



SpeechLine Digital Wireless

Planning and setting up
single-room and multi-room installations



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System planning with SpeechLine Digital Wireless

When you plan the installation of a wireless audio system for one of your projects, there are several aspects to consider, such as the number and size of conference rooms or the number of wireless microphone links you plan on installing.

These aspects matter for any size of audio installation, be it small or large scale. With this document we would like to provide some guidance for when you start planning your project with SpeechLine Digital Wireless in the license-free 1.9 GHz frequency band.



For detailed technical information on SpeechLine Digital Wireless please refer to the system instruction manual.

You can access it via the **Sennheiser Documentation App** (available free of charge for iOS and Android) or via the **download area of the SpeechLine Digital Wireless product page**.

Sennheiser Documentation App:

www.sennheiser.com/documentation-app

SpeechLine Digital Wireless product page:

www.sennheiser.com/speechline-dw

Rough planning

- ▷ Define the the number of rooms for the installation.
- ▷ Define how each room shall be equipped and used.
- ▷ Define audio per room -> how many SpeechLine Digital Wireless links.
- ▷ Identify other devices (DECT) using the 1G9 frequency range.
- ▷ Double-check that the local number of devices using the 1G9 range does not exceed the available spectrum (see).

Fine planning

- ▷ Identify the position of any DECT access points, e.g. for in-house DECT phones.
- ▷ Define the installation style -> where and how shall the receivers be installed.
- ▷ Define if external antennas for remote installation of receivers (only for SL Rack Receiver DW) are required (check for maximum antenna cable length).
- ▷ Consider the recommended distance of SpeechLine Digital Wireless antennas to DECT access points of at least 3 meters to prevent blocking effects.
- ▷ For convenient remote control consider using a network switch to connect all SpeechLine Digital Wireless receivers to the network.



SpeechLine Digital Wireless installation planning

SL Rack Receiver DW

- ▷ Specify all receivers of one location to be installed together in one rack.
- ▷ Consider the available recommendations for antenna positioning.
- ▷ Specify that all SpeechLine Digital Wireless receivers in one rack must always be switched on/off together to guarantee the best performance.

SL Multi-Channel Receiver DW

- ▷ Specify all multi-channel receivers to be installed in one room
- ▷ Consider the available recommendations for positioning (side by side with a distance of 1.5 m).

Shared use of 1.9 GHz spectrum

Check which country variant of SpeechLine Digital Wireless is suitable for your location. The following eight country variants are available.

The country variant to be used determines the maximum number of links per range which can be used in the 1.9 GHz frequency band.

Variant	Main countries and regions	Frequency range	Wireless links per reception range
-3	Europe, Indonesia, India, UK, Hong Kong, Singapore, Malaysia, Australia	1.880 - 1.900 MHz	up to 20
-4	USA, Canada, Latin America	1.920 - 1.930 MHz	up to 10
-5	Japan	1.893 - 1.906 MHz	up to 4
-6	Taiwan	1.880 - 1.895 MHz	up to 12
-7	Brazil	1.910 - 1.920 MHz	up to 12



System planning for single-room and multi-room installations

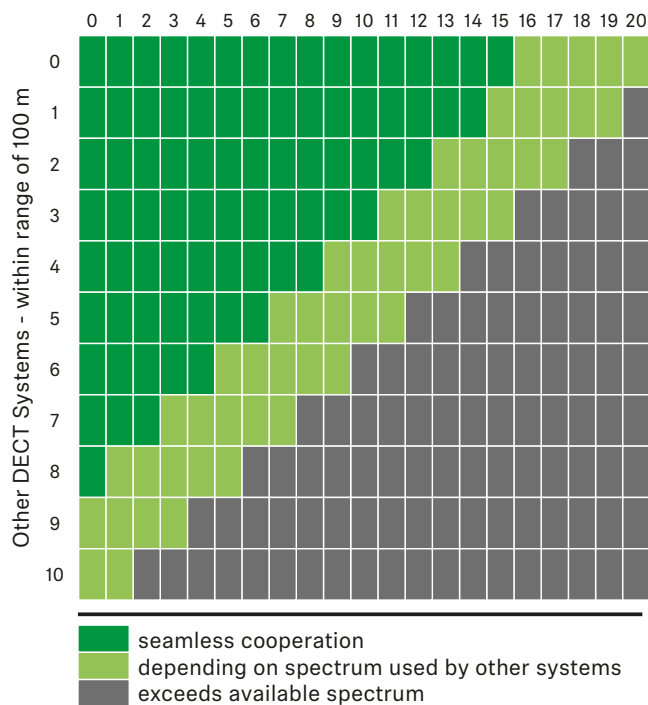
SpeechLine Digital Wireless

When SpeechLine Digital Wireless is used in combination with other devices using the 1.9 GHz frequency band (e.g. DECT telephones), the maximum number of SpeechLine Digital Wireless links depends on the number of other devices used.

The following charts indicate the possible combinations of systems depending on the above mentioned country-specific conditions:

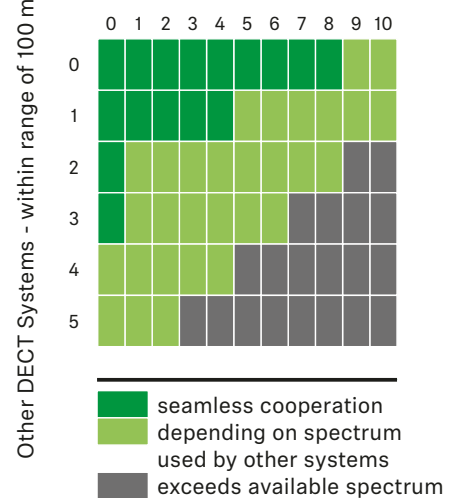
Europe, Indonesia, India, UK, Hong Kong, Singapore, Malaysia, Australia:

SpeechLine Digital Wireless Links - per range (adjustable)



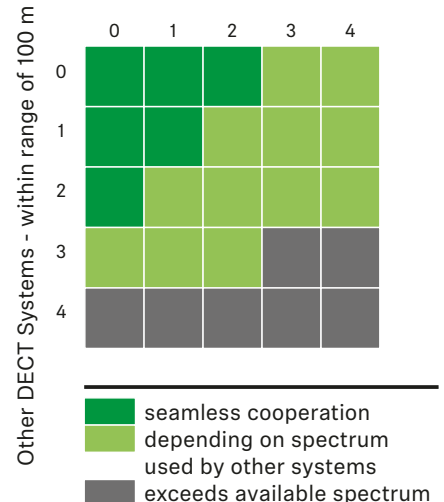
USA, Canada, Latin America, Brazil, Taiwan:

SpeechLine Digital Wireless Links - per range (adjustable)



Japan:

SpeechLine Digital Wireless Links - per range (adjustable)





Single-room setup procedure with SpeechLine Digital Wireless

With this document we would like to provide some guidance for when you start planning your project with SpeechLine Digital Wireless in the license-free 1.9 GHz frequency band for **one single room with a maximum number of up to 20 wireless microphone links** depending on product variants and country-specific regulations (see “Shared use of 1.9 GHz spectrum”).

SpeechLine Digital Wireless offers two different RF power modes for different types of installations: the automatic mode with adaptive power for single-room installations and the manual mode for multi-room installations.

For this scenario the automatic power mode needs to be used. The automatic power mode is the default factory setting. If the manual mode is selected, navigate to the *RF Settings* tabs in the Sennheiser Control Cockpit and select *Automatic* from the *RF Power* dropdown menu for all receivers used.

For the SL Rack Receiver DW you can also select the automatic mode in the *System Settings* -> *RF Power* menu of the device itself.



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SpeechLine Digital Wireless product page:

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Single-room setup with SL Rack Receiver DW only

For an installation in one single room using only the SL Rack Receiver DW please observe the following steps:

- ▷ Install all receivers in one rack.
- ▷ Connect all cables for the receivers.
- ▷ Mount all antennas as recommended and feasible.
- ▷ Ensure that all receivers are switched off.
- ▷ Switch on the first receiver. This receiver will become the Master.
- ▷ If necessary, pair a transmitter. Only if necessary, as the sets are delivered already paired.
- ▷ Wait until both the LED of the receiver and the LED of the transmitter light up green.
- ▷ Perform a walktest to ensure the best reception coverage.
- ▷ Switch on all other receivers. They will synchronize with the Master.
Make sure to leave the Master receiver switched on during this step.



Single-room setup with SL Multi-Channel Receiver DW only

For an installation in one single room using only the SL Multi-Channel Receiver DW please observe the following steps:

- ▷ Install the SL Multi-Channel Receiver DW to a wall or the ceiling with the front side of the receiver facing into the room.
- ▷ Connect a LAN cable supplying PoE to the **Dante I / PoE / Ctrl** RJ-45 socket of the SL Multi-Channel Receiver DW.
This receiver will become the Master.
- ▷ Wait until the LEDs of the receiver light up red.
- ▷ Connect a LAN cable supplying PoE to the respective **Dante I / PoE / Ctrl** RJ-45 sockets of all other SL Multi-Channel Receiver DW units.
They will synchronize with the Master.



When you are using multiple SL Multi-Channel Receiver DW units, it is possible to daisy-chain the network and audio signals by using the “Single-Cable Mode” (factory default setting).

PoE will not be daisy-chained, so a PoE injector is required for any additional SL Multi-Channel Receiver DW.

Single-room setup with both SL Rack Receiver DW and SL Multi-Channel Receiver DW

For an installation in one single room using both the SL Rack Receiver DW and the SL Multi-Channel Receiver DW please observe the following steps:

- ▷ Install the SL Multi-Channel Receiver DW to a wall or the ceiling with the front side of the receiver facing into the room.
- ▷ Install all SL Rack Receiver DW units in one rack and connect all cables (power, audio and LAN).
- ▷ Mount all antennas for the rack receivers as recommended and feasible.
- ▷ Connect a LAN cable supplying PoE to the **Dante I / PoE / Ctrl** RJ-45 socket of the first SL Multi-Channel Receiver DW.
This receiver will become the Master.
- ▷ Wait until the LEDs of the receiver light up red.
- ▷ Connect a LAN cable supplying PoE to the respective **Dante I / PoE / Ctrl** RJ-45 sockets of all other SL Multi-Channel Receiver DW units.
They will synchronize with the Master.
- ▷ Switch on all rack receivers.
They will synchronize with the Master.



When you are using multiple SL Multi-Channel Receiver DW units, it is possible to daisy-chain the network and audio signals by using the “Single-Cable Mode” (factory default setting).

PoE will not be daisy-chained, so a PoE injector is required for any additional SL Multi-Channel Receiver DW.



Multi-Room Mode setup procedure with SpeechLine Digital Wireless

With this document we would like to provide some guidance for when you start planning your project with SpeechLine Digital Wireless in the license-free 1.9 GHz frequency band for **multiple rooms with a total number of more than 20 wireless microphone links** depending on product variants and country-specific regulations (see “Shared use of 1.9 GHz spectrum”).

SpeechLine Digital Wireless offers two different RF power modes for different types of installations: the automatic mode with adaptive power for single-room installations and the manual mode for multi-room installations.

For this scenario the manual mode needs to be used. In order to use the manual mode, please navigate to the *RF Settings* tabs in the Sennheiser Control Cockpit and select one of the five RF power levels from the *RF Power* dropdown menu for all receivers used.

For the SL Rack Receiver DW you can also adjust the RF power manually in the *System Settings* -> *RF Power* menu of the device itself.



For detailed technical information on SpeechLine Digital Wireless please refer to the system instruction manual.

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Multi-Room Mode setup with SL Rack Receiver DW only

For an installation in multiple rooms using only the SL Rack Receiver DW please observe the following steps.

Perform these steps **room by room subsequently**. When you perform the installation and configuration in one room, all devices in all other rooms need to be switched off.

- ▷ Install all receivers of one room in one rack.
- ▷ Connect all cables for the receivers.
- ▷ Make sure to power all receivers via a multiple socket with a central power switch.
- ▷ Mount all antennas as recommended and feasible.
- ▷ Ensure that all receivers are switched off.

- ▷ Switch on the first receiver. This receiver will become the Master.
- ▷ If necessary, pair a transmitter. Only if necessary, as the sets are delivered already paired.
- ▷ Set the RF power of the receiver to the recommended RF power level according to the room size as indicated on the receiver UI or in the Sennheiser Control Cockpit.
- ▷ Power cycle (switch off and on again) the receiver to verify the selected value.
- ▷ Perform a walktest to ensure the best reception coverage.
- ▷ If necessary adjust the RF power level and repeat the walktest for verification.

- ▷ Make sure to leave the Master receiver switched on for all following steps.

- ▷ Then, switch on all other receivers. They will synchronize with the Master receiver.
- ▷ Set all other receivers to the same RF power level as the Master receiver.
- ▷ Power cycle the other receivers. The Master receiver must be switched on all the time.

- ▷ Once the rack is configured, all devices must be switched off/on together every time via the central power switch of the multiple socket. Make sure not to switch any receiver on or off individually.

- ▷ Switch off all devices in this room before setting up the devices in the next room.

After all rooms are set up this way, you benefit from a very robust SpeechLine Digital Wireless System with all easy-to-use benefits. Every room can now be switched on upon demand.

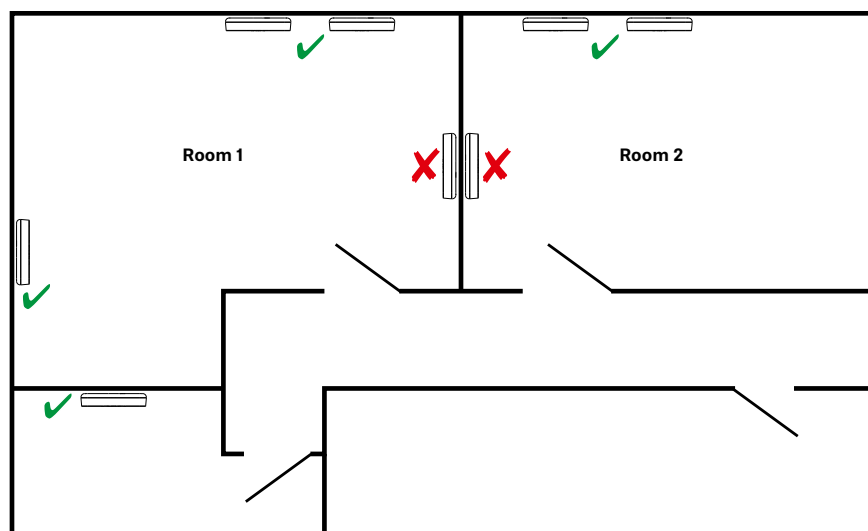


Multi-Room Mode setup with SL Multi-Channel Receiver DW only

For an installation in multiple rooms using only the SL Multi-Channel Receiver DW please observe the following steps.

Perform these steps **room by room subsequently**. When you perform the installation and configuration in one room, all devices in all other rooms need to be switched off.

- ▷ Install all SL Multi-Channel Receiver DW units of one room to a wall or the ceiling with the front sides of the receivers facing into the room.
Note: to ensure the Master/Follower functionality the receivers should be installed side to side and not back to back, as indicated in the following illustration.



- ▷ Connect a LAN cable supplying PoE to the **Dante I / PoE / Ctrl** RJ-45 socket of the first SL Multi-Channel Receiver DW.
This receiver will become the Master.
- ▷ Pair all transmitters.
- ▷ Set the RF power level of the receiver to the recommended RF power level according to the room size as indicated in the Sennheiser Control Cockpit.
- ▷ Perform a walktest to ensure the best reception coverage.
- ▷ If necessary adjust the RF power level and repeat the walktest for verification.
- ▷ Connect a LAN cable supplying PoE to the respective **Dante I / PoE / Ctrl** RJ-45 sockets of all other SL Multi-Channel Receiver DW units of the room.
They will synchronize with the Master.
- ▷ Set all other receivers to the same RF power level as the Master receiver.
- ▷ Switch off all devices in this room before setting up the devices in the next room.



When you are using multiple SL Multi-Channel Receiver DW units, it is possible to daisy-chain the network and audio signals by using the “Single-Cable Mode” (factory default setting).

PoE will not be daisy-chained, so a PoE injector is required for any additional SL Multi-Channel Receiver DW.



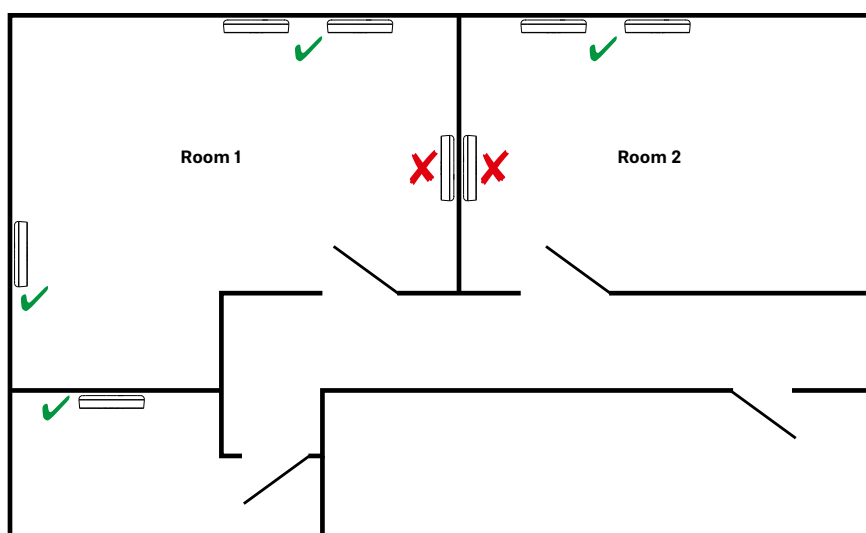
Multi-Room Mode setup with both SL Rack Receiver DW and SL Multi-Channel Receiver DW

For an installation in multiple rooms using both the SL Rack Receiver DW and the SL Multi-Channel Receiver DW please observe the following steps.

Perform these steps **room by room subsequently**. When you perform the installation and configuration in one room, all devices in all other rooms need to be switched off.

- ▷ Install all SL Multi-Channel Receiver DW units of one room to a wall or the ceiling with the front sides of the receivers facing into the room.

Note: to ensure the Master/Follower functionality the receivers should be installed side to side and not back to back, as indicated in the following illustration.



- ▷ Install all SL Rack Receiver DW units in one rack and connect all cables (power, audio and LAN).
- ▷ Mount all antennas for the rack receivers as recommended and feasible.
- ▷ Connect a LAN cable supplying PoE to the **Dante I / PoE / Ctrl** RJ-45 socket of the first SL Multi-Channel Receiver DW.
This receiver will become the Master.
- ▷ Pair all transmitters.
- ▷ Set the RF power level of the first SL Multi-Channel Receiver DW to the recommended RF power level according to the room size as indicated in the Sennheiser Control Cockpit.
- ▷ Perform a walktest to ensure the best reception coverage.
- ▷ If necessary adjust the RF power level and repeat the walktest for verification.
- ▷ Connect a LAN cable supplying PoE to the respective **Dante I / PoE / Ctrl** RJ-45 sockets of all other SL Multi-Channel Receiver DW units of the room.
They will synchronize with the Master.
- ▷ Set all other multi-channel receivers to the same RF power level as the Master receiver.
- ▷ Then, switch on all SL Rack Receiver DW units. They will synchronize with the Master receiver.
- ▷ Set all rack receivers to the same RF power level as the Master receiver.



- ▷ Power cycle (switch off and on again) the rack receivers. The Master receiver must be switched on all the time.
- ▷ Switch off all devices in this room before setting up the devices in the next room.



When you are using multiple SL Multi-Channel Receiver DW units, it is possible to daisy-chain the network and audio signals by using the “Single-Cable Mode” (factory default setting).

PoE will not be daisy-chained, so a PoE injector is required for any additional SL Multi-Channel Receiver DW.
