SyncWatch-110 Synchronization Testing Unit

QUALIFYING, TROUBLESHOOTING AND MONITORING NEXT-GEN NETWORK SYNCHRONIZATION

SyncWatch-110 is a highly versatile test and monitoring system for next-generation synchronization technologies, including performance assessment of SyncE and Precision Time Protocol (IEEE 1588v2)

SPEC SHEET

KEY FEATURES

Fully integrated solution for performance validation of IEEE 1588v2, SyncE and traditional TDM synchronization technologies

Highly flexible with support for multiple built-in measurement interfaces

Adapted to lab and field environments with optional internal measurement references—GPS and internal rubidium

Addressing network synchronization for network turn-up, monitoring and troubleshooting applications through three modes of operation: Stand-Alone, Managed and USB mode

COMPREHENSIVE SYNCHRONIZATION TESTING

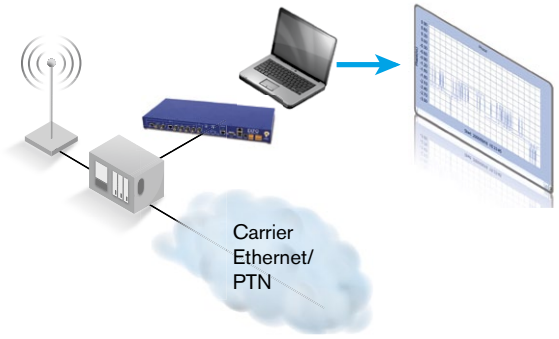
The SyncWatch-110 Synchronization Testing Unit is designed for accurate measurement and monitoring of a wide range of synchronization technologies, covering the complete network lifecycle. Its flexible architecture, which can be adapted to multiple deployment scenarios, makes the SynchWatch-110 a highly versatile, all-in-one solution. SyncWatch-110 is purpose-built for qualifying and monitoring next-generation networks that use Precision Time Protocol 1588v2 or SyncE technologies, as well as traditional TDM and frequency synchronization, making it the tool of choice for service providers and network equipment vendors.

The SyncWatch-110 unit supports measurements in both frequency and packet domains, which includes TIE, MTIE and TDEV metrics. SyncWatch-110 can utilize external frequency references or internal GPS engines—with or without a rubidium oscillator. The SyncWatch-110 unit also supports the analysis of frequency output signal from a Precision-Time-Protocol client module; the packet measurement engine is capable of analyzing the IEEE 1588v2 timing packets as well as reporting on different packet metrics.

What's more, SyncWatch-110 supports three different modes of operation (Stand-Alone, USB and Managed) for testing that's adapted to the service-provider's applications, while addressing the entire network lifecycle.

SyncWatch Stand-Alone

The SyncWatch Stand-Alone mode combines a single SyncWatch-110 unit in conjunction with the synchronization monitoring and measurement software suite, running on a laptop or desktop computer. With its compact and portable form factor, the SyncWatch-110 unit, set in SyncWatch Stand-Alone mode, can be deployed as a bench tester in a system-proofing environment, or it can even be deployed in the field as an installation/commissioning and troubleshooting tool. Stand-Alone mode provides real-time synchronization, data analysis and live reporting of results for immediate analysis.

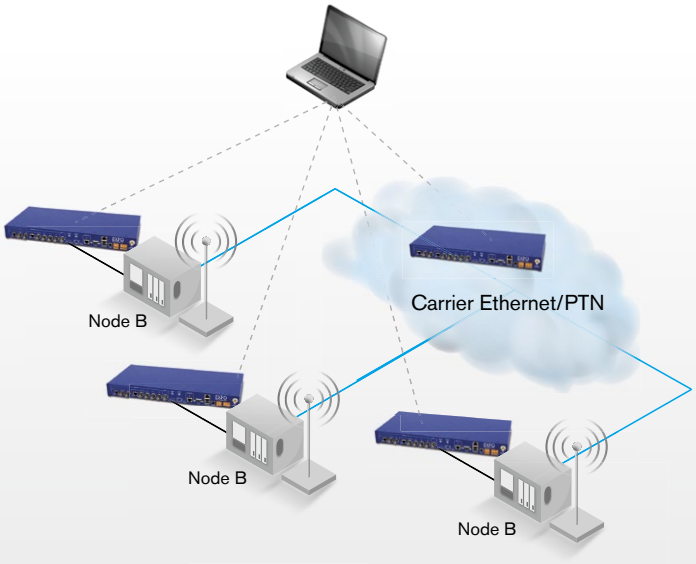


SyncWatch USB

In SyncWatch USB mode, the SyncWatch-110 unit can simply be used in conjunction with a dedicated USB key. SyncWatch USB mode enables users to configure a unit by simply inserting the USB device. Once a measurement has been taken, the collected data is then directed to the SyncWatch USB key for data post-processing and analysis. Operation in SyncWatch USB mode is user-friendly and simple to use, making it the ideal mode for field personnel with less familiarity in synchronization testing.

SyncWatch Managed

SyncWatch Managed mode is a highly scalable solution for measuring and managing synchronization quality across a service provider's infrastructure—right to the edge of the network. Based on a server/client architecture, mobile operators or large enterprise customers can deploy SyncWatch Managed to ensure that the network synchronization meets specifications. In this case, the SyncWatch-110's server provides management and performance monitoring of all the deployed units. This mode allows for real-time alarms and threshold crossings, as well as long-term data history analysis.



SyncWatch Monitoring Integration in the OSS

The SyncWatch monitoring server can be enabled via the SNMP trap generation option. When properly configured, the SyncWatch server generates SNMP northbound traps upon the detection of sync failures, or when events or conditions change. This ensures seamless integration of sync monitoring into an existing monitoring and supervisory engine, enabling operators to manage both sync and data networks within the same supervisory engine.

ASSESSING THE SYNCHRONIZATION HEALTH THROUGHOUT THE NETWORK LIFECYCLE

The different modes of operation of the SyncWatch-110 address the varying requirements for synchronization testing throughout the entire network lifecycle. Network equipment manufacturers (NEMs), mobile operators and mobile backhaul service providers can use the SyncWatch-110 for the turn-up, installation, monitoring and troubleshooting phases of the synchronization network.

Key applications:

- R&D engineering labs and network planning
- Synchronization service turn-up
- Service monitoring
- Service troubleshooting

SPECIFICATIONS

TECHNICAL SPECIFICATIONS	
Measurement and Reference Interfaces	T1/E1 balanced RJ48 x 2
	E1 unbalanced BNC x 2
	64 kHz up to 200 MHz in 8 kHz steps BNC x 2 (general purpose frequency port)
	10 MHz reference nominal - BNC x 1
	1 pps measurement nominal - BNC x 1
	Ethernet 10/100M RJ45 (SyncE, 1588v2)
	Measurement resolution and accuracy - 1 ns for all ports except 1 pps port 1 pps measurement: accuracy 5 ns resolution 5 ns UTC reference for 1 pps measurement accuracy: < 50 ns
Aux Output Interface	Output from selected reference BNC x 1
Management Interfaces	RS232 craft port for basic configuration
	Ethernet 10/100 for uplink to SyncWatch server
	Optional internal GSM/GPRS modem with antennas
	Dry relay contacts for legacy alerting
Rubidium (Optional)	Independent PRC quality reference (exceeds G.811 MTIE performance - PRC MTIE mask)
	Provides rubidium holdover in the event of GPS signal outage
	Free-run rubidium stability (cost-effective standard or high-stability rubidium oscillators available)
	Max phase error over 24h — Standard: 11.7 µs; High stability: 7 µs
OCXO GPS Receiver (Optional)	Independent PRC quality reference (exceeds G.811 MTIE performance - PRC MTIE mask)
	Provides holdover in the event of GPS signal outage
GSM/GPRS Modem (Optional)	GSM/GPRS 850/900/1800 MHz modem
PTP Client	Compliant with the ITU-T Telecom Profile (G.8265.1) Graphical measurement of one-way delay, delay variation and PTP packet statistics per packet type
PTP Client Resolution	Timestamp resolution of 8 ns Timestamp accuracy with GPS of <50 ns (RMS to UTC)

GENERAL SPECIFICATIONS

Size (H x W x D)	44 mm x 443 mm x 200 mm (1 ¾ in x 17 7/16 in x 7 7/8 in)
Weight	1.75 kg (3.9 lbs)
Temperature	
operating	0 °C to 50 °C
storage	-10 °C to 60 °C
Power	Screw terminal block -40 to -72 VDC including tolerances
Probe power supply	–40 to –72 VDC 30 W maximum (with Rb GPS option) 15 W maximum (without Rb GPS option)

ORDERING INFORMATION

SyncWatch-110-XX-XX

Model
SyncWatch-110 = Synchronization test unit
SyncWatch-110-RB = Synchronization test unit with internal rubidium/GPS
SyncWatch-110-ERB = Synchronization test unit with enhanced internal rubidium/GPS
SyncWatch-110-GPS = Synchronization test unit with internal GPS

Hardware Options
00 = Without hardware options
PTP = PTP, 1588v2 hardware option
GSM-GPRS = GSM/GPRS modem hardware option
PTP-GSM-GPRS = PTP, 1588v2 hardware option and GSM/GPRS modem hardware option

Software Options
STA = Standalone and USB modes
CLI = Managed mode server/client
STA-CLI = Standalone and USB modes and Managed mode server/client

Example: SyncWatch-110-RB-PTP-GSM-GPRS-STA-CLI

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