

OSA 5240 GPS Receiver

The compact, flexible, manageable synchronization solution
for Mobile and SDH/SONET Networks

Introduction

The **OSA 5240 GPS** is specifically designed for the synchronization of 2G, 2.5G and 3G mobile networks and SDH/SONET transport networks.

DAB and DVB-T broadcasting networks and 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

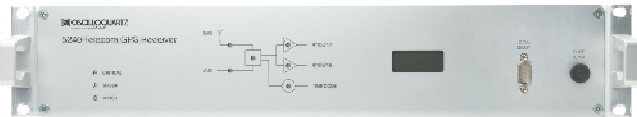
The **OSA 5240 GPS** is versatile. Besides supplying GPS-based frequency references it can also re-time E1/DS1 traffic channels whose timing has been impaired by SDH/SONET pointer adjustments. Moreover, the **OSA 5240 GPS** can optionally provide NTP/IRIG-B time distribution. It is therefore possible to supply frequency outputs, re-timing and time distribution information without having to install separate boxes, each with its own 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.

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 hold-over quality. As an option, the **OSA 5240 GPS** can also be equipped with a Rubidium oscillator for superior hold-over performances.



Highlights

- Compact, economic, fully manageable GPS receiver with auxiliary E1/MHz line input (DS1/MHz for OSA 5240 vers.T1)
- High stability holdover with choice between OCXO or Rubidium oscillator
- Up to 16 outputs individually configurable by management software
- Up to 16 E1 retiming channels (16 DS1 for OSA 5240 version T1)
- 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™ or SNMP Manager

Output Configurations

The two different versions of the **OSA 5240 GPS** (version E1 and version T1) can be configured in any 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 among the following: 10 MHz, 1PPS, 64 kHz RS422, 2 MHz RS422. In addition for the version E1: 2 MHz, 2 Mbits/s (E1) and for the version T1: 1.544 Mbits/s (DS1), 64 kbits/s CC (max 8 outputs)

Alternatively, it is possible to configure 8 or 16 E1 (DS1 for version T1) re-timing channels or a combination of output and re-timing (8 outputs + 8 re-timing channels).

Moreover, the **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 version T1 consists of its providing CC outputs in phase with the UTC-derived PPS. This insures phase alignment between CC outputs from different OSA 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.

Typical 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
- Synchronization of DVB-T transmitters in SFN (Single Frequency Networks)
- UTC-traceable call billing thanks to NTP (or IRIG-B) time reference

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Typical Characteristics

Possible Configurations:

- 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 config.

Input References

- GPS with simultaneous tracking of 8 satellites
- Auxiliary input configurable between 0.064, 1, 1.544, 2.048, 5, 10 MHz or 2.048 Mbit/s E1 with input SSM detection (1.544 Mbits/S DS1 for version T1).

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)

Holdover performance

OCXO:

- Long term stability: $\pm 1 \times 10^{-10}$ / day typical
- Frequency stability: $< 6 \times 10^{-10}$ pp (-5°C to +55°C)

Rubidium:

- Long term stability: $\pm 5 \times 10^{-11}$ / month
- Frequency stability: $< 1 \times 10^{-10}$ pp (-5°C to +55°C)

Output Signals

- 8 or 16 outputs individually selectable by SW among:
 - 10, 1 Vrms sine wave
 - 1 PPS, 200 ms width, rise time < 20ns, 2.5 Vpp
 - 64 kHz RSM422 V.11 symmetrical / 120Ω
 - 2.048 MHz RS422 V.11 symmetrical / 120Ω

Plus for OSA 5240 version E1:

- 2.048 MHz as per G.703-13
- 2.048 Mbit/s (E1) as per G.703-9 (incl. SSM)

Plus for OSA 5240 version T1:

- 1.544 Mbit/s (DS1) as per GR-499-CORE (incl. SSM)
- 64 kbit/s (CC) as per GR-378-CORE

Re-timing

- 8 or 16 re-timed signals, either:
 - 2.048 Mbit/s (E1) as per G.703-9 for 5240 version E1 or
 - 1.544 Mbit/s (DS1) as per GR-499-CORE for 5240 vers. T1

Configurable alarm thresholds in terms of slips per hour, per day, per week, on an individual channel basis.

Time Distribution

- NTP: - 10 BaseT/Ethernet, RJ-45 connector (dedicated connector)
- NTP version: 1, 2, 3 (RFC-1119 and 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.)

Antenna

- Roof antenna
- Window/wall antenna
- 10/20/60/120/300m cables with connectors
- Optical antenna for longer distance

Management

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

Physical, Power Supply

- Sub-rack 19", 2U high
- 20-36 VDC or 40-60 VDC power supply
- AC power supply: 100-240 $\pm 10\%$ VAC
- Dual power connection (only with DC power supply)
- Power failure detection alarm (with release ≥ 1.1)
- Consumption: varying from 40W to 50W (depending on configuration)

Connector Panels, type and impedance

- BNC and Sub-D 9p for : - 2.048 MHz (BNC 75Ω)
 - E1 asymmetrical(BNC 75Ω) or symmetrical(SUB-D 120Ω)
 - 10 MHz (BNC 50Ω)
 - 1 PPS (BNC 50Ω)
 - BNC for RTU-E1 (75Ω)
 - Sub-D for RTU-E1 (120Ω symmetrical)
 - Wire-wrap for :
 - 2.048 MHz (75Ω)
 - DS1 (100Ω symmetrical)
 - CC (133Ω symmetrical)
 - 10 MHz (50Ω)
 - 1 PPS (50Ω)
 - BNC and Sub-D 9p for : - 2.048 MHz (BNC 75Ω)
 - DS1 (SUB-D 100Ω symmetrical)
 - CC (SUB-D 133Ω symmetrical)
 - 10 MHz or 1PPS (BNC 50Ω)
 - SUB-D 9p for :
 - 64 kHz RS-422 (120Ω)
 - 2.048 MHz RS-422 (120Ω)
- Sub-D or Wire-wrap for RTU-T1 (100Ω symmetrical)M

Oscilloquartz SA reserves the right to change all specifications contained herein at any time without prior notice.

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