

KEYSIGHT TECHNOLOGIES (AGILENT HP)

5315A

The Keysight (Agilent HP) 5315A is a high-performance 100 MHz Universal Counter designed for highly accurate frequency, period, ratio, time interval, and totalizing measurements. Featuring exceptional resolution on low-frequency signals via reciprocal counting technology, it is highly versatile for both lab and field applications with its optional internal battery pack.

SPECIFICATIONS

General

Interfaces	Standard: None; Optional: HP-IB / GPIB (Option 003)
Display	8-digit yellow LED display with overflow, gate, and trigger status indicators
Self-Test Function	CHECK position on function switch counts internal 10 MHz reference

Physical

Power Supply	100 / 120 / 220 / 240 V AC (+5% -10%), 48 - 66 Hz, <15 VA (<30 VA with battery charger active)
Operating Temperature	0 to 50 °C °C
Dimensions (W×H×D)	238 mm × 98 mm × 276 mm mm
Weight	2.2 kg kg

Input Characteristics (Channel A & B)

Frequency Range (AC)	30 Hz to 100 MHz
Frequency Range (DC)	DC to 100 MHz
Sensitivity (0.1 Hz - 10 MHz)	10 mV RMS (DC to 10 MHz, 30 Hz to 10 MHz AC)
Sensitivity (10 MHz - 100 MHz)	25 mV RMS
Pulse Sensitivity	75 mV peak-to-peak (5 ns minimum pulse width)
Input Impedance	1 M Ω
Input Capacitance	< 40 pF
Attenuator	x1 or x20, switchable
Low Pass Filter	100 kHz, switchable (Channel A only)
Trigger Level Range (x1)	Variable, -2.5 V to +2.5 V
Trigger Level Range (x20)	Variable, -50 V to +50 V
Maximum Input Voltage	x1: 40 V RMS (DC to 50 kHz, decreasing to 2 V RMS at 100 MHz); x20: 250 V (DC + AC peak) to 50 kHz (decreasing to 10 V RMS at 100 MHz)
Slope Selection	Independent positive (+) or negative (-) slope selection for both channels
Minimum Pulse Width (Channel A & B)	5 ns
Input Connectors (Channel A & B)	BNC female

Input Characteristics (Channel C - Optional)

Frequency Range (Channel C)	Not applicable (no Channel C on this model)
Sensitivity (50 MHz - 500 MHz)	Not applicable (no Channel C on this model)
Sensitivity (500 MHz - 1.0 GHz)	Not applicable (no Channel C on this model)
Input Impedance (Channel C)	Not applicable (no Channel C on this model)
Coupling (Channel C)	Not applicable (no Channel C on this model)
Maximum Input Voltage (Channel C)	Not applicable (no Channel C on this model)

Measurement Functions

Measurement Modes	Frequency, Period, Time Interval, Time Interval Averaging, Ratio, Totalize
Period Range	10 ns to 10 ⁷ s
Period Average Range	1 to 10 ⁵ periods
Time Interval Range	100 ns to 10 ⁵ s
Time Interval Averaging Range	1 to 10 ⁸ intervals
Time Interval Delay Range	500 μ s to 20 ms, continuously variable
Ratio Range	DC to 100 MHz (30 Hz to 100 MHz AC) on both Channel A and Channel B
Totalize (Manual) Range	0 to 99,999,999 counts

Time Base

Reference Frequency	10 MHz
Temperature Stability	$< \pm 5 \times 10^{-6}$ (0 to 50 °C)
Aging Rate	$< 3 \times 10^{-7}$ per month
Line Voltage Stability	$< \pm 1 \times 10^{-7}$ for 10% line voltage change
External Reference Input Frequency	10 MHz
External Reference Input Level	1.0 V RMS minimum into 1 k Ω

Resolution and Accuracy

Single-Shot Resolution	100 ns
Averaging Resolution Limit	100 ps
Frequency Resolution	7 digits in 1 second below 10 MHz
Gate Time Selection	Continuously variable from 60 ms to 10 s nominal

Front Panel Controls and Indicators

Display Indicators	Gate LED, Overflow LED
Function Selection	Pushbutton switches for Function selection
Time Base / Gate Control	Continuously variable potentiometer for Gate Time
Reset Switch	Pushbutton for display and logic reset

Rear Panel Controls

Outputs	10 MHz Time Base output (BNC)
Inputs	10 MHz External Reference input (BNC)

Power Requirements

Line Voltage Selection	100 / 120 / 220 / 240 V AC (+5%, -10%), switchable
Line Frequency	48 to 66 Hz
Power Consumption	< 15 VA standard (< 30 VA during battery charging)
Battery Option (Option 002) Type	Lead-acid battery pack
Battery Operating Time	4 hours minimum at 25 °C
Battery Recharge Time	16 hours to full charge with instrument off

Physical Characteristics

Weight (With Option 002)	4.1 kg
Enclosure Style	Portable cabinet with handle and tilt stand

Environmental and Compliance

Storage Temperature	-40 to +75 °C
RFI Protection	Designed to meet MIL-STD-461A

Input Characteristics

Input Coupling (Channel A & B)	AC or DC selectable
Input Configuration	SEPARATE or COMMON A (Channel A input connected to both Channel A and Channel B input circuits)

Option 001 High Stability Time Base

Option 001 Temperature Stability	< ± 1 ppm (0 °C to 50 °C)
Option 001 Aging Rate	< 1×10^{-7} per month
Option 001 Line Voltage Stability	< 1×10^{-8} for $\pm 10\%$ variation

Option 002 Battery Option

Option 002 Battery Capacity	12 V, 2.5 Ah
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Outputs

Gate Output	TTL level, high when gate is open
Time Base Output	10 MHz, > 1 V p-p into $\geq 500 \Omega$

Environmental

Operating Altitude	Up to 4,600 m (15,000 ft)
Non-Operating Altitude	Up to 15,200 m (50,000 ft)
Relative Humidity	Up to 95% RH at 40 °C (non-condensing)

Time Base Options

Option 001 TCXO Frequency	10 MHz
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Input Characteristics (Channel C)

Option 003 Input Connector	BNC female
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Reference Options

External Reference Input Impedance	1 k Ω
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Interface Options

Option 011 Interface Function	HP-IB Talker-only
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Gate Characteristics

Gate Time Range	Continuously variable from 50 ms to 10 s (nominal)
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TECHNOLOGY

Digital Counter / Timer

APPLICATIONS

Universal Frequency and Time Interval Measurement

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.