Spectralink DECT Repeater

Installation Guide

14183300-IG, Edition 7.0
October 2018, Original document

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Warranty

The Product Warranty and Software License and Warranty and other support documents are available at http://support.spectralink.com/.

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About This Guide

This guide explains how to install the Spectralink DECT Repeater.

This guide is intended for qualified technicians and the reader is assumed to have a basic knowledge about the Spectralink IP-DECT/DECT Server, Spectralink IP-DECT/DECT Base Station and Spectralink DECT Repeater.

Related Documentation

All Spectralink documents are available at http://support.spectralink.com/.

Safety and Handling information is available online at http://support.spectralink.com/products.

Regulatory information is available online at http://support.spectralink.com/products.

Subject	Documentation
Spectralink DECT Handset	For more information about the handset, refer to the user guide available online at http://support.spectralink.com/products.
Site Survey Function in Handset	For more information about the site survey function in handset, refer to the guide available online at http://support.spectralink.com/products.
Synchronization and Deployment	For more information about synchronization and deployment, refer to the guide available online at http://support.spectralink.com/products.
Spectralink IP-DECT/DECT Server	For more information about the server, refer to the guide available online at http://support.spectralink.com/products.
Spectralink IP-DECT/DECT Base Station	For more information about the base station, refer to the guide available online at http://support.spectralink.com/products.
Handset and Repeater Management Tool	For more information about handset and repeater management using the Handset and Repeater Management Tool, refer to the guide available online at http://support.spectralink.com/products.
Provisioning	For more information about provisioning, refer to the guide available online at http://support.spectralink.com/products.
Spectralink Technical Bulletins	Available online at http://support.spectralink.com/products.

Subject	Documentation
Release Notes	Document that describes software changes, bug fixes, outstanding issues, and hardware compatibility considerations for new software releases. Available online at http://support.spectralink.com/products.
Spectralink DECT Training material	In order to gain access to the Spectralink training material, you must attend training and become Spectralink Certified Specialist. Please visit http://-partneraccess.spectralink.com/training/classroom-training for more information and registration.

Installing the Spectralink DECT Repeater

This section describes the Spectralink DECT Repeater and how to unpack and install it. Installing repeaters requires a software installation as well as a hardware installation.

Note:

Before you install the equipment, ensure that a site planner defines the location of the repeaters.

The coverage depends on the construction of the building and the choice of building materials.

The repeater does not add channels. It only adds additional coverage area.

For installations, the following items should be present in every box containing a Spectralink DECT Repeater:

- Spectralink DECT Repeater
- Mounting template
- Two mounting screws and anchors

Description of Repeater

The Spectralink DECT Repeater is a building block to be used to extend the coverage area in a wireless Spectralink DECT solution. The repeater does not increase the number of traffic channels, however, it provides a larger physical spreading of the traffic channels and thereby increases the coverage area established with the Spectralink IP-DECT/DECT Base Stations/Spectralink IP-DECT Servers 200/400.

Note:

Both the Spectralink IP-DECT Server 200 and Spectralink IP-DECT Server 400 are Spectralink IP-DECT Servers with a built-in Spectralink IP-DECT Base Station.

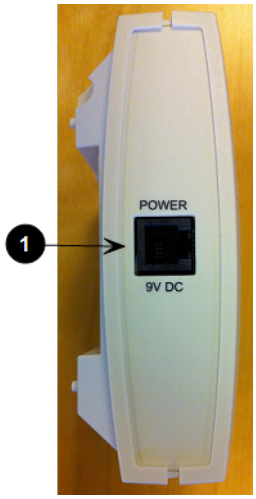
The repeaters are mainly used in areas with limited traffic. The Spectralink DECT Repeater is available with either 2 or 4 voice channels. It is wireless and does not need physical connection to the Spectralink IP-DECT/DECT Server, making it very easy to install. The repeaters can be supplied with an external antenna making it possible to create radio coverage in a remote area without cabling to the rest of the installation.

The base station/server 200/400 can support up to 3 repeaters.

Repeater Appearance and Components

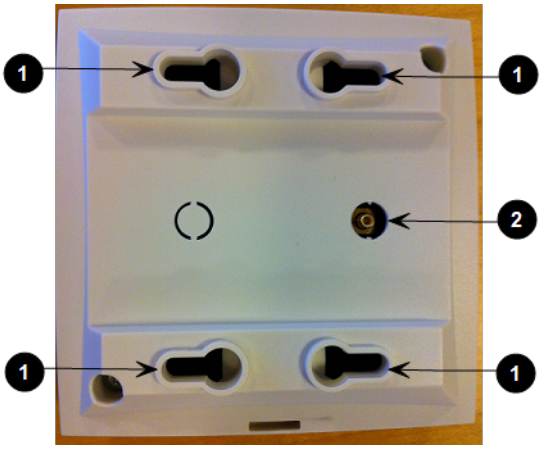
Below you will find a description of the repeater appearance and components:

DECT Repeater - bottom



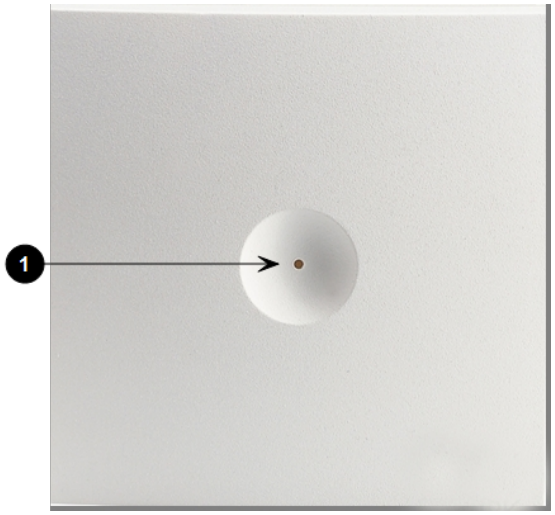
1. RJ9 port

DECT Repeater - rear



1. Holes for wall mounted screws
2. External antenna connector

DECT Repeater - front



1. LED

Repeater LED Indicators

Below you will find information about LED indicators on the repeater.

Front Cover

LED Indicator	Meaning
Indicator Off	The repeater is not powered.
Flashing	Repeater has been powered, sync has still not been established.
Steady green	The repeater is powered and sync is established.
Short flash	A handset connects or makes handover to the repeater.

Site Installation Considerations

Before you begin the installation, determine the position of the repeater for best coverage. The coverage depends on the construction of the building and the choice of building materials.

The repeater can be registered on the system under the following circumstances.

- When placed within the coverage area of a base station/server 200/400.
- When placed within the coverage area of an already-installed repeater.
- When placed outside the coverage area of a base station or repeater using an external antenna.

Note:

The repeater does not add channels. It only adds additional coverage area.

Environmental Considerations

- Do not install a device near metal objects and steel constructions.
- Do not position devices in ducts, plenums or hollow spaces used to transport environmentalair except where the duct, plenum or hollow space is created by a suspended ceiling having lay-in panels.
- Do not position devices behind furniture.
- The installation area must be clean, free of traffic and excess dust, dry, and well ventilated.
- The installation area must be within the temperature ranges of 10°C and 40°C/50°F and 104°F.
- The installation area must be between 20% and 80% non-condensing relative humidity.
- For best RF coverage, the device must be mounted vertically on walls.

How to Wall Mount the Repeater

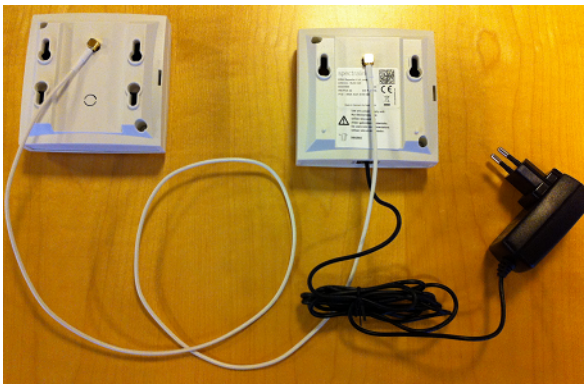
For best RF coverage, the device must be mounted vertically on walls.

Caution:

The repeater and external antenna is to be fixed-mounted on indoor permanent structures providing a separation distance of at least 20 cm/8 inches from all persons during normal operation and must not be co-located or operating in conjunction with any other antenna or repeater. The maximum radiated output power is 1W e.i.r.p.

1. Connect the power supply cable to the RJ9 port on the bottom of the repeater.

   For repeaters with external antenna, connect the external antenna cable to the antenna connector on the rear side of the repeater and in the same way on the external antenna.



2. Mount the repeater on the wall using the anchors and screws accompanying the product.
3. After installing the repeater you need to power it up. The power supply for the repeater is 9VDC, 350mA.

Programming a Spectralink DECT Repeater with the Repeater Programming Kit

Content of the Spectralink Repeater Programming Kit

The Repeater Programming Kit (Part no. 02509210) consists of:

- Splitter
- Programming tool with RJ-Connector
- USB cable

Set up of the Hardware for Repeater Programming

It is recommended that you carry out the set up in the following order:

1. Unplug the repeater power supply and insert the splitter into the power socket of the repeater.
2. Connect the repeater power supply (small one - RJ9) to the splitter and the mains.
3. Wait until the LED flashes (starts with solid red - goes to flashing red after 3 sec.)
4. Connect the programming plug (RJ11) to the splitter.
5. Connect the repeater power supply to the splitter and the mains. LED flashes.
6. Connect the USB cable to the programming tool.
7. Download the Handset and Repeater Management Tool from http://support.spectralink.com/ and install it on your computer.

The repeater is now ready for programming via the Handset and Repeater Management Tool.

Programming the Spectralink DECT Repeater with the Handset and Repeater Management Tool

The Handset and Repeater Management Tool is the tool you access from your desktop and use for repeater programming, handset management and software download to the handset.

The Handset and Repeater Management Tool identifies the type of repeater, and with this software it is possible to program the Spectralink DECT Repeater to connect to the Spectralink DECT Radio Infrastructure solutions.

For more information about programming the repeater with the Handset and Repeater Management Tool, refer to the Handset and Repeater Management Tool User Guide.

Note:

Before you start programming the repeater, ensure that the repeater is connected to the computer and the mains.

Numbering of Base Stations/Server 200/400 and Repeaters in a Normal Configuration

Note:

Repeater and base station/server RPNs must not be the same. Also, in a situation where common overlap is present between the actual units, a repeater cannot have an RPN that is similar to that of a base station/server or another repeater. If this occurs, handover between the different units is not possible.

First Repeater

- RPN of base station/server 200/400 + 64
- Base to synchronize on: RPN of base station/server

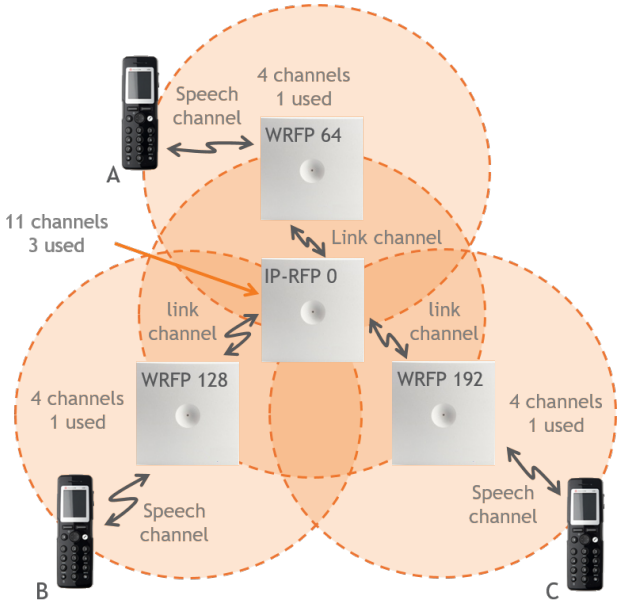
Second Repeater

- RPN of base station/server 200/400 + 128
- Base to synchronize on: RPN of base station/server

Third Repeater

- RPN of base station/server 200/400 + 192
- Base to synchronize on: RPN of base station/server

Below is an example of base station and repeater numbering in a normal configuration.



Numbering of Repeaters in a Repeater Daisy Chain Configuration

First Repeater in Chain

- RPN of base station/server 200/400 + 64
- Base to synchronize on: RPN of base station/server

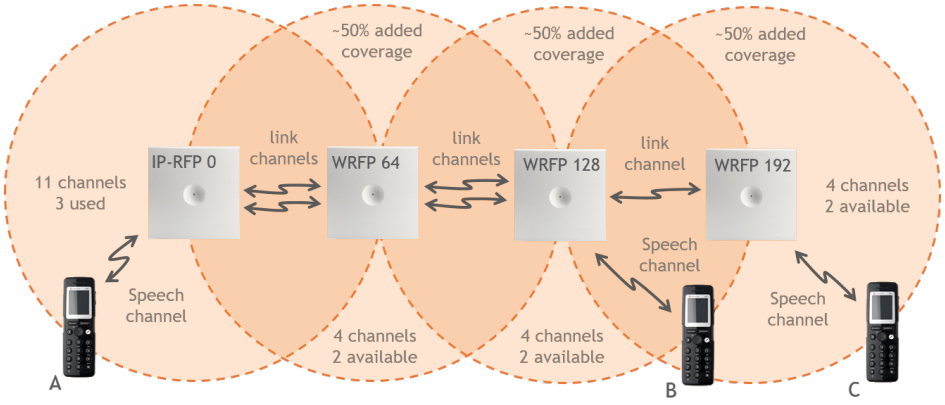
Second Repeater in Chain

- RPN of base station/server 200/400 + 128
- Base to synchronize on: RPN of previous repeater

Third Repeater in Chain

- RPN base station/server 200/400 + 192
- Base to synchronize on: RPN of previous repeater

Below is an example of repeater numbering in a daisy chain configuration.



Using the Spectralink DECT Repeater With External Antenna

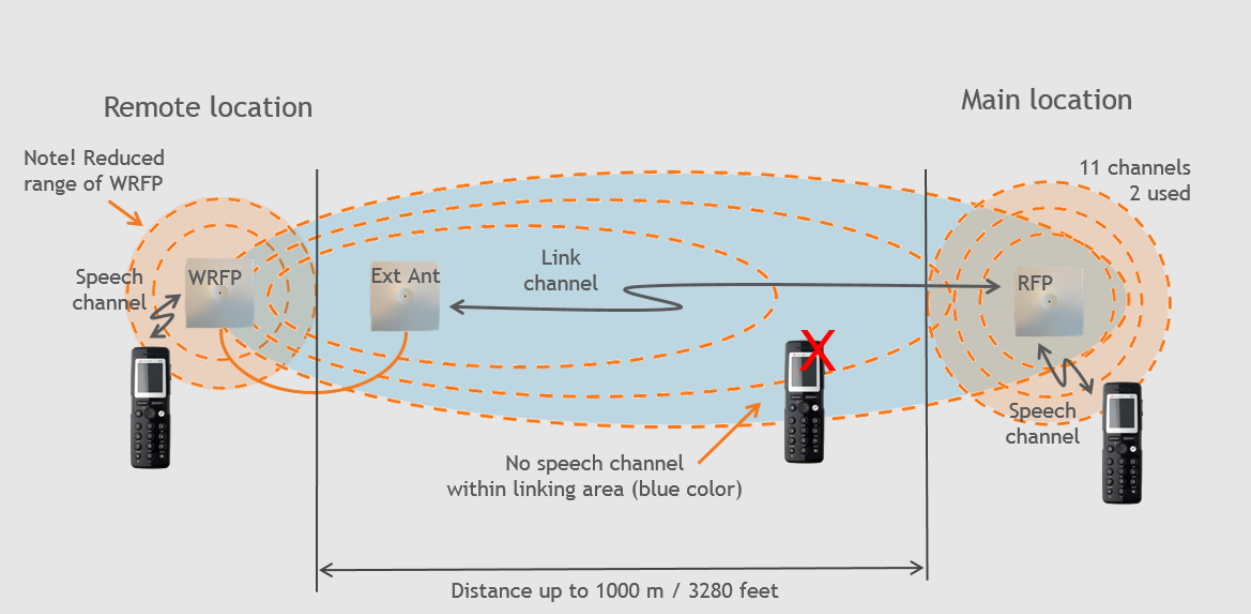
If coverage is needed in a remote area, synchronization can be established between the main system and a repeater by use of an external antenna. The external antenna establishes a radio link between the main system and a Spectralink DECT Repeater.

Note:

Only the Spectralink external antenna (part no. 02319705 - including 1 m connection cable) is approved along with the Spectralink DECT Repeater. The external antenna is delivered with a 1 m connection cable. The connection cable is also available in 3 m (part no. 14002704 and 7.5 m (part no. 14002706).

The Spectralink DECT Repeater is automatically configured to the external antenna when connected.

Below is an example of using a Spectralink DECT Repeater with external antenna.



A repeater is placed at a remote location and a base station is placed at the main location. They are too far away to allow the repeater to extend the coverage of the base station. Therefore, an external antenna can be used to establish a connection between the two end points. As the external antenna is a high gain directional antenna, it must point towards the base station you want to link with.

The radio link way must be stable and free of moving objects. The RSSI level of the main system at the Spectralink DECT Repeater placed remotely must not be lower than 75.

Note:

Inside the area named "radio link" there is no radio coverage for handsets.

If a situation occurs where the primary synchronization for some reason breaks down, the Spectralink DECT Repeater will obtain synchronization on the alternative synchronization source.

Alternative Synchronization Ways

The Spectralink DECT Repeater with or without external antenna, 4 channels, can be programmed to obtain synchronization on two radio units (base station, wireless server 200/400 or repeater).

Note:

The primary synchronization source has priority; the alternative synchronization source is only in use as long as the primary synchronization source is down.

Technical Specifications - External Antenna

Electrical Properties

- Frequency range: 1880-1930 MHz
- Impedance: 50 Ω (DC-path to ground)
- Polarization: RHCP
- Gain: 7.5 - 8.0 dB
- 3 dB beamwidth horizontal: > 62°
- 3 dB beamwidth vertical: > 62°
- Front to back ratio: > 8 dB
- Return loss: < 15 dB
- Connector: SMB male
- One meter cable included

Environmental Conditions

- Operating temperature: -20º - 55º C (-4º - 131º F)
- Storage temperature: -40º - 85º C (-40º - 185º F)

Physical Characteristics

- Size: 100 x 100 x 42 mm (4 x 4 x 1.7 in.)
- Weight: 120 gr. (4.2 oz.)
- Only for indoor usage

Product Compatibility

If you have any questions about product compatibility, contact your system administrator.

You can use the Spectralink DECT Repeater with other Spectralink products as identified by the type approval model ID and/or part number located on the label of the product.

Spectralink DECT Repeater	
Spectralink DECT Repeater 1G8, 2 channels, with connector for external antenna	K018B (02440000)
Spectralink DECT Repeater 1G9, 2 channels, with connector for external antenna	K018B (02441000)
Spectralink DECT Repeater 1G8, 2 channels, without connector for external antenna	K018 (02441100)
Spectralink DECT Repeater 1G9, 2 channels, without connector for external antenna	K018 (02441200)
Spectralink DECT Repeater 1G8, 4 channels, with connector for external antenna	K018 (02441600)
Spectralink DECT Repeater 1G9, 4 channels, with connector for external antenna	K018 (02440200)
Spectralink DECT Repeater 1G8, 4 channels, without connector for external antenna	K018C (02334601)
External Antenna (with 1 m connection cable)	02319705
Connection cable for External Antenna, 3 m	14002704
Connection cable for External Antenna, 7.5 m	14002706
Power Supply (9.0V DC, 350mA)	84642602
Repeater Programming Kit	02509210

Spectralink Base Station	
Spectralink IP-DECT Base Station 1G8	K005
Spectralink IP-DECT Base Station 1G9	K005
Spectralink Digital DECT Base Station 4 channels	K007
Spectralink Digital DECT Base Station 8 channels	K007
Power Supply, 8.0V DC (only Spectralink IP-DECT Base Station)	84642600
External Antenna (with 1 m connection cable)	02319705
Connection cable for External Antenna, 3 m	14002704
Connection cable for External Antenna, 7.5 m	14002706

Spectralink Server	
Spectralink IP-DECT Server 200	K005 (72345600 / 72345601)
Spectralink IP-DECT Server 400	K005 (02344500 / 02344501)
Spectralink IP-DECT Server 6500	K006 (02350000)
Spectralink DECT Server 2500	K017 (0270xxxx)
Spectralink DECT Server 8000	K016 (023389xx)
Power Supply, 8.0V DC (only Server 200 and Server 400)	84642600
External Antenna (with 1 m connection cable) (only Server 200 and Server 400)	02319705
Connection cable for External Antenna, 3 m (only Server 200 and Server 400)	14002704
Connection cable for External Antenna, 7.5 m (only Server 200 and Server 400)	14002706
Power Supply, 19.0V (only Server 2500)	84769905
Power Supply, 19.0V (only Server 8000)	84769902
Cable for Power Supply: AU version	84687011
Cable for Power Supply: DK version	84687012
Cable for Power Supply: EU version	84687013
Cable for Power Supply: UK version	84687014

Spectralink DECT Media Resource	
Spectralink DECT Media Resource (only Server 6500)	K006