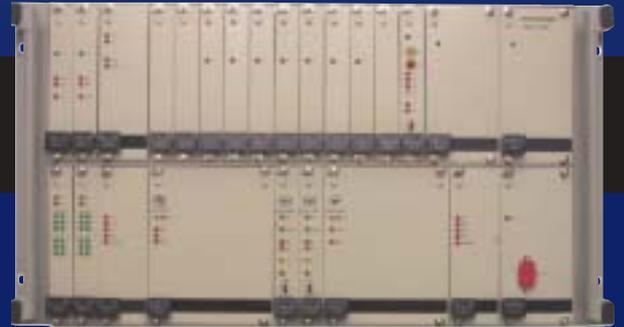


# OSA 5548B SASE

## Stand-Alone Synchronisation Equipment



ITU-T G.811/G.812 compliant SSU/BITS for PDH, SDH and SONET telecom networks

- Flexible, modular, fully redundant synchronisation solution
- High reliability ensured by fully distributed intelligence and redundancy of all critical parts
- G.811 Primary Reference Source with up to two integrated GPS receivers
- G.811 holdover up to 24 hours with BVA oscillator
- Up to 6 inputs individually selectable among 2.048 Mbit/s (SSM), 2.048 MHz, 1.544 Mbit/s (SSM), 64 kHz, 1, 1.544, 5 or 10 MHz
- Wide choice of output types: 2.048 Mbit/s (SSM), 2.048 MHz, 1.544 Mbit/s (SSM), 64/8 kbit/s CC, 5 or 10 MHz with a selection of connectors and impedances
- Expandable to hundreds of outputs when cascaded with the OSA 5530B expansion sub-racks
- Up to 112 (unprotected) or 64 (1:1 protected) output signals on the main sub-rack
- Fully manageable, both locally (RS-232) via Local Manager, and remotely (10BaseT Ethernet, X.25) via OSA synchronisation management software SyncView™
- Full SSM implementation for self-healing networks, even on mixed E1/T1 configurations
- Input performance measurement with easy graphical comparison against standard or user defined templates
- Automatic, configurable individual output squelch in case of prolonged holdover condition

The leading partner for your  
synchronisation needs

# Introduction

While poor synchronisation inevitably leads to network problems, dissatisfied customers and loss of revenue, good synchronisation improves network efficiency, thus ensuring higher quality of service, smooth operation and reduced down time.

The OSA 5548B SASE is specifically designed for synchronising PDH, SDH and SONET telecom networks. It also forms the core of our OSA 6500B Primary Reference Clocks.

## Overview

The primary functions of the OSA 5548B SASE have been developed to deliver reliable performance crucial to telecommunications networks:

- Accepts up to six external synchronisation reference inputs, including one or two internal GPS receivers,
- Selects the synchronisation input with the highest priority,
- Selects the next highest priority input if the selected input has failed or fallen in quality,
- Attenuates jitter and wander on the selected input,
- Monitors simultaneously the status of all inputs and reports their quality using MTIE, TDEV and frequency graphs,
- Provides high quality standby references in holdover mode,
- Provides the required synchronisation outputs referenced to the selected input,
- Supplies redundant outputs to Oscilloquartz expansion sub-racks,
- Communicates with a local terminal and remotely with SyncView™ central management system for alarm reporting and control functions.
- Input selection can operate in:
  - Automatic mode
  - SSM mode
  - Performance mode
  - Majority decision mode
  - Forced mode



## Input section

The OSA 5548B has a flexible front end with six input interface slots to operate with a variety of clock inputs including: 2.048 MHz G.703-13, 2.048 Mbit/s G.703-9 (E1), 1.544 Mbit/s G.703-5 (T1), 0.064, 1, 1.544, 2.048, 5 or 10 MHz.

In nodes with no connection to a PRC or requiring a backup reference, GPS modules can be fitted in the OSA 5548B front end to provide accurate references to within  $< 1 \times 10^{-12}$  average over 20'000 s. (with OCXO 8600). Each GPS input module occupies only two input card slots, resulting in a very elegant and compact solution where all functions are managed from the same management interface.



## Holdover section

The OSA 5548B SASE offers a choice of clock oscillators that exceed the performance required by ITU-T G.812, ETSI 300 462-4 and ANSI and are designed for long life and maintenance-free operation.

The Oscilloquartz BVA 8600 is ideally suited for main switching centers, SDH cross-connect nodes and for Local Primary Reference (LPR) configurations. It exceeds the clock requirements in ETSI DE/TM-3017-4 and G.812 Transit Node. BVA double oven oscillator is also much less

sensitive to temperature variations than most oscillators, including Rubidium. In stable environments such as those normally found in telecom centers, the BVA provides G.811 autonomy for at least 24 hours in holdover. This is comparable with Rubidium under the same conditions but with much greater reliability.

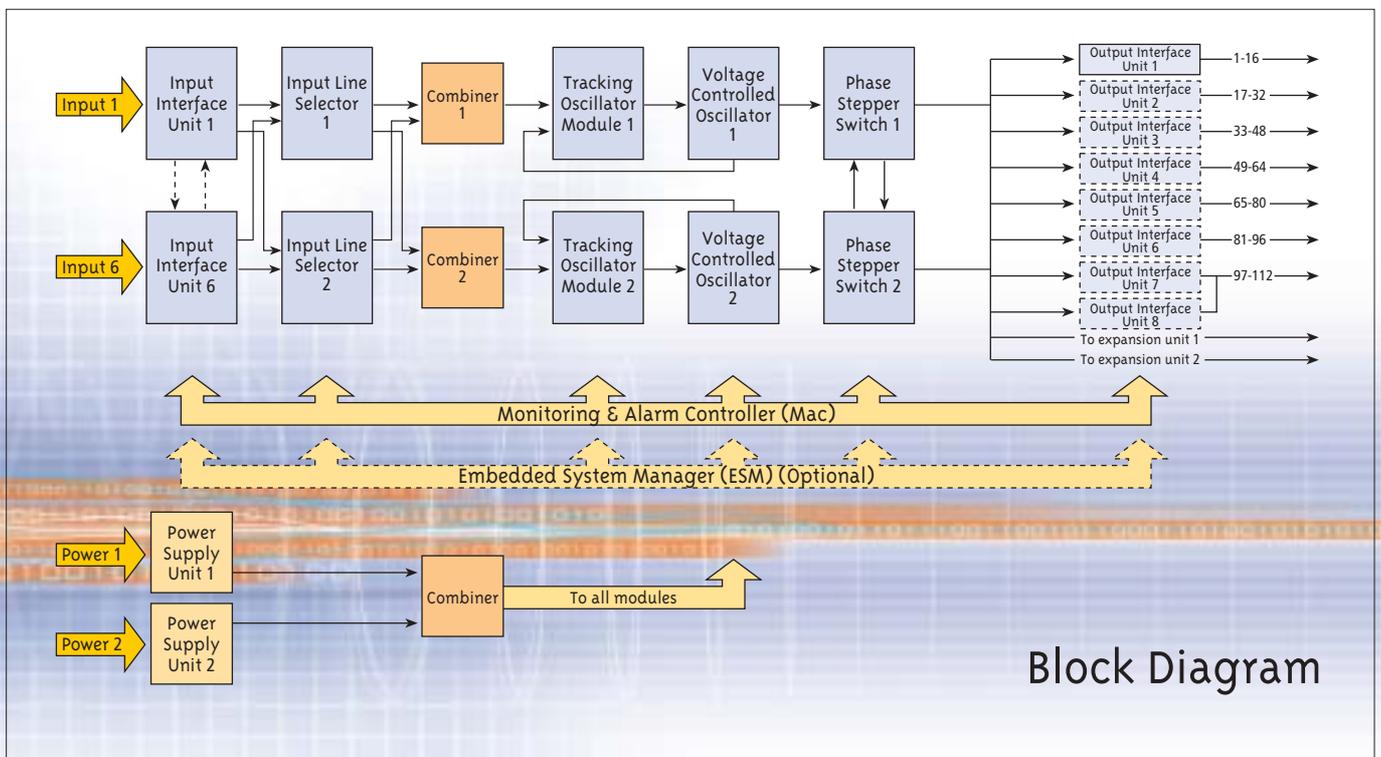
The OCXO type 8665 is the ideal solution for SDH and PDH nodes and exceeds the clock requirements in ETSI 300 462-4, G.812 Type I, V and VI.

# Output section

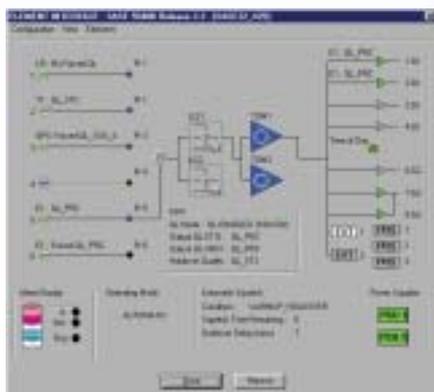
The OSA 5548B delivers up to 112 unprotected or 64 protected outputs or other combinations to suit individual requirements. Output capacity can be increased to several hundreds of outputs when adding OSA 5530B SDU expansion sub-racks. The OSA 5530B SDU offers a highly reliable and flexible solution to output expansion. The unit accepts two independent inputs which ensures high input redundancy and provides 96 protected or unprotected out-

puts. When used in conjunction with the OSA 5548B, the OSA 5530B is managed as a part of the system and thus does not require any additional network management connection. Several output interface modules are available, each with 16 output signals. Supported output types include 2.048 Mbit/s G.703-9 (E1), 2.048 MHz G.703-13, 1.544 Mbit/s G.703-5 (T1), 64/8 kbit/s G.703-4 (CC), 5 and 10 MHz. The 2.048 and

1.544 Mbit/s modules include full SSM handling capability. The OSA 5548B, as well as all other OSA 55xx-series equipment, offers a highly versatile choice of output connectors. Connectors are configurable in groups of four at factory or in the field, without the need for module changes or programming. The choice of connectors includes BNC, D-type, 1.0/2.3 or type 43, as well as wire-wrap connectors.



# Management section



Local monitoring and control capabilities are provided via RS232. This interface allows the user to configure the system as well as to receive spontaneous alarms and events. The OSA 5548B can also be managed remotely simply by fitting the Embedded System Manager (ESM) optional module. The ESM primary function is to provide a gateway to Oscilloquartz' central management system, SyncView™. A dedicated Ethernet or X.25 communication port pro-

vides direct connection to the management system without the need for additional external mediation devices. Performance data is also available locally via the RS-232 port when using the Local Manager Pro version. Moreover, the ESM is a processing platform enabling full monitoring, alarm reporting and management capabilities, including real time calculation of MTIE & TDEV curves, security and many other functions.

# Technical Specifications

## THE OSA 5548B SASE

ITU-T G.811/G.812 compliant SSU/BITS for PDH, SDH and SONET telecom networks.

<p><b>Physical dimensions ( HxWxD ) :</b></p> <ul style="list-style-type: none"> <li>➤ ETSI : 12U, 532 x 535 x 265 mm</li> <li>➤ 19" : 6U, 266 x 483 x 265 mm</li> </ul>	<p><b>Re-timing :</b></p> <p>Re-timing modules can be fitted in any output slot. Available re-timing modules (8 channels per module) :</p> <ul style="list-style-type: none"> <li>➤ 2.048 Mbit/s G.703-9 (E1)</li> <li>➤ 1.544 Mbit/s G.703-5 (T1)</li> </ul>
<p><b>Power :</b></p> <p>Up to 2 power supplies in any combination of :</p> <ul style="list-style-type: none"> <li>➤ 36-72 VDC</li> <li>➤ 92-132 VAC, 50-60 Hz</li> <li>➤ 196-264 VAC, 50-60 Hz</li> </ul>	<p><b>Outputs :</b></p> <p>Output slots : 8</p> <p>Available output modules (16 outputs per module) :</p> <ul style="list-style-type: none"> <li>➤ 2.048 MHz G.703-13</li> <li>➤ 2.048 Mbit/s G.703-9 (E1) with SSM</li> <li>➤ 1.544 Mbit/s G.703-5 (T1) with SSM</li> <li>➤ 64/8 kbit/s G.703-4 (CC)</li> <li>➤ 5 MHz</li> <li>➤ 10 MHz</li> </ul>
<p><b>Inputs :</b></p> <p>Input slots : 6</p> <p>Available input modules for :</p> <ul style="list-style-type: none"> <li>➤ Frequency: 0.064, 1, 1.544, 2.048, 5 or 10 MHz</li> <li>➤ 2.048 Mbit/s G.703-9 (E1) with SSM</li> <li>➤ 1.544 Mbit/s G.703-5 (T1) with SSM</li> <li>➤ GPS receiver (max two modules, each module takes two slots)</li> </ul>	<p><b>Management :</b></p> <p>Local management :</p> <ul style="list-style-type: none"> <li>➤ via RS-232 with LM/LM Pro for Windows 98/NT/2000/XP</li> </ul> <p>Remote management :</p> <ul style="list-style-type: none"> <li>➤ via TCP/IP or X.25 with SyncView™ SW</li> <li>➤ via RS-232 and modem connection with RAM (Remote Access Manager) SW</li> </ul>
<p><b>Holdover performance :</b></p> <p>With BVA 8600 :</p> <ul style="list-style-type: none"> <li>➤ Long term stability : &lt; 2E-11/day (typically &lt; 1E-11/day after 60 days of continuous operation)</li> </ul> <p>With OCXO 8665 :</p> <ul style="list-style-type: none"> <li>➤ Long term stability : &lt; 2E-10/day (typically 1E-10/day after 60 days of continuous operation)</li> </ul>	<p><b>GPS accessories :</b></p> <p>L1 active roof antenna, powered by receiver. Standard cable lengths :</p> <ul style="list-style-type: none"> <li>➤ &lt; 20m : RG-58</li> <li>➤ &lt; 60m : RG-213</li> <li>➤ &lt; 120m : 2 x 60m RG-213 with line amplifier</li> <li>➤ &gt; 120m : Contact your local Oscilloquartz distributor or representative Solution available up to 350 m.</li> </ul>

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