OSCILLOQUARTZ
A division of Adtran

Oscilloquartz

Data Sheet

OSA 3030B EUDICS

European digital cesium frequency standard

Benefits

- **Autonomous primary reference clock**
  Cesium clock technology with minimum footprint
- **Extremely compact size**
  Rugged housing with the smallest volume/footprint in its class, suitable for space-restricted applications
- **Extended DC supply range**
  Large DC input range makes it very easy to integrate with any application requiring a highly precise reference
- **Excellent frequency accuracy and stability**
  Long-life cesium tube with excellent frequency accuracy over a large temperature range
- **Standards compliant**
  Designed according to relevant industry standards including CE and RoHS
- **Operational simplicity**
  Extremely easy to operate with monitoring and control options available via RS232

Overview

Today's critical infrastructure demands a highly accurate frequency source but in some applications, space is very limited. Our OSA 3030B EUDICS is specifically designed and produced to serve these complex applications in space-restricted environments. Highly compact, the OSA 3030B EUDICS offers a unique set of operational features performance, including greatly enhanced and easy integration into industrial, professional, and time and frequency host systems.

Atomic clocks are needed to generate highly accurate frequencies. These are typically used as primary reference in navigations systems, ground stations, long wave and medium wave broadcasting stations, among others. Atomic clocks can also be used for specific inertial navigation systems where external time reference signals are not available or insufficiently protected regarding transmission risks. Our OSA 3030B EUDICS is a highly stable and accurate cesium clock specifically designed to serve these mission-critical applications, where an extremely accurate reference signal and a minimal footprint are needed. With its long-life cesium tube and its multiple outputs, the OSA 3030B EUDICS is the most flexible and the most compact primary reference clock source available on the market, meeting the most stringent requirements where any type of clock signal is needed over a long period.

OSA 3030B EUDICS

High-level technical specifications

Output signals

- Frequency: 10MHz and 5MHz
- Level value:
  1Vrms ± 0.2Vrms/50 Ω
- Accuracy: ±1 x 10^{-12}
- Reproducibility: ±1 x 10^{-12}

Outputs

- 5 or 10MHz sine with setability of:
  - Resolution < -1 x 10^{-15}
  - Range: ±1 x 10^{-9}
- RS-232
- Alarms

Environmental

- Operating temperature range: -5°C to 55°C
- In-use humidity: up to 95%
- Atmospheric pressure: 0 to 15,000m
- DC magnetic field: +/- 2Gauss

Power supply

- Input voltage: 20V to 60V
- Power consumption: 50W at 25°C (warm-up max. 60W)
- Warm-up time @ 25°C (cold start): 45min typical

Management

- Control and monitoring via:
  - 3 x alarm contacts (minor, major and critical)
  - RS232 communication for local management with GUI

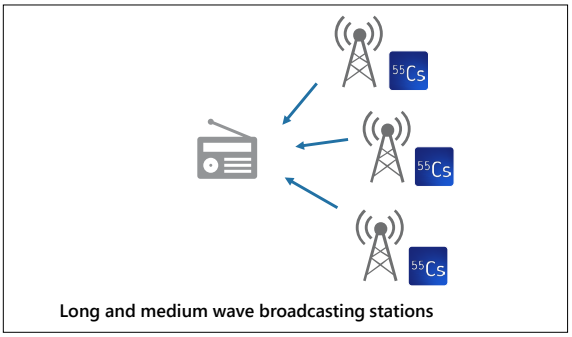
Mechanical

- Size (H x W x D) without connectors:
  187.5mm x 124mm x 366mm / 7.4” x 4.9” x 14.4”
- Weight: 10kg
- All connectors are placed on the front panel

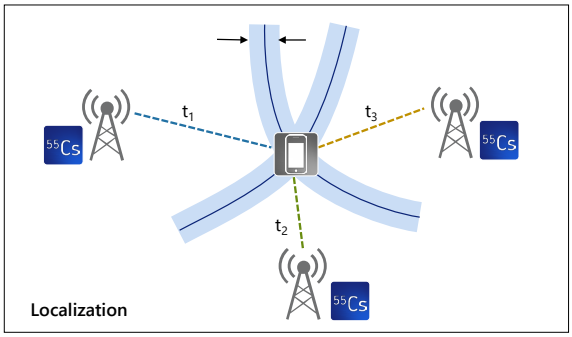
Applications in your network

Cesium clock for space-restricted applications

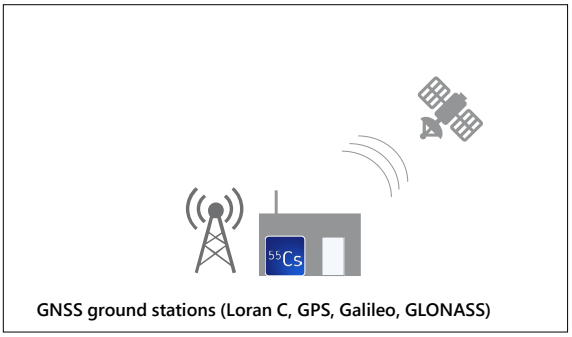
- Autonomous primary reference clock for advanced and mission-critical applications where space is limited, such as:



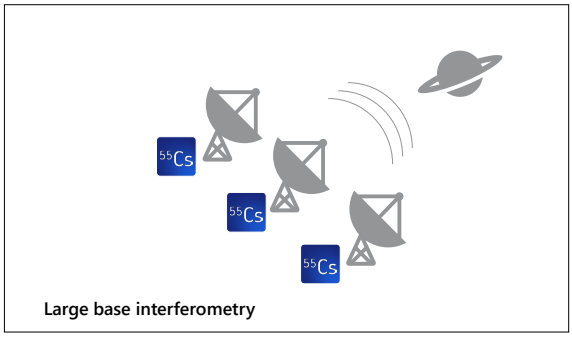
Long and medium wave broadcasting stations



Localization



GNSS ground stations (Loran C, GPS, Galileo, GLONASS)



Large base interferometry

OSA 3030B EUDICS

Product specifications

Technical specifications

Output signal

- Frequency: 10MHz and 5MHz
- Level value: 1Vrms ± 0.2Vrms/50Ω
- Accuracy: ±1 x 10^{-12}
- Reproducibility: ±1 x 10^{-12}

Frequency stability (Allan standard deviation)

Tau(τ)	Navigation	Metrology
1s	2 x 10^{-11}	1.2 x 10^{-11}
10s	2 x 10^{-11}	8.5 x 10^{-12}
100s	5 x 10^{-12}	2.7 x 10^{-12}
1,000s	1.5 x 10^{-12}	8.5 x 10^{-13}
10,000s	5 x 10^{-13}	2.7 x 10^{-13}
100,000s	3 x 10^{-13}	8.5 x 10^{-14}
Floor	3 x 10^{-13}	5 x 10^{-14}

Thermal frequency deviation

- Temperature -5°C + 55°C: ±1 x 10^{-12}

Setability

- Resolution < -1 x 10^{-15}
- Range: ±1 x 10^{-9}

SSB phase noise spectral density (BW 1Hz)

Frequency	5MHz	10MHz
1Hz	-90dBc/Hz	-90dBc/Hz
10Hz	-120dBc/Hz	-120dBc/Hz
100Hz	-135dBc/Hz	-135dBc/Hz
1KHz	-145dBc/Hz	-145dBc/Hz

Power supply

- Input voltage: 20V to 60V
- Power consumption: 50W at 25°C (max. 60W during warm-up)
- Warm-up time at 25°C (cold start): 45min. typical

Environmental

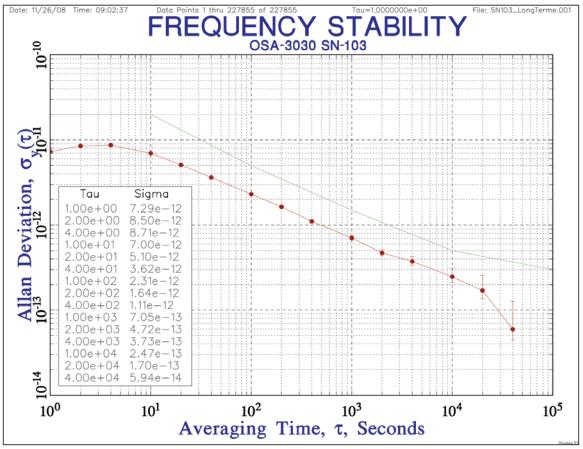
- Operating mode: EN 300-019-1-3 class 3.2 ; -5°C to 55°C
- Storage: EN 300-019-1-1 class 1.1; 40°C to 70°C
- Transportation: EN 300-019-1-2 class 2.2
- Altitude (operating) : up to 15,000 m
- In-use humidity: up to 95%
- Atmospheric pressure: 0 to 15,000m
- DC magnetic field: +/- 2Gauss

Mechanical

- Size (HxWxD) without connectors: 187.5mm x 124mm x 366mm / 7.4" x 4.9" x 14.4"
- Size (HxWxD) with connectors: 187.5mm x 124mm x 381.7mm / 7.4" x 4.9" x 15"
- Weight: 10kg
- All connectors are placed on the front panel

Performance data

Short-term frequency stability



Phase noise