

- Tailored to Simplify Installation and Troubleshooting of RF Signals
- Intuitive Color Display with Simple Pass/Fail Indicators Reduce Installer Entry Errors and Improve Decision Making
- Autotests Streamline Certification
- Convenient Multiple Standard Tests in a Single Autotest App help to Standardize Tech Processes & Procedures
- Powerful Troubleshooting Tools Improve the Overall Health of the System
- Up to Six Hours of Operation from a Single Charge



**An affordable entry-level testing solution for CATV field technicians & contractors**

#### Overview

The 120 DSP signal level meter is the most cost-effective and dependable tool available for all of your basic CATV installation needs. This device features a compact rugged design, easy-to-use color user interface and an unparalleled selection of digital and analog channel measurements.

#### Autotest Apps

The 120 DSP streamlines your testing procedures while making installation and troubleshooting more efficient with the use of Autotest apps. These apps allow users to perform a Return Spectrum and Channel Plan Scan of the channels included in the selected channel plan. The results are then compared to a specific set of measurement limits and displayed with familiar color-coded Pass/Fail results. All of this can easily be accomplished just by simply pressing a single button.

#### Job Management

With the included Job manager, technicians have the ability to enter job information that can be attached to any test results. Notes can also be added directly to each job so the technician can report any faults, anomalies or job codes related to the work being performed.

#### Level Measurements

When testing or troubleshooting within your analog, digital or mixed analog/digital transmission system, the 120 DSP makes the perfect tool for measuring the power levels of all of your analog and digital QAM carriers.

Additionally, for QAM carriers (including deep interleave) the 120 DSP provides Constellation, Equalizer Tap, MER and BER measurement displays. This allows users to quickly analyze 64 and 256 QAM downstream channels for quality verifications or to locate impairments with the meter, all right out of the box.

#### Channel Plan Scan

With its channel plan scan feature, the 120 DSP can also display the frequency response of the entire channel lineup. This measurement displays a color-coded bar graph of each channel or your favorite channels in the active channel plan. The channel plan scan also includes on-screen markers that can be adjusted to perform a tilt measurement.

#### Spectrum Measurements

The 120 DSP comes standard with the ability to display the full return spectrum from 4 to 110 MHz. The spectrum display provides peak measurements, color-coded markers, and delta measurements. This feature also includes adjustable detector modes which are useful for capturing bursty transient noise. Optionally, the 120 DSP can also be equipped to perform forward spectrum measurements from 5 MHz to 1000 MHz.

**innovative technology to keep you a *step ahead***

**AVAILABLE MODELS:**

- 120 DSP – 1 GHz RF with 6 MHz Channel Spacing  
**P/N 2010018001**
- 120 DSP – 1 GHz RF with 8 MHz Channel Spacing  
**P/N 2010018000**

**STANDARD INTERFACES:**

- RF Test Port (F-Type)
- RJ45 Management Port (10/100 Mbps)
- Mini-USB Type B Female Charge & Data Port

**The 120 DSP supports a variety of functions, including:**

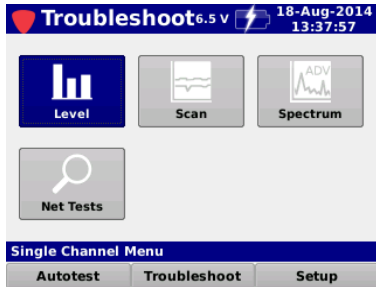
- User-Defined Tests
- Multi-language Support
- Create Work Orders Right on the Meter
- Interactive Basic RF Installation Process
- Flexible Data Storage & Setup

**STANDARD TESTING FEATURES:**

- Forward Spectrum Analysis (5 to 1000 MHz)
- Return Spectrum Analysis (4 to 110 MHz)
- Channel Plan Auto Discovery
- Channel Plan Scan
- Tilt Measurement
- Analog NTSC/PAL Channel Measurements
  - Video/Audio Level
  - Delta V/A
  - Carrier-to-Noise
  - HUM
- Digital QAM Channel Measurements
  - Level
  - Pre/Post BER
  - MER
  - Constellation
  - Equalizer
  - BER vs Time
  - Errored Seconds
  - Severely Errored Seconds
  - HUM
- Digital OFDM Channel Measurements
  - Average Level
  - Max P/V
  - In-Channel Tilt
  - PLC Constellation
  - PLC Level
  - PLC Pre/Post BER
  - PLC MER
  - Decoder Stress vs Time
  - Default Profile Summary
- Net Tests
  - Ping
  - Trace Route
  - Throughput

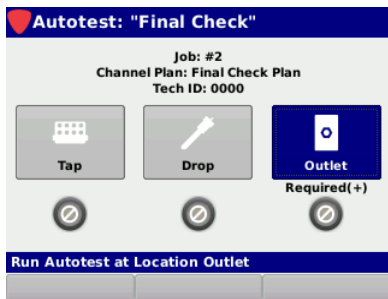
**Simple Yet Powerful**

Providing the widest range of functions for an installer available today (as standard options), the 120 DSP includes virtually all the testing options an installer or service technician needs to verify service quality and easily identify and fix problems in the field.



**User-Defined Autotests**

A significant time and cost savings feature of the 120 DSP is the capability to group tests into automatic tests that can be executed with a single keystroke. Several Autotests can be stored in the meter and recalled as needed. These may include Level, Tilt, Spectrum, Hum, and Limit tests.



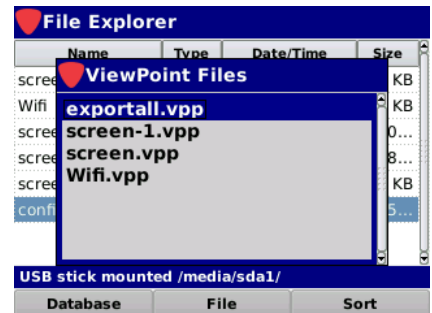
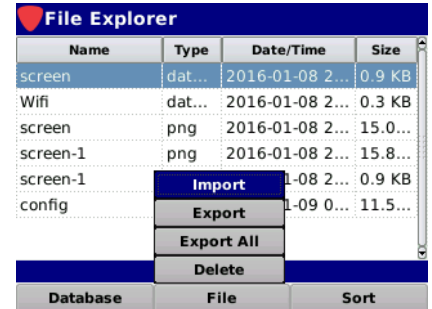
**Limit Testing**

Limit test data allows for test uniformity and flexible field storage, and may be automatically scored against specified limits and assembled into reports.

**Flexible Data Storage**

The user can easily customize their 120 DSP with a virtually unlimited number of channel plans, limit sets, and jobs. This feature makes life much easier for technicians that work in multiple systems or areas that have differing channel lineups and testing requirements.

The 120 DSP can also save measurement results and screen captures for Level, Channel Plan Scan, Return Spectrum, and Autotest measurements and these files can then be transferred to a standard USB flash drive for upload into the ViewPoint Express software for reporting, analysis, and printing (optional).

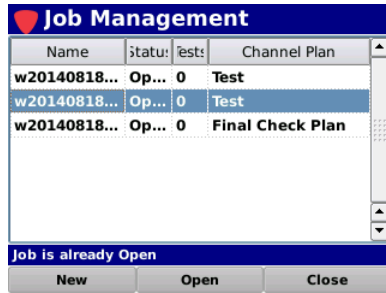


**STANDARD FEATURES**

The 120 DSP includes all of the following features standard.

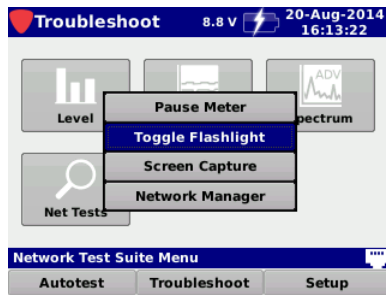
**Job Management**

- Create and close out your jobs from this screen
- Shows what channel plan and how many tests have been run on a particular job



**LED Flashlight**

- High intensity LED for working in dark spaces
- Control is provided through the Function menu for quick access from any screen

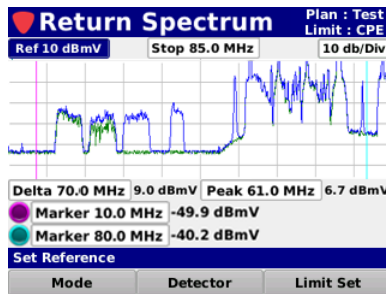


**STANDARD MEASUREMENT FUNCTIONS**

The 120 DSP includes all of the following measurement functions standard.

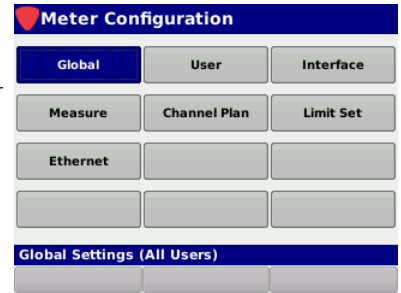
**Return Spectrum Measurement**

- Provides the ability to view raw return spectrum traces from 4 to 110 MHz
- Fast DSP spectrum snapshots give the user extreme speed to capture fast transients on the upstream



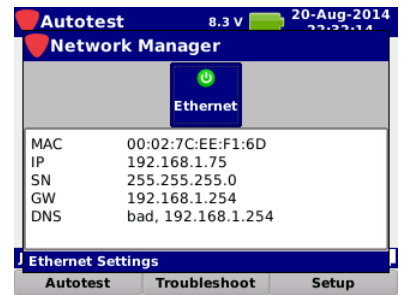
**Easy Setup & Configuration**

- Global configuration settings can be applied to all users of the device while other settings can be tailored to suit each user
- Setting adjustments can be locked out using the ViewPoint software



**Simple Network Management**

- Controls Ethernet connection
- Provides connection details such as MAC, IP, gateway and DNS

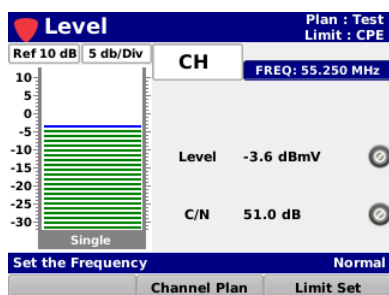


**STANDARD MEASUREMENT FUNCTIONS (CONTINUED)**

The 120 DSP includes all of the following measurement functions standard.

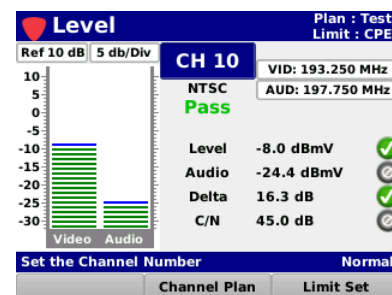
**Single Frequency Level Measurement**

- Shows the level of the analog carrier
- Displays the Carrier to Noise ratio of the analog carrier



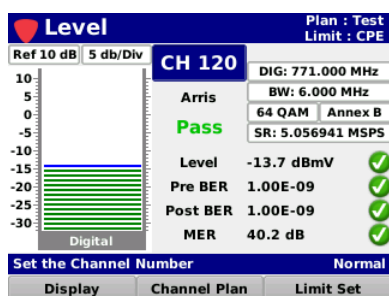
**Analog Level Measurement**

- Shows the analog channel and its associated measurements
- Provides Pass/Fail results for limit sets



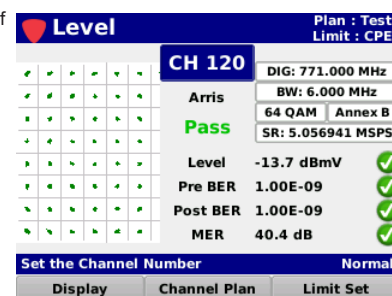
**Digital Level Measurement**

- Shows the level, MER and BER of a QAM channel
- Users can change the display to view BER over time, Equalizer Tap and Constellation



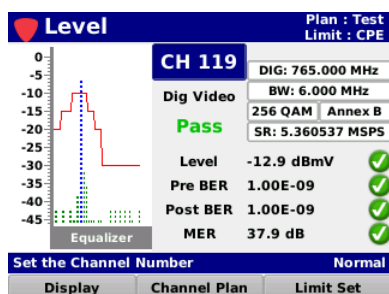
**QAM Constellation**

- Shows the constellation diagram of the specified QAM channel
- Shows the level, MER and BER and provides Pass/Fail results for limit sets



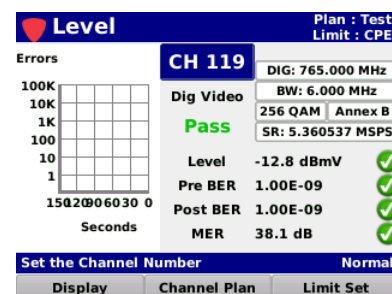
**Equalizer Tap Display**

- Displays the equalizer stress and whether the DOCSIS specification is being broken
- Shows the level, MER and BER and provides Pass/Fail results for limit sets



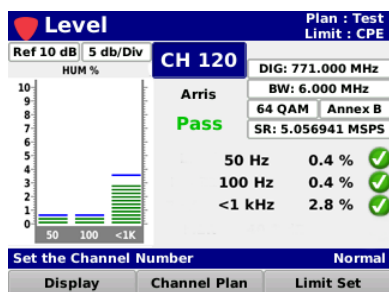
**Bit-Error Rate Display**

- Shows the BER on a graph with a 150 second measurement period
- Shows solid green lines for pre-errors and solid red lines for post-errors



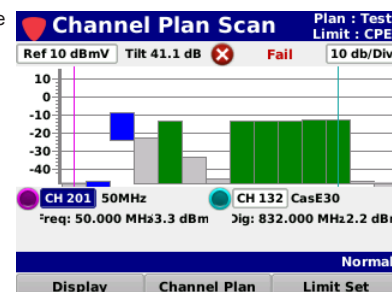
**Analog & Digital HUM Measurement**

- Measure the amplitude of 50/60 Hz, 100/120 Hz, and low frequency interference present on analog or digital channels
- Provides Pass/Fail results for limit sets



**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



**SPECIFICATIONS**
**Level Measurement**

<b>Channel Bandwidth</b>	<b>US Models:</b> 6 MHz <b>EURO Models:</b> 8 MHz
<b>Amplitude Range</b>	-40 dBmV to +50 dBmV (20 to 120 dB $\mu$ V)
<b>Modulation Types</b>	<b>Analog:</b> NTSC, PAL B/D/G/H/I/K/N & SECAM B/D/G/H/I/K/L <b>Digital:</b> 16/32/64/128/256 QAM Annex A, 64/256 QAM Annex B/C, OFDM 4K/8K
<b>Analog Measurement Accuracy</b>	$\pm 0.75$ dB @ 77° F (25° C) Input Frequency > 12.5 MHz
<b>Digital Measurement Accuracy</b>	$\pm 0.75$ dB @ 77° F (25° C) Input Frequency > 12.5 MHz
<b>Resolution</b>	0.1 dB

**Return Spectrum Measurement**

<b>Frequency Range</b>	4 to 110 MHz
<b>Resolution Bandwidth</b>	300 kHz
<b>Display Spans</b>	4 to 42 MHz, 4 to 65 MHz, 4 to 85 MHz or 4 to 110 MHz
<b>Display Scale</b>	1, 2, 5, or 10 dB/division
<b>Display Range</b>	8 vertical divisions (when marker bar is hidden)
<b>Spurious Free Dynamic Range</b>	60 dB @ 25° C (77° F) (+50 dBmV)
<b>Sensitivity</b>	-30 dBmV (4 MHz to 110 MHz)

**Forward Spectrum Measurement**

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

**Digital Channel Measurement**

<b>Deep Interleave Compatibility</b>	Yes
<b>Downstream MER</b>	40 ±2 dB @ +6 dBmV RF Input Level 34 ±2 dB @ -6 dBmV RF Input Level
<b>Downstream BER</b>	<b>Method:</b> True BER, derived from code words not from MER <b>Standard:</b> ITU J.83 annex A, B, C <b>Range:</b> 1 E-7 to 1 E-9 @ -6 dBmV RF Input Level
<b>Symbol Rates</b>	≥ 0.64 msp/s; ≤ 7.0 msp/s

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

<b>Minimum Optimal Input Level for Full Dynamic Range</b>	+10 dBmV (although not optimal, signals below this level can be measured)
<b>Dynamic Range</b>	50 dB
<b>Resolution</b>	< 0.5 dB

**Tilt Measurement**

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

**Analog & Digital HUM** (In-service, non-scrambled standard channels only)

<b>Minimum Input Level</b>	0 dBmV
<b>Range</b>	0 to 5%
<b>Resolution</b>	0.1%
<b>Accuracy</b>	±0.5%

**PHYSICAL & ENVIRONMENTAL SPECIFICATIONS**
**Physical Specifications**

<b>Construction</b>	Rugged plastic housing
<b>Control</b>	Water resistant front panel solid membrane keypad
<b>Display</b>	Color LCD screen 320 x 240 pixels (approx 3.5" x 2.67")
<b>Annunciators</b>	Audible annunciator for key strokes
<b>Flashlight</b>	High intensity LED (0.25W)
<b>Dimensions w/o Case (H x W x D)</b>	7.00 x 4.50 x 1.75 in (20.32 x 13.97 x 5.08 cm)
<b>Dimensions w/ Case (H x W x D)</b>	8.00 x 5.50 x 2.75 in (22.86 x 16.51 x 7.62 cm)
<b>Weight w/o Case</b>	1.00 lbs (0.45 Kg)
<b>Weight w/ Case</b>	1.50 lbs (1.09 Kg)

**Available Interface Types**

<b>RF Test Port</b>	Replaceable F-Type connector
<b>USB</b>	Mini-USB 2.0 Type B female receptacle
<b>Ethernet</b>	RJ45 Ethernet Port (10/100 Mbps)

**Battery & Power Specifications**

<b>Operating Time</b>	6 hours, dependent on use
<b>Charge Time</b>	6 hours
<b>Battery</b>	Two 2600 mAh @ 3.7V Li-Ion internal batteries, factory replaceable
<b>Power Adapter Input</b>	<b>Type:</b> 2-prong un-grounded male plug (NEMA 1-15p) <b>Voltage:</b> 100 to 240 VAC ~ 50 to 60 Hz <b>Current:</b> 0.3 A Max
<b>International Power Adapters (Optional)</b>	<b>Type:</b> Interchangeable clip-on, US adapter (included) <b>Euro:</b> CEE 7/16 Europlug, Type C <b>UK:</b> BS 546, Type D <b>AUS:</b> AS/NZS 3112
<b>Power Adapter Output</b>	<b>Type:</b> USB Type A female receptacle <b>Voltage:</b> 5 VDC <b>Current:</b> 1.0A
<b>Data &amp; Charge Cable</b>	USB Type A male plug to Mini-USB Type B male plug

**Environmental Specifications**

<b>Storage &amp; Operating Temperature</b>	-18° to +50° C (0° to 122° F)
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**INCLUDES THE FOLLOWING:**

- 120 DSP Meter
- Protective Carrying Case with Belt Clip
- Shoulder Strap
- AC to DC Power Adapter & Battery Charger
- USB Charge & Data Cable (Mini-B Male to Standard-A Male)
- USB Flash Drive Adapter (Mini-B Male to Standard-A Female)

**AVAILABLE SOFTWARE:**

- ACTS™ Software
- P/N 0930144000**

**OPTIONAL ACCESSORIES:**

- Precision RF Coaxial Test Cable (I/O-15)  
**P/N 2071527048**
- CL-9 Vehicle Power Adapter with USB cable  
**P/N 0610169007**
- CL-9 Vehicle Power Adapter without USB cable  
**P/N 0610169004**
- Mini-USB Power/Data Cable (I/O-20)  
**P/N 2071585004**
- Euro Power Adapter  
**P/N 0610169012**
- UK Power Adapter  
**P/N 0610169013**
- Australian Power Adapter  
**P/N 0610169014**