Smart solutions for smart networks

V2.2

VCL-2112

IEEE-1588v2 PTP Slave Clock

Introduction

VCL-2112, IEEE-1588v2 PTP Slave Clock is a high precision, high reliability time and frequency synchronization solution which can be used to synchronize with an IEEE-1588v2 PTP Grandmaster to provide frequency and time-of-day synchronization across all nodes of a PTP network. Multiple 1PPS / IRIG-B Outputs are also provided to synchronize local clock (time-of-day) display units as well as RTUs to a central timing source with nanosecond accuracy.

The VCL-2112, IEEE-1588v2 PTP Slave Clock is specifically designed for providing synchronization in 2G, 3G, HetNet and LTE mobile telecommunications networks as well as in backhaul wire-line TDM Networks. It may be also used by Railways, Airports (including air-traffic control), Power generation and distribution companies and other Utility companies who need to distribute highly precise time-of-day and frequencies locked to a PTP Grandmaster (GPS) Reference across multiple nodes of their networks.
The VCL-2112, IEEE-1588v2 PTP Slave Clock is equipped with a highly accurate, low-noise OCXO which provides a high stability holdover that is typical of a Network SSU in the event of a failure of the Ethernet transmission link.

VCL-2112, IEEE-1588v2 PTP Slave Clock
Description: VCL-2112, PTP (IEEE-1588v2) Slave Clock -synchronizes to PTP Grandmaster to provide 1PPS, NMEA, 10MHz, 2.048MHz, 1.544Mbits / 2.048Mbits Frequency Outputs with high stability OCXO holdover.

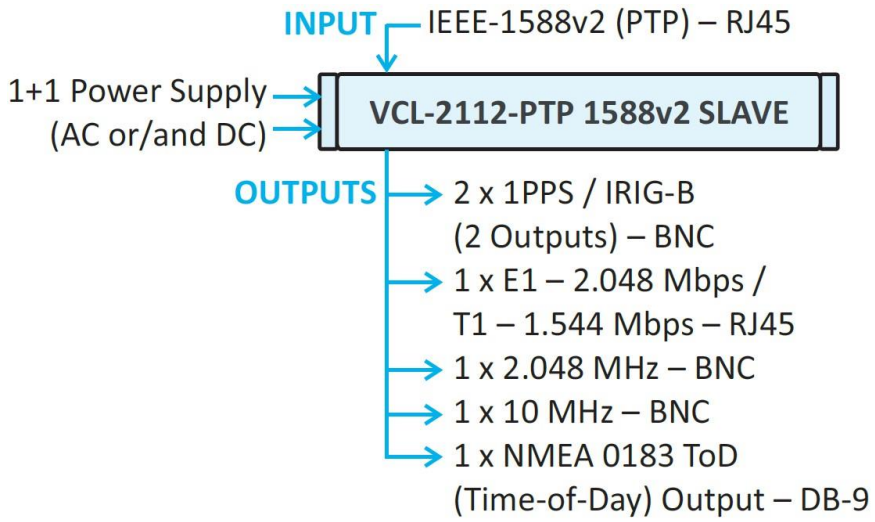
Features and Highlights

- ✓ Reliable, Cost-Efficient Reference
- ✓ BCMA (Best Master Clock Algorithm) - allows the unit to be installed in a redundant PTP Grandmaster network OCXO Holdover
- ✓ 2.048MHz output
- ✓ 10 MHZ output
- ✓ 1 PPS / IRIG-B outputs (User Configurable)
- ✓ <1000ns accuracy
- ✓ Standard RJ45 and BNC connectors for all inputs and outputs ToD compliant to NMEA 0183 (DB9 Serial Port).

Additional Features

- ✓ Password Protection
- ✓ Redundant AC and DC power supply options
- ✓ Power Contact and Lightening Protection as per Telcordia GR- 1089-CORE

Application Diagram



Typical Synchronization Applications

- ✓ Synchronizing mobile communication networks such as UMTS, GPRS, HetNet, 2G and 3G networks
- ✓ Wireless and Wireline Telecom synchronization
- ✓ Distributing Time (ToD) and Frequency reference for power utilities across all nodes of the network
- ✓ Synchronization of Defense Networks
- ✓ Synchronizing airports and aviation communications Synchronizing railway signaling networks and railway communications
- ✓ Synchronizing traffic management
- ✓ Broadcasting Network and Broadcast equipment synchronization

IRIG-B Format

IRIG-B	Format
Un-Modulated	B004

Time Inputs

Input Type	Connector
IEEE-1588v2 (PTP)	RJ45

Standard Frequency and ToD* Outputs

Output Type	Connector
1.544 Mbits (T1) / 2.048 Mbits (E1) compliant with ITU-T G.703*	RJ45
2.048 MHz, 75 Ohms, phase-locked to PTP Grandmaster (GPS) Reference	BNC
10 MHz, 50 Ohms, phase-locked to PTP Grandmaster (GPS) Reference	BNC
1PPS / IRIG-B, synchronized to PTP Grandmaster (GPS) reference# IRIG-B 50 Ohms BNC (Type: B004)	BNC
ToD (Time-Of-Day) output compliant to NMEA-0183	DB9, RS-232C

**Note: User selectable T1 or E1 output*
#Note : User selectable IRIG-B or 1PPS output

Management and Monitoring Ports

- ✓ RS-232C
- ✓ USB
- ✓ OAM, 10/100BaseT Ethernet
- ✓ 1 x External Alarm Relay Contact.

System Access, Control and Management Options

- ✓ Telnet
- ✓ CLI Control Interface (HyperTerminal or VT100)
- ✓ SNMP V2 Traps (MIB File provided).
- ✓ Windows compatible GUI (Graphical User Interface)

Environmental

Operational	0°C to +60°C (Typical: +25°C)
Cold Start	-10°C
Storage	-40°C to +75°C
Humidity	95% non-condensing
Cooling	Convention Cooled, No colling fans are required

Mechanical Specifications

- ✓ Standard 19-Inch. DIN Rack mounting
- ✓ H x W x D: 44mmx 480 mmx 280 mm
- ✓ Weight: 3.20 kg.

Ordering Information

Reference	Description
VCL-2212	VCL-2112, PTP (IEEE-1588v2) Slave Clock 19-inch Rack Mount, 1U High - Synchronizes to PTP Grandmaster to provide 1PPS/IRIG-B, NMEA, 10MHz, 2.048MHz, 1.544Mbits / 2.048Mbits Frequency Outputs with high stability OCXO Holdover - Management: SNMP, Telnet (RJ45 (F) Port), Serial Port (USB, DB-9 COM), EMS, Graphical User Interface (GUI) - Installation Kit: System Core Cables, Mounting Hardware, Documentation, User Manual

Power Supply Options

Reference	Description
AC220	1 x 100-240V, 50/60 Hz, AC Power Supply Input
DC048	1 x (-) 48V DC Power Supply Input
AC220R	2 x 100-240V, 50/60 Hz, AC Power Supply Input [Redundant]
DC048R	2 x (-) 48V DC Power Supply Input [Redundant]

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