

# VCL-6066 COMPACT

## PRIMARY REFERENCE CLOCK



## Introduction

The **VCL-6066** is a compact, cost-effective, high performance, ITU-T G.811 compliant Primary Reference Clock. The **VCL-6066** provides 2\* 2.048 MHz frequency and 2\*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

Output 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
- Synchronization airports and aviation communications
- Synchronizing railway signalling networks and railway communications

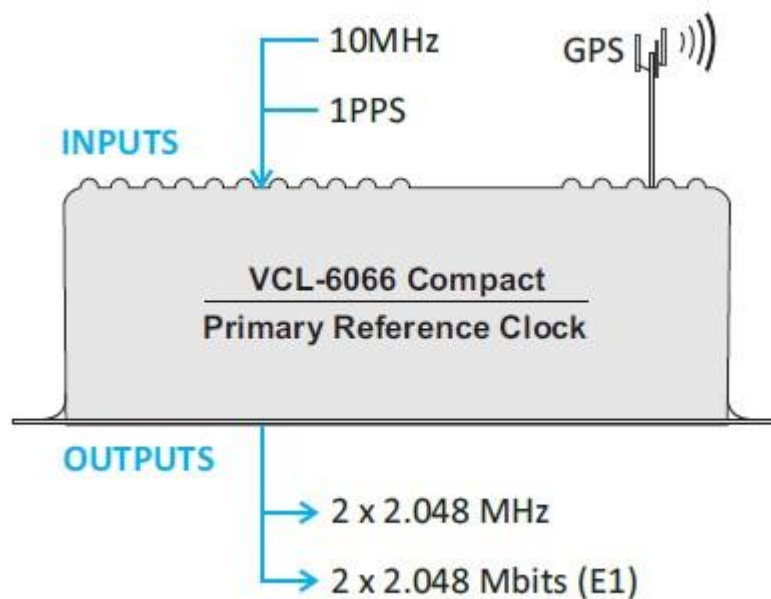
## Features and Highlights

- 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
  - ⇒ 1 PPS
- **Multiple Synchronization Outputs**
  - ⇒ ITU-T G.811 compliant, dual 2.048 MHz (when locked to GPS)
  - ⇒ 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
- Synchronized 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

### Antenna Port

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

### Frequency Accuracy

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

### Power

- 18VDC to 60VDC—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 (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

(Conducted Emission and Radiated Emission)

IS90200 (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 @24 °C
- Per Telcordia SSR 332, Issue1:  $\geq 32$  years @24 °C

**CE Compliance**

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

**Environmental (Operational)**

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

**Physical Dimensions (Din Rail)**

- H\*W\*D: 42mm\*168mm\*175mm
- Weight: 0.7Kg

## Ordering Information

Part #	Description
VCL-6066	VCL-6066 Compact Primary Reference Clock DIN-Rail Mount Version <ul style="list-style-type: none"> <li>• Inputs: GPS, 10 MHz and 1 PPS</li> <li>• Outputs: 2 * 2.048 MHz (BNC) and 2 * 2.048 Mbits (RJ45)</li> <li>• Power Supply: 48VDC (Range 18 VDC to 60VDC)</li> </ul>



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