SAASM HD CSAC Disciplined Atomic Frequency Standard

Jackson Labs

"the next generation in frequency and timing"

- **2.0 X 2.85 X 0.6 Inches**
- **Cesium Vapor based Atomic Clock**
- **SAASM with L1/L2 GPS reception**
- **Less than 1.1W Total Power**
- **Cold-Zerorize with backup battery**
- **PRELIMINARY SPECIFICATION**

TYPICAL ELECTRICAL SPECIFICATIONS:

Module Specification:			
Long-Term Oscillator Aging (without GPS - Zero aging with GPS)	Less than 0.3ppb per month in Holdover without GPS		
Frequency Stability Over Temperature	Better than ±0.5E-09 (CSAC only, no GPS Disciplining, 0°C to +70°C)		
1 PPS stability to UTC	±25ns to UTC RMS (1-Sigma) GPS Locked with P(Y) Code stationary		
Frequency Accuracy	Better than ±2E-010 after 3 minutes operation with GPS lock		
Holdover Stability (7 days on with GPS, then 24 hours off cold-soak)	<±2us over 24 Hour Period @+25°C (after 3hrs with GPS lock)		
ADEV (with GPS lock)	1s: <1E-10, 10s: <2.5E-11, 100s <2E-11, 1Ks: <1E-11, 10Ks: <2E-12		
1 PPS Output (CSAC Flywheel Generated)	5V CMOS output		
10MHz Output	One 5V CMOS 10MHz, one LVDS differential 10MHz output		
SAASM Software Key-Zerorize	Via RS-232 SCPI interface command		
SAASM Hardware Cold Key-Zerorize (no prime-power required)	External switch and 2V to 5V small backup battery, 3.6V nominal		
RS-232 Control	Full SCPI-99 Control Commands at 9.6K, 19.2K, 38.4K, 57.6K, 115.2K		
RS-232 NMEA Output Sentences	NMEA 0183 rev. 2.3, Sentences: GGA, RMC, ZDA, PASHR, GSV		
GPS Frequency, Antenna	L2 P(Y), L1 C/A and P(Y), Active Antenna 3.3V, MMCX Connector		
GPS Receiver (Rockwell SAASM MicroGram)	12 Channels, Mobile, SAASM with DS101 Key and Zerorize		
GPS Receiver Footprint	SMT module		
GPS TTFF (DS101 Keyed, fresh Almanac auto-saved in NVRAM)	Cold Start - <110 sec, Warm Start - <90 sec, Hot Start - <10 sec		
GPS Dynamics	9g operating, 600g shock		
TTL Alarm Output	GPS Unlock, Event, and Hardware Failure indicator		
Warm Up Time / Stabilization Time Without GPS	<3 min at +25°C to <5E-010 Accuracy Typ.		
Supply Voltage (Vdd)	10V to 15VDC (12V nominal)		
Power Consumption	<1.1W at +25°C at 12V Vdd, tracking GPS		
Operating Temperature	-10°C to +70°C		
g-sensitivity	<0.1ppb per-g per-axis		
Magnetic Sensitivity	Less than 0.4ppb per Gauss		
Storage Temperature	-40°C to +85°C		
MTBF	> 25,000 Hours (0°C to +70°C)		
Ordering Options	DS-101 Key Connector on side or on front of PCB, External DAGR Cold-Start Assist via ICD-153 interface		
Phase Noise		10Hz	<-75dBc/Hz
		100Hz	<-115dBc/Hz
		1KHz	<-130dBc/Hz
		10kHz	<-140dBc/Hz
		100kHz	<-140dBc/Hz

SAASM HD CSAC Chip Scale Atomic Clock GPSDO: MADE IN USA

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