

Metronome Timing System (MTS)

Enable Time-Synchronized Testing

Metronome Timing System

Metronome is a precision test instrument that seamlessly integrates with Keysight test solutions to enable large-scale, time-synchronized testing of complex networks.



Metronome Timing System Extender

The Metronome Timing System Extender (MTSx) works in conjunction with the Metronome and the Keysight chassis to provide connection flexibility, which allows up to 200m between chassis and Metronome. This provides up to 400m between chassis in a single Metronome system. One MTSx is required for each chassis.



Problem: Time-Sensitive Networked Applications are Difficult to Validate

Time-synchronized testing is critical for many emerging network technologies such as datacenter network, Audio / Video Bridging (AVB), Time-Sensitive Networking (TSN), industrial automation, and Internet of things (IoT). All these network applications require a very accurate awareness of time, which is best achieved by using an industry-standard time reference such as Coordinated Universal Time (UTC).

Solution: Precision Time-Synchronized Testing

The Keysight Metronome is a precision test instrument that seamlessly integrates with Keysight test solutions to enable large-scale, time-synchronized testing of complex networks.

Metronome enables Devices Under Test (DUT) and an IxNetwork test system to use the same time reference. It enables large-scale time-synchronized testing using up to 8 directly connected Keysight chassis in the Single Level Topology. For even larger scale and extended distance, the Distribute GPS Topology allows time-synchronized testing limited only by GPS. If massive scale is required, the Metronome-STAR topology can be used for up to 48 AresONE connected in a synchronization system. Metronome and Metronome Timing System Extender together provide connection and distance flexibility between Metronome and the attached chassis.

Highlights

- Perform complex, time-synchronized testing for:
 - Synchronized IxNetwork testing
 - Large-scale data center test using RFC 2544 / 2889 / 3918
- Accept industry standard timing inputs enabling a single timing reference
- Leverage robust connection guidelines allowing for widespread node placement



Key Features

- Seamless integration with the Keysight IxNetwork and IxExplorer
- Large-scale testing with synchronized timing
- Scalable time distribution platform
- Support for industry-standard timing inputs
- Robust connection guidelines allowing for widespread placement of chassis
- Flexible topologies that allow massive scale testing
- Any combination of XGS Chassis, AresONE, and Novus ONE PLUS allowed

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Metronome Timing System Extender

Specifications

Feature	Details	
Keysight chassis support	• XGS12-SD • XGS12-SDL • XGS12-HSL • XGS2-SD • XGS2-SDL • XGS2-HSL • AresONE • Novus ONE PLUS	
IxOS support	IxOS / IxNetwork Version 9.00 supports any combination of XGS-XGS-SD, XGS-SDL, AresONE and Novus ONE PLUS	
Output ports	• 8 Timing ports allowing connection to Keysight Chassis or additional MTS • 1 Management Port • 4 BNC Ports	
Metronome level 1 systems supported	Up to 8 XGS, AresONE or Novus ONE PLUS	
Metronome-STAR level 2 systems supported	Up to 48 AresONE or a mix of XGS, AresONE and Novus ONE PLUS (see manual for restrictions and configuration guide)	
Input ports	• GPS – SMA male 50 ohm • 4 BNC • RS422-TOD+1PPS • 1 Management Port	
Clock inputs/Sources	• GPS • Internal OCXO Metronome Clock • BNC • RS422-TOD+1PPS	
User interface	• Remote monitoring and control via 10/100/1000 RJ45 Ethernet port • Intuitive and interactive web GUI interface • RESTful API allows test automation and complete control of all functionalities programmatically • The following browsers and versions are supported ◦ Internet Explorer version 11 or higher ◦ Mozilla Firefox version 24 or higher ◦ Chrome Version 50.0.2661.102 m	
Cable lengths supported – MTS to MTSx	MTS to MTS	2 m – 200 m max
	Extender distance	
	Cable type	Metronome sync cable (zero skew video cable)
	Standard lengths	5 m / 50 m / 200 m

Feature	Details	
Cable lengths supported – Chassis to MTSx	MTS Extender to chassis distance	6 feet Note: 2 cables included in each MTSx
	Cable type	Metronome extender sync cable
Metronome chassis	• Rack-mount and desktop-mounting hardware included • 1U rack-mountable • Dimensions: 1U - 1.73 x 17.3 x 12.25 in (4.6 x 43.9 x 31.1 cm) • Weight: 10 lb. (4.54 kg) • Thermal ◦ Operating temperature: 0° to 40 °C (32 to 104 °F) ◦ Operating humidity: 10 to 85% (RH), non-condensing ◦ Storage temperature: -40 °C to 70 °C (-40 to 158 F) ◦ Storage humidity: 5 to 95% (RH), non-condensing • Input power (internal AC/DC converter) ◦ Input voltage: 100-240 VAC ◦ Input frequency: 47-63 Hz • Max. power consumption: 100W (typical), 175 (max) • Internal power supply	
Metronome extender chassis	• Rack mount and desktop mounting hardware included • 1U rack-mountable • Dimensions: 1U - 1.63 x 7.38 x 6.25 in (4.1 x 18.7 x 15.9 cm) • Weight: 2.3 lbs (1.04 kg) • Thermal ◦ Operating temperature: 0° to 40 °C (32 to 104 °F) ◦ Operating humidity: 10 to 85% (RH), non-condensing ◦ Storage temperature: -40 °C to 70 °C (-40 to 158 F) ◦ Storage humidity: 5 to 95% (RH), non-condensing • Input power (internal AC/DC converter) ◦ Input voltage: 100-240 VAC ◦ Input frequency: 47-63 Hz • Maximum power consumption: 100W (typical), 175 (max) • Internal power supply	
Regulatory approvals	• CE • UL 60950-1, 2nd Edition • FCC Class A • ROHS compliant • UL File #: E255262	

Ordering Information

942-0090

IXIA Metronome Timing System and Metronome Timing Software enabling advanced chassis timing. Includes Sync Cable 5m (942-0096). Compatible with the XGS-SD chassis, XGS-SDL chassis, XGS-HSL chassis, AresONE fixed chassis and Novus ONE PLUS fixed chassis.

942-0091

IXIA Metronome Timing System Extender. Requires Metronome Timing System 942-0090. Includes 2 MTS to chassis 6' cables (942-0095). Compatible with the XGS-SD chassis, XGS-SDL chassis, XGS-HSL chassis, AresONE fixed chassis and Novus ONE PLUS fixed chassis.

942-0095

IXIA Metronome Timing System Extender to Chassis 6-foot cable. Compatible with Metronome Timing System 942-0091.

942-0096

IXIA Metronome Timing System (942-0090) to Metronome Timing System Extender (942-0091) 5-meter cable.

942-0097

IXIA Metronome Timing System (942-0090) to Metronome Timing System Extender (942-0091) 50-meter cable.

942-0098

IXIA Metronome Timing System (942-0090) to Metronome Timing System Extender (942-0091) 200-meter cable.

942-0100

IXIA Metronome Timing System Extender Rackmount kit for 2 Metronome Extender units.

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