Quartzlock

A1

7E-16/ day
Stability

CH1-75B
Active Hydrogen Maser

Cavity autotuning with cavity frequency switching technique

FEATURES

- 5 & 100MHz frequency outputs
- 1pps time output
- $2x10^{-13}$/1s, $7x10^{-16}$/day stability
- Aging: $3x10^{-16}$/ day
- $<1x10^{-15}/^{o}C$ temp sensitivity

APPLICATIONS

- Galileo & GPS test solution reference
- National timekeeping
- Calibration of any production standard
- Fountain Caesium 'flywheel'
- VLBI & VLBA
- Common view & 2 way time transfer

BENEFITS

- Same lifetime cost of high perf Caesium
- Ultimate in stability
- Total reliablity
- Internationally recognised standard

Quartzlock Active Hydrogen Maser CH1-75B

2003 SPECIFICATIONS

Outputs, sine wave		
- frequency, MHz	5, 100	
- voltage at 50 Ohm load, V	1±0.2	
- harmonic distortion, dB	<-30	
- non-harmonic distortion in 10 Hz-10 kHz range, dB	<-100	
Outputs, pulse		
- Frequency, Hz	1	
- amplitude at 50 Ohm load, V	≥2.5	
- width, µs	10-20	
- rise time, ns	15	
- jitter, ns	<0.1	
Aging at delivery, 1/day	<3E-16	
Accuracy, 1/year	5E-13	
Temperature frequency coefficient, 1°C	1E-15	
Frequency stability (Allan deviation)	**Spec**	**Typ**
1s	2E-13	2E-13
10s	3E-14	2.5E-14
100s	7E-15	5E-15
1000s	2.5E-15	1.7E-15
1h	1.5E-15	1.2E-15
10000	1E-15	7E-16
1day	7E-16	5E-16
SSB phase noise (5MHz), dBc/Hz		
1 Hz	-110	
10 Hz	-135	
100 Hz	-152	
1000 Hz	-158	
10000 Hz	-160	
Magnetic field sensitivity, 1/Gauss	1E-14	
Frequency corrector tuning range	1E-10	
Setting resolution	1E-15	
Power, AC		
50 Hz	220 V±10%	
50 Hz	100 V±10%	
50 Hz	240 V±5-10%	
60 Hz	120 V±10%	
400 Hz	115 220 V±5%	
At power line failure auto switches to external 22-30VDC supply		
Power consumption		
- AC, VA	150	
- DC, W	100	
Dimensions, mm	708x480x595	
Weight, kg	90	
Operating temperature range, °C	10-35	
Humidity	<80% @ 15°C	
Life time, years	15	

A7


Measurement System

- Frequency, Phase & Phase Noise
- Very high resolution; very low noise
- 5x10-14/s noise; 50fs single shot resolutione
- 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/t½
- 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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