brandywine communications

OSA 5240 GPS Node Clock

Network Edge GPS Synchronization

Features

- **Small office/ Network Edge Device**
- **Compact, economic, fully manageable GPS receiver with auxiliary E1/DS1/MHz line input**
- **High stability holdover with choice between OCXO or Rubidium oscillator**
- **Up to 16 outputs individually configurable by management software**
- **Up to 16 E1 or DS1 re-timing channels**
- **Full SSM support**
- **CC phase alignment between different sub-racks ensured by UTC absolute reference**
- **Optional NTP server or IRIG-B outputs**
- **Manageable locally via Local Manager and remotely via SyncView™ Plus**
- **NEBS level 3 certified**

General Information

Brandywine's Model OSA 5240 GPS is specifically designed for the synchronization of 2G, 2.5G and 3G mobile networks and SONET transport networks. Mobile location services such as E911 can also take advantage of this compact and economical synchronization solution that provides advanced features at a fraction of the cost of other currently available solutions.

Versatility

The OSA 5240 GPS is versatile: besides supplying GPS-based frequency references, it can also retime DS1 traffic channels whose timing has been impaired by SONET pointer adjustments; moreover, the OSA 5240 GPS can optionally provide NTP/IRIG-B time distribution. It is therefore possible to supply frequency outputs, retiming and time distribution information without having to install separate boxes, each with its GPS antenna, cabling, management connection, etc.

Reliability

The OSA 5240 GPS is reliable. In case of loss of the GPS signal, the system can lock onto its auxiliary input and still provide PRC traceable synchronization outputs.

Powered by OSCILLOQUARTZ

1153 Warner Ave. ● Tustin, CA 92780 ● 714-755-1050 phone ● 714-755-0175 fax
www.brandywinecomm.com info@brandywinecomm.com

brandywine communications

Technical Information

Holdover

The OSA 5240 GPS features the same high quality internal double-oven oscillator already used in the renowned 5581C GPS and can thus provide the same excellent holdover quality. As an option, the OSA 5240 GPS can also be equipped with a Rubidium oscillator for superior holdover performance.

Output Configurations

Brandywine's OSA 5240 GPS can be configured in a number of ways. For example, it can provide 8 or 16 output signals, whose type can be individually selected via management software by the user.

Alternatively, it is possible to configure 8 or 16 DS1 re-timing channels or a combination of output and re-timing (8 outputs + 8 re-timing channels).

Model OSA 5240 GPS can host a time distribution module providing either an embedded NTP server with separate 10 BaseT network connection or 4 IRIG-B output signals.

A unique feature of the 5240 GPS consists in providing CC outputs in phase with the UTC-derived PPS; this allows to ensure phase alignment between CC outputs from different 5240 sub-racks.

Manageability

The OSA 5240 GPS is manageable locally via Local Manager software and remotely via the renowned Oscilloquartz' SyncView™ synchronization network management system. This allows to combine, in the same network, the OSA 5240 GPS with other Oscilloquartz synchronization equipment while maintaining a complete view of the whole network via a single management system.

The equipment view is identical under LM and SyncView™, allowing operators to easily switch from one platform to the other. Finally, the OSA 5240 GPS can include an SNMP agent that allows the unit to be managed by any SNMP-compliant management software.

Applications

- Synchronization of cellular networks at BSC or MSC level
- Re-timing of traffic signals affected by SDH/SONET pointer adjustments
- Time and frequency reference for power utilities and public services
- UTC-traceable call billing thanks to NTP (or IRIG-B) time reference

Powered by OSCILLOQUARTZ

1153 Warner Ave. ● Tustin, CA 92780 ● 714-755-1050 phone ● 714-755-0175 fax
www.brandywinecomm.com info@brandywinecomm.com

brandywine communications

Technical Specifications

Possible Configurations:

- Minimal 4-output configuration:
  1x1.544 MHz, 1xPPS, 1x10 MHz, 1xDS1
- 8 outputs (up to 4 can be configured as CC)
- 8 re-timing
- 8 outputs (up to 4 can be configured as CC) + 8 re-timing
- 16 outputs (up to 8 can be configured as CC)
- 16 re-timing
- Optional NTP or IRIG-B time outputs on all above configurations

Time Distribution

- **NTP:**
  - 10 BaseT/Ethernet, RJ-45 connector (dedicated connector)
  - NTP version 3 (RFC-1305)
  - SNTP version 4 (RFC-2030)
- **IRIG-B:**
  - 2 x IRIG-B 122 (AM 1 kHz, 3Vpp nominal)
  - 2 x IRIG-B 012 (ACMOS, pulse width coded, 10ms res.)

Input References

- GPS with simultaneous tracking of 8 satellites
- 0.064, 1, 1.544, 2.048, 5, 10 MHz or 1.544/2.048 Mbit/s DS1 auxiliary input with SSM detection

Antenna

- Roof antenna
- Window/wall antenna
- 50', 100', 150', 330' cables with connectors

Performance when locked to GPS

- Timing accuracy:
  < 100ns pp (at constant temperature)
  < 150ns pp (at variable temperature, -5 °C to +55 °C)
- ADEV < 10^{-12} (10'000 seconds)

Management

- **Local management:**
  - Local Manager for OSA 5240 GPS, running on MS Windows XP, Windows 7,RS-232C port
  - 3 relay contacts (Major/Minor/Critical Alarms)
- **Remote management:**
  - SyncView™ synchronization management software, 10BaseT Ethernet, RJ-45 connector

Holdover performance

- **OCXO:**
  - Long term stability: 1x10^{-10} / day typical
  - Frequency stability: 6x10^{-10} pp (-5 °C to +55 °C)
- **Rubidium:**
  - Long term stability: 5x10^{-11} / month
  - Frequency stability: 2x10^{-10} pp (-5 °C to +55 °C)

Physical, Power Supply

- Sub-rack 19", 2U high
- 40 to 60 VDC floating input (48 VDC variant)
- 20 to 36 VDC floating input (24 VDC variant)
- 100 to 240VAC – 1.5A 50-60Hz
- Dual power connection
- Consumption: varying from 40W to 75W (depending on configuration)

Output Signals

- 8 or 16 outputs individually selectable by SW among:
  - 2.048 MHz compliant to G.703-13
  - 2.048 Mbit/s (E1) compliant to G.703-9 (incl. SSM)
  - 1.544 Mbit/s (DS1) compliant to GR-499-CORE (incl. SSM)
  - 64 kbit/s (CC) compliant to GR-378-CORE
  - 10 MHz, 1 Vrms sine, 50Ω
  - 1 PPS, 200 ms width, rise time < 20ns, 2.5 Vpp / 50Ω
  - RS 422 Standard
    - Frequency: 64kHz or 2.048MHz, user selectable
    - Standard: RS 422 V.11

Connector Panels

- BNC and Sub-D 9p for
  - 2.048 MHz (75Ω)
  - E1 asymmetrical (75Ω) or symmetrical (120Ω)
  - 10 MHz (50Ω)
  - 1 PPS (50Ω)
- BNC for RTU-E1 (75Ω)
- Sub-D for RTU-E1 (120Ω symmetrical)
- Wire-wrap for
  - 2.048 MHz (75Ω)
  - DS1 (100Ω symmetrical)
  - 10 MHz (50Ω)
  - 1 PPS (50Ω)
- Sub-D for RTU-T1 (100Ω symmetrical)
- Wire-wrap for RTU-T1 (100Ω symmetrical)

Re-timing

- 8 or 16 re-timed signals, either:
  - 1.544 Mbit/s (DS1) compliant to GR-499-CORE or
  - 2.048 Mbit/s (E1) compliant to G.703-9
- Configurable alarm thresholds in terms of slips per hour, per day, per week, on an individual channel basis.
- Certified NEBS Level 3

Powered by OSCILLOQUARTZ
SYMMETRICOM GROUP ELECTRONIC SYSTEMS

1153 Warner Ave. ● Tustin, CA 92780 ● 714-755-1050 phone ● 714-755-0175 fax
www.brandywinecomm.com info@brandywinecomm.com