

Linescout®

Line/Cable qualifier



Managing the Crosstalk = Managing the Network



APPLICATION

As telephone operators are increasing the capacity of their existing copper infrastructure for new high-speed telecommunication services, network optimization and maintenance of high service quality to existing customers become major issues.

New modulation techniques have made it possible to turn the copper network into a high-speed transmission medium. However, as more and more transmission systems are being deployed, network operators need reliable installation tools to achieve more efficient and effective deployment. Since crosstalk is the limiting factor against xDSL transmission performance, managing crosstalk means managing the network. This is what the Linescout® is designed for.

The Linescout® is a Copper Pair Qualification Tester used by installation personnel in the field. The Linescout® replaces the conventional trial-and-error method with a systematic approach.

KEY FEATURES

- **Measures noise and attenuation**
- **Generates and measures crosstalk**
- **Modular design: can be equipped with any combination of transmission signal generators (2B1Q, 4B3T, HDB3, AMI, ...)**
- **Future proof: modularity will accommodate future transmission signal generators**

DESCRIPTION

To qualify a pair for xDSL transmission, three questions must be answered:

1. Is the noise level on the selected pair acceptable ?
2. Is the attenuation (or the line length) acceptable ?
3. Is the crosstalk level acceptable ?

Traditionally, only questions 1. and 2. are answered, but the Linescout® answers an additional and very important question: how well will the installed system continue to work if the selected pair is surrounded by additional systems in the future ?

Although there are several methods to answer the first two questions, the Linescout® is the only equipment that answers all three questions accurately and efficiently. Moreover, all DSL systems, including the earlier E1 and T1 transmission systems, are broadband systems. Attenuation and crosstalk measurements conducted with sinusoidal signals therefore cannot accurately reflect the transmission behavior of these systems. The Linescout® measures DSL attenuation and crosstalk by sending ETSI/ANSI defined DSL broadband signals to the receiver which is equipped with a range of user selectable high precision broadband filters to capture accurately the DSL system signal under test.

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ADDITIONAL FEATURES

Channel Capacity

Every network operator would like to optimize the transfer of data over his copper network. Using data retrieved from the Linescout® and applying the Shannon Formula, the operator can calculate the theoretical Line Channel Capacity.

Line Characteristics for Performance Evaluation

It is essential that the performance of different modem brands be compared in a real field environment. The Linescout® can measure all the parameters needed to reproduce field line characteristics in the laboratory with the Sparnex Linesimulator LSX2020 or LSX2025.x. For this purpose, the Linescout® can be equipped with a sine wave generator to determine cable attenuation as a function of frequency.

TECHNICAL APPLICATIONS

LINESCOUT® MODULAR SYSTEM

Several Applications

- Pair qualification:
 - Noise measurement
 - Attenuation measurement
 - Determination of Signal to Noise Ratio
 - Crosstalk measurement (NEXT and FEXT)
- Line characterization (with sine wave generator)
- Channel Capacity determination

Many Options

- Several transmitters available for existing line codes
- New modules become available for new transmission technologies
- Optional sine wave generator
- Optional batteries with built-in battery management
- Optional software to determine Signal to Noise Ratio and Channel Capacity

Basic Configuration consists of Casing, equipped with Receiver, Clock and Power module.

Casing

Heavy duty casing for field applications, available in 3 versions:

Linescout® Deca 1:	WxDxH: 580mm x 490mm x 235mm, capacity of 20 generators. Input voltage range from 88 to 264 VAC, 50/60 Hz, with input for External Battery Pack.	Ref. DEC1-LS01
Linescout® Deca 2:	WxDxH: 580mm x 490mm x 235mm, capacity of 20 generators. Powered with internal rechargeable battery (2 Ah) with built-in charger (input voltage range from 88 to 264 VAC, 50/60 Hz), battery management, with input for External Battery Pack.	Ref. DEC2-LS01
Linescout® Compact:	WxDxH: 350mm x 490mm x 210mm, capacity of 8 generators.	Ref. COMP-LS01

Receiver

Receiver filter bank with 8 filters for 2B1Q (HDSL + ISDN), HDB3, 4B3T, AMI, CAP.
Extra Bright LED display, 14 mm high for:

- Input Level from +3 dBm to -73 dBm
- Overflow Indication > +5 dBm
- Underflow Indication < -75 dBm

LED indicators for 120 , 135 , 150 impedances (auto selection).
Cable connector for two Pairs Under Study (PUS) with selector switch for PUS 1 or PUS 2.

Clock

Synchronous / Asynchronous operation selector with indicators.

Power

Power supply for transmitter modules.

External Battery Pack

rechargeable battery with built-in charger (input voltage range from 88 to 264 VAC, 50/60 Hz) and battery management for Linescout® Deca and Linescout® Compact (WxDxH: 350mm x 490mm x 210mm).

- batteries 2 Ah BAT2-LS01
- batteries 6.5 Ah BAT3-LS01

