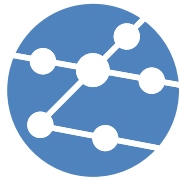


## TrendMultipro SDH

<b>Interfaces</b>	Optical 52, 155, 622 Mbit/s and 2.5 Gbit/s Field-replaceable optical SFP interfaces Electrical 1.5, 2, 8, 34, 45, 52, 140 and 155 Mbit/s Unbalanced 75 Ω BNC Balanced electrical RJ-45 connector for 2 Mbit/s – 120 Ω and 1.5 Mbit/s – 100 Ω High-impedance mode for passive monitoring at 1544/2048 Mbit/s Reference clock input and output at 1544/2048 Mbit/s or 1544/2048 MHz
<b>Operation Modes</b>	Terminal mode for network element emulation Through mode for intrusive monitoring Monitor mode for non-intrusive monitoring
<b>SDH</b>	Tests in STM-0 (optical & electrical), STM-1 (optical and electrical), STM-4 and STM-16 interfaces BER in C4-16c, C4-4c, C4, C3, C12 and C11 containers and SDH OH bytes Bulk and PDH/T-Carrier mapping into SDH containers In-service and out-of-service measurements Overhead programming and analysis Pointer manipulation and monitoring Supports APS and disruption time measurements Supports TCM Trail trace byte (J0, J1 and J2) generation and analysis
<b>PDH/T-Carrier</b>	Tests in framed and unframed E1, E2, E3, E4, DS1 and DS3 interfaces BER in $n \times 64$ and $n \times 56$ kbit/s PDH mux/demux test Generation and analysis of CAS signalling
<b>Additional Features</b>	Autoconfiguration: automatically identifies the incoming signal Fast scan for alarms and errors Performance statistics: G.821, G.826, G.828, G.829, M.2100, M.2101.1, M.2110, M.2120 Optical power measurement Frequency measurement and offset RTD measurement Pass/Fail verdicts with programmable thresholds Histograms, time plots and tabular results Remote control USB, Ethernet, CF and RS-232 connectivity
<b>Relevant Standards</b>	ITU-T G.703, G.704, G.707, G.732, G.742, G.751, G.752, G.821, G.826, G.828, G.829, M.2101, M.2110, M.2120, O.3, O.151, O.152, O.153, O.181
<b>Safety</b>	Radiated EMI: EN 55022 Immunity to EMI: EN 55024 ESD: EN 61000-4-2 Electrical safety: EN 60950 RoHS-compliant
<b>Ergonomics</b>	Modular structure, PIMs for SDH, ADSL2+, VDSL2, Copper and Gigabit Ethernet Excellent connectivity: 3 x USB, RS-232, 10/100BASE-T via RJ-45, POTS via RJ-11 Integrated microphone and speaker, external microphone/headphone connectors True-colour TFT touchscreen with ¼ VGA resolution Remote control software identical to the user interface of the tester Mainframe: 132 x 302 x 60 mm, 1.80 kg Battery: 7.4 V, 8.8 Ah Li-Ion pack, min. 3.5 hours of operation SDH module: 125 x 271 x 51 mm, 0.86 kg



# TrendMultipro SDH

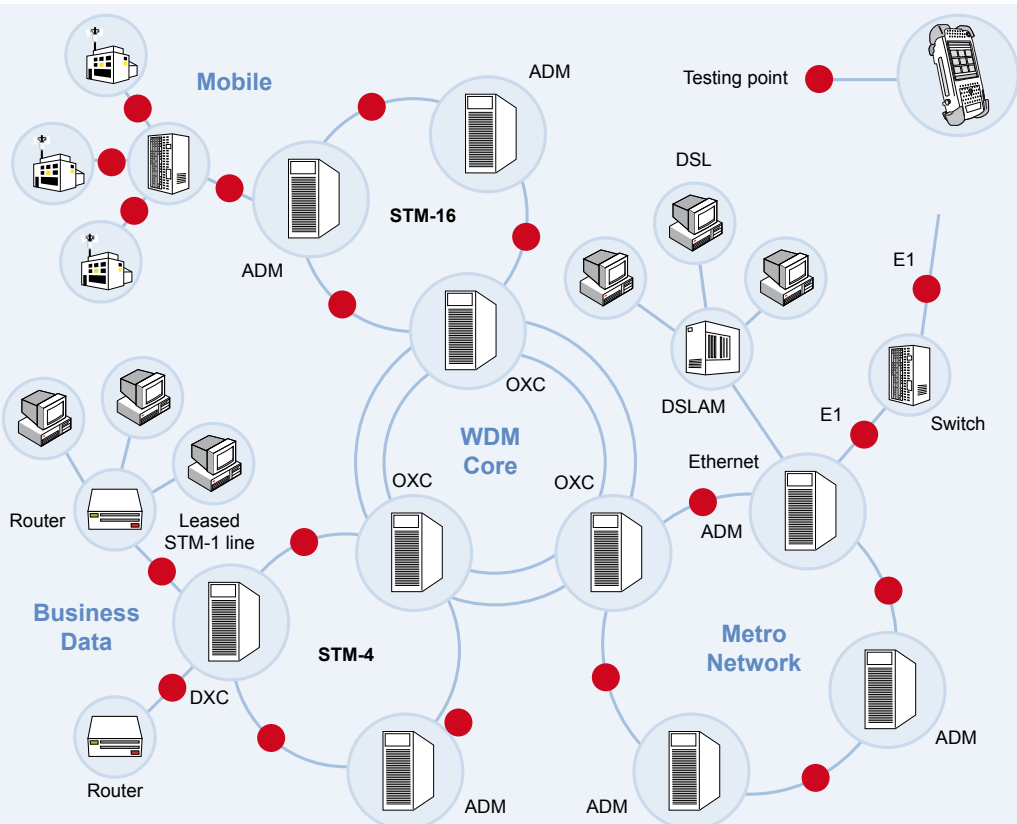
*Modular Handheld for SDH/PDH Networks up to 2.5 Gbit/s*



Trend Multipro SDH is a powerful solution for transport and metropolitan networks that meets the ever-increasing market demand for efficient, multitechnology test equipment.

The capacity of the transport network is constantly increasing, and packet transport features are added so that the network could support new types of applications. Technologies like Ethernet and WDM are becoming more and more popular, and traditional optical SDH networks must interface with them.

In this multitechnology environment, a modular test platform such as Trend Multipro is even more important than before. Thanks to the rugged design and extended autonomy of this test platform, it is the perfect tool for both field and laboratory work. The modular structure and ease of use of Trend Multipro SDH make it a really cost-effective tool that maximises your productivity both now and in the future.



- Modular and expandable
- Rugged design
- Long-life batteries
- SFP-type optical interfaces
- Optical power measurement
- All SDH, PDH and T-Carrier interfaces up to STM-16
- Ethernet, WiFi, USB, CF and RS-232 connectivity
- Balanced and unbalanced connectors for E1 and DS1
- Pass/Fail tests with programmable thresholds
- Test-oriented user interface

# Excellence

in SDH/PDH testing



- Multiple event insertion modes
- Fast Autoconfiguration and Scan functions
- Compensation of line attenuation in line with ITU-T G.703
- Frequency offset generation and measurement
- Test reports and print-outs
- Programmable OH byte capture
- Remote graphical user interface

## A Future-Proof Investment

Fully modular, Trend Multipro SDH is a cost-effective, future-proof investment. The Pluggable SDH Interface Module (PIM) of this powerful test platform contains all you need for testing SDH and PDH networks up to 2.5 Gbit/s.

You can also add other modules to test different technologies, while maintaining the same user interface and exactly the same testing philosophy. This means that you do not really need any training to work with this tester, no matter which module you use. At the same time you can optimise both costs and performance.

## Excellent Connectivity and Portability

Deliver a test result report to the network operations centre by using a USB pen drive, store configurations for different tests and load them whenever you need them, or use your tester remotely.

All this is possible, thanks to the excellent USB, Ethernet, CF and RS-232 connectivity of Trend Multipro.



Multilayer setup panel



Graphical event trace panel



APS Disruption time results

## Easy and Intuitive

The intuitive graphical user interface of Trend Multipro is based on a large, 5.7-inch colour touchscreen.

Thanks to the colour LEDs, you can quickly check your network and make sure that it operates as expected.

One of the biggest benefits of this tester is that it you can use it so easily and in so many different ways.

Pass/Fail tests, autoconfiguration, event scan and predefined tests make this tester a real time-saver.

Detailed event reports and custom setups provide a deep analysis of the operation of the network, indicating any potential problems even before they affect your network.

- For installation, bringing-into-service and maintenance
- Supports Tandem Connection Monitoring (TCM)
- Trail trace in J0, J1 and J2
- RTD measurement
- High-Impedance mode for non-intrusive monitoring
- APS byte generation/analysis and disruption time measurement
- Reference clock input/output
- All error performance tests



# Easy to Handle

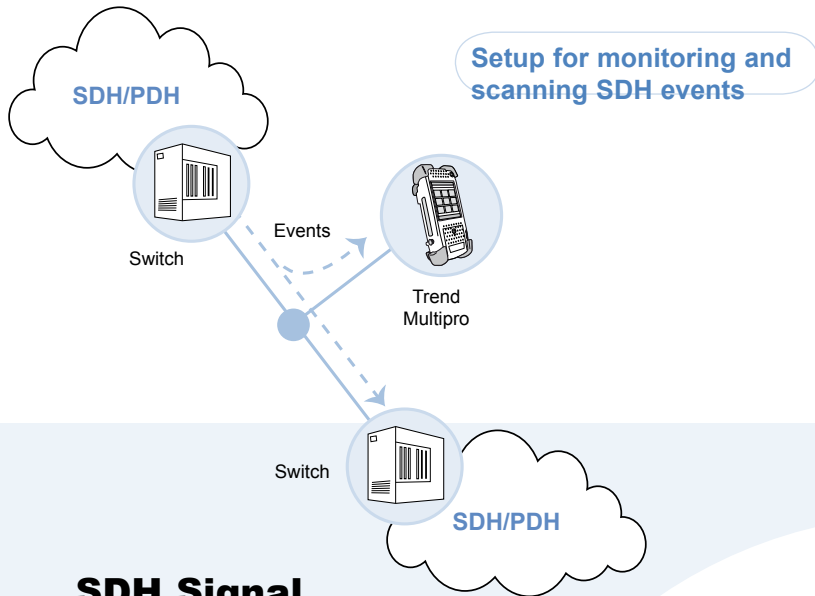
*In the field and in the office*



## Preventive Monitoring

Trend Multipro SDH can carry out monitoring tests to ensure that your network is working correctly. The tester uses preventive monitoring to detect issues that would otherwise remain unnoticed. For example, if there are pointer events in SDH interfaces, this may be a symptom of a synchronisation problem.

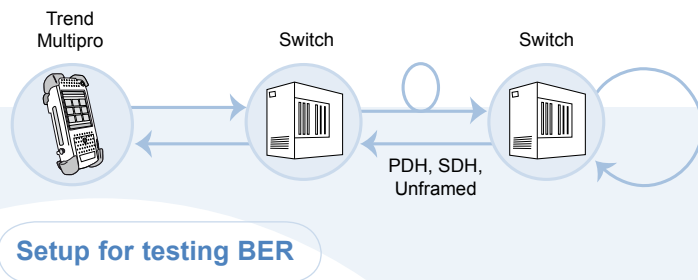
The tester stores all the results, and you can easily access them both locally and remotely, displaying them as tables or graphics.



## BER and Performance Testing

The Bit Error Rate (BER) test is usually performed during the installation of SDH and PDH technologies to check the quality of digital circuits.

Trend Multipro SDH performs BER and performance tests according to ITU-T G.821, G.826, G.828, M.2100, M.2101, M.2110 and M.2120.



## SDH Signal Scanning

Trend Multipro SDH performs a fast scan of the incoming SDH signal, and displays events such as anomalies and defects for each tributary of the incoming signal. The tester then quickly identifies faulty tributaries to guarantee maximum efficiency.

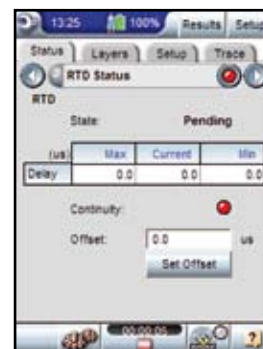
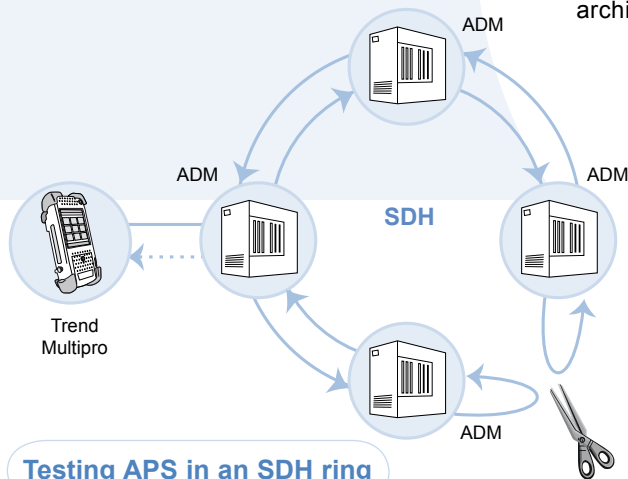
## APS Testing

The protection switching time in SDH networks must be kept below 50 ms. With Trend Multipro SDH, you can measure the Automatic Protection Switching (APS) time to make sure that it meets this requirement.

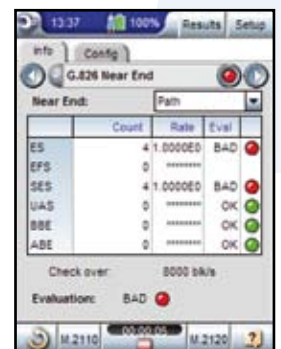
Trend Multipro generates APS protocol k-bytes to check that the protection architecture works as expected.

## Round Trip Delay

Trend Multipro can also perform Round Trip Delay (RTD) tests. For example delays in long links and transit time in network elements can be measured from 1 μ to 10 s.



Round Trip Delay status panel



ITU-T G.826 performance statistics