

TEKTRONIX

RSA6120A

The Tektronix RSA6120A is a high-performance 20 GHz Real-Time Spectrum Analyzer belonging to the RSA6000 series. Designed to address the demanding measurement needs of Ku-band and wideband RF applications, it features outstanding real-time acquisition capabilities up to 110 MHz bandwidth, a spurious-free dynamic range of 75 dB, and DPX spectrum processing. It combines the functionality of a top-tier spectrum analyzer, wideband vector signal analyzer, and real-time trigger-capture-analyze platform in one instrument.

SPECIFICATIONS

General

Interfaces	LAN (10/100/1000 Base-T), GPIB (IEEE-488.2), USB 2.0, TekConnect Probes, VGA
Display	10.4 in (264 mm) color touch-screen LCD, 1024 × 768 (XGA)
Warm-up Time	20 minutes
Internal Storage	Removable Hard Disk Drive, ≥160 GB
Operating System	Windows XP Professional
Calibration Cycle	1 year

Physical

Power Supply	90 V AC to 264 V AC, 47 Hz to 63 Hz, maximum 450 W
Operating Temperature	+5 °C to +40 °C °C
Dimensions (W×H×D)	473 mm × 282 mm × 531 mm mm
Weight	26.4 kg

Frequency Specifications

Frequency Range	9 kHz to 20 GHz
Real-Time Capture Bandwidth	40 MHz (Standard), 110 MHz (Optional)
Frequency Reference Accuracy	$\pm 1 \times 10^{-6}$ (initial accuracy)
Aging Rate per Year	$\pm 1 \times 10^{-6}$
Temperature Stability	$\pm 1 \times 10^{-6}$
Resolution Bandwidth (RBW) Range	0.1 Hz to 8 MHz (Spectrum Analysis)
Swept DPX Sweep Speed	1 GHz sweep in 10 kHz RBW in less than 1 second

Amplitude & Sensitivity Specifications

Displayed Average Noise Level (DANL)	-151 dBm/Hz at 2 GHz (-167 dBm/Hz with Preamp On, typical)
Phase Flatness	$\pm 1.5^\circ$ rms across 110 MHz
Preselection	Fully preselected and image free at all times

Real-Time & Acquisition Capabilities

Minimum Event Duration for 100% POI	10.3 μ s
Minimum Trigger Duration	10.3 μ s in Frequency Domain, 20 ns in Time Domain
Spurious-Free Dynamic Range (SFDR)	73 dB
Maximum Real-Time Acquisition Time	1.7 s at 110 MHz Bandwidth
A/D Converter Resolution	14 bits
A/D Converter Sampling Rate	300 MS/s

Triggering Capabilities

Trigger Modes	Free Run, Triggered
Trigger Sources	RF Input, Trigger Input (External), Line
Trigger Types	DPX Density™, Frequency Mask Trigger (FMT), Time-qualified, Runt
Frequency Mask Trigger (FMT) Bandwidth	Up to 110 MHz (option dependent)
DPX Density Trigger Activation	Activated directly from the DPX display

Measurement Modes & Analysis Software

Standard Measurement Suite	Channel Power, ACLR, CCDF, Occupied Bandwidth (OBW), Emission Bandwidth (EBW), Spur Search, AM/FM/PM, Power vs. Time
EMI Diagnostics	CISPR and MIL-STD -6 dB filters, CISPR Quasi-peak, Average, and Peak detectors
Phase Noise & Jitter Analysis	Available with Option 11
Pulse Measurement Parameters	Over 20 Vector and Scalar parameters including Rise Time, Pulse Width, Pulse-to-Pulse Phase (Available with Option 20)
Digital Modulation Analysis	Over 20 modulation types including BPSK, QPSK, QAM (Available with Option 21)
Software Integration	Tektronix OpenChoice, Excel, MATLAB support

Input, Output & System Interfaces

RF Input Impedance	50 ohms
RF Input Connector Type	Planar Crown (3.5 mm / Type N)
Reference Input (10 MHz)	BNC, 50 ohms
Reference Output (10 MHz)	BNC, 50 ohms
Trigger Output Connector	BNC, 50 Ω
Audio Output Jack	3.5 mm speaker/headphone jack

Environmental & Compliance

Storage Temperature Range	-20 °C to +60 °C
Operating Humidity Range	90% relative humidity at +30 °C
Maximum Operating Altitude	3,000 m (9,843 feet)

Spurious Responses

Second Harmonic Distortion	<-80 dBc (10 MHz to 3.1 GHz, typical)
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Environmental

Operating Shock	15 G, half-sine, 11 ms duration
Non-Operating Shock	30 G, half-sine, 11 ms duration
Operating Vibration	0.22 Grms, 5 Hz to 500 Hz
Non-Operating Vibration	2.28 Grms, 5 Hz to 500 Hz

Power

Maximum Power Consumption	450 W
Typical Power Consumption	350 W

Inputs & Outputs

RF Input VSWR (10 MHz to 3 GHz)	<1.5:1 (10 dB Attenuation, typical)
RF Input VSWR (3 GHz to 6.2 GHz)	<1.6:1 (10 dB Attenuation, typical)
RF Input VSWR (6.2 GHz to 20 GHz)	<1.9:1 (10 dB Attenuation, typical)
Maximum Safe Input Power (Continuous)	+30 dBm (1 W, Attenuation ≥ 10 dB)

Display

Display Resolution	1024 × 768 pixels
Display Size	10.4 in. (264 mm)

Filters

RBW Filter Shapes	Kaiser (default), Taylor, Nyquist, Root Nyquist, Gaussian
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RF Input

Attenuator Range	0 dB to 75 dB in 5 dB steps
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Interfaces

USB Ports	6 × USB 2.0 (2 front, 4 rear)
GPIO Interface	IEEE 488.2
LAN Port	10/100/1000 Base-T Ethernet (RJ45)
External Display Ports	1 × VGA (D-Sub 15-pin), 1 × DVI-D

Options

Option 05 Analog IF Output Frequency	500 MHz
Option 05 Analog IF Output Bandwidth	40 MHz (standard) / 110 MHz (with Option 110)

TECHNOLOGY

Real-Time Spectrum Analyzer

APPLICATIONS

RF design, Ku-band analysis, radar, electronic warfare, and wireless communication troubleshooting

