



Agilent 5386A Frequency Counter

Data Sheet

Channel B

Range: 100 MHz to 3 GHz (3.5 GHz TYPICAL), prescaled

Sensitivity:

100 MHz to 3 GHz: 15 mVrms (-23.5 dBm)

100 MHz to 3.5 GHz TYPICAL: 5 mVrms (-33.0 dBm)

Maximum Input: 0.5 Vrms (+7 dBm)

Coupling: ac

Impedance: 50 ohm NOMINAL VSWR <2.5:1 TYPICAL **Note:** Manual level not active for Channel B.

Damage Level: ac >4V (+25 dBm) dc +/- 5V

Channel A Range: 10 Hz to 100 MHz

Sensitivity [MAN LEVEL] off: 15 mVrms sine wave 10 Hz to 100 MHz 45 mV pk-pk 5 ns minimum pulse width

Dynamic Range: 45 mV to 4V pk-pk X attenuator setting

Impedance:

X1: 1 Mohm NOMINAL || <25 pF

X20: 500 kohm NOMINAL || <25 pF

Attenuator: X1 or X20 NOMINAL, X20 increase to X40 below 50 Hz

Trigger Level:

[MAN LEVEL] ON: variable from -0.1V to +0.1V x attenuator setting about average signal value

[MAN LEVEL] OFF: automatically set to average value of signal

Damage Level:

X1: 10 - 200 Hz 350V (dc + ac peak) 0.2 - 420 kHz 170V (dc + ac peak) 0.42 - 10 MHz (5 X 10⁷ Vrms Hz) / FREQ
>10 MHz 5 Vrms

X20: <1 MHz, same as X1 >1 MHz, 50 Vrms

Frequency A and B

Range Channel A: 10 Hz - 100 MHz

Range Channel B: 100 MHz - 3 GHz, prescaled

LSD Displayed: 10 Hz to 1 nHz

LSD: $((4 \text{ ns}) / (\text{Gate Time})) \times \text{FREQ}$, rounded to nearest decade

Resolution: $\pm 1 \text{ LSD} \pm ((1.4 \times \text{Trigger Error} + 1 \text{ ns rms}) / (\text{Gate Time})) \times \text{FREQ}$

Accuracy: $\pm \text{Resolution} \pm \text{Time Base Error} \times \text{Frequency}$

Period A

Range: 10 ns to 0.1s

LSD Displayed: .001 fs to 10 ns

LSD: $((4 \text{ ns}) / (\text{Gate Time})) \times \text{period}$, rounded to nearest decade

Resolution: $\pm 1 \text{ LSD} \pm ((1.4 \times \text{Trigger Error} + 1 \text{ ns rms}) / (\text{Gate Time})) \times \text{period}$

Accuracy: $\pm \text{Resolution} \pm \text{Time Base Error} \times \text{Period}$

Timebase (TCXO)

Frequency: 10 MHz

Aging Rate: $<1 \times 10^{-7}/\text{month}$

Temperature: $<2 \times 10^{-6}$, 0-40 degrees C ($\pm 1 \times 10^{-6}$, 0-40 degrees C if referenced to 25 degrees C, and set to the offset frequency)

Line Voltage: $<5 \times 10^{-8}$ for $\pm 10\%$ variation

Option 004, Oven Timebase

Frequency: 10 MHz

Aging Rate: $<3 \times 10^{-8}/\text{month}$, after 30 days of continuous operation

Temperature: $\pm 1 \times 10^{-7}$, 0-50 degrees C referenced to 25 degrees C

Line Voltage: $<2 \times 10^{-0}$ for $\pm 10\%$ variation

General

Gate Times: 0.1, 1, or 10s NOMINAL Accuracy: $\pm 15\%$ + up to 1 period of input signal

Timebase Output: 10 MHz 25 mV pk-pk NOMINAL into 50 ohm load

External Timebase Input: 10 MHz, 0.5 Vrms into 500 ohm; 15V (dc + ac pk) maximum

Operating Temperature: 0 degrees C to 50 degrees C

Power Requirements:

AC Operation: Selectable, 30 VA maximum 115V + 10%, -25%: 48-66 Hz 230V + 10%, -15%: 48-66 Hz 115V + 10%, -10%: 380-420 Hz

Weight: Net, 3.4 kg (7 lb 8 oz) Shipping 5.3 kg (11 lb 9 oz)

Dimensions: 212.3 mm W X 88.1 mm H X 421.6 mm D (8-1/3 X 3-1/2 X 16-1/2 in)