

# Cs4000

## Cesium Frequency Standard



### Key Features

- Multiple RF outputs
- CsIII technology
- AC & DC inputs
- Internal battery back-up
- CE compliant

### Optional Features

- 24VDC input
- Custom outputs available

The Symmetricom® Cs4000 is a cesium frequency standard platform that provides exceptional performance in a configurable 3U rack mount chassis. The Cs4000 is designed for high precision timing and frequency applications requiring high stability, low noise RF and 1PPS reference signals. Symmetricom's advanced Cesium III digital technology is the engine that drives this exceptional performance.

The Cs4000 is designed to provide standard and custom output signal formats. The standard outputs include, 100 kHz, 1, 5, 10 MHz and 1 PPS. Realizing that custom

signaling is part of many system designs, the Cs4000 has a custom output area that can support most signaling requirement. Because of this, the standard output signals are not affected and can be utilized along with whatever custom format is required.

The Cs4000 meets the challenges of laboratory standards, satcom terminals, mobile communications systems and a wide variety of test and measurement applications.

# Cs4000

## Specifications

### ELECTRICAL SPECIFICATIONS

#### • Frequency outputs

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

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

#### • Timing outputs

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

#### • Timing inputs

Sync input:	Two 1 PPS
Connector:	BNC
Load impedance:	50 $\Omega$
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:	9-pin male rectangular D subminiature type
Location:	front panel (1) rear panel (1)

##### Alarm (TTL):

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

Accuracy:	$\pm 1.0E-12$
Warm-up time: (typical)	30 Min
Reproducibility:	$\pm 2.0E-13$
Settability	
Range:	$\pm 1.0E-9$
Resolution:	1.0E-15

#### • Stability

AvgTime (s)	Allan Deviation
1	$\leq 1.2E-11$
10	$\leq 8.5E-12$
100	$\leq 2.7E-12$
1,000	$\leq 8.5E-13$
10,000	$\leq 2.7E-13$
100,000	$\leq 8.5E-14$
Floor	$\leq 5.0E-14$

#### • SSB Phase noise

Offset (Hz)	5 MHz Output
1	$\leq -95$ dBc
10	$\leq -130$ dBc
100	$\leq -145$ dBc
1,000	$\leq -155$ dBc
10,000	$\leq -155$ dBc
100,000	$\leq -160$ dBc

### ENVIRONMENTAL & PHYSICAL SPECIFICATIONS

#### • General environment

Operating	
Temperature:	0°C to 50°C
Humidity:	95% up to 50°C (non-condensing)
Non-operating (transport)	
Temperature (storage):	-30°C to 70°C
Temperature (short term):	-40°C to 75°C
Magnetic field:	0 to 2 gauss
Altitude (operating):	0 to 50,000'

#### • AC Power requirements

Operating voltage ( $\pm 10\%$ ):	100 to 240 VAC
Frequency:	47 to 63 Hz
Power	
Operating:	<65 W
Warm-up:	<80 W

#### • DC Power requirements

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

\* 24 VDC (22 - 36 VDC) 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:	45 minutes @ 25°C from full charge (without front panel display) 20 minutes @ 25°C from full charge (with front panel display)
Charge time:	16 hours maximum from fully discharged state
Charge source:	AC or DC

#### • Weight: 45 lbs. (20.4 Kg)

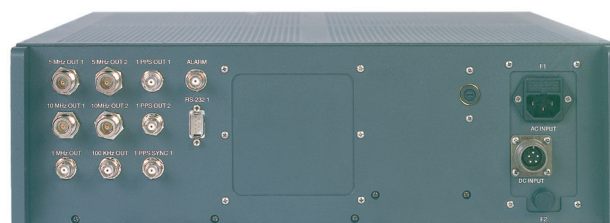
#### • MTBF: >145,000 hrs.

### ORDERING INFORMATION

- 48 VDC
- 24 VDC

### Part No.

- 14645-105
- 14645-106



Rear view of Cs4000