syn1588 ®

syn1588® Gbit Switch

1-step end2end Transparent Clock

Brief Data Sheet

Version 1.21 – March 2019

Features

- IEEE1588-2008 1-step end-2-end transparent clock
- Hardware time stamping with 2 nsec resolution
- Residence time measurement accuracy better than 500ps (σ)
- Support for IEEE1588 layer-2 and layer-3 communication
- Fully hardware based PTP packet processing
- On-the-fly time stamping using patented 1-step technology
- Capable of handling high packet rates (>64/sec) simultaneously on all ports
- Low latency for PTP packets
- PTP - VLAN support
- PTP - IPv6 support
- Remote PTP monitoring and configuration via SNMP
- Local oscillator options
  - TCXO
  - OCXO
- 8+1 port 10/100/1000 Mbit Ethernet switch following IEEE802.3-2005
- 9th port offers SFP cage
  - Fiber 1000Base-X
  - Copper 1000Base-T
- Wide range AC power supply included on-board
- 19" 1HE rackmount case

syn1588® Gbit Switch 8+1 Port

Highly accurate clock synchronization systems profit from IEEE1588 aware Ethernet switches to overcome unpredictable delay variations introduced by standard Ethernet switches as a consequence of varying network load conditions.

The syn1588® Gbit Ethernet Switch offers a simple plug & play solution to this problem by implementing 1-step end-2-end transparent clock functionality with respect to IEEE1588-2008 using Oregano Systems' patented on-the-fly time stamping technology.

Owning to the fact that the complete PTP packet processing is implemented exclusively in hardware; the residence time of PTP event packets is not affected remaining in the range of 2 µs.

All time stamps are drawn at a resolution of 2 ns yielding accuracies of 500 ps (σ) for measuring the residence time of any IEEE 1588-2008 event message (sync, del_req, p_del_req, and p_del_resp) In combination with highly accuracy PTP end nodes (such as syn1588® devices by Oregano Systems equipped with OCXOs) an overall synchronization accuracy of less than 5 ns may be achieved independently of the network load condition.

The syn1588® Gbit Switch supports time stamping of all PTP event messages encapsulated in VLAN as well as Ethernet (PTP layer-2), IPV4, and IPv6.

The syn1588® Gbit Switch is a triple speed 8 port layer-2 Ethernet switch with an additional up-link port. This port is equipped with an SFP-type interface allowing either a copper or a fiber optic communication link to be installed.

As the IEEE1588 event packet processing is implemented purely in hardware the syn1588® Gbit Switch is capable of handling high message rates of more than 64 messages simultaneously on all incoming and outgoing ports.

The syn1588® Gbit Switch may be ordered with different oscillator options ranging from simple 50 ppm XOs to TCXOs and even OCXOs. The latter will provide sub-ns accuracy for any time stamping done by the syn1588® Gbit Switch.

Remote management as well as monitoring and configuration of all PTP functions is realized via SNMP.

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Technical Specifications	
Standards	IEEE802.3-2005 IEEE1588-2008
Storage temperature	-40°C to 85°C
Operating temperature	0°C to 50°C
Humidity	5% to 90% non-condensing
Dimension	Height: 43,6mm (1HE); Depth: 254mm; Installation width: 444mm
Weight	3,73 kg

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