TFN 150 Series Handheld Cable & Antenna Analyzer

Product Introduction

The TFN 150 Series Handheld Cable & Antenna Analyzer is a professional-grade portable testing device designed for base station installation, maintenance, and field diagnostics in telecommunication networks. With a frequency range up to 6 GHz and a 60 dB dynamic range, it supports comprehensive measurements including VSWR, return loss, cable loss, fault location (DTF), Smith chart, and phase analysis. Equipped with an intuitive 6.5-inch TFT LCD display, long-lasting battery, and optional power meter modules, it integrates multiple testing functions into one compact tool. Whether you're an engineer, contractor, or educator, the 150 Series delivers accuracy, portability, and efficiency in one robust device.

Product Key Selling Points

☑ All-in-One Field Testing Solution

The TFN 150 Series combines antenna testing, cable diagnostics, optical power measurement, and GPS positioning in a single handheld unit. This eliminates the need to carry multiple devices, streamlining fieldwork and reducing equipment costs while improving testing efficiency for base station and RF system maintenance.

☑ High Precision with Wide Frequency Coverage

With a frequency range from 2 MHz to 6 GHz and a 60 dB dynamic range, this analyzer delivers exceptional accuracy for VSWR, return loss, and DTF measurements. Its high resolution and fast scanning speed ensure reliable performance in demanding environments like cellular networks and broadcast systems.

☑ Built-in E-CAL for Quick Calibration

Say goodbye to cumbersome manual calibration. The built-in electronic calibration (E-CAL) module allows for one-touch, full-band calibration, saving time and reducing human error—ideal for field technicians who need to perform accurate measurements rapidly.

☑ Rugged and Portable Design

Weighing less than 2.2 kg and built to withstand harsh field conditions, the 150 Series is both durable and easy to transport. Its long-lasting battery supports over 6 hours of continuous operation, making it perfect for remote site testing and extended fieldwork.

☑ Smart Software Integration

Compatible with SITE WORKBENCH PC software, this analyzer enables advanced data management, automated report generation, and remote control via WiFi. You can analyze historical data, set pass/fail limits, and export professional test reports with embedded GPS information.

Product Specifications

Frequency	
Frequency range	150L:2MHz～4.4GHz 150H:2MHz～6GHz
Frequency stability	± 2ppm （0～50° C）
Frequency accuracy	± 5ppm （25±5° C）
Frequency resolution	1kHz（2MHz～4.4GHz）
Output Level	
Output level range	≥0dBm (2MHz～4.4GHz)
System	
Scan Points	130, 259, 517, 1033, 2065
Measurement Speed	1ms/point (Return Loss) 1.25ms/point (Fault Location)
Interference Suppression	Frequency: 13dBm (within ±10kHz deviation) Channel: 20dBm (>1MHz deviation)
Port Characteristics	Return Loss ≤ -10dB
Directivity	≤-42dB (after standard calibration) ≤-38dB (after full-band calibration)
Damage Level	+25dBm (RF signal) ±50V (DC voltage)
Return Loss	Measurement Range: 0dB～60dB Resolution: 0.01dB
VSWR	Measurement Range: 1～65 Resolution: 0.0001
Cable Loss	Measurement Range: 0dB～30dB Resolution: 0.01dB
Fault Location	Return loss measurement range: 0dB～60dB VSWR measurement range: 1～65 Distance range: (number of points - 1)/(span2)Vf (cable speed factor)C (speed of light) Distance resolution: distance range/(number of points - 1)

Phase	Measurement range: -1800～+1800 Resolution: 0.010
SmithKline Plot	Resolution: 0.01
Input/output Ports	
RF Input Port	50Ω N cathode type
RF Output Port	50Ω N cathode type
Mini USB Port	USB2.0 4pin
USB Port	USB1.1 4pin
LAN Port	10/100M RJ45
Power Supply & Display	
AC-DC power adapter	Input: 100-240VAC, 50-60Hz Output: 19VDC/3.42A
Lithium battery	11.1V/5.2Ah
Charging time	<5 hours
Continuous working time	>4.5 hours (typical) >6 hours
LCD Screen	6.5” TFT LCD, 640480
Supported languages	Chinese, English
ESD	
Port electrostatic discharge immunity	≥8KV (contact discharge) 15KV (air discharge)
Others	
Humidity	95% when 40℃
Operating Temperature	-10℃～55℃
Storage Temperature	-40℃～80℃
Weight	< 2.2kg
Volume (Length × Width × Height)	260 × 196 × 77mm

Product Features

Feature 1: Broad Frequency Coverage & High Dynamic Range

The TFN 150 Series supports a wide frequency range up to 6 GHz with a 60 dB dynamic range, making it suitable for testing various communication systems including 5G, LTE, and broadcast antennas. This ensures accurate measurement of VSWR, return loss, and impedance matching across multiple bands, helping engineers maintain optimal signal integrity and system performance.

Feature 2: Multifunctional & Portable Design

This handheld analyzer integrates multiple testing capabilities—antenna analysis, cable fault location, optical power detection, and GPS logging—into one compact device. Its lightweight and rugged construction make it ideal for field use, reducing the need for additional equipment and simplifying on-site diagnostics for telecom operators and contractors.

Feature 3: Optional Power Meter for Enhanced Measurements

In addition to standard RF testing, the 150 Series supports optional through-line and termination power meters via USB. This allows for high-precision power measurement without external power supplies, enabling comprehensive base station power testing and ensuring transmission efficiency within desired parameters.

Feature 4: Sunlight-Readable Display & Long Battery Life

Featuring a 6.5-inch TFT LCD screen with high visibility even under direct sunlight, users can easily read measurement results in outdoor environments. The built-in lithium battery provides over 6 hours of continuous operation, supporting extended fieldwork without frequent recharging.

Feature 5: Advanced PC Software for Data Management

The included SITE WORKBENCH software enables seamless data transfer, analysis, and report generation. Users can set markers, define pass/fail limits, compare historical data, and create professional test reports with GPS tags — streamlining documentation and improving maintenance workflow.

Applications & Pain Points Solved

Scenario 1: Base Station Installation & Maintenance

Pain Point: Field technicians often carry multiple devices for antenna testing, cable diagnostics, and power measurement, leading to complicated setups and higher costs.

Solution: The TFN 150 Series integrates all essential tests—VSWR, return loss, DTF, and optical power — into one handheld analyzer. This streamlines base station commissioning and maintenance, reduces equipment burden, and speeds up troubleshooting in cellular network deployments.

Scenario 2: Indoor Distributed Antenna Systems (DAS) & RF Coverage Projects

Pain Point: Calibrating test equipment on-site is time-consuming and prone to human error, delaying project timelines.

Solution: With built-in E-CAL electronic calibration, the analyzer performs full-band calibration in seconds with a single connection. This ensures accurate measurements for DAS installations and in-building wireless systems, improving efficiency and reducing calibration-related errors.

Scenario 3: Antenna & Feeder System Fault Diagnosis

Pain Point: Locating faults in long coaxial cable runs is challenging, leading to prolonged network downtime and increased operational costs.

Solution: The Distance-to-Fault (DTF) function supports up to 2065 data points, providing precise fault localization with clear distance readouts. This enables quick identification of issues such as cable damage, connector faults, or water ingress, minimizing repair time and service interruptions.

Scenario 4: Field Data Management & Reporting for Contractors

Pain Point: Manual data recording and report generation are tedious and error-prone, especially

for compliance and client deliverables.
Solution: Integrated SITE WORKBENCH software automates data transfer, analysis, and report generation with GPS tagging. Contractors can easily create professional test reports, track historical data, and maintain audit trails—ideal for project handover and quality assurance.

Scenario 5: Harsh Environment & Outdoor Field Testing
Pain Point: Standard testers may fail under extreme temperatures, moisture, or physical impact, risking equipment damage and measurement inaccuracy.
Solution: Designed with rugged housing and wide operating temperature ranges (-10° C to 55° C), the 150 Series withstands tough field conditions. Its sunlight-readable display and long battery life ensure reliable performance in outdoor or industrial settings, providing durability where other testers fail.

Q&A

? How do I calibrate the TFN 150 Series analyzer?
The analyzer supports both manual OSL calibration and built-in E-CAL electronic calibration. For quick field use, simply connect the E-CAL module and perform a one-touch full-band calibration within seconds.

? Can it locate faults in coaxial cables accurately?
Yes, the DTF (Distance to Fault) function supports up to 2065 data points, providing precise fault localization with distance resolution based on cable type and propagation velocity.

? Is the device compatible with other power sensors?
Yes, the analyzer supports external USB power meters (through-line and termination types) for extended power measurement capabilities up to 150W average power and 400W peak power.

? How long does the battery last on a single charge?
The built-in 11.1V/5.2Ah lithium battery provides over 6 hours of continuous operation under typical usage, and can be charged via AC adapter or 12V vehicle charger.

? Does it come with software for report generation?
Yes, the SITE WORKBENCH PC software is included, allowing you to transfer data, analyze curves, set limits, and generate professional PDF reports with GPS and test data.

Package Contents

Standard Configuration:
150H Cable & Antenna Analyzer
User Manual (U-Disk)
N-type Calibration Kit (or E-CAL Electronic Calibrator)
1.5m N-type RF Cable
11.1V/5.2Ah Lithium Battery

AC-DC Power Adapter (100 – 240V)
Carrying Case

Optional Accessories:
GPS Receiver Module
Termination Power Meter
Through-Line Power Meter
Vehicle Charger (12VDC)
Additional RF Adapters & Cables