syn1588® VMS
Visual Measurement System

Brief Data Sheet

Version 1.8 – March 2019

Features

- Multi-channel 1 PPS measurement system
- 4 ns resolution
- +/-4 ns accuracy
- 22 channels
  - More channels available on request (please contact Oregano Systems' support)
- 50 Ω termination and ESD protection for every channel
- LVCMOS levels supported
- Minimum pulse width 50 ns
- Maximum pulse width 500 ms
- User configurable real-time graphic display of 1 PPS signals
- User configurable real-time graphic display of MTIE, TDEV, and ADEV
- Separate data and histogram files generated per channel for external post processing.
- Online statistical data (mean value and standard deviation)
- Online channel status display
- Channel management via configuration file
- Web-based remote display of 1 PPS offset
- Fully automated online checker function
  - User-programmable boundaries
  - Alerting if channel enters/leaves accuracy boundaries
  - Ideally suited for broadcast environment
- Optional OCXO oscillator option

syn1588® VMS - Visual Measurement System

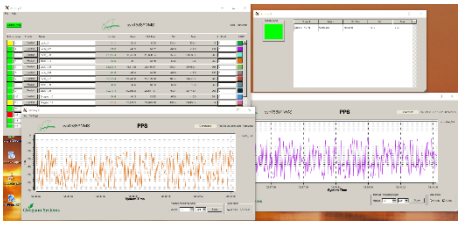
The syn1588® VMS – Visual Measurement System is a multi-channel, high resolution, high accuracy 1 PPS data acquisition unit for analyzing the synchronization behavior of multiple devices. It comprises of a syn1588® PCIe NIC acting as a syn1588® 1 PPS acquisition card capable of measuring up to 22 input channels. Each input is able to sample signal transitions at a resolution of 4 ns.

The syn1588® 1 PPS acquisition card accepts 1 PPS signals at LVCMOS levels with a minimum pulse width of 50 ns and a maximum pulse width of 500 ms, respectively. Every channel offers 50 Ω passive termination and appropriate ESD protection.

In capture mode the syn1588® VMS samples all channels once every second. In case a signal transition is detected a validation process is started: If the offset is within definable bounds for more than a given number of consecutive samples, data capturing is enabled for the respective channel. Likewise capturing is disabled, if the data remains out of bounds for a given period of time.

Apart from graphically displaying the offset in real-time, statistical data (mean value, standard deviation, minimum and maximum value) is calculated as well. Furthermore MTIE, TDEV, and ADEV are calculated and displayed graphically.

All relevant channel information is user configurable via a configuration file. On-line updates of channel characteristics while running syn1588® VMS will be updated in the configuration file as well.



The syn1588® VMS can be used for any kind of long or short term measurements in the area of clock synchronization. Due to its extensive observation features, the syn1588® VMS is capable of reporting any outliers, abnormalities or disturbances in the synchronization performance via email, scripts or any other user defined mechanism. A typical usage scenario is the monitoring of an Ethernet network using the Precision Time Protocol (PTP, IEEE 1588): By connection all PTP nodes to the syn1588® VMS via a 1 PPS signal, performance reports, statistics as well as various diagrams are displayed and stored on the measurement system.

The syn1588® VMS is delivered ready to be used with 22 channels pre-assembled in an industry grade 19" rack 2HE mounted server with Linux and all necessary software pre-installed.

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Technical Specifications	
Standards	IEEE 802.3-2000 PCI Express interface & signaling
Installable PCI slot	1x PCI Express 1/2/4/8/16 lane slot per 4 channels
Storage temperature	-40°C to 85°C
Operating temperature	0 to 50°C
Humidity	5% to 80% non-condensing

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