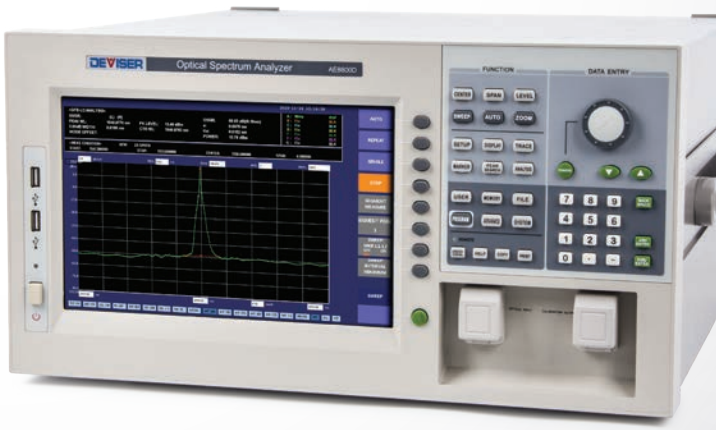
33+ YEARS OF INNOVATION

DEVISER®

Ensuring Tomorrow's Communication Networks

Fiber Optics



About Deviser Instruments

Headquartered in San Jose, California, Deviser Instruments brings an extensive portfolio of innovative, high-quality, valuepacked test and measurement solutions to communications service providers and equipment manufacturers worldwide. For more than 30 years, communications service providers have relied on Deviser's products to deliver reliable, high-performance cable, satellite, wireless, fiber optic, and telecommunications services to their customers. Over the last 12 years, Deviser has been an OEM supplier of test equipment to tier 1 communications service providers in North and South America.

Leveraging a large engineering team, a 247,000 ft.2 R&D and manufacturing facility, and a comprehensive on-site EMC laboratory and test facility, Deviser Instruments designs and manufactures reliable and highly-accurate test and measurements solutions developed through a culture of innovation. This enables Deviser Instruments to deliver leading-edge solutions that not only address the needs of their customers today, but to anticipate the requirements of technological advancements in the communications industry. Deviser's reliable and highly-accurate test and measurement solutions not only enable communications service providers to maximize customer experience and satisfaction, but they also help increase profits by reducing CAPEX and OPEX.

By packing more features into its products, Deviser reduces the amount of test equipment required to turn up the network. The accuracy and reliability of the products ensures that the job is done correctly the first time, reducing the need for multiple truck rolls. Robust feature sets, enhanced capabilities, and affordable price points enable Deviser's products to deliver an industry-leading price-to-performance ratio to offer service providers an unparalleled level of value and quality.

What Sets Us Apart

Deviser's focus on customer requirements, customer satisfaction, and technical innovation sets us apart from competitive alternatives. Key reasons why so many communications service providers and equipment manufacturers choose Deviser solutions include:

Industry-Leading Experience

Over 30 years' experience developing and delivering a wide range of communications test and measurement solutions, combined with knowledgeable, dedicated and experienced personnel working closely together to create innovative, high-performance, feature-packed solutions for our customers.

Broad Portfolio of Industry-Leading Solutions

Deviser offers a comprehensive portfolio of communications test and measurement solutions, from wireless, EMF safety, fiber optics, cable, telecommunications, satellite, terrestrial and RF & microwave services.

Innovative Engineering and Leading Edge Technologies

We take pride in delivering leading-edge technology and solutions by seeking out ideas and opportunities through our customers to deliver the finest quality and best value to our customers. Our 150+ engineers are focused on gaining knowledge of next-generation technologies, which results in delivering the latest technologies and innovative analysis tools for ensuring future networks.

Quality Manufacturing

Deviser's 247,000 ft.2 manufacturing facility is ISO 9001 Quality Systems approved. This strict process guarantees that every step is controlled, from receiving orders to the manufacturing and delivery of products and solutions to customers. All products are 100% tested to ensure that they meet quality standards. We have a full EMC laboratory in house and all of our test equipment is calibrated annually and traced back to the China National Institute of Metrology & Telecommunication Metrology Center of MIIT to comply with the International Standard of Metrology.

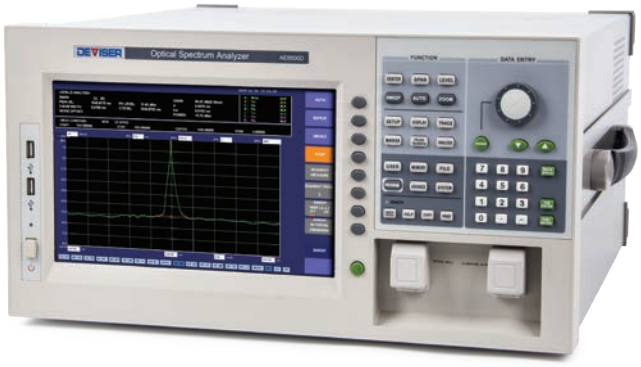
Reliability, Service & Support

Deviser's focus on detail results in the development and manufacture of high quality products, geared for reliable performance and low maintenance, resulting in a low cost of ownership to its customers. Our global support team, with service centers in US, Belgium and China, allows our customers to receive localized support, facilitating and speeding up service.

AE8600D
Optical Spectrum Analyzer

Key Benefits

- Single mode and multi-mode wavelength range from 600nm to 1700nm.
- Wide range of power measurement from +23dBm to -90dBm and wide dynamic range up to 73dB typical
- Outstanding wavelength & power measurement accuracy with λ resolution up to 0.02nm and built-in calibration source(Option)
- WDM, Laser, and EDFA test modes
- 10.1" 1280x800 TFT touchscreen LCD
- Multiple data storage and interface – LAN (RJ-45), USB, RS232, GP-IB(Option) … etc.
- Customizable auto-test scenario



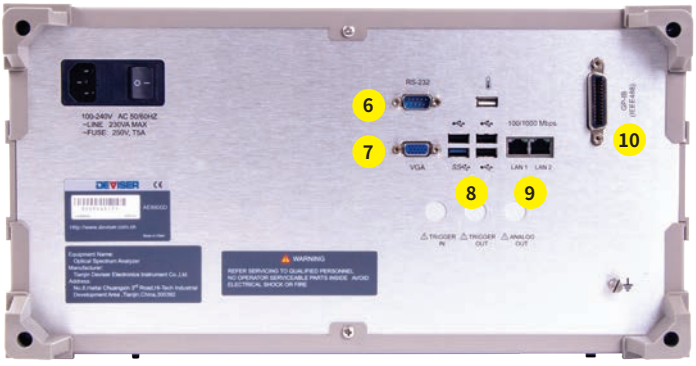
Overview

Brought to you by Deviser Instruments Inc, the AE8600D is a high-precision diffraction-grating, high-resolution optical spectrometer with wavelength range of 600nm to 1700nm. The 10.1" LCD touchscreen and concise graphical user interface of AE8600D offer the easiest way to handle optical spectrum analysis.

AE8600D provides a wide selection of test methodology, including laser spectrum scans (DPB, FP), WDM system testing, EDFA system testing, transmittance and drift testing, which are essential for in-field and factory applications. The AE8600D offers exceptional stability and reliability, high-speed spectral sweeping, and multiple ways to export and analyze measurement data. It's the ideal instrument for fast and precise optical spectral testing to satisfy long-term investment with the best cost performance value.

A wealth of functions and connection interfaces

1. 10.1 inch TFT LCD touchscreen
2. Optical Input(Left)/Calibration Output(Right)
3. Rotary knob
4. USER button
5. USB
6. RS232
7. VGA
8. USB
9. Ethernet
10. GB-IB(Option)



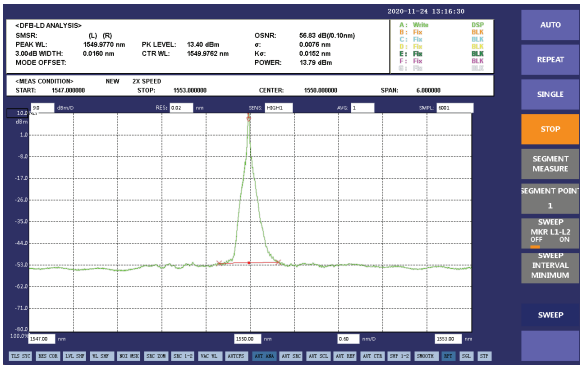
Typical applications

Optical Amplifier (EDFA) Measurement

- PSSE– Source Spontaneous Emission (SSE) spectral density at the signal wavelength
- PASE – Total noise spectral density, including SSE, at the signal wavelength
- Gain
- Noise coefficient

Distributed Feedback Laser Diode (DFB LD) Analysis

- Center wavelength and power
- Total power
- Bandwidth
- Side Mode Suppression Ratio (SMSR)
- Optical Signal-to-Noise Ratio (OSNR)
- Drifting of center wavelength



Wavelength-Division Multiplexing (WDM) Channel Analysis

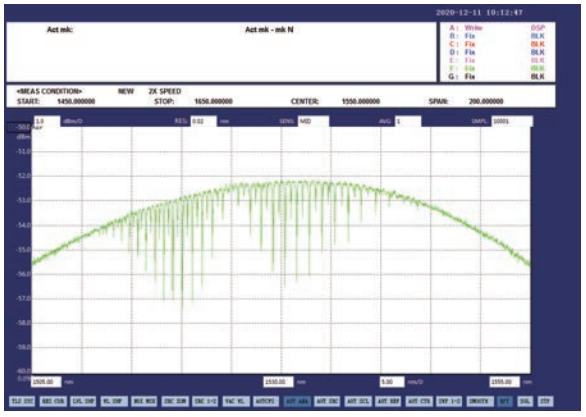
- Channel wavelength and power
- Channel drifting
- Optical Signal-to-Noise Ratio (OSNR)
- Bandwidth

Fabry-Perot Laser Diode (FP LD) Analysis

- Center wavelength and power
- Root-Mean-Square (RMS) and Full Width at Half Maximum (FWHM) of power spectral density over wavelength range
- Bandwidth
- Mode separation

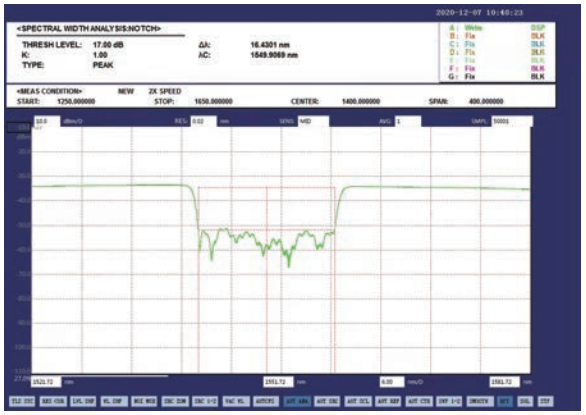
Gas measurement

When used with broadband light sources such as super continuum (SC) or super luminescent diode (SLD), the AE8600D can display the light absorption spectrum of the measured gas mixture.



Notch Width Measurement

With notch width measurement, it is possible to measure pass band width/notch width from the measure waveform of a filter with V-character type or U-character type wavelength characteristics.



Functions

Item	Function
Measurement	
Sweep mode	Repeat sweep, single sweep, AUTO (automatically sets measuring condition) , sweep between marker, data logging
Condition Setting	Center wavelength, span, wavelength sampling points, wavelength resolution, measurement sensitivity, high dynamic mode, average count(1 to 999), double-speed measurement mode, smoothing, APC level correction
Others	Sweep status output, analog output
Display	
Vertical scale	Level scale (0.1 to 10dB/div., linear) , level subscale (0.1 to 10dB/div., linear) , reference level display, DIV display (8, 10 or 12) , power density (dB/nm), dB/km, %, noise mask
Horizontal scale	wavelength (nm), frequency(THz), zoom
Display mode & items	Single waveform display, split screen display, data table display, label display, template display, measurement condition display
Trace	
Trace functions	Simultaneous display of 7 independent traces, max/min value detection display, calculation between traces display, normalized display, curve fit display, peak curve fit display, marker curve fit display, roll averaging (2 to 100 times)
Others	Trace copy /trace clear, Write/Fix setting, show / hide setting
Marker &Search	
Marker	Delta marker(Max.1024), vertical / horizontal line markers, advanced marker
Search	Peak search, bottom search, auto search (On/OFF), search between vertical axis line marker, search within zoom area
Data analysis	
Analysis functions	Spectral width analysis (threshold, envelope, RMS, peak-RMS, notch) , WDM (OSNR) analysis, EDFA-NF analysis, filter peak/bottom analysis, WDM filter peak/bottom analysis, DFB-LD/FP-LD/LED analysis, SMSR analysis, power analysis, PMD analysis
Others	Auto analysis execution setting(ON/OFF), analysis between vertical axis line markers, analysis within the zoom area
Other functions	
Alignment	Auto alignment using built-in calibration light source.

Specifications

Optical Spectrum Measurement Specifications	
Applicable fiber	SM(9.5/125μm), MMF(50/125μm, 62.5/125μm)
Wavelength range[1]	600 ~ 1700nm
Wavelength resolution bandwidth	0.02 ~ 2nm
Wavelength resolution setting[1,2]	0.02nm, 0.05nm, 0.1nm, 0.2nm, 0.5nm, 1nm, 2nm
Wavelength resolution bandwidth accuracy[1,2,5]	±5%(1450 to 1620nm, Resolution setting:≧0.1nm, after performing the Resolution Calibration function, at the wavelength of resolution calibration)
Wavelength accuracy[1,2,5]	1520 to 1620 nm ±0.02 nm 1450 to 1520 nm ±0.04 nm Entire wavelength range ±0.1 nm

Wavelength repeatability[1,2]	±0.01 nm (1 min.)
Wavelength linearity[1,2,5]	±0.01 nm (1520 to 1580 nm) ±0.02 nm (1450 to 1520 nm, 1580 to 1620 nm)
Min. sampling resolution[1]	0.001nm
Optical Power Measurement Specifications	
Level sensitivity[2,3,4,7]	-90dBm(1300-1620nm, resolution ≥0.05nm) -85dbm(1000-1300nm, resolution ≥0.05nm) -60dBm(600 - 1000nm, resolution ≥0.05nm)
Maximum input power[2,3]	+23dBm(Per channel,full range)
Maximum safe input power[2,3]	±25dBm(Total input power)
Level accuracy[2,3,4,6]	±0.4dB(1310/1550nm, input level: -20dBm)
Level linearity[2,3]	±0.05dB(input level: -50~+10dBm)
Level flatness[2,3,6]	±0.1dB(1520 to 1580nm), ±0.2dB(1450 to 1520nm, 1580 to 1620nm)
Wavelength sampling points	101 to 50001, AUTO
Optical return loss[11]	>35dB (with angled-PC connector)
Polarization dependence[2,3,6]	±0.05dB(1550nm)
Dynamic range[1,2,8]	Peak ±0.1nm 39dB (Resolution: 0.02nm) Peak ±0.4nm 60dB (Resolution: 0.05nm) Peak ±1.0nm 73dB (Resolution: 0.05nm)
Level sensitivity setting	NORM_HOLD, NORM_AUTO, NORMAL, MID, HIGH1, HIGH2, HIGH3
High dynamic mode	SWITCH(Sensitivity: MID, HIGH1-3)
Stray-light suppression ratio[7,10]	73dB
Sweep time[1,7,9]	0.2s(NORM_AUTO)、0.8s(NORMAL)、1.8s(MID) 4s(H1)、16s(H2)、60s(H3) (SPAN ≤100nm Sampling Points 1001)
Warm-up time	Minimum 1hour
General Specificatons	
Display	10.1 inch TFT LCD touchscreen (Resolution: 1280×800)
Interface	USB2.0 ×5, USB 3.0, VGA, GP-IB (Option)
	RJ45 LAN port (10M/100M/1000M), RS232-DB9
Data storage	Internal storage: 120GB hard-drive File types: CSV,Binary,BMP
Operating temperature	+5 ~ +35℃
Storage temperature	–10 ~ +50℃
Power supply	AC 100-240V 1.7A 50~60Hz
Dimensions	427*221*448 (mm)
Weight	17kg
Performance quadrate temperature	+18 ~ +28℃
Safety standards	EN61010-1
EMC(Emission)	EN IEC 61326-1, EN IEC 61326-2-1 and CISPR 16-1 series standards, Class A Group 1, IEC 61000-3-2, EN 61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-8, IEC 61000-4-4, IEC 61000-4-6, IEC 61000-4-11

1. Horizontal axis scale: In wavelength display mode.
2. 9.5/125 μm single mode fiber (PC polishing), after warm-up of 1 hours, after alignment with a built-in wavelength reference light source or single longitudinal mode laser (wavelength: 1520 to 1560 nm, wavelength stability: ±0.01 nm or less)
3. Vertical scale: absolute value level display mode, resolution setting: 0.05 nm or more, resolution correction: OFF
4. When using 9.5/125 μm single mode fiber
5. After wavelength calibration using a built-in wavelength reference light source or single longitudinal mode laser
6. With the resolution setting of 0.05 nm, at ambient temperature of 23 ±3 °C.
7. High dynamic mode: OFF, pulse light measurement mode: OFF, resolution correction: OFF
8. 1523 nm, high dynamic mode:SWITCH, resolution correction: OFF
9. Span 100 nm or less, wavelength sampling points: 1001, averaging times: 1
10. When applying a HeNe laser (1523 nm), resolution: 0.1 nm, 1520 nm to 1620 nm (excluding peak wavelength ± 2 nm).
11. When using the signal mode fiber with our standard Angled PC connector, it is 15 dB(Typ.) when using the PC connector

Ordering Information

Description	Part No.	Ordering No.
AE8600D Optical Spectrum Analyzer	AE8600D	0260.8600.07
FC Connector Adapter for Optical Input(standard configuration installed at factory)	AE8600-001	6260.0400.03
CD with User Manual	AE8600-003	6260.0600.09
Calibration and Compliance Certificate	DS1001-001	6190.0600.05
Options		
SC Conector Adapter for Optical Input	AE8600-002	6260.0400.04
Built-in Calibraton Light Source(default with FC/APC Connector Adapter)	AE8600-200	2260.8600.00
PCIE-GPIB	AE8600-700	6260.0400.05
Calibration Certificate (with data)	AE8600-004	6260.0600.10
Power Cord (1.5m)	SA8300-700	6190.0500.40
Power Adaptor Plug Cord (Europe)	AE4000-733	6290.0500.03
Power Adaptor Plug Cord (Unite States)	AE4000-734	6290.0500.04
Power Adaptor Plug Cord (United Kingdom)	AE4000-735	6290.0500.05
Power Adaptor Plug Cord (Australia)	AE4000-736	6290.0500.06

AE8560
Optical Spectrum Analyzer

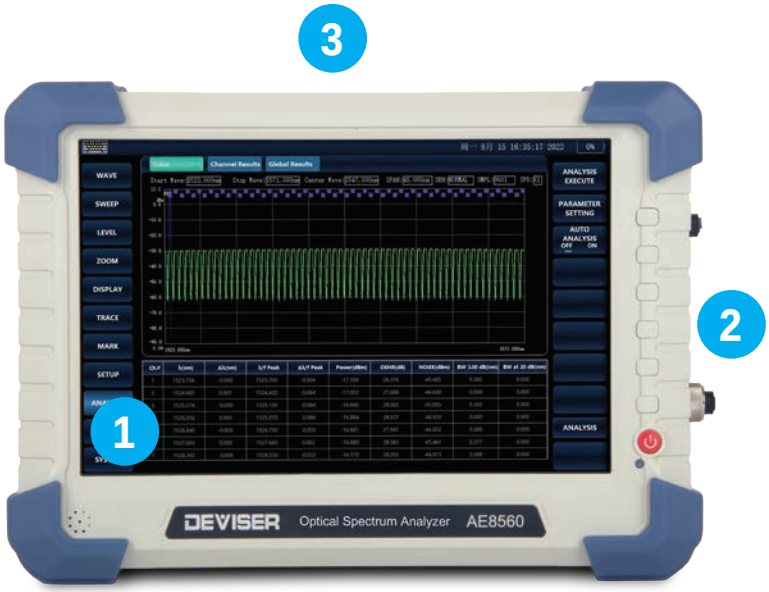
Key Benefits

- Spectral range: 600nm-1700nm, suitable for single-mode and multi-mode fiber input.
- Wavelength resolution: 0.04nm.
- Power measurement range: -85 to +15dBm.
- 60dB dynamic range, able to effectively identify adjacent spectral signals.
- WDM, EDFA, drift, transmittance , light source and other options to satisfy requirements of various applications.
- Small size, rechargeable, 3-hour long standby time, convenient for in-field application.
- Includes a calibrated light source to prevent the impact of in-fiend environmental changes, vibration, shock, etc.
- 10.1 Inch super large touch screen LCD for excellent customer experience.

Overview

AE8560 is a handheld optical spectrum analyzer designed by Deviser Instruments . It's small in size, light in weight, easy to operate with touch screen, and outstanding in anti-interference, well satisfy field testing in outdoors or in other harsh environments.

AE8560 has wide range of professional applications in semiconductor laser (DFB, FP) spectral characteristic measurement, WDM system testing, EDFA system parameter, transmittance and drift testing. AE8560's superior stability and reliability, extremely fast spectral scanning speed, and open data output can help you perfectly satisfy various challenges from optical spectral testing.



Display and Interface

1. High Resolution LCD Display

The 10.1-inch large-size LCD screen can clearly display detailed waveform and numerical measurement values.

2. Optical Interface

AE8560 adopts universal optical connectors for optical input and calibrated output, which can be directly coupled to the main optical interface. The optical connector is replaceable with FC or SC connector.

3. Other Interface

USBx2, LAN, HDMI

Graphical Interface

Specifications

Item	Specification
Input Fiber	SM (9.5/125μm), MMF (50/125μm,62.5/125μm)
Wavelengths	600nm to 1700nm
Resolution Bandwidth	0.04nm
Wavelength Accuracy	1520 to 1610nm ±0.02 nm Others ±0.1 nm
wavelength repeatability	±0.005nm (1minute)
Wavelength Linearity	±0.01nm (1520 to 1610nm)
Power Range	-85dBm to +15dBm
Power Accuracy	±0.4dB (1310/1550nm, input power -20dBm)
light suppression ratio (1550nm) dB	Peak wavelength ±0.2nm 35dB Peak wavelength ±0.4nm 50dB Peak wavelength ±1.0nm 60dB
Channel Spacing	50-200GHz CWDM
ORL (dB)	⩾35dB (APC connector)
Measurement Time	⩽0.3s (span 30nm)
OSNR (dB)	⩾35dB (1550nm, -10dBm)
OSNR Uncertainty (dB)	±0.5
Applications	WDM, EDFA, drift, transmittance, DFB
Display	10.1” 1280x800
Interface	USBx2, LAN, HDMI

◆The content of the information is for reference only, subject to change without prior notice.

TLS1056
Tunable Light Source

Key Benefits

- Wide tunable wavelength range 1480 to 1640nm (160nm)
- >100nm/s scanning speed to perform bi-directional scanning
- 13dBm high output power
- Very low SSE, high dynamic range
- Narrow linewidth laser <60kHz
- Built-in wavelength meter with closed-loop feedback function to ensure wavelength accuracy

Applications

- Optical component testing
- Fiber transmission Test
- Spectroscopy, Metrology, Interferometry

Overview

TLS1056 is a high-end tunable laser designed based on Deviser's matured technologies and experience in optical, mechanical, electrical and other fields. The well-designed laser cavity combined with the ultra-low noise circuit realize the characteristics of wide wavelength range, high optical power, low noise, narrow linewidth and fast hop-free scanning. The tunable light source has a built-in real-time wavelength meter. Through multi-dimensional dynamic control, excellent wavelength accuracy and long-term wavelength stability are ensured.

Highlights

TLS1056 is designed with Littman-Metcalf external cavity structure. The driving mechanism is strong and reliable to ensure the long-term performance of the instrument. Built-in high-precision real-time wavelength meter ensures stable wavelength output without mode hopping. The stable and reliable optomechanical design can realize fast wavelength scanning while ensuring high precision of wavelength and output stability.

Specifications

Category	Item		Specification
Wavelength	Tuning Range		1480nm to 1640nm
	Resolution		0.1pm
	Absolute Accuracy		±1pm room temperature ±2pm other temperature
	Relative Accuracy		±0.3GHz
	Repeatability		±1pm
	Stability		±1pm
	Scanning Speed		>100nm/s, bidirectional
Optical Power	Output Power		≥+14dBm peak ≥+10dBm (1520nm to 1640nm) ≥+7dBm (full range)
	Absolute Accuracy		±0.1dB
	Repeatability		±0.01dB (step mode)
	Stability		±0.01dB, 1 hour
	Flatness		±0.2dB
	Relative Intensity Noise (RIN)		<-145(dB/Hz)
Spectral	Line width	Coherent Control OFF	60kHz
		Coherent Control ON	40MHz
	Side Mode Suppression Ratio (SMSR)		≥60dB
	Source Radiation Ratio		≥80dB/nm
Modulation and Triggering	Low Frequency Modulation		DC to 400kHz
	Trigger Out Signal Pulse		>100μs
Interface	Connector		FC/APC
	Fiber		PMF
	Communication		GP-IB (IEEE 488.2), USB x 3, LAN (1000M/100M)
Environment and others	Working	Temperature	15 to 35°C
		Humidity	< 80 (non-condensing)
	Power Supply		AC 100 - 240 V (±10%), 50/60 Hz
	Rated Power		100VA
	Dimensions (W) x (D) x (H)		442mm x 413mm x 133mm
	Weight		about 16kg

*All specifications are measured after 1-hour warm up of the instrument and apply to wavelengths outside the range of water absorption wavelengths.

AE3100 Series
Handheld OTDR

Key Benefits

- High performance OTDR for FTTx and RFoG networks
- 7", 800x480 LCD touchscreen places power and convenience at your fingertips
- Excellent short-distance performance with 0.8m event dead zone and 3m attenuation dead zone
- Dual wavelength testing with broad dynamic range coverage (SM:30-46dB, MM:25/27dB)
- Minimum 4cm resolution
- Intelligent event analysis
- Excellent stability and repeatability
- "FiberPath" fiber link mapping mode
- Multiple options for your measurement needs, including: VFL, power meter, light source, and optical fiber microscope
- Complete user data ports: supports LAN, USB, SD, & more

Overview

From Deviser Instruments' 4th generation of OTDR, the field-portable AE3100 marks a giant leap forward in fiber-optic measurement performance and utility.

Featuring intuitive touchscreen controls, real-time data analysis, and more, the AE3100 is the ideal test instrument for constructing, deploying, maintaining, and authenticating FTTx networks

- as well as verifying access networks. Multiple models and configuration options ensure your unique measurement needs are covered. Dual or multiple wavelengths and a choice of dynamic ranges (spanning from 30 to 46dB) are also available.

Applications

Construction, deployment, maintenance, and authentication of the following networks:

- FTTx
- Long Haul Networks
- Passive Optical Networks (PON)
- Local Area Networks (LAN)
- Metropolitan Area Networks (MAN)

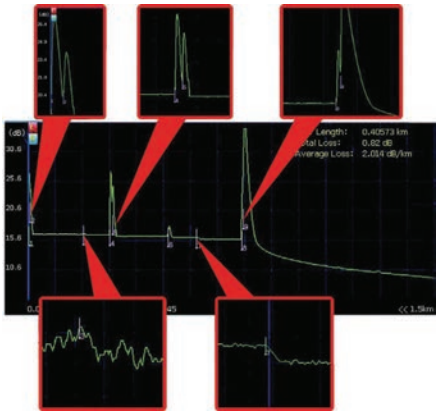
Main Functions

FiberPath™

FiberPath simplifies the interpretation of OTDR traces by identifying link elements and displaying the link map in an easy-to-understand format. Experienced and inexperienced technicians alike will appreciate the simplified display.

OTDR

This high-performing OTDR is the ideal solution for testing optical fiber in RFoG and FTTx applications. The OTDR can identify and locate link impairments and measure the insertion loss by LSA, 2Pt and 4Pt methods. The unit also measures optical return loss (ORL).

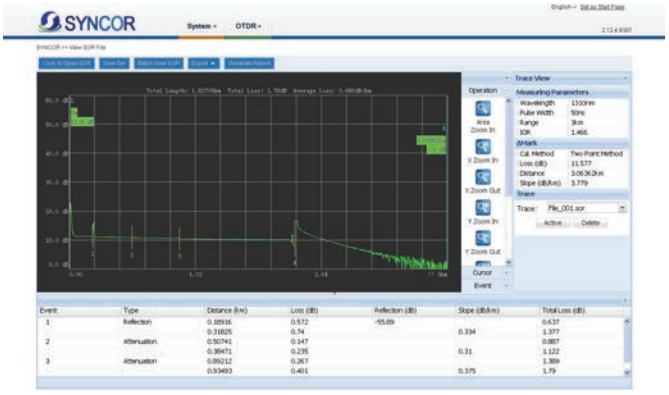


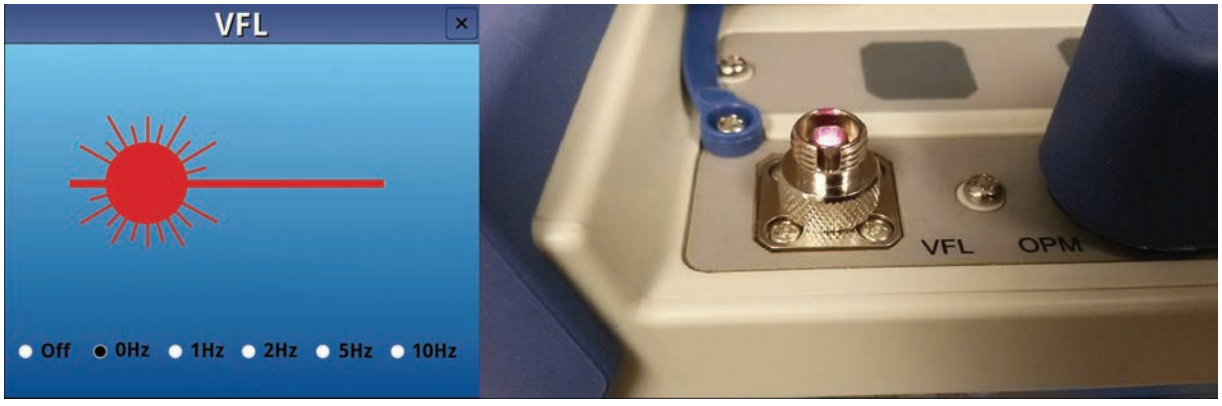
Optical Measurements

The AE3100 includes a suite of optical measurement tools, including a power meter, laser source, and visual fault locator (shown below). The unit is available in numerous wavelength configurations for ensuring proper levels in networks such as RFoG and FTTx.

Remote Control

In conjunction with the SYNCOR PC-based asset and test data management system, users can issue test orders and collect measurement data remotely from AE3100 units deployed to the field.





Specifications

OTDR Technical Parameters	
Wavelength (nm)	Multi-mode: 850/1300, Single-mode: 1310/1490/1550/1625/1650
Wavelength Accuracy	± 20nm
Dynamic Range	Refer to ordering guide
Event Dead Zone	Refer to ordering guide
Attenuation Dead Zone	Refer to ordering guide
Distance Range	Single-model: 100m, 400m, 1.5km, 3km, 6km, 12km, 25km, 50km, 100km, 200km, 400km (only AE3100D/E/F/H series)
	Multi-mode: 100m, 400m, 1.5km, 3km, 6km, 12km, 25km, 50km
Distance Unit	km, mile feet, mile, meter
Sample Resolution	AE3100A/B/C: 10cm to 6.4m, other models: 4cm to 12.8m
Sampling Points	AE3100A/B/C: 128000, other models: 256000
Distance Accuracy (m)	AE3100A/B/C/M/AM/BM/CM: ±(0.75m+0.005%×fiber length + sample resolution)
	Other models:± (0.75m + 0.001% x Distance + Sampling Resolution)
Group Refractive Index	1.000000 to 2.000000
Linearity	AE3100 A/B/C/M/AM/BM/CM:0.05dB/dB, other models:0.03dB/dB

Loss Threshold	0.001dB
Loss Resolution	0.001dB
Reflectance Accuracy	AE3100 A/B/C/M/AM/BM/CM:±4dB Other models:±2dB
Refresh Rate	8 fields/second
Pulse Width	Single-model: 3ns, 5ns, 10 ns, 30 ns, 50 ns, 100 ns, 200 ns, 500 ns, 1μs, 2μs, 5μs, 10μs, 20μs
	Multi-mode: 5ns, 10 ns, 20 ns, 30ns, 50 ns, 100 ns, 200 ns, 500 ns, 1μs
Measurement Time Range	5s ~ 5min, real time
Data Storage	>300,000 OTDR traces, exportable to USB or Computer

Functions & Accessories

Test Modes	Manual; Auto	File Formats	Compatible with Bellcore GR 196 v1.1 (*.SOR) and *.PDF
Limit Settings	Manual; Auto	Loss Test Type	LSA, 2pt, 4pt
Limit Profiles	8 customizable profiles	UI Style	4 styles available
Distance Shift	Yes; display negative events	FiberPath Linear View	√
Real-Time Testing	√	Touchscreen Keyboard	√
Self-Correcting	√	Web Browser	√
Online Help	√	Auto Shutdown/Sleep	√
Factory Reset	√	Macrobending Test	√
Multi-Lingual File Naming	√	Dual Wavelength Test	√
Screenshots	√	Multi-Trace Comparison	√
Optical Power Meter	Operation Wavelength	850nm-1700nm	
	Power Measuring Range	Select either [-70 to +10dBm] or [-50 to +26dBm]	
	Accuracy	±0.17dB/±0.23dB	
	Calibration wavelength	1310 nm/1550nm/1490/1610nm and 850nm/1300nm (only M series)	
Light Source	Wavelength	Same as OTDR; see model guide	
	Output Power	>-4dBm or >-11dBm	
	Modes	CW / 1kHz / 2kHz / 1kHz + Flash / 2kHz + Flash	
Visual Fault Locator	Wavelength	650 nm±10 nm	
	Output Power	≥1mW/10mW/30mW	
	Laser Safety	IEC 60825 -1: 2007	
USB FiberSpot Mode	Available by option only		
FiberPath	Available by option only		
Worker	Available by option only		
Seeker	Available by option only		
Wi-Fi, Bluetooth	Available by option only		
Remote Testing	Requires SYNCOR software configuration		
Cloud Asset Management	Requires SYNCOR software configuration		
Optical Port Type	UPC (default); APC (optional)		
Optical Adapter Type	FC/UPC (default); FC/APC, SC/UPC, SC/APC, LC/UPC, LC/APC, ST (optional)		

General Specifications		
Display	7inch, 800x480 dot matrix TFT LCD touchscreen	
Interface	2xUSB 2.0; 1x RJ45 LAN (10M/100M); 1x SD card slot (64GB max)	
Power	Supply	100 ~ 240V, 1.5A, 50~60Hz (AC); max 12V / 2Ah (DC); total max power 24 W
	Consumption	< 6W
Battery	7.4V / 5300mAh Li-ion battery, 39.22 Wh (Default); 7.4V 10000mAh Li-ion battery, 74Wh(Optional)	
Operating time	>6 hours on full charge(Default); >12 hours on full charge (Optional)	
Languages	Chinese, English, Spanish, Russian, Italian, Portuguese, French, German, Japanese, Korean, Czech, Swedish, Polish	
Operating temperature	-10°C to +50°C	
Storage temperature	-20°C to +60°C	
Relative Humidity	0%-95% non-coagulate	
Dimensions (LxWxH)	8.1" x 6.7" x 3.0" (206mm x 171mm x 75mm)	
Weight	<4.4lbs (< 2kg)	

Ordering Information

Model Guide

Model	Wavelengths(nm)	Dynamic Range (dB)	Event Deadzone (m)	Attenuation Deadzone (m)
AE3100A	1310 / 1550	32/30	≤1.5	≤5.0
AE3100B	1310 / 1550	34/32	≤1.0	≤5.0
AE3100C	1310 / 1550	36/34	≤0.8	≤4.0
AE3100D	1310 / 1550	40/38	≤0.8	≤3.0
AE3100E	1310 / 1550	43/41	≤0.8	≤3.0
AE3100F	1310 / 1550	45/43	≤0.8	≤3.0
AE3100H	1310 / 1550	46/45	≤0.8	≤3.0
AE3100AP-1	1310/1550/1625	32/30/29	≤1.5	≤5.0
AE3100AP-2	1310/1550/1650	32/30/28	≤1.5	≤5.0
AE3100AP-3	1310/1550/1490	32/30/29	≤1.5	≤5.0
AE3100CP-1	1310/1550/1625	36/34/34	≤0.8	≤4.0
AE3100CP-2	1310/1550/1650	36/34/33	≤0.8	≤4.0
AE3100CP-3	1310/1550/1490	36/34/34	≤0.8	≤4.0
AE3100DP-1	1310/1550/1625	40/38/37	≤0.8	≤3.0
AE3100DP-2	1310/1550/1650	40/38/36	≤0.8	≤3.0
AE3100DP-3	1310/1550/1490	40/38/37	≤0.8	≤3.0
AE3100EP-1	1310/1550/1625	43/41/40	≤0.8	≤3.0
AE3100EP-2	1310/1550/1650	43/41/39	≤0.8	≤3.0
AE3100EP-3	1310/1550/1490	43/41/40	≤0.8	≤3.0
AE3100FP-1	1310/1550/1625	45/43/41	≤0.8	≤3.0
AE3100FP-2	1310/1550/1650	45/43/40	≤0.8	≤3.0
AE3100FP-3	1310/1550/1490	45/43/41	≤0.8	≤3.0

Model	Wavelengths(nm)	Dynamic Range (dB)	Event Deadzone (m)	Attenuation Deadzone (m)
AE3100HP-1	1310/1550/1625	46/45/41	≤0.8	≤3.0
AE3100HP-2	1310/1550/1650	46/45/40	≤0.8	≤3.0
AE3100HP-3	1310/1550/1490	46/45/41	≤0.8	≤3.0
AE3100G	1310/1490/1550 /select either 1625 or 1650	Optional	Optional	Optional
AE3100M	850/1300	25/27	≤1.5m (MM, no SM)	≤5.0m (MM; no SM)
AE3100AM	850/1300/1310/1550	25/27/32/30	≤1.5m (MM,SM)	≤5.0m (MM,SM)
AE3100BM	850/1300/1310/1550	25/27/34/32	SM:≤1.0m MM:≤1.5m	≤5.0m (MM,SM)
AE3100CM	850/1300/1310/1550	25/27/36/34	SM:≤0.8m MM:≤1.5m	SM:≤4.0m MM:≤5.0m
AE3100DM	850/1300/1310/1550	25/27/40/38	SM:≤0.8m MM:≤1.5m	SM:≤3.0m MM:≤5.0m
AE3100EM	850/1300/1310/1550	25/27/43/41	SM:≤0.8m MM:≤1.5m	SM:≤3.0m MM:≤5.0m

Standard Configuration and Accessories (included with instrument)

Description	Part No.	Order No.
Portable OTDR	AE3100	0250.3100.09
AE3100 Disk (User Manual + Toolbox)	AE3100-001	6250.0600.03
AE3100 Quick Operation Guide	AE3100-003	6250.0600.05
Calibration and Compliance Certificate	DS1001-001	6190.0600.05
AE3100 Soft Carrying Case	AE3100-018	6250.0600.21
Touch Pen	AE3100A.6.604	6250.0300.47
Cleaning Swab	AE4000-731	6290.0900.02
Kongston SD Card 32G	TC712-007	6270.0600.21
Power Adapter 12V 2A	UE24WCP-120200SPA	6250.0700.00
Visual Fault Locator (VFL, 650nm, 10mw)	AE3100-845	2250.3100.00
Optical power meter (for telecommunication) (SC/PC)	OPM-T(SC/PC)	2250.3100.24
Light Source (LS)	AE3100-703	2250.3100.12

Options

Optional Features		
Description	**Part No.**	**Order No.**
Worker	Worker	2251.3100.26
FiberPath	FiberPath	2251.3100.27
Seeker	Seeker	2251.3100.28
Integraded GPS Module	GPS	2251.3100.29
Integrated Bluetooth Module	Bluetooth	2251.3100.30
Integrated WiFi Module	WiFi	2251.3100.31
Fiberspot software	AE3100-807	2250.3100.10
Remote measurement	AE1000-820	2250.1000.22
+27~-40 dBm Optical Power Meter APC	OPM1	2251.3100.20
+10~-70 dBm Optical Power Meter APC	OPM2	2251.3100.21

+27~-40 dBm Optical Power Meter PC	OPM3	2251.3100.35
+10~-70 dBm Optical Power Meter PC	OPM4	2251.3100.36
1mW 650nm VFL	VFL10	2251.3100.22
10mW 650nm VFL	VFL11	2251.3100.23
30mW 650nm VFL	VFL12	2251.3100.24
Optional Accessories		
Fiber Microscope LKS-100U	LKS-100U	6250.0400.04
Fiber Microscope DI-1000	DI-1000	6250.0900.11
AE3100 Inspection Certificate (with Data)	AE3100-007	6250.0600.09
APC Adapter	FC-APC	1290.0000.02
SC/APC light source adapter (En He) (OTDR-SC-APC-XHJ-003)	SC/APC	6210.0400.22
SC/PC light source adapter (En He) (OTDR-SC-PC-XHJ-002)	SC/PC	6210.0400.21
ST Optical Fiber Adapter	AE4000-752	5290.0000.01
LC Optical Fiber Adapter	AE4000-751	5290.0000.03
Easy to clean FC adapter (SYA4-1009 1.1)	SYA4-1009 1.1	6260.0500.00
LC-FC adapter (LC/UPC-FC/UPC SM)	LC/UPC-FC/UPC SM	6210.0400.06
LC-FC adapter	LC-FC	6250.0500.07
LC-SC adapter	LC-SC	6250.0500.08
SC-FC adapter	SC-FC	6250.0500.09
SK110 line finder	AE919-201	2250.0919.27
Optical Fiber Cleaner	AE4000-737	6290.0900.06
Adaptor UL Plug(US)	308-0022-01-00300300122000	6190.0700.02
Adaptor UL Plug(EU)	DS2400-703	6190.0700.03
Adaptor UL Plug(AU)	DS2400-704	6190.0700.04
Adaptor UL Plug(UK)	DS2400-705	6190.0700.05

AE1000
FTTx Multi-Function Meter

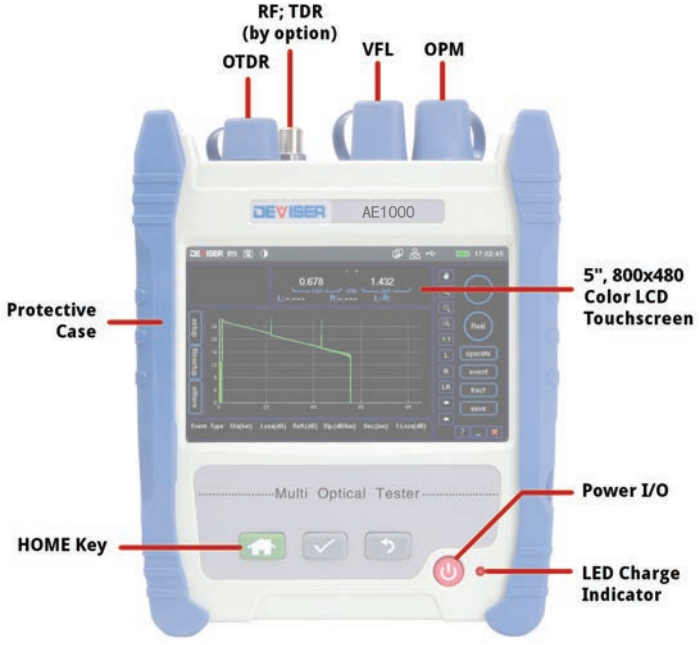
Key Benefits

- Future-proof, all-in-one solution includes optical, cable TV analysis, and metallic testing for verifying the installation of FTTx, RFoG, and RF PON networks
- Lightweight and compact design for easy mobility throughout the network
- Long battery life enables the user to test all day without stopping to charge the test equipment
- Easy learning curve with simple GUI
- FiberPath™ and Auto Test features simplify testing, reducing the need for OTDR trace interpretation
- Validate proper levels for both optical and cable TV installation, minimizing repair truck rolls and increasing customer satisfaction

Overview

As the demand for bandwidth continues to soar, with higher-than-ever smartphone and streaming video usage, cable operators must face the challenge of deploying fiber deeper into the network. And because efficiency, speed, accuracy, and reliability metrics are key for increasing workforce productivity, the natural conclusion is simple: communications service providers (CSP) require a high-performance, efficient, yet affordable test instrument for installing future networks such as FTTx, RFoG, and RF PON.

Brought to you by Deviser Instruments Inc, the AE1000 integrates cable TV analysis, metallic TDR testing and optical testing, including a fiberscope, OTDR, OPM, VFL and LS, future-proofing the investment in test equipment. The AE1000 enables faster, more efficient installations with only a single instrument, producing substantial savings to the CSP.



Key Benefits

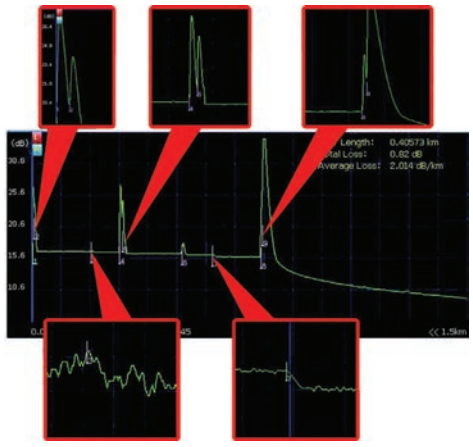
- OTDR performance specifications with up to 2 wavelengths, perfect for FTTx, RFoG, and RF PON installation
- FiberPath™ and Autotest. FiberPath™ analyzes OTDR traces to display a map of the fiber link while identifying possible faults, reducing the need for OTDR trace interpretation
- Digital QAM and analog measurements (plus constellation display) for Cable TV installation verification
- Combines optical and metallic tests: OTDR, VFL, OPM, LS, Cable TV (RF) Test, TDR, and Fiberscope
- Fiberscope integration with FiberSpot software for identifying contaminated connector endfaces
- Easy web-based back office integration

FiberPath™ (by option)

FiberPath simplifies the interpretation of OTDR traces by identifying link elements and displaying the link map in an easy-to-understand format. Experienced and inexperienced technicians alike will appreciate the streamlined display.

OTDR

The AE1000's high-performing OTDR supports up to three wavelengths and is the ideal solution for testing the fiber in RFoG and FTTx applications. The OTDR can identify and locate link impairments and measure the insertion loss by LSA, 2Pt and 4Pt methods. The unit also measures optical return loss (ORL).

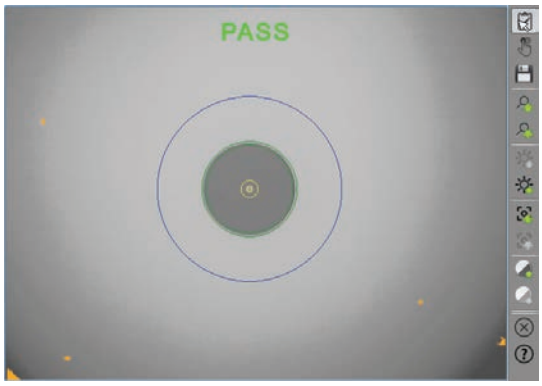


Optical Measurements

The AE1000 includes a suite of optical measurement tools, including a power meter (OPM), laser light source (OLS), and visual fault locator (VFL). The unit is available in numerous wavelength configurations for ensuring proper levels in networks such as RFoG and FTTx.

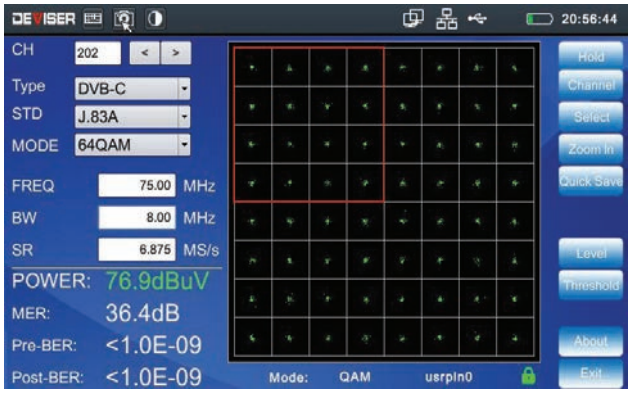
Fiber Inspection Probe (by option)

The majority of performance faults in fiber-optics are caused by contaminated connectors. Keep fiber endfaces and bulkheads free of dirt with the AE1000's built-in fiberscope application and automatic Pass/Fail analysis.



Cable TV (RF) Measurements

The cable TV measurements included in the AE1000 include MER and Pre & Post BER testing for verifying proper installation of cable TV services.



TDR Measurements

The TDR can easily identify and locate possible impairments, helping to gauge the quality of coaxial cable used in a Cable TV network.

Specifications

AE1000 Model		A	B	C	S-1625	S-1650	S-1490
OTDR - Key Parameters							
Dynamic Range* (typical)	1310nm ±20nm	≥ 29dB	≥ 33dB	≥ 36dB	-	-	-
	1550nm ±20nm	≥ 27dB	≥ 31dB	≥ 34dB	-	-	-
	1625nm ±20nm	-	-	-	≥ 35dB	-	-
	1650nm ±20nm	-	-	-	-	≥ 35dB	-
	1490nm ±20nm	-	-	-	-	-	≥ 35dB
Deadzone**	Event	≤ 2m	≤ 1.5m	≤ 0.8m			
	Attenuation	≤ 7m	≤ 6m	≤ 4m			
OTDR - Other Parameters							
Pulse Width		3ns, 5ns, 10ns, 30ns, 50ns, 100ns, 200ns, 500ns, 1µs, 2µs, 5µs, 10µs, 20µs					
Measurement Time		5 secs. to 5 mins., real-time					
Refresh Rate		4 times/sec					
Distance							
Range		100m, 400m, 1.5km, 3km, 6km, 12km, 25km, 50km, 100km, 200km					
Sampling Resolution		5cm ~ 12.8m					
Max Sampling Points		256,000					
Group Reflection Rate		1.000000~2.000000					
Uncertainty (except fiber group reflection)		± (0.75m + 0.005% × Fiber Length + Sampling Resolution)		± (0.75m + 0.001% × Fiber Length + Sampling Resolution)			
Attenuation							
Linearity		0.05 dB/dB		0.03 dB/dB			
Threshold		0.01 dB					
Resolution		0.001 dB					
Reflection Accuracy		±3 dB					

Performance (1)		Performance (2)		Performance (3)	
Measurement mode	Manual; Auto	SOR file format	Bellcore GR-196 V1.1 *.SOR, pdf	Dual-Wavelength test	✓
Threshold settings	Manual; Auto	Loss measurement	LSA, 2pt, 4pt	Trace comparison	✓
Custom limit profiles	8	Screenshot	✓	Macro Bend test	✓
Distance offset	✓	Touchscreen keyboard	✓	Real time measurements	✓
Automatic correction	✓	Web browser	✓	FiberPath™ Link Mapper	✓
Online help	✓	Auto-shutdown / sleep	✓	Language support	English, Chinese, Spanish, Portuguese, French, Russian, Italian, German, Korean, Arabic

* Conditions: 25°C ±5°C, 20µs pulse width, avg. time: 3min, SNR = 1.

** Conditions: 25°C ±5°C, 5ns pulse width, non-saturated Event, distance resolution 5cm.

Options

Optical Power Meter (OPM)			
Measurement Range	**-70 ~ +10dBm**	**-50 ~ +27dBm**	**-60 ~ +3dBm**
Accuracy	± 0.17dB	± 0.23dB	
Calibrated Wavelength	1310 / 1490 / 1550 / 1610nm		850 / 1300nm
Working Wavelength	850 ~ 1700nm		

Optical Laser Source (OLS)				
AE1000 Model	**A, B, C**	**S-1625**	**S-1650**	**S-1490**
Wavelength (nm)	1310 / 1550	1625	1650	1490
Output Power	> -11dBm	> -4dBm		
Output Frequency	CW / 1kHz / 2kHz / 1kHz + Flash / 2kHz + Flash			

TDR Module	
Interface	75Ω coaxial
Range	5m ~ 1600m
Accuracy	±1% of distance
Resolution	< 1% of distance

Digital Cable TV Module		
Frequency	Range	65MHz to 1050MHz
	Accuracy	± 50×10⁻⁶ (20°C ±5°C)
	Bandwidth	280 kHz
Analog TV	Power Level	30 ~ 120dBμV
	Accuracy	±1.5dB
	Chan. Scan	Up to 150 channels
Digital TV	Power Level	30 ~ 110dBμV
	Accuracy	± 2dB
	Symbol Rate	4 ~ 7 MS/s
	MER	39 ± 2dB (typical)
	BER	1E-3 ~ 1E-9 pre/post

Visual Fault Locator (VFL)	
Wavelength	650 ± 10nm
Output Power	≥1mW/10mW/30mW
Safety Standard	IEC 60825-1: 2007

General Specifications		
Display		5", 800x480 TFT LCD touchscreen
Interface		1x USB 2.0 port; 1GB internal hard drive; 32GB SD card
Battery		7.4V/5Ah battery, 37 Wh; ~10 hrs on full charge
Power Consumption		< 2.0 W
Power Supply	AC	100 ~ 240V, 0.5A, 50 ~ 60Hz
	DC	12V / 2A max
	Total Power	24W max
Operating Temperature		-10°C ~ +50°C
Storage Temperature		-20°C ~ +60°C
Relative Humidity		0 ~ 95%, non-condensing
Dimensions (LxWxH)		7.0" x 5.7" x 2.1" (179mm x 145mm x 54mm)
Weight		< 2.2lbs (1kg)

Ordering information

SKU No.	Wavelengths	Dynamic Range	Event Deadzone	Attenuation Deadzone
AE1000A	1310 / 1550nm	29 / 27dB	≤ 2.0m	≤ 7.0m
AE1000B	1310 / 1550nm	33 / 31dB	≤ 1.5m	≤ 6.0m
AE1000C	1310 / 1550nm	36 / 34dB	≤ 0.8m	≤ 4.0m
AE1000S-1625	1625nm	35dB	≤ 0.8m	≤ 4.0m
AE1000S-1650	1650nm	35dB	≤ 0.8m	≤ 4.0m
AE1000S-1490	1490nm	35dB	≤ 0.8m	≤ 4.0m

Standard Configuration and Accessories (included with instrument)

Description	Part No.	Order No.
Portable OTDR	AE1000	0250.3100.09
AE1000 Disk (User Manual + SYNCOR)	AE1000-001	6250.0600.38
AE1000 Quick Operation Guide	AE1000-000	6250.0600.37
Calibration and Compliance Certificate	DS1001-001	6190.0600.05
Small envelope	DS1001-005	6190.0600.09
AE1000 Soft Carrying Case	TC601-006	6270.0600.11
Touch Pen	AE3100A.6.604	6250.0300.47
Cleaning Swab	AE4000-731	6290.0900.02
Power Adapter 12V 2A	12V2A	6250.0700.03
Visual Fault Locator (VFL, 650nm, 10mw)	AE3100-845	2250.3100.00
Optical Power Meter(+10~-70 dBm, SC/PC)	OPM-T(SC/PC)	2250.1000.37
Light Source (LS)	AE3100-703	2250.3100.12

Options

Optional Features		
Description	**Part No.**	**Order No.**
Cable tester software (TDR)	AE1000-800	2250.1000.00
Digital field strength meter Software(QAM)	AE1000-801	2250.1000.01
Worker	AE1000-824	2250.1000.28
FiberPath	AE1000-803	2250.1000.03
Seeker	AE1000-828	2250.1000.32
WiFi option	AE1000-831	2250.1000.36
Fiberspot software	AE3100-807	2250.3100.10
Remote measurement	AE1000-820	2250.1000.22
+26~-50 dBm Optical Power Meter APC	OPM-C(SC/APC)	2250.1000.40
+10~-70 dBm Optical Power Meter APC	OPM-T(SC/APC)	2250.1000.38
+26~-50 dBm Optical Power Meter PC	OPM-C(SC/PC)	2250.1000.39

Optional Accessories		
Description	**Part No.**	**Order No.**
Fiber Microscope LKS-100U	LKS-100U	6250.0400.04
Fiber Microscope DI-1000	DI-1000	6250.0900.11
AE3100 Inspection Certificate (with Data)	AE1000-004	6250.0600.41
TOKO Type-F(f) to Type-F(f) adapter	SFL10-KK	6190.0500.01
BNC-F adapter	BNC/FL10-KK	6190.0501.07
APC adapter	FC-APC	1290.0000.02
SC/APC light source adapter (En He) (OTDR-SC-APC-XHJ-003)	SC/APC	6210.0400.22
SC/PC light source adapter (En He) (OTDR-SC-PC-XHJ-002)	SC/PC	6210.0400.21
ST Optical Fiber Adapter	AE4000-752	5290.0000.01
LC Optical Fiber Adapter	AE4000-751	5290.0000.03
Easy to clean FC adapter (SYA4-1009 1.1)	SYA4-1009 1.1	6260.0500.00
LC-FC adapter (LC/UPC-FC/UPC SM)	LC/UPC-FC/UPC SM	6210.0400.06
LC-FC adapter	LC-FC	6250.0500.07
LC-SC adapter	LC-SC	6250.0500.08
SC-FC adapter	SC-FC	6250.0500.09
SK110 line finder	AE919-201	2250.0919.27
Optical Fiber Cleaner	AE4000-737	6290.0900.06
Adaptor UL Plug(US)	AE1000-010	6250.0700.02
Adaptor UL Plug(EU)	EU	6250.0700.06
Adaptor UL Plug(AU)	AE1000-011	6250.0700.04
Adaptor UL Plug(UK)	BSI	6250.0700.05

AE1001
Portable OTDR

Key Benefits

- Ultra-portable, lightweight OTDR for FTTx networks
- 4.3" LCD touchscreen is visible in high- or low-light conditions
- Fast dual-wavelength test generates results in ≤5 seconds
- Excellent stability and repeatability
- Power-packed ~2-lb meter runs continuously for over 4 hours
- Save >160k OTDR traces with 16 GB of data storage

Overview

The last thing a fiber maintenance technician needs is a double armful of bulky, feature-bloated equipment to bog down the job. The new AE1001 from Deviser Instruments is a sleek, zero-fuss OTDR weighing less than 1 kg that tests the common 1310 & 1550nm wavelengths in 5s flat. Low power consumption and a solid 2500mAH battery allow the AE1001 to run automated, manual, or real-time tests continuously for over 4 hours, and are supplemented with the always-handy OPM option and VFL option.

Optical Parameters		
Test Wavelength	**1310nm ± 20nm**	**1550nm ± 20nm**
Dynamic range*	26 dB	24 dB
Event deadzone**	≤ 3m	
Attenuation deadzone**	≤ 10m	
Measurement range	150m, 300m, 500m, 1km, 2km, 5km, 10km, 20km, 40km, 80km	
Pulse width	3ns, 5ns, 10 ns, 20 ns, 50 ns, 100 ns, 200 ns, 500 ns, 1µs, 2µs, 5µs, 10µs, 20µs	
Sampling resolution	Auto / high-resolution modes	
Sampling points	Up to 12,800	
Group refractive index***	1.000000 ~ 2.000000	
Distance uncertainty	± (0.75 + 0.005% × fiber length + sample resolution)	
Linearity	0.05 dB/dB	
Loss threshold	0.001 dB	
Loss resolution	0.001 dB	
Refresh rate	10 fields/s	
Reflectance accuracy	±3 dB	
Measurement time range	5s ~ 5min, real time	
Data storage	32 GB, up to 320,000 OTDR traces	

* At 25°C ± 5°C, 20µs pulse width, 3min average time, starting backscatter value SNR = 1.
** At 25°C ± 5°C, 5ns pulse width, non-saturated reflective event, 5cm distance accuracy.
*** Without group refractive index uncertainty of fiber.

Other Test Modes		
Optical Power Meter (Option)	Calibrated λ	1310, 1550nm
	Operating λ	850, 980, 1300, 1310, 1490, 1550, 1610, 1625, 1650nm
	Power range	Select from [-70 ~ +10 dBm] or [-50 ~ +26 dBm]
	Power accuracy	±0.23 dB
Visual Fault Locator (Option)	Wavelength	650 ± 10nm
	Power	1mW
	Compliance	Laser Safety Class II
Optical port type		FC/UPC (default); APC (optional)
Optical adapter type		FC (default); FC/APC,SC/UPC,SC/APC,LC/UPC,LC/APC,ST (optional)

General Specifications		
Display		4.3" dot matrix TFT LCD touchscreen
Interface		1x USB 2.0; 1x RJ45 LAN (10M/100M/1000M, optional)
Power	Supply	100 ~ 240V, 1.5A, 50~60Hz (AC); max 12V / 2Ah (DC); total max power 24 W
	Consumption	< 3 W
Battery		7.4V / 2500 mAh Li-ion battery, 18.5 Wh
Operating Time		~ 6 hrs on full charge (4 hrs continuous testing)
Operating Temperature		-10°C ~ +50°C
Storage Temperature		-20°C ~ +60°C
Relative Humidity		0 ~ 95%, non-condensing
Dimensions (LxWxH)		7.1" x 5.7" x 2.2" (180mm x 145mm x 55mm)
Weight		< 2.2 lbs (< 1 kg)

AE919 Series
Multi Optical Tester

Key Benefits

- 5 inch touch screen and 800×480 dot array high resolution
- Compact Mini design, lighter, thinner and smaller
- Support FTTH+IP Test, IPTV, ONU Test, FiberPath
- Support FTTH+RF Test, FiberPath, QAM Test, ONU Test, TDR Test
- Various accessories are optional: PON optical power meter (PON OPM), Visual Fault Locator (VFL), Optical Power Meter (OPM), Light Source (LS)
- Complete data interfaces such as LAN, USB, and so on

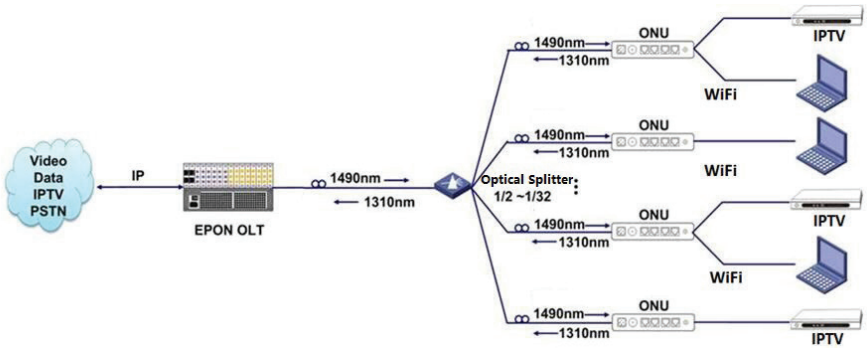
Overview

AE919 Series Multi Optical Tester is presented by Deviser Instruments Ltd. in Tianjin at the end of 2017. As a new generation optical fiber network testing instrument, it adopts some new techniques such as high-speed processors and real-time analysis and processing. AE919 Series Multi Optical Tester caters to the fiber construction, deployment and maintenance in FTTH+IP and FTTH+RF and has exceptional test performance and high cost performance. AE919 Series has many models which support ONU test, FiberPath, IPTV test, and Digital/Analog field strength test (QAM). It also supports various accessories such as OPM, VFL, PON OPM and TDR.

Applications

- Construction, deployment , and maintenance of FTTH+IP network.

IPTV Test, ONU Test, FiberPath, PON OPM, OPM, VFL



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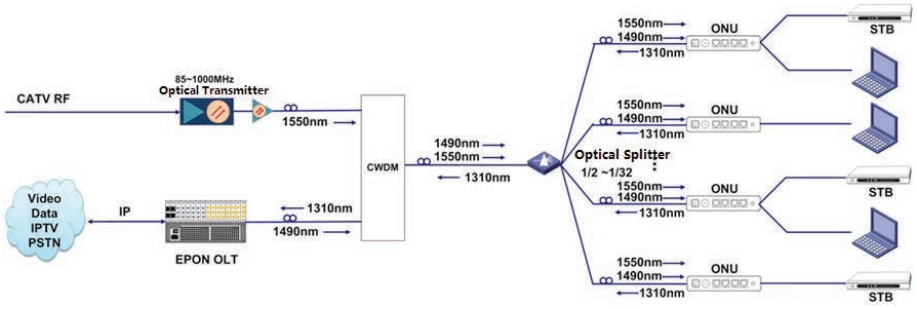


Model Definition

Configured function			FTTH+IP			FTTH+QAM		
			AE919A	AE919B	AE919C	AE919D	AE919E	AE919F
Optical Layer	1	FiberPath	□	■	■	□	■	■
	2	PON OPM	■	■	■	■	■	■
	3	VFL@650nm	■	■	■	■	■	■
	4	LS	×	□	■	×	□	■
	5	OPM	□	□	□	▲	▲	▲
	6	Seeker	×	□	■	×	□	■
Protocol Layer	7	Speed Test	■	■	■	■	■	■
	8	ONU Test	■	■	■	■	■	■
	9	IPTV Test	×	×	■	×	×	×
RF Layer	10	Digital/Analog Field Strength Test	×	×	×	■	■	■
	11	TDR	×	×	×	▲	▲	▲

Standard : ■ / Either-Or : ▲ / Optional : □ / None :×

Technical Specifications

General Parameters	
Display	5in (mm) 800×480 dot array, TFT touch screen
Interface	USB2.0 ×1, USB power supply DC5V±0.05V@500mA; RJ45×1LAN 10M/100M/1000M
Storage	32G SD card
Dimensions (L×W×H)	179mm×144.7mm×54mm
Weight	<1kg
Operating Temperature	-10℃~+50℃
Storage Temperature	-20℃~+60℃
Relative Humidity	0%-95% non-condensing

Specifications

Option——OPM			
Power Range		-70dBm~+10dBm	-50dBm~+27dBm
Calibrated Wavelength		1310/1490/1550/1610nm	
Operating Wavelength		850~1700nm	
Accuracy		±0.17dB	±0.23dB
Option——FiberPath			
Technical Parameter	Operating Wavelength	（1550±20）nm	
	Dynamic Range[c]	≥25dB	
	Event dead zone[d]	≤5m	
	Attenuation dead zone[e]	≤10m	
Other	Distance Range	30m~30km	
	Distance Unit	km, mille feet, mile	
	Connector	SC/PC SC/APC ST LC	
Option——Seeker[f]			
Operating Wavelength		1550nm	
Detectable fiber length		≤100km	
Interface		Non-contact	
Display Type		Speaker, led, and earphone	
Power		Two of No.7 alkaline batteries	
Option——Laser[f]			
Operating wavelength		1550nm	
Output Power		-11dBm	
Output Mode		CW/1kHz/2kHz/1kHz+Flash/2kHz+Flash	
Option——QAM			
Frequency Parameter	Frequency Range	65MHz-1050MHz	
	Accuracy	±50×10^{-6} (20°C±5°C)	
	Received Bandwidth	280KHz	
Analog TV Signal	Level Range	30dBμV~120dBμV	
	Accuracy	±1.5dB	
	Channel Scanning	Maximum 150 channels	
Digital TV Signal	Power Level Range	30dBμV~110dBμV	
	Accuracy	±2.0dB	
	Symbol Rate	4MS/S-7MS/S	
	Accuracy	±2dB	

Option——TDR	
Test Object	75 ohm coaxial cable
Test range	5m~1600m
Test accuracy	±1% of current test range
Resolution	Less than 1% of current test range
GSpeed	
Interface Standard	10Base-T, 100Base-TX, 1000Base-T
Framing Standard	IEEE802.3
ONU	
Available Standard	EPON, GPON
Connector Type	SC/PC
Operating Wavelength	Tx: 1310nm±50nm Rx: 1490nm±10nm
Operating Rate	EPON: Tx: 1.25Gbps Rx: 1.25Gbps GPON: Tx: 1.244Gbps Rx: 1.244/2.488Gbps
Launch Power	0.5 ~ 5dBm
Receive Power	-28 ~ -8dBm

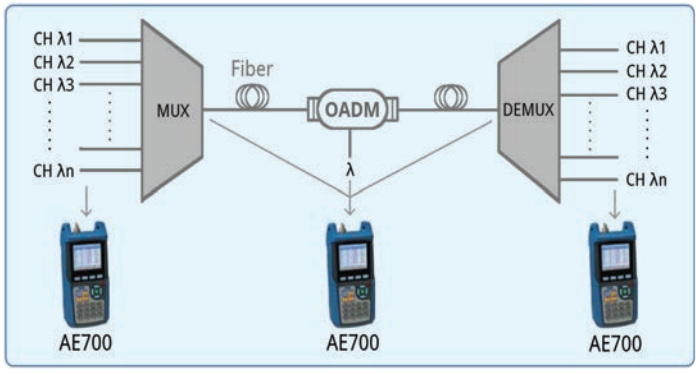
PON OPM			
Operating Wavelength	1310nm	1490nm	1550nm
Power Range	CW:10~-45dBm Burst:8~-30dBm	12~-45dBm	25~-40dBm
Insert Loss	<1.5dB		
Spectral Band (nm)	1260~1360	1480~1500	1540~1560
Power Accuracy	< 0.5 dB[a]		
Return Loss (dB)	-55[b]		
Resolution	0.1dBm dB mW μW nW		
Connector Type	FC SC/PC or SC/APC		
VFL			
Output Wavelength	650 nm±10 nm		
Output Power	≥1mW/10mW/30mW		
Measuring Range	>10km		
Safety Standard	IEC 60825 -1: 2007		

a. Without connector' s loss.
b. APC connector
c. Test Condition: 25°C ±5°C , 20μ pulsewidth,3 minutes average time, starting backscatter value SNR=1.
d. Test condition: 25°C ±5°C , 5ns pulsewidth, non-saturated-reflective event.
e. Test condition: 25°C ±5°C , 5ns pulsewidth, non-saturated-reflective event.
f. It should be ordered with FiberPath module and can not be individually selected.

AE700
DWDM Channel Analyzer

Key Benefits

- Handheld DWDM Channel Analyzer for C or L band
- Over 5 hours' continuous operation with 7.4V/2.4AH Lithium battery; FC & SC/PC Interchangeable connector
- Conduct relative power measurements and other key functions
- Store up to 400 groups of data; edit with TOOLBOX management software



The AE700 is a DWDM Channel Analyzer for the installation and maintenance of DWDM systems. This capable handheld unit measures wavelengths in the C-band (1527 ~ 1567 nm) or L-band (1570 ~ 1610 nm), with additional support for optical signal to ratio (OSNR) - essential for verifying signal quality. Measurements can be displayed in graphical and list formats.

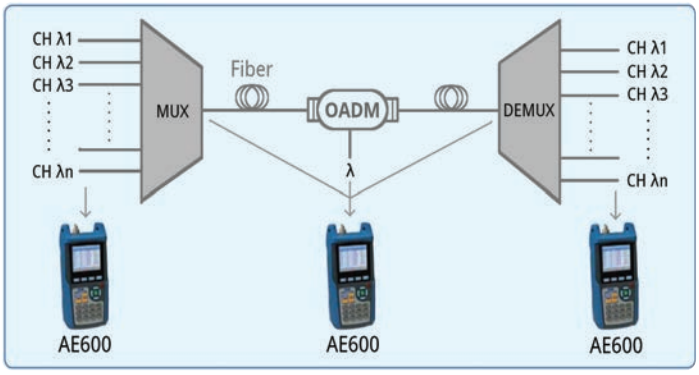
Specifications

Spectral Scanning	
Wavelength Range	1527 ~ 1567 nm (AE700A); 1570 ~ 1610 nm (AE700B)
Wavelength Resolution	< 0.3 nm
Wavelength Uncertainty	± 0.08 nm
Wavelength Repeatability	± 0.01 nm
Power Measurement	
Dynamic Range	-10 ~ -40 dBm per channel
Absolute Power Uncertainty	± 0.5 dB (CW); ± 0.7 dB (10Gbps); ± 1 dB (40/100Gbps)
Power Repeatability	± 0.2 dB (CW and <10Gbps); ± 0.5 dB (40/100Gbps)
OSNR Range	> 35 dB
General Specifications	
Measurement Time	<1.5 s
Data Storage	400 data groups
Display	3.5" 16M color LCD
Communication Interface	USB
Optical Adapter	FC & SC/PC (default); SC/ST/LC-PC/APC (optional)
AC adapter	100-240V input; 15V output
Operating Time	> 5.5 hours
Operating Temperature	-5 ~ +60°C
Storage Temperature	-20 ~ +70°C
Dimensions (L×W×D)	222mm × 108mm × 57mm (8.7" x 4.3" x 2.2")

AE600
CWDM Channel Analyzer

Key Benefits

- Analyze 18 wavelengths (ranging from 1271-1611nm) simultaneously
- All day testing with 5 hours' continuous operation
- Interchangeable connectors facilitates changing between FC/SC/LC/ST connectors
- Results can be viewed in a list or a graph format
- Store up to 1000 groups of data, then manage them with TOOLBOX management software



The AE600 CWDM Channel Analyzer is a handheld optical tester for measuring the power and wavelength of CWDM system transmissions Compared with the AE500, this analyzer can simultaneously verify up to 18 CWDM channels within wavelengths of 1271 - 1611nm Measurement data can be displayed in either graphical or list format

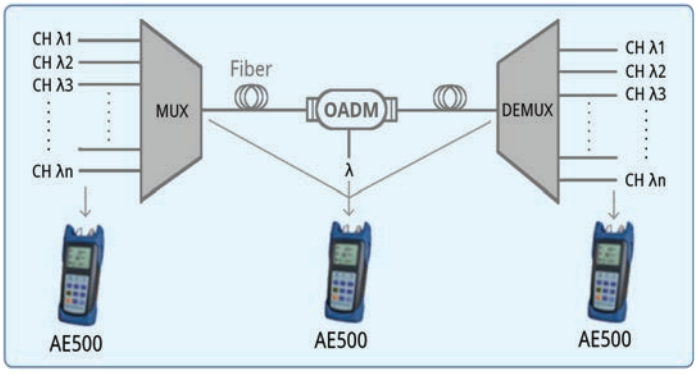
Specifications

Parameter	Index
Wavelength	1271, 1291, 1311, 1331, 1351, 1371, 1391, 1411, 1431, 1451, 1471, 1491, 1511, 1531, 1551, 1571, 1591, 1611
Channel	18
Range	-60 ~ +10dBm
Units	dBm/dB / mW
Uncertainty	± 0.5dB
Measurement Time	≤ 15s
Data Storage	1000 data groups
Interface	Mini-USB & USB
Display	3.5" color LCD
Power Supply	7.4V / 2.7AH lithium battery, 15V adapter
Operating Temperature(°C)	0 ~ 50°C
Dimensions (LxWxH)	222mm × 110mm × 62mm
Weight	320g (w/o battery)

AE500
CWDM Channel Analyzer

Key Benefits

- Analyze 8 CWDM channels simultaneously
- All day testing with field replaceable batteries
- Create test profiles for general functions such as relative power measurement
- Store up to 400 groups of data, and manage results with Toolbox management software



The AE500 is a compact CWDM channel analyzer for installing and maintaining CWDM networks. This rugged, palm-sized unit can simultaneously verify 8 CWDM channels between the wavelengths of 1271 nm and 1611 nm, simplifying and speeding up verification of CWDM power levels and wavelengths.

Specifications

Measurements		Specifications
Wavelength (nm)	AE500A	1471, 1491, 1511, 1531, 1551, 1571, 1591, 1611
	AE500B	1271, 1291, 1311, 1331, 1351, 1411, 1431, 1451
Channels		8
Range		-60 ~ +10dBm
Unit		dBm / dB / mW
Uncertainty		± 0.5dB
Measurement Time		8 sec
Data Storage		400 data groups
Interface		Miini-USB
Power Supply		15V Adapter, Li-ion 7.4 V
Operating Temperature		-10 ~ +60°C
Dimension		185mm x 85mm x 45mm (7.3" x 3.3" x 1.8")
Weight		320g (w/o Battery)

EP720 Series
Optical Multimeter

Key Benefits

- High-precision optical detectors and high-stability lasers for accurate measurement.
- Compact, rugged, light weight, portable with low-power consumption.
- High-power VFL and automatic wavelength/frequency detection.
- PC toolbox software to make the measurement easier and faster.

Overview

EP720 series optical multimeters are suitable for installation, troubleshooting and maintenance of optical fiber network, and also useful for scientific research and education of fiber optics communication. The meter adopts high-precision photodetector and high-stability laser for accurate measurement. EP720 is compact, light weighted, rugged, and portable with low power consumption. A high-power visual fault locator (VFL) is included and (PC toolbox software is available to make the measurement easier and faster.

Specification

Optical Power Meter				
Measurement Range	EP720A	EP720B	EP720C	EP720D
	-50 to +26dBm		-70 to +10dBm	
Measurement Accuracy	±0.17dB (±3%)			
Linearity	±0.07dB			
Calibrated Wavelengths	850, 980, 1300, 1310, 1490, 1550, 1610, 1625, 1650nm			
Resolution	0.01dBm, mW, μW, nW			
Wavelength / Frequency Detection	Frequency: 270Hz, 1KHz, 2KHz; Wavelength: 850, 1310, 1490, 1550, 1610nm			
Automatic Insertion Loss Accuracy	<1dB			
Connectors	FC/SC replaceable, ST/LC optional			
Light Source				
Center Wavelength	EP720A/EP720C		EP720B/EP720D	
	1310±20 nm FP Laser 1550±20nm FP Laser		1310±20 nm FP Laser 1550±20nm FP Laser 1490±3 nm DFB Laser	
Output Power	>-5dBm		>-3dBm	
Stability	± 0.04dB@20°C for 0.5 hour; ± 0.08dB@20°C for 8 hours after 15 minutes warm up			
Modulation Frequency	270Hz, 1kHz, 2kHz			
Connector	PC or APC, FC/SC replaceable, ST/LC optional			
General				
VFL	10mW			
Power Supply	AA rechargeable batteries; AC-DC 5V power adapter			
Operating Hours	Optical Power Meter>120h Light Source>40h VFL>10h (backlight and VFL off)			
Operating Temperature	Working: -10°C to +60°C Storage -20°C to +70°C			
Dimensions	<185mm x 85mm x 45mm			
Weight	<300g (without battery)			

EP330/EP320
PON Optical Power Meter

Key Benefits

- Installation, troubleshooting, and maintenance of passive networks such as EPON, GPON and BPON, as well as scientific research and education of optical fiber communication.
- High-precision photodetector for stable and reliable measurement accuracy.
- Measuring 1310/1490/1550nm spectroscopically and pass-through at the same time with burst mode to measure burst optical power of 1310nm PON upstream signal.
- Compact, light weighted, rugged and portable with low power consumption.

Overview

EP330/EP320 PON optical power meters are suitable for installation, troubleshooting and maintenance of passive optical network systems such as EPON, GPON and BPON, and also useful for scientific research and education of fiber optics communication. The meters adopt high-precision photodetector for accurate measurement. The meters perform spectroscopic and pass-through measurements on 1310nm, 1550nm and 1490nm wavelengths simultaneously, and the burst mode accurately measures the burst optical power of 1310nm PON upstream signal. EP330/EP320 are compact, light weighted, rugged, and portable with low power consumption to ensure easier and faster measurement.

Specification

Wavelength	1310		1490		1550	
Power Range (dBm)	continuous	10 to -45	12 to -45		25 to -45	
	burst	8 to -30				
Through Insertion Loss (dB)	< 1.5					
Wavelengths (nm)	1260 to 1360		1480 to 1500		1540 to 1560	
Optical Isolation (dB)	1490	>50	1310	>40	1310	>40
	1550	>50	1550	>40	1490	>40
Power Accuracy	<0.5					
Fiber Type	single mode fiber					
Connector	APCs (default) or PC FC/SC replaceable, ST/LC optional					
Optical Return Loss (dB)	-55					
Polarization Loss (dB)	< ±0.25					
Resolution	0.1 dBm dB mW μW nW					
Power Supply	AA battery and 5VDC Micro USB power adapter					
Operating Hours	>60h (backlight off)					
Display	2.5" LCD					
Threshold	12					
Data Storage	2048 records					
Operating Temperature	-10 to +60°C, humidity < 80%					
Storage Temperature	-20 to +70°C					
Dimensions	<185mm × 85mm × 45mm					
Weight	<300 g (without battery)					

EP350
10G PON Power Meter

Key Benefits

- Multiple PON technologies supported on a single unit: GPON, EPON, XG(S)-PON, and NG-PON2 etc.
- Pass-through mode for ONT/ONU verification
- USB and Bluetooth connectivity
- Access test results from your smartphone
- Pass/fail limits and data storage for easy analysis
- Compact, rugged designed for easy mobility through the network
- Visual fault locator option

Overview

Brought to you by your trusted Optical test equipment partner, Deviser Instruments Inc, The EP350 is a composite optical power meter for both legacy and next-generation PON scenarios. It is compatible with single-layer PON as well as mixing a next-generation layer on top of it. The EP350 can make single-wave & pass-through measurements for upstream and downstream signals. For upstream signal, the EP350 can also perform burst light power measurements.

With Bluetooth connectivity, the field engineer or manager can remote run tests, examine data, upload results, and more – all from your mobile device. The EP350 is ideal for end-of-line testing, activation and maintenance of all FTTx/PON networks.

Specifications

The EP350 provides a variety of options to meet your demanding requirements. Choose between single- or dual-layer PON testing and RF overlay supporting RF video.

Category	Description	Model No.	Configuration Description
Base Unit Standard Configuration	EP350 Base Unit	EP350	2.4 inch touch screen, Upstream 1310nm, Downstream 1490nm
Base Unit Wavelength Options	RF Video Option	-1550	Downstream 1550nm
	RfoG Option	-1610	Upstream 1610nm, Downstream 1550nm
TEST Options	XG/XGSPON/ 10G EPON Option	-XG/10G	Upstream 1270nm, Downstream 1578nm/1577nm
	NG-PON2 Option	-NGPON2	Upstream 1524nm-1544nm, Downstream 1596nm-1603nm
VFL Options	1mW VFL	-VFL1	650nm ± 10nm, 1mW VFL
	10mW VFL	-VFL10	650nm ± 10nm, 10mW VFL
	30mW VFL	-VFL30	650nm ± 10nm, 30mW VFL
Feature Options	Bluetooth	-BT	Intergated Bluetooth option
	RJ45 Network Port (unavailable)	-LAN	Network Port option

General Specifications	
Display	2.4 inch touch screen
Storage capacity	Up to 1000 test results
Interface(s)	1 x USB 2.0 port; 1 x RJ45 LAN(option)
Battery	7.4V/1.03Ah Li-ion battery, 7.6Wh
Operation Time	8 hours on full charge
Power Supply	DC 12V / 2A
Operating temperature	-10°C ~ +50°C (14F – 122F)
Storage temperature	-40°C ~ +70°C (-40F - 158F)
Dimensions(L × W × H)	187mm (7.36 inch) × 85mm (3.35 inch) × 45mm (1.77 inch)
Weight	< 400g (0.89 lbs) w/o battery

Optical Specifications				
		Spectral passband (nm)	Power measurement range (dBm)	Calibrated wavelength (nm)
ONT/ONU	Upstream 1270nm, burst mode	1260 to 1280	-30~+13dBm	1270
	Upstream 1310nm, burst mode	1290 to 1500		1310
	Upstream 1524-1544nm, burst mode	1524 to 1560		1534
	Upstream 1550nm, burst mode	1525 to 1620		1550
	Upstream 1610nm, burst mode	1525 to 1620		1610
OLT	Downstream 1490nm	1480 to 1500	-55~+13dBm	1490
	Downstream 1550nm	1540 to 1560	-40~+26dBm	1550
	Downstream 1577-1578nm	1570 to 1630	-50~+17dBm	1578
	Downstream 1596-1603nm			1600
	Downstream 1610nm			1610
Optical Return Loss (ORL - dB)	60			
Power Accuracy (dB)	≤± 0.25			
Pass-through insertion loss (dB)	≤1.5			
Display resolution	0.01 dBm/0.001 μW			
Measurement units	dB, dBm, mW, uw, nw, pass/fail			
Optical connectors (PON measurements)	FC/APC (optional: SC, ST and LC adapters)			

AE290/AE280/AE130 Series
Optical Power Meter

Key Benefits

- Compact, rugged, light weight, easy to carry.
- Long working hours for more than 100 hours.
- High-power VFL and automatic wavelength/frequency detection.
- Automatic shutdown and self-calibration functions.
- LCD backlight for readability at dark.

Overview

AE290/AE280/AE130 series optical power meters are suitable for installation, troubleshooting and maintenance of optical fiber network, and also useful for scientific research and education of fiber optics communication. The meters adopt high-precision photodetector for accurate measurement. AE290/AE280/AE130 are compact, light weighted, rugged, and portable with low power consumption. A high-power visual fault locator (AE280/AE290 only) is included and PC toolbox software is available to make the measurement easier and faster.

Specification

Models	AE130A / AE130B	AE90 / AE130C	AE130D	AE310E	AE310F	AE290A / AE280A	AE290B / AE280B	AE290C / AE280C	AE290D / AE280D
Measurement Accuracy	±0.23dB (±3%)	±0.17dB (±3%)							
Probe Type	InGaAs 20dB attenuation		InGaAs-φ2000um 20dB attenuation	InGaAs 0dB attenuation	InGaAs φ2000um 0dB attenuation	InGaAs-Φ300um 20dB attenuation	InGaAs-φ2000um 20dB attenuation	InGaAs-Φ300um 0dB attenuation	InGaAs φ2000um 0dB attenuation
Dynamic Range	-50dBm to +26dBm			-70dBm to +10dBm		-50dBm to +26dBm		-70dBm to +10dBm	
Calibrated Wavelengths	850, 980, 1300, 1310, 1490, 1550, 1610, 1625, 1650nm								
Resolution	0.01 dBm, mW, uW, nW								
Wavelength / Frequency Detection	Frequency: 270Hz, 1kHz, 2kHz Wavelength: 850, 1310, 1490, 1550, 1610nm								
Automatic Insertion Loss Accuracy	< ± 1dB								
Connector	FC/SC replaceable, ST/LC optional								
VFL	10mW								
Operating Temperature	-10°C to +60°C								
Operating Hours	>100 hours (backlight and VFL off)								
Dimensions	<119mm × 70mm × 29mm					<185mm × 85mm × 45mm			
Weight	<200g					<300g (without battery)			

LS210/LS220/LS320/LS330 Series
Light Source

Key Benefits

- High stability dual- or multi-wavelength single-mode laser output.
- CW or modulation mode at 270Hz, 1kHz, 2kHz.
- High output power.
- High-power VFL Automatic wavelength / frequency detection.
- Working hours for up to 30 hours.

Overview

LS210/LS220/LS320/LS330 series light source are handheld optical laser source. Among them, the LS210 series is single-wavelength light source ,the LS220/ LS320 series is dual-wavelength light source, and the LS330 series is multi-wavelength light source. They are suitable for installation, troubleshooting and maintenance of optical fiber networks, as well as for scientific research and education of fiber optics communication. The devices adopt high stability laser with high and stable output power and has the characteristics of compact, light weighted, rugged, portability and low power consumption. A high-power visual fault locator (VFL) is also included.

Specification

Models	LS210A/B/C/ D/E/F/G/H	LS220A/B/C	LS320A	LS320B	LS320C	LS320D	LS330A	LS330B	LS330C
Wavelengths (nm)	1270/1310/1490 /1550/1577/161 0/1625/1650	A:1310/1550 B:1310/1490 C:1270/1577	1310/ 1550	1310/ 1490	1270/ 1577	1610/ 1625	1310/1490/ 1550	1270/1577/ 1310/1490	1534/1600/ 1310/1490
Output Power	>-3dBm	>-5dBm					>-3dBm		
Power Stability	± 0.05dB@20°C 0.5h ± 0.1dB@20°C 8h (after 15-minute warmup)								
Modulation Frequency	270Hz, 1kHz, 2kHz								
Connector	PC or APC, FC/SC replaceable, ST/LC optional								
Fiber Type	SM								
VFL	——	——	10mW				30mW		
Battery	2AAA rechargeable batteries					3AAA rechargeable batteries			
Operating Temperature	Working: -10°C to +60°C Storage -20°C to +70°C								
Operating Hours	>30h (laser on, backlight off)								
Dimensions	119mmx70mmx29mm		<185mm x 85mm x 45mm						
Weight	<200g		<300g (without batteries)						

OA60
Variable Attenuator

Key Benefits

- Installation and maintenance of optical networks, including CATV & FTTx
- 60dB attenuation dynamic range; 0.01dB resolution
- Useful for R&D; training; and for calibrating test instruments
- Up to 80 hours' working time with included batteries
- LCD backlight for low-light test environments

Overview

The OA60 Variable Attenuator is a handheld, high-performance optical attenuator. This user-friendly tool is designed for portability and power efficiency, and assists the deployment and maintenance of optical communication systems with excellent accuracy and linearity.

The OA60 features an updated chassis with improved power efficiency and performance for cost.

Specifications

OA60	
Calibrated Wavelength	1310nm / 1550nm / custom
Attenuation Range	0 ~ 60dB
Intrinisic Attenuation	< 2dB
Resolution	0.01dB
Repeatability	< ± 0.1dB
Linearity	< ± 0.15dB @ 0 ~ 50dB
ORL	> 45dB (APC)
Fiber Type	9/125 µm, single-mode
Connectors	FC/ PC (default); APC, SC/ST/LC (optional)
Max. Input Power	20dBm
Power	2x AA rechargeable batteries, included
Battery Life	> 80 hrs (backlight off)
Operation Temperature	-10 ~ +60°C
Storage Temperature	-20 ~ +70°C
Dimensions (LxWxH)	7.3" x 3.3" x 1.8" (185mm x 85mm x 45mm)
Weight	10.6oz (< 300g) (w/o battery)

TC722
All-in-One 10G Transport Tester

Key Benefits

- 7" LCD touchscreen; professional, efficient UI experience
- Two 10Gbps SFP+ ports, two 10/100/1000Mbps RJ45 ports
- Dual ports can test different setups independently
- Complies with RFC 2544 standard Throughput, Latency, Frame Loss and Back-to-Back benchmarking
- Complies with ITU-T Y.1564 Service Activation Methodology (SAM) up to 10 independent streams
- Supports 3 VLAN tags (QinQ), 3 MPLS encapsulation labels, IPv6 protocol, runt and jumbo frame configuration
- Supports Terminal and Transparent Transmission test models
- Supports OTN, OTU-1, OTU-1e, OTU-1f, OTU-2, OTU-2e, OTU-2f test
- Supports SDH, STM-1, STM-4, STM-16, STM-64
- Supports external synchronize clock input
- Supports optical power measurement
- Supports remote control
- Supports packet filtering and capturing

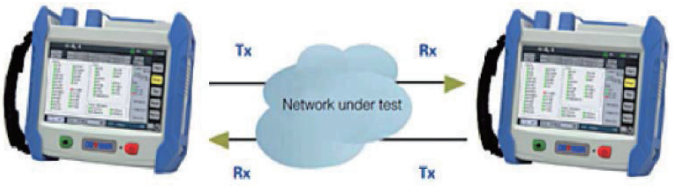
Product Overview

The TC722 is an all-in-one Transport Layer Tester released by Deviser to support full protocol testing at rates up to 10Gbps. The TC722 provides expert analysis for next-generation high-speed Metro and Carrier Transport networks, validating performance and connectivity while cutting OPEX and CAPEX. It is an efficient testing tool for service providers to satisfy client service level agreements (SLAs).

The TC722 is ideal for any transport testing task. It is fully equipped for Ethernet performance assessment; Metro Ethernet/SONET/SDH, and Mobile Backhaul installation, activation, or maintenance; point-to-point Ethernet access deployment; online troubleshooting for real-time information flow; and more. The tester supports multiple communication protocols to meet different testing requirements, including E1/T1（Option）, SDH/SONET（Option）, and OTN（Option).

Application Note

- Network engineering site installation and activation test
- Service providers can evaluate data transmission network performance with complete end-to-end testing
- PTN/IPRAN network configuring and performance testing
- Local, Metro Ethernet construction, deployment and maintenance
- Communication Teaching and Research

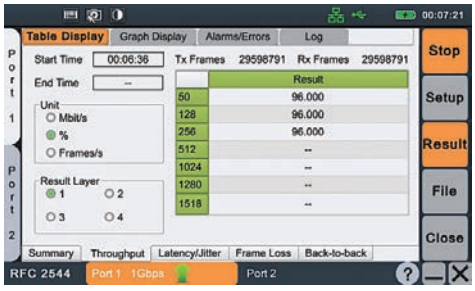


Common functions and operations:

The TC722 supports independent dual-port testing, allowing each port to conduct its own measurement. Functions include Ethernet RFC 2544, Y.1564, traffic generation and monitoring, BERT, loopback, pass through mode, SDH BER, RTD, APS, insert/discard specified tributary test, OTN BER, RTD, and APS main test functions - as well as ping, traceroute, HTTP, FTP, and other auxiliary test functions.

Ethernet RFC 2544 measurement:

The RFC 2544 measurement function offers two modes: remote loopback and dual-sites. Use dual-sites mode to easily perform point-to-point symmetric and asymmetrical tests. The RFC 2544 application's test frame structure supports VLAN/QinQ/MPLS labels, and the maximum test rate can be matched to the line rate. For throughput measurements, users can freely define frame lengths once testing achieves up to eight different frame lengths.



RFC 2544 throughput measurement results

Ethernet BERT measurement:

The BERT measurement allows encapsulation testing on up to 4 layers. It supports VLAN/QinQ/MPLS label frame structures, eight PRBS (or user-defined) pattern bit error rate tests, and service interruption time tests. Encapsulate any test pattern into Ethernet frames in order to verify point-to-point characteristics on an Ethernet network, and insert bit errors or FCS errors during BERT testing in real-time. The BERT function also includes reverse-pattern settings.

Ethernet BERT results. Click "Insert" to insert a specified number of bit/FCS errors.

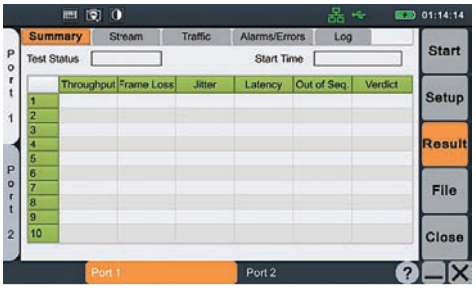
Ethernet Y.1564 measurement

Test network service configurations and performance in accordance with ITU-T Y.1564 standards, easily verifying the network's achievement of SLA. The TC722 supports 10 traffic channels, which can be independently configured with different IP addresses, VLAN tags, MPLS labels, frame size, bandwidth, and more. It can also detect 0-CIR \ CIR-EIR \ overshot bandwidth, frame delay, frame jitter, frame loss rate, and frame out-of-order.

Ethernet traffic generation and monitoring function

With up to 10 independently configurable traffic channels, each channel can have its own MAC address, IP address, frame length, and header format. Traffic can be generated in multiple ways: constant speed, sudden mode, ladder mode, or incremental mode. The TC722 can simulate multi-service test environment for triple play test scenarios.

Intelligently discover and connect to devices, then remotely trigger a loopback state or verify QoS point-to-point performance. Also included with this application is a packet test, returning accurate readings on CRC error frames, jabber frames, runt frame signal loss alarm, optical power measurement, unicast frames, multicast frames, broadcast frames, pause frames, frame delay, frame jitter, frame loss, frames of different length range, and symbol error.



Ethernet traffic generation measurement screen

Ethernet Loopback

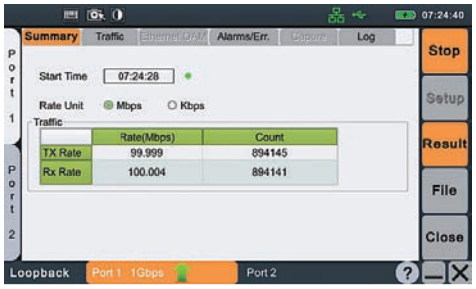
Up to 4 layers Smart Loopback function. This mode is divided into Transparent loopback: all traffic is looped back;

L2 loopback:
All traffic is looped back after switching MAC address

L2 Full unicast loopback:
All unicast traffic is looped back after switching MAC address

L3 loopback:
All traffic is looped back after switching MAC address and IP address

L4 loopback:
All traffic is looped back after switching MAC address, the IP address and Port.



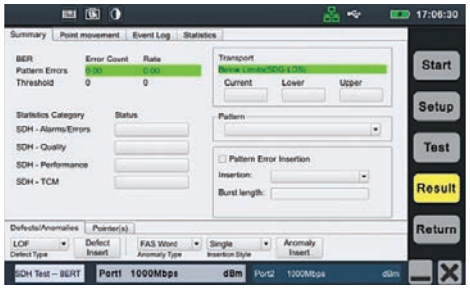
Ethernet Loopback measurement screen

Ethernet Pass Through Function

When the passthrough function is activated, the dual ports exchange data packets - those received by Port 1 are transmitted from Port 2, and vice versa - while the TC722 records send/receive and transmission rate readings. This function aids online troubleshooting of live traffic among customers, service providers, and carriers.

SDH BERT Measurement

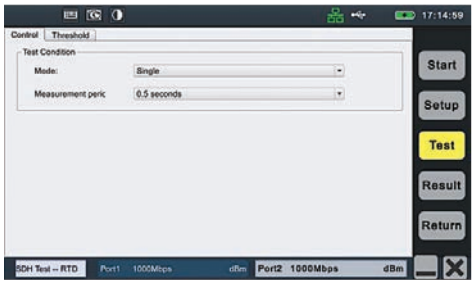
Designate either PRBS or fixed-sequence patterns as the payload. This tool supports c-12, c-3, c-4 to vc-4 multiplexing cascade, as well as four different rates: STM-1, STM-4, STM-16, and STM-64. Users can simulate real channels to complete basic error and alarm insertion, using the TC722 as the receiver to detect channel error.



SDH BERT measurement screen

SDH APS/OTN APS Measurement

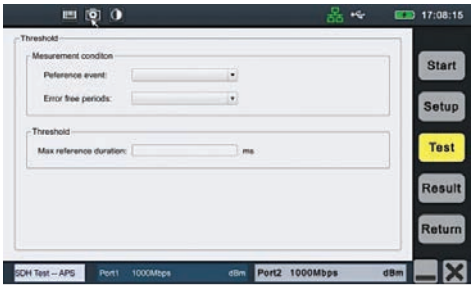
The RTD test determines the network's Round Trip Delay and QoS information.



SDH RTD measurement screen

SDH APS/OTN APS Measurement

Directly test the device-switching function under various switching conditions, and conduct accurate measurements of the SDH/OTN network automatic protection switching (APS) and service disruption time. The TC722 can simulate a real device to record and monitor K1, K2 bytes in an ITU-T G.783 linear network in real time.



SDH APS measurement screen

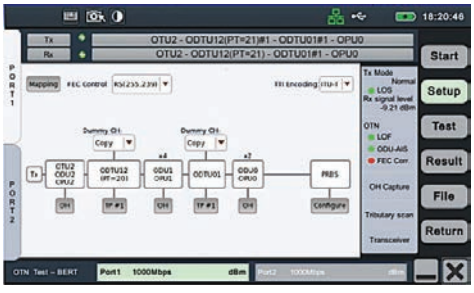
SDH Insert/Discard Tributary Measurement

Inserts or discards the specified tributary. Also supports various error insertion operations: single, BER, Burst, alternating, continuous, and frame.

SDH insert / discard specified tributary measurement screen

OTN BERT Measurement

Measure BER and FEC performance, and analyze OTU-1, OTU-2, OTU-1E, OTU-2E, OTU-1F, OTU-2F optical signals in accordance with ITU-T G.709. The instrument supports a variety of in-service and out-of-service tests, and can do single-error, error rate, alternating, continuous, or random error insertion.



OTN BERT measurement screen

Specifications

Function		
Ethernet Measurement	RFC 2544	Throughput, Delay, Packet Delay Variation, Frame Loss, Back to Back
	Y.1564	Service configuration testing, service performance testing, supports up to 10 different traffic
	BERT	Support L1-L4 BERT support, insert error, frame error, PRBS, user-defined patterns
	Traffic generation and monitor	Supports up to 10 different traffic QoS and BER testing
	Smart Loopback	L2-L4
	Pass Through mode	Support
	Delay measurement	Round Trip Delay
	SyncE	Support BITS, Ethernet line clock, internal high-stability clock source
	VLAN	3 layers VLAN (QinQ)
	MPLS	3 layers MPLS
	IPv6	Support
SDH measurement（Optional）	BERT	Insert errors, detect error
	RTD	Get network round trip delay and network QoS information
	APS	Automatic protection switching time and service interruption time test
	Insert/discard specified tributary test	Insert the specified tributary, discard the specified tributary.
OTN measurement（Optional）	BERT	Insert errors, detect error
	RTD	Get network round trip delay and network QoS information
	APS	Automatic protection switching time and service interruption time test
Online help	Support	
Recovery factory settings	Support	
Name file in Chinese	Support	
File format	PDF, CSV	
Configure file	Save personalized configure file, can import and export	
Screen shot function	Support	
Touch-screen soft keyboard input	Support	
Browser	Support	
Auto shutdown / sleep	Support	
Language	English, Chinese	
General		
Display	7" 800 × 480 dot-matrix TFT touchscreen	
Interface	USB2.0 × 2, USB power supply DC5V±0.05V@500mA	
	LAN RJ-45 x 1	
	MicroSD × 1, up to 32GB	
Storage	Internal 8GB Flash memory	
	External support U disk storage	
Battery	7.4V 5300mAh Battery, 39.22Wh Maximum 4 hours operating time	
Supported Rates	10Base-T, 100Base-Tx, 1000Base-T, 1000Base-SX, 1000Base-LX, 1000Base-ZX, 10GBase-SR/SW, 10GBase-LR/LW, 10GBase-ER/EW	
Supported Standards	IEEE802.3, RFC 2544, RFC 3393, Y.1564, G.707, G.709	
Supported Clock References	Internal high stability clock source, Ethernet line recovery clock, external clock (2.048Mbps, 1.544Mbps, 2.048MHz)	
Total Power Consumption	<12W	
Power Supply — AC parameters	100-240V 600mA 50~60Hz	
Power Supply — DC parameters	12V 5A maximum	
Power Supply — Total power	60W maximum	
Mechanical and Environmental		
Dimensions (length × width × height)	206 mm x 171 mm x 75mm, (8.11" x 6.73" x 2.95")	
Weight	1.5kg (3.3 lbs)	
Operating Temperature Range	-10˚C~+50˚C	
Storage Temperature range	-20˚C~+70˚C	
Relative Humidity	0%-95% Non-condensing	
Battery Life	Over 3 hours	
Battery Charge Time	5 hours for full charge	

TC60x Series
Ethernet Service Testers

Key Benefits

- Complete solution for activating, verifying & fault-diagnosing Ethernet service from 10Mbit/s to 1Gbit/s quickly and easily
- 5" (800x480) color LCD touchscreen
- Dual or single 1000Base-X SFP ports; perform two measurements simultaneously*
- Dual or single 10/100/1000 RJ45 ports
- Convenient and intuitive user interface
- Integrates multiple software tools for field measurement, ensuring high cost-performance
- PDF and CSV data report generation
- Rechargeable lithium battery powers continuous use for over 3.5 hours (4 hours idle)

Main Functions

Ethernet Features:

- Supports two 10/100/1000Base-T electrical interface and two 1000Base-X optical interface
- Synchronous Ethernet (SyncE) measurement
- RFC 2544: Throughput, Latency, Packet Delay Variation, Frame Loss, and Back-to-Back (symmetrical and asymmetric results)
- Ethernet BERT: Layer 1 to Layer 4
- Y.1564: Service configuration & performance measurement
- Stream traffic generation & analysis: up to 10 streams simultaneously
- Smart Loopback for Layer 1 to Layer 4
- VLAN (Q-in-Q) support
- MPLS support
- Packet Delay Variation measurement
- Cable Diagnostics and Optical Power testing
- IPv6 support
- Ping, Trace Route
- CSV and PDF result files

E1 Features:

- 2.048 Mbit/s transmit and receive
- ITU-T G.821, G.826, and M.2100
- LOS, LOF, and AIS warring measurement
- 75Ω unbalanced and 120Ω balanced support
- Error injection / alarm generation

Model & Option Guide

Model	Main Function
TC601+	Single Port 1G Ethernet Tester
TC602/TC603	Dual Port 1G Ethernet Tester
TC602RE/ TC603RE	Dual Port 1G Ethernet Tester with SyncE and E1 Tests

Model	1GE RJ45	1GE SFP	Ext. Clk	E1
TC601+	Single	Single	x	x
TC602/TC603	Dual	Dual	x	x
TC602RE/ TC603RE	Dual	Dual	√	√

Product Overview

From Deviser Instruments, the TC60x Series of handheld Ethernet service testers supports testing for speeds up to 1Gbps. The TC602RE/TC603RE adds a suite of E1, SyncE, testing functions for even wider utility. It's the next generation of telecommunication systems analysis, serving the growing need for high-speed metropolitan access and and wireless backhaul at unmatched cost performance.

Major Applications

TC60x Series instruments excel at all Ethernet measurement applications, including performance evaluation; metro Ethernet installation, activation, & maintenance; point-to-point Ethernet joining-up service planning; real-time online fault diagnosis; wireless backhaul service verification; and more.

* On select models only.

RFC 2544

The RFC 2544 test mode supports remote loopback and point-to-point symmetrical / asymmetrical testing, as well as VLAN/Q-in-Q/MPLS demarcation. Test results appear in a complete, easy-to-read tab-based report, organized into throughput, latency/delay, frame loss, and back-to-back readings. Users can implement up to 8 custom frame lengths in one test.

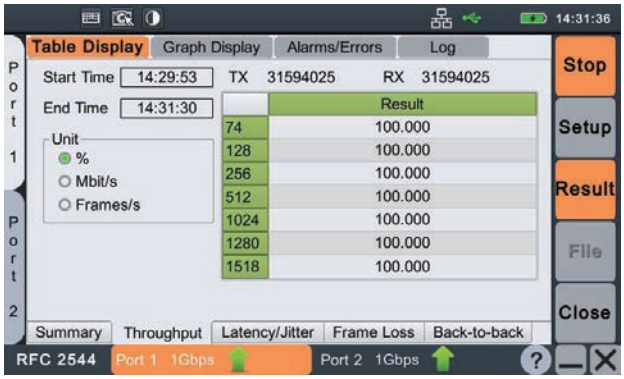


Figure 1: RFC 2544 Throughput Data

BERT

The TC60x Series' Bit Error Rate mode supports VLAN/Q-in-Q/MPLS (by option only) frame structure demarcation, custom (or 8 PRBS) code pattern testing, and service disruption time tests - all for up to 4 layers. Users can verify Ethernet point-to-point characteristics, or insert error bits / FCS error at any point during the BER measurement.

Figure 2: BERT Results

Y.1564

Measure network service configuration and performance, and verify whether the design conforms to the promissory SLA. This mode supports 10 customizable service streams and random frame size packages. Each stream can employ a different IP address, VLAN tag, MPLS tag, frame length, bandwidth, and other parameters. Additional test include CIR\CIR-EIR\BW overshoot, frame delay, frame jitter, and frame loss ratio.

Figure 3: Y.1564 Results

Flow Generation

The TC60x Series can generate up to 10 streams simultaneously, with different MAC/IP addresses, frame lengths, and headers. The instrument supports constant, burst, ramp, and increasing frame generation, simulating test environments for triple-play installations. In addition, it can discover remote devices and establish intelligent automatic loopback connections - perfect for point-to-point QoS performance verification.

Figure 4: Flow Generation

Loopback

The TC60x Series offers test modes supporting intelligent loopback up to Layer 4, including transparent (all data streams are looped back), Layer 2, 3, 4, and all-unicast.

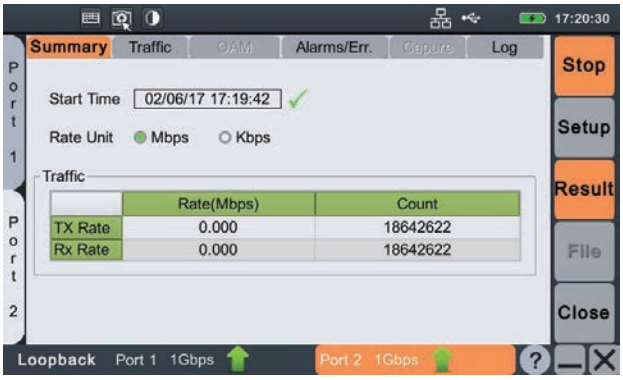


Figure 4: Loopback

Through

The passthrough test mode assists online fault diagnosis of real-time information streams between the operator's network and the service provider / customer network.

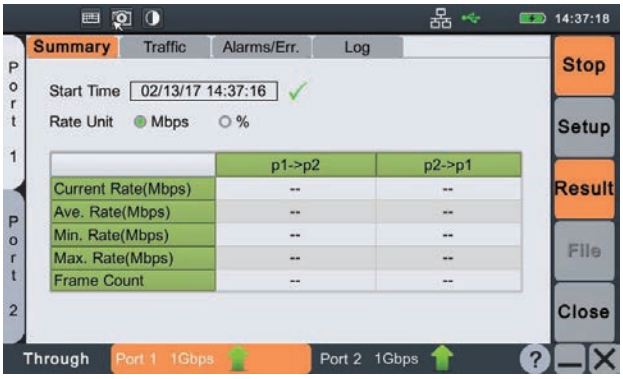


Figure 5: Passthrough

Additional Tools

To support your test and measurement goals, TC60x Series models offer a Web browser, ping and traceroute tools, a robust file management utility, and more.

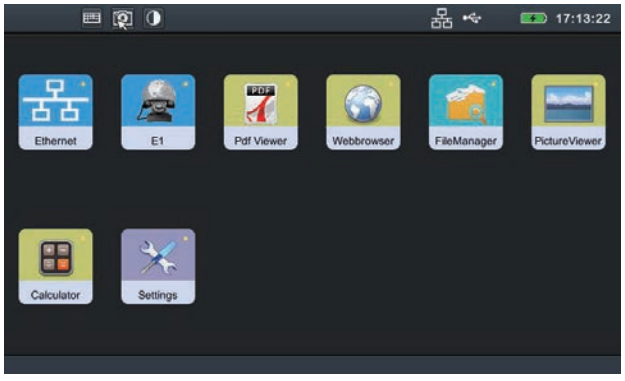


Figure 6: TC602RE Main menu

Specifications

Optical Port			
Available Wavelength	850nm, 1310nm & 1550nm (see below)		
	1000Base-SX	1000Base-LX	1000Base-ZX
Wavelength	850nm	1310nm	1550nm
Tx Level	-9 ~ -3dBm	-9 ~ -3dBm	0 ~ +5dBm
Rx Level Sensitivity	-20dBm	-22dBm	-22dBm
Transmission Distance	550m	10Km	80Km
Transmission Bit Rate	1.25 Gbit/s		
Receiving Bit Rate (Gbit/s)	1.25 Gbit/s		
Tx Working Wavelength Range	830 ~ 860nm	1270 ~ 1360nm	1540 ~ 1570nm
Test Accuracy			
Frequency	±4.6 ppm		
Optical Power (dB)	±2dB		
Jitter Compliance	IEEE802.3		
Ethernet Type	IEEE802.3		
Connector	LC		
Transceiver Type	SFP		
Electrical Port			
Auto/manually detecting straight-through/cross cable			
	10Base-T	100Base-TX	1000Base-T
Tx Bit Rate	10 Mbit/s	100 Mbit/s	1 Gbit/s
Rx Bit Rate	10 Mbit/s	100 Mbit/s	1 Gbit/s
Tx Test Accuracy	±4.6 ppm		
Rx Test Accuracy	±4.6 ppm		
Duplex Mode	Full duplex		
Jitter Compliance	IEEE802.3		
Connector	RJ-45		
Max. Distance	100m		
E1 Port (TC602RE/TC603RE only)			
75 Ω unbalanced BNC × 2; 120 Ω balanced RJ48 × 1			
Line Rate and Code	2.048 Mbps, HDB3 and AMI		
Compliance	ITU-T G.703		
General			
Dimensions (LxWxH)	179mm x 145mm x 56mm (7.0" x 5.7" x 2.2")		
Display	5" 800x480 color LCD touchscreen		
Weight (with battery)	0.8kg (1.8lbs)		
Working Temperature	-10ºC ~ 50ºC		
Storage Temperature	-20ºC ~70ºC		
Relative Humidity	0% to 95% (non-condensing)		
External Port	USB, LAN RJ-45		
Working Time	~7 hours (TC601+); ~5 hours (TC602/TC603); ~3.5 hours (TC602RE/TC603RE)		
Charging Time	5 hours from fully discharged to fully charged		
Language	English, Chinese		

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