



Cs4000

Cesium Frequency Standard

STANDARD FEATURES

- Multiple RF Outputs
- CsIII Technology
- AC & DC Inputs
- Remote Monitoring & Control
- 30 Minute Warm-Up to Full Specifications

OPTIONAL FEATURES

- High Performance Tube
- Internal Battery Back-Up
- Front Panel LCD Display Interface
- T1/E1 Outputs

The Symmetricom Cs4000 is a new cesium frequency standard platform that provides exceptional performance in a configurable 3U rack mount chassis.

Until now, many manufacturers embedded numerous features that may have been unnecessary for your application but were part of a standard configuration attempting to serve diverse market needs. The Cs4000 is different. This product offers a well-equipped, economical base configuration that can be fitted with options to serve your particular requirement. The standard outputs provided include 100kHz, 1, 5, 10MHz and 1 PPS. The configurable back panel can be easily adapted to provide additional standard outputs or customer defined outputs. A list of optional accessories can be added to build out the unit to satisfy your application while staying within your budget.

While the Cs4000 may be economical and practical, the technology utilized is anything but ordinary. Advanced Cesium III digital technology is at the core of the Cs4000. The accuracy and stability achievable with this technology is commensurate with any Cesium standard available in the world today.

The Cs4000 meets the challenges of laboratory standards, SATCOM terminals, and a wide variety of field applications.



Cs4000 Cesium Frequency Standard

Cs4000 Specifications

ELECTRICAL SPECIFICATIONS

• Frequency outputs

Frequency:	1 ea 100kHz & 1MHz Sine
Amplitude:	1Vrms
Harmonic:	<-40dBc
Non harmonic:	<-80dBc
Connector:	BNC
Load impedance:	50Ω
Location:	rear panel

Frequency:	2 ea 5 & 10 MHz Sine
Amplitude:	1Vrms
Harmonic:	<-40dBc
Non harmonic:	<-80dBc
Connector:	Type N
Load impedance:	50Ω
Location:	rear panel

• Timing outputs

Format:	Three 1 PPS
Amplitude:	>3.0V into 50Ω
Pulse width:	20μs positive pulse
Rise time:	<5ns
Jitter:	<1ns rms
Connector:	BNC
Load impedance:	50Ω
Location:	rear panel (2) front panel (1)

• Timing inputs

Sync input:	Two 1 PPS
Connector:	BNC
Load impedance:	50Ω
Location:	rear panel (1) front panel (1)

• Remote system interface and control

RS-232-C (DTE Configuration)	
Complete remote control and interrogation of all instrument functions and parameters	
Connector	
RS-232-C:	(2)9-pin male rectangular D subminiature type
Location:	rear panel (1) front panel (1)
Alarm (TTL):	BNC
Location:	rear panel
Output TTL:	high, normal
TTL low, fault	
Circuit is TTL open collector with internal pullup resistor	
Circuit can sync up to 10mA	

PERFORMANCE SPECIFICATIONS

• Performance	Standard Perf.	High Perf.
Accuracy:	±1.0E-12	±5.0E-13
Warm-up time: [typical]	30 Min	30 Min
Reproducibility:	±2.0E-13	±2.0E-13
Stability		
Range:	±1.0E-9	±1.0E-9
Resolution:	1.0E-15	1.0E-15

• Stability	Standard Perf.	High Perf.
AvgTime (s)	Allan Deviation	Allan Deviation
1	≤1.2E-11	≤5.0E-12
10	≤8.5E-12	≤2.7E-12
100	≤2.7E-12	≤8.5E-13
1,000	≤8.5E-13	≤2.7E-13
10,000	≤2.7E-13	≤8.5E-14
100,000	≤8.5E-14	≤2.7E-14
Floor	≤5.0E-14	≤1.0E-14

• SSB Phase noise

Offset (Hz)	5MHz Output	5MHz Output
1	≤-95dBc	≤-102dBc
10	≤-130dBc	≤-130dBc
100	≤-145dBc	≤-145dBc
1,000	≤-155dBc	≤-155dBc
10,000	≤-155dBc	≤-155dBc
100,000	≤-160dBc	≤-160dBc

ENVIRONMENTAL & PHYSICAL SPECIFICATIONS

• General environment

Operating	
Temperature:	0° C to 50° C
Humidity:	95% up to 50° C
Non-operating (transport)	
Temperature	
(storage):	-30° C to 70° C
Temperature	
(short term):	-40° C to 75° C
Magnetic field:	0 to 2 gauss
Shock:	0g/11ms, 3 axis
Vibration:	MIL-T-28800E, Type III, Class 5
Altitude (operating):	0 to 50,000'

• AC Power requirements

85 to 264 VAC
47 to 63 Hz
70VA, 64W (Operating)
90VA, 80W (Warm Up)

• DC Power requirements

36 - 75VDC*
60W (Operating)
70W (Warm Up)

* 24VDC (18 - 36VDC) Power supply option available

• Dimensions:	17.22" W x 5.22" H x 20.63" D (43.73 cm x 13.25 cm x 52.40 cm)
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• Internal standby battery

Capacity:	1 hour @ 25° C from full charge
Charge time:	16 hours maximum from fully discharged state
Charge source:	AC or DC

• Weight:	45 lbs. (20.4 Kg)
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OPTIONS

• Options	Part No.
• Internal batteries	BAT
• High performance tube	EP
• Rack slides	6013
• T1 outputs	T1
• E1 outputs	E1
• LCD front panel display	LCD
• 18 - 36VDC input	24DC



Rear view of Cs4000



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