

Time & Frequency

T&F products overview and applications

OVERVIEW

Oscilloquartz T & F products and systems provide highly reliable and unsurpassed reference signals performances for satellite tracking stations, secure communications systems, metrology and other applications.

Often based on functions or products available from our regular production line or issued from generic products adapted to suit the application requirement. The choice of the Frequency reference sources is invariably defined in function of the application and the technical requirement. It includes Hydrogen Maser, Primary Cesium Standard, GPS Receiver as stand alone reference or a combination of them.

When coupled with our BVA state-of-the-art oscillator, short term performances and phase noise characteristics are raised to the highest level attained with commercial products.

The BVA is ideally suited for this purpose as it offers excellent stability characteristics and is less sensitive to temperature changes than most oscillators.

This combination provides signals of excellent stability performance as well as high spectral purity, necessary for a wide range of applications.

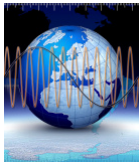
When locked to an Hydrogen Maser, Cesium Standard or GPS Receiver, the BVA oscillator provides the optimum long term performances of the frequency reference combined with the excellent short terms characteristics of the BVA.



HIGHLIGHTS

- Reference clock source for satellite earth stations, secured communications systems, low phase noise applications, timing distribution, metrology, etc.,
- Very high spectral characteristics
- Primary reference, UTC traceability with GPS receiver
- Maintenance-free
- Single or redundant configurations
- Single or redundant GPS receivers
- Frequency and timing signals distribution
- Customized systems configurations





GENERIC PRODUCTS

The OSA generic product range offers a suitable solution for most customized T&F system configurations, however, specific adaptations are often required to enhance performances in a given equipment configuration.

The flexible front-end will accept a combination of input references issued from various Frequency sources, often with redundancy for maximum reliability.

Input selection on the input references uses automatic or manual modes. Selection is normally made automatically using a programmable priority table. Manual control is available via the associated LM software. Remote control is optionally available via a UMI interface, i.e. via RS232/TCP for monitoring and/or management by **SyncView™** management system.

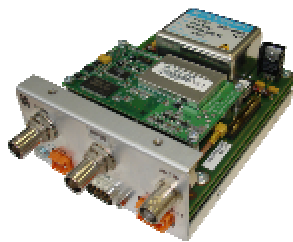
Various types of outputs cards are possible in order to meet most user's and applications requirement, such as high isolation and/or specific impedance requirement, available in a variety of output connectors.

CUSTOMIZED PRODUCTS & CONFIGURATIONS

The customized products are normally based on cards or modules providing similar functions but assembled in a chassis for a particular customer configuration. This approach allows for a cost effective customized solution without the need to redevelop a specific and costly product for non standard applications.



State-of-the-art BVA technology



GPS Receiver



OSA 5585B Cesium Primary Reference Source

TIME & FREQUENCY DISTRIBUTION

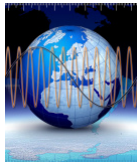
Most Time & Frequency applications require a combination of specific interfaces to suit the user requirement. Invariably, low noise frequency generation and distribution coupled with various timing signals, either unprotected or protected for increased output availability and user security may be expected.

Basic timing signals includes precise 1pps synchronized to UTC, various IRIG time formats, NTP (RFC 1305) for time accuracy down to 10ms, PTP (IEEE 1588) being in the process of standardisation for future time dissemination down to the μ s level.

RELIABLE SOLUTIONS

Product reliability coupled to state-of-the-art performances are essential parameters proven by Oscilloquartz solutions for many decades in many shelf type and/or stand alone rack type T & F configurations delivered world-wide for various demanding applications, from satellite ground stations to deep space ground tracking stations.

Oscilloquartz outstanding product reliability is not derived from single custom designed shelves but rather based And confirmed by our generic products with similar functionalities manufactured in industrial quantities. Such products are deployed in a variety of environments subject to extreme conditions while expected to fulfil the Technical requirement.



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KEY SPECIFICATIONS & CONFIGURATIONS

Time Distribution				
1 pps output	ACMOS, 50Ω, 20μs pulse width, rising edge on time,			
1 pps Accuracy	GPS time ± 100 ns			
IRIG B	Amplitude modulated, 1 kHz carrier, 1 to 5 Vp-p, 0 to 1,5 Vp-p, 600Ω			
IRIG B Accuracy	10μs to UTC or GPS time			
NTP	Ethernet 10/100BaseT			
PTP	Consult factory			
Others	Upon request and applications			
Frequency Distribution	H-Maser ⁽¹⁾	PRS Cesium ⁽²⁾	GPS ⁽³⁾	
Accuracy	+/- 5x10 ⁻¹³	+/- 2x10 ⁻¹²	+/- 2x10 ⁻¹²	
Short Term Stability	7x10 ⁻¹³ @ 1s	5x10 ⁻¹² @ 1s	1.5x10 ⁻¹¹ @ 0.1-10s	
	7x10 ⁻¹⁴ @ 100s	8.5x10 ⁻¹³ @ 100s		
	2x10 ⁻¹⁴ @ 3600s	8.5x10 ⁻¹⁴ @ 10000s		
Phase Noise (5MHz - 1Hz BW)	-115dBc @ 10Hz	-130dBc @ 10Hz	-100dBc @ 10Hz	
	-140dBc @ 100Hz	-145dBc @ 100Hz	-120dBc @ 100Hz	
	-150dBc @ 1000Hz	-155dBc @ 1000Hz	-130dBc @ 1000Hz	
Outputs	5, 10, 100MHz	5, 10MHz	5, 10MHz	
Others	Upon request and applications			
Flexible product configurations				
Frequency distribution				
Timing interfaces				
Output flexibility				
Specific characteristics				
Redundant configuration				
Notes	¹⁾ & ²⁾ : High performance units, ³⁾ : GPS/OCXO			

OSA 5051 Dual Switch



OSA 5130 Active Noise Filter



OSA 5030 PPS Distribution

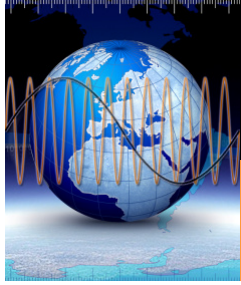


OSA 5230 GPS Receiver
Low Noise BVA



OSA 3705 PH Maser





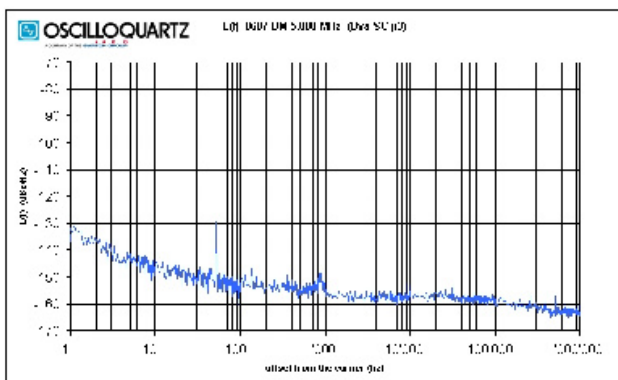
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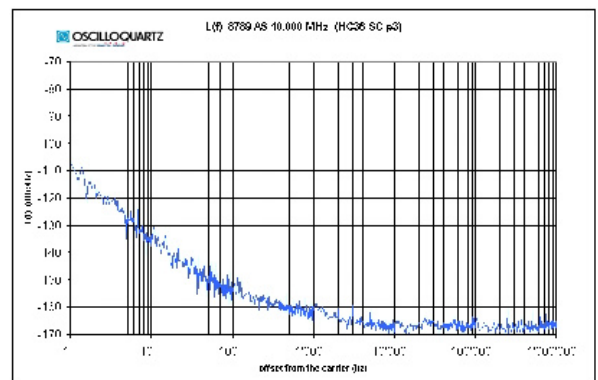
TIME & FREQUENCY BUILDING BLOCKS (Refer to individual product literature for detailed characteristics)

OSA product	Description	Brief features
3700/3705	Passive Hydrogen Maser	$<10^{-14}$ /month long term drift, 5/10/100MHz, -150dBc@1KHz, 1PPS.
4530	Active Frequency Filter	Selectable loop TC, 10^{-10} /day OCXO Holdover compact size 50x100x100mm.
5020	Low Phase Noise Distribution	50kHz to 50MHz input, additive Phase noise -120dBc@1Hz, 60dBc@10kHz (1Hz BW).
5021	IRIG Distribution	Multiple IRIG formats, A, B, D, E, G & H. Compact 1U high shelf.
5030	PPS Distribution	1PPS to 50MHz input range, multiple outputs, Compact 1U high shelf.
5051/5052	Dual Switch	Inputs RF 1MHz to 20MHz, Pulse 0.5 to 10Hz, multiple RF & Pulse outputs, 1or 2U shelf.
5130	Active Low Noise Filter	5 or 10MHz input/output, BVA internal oscillator, 1µs/day Phase-time, $<10^{-11}$ /day Freq. Holdover.
5525	Time Server and Distribution	Multiple NTP ports, IRIG formats, 1PPS, high stability internal oscillator.
5581	GPS Receiver	Single or Dual configuration, low phase noise, 10^{-12} accuracy (24 hrs average), multiple ports, various timing formats.
5585	Primary Reference Source	10^{-12} accuracy, multiple user ports 5 & 10MHz, 1PPS, low noise 10MHz port.
6500	Customized Rack Ass'y System	Multiple Freq. sources, redundant configurations, Low noise Frequency outputs, various timing formats.
SyncView Plus	Management Platform	RS232 and/or TCP/IP access to individual units or any third party devices.

STATE-OF-THE-ART PHASE NOISE CHARACTERISTICS



Ultra Low SSB Phase Noise level



Ultra Low White Phase Noise level



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

