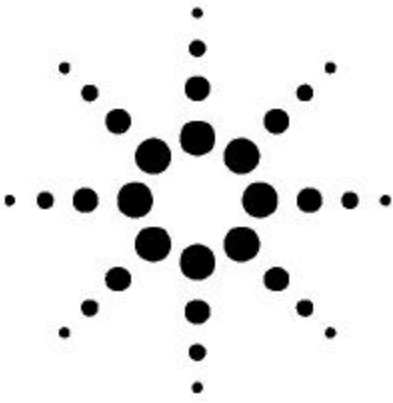


# Agilent 5386A Frequency Counter

## 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 10<sup>7</sup> 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)