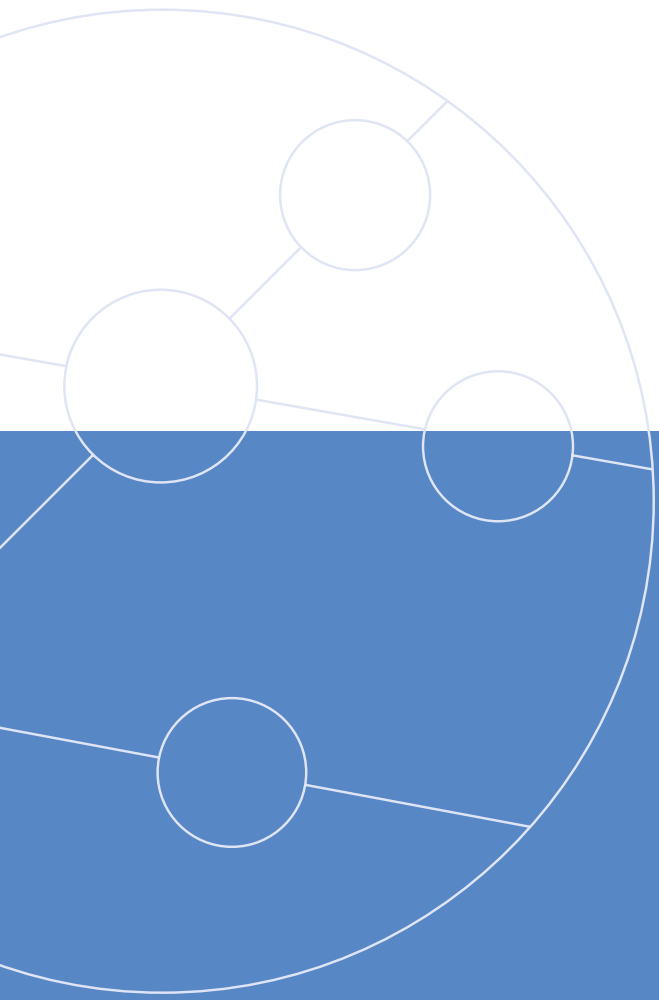


Victoria Combo STM-N/OC-M



New Dedicated Models



SDH and SONET

Tailored Test Solution for NGN



TrendCommunications

Designed for the User

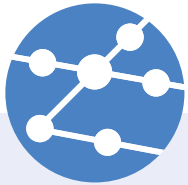
New Additions to the Family



There are new additions to the Victoria Combo family of testers. Besides the original, modular, stackable tester, there are now four new dedicated testers for STM-16, OC-48, STM-64 and OC-192 networks.

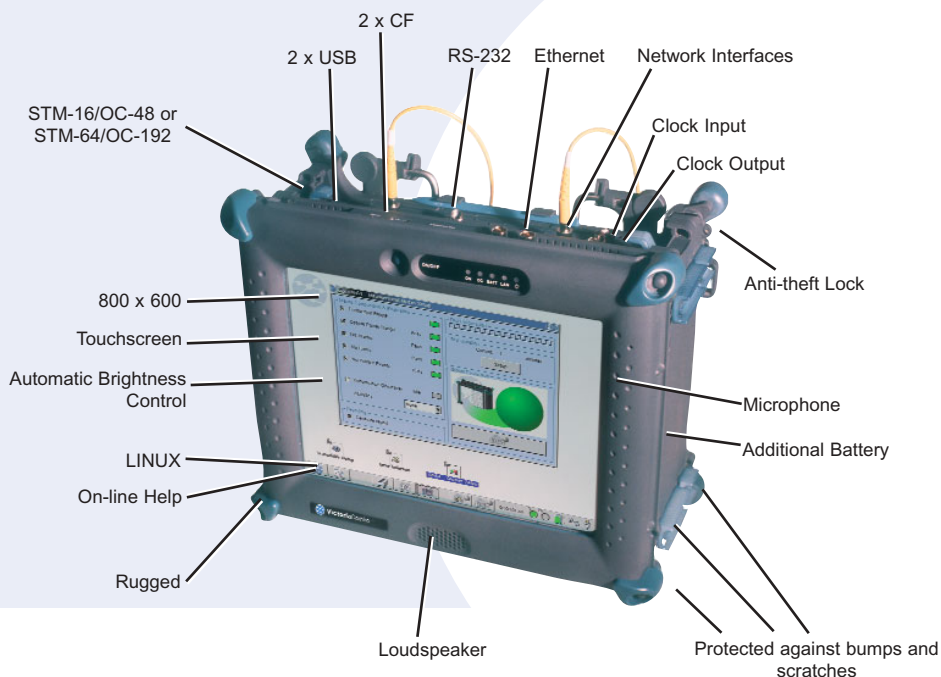
The new testers have the same power and sophistication as the original Victoria Combo, but they run one single module at a time. If you currently need one module only, however later perhaps wish to have a modular tester, Victoria Combo is the best and the most cost-effective solution for you.

The Victoria Combo family fully adapts to your future testing needs; just by a simple software upgrade you can easily convert your dedicated tester into the modular Victoria Combo and test other interfaces as well.



VictoriaCombo

One Tester, Multiple Users

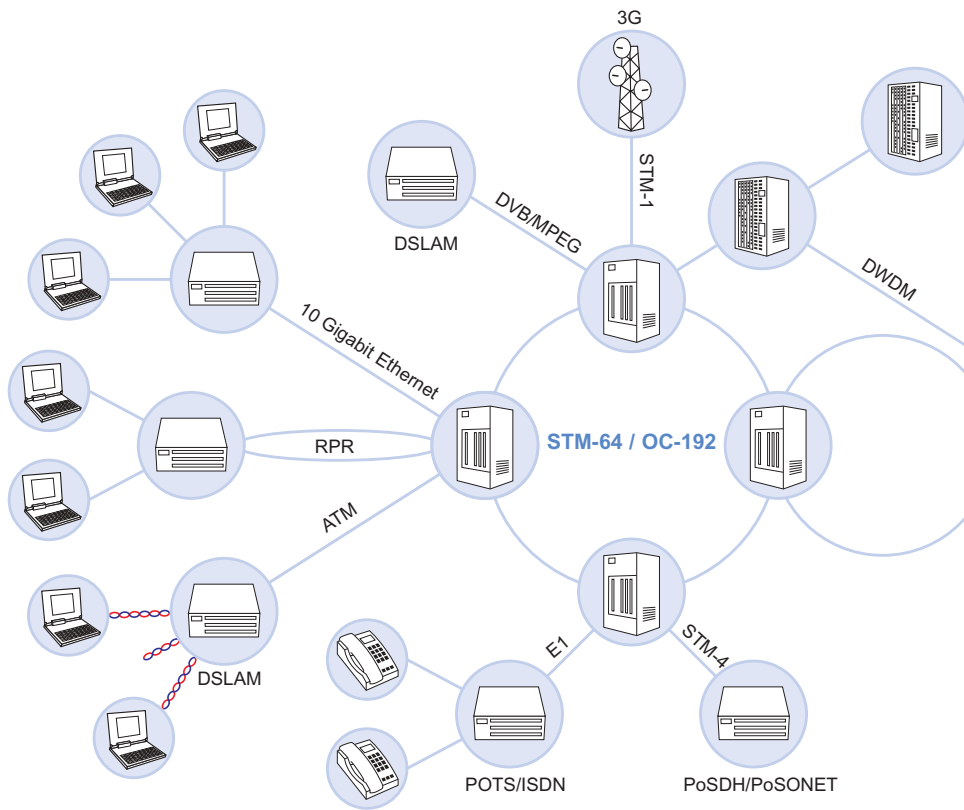


- Universal tester for SDH, SONET, PDH and T-Carrier
- Dedicated, powerful testers for up to STM-16/OC-48 or STM-64/OC-192
- Battery and mains operated
- With TCP/IP connectivity you can control Victoria Combo from anywhere, via any network
- Multi-Task and Multi-User
- Ethernet, TCP/IP, Wireless and RS-232 connectivity
- All you need for installation, bringing-into-service and maintenance

More Information: Technical details available at www.trendtest.com, including datasheets, presentations, application notes, press releases and more.

The NGN Challenge

All the Best Features in One Single Tester



New Generation

New technologies, deregulatory policies and the appearance of Next Generation Networks (NGN) have redefined the telecoms business. The Internet and the technologies associated with it have modified network architectures by giving rise to circuit and packet convergence. Today, TCP/IP, 10 Gigabit Ethernet, ATM, SDH, SONET and DWDM are mixed in NGN nodes that integrate access, routing, multiplexing and switching to create flexible networks.

Deregulation

This new and innovative generation of nodes as such does not guarantee perfect operation, nor profitability. Deregulation policies and the emergence of new operators have reduced margins and improved the quality of SLA. Network operators today must reduce operational costs while constantly improving the profitability of their networks, to maintain the existing customers and attract new clients.

Victoria Combo STM-N/OC-M

Trend's response to the growing need for a solution to meet these challenges is Victoria Combo STM-n/OC-m, a dedicated tester that is both sophisticated and easy to manage. It can be used as a hand-held field tester or a desktop equipment, or even as a probe easy to integrate into a remote control platform.

"Now more than ever our customers need to make their networks more profitable and follow the SLA without any extra costs."

The Next Generation Network is built using multi-technology SDH/SONET nodes.



Field Use



Portable



Remote Test

Victoria Combo can be used in many ways

Install, Maintain, Monitor

- the World is Yours

A Test and Measurement solution must be easy to use and efficient, to speed up the development of new networks while reducing operational costs.



Victoria Combo heralds the arrival of a new concept for Test and Measurement solutions.

Steady and Reliable

Trend Communications has chosen LINUX as the operating system of Victoria Combo, which has shown itself to be a really reliable system.

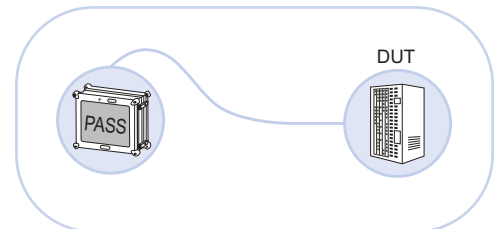
This way we can guarantee you years of continuous operation, essential for remote control platforms and for long-term measurements. With LINUX, your tester is also better protected against virus.

Operating Modes

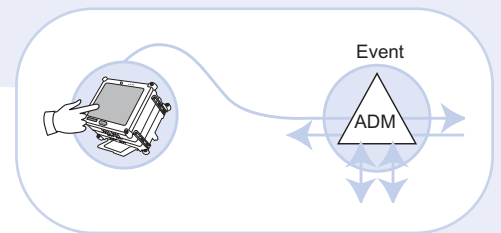
You can interact with Victoria Combo in the way most appropriate to your needs. In Local or Remote Mode, by touchscreen, keyboard or mouse. Whichever way you choose, you will either be running automatic Pass/Fail tests or detailed specialist analysis in Expert mode.

Multiple Users

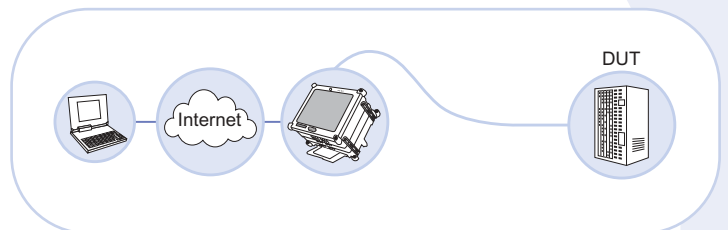
Combo is a tester that can run both simultaneous and separate tests. It is also a multi-user instrument, offering fast and flexible test and measurement access to many technicians at a time.



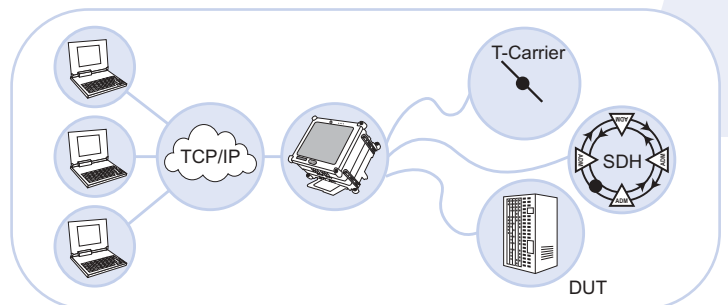
Automatic Tests



Expert Mode



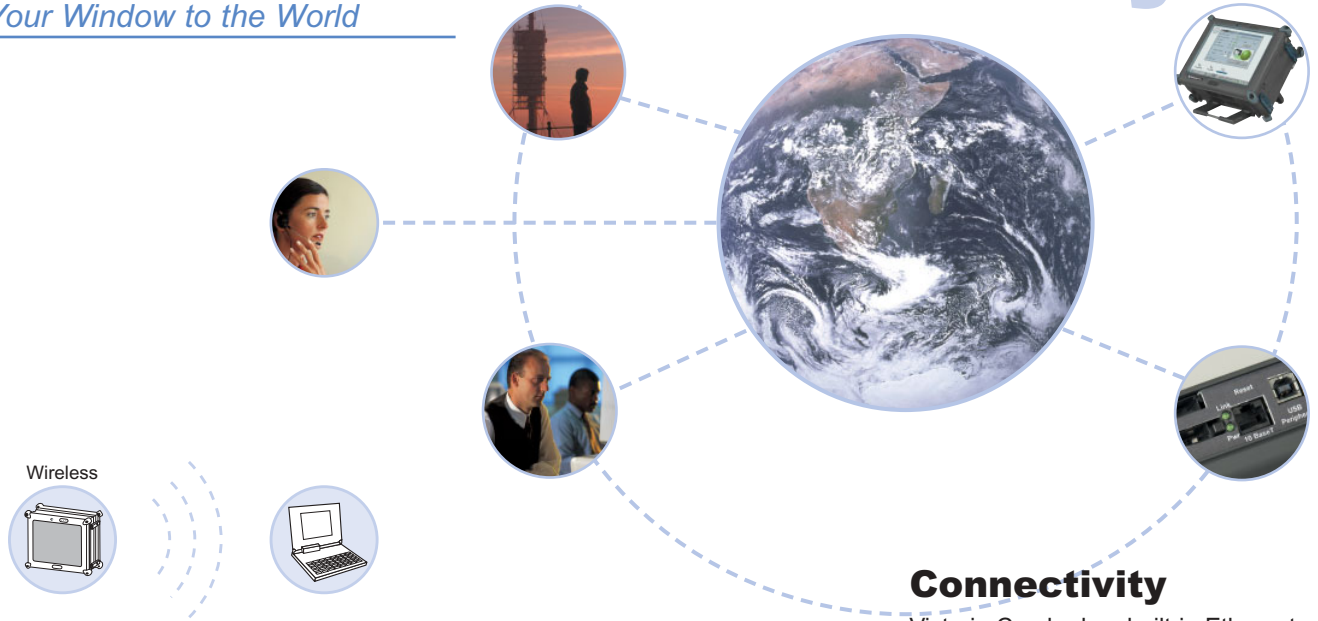
Remote Tests



Multi-User

Universal Connectivity

- Your Window to the World



Connectivity

Victoria Combo has built-in Ethernet, USB and RS-232C connectors. The two CF slots extend the possibilities for wireless links and removable memory modules, making your work as mobile and independent as possible.

Web Browser

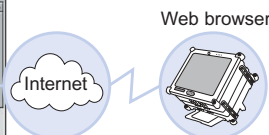
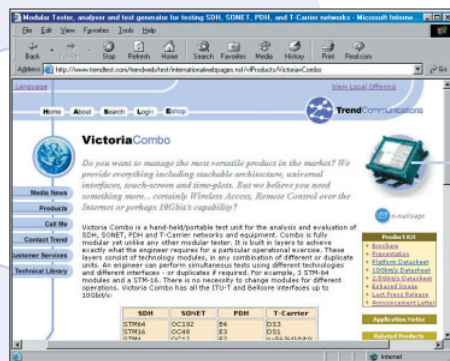
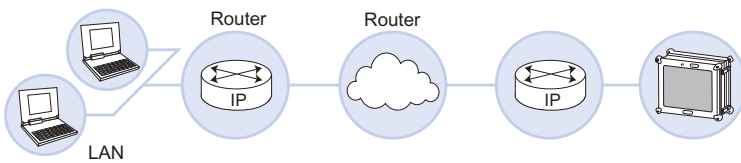
The built-in browser of Victoria Combo enables you to transfer results, screenshots or configuration files from Victoria Combo onto your computer. It also provides you with on-screen help, and you can use it to connect to the Trend web site for free software updates and the latest user information.

Sleep Mode

You can switch Victoria Combo into power save mode any time, and quickly set it back into action when you wish to continue testing.

This feature has many advantages. You save the battery when you are not working with the tester. You also save time, as you can get back to work without needing to restart the tester.

When the tester is reactivated, it automatically returns to the state it was left when entering Sleep mode. Needless to say all your test results were automatically saved, so you can truly go back to where you left off.



www.trendtest.com

Full Functionality

Trend's Big Band



- Removable optical connectors
- One single connector for all electrical interfaces
- Optical Receiver shutdown
- ITU-T-compliant line attenuation compensation
- Combined SDH/SONET tests
- Unambiguous Pass/Fail screen
- Built-in Stratum 3 clock
- Reference Clock Output
- Fast-charge batteries
- Multiple reference clock inputs

Auto-Setup

This function detects the signal structure, coding and mapping automatically.

Event Scan

The FastScan is a function that examines the signal and detects alarms and errors in synchronous tributaries.

Removable Optical Connectors

Victoria Combo is equipped with first-class optical connectors that are easy to remove or replace.

By removing the optical connectors you can easily clean the internal parts of the tester and keep your tester as good as new.

Programmable Frame Capture

To check the network status or analyse protocols, the evolution of some parameters must be examined across several consecutive frames.

To define the type of traffic being transmitted across the network (C2 and V5 signal tags), analyse its behaviour in uncommon situations (APS K1 and K2 bytes) or verify synchronisation performance, the evolution of certain frame OH bytes must be evaluated across consecutive frames.

The programmable Capture function enables you to capture and check a set of consecutive frames. You can do this by using different criteria, selecting all or just a subset of the available OH bytes.

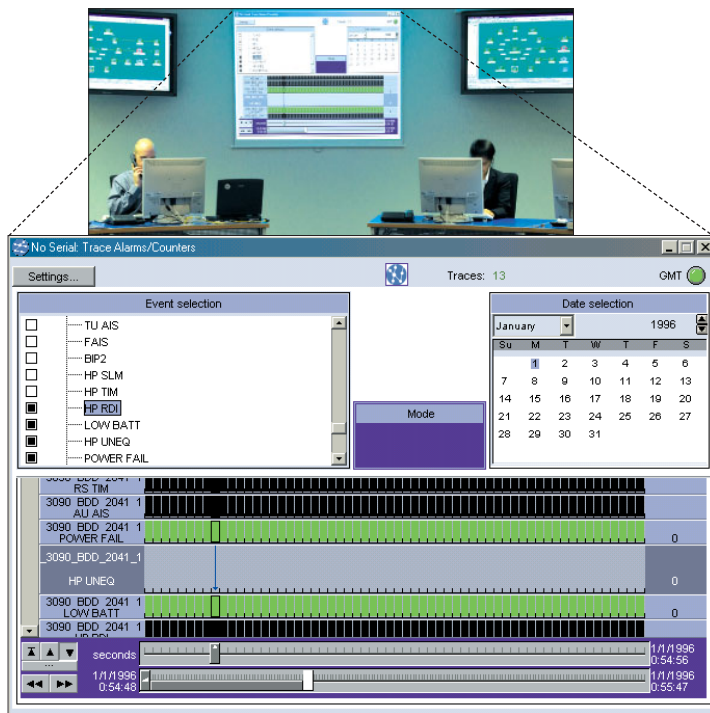
Automatic Test

A customisable set of widely used tests can be automated by means of a program screen that displays the progress of each test and gives obvious Pass/Fail indication at the end of the process. This functionality makes Victoria Combo easy to use with practically no training at all.



Efficiency

For Central Office and Field Work



- Simultaneous measurements
- Advanced Event Log and Trace
- Ergonomic, multi-position support leg for desktop use
- Hand-held, probe or desktop equipment

Simultaneous Measurements

Thanks to its multi-tasking OS, you can use Victoria Combo to carry out simultaneous measurements and correlate their results to easily identify faults.

Event Log and Trace

Tracing is the most powerful analysing tool any tester can have. With Victoria Combo you can register, filter, search and quantify all the events that occur. You can also easily save, print or transfer results onto a PC.

Remote Network Control

Thanks to the connectivity options on Victoria Combo, you can access its resources from anywhere, in a variety of ways.

If you use a TCP/IP network, your possibilities are multiple, such as LAN, Intranet, VPN, and even Internet.

With Victoria Combo, distance makes no difference. All you need is a computer equipped with the free remote control software of Victoria Combo, downloadable from Trend's website, and you can access your tester's GUI any time, from anywhere, and use it as if you were there.

You can also integrate Combo as a permanent test and measurement probe in your Control Centre, by means of an OSS.



Superior Capacity

the Best Features for All Test Scenarios

Event Insertion and Analysis

The Alarm and Error display of Victoria Combo ranges from event tables to graphical traces. You always have access to all your results in real time. Furthermore, Combo is able to generate M/N alarm sequences to check the Network Equipment event detection criteria.

Generation of G.783 Sequences

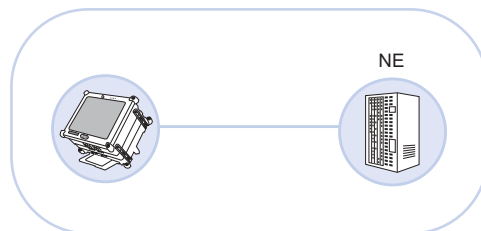
One of the main causes of error in SDH and SONET are phase fluctuations (Jitter) due to pointer adjustments. Combo can generate pointer movement sequences (ITU-T G.873) to simulate real situations and carry out stress tests in Network Equipment.

Header and SPE Tests

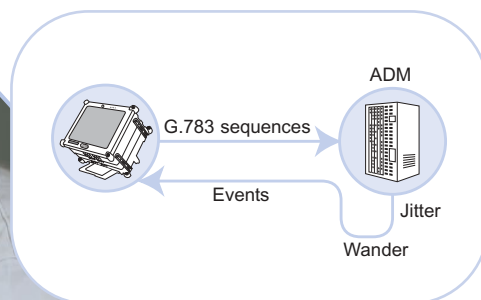
Victoria Combo gives you access to all frame and container headers, enabling you to program and analyse them. With this tester you can also carry out standardised or programmable BER tests both in containers/SPE and OH bytes.

Frequency Offset

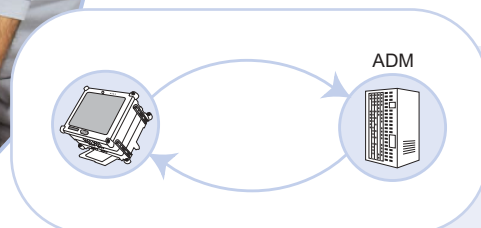
This function is essential for stress measurements in networks and nodes. It deviates the signal frequency from its nominal value to check the proper behaviour of the DUT in the limits of the tolerable operation margins.



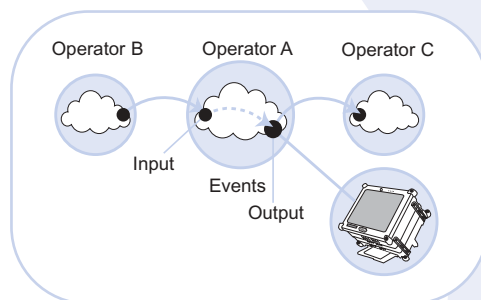
Optical Power and Frequency Offset test



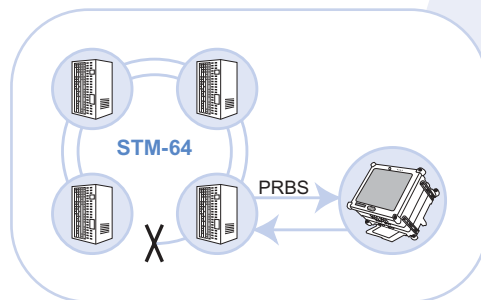
Pointer Sequences



Error Performance including G.828/G.829



Tandem Connection Monitoring



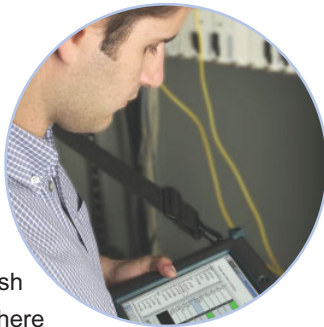
Automatic Protection Switching

For the Next Generation

of SDH/SONET Networks

Tandem Connection Monitoring

The TCM function of Victoria Combo enables you to establish those network trails where impairments occur, to test that SLA is met when the link is shared by many Service Providers.



Automatic Protection Switching

SDH and SONET networks are fault-tolerant where Automatic Protection Switching (APS) is used as the protection strategy. Victoria Combo evaluates those APS mechanisms that are in charge of re-establishing the service in case of failure, and measures the APS switching time.



G.707 In-Band FEC

Victoria Combo implements a Forward Error Correction (FEC) service for errors detected in the regeneration section. This is defined in Recommendation G.707 for STM-64.

G.828 and G.829

With Victoria Combo you can carry out all the existing performance measurements: G.821, G.826, M.2100.1, including G.828 and G.829 measurements.



- Universal SDH, SONET, PDH and T-Carrier interfaces up to 10 Gbit/s
- BER in overhead bytes (OH)
- Path trace in J0, J1 and J2
- G.821, G.826, G.828, G.829, M.2100 and M.2101 performance measurements.
- APS bytes analysis/generation and disruption time measurement
- Network latency (RTD)
- Tandem Connection Monitoring (TCM) and APid tests
- G.783 Pointer Sequences
- Frequency and offset measurement
- Compensation of line attenuation in line with ITU-T G.703
- VC-4-4c / STS-12c SPE
VC-4-16c / STS-48c SPE
VC-4-64c/STS-192c SPE
- SDH at 34 Mbit/s in line with ITU-T G.832
- PDH/T-Carrier frame structures at 1.5, 2 and 45 Mbit/s
- CAS signalling for 2 Mbit/s
- Robbed bit for 1.5 Mbit/s

Graphical User Interface

Optimal Ergonomics



"Victoria Combo is highly efficient, thanks to its intuitive graphical user interface."

Testers with touchscreens have proven to be the most suitable for field operation.

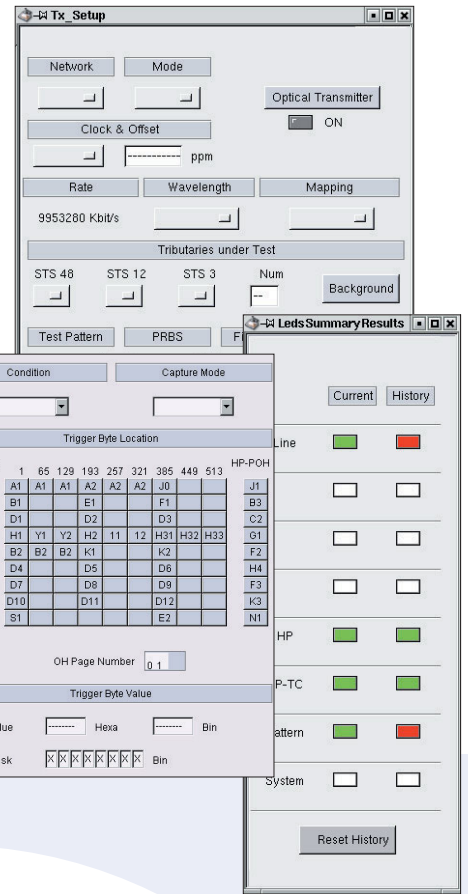
For the desktop environment, Victoria

Combo includes a USB port for keyboard and mouse as an additional comfort factor.

Combo has a spectacular 10.4" colour touchscreen with standard 800 x 600 pixel SVGA resolution, backlight and contrast control.

The menu, based on windows and icons, is very easy to use, and the desktop is as familiar as on your PC. The result is simply amazing.

All the manufacturers say they have interactive user interfaces, but how many of them offer a graphical 10" touchscreen, SoftLEDs®, Remote Test and intelligent navigation? Only one: Trend Communications with Victoria Combo.



We Multiply Your Possibilities

Ergonomics

By making use of Victoria Combo's folding support leg, you can choose the position that best suits your needs - vertical, horizontal or leaning - and this way make your desktop working conditions even more comfortable.

File Transfer

Generating results files and programming automated tasks is easy to achieve by transferring files to and from a PC. Combo's Compact Flash slots make it quick by using digital memory cards, which also work as a memory extension.

Upgrade Path

All the dedicated models, Victoria Combo STM-16, STM-64, OC-48, and OC-192, are upgradable to the modular version of Victoria Combo.

The upgraded software can manage multiple modules simultaneously.





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Distributor

To arrange a demonstration or to obtain the latest information on the Trend **Victoria**Combo or any of Trend's other test equipment, contact your nearest Trend Distributor.