

- Tailored to Simplify Installation and Troubleshooting of RF Signals
- Intuitive Color Touch Screen with Simple Pass/Fail Indicators Reduce Installer Entry Errors and Improves Decision Making
- Next-Generation Autotest Apps 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



Provides cable installers and field technicians a full complement of RF measurement functions.

The Standardization Solution

Trilithic's 180 DSP™ is a signal level meter specifically tailored for installation and troubleshooting of RF signals. Featuring fast measurements and powerful troubleshooting tools the 180 DSP comes equipped with all the tests an installer needs to measure both Analog and Digital signals to ensure the highest quality installation—and includes a price point that makes it feasible for system operators to outfit their entire fleet.

Tailored for the challenges faced by installers, contractors and service techs, the 180 DSP helps simplify decision making and streamlines standardization processes and procedures while improving tech efficiencies and the overall health of the entire system.

Next Gen Features

The 180 DSP features an intuitive color touch screen interface, simple pass/fail indicators, and autotest apps to streamline basic RF installation and make the installer's job easier.

Everything about this next-gen meter was built with the technician in mind, from the quickest charge time of any signal level meter to its unique built-in LED flashlight and glow in the dark keypad for those dark cramped spaces.

Comprehensive Testing

The 180 DSP makes basic RF installation a breeze for installers and contractors. Techs will appreciate the advantages of a quick and efficient device at their disposal that features a flexible and easy-to-operate interface that is inspired by modern smart devices.

With its built-in Ethernet port, all testing results can be easily forwarded to the ViewPoint management software in the back office for near real-time views of measurement data.

innovative technology to keep you a *step ahead*

AVAILABLE MODELS:

- 180 DSP - US (6 MHz)
without Wi-Fi
P/N 2011707XXX
- 180 DSP - EURO (6/8 MHz)
without Wi-Fi
P/N 2011708XXX

OPTIONS:

- Frequency Domain Reflectometer (FDR)
P/N 0930207002
- Bluetooth Communications Adapter (BCA)
P/N 2011670002
- QAM Error Vector Spectrum (EVS) Analysis
P/N 0930207006
- Forward Spectrum Analysis (FSA)
P/N 0930207004
- Analog & Digital HUM
P/N 0930207005
- Source Generator (SRC)
P/N 0930207007
- Traffic Control Plus (TCP)
P/N 0930207009

The 180 DSP supports a variety of functions, including:

- Multi-user support
- Multi-language support
- Create jobs right on the meter
- Built-in web browser, real-time data transmission
- Interactive basic RF installation process

Simple Yet Powerful

Providing the widest range of functions for an installer available today (as standard options), the 180 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.


STANDARD TESTING FEATURES:

- Return Spectrum Analysis (4 to 110 MHz)
- Level Measurement
- C/N Measurement
- QAM Measurement (MER/BER/Constellation/EQ)
- Complete Channel Plan Scan with Tilt Measurement
- Ping, Trace Route, VoIP & Throughput Measurements
- Auto Discovery of Channel Plans

STANDARD INTERFACES:

- RF Test Port (F-Type)
- RJ45 Management Port (10/100 Mbps)
- USB 2.0 Flash Drive Port

Autotest Apps

The 180 DSP features next generation autotest applications that practically walk the technician through a job. By performing standardized measurement tests at various required locations on the job site using user set test plans, channel plans and limit sets, the meter very clearly indicates (using color and symbols) what areas still need attention, before the technician leaves the job site.



Multi-user support allows technicians that work in various territories to easily switch channel plans, standardized autotest apps, and test limits or login as a completely different user. Connecting to ViewPoint allows techs to upload job data in near real-time as well as transmit and receive channel plans, autotests, and firmware.

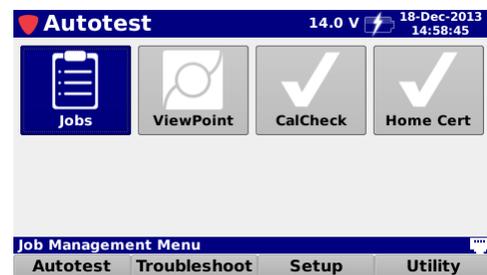


Leaving less room for entry error, this new simple user interface can translate into less training and more efficient time in the field for techs. The 180 DSP comes equipped with all of the required troubleshooting tools for the advanced technician, it also offers a higher comfort factor for novice technicians, reducing decision making in the field, which can ultimately result in more productive work days and more satisfied customers.

Justify ROI

Field operations managers can now easily verify that all of their technicians are performing the proper tests and are doing so at the right place and time—in near-real time. The potential benefits include identifying techs who need additional training, improving team performance, reducing truck rolls, and cutting operating costs.

At a higher level ViewPoint can deliver simple, standardized, system-wide reports and dashboards that can help a director or VP of technical operations view the entire operation at a glance to gain information that can be used to reduce service and repeat trouble calls.



Essentially, this integrated system approach allows cable operators to see much more of their certification operations and use the information in practical ways. The insights can enable them to identify both localized problems and high-level system issues to make decisions based on a clearer understanding of their overall operations and the associated ROI.

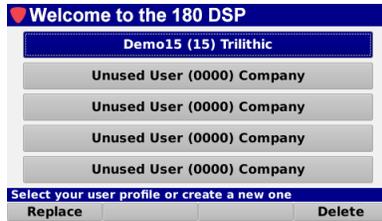
Combining 180 DSPs in the field with the new ViewPoint WFM Module in the back office, managers can view the health of their entire system—in near real-time, for total RF installation management.

STANDARD FEATURES

The 180 DSP includes all of the following features standard.

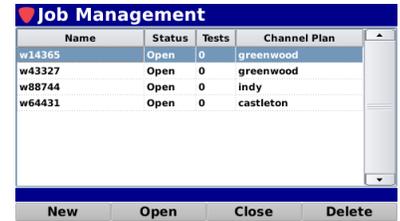
Multiple User Profiles

- Allows up to 5 technicians to share a 180 DSP
- Each technician has his or her own profile, which loads in completely different sets of channel plans, autotest, etc.



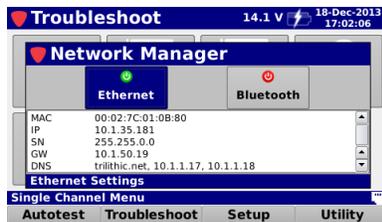
Job Management

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



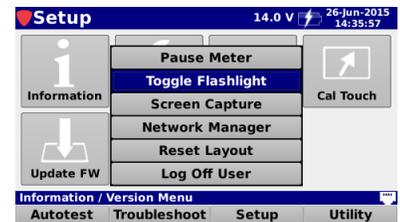
Simple Network Management

- Choose between Ethernet or Bluetooth connection methods
- Provides connection details such as MAC, IP, gateway and DNS



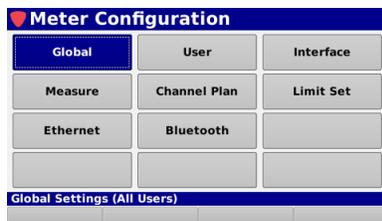
LED Flashlight

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



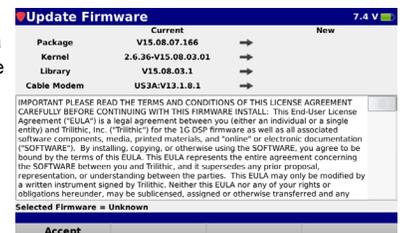
Easy Setup & Configuration

- 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



Convenient Firmware Updates

- Easily update the meter firmware through the web or via USB to ensure you always have the latest features



Remote Access

- Remotely access the meter using any active network connection
- Control and monitor almost any function of the meter from your PC, smart phone, or tablet

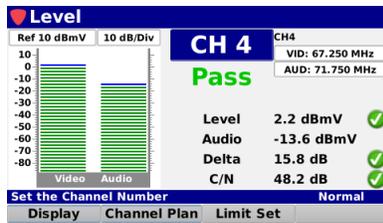


INCLUDED MEASUREMENT FUNCTIONS

The 180 DSP includes all of the following measurement functions standard.

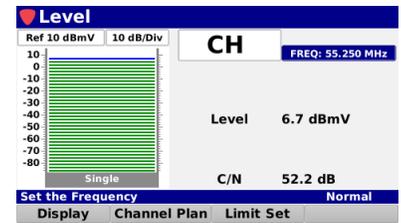
Analog Level Measurement

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



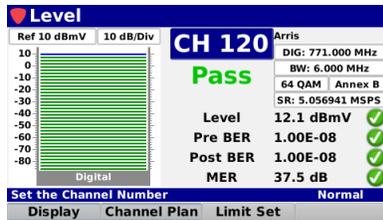
Single Frequency Level Measurement

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



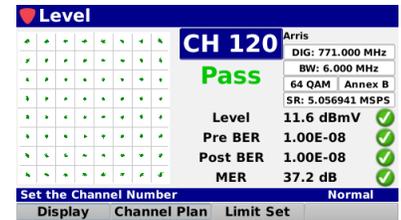
Digital Level Measurement

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



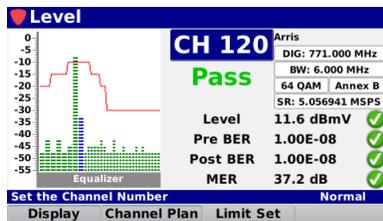
QAM Constellation

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



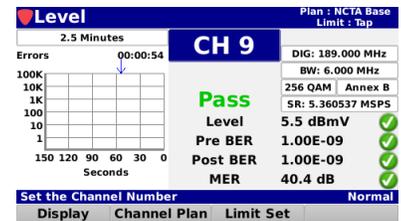
Equalizer Tap Display

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



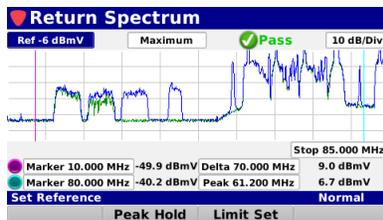
Bit-Error Rate Display

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



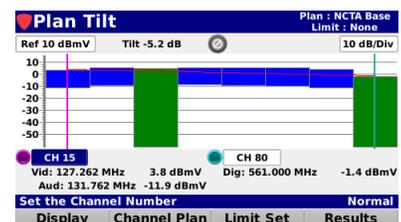
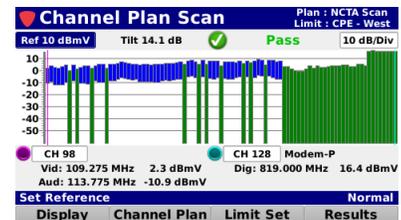
Return Spectrum Measurement

- 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



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
- Tilt shows the level difference between two selectable channels

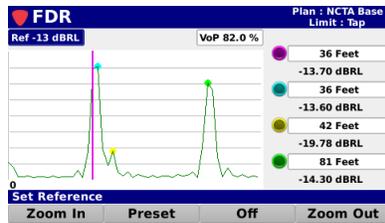


OPTIONAL FEATURES

The following optional features are available for the 180 DSP.

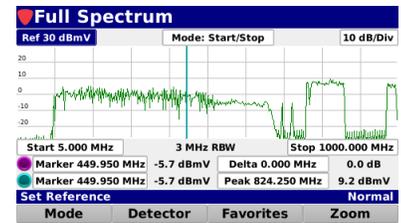
Frequency Domain Reflectometer

- Determine the distance to cable faults (opens, shorts, splitters, etc.)
- Events shown on a distance versus amplitude display
- Markers to identify the distance and loss at the source of the reflection.



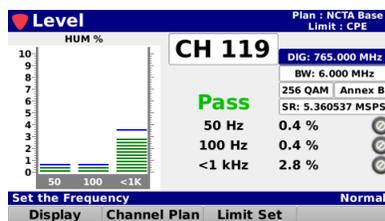
Full Spectrum Measurement

- 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



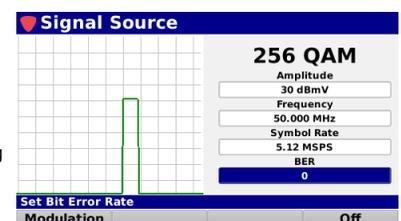
Analog & Digital HUM Measurement

- 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



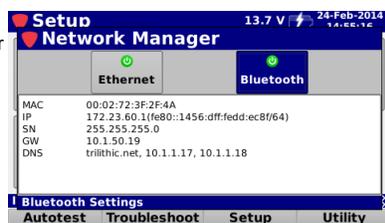
Source Generator

- Generate signals in the return path from 5 to 85 MHz
- Continuous wave (CW) or 16/32/64/128/256 QAM signal
- BER error injection for checking the bit stream



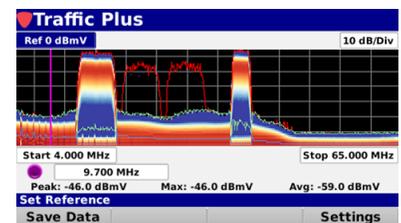
Bluetooth Communications Adapter

- Remote control of the meter via a Class II Mini Bluetooth Adapter (v2.1) with a 10 meter range
- Connect to an iPad that has device tethering enabled by the service provider



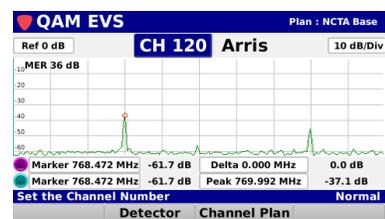
Traffic Control Plus

- Allows for a high-speed view of ingress in the upstream
- Heat map allows for simplified view of ingress hotspots



QAM Error Vector Spectrum (EVS) Analysis

- Tune to downstream QAM channels to display Error Vector Spectrum (EVS)
- Display the ingress underneath an upstream cable modem channel, or any bursty signal
- Includes TrafficControl



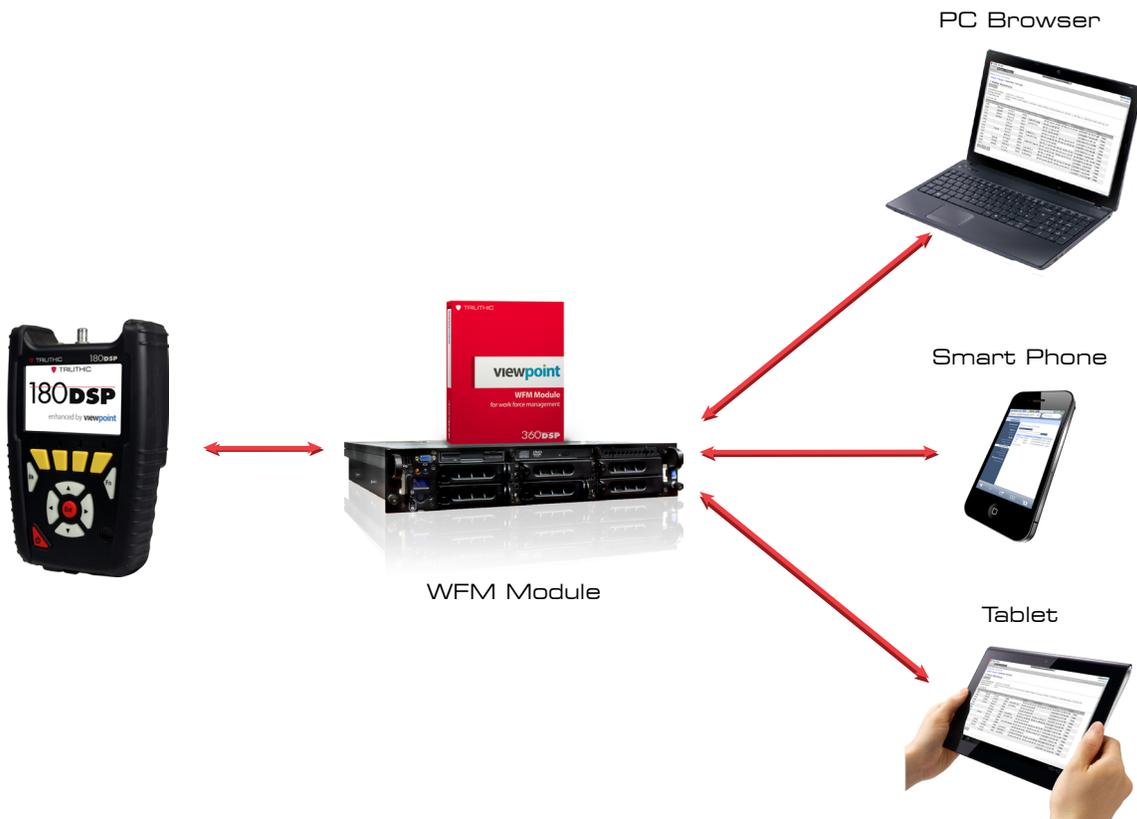
TOTAL SYSTEM MANAGEMENT

Combining the 180 DSP, 360 DSP, 720 DSP & 1G DSP meters in the field with the new ViewPoint Integrated Server in the back office, managers now have simplified access to intelligent management tools for monitoring, assessing, and improving the efficiency of their total operation, while making it even easier to obtain consistent, repeatable results that give supervisors that birds-eye view of the field for Total System Management.



By unifying an entire MSO's field operations in one convenient dashboard, managers can easily verify compliance and quality throughout the entire plant, either by home, system, region, division, or any other attribute from a billing system.

This simple and completely customizable integrated system of field analysis and reporting tools allows managers to watch over their entire field operations in one dashboard, comparing each location in the system, analyzing the overall health of their entire organization, and addressing concerns in near real-time.



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STANDARD 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 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

Return Spectrum Measurement

Frequency Range	4 to 110 MHz
Resolution Bandwidth	300 kHz
Display Spans	4 to 42 MHz, 4 to 65 MHz, 4 to 85 MHz or 4 to 110 MHz
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	-30 dBmV (4 MHz to 110 MHz)

Digital Channel Measurement

Deep Interleave Compatibility	Yes
Downstream MER	40 ±2 dB @ +6 dBmV RF Input Level 34 ±2 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 msp/s; ≤ 6.952 msp/s

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	14 (dependent on favorite channel setup)
High/Low Delta Resolution	0.1 dB
Scan	Video, audio, pilot, and digital carriers

Source Generator (Optional)

Modulation	CW, 16 QAM, 32 QAM, 64 QAM, 128 QAM, 256 QAM
Frequency Range	5 to 85 MHz
Amplitude	CW: Adjustable from 10 to 40 dBmV 16/32/64/128/256 QAM: Fixed 30 dBmV
QAM Symbol Rates	0.64, 1.28, 2.56, 5.12 MSPS
Bit Error Rates	Adjustable from 0 to 1.00E-2

OPTIONAL MEASUREMENT SPECIFICATIONS

Forward 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 1 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 (50 MHz to 1 GHz)

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

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

Source Generator

Modulation	CW, 16 QAM, 32 QAM, 64 QAM, 128 QAM, 256 QAM
Frequency Range	5 to 85 MHz
Amplitude	CW: Adjustable from 10 to 40 dBmV 16/32/64/128/256 QAM: Fixed 30 dBmV
QAM Symbol Rates	0.64, 1.28, 2.56, 5.12 MSPS
Bit Error Rates	Adjustable from 0 to 1.00E-2

Frequency Domain Reflectometer

Velocity of Propagation	Adjustable from 60.0 to 99.0% in 0.1% increments
Working Distance	Minimum: 755 feet (230 meters) @ VoP of 60.0% Maximum: 1247 feet (380 meters) @ VoP of 99.0%
Amplitude Range	0 to -80 dBRL
Distance Accuracy	5 feet

PHYSICAL & ENVIRONMENTAL SPECIFICATIONS

Physical Specifications

Construction	Rubber overmolded plastic housing
Control	Glow in the dark keypad and LCD touch screen and/or via a wireless connection to a mobile device such as a laptop, tablet, iPad® or iPhone®, or Android® handset
Display	Color LCD touch screen 480 x 272 pixels (approx 4" x 2.25")
Annunciators	Audible annunciator for key strokes
Flashlight	High intensity LED (0.25W)
Dimensions w/o Case (H x W x D)	8.0 x 5.5 x 2.0 in (20.32 x 13.97 x 5.08 cm)
Dimensions w/ Case (H x W x D)	9.0 x 6.5 x 3.0 in (22.86 x 16.51 x 7.62 cm)
Weight w/o Case	2.0 lbs (1.09 Kg)
Weight w/ Case	3.0 lbs (1.54 Kg)

Available Interface Types

RF Test Port	Replaceable F-Type connector
Ethernet	RJ45 Ethernet Port (10/100 Mbps)
USB	USB 2.0 Type-A Standard Port
Bluetooth (Optional)	Class II Mini Bluetooth USB Adapter (v2.1) with a 10 meter range for speeds up to 3 Mbps

Battery & Power Specifications

Operating Time	4 to 5 hours, dependent on use
Charge Time	4 hours
Battery	One 2600 mAh @ 7.4V Li-Ion internal battery, factory replaceable
Power Adapter	Input: 100 to 240 VAC ~ 47 to 63 Hz, 1.1A Max Output: 15 VDC, 3.3A

Environmental Specifications

Storage & Operating Temperature	-18° to +50° C (0° to 122° F)
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INCLUDES THE FOLLOWING:

- 180 DSP Meter
- Protective carrying case
- Shoulder strap
- AC to DC Power Adapter & Battery Charger
- US AC Power Cable (US Models)
- Euro AC Power Cable (Euro Models)
- Touchscreen Stylus

SOFTWARE:

- ViewPoint Express Configuration Software for the 180 DSP
P/N 0930215000
- ViewPoint Integrated Server with WFM Module for the 180 DSP
P/N 2011656002
- ACTS™ Software
P/N 0930144000

RELATED PRODUCTS:

- Precision RF Coaxial Test Cable (I/O-15)
P/N 2071527048
- I-Stop 1 GHz Test Probe
P/N 2010838002
- TLB-46 Return Measurement Low-Pass Filter
P/N 2011640000