

# Frequency Counters

SR625 — Rubidium stabilized frequency counter



## SR625 Time Interval/Frequency Counter

- **Rubidium atomic timebase**
- **2 GHz prescaler input**
- **11-digit frequency resolution (1 s)**
- **Short 10 minute warm-up period**
- **Portable operation**
- **10 MHz Rb timebase output**
- **Statistical analysis & Allan variance**
- **Hardcopy to printers and plotters**
- **GPIO and RS-232 interfaces**

The SR625 Frequency Counter is a NIST traceable frequency counting standard for calibrating base stations, transmitters and many other types of communication systems. It combines the high resolution and wide variety of features found in the SR620 counter with the atomic accuracy of a rubidium timebase.

### Low Drift, High Accuracy

The SR625 Frequency Counter consists of a SR620 Time Interval/Frequency Counter plus a high-accuracy rubidium timebase and 2 GHz input prescaler. The combination of the SR620 and the prescaler allows direct frequency measurements up to 2 GHz with twelve digits of resolution in a 100 second gate. The rubidium timebase ensures both excellent short-term stability ( $<2 \times 10^{-11}$  Allan variance (1 s)) and low long-term drift ( $<5 \times 10^{-11}$ /month).

### Simple, Portable Operation

The SR625's warmup time is less than ten minutes making it ideal for field applications. An additional back-panel output provides a rubidium stabilized 10 MHz signal which can be used to drive other test equipment such as synthesizers or spectrum analyzers. The standard GPIO and RS-232 interfaces allow for complete control and data acquisition from any laboratory computer. The SR625's performance makes it the standard for remote applications or laboratory calibration.

The SR625 combines a SR620 Time Interval/Frequency Counter with a rubidium timebase and a 2.2 GHz prescaler. The following specifications relate to the 2.2 GHz prescaler and the rubidium timebase only. Please see the section on the SR620 for general specifications relating to the counter.

## Rubidium Timebase

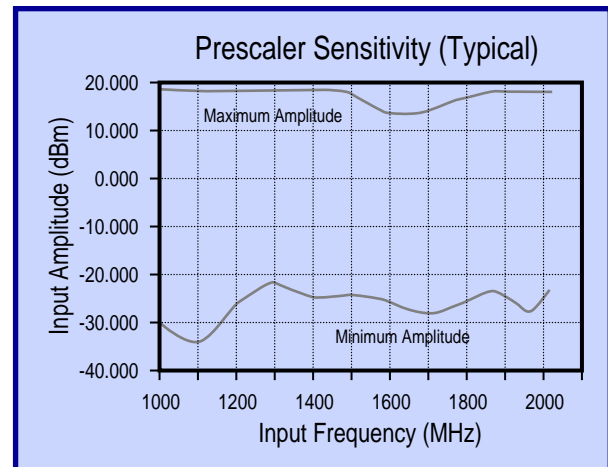
Frequency	10 MHz
Accuracy at shipment	$\pm 5 \times 10^{-11}$
One day stability	$4 \times 10^{-11}/\text{day}$
Long-term drift	$< 5 \times 10^{-11}/\text{month}$ , $< 5 \times 10^{-10}/\text{year}$
Short-term stability	
1 s Allan variance	$< 2 \times 10^{-11}$
10 s Allan var.	$< 1 \times 10^{-11}$
100 s Allan var.	$< 2 \times 10^{-12}$
Warm-up interval	10 minutes to meet short-term stability specification
Power consumption	70 W (at warm-up), 100/120/208/240 VAC, 50/60 Hz
Output	10 MHz, 1 V <sub>pp</sub> sine wave

## Prescaler

Frequency ratio	10:1
Input impedance	50 $\Omega$
Max. input level	+23 dBm
Input freq. range	50 MHz to 2.2 GHz
Input sensitivity	See graph
Output	
Output load	50 $\Omega$
Output amplitude	700 mVpp square wave
Output offset	500 mV

## General

Size	17" x 3" x 14.5" (WHD)
Weight	15 lbs.
Warranty	One year parts and labor on defects in materials and workmanship



### Ordering Information

SR625      Frequency counter  
(w/ Rb timebase and rack mount kit)



*SR625 rear panel*