PTP-8080 Boundary Clock

- NTP time server
- PTP v1 or v2 Grand Master Clock
- PTP v1 or v2 Transparent Clock
- PTP v1 or v2 Slave Clock
- Combined NTP client and PTP Boundary Clock
- PTP protocol supports:
  - Unicast or multicast
  - Layer 2 or IP
  - 1-step or 2-step clock
  - Peer-to-Peer (P2P) or End-to-End (E2E) delay mechanism
  - PTP version translation
- Built-in GPS receiver (GMC variant) with time accuracy to absolute time < 50ns (with GPS lock)
- PTP accuracy < 20 nanosecond (*)
- 4 x 10/100/1000BASE-T(x) ports
- 4 x 10/100/1000BASE-X combo ports
- Wide operating temperature: [-40°F to 158°F] / [-40°C to 70°C]
- 100-240AC power input
- Network redundancy: OnTime-Ring- or MSTP/RSTP/STP protocol
- Network management: Web, telnet, CLI and SNMP v1/v2/v3 with RMON
- Multicast filtering: IGMP snooping or static multicast filters
- IEEE802.1Q VLAN
- Event notification: through Syslog, Email, and SNMP trap

(*) Accuracy per network hop.

The PTP-8080 is a GPS Network Time Server (NTS) for NTP or PTP IEEE 1588 that provides secure, accurate and reliable time synchronization for networks and offers integrated fully managed switch capabilities for 8 (10/100/1000BASE) Gigabit Ethernet ports. The PTP-8080 can be used for data centers, test facilities, military installations, federal or municipal agencies, financial services and technology firms, and many other enterprises which need precision timing to support their network operations.

The PTP-8080 provide exact time over Ethernet either based on the well-established NTP/SNTP protocol or PTP according to IEEE 1588 Std 2008. It not only provides NTP and PTP timing capabilities, but also a variety of other time codes and signals, such as GPS emulation and IRIG-B. The unit also provides backwards compatibility for older timing systems. Such interfaces are normally provided on the network boundaries integrated on relevant SNTP clients or PTP Slave Clocks platforms.

The PTP-8080 is used for applications that require reliable timing to accurately synchronize networks, systems, and devices and to log events with legally traceable time. The PTP-8080 Series offers a broad portfolio of features, including network master clocks (NTP or PTP), monitoring and management

1153 Warner Ave . Tustin . CA . 92780 . USA
(714) 755 1050 . (714) 755 0175 (FAX) . www.brandywinecomm.com

capabilities, and a complete software package to deliver high performance timing for network applications and devices. The PTP-8080 is easy-to-install and is full configurable to customize its features, interfaces, ports and protocols to your needs. These features include remote login and file transfer capabilities, which provide the utmost security using industry standard interfaces. A full-suite of network protocols includes SNMP capability, support for enterprise directory servers to authenticate users, internal and external logging and monitoring of error messages through Syslog, DHCP for installation convenience, and IPv4.

The PTP-8080 is a reliable and accurate NTP and PTP Grand Master Clock fulfilling the IEEE 1588 Std 2002 (v1) and IEEE 1588 Std 2008 (v2). The PTP-8080 contains a built-in state-of-the-art GPS receiver that is used as the time base for the GMC clock. The PTP-8080 platform supports both 1-step and 2-step clock modes and either E2E or P2P as the delay mechanism. This means that all possible PTP profiles can be supported. The platform maximizes PTP performance since all critical PTP functions are implemented in hardware. The switch functionality in the PTP-8080 series offer full management based on HTTP, telnet, CLI or SNMP. Network Redundancy is achieved based on the OnTime-Ring- or MSTP/RSTP/STP (IEEE 802.1s/w/D) protocol. The unit offers a wide operating temperature range: [-40°F to 158°F] / [-40°C to 70°C].

Specifications

Ethernet LAN ports	
10/100/1000 BASE-TX ports in RJ45 Auto MDI/MDIX	4-8
1000BASE-X SFP slots	4
BNC	
GPS antenna interface	Male BNC connector
OUT1	PPS output signal
10MHz	10MHz reference
Technology	
Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX and 100Base-FX IEEE 802.3z for 1000Base-X IEEE 802.3x for Flow control IEEE 802.3ad for LACP (Link Aggregation Control Protocol) IEEE 802.1D for STP (Spanning Tree Protocol) IEEE 802.1p for COS (Class of Service) IEEE 802.1Q for VLAN Tagging IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol) IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol) IEEE 802.1X for Authentication IEEE 802.1AB for LLDP (Link Layer Discovery Protocol) IEEE 1588 Std 2002 (PTPv1) IEEE 1588 Std 2008 (PTPv2) RFC 4330 NTP
MAC table	8192 MAC addresses
Priority queues	4
Switch properties	Store-and-forward and full wire speed on all ports
Security Features	Enable/disable ports, MAC based port security Port based network access control (802.1x) VLAN (802.1Q) to segregate and secure network traffic Radius centralized password management SNMPv3 encrypted authentication and access security
Network redundancy	OnTime-Ring STP/RSTP/MSTP
Management	HTTP, telnet, CLI and SNMP v1/v2/v3 or IPSet tool. iNET ready; iNET MIB v0.8.5 supported.
Other protocols	Multicast filtering based on: - IGMP snooping v1, v2 or v3 - Static multicast filter setting - Up to 1024 multicast filters can be active Port rate limiting TOS/Diffserv supported Quality of Service (802.1p) for real-time traffic VLAN (802.1Q) with VLAN tagging and GVRP Port configuration, status, statistics, monitoring, security
Console ports	2 x RS-232 in RJ45 connector – service port for PTP- and switch CPUs. Baud rate setting: 9600bps, 8, N, 1
NTP	
NTP clock modes	Client or server; client can be used in combination with PTP MC operation (kind of PTP BC operation), where NTP client is the time base of the switch.
NTP server	
Accuracy	100us
IEEE1588	
PTP clock modes	GMC, TC or SC
PTP versions	Both PTPv1 and PTPv2 (only PTPv2 for TC-STND)
Delay mechanism	End-to-End(E2E) or Peer-to-Peer (P2P) (only E2E for TC-STND)
1 step- or 2 step clock	Both (only 1 step clock for TC-STND)
PTP version translation	PTPv1 to/from PTPv2 (not supported on TC-STND)

1153 Warner Ave . Tustin . CA . 92780 . USA
(714) 755 1050 . (714) 755 0175 (FAX) . www.brandywinecomm.com

Accuracy	20ns
Power	
Input Power	100-240AC
Power Consumption (Typ.)	20 Watts (typical)
Physical Characteristics	
Enclosure	IP30, Aluminum case
Dimension (W x D x H)	443.7(W) x 260(D) x 44(H) mm (17.47 x 10.24 x 1.73 inch.)
Weight (g)	2500g
Installation	19” mounting.
Environmentala	
Storage Temperature	[-40°F to 185°F] / [-40°C to 85°C]
Operating Temperature	[-40°F to 158°F] / [-40°C to 70°C]

Variants	**Description**
NTS	Managed Ethernet switch with NTP or PTP Network Time Server support; 4 x 10/100/1000BASE-TX and 4 x 10/100/1000BASE-X combo ports

Ordering Information

Product	
CM-1608FC4-NTS-PTP-GMC	NTS with PTP GMC or TC/SC support.
CM-1608FC4-NTS-PTP-TC	NTS with TC/SC support.
CM-1608FC4-NTS-NTPcli-PTP	NTS with NTP client and PTP BC support.

Options:	
SFP-1000BASE-SX	1000 Mbps fiber transceiver, LC–connector, 850nm, multi mode, 550m
SFP-1000BASE-LX	1000 Mbps fiber transceiver, LC–connector 1310nm, single mode, 10km
SFP-1000BASE-LHX	1000 Mbps fiber transceiver, LC–connector 1310nm, single mode, 30km
ACC-CAB-N_BNC_2/10	GPS cable 2/10 meters with female N- and male BNC connectors
ACC-CAB-N_BNC_10	GPS cable 10 meters with female N connectors (relevant in case surge arrestor is used)
ACC-ANT-N	GPS antenna with male N connector
ACC-SUR_ARRESTOR	Huber +Suhner surge arrestor with female N connector.

1153 Warner Ave . Tustin . CA . 92780 . USA
(714) 755 1050 . (714) 755 0175 (FAX) . www.brandywinecomm.com