**CsIII**

Cesium Frequency Standard

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**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
- 1PPS output
- <30 lbs
- CE compliant

**Key Benefits**
- Cesium stability and accuracy
- Lightweight, compact, and economical
- Ideal for SATCOM, calibration, metrology and many other test and measurement applications
- Standard 1 year electronics and 8-year tube warranty

The Microsemi® CsIII 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 CsIII is configured with 5 MHz and 10 MHz sinewave outputs, a 10 MHz TTL output, a 1PPS sync input, and a 1PPS timing output. All monitoring and control of the unit is done through the serial interface and Microsemi’s proprietary Monitor3 software.

Packaged in a 2U, 19-inch rack mounted chassis, the CsIII weighs less than 30 lbs. An optional portability kit and T1/E1 synthesizer are available for added functionality and versatility.

The CsIII comes with a standard 1-year electronics warranty and an 8-year tube warranty.

The CsIII is ideal for SATCOM, Calibration, Metrology and many other Test and Measurement applications that require cesium stability and accuracy.
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Electrical Specifications

Frequency Outputs (Two Sine and One TTL)

**Format: Sine**
- Frequency: 1 each, 5 MHz and 10 MHz
- Amplitude: 1 V RMS
- Harmonic: <–40 dBc
- Non-harmonic: <–80 dBc
- Connector: BNC
- Load impedance: 50 Ω
- Location: Rear panel

**Format: TTL**
- Frequency: 10 MHz
- Amplitude: >2.2 V
- Load impedance: 50 Ω
- Location: Rear panel
- Connector: BNC

**Timing Outputs**
- Format: 1PPS
- Amplitude: >3.0 V into 50 Ω (TTL compatible)
- Pulse width: 20 μs positive pulse
- Rise time: <5 ns
- Jitter: <1 ns rms
- Connector: BNC
- Load impedance: 50 Ω
- Location: Rear panel

**Timing Inputs**
- Sync input: 1PPS
- Amplitude: >3.0 V into 50 Ω (TTL compatible)
- Pulse width: 20 μs positive pulse
- Rise time: <5 ns
- Jitter: <1 ns rms
- Connector: BNC
- Load impedance: 50 Ω
- Location: Rear panel

Remote System Interface and Control

RS-232-C (DTE Configuration)

Complete remote control and interrogation of all instrument functions and parameters.

- Connector: 9-pin male rectangular D subminiature type
- Location: Rear panel

Alarm (Relay)
- Connector: 9-pin female rectangular D subminiature type
- Location: Rear panel

Performance Parameters

- Accuracy: ±1.0 × 10⁻¹²
- Warm-up time (typical): 30 minutes
- Reproducibility: ±2.0 × 10⁻¹³
- Settability
  - Range: ±1.0 × 10⁻⁹
  - Resolution: 1.0 × 10⁻¹⁵
  - Control: Via RS-232 port

Stability

- **Average time Allan Deviation**
  - 1 s: <1.2 × 10⁻¹¹
  - 10 s: <8.5 × 10⁻¹²
  - 100 s: <2.7 × 10⁻¹²
  - 1,000 s: <8.5 × 10⁻¹³
  - 10,000 s: <2.7 × 10⁻¹³
  - 100,000 s: <8.5 × 10⁻¹⁴
  - Floor: <5.0 × 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

AC Power Requirements

- Operating voltage (±10%): 100 VAC to 240 VAC
- Frequency: 47 Hz to 63 Hz
- Power: 65 W operating; 90 W warm-up

DC Power Requirements

- 24 VDC option: 22 VDC to 36 VDC
- 48 VDC option: 36 VDC to 75 VDC
- 30 W, 1.3 A at 24 V operating; 65 W, 2.7 A at 24 V warm-up

Ordering Information

- 24 VDC (Part number: 14534-110)
- 48 VDC (Part number: 14534-109)

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