

**Duty Cycle A** (Constant Duty Cycle Required)**Range:** 1% to 99%, 0 to 100 MHz**Trigger Point Range:** 40% to 60% of pulse height**LSD Displayed:**  $\frac{1 \text{ ns}}{\text{period}} \times 100\%$ **Slew Rate A****Range:** 50 V/s to  $10^6$  V/s slew rate with 50 Hz to 25 MHz repetition rates (50% duty cycle). Minimum pulse height, width, and duty cycle range are same as Rise and Fall Time A**Input Mode:** Automatically set to COMMON A with 10% and 90% trigger levels**Ratio A/B****Range:** Channel A: 0 to 200 MHz (prescaled by 2);  
Channel B: 0 to 100 MHz.**LSD Displayed:**  $\frac{\text{Ratio}}{\text{Freq} \times \text{Gate Time}}$  where Freq is higher

frequency after prescaling

**Totalize A****Range:** 0 to 100 MHz**LSD Displayed:** 1 count of input**HP-IB Output:** At end of gate**Manual****Count reset:** Via RESET key**HP-IB output:** Totalize data on-the-fly sent if Cycle mode set to Single. Input frequency range in this mode is 0 to 50 Hz nominal.**Gated****Count reset:** Automatic after measurement**Phase A Rel B****Range:**  $-180^\circ$  to  $360^\circ$  (Range Hold OFF) or  $0^\circ$  to  $360^\circ$  (Range Hold ON) with signal repetition rates of 30 Hz to 1 MHz.**Minimum Signal:** 100 mV rms**LSD Displayed:** 0.1°**Gate Time****Range:** 100  $\mu$ s to  $10^7$  s**LSD Displayed:** Up to 3 digits with Ext. Arm Enable OFF, 100 ns when ON. MIN Gate Mode display zero.**Trigger Level****Range:**  $\times 1$ , +5 to  $-5$  V;  $\times 10$ , +50 to  $-50$  V**Resolution:**  $\times 1$ , 10 mV;  $\times 10$ , 100 mV**Accuracy ( $\times 1$ ):**  $\pm 20$  mV,  $\pm 0.5\%$  of reading**Timebase****Standard Crystal** (see page 198)**Frequency:** 10 MHz**Aging rate:**  $< 3 \times 10^{-7}$ /month**Temperature:**  $< 5 \times 10^{-6}$ , 0 to  $50^\circ$  C**Line voltage:**  $< 1 \times 10^{-7}$  for 10% change**High-Stability Crystal:** See Option 010**External Timebase Input:** Rear-panel BNC accepts 5 or 10 MHz, 200 mV rms into 1 k $\Omega$ ; 5 V rms maximum**Timebase Out:** 10 MHz,  $> 1$  V peak-to-peak into 50  $\Omega$  via rear panel**Statistics****Sample Size:** Selectable,  $n = 100$  to 1000 samples**Functions:** Std. dev., mean, and smooth (weighted running average)**Math**

All measurement functions, except GATE TIME, Totalize in Scale Mode, and TRIG LVL, may be operated upon by Math functions. Offset, Normalize, and Scale may be used independently or together:

$$\text{Display} = \frac{\text{measurement} + \text{offset}}{\text{normalize}} \times \text{scale.}$$

**Number Value Range:**  $\pm 1 \times 10^{-9}$  to  $\pm 9 \times 10^9$ **Last Display:** Causes value of previous display to Offset (negative value), Normalize, or Scale all subsequent measurements**Measurement t-1:** Causes each new measurement to be Offset, Normalized, or Scaled by immediately preceding measurement**Hewlett-Packard Interface Bus (See Option 040)****Programmable Controls:** All measurement functions, Math, Statistics, Reset, Range Hold, Ext. Arm Enable/Slope, Check, Gate Adj. ( $\sim 1$  ms to 1 s), Gate Open/Close (gate times to  $\infty$ ), Gate Mode, Cycle, Preset, Slope, Common A, Auto Trigger**Special Functions:** FREQ B, PULSE B, TIME B $\rightarrow$ A, TOT A-B, LEARN, MIN, MAX, all internal diagnostic routines**Interface Functions:** SH1, AH1, T5, TE $\emptyset$ , L4, LE $\emptyset$ , SR1, RL1, PP $\emptyset$ , DC1, DT1, C0 (see page 85)**Data Output:** Fixed format consisting of 19 characters plus CR and LF output typically in 8 ms**General****Gate:** Minimum, manual, or continuously variable (NORM/FAST) via Gate Adj. control**NORM:** 20 ms to 4 s nominal**FAST:** 100  $\mu$ s to 20 ms nominal**MIN:** Minimum gate time. Actual time depends on function.**MANUAL:** Each press opens or closes gate.**Cycle:** Determines delay between measurements**NORM:** No more than a 4 readings per second, nominal**MIN:** Updates display as rapidly as possible ( $\sim 15$  readings per second, depending on function)**SINGLE:** One measurement taken with each press of button.**Arming:** Ext. Arm Enable key allows rear-panel input to determine Start and/or Stop point of a measurement. External gate defined by both Start and Stop armed. All measurements are armable except Manual Totalize, Phase, and Trigger Level.**Start arm:** + or - slope of arm input signal starts measurement.**Stop arm:** + or - slope of arm input signal stops measurement.

When used, Start Arm must occur before Stop Arm.

**Ext. arm input:** Rear-panel BNC accepts TTL into 20 k $\Omega$ . Minimum Start to Stop Time: 200 ns.**Trigger Level Out:** dc output into 1 M $\Omega$  via rear panel BNCs for Channel A and B; not adjusted for attenuators.**Accuracy at dc ( $\times 1$ ):**  $\pm 15$  mV  $\pm 0.5\%$  of TRIG LVL reading**Gate Out:** TTL level into 50  $\Omega$ ; goes low when gate open; rear panel BNC**Range Hold:** Freezes decimal point and exponent of display.**Display:** 12-digit LED; exponent range of +18 to  $-18$ **Operating Temperature:**  $0^\circ$  to  $50^\circ$  C**Power Requirements:** 100, 120, 220, 240 Vac (+5%,  $-10\%$ ), 48 to 66 Hz; 130 VA max**Weight:** Net, 8.8 kg (19 lb 8 oz); shipping, 13.6 kg (30 lb)**Size:** 425.5 mm W  $\times$  132.6 mm H  $\times$  345.4 mm D (16 $\frac{1}{4}$  in  $\times$  5 $\frac{1}{4}$  in  $\times$  13 $\frac{1}{2}$  in), not including removable handles**Options****Opt 010: High Stability Timebase Oven** (see page 198)**Frequency:** 10 MHz.**Aging rate:**  $< 5 \times 10^{-10}$ /day after 24-hour warmup**Short term:**  $< 1 \times 10^{-10}$  rms for 1s average**Temperature:**  $< 7 \times 10^{-9}$ ,  $0^\circ$  to  $50^\circ$  C**Line voltage:**  $< 1 \times 10^{-10}$  for 10% change**Warmup:** Within  $5 \times 10^{-9}$  of final value in 20 minutes**Opt 020: dc Digital Voltmeter****Range:** 4 digits, autoranging, autopolarity, in  $\pm 10$ ,  $\pm 100$ ,  $\pm 1000$  V ranges**Sensitivity:** 100  $\mu$ V, 1 mV, 10 mV, 100 mV for  $\pm 1$  V,  $\pm 10$  V,  $\pm 100$  V,  $\pm 1000$  V readings**LSD displayed:** Same as sensitivity**Input type:** Floating pair**Input frequency impedance:** 10 M $\Omega$   $\pm 1\%$ **Opt 030: 1.3 GHz C Channel****Input range:** 150 MHz to 1.3 GHz prescaled by 20**Input sensitivity:** 10 mV rms sinewave ( $-27$  dBm) to 1 GHz; 100 mV rms sine wave ( $-7$  dBm) to 1.3 GHz**LSD displayed, resolution, accuracy:** Same as Frequency A**Ratio C/A Range:** Channel A, 0 to 200 MHz

Channel C, 150 to 1300 MHz

**Opt 040: Complete Systems Programmability**

Adds remote selection of low-pass filter, ac/dc coupling, attenuator, dc trigger level, and input impedance for Channels A and B

**Ordering Information**

	Price
<b>HP 5335A</b> Universal Counter (with front handles)	\$5,775
<b>Opt 010</b> Oven Oscillator	+ \$1,100
<b>Opt 020</b> DVM	+ \$825
<b>Opt 030</b> C Channel	+ \$1,015
<b>Opt 040</b> Expanded HP-IB Control	+ \$950
<b>Opt 908</b> Rack Flange Kit for Use Without Handles	+ \$75
<b>Opt 913</b> Rack Flange Kit for Use With Supplied Front Handles	+ \$70
<b>Opt W30</b> Extended Repair Service (see page 624)	\$110
<b>Opt W32</b> Calibration Service (see page 624)	\$525
<b>HP 10855A</b> 2 MHz to 1300 MHz Preamplifier	\$1,450

For the most current prices and product information, contact your local Hewlett-Packard sales office—see page 654.