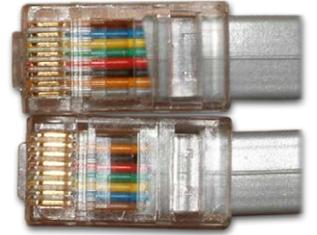# VoIP Wiring and Using the TALAN VoIP Adapter Cable
April 2008

The purpose of this paper is to explain the differences between typical telecom cable wiring and VoIP wiring, and to explain the need and proper use of a VoIP adapter cable for testing VoIP phone systems using the TALAN.

Traditional Telecom Cables

Typical analog and digital phone systems use a "reversed" modular 8-conductor cable (where Pin 1 on one end of the cable corresponds to Pin 8 on the other end of the cable, Pin 2 to Pin 7, and so on). Flat modular cords are most often in this reversed format. This reversed wiring can be seen in the image at the right (note the reversed colored conductors each connector).
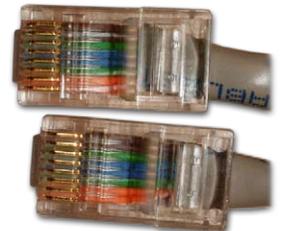
The TALAN can be used "in-line" with a phone system using the TALAN's two modular jacks which are identified as LINE and PHONE. The modular jacks on the TALAN are wired in the reversed fashion to allow for most common telephone systems. Pin 1 on the LINE jack corresponds to Pin 8 on the PHONE jack and so on. The reversed connection between the LINE and PHONE jacks allows for the use of the reversed modular cords described earlier. It is important to remember that the pin numbers displayed on the TALAN screen refer to the LINE jack only.

Traditional Telephone Cable

VoIP

Unlike the reversed modular flat cables found in most voice systems, VoIP twisted pair cables are wired in a "straight though" manner (Pin 1 to Pin 1, Pin 2 to Pin 2, etc.). Typically, VoIP systems use Pins 1, 2, 3 and 6 of an eight wire twisted pair cable. This straight through wiring is shown in the image to the right (note the colored conductors are in the same order in both connectors).

When using the TALAN in-line on a VoIP phone system, if straight through cables are used, the reverse between the LINE and PHONE jacks will flip the signals on Pins 1 and 2 to Pins 7 and 8 and the VoIP phone will not work. To "re-reverse" these connections, an Adapter Cable is required.

VoIP Telephone Cable

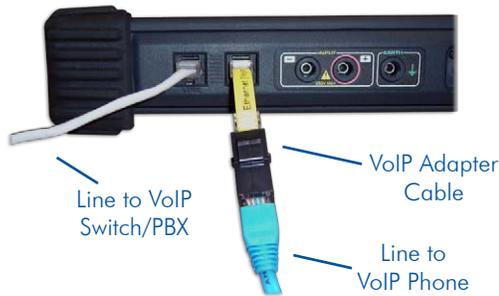## HOW TO USE THE TALAN VoIP Adapter Cable

The TALAN VoIP Adapter Cable is simply a very short reverse cable that counteracts the reverse in the LINE and PHONE jacks and allows the VoIP signal to remain on the correct pairs.

TALAN VoIP Adapter Cable

To connect the TALAN to a VoIP phone system using the VoIP Adapter Cable, see the instructions below:

1. Disconnect the eight wire straight through cable from the VoIP phone and plug it into the LINE jack on the TALAN.

2. Plug the TALAN VoIP adapter cable into the PHONE jack on the TALAN.

3. Connect another eight wire straight through cable from the TALAN VoIP adapter cable to the phone instrument.

4. The VoIP phone should now operate normally and is ready for testing.

Line to VoIP Switch/PBX

VoIP Adapter Cable

Line to VoIP Phone

VoIP Phone

Standard Telecom

For more information on the TALAN and training courses on testing telephone systems for eavesdropping threats, contact REI at sales@reiusa.net or visit our web site at www.reiusa.net