KEYSIGHT TECHNOLOGIES (AGILENT HP)

E1420B

The Keysight/Agilent E1420B is a high-performance, C-size, 1-slot, message-based VXI universal counter. Designed for automated test equipment (ATE) environments requiring high throughput, the E1420B supports a full suite of measurement functions including frequency, period, time interval, rise/fall time, and phase, alongside a high-speed shared RAM option.

SPECIFICATIONS

General

Interfaces	VXIbus (Message-Based)
Display	None (VXI module)

Physical

Power Supply	VXIbus backplane powered
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	C-size, 1-slot VXI module mm
Weight	2.2 kg kg

Measurement Capabilities

Frequency Range Channel A	DC to 200 MHz
Frequency Range Channel B	DC to 200 MHz
Measurement Functions	Frequency, Period, Time Interval, Totalize, Ratio, Rise/Fall Time, Pulse Width, Phase

Resolution & Accuracy

Single-Shot Time Interval Resolution	2 ns
Averaging Time Interval Resolution	200 ps

Input Channel Characteristics

Input Impedance (Channels A & B)	1 MΩ or 50 Ω (selectable)
Input Attenuation (Channels A & B)	x1 or x10
Input Coupling (Channels A & B)	AC or DC

VXIbus Interface & System Specs

VXI Device Type	Message Based
VXI Module Size	C-size
VXI Slot Requirements	1-slot
Programming Language	SCPI
Shared RAM Option	Option 020

Performance

Measurement Rate (Single Function)	Up to 60 measurements/s
Measurement Rate (Sequenced Functions)	Up to 40 measurements/s
Measurement Rate (with Shared RAM Option)	Up to 160 measurements/s

Environmental

Storage Temperature	-40 to +75 °C
Operating Altitude	Up to 4,600 m (15,000 ft)
Operating Humidity	95% R.H. at 40 °C (non-condensing)

Timebase

Oven Timebase Stability (Option 010)	< 5 x 10^-10 per day aging rate after 24-hour warm-up
Internal Reference Frequency	10 MHz
Standard Timebase Aging Rate	< 1 x 10^-7 per month
Option 010 Oven Timebase Aging Rate	< 5 x 10^-10 per day (after 24-hour warm-up)
Option 010 Oven Timebase Temperature Stability	< 7 x 10^-9 (0 to 50 °C)
Reference Clock Synchronization	Can lock to VXI backplane CLK10 reference

Input Characteristics

Trigger Level Range (Channels A & B)	-9.99 V to +9.99 V (1x attenuation), -99.9 V to +99.9 V (10x attenuation)
Trigger Level Resolution	10 mV (1x), 100 mV (10x)
Trigger Level Accuracy	±(20 mV + 0.5% of setting) (1x attenuation)
Low Pass Filter (Channels A & B)	100 kHz, switchable
Input Sensitivity (Channels A & B)	15 mV rms (10 Hz to 100 MHz), 45 mV rms (100 MHz to 200 MHz)
Maximum Input Voltage (Channels A & B)	15 V rms (1x attenuation, < 5 kHz), 150 V rms (10x attenuation, < 5 kHz)
Minimum Pulse Width (Channels A & B)	5 ns

Channel C (Option 030)

Option 030 Channel C Frequency Range	90 MHz to 2.4 GHz
Option 030 Channel C Input Impedance	50 Ω nominal
Option 030 Channel C Sensitivity	15 mV rms (-23.5 dBm) 90 MHz to 2.0 GHz, 20 mV rms (-21 dBm) 2.0 GHz to 2.4 GHz
Option 030 Channel C Maximum Input	5.5 V rms (+28 dBm)

Power Requirements (VXI)

+5 V VXI Current Load	3.2 A
-5.2 V VXI Current Load	0.5 A
-2 V VXI Current Load	0.1 A
+12 V VXI Current Load	0.08 A

Programming & Interface

SCPI Version Compliance	SCPI-1991.0

TECHNOLOGY

VXIbus

APPLICATIONS

Automated Test Equipment (ATE), Frequency and Time Interval Measurement