Clear-Com FSII-SPL FreeSpeak II Transceiver/Antenna Splitter User Guide

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Transceiver/antenna splitter

The FSII-SPL transceiver/antenna splitter is a device that connects multiple transceiver/antennas to an Eclipse matrix (E-Que—HX card) or Freespeak 11 Base Station. It has a matrix RJ—45 connector that carries the data

between an E-Que card transceiver port and the splitter, and five antenna RJ-45 connectors to feed that information to and from up to five antennas. The splitter must be locally powered using the supplied external in-line universal power supply.

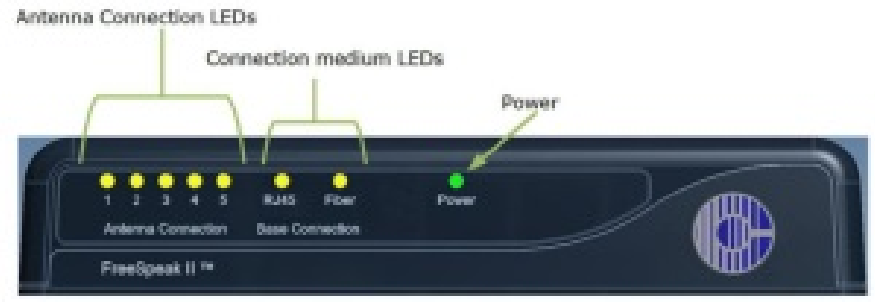
In addition, the FSII SPL provides fiber linking to a FSII-Base-II Base Station and another FSII~SPL unit.

There are eight DIP switches to select the mode of operation, and to enable Local DECT synchronization and software updates.

You can mount the splitter on a flat surface or on a microphone stand using the screw points or stand connectors.

The FSII-SPL is compatible with both FSBP (Freespeak I) and FSII-BP (Freespeak II, 1.9 & 2.4) systems.

FSII-SPL front connector panel



Antenna Connection LEDs

These yellow LEDs indicate that the splitter is receiving data from the antennas.

Base Connection LEDs

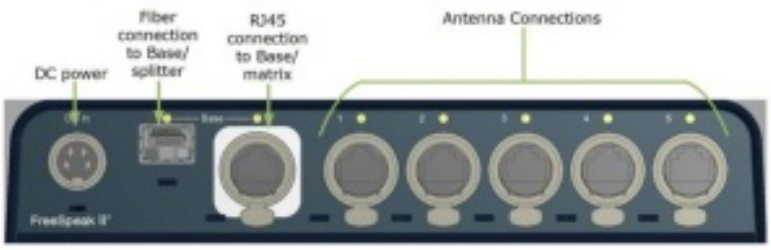
Connection to Base; RJ45 or fiber.

- If the LEDs are steady on, DECT synchronization is being received from the Base Station/matrix.
- If the LEDs display a double flash, DECT synchronization is occurring locally.
- If the LEDs display a rapid pulse flash, there is no DECF synchronization (fault condition).

Power LED

This green LED indicates that the splitter is receiving power.

FSII SPL rear panel



DC IN power connector

This connector is used to locally power the splitter with the supplied universal power supply. Use of local power is required.

Fiber connection to Base Station or another FSII-SPL unit

This connector uses a Fiber Module (Part# HCI-SMFO or HCI-MMFO)

RJ45 connection to Base Station or matrix

One EtherCON RJ-45 connector

Antenna connectors

Five EtherCON RJ-45 connectors

Connecting and using a splitter

Connect the FSII-SPL base connector to matrix E-Que (RJ45 connection) or Base Station antenna port (can be RJ45 or fiber). Connect all antennas (up to 5) to splitter antenna ports. Also make sure that the both the power LED (green for 1.9 GHZ, blue for 2.4 GHZ) and the yellow data LED are lit on each antenna. If all are properly lit, then the connection has been successfully made and the coverage zones will be active and will support beltpacks. If the transceiver antennas are not lit, check the connections.

Note: Cable distances under 300m (985 feet), antennas can be powered by the splitter. Above 300m they must have direct/local power.

Make any necessary DIP switch settings (mode of operation, local DECT synchronization, firmware update).

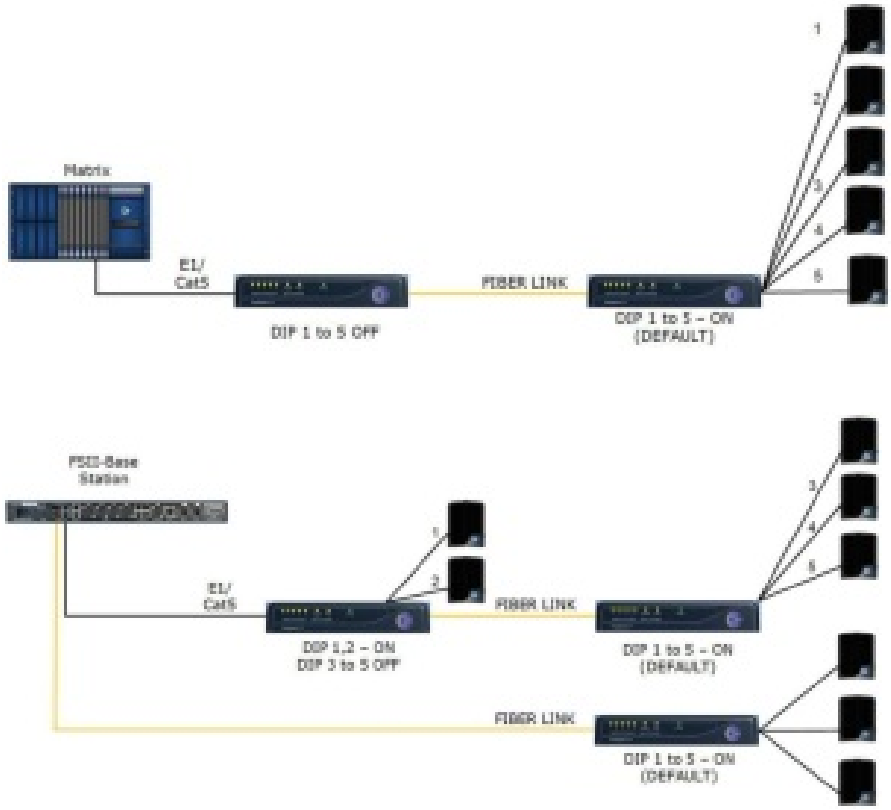
DIP switch settings {default in BOLD]

To access the DIP switches, remove the covering panel on the base of the splitter (two screws).

Note: when you change a DIP switch setting you must repower the unit for the change to have any effect.

1 to 5	Antenna ports 1 to 5 0n – Active OFF ‘ Convert to fiber
6	ON — Base Sync OFF — Local Sync
7	If 6 is switched to OFF ON — Free speak II opp – Free speak I
8	ON — Update OFF – Normal operation

Typical FSII-Base/FSII-splitter configurations using Clear-Com equipment .



Typical system configuration using third party equipment

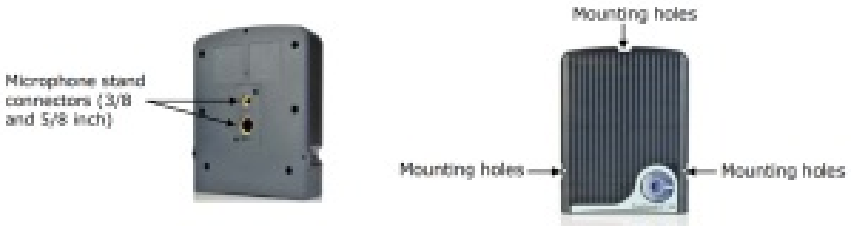
Note: In this configuration, there is no DECT Synchronization from the Base Station or matrix (DIP 6 — OFF). Only local DECT synchronization is possible.

A FreeSpeak II (FS II) transceiver/antenna forms the transmission link between the FS II beltpacks and the FS II Base station or Matrix card. You can use multiple units to create larger, customized coverage areas. It communicates with the following components:

- The FSII Base station, either directly or via a PD2203 splitter
- An Eclipse HX matrix via the Eclipse E-Que card rear panel either directly or via a PD2203 splitter

Note: For more information about the system see the FreeSpeak II User Guide.

Installing the transceiver/antenna



The unit has two methods of fixing:

- Three screw points for mounting on a flat surface (see dimension drawing on next page).
- Two microphone stand connectors, 3/8 in and 5/8 in.

Connecting the transceiver/antenna

1. Connect the base/matrix connector to a Base station or splitter using Ethernet shielded cable (CAT5/5e/6).
   Note: You can also connect the antenna to an Eclipse HX matrix. For more information, see the Eclipse HX documentation.
2. Ensure that the power supply is connected to the DC power connector. The LED indicates that power is present. This will be green on 1.9 GHz devices, and blue on 2.4 GHz devices.
3. Ensure that the amber data status LED is lit and is not flashing.

The transceiver/antenna is now ready to use.

Beltpack support capacities for transceiver/antennas

Each transceiver/antenna can support five beltpacks within one coverage zone. With the omnidirectional antennas, the coverage pattern is circular, with a maximum range of up to 250 meters (800 feet), but with typical range between 50 meters and 150 meters – depending on the environment in which it is installed.

The proprietary technology within FS II permits the beltpack user to go between coverage zones created by different transceiver/antennas connected to the Base station, and for the system to hand over the communication between beltpack and Base station from one transceiver/antenna to the next one. Thus, a larger, customizable communications area may be designed. When designing the system, determine how many beltpack users will be in or passing through a given coverage zone. For five or fewer users, place one transceiver/antenna in the center of that area. For between 6 and 10 users, place two transceiver/antennas next to each other, both with a direct connection to the FS II Base station or splitter. In larger systems – approaching 20 beltpacks – you are recommended to allow one transceiver/antenna for every 3 to 4 users to ensure smooth handoffs between transceiver/antennas. It is good practice to have each beltpack “seeing” two or more antennas, so a minimum of

two antennas in any system is to be considered. If a sixth beltpack user goes into a coverage zone with only one transceiver/antenna, and that user is out of range from another transceiver/antenna, it will lose connection with the system. This is because the transceiver/antenna has a maximum capacity of five beltpacks at a time. If one of the existing users in that coverage area turns off a beltpack or leaves the area, then the sixth beltpack will find an open slot and will be reconnected with the system.

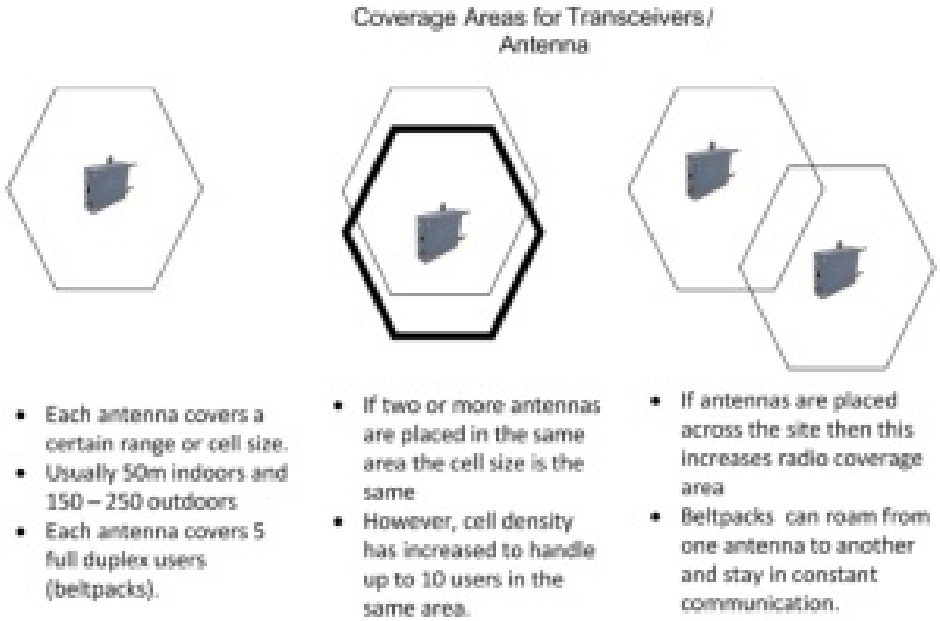
Transceiver/antenna placement and coverage

Note

The radiated pattern is omnidirectional. You can mount the transceiver/antenna units horizontally or vertically.

Consider the following points:

- Try to separate units by at least 1m.
- Keep units high and line-of-sight. However, lower placements away from interfering objects can be beneficial.
- Keep them away from larger metallic objects and surfaces, and from lighting trusses.
- Antenna coverage is circular so put the units in the center of the area in which coverage is required.
- When overlapping the coverage zones of transceiver/antennas to create larger continuous coverage areas, test the in-between areas with a beltpack for potential areas of low RF signal, and adjust the positioning of the antennas as required.
- Because of potential body shielding during movement, it is useful to place two transceiver/antennas in different locations within larger working areas to minimize lowlevel signals and potential signal dropouts. Going between a larger area and a corridor via a door, especially a heavy or shielded one, or where the walls are thick, place a second antenna in the corridor near the doorway to assure continuous coverage.



Going between a larger area and a corridor via a door, especially a heavy or shielded one, or where the walls are thick, place a second antenna in the corridor near the doorway to assure continuous coverage.

A FreeSpeak II wireless beltpack gives you simultaneous access to up to five channels of talk/listen communication, with the ability to switch among them as desired. It communicates with the following FS II components:

- The Base station (FSII-BASE) that routes communication to and from the beltpacks and other audio devices.
- Transceiver/Antennas (FSII-TCVR-19, FSII-TCVR-24) that provide custom coverage zones in which the beltpacks operate.
- Antenna splitters (PD2203) that run up to 5 separate transceiver/antennas.

For more information about the system, see the FreeSpeak II User Guide.

Charging the beltpack

Use your thumb to slide open the battery latch, and insert the battery into the battery compartment with the battery terminals facing inwards. The beltpack can use a rechargeable Li-Ion battery or three AA batteries. A dedicated drop-in battery charger can charge up to five Li-Ion batteries simultaneously. You can also insert the beltpack containing the battery onto the charger.

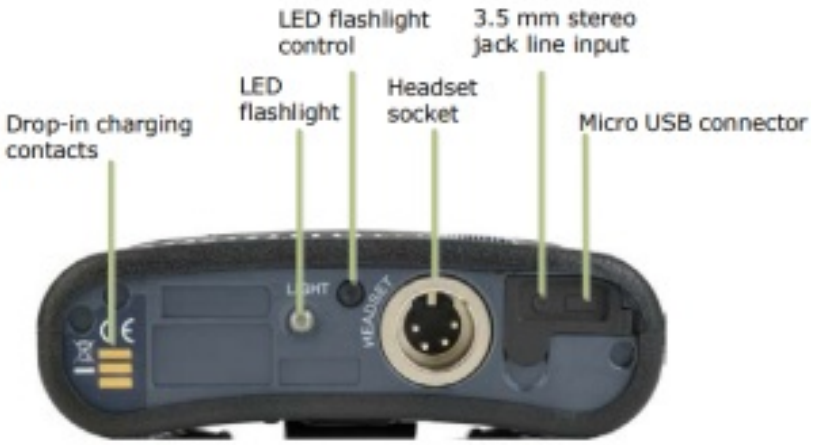
You can also recharge batteries by using the supplied USB cable.

Using the Beltpack

Ensure the beltpack has a charged battery and press and hold the recessed power button for three seconds to switch it on. If you are using the beltpack with a FreeSpeak II Base station, the system has a default audio set-up so the system can simply be wired and powered before basic use. The default set-up has two partyline (conference) audio channels (A and B). Each channel talks to:

- All the beltpacks on that channel
- The head set on the Base station.

To turn the beltpack off, press and hold the power button for three seconds.



FS II Beltpack connectors

The beltpack has four keys labelled A, B, C, and D. You can program each of these keys to determine their communication destinations, and the type of communication possible.

1. Connect a headset, using the XLR connector on the base / rear of the beltpack.
2. Press the appropriate key. While the key is held down, audio transmits on that channel. When the key is released, audio no longer transmits. To latch a key on for hands-free use, quickly tap the key. Press the key to release the latch.
3. Speak into the headset microphone.
4. To adjust the volume of incoming audio for a channel, turn the appropriate rotary control.
5. You can configure the beltpack Reply key to reply to incoming calls or to call a specified destination. See the FreeSpeak II User Guide

Entering and exiting Menu mode

Use Menu mode to:

- Configure the settings for the beltpack
- Read beltpack information such as software version
- Perform a site survey to maximize signal strength and coverage.

To enter Menu mode, press and hold the Menu key for three seconds. To exit Menu mode, press the Menu key again. For more information about using Menu mode on the beltpack, see the FreeSpeak User Guide.

Inserting batteries

Use your thumb to slide open the battery latch, and insert the 3 x AA batteries into the battery compartment ensuring the correct alternate orientation as illustrated.

The batteries may be Alkaline or Nickel Metal Hydride (NiMH). To set the battery type across the system:

For FSII-BASE, within the Configuration Tool Select System Tab > AA Battery Type

For FSII-BASE-II, within the CCM Select Home Tab > General > Wireless > AA Battery Type

For Eclipse HX, within the EHX configuration system. Select Configuration > Preferences > Wireless Beltpacks

Select the appropriate battery type (default is Alkaline)

Note: Selecting the incorrect battery type will not harm the beltpack but may cause incorrect reading of battery life remaining.

Installing the battery charger

1. Either mount the charger to a wall using the optional wall bracket or leave on a desktop.
2. Connect the power supply to the power connector.

Charging the beltpack

The beltpack can use a rechargeable Li-Ion battery or AA batteries. The charger can charge up to five Li-Ion batteries simultaneously.

Note: You can also recharge batteries by using the supplied USB charger. However, this will not charge AA cells.

1. Insert either the beltpack containing the battery, or the battery itself into one of the recharging bays on the battery charger. A red LED indicates that the battery is recharging.
2. If you are recharging the battery while it is still in the beltpack battery compartment, an illuminated beltpack key (Talk key A) indicates the charging status. The table below shows the charging status conditions.

Status indicator	**Status**
Talk key A or charger status LED red	Charging
Talk key A or charger status LED green	Fully charged
Beltpack screen	Displays current percentage charge and software version.

3. Wait until the recharging LED turns from red to green (up to 2 hours). The battery is now fully recharged.

Note: If a beltpack is on when placed in the charger, when removed the RF is re-enabled and the beltpack attempts to reconnect to its previous system. If a beltpack is off when placed in the charger, it powers off when removed.

Documents / Resources

	Clear-Com FSII-SPL FreeSpeak II Transceiver/Antenna Splitter [pdf] User Guide FSII-SPL, FreeSpeak II Transceiver Splitter, FreeSpeak II Antenna Splitter