

Quartzlock

A1

4x10⁻¹⁵/ day
Stability

CH1-76A

Passive Hydrogen Maser



FEATURES

- 5MHz frequency output
- 1pps time output
- 8x10⁻¹³/s, 4x10⁻¹⁵/day stability
- Aging: <1x10⁻¹⁵ day
- Long life

APPLICATIONS

- Calibration
- Timekeeping
- Navigation
- Telecom network sync
- Radar

BENEFITS

- Half lifetime cost of Caesium
- Certify GPS, GLONASS, GALILEO
- A stable standard for NMI

2003 SPECIFICATIONS

Outputs	
5 MHz (sine)	1±0.2 V RMS @ 50Ω
1 Hz (pulse)	Amplitude: 2.5 V @ 50Ω Width: 10-20 μs Rise time: <30 ns Jitter: <0.1 ns
Temp frequency coefficient, °C	±1x10 ⁻¹⁴
Accuracy, 1/year	±1.5 x 10 ⁻¹²
Aging, 1/day	<1 x 10 ⁻¹⁵
Frequency corrector resolution	±1 x 10 ⁻¹⁴
Frequency corrector range	1 x 10 ⁻¹⁰
Frequency stability (Allan Deviation) *	
1 sec	8x10 ⁻¹³
10 sec	1.6x10 ⁻¹³
100 sec	6x10 ⁻¹⁴
1000 sec	2x10 ⁻¹⁴
1 hour	1.2x10 ⁻¹⁴
1 day	4x10 ⁻¹⁵
SSB Phase Noise, dBc/Hz	
1 Hz	-100
10 Hz	-120
100 Hz	-140
1 kHz	-150
10 kHz	-150
Harmonic distortion, dB	< 30
Non-harmonic distortion, dB	< 100
Power, ac	110/220V±10%, 50-60Hz
dc	22-30 V
At power line failure	auto switches to external dc power supply 22-30 V
Power consumption	140 VA ac, 90 W dc
Operating temperature range, °C	5-40
Storage temperature range, °C	-50 +50
Humidity	up to 80% at 25 °C
Magnetic field sensitivity, 1/Gauss	±2 x 10 ⁻¹⁴
Dimensions, mm	280x480x555
Weight, kg	55
Lifetime, years	10

* Frequency stability per time intervals equal or more than 100s is guaranteed at ambient temperature change ± 1°C

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Measurement System

- Frequency, Phase & Phase Noise
- Very high resolution; very low noise
- 5x10⁻¹⁴/s noise; 50fs single shot resolution
- Ultra fast measurement time
- A7-A (Analogue) simple to use E-13 resolution
- A7-M (Metrology) best available E-16 resolution
- Selectable filters, resolutions & tau's
- 24V battery back up glitchless switch built in

A6



Frequency Converter

- A5 design criteria for stability and low noise
- All outputs synchronised
- A5-4 output OEM Modules provide multiple outputs
- 24Vdc or 90...240Vac operation
- Hydrogen Maser Compatible Performance
- 1 Hz / 1pps sync input; 1,5,10MHz sine/sq. outputs

A5



Distribution Amplifier

- 4...32 Outputs
- 1-100MHz frequency input range (sine)
- Phase Noise: -160 dBc/Hz @ >100Hz
- Temperature Stability <10ps/°C
- Hydrogen Maser Compatible Performance
- STS 1x10⁻¹³/t^{1/2}
- Low Harmonic Distortion
- High input/input and input/output isolation
- Low 1/f AM and PM noise

A8



GPS Rb

- 1, 5, 10MHz sine & square wave outputs
- 5x10⁻¹⁴ offset/ week
- 1pps output
- -160dBc/Hz phase noise
- Time, date, position, Δf, Δt, displayed
- Time accuracy to 4ns
- 24V battery back up glitchless switch built-in



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