

Features

- Third Generation Caesium Technology
- Remote Monitor & Control via RS-232 port
- RF Outputs of 5 MHz & 10 MHz
- 1 PPS Output
- No Calibration Necessary—No aging
- Long Caesium Beam Tube Life Span
- Compact 2U Rack Mount
- Lightweight < 30 Pounds (13.5 kg)
- Optional E1 & T1 Output
- Portable Version Also Available



CAESIUM PRODUCTS

Modules, Instruments, Militarized Instruments and Replacement Tubes

CsIII Caesium Frequency Standard



Overview

The Datum CsIII is a lightweight, compact, economical caesium frequency standard. The technology developed for the CsIII is an evolutionary step forward. Third generation caesium technology means that the CsIII delivers 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.

Packaged in a 2U, 19-inch rack mounted chassis; the CsIII weighs less than 30 lbs. Standard features include 5 and 10MHz sine wave outputs, a 1 PPS output and an RS-232 interface used to monitor and control the unit. Optional T1/E1 telecom outputs and a portability kit are also available. The portability kit replaces the rack mounting brackets with a movable handle and hard shell carrying case making it ideal as a remote calibration standard.



datum

Timing, Test & Measurement

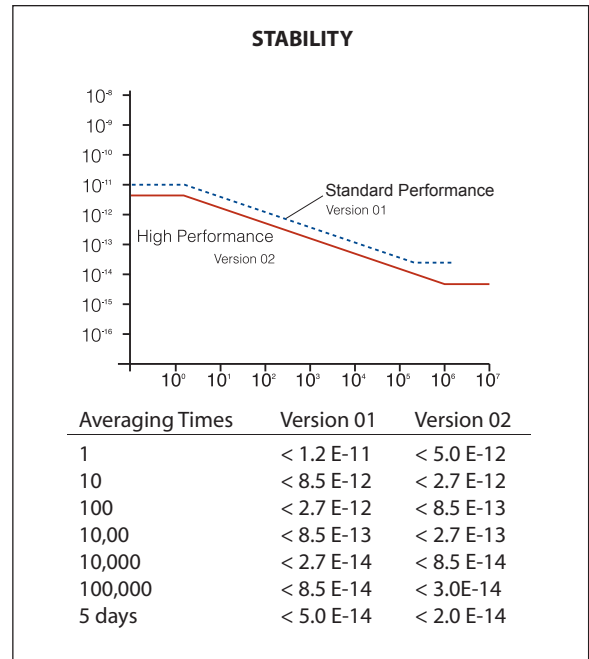
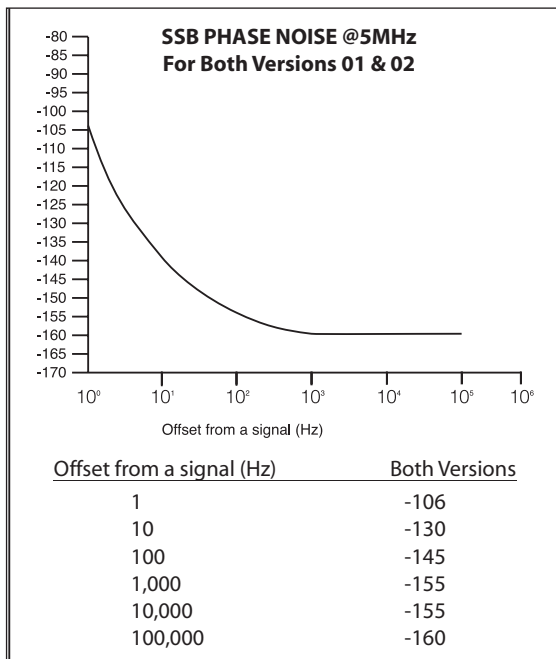
CsIII Caesium Frequency Standard

Overview

TEST & MEASUREMENT applications depend on the versatility of the CsIII. As a house standard, there is no better method for calibration of equipment. The CsIII can be optionally configured with a portability kit that allows for easy transportation to field based locations. The light-weight and multiple outputs of the CsIII make it an ideal instrument for base station calibration.



- ✓ **Primary Reference Source**
- ✓ **Calibration Standard**
- ✓ **Satellite Tracking Stations**
- ✓ **Positioning & Navigation**
- ✓ **Master Reference For Broadcast Communications**



HIGH PERFORMANCE

The selection of a high performance caesium beam tube satisfies demands for increased accuracy <5.0E-13 and typical flicker floor <2.0E-14.

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PORTABILITY KIT



The rugged clamshell case protects and secures the CsIII during transport. Test and service technicians will appreciate the ergonomics of the package. Two large reinforced feet, a breakaway hard clamshell with locking fasteners, side storage pockets and the integral instrument bar handle ensures ease of use. The CsIII with portability kit and telecom module is an excellent high performance stand alone Stratum I Test Set that reaches full specification in less than thirty minutes. Now with the lightweight CsIII it is easy to bring cesium performance where you need it — on site.

TELECOM MODULE T1 or E1

The addition of the telecom module makes the CsIII an autonomous Stratum I reference for performance testing of telecommunication systems in the field, manufacturing facility or laboratory. The telecommunications synthesizer module provides either two 2048 kbps (E1) signals or two 1544 kbps (T1) signals. The module is secured and connected to the rear of the CsIII. Signal generation is accomplished by phase-locking the module's VCXO (at 8.192 MHz or 6.176 MHz) to the instrument's stable 5 MHz sine wave output signal. The VCXO signal is digitally divided by four and then formatted, framed and shaped to produce the desired output signals.



Specifications subject to change without notice.

Specifications

ELECTRICAL SPECIFICATIONS

RF Output

Frequency	1 each 5 MHz and 10 MHz
Amplitude	1 Vrms
Harmonic	<-40 dBc
Spurious	<-80 dBc
Connector type	BNC
Load Impedance	50 Ω
Location	rear panel

1 PPS Output / 1 PPS SYNC Input

Frequency	One pulse per second
Amplitude/wave shape	>3.0 V pk into 50 Ω (TTL compatible)
Width	20 μ s
Rise Time	<5 ns
Jitter	<1 ns rms
Connector type	BNC
Location	rear panel

Stability

	Standard Performance Allan Deviation	High Performance Allan Deviation
Averaging Time(s)		
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-14	<8.5E-14
100,000	<8.5E-14	<3.0E-14
floor	<5.0E-14	<2.0E-14

SSB Phase Noise

Offset (Hz)	5 MHz output
1	-106 dBc
10	-130 dBc
100	-145 dBc
1,000	-155 dBc
10,000	-155 dBc
100,000	-160 dBc

Performance Parameters

	Standard Performance	High Performance
Accuracy **	<2.0E-12	<5.0E-13
Warm-up Time (typical)	30 minutes	30 minutes
Reproducibility	<1.2E-12	<5.0E-13

Settability

Range	$\pm 1E-9$	$\pm 1E-9$
Resolution	1E-15	1E-15
Control	via RS-232 port	via RS-232 port

ENVIRONMENTAL & PHYSICAL SPECIFICATIONS

Panel Indicators

Power	Green LED indicates there is power to the instrument.
Lock	Green LED indicates proper operation.
Major Alarm	Red LED indicates improper operation.

Remote System Interface and Control

RS-232-C (DTE configuration)	Remote control and interrogation of all instrument functions and parameters
Connector	
RS-232-C	9-pin male rectangular D subminiature type
Alarm	9-pin female rectangular D subminiature type one form-C contact

Temperature

Operating:	0° to 55°C
Non-operating:	-40° to +70°C

Power Requirements

Operating Voltage	AC 90 to 132 V 180 to 265V
Frequency Range	47 to 63 Hz

Power	
operating	65W
warm-up	90W

Dimensions

Height	3.50" (88.9 mm)
Width	
front panel	19.00" (483 mm)
instrument	17.31" (440 mm)
Depth	15.0" (381 mm)

Weight	<30 lbs (13.5 kg)
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Options	Option P/N
- High Performance Tube - Tube warranty extension to 12 years (Standard Performance Only) - Portability conversion kit (see photo above) - Dual 1544 kbps output - Dual 2048 kbps (G.703/6) outputs plus 2.048MHz (G.703/10)	TEW PCK DS1 E1

** 100% verified & calibrated against Datum-Beverly in-house standard



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