N9032B PXA Signal Analyzer

2 Hz to 8.4, 13.6, 26.5, 44, or 50 GHz

Introduction

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

KEYSIGHT

Included in Base Product

The options and accessories are included as standard on the N9032B PXA X-Series Signal Analyzer base instrument at no additional charge and do not need to be ordered separately.

They include:

- Spectrum analyzer software application
- KeysightCare Assured First Year Support (includes Return to Keysight Warranty – 1 year)
- Getting Started and Troubleshooting Guide
- Enhanced phase noise
- Fast sweep capability
- Enhanced fast sweep speed
- Microwave preselector bypass for frequencies above 3.6 GHz
- Wideband digital IF
- Low frequency enabled
- 2 dB step mechanical attenuator
- LO/IM nulling
- Noise floor extension; instrument alignment
- Precision frequency reference
- Real-time link for real-time IQ data streaming up to 40 MHz
- Hex-core, high-performance processor, 32 GB RAM, with flash calibration file memory
- Digital processor with 16 GB capture memory
- Removable solid-state drive
- Microsoft Windows 10 operating system
- Multi-language user interface
- Multi-touch user interface
- Receiver calibrator (RCal) control license
- Country-specific power cord

Configure Your N9032B PXA Signal Analyzer

This step-by-step process will help you to configure the N9032B PXA signal analyzer. Tailor the performance and features to meet your requirements. For detailed specifications, please refer to the N9032B PXA X-Series Signal Analyzer, Multi-touch – Data Sheet (3121-1222.EN).

Step 1. Choose maximum frequency range (required option)

Description	Option number	Additional information
Frequency range, 2 Hz to 8.4 GHz	N9032B-508	
Frequency range, 2 Hz to 13.6 GHz	N9032B-513	
Frequency range, 2 Hz to 26.5 GHz	N9032B-526	
Frequency range, 2 Hz to 44 GHz	N9032B-544	
Frequency range, 2 Hz to 50 GHz	N9032B-550	

Step 2. Select analysis bandwidth (required option)

Description	Option number	Additional information
Analysis Bandwidth, 1 GHz	N9032B-R10	
Analysis Bandwidth, 1.5 GHz	N9032B-R15	
Analysis Bandwidth, 2 GHz	N9032B-R20	

Step 3. Select Core Software updates and enhancements plan (required option)

X-Series signal analyzer Core Software subscription plan unlocks the full potential of your hardware, providing the measurement tools, analysis capabilities, and features required to meet the ever-increasing needs of your applications. To ensure you continue to receive all the latest software updates and enhancements on your equipment, you will need to have a current Core Software subscription. A node-locked perpetual Core Software license and a minimum 1-year updates and enhancements subscription is included with new equipment. The subscription can be extended to 3 or 5 years at the time of purchase and can then be renewed later for a fee.

Description	Option number	Additional information
Signal Analyzer Core Software for N9032B	N9032SA2E	1 (default), 3, or 5-year updates and enhancements subscription available

Step 4. Add a preamplifier

Description	Option number	Additional information
Preamplifier, 8.4 GHz	N9032B-P08	Compatible with N9032B-508 only
Preamplifier, 13.6 GHz	N9032B-P13	Compatible with N9032B-513 only
Preamplifier, 26.5 GHz	N9032B-P26	Compatible with N9032B-526 only
Preamplifier, 44 GHz	N9032B-P44	Compatible with N9032B-544 only
Preamplifier, 44 GHz, basic	N9032B-P4L	Compatible with N9032B-544 only; non-IVL, no export control
Preamplifier, 50 GHz	N9032B-P50	Compatible with N9032B-550 only
Preamplifier, 50 GHz, basic	N9032B-P5L	Compatible with N9032B-550 only: non-IVL, no export control
Low noise amplifier	Standard	Standard when Option P08, P13, P26, P44, P4L, P50, or P5L is installed; licensed as N9032B-LNA

Step 5. Choose an attenuator

Description	Option number	Additional information
Mechanical attenuator	Standard	2 dB steps, 0 to 70 dB; licensed as N9032B-FSA
Electronic attenuator up to 3.6 GHz	N9032B-EA3	Add in addition to the mechanical attenuator; 1 dB steps, 0 to 24 dB

Step 6. Specify performance options

Description	Option number	Additional information
Enhanced phase noise performance	Standard	DDS-based LO assembly; licensed as N9032B-EP0
Fast sweep capability	Standard	Improves sweep speed at swept mode; licensed as N9032B-FS1 and FS2
LO/IM nulling	Standard	Minimizes the LO feed-thru and the intermodulation distortion; licensed as N9032B-NUL
Microwave preselector bypass	Standard	Bypass the microwave preselector for wider bandwidth IF; licensed as N9032B-MPB
Precision frequency reference	Standard	Aging rate: ±3 x 10^{-8}/year; licensed as N9032B-PFR
Noise floor extension	Standard	Improves analyzer's DANL performance; licensed as N9032B-NF2
Low noise path	N9032B-LNP	Improves sensitivity (DANL) in frequency bands above 3.6 GHz without degrading dynamic range

Description	Option number	Additional information
Full bypass path	N9032B-FBP	Bypass the microwave preselector and enable the low noise path for improved sensitivity above 3.6 GHz; requires Option LNP
External mixing	N9032B-EXM	Provides external mixing with Keysight and third-party mixers; single port[1] for LO out and IF in (SMA female)
Enhanced display package	N90EMEDPB	Includes spectrogram, trace zoom, and zone span in SA mode
Basic EMI precompliance	N90EMEMCB	Perform basic EMI precompliance measurements with CISPR 16-1-1 detectors and bandwidths; tune and listen, and measure at marker are also available
Time domain scan	N90EMTDSB	Improves scan speed for EMC pre-compliance tests; requires N6141EM0E EMI measurement application
Software-based IQ Bandwidth Expansion	N90EMBWSB	Supports early 6G research with the bandwidth requirement more than 10 GHz; supports N9054EM0E/N9054EM1E VMA and N9085EM0E 5G NR measurement application; requires Option R20

Step 7. Specify PC security

Description	Option number	Additional information
Security features, exclude launching programs	N9032B-SF1	Prevents the launching of Windows programs from the instrument application
Security features, prohibit saving results	N9032B-SF2	Prevents instrument application from saving/recall of measurement results or user configurations to/from instrument's data storage
Additional removable solid-state drive, Win10, for PC8	N9032B-SS2	Provides a fully imaged, removable SSD in addition to the one installed in instruments, with Windows 10 operating system

Step 8. Choose source connectivity

Description	Option number	Additional information
External source control	N9032B-ESC	External source control for selected Keysight EXG, MXG, and PSG signal generators; supports external mixing; includes 3 BNC cables and 1 cross-over LAN cable

[1] When used with Keysight 11970 Series external mixers, an external diplexer is required. Recommended diplexer can be purchased from Keysight as N9029BE13.

Step 9. Select connection options

Description	Option number	Additional information
APC 3.5 mm connector	N9032B-C35	3.5 mm connector on 26.5 GHz PXA (compatible with Option 526 only)
Auxiliary log video output	N9032B-ALV	Fast rise time video out; output on Aux IF connector
Second IF output	N9032B-CR3	Second IF out; center frequency depends on IF path; output on Aux IF connector at rear panel
Connector rear, programmable IF output	N9032B-CRP	IF out 10 to 75 MHz (in 500 kHz steps); output on Aux IF connector at rear panel
Connector, IF out, wide	N9032B-CRW	Enables Wide IF Out connector that provides up to 2 GHz bandwidth IF signal from the internal wideband signal paths for center frequencies above 900 MHz in the 1.5 GHz IF path or above 3.5 GHz in the 2 GHz IF path; requires Option R15 or R20
Y-axis video output	N9032B-YAV	Screen video (0–1-volt open circuit); log video and linear video
Real-time link	Standard	The LVDS connector allows PXA to connect to the X-COM data recorder for data streaming (up to 40 MHz BW) and N5106A PXB baseband generator and channel emulator; licensed as N9032B-RTL

Step 10. Choose measurement applications and license type

Note: Keysight offers flexible license types and terms for the measurement applications, refer to page 12 of X-Series Measurement Applications – Brochure (5989-8019EN).

Description	Option number	Additional information
General purpose		
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
EMI	N6141EM0E	Performs pre-compliance conducted and radiated emission measurements
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

Description	Option number	Additional information
Power Amplifier	N9055EM0E	Characterizes power amplifier (PA) with pre-distortion applied in RF and millimeter wave, with simple and integrated multi-touch user interface; Also supports ET (Envelop Tracking) with dual-channel VXG
Channel quality	N9056EM0E	Performs repeatable channel response measurements as group delay and other characteristics with multi-tone signals for wideband component testing
Remote Language Compatibility	N9061EM0E	Adds capability to emulate HP/Agilent 8566/68 and 856xE/EC spectrum analyzers
SCPI Language Compatibility	N9062EM0E	Adds capability to emulate the R&S FSP/FSU/FSL/FSV/FSW spectrum analyzers or ESU EMI receiver
Analog Demodulation	N9063EM0E	Adds one-button measurement for AM/FM/PM demodulation with metrics, tune and listen, and AF spectrum; supports audio output (output voltage proportional to frequency deviation). FM Stereo and RDS are included.
Pulse Analysis	N9067EM0E	Characterize pulsed RF signals in the time domain, with phase frequency and statistical analysis of large pulse sets; enables fixed and variable length gated acquisition for capturing pulses of varying pulse width and PRI
Phase Noise	N9068EM0E	Adds one-button measurements for analyzing phase noise in frequency domain (log plot) and time domain (spot frequency), supports external mixing
Noise Figure	N9069EM0E (requires preamplifier)	Adds one-button measurements for noise figure, gain, and related metrics; requires preamplifier to meet specifications; works with Keysight U1831C USB noise source, N400xA Series smart noise sources and 346 Series noise sources; supports U7227 USB external preamplifiers. Includes the advanced NF measurement features including external LO control over GPIB/LAN/USB, multi-stage converter tests with system LO, and manual mode to simulate the legacy NF meter
Cellular communications		
GSM/EDGE/Evo	N9071EM0E	Standard-based, one-button GSM/EDGE/EDGE Evolution measurements
W-CDMA/HSPA+	N9073EM0E	Standard-based, one-button W-CDMA, HSPA and HSPA+ measurements
LTE and LTE-Advanced FDD	N9080EM0E	Standard-based, one-button LTE/LTE-Advanced FDD measurements
NB-IoT and eMTC FDD	N9080EM3E	Standard-based, one-button NB-IoT/eMTC measurements
LTE V2X	N9080EM4E	Standard-based, one-button LTE-V2X transmitter measurements

Description	Option number	Additional information
LTE and LTE-Advanced TDD	N9082EM0E	Standard-based, one-button LTE/LTE-Advanced TDD measurements
5G NR	N9085EM0E	Standard-based, one-button 5G NR (New Radio) downlink and uplink measurements
Wireless connectivity		
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	N9077EM2E	Standard-based, one-button WLAN 802.11be measurements
Bluetooth®	N9081EM0E	Standard-based, one-button *Bluetooth* (BR/EDR, Low Energy 4.0/4.2 and *Bluetooth* 5/5.1) measurements; supports Qualcomm Bluetooth High Speed Link as QBHSL
Short Range Comm and IoT	N9084EM0E	Standard-based, one-button 802.15 for Zigbee measurement, G.9959 for Z-Wave measurement, LoRa CSS, and HRP UWB measurement

Step 11. Choose 89600 VSA software licenses

Description	Option number	Additional information
Basic vector signal analysis and hardware connectivity	89601200C (required core option)	Provides the tools and user interface that make up the 89600 VSA software including time and frequency domain measurement, hardware connectivity, recordings, and playback
General purpose		
Digital demodulation analysis	89601AYAC	Analysis of >40 modulation formats, including custom APSK and presets for communication formats like GSM/EDGE, ZigBee FSK, *Bluetooth* BR, APCO25 and SOQPSK
		Proprietary and pre-standard, customized IQ constellation signals
Custom OFDM modulation analysis	89601BHFC	Proprietary and pre-standard OFDM formats such as WLAN, DAB, DVBT/H, DVB-SH, ISDB-T and more
Direct data connectivity	89601101C	Push IQ data into the 89600 VSA software through API programming
PowerSuite measurement	89601PSMC	PowerSuite measurement for ACP and EVM
Cellular communication		
LTE/LTE-A FDD modulation analysis	89601BHGC	LTE FDD, LTE-Advanced FDD

Description	Option number	Additional information
3G modulation analysis	89601B7NC	W-CDMA/HSPA+, TD-SCDMA/HSPA, cdma2000, 1xEV-DO and 1xEV-DV
LTE/LTE-A TDD modulation analysis	89601BHHC	LTE FDD, LTE-Advanced FDD modulation analysis
5G NR modulation analysis	89601BHNC	5G NR, Pre-5G
Channel sounding signal analysis	89601CSDC	Performs channel sounding measurement
Cross-correlated EVM	89601EVMC	Best EVM performance for 5G NR and WLAN
Wireless connectivity		
Wireless connectivity modulation analysis	89601B7RC	WLAN 802.11a/b/g/j/p, WiMax modulation analysis
High throughput WLAN modulation analysis	89601BHXC	WLAN 802.11n/ac, WLAN 802.11ax, WLAN 802.11be
IoT modulation analysis	89601BHTC	NB-IoT, RFID, HRP UWB (802.15.4/4z)
Radar analysis		
FMCW radar analysis	89601BHPC	For multi-chirp linear FM modulated signals or automotive radar
Pulse analysis	89601BHQC	Pulsed modulated radar signal analysis and frequency hopping signal analysis
Other standard formats		
DOCSIS modulation analysis	89601BHMC	DOCSIS3.1 downstream and upstream modulation analysis

Step 12. Select accessories

Description	Option number	Additional information
Getting started and troubleshooting guide	Standard	US – English localization
Power cord	Standard	Dependent upon the region of use
Receiver calibration (RCal) module	U9361C/F/G/M	Enables magnitude and complex corrections
Front panel cover	CV1117A	Protective cover for front panel
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
Minimum Loss Pad, 50 to 75 Ω (type-N to BNC)	MLP001A	50 Ω type-N male to 75 Ω BNC female adapter, Frequency range: 9 MHz to 2 GHz, Input/output return loss: 20/11 dB, Insertion loss: 5.7 dB
Rack mount	1CM113A	Adds rack mount flanges to the PXA
Front handles	1CN103A	Adds front handles to the PXA

Description	Option number	Additional information
Rack mount with handles	1CP105A	Adds rack mount flanges and handles to the PXA
Rack slide	1CR014A	Adds a non-tilting rack slide to the PXA
V-band waveguide harmonic mixer, 50 to 75 GHz	M1970V-001	Requires Option EXM; USB mixer with smart features
Extended V-band waveguide harmonic mixer, 50 to 80 GHz	M1970V-002	Requires Option EXM; USB mixer with smart features
E-band waveguide harmonic mixer, 60 to 90 GHz	M1970E	Requires Option EXM; USB mixer with smart features
W-band waveguide harmonic mixer, 75 to 110 GHz	M1970W	Requires Option EXM; USB mixer with smart features
E-band waveguide harmonic mixer, 60 to 90 GHz	M1971E-001	Requires Option EXM; USB mixer with smart features and 3 signal paths
E-band waveguide harmonic mixer, 55 to 90 GHz	M1971E-003	Requires Option EXM; USB mixer with smart features and 3 signal paths
V-band waveguide harmonic mixer, 50 to 75 GHz	M1971V	Requires Option EXM; USB mixer with smart features and 3 signal paths
W-band waveguide harmonic mixer, 75 to 110 GHz	M1971W	Requires Option EXM; USB mixer with smart features and 3 signal paths
26 to 40 GHz waveguide harmonic mixer	11970A	Requires Option EXM and N9029BE13 diplexer
33 to 50 GHz waveguide harmonic mixer	11970Q	Requires Option EXM and N9029BE13 diplexer
40 to 60 GHz waveguide harmonic mixer	11970U	Requires Option EXM and N9029BE13 diplexer
50 to 75 GHz waveguide harmonic mixer	11970V	Requires Option EXM and N9029BE13 diplexer
75 to 110 GHz waveguide harmonic mixer	11970W	Requires Option EXM and N9029BE13 diplexer
LO/IF diplexer	N9029BE13	Ordering convenience; required for 11970 Series external mixers
50 to 75 GHz frequency extension module	N9029BV-W15	VDI signal analyzer frequency extension module; requires Option EXM
60 to 90 GHz frequency extension module	N9029BV-W12	VDI signal analyzer frequency extension module; requires Option EXM
75 to 110 GHz frequency extension module	N9029BV-W10	VDI signal analyzer frequency extension module; requires Option EXM
90 to 140 GHz frequency extension module	N9029BV-W08	VDI signal analyzer frequency extension module; requires Option EXM

Description	Option number	Additional information
110 to 170 GHz frequency extension module	N9029BV-W06	VDI signal analyzer frequency extension module; requires Option EXM
140 to 220 GHz frequency extension module	N9029BV-W05	VDI signal analyzer frequency extension module; requires Option EXM
170-260 GHz frequency extension module	N9029BV-W04	VDI signal analyzer frequency extension module; requires Option EXM
220 to 330 GHz frequency extension module	N9029BV-W03	VDI signal analyzer frequency extension module; requires Option EXM
260 to 400 GHz frequency extension module	N9029BV-W2B	VDI signal analyzer frequency extension module; requires Option EXM
330 to 500 GHz frequency extension module	N9029BV-W02	VDI signal analyzer frequency extension module; requires Option EXM
550 to 750 GHz frequency extension module	N9029BV-W1B	VDI signal analyzer frequency extension module; requires Option EXM
750 to 1100 GHz frequency extension module	N9029BV-W01	VDI signal analyzer frequency extension module; requires Option EXM
USB external preamplifier, 10 MHz to 4 GHz	U7227A	
USB external preamplifier, 0.1 to 26.5 GHz	U7227C	
USB external preamplifier, 2 to 50 GHz	U7227F	

For more information on accessories, please go to: www.keysight.com/find/accessories

Step 13. 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
KeysightCare upgrades – warranty and calibration		
KeysightCare Assured – Extend to 2 years	R-55A-001-2	Includes Return to Keysight Extended Warranty
KeysightCare Assured – Extend to 3 years	R-55A-001-3	
KeysightCare Assured – Extend to 5 years	R-55A-001-5	
KeysightCare Enhanced – Upgrade 1 year	R-55B-001-1	Includes KeysightCare Assured Services (Return to Keysight Warranty) plus Return to Keysight Calibration
KeysightCare Enhanced – Extend to 2 years	R-55B-001-2	
KeysightCare Enhanced – Extend to 3 years	R-55B-001-3	
KeysightCare Enhanced – Extend to 5 years	R-55B-001-5	
Calibration services		
Commercial calibration certificate with test data	N9032B-UK6	Calibration certificate only available at time of instrument purchase; only provides measurement results
Calibration Plan – Return to Keysight – 3 years	R-50C-011-3	
Calibration Plan – Return to Keysight – 5 years	R-50C-011-5	
Product assistance		
Remote scheduled productivity assistance	PS-S10	
Startup assistance, daily	PS-S20	
Custom services	PS-X10	

Other calibration options may be available; for more information on calibration go to:
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 PXA
4. Begin using the new capability[1], [2]

Installation, calibration, and verification information is available at: www.keysight.com/find/pxa_upgrades

Description	Upgrade number	Requirements (PXA must already include opt)	Additional information
Analysis bandwidth			
Increase analysis bandwidth from 1 GHz to 1.5 GHz	N9032BU-B12	R10	License key only
Increase analysis bandwidth from 1 GHz to 2 GHz	N9032BU-B13	R10	License key only
Increase analysis bandwidth from 1.5 GHz to 2 GHz	N9032BU-B15	R15	License key only
Frequency			
Increase frequency from 8.4 to 13.6 GHz	N9032BU-F06	508	Return to Keysight; does not include a preamp upgrade to 13.6 GHz. If N9032B already has P08 (preamplifier, 8.4 GHz) installed then N9032BU-P13 must also be ordered.
Increase frequency from 8.4 to 26.5 GHz	N9032BU-F07	508	Return to Keysight; does not include a preamp upgrade to 26.5 GHz. If N9032B already has P08 (preamplifier, 8.4 GHz) installed then N9032BU-P26 must also be ordered.
Increase frequency from 8.4 to 44 GHz	N9032BU-F08	508	Return to Keysight; does not include a preamp upgrade to 44 GHz. If N9032B already has P08 (preamplifier, 8.4 GHz) installed then N9032BU-P44 or N9032BU-P4L must also be ordered.
Increase frequency from 8.4 to 50 GHz	N9032BU-F09	508	Return to Keysight; does not include a preamp upgrade to 50 GHz. If

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

Description	Upgrade number	Requirements (PXA must already include opt)	Additional information
			N9032B already has P08 (preamplifier, 8.4 GHz) installed then N9032BU-P50 or N9032BU-P5L must also be ordered.
Increase frequency from 13.6 to 26.5 GHz	N9032BU-F10	513	Return to Keysight; does not include a preamp upgrade to 26.5 GHz. If N9032B already has P13 (preamplifier, 13.6 GHz) installed then N9032BU-P26 must also be ordered.
Increase frequency from 13.6 to 44 GHz	N9032BU-F11	513	Return to Keysight; does not include a preamp upgrade to 44 GHz. If N9032B already has P13 (preamplifier, 13.6 GHz) installed then N9032BU-P44 or N9032BU-P4L must also be ordered.
Increase frequency from 13.6 to 50 GHz	N9032BU-F12	513	Return to Keysight; does not include a preamp upgrade to 50 GHz. If N9032B already has P13 (preamplifier, 13.6 GHz) installed then N9032BU-P50 or N9032BU-P5L must also be ordered.
Increase frequency from 26.5 to 44 GHz	N9032BU-F13	526	Return to Keysight; does not include a preamp upgrade to 44 GHz. If N9032B already has P26 (preamplifier, 26.5 GHz) installed then N9032BU-P44 or N9032BU-P4L must also be ordered.
Increase frequency from 26.5 to 50 GHz	N9032BU-F14	526	Return to Keysight; does not include a preamp upgrade to 50 GHz. If N9032B already has P26 (preamplifier, 26.5 GHz) installed then N9032BU-P50 or N9032BU-P5L must also be ordered.
Increase frequency from 44 to 50 GHz	N9032BU-F15	544	Return to Keysight factory; includes preamp upgrade to 50 GHz.
Preamplifiers			
Add preamplifier, 8.4 GHz	N9032BU-P08	508	License key only
Add preamplifier, 13.6 GHz	N9032BU-P13	513	License key only
Add preamplifier, 26.5 GHz	N9032BU-P26	526	License key only
Add preamplifier, 44 GHz	N9032BU-P44	544	License key only
Add preamplifier, 44 GHz, basic	N9032BU-P4L	544	License key only
Add preamplifier, 50 GHz	N9032BU-P50	550	License key only

Description	Upgrade number	Requirements (PXA must already include opt)	Additional information
Add preamplifier, 50 GHz, basic	N9032BU-P5L	550	License key only
Additional upgrades			
Add auxiliary log video output	N9032BU-ALV	None	License key only
Add connector, second IF output	N9032BU-CR3	None	License key only
Add connector rear, Programmable IF output	N9032BU-CRP	None	License key only
Add connector rear, Wide IF output	N9032BU-CRW	None	License key only
Add electronic attenuator, 3.6 GHz	N9032BU-EA3	None	License key only
Add external mixing	N9032BU-EXM	None	Includes additional hardware
Add low noise path	N9032BU-LNP	None	License key only
Add full bypass path	N9032BU-FBP	LNP	License key only
Add security features, exclude launching programs	N9032BU-SF1	None	License key only
Add security features, prohibit saving results	N9032BU-SF2	None	License key only
Add additional removable solid-state drive, Win10, for PC8	N9032BU-SS2	None	Provides additional removable solid-state drive, with Windows 10 operating system
Add screen video, log video and linear video	N9032BU-YAV	None	License key only

Related Resources

N9032B PXA X-Series Signal Analyzer, Multi-touch – Data Sheet, 3121-1222.EN