VCL-3048-DIN-DC

NTP TIME SERVER

- GPS / GNSS time reference for SCADA applications
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- High bandwidth NTP performance
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- Upto 3000 NTP requests per second
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- 1x10/100 Mbit/s, RJ45 NTP interface (Ethernet)
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- 3 x IRIG-B Un-Modulated Outputs (BNC, RS232, RS485)
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- Stratum 1 compliant (PR) Primary Reference when locked to GPS / GNSS
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- May be used to provide 15000 NTP and SNTP clients
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- Alert notifications via SNMP Traps, SNMP V2, V3
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- Concurrent IPv6 and IPv4 operation
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- Secure network management : enable or disable options

Description

The **VCL-3048 NTP Time Server** is designed to provide NTP clock that is locked to GPS/GNSS reference to provide time synchronization to private networks such as Railways and Metro (ticketing and plateform) networks, Airports and Air-Traffic Control Facilities, Electric Sub-Stations, Power Distribution and Transmission companies, Oil and Gaz Utilities, ISPs and Cable TV networks as well as to Campus networks that are required to maintain a complete isolation from public networks for security reasons. It may be also used by 2G, 3G and LTE service providers which provide a time of day reference to their customers over their wireless networks.

VCL-3048 locks to a GPS/GNSS reference to provide an NTP time reference on a 10/100BaseT Ethernet Port which can be used to serve various types of assets in the networks.

The **VCL-3048** is equipped with a highly accurate, TCXO to provided a high stability holdover clock in the event of unavailability of the GPS/GNSS antenna failure, or a temporary loss of reception in a totally isolated network without any external reference. The VCL-3048 provides remote management and monitoring facility with a password based access using SSH as well as MD5 authentication to ensure operational reliability and security. Additional features include remote login and remote firmware upgrade (file transfert) capabilities. VCL-3048 includes complete SNMP monitoring as well as support for enterprise directory services for user authentication, internal and external logging and monitoring of alarm and error messages through Syslog ensures a high level of system manageability. Other features include DHCP for installation convenience and support concurrent IPv4/IPv6 networks to provide NTP time and frequency synchronization.

Applications Diagram
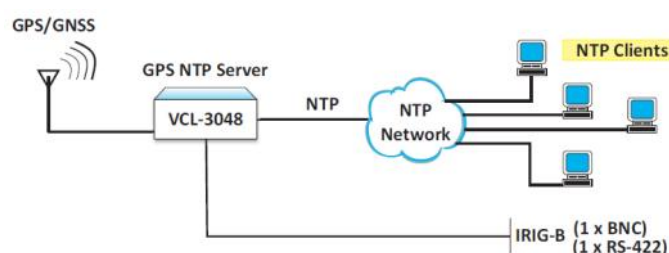
Supports Unicast, Multicast and Broadcast

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Leap Second correction Support

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Upto 3000 NTP requests per second

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MD5 authentication for NTP clients

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Meets and comply with Power Contact and Lightening Protection as per Telcordia GR-1089-CORE and EN61000-4-5 Level 3 specifications

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Supported network protocols : IPv4, IPv6, SSH, Telnet, FTP, SYSLOG

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Temperature Compensated quartz oscillators (TCXO) hold-over

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DC or AC Power supply options

Performance

The VCL-3048 provides a 10/100 BaseT Industrial Ethernet NTP port that meets and complies with "Power Contact and Lightening Protection" as per Telcordia GR-1089-CORE and EN61000-4-5 Level 3 specifications making it suitable for the equipment to be installed in harsh industrial environments which include Electric Sub-Stations, Railway and Metro Networks.

VCL-3048 provides a better than 30 nanosecond accuracy to assure high bandwidth NTP performance of better than 3000 NTP requests per second.

Product References

The Configuration can be managed by Graphical User Management Interface. A text based and menu driven setup utility is also available via Telnet or SSH. An optional Graphical User Network Management Interface (NMS° allows multiple systems installed on a networks to be monitored and configured from a single or multiple management locations.

Specifications

GPS/GNSS Receiver Specifications:

- 50 Channel GPS Receiver
- 72 Channel GNSS Receiver
- GPS L1 frequency, C/A Code Receiver
- Tracks up to 12 satellites simultaneously
- Synchronizing Time:
  - Acquisition time - Hot Start: 1 sec.
  - Acquisition time - Warm Start: 28 sec.
  - Acquisition time - Cold Start: 28 sec.
- GPS / GNSS Signal
  - Tracking and Navigation: -162 dBm
  - Reacquisition -160 dBm
  - Cold Start -148 dBm
- Antenna Connector: TNC
- Accuracy Of Time-Pulse Signal referenced to GPS: +/-30ns
- Accuracy Of Time-Pulse Signal referenced to GNSS: +/-20ns
  (Note: with all satellites in view at -130db)

Holdover Clock:

- TCXO (Temperature Compensated Crystal Oscillator)
  Accuracy
  +/- 2.5ppm

Synchronization Input:

- 1 x GPS / GNSS (TNC)

NTP Output:

- 1 x 10/100Mbps NTP / SNTP Interface

IRIG-B Outputs:

- 1 x 1 PPS, phase-locked to UTC (BNC)
- 1 x IRIG-B Un-Modulated (BNC-50 Ohms) (B000, B002, B003, B004, B005, B006, B007
- 1 x IRIG-B Un-Modulated, RS-485 Twisted pair (B000, B002, B003, B004, B005, B006, B007)
- 1 x IRIG-B Un-Modulated, RS-232 Twisted pair (B000, B002, B003, B004, B005, B006, B007)

Smart Solutions for Smart Networks

Specifications

Configuration and Monitoring Software:

- Telnet, SSH, CLI
- NMS - GUI (Graphical User Interface) - Runs on any PC operating on Windows 7, Windows 8 or Windows 10 OS.

Network Time Protocol:

- NTP v2, (RFC 1119), NTP v3 (RFC 1305), NTP v4, (RFC 5905), SNTP v3 (RFC 1769), SNTP v4 (RFP 2030), MD5 Authentication
- Internet Protocol: IPv4/IPv6
- NTP version 4.2.8p7
- Time Protocol: TIME (RFC 868)
- Daytime Protocol: DAYTIME (RFC 867)
- Supports Unicast, Multicast and Broadcast

Local / Remote Management and Monitoring Ports:

- USB
- 10/100BaseT Ethernet RJ45
- 2 x External Alarm Relay Contacts.

Local / Remote Communication Options:

- Telnet / SSH (option to disable clear text communication to comply with NERC security requirements)
- CLI Control Interface (HyperTerminal or VT100)
- SNMPv2, SNMPv3 Traps (MIB provided)
- Syslog, HTTP, HTTPS
- TCP, UDP, FTP

MTBF:

- Per MIL-HDBK-217F: ≥ 33 years @ 24C
- Per Telcordia SSR 332, Issue 1: ≥ 42 years @ 24C

Security and Protection:

- Password Protection with password strength monitor
- SSH

Environmental (Equipment):

Operational	-25C to +65C
Cold start	-10C
Storage	-40C to +85C
Humidity	95% non-condensing
Cooling	Convention Cooled. No cooling fans are required.

Mechanical Specifications:

DIN Rail Mount Enclosure

Height	77.46 mm
Width	190 mm
Depth	172 mm
Weight	1.5 Kg

Standards & Compliance:

- IEC - EMC – Certified to EN 55022: CISPR 22, EN 55024:2005
- RoHS, CE – 2001/95/EC, 2006/95/EC, EN60950-1, EN61000-6-2, EN61000-6-4
- FCC – FCC Part 15 B Class A: Conducted Emission test on Power Line
- FCC Part 15 B Class A: Radiated Emission >1 GHz FCC, 6 GHz, on Power Line.

Power Supply:

- DC 24V
- DC 48V
- DC 110~220V (with external Adapter)
- AC power (100 to 240V AC, 50/60 Hz with external Adapter)
- Reverse Polarity Protection

Power Consumption:

- < 10W at ambient (steady state 24°C)

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Specifications

Antenna Specifications:

- Antenna Type: Active
- Polarization: Right hand circular
- Frequency Band: 1575.42 MHz ± 10 MHz
- Amplifier Gain: 40dB ± 4dB
- VSWR: <2.0 Max, 1.0 Typical
- Operating temperature: -40C to +85C
- Out of Band Rejection: ≥ -60dB @ ±50MHz off center (1575.42 MHz) frequency
- Lightening Protection: According to EN61000-4-5 Level 3 (Optional).
- LMR400 (or equivalent) Cable Length - 30, 50, 60 and 90 meters

Reference	Industrial Managed Switch
VCL-3048-DIN-DC	GPS NTP Time Server with IRIG-B. DIN Rail version Supports: 1 x 50 Channel GPS / 72 Channel GNSS L1 C/A Code Receiver, 1 x TCXO, Holdover Clock Inputs: 1 x GPS / GNSS (TNC (F)) Outputs: 1 x NTP Port [10/100BaseT, [4X2 Pin (M)]], 1 x 1PPS, phase-locked to UTC (BNC), 1 x IRIG-B Port [unmodulated 50 Ohms, BNC (F)], 1 x RS232 / IRIG-B Port [unmodulated Twisted pair], 1 x RS485 / IRIG-B Port [unmodulated Twisted pair] Power Supply: 1 x 15~60V DC Power Supply Input Management: Telnet (RJ45 (F) Port), Serial Port (USB), EMS, Graphical User Interface (GUI) ***Note: Add GPS 30dB antenna and cable , ligthning protection and cable.***
VCL-GPS-ANT-30DB	50 Ohm 30dB Gain PrecisionTiming GPS Antenna , [HRNS1313, N-Type (F)]
VCL-GPS-COAX-10M	GPS coax cable, N-Type (F) to N-Type (M), length 10m, outdoor cable ***Note: Other lengths exist, please contact CXR***
VCL-GPS-PROTEC	50 Ohm Lightning Protection Kit, High Frequency Coaxial Surge Protection Device (SPF)[N-Type (M) / N-Type (F)]