



# N200<sup>TM</sup>

PTP( IEEE1588 v2-2008) Grand Master

## Features

- PTP( IEEE1588 v2-2008) Grand Master
- Stratum-1 Standalone Network Timing Supply
- High Accuracy & Stability
- Fast GPS Locking
- Flexible Pulse Output
- Operational Event Logging
- ODM/OEM Agreement



### Key Features

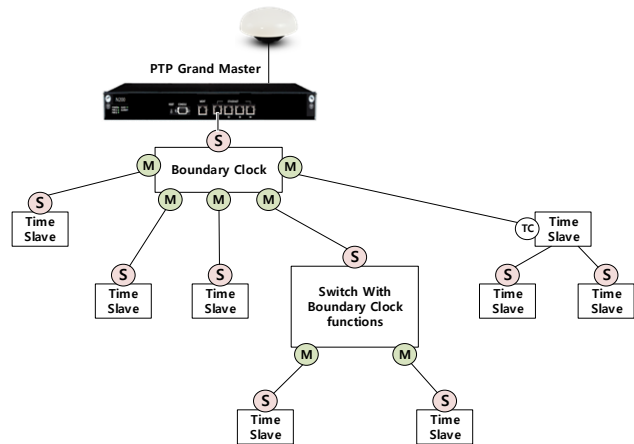
- IEEE1588-2008 Precision Time protocol Grandmaster
- Disciplined by GNSS(GPS and GLONASS) Receiver
- Supported PTP Profiles:
  - ITU-T G.8265.1
  - IEEE C37.238-2011
- Synchronization of NTP and SNTP compatible clients
- Supported PTP Profiles:
  - IPv4, PTP/IEEE 1588-2008, NTP, SNTP, HTTP
  - SNMP, SSH, SNMP, TELNET
- Full SNMP v1,v2,v3 support with own SNMP-daemon for status and configuration and SNMP Trap
- PTP output client capacity:
  - 128 clients: 64 messages per seconds per client condition
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### Major Application

- LTE-FDD, LTE-TDD, LTE-A networks
- Power grid substations and Energy generation facilities: synchronization

### Descriptions

The P200 is a high-performance IEEE 1588 version 2 standard compliant Grandmaster Clock for distribution of frequency, phase and time synchronization over packet-based network. N200 is designed to deliver precise and reliable frequency, phase and time-of-day information in application including LTE-FDD, LTE-TDD, LTE-A networks, Power grid substations and Energy generation facilities, media broadcast and any other systems which needs time and frequency synchronization.



In many applications which needs time and frequency synchronization, reliable and accurate delivery of frequency, phase and time has become increasingly critical. N200 meets this needs. N200 is equipped with GNSS Receiver , high stable OCXO or Rubidium Oscillator and, the GNSS Receiver is supporting GPS and GLONASS to achieve precise synchronization, therefore enabling operators to meet Stratum 1 requirements without the need to install and manage external receivers or Cesium reference clock sources.

The timing reference of GNSS has Jitter and wander is filtered by high-quality oscillator, utilizing Rubidium or OCXO technology. The holdover algorithm of N200 makes it possible to maintain timing accuracy within 0.1ms in absence of GNSS signal over 1 week.

The PTP synchronization distribution hierarchy can consequently be flattened, resulting in reduced overall provisioning, operations and maintenance costs.

N200 has dual power input, one power supply as a primary power supply and the other power supply as back-up. If the primary power supply input fails, the second power supply immediately supports the switch without any disruption of PTP service.

## Technical Information

Items	Description
Mechanical	<ul style="list-style-type: none"> <li>1U 19 inch Rack type</li> <li>Size(W x D x H) 44cm x 29cm x 4.4cm</li> </ul>
GNSS Receiver	<ul style="list-style-type: none"> <li>GPS L1 , GLONASS L1</li> <li>GPS Antenna전원 5VDC</li> <li>Impedance : 50 Ohms</li> </ul>
Interface	<ul style="list-style-type: none"> <li>2 AC Power IEC 60320 C14 Socket, option: DC Connector</li> <li>1 Reset button</li> <li>1 RS232 Console port , 115200 bps</li> <li>1 Gigabit Management port, 4 Gigabit PTP port</li> <li>1 GNSS port: TNC Connector</li> <li>2 Grounding lugs</li> </ul>
IEEE1588 PTP	<ul style="list-style-type: none"> <li>PTP output client capacity <ul style="list-style-type: none"> <li>128 clients: 64 messages per seconds per client condition</li> <li>64 clients: 128 messages per seconds per client condition</li> </ul> </li> <li>Layer 3 unicast/multicast IPv4</li> <li>ITU-T G.8265.1</li> <li>IEEE C37.238-2011</li> <li>VLAN</li> <li>Best Master Clock Algorithm(BMCA)</li> </ul>
Time and Frequency accuracy	<ul style="list-style-type: none"> <li>Timing Accuracy : &lt; 30 ns typical ( GNSS Locked condition)</li> <li>Frequency Accuracy : &lt; 1E-11 ( GNSS Locked condition)</li> </ul>
Holdover performance	<ul style="list-style-type: none"> <li>&lt; 0.1ms for 7 days</li> </ul>
Network Support	<ul style="list-style-type: none"> <li>Support IPv4 , need software upgrade for IPv6 support</li> <li>HTTP ICMP / PTP / VLAN</li> <li>SNMP v1, v2, v3 / SSH / telnet</li> <li>SNTP v3</li> <li>NTP v3, v4</li> </ul>
Management	<ul style="list-style-type: none"> <li>Status LEDs on front panel</li> <li>Local RS232C port, TL1 protocol on front and rear panels</li> <li>SNMP v1, v2, v3 / SSH / telnet</li> </ul>
Power	<ul style="list-style-type: none"> <li>AC100V~AC240V , OCXO: 30W Max, Rb.: 50W Max.</li> <li>Option: 36VDC~72VDC</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>Operating temperature: -5 to + 45°C</li> <li>Storage temperature: -20 to + 50°C</li> <li>Humidity: 5 to 95% no condensing</li> </ul>