Low Power Miniature RSR CSAC Time and Frequency Standard

Jackson Labs

"the next generation in frequency and timing"

- **1.61 X 2.31 X 0.7 Inches**
- **Timing and Frequency Reference**
- **Rockwell RSR, uBlox compatible**
- **Very Low Power: 0.39W @ 5V**
- **2.3V to 5.5V supply, RS-232 serial**
- **PRELIMINARY SPECIFICATION**

TYPICAL ELECTRICAL SPECIFICATIONS:

Module Specification:	
Long-Term Oscillator Aging (without GPS - no aging with ext. reference)	Less than 0.3ppb per month in Holdover without ext. reference
Frequency Stability Over Temperature	Better than ±0.5E-09 (CSAC only, no Disciplining, 0°C to +70°C)
1 PPS Accuracy	<5ns to ext. 1PPS RMS (1-Sigma) steady-state
Frequency Accuracy	Better than ±2E-010 after 3 minutes operation to ext. reference
Holdover Drift (after 5 minute warmup with ext. reference lock)	<±2.5us drift per hour over worst case temperature range
Typical Holdover Drift (after 5 minute warmup with ext. reference lock)	<±1us drift per hour at 25°C ±5°C
ADEV (with ext. reference lock)	1s: <1E-10, 10s: <2.5E-11, 100s <2E-11, 1Ks: <1E-11, 10Ks: <2E-12
1 PPS Output (CSAC Flywheel Generated)	3.3V CMOS output
10MHz Outputs	10MHz CMOS 3.3V
RS-232 control ports	Independent RS-232 ports for SCPI/NMEA and external GNSS Receiver
RS-232 and TTL NMEA Output Sentences	NMEA 0183 rev. 2.3, Sentences: GGA, RMC, ZDA, PASHR, and others
External SAASM GPS disciplining option	Glue-less control of optional Rockwell Collins RSR Puck SAASM receivers
External GNSS disciplining option	Glue-less control and monitoring of uBlox 6,7,8 receivers
TTL Alarm Output	Hardware Event Indicator
Warm Up Time / Stabilization Time (CSAC Atomic Lock)	<180s at +25°C to <5E-010 Accuracy Typ.
Supply Voltage (Vdd)	+2.3V to +5.5V (e.g. 2.5V, 3.0V, 3.3V, 5V)
Power Consumption	0.39W at 5.0V, 0.41W at 3.3V
Operating Temperature	-10C to +70C
g-sensitivity	<0.2ppb per-g per-axis
Magnetic Sensitivity	Less than 0.4ppb per Gauss
Storage Temperature	-25°C to +70°C
MTBF	> 100,000 Hours at +40C
Connectors	Samtec board-to-board, or Hirose board-to-cable
Phase Noise	10Hz: -75dBc/Hz; 100Hz: -115dBc/Hz; 1KHz: -128dBc/Hz; 10kHz: -134dBc/Hz; 100kHz: -140dBc/Hz
Applications:	Glue-less Plug-In Timing and Frequency reference with Atomic Clock
	CSAC Module upgrade for Rockwell Collins RSR SAASM Puck
	Low-Power high-reliability Glue-Less CSAC module
	Atomic Frequency Standard with optional external 1PPS input

RSR CSAC Low Power Reference, PN: 1005120 **MADE IN USA**

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