



# Agilent 5359A Time Synthesizer

## Data Sheet

**External trigger mode:** Selects the delays from the sync out to the beginning of the output pulse, and the width of the output pulse.

**Internal trigger mode:** Selects the "period" or "frequency" and the width of the output pulse.

**Events mode:** Substitutes external input (to 100 MHz) for the internally counted clock (delay and width must both be specified in terms of events instead of time).

**Triggering frequency mode:** The same as internal frequency mode except the output is a burst beginning in synchronism with an external trigger signal, and continuing for the duration of this signal.

**Calibration mode:** Performs an internal calibration to remove the effects of internal delay differences.

### Range

**Delay Td:** 0 ns to 160 ms

**Width Tw:** 5 ns to 160 ms (width and delay  $\leq$  160 ms)

**Period:** 100 ns (or width +85 ns) min; 160 ms max

**Frequency:** Same as corresponding "period"

### Measurement Characteristics

**Repetition Rate:** 10 MHz max

**Accuracy:**  $\pm 1$  ns  $\pm$  time base error ( $\pm 100$  ps  $\pm$  time base error after external calibration)

**Insertion Delay:** Fixed at <150 ns; selectable as <50 ns for delays >100 ns

**Jitter:** Typical 100 ps rms; maximum 200 ps rms (delays to 10 ms)

### Input/Output Characteristics

**External Trigger Input:** -2 V to +2 V, slope selectable

**Sync Output:** 1 V at 50 ohm, 5 V at 1 Mohm. Width 35 ns nominal

#### Output Pulse

**Amplitude:** 0.5 V to 5 V, into 50 ohm

**Polarity:** Positive or negative

**Offset:** -1 V to 1 V, or OFF

**Transition time:** < 5 ns

**Note:** External voltage must not be applied. Offset and Amplitude voltage into 50 ohm may be displayed.

**Edge 1 and 2 Outputs (rear panel):** Occur in Sync with leading edge of output pulse (same specification as Sync out)

**HP-IB:** All controls except trigger levels are programmable.

### Time Base

High Stability Oven Oscillator

**Frequency:** 10 MHz



**Aging rate:**  $< 5 \times 10^{-10}/\text{day}$

**Temperature:**  $< 4.5 \times 10^{-9}$ ,  $0^{\circ}$  to  $50^{\circ}$  C

**Line voltage:**  $< 1 \times 10^{-10}$ ,  $\pm 10\%$  from nominal

**Physical and Power Specifications**

**Size:** 426 mm W  $\times$  133 mm H  $\times$  521 mm D (16.75 in  $\times$  5.25 in  $\times$  20.50 in)

**Weight:** 13.5 kg (30 lb)

**Power Requirements:** 100, 120, 220, or 240 Vac  $\pm 5\%$  -  $10\%$ , 48 to 66 Hz, less than 250 VA

**Front Handles:** Supplied with instrument



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