

FreeSpeak II™ transceiver/antenna

Quick Start Guide



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.

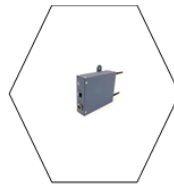
Transceiver/antenna placement and coverage

Note: The radiated pattern is omni-directional. You can mount the transceiver/antenna units horizontally or vertically.

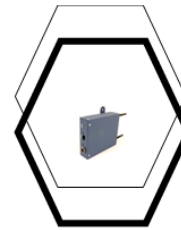
Consider the following points:

- 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 low-level signals and potential signal dropouts.

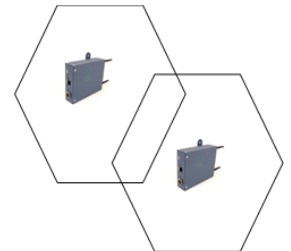
Coverage Areas for Transceivers/
Antenna



- Each antenna covers a certain range or cell size.
- Usually 50m indoors and 150 – 250 outdoors
- Each antenna covers 5 full duplex users (beltpacks).



- If two or more antennas are placed in the same area the cell size is the same
- However, cell density has increased to handle up to 10 users in the same area.



- If antennas are placed across the site then this increases radio coverage area
- Beltpacks can roam from one antenna to another and stay in constant communication.

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.

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