

## Product Overview

The OSA 3230B is an autonomous and self-contained Cesium Primary Reference Clock Source based on a Cesium beam tube, which is specifically designed and manufactured to serve network applications where an extremely accurate and stable frequency reference signal is required. Based on the latest technology, the compactly designed OSA 3230B generates a superior and highly reliable ITU-T G.811/Stratum I synchronization signal for advanced applications in telecommunication networks.

## Ideal for Telecom Applications

Next-generation telecommunication networks such as radio access networks for mobile communication require precise synchronization for active interference management, effective transmission of voice, video and data services and must guarantee a superior user experience. Also legacy networks depend on an accurate frequency signal to minimize pointer adjustments originating from frequency misalignment in the SONET/SDH payload. Meeting the increasingly stringent synchronization requirements of future applications requires the implementation of a Primary Reference Clock Source at central network office locations that generates ITU-T G.811/Stratum 1 frequency signals with accuracy greater than  $\pm 1 \times 10^{-11}$  at all times. The OSA 3230B provides a frequency source with accuracy better than  $\pm 1 \times 10^{-12}$  during its entire lifetime and is ideal for enhancing overall network performance and preventing up-stream network clock errors from propagating across the entire network.

## Operational Simplicity

The OSA 3230B Cesium Primary Reference Clock Source offers a unique set of operational features and performance metrics, including enhanced and easy integration into industrial, professional time and frequency host systems. With its long-life Cesium beam tube and its extremely flexible output type capacity, the OSA 3230B is the most flexible and compact Primary Reference Clock Source available on the market, meeting the most stringent requirements where any type of



clock signal complying with ITU-T G.811/Stratum 1 performance is needed over a long period of time.

## Standards Compliance

The OSA 3230B is designed according to all relevant industry standards including ITU-T, ETSI, ANSI, Telcordia, NEBS and CE. Its 10-year long-life Cesium beam tube enables frequency accuracy exceeding those specified by ITU-T G.811 over its entire lifetime.

## Features & Benefits

- Performance exceeding ITU-T G.811/ Stratum 1 PRC
- 10-year long-life cesium tube
- Accuracy better than  $\pm 1 \times 10^{-12}$  during entire lifetime
- Extremely compact size
- Optional signal expansion providing five additional outputs
- Redundant DC power supply input or mixed AC/DC power supply
- Control and monitoring via alarm contacts and RS232 communication
- TCP/IP remote management port for TL1 and/or SNMP management

## Technical Information

### Cesium Performance

- Frequency Accuracy:  $\pm 1 \times 10^{-12}$
- Reproducibility:  $\pm 1 \times 10^{-12}$
- Adjustability: Resolution  $< 1 \times 10^{-15}$   
Range  $\pm 1 \times 10^{-9}$

### Wander Generation

- Conforming to ITU-T G.811 and GR-2830 – PRS
- 45 minutes warm-up time at 25°C

#### MTIE

- $0.05s \leq \tau < 33s$  10ns
- $33s \leq \tau < 1,000s$   $3 \times 10^{-10}\tau$
- $1,000s \leq \tau < 30,000s$  300ns
- $30,000s \leq \tau$   $1 \times 10^{-11}\tau$

#### TDEV

- $0.1s \leq \tau < 1s$  3ns
- $1s \leq \tau < 2.5s$   $3.2 \times 10^{-9}\tau^{0.5}$
- $2.5s \leq \tau < 44s$  2ns
- $44s \leq \tau < 10,000s$   $3 \times 10^{-10}\tau^{0.5}$

### Outputs

#### Direct Frequency Output

- Interfaces: 2
- Frequency:  $1 \times 5\text{MHz} + 1 \times 10\text{MHz}$
- Level and Connector: 13dBm at 50Ω (BNC)
- Phase Noise: Not applicable  
(refer to OSA 3235B for phase noise specifications)

#### Analog Output

- Interfaces: 1
- Frequency: Programmable from 0.1 to 50MHz sine
- Shape: Wave output at 50Ω (BNC)
- Level: 500mVrms (typical)  
250mVrms (minimal)

#### Digital Output

- Interfaces: 3
- Frequency: 1PPS/1, 5 and 10MHz
- Level:  $\geq 3\text{V}$  at 50Ω
- Shape: Square
- Connector: BNC

### Synchronization Input

- Type: 1PPS TTL ( $\geq 3\text{V}$ )
- Connector: BNC
- Location: 1 on rear side plus 1 on front side for 19" version

### Power Supply

- Voltage: 48VDC nominal floating (24V to 60V)
- Power Feeds: Dual
- Power Consumption: 50W at 25°C  
(max. 60W during warm-up)
- Optional Configuration: 1 x AC plus 1 x DC with OSA 3230B  
19" version (110-240VAC 50-60Hz)

### Management Interface

- Interface: RS232C on DB-9 for local and/or remote management using SyncView™ Plus
- Locations: 1 connector on rear side plus 1 connector on front side for 19" version
- Alarms: 3 relay contacts
- LED Monitoring: 3 LEDs for monitoring power supply status, operation and alarms
- LED Location: 3 LEDs on front side plus 3 LEDs on rear side for 19" version

### Mechanical

- ETSI: 4U 176 x 436 x 240mm (H x W x D) with front access connectors, adapter for 19" rack standard
- 19": 3U 132 x 436 x 400mm (H x W x D) with rear access connectors, adapter for 23" rack standard
- Weight: < 15kg (excluding packaging)

### Telecom Signal Expansion (Optional)

#### Digital Output

- Interfaces: 4
- Frequency: Configurable to 2.048MHz/E1/T1/1PPS/10MHz
- Level: According to G.703
- Connector: BNC 75Ω or DB9 120Ω (T1:DB-9 100Ω)

#### Analog Output

- Interfaces: 1
- Frequency: Configurable from 0.1 to 50MHz
- Format: Sine wave output
- Connector: BNC 50Ω
- Level: 500mVrms (typical)/250mVrms (minimal)

### Remote Management Port (Optional)

- Interface: Ethernet TCP/IP port on RJ45 for TL1 and/or SNMP management

### Environmental

- Operating Conditions: EN 300 019-1-3, class 3.2  
Extended range from -5°C to +55°C
- Transportation: EN 300 019-1-2, class 2.2
- Storage: EN 300 019-1-1, class 1.1
- Humidity: Up to 95%
- Altitude (operating): 0 to 15,000m
- DC Magnetic Field:  $\pm 2$  Gauss (maximum)
- Safety: EN 61010-1
- EMC & ESD: EN 50081-1, EN 50082-1  
IEC 801 parts 2, 3, 4, 5 and 6  
CE compliant



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