

v.10.16

## Dante™ PHY-to-PHY Device Audio Dropouts

The purpose of this tech tip is to provide information when troubleshooting Dante connection and subscription problems between two PHY Dante devices.

### Symptom:

The system works correctly when it is initially connected and installed. Subsequently, the system suffers frequent dropouts of random Dante channels. The dropouts manifest as a couple of seconds of silence. When the devices are connected via a switch, the system functions normally without dropouts.

### What is a PHY Dante Device?

A Dante device that does not have an internal switch. The Ethernet jack is connected directly to the Dante PHY (Ethernet physical transceiver), as opposed to through a switch. This includes many Ultimo-based devices on the market as well as the specific Symetrix hardware listed below.

### Affected Symetrix Hardware:

- Prism (4x4, 8x8, 12x12, and 16x16)
- xIn 4
- xOut 4
- xIO 4x4

Dante devices on the market with two Dante ports (Primary and Secondary) have internal switches and will not be affected. This includes Symetrix Radius and Edge DSPs.

### Why do you get dropouts when two PHY devices are direct connected?

When a PHY device is directly connected to another PHY device, audio glitches occur due to PTP (Precision Time Protocol – the Dante clock protocol) sync loss.

If both devices use PHY-based Ethernet, there will be insufficient delay on the transmitted packet to properly calculate the 1588 time. Adding a switch, creates sufficient packet delay to allow the calculation to be significant. This is a fundamental operational/mathematics issue. It is not something that can be adjusted. As such, it cannot be accounted for or fixed by firmware.

Dante networks require a switch to be compliant. Typically, there are one or more Brooklyn II-based products in a system which include an internal switch, particularly if they support daisy-chaining or redundancy. However, if the Brooklyn II-based product is only using PHY-based Ethernet, it is subject to this limitation.

### Solution:

For this situation, the only resolution is a switch. A PoE injector is a pass through device and will not resolve the problem.

When connecting Symetrix hardware with single Dante ports to each other, an external switch will always be needed. Example: Prism 4x4 to xIn 4.

When connecting Symetrix hardware with a single Dante port to a device with dual Dante ports an external switch is not needed. Example: Radius 12x8 EX to xIn 4.

