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Data Sheet

August 31, 2026

HP / AGILENT

HP / Agilent 54120B Digitizing oscilloscope mainframe

Agilent 54120B Digitizing Oscilloscope Mainframe The HP 54120B is the mainframe for the 54120-series digitizing oscilloscope family. OEM specifications list a 20 GHz repetitive bandwidth class system when used with 54121A test sets, four-channel sequential sampling architecture, and HP-IB control. High-speed digital and microwave time-domain measurements, TDR work with appropriate test sets, and automated multi-GHz waveform capture. 54120-series digitizing oscilloscope mainframe The HP 54120B is the mainframe for the 54120-series digitizing oscilloscope family. OEM specifications list a 20 GHz repetitive bandwidth class system when used with 54121A test sets, four-channel sequential sampling architecture, and HP-IB control. High-speed digital and microwave time-domain measurements, TDR work with appropriate test sets, and automated multi-GHz waveform capture. 54120-series digitizing oscilloscope mainframe Works with 54121A through 54124A test sets



MODEL

**HP / Agilent
54120B**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

54120B

LISTING

<https://aumictechlabs.com/products/54120b-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The HP/Agilent 54120B Digitizing Oscilloscope Mainframe is a signal acquisition instrument delivering up to 12.4 GHz bandwidth with picosecond-level time resolution. Built around a color

display and fully programmable architecture, this mainframe supports 4-channel test set configurations and integrates time-domain reflectometry for comprehensive characterization. The 54120B executes automated, statistical, and network measurements with 10 ps time interval accuracy and 0.4% vertical measurement accuracy, making it suitable for high-speed digital, telecom, interconnect, and microwave applications. Vertical resolution reaches 32 microvolts across its measurement range. The instrument operates under GPIB programmable control, enabling seamless integration into automated test environments. Service and programming documentation are available to support deployment and system integration.

Technical Specifications
Bandwidth: Up to 12.4 GHz
Time Interval Accuracy: 10 ps
Time Interval Resolution: 0.25 ps
Vertical Accuracy: 0.4%
Vertical Resolution: 32 microvolts
Display: Color
Channels: Compatible with 4-channel test sets
Time Domain Reflectometry: Integrated
Programmability: Fully GPIB programmable
Power Supply: 115/230 VAC, -25% to +10%, 48-66 Hz
Power Consumption: 270 watts nominal, 400 VA maximum (with four-channel test set)
Weight: Approximately 20.5 kg (45 lb)

Key Features
Automated measurement suite including basic, statistical, network, and pulse parameter analysis
Picosecond time resolution and high vertical sensitivity for low-level signal detection
Integrated TDR for transmission line and interconnect characterization
GPIB programming interface for test system automation
Operating range: +10°C to +35°C; altitude to 4602 meters (15,000 ft)

Typical Applications
High-speed digital device characterization
Interconnect and circuit analysis
High-speed telecom signal measurement
Microwave design and validation

Compatibility & Integration
The 54120B mainframe accepts multiple test set options: HP 54121A (4-Channel), HP 54122A (12.4 GHz Four Channel), HP 54123A (34 GHz Four Channel), HP 54124A (50 GHz Four Channel), and HP 54121T Systems configurations.

54120B Characteristics / Specifications

PARAMETER	VALUE
Instrument Type	Digitizing oscilloscope mainframe
Series Family	HP 54120 digitizing oscilloscope
Maximum Bandwidth With 54121A	20 GHz repetitive
Channel Architecture	Up to 4 channels with test set
Sampling Mode	Sequential repetitive sampling
Remote Interface	HP-IB
Display	Color waveform display
Timebase Accuracy Class	crystal referenced class OEM sheet
Vertical Resolution Class	12 bit class digitizing
Record Length Class	per OEM acquisition memory
Trigger Bandwidth Class	multi-GHz with test set
Input Coupling	Via attached test set
Form Factor	Benchtop mainframe
Operating Temperature Class	0 C to 55 C
Power Line	100/120/220/240 V class
Marker Measurements	Voltage and time markers
TDR Capability	With TDR capable test set configurations
Persistence Display	Supported class
Store Recall	Waveform and setup storage class
Compatible Test Sets	54121A 54122A 54123A 54124A
Minimum Time Interval Resolution Class	picosecond class
Maximum Sample Equivalent Rate Class	determined by test set
Input Connectors	On attached test set
Bandwidth	With 54121A: 20 GHz repetitive
Operating temperature	Class: 0 C to 55 C

54120B Specifications

PARAMETER	VALUE
Agilent 54120B Digitizing Oscilloscope Mainframe	Overview
Applications	High-speed digital and microwave time-domain measurements, TDR work with appropriate test sets, and automated multi-GHz waveform capture.
Key Features	54120-series digitizing oscilloscope mainframe
Works with 54121A through 54124A test sets	Repetitive sampling to multi-GHz bandwidth
Technical Specifications	Instrument Type: Digitizing oscilloscope mainframe

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Operating temperature	Class: 0 C to 55 C
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Power Line	100/120/220/240 V class
Marker Measurements	Voltage and time markers
TDR Capability	With TDR capable test set configurations
Persistence Display	Supported class
Store Recall	Waveform and setup storage class
Compatible Test Sets	54121A 54122A 54123A 54124A
Minimum Time Interval Resolution Class	picosecond class
Maximum Sample Equivalent Rate Class	determined by test set
Input Connectors	On attached test set Notes From HP 54120B digitizing oscilloscope system literature. Bandwidth, channel count, and vertical ranges are defined by the attached 5412xA test set and calibration certificate.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

specifications list a 20 GHz repetitive bandwidth class system when used with 54121A test sets, four-channel sequential sampling architecture, and HP-IB control.

Applications

High-speed digital and microwave time-domain measurements, TDR work with appropriate test sets, and automated multi-GHz waveform capture.

Key Features

54120-series digitizing oscilloscope mainframe

Works with 54121A through 54124A test sets

Repetitive sampling to multi-GHz bandwidth

Four-channel sequential architecture class

HP-IB remote control

Technical Specifications

Technical Specifications

PARAMETER	VALUE
Instrument Type	Digitizing oscilloscope mainframe
Series Family	HP 54120 digitizing oscilloscope
Maximum Bandwidth With 54121A	20 GHz repetitive
Channel Architecture	Up to 4 channels with test set
Sampling Mode	Sequential repetitive sampling
Remote Interface	HP-IB
Display	Color waveform display
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TDR Capability	With TDR capable test set configurations
Persistence Display	Supported class
Store Recall	Waveform and setup storage class
Compatible Test Sets	54121A 54122A 54123A 54124A

PARAMETER	VALUE
Minimum Time Interval Resolution Class	picosecond class
Maximum Sample Equivalent Rate Class	determined by test set
Input Connectors	On attached test set

Notes
From HP 54120B digitizing oscilloscope system literature. Bandwidth, channel count, and vertical ranges are defined by the attached 5412xA test set and calibration certificate.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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NIST-traceable calibration · SAM registered ·
30-day returns
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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.