perform safety checks to determine that the device is in safe operating order.

### Accompanying documentation

In addition to these instructions, please also refer to the

- instructions for use of the rack-mount and portable devices
- instructions for use of the “Wireless Systems Manager” PC software
- installation manual for the “Wireless Systems Manager” PC software

# The NET 1 network system

The NET 1 allows you to control and monitor Sennheiser wireless microphone and monitoring systems.

Its main feature is frequency management, significantly simplifying the set up of complex wireless systems by

- scanning the channel banks and automatically assigning the frequencies to the connected [rack-mount devices](#) and
- wirelessly transferring data to the [portable devices](#).

One NET 1 device with up to 10 connected rack-mount devices is a suitable tool for configuring your system. A second, daisy-chained NET 1 allows you to configure systems comprising up to 20 devices, without the need for a PC.

Applications with up to five NET 1 devices, i.e. multi-channel systems with up to 50 channels, can be controlled via a PC and the supplied "Wireless Systems Manager" (WSM) software. These multi-channel systems are connected to the PC via Ethernet connections.

The WSM software enables real-time monitoring as well as remote controlling of all relevant device parameters during live operation, ensuring an excellent overview of the system at all times. In addition, the WSM software allows you to integrate and control devices of the Sennheiser 3000/5000 series.

The following Sennheiser systems can be configured using the NET 1:

For correct operation, only transmitters and receivers that are equipped with the same compander system can be combined with each other:

System		Compander system	Receivers	Transmitters
Wireless monitoring system	ew IEM G2	HDX	portable: EK 300 IEM G2	rack-mount: SR 300 IEM G2
Wireless microphone systems	ew G2	HDX	rack-mount: EM 500 G2 EM 550 G2 EM 300 G2	portable: SK 500 G2 SKM 5xx G2 SKP 500 G2 SK 300 G2 SKM 3xx G2
	3000/ 5000 series	HiDyn <i>plus</i> <sup>TM</sup>	rack-mount: EM 3532	portable: SK 5212 SKM 5200 SKP 3000

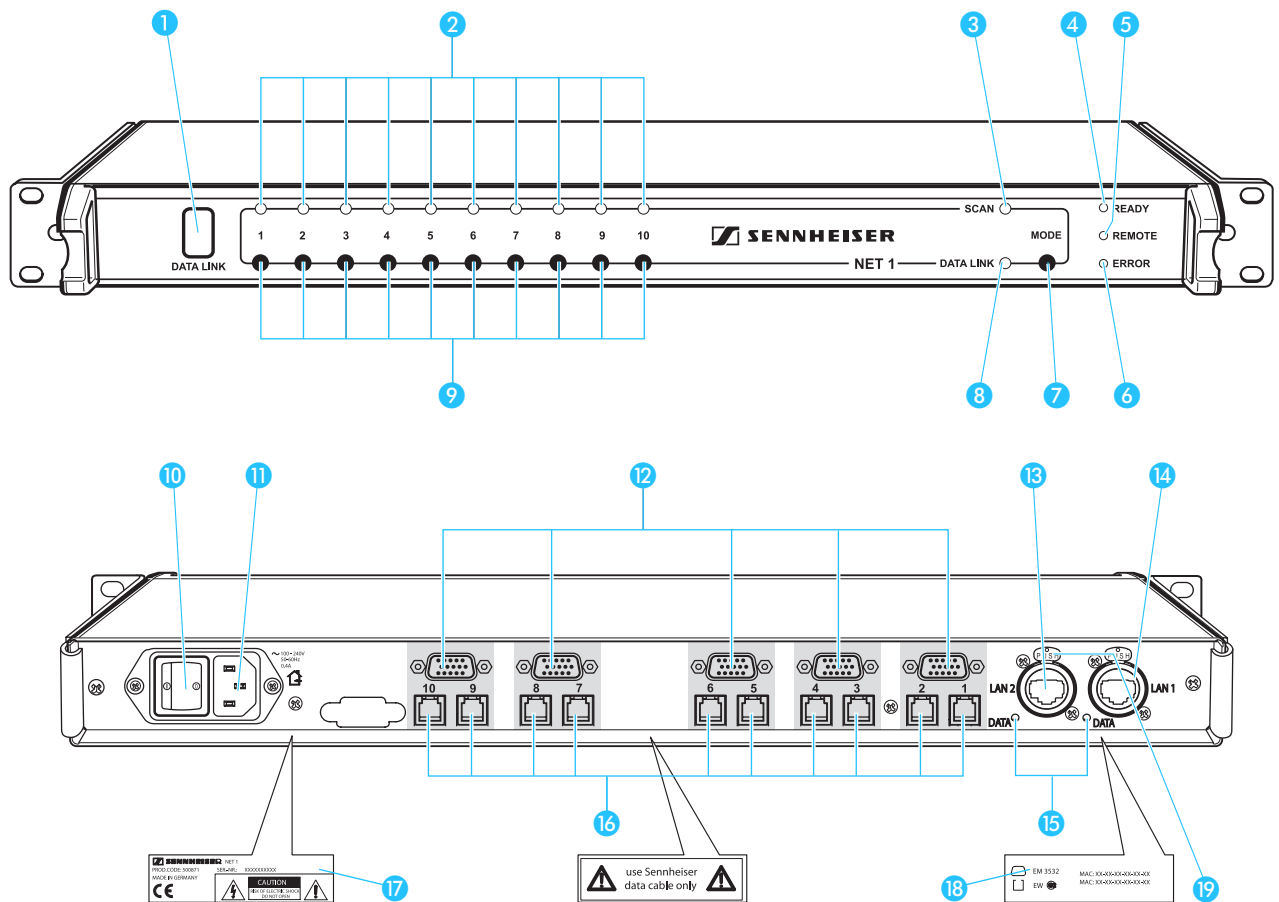
Sennheiser is continuously improving the NET 1 and the WSM software. We therefore recommend that you register on our homepage at [www.sennheiser.com/net1](http://www.sennheiser.com/net1) to regularly receive a newsletter providing information on the NET 1, the WSM software and future software updates.

## Delivery includes

- 1 NET 1 with rack-mounting kit
- 3 power cords (with EU, US and UK plug)
- Device feet
- 10 RJ 10 data cables
- 1 RJ 45 Ethernet cable
- Instructions for use of the NET 1
- "NET" stickers to mark the receivers and transmitters that have had the latest firmware installed after you have updated them from the supplied CD-ROM
  
- 1 CD-ROM with:
  - the "Wireless Systems Manager" PC software
  - the firmware update software (SENNPKG file)
  - the instructions for use of the "Wireless Systems Manager" software

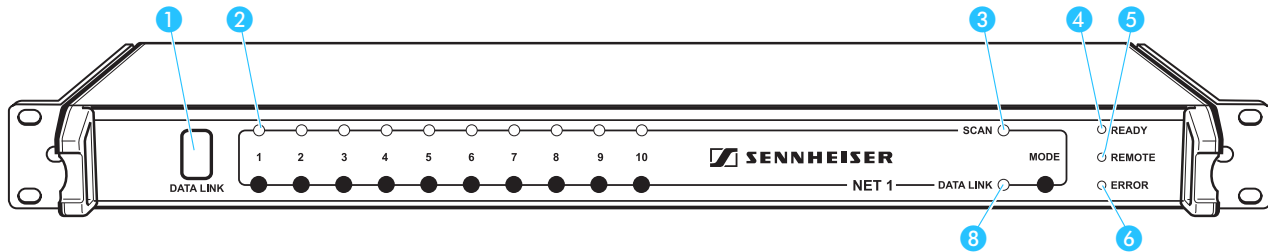


# Operating controls



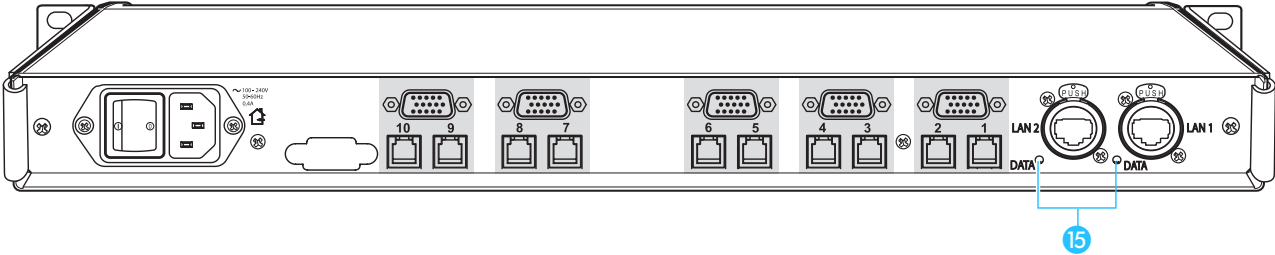
- 1 Infra-red interface (DATA LINK), backlit in blue
- 2 "CHANNEL" LED (1 to 10), green
- 3 "SCAN" LED, yellow
- 4 "READY" LED, green
- 5 "REMOTE" LED, yellow
- 6 "ERROR" LED, red
- 7 MODE button
- 8 "DATA LINK" LED, yellow
- 9 Channel buttons (1 to 10)
- 10 ON/OFF switch
- 11 3-pin IEC power connector
- 12 5 x sub-D socket for connecting EM 3532 twin receivers
- 13 LAN 2 Ethernet connection, Neutrik RJ 45 socket
- 14 LAN 1 Ethernet connection, Neutrik RJ 45 socket
- 15 "DATA" LED, yellow (Ethernet)
- 16 10 x RJ 10 socket for connecting rack-mount receivers or transmitters (IEM) of the evolution wireless G2 series
- 17 Type plate
- 18 Plate with MAC addresses
- 19 Latch for Ethernet connection (when using the matching Neutrik plug)

## LEDs on the front panel of the NET 1



LED	Color of LED	LED lights up permanently	LED...
IR interface ①	backlit in blue	NET 1 is ready to transfer the frequencies and settings.	–
CHANNEL ② (1 to 10)	green	NET 1 has detected the connected devices.	<p><b>...flashes slowly:</b> Rack-mount receivers After the frequency scan, NET 1 indicates the receivers belonging to the frequency range of the receiver that has performed the scan.</p> <p>Rack-mount transmitters (IEM): After the frequency scan with a portable receiver (IEM) and the frequency transfer to the transmitters (IEM) of the corresponding frequency range, the receivers (IEM) can now be configured.</p> <p><b>...flashes rapidly:</b> NET 1 is ready to transfer the frequencies and settings to a portable device.</p> <p><b>...flashes once every second:</b> The firmware of the connected evolution wireless G2 device is not the latest (see the instructions for use of the “Wireless Systems Manager” software).</p>
		IR frequency transfer is successfully completed	
SCAN ③	yellow	With the <b>MODE</b> button pressed, NET 1 indicates that it is ready for scanning	<p><b>...flashes slowly:</b> A frequency scan is being performed.</p>
READY ④	green	NET 1 is ready for operation	<p><b>...flashes:</b> NET 1 has been switched on and is being initialized.</p>
REMOTE ⑤	yellow	NET 1 is PC controlled or controlled via an additional NET 1 (“remote operation”)	–
ERROR ⑥	red	–	<p><b>...flashes rapidly for approx. 3 seconds:</b></p> <ul style="list-style-type: none"> <li>An error has occurred during IR data transfer (e.g. wrong frequency range of the device); data transfer must be repeated.</li> <li>The <b>MODE</b> button is being pressed but NET 1 cannot switch to scan mode because: <ul style="list-style-type: none"> <li>no receiver is connected.</li> <li>NET 1 is PC controlled or controlled via an additional NET 1 (“remote operation”).</li> </ul> </li> </ul>
DATA LINK ⑧	yellow	A device is connected.	<p><b>...flashes slowly:</b> NET 1 is ready to transfer the frequencies and settings.</p>

# LEDs on the rear panel of the NET 1



LED	Color of LED	LED lights up permanently	LED...
DATA 15 (Ethernet)	yellow	NET 1 is connected to a PC or an additional NET 1	...flashes rapidly: Data is being transferred within the network.

# Putting the NET 1 into operation

## Setting up the NET 1

Strong extraneous light may interfere with the data transfer via the infrared interface. Therefore, position the NET 1 so as to avoid interference from extraneous light.

## Rack-mounting the NET 1

---

**CAUTION!** Danger of heat damage!

When installing the device in a closed or multi-rack assembly, please consider that, during operation, the temperature within the rack may rise significantly.

- ▶ Make sure not to affect the ventilation required for safe operation or provide additional ventilation.

---

**CAUTION!** Danger of electric shock!

When installing the device in a closed or multi-rack assembly, please note that intrinsically harmless leakage currents of the individual devices may accumulate, thereby exceeding the allowable limit value.

- ▶ Ground the rack via an additional ground connection.
- 



All NET 1 are delivered with the rack-mounting kit pre-assembled.

- ▶ Slide the NET 1 into the rack.
- ▶ Secure the NET 1 to the rack.

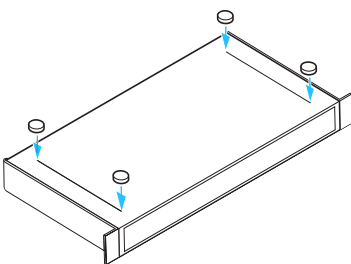
## Fitting the device feet (“table top” use only)

When the NET 1 is not installed in a rack avoid the NET 1 device sliding around and reduce the chance of damage to the device and to any surface on which it is placed by fixing the four soft rubber self adhesive feet to the base of the NET 1 device in the positions indicated.

**Note:**

Some furniture surfaces have been treated with varnish, polish or synthetics which might cause stains when they come into contact with other synthetics. Despite a thorough testing of the synthetics used by us, we cannot rule out the possibility of staining.

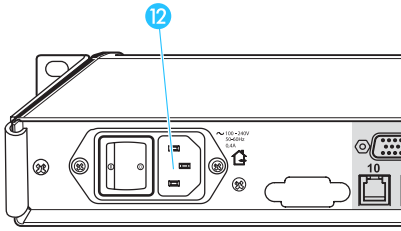
- ▶ Ensure that the base of the device is clean and free from grease before fitting the rubber feet.
- ▶ Fix the rubber feet to the base of the device by peeling off the backing paper and fitting them as shown in the diagram on the left.



## Connecting the power supply

Connect the power supply, but keep the NET 1 switched off.

- ▶ Connect the supplied power cord to the socket 12.
- ▶ Connect the power cord to a wall mains outlet.

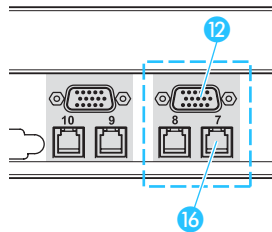


## Connecting the devices

### Note:

Only use original Sennheiser cables to connect the devices (see "Accessories/replacement parts" on page 29).

The NET 1 has five connection groups. Devices can be connected either to the sub-D socket or to the two RJ 10 sockets of a connection group, not to both:



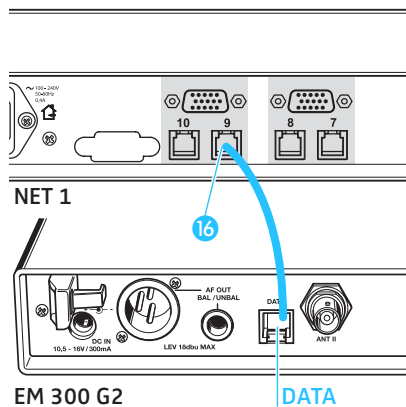
Socket	Devices
RJ 10 socket 16	<ul style="list-style-type: none"> <li>• two EM 300 G2 or EM 500 G2 receivers</li> <li>• one EM 550 G2 twin receiver</li> <li>• two SR 300 IEM G2 transmitters</li> </ul>
Sub-D socket 12	<ul style="list-style-type: none"> <li>• one EM 3532 twin receiver</li> </ul>

### Connecting evolution wireless G2 devices

- ▶ Use separate RJ 10 cables to connect the service interface (DATA) of each evolution wireless G2 device to the desired RJ 10 socket 16 on the NET 1.
- ▶ When connecting an EM 550 G2 twin receiver, use two cables to connect the individual receivers DATA A / DATA B to two RJ 10 sockets on the NET 1.

### Note:

For multi-channel systems, you can daisy-chain several NET 1 devices. Make sure that within the network the number of connected devices per frequency range does not exceed the number of free preset frequencies within a channel bank.

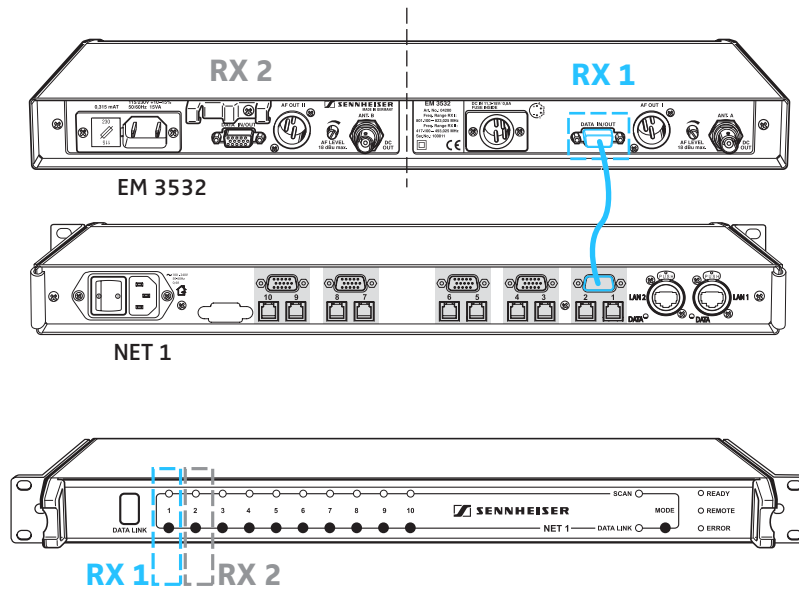


Serie	Number of free preset frequencies per channel bank
ew 300 G2	8 (a maximum of 8 receivers can be connected)
ew 500 G2	20 (a maximum of 20 receivers can be connected)
ew 550 G2	20 (a maximum of 10 twin receivers can be connected)
ew 300 IEM G2	12 (a maximum of 12 transmitters can be connected)

When using more than eight receivers from different evolution wireless G2 series, at least one EM 500 G2 or EM 550 G2 receiver per frequency range must be connected to the first connection group. The preset frequencies of these receivers are then used for assigning the frequencies.

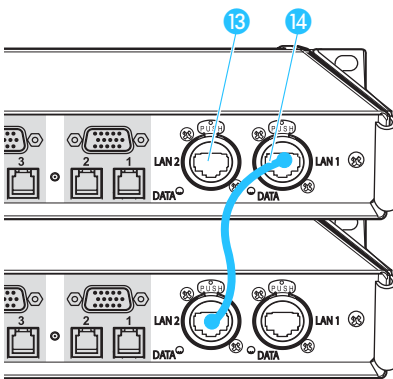
### Connecting an EM 3532 twin receiver

- ▶ To connect an EM 3532 twin receiver to the sub-D socket 12 on the NET 1, use only the right-hand (as viewed from the rear of the receiver) common data interface DATA IN/OUT as shown in the diagram below.

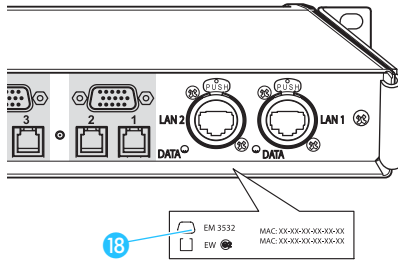


### Connecting several NET 1

- ▶ Connect two NET 1 via the sockets LAN 1 14 and LAN 2 13 using an Ethernet cable. The sockets LAN 1 and LAN 2 are identical, so it doesn't matter in which order you connect them.



## Connecting the NET 1 to a PC



The following applications with up to five NET 1 require the connection of a PC :

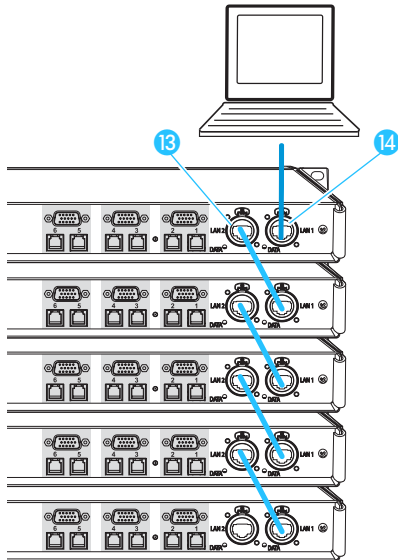
- Systems with up to 50 evolution wireless G2 rack-mount devices
- Systems with up to 25 EM 3532 twin receivers
- Mixed systems consisting of evolution wireless G2 devices and EM 3532 twin receivers

The MAC addresses of the NET 1 are indicated on the type plate **18**.

- ▶ Connect one of the sockets LAN 1 **14** or LAN 2 **13** of the first NET 1 to the PC using an Ethernet cable.

### Notes:

- It is also possible to connect up to five NET 1 to a PC using a switch or a router with switching function.
- Do not use a network hub! Attempting to use a hub with NET 1 may cause network failure or other data communications problems.
- ▶ Then connect additional NET 1 via the sockets LAN 1 **14** and LAN 2 **13** using Ethernet cables. The sockets LAN 1 and LAN 2 are identical, so it doesn't matter in which order you connect them.



## Installing the “Wireless Systems Manager” software

In order to operate the NET 1 with a PC, you have to install the “Wireless Systems Manager” software (refer to the software installation manual).

## Switching a NET 1 system on

For reliable detection of the rack-mount devices, we recommend the following sequence:

### Switching the devices on

- ▶ Switch on the devices connected to the NET 1.

### Switching the NET 1 on

- ▶ Press the ON/OFF switch ⑩ to switch on the NET 1. After switch-on, the green "READY" LED ④ flashes, indicating that the NET 1 is being initialized. As soon as the NET 1 is ready for operation, the "READY" LED ④ lights up permanently.

If a connected device is detected by the NET 1, the corresponding green "CHANNEL" LED ② lights up permanently and the infrared interface ① is permanently backlit in blue.

#### Note:

It is OK to switch on all rack-mount devices and the NET 1 simultaneously via a main switch if one exists.

### Starting the "Wireless Systems Manager" software

- ▶ Start the "Wireless Systems Manager" software as described in the instructions for use of the software.

Once communication between the PC and the NET 1 is working properly, the yellow "REMOTE" LED ⑤ on the NET 1 (and on all daisy-chained NET 1) lights up permanently.

## Updating the firmware

The NET 1 is compatible with previously released Sennheiser wireless systems of the evolution wireless G2 series or the 3000/5000 series (see table on page 7) – provided they have the latest firmware installed.

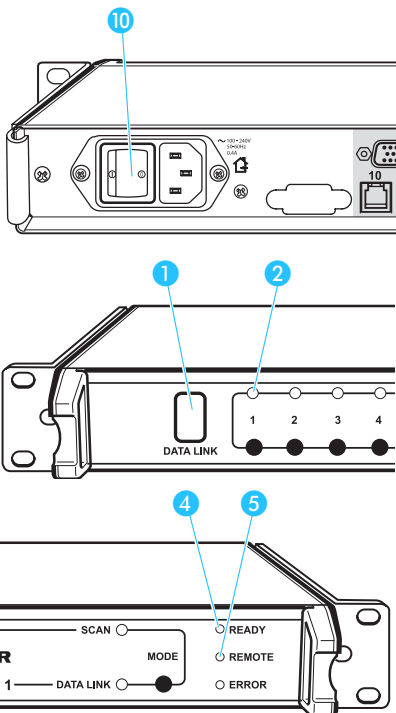
Devices that have NET 1-compatible firmware installed can be identified by one or both of the following:

- marked with "NET" on their type plate or
- an additional menu item "Software-Revision" or "SW REV" can be found in the operating menu.

If the green "CHANNEL" LED ② continues to flash, update the firmware in the corresponding device using the NET 1 and the "Wireless Systems Manager" software. For information on how to update the firmware of the devices, please refer to the instructions for use of the "Wireless Systems Manager" software.

#### Note:

The firmware in the EM 3532 twin receiver **must not** be updated.





# Operation with systems of the evolution wireless G2 series

When using devices of the evolution wireless G2 series (see table on page 7), there are two operating modes:

1. "Stand Alone" operating mode (without a PC):
  - one NET 1 with up to 10 connected devices
  - two daisy-chained NET 1 with up to 20 connected devices
2. "Remote" operating mode (with a PC):
  - up to five daisy-chained NET 1 connected to a PC with up to 50 connected devices

**Note:**

In "Remote" operating mode, the frequency scan can only be performed using the "Wireless Systems Manager" software (see the instructions for use of the "Wireless Systems Manager" software).

The rack-mount receivers and transmitters (IEM) may well have different frequency ranges.

## Performing a frequency scan in "Stand Alone" operating mode

With the frequency scan, the NET 1 searches for free frequencies for multi-channel operation (see the instructions for use of the evolution wireless G2 devices).

There are the following possibilities:

Devices connected to the NET 1	The frequency scan is performed
Rack-mount receivers only	<ul style="list-style-type: none"><li>• using a rack-mount receiver as described from page 21</li></ul>
SR 300 IEM G2 rack-mount transmitters only	<ul style="list-style-type: none"><li>• using an EK 300 IEM G2 portable receiver as described from page 18</li></ul>
Rack-mount receivers <b>and</b> SR 300 IEM G2 transmitters	<ul style="list-style-type: none"><li>• <b>first</b> using an EK 300 IEM G2 portable receiver as described from page 18 and</li><li>• <b>then</b> using a rack-mount receiver as described from page 21</li></ul>

## Performing a frequency scan for wireless monitoring systems (IEM)

For wireless monitoring systems, the frequency scan is performed using the EK 300 IEM G2 portable receiver. The frequencies of a selected channel bank are then assigned to all SR 300 IEM G2 rack-mount transmitters of this frequency range. Subsequently, the frequencies are transferred to the corresponding portable receivers.

### Switching the portable transmitters off

- ▶ Switch off **all portable** transmitters that are to be configured via the NET 1.

### Preparing the frequency scan

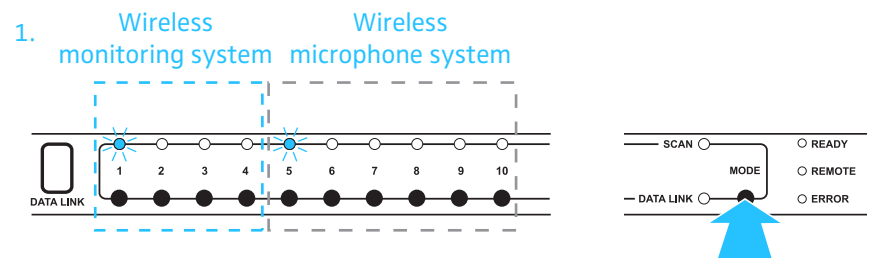
- ▶ Press and hold the **MODE** button **7** on the NET 1.  
The NET 1 selects one rack-mount device from each of the frequency ranges. The "CHANNEL" LEDs **2** assigned to these devices light up. When two NET 1 are daisy-chained, pressing the **MODE** button **7** automatically determines the "master" NET 1. The "REMOTE" LED of the "slave" NET 1 lights up and its **MODE** button **7** is deactivated.

To determine the desired frequency range for the frequency scan, you first have to select a rack-mount transmitter (IEM) belonging to the desired frequency range as follows:

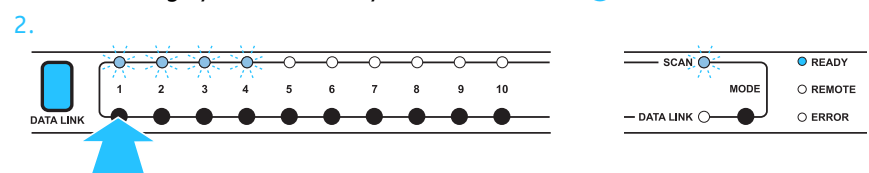
- ▶ Press the corresponding channel button **9**.  
The green "CHANNEL" LEDs **2** of the rack-mount transmitters (IEM) with the same frequency range flash. The infrared interface **1** is permanently backlit in blue and the yellow "SCAN" LED **3** flashes. The RF signals of the rack-mount transmitters are muted. The display backlighting changes from green to red.

Example:

The connection groups 1 to 4 of the NET 1 are occupied by transmitters (IEM). The connection groups 6 to 10 are occupied by rack-mount receivers. After pressing the **MODE** button **7**, the green "CHANNEL" LEDs **2** for the first rack-mount transmitter (connection group 1) and the first rack-mount receiver (connection group 5) light up. The "CHANNEL" LEDs **2** of the other rack-mount devices do not light up, i.e. they belong to the same frequency range.



After pressing the channel button **9**, both the "CHANNEL" LEDs 2 to 4 **2** of the monitoring system and the yellow "SCAN" LED **3** flash.



### Performing the frequency scan using the EK 300 IEM G2 receiver

- ▶ Start the frequency scan on the EK 300 IEM G2 receiver (see the instructions for use of the ew 300 IEM G2 system).
- ▶ Select a channel bank with a sufficient number of free channels using the ▲/▼ rocker button (refer to the instructions for use of the EK 300 IEM G2 receiver). The selected channel bank must have (at least) as many free channels as transmitters (IEM) from this frequency range are connected to the NET 1.
- ▶ Confirm your selection by pressing the SET button.

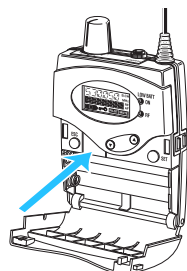


### Transferring frequencies to the rack-mount transmitters (IEM)

The frequencies are transferred to the corresponding rack-mount transmitters via the infrared interface.

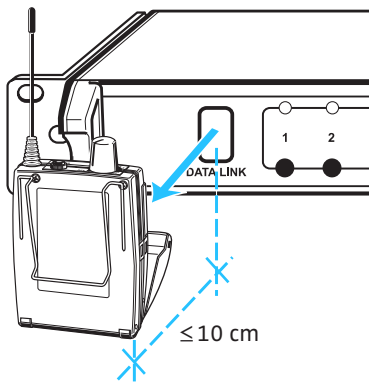
The infrared interface of the receiver (IEM) is located in the battery compartment.

- ▶ For data transfer, open the cover of the portable receiver (IEM).



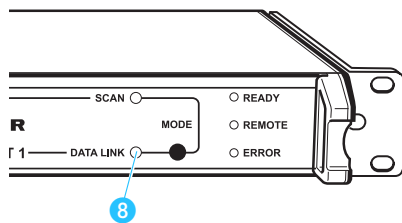
EK 300 IEM G2

- ▶ Place the receiver (IEM) in front of the infrared interface ①. The distance between the infrared interface of the NET 1 and the infrared interface of the receiver (IEM) must not exceed 10 cm.



#### Note:

Strong extraneous light may interfere with the data transfer via the infrared interface. Therefore, position the receiver (IEM) so as to avoid interference from extraneous light. The arrow in the diagram on the left indicates the direction from which the IR radiation must impinge upon the receiver (IEM).



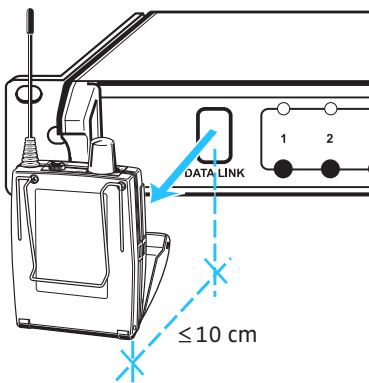
The NET 1 assigns the frequencies of the selected channel bank to all rack-mount transmitters (IEM) of the frequency range. If all frequencies have been successfully transferred to the transmitters (IEM), the yellow "DATA LINK" LED ⑧ flashes slowly.

#### Note:

If you have connected more rack-mount transmitters (IEM) from one frequency range than free channels are available in one channel bank, switch off the surplus transmitters.

### Transferring frequencies to the portable receivers (IEM)

- ▶ On the NET 1, press the channel button **9** corresponding to the transmitter (IEM) whose frequency you want to transfer.
- ▶ For data transfer, open the cover of the portable receiver (IEM) to be configured.

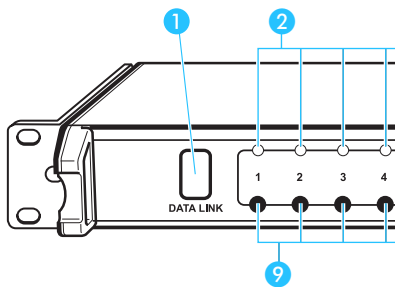


- ▶ Place the receiver (IEM) in front of the infrared interface **1**. The distance between the infrared interface of the NET 1 and the infrared interface of the receiver (IEM) must not exceed 10 cm. The yellow "DATA LINK" LED **8** flashes slowly. The corresponding "CHANNEL" LED **2** flashes rapidly until the frequency transfer is completed. The LED then lights up permanently.

#### Note:

You can interrupt the process by pressing the channel button **9** corresponding to the transmitter (IEM).

If the frequency transfer to a portable receiver (IEM) was unsuccessful, the "ERROR" LED **6** flashes rapidly for approx. 3 seconds:



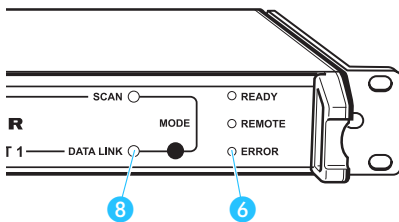
- ▶ Reposition the portable receiver in front of the infrared interface

or

- ▶ select another receiver from the matching frequency range and place this transmitter in front of the infrared interface.

When all the frequencies have been successfully transferred, the yellow "DATA LINK" LED **8** lights up permanently.

- ▶ If necessary, repeat the above steps for the next frequency range.



### Transferring frequencies to portable receivers (IEM) without a prior frequency scan

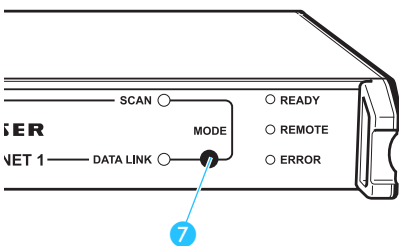
With the NET 1, you can also transfer the set transmission frequency of a connected rack-mount transmitter (IEM) to the corresponding receiver (IEM) without having performed a frequency scan. To do so, proceed as described in the section "Transferring frequencies to the portable receivers (IEM)" on page 20.

### Cancelling the frequency scan on the NET 1

- ▶ Press the **MODE** button **7**. The frequency scan is cancelled. All transmitters maintain their transmission frequency.

### Cancelling the frequency transfer

- ▶ Press the **MODE** button **7**.
- ▶ The frequency transfer is **completely** cancelled. All receivers whose frequency has not yet been changed maintain their receiving frequency.



## Performing a frequency scan for wireless microphone systems

The NET 1 selects one rack-mount receiver from each of the frequency ranges to perform the frequency scan. The frequencies of the selected channel bank are assigned to the connected receivers of this frequency range. Subsequently, the frequencies are transferred to the corresponding portable transmitters.

### Note:

When you have connected both monitoring and microphone systems to the NET 1, you first have to perform the frequency preset scan for the monitoring system. (see "Performing a frequency scan for wireless monitoring systems (IEM)" on page 18).

### Switching the transmitters on/off

- ▶ Switch on **all rack-mount transmitters (IEM)** connected to the NET 1.
- ▶ Switch off **all portable transmitters** that are to be configured via the NET 1.

### Performing the frequency scan

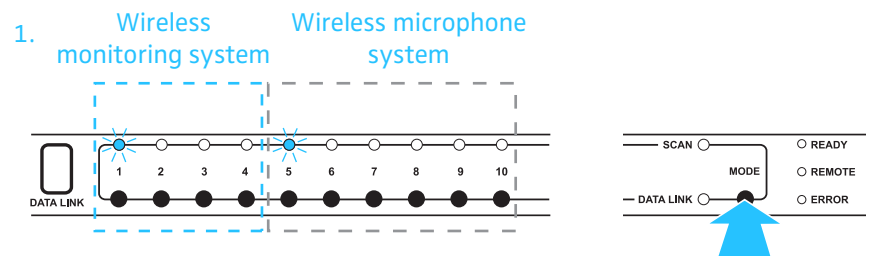
- ▶ Press and hold the **MODE** button **7** on the NET 1.  
The NET 1 selects one rack-mount device from each of the frequency ranges. The "CHANNEL" LEDs **2** assigned to these devices light up. When two NET 1 are daisy-chained, pressing the **MODE** button **7** automatically determines the "master" NET 1. The "REMOTE" LED of the "slave" NET 1 lights up and its **MODE** button **7** is deactivated.
- ▶ On the NET 1, press the channel button **9** corresponding to the receiver. The corresponding "CHANNEL" LED **2** and the yellow "SCAN" LED **3** flash slowly.

### Note:

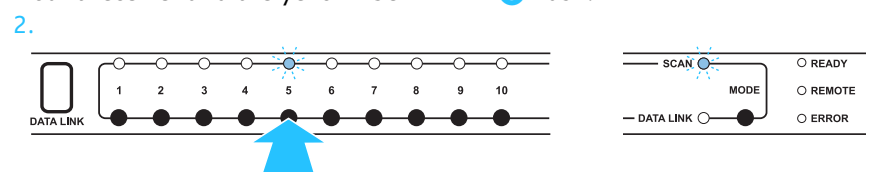
The results of any prior frequency scan are overwritten.

### Example:

The connection groups 1 to 4 of the NET 1 are occupied by transmitters (IEM). The connection groups 6 to 10 are occupied by rack-mount receivers. After pressing the **MODE** button **7**, the green "CHANNEL" LEDs **2** for the first rack-mount transmitter (connection group 1) and the first rack-mount receiver (connection group 5) light up. The "CHANNEL" LEDs **2** of the other rack-mount devices do not light up, i.e. they belong to the same frequency range.



After pressing the channel button **9**, both the "CHANNEL" LED **2** of the rack-mount receiver and the yellow "SCAN" LED **3** flash.



Bank	1	2	3	4
Free	20	20	17	11
Bank	5	6	7	8
Free	12	20	02	03
				20

### Selecting a channel bank and transferring the scan result to additional rack-mount receivers

The receiver that has performed the frequency scan will then display (for each channel bank) the number of free frequencies (channels). The "CHANNEL" LEDs ② of all receivers of this frequency range flash slowly. Frequencies that the scanning receiver has detected as already occupied or suffering from interference are not made available for assignment.

▶ Select a channel bank with a sufficient number of free channels using the ▲/▼ rocker button (refer to the instructions for use of the receiver). The selected channel bank must have (at least) as many free channels as receivers from this frequency range are connected to the NET 1.

▶ Confirm your selection by pressing the SET button. The NET 1 assigns the frequencies of the selected channel bank to all rack-mount receivers of the frequency range. The yellow "SCAN" LED ③ goes off and the yellow "DATA LINK" LED ⑧ flashes slowly until the frequencies have been transferred to all rack-mount receivers.

#### Note:

If you have connected more receivers (from one frequency range) than free channels are available in one channel bank, the NET 1 re-assigns the last frequency assigned to the subsequent receivers.

After the frequency scan, the NET 1 indicates that you can transfer the frequencies to the portable transmitters:

- The infrared interface ① is permanently backlit in blue.
- The "CHANNEL" LEDs ② of all devices of one frequency range flash slowly.
- The yellow "DATA LINK" LED ⑧ flashes until all frequencies of the rack-mount receivers have been transferred to the transmitters.

### Transferring frequencies to the portable transmitters of a frequency range

The frequencies are transferred to the corresponding transmitters via the infrared interface.

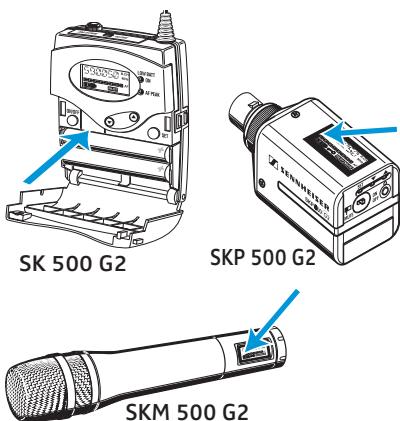
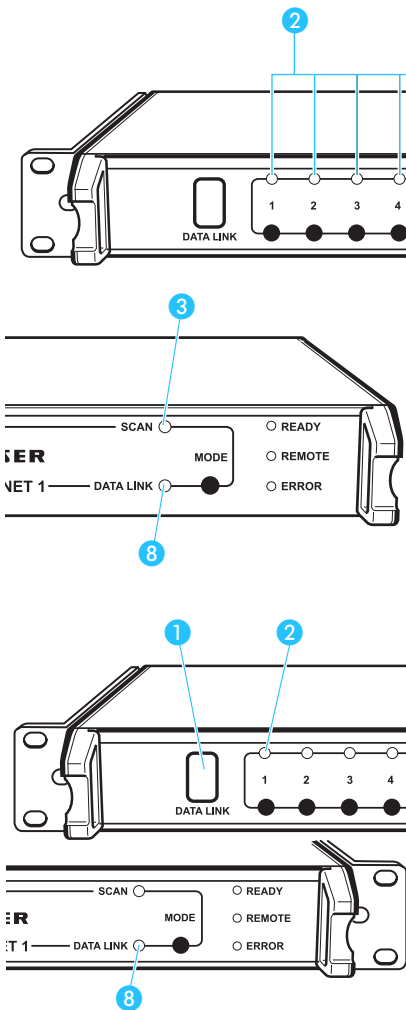
The infrared interface of the portable transmitters is located in the battery compartment.

▶ For data transfer, open the cover of the portable transmitter.

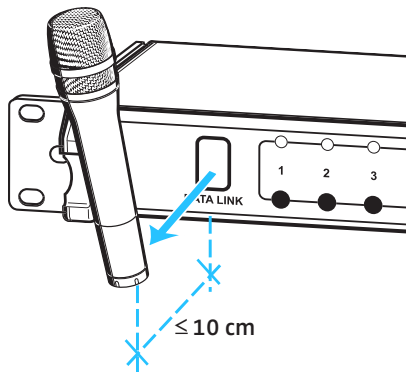
The infrared interface of the hand-held transmitters (SKM xxx) and plug-on transmitters is located inside the display window of the transmitter.

#### Note:

Strong extraneous light may interfere with the data transfer via the infrared interface. Therefore, position the NET 1 so as to avoid interference from extraneous light. The arrows in the diagrams on the left indicate the direction from which the IR radiation must impinge upon the transmitter.



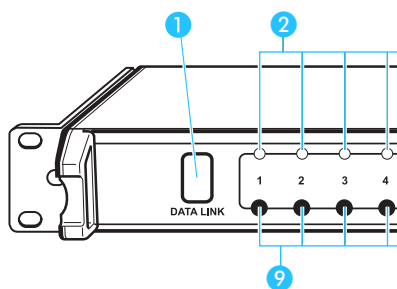
To transfer the frequency to the transmitter, proceed as follows:



- ▶ Switch on the portable transmitter as described in the instructions for use of the transmitter.
- ▶ On the NET 1, press the channel button 9 corresponding to the receiver whose frequency you want to transfer. The green "CHANNEL" LED 2 corresponding to the receiver flashes rapidly, indicating that data is being transferred to the transmitter. When the frequency transfer is completed, the green "CHANNEL" LED 2 stops flashing and lights up permanently.
- ▶ Place the transmitter in front of the infrared interface 1. The distance between the infrared interface of the NET 1 and the infrared interface of the transmitter must not exceed 10 cm.

**Note:**

You can interrupt the process by pressing the channel button 9 corresponding to the receiver.

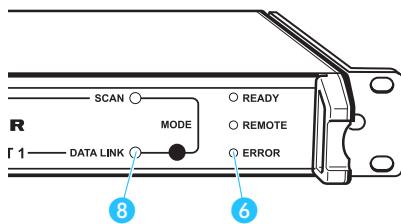


If the frequency transfer to a portable transmitter was unsuccessful, the "ERROR" LED 6 flashes rapidly for approx. 3 seconds:

- ▶ Reposition the portable transmitter in front of the infrared interface or
- ▶ select another transmitter from the matching frequency range and place this transmitter in front of the infrared interface.

When all the frequencies have been successfully transferred to the transmitters, the yellow "DATA LINK" LED 8 lights up permanently.

- ▶ If necessary, repeat the above steps for the next frequency range.

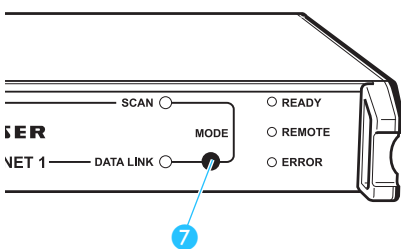


**Transferring frequencies to portable transmitters without a prior frequency scan**

With the NET 1, you can also transfer the set receiving frequency of a connected rack-mount receiver to the corresponding transmitter without having performed a frequency scan. To do so, proceed as described in the section "Transferring frequencies to the transmitters without a frequency scan" on page 24.

**Cancelling the frequency scan on the NET 1**

- ▶ Press the MODE button 7. The frequency scan is cancelled. All receivers maintain their receiving frequency.



**Cancelling the frequency transfer**

- ▶ Press the MODE button 7. The frequency transfer is completely cancelled. All transmitters whose frequencies have not yet been changed maintain their transmission frequency.

# Operation with 3000/5000 series systems

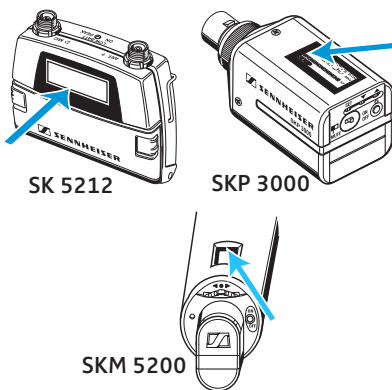
## Transferring frequencies to receivers when a PC is connected

For 3000/5000 series systems, the frequency scan and the frequency assignment can only be performed using the "Wireless Systems Manager" PC software. For information on how to configure the EM 3532 twin receiver via a PC, please refer to the instructions for use of the "Wireless Systems Manager" software.

The "Wireless Systems Manager" software provides a database with preset intermodulation-free frequencies to be used for configuring the EM 3532 twin receiver.

## Transferring frequencies to the transmitters without a frequency scan

The infrared interface of the SK 5212 portable transmitter is located below the display in the black frame. The infrared interfaces of the SKM 5200 hand-held transmitters and the SKP 3000 plug-on transmitters are located inside the display window of the transmitter.



### Note:

Strong extraneous light may interfere with data transfer via the infrared interface. Therefore, position the NET 1 so as to avoid interference from extraneous light.

- ▶ Switch on the transmitter as described in the instructions for use of the transmitter.

- ▶ Place the transmitter in front of the infrared interface ①. The distance between the infrared interface of the NET 1 and the infrared interface of the transmitter must not exceed 10 cm.

- ▶ On the NET 1, press the channel button ⑨ corresponding to the receiver whose frequency you want to transfer.

The green "CHANNEL" LED ② corresponding to the receiver flashes rapidly, indicating that data is being transferred to the transmitter. At the same time, the yellow "DATA LINK" LED ⑧ flashes slowly and the infrared interface ① is permanently backlit in blue.

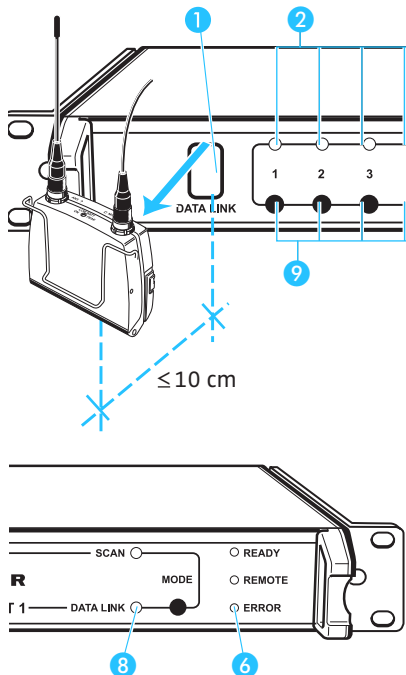
When the frequency transfer is completed, the green "CHANNEL" LED ② and the "DATA LINK" LED ⑧ light up permanently.

If the frequency transfer was unsuccessful, the "ERROR" LED ⑥ flashes rapidly for approx. 3 seconds and the green "CHANNEL" LED ② flashes permanently:

- ▶ Reposition the transmitter in front of the infrared interface until the frequency transfer is successfully completed

or

- ▶ select another transmitter from the matching frequency range and place this transmitter in front of the infrared interface.





## Mixed operation of evolution wireless G2 series systems and 3000/5000 series systems

For information on mixed operation of evolution wireless G2 series systems and 3000/5000 series systems, please refer to the instructions for use of the "Wireless Systems Manager" software.

**Note:**

The compander systems are not compatible. Therefore, synchronize only ew G2 transmitters with ew G2 receivers and transmitters of the 3000/5000 series with the corresponding receivers (see table on page 7).

# If a problem occurs ...

## Problems that may occur when putting the NET 1 into operation

Problem	Possible cause	Possible solution
The green "READY" LED ④ has gone off.	The power cord is not connected correctly.	Check if the power cord is connected correctly.
	The NET 1 is switched off.	Press the ON/OFF switch on the rear panel (see page 9) to switch on the NET 1.
The green "CHANNEL" LED ② does not light up, even though a device is connected.	The cable of the corresponding device is not connected correctly.	Check if the cable is connected correctly.
	The rack-mount device of the evolution wireless G2 series is switched off.	Switch on the rack-mount device.
	The cable between the NET 1 and the rack-mount device is defective or the connector assignment is incorrect.	Only use original Sennheiser cables. Replace the cable or check the connector assignment (see "Connector assignment" on page 28).
	The corresponding connection group is double-occupied: Devices are connected to the sub-D socket and to the RJ 10 sockets.	Either remove the device connected to the sub-D socket or the devices connected to the RJ 10 sockets (see "Connecting the devices" on page 13).
	One of the receivers RX 1 or RX 2 of the connected EM 3532 twin receiver is not being detected due to the fact that the receiver was switched off when the NET 1 was switched on.	<ul style="list-style-type: none"> <li>▶ Switch off the NET 1.</li> <li>▶ Switch on both receivers RX 1/RX 2 of the EM 3532 twin receiver.</li> <li>▶ Restart the NET 1 (see "Restarting the NET 1" on page 27).</li> </ul>
The green "READY" LED ④ flashes.	The NET 1 is being initialized (duration: approx. 20 sec.) and is not yet ready for operation.	Wait until the "READY" LED ④ lights up permanently, indicating that the NET 1 is ready for operation.
The green "CHANNEL" LED ② flashes once every second.	The firmware of the connected device is <b>not</b> compatible.	Update the firmware of the device (see the Instructions for use of the "Wireless Systems Manager" software).
The assignment of the channel buttons to the channels of the EM 3532 twin receiver is swapped.	Instead of the receiver RX 1, the receiver RX 2 is connected to sub-D socket on the NET 1.	Connect the receiver RX 1 to the sub-D socket on the NET 1 (see "Connecting an EM 3532 twin receiver" on page 14).
The NET 1 does not react.		Restart the NET 1 (see "Restarting the NET 1" on page 27).
The yellow "REMOTE" LED ⑤ does not light up.	Communication between the NET 1 and the PC is disturbed.	Check the connections and cables as well as the PC settings.

## Problems that may occur during operation

Problem	Possible cause	Possible solution
NET 1 has assigned the same frequency to several evolution wireless G2 receivers	You have connected more receivers from one frequency range than there are free channels in the channel bank.	Only connect as many receivers from one frequency range as there are free channels in the channel bank and restart the frequency scan.
It is not possible to transfer the frequency to the portable transmitters or receivers (IEM)	The device does not have the latest firmware installed.	Update the firmware of the transmitter (see the Instructions for use of the "Wireless Systems Manager" software).
	The device is not within the range of the infrared interface.	Place the device at a distance of approx. 10 cm in front of the infrared interface (see page 20 and page 22).
	The infrared interface of the NET 1 is not yet ready for transferring the frequencies. The NET 1 is still in scan mode.	Press the <b>MODE</b> button <b>7</b> to cancel the scan (see "Cancelling the frequency scan on the NET 1" on page 23).
	The device is from a different frequency range.	Use a device that matches the frequency range of the rack-mount device.
The red "ERROR" LED <b>6</b> flashes rapidly for approx. 3 seconds and the "CHANNEL" LED <b>2</b> for the device lights up permanently	The frequency transfer to the device has failed. The device is from a wrong frequency range.	Repeat the frequency transfer (see page 20, page 22 and page 24) with a device from the matching frequency range.
The NET 1 does not react		Restart the NET 1 (see "Restarting the NET 1" on page 27).
The yellow "REMOTE" LED <b>5</b> does not light up	Communication between the NET 1 and the PC is disturbed.	Check the connections and cables as well as the PC settings.

If a problem occurs that is not listed in the above table or cannot be solved with the proposed solutions:

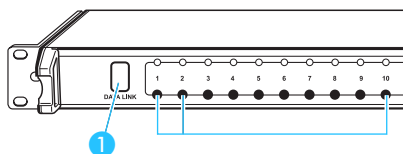
- Register on the Sennheiser homepage at [www.sennheiser.com/net1](http://www.sennheiser.com/net1) and describe the problem in the "Support" section

or

- contact your local Sennheiser agent.

### Restarting the NET 1

Even if the NET 1 is rack-mounted, it can easily be restarted as follows:



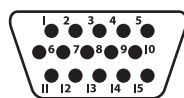
- ▶ Simultaneously press the channel buttons 1, 2 and 10 and keep them pressed for approx. 3 seconds. The NET 1 restarts.

# Specifications

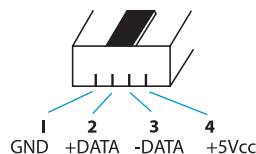
Power supply	100 to 240 V AC +10% / -15% 50 to 60 Hz, protection class 1	
Current consumption	0.4 A	
Ambient conditions	Temperature range: -10 °C to +55 °C Relative humidity: max. 85 %	
Dimensions (w/o rack-mount "ears")	approx. 436 x 228 x 43 mm (19", 1 U)	
Weight	approx. 2.6 kg	
<b>Connections</b>		
Ethernet	LAN 1 and LAN 2 2 x RJ 45 (Neutrik NE8FBH-S) Bit rate: 100 MBit/sec. (as per IEEE 802.3 u) MAC addresses are indicated on the type plate Cable type: CAT 5 or higher Use only shielded cable! Max. cable length: 100 m	
UART	1 infrared interface  10 x RS 485 via RJ 10 (for connecting ew G2 series devices) 5 x RS 485 via sub-D (for connecting EM 3532 twin receivers) Max. cable length: 3 m Insulation: all channels potential-free with regard to each other and to the Net 1	
In compliance with	CE	- EMC EN 50022 EN 50024 - Safety EN 60950-1

## Connector assignment

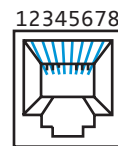
SUB-D (15-pin)



RJ 10



RJ 45 (CAT 5)



SUB-D connector	RJ 10	Name	Meaning
1, 2	-	NC	must not be connected
5, 6, 12, 14	1	DGND	GND digital supply ground, shielding
9	2	D+	RS 485 DATA
10	3	D-	RS 485 /DATA
11	4	+5V	VCC digital supply voltage

## Accessories/replacement parts

- 514448 Special RJ 10 cable, Length: 1.5 m
- 514475 RJ 45 cable, shielded, Length: 2 m
- 515674 Special sub-D cable, Length: 1.5 m
- 054324 Power cord with EU plug
- 054325 Power cord with US plug
- 057256 Power cord with UK plug
- 086363 Device feet
- 089540 Rack-mount "ears"
- 520124 "NET 1" stickers, 100 items
- CD-ROM including the "Wireless Systems Manager" (WSM) software

# Manufacturer declarations

## Warranty regulations

The guarantee period for this Sennheiser product is 24 months from the date of purchase. Excluded are accessory items, rechargeable or disposable batteries that are delivered with the product; due to their characteristics these products have a shorter service life that is principally dependent on the individual frequency of use.

The guarantee period starts from the date of original purchase. For this reason, we recommend that the sales receipt be retained as proof of purchase. Without this proof (which is checked by the responsible Sennheiser service partner) you will not be reimbursed for any repairs that are carried out.

Depending on our choice, guarantee service comprises, free of charge, the removal of material and manufacturing defects through repair or replacement of either individual parts or the entire device. Inappropriate usage (e.g. operating faults, mechanical damages, incorrect operating voltage), wear and tear, force majeure and defects which were known at the time of purchase are excluded from guarantee claims. The guarantee is void if the product is manipulated by non-authorized persons or repair stations.

In the case of a claim under the terms of this guarantee, send the device, including accessories and sales receipt, to the responsible service partner. To minimise the risk of transport damage, we recommend that the original packaging is used. Your legal rights against the seller, resulting from the contract of sale, are not affected by this guarantee.

The guarantee can be claimed in all countries outside the U.S. provided that no national law limits our terms of guarantee.

## CE Declaration of Conformity



This equipment is in compliance with the essential requirements and other relevant provisions of Directives 89/336/EC or 73/23/EC. The declaration is available on the internet site at [www.sennheiser.com](http://www.sennheiser.com).

Before putting the device into operation, please observe the respective country-specific regulations!

## FCC Rules

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. 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:

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

The user's manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Warning: Changes or modifications made to this equipment not expressly approved by Sennheiser electronic Corp. may void the FCC authorization to operate this equipment.





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