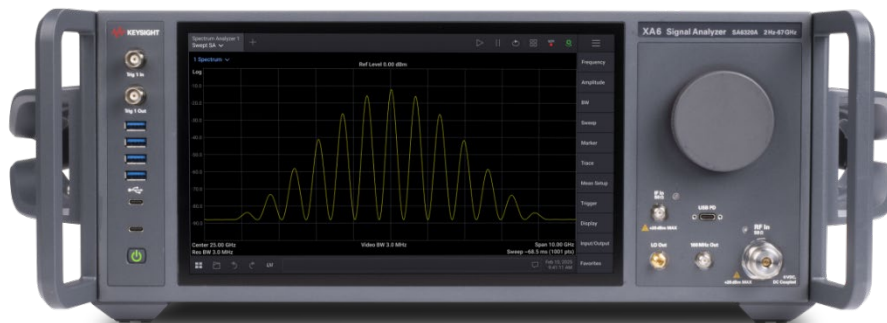


# SA6320A XA6 Signal Analyzer

2 Hz to 67 GHz

## Introduction

This SA6320A configuration guide will help you determine which performance options, measurement applications, accessories, and services to include with your new SA6320A order or to add as upgrades to an existing SA6320A.



# Included in Base Product

The options and accessories are included as standard on the SA6320A XA6 Signal Analyzer base instrument at no additional charge and do not need to be ordered separately.

They include:

- KeysightCare Assured First Year Support (includes Return to Keysight Warranty – 1 year)
- Quick start poster
- Spectrum analyzer software application
- Low phase noise
- 40 MHz analysis bandwidth
- Microwave preselector bypass
- Noise floor extension
- i9 processor, 128 GB
- Graphics Processing Unit (GPU), 16 GB
- Microsoft Windows 11 operating system
- Multi-language user interface
- Multi-touch user interface
- Country-specific power cord

# Configure Your SA6320A XA6 Signal Analyzer

This step-by-step process will help you to configure the SA6320A XA6 signal analyzer. Tailor the performance and features to meet your requirements. For detailed specifications, please refer to the SA6320A XA6 Signal Analyzer Data Sheet (3126-1383.EN).

## Step 1. Select Maximum Frequency Range (Required Option)

Description	Option Number	Additional Information
Frequency range, 2 Hz to 55 GHz	SA6320A-555	
Frequency range, 2 Hz to 67 GHz	SA6320A-567	

## Step 2. Add a Preamplicifier

Description	Option Number	Additional Information
Preamplicifier, 55 GHz	SA6320A-P55	Compatible with SA6320A-555 only
Preamplicifier, 55 GHz, basic	SA6320A-P5N	Compatible with SA6320A-555 only; non-IVL, no export control
Preamplicifier, 67 GHz	SA6320A-P67	Compatible with SA6320A-567 only
Preamplicifier, 67 GHz, basic	SA6320A-P6N	Compatible with SA6320A-567 only; non-IVL, no export control

## Step 3. Select Analysis Bandwidth

Description	Option Number	Additional Information
Analysis bandwidth, 40 MHz	Standard	Licensed as SA6320A-B40
Analysis bandwidth, 480 MHz	SA6320A-B4X	
Analysis bandwidth, 2 GHz	SA6320A-R20	
Analysis bandwidth, 4 GHz	SA6320A-R40	
Analysis bandwidth, 8 GHz	SA6320A-R80	

## Step 4. Add Performance Options

Description	Option Number	Additional Information
Low phase noise performance	Standard	Licensed as SA6320A-EPB
Microwave preselector bypass	Standard	Bypass the microwave preselector for wider bandwidth IF; licensed as SA6320A-MPB
Noise floor extension	Standard	Improves analyzer's DANL performance; licensed as SA6320A-NF2
Enhanced display package	Standard	Includes spectrogram, trace zoom, and zone span in SA mode; licensed as N90E1EDPB
External mixing, wide bandwidth	SA6320A-EXW	Enables use of the V3050A signal analyzer frequency extender
Resolution Bandwidth extended, basic	N90EMWR1B	Extends the maximum RBW to 40 MHz; non-IVL, no export control
Resolution bandwidth extended, optimum	N90EMWR2B	Extends the maximum RBW to 80 MHz
Hardware accelerated measurement	N90EMGPUB	Accelerates 5G NR EVM measurements

## Step 5. Add Security Features

Description	Option Number	Additional Information
Additional removable solid-state drive (SSD)	SA6320A-SDA	Provides a fully imaged, removable SSD in addition to the one installed in instruments, with Windows 11 operating system
Security features, exclude launching programs	SA6320A-SF1	Prevents the launching of Windows programs from the instrument application
Security features, prohibit saving results	SA6320A-SF2	Prevents instrument application from saving/recall of measurement results or user configurations to/from instrument's data storage
Security feature, secure RAM disk boot	SA6320A-SF3	Allows the instrument to boot the Windows OS into volatile memory, which ensures that, after a power cycle, all information from the previous boot is lost

## Step 6. Add Connection Options

Description	Option Number	Additional Information
Connector, auxiliary IF output	Standard	Swept and wideband IF (Option B40 and B4X) out; center frequency depends on IF path; output on Aux IF Out connector at rear panel; licensed as SA6320A-CR3
Connector, 10 Gbits Ethernet port	Standard	Licensed as SA6320A-GBE
Connector, GPIB, Micro-D 25-pin	Standard	Licensed as SA6320A-GPB
Connector, IF out, wide	SA6320A-CRW	Enables Wide IF Out connector that provides 11 GHz BW IF signal from the internal wideband signal paths for center frequencies 18 GHz or higher

## Step 7. Select Measurement Applications and License Type

**Note:** Keysight offers flexible license types and terms for the measurement applications, refer to X-Series Measurement Applications – Brochure ([5989-8019EN](#)).

Description	Option Number	Additional Information
<b>General Purpose</b>		
Spectrum analyzer and IQ analyzer	Standard	Traditional spectrum analysis plus many new and enhanced functions; licensed as N9060ES1E
Power Suite	N90EMPSMB	Power measurements based on industry specifications
Vector modulation analysis digital demodulation	N9054EM0E	Performs one-button flexible modulation analysis measurements with FSK, PSK, QAM, MSK, ASK, APSK, VSB etc. and popular format preset
Vector modulation analysis custom OFDM	N9054EM1E	Performs one-button custom OFDM modulation analysis measurement with user-defined settings or recalling 89600 VSA or Signal Studio output files
Phase noise	N9068EM0E	Adds one-button measurements for analyzing phase noise in frequency domain (log plot) and time domain (spot frequency), supports external mixing
<b>Wireless Connectivity</b>		
WLAN 802.11a/b/g/j/p/n/af/ah	N9077EM0E	Standard-based, one-button 802.11a/b/g/j/p/n/af/ah measurement
WLAN 802.11ac/ax	N9077EM1E	Standard-based, one-button 802.11ac/ax measurement

WLAN 802.11be/bn	N9077EM2E	Standard-based, one-button WLAN 802.11be/bn measurement
<b>Cellular Communications</b>		
5G NR/5G-Advanced	N9085EM0E	Standard-based, one-button 5G NR (New Radio) and 5G-Advanced downlink and uplink measurements
NR V2X	N9085EM4E	Standard-based, one-button NR V2X transmitter measurements

## Step 8. Select 89600 VSA Software Licenses

Description	Option Number	Additional Information
Advanced vector signal analysis	89601201C	Advanced vector signal analysis all-inclusive with no frequency, bandwidth limits and up to 64-channel and 512 parallel instance support
Standard vector signal analysis	89601202C	Standard vector signal analysis up to 55 GHz center frequency, 2.16 GHz bandwidth, and 4 channels and 4 parallel instances support
Essential vector signal analysis	89601203C	Essentials vector signal analysis up to 8 GHz center frequency, 160 MHz bandwidth, and single channel support
<b>General Purpose</b>		
Power Suite	89601PSMC	PowerSuite measurement for ACP and SEM
Digital demodulation analysis	89601AYAC	Analysis of > 40 modulation formats for communication formats like GSM/EDGE/W-CDMA, ZigBee, Wi-SUN, Bluetooth BR, WLAN, APCO25, J.83A/B/C, DVB-S2, ATSC, TETRA, DECT, and TEDS
		Perform modulation analysis on non-standard user-defined IQ signals through Custom IQ measurement
		Perform modulation analysis with flexible frame structure definition of multiple segments of preamble, pilot, data, and idle through FlexFrame measurement
Custom OFDM modulation analysis	89601BHFC	Proprietary and pre-standard OFDM formats modulation analysis such as 6GR (FR1/FR3), 5G NR (FR1), WLAN, DAB, DVB-T/H, DVB-SH, ISDB-T and more
Direct data connectivity	89601101C	Push live IQ data through API programming (.NET or SCPI) or VITA-49 streaming over LAN without the use of supported hardware or recording files
ccEVM and IQ-NC	89601EVMC	Improve EVM measurement through ccEVM or IQ-NC technologies
<b>Cellular Communications</b>		

3G modulation analysis	89601B7NC	W-CDMA/HSPA+, TD-SCDMA/HSPA, cdma2000, 1xEV-DO and 1xEV-DV modulation analysis
LTE/LTE-A FDD modulation analysis	89601BHGC	LTE/LTE-Advanced FDD modulation analysis
LTE/LTE-A TDD modulation analysis	89601BHHC	LTE/LTE-Advanced FDD modulation analysis
5G NR/5G-Advanced modulation analysis	89601BHNC	5G NR/5G-Advanced, Pre-5G modulation analysis
Stimulus response signal analysis	89601CSDC	Performs channel sounding measurement Perform advanced component test features inside component test measurement
O-RAN ULPI	89601ULPC	Supports ULPI (Uplink Performance Improvement) for O-RAN to enhance uplink massive MIMO
Phase Coherent Channel Count Expander Up to 8-Port	89601CC1C	Phase coherent channel count expander up to 8-Port with Sequential Acquisition
Phase Coherent Channel Count Expander Up to 64-Port	89601CC2C	Phase coherent channel count expander up to 64-Port with Sequential Acquisition
<b>Wireless Connectivity</b>		
Wireless connectivity modulation analysis	89601B7RC	WLAN 802.11a/b/g/j/p modulation analysis WiMax modulation analysis (including both EVM and SEM)
High throughput WLAN modulation analysis	89601BHXC	WLAN 802.11n/ac/ax/be/bn modulation analysis (including both EVM and SEM)
IoT modulation analysis	89601BHTC	NB-IoT, RFID, HRP UWB (802.15.4/4z/4ab) modulation analysis
<b>Radar Analysis</b>		
FMCW radar analysis	89601BHPC	Analyze Frequency Modulated Continuous Wave (FMCW) radar signals used in automotive radar, industrial, surveillance, aerospace and defense radar applications
Pulse analysis	89601BHQC	Gain deeper insights to FM linear chirp, frequency hopping, and pulsed radar signals
<b>Other Standard Formats</b>		
DOCSIS modulation analysis	89601BHMC	DOCSIS3.1/4.0 downstream and upstream modulation analysis
Satellite communication analysis	89601DVBC	Full channel decoding and modulation analysis for DVB-S2/DVB-S2X (including super Frame 5/6/7) and DVB-RCS2 return link modulation analysis

## Step 9. Select Accessories

Description	Option Number	Additional Information
Quick start poster	Standard	US – English localization
Power cord	Standard	Dependent upon the region of use
Adapter, 2.4 mm (f) to 2.4 mm (f)	Standard	
Adapter, 2.4 mm (f) to 2.92 mm (f)	Standard	
Adapter, 2.4 mm (f) to 3.5 mm (f)	Standard	
Adapter, 1.85 mm (f) to 1.85 mm (f)	N5520B	
Additional adapter, 2.4 mm (f) to 2.92 mm (f)	11904B	
Signal analyzer frequency extender	V3050A	Requires SA6320A-EXW; extends frequency to 67, 90 or 110 GHz
Front and rear panel covers	CV1118A	Protective covers for front and rear panels
USB DVD-ROM/CD-R/RW drive	1DVR001A	Enhances the usability of the Windows OS
USB mouse	1MSE001A	Enhances the usability of the 89600 VSA software
GPIB cable	Y1260A	Connects a MicroD25 GPIB to a standard GPIB
Rack mount kit, without handles	SA6320A-2CM	Rack mount flange kit – two flange brackets, two standard rails
Rack mount kit, with handles	SA6320A-2CP	Rack mount flange and handle kit – two flange brackets, handles, rails

For more information on accessories, please go to: [www.keysight.com/find/accessories](http://www.keysight.com/find/accessories)

## Step 10. Order Calibration, Service and Support

Description	Option Number	Additional Information
KeysightCare Assured First Year Support	R-55A-001-1	Includes Return to Keysight Extended Warranty
<b>KeysightCare Upgrades – Warranty and Calibration</b>		
KeysightCare Assured – Extend to 2 years	R-55A-001-2-D	
KeysightCare Assured – Extend to 3 years	R-55A-001-3-D	Includes Return to Keysight Extended Warranty
KeysightCare Assured – Extend to 5 years	R-55A-001-5-D	
KeysightCare Enhanced – Upgrade 1 year	R-55B-001-1-D	
KeysightCare Enhanced – Extend to 2 years	R-55B-001-2-D	Includes KeysightCare Assured Services (Return to Keysight Warranty) plus Return to Keysight Calibration
KeysightCare Enhanced – Extend to 3 years	R-55B-001-3-D	
KeysightCare Enhanced – Extend to 5 years	R-55B-001-5-D	
KeysightCare Calibration - calibration of choice and technical support with priority TAT - 2 years	R-55C-001-2-D	
KeysightCare Calibration - calibration of choice and technical support with priority TAT - 3 years	R-55C-001-3-D	Includes Return to Keysight Calibration up to Accredited

KeysightCare Calibration - calibration of choice and technical support with priority TAT - 5 years R-55C-001-5-D

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**Calibration Services**

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Commercial calibration certificate with test data	SA6320A-UK6	Calibration certificate only available at time of instrument purchase; only provides measurement results
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Calibration Plan – Return to Keysight – 3 years	R-50C-011-3-D
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Calibration Plan – Return to Keysight – 5 years	R-50C-011-5-D
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**Product Assistance**

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Remote scheduled productivity assistance	PS-S10
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Startup assistance, daily	PS-S20
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Custom services	PS-X10
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Other calibration options may be available; for more information on calibration go to:

[www.keysight.com/find/calibration](http://www.keysight.com/find/calibration)

# Instrument Upgrades

Fast license-key upgrades for options that do not require additional hardware:

1. Place an order for the upgrade with Keysight and request to receive the option upgrade entitlement certificate and a one-time software upgrade license through email
2. Redeem the certificate through the Web by following the instructions on the certificate
3. Install the license file and latest software in the SA6320A
4. Begin using the new capability<sup>1, 2</sup>

Description	Upgrade Number	Requirements	Additional Information
<b>Preamplifier</b>			
Add preamplifier, 55 GHz	SA6320AU-P55	555	License key only
Add preamplifier, 55 GHz, basic	SA6320AU-P5N	555	License key only; non-IVL, no export control
Add preamplifier, 67 GHz	SA6320AU-P67	567	License key only
Add preamplifier, 67 GHz, basic	SA6320AU-P6N	567	License key only; non-IVL, no export control
<b>Analysis Bandwidth</b>			
Increase analysis bandwidth from 40 MHz to 480 MHz (B4X)	SA6320AU-B01	B40	License key only
Increase analysis bandwidth from 4 GHz to 8 GHz (R80)	SA6320AU-B15	R40	License key only
<b>Additional Upgrades</b>			
Add external mixing, wide bandwidth	SA6320AU-EXW		License key only
Add connector, IF out, wide	SA6320AU-CRW		License key only
Add security features, exclude launching programs	SA6320AU-SF1	None	License key only
Add security features, prohibit saving results	SA6320AU-SF2	None	License key only
Add security features, secure RAM disk boot	SA6320AU-SF3	None	License key only
Add additional removable solid state drive, Win11	SA9094BU-SDA (under SA6320AU)	None	Provides additional removable solid-state drive, with Windows 11 operating system


1. At the time of manufacture, the hardware related to many of these options was fully adjusted and the option performance was verified to be within its warranted specifications. Within one year of the initial calibration date of the analyzer, this option is fully calibrated with no further adjustment or verification testing.
2. If this analyzer has been adjusted as part of a repair or calibration during its first year, or if the analyzer is more than one year old, additional adjustment and performance verification tests are required to ensure that some newly installed options are functioning properly. However, the completion of these tests does not guarantee that the analyzer meets all warranted specifications.

# Keysight Support Services

Accelerate your learning curve, enhance your test uptime, and confidently guarantee your instrument accuracy with Keysight Support Services. Keysight Services are here to support your test needs with expert technical support, instrument repair and calibration, training, alternative acquisition program options, and more.

A KeysightCare agreement provides dedicated, proactive support through a single point of contact for an extensive group of instruments, software, and solutions to ensure optimal uptime, with fast response times and resolution. Explore the services that are right for you.

## Keysight Services

Offering	Benefits
<b>KeysightCare</b> 	KeysightCare provides elevated support for Keysight instruments and software, with access to technical support experts who respond within a specified time and ensure committed repair and calibration turnaround times (TAT). KeysightCare offers multiple service agreement tiers, including KeysightCare Assured, Enhanced, and Application Software Support. See the <a href="#">KeysightCare data sheet</a> for details.
KeysightCare Assured	KeysightCare Assured provides a commitment to respond to your engineer's technical needs quickly. When unexpected repairs are necessary, you can count on a committed repair service turnaround time to get you back up and running.
KeysightCare Enhanced	KeysightCare Enhanced includes all the benefits of KeysightCare Assured plus Keysight's accurate and reliable <a href="#">Calibration Services</a> , accelerated and committed TAT, and technical response.
<b>Keysight Support Portal &amp; Knowledge Center</b>	All KeysightCare tiers include access to the Keysight Support Portal, where you can manage support and service resources related to your assets, such as service requests and status, or browse the Knowledge Center.
<b>Education Services</b>	Build confidence and gain new skills to make accurate measurements, with flexible Education Services developed by Keysight experts. Including Start-up Assistance.

### Alternative Acquisition Options

<b>KeysightAccess</b>	Reduce budget challenges with a lease-based subscription service that offers low monthly payments, enabling you to get the instruments, software, and technical support you want for your test needs.
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## Recommended Services

Maximize your instrument uptime and confidently make accurate measurements by securing technical support, repair, and calibration services with committed response and turnaround times. High-performance instruments include 1 year of KeysightCare Assured. Obtain multi-year KeysightCare upfront to eliminate the need for lengthy and tedious paperwork and yearly requests for maintenance budget. Plus, you benefit from secured service for 2, 3, or 5 years.

Service	Function
<b>KeysightCare Enhanced*</b>	<b>Includes Tech Support, Warranty and Calibration</b>
R-55B-001-1	KeysightCare Enhanced – Upgrade 1 year
R-55B-001-2	KeysightCare Enhanced – Extend to 2 years
R-55B-001-3	KeysightCare Enhanced – Extend to 3 years (Recommended)
R-55B-001-5	KeysightCare Enhanced – Extend to 5 years (Recommended)
<b>KeysightCare Assured</b>	<b>Includes Tech Support and Warranty</b>
R-55A-001-2	KeysightCare Assured – Extend to 2 years
R-55A-001-3	KeysightCare Assured – Extend to 3 years
R-55A-001-5	KeysightCare Assured – Extend to 5 years
<b>Start-Up Assistance</b>	
PS-S40-01	Included – instrument fundamentals and operations starter
PS-S40-04	Recommended – instrument fundamentals and operations starter
PS-S40-02	Optional, technology & measurement science standard learning

\* Available in select countries. For details, please view the [datasheet](#). R-55B-001-2/3/5 must be ordered with R-55B-001-1.



Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at [www.keysight.com](http://www.keysight.com).

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