PTP80 Elite GrandMaster Clock

The PTP80 Elite GrandMaster Clock generates and distributes precisely synchronised time across packet networks.

Key Features

- **Uses Precision Time Protocol (PTP) to IEEE-1588 v2**
- **Distributes time to remote PTP clients and slaves over a network**
- **Multiple PTP80's can be utilised for load sharing resilience and increased support**
- **Advanced hardware-generated timestamps**
- **GPS input source with multiple alternative inputs available**
- **Internal disciplined oscillator continues to provide stability if input source interrupted**
- **Rubidium or Quartz Oscillators**
- **Choice of auxiliary outputs include 1PPS & 10MHz, E1/T1 and IRIG-B**
- **Platforms: 19 inch 1U high rack mountable chassis**
- **OEM Board design also available providing Equipment Manufacturers with a fast track PTP implementation.**

The PTP80 Elite GrandMaster Clock incorporates hardware based time stamping, providing the highest level of timing and frequency over a broad range of wireline and wireless applications using Precision Time Protocol (PTP), described in the IEEE 1588-2008 version 2 standard.

Typical Applications Include:

- Telecommunications
  - LTE
  - Ethernet / IP Backhaul (Synchronisation of Base Stations)
- WiMAX
- Broadcasting (Synchronisation of DVB / DAB Transmitters)
- Power Utilities (Applications requiring Time of Day)
- Applications requiring Precise Timing delivered over a Packet Network

System Benefits:

- Precise timing and synchronisation over Packet Based Networks
- Rapid migration to Ethernet / IP Backhaul in Mobile Networks
- Complete End to End PTP Solution with PTP8 Slave Network Time Client
- Interoperability with 3rd Party PTP Clients
- Front panel has a large alphanumeric LCD, status indicator and 5-segment button for visual status and minimal configuration.

PTP80 ELITE GRANDMASTER CLOCK SPECIFICATIONS

GENERAL

Internal oscillator: Rubidium or OCXO
Network timing client: PTP (IEEE1588v2)
Communications : RS-232 (RJ45)
                     Ethernet 10/100/1000Base-T (RJ45 x2)
                     Ethernet 1000Base-X SFP
Unicast / Multicast Operation
Best Master Algorithm (BMC) according to IEEE1588v2
ITU-T G.8261 compliant

PTP80 ELITE INPUTS

GPS Antenna
1575MHz L1
50 Ohm BNC Socket
The PTP80 is supplied with our Weatherproof High
  Performance GPS Antenna which includes a 35db
  preamplifier and dual band pass filters.

Alternative Inputs
GLONASS Option
BEIDOU Option
2048kHz
10MHz
1PPS Input
Time of Day Serial Message RS232
Customer Special Requests / Options – consult factory

PTP80 ELITE PTP OUTPUTS

PTP: IEEE 1588v2
Provides ±100 nanosecond timing accuracy (locked to GPS)
Connectors: 2 xRJ45 10/100/1000Base-T
                      1 x1000Base-X SFP

PTP80 ELITE AUXILIARY OUTPUTS

Number of Auxiliary Outputs: 4

E1/T1 Frequency Output
Number of E1 outputs: 1
Transmit bit rate: 2.048KHz
Line encoding: HDB3
Connector: BNC 75 ohm Unbalanced RJ48, 120 ohm option
T1 option available

Frequency Output
Number of 10MHz outputs: 1
10MHz sinusoidal phase aligned +/- 100ns of 1PPS output
1Vrms into a 50 ohm load
Connector: BNC 50 ohm

1PPS Output
Number of 1PPS outputs: 1
-2.5Vpp +/- 0.1Vpp into a 50ohm load
0.1Vpp into a 50 ohm load
Connector: BNC socket grounded 50 ohm

Time of Day Serial Message RS232
Number of Serial outputs: 1
NMEA GPRMC message format.
9600 baud, 1 stop bit and no parity

NTP(V3rfc1305)
RJ45 10/100Base-T (via DCN port)
Client system accuracy up to 1 millisecond. (GPS)

IRIG-B
Range of selectable outputs including IEEE1344 extension

FREQUENCY / TIMING ACCURACY

Frequency/timing accuracy (Locked to GPS)
Frequency: Better than 10ppb possible (Network Dependent)
Timing: Better than 100ns possible (Network Dependent)

Holdover accuracy Rubidium
Holdover Frequency $1 \cdot 10^{-11}$ per °C
Time Holdover 10μs over 5 days at 25°C

Holdover accuracy OCXO
Holdover Frequency $1 \cdot 10^{-10}$ per °C
Time Holdover 10μs over 1 day at 25°C

Oscillator Options
Please consult factory with requirement, options include ITU-T
G.812 / 813

PERFORMANCE

Support up to   50 PTP Clients @ 64 packets/s
                   80 PTP Clients @ 32 packets/s
                  128 PTP Clients @ 16 packets/s
Configure according Acceptable Master Table for multiple units
providing increased levels of Client support and load sharing resilience.

PHYSICAL

19" x 1U x 200mm
ETSI Rack Fixings
Weight 3kg typical depending on configuration
Options – OEM Board Designed to Customer's Specification

POWER

AC: 60 – 240V AC 47 to 63Hz
DC: Optional Dual DC Input

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature: 0°C to +50°C (please contact factory for
advice outside this range)
Storage Temperature: -5°C to +60°C
Humidity: up to 95% RH (non-condensing)

MANAGEMENT

40 x 2 Character LCD Display
5 Button Keypad
Local management: RS-232, RJ-45 port
Remote management:HTML Browser, RJ-45 port (10/100Base-T)
                              SNMPv1 (RFC 1157)
                              SNMPv3 (RFC 2271) next release
                              TL1 (GR-831-CORE)
NMS: Time and Frequency NMS
      OSS Integration

ALARMS

40 x 2 Character LCD Display
Web Browser
Dry Contact Single Pole Changeover

SECURITY

System Administrator Password Protection
4 Users Configurable Next Release
4 Sessions (across all management ports)
Lock to incoming IP Address

COMPLIANCE

CE
RoHS
Consult factory with requirement for your country / application

EMISSIONS / IMMUNITY

EN6100
Consult factory with requirement for your country / application

PROTOCOLS

ANSI T1.101
DHCP
GR-1244
HTTP (RFC 2616)
IEEE 802.3
IPv4
ITU G.812, G.813, G.823, G.824, G.703, G.704
PTPv2 (IEEE 1588)
SNMP v1 (RFC 1157)
SNMP v3 (RFC 2271)
TL1 (GR-831-CORE)
Telnet (RFC 854)
FTP (RFC 959)
VLAN Next Release

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document only provides general indications of product capability, suitability and
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Rev 3.0

TIME & FREQUENCY
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