



**ptf**

## **4220A RUBIDIUM FREQUENCY STANDARD**

**10MHz Rubidium Frequency Reference**  
**100kHz Capability (with MOPS option)**  
**1PPS Disciplining Input (standard)**  
**Ultra Low Phase Noise (-128dBc at 10Hz)**  
**RS 232 Monitor/Control**  
**Convenient 2U bench or 19" rack mount**



The **ptf** 4220A is an Ultra Low Noise Disciplined Frequency Standard with rubidium and OCXO clean-up oscillator.

The instrument contains a high performance rubidium module, with an extended life design, and very low aging rate, with high quality OCXO o/p for low phase noise.

For even better long term stability the unit will accept a 1PPS input that can be derived from a reference such as caesium or GPS.

An ideal laboratory or system frequency reference, which includes a range of options that are available to enhance the functionality of the unit.

Specifications subject to change without notice



# 4220A RUBIDIUM FREQUENCY STANDARD

## SPECIFICATIONS

### ELECTRICAL

**Outputs**            10MHz @ +7dBm(RF sinewave)  
                           1PPS TTL Level  
                           1,5 & 10 MHz @ +13dBm(1Vrms)sinewave

**Stability**  
 Short-term:    1s        2E-11  
                       10s       1E-11  
                       100s     2E-12

**Aging**            <5 E-11/month (after 30 days)  
                           <5 E-10/year

**Accuracy**        5E-11 (at shipment)

**Phase Noise at 10MHz**  
 Offset from carrier    Phase Noise (dBc)  
 1 Hz                        -108  
 10 Hz                       -128  
 100 Hz                      -150  
 1000 Hz                     -170  
 10000 Hz                   -170

**Spurious**         -75 dBc (100kHz bw)

### ENVIRONMENTAL & PHYSICAL

**Power Requirements**  
 AC Input ( $\pm 15\%$ )    120 or 230 VAC, <10W  
 DC Input (optional)   20 to 70 VDC, 10W

**Dimensions**  
 (HxWxD)                2U x 19" x 12"

### Configuration Options

Option #	Description
PPSI	External 1 PPS
EXP4	4 ch. Expansion Module
RF01	1MHz Sinewave out (x4)
RF05	5MHz Sinewave out (x4)
RF10	10MHz Sinewave out (x4)
PULS	Pulse Distribution (x4)
OCXO	High Performance OCXO
ULNO	Ultra Low Noise Output
FPOC	Front Panel Outputs
DCPS	DC Power Supply
RSLD	Mounted Rackslides



*ptf* 4220A rear view

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