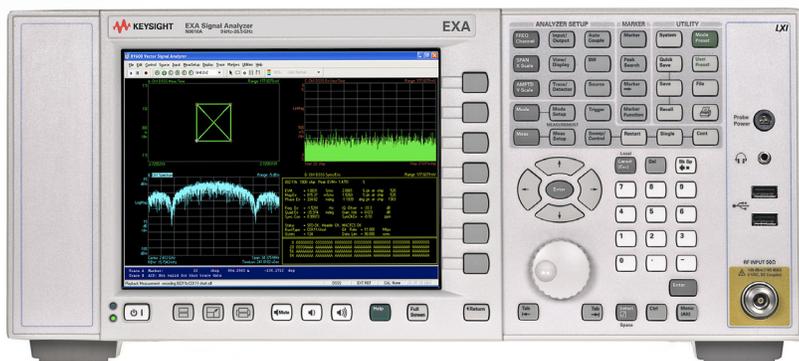


EXA X-Series Signal Analyzer N9010A

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



Configure Your Keysight N9010A EXA Signal Analyzer

This step-by-step process will help you configure your new N9010A EXA X-Series signal analyzer as well as add millimeter-wave capabilities. Tailor the performance to meet your requirements. For detailed specifications, refer to the specification guide (N9010-90025). For a summary of specifications, refer to the data sheet (5989-6529EN).

Included in base product

Standard options and accessories come with the EXA base model at no additional charge and do not need to be ordered. They include:

- Spectrum analyzer measurement application
- Dual-core, high-performance processor, 8 GB RAM, removable solid-state drive
- Frequency reference
- Mechanical attenuator
- 10 MHz/25 MHz analysis bandwidth
- Enhanced phase noise
- Microsoft Windows 10 operating system
- Real-time link
- Benchtop configuration
- Mouse
- User guide
- Front-panel protective cover
- Power cord

Step 1. Select maximum frequency range (required option)		
Description	Option number	Additional information
Frequency range, 10 Hz to 3.6 GHz	N9010A-503	
Frequency range, 10 Hz to 7 GHz	N9010A-507	
Frequency range, 10 Hz to 13.6 GHz	N9010A-513	
Frequency range, 10 Hz to 26.5 GHz	N9010A-526	
Frequency range, 10 Hz to 32 GHz	N9010A-532	
Frequency range, 10 Hz to 44 GHz	N9010A-544	

Step 2. Add a preamplifier		
Description	Option number	Additional information
		Preamplifiers improve the noise floor for low-level signal detection
Preamplifier, 100 kHz to 3.6 GHz	N9010A-P03	Compatible with frequency range options N9010A-503, N9010A-507, N9010A-513, N9010A-526, N9010A-532, and N9010A-544
Preamplifier, 100 kHz to 7 GHz	N9010A-P07	Compatible with frequency range options N9010A-507, N9010A-513, N9010A-526, N9010A-532, and N9010A-544
Preamplifier, 100 kHz to 13.6 GHz	N9010A-P13	Compatible with frequency range options N9010A-513, N9010A-526
Preamplifier, 100 kHz to 26.5 GHz	N9010A-P26	Compatible with frequency range option N9010A-526
Preamplifier, 100 kHz to 32 GHz	N9010A-P32	Compatible with frequency range option N9010A-532
Preamplifier, 100 kHz to 44 GHz	N9010A-P44	Compatible with frequency range option N9010A-544

Step 3. Choose frequency reference		
Description	Option number	Additional information
Frequency reference	Standard	Aging rate: $\pm 1 \times 10^{-6}$ /year
Precision frequency reference 10 MHz	N9010A-PFR	Reduces frequency drift for more accurate measurements; aging rate: $\pm 1 \times 10^{-7}$ /year

Step 4. Choose an attenuator		
Description	Option number	Additional information
Mechanical attenuator	Standard	10 dB steps, 0 to 60 dB
Fine step attenuator	N9010A-FSA	Allows 2 dB steps for the full 60 dB range of the mechanical attenuator
Electronic attenuator up to 3.6 GHz	N9010A-EA3	In addition to the mechanical attenuator; 1 dB steps, 0 to 24 dB

Step 5. Choose analysis bandwidth

Description	Option number	Additional information
10 MHz/25 MHz analysis bandwidth	Standard (N9010A-B25)	Useful for most cellular communications, wireless connectivity, and audio/video broadcasting measurement applications
40 MHz analysis bandwidth	N9010A-B40	Extends the analysis (demod) bandwidth to 40 MHz (Option MPB required for measurements at frequency > 3.6 GHz); also enables fast sweep capability licensed as N9010A-FS1 and N9010A-FS2
Microwave preselector bypass	N9010A-MPB	Required for wide analysis bandwidth measurements with Option B40 at frequency > 3.6 GHz; also enables fast sweep capability licensed as N9010A-FS1 and N9010A-FS2

Step 6. Choose performance options

Description	Option number	Additional information
Enhanced phase noise	Standard ¹	Licensed as N9010A-EP5
Digital processor with 2 GB capture memory	N9010A-DP2	Comes standard with Option B40; also enables fast sweep capability licensed as N9010A-FS1 and N9010A-FS2
Noise floor extension	N9010A-NFE	Improves analyzer's DANL performance (instrument alignment based processes); licensed as N9010A-NF2
External mixing	N9010A-EXM	Provides external mixing with Keysight and third-party mixers; single port ² for LO out and IF in (SMA female); compatible with Options 532 and 544 only

Step 7. Add optional features

Note: Keysight offers 4 license types for the measurement applications and instrument features, in 2 license terms: Perpetual or Time-based.

License types:

- **Node-locked:** Allows you to use the license on one instrument/computer at a time
- **Transportable:** Allows you to use the license on one instrument/computer at a time. This license may be transferred to another instrument/computer using Keysight's online tool
- **Floating:** Allows you to access the license on the networked instruments/computers from a server, one at a time. For concurrent access, multiple licenses may be purchased
- **USB Portable:** Allows you to access the license from one instrument/computer to another by end-user only with certified USB dongle, purchased separately

License terms:

- **Perpetual:** License can be used in perpetuity. For perpetual license holders, a separate support contract is required to access Keysight technical support and software updates
- **Time-based:** License is time limited to a defined period, such as 12-months. A valid support contract is included in the pricing for time-based licenses.

For detailed information, we strongly recommend you visit the X-Series measurement application collection page:

www.keysight.com/find/xseriesapps

Description	Model number	Additional information
Enhanced display package	N90EMEDPA	Includes spectrogram, trace zoom, and zone span
Basic precompliance EMI	N90EMEMCA	Perform basic EMI precompliance measurements with CISPR 16-1-1 detectors and bandwidths; tune and listen, and measure at marker are also available
External source control	N90EMESCA	External source control for Keysight EXG, MXG, and PSG signal generators for scalar stimulus-response measurements; supports external mixing; includes 3 BNC cables and 1 crossover LAN cable
Time domain scan	N90EMTDSA	Improves scan speed for EMC pre-compliance tests; requires N6141A EMC pre-compliance measurement application and Option DP2, or B40
Fast power	N90EMFP2A	Accelerates the power measurements such as ACPR; requires Option B40

1. All RF and microwave instruments with serial number prefix break of MY/SG/US5648 are installed with the N9010A-EP5 for the enhanced phase noise performance. The N9010A-EP5 is not upgradable.
2. When used with the Keysight 11970 Series external mixers, an external diplexer is required. Recommended diplexer can be purchased from Keysight as N9029AE13, or from OML Inc. as DPL.313B.

Step 8. Select operating system

Description	Option number	Additional information
Windows 10 operating system	Standard	Licensed as N9010A-W10

Step 9. Add security features

Description	Option number	Additional information
Additional, removable solid-state drive	N9010A-SS1	Provides a fully-imaged, removable solid-state drive in addition to the one installed in the instrument, with Windows 10 operating system
Security features, exclude launch program	N9010A-SF1	Prevents the launching of Windows programs from the instrument application
Security features, prohibit saving results	N9010A-SF2	Prevents the saving/recall of measurement results or user configurations to/from instrument's data storage

Step 10. Add rear panel output utilities

Description	Option number	Additional information
Second IF output	N9010A-CR3	Wideband IF out; output center frequency depends on IF BW option (25/40); output on Aux IF connector at rear panel
Arbitrary IF output	N9010A-CRP	IF out 10 to 75 MHz (in 500 kHz steps); output on Aux IF connector at rear panel
Y-axis screen video output	N9010A-YAS	Screen video (0-1 volt open circuit) on rear panel analog out
Real-time link	Standard	The LVDS connector allows EXA to connect to X-COM data recorder or data streaming (up to 40 MHz BW), and to the N5106A PXB baseband generator and channel emulator; requires Option B40 or DP2; licensed as N9010A-RTL

Step 11. Choose measurement application or software and license type

Note: Keysight offers 4 license types for the measurement applications and instrument features, in 2 license terms: Perpetual or Time-based. License types:

- **Node-locked:** Allows you to use the license on one instrument/computer at a time
- **Transportable:** Allows you to use the license on one instrument/computer at a time. This license may be transferred to another instrument/computer using Keysight's online tool
- **Floating:** Allows you to access the license on the networked instruments/computers from a server, one at a time. For concurrent access, multiple licenses may be purchased
- **USB Portable:** Allows you to access the license from one instrument/computer to another by end-user only with certified USB dongle, purchased separately

License terms:

- **Perpetual:** License can be used in perpetuity. For perpetual license holders, a separate support contract is required to access Keysight technical support and software updates
- **Time-based:** License is time limited to a defined period, such as 12-months. A valid support contract is included in the pricing for time-based licenses.

For detailed information, we strongly recommend you visit the X-Series measurement application collection page:

www.keysight.com/find/xseriesapps

Description	Model number	Additional information
General purpose Spectrum analyzer	Standard	Traditional spectrum analysis plus many new and enhanced functions; power measurements based on industry specifications; licensed as N9060EM1D
Analog demodulation	N9063EM0D	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
Phase noise	N9068EM0D	Adds one-button measurements for analyzing phase noise in frequency domain (log plot) and time domain (spot frequency), supports external mixing

Step 11. Choose measurement application software and license type, continued

Description	Model number	Additional information
Noise figure	N9069EM0D (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
VXA Vector Signal Analysis	N9064EM0D	Vector signal analysis; high-resolution, FFT-based spectrum and time-domain measurements, time gating, AM/FM/PM demodulation, statistical measurements; flexible digital modulation analysis; general purpose digital modulation for 2-16FSK, 2-8PSK, and 16-1024QAM, as well as more than 15 additional formats
EMI	N6141EM0D	Performs pre-compliance conducted and radiated emission measurements
Remote language compatibility	N9061EM0D	Adds capability to emulate HP/Agilent 8566/68 and 856xE/EC spectrum analyzers
SCPI command language compatibility	N9062EM0D	Adds capability to emulate the R&S FSP/FSU/FSE/FSL/FSV spectrum analyzers or ESU EMI receiver
MATLAB software	N6171A	
89600 vector signal analysis (VSA) software	89601B (transportable license is standard)	Industry-leading measurement software for evaluating and troubleshooting signals in R&D; PC-based software supporting more than 30 measurement platforms, plus more than 75 signal standards and modulation types including MIMO analysis; www.keysight.com/find/89600_VSA
Cellular communications		
GSM/EDGE/Evo	N9071EM0D	Standard-based, one-button GSM/EDGE/EDGE Evolution measurements
	N9071EMXD	Adds single acquisition combined measurement, a SCPI-commandbased measurement optimized for high-volume, high-throughput manufacturing; requires N9071EM0D; not compatible with Options DP2, B40, MPB, 532 or 544
cdma2000	N9072EM0D	Standard-based, one-button cdma2000 and cdmaOne measurements
W-CDMA/HSPA+	N9073EM0D	Standard-based, one-button W-CDMA, HSPA and HSPA+ measurements
	N9073EMXD	Adds single acquisition combined measurement, a SCPI-commandbased measurement optimized for high-volume, high-throughput manufacturing; requires N9073EM0D; not compatible with Options DP2, B40, MPB, 532 or 544
1xEV-DO	N9076EM0D	Standard-based, one-button 1xEV-DO Rel 0, Rev A, and Rev B measurements
TD-SCDMA/HSPA	N9079EM0D	Standard-based, one-button TD-SCDMA/HSPA/8PSK measurements
LTE/LTE-Advanced FDD	N9080EM0D	Standard-based, one-button LTE/LTE-Advanced FDD measurements
LTE/LTE-Advanced TDD	N9082EM0D	Standard-based, one-button LTE/LTE-Advanced TDD measurements
Multi-Standard Radio (MSR)	N9083EM0D	Standard-based, one-button MSR measurements on any combination of LTE-FDD, LTE-TDD, W-CDMA/HSPA/HSPA+, GSM/EDGE/EDGE Evo, cdma2000, 1xEV-DO and TD-SCDMA signals
Wireless connectivity		
Mobile WiMAX™	N9075EM0D	Standard-based, one-button Mobile WiMAX measurements
WLAN 802.11 a/b/g/j/p/n/af/ah	N9077EM0D	Standard-based, one-button 802.11a/b/g/j/p/n/af/ah measurement
WLAN 802.11ac/ax	N9077EM1D	Standard-based, one-button 802.11ac/ax measurement
Bluetooth®	N9081EM0D	Standard-based, one-button Bluetooth (BR/EDR, Low Energy 4.0/4.2 and Bluetooth 5) measurements
Digital video		
Digital Cable TV	N6152EM0D	Standard-based, one-button DVB-C (J.83 Annex A/C) and J.83 Annex B measurements
DVB-T/H/T2/T2-Lite	N6153EM0D	Standard-based, one-button DVB-T/H, DVB-T2/T2-Lite measurements
ISDB-T/Tmm	N6155EM0D	Standard-based, one-button ISDB-T, ISDB-T _R , ISDB-T _{SB} , and ISDB-Tmm measurements
DTMB(CTTB)	N6156EM0D	Standard-based, one-button DTMB (CTTB) measurements

Step 12. Choose physical instrument configuration

Description	Option number	Additional information
Bench top configuration	Standard	Provides two side carrying straps, four rear feet, and four bottom feet with a tilt stand; a front panel protective cover is included
Portable configuration	N9010A-PRC	Provides a convenient, pivoting carrying handle as well as rubber protective corners and end guards; this configuration is intended for applications requiring more rugged packaging, such as in the field



N9010A EXA bench top configuration



Portable configuration includes pivoting carrying handle and protective corner rubber guards (front protective cover comes standard) – N9010A-PRC

Step 13. Choose accessories

Description	Option number	Additional information
Mouse, USB interface	Standard	Every EXA is shipped with a USB mouse, which enhances the usability of the Windows operating system
User guide	Standard	<ul style="list-style-type: none"> – US – English localization – All user documentation is included in the EXA's embedded, context-sensitive help system and on a DVD that is shipped with the instrument – User documentation can be downloaded from: www.keysight.com/find/exa_manuals
Front-panel protective cover	Standard	
Power cord	Standard	Dependent upon region of use
Adapter, 2.4 mm (F) to 2.9 mm (F)	Standard	Ship standard only for Option 532
Adapter, 2.4 mm (F) to 2.4 mm (F)	Standard	Ship standard only for Option 544
Rack mount	N9010A-1CM	Adds rack mount flanges to the EXA
Front handles	N9010A-1CN	Adds front handles to the EXA
Rack mount with handles	N9010A-1CP	Adds rack mount flanges and handles to the EXA
Rack slide	N9010A-1CR	Adds a non-tilting rack slide to the EXA
Accessory pouch	N9010A-BAG	Easily store and carry the N9010A-KB2 keyboard and USB mouse in this attachable pouch
USB DVD-ROM/CD-R/RW drive	N9010A-DVR	Enhances the usability of the Windows operating system
Hard transit case	N9010A-HTC	Ultra-durable, wheeled carrying case offers maximum protection and portability
US 65-key USB keyboard	N9010A-KB2	Compact design fits in N9010A-BAG accessory pouch for convenient storage
Keyboard, USB interface	N9010A-KYB	Enhances the usability of the Windows operating system (Note: Does not fit N9010A-BAG accessory pouch)
Minimum loss pad, 50 to 75 Ω (type-N to BNC)	N9010A-MLP	<ul style="list-style-type: none"> – 50 Ω type-N male to 75 Ω BNC female adapter – Frequency range: 9 MHz to 2 GHz – Input/output return loss: 20 and 11 dB – Insertion loss: 5.7 dB
V-Band waveguide harmonic mixers, 50 to 75 GHz	M1970V-001	Requires Option EXM; USB mixer with smart features
Extended V-band waveguide harmonic mixers, 50 to 80 GHz	M1970V-002	Requires Option EXM; USB mixer with smart features
E-Band waveguide harmonic mixers, 60 to 90 GHz	M1970E	Requires Option EXM; USB mixer with smart features
W-Band waveguide harmonic mixers, 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
Extended 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, 55 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 - 40 GHz waveguide harmonic mixer	11970A	Requires Option EXM and N9029AE13 diplexer
33 - 50 GHz waveguide harmonic mixer	11970Q	Requires Option EXM and N9029AE13 diplexer
40 - 60 GHz waveguide harmonic mixer	11970U	Requires Option EXM and N9029AE13 diplexer
50 - 75 GHz waveguide harmonic mixer	11970V	Requires Option EXM and N9029AE13 diplexer
75 - 110 GHz waveguide harmonic mixer	11970W	Requires Option EXM and N9029AE13 diplexer
90 to 140 GHz OML harmonic mixer	N9029AE08	Ordering convenience; requires Option EXM
110 to 170 GHz OML harmonic mixer	N9029AE06	Ordering convenience; requires Option EXM
140 to 220 GHz OML harmonic mixer	N9029AE05	Ordering convenience; requires Option EXM
220 to 325 GHz OML harmonic mixer	N9029AE03	Ordering convenience; requires Option EXM
LO/IF Diplexer	N9029AE13	Ordering convenience; needed for 11970 Series external mixers

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

Step 13. Choose accessories, continued

Description	Option number	Additional information
50 to 75 GHz frequency extension module	N9029AV15	VDI signal analyzer frequency extension module; requires Option EXM
60 to 90 GHz frequency extension module	N9029AV12	VDI signal analyzer frequency extension module; requires Option EXM
75 to 110 GHz frequency extension module	N9029AV10	VDI signal analyzer frequency extension module; requires Option EXM
90 to 140 GHz frequency extension module	N9029AV08	VDI signal analyzer frequency extension module; requires Option EXM
110 to 170 GHz frequency extension module	N9029AV06	VDI signal analyzer frequency extension module; requires Option EXM
140 to 220 GHz frequency extension module	N9029AV05	VDI signal analyzer frequency extension module; requires Option EXM
220 to 330 GHz frequency extension module	N9029AV03	VDI signal analyzer frequency extension module; requires Option EXM
325 to 500 GHz frequency extension module	N9029AV02	VDI signal analyzer frequency extension module; requires Option EXM
550 to 750 GHz frequency extension module	N9029AV1B	VDI signal analyzer frequency extension module; requires Option EXM
750 to 1100 GHz frequency extension module	N9029AV01	VDI signal analyzer frequency extension module; requires Option EXM
Power supply for VDI module	N5262VDI-175	Required for the N9029AVxx VDI module
USB external preamplifier, 10 MHz to 4 GHz	U7227A	Requires firmware A.14.00 or higher
USB external preamplifier, 0.1 to 26.5 GHz	U7227C	Requires firmware A.14.00 or higher
USB external preamplifier, 2 to 50 GHz	U7227F	Requires firmware A.14.00 or higher

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

Step 14. Choose localized Getting Started guides

Description	Option number
Getting started guide EXA Korean	N9010A-AB1
Getting started guide EXA Chinese	N9010A-AB2
Getting started guide EXA German	N9010A-ABD
Getting started guide EXA French	N9010A-ABF
Getting started guide EXA Japanese	N9010A-ABJ
Getting started guide EXA Russian	N9010A-AKT

Step 15. Add calibration, technical training, support, and upgrade services

Description	Option number	Additional information
Commercial calibration certificate with test data	N9010A-UK6	Calibration certificate only available at time of instrument purchase; only provides measurement results
Keysight Calibration + Uncertainties + Guardbanding (accredited cal)	N9010A-AMG	Provides ISO 17025A accredited calibration from factory
ANSI Z540-1-1994 Calibration	N9010A-A6J	Provides ANSI Z540 compliant calibration from factory
Calibration Assurance Plan, Return-to-Keysight, 3 years	R-50C-011-3	Keysight tests your instrument against its original specifications and automatically makes adjustments if outside of specified parameters; pre- and post-adjustment measurement data reports also provided
Service: remote scheduled productivity assistance	PS-S10-100	Hourly phone-in technical support service designed to help you understand and operate your equipment through convenient phone and Web access
Service: 1-day start-up assistance	PS-S20-01	Training on how to operate your instrument effectively (recommended)
Service: productivity assistance	PS-S20-100	Daily instrument and application consulting using your equipment and device under test
Service: custom engineering service	PS-X10-100	Application-specific technical assistance

Other calibration options may be available; for more information on calibration go to: www.keysight.com/find/calibration

For more information on training and application support services go to: www.keysight.com/find/training

Instrument Upgrades

Fast license-key upgrades for performance 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 EXA
4. Begin using the new capability ^{1,2}

Installation and testing information is available at: www.keysight.com/find/exa_upgrades

Upgrades for analysis bandwidth depend on the vintage of the instrument and the options already installed. More than one option may be required to achieve desired wider analysis bandwidth. Use our web-based calculator to find the upgrade options you may need: www.keysight.com/find/BW-selector

You can upgrade!

Options can be added after your initial purchase.



All of our X-Series application options are license-key upgradeable.

Description	Upgrade number	Requirements (EXA must already include the following)	Additional information
Increase frequency from 3.6 to 7 GHz,	N9010AK-F01	503	
Increase frequency from 3.6 to 13.6 GHz	N9010AK-F02	503	
Increase frequency from 3.6 to 26.5 GHz	N9010AK-F03	503	
Increase frequency from 3.6 to 32 GHz	N9010AK-F04	503	Requires serial number \geq MY/SG/US52180000
Increase frequency from 3.6 to 44 GHz	N9010AK-F05	503	Requires serial number \geq MY/SG/US52180000
Increase frequency from 7 to 13.6 GHz	N9010AK-F06	507	
Increase frequency from 7 to 26.5 GHz	N9010AK-F07	507	
Increase frequency from 7 to 32 GHz	N9010AK-F08	507	Requires serial number \geq MY/SG/US52180000
Increase frequency from 7 to 44 GHz	N9010AK-F09	507	Requires serial number \geq MY/SG/US52180000
Increase frequency from 13.6 to 26.5 GHz	N9010AK-F10	513	
Increase frequency from 13.6 to 32 GHz	N9010AK-F11	513	Requires serial number \geq MY/SG/US52180000
Increase frequency from 13.6 to 44 GHz	N9010AK-F12	513	Requires serial number \geq MY/SG/US52180000
Increase frequency from 26.5 to 32 GHz	N9010AK-F13	526	Requires serial number \geq MY/SG/US52180000
Increase frequency from 26.5 to 44 GHz	N9010AK-F14	526	Requires serial number \geq MY/SG/US52180000
Increase frequency from 32 to 44 GHz	N9010AK-F15	532	Includes 44 GHz preamp
Increase analysis bandwidth from 10 to 25 MHz	N9010AK-B25 ³	None	
Increase analysis bandwidth from 10 to 40 MHz	N9010AK-B40	DP2 or MPB	
Increase analysis bandwidth from 25 to 40 MHz	N9010AK-BU1	B25 and DP2 or MPB	
Increase analysis bandwidth to 40 MHz. Includes microwave preselector bypass. Options 507, 513, and 526 only.	N9010AK-HL4	507, 513, or 526 Serial prefix < US/SG/MY5648	Includes hardware and license key; also adds microwave preselector bypass; not compatible with Option 503, 532 or 544
	N9010AK-HLA	507, 513, or 526 Serial prefix \geq US/SG/MY5648	
Increase analysis bandwidth to 40 MHz. Includes microwave preselector bypass. Options 532 and 544 only.	N9010AK-HL7	532 or 544 Serial prefix < US/SG/MY5648	Includes hardware and license key; also adds microwave preselector bypass; not compatible with Options 503, 507, 513, or 526
	N9010AK-HLF	532 or 544 Serial prefix \geq US/SG/MY5648	
Increase analysis bandwidth to 40 MHz, Option 503 only.	N9010AK-HL8	503 Serial prefix < US/SG/MY5648	Includes hardware and license key; only compatible with Option 503
	N9010AK-HL9	503 Serial prefix \geq US/SG/MY5648	

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 two years 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 two years, or if the analyzer is more than two years 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.
3. This upgrade option is for instruments ordered before May 1, 2011.

Description	Upgrade number	Requirements (EXA must already include the following)	Additional information
Add preamplifier, 3.6 GHz	N9010AK-P03	None	
Add preamplifier, 7 GHz	N9010AK-P07	507, 513, 526, 533, or 544	Not compatible with Option 503
Add preamplifier, 13.6 GHz	N9010AK-P13	513 or 526	Not compatible with Option 503, 507, 532, or 544
Add preamplifier, 26.5 GHz	N9010AK-P26	526	Not compatible with Option 503, 507, 513, 532, or 544
Add preamplifier, 32 GHz	N9010AK-P32	532	
Add preamplifier, 44 GHz	N9010AK-P44	544	
Upgrade to the precision frequency reference	N9010AK-PFR	None	
Add basic EMI precompliance features	N9010AK-EMC	None	Also orderable at N90EMEMCA (requires F/W revision A.21.04 onward)
Add external source control	N9010AK-ESC	None	Adds feature to control the Keysight EXG, MXG, and PSG signal generators; supports external mixing; includes 3 BNC cables and 1 cross-over LAN cable for scalar stimulus/response measurements. Also orderable at N90EMESCA (requires F/W revision A.21.04 onward)
Add external mixing	N9010AK-EXM	532 or 544	Includes additional hardware
Add second IF output	N9010AK-CR3	B40, DP2 or MPB, or CRP, 532, or 544	
Add arbitrary IF output	N9010AK-CRP	Front End Controller with HW ID of 41 or 75	Press System > Show > Hardware to check HW ID
Add second IF output and arbitrary IF output	N9010AK-HL3	None	Includes hardware and license key
Add fast power	N9010AK-FP2	B40	For fast power measurements such as ACPR. Also orderable at N90EMF2A (requires F/W revision A.21.04 onward)
Add noise floor extension	N9010AK-NFE	None	Instrument alignment based; licensed as N9010A-NF2
Add security features, exclude launch program	N9010AK-SF1	None	Prevents the launching of Windows programs from the instrument application
Add security features, prohibit saving results	N9010AK-SF2	None	Prevents the saving/recall of measurement results or user configurations to/from instrument's data storage
Add time domain scan capability	N9020AK-TDS	N6141A and DP2, or B40	For EMC pre-compliance tests only. Also orderable at N90EMTDSA (requires F/W revision A.21.04 onward)
Add Y-axis screen video output	N9010AK-YAS	None	
Add enhanced display package	N9010AK-EDP	None	Also orderable at N90EMEDPA (requires F/W revision A.21.04 onward)
Upgrade operating system to Windows 10			
From old processors	N9094AK-W10 ¹ N9094AK-PC6 ¹	PC1, PC2, PC3, PC4, or PC5	Upgrade to a quad-core 64-bit performance processor, 16 GB RAM, with removable solid-state drive and Windows 10 operating system
From the latest processors	N9094AK-W10 ¹ N9094AK-SSD ¹	PC6 or PC7	Provides a removable solid-state drive with Windows 10 operating system
Upgrade to quad-core 64-bit performance processor, 16 GB RAM, removable solid-state drive			
With Windows 10 operating system	N9094AK-W10 ¹ N9094AK-PC6 ¹	PC1, PC2, PC3, PC4, or PC5	Upgrade to a quad-core 64-bit performance processor, 16 GB RAM, with removable solid-state drive and Windows 10 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 two years 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 two years, or if the analyzer is more than two years 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 (EXA must already include the following)	Additional information
Add additional removable solid-state drive			
With Windows 10 operating system	N9094AK-W10 ¹ N9094AK-SSD ¹	PC6 or PC7	For Windows 10 operating system provides additional removable solid-state drive
Upgrade to multi-touch user interface			
From PC6 or PC7 processor	N9010AK-MTU	PC6 or PC7	Allows signal analyzer to run multi-touch applications ² . Available for N9010A EXA signal analyzers with S/N prefix ≥ MY/SG/US5648
From other processor	N9010AK-MTP	None	Allows signal analyzer to run multi-touch applications and upgrades to a dual-core 64-bit performance processor, 8 GB RAM ² . Available for N9010A EXA signal analyzers with S/N prefix ≥ MY/SG/US5648
Portable configuration	N9010AK-PRC	None	Not compatible with Options 1CM, 1CP, 1CN, 1CR
Front panel cover, additional	N9010AK-CVR	None	
USB DVD-ROM/CD-R/RW drive	N9010AK-DVR	None	
Electronic attenuator, 3.6 GHz	N9010AK-EA3	None	
Fine step attenuator	N9010AK-FSA	None	
Hard transit case	N9010AK-HTC	None	
Keyboard, USB interface	N9010AK-KYB	None	Enhances the usability of the Windows Professional operation system (Note: Does not fit N9010A-BAG accessory pouch)
US 65-key USB keyboard	N9010AK-KB2	None	Compact design fits in N9010A-BAG accessory pouch for convenient storage
Accessory pouch	N9010AK-BAG	None	Easily store and carry the N9010AK-KB2 keyboard and USB mouse in this attachable pouch
Minimum loss pad, 50 to 75 Ω (type-N to BNC)	N9010AK-MLP	None	
Mouse, USB interface	N9010AK-MSE	None	
Rack mount kit	N9010AK-1CM	None	Not compatible with Options PRC, 1CP, 1CN
Front handle kit	N9010AK-1CN	None	Not compatible with Options PRC, 1CP, 1CM
Rack mount and handle kit	N9010AK-1CP	None	Not compatible with Options PRC, 1CM, 1CN
Rack slide kit	N9010AK-1CR	None	Not compatible with Options PRC
Getting started guide EXA Korean	N9010AK-AB1	None	
Getting started guide EXA Chinese	N9010AK-AB2	None	
Getting started guide EXA German	N9010AK-ABD	None	
Getting started guide EXA French	N9010AK-ABF	None	
Getting started guide EXA Japanese	N9010AK-ABJ	None	
Getting started guide EXA Russian	N9010AK-AKT	None	

1. Must be ordered under N9010AK.

2. Not all applications supported by the N9010A with standard user interface (UI) are supported with the multi-touch UI. Consult your nearest Keysight sales representative for detailed information.

Note: It is recommended to order measurement applications with the model numbers listed at Step 11. Alternatively, you can use the ordering numbers in this table to add the measurement applications. The last two letters of the ordering numbers indicate the license type—FP stands for fixed perpetual, TP for transportable perpetual; it is recommended that you configure each application with the same license type; visit www.keysight.com/find/X-Series_transportable for more information about transportable licenses

Description	Fixed license	Transportable license	Additional information
Cellular communications			
LTE/LTE-Advanced FDD	N9080B-1FP	N9080B-1TP	Standard-based, one-button LTE-FDD measurements; requires W7X or W10
	N9080B-2FP	N9080B-2TP	Standard-based, one-button LTE-Advanced FDD measurements; requires W7X or W10, and N9080B-1FP/1TP
LTE/LTE-Advanced TDD	N9082B-1FP	N9082B-1TP	Standard-based, one-button LTE-TDD measurements; requires W7X or W10
	N9082B-2FP	N9082B-2TP	Standard-based, one-button LTE-Advanced TDD measurements; requires W7X or W10, and N9082B-1FP/1TP
Multi-standard radio (MSR)	N9083A-1FP	N9083A-1TP	Standard-based, one-button MSR measurements on any combination of LTE-FDD, W-CDMA/HSPA/HSPA+, GSM/EDGE/EDGE Evo, cdma2000, and 1xEV-DO signals
W-CDMA/HSPA+	N9073A-1FP	N9073A-1TP	Standard-based, one-button W-CDMA measurements
	N9073A-2FP	N9073A-2TP	Adds HSPA measurements; requires 1FP/1TP
	N9073A-3FP	N9073A-3TP	Adds HSPA+ measurements; requires 1FP/1TP, 2FP/2TP
	N9073A-XFP	N9073A-XTP	Adds single acquisition combined measurement, a SCPI-command-based measurement optimized for high-volume, high-throughput manufacturing; requires 1FP/1TP; not compatible with Options DP2, B40, or MPB; not compatible with Options 532 or 544
GSM/EDGE/EVO	N9071A-2FP	N9071A-2TP	Standard-based, one-button GSM/EDGE measurements
	N9071A-3FP	N9071A-3TP	Adds EDGE Evolution and VAMOS measurements; requires 2FP/2TP
	N9071A-XFP	N9071A-XTP	Adds single acquisition combined measurement, a SCPI-command-based measurement optimized for high-volume, high-throughput manufacturing; requires 2FP/2TP; not compatible with Options DP2, B40, or MPB; not compatible with Options 532 or 544
TD-SCDMA/HSPA	N9079A-1FP	N9079A-1TP	Standard-based, one-button TD-SCDMA measurements
	N9079A-2FP	N9079A-2TP	Adds HSPA/8PSK measurements, requires 1FP/1TP
1xEV-DO	N9076A-1FP	N9076A-1TP	Standard-based, one-button 1xEV-DO Rel 0, Rev A, and Rev B measurements
cdma2000®/cdmaOne	N9072A-2FP	N9072A-2TP	Standard-based, one-button cdma2000 and cdmaOne measurements
Wireless connectivity			
Mobile WiMAX™	N9075A-2FP	N9075A-2TP	Standard-based, one-button Mobile WiMAX measurements
Fixed WiMAX	N9074A-XFP	N9074A-XTP	Single acquisition combined measurement, a SCPI-command-based measurement optimized for high-volume, high-throughput manufacturing; not compatible with Options DP2, B40, or MPB; not compatible with Options 532 or 544
WLAN 802.11a/b/g/j/p/n/ac/af/ah	N9077A-2FP	N9077A-2TP	Standard-based, one-button 802.11a/b/g/j/p measurement
	N9077A-3FP	N9077A-3TP	Adds 802.11n; requires 2FP/2TP
	N9077A-4FP	N9077A-4TP	Adds 802.11ac; requires 2FP/2TP, 3FP/3TP
	N9077A-6FP	N9077A-6TP	Standard-based, one-button 802.11ah measurement; requires firmware above version A.16.05
	N9077A-7FP	N9077A-7TP	Standard-based, one-button 802.11af measurement; requires firmware above version A.18.01
Bluetooth®	N9081A-2FP	N9081A-2TP	Standard-based, one-button Bluetooth version 2.1+ EDR and Low Energy (LE) measurements
	N9081A-3FP	N9081A-3TP	Standard-based, one-button Bluetooth® 5 measurement; requires N9081A-2FP/2TP

Description	Fixed license	Transportable license	Additional information
Digital video			
CMMB	N6158A-2FP	N6158A-2TP	Standard-based, one-button, CMMB measurements
Digital cable TV	N6152A-2FP	N6152A-2TP	Standard-based, one-button DVB-C (J.83 Annex A/C) measurements
	N6152A-3FP	N6152A-3TP	Standard-based, one-button J.83 Annex B measurements
DTMB (CTTB)	N6156A-2FP	N6156A-2TP	Standard-based, one-button DTMB (CTTB) measurements
DVB-T/H/T2	N6153A-2FP	N6153A-2TP	Standard-based, one-button DVB-T/H measurements
	N6153A-3FP	N6153A-3TP	Adds DVB-T2; measurements require 2FP/2TP
ISDB-T/Tmm	N6155A-2FP	N6155A-2TP	Standard-based, one-button ISDB-T, ISDB-T _B , and ISDB-T _{SB}
	N6155A-3FP	N6155A-3TP	Adds ISDB-Tmm measurements; requires 2FP/2TP
General purpose			
Analog demodulation	N9063A-2FP	N9063A-2TP	Adds one-button measurement for AM/FM/PM demodulation with metrics, audio analysis, and tune-and-listen AF spectrum; supports analog output
	N9063A-3FP	N9063A-3TP	Adds FM Stereo and RDS; requires 2FP/2TP
Phase noise	N9068A-2FP	N9068A-2TP	Adds one-button measurements for analyzing phase noise in frequency domain (log plot) and time domain (spot frequency)
Noise figure	N9069A-1FP (requires preamplifier to meet specifications)	N9069A-1TP (requires preamplifier to meet specifications)	Adds one-button measurements for noise figure, gain, and related metrics; requires preamplifier to meet specifications; works with Keysight N400xA Series smart noise sources and 346 Series noise sources; supports U7227-Series USB Preamplifier
	N9069A-2FP	N9069A-2TP	Advanced NF measurement features including external LO control over GPIB/LAN/USB, and manual mode to simulate the legacy NF meter; requires 1FP/1TP
VXA vector signal analysis	N9064A-1FP	N9064A-1TP	Vector signal analysis; high-resolution, FFT-based spectrum and time-domain measurements, time gating, AM/FM/PM demodulation, statistical measurements; also supports Option EXM
	N9064A-2FP	N9064A-2TP	Adds flexible digital modulation analysis; general purpose digital modulation for 2-16FSK, 2-8PSK, and 16-1024QAM, as well as more than 15 additional formats; requires 1FP/1TP
EMC	N6141A-2FP	N6141A-2TP	Pre-compliance conducted and radiated emission measurements
MATLAB software	N6171A-M01	Not available	Instrument Control Toolbox
	N6171A-M02	Not available	Instrument Control Toolbox Communications System Toolbox DSP System Toolbox Signal Processing Toolbox
	N6171A-M03	Not available	Instrument Control Toolbox Communications System Toolbox DSP System Toolbox Signal Processing Toolbox RF Toolbox
SCPI command language compatibility	N9062A-2FP	Not available	Adds capability to emulate the R&S FSP/FSU/FSE spectrum analyzers
Remote language compatibility	N9061A-1FP	Not available	Adds capability to emulate the 8566/68 spectrum analyzers
	N9061A-2FP	Not available	Adds capability to emulate the 856xE/EC spectrum analyzers
89600 VSA software	Not available	89601B (transportable license is standard)	Industry-leading measurement software for evaluating and troubleshooting signals in R&D; PC-based software supporting more than 40 measurement platforms, plus more than 75 signal standards and modulation types including MIMO analysis; www.keysight.com/find/89600vsa

Related Literature

Keysight N9010A EXA signal analyzers

Publication title	Publication number
EXA X-Series Signal Analyzer N9010A, Brochure	5989-6527EN
N9010A EXA X-Series Signal Analyzer, Data Sheet	5989-6529EN
X-Series Measurement Applications, Brochure	5989-8019EN

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