



# TALAN™ 3.0

## TELEPHONE AND LINE ANALYZER

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PATENTS PENDING

The TALAN detects and locates illicit tampering and security vulnerabilities on digital, analog, and VoIP telephone systems.



The TALAN provides a suite of tools in a single piece of equipment to accurately analyze phones and lines for faults and security breaches.



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## TELEPHONE AND LINE ANALYZER

PATENTS PENDING

Analyze digital, analog, and VoIP phone systems and wiring for faults, anomalies, and security risks.

### Suite of Telephone Tests Including an Automatic Switching Matrix

The TALAN includes a built-in automatic switching matrix for testing all pair combinations. For example, if a cable has 8 conductors, there are 28 combinations of pairs to test; the TALAN can automatically switch through all combinations, performing test functions and storing test results for comparison.

### 3.0 VoIP Plus+ Analysis

The TALAN can capture and analyze network streams for fast identification of unauthorized VoIP traffic. Users can quickly detect if a VoIP phone system is passing data packets when the phone is not in use.

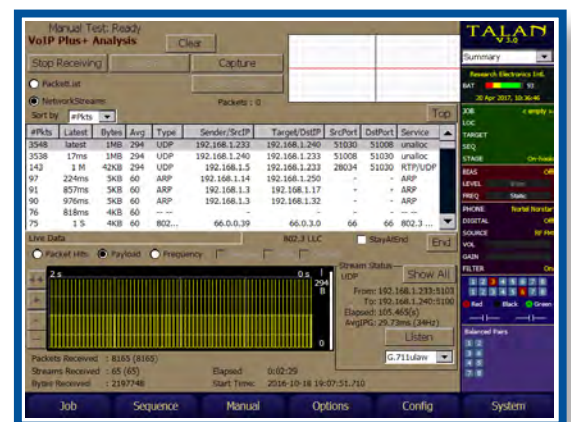
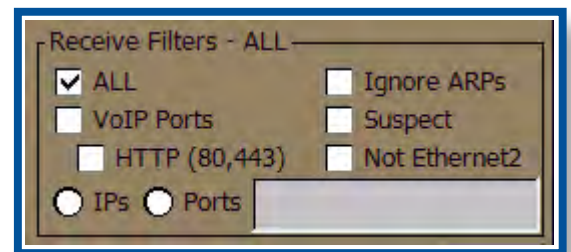
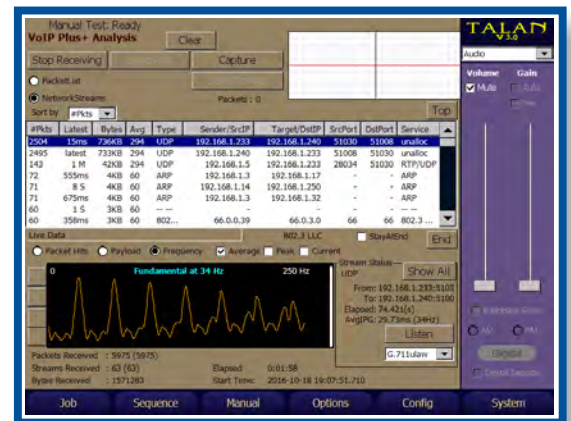
Connect inline with a phone using an REI VoIP adapter, port mirroring, or ethernet hub to capture VoIP packet traffic for analysis. VoIP data collected by the TALAN includes source and destination MAC/IP addresses, header type, statistics - total packets, packet rate, peak rate, and run time. The TALAN software recognizes older protocols that other equipment may miss, increasing the probability of detection.



The easy-to-use interface allows users to visually observe patterns of consistent, repetitive traffic. Common VoIP services will often display a unique set of characteristics that can later be used to visually identify similar sets of traffic. Extensive, advanced filtering makes it easier to locate and identify suspicious packet information. New functionality allows for on-board analysis versus exporting information to third-party packet analyzing software.

The patent-pending Fast Fourier Transform (FFT) algorithm converts the arrival times of network traffic into a packet frequency graph. By transforming this information from time domain to frequency domain, the TALAN creates identifiable patterns not easily noticed in a traditional packet list allowing the user to detect live VoIP traffic.

Analyze traffic by packet hits on all streams or isolated streams, payload (size of data in packets over time), and frequency. Audio demodulation also provides the opportunity to listen to live packet streams.



### 3.0 Digital Multimeter Tests

The TALAN includes multimeter tests such as Voltage, Current, Capacitance, and Resistance.

The automatic switching matrix allows the user to quickly measure and display results for all pair combinations, easily identifying any anomalies.

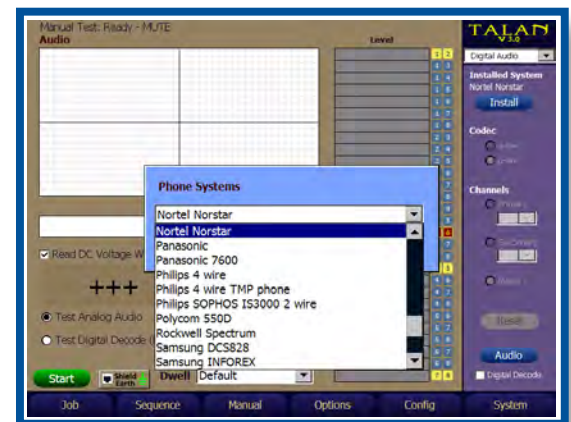
A new input panel provides the ability to test twisted pairs against modern telecommunication threats including shield and ground. Dwell selection options allow for greater accuracy without sacrificing speed.



### Digital Demodulation

Includes digital decoding capabilities for approximately 80% of the world's digital phone systems.

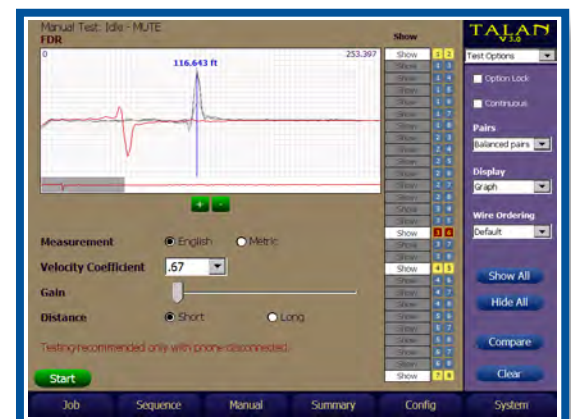
The Digital Demodulation function provides the ability to determine if a digital phone line is passing audio when it should not.



### Frequency Domain Reflectometer (FDR)

Similar to a TDR (Time Domain Reflectometer) but based on a different technical approach, the TALAN's FDR can "shoot" a line for impedance anomalies indicating a potential security threat.

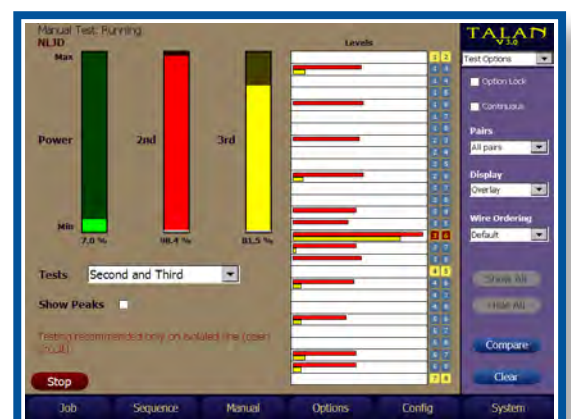
The FDR also has the ability to plot FDR traces of multiple pairs for historical comparison on one display.



### Non-Linear Junction Detection (NLJD) on a Line

The TALAN includes a NLJD test to detect electronics connected to an isolated line. This is one of the most powerful tests for quickly determining whether there are additional electronics attached to a wire.

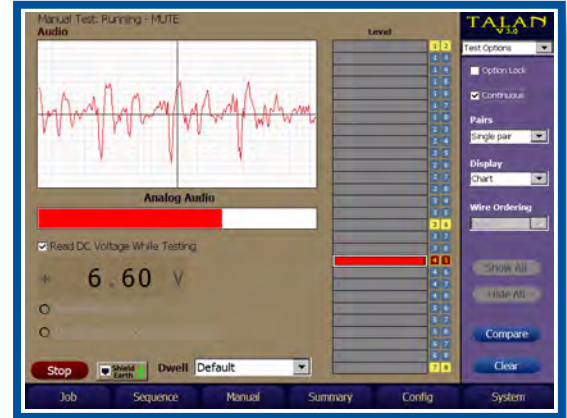
The example to the right indicates a parallel tap on pair 3:6. Because of multiple pair combinations any combination with either a 3 or 6 indicates some response, but the electronics are clearly detected on pair 3:6 with the strongest response.



## High Gain Audio Amplifier and Built-in Audio Oscilloscope

The TALAN includes a High Gain Audio Amplifier (20 Hz to 20 KHz) with up to 80 dB of total system gain (voice band).

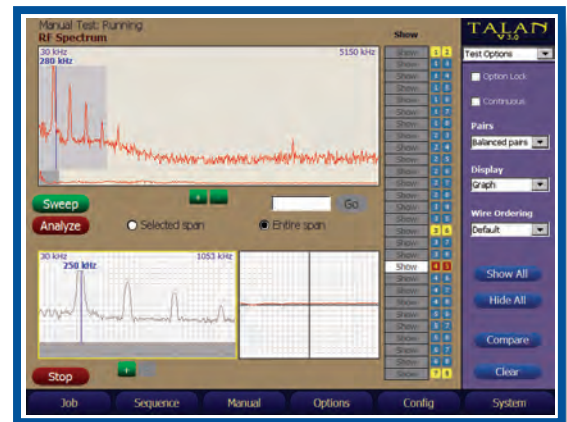
A DC Bias Voltage Generator ( $\pm 80$  VDC) is also provided to power attached electronics.



## RF Analysis and Detection

The TALAN includes a Spectrum Analyzer that provides a detailed frequency spectrum display up to 85 MHz. This function also includes a time domain display to show the modulation for AM and FM signals.

The TALAN also includes a Broadband RF Probe to check free space RF energy up to 8 GHz, graphing the RF level over time to identify the location of a transmitter.



## Harmonic Locator Probe (HLP)

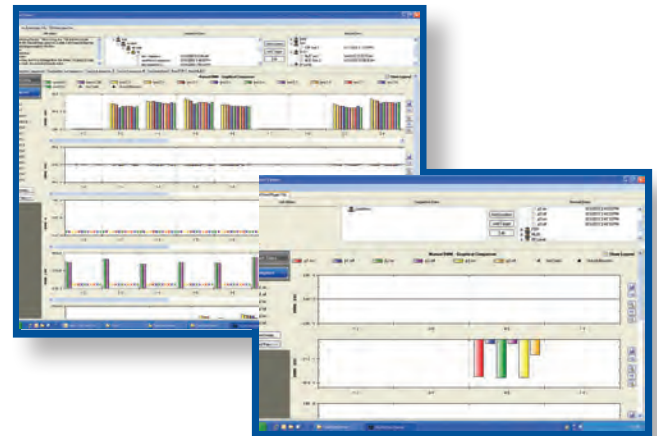
The TALAN includes a Harmonic Locator Probe (HLP) used for tracing wires and determining the location of any electronics connected to the wire such as an eavesdropping device.



## Test Data Storage and Analysis

The TALAN provides the ability to store data for all testing functions in a database structure for future review and comparison.

**TALAN Data Viewer Software** - A PC application that provides the ability to organize, analyze, and export TALAN test sequence data and charts for report writing. Moreover, the software provides the ability to compare numerous phones/targets on the same chart allowing the user to quickly identify anomalies. The TALAN Data Viewer Software can be downloaded for free on the REI website.





## TALAN ADVANTAGES

**COMPLETE SUITE OF TESTS**  
COMBINES MULTIPLE TESTS INTO ONE PIECE OF EQUIPMENT

**AUTOMATIC SWITCHING MATRIX**

**DIGITAL MULTIMETER TESTS**

**FDR FREQUENCY DOMAIN REFLECTOMETER**  
DETECTS IMPEDANCE ANOMALIES SUCH AS AN  
EAVESDROPPING TAP ON A WIRE

**LINE NLJD**

DETECTS ELECTRONICS ATTACHED TO A WIRE

**DIGITAL DEMODULATION**

CONFIRMS WHETHER A LINE IS PASSING AUDIO

**VOIP PHONE & LINE ANALYSIS SOFTWARE**  
TESTS VOIP PHONE AND LINE PACKET TRAFFIC



## TRAINING BY REI INSTRUCTORS

REI offers regularly scheduled  
technical security training courses.

Course dates and registration online at  
[www.ilteteknoloji.com.tr](http://www.ilteteknoloji.com.tr) or email [info@ilteteknoloji.com.tr](mailto:info@ilteteknoloji.com.tr)

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## MARKETING CHARACTERISTICS

### CONTROL SYSTEM

**Primary Computer:** 32 bit RISC processor, 520 MHz  
**Internal Memory:** 64 MB SDRAM (OS), 64 MB Flash  
**External Memory:** Compact Flash Type III, USB mass storage

### DIGITAL I/O

**Network:** 10/100 Ethernet Controller for IP Packet Detection  
**USB:** USB Device (A Type) supports external keyboard, mouse, and USB mass storage device; USB Host (B type) for future use

### ANALOG I/O

**Headphone Output:** 3.5 mm connector  
**Microphone Input:** 3.5 mm input

### USER INTERFACE

**Hard Keys:** 6 Soft Menu Keys, 5 Button Quadrant, Navigation & other dedicated keys  
**Encoder:** High-Resolution Optical Encoder  
**Integrated Touch Screen with Stylus**

### Test Inputs:

Dual MOD8: Supports 2, 4, 6, & 8 wire Modular Phone Jacks with Shield  
Banana Type: Standard sleeved sockets: Ring, Tip, and Earth  
SMB RF Input: RF/Antenna Connection to 8 GHz  
Broadband Detector  
Expansion Port: Supports communication and measurement for use with future accessories

All Inputs Electrically Isolated

### RF SYSTEM

#### Spectrum Analyzer:

Dual Conversion, Super-Heterodyne Receiver  
Frequency Range: 30 kHz to 85 MHz  
Sweep Time: 2 Seconds  
Step Size: 1 kHz  
Bandwidth: 18 kHz  
Sensitivity: -100 dBm

#### Broadband Detector:

RF SMB Input: To 8 GHz  
Line Level Test: 100 kHz to 600 MHz  
Sensitivity: -65 dBm

### DIGITAL MULTIMETER

**Quick Response Auto-Ranging:** 500 msec Sample Rate  
**AC/DC Volts:** 0 to 250V Maximum  
**Resistance:** 0 to 42 MΩ  
**Capacitance:** 0pF to 42μF

### BIAS GENERATOR

**Optically Isolated, Direct Digital Control:** High voltage DAC  
**Output Ceiling:** ±80V  
**Output Ceiling (Shield):** ±65VDC, ±33VAC  
**Modulation:** Fixed voltage, or variable rate Sine wave (10 Hz - 300 Hz)

### AUDIO

**Audio Bandwidth:** 20 Hz - 20 KHz  
**Gain:** Up to 80 dB total system gain  
**AGC:** Digitally Controlled Automatic Gain  
**Filter:** Analog Voice band filter (300 Hz to 3 kHz)

### POWER SYSTEM

**External Input:** 15VDC @ 3A  
**Universal Power Supply:** 100-240VAC, 50-60 Hz  
**Removable Battery:** Rechargeable Lithium ion, 4-6 hours of run time

### MECHANICAL

**Dimensions:** 10.0 in x 12.9 in x 2.7 in (25.4 cm x 32.8 cm x 6.9 cm)  
**Weight with Battery:** 6 lbs (2.7 kg)  
**Case Dimensions:** 19.5 in x 14.9 in x 5.4 in (49.5 cm x 37.8 cm x 13.7 cm)  
**Loaded Case Weight:** 19.0 lbs (7.1 kg)  
**Operating Temperature:** 0°C to +50°C

### HARMONIC LOCATOR PROBE

**Operational Frequency:** 225 kHz & 450 kHz  
**Antenna Type:** Balanced Loopstick  
**Headphone Audio Output:** 16Ω, 105 dB SPL limited  
**Battery:** 9V Alkaline  
**Run Time:** 10 hours average, 22 hours (headphones)  
**Size:** 17.5 in x 1.5 in (44.45 cm x 3.8 cm) stored  
63.75 in x 1.5 in (162 cm x 3.8 cm) fully extended  
**Weight:** 1 lbs (.5 kg)

