

CsIII - Model 4310B-R

Cesium Frequency Standard



Summary

The Microchip CsIII - Model 4310B-R is a lightweight, compact, economical cesium frequency standard. The technology developed for the CsIII is an evolutionary step forward in the quest for higher stability, lower phase noise and longer life. An ever-increasing base of demanding users in communications, timing, synchronization and other applications take advantage of this performance.

The 4310B-R is configured with 5 MHz and 10 MHz sinewave outputs, a 10 MHz TTL output, a 1PPS sync input, and 5 x 1PPS timing output. All monitoring and control of the unit is done through the serial interface and Microchip's proprietary Monitor3 software.

Packaged in a 2U, 19-inch rack mounted chassis, the 4310B-R weighs less than 30 lbs.

The 4310B-R comes with a standard 1-year electronics warranty and an 8-year tube warranty. An optional extended warranty for the electronics may be purchased.

The 4310B-R is ideal for Data Center, SATCOM, Calibration, Metrology and many other Test and Measurement applications that require cesium stability and accuracy.

Key Features

- Third-generation cesium technology
- 2U compact rack mount
- AC and DC inputs
- Remote monitoring and control
- 5 MHz and 10 MHz outputs
- 1PPS sync input
- 5 x 1PPS output
- <30 lbs
- CE compliant

Key Benefits

- Cesium stability and accuracy
- Lightweight, compact and economical
- Ideal for data center, SATCOM, calibration, metrology and many other test and measurement applications

Performance Parameters

- Accuracy: $\pm 1.0 \times 10^{-12}$
- Warm-up time (typical): 30 minutes
- Reproducibility: $\pm 2.0 \times 10^{-13}$
- Settability
- Range: $\pm 1.0 \times 10^{-9}$
- Resolution: 1.0×10^{-15}
- Control: via RS-232 port

Stability

Average time	Allan Deviation
1 s	$< 1.2 \times 10^{-11}$
10 s	$< 8.5 \times 10^{-12}$
100 s	$< 2.7 \times 10^{-12}$
1,000 s	$< 8.5 \times 10^{-13}$
10,000 s	$< 2.7 \times 10^{-13}$
100,000 s	$< 8.5 \times 10^{-14}$
Floor	$< 5.0 \times 10^{-14}$

SSB Phase Noise (5 MHz)

Offset	Noise
1 Hz	< -95 dBc/Hz
10 Hz	< -130 dBc/Hz
100 Hz	< -145 dBc/Hz
1,000 Hz	< -155 dBc/Hz
10,000 Hz	< -155 dBc/Hz
100,000 Hz	< -160 dBc/Hz

Environmental and Physical Specifications

- 0°C to 50°C (operating), -40°C to +70°C (non-operating)
- Humidity: 95% up to 50°C
- Magnetic field: 0 to 2 gauss
- Altitude (operating): 0 to 50,000 feet
- 3.50" (89.9 mm) (height); 19.00" (483 mm) (front panel width); 17.31" (440 mm) (instrument width), 15.0" (381 mm) (depth)
- Weight: <30 lbs (13.5 kg)
- MTBF: >130,000 hours

Standards Compliance

The CsIII Cesium Frequency Standard meets or complies with the following industry standards:

- Electromagnetic Compatibility (EMC)
- IEC 61326-1
- EMC Directive 2014/30/EU
- EN 61326
- EN55011

Safety Certifications

- UL 61010-1 3rd edition
- CSA 22.2 61010-1 3rd edition
- IEC 61010-1 3rd edition
- EU Low Voltage Directive 2014/35/EU
- EN 61010-1 3rd edition

Environmental Compliance

- Reduction of Hazardous Substances (RoHS) EU Directive 2011/65/EU and the (EU) 2015/863 amendment.
- ETSI EN 300 019
- 2-1 Storage, Class T1.2
- 2-2 Transportation, Class T2.3
- 2-3 Operational, Class T3.2

Compliance Marks

- NRTL
- CB Scheme
- CE
- FCC
- VCCI
- AUS/NZ
- KC
- SABA

Ordering Information

- 24 V_{DC} (Part number: 14534-130)
- 48 V_{DC} (Part number: 14534-139)