

FCNU-2520-MAX**20 KG-CLASS ACTIVE HYDROGEN MASER
(HIGH-PERFORMANCE MODEL)****Features:**

- Enhanced high-performance active hydrogen maser architecture
- Low-noise, high-stability sine-wave outputs at 5 MHz, 10 MHz and 100 MHz, plus a 1 PPS timing output
- Operates as a stand-alone frequency reference or as the reference source for a time and frequency measurement system

Applications:

- Timekeeping and time dissemination
- Metrology and testing
- Space tracking and navigation
- Radio astronomy and very long baseline interferometry (VLBI)
- Scientific research



470 x 223 x 530 mm

Product Overview:

The FCNU-2520-MAX is the top-tier active hydrogen maser, built for applications where sub- 10^{-16} long-term stability and low-noise multi-frequency outputs matter more than footprint or weight. It delivers Allan deviation $\leq 3.0 \times 10^{-15}$ at 100 s and $\leq 4.0 \times 10^{-16}$ at 86,400 s, with long-term drift held to $\leq 5 \times 10^{-16}$ /day after one year — roughly double the stability margin of the FCNU-2310 series at the one-day mark.

It's the only unit in the family with a 100 MHz sine output and a 1 PPS timing output alongside the standard 5 MHz/10 MHz pair, and it's built to run either as a stand-alone frequency reference or as the reference source feeding a larger time-and-frequency measurement system — a distinct role from the 2310-PRO's cooperative-timing-network node mode. Phase noise stays ≤ -158 dBc/Hz at 10 kHz offset (5 MHz output), the tightest in the range. Magnetic and temperature sensitivity are $\leq 1 \times 10^{-14}$ /Gauss and $\leq 5 \times 10^{-15}$ /°C.

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Signal Outputs:

Signal	Qty.	Amplitude	Width (μ s)	Rise (ns)	Connector / load
5 MHz (sine)	2	$1 \pm 0.2 \text{ V}_{\text{RMS}}$	–	–	SMA / 50 Ω
10 MHz (sine)	2	$1 \pm 0.2 \text{ V}_{\text{RMS}}$	–	–	SMA / 50 Ω

Performance Specifications:

Relative frequency accuracy	$\pm 3 \times 10^{-13}$		$\leq \pm 1 \times 10^{-13}$	
Fractional frequency stability (Allan deviation, 25 ± 1 $^{\circ}\text{C}$; environmental effects excluded)	1 s	$\leq 1.0 \times 10^{-13}$		
	10 s	$\leq 1.0 \times 10^{-14}$		
	100 s	$\leq 3.0 \times 10^{-15}$		
	3600 s	$\leq 8.0 \times 10^{-16}$		
	86400 s	$\leq 4.0 \times 10^{-16}$		
	Frequency offset	5 MHz output	10 MHz output	100 MHz output
Phase noise spectral density (dBc/Hz)	1 Hz	≤ -125	≤ -120	≤ -96
	10 Hz	≤ -135	≤ -129	≤ -109
	100 Hz	≤ -149	≤ -143	≤ -122
	1 kHz	≤ -156	≤ -150	≤ -130
	10 kHz	≤ -158	≤ -152	≤ -152
Long-term fractional frequency drift (after 1 year of operation)	$\leq 5 \times 10^{-16}/\text{day}$			
Magnetic sensitivity	$\leq 1 \times 10^{-14}/\text{Gauss}$			
Temperature sensitivity	$\leq 5 \times 10^{-15}/^{\circ}\text{C}$			

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Dimensions (W×H×D)	470 mm × 223 mm × 530 mm
Weight	Approx. 20 kg
Operating temperature (rate of change ≤ 0.5 °C/h)	10 – 35 °C (recommended: +22 °C)
Relative humidity	< 80% RH at +25 °C
Power Supply	220V AC [110V AC optional]
Warranty	3 years

Disclaimer

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