APPLICATION NOTES:
ODIN with ROAMEO

INTRODUCTION

ODIN is a fully OMNEO-capable 1RU matrix with the ability to work with ROAMEO, a DECT-based wireless communication system. In this Note we will look at a couple of ways ODIN can support ROAMEO in truck applications.

SCENARIO

In Television production, the term Outside Broadcasting (OB) is used for sports events, music concerts etc not occurring in a studio. OB-vans contain all the equipment required for producing these events and sending them back (via satellite) to the network for distribution. Among the many different types of equipment installed in OB-vans, an intercom system including wireless capability is mandatory. For larger productions, multiple OB-vans are used, and the ability to interconnect the intercom systems becomes important.

BASIC CONNECTION

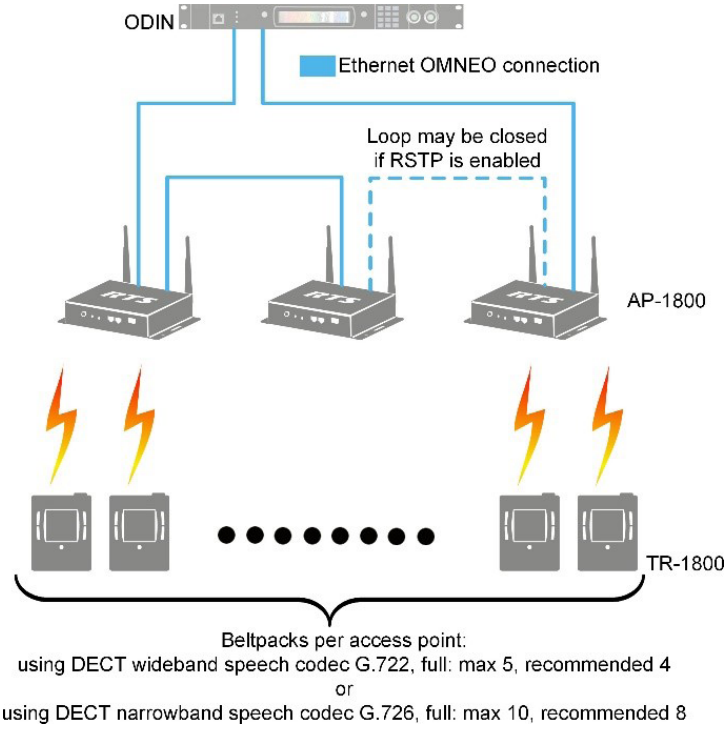
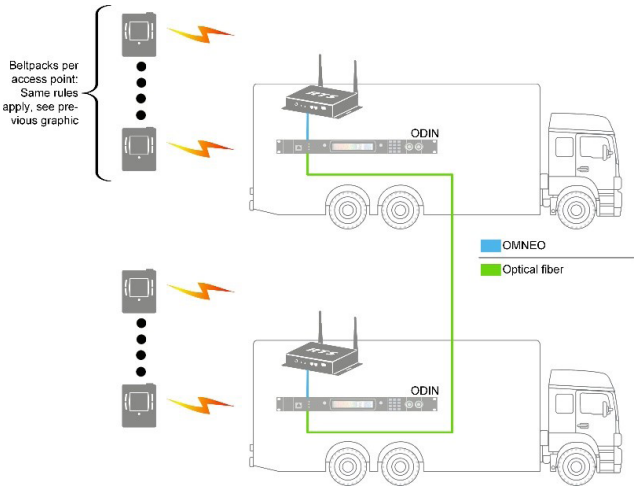


Figure 1 shows a typical way in which Access Points may be connected to ODIN. ODIN has two RJ-45 connectors for OMNEO. If the Rapid Spanning Tree Protocol (RSTP) is enabled, the Access Points may be connected in a loop, which makes it resilient to a single cabling fault. Without RSTP, a loop must not be used. A more complete discussion of ways of connecting ROAMEO Access Points may be found in the App Note titled “ROAMEO Wiring Architecture”.

Figure 1. Connecting ROAMEO to ODIN: basic connection

OPTION 1: USING THE ODIN INTER-FRAME LINK (IFL)

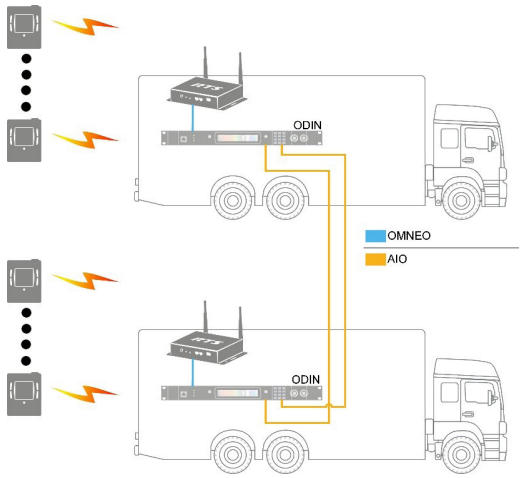
In the following example we imagine two trucks, each with its own intercom including ODIN with one single Access Point of ROAMEO and a number of Beltpacks. The Inter-Frame Link (IFL) may be used to interconnect the two systems. In so doing, they become one single intercom. See Figure 2.



IFL uses optical fiber. Each ODIN must be equipped with at least one SFP, which is the physical device that connects to the fiber. SFPs must be ordered separately, because they are specific to the type of optical fiber used. Ways of interconnecting two or more ODINs using optical fiber are described in the App Note titled “Interconnecting ODIN frames”.

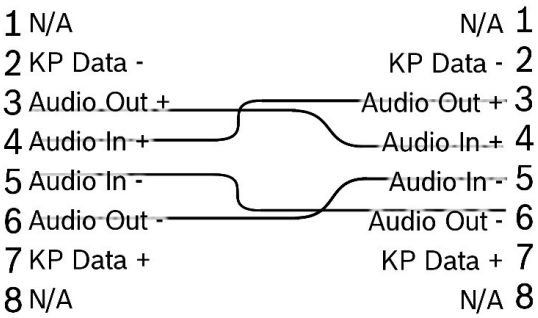
Figure 2. Interconnecting the trucks with IFL

OPTION 2: USING THE AIO CONNECTORS



This option uses two or several analog connectors. ODIN has 16 RJ-45 style connectors for analog signaling, intended for analog keypanels. Of the available 8 pins on an RJ-45 connector, 6 are used. Both keypanel data and analog audio are transmitted using balanced signaling, also known as differential signals, which is more resilient to induced noise. Two wires are used for data, two for analog audio in one direction, and two in the other. When AIO is used for audio signals between two matrices, keypanel data is not transmitted, so only four wires are used. A special cross-over cable must be used, where pins 4 and 5 on each side connect to pins 3 and 6 of the other, see Figure 4.

Figure 3. Interconnecting the trucks with AIO



This interconnect cable can easily be fashioned with an RJ-45 crimping tool to allow the necessary audio cross-over function for the two matrices to talk.

Note the number of AIO-cables used in Figure 3 is not locked to two. The number of cables to be used is an intercom design decision, and is determined based on the total number of required individual (point-to-point) and group (partyline) conversations required between the two intercoms.

Figure 4. Four-wire interconnect cable used in Figure 3

CONCLUDING REMARKS

The solution that uses IFL is more easily scalable to multiple trucks than the one that uses AIO. For multiple trucks, the AIO-based solution requires a fully meshed structure (e.g., each matrix must have direct AIO lines to each of the other trucks to which it wants to talk). With IFL, configuring a multi-ODIN system with ROAMEO becomes a matter of intercom programming only: the intercom behaves like a single matrix, with full access to every beltpack.