- **24/7 Monitoring – Detects Problems Early by Automatically Scanning Levels and other Key Parameters**

- **Issues SNMP Traps to Notify User of Problems**

- **Ability for Remote Control Lets Users Take a Closer Look Without Driving to the Location**

- **Remote Access with Browser Enables Viewing Headend or Distribution Hub Levels with Browser-Equipped Analyzer**

The 860 DSPh™ is the ideal instrument for managing signal quality in remote headends or other facilities where access is restricted or local technical personnel are not available.

Based on the powerful, cost-effective 860 DSPi™ cable analyzer, the 860 DSPh provides continuous visibility of signal quality at a price that makes universal deployment practical. The 860 DSPh is programmed using WorkBench™ software to monitor various measurement parameters including channel level, depth of modulation, FM deviation, hum, carrier-to-noise ratio, and MER (modulation error ratio).

From a single location and using a network of 860 DSPh's and Interrogator™ software, the operator can monitor signal quality at many sites throughout his system and be alerted to problems quickly if they occur.

The 860 DSPh is typically configured to automatically monitor key parameters and log measurement data as it compares it with user-programmed limits. If a parameter falls outside of limits, the 860 DSPh can dispatch a range of SNMP (simple network management protocol) traps to multiple destinations by interfacing with Interrogator and/or OSS software.

The 860 DSPh can also detect rapid changes in measurement results for a given channel and generate a warning trap. The operator may then take control of the 860 DSPh directly and use its powerful analytical tools to determine the cause of the problem.

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860DSPh

AVAILABLE MODELS:
- 860 DSPh - US
  P/N 2011006001
- 860 DSPh - EURO
  P/N 2011006003

STANDARD INTERFACES:
- Four (4) RF Test Ports
  (F-Type)
- RJ45 Management Port
  (10/100 Mbps)
- RS-232 Serial Port
  (Straight Thru)

860 DSPh Test Management Functions:

- All channel levels are given priority and measured every 30 seconds, regardless of automated test sequence
- Min, Max, Avg, and current level saved for every channel
- All other tests (C/N, Depth of Modulation, FM Deviation, HUM and MER) are measured between channel scans
- Impulse BER measurements can also be performed

860 DSPh Trap Management Functions:

- Sends SNMP traps on a per-channel basis
- Escalation/de-escalation of problem prompts new traps
- Timed re-send to catch alarms lost due to network conditions
- Traps contain all information regarding affected channel, location, and fault
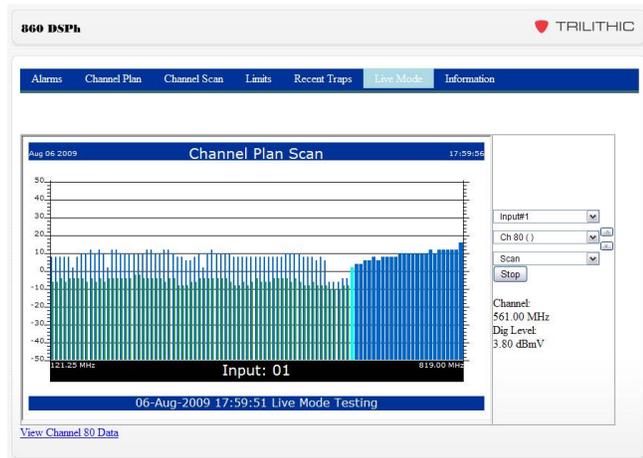
STANDARD TESTING FEATURES:
- Forward Spectrum Analysis (5 to 1000 MHz)
- Level Measurement
- C/N Measurement
- QAM Measurement (MER/BER/Constellation)
- Complete Channel Plan Scan with Tilt Measurement
- HUM Measurement
- Depth of Modulation
- FM Deviation

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INCLUDED MEASUREMENT FUNCTIONS

The 860 DSPh includes all of the following measurement functions when using direct login through a web browser.

Scan & Tilt Measurement

■ Full channel plan scan displays the frequency response of the entire channel lineup

■ Provides Pass/Fail results for limit sets and color coded channels, green for digital and blue for analog
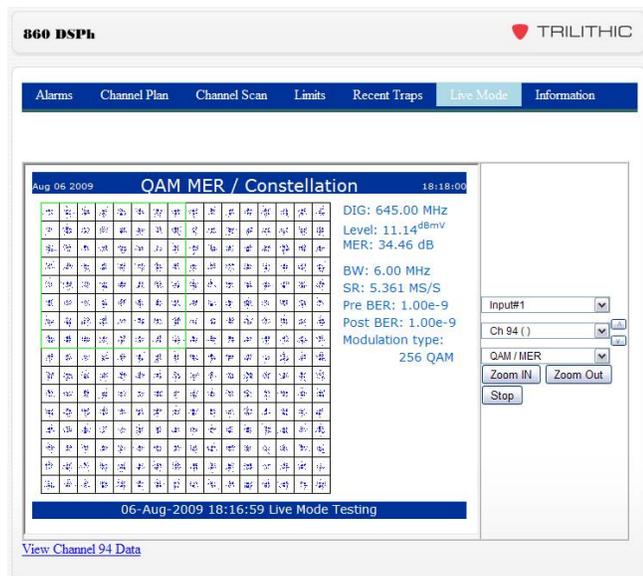

Forward Spectrum Measurement

■ Provides the ability to view raw forward spectrum traces from 5 to 1000 MHz

■ Fast DSP spectrum snapshots give the user extreme speed to capture fast transients on the downstream

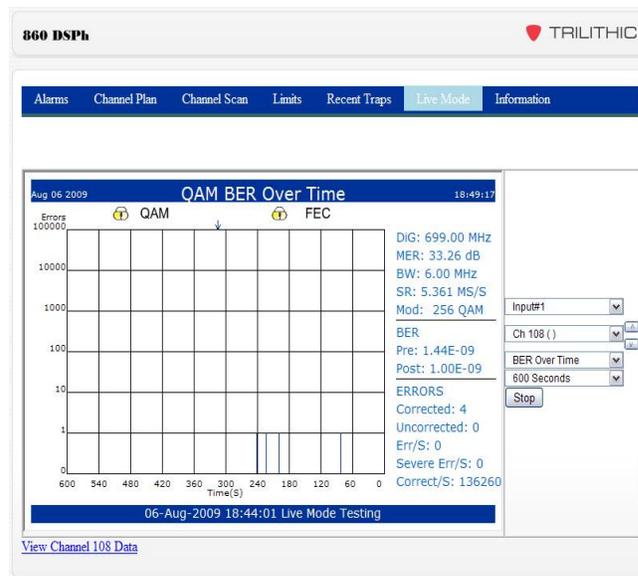
QAM Constellation

■ Shows the Constellation Diagram, Level, MER, Pre-BER and Post-BER of a QAM channel

■ Provides a multiple zoom levels for the Constellation Diagram

QAM BER Over Time

■ Shows the BER measurement of a QAM channel over an adjustable period of time

■ Shows corrected and uncorrected errors, errors per second, severe errors per second and corrected errors per second
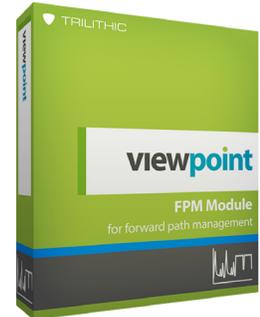
STANDARD FEATURES

- Unified web browser based interface with extensive reporting tools for all forward path nodes in the system
- Automated dashboard enables management to view the entire system at a glance
- Greatly enhances maintenance efforts by easy identification of problem areas
- Automatically displays each area's percent over the limit
- Live views of active forward nodes and all of the data for each node monitored by the system is captured and saved for historical analysis and trending
- Unlimited amount of connections for field users to view forward nodes with no side effects
- Accessible via any smart device with a browser and broadband internet connection
- Profile interaction allows for multi-profile views or targeted profiles for unique data sets

CONTINUOUS FORWARD PATH ANALYSIS

Combining the 860 DSPh in your headend and hub sites with the new ViewPoint Integrated Server in the back office, managers now have simplified access to intelligent management tools for monitoring downstream analog and digital services throughout their RF networks.

The ViewPoint FPM Module simplifies the management of your forward path monitoring and maintenance and displays an entire system of 860 DSPh Remote Headend Analyzers within one simplified dashboard that automatically displays each area's percent over the limit.

The FPM module gives the operator the flexibility to be used as a master report dashboard as well as gives the technicians in the field a web portal to pull live views of active forward nodes directly to their smart devices or PC.
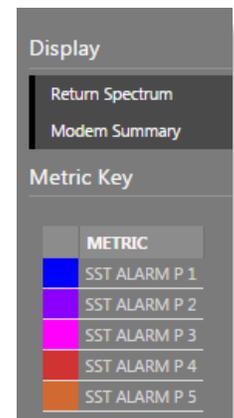
The FPM module uses the 860 DSPh to provide continuous visibility of signal quality to technicians for monitoring and troubleshooting in remote headends or other facilities where access is restricted or local technical personnel are not available.

The dashboard view within the FPM Module also allows you to monitor various measurement parameters including channel level, depth of modulation, FM deviation, hum, carrier-to-noise ratio, and MER (modulation error ratio).

These extensive monitoring capabilities can be used to highlight specific trends or impairments affecting the forward path and can be useful in diagnosing reoccurring problems over any period of time.
The FPM Module not only works for management, but is also designed with the technician in mind. With the new unified web browser based interface all forward path nodes monitored by the platform can be accessed via any smart device with a browser and Internet connection. This allows all team members to target any period of time to view the modem test results for further analysis and troubleshooting.

The FPM Module includes customizable measurement profiles for each user. When trying to target an area of concern, the customizable dashboard will display the alarm limits for the selected user profile. This allows for each individual user to set limits their own limits and in turn customizes the look and feel of the dashboard to show the user what areas or modems that are above the desired thresholds.

Display

Return Spectrum
Modem Summary

Metric Key

METRIC	
	SST ALARM P 1
	SST ALARM P 2
	SST ALARM P 3
	SST ALARM P 4
	SST ALARM P 5

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MEASUREMENT SPECIFICATIONS

Level Measurement

Channel Bandwidth	**US Models:** 6 MHz **EURO Models:** 8 MHz
Amplitude Range	-40 dBmV to +50 dBmV
Modulation Types	Analog: NTSC, PAL B/D/G/H/I/K/N & SECAM B/D/G/H/I/K/L Digital: 16/32/64/128/256 QAM Annex A, 64/256 QAM Annex B
Analog Measurement Accuracy	±0.75 dB @ 77 °F (25 °C) ±2.0 dB from 0 to 122 °F (-18 to 50 °C)
Digital Measurement Accuracy	±0.75 dB @ 77 °F (25 °C) ±2.5 dB from 0 to 122 °F (-18 to 50 °C)
Resolution	0.1 dB

Spectrum Measurement

Frequency Range	5 to 1000 MHz
Resolution Bandwidth	10, 30, 100, and 300 kHz 1 and 3 MHz
Display Spans	User-selectable in 10 kHz steps
Display Scale	1, 2, 5, or 10 dB/division
Display Range	8 vertical divisions (when marker bar is hidden)
Spurious Free Dynamic Range	60 dB @ 25° C (77° F) (+50 dBmV)
Sensitivity	-40 dBmV (4 MHz to 1 GHz)
Forward Sweep Rate	~ 1 second for 78 channels

Digital Channel Measurement

Deep Interleave Compatibility	Yes
Downstream MER	40 dB @ +6 dBmV RF Input Level 34 dB @ -6 dBmV RF Input Level
Downstream BER	**Method:** True BER, derived from code words not from MER **Standard:** ITU J.83 annex A, B, C **Range:** 1 E-7 to 1 E-9 @ -6 dBmV RF Input Level
Symbol Rates	≥ 2 msps; ≤ 6.952 msps

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

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

Tilt Measurement

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

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

Frequency	50/60 Hz, 100/120 Hz & 1 kHz lowpass
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%

FM Deviation (In-service, non-scrambled standard channels only)

Range	≤ 35 kHz
Accuracy	1 kHz

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PHYSICAL & ENVIRONMENTAL SPECIFICATIONS

Physical Specifications

Construction	Metal Rack Mount Enclosure (1 RU)
Front Panel Control	Power Reset Button
Front Panel Indicators	Power LED Measurement Status LED
Dimensions **(H x W x D)**	1.75 in x 19.00 x 13.00 in (4.45 x 48.62 x 33.02 cm)
Weight	7.40 lbs (3.36 kg)

Available Interface Types

RF Ports	Four (4) Input F-Type Connectors
Ethernet	RJ45 Management Port (10/100 Mbps)
Serial	RS-232 (Straight Thru)
Expansion	Controls Optional 860 DSPh Input Expander

Power Specifications

Power Adapter	**Input:** 100 to 240 VAC ~ 47 to 63 Hz, 1.1A Max

Environmental Specifications

Storage & Operating Temperature	-18˚ to +50˚ C (0˚ to 122˚ F)

INPUT EXPANDER SPECIFICATIONS (OPTIONAL)

Physical Specifications

Construction	Metal Rack Mount Enclosure (2 RU)
Front Panel Indicators	Power LED
Dimensions **(H x W x D)**	3.50 in x 19.00 x 13.00 in (8.89 x 48.62 x 33.02 cm)
Weight	8.55 lbs (3.88 kg)

Available Interface Types

RF Test Ports	16 Input F-Type Connectors
Control	Control Cable from 860 DSPh, includes power

Environmental Specifications

Storage & Operating Temperature	-18˚ to +50˚ C (0˚ to 122˚ F)

INCLUDES THE FOLLOWING:

860 DSPh Remote Headend Analyzer with 120 to 240 VAC Power Supply

US AC Power Cable (US Models)

Euro AC Power Cable (Euro Models)

SOFTWARE:

WorkBench Lite PC Software for the Original DSP Family
P/N 0930083099

WorkBench PC Software for the Original DSP Family
P/N 0930083000

ViewPoint Integrated Server with FPM Module for the 860 DSPh
P/N 2011656008

LEGACY SOFTWARE:

Interrogator Server Software
P/N 0930123000

RELATED PRODUCTS:

860 DSPh Input Expander
P/N 2011013000

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