VCL-3086

IRIG-B TO NTP TIME SERVER

VCL-3086 – 19 Inch 1U Rack Mount

VCL-3086 – DIN Rail

Product Overview:

The VCL-3086, IRIG-B to NTP Time Server is designed to provide an NTP time source that is locked to a IRIG-B input reference to provide NTP / SNTP time synchronization to private networks such as Railways and Metro (ticketing and platform) networks, Airports and Air-Traffic Control facilities, Electric Sub-Stations, Power Distribution and Transmission companies, Oil and Gas Utilities, ISPs, Cable TV and Campus networks that are required to maintain a complete isolation from public networks for security reasons.

VCL-3086 locks to an IRIG-B (Un-Modulated IRIG-B 004) input to provide NTP time output on a 10/100BaseT Ethernet Port which can be used to serve various types of NTP / SNTP clients / slaves in the network.

VCL-3086 is equipped with a highly accurate, TCXO to provide a high stability holdover clock in the event of unavailability of the Input IRIG-B signal failure, or temporary loss of reception in a totally isolated network.

VCL-3086 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 transfer) capabilities.

VCL-3086 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.

Performance:

The VCL-3086 provides a 10/100BaseT Industrial Ethernet NTP Port that meets and complies with EN61000-4-5 Level specifications making it suitable for the equipment to be installed in harsh industrial environments which include Electric Sub-Stations, Railway and Metro Networks.

VCL-3086 is capable of servicing up to 3,000 NTP requests per second.

Monitoring and Management:

The VCL-3086 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 network to be monitored and configured from a single or multiple management locations.

Features and Highlights:

- High Accuracy IRIG-B time reference for SCADA applications
- 1 x 10/100 Mbit/s, RJ-45 NTP (Ethernet) interface
- High bandwidth NTP performance
- Services up to 3,000 NTP requests per second
- May be used to provide synchronization to up to 15,000 NTP and SNTP clients
- Supports Unicast, Multicast and Broadcast
- Leap Second correction support
- MD5 authentication for NTP clients
- Meets and complies with EN61000-4-5 Level 3 specifications
- Alert notifications via SNMP Traps, SNMPv2, SNMPv3
- Supported network protocols: IPv4, IPv6, SSH, TELNET, SFTP, SYSLOG
- Secure network management: clear text enable or disable options
- Status LED indication for IRIG-B Lock and Active Status
- Temperature Compensated quartz oscillators (TCXO) hold-over

Application Diagram:
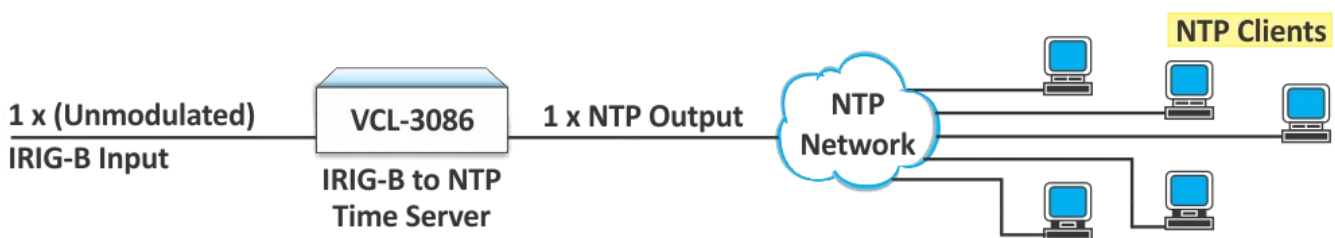
IRIG-B (Unmodulated) Input Specifications:

- IRIG-B Timecode Support: IRIG-B 004 [100pps, DCLS signal, no carrier CF, SBS, BCD (Time of Year), BCD (Year)]
- Support 0-3 V and 0-5 V IRIG-B 004 Input DCLS signal

Holdover Clock:

- TCXO (Temperature Compensated Crystal Oscillator)

Synchronization Input:

- IRIG-B Un-Modulated (BNC) 50 Ohms
- IRIG-B Un-Modulated 850nm, Multi-Mode, ST Connector

NTP Output:

- 1 x 10/100Mbps NTP / SNTP Interface

Management and Monitoring Software:

- Telnet / SSH (option to disable clear text communication to comply with NERC security requirements)
- 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, SHA1 Authentication
- Internet Protocol: IPv4/IPv6
- NTP version 4.2.8p7 or higher
- Time Protocol: TIME (RFC 868)
- Daytime Protocol: DAYTIME (RFC 867)
- Supports Unicast, Multicast and Broadcast

Local / Remote Management and Monitoring Ports:

- USB Serial Port
- 10/100BaseT Ethernet RJ45
- Telnet / SSH (option to disable clear text communication to comply with NERC security requirements)
- CLI Control Interface (HyperTerminal or Vt100)
- SNMPv2, SNMPv3 Traps (MIB files provided)
- Syslog, HTTP, HTTPS, TCP, UDP, FTP
- GUI (Graphical User Interface) - Runs on any PC operating on Windows 10 or higher OS.

Security and Protection:

- Password Protection with password strength monitor
- SSH

Environmental (Equipment):

Operational	-10C to +60C
Cold start	-10C
Storage	-20C to +75C
Humidity	95% non-condensing
Cooling	Convention Cooled. No cooling fans are required.

Mechanical Specifications DIN RAIL Mount:

- DIN Rail Mount Enclosure
- H x W x D: 42 x 168 x 175 mm
- Weight: 1.0 Kg

Mechanical Specifications: 19 Inch 1U Rack Mount:

- 19 Inch 1U Rack Mount Version
- H x W x D: 44 x 483 x 305 mm
- Weight: 2.4 Kg

Standards & Compliance:

- IEC - EMC – Certified to EN 55032: CISPR 32, 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 Specifications - DIN Rail:

Input DC voltage	48V DC (nominal)
Range of input voltage	18~60V DC Input
Voltage reversal protection	Protected
Short circuit protection	Protected

Additional Power Supply Options (external adaptor) – DIN Rail:

- AC Power - 100V AC to 240V AC, 50/60 Hz
- DC Power - 110V DC; 220V DC

Power Consumption:

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

MTBF:

- ≥ 33 years @ 24C, as per MIL-HDBK-217F

Ordering Information:

Part Number	Description
VCL-3086-DIN-BNC-DC018060	VCL-3086, IRIG-B to NTP Time Server DIN Rail Mounting Version Input: - 1 x IRIG-B Port [unmodulated 50 Ohms, BNC F connector] Output: - 1 x NTP Port [10/100BaseT, RJ45 (F)] Management: Telnet (RJ45 (F) Port), Serial Port (USB), EMS, Graphical User Interface (GUI) Installation Kit: System Core Cables, Mounting Hardware, Documentation, User Manual 1 x 18~60V DC Power Supply Input
VCL-3086-DIN-OPT-DC018060	VCL-3086, IRIG-B to NTP Time Server DIN Rail Mounting Version Input: - 1 x Optical IRIG-B, 820/850nm (Multi-Mode, ST connector) Output: - 1 x NTP Port [10/100BaseT, RJ45 (F)] Management: Telnet (RJ45 (F) Port), Serial Port (USB), EMS, Graphical User Interface (GUI) Installation Kit: System Core Cables, Mounting Hardware, Documentation, User Manual 1 x 18~60V DC Power Supply Input
VCL-3086-RAC-BNC	VCL-3086, IRIG-B to NTP Time Server 19-Inch, 1U Rack Mount Version Input: 1 x IRIG-B Port [unmodulated 50 Ohms, BNC F connector] Output: 1 x NTP Port [10/100BaseT, RJ45 (F)] Management: Telnet (RJ45 (F) Port), Serial Port (USB), EMS, Graphical User Interface (GUI) Installation Kit: System Core Cables, Mounting Hardware, Documentation, User Manual **# Add Power Supply Option**
VCL-3086-RAC-OPT	VCL-3086, IRIG-B to NTP Time Server 19-Inch, 1U Rack Mount Version Input: - 1 x Optical IRIG-B, 820/850nm (Multi- Mode, ST connector) Output: - 1 x NTP Port [10/100BaseT, RJ45 (F)] Management: Telnet (RJ45 (F) Port), Serial Port (USB), EMS, Graphical User Interface (GUI) Installation Kit: System Core Cables, Mounting Hardware, Documentation, User Manual **# Add Power Supply Option**

Additional Power Supply Options (External Adaptor) - DIN Rail:

Part Number	Description
VCL-EMOD 0444-AC220	External Power Supply - DIN Rail Mount Power Supply (External) AC to DC Converter, DRL30-24-1, DIN Rail Mount: Input: 1 x AC Input [90~240V AC, 50/60Hz] Output 1 x DC Output [24V DC~1.25A, 30W]
VCL-EMOD 0444-DC220	External Power Supply - DIN Rail Mount Power Supply (External) DC to DC Converter, DRL30-24-1, DIN Rail Mount: - Input 1 x DC Input [100~250V DC] - Output 1 x DC Output

Add Power Supply Option - 19-inch Rack: (Any One):

AC220	1 x 110~240V AC, 50/60 Hz, Power Supply Input
DC048	1 x 48V DC Power Supply Input
DC220	1 x 110~250V DC Power Supply Input
ACDC	1 x 110~240V AC, 50/60 Hz, Power Supply Input 1 x 48V DC Power Supply Input
ACDC220	1 x 110~240V AC Power Supply Input 1 x 110~250V DC Power Supply Input
AC220R	2 x 110~240V AC, 50/60 Hz, Power Supply Input [Redundant]
DC048R	2 x 48V DC Power Supply Input [Redundant]
DC220R	2 x 110~250V DC Power Supply Input [Redundant]