FreeSpeak II™ IP Transceiver

Quick Start Guide

An FSII IP Transceiver (IPT) forms a link between FSII 1.9 GHz beltpacks and a Clear-Com matrix (E-IPA-HX interface card). The system is fully scalable and you can use up to 64 IPTs and up to 64 beltpacks to create a customized coverage zone. The IPT can also be used in standalone mode.

The IPT is designed for use on a Local Area Network (LAN). It requires careful setup of IP settings as the E-IPA card uses up to 3 IP addresses. It also requires careful setup of network switches. For details see: *Clear-Com AES67 Switch Recommendations and Best Practices*.

The IPT can be used with the power connector supplied with the unit or Power over Ethernet (PoE).The IPT is a Class 3 PoE device. If you exceed the power budget of your switch the units will malfunction.

IP and network switch setup

Fig 1: IP and network switch setup (example)

- Clear-Com recommends that you keep the AES67 ports and the Admin port of the E-IPA card separate as shown in Fig. 1
- The LAN 1 connector on the CPU card of the matrix must be on the same network as the E-IPA Admin port and the PC hosting the EHX software.
- Try to keep the number of layer 2 hops between PTP master and slave as low as possible (no more than 3). If more are required, consider using a Boundary Clock or a Transparent Clock.
- If you change the IP address of:
    - The AES67 port on the E-IPA card
    - The AES67 Audio port on the IPT

    the device will reset automatically. During reset, it can take up to 5 minutes for the IPT to become fully operational again.

Use **DHCP** (the default setting) for fast and easy setup of the devices. If the device does not encounter a DHCP server on the network it will switch to the link-local range automatically (169.254.XX.XX).

If you need to use static IP addressing for your transceivers see the: *EHX User Guide.*

Transceiver base

Fig 2: Transceiver base

Status indicator LEDs

Indicator 1 red 2 Hz = overheat, indicator 2 red 2 Hz = power on test failure.

Note: **You must not connect more than one LAN to the same network at the same time (broadcast storm).**

Reset the IPT to default:

Press and hold the **Mode** button. Wait until status LED 2 turns red (12 seconds). Release the Mode button and the IPT will reboot and reset. This sets the device Admin port to DHCP (the AES67 Audio port is not changed). Reset can take up to 5 minutes.

Connecting the transceivers

Cable the IPTs, matrix and PC as shown in Fig 1. Ensure that the network switch is set up according to the guidelines shown on Fig. 1 (more detail can be found in *Clear-Com AES67 Switch Recommendations and Best Practices*).

1) Before powering the IPTs, ensure that the IP addresses (Admin and AES67) of the E-IPA card are set correctly.

In the EHX software, navigate to **EHX>Hardware>Cards and Ports>E-IPA card>Card Properties** (right click on the E-IPA card for **Card Properties**). In the example below, **Admin** IP is static, while the **AES67** IP is set to DHCP.
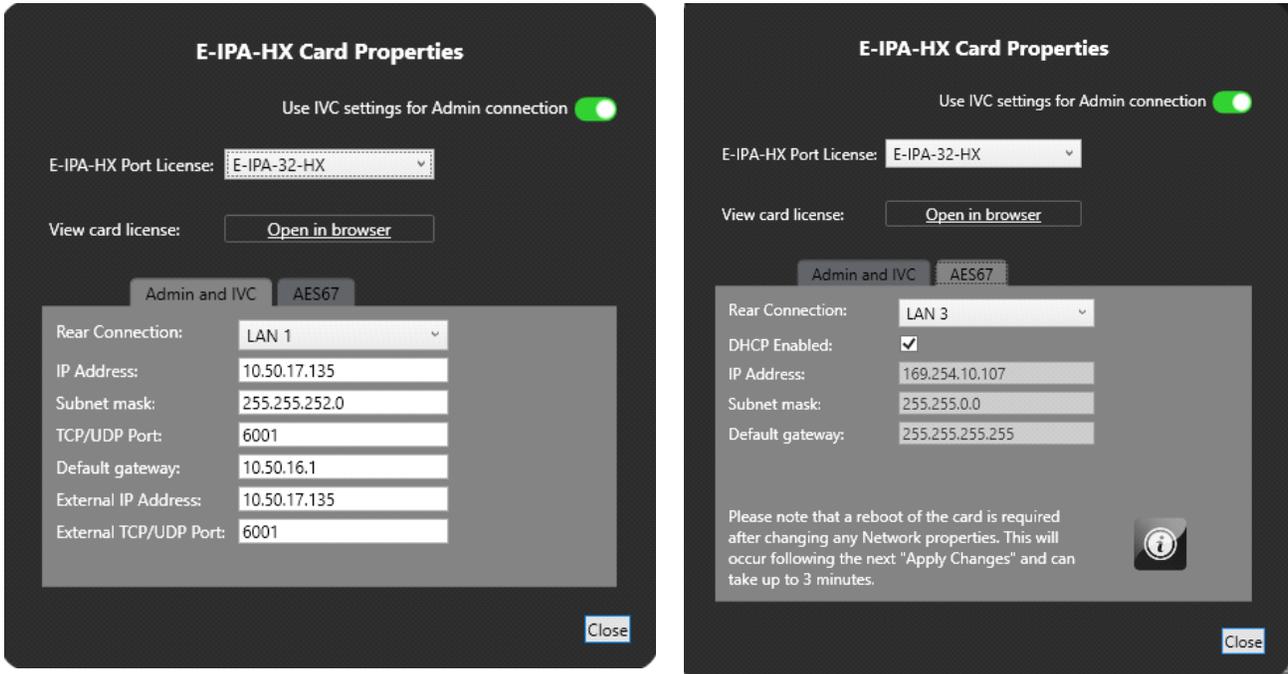
Fig 3 Example IP settings.

2) If you change the card IP addresses you must **Apply Map to Matrix**.

3) In the EHX software, ensure that at least one beltpack has been allocated. **EHX>Hardware>Cards and Ports>+ Port** (green button). Once beltpacks have been allocated in EHX, you will see the **Tranceivers** button.

Note: Beltpacks must be already registered to the system and have a **Role** assigned to them before they can be used with the transceivers. See the *FreeSpeak II Integra User Guide* if you need more information.

4) Apply power to the IPT(s).

5) Detect IP transceivers. **Navigate to EHX>Hardware>Transceivers** and click **Detect IP TCVR**
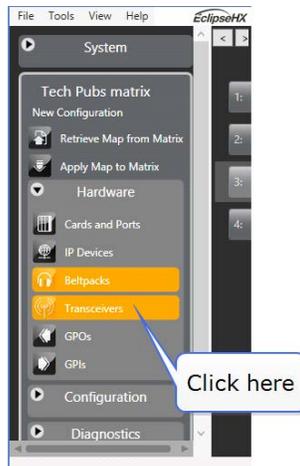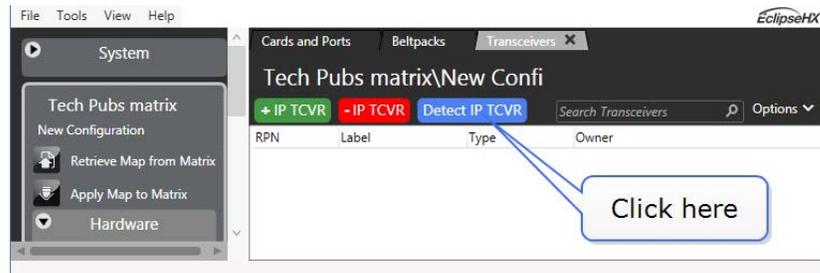
Wait (~1 min) until the IPT is shown as discovered (blue) in the **AoIP Devices** window.

Blue indicates that the IPT has been discovered on the network but not yet added to the matrix configuration. Device discovery is subnet agnostic, but for audio connection, the card and transceiver must be on the same subnet.

Click the checkbox on the discovered IPT and then the down arrow to begin the process of adding the device to the matrix configuration. Close the Detect IP TCVR window.
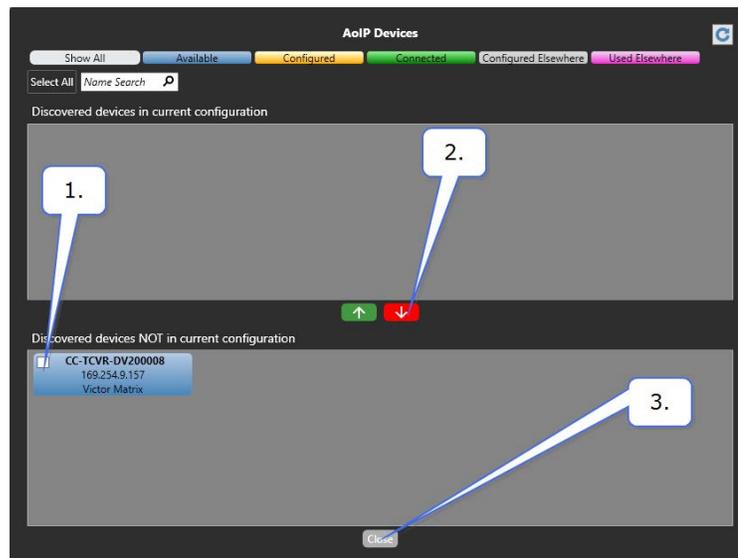
6) Click **Apply Map to Matrix** to add the device(s) to the matrix configuration.

Once the configuration has been downloaded, the devices will work through their connection sequence (up to 5 mins). While this is happening you can observe the status LEDs on the IPT.

Status indicator 1

White 2 Hz: No IP connection to the IPT (30 secs)

Purple 2 Hz: IPT connected, no PTP lock (up to 3 min)

Amber 2 Hz: PTP locked, no DECT Sync (10 secs)

Amber, solid: transceiver ready

You can also navigate to the Monitoring screen in the EHX software (**System>Monitoring**) in order to track progress and see troubleshooting information.
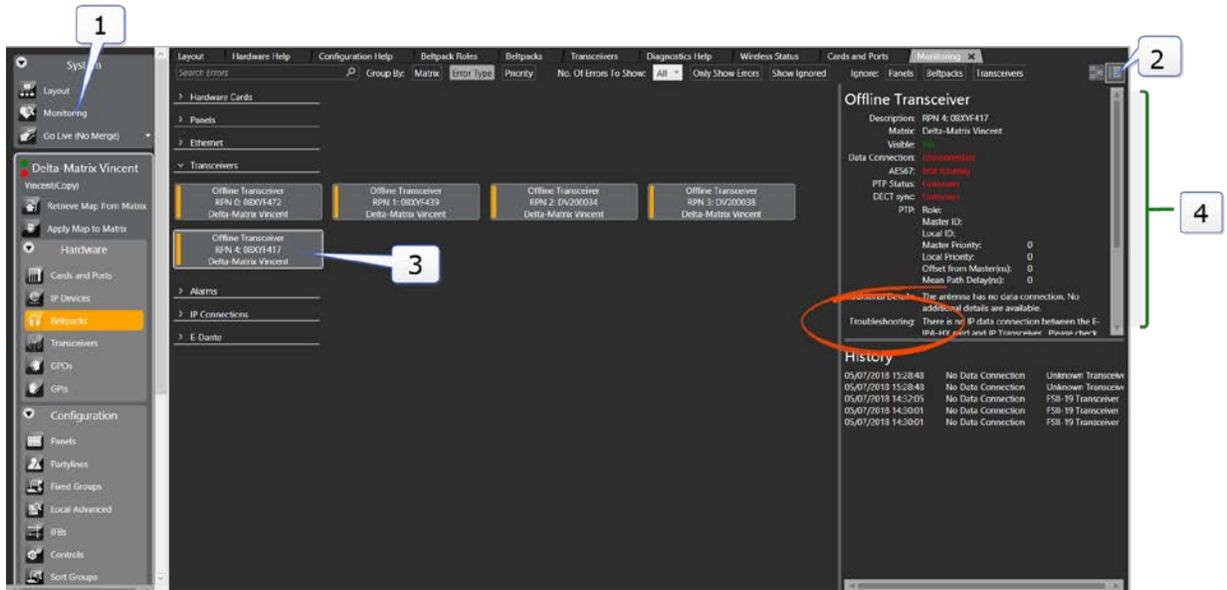
When the IPT(s) are ready for use, status indicator LED 1 on the IPT will show solid amber and the device widgets in the EHX software will show green.