

## PTP-8080 Grand Master Clock



- NTP time server
  - PTP v2 Grand Master Clock
  - PTP v2 Transparent Clock
  - PTP v2 Slave Clock
  - NTP client
  - PTP protocol supports:
    - Multicast
    - Layer 2 or IP
    - 2-step clock
    - Peer-to-Peer (P2P) or End-to-End (E2E) delay mechanism
  - 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: RSTP 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 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 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 NSTP 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<br>BASE-TX ports in<br>RJ45 Auto<br>MDI/MDIX | 4-8 |
| 1000BASE-X SFP<br>slots                                  | 4   |

### BNC

|                          |                                      |
|--------------------------|--------------------------------------|
| GPS antenna<br>interface | Male BNC connector                   |
| OUT1<br>10MHz            | PPS output signal<br>10MHz reference |

### Technology

|                   |  |
|-------------------|--|
| Standards         | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX<br>and 100Base-FX<br>IEEE 802.3z for 1000Base-X<br>IEEE 802.3x for Flow control<br>IEEE 802.3ad for LACP (Link<br>Aggregation Control<br>Protocol)<br>IEEE 802.1D for STP<br>(Spanning Tree Protocol)<br>IEEE 802.1p for COS (Class of<br>Service)<br>IEEE 802.1Q for VLAN<br>Tagging<br>IEEE 802.1w for RSTP (Rapid<br>Spanning Tree Protocol)<br>IEEE 802.1s for MSTP<br>(Multiple Spanning Tree<br>Protocol)<br>IEEE 802.1X for<br>Authentication<br>IEEE 802.1AB for LLDP (Link<br>Layer Discovery Protocol)<br>IEEE 1588 Std 2002 (PTPv1)<br>IEEE 1588 Std 2008 (PTPv2)<br>RFC 4330 NTP |
| MAC table         | 8192 MAC addresses   |
| Priority queues   | 4  |
| Switch properties | Store-and-forward and full<br>wire speed on all ports  |

### Technology

|                                     |  |
|-------------------------------------|--|
| Security Features                   | Enable/disable ports, MAC<br>based port security<br>Port based network access<br>control (802.1x)<br>VLAN (802.1Q ) to segregate<br>and secure network traffic<br>Radius centralized password<br>management<br>SNMPv3 encrypted<br>authentication and access<br>security   |
| Network<br>redundancy<br>Management | OnTime-Ring<br>STP/RSTP/MSTP<br>HTTP, telnet, CLI and SNMP<br>v1/v2/v3 or IPSet tool.<br>iNET ready; iNET MIB v0.8.5<br>supported.<br>Multicast filtering based on:<br><ul style="list-style-type: none"> <li>- IGMP snooping v1,<br/>v2 or v3</li> <li>- Static multicast<br/>filter setting</li> <li>- Up to 1024<br/>multicast filters can<br/>be active</li> </ul> Port rate limiting<br>TOS/Diffserv supported<br>Quality of Service (802.1p)<br>for real-time traffic<br>VLAN (802.1Q) with VLAN<br>tagging and GVRP<br>Port configuration, status,<br>statistics, monitoring,<br>security |
| Other protocols                     |  |
| Console ports                       | 2 x RS-232 in RJ45 connector<br>– service port for PTP- and<br>switch CPUs. Baud rate<br>setting: 9600bps, 8, N, 1   |
| <b>NTP</b>                          |  |
| NTP clock modes<br>NTP server       | Client or server; client can<br>be used in combination with<br>PTP MC operation (kind of<br>PTP BC operation), where<br>NTP client is the time base of<br>the switch.  |
| Accuracy                            | 100us  |

### IEEE1588

|                         |  |
|-------------------------|--|
| PTP clock modes         | GMC, TC or SC  |
| PTP versions            | 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 | 2-step   |
| 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.   |

### Environmental

|                       |                                    |
|-----------------------|------------------------------------|
| 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

| 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.                                  |