# **Frequency Counters**

SR625 — Frequency counter with rubidium timebase



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

• SR625 ... \$12,500 (U.S. list)

## SR625 Time Interval & Frequency Counter

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 frequency counter (SR620), a high-accuracy rubidium timebase (PRS10), and a 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 measurement. The rubidium timebase ensures excellent short-term stability ( $<2 \times 10^{-11}$  Allan variance (1 s)) and 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 (e.g., synthesizers or spectrum analyzers). The standard GPIB 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 following specifications relate to the 2.2 GHz prescaler and the rubidium timebase of the SR625. Please see the section on the SR620 for general specifications relating to the counter.

#### **Rubidium Timebase**

 $\begin{array}{ll} \text{Frequency} & 10 \text{ MHz} \\ \text{Accuracy at shipment} & \pm 5 \times 10^{-11} \\ \text{One day stability} & 4 \times 10^{-11} / \text{day} \\ \end{array}$ 

Long-term drift  $<5 \times 10^{-11}$ /month,  $<5 \times 10^{-10}$ /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 Vpp 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  $17'' \times 3'' \times 14.5''$  (WHD)

Weight 15 lbs.

Warranty One year parts and labor on defects

in materials and workmanship

### Prescaler Sensitivity (Typical) 20.000 Maximum Amplitude 10.000 Input Amplitude (dBm) 0.000 -10.000 -20.000 -30.000 Minimum Amplitude -40.000 1000 1200 1400 1600 1800 2000 Input Frequency (MHz)

# **Ordering Information**

SR625 Frequency counter \$12,500

(w/ Rb timebase and rack mount kit)



SR625 rear panel

