Valiant’s VCL-2103 SUB-MASTER CLOCK is a high-performance intermediate time synchronization source which may be directly synchronized to a Primary GPS Reference (Master) Clock or any other NTP time source to provide Time-of-Day synchronization to secondary NTP / SNTP Slave devices in the network. The VCL-2103 Sub-Master Clock mediates between the Primary GPS Reference (Master) Clock or any other time source and the Slave NTP / SNTP devices, such as Time-Of-Day Display Clocks in a LAN, to effectively isolate the GPS Primary Reference Clock Source from the NTP / SNTP Slave devices and provide NTP / SNTP time-of-day synchronization with millisecond accuracy.

The VCL-2103 Sub-Master Clock provides two distinctly separate Ethernet Ports, each of which is assigned its own IP address which allows the VCL-2103 Sub-Master Clock to synchronize with the Primary GPS Reference (Master) Clock and to also provide time synchronization to multiple Slave NTP / SNTP devices in a LAN network.

Multiple VCL-2103 Sub-Master Clock Units can be installed in a network to synchronize with the Primary GPS Reference (Master) Clocks to provide 1+1 or n+1 source redundancy in a NTP / SNTP time synchronization network.

Features, Highlights and Options:
- IPv4 compliant Sub-Master Clock
- Ethernet 10/100BaseT, NTP / SNTP Date and Time
- Synchronization
- EEPROM for setting retention after power down
- High-Performance NTP Server running at 533MHz clock speed
- Unmatched security. Password Protection and Firewall. Resistant to DOS (Denial of Service) attack and unauthorized access
- Capable of serving up to 1500, VCL-2106 Slave Display Clocks or other standard / third party NTP/SNTP Clients

Input:
- 1 x 10/100/1000BaseT Ethernet NTP Input Port with automatic synchronization to redundant NTP Server(s) based upon Stratum level of source for master clock synchronization.

Output
- 1 x 10/100BaseT Ethernet NTP / SNTP Output Ports for slave device(s) synchronization

Reliability and Timing Accuracy:
- May be provisioned in a 1+1, or n+1 redundant configuration.
- Dual OCXO based, extremely high (best in class) internal clock accuracy.
- The clock drift is less than ± 0.001 second in a 24 hour time-period / 0.5 second per year (in the temperature range of -10°C to +50°C) in the event of loss of synchronization of the referenced time source.

Environmental:
- Temperature:
  - Operating Range: -20°C to +65°C
  - Storage: -40°C to +75°C
- Humidity: 0-95% (without condensation)
- Altitude: Up to 3000 meters
- Industrial Hardened Design. Non-corrosive chassis.
- Protection: IP 30

Certification:
- CE and FCC approval
- Conducted Immunity as per IEC 61000-4-6
- Radiated Immunity IEC 61000-4-3
- Meets and exceeds CISPR 22 / EN55022 Class B emission requirements
- Voltage and Surge Withstand: Meets and exceeds IEC 61000-4-2, IEC 61000-4-4, IEC 61000-4-5 specifications.
- Intermittences and Voltage variations meets and exceeds IEC 61000-4-11 specifications.
Local / Remote Management and Monitoring Ports:
- RS-232C
- USB
- 10/100BaseT Ethernet RJ45
- 1 x External Alarm Relay Contact

Local / Remote System Access, Control and Management Options:
- Telnet, SSH
- Online Firmware upgrade
- CLI Control Interface (HyperTerminal or VT100)
- SNMP V2 Traps (MIB File provided)

MTBF (Mean Time Between Failure):
- Per MIL-HDBK-217F: > 25 years @ 40C
- Per Telcordia SSR 332, Issue 1: > 29 years @ 40C

Power Supply Options*:
- 24V DC
- 48V DC
- 110V DC
- 90V AC-240V AC, 50/60 Hz
- 1+0 and 1+1 Dual Redundant Power Supply Options

Power Consumption:
- < 10 Watts

Description: VCL-SMC, Sub Master Clock:
- Remote Management over TCP-IP Network
- 19-Inch, 1U
- 1 x NTP, 10/100/1000BaseT Ethernet Input Ports (NTP Receiver / Client Port)
- 1 x NTP / SNTP, 10/100BaseT Ethernet Output Ports (NTP Host / Server Port)

Ordering Information and Dimensions:

<table>
<thead>
<tr>
<th>Version</th>
<th>Width</th>
<th>Height</th>
<th>Depth</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCL-2103</td>
<td>480 mm</td>
<td>44 mm</td>
<td>250 mm</td>
<td>2.2 kgs</td>
</tr>
</tbody>
</table>

* Please specify the required power supply option.