

## Introduction:

The **VCL-6066** is a compact, cost-effective, high performance, ITU-T G.811 compliant Primary Reference Clock. The VCL-6066 provides 2 x 2.048 MHz frequency and 2 x 2.048 Mbits (E1) clock outputs that are derived from its integrated GPS receiver.



The **VCL-6066**, Primary Reference Clock is specifically designed for the synchronization of 2G, 3G and LTE mobile telecommunications networks as well as backhaul wireline SDH / SONET and Synchronous Ethernet networks. It may also be used by Railways, Airports (including air-traffic control), power generation and power distribution companies and other utilities who require multiple frequency or bits outputs locked to a GPS Reference to provide highly precise synchronization reference Clock.

## Synchronization Input Options:

| Input Type | Number of Inputs | Connector |
|------------|------------------|-----------|
| GPS        | 1                | TNC (F)   |
| 10 MHz     | 1                | SMA (F)   |
| 1PPS       | 1                | SMA (F)   |

## GPS Synchronised (G.811) Outputs:

| Input Type       | Number of Outputs | Connector |
|------------------|-------------------|-----------|
| 2.048 MHz        | 2                 | BNC (F)   |
| 2.048 Mbits (E1) | 2                 | RJ45      |

## Applications:

- SDH/SONET transport networks
- Wireless and Wireline Telecom synchronization
- Cellular networks like UMTS, GPRS, 3G and LTE
- Frequency Reference for power generation and distribution companies and other utility companies
- Synchronization of Defence Networks
- Synchronizing airports and aviation communications
- Synchronizing railway signalling networks and railway communications.

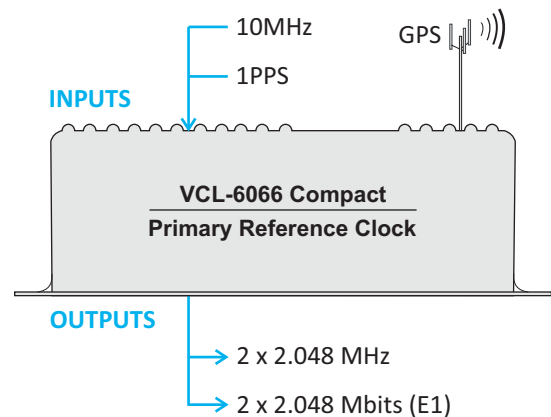
## Features and Highlights:

- ITU-T G.811 / Stratum 1 compliant (PRC) Primary Reference when locked to GPS
  - **Multiple Synchronization Inputs Source**
    - › GPS - 50 Channels, L1 frequency, C/A Code Receiver
    - › 10 Mhz
    - › 1PPS
  - **Multiple Synchronization outputs**
    - › ITU-T G.811 compliant, dual 2.048 MHz\*
    - › ITU-T G.811 compliant, dual 2.048 Mbits (E1)\*
- \*When locked to GPS

## Holdover Clock:

- High Stability OCXO disciplined PLL
- OCXO Frequency Stability:  $\pm 0.008$  ( $\pm 8$  ppb)

## Application Diagram:



## Technical Specifications

### GPS Receiver:

- GPS L1 frequency, C/A Code Receiver
- 50 Channel GPS Receiver
- Tracks up to 12 satellites simultaneously
- Synchronizing Time:
  - › Cold Start (includes almanac acquisition time): 27 seconds
  - › Time-To-Fix (almanac acquisition already completed): 1 second
 (Note: with all satellites in view at -130db)
- GPS Signal
  - › Tracking and Navigation -162 dBm
  - › Reacquisition -160 dBm
  - › Cold Start -148 dBm

## Technical Specifications

### Antenna Port:

- Antenna Connector: TNC (F)
- Antenna Types: Active

### Frequency Accuracy:

- ITU-T, G.811 quality when locked to GPS

### Power:

- 18V DC to 60V DC - DIN Rail Mounting
- Power Consumption: 15W at maximum load

### EMI, EMC, Surge Withstand and other Compliances: Terminal Equipment

|                                                                          |                |                |
|--------------------------------------------------------------------------|----------------|----------------|
| EN 50081-2                                                               | EN 50082-2     | IEC 60068-2-29 |
| IEC 61000-4-6<br>(Conducted Immunity)                                    | IEC 60068-2-14 | IEC 60068-2-6  |
| IEC 60068-2-2                                                            | IEC 60068-2-78 | IEC 60068-2-1  |
| CISPR 32 / EN55022 Class A<br>(Conducted Emission and Radiated Emission) |                |                |
| IS 9000 (Part II Sec. 1-4, Part III Sec. 1-5, Part IV, Part 14 Sec. 1-3) |                |                |
| IEC 60870-2-1                                                            | IEC 61000-4-2  | IEC 61000-4-5  |
| IEC 61000-4-4                                                            | IEC 61000-4-8  | IEC 61000-4-10 |
| IEC 61000-4-3 (Radiated Immunity)                                        |                | IEC 61000-4-11 |
| Telcordia, GR-1089 Surge and Power Contact                               |                |                |

### MTBF:

- Per MIL-HDBK-217F:  $\geq 27$  years @ 24C
- Per Telcordia SSR 332, Issue 1:  $\geq 32$  years @ 24C

### CE Compliance:

- Immunity as per EN 60255-26
- Low voltage directive as per EN 60255-27

### Environmental (Operational):

- Operating Temperature: -20C to +60C (-4F to 140F)  
(Fanless design – Does not require any forced air cooling)
- Maximum Operational Humidity 95% R.H. (Non-condensing)

### Physical Dimensions (DIN Rail):

- H x W x D: 42.0mm x 168.0mm x 175.0mm
- Weight: 0.7 KG

### Ordering Information:

| Part #       | Description                                                                                                                                                                                                                                  |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VCL-6066-DIN | VCL-6066 Compact Primary Reference Clock<br>DIN Rail Mount Version<br>- <b>Inputs:</b> GPS, 10 MHz and 1PPS<br>- <b>Outputs:</b> 2 x 2.048 MHz (BNC) and<br>2 x 2.048 Mbits (RJ45)<br>- <b>Power Supply:</b> 48VDC<br>(Range: 18V to 60V DC) |

Technical specifications are subjects to changes without notice.

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