

860 DSPr

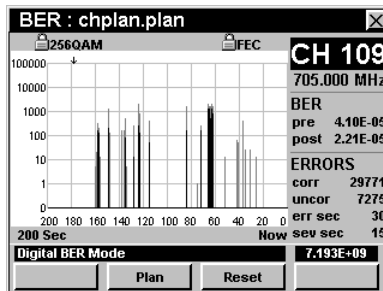
Remote Signal Monitoring and Analysis

- Browser Accessible Virtual Real-Time Signal Analysis from Anywhere
- Complete Range of Tests - Both Digital and Analog Signals
- User-Schedulable Automated Signal Analysis Reports



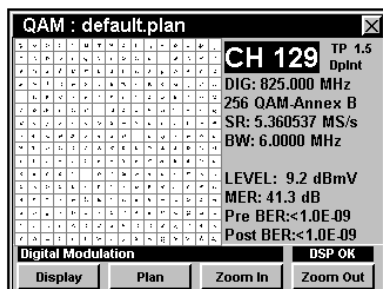
The 860 DSPr is a rack-mounted and browser accessible remote signal analyzer that is designed to provide continuous access to signal analysis at remote hubs or headends. The analyzer is connected to up to four different test points that need to be accessed via browser for analysis or routinely tested. The complete range of tests offered by the 860 DSP can be performed remotely, including Level, QAM (constellation, EQ, BER over time), Spectrum Analysis, Tilt, Scan, Hum, C/N, Depth of Modulation, FM Deviation, and optional VITS and VSB test modes.

The impulse BER function detects and counts individual lost packets. As a troubleshooting aid, BER data is displayed with values and a convenient graph that shows how pre and post BER changes over a user-settable interval. This allows a user to see bit errors occurring at regular intervals, which may help to determine the ingress or other interference source.



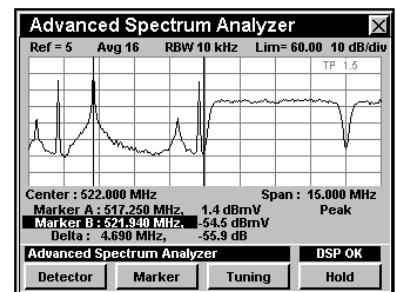
QAM

- Constellation and equalizer display capability
- Error Vector Spectrum mode – enables viewing in-channel spectrum characteristics



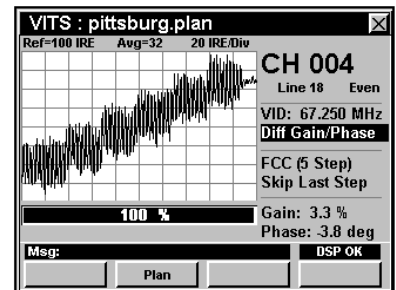
Spectrum Analysis

- Full-featured DSP alternative to analog analyzers
- Adds multiple resolution bandwidth settings from 10 kHz to 3 MHz
- Adds Zero Span mode



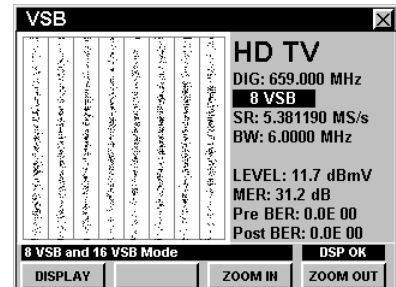
VITS Vertical Interval Test Signal™

- Enables testing of baseband video parameters on active analog channels with active VITS



VSB Vestigial Sideband™ Modulation

- Feature enables analysis of off-air digital video transmissions, including levels, constellation, equalizer taps, and BER



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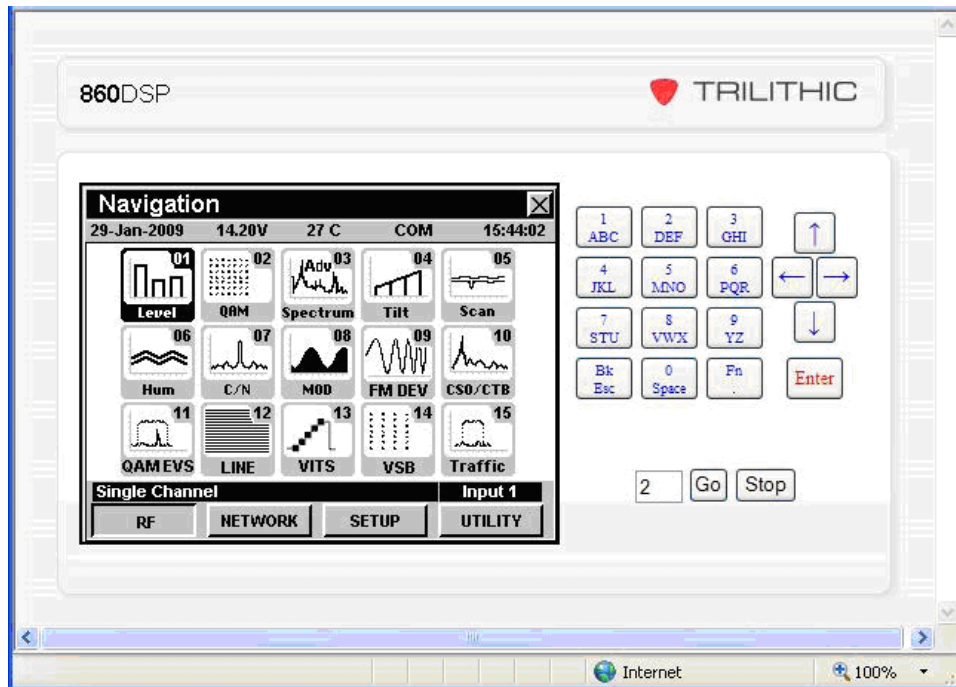
Remote Signal Monitoring and Analysis

The 860 DSPr is configured using the complementary WorkBench Light application, which allows the user to configure channel plans and set up automated tests (macros). The optional complete WorkBench application includes data management features to allow storage and analysis of measurement information from the 860 DSPr.

Applications

In many systems, technicians are tasked to compile a test report with signal analysis results for all signals on a regular schedule. In some cases the technicians are required to visit remote locations to verify and report signal quality. This process is time consuming and expensive, and an ideal candidate for automation. With WorkBench, a user can create automated tests (macros) to run a set of tests on the 860 DSPr to create a log of system levels and other parameters. They can easily create a comprehensive report of signal quality at the remote site without traveling to the site.

Often, upon becoming aware of a signal quality issue, a technician must go to the offending headend or hub site and test the signal quality to verify that the condition still exists. This process is also time consuming and expensive, and can be significantly improved through remote monitoring and browser-based access to signal analysis. A Trilithic 860 DSPr continuously monitors signal quality with no user intervention required, and sends alarms (traps) when limits are crossed. The Interrogator software (an optional trap management program) receives the traps and initiates an email message to a designated technician for consideration. With an 860 DSPr in place, the technician can use a browser for access to analysis to determine whether the problem requires a visit to the site.



Internet Explorer can be used for access and control of the 860 DSPr.

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Remote Signal Monitoring and Analysis

SPECIFICATIONS

Frequency Range	5 MHz to 1 GHz
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Level Measurement

Range	-38 to +50 dBmV
Resolution	0.1 dB
Accuracy	@ 25° C (77° F): ±0.75 dB Over temp -18° to +50° C (0° to 122° F): ±2.0 dB (analog), ±2.5 dB (digital)

Carrier-to-Noise (In-service, non-scrambled standard channels only)

Minimum Input Level for Full Range	+10 dBmV
Dynamic Range	50 dB
Resolution	<0.5 dB

Hum (In-service, non-scrambled standard channels only)

Minimum Input Level	0 dBmV
Range	0 to 5%
Resolution	0.1%
Accuracy	±0.5%

Depth of Modulation (In-service, non-scrambled standard channels only)

Range	50 to 100%
Resolution	0.5%
Audio Demodulation	AM, FM carriers

Tilt

Max Number of Carriers	10
High/Low Delta Resolution	0.1 dB
Scan	Video, audio, pilot, and digital carriers; includes total power measurement

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Spectrum Mode

Display Spans	User-selectable in 10 kHz steps
Display Scale	1, 2, 5, or 10 dB/division
Display Range	7 vertical lines
Sweep Rate (78 Channels)	~500 ms
Detection and Dwell	Selectable detector modes (Averaging, Narrow, or Wide) and dwell time
Spurious Free Dynamic Range	60 dB @ 25° C (77° F) (+50 dBmV)
Sensitivity	-38 dBmV (4 MHz to 1 GHz)

Zero Span Mode

Video Bandwidth	Digital averaging
Resolution Bandwidth	10, 30, 100, and 300 KHz; 1, 3 MHz
Pulse Measurement Accuracy	Nominal level in <7ms, ±2 dB from nominal in 4ms (300 kHz RBW)
Sweep Times	50 µs to 20 sec in 1, 2, 5 settings

Intermodulation Distortion (CSO/CTB)

Range	≥60 dB
Resolution	0.1 dB

QAM Measurements

Modulation Types	ITU J.83 annex A, B, C, QPSK, 16, 32, 64, 128, and 256 QAM (at symbol rates from 2 MSPS to 6.952 MSPS)
Measurable Input (Lock) Range	64 QAM: 0 to +50 dBmV (typical) 256 QAM: 0 to +50 dBmV (typical)
Frequency Tuning	5 MHz to 1 GHz
BER; 64 and 256 on all Modulations	10 ⁻⁴ to 10 ⁻¹⁰

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Remote Signal Monitoring and Analysis

MER	64 and 256 QAM, 6 MHz channel bandwidth: Range: 21 to 38 dB Accuracy (typical): ± 1.5 dB 64 and 256 QAM, 8 MHz channel bandwidth: Range: 21 to 35 dB Accuracy (typical): ± 2.0 dB
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QAM Level Measurement

Signal Types	QAM (16, 32, 64, 128, and 256), QPSK
Range	-38 to +50 dBmV
Accuracy @ 25°C	± 1.25 dB

US UNITS INCLUDE THE FOLLOWING:

Rack-mounted analyzer
P/N 2011378001

User's manual

90 to 240 VAC US power cable with internal power supply

EUROPEAN UNITS INCLUDE THE FOLLOWING:

Rack-mounted analyzer
P/N 2011378101

User's manual

90 to 240 VAC US and Euro power cables with external AC to DC power adapter

OPTIONAL ACCESSORIES:

WorkBench™ software - complimentary configuration application program
P/N 0930083000

WorkBench™ Light software - data management program for analysis of automated tests (macros)
P/N 0930083099

RELATED PRODUCTS:

860 DSPh remote forward signal monitor
P/N 2011006001

Interrogator remote head-end monitoring system software
P/N 0930123000