VCL-2739

1588v2 PTP Switch
PTP Transparent Clock

Product Overview

VCL-2739, 1588v2 PTP Aware Switch (PTP Transparent Clock).

The VCL-2739 is non-blocking wire-speed Ethernet switch with full support for IEEEv2 Precision Time Protocol (PTP) Transparent Clock features.

Features of IEEE 1588v2 PTP Switch & clock Synchronization

- Transparent Clock (TC) with auto correction update and Boundary Clock
- Master and slave Ordinary Clock (OC) support
- End-to-end (E2E) and Peer-to-peer (P2P) delay mechanism support
- PTP multicast and unicast message support
- PTP message transport over IPv4 and IEEE 802.3 (layer2)
- IEEE 1588v2 PTP packet filtering
- One-step and Two-step

Features of IEEE 1588v2 PTP Switch & clock Synchronization

- Six ports:
  ⇒ 5*10/100/1000Base-T Electrical Ethernet Ports
  ⇒ 1*1000Base-X SFP based Optical Fiber Ethernet Port
- IEEE 1588v2 Transparent Clock capable of distributing precision time across the substation network
- IEEE 802.3x full-duplex flow control and half-duplex back pressure collision control

Substation and Industrial Hardened Switch

- IEC 62850-3 and IEEE 1613 compliance for operating in electric substation environments.
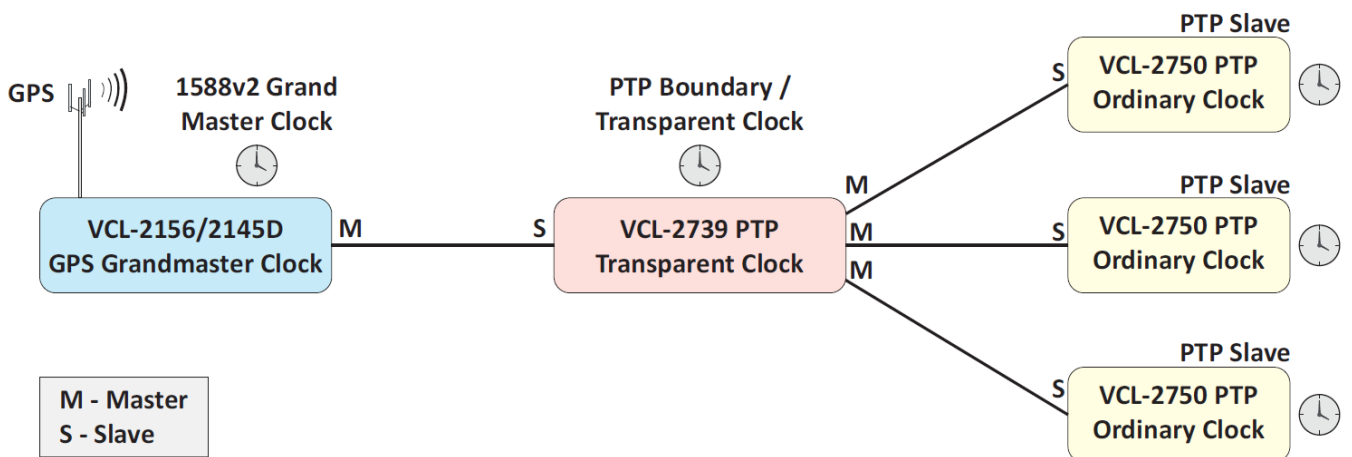
Switch Performance Capabilities

- 10/100/1000Mbps Ethernet switch basic functions: frame buffer management, address look-up table, queue management, MIB counters
- Non-blocking store-and-forward switch fabric assures fast packet delivery by utilizing 4096 entry forwarding table with 256K Byte frame buffer
- Jumbo packet support up to 9000 bytes

Applications

- IEC61850 networks power substation automation
- Industrial Ethernet (Profinet, MODBUS, Ethernet /IP)
- Supports 3G/4G/5G Ethernet networks
- Industrial control/automation
- Test and measurement applications

Application Diagram:

IEEE-1588v2 Grandmaster and Boundary Function in PTP Network

Note: - Accuracy between PTP Grandmaster and PTP Slave better than 100ns.
  - Phase synchronized 1PPS between PTP Grandmaster and PTP Slave.

Specifications

ffPower Supply	
Input DC Voltage	48VDC (nominal)
Range of input voltage	15V to 60VDC Input
Voltage reversal protection	Provided
Short circuit protection	Provided
Additional Power Options (external adaptor)	
AC Power	100 to240V AC, 50/60Hz
DC Power	110VDC, 220VDC
Power Consumption	
<20W at ambient (steady state 24°C)	
Management and Control Ports	
Serial Management Port (Connector type USB)	
100/1000Base-T Ethernet	
Local / Remote Communication Options	
Telnet/SSH (with option to disable clear test communication to comply with NERC security reuirements)	
CLI Control Interface (HyperTerminal or VT100)	
Security and Protection	
Password Protection	
SSH	
Command Language	
English text commands	
Graphical User Interface (GUI) - English	
Mechanical Specifications	
H*W*D	42*168*134 mm
Weight	0.5 Kg

Environmental (Equipment)	
Operational	-10 to +50°C (Typical:+25°C)
Cold Start	0°C
Storage	-40°C to +85°C
Humidity	95% non-condensing
Cooling	Convention Cooled. No cooling fans are required
MTBF and Equipment MTBF	
Per MIL-HDBK-217F: ≥ 15.8 years @ 24°C	
Per Telcordia SSR 332, Issue 1: ≥20.2 years @ 24°C	
Compliance	
EMC FCC Part 15 Class 2	
Operation ETS 300 019 Class 3.2	
Storage ETS 300 019 Class 1.2	
Transportation ETS 300 019 Class	

Ordering information

Reference	Description
VCL-2739-DIN-DC015060	PTP 1588v2 Aware Switch. DIN Rail Mount Version. Supports: • 5*10/100/1000Base-T Electrical Ethernet Port (RJ45) • 1*1000Base-SX Optical Fiber Port (SFP not included) • 1*15~60VDC Power Supply Input • Serial/Remote Management • Installation Kit: System Core Cables, Mounting Hardware, Documentation, user Manual

* SFP Options	
SFP-GSX-MM	SFP Transceiver, Gigabit, Duplex LC, 7.5dB, 850nm, 0.34Miles/550m, MMF (Multi-mode)
SFP-GLX-SM20	SFP Transceiver, Gigabit, Duplex LC, 22dB, 1310nm, 12.42Miles/20Km, SMF (Single-mode)
SFP-GLX-SM40	SFP Transceiver, Gigabit, Duplex Lc, 22dB, 1310nm, 24.85Miles/40Km, SMF (Single-mode)
*External Power Supply Options	
VCL-EMOD 0444-AC220	External Power Supply—DIN Rail Mount (AC to DC Converter, DRL30-24-1) 1*AC Input
VCL-EMOD 0444-DC220	External Power Supply—DIN Rail Mount (DC to DC Converter, DRL30-24-1) 1*DC Input [100~250VDc] and 1*DC Outout [24VDC~1.25A, 30W]

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