CONFIGURATION GUIDE

N9321C/N9322C/N9323C/N9324C Basic Spectrum Analyzer (BSA)

Configure your Keysight N932xC Basic Spectrum Analyzer (BSA)

This configuration guide contains information to help you configure your N9321C, N9322C, N9323C and N9324C Basic Spectrum Analyzer (BSA) to meet your requirements. Ordering optional capabilities at time of purchase provides the lowest overall cost.



KEYSIGHT TECHNOLOGIES

Ordering Information

This step-by-step process will help you determine which option numbers to specify when ordering your Keysight N932xC BSA.

Step 1. Select base model

Description	Model number	Additional information
Basic spectrum analyzer 9 kHz to 4 GHz	N9321C	Accessories supplied as standard with each analyzer: USB cable, N-BNC adapter, BNC cable and power cord.
Basic spectrum analyzer 9 kHz to 7 GHz	N9322C	
Basic spectrum analyzer 1 MHz to 13.6 GHz	N9323C	
Basic spectrum analyzer 1 MHz to 20 GHz	N9324C	

Step 2. Add a preamplifier

Description	Option number	Additional information
Preamplifier, 4 GHz	N9321C-P04	For N9321C
Preamplifier, 7 GHz	N9322C-P07	For N9322C
Preamplifier, 13.6 GHz	N9323C-P13	For N9323C
Preamplifier, 20 GHz	N9324C-P20	For N9324C

Step 3. Add a tracking generator

Description	Option number	Additional information
Tracking generator, 4 GHz	N9321C-TG4	Provides transmission measurement of RF devices. Output level from –20 dBm to 0 dBm, in 1 dB steps.
Tracking generator, 7 GHz	N9322C-TG7	
Tracking generator, 7 GHz	N9323C-TG7	
Tracking generator, 7 GHz	N9324C-TG7	

Step 4. Add reflection measurement capability

Description	Option number	Additional information
Reflection measurement (requires Option TG7)	N9321C-RM4	• Only available on N9321C and N9322C. • Provides reflection measurements including return loss, VSWR, insertion loss, and distance-to-fault. • Requires the tracking generator module (Option TG4/TG7). • Recommended accessories include N9311X-201 precision mechanical calibrator (3-in-1 OSL) and N9311X-586 phase stable cable N(m) to N(f).
	N9322C-RM7	

Step 5. Add precision frequency reference

Description	Option number	Additional information
Precision frequency reference	N932xC-PFR	• Reduces frequency drift for more accurate measurements; aging rate: ± 1 x 10^{-7}/year. • Orderable only with initial purchase of the N932xC base model.

Step 6. Add baseband input capability

Description	Option number	Additional information
Baseband input	N9321C-BB1	• Only available on N9321C and N9322C. • Optimizes DANL [1] and phase noise performance in the low frequency band for xDSL and AM/FM IBOC [2] measurements.
	N9322C-BB1	

1. DANL: Displayed average noise level.
2. IBOC: BOC: In-band On-channel.

Step 7. Add measurement features

Description	Option number	Additional information
Time-gated spectrum analysis	N932xC-TMG	Measures any one of several signals separated in time or excludes periodic interfering signals.
Signal monitor with spectrogram record and playback	N932xC-MNT	Adds spectrogram view, record, and playback for spectrum monitoring.
Channel scanner	N932xC-SCN	Provides channel power measurement of multiple channels, max. 20 channels.
Task planner	N932xC-TPN	Implements customized test task that includes 20 consecutive instrument setups. Improves test efficiency for repetitive tasks. Find more information at www.keysight.com/find/taskplanner
EMI filters and quasi-peak detector	N932xC-EMC	Provides CISPR compliant resolution bandwidth (200 Hz, 9 kHz, 120 kHz and 1 MHz) and quasi-peak detector for basic EMI precompliance test.
AM and FM demodulation analysis	N932xC-AMA	Provides modulation metrics of an AM or FM signal: carrier power, modulation rate, AM depth, frequency deviation, SINAD [3], and carrier frequency offset.
ASK and FSK demodulation analysis	N932xC-DMA	Provides modulation metrics of an ASK or FSK signal: carrier power, ASK error, depth, and index, FSK deviation, FSK error, magnitude error, and carrier frequency offset.

Step 8. Add additional features and connectivity

Description	Option number	Additional information
USB average power sensor support (U2000 Series)	N932xC-PWM	Requires the Keysight U2000 Series USB power sensor.
USB peak and average power sensor support (U2020/2040 X-Series)	N932xC-PWP	Requires the Keysight U2020/2040 X-Series USB power sensor.
Security features	N932xC-SEC	Includes user data sanitation and port control.
GPIB interface	N932xC-G01	IEEE-488 bus connector, used in test automation systems
Custom power-on utility	N9321C-C30	Power on the N9321C BSA spectrum analyzer from line power directly, without pushing the power on/off button on the front panel. Available on N9321C only. This option needs be ordered with N9321C base instrument at initial purchase, and there is no post-sales upgrade kit available.

3. SINAD: Signal-to-noise and distortion ratio.

Step 9. Choose accessories

Description	Option number	Additional information
Hard transit case	Y1820A	645 x 444 x 268 mm, 13 kg nominal
Rack mount kit	Y1821A	Includes a rack mount flange. Fits standard 19-inch rack and occupies three units (3U) of rack space.
Rack mount and handle kit	Y1822A	Includes a rack mount flange and front handle kit. Fits standard 19-inch rack and occupies 3U rack space.
Precision mechanical calibrator, 3-in-1 OSL	N9311X-201	DC to 7 GHz, N (m) connector
Minimum loss pad	N9311X-548	50 to 75 Ω adapter, DC to 1 GHz
Near field probes	N9311X-100	4 pieces of H-field probes, mainly used for EMI emission debug purpose

Looking for more N9311X series RF accessories? Visit www.keysight.com/find/n9311x

Step 10. Add calibration service

Description	Option number	Additional information
Commercial calibration certificate with test data	N932xC-UK6	Keysight provides a commercial calibration certification; only available at time of purchase; provides measurement results.
3-year calibration assurance plan (return to Keysight)	R-50C-011-3	Priority calibration service covering all calibration costs for 3 years; 15% cheaper than buying stand-alone calibrations.
5-year calibration assurance plan (return to Keysight)	R-50C-011-5	Priority calibration service covering all calibration costs for 5 years; 20% cheaper than buying stand-alone calibrations.

- Other calibration options may available, for more information on calibration, go to www.keysigt.com/find/calibration
- For more information on training and application support services, got to www.keysight.com/find/training

Instrument Upgrades

Upgrade your existing N932xC BSA spectrum analyzers

The majority of N932xC options support fast license-key that do not require additional hardware:

- Place an order for the upgrade with Keysight and request to receive the software entitlement certificate through email.
- Install the license key in the N932xC BSA. Upgrade firmware to the latest revision if required.
- Restart the N932xC.
- Begin using the new capability.

Description	Upgrade number	Additional information
Preamplifier, 4 GHz	N9321CK-P04	For N9321C
Preamplifier, 7 GHz	N9322CK-P07	For N9322C
Preamplifier, 13.6 GHz	N9323CK-P13	For N9323C
Preamplifier, 20 GHz	N9324CK-P20	For N9324C
Baseband input	N9321CK-BB1	Only upgradable on N93221C and N9322C.
	N9322CK-BB1	
Tracking generator, 4 GHz	N9321CK-TG4	Requires additional hardware. Upgrade at Keysight local service center.
Tracking generator, 7 GHz	N9322CK-TG7	
	N9323CK-TG7	
	N9324CK-TG7	
Reflection measurement	N9321CK-RM4	Only upgradable on N9321C and N9322C. Requires tracking generator option (TG4/TG7).
	N9322CK-RM7	
Time-gated spectrum analysis	N932xCK-TMG	
Signal monitor with spectrogram record and playback	N932xCK-MNT	
Channel scanner	N932xCK-SCN	
Task planner	N932xCK-TPN	
AM/FM demodulation analysis	N932xCK-AMA	
ASK/FSK demodulation analysis	N932xCK-DMA	
EMI filters and quasi-peak detector	N932xCK-EMC	
USB average power sensor support (U2000 Series)	N932xCK-PWM	
USB peak and average power sensor support	N932xCK-PWP	
Security features	N932xCK-SEC	
GPIB interface	N932xCK-G01	Requires additional hardware

Additional Resources

Related Keysight literature

Publication number	Publication title
3121-1285EN	Keysight N9321C Basic Spectrum Analyzer Data Sheet
5991-1167EN	Keysight N9322C Basic Spectrum Analyzer Data Sheet
3121-1286EN	Keysight N9323C Basic Spectrum Analyzer Data Sheet
3121-1287EN	Keysight N9324C Basic Spectrum Analyzer Data Sheet

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications, or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

This information is subject to change without notice. © Keysight Technologies, 2021 - 2024, Published in USA, May 20, 2024, 3121-1290.EN