N9010B EXA X-Series Signal Analyzer, Multi-touch

Introduction

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



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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
- Quad-core, high-performance processor, 16 GB RAM, with flash calibration file memory
- Removable M.2 NVMe solid-state drive
- Frequency reference
- Mechanical attenuator
- 25 MHz analysis bandwidth
- Microsoft Windows 11 operating system
- Benchtop configuration
- Multi-language user interface
- User guide
- Power cord

Get More Information

For a summary of specifications, refer to the N9010B EXA data sheet (literature number 5992-1256EN).

A full set of specifications are available in the N9010B EXA Signal Analyzer Specification Guide at www.keysight.com/find/exa_specifications.

Configure Your Keysight EXA Signal Analyzer

This step-by-step process will help you configure your new EXA X-Series signal analyzer as well as add millimeter-wave capabilities. Tailor the performance to meet your requirements.

Step 1. Select Maximum Frequency Range (Required Option)

Description	Option Number	Additional Information
Frequency range, 10 Hz to 3.6 GHz	N9010B-503	
Frequency range, 10 Hz to 7 GHz	N9010B-507	
Frequency range, 10 Hz to 13.6 GHz	N9010B-513	
Frequency range, 10 Hz to 26.5 GHz	N9010B-526	
Frequency range, 10 Hz to 32 GHz	N9010B-532	
Frequency range, 10 Hz to 44 GHz	N9010B-544	

Step 2. Add a Preamplifier

Preamplifiers improve the noise floor for low-level signal detection

Description	Option Number	Additional Information
Preamplifier, 100 kHz to 3.6 GHz	N9010B-P03	Compatible with frequency range Options 503, 507, 513, 526, 532, and 544
Preamplifier, 100 kHz to 7 GHz	N9010B-P07	Compatible with frequency range Options 507, 513, 526, 532, and 544
Preamplifier, 100 kHz to 13.6 GHz	N9010B-P13	Compatible with frequency range Options 513 and 526
Preamplifier, 100 kHz to 26.5 GHz	N9010B-P26	Compatible with frequency range Option 526
Preamplifier, 100 kHz to 32 GHz	N9010B-P32	Compatible with frequency range Option 532
Preamplifier, 100 kHz to 44 GHz	N9010B-P44	Compatible with frequency range Option 544

Step 3. Choose Frequency Reference

Description	Option Number	Additional Information
Frequency reference	Standard	Aging rate: ± 1 x 10^{-6}/year
Precision frequency reference 10 MHz	N9010B-PFR	Reduces frequency drift for more accurate measurements; aging rate: ± 1 x 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	N9010B-FSA	Allows 2 dB steps for the full 60 dB range of the mechanical attenuator
Electronic attenuator up to 3.6 GHz	N9010B-EA3	In addition to the mechanical attenuator; 1 dB steps, 0 to 24 dB

Step 5. Choose Analysis Bandwidth

Description	Option Number	Additional Information
25 MHz analysis bandwidth	Standard (N9010B-B25)	Useful for most cellular communications, wireless connectivity, and audio/video broadcasting measurement applications
40 MHz analysis bandwidth	N9010B-B40	Extends the analysis (demod) bandwidth to 40 MHz (Option MPB required for measurements at frequency > 3.6 GHz); includes license for Option DP2; also enables fast sweep capability licensed as N9010B-FS1 and N9010B-FS2
Microwave preselector bypass	N9010B-MPB	Required for wide analysis bandwidth measurements with Option B40 at frequency > 3.6 GHz; also enables fast sweep capability licensed as N9010B-FS1 and N9010B-FS2

Step 6. Choose Performance

Description	Option Number	Additional Information
Digital processor with 2 GB capture memory	N9010B-DP2	Comes standard with Option B40; enables I/Q Recording and Fast (Deep) Capture in the I/Q Analyzer mode; also enables fast sweep capability licensed as N9010B-FS1 and N9010B-FS2
Noise floor extension	N9010B-NF2	Improves analyzer's DANL performance (instrument alignment-based processes)
External mixing	N9010B-EXM	Provides external mixing with Keysight and third-party mixers[1]; single port for LO out and IF in (SMA female); compatible with Options 532 and 544 only
APC 3.5 mm connector	N9010B-C35	3.5 mm connector on 26.5 GHz EXA (compatible with Option 526 only); eliminates amplitude response errors due to modes otherwise seen with Type-N connector above 18 GHz; refer to N9010B specifications guide for details

1. 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 7. Add Instrument 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
- **Subscription:** License is time limited to a defined period, such as 12-months. A valid support contract is included in the pricing for Subscription licenses.

For detailed information, we strongly recommend you visit the X-Series measurement application collection page: www.keysight.com/find/xseriesapps

Description	Option Number	Additional Information
Enhanced display package	N90EMEDPB	Includes spectrogram, trace zoom, and zone span
Basic precompliance EMI	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 pre-compliance measurement application and Option DP2, or B40
External source control	N90EMESCB	External source control for selected Keysight EXG, MXG, and PSG signal generators for scalar stimulus-response measurements; supports external mixing
Fast power	N90EMFP2B	Accelerates the power measurements such as ACPR; requires Option B40

Step 8. Select Operating System

Description	Option Number	Additional Information
Windows 11 operating system	Standard	Licensed as N9010B-W11

Step 9. Add Security Features

Description	Option Number	Additional Information
Additional removable M.2 NVMe Solid-State Drive (SSD), for PCD processor	N9010B-SS9	Provides a fully imaged, removable solid-state drive-in addition to the one installed in the instrument, with Windows 11 operating system
Security features, exclude launch program	N9010B-SF1	Prevents the launching of Windows programs from the instrument application
Security features, prohibit saving results	N9010B-SF2	Prevents the saving/recall of measurement results or user configurations to/from instrument's data storage
Security feature, secure RAM disk boot	N9010B-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 10. Add Rear Panel Output Utilities

Description	Option Number	Additional Information
Second IF output	N9010B-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	N9010B-CRP	IF out 10 to 75 MHz (in 500 kHz steps); output on Aux IF connector at rear panel
Y-axis screen video output	N9010B-YAS	Screen video (0–1-volt open circuit) on rear panel analog out
Real-time link	Standard when B40 or DP2 is ordered	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 N9010B-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 Subscription.

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
- **Subscription:** License is time limited to a defined period, such as 12-months. A valid support contract is included in the pricing for Subscription 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 and IQ Analyzer	Standard	Traditional spectrum analysis plus many new and enhanced functions
Power Suite	N90EMPSMB	Power measurements based on industry specifications
Analog demodulation	E9063EM0E	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	E9068EM0E	Adds one-button measurements for analyzing phase noise in frequency domain (log plot) and time domain (spot frequency), supports external mixing
Noise figure	E9069EM0E (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

Description	Model Number	Additional Information
Vector modulation analysis digital demodulation	E9054EM0E	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	E9054EM1E	Performs one-button custom OFDM modulation analysis measurement with user-defined settings or recalling 89600 VSA or Signal Studio output files
Pulse analysis	E9067EM0E	Characterize pulsed RF signals in the time domain, with phase, frequency and statistical analysis of large pulse sets
EMI	E6141EM0E	Performs pre-compliance conducted and radiated emission measurements
Remote language compatibility	E9061EM0E	Adds capability to emulate HP/Agilent 8566/68 and 856xE/EC spectrum analyzers
SCPI command language compatibility	E9062EM0E	Adds capability to emulate the R&S FSP/FSU/FSE/FSL/FSV spectrum analyzers or ESU EMI receiver
MATLAB software	N6171A	
Cellular Communications		
GSM/EDGE/Evo	E9071EM0E	Standard-based, one-button GSM/EDGE/EDGE Evolution measurements
	E9071EMXE	Adds single acquisition combined measurement, a SCPI-command based measurement optimized for high-volume, high-throughput manufacturing; requires N9071EM0E; not compatible with Options DP2, B40, MPB, 532 or 544
W-CDMA/HSPA+	E9073EM0E	Standard-based, one-button W-CDMA, HSPA and HSPA+ measurements
	E9073EMXE	Adds single acquisition combined measurement, a SCPI-command based measurement optimized for high-volume, high-throughput manufacturing; requires N9073EM0E; not compatible with Options DP2, B40, MPB, 532 or 544
LTE/LTE-Advanced FDD	E9080EM0E	Standard-based, one-button LTE/LTE-Advanced FDD measurements
NB-IoT and eMTC FDD	E9080EM3E	Standard-based, one-button NB-IoT/eMTC measurements
LTE V2X	E9080EM4E	Standard-based, one-button LTE-V2X transmitter measurements
LTE/LTE-Advanced TDD	E9082EM0E	Standard-based, one-button LTE/LTE-Advanced TDD measurements
Multi-standard radio	E9083EM0E	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

Description	Model Number	Additional Information
Wireless Connectivity		
WLAN 802.11 a/b/g/j/p/n/af/ah	E9077EM0E	Standard-based, one-button 802.11 a/b/g/j/p/n/af/ah measurement
Bluetooth®	E9081EM0E	Standard-based, one-button *Bluetooth* (BR/EDR, Low Energy 4.0/4.2 and *Bluetooth* 5) measurements
Short Range Comm and IoT	E9084EM0E	Standard-based, one-button LoRa CSS measurement, 802.15.4 for ZigBee measurement and G.9959 for Z-Wave measurement

Step 12. Choose 89600 VSA Software Licenses

Description	Model 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 Channel quality modulation analysis
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 TEDS modulation analysis Channel response measurements such as phase/magnitude response and multi-tone group delay
Custom OFDM modulation analysis	89601BHFC	Proprietary and pre-standard OFDM formats
PowerSuite measurement	89601PSMC	PowerSuite measurement for ACP and EVM
Cellular Communication		
5G NR modulation analysis	89601BHNC	5G NR modulation analysis Pre-5G modulation analysis
LTE/LTE-A FDD modulation analysis	89601BHGC	LTE FDD modulation analysis LTE-Advanced FDD modulation analysis
LTE/LTE-A TDD modulation analysis	89601BHHC	LTE TDD modulation analysis LTE-Advanced TDD modulation analysis
3G modulation analysis bundle	89601B7NC	W-CDMA/HSPA+ modulation analysis TD-SCDMA/HSPA modulation analysis cdma2000 modulation analysis 1xEV-DO and 1xEV-DV modulation analysis

Description	Model Number	Additional Information
Wireless Connectivity		
Wireless connectivity modulation analysis	89601B7RC	WLAN 802.11 a/b/g/j/p modulation analysis WiMax modulation analysis
High throughput WLAN modulation analysis	89601BHXC	WLAN 802.11 n/ac modulation analysis WLAN 802.11ax modulation analysis
IoT modulation analysis	89601BHTC	NB-IoT modulation analysis RFID modulation analysis
Radar Analysis		
Pulse analysis	89601BHQC	Pulsed modulated radar signal analysis
FMCW radar analysis	89601BHPC	For multi-chirp linear FM modulated signals or automotive radar
Other Standard Formats		
DOCSIS modulation analysis	89601BHMC	DOCSIS3.1 downstream and upstream modulation analysis
Multi-vendor hardware connectivity	89601301C	Connect multi-vendor hardware for modulation analysis

Step 13. 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
Portable configuration	N9010B-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

Step 14. Choose accessories

Description	Option Number	Additional Information
User guide	Standard	US - English localization
		All user documentation is included in the EXA's embedded help system
		User documentation can be downloaded from: www.keysight.com/find/exa_manuals
Front panel cover	CV1117A	Protective cover for front panel
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	1CM113A	Adds rack mount flanges to the EXA
Front handles	1CN103A	Adds front handles to the EXA
Rack mount with handles	1CP105A	Adds rack mount flanges and handles to the EXA
Rack slide	1CR013A	Adds a non-tilting rack slide to the EXA
USB DVD-ROM/CD-R/RW drive	1DVR001A	Enhances the usability of the Windows operating system
Mouse, USB interface	1MSE001A	
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 and 11 dB
		Insertion loss: 5.7 dB
V-Band waveguide Harmonic Mixers, 50 to 75 GHz	M1970V-001	Requires Option EXM and Option 532 or 544; USB mixer with smart features
Extended V-Band waveguide Harmonic Mixers, 50 to 80 GHz	M1970V-002	Requires Option EXM and Option 532 or 544; USB mixer with smart features
E-Band waveguide Harmonic Mixers, 60 to 90 GHz	M1970E	Requires Option EXM and Option 532 or 544; USB mixer with smart features
W-Band waveguide Harmonic Mixers, 75 to 110 GHz	M1970W	Requires Option EXM and Option 532 or 544; USB mixer with smart features
E-band waveguide harmonic mixer, 60 to 90 GHz	M1971E-001	Requires Option EXM and Option 532 or 544; USB mixer with smart features and 3 signal paths
Extended E-band waveguide harmonic mixer, 55 to 90 GHz	M1971E-003	Requires Option EXM and Option 532 or 544; USB mixer with smart features and 3 signal paths
V-band waveguide harmonic mixer, 55 to 75 GHz	M1971V	Requires Option EXM and Option 532 or 544; USB mixer with smart features and 3 signal paths

Description	Option Number	Additional Information
W-band waveguide harmonic mixer, 75 to 110 GHz	M1971W	Requires Option EXM and Option 532 or 544; 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
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	

Description	Option Number	Additional Information
USB external preamplifier, 0.1 to 26.5 GHz	U7227C	
USB external preamplifier, 2 to 50 GHz	U7227F	

Step 15. Add Calibration, Technical Training, Support, and Upgrade Services

Description	Option Number	Additional Information
Commercial calibration certificate with test data	N9010B-UK6	Calibration certificate only available at time of instrument purchase; only provides measurement results
Keysight Calibration + Uncertainties + Guardbanding (accredited cal)	N9010B-AMG	Provides ISO 17025A accredited calibration from factory
ANSI Z540-1 -1994 Calibration	N9010B-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
Calibration Assurance Plan, Return-to-Keysight, 3 years	R-50C-011-5	
Calibration Assurance Plan, Return-to-Keysight, 7 years	R-50C-011-7	
Calibration Assurance Plan, Return-to-Keysight, 10 years	R-50C-011-10	
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

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.

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
Increase frequency from 3.6 to 7 GHz	N9010BU-F01	503	
Increase frequency from 3.6 to 13.6 GHz	N9010BU-F02	503	
Increase frequency from 3.6 to 26.5 GHz	N9010BU-F03	503	
Increase frequency from 3.6 to 32 GHz	N9010BU-F04	503	
Increase frequency from 3.6 to 44 GHz	N9010BU-F05	503	
Increase frequency from 7 to 13.6 GHz	N9010BU-F06	507	
Increase frequency from 7 to 26.5 GHz	N9010BU-F07	507	
Increase frequency from 7 to 32 GHz	N9010BU-F08	507	
Increase frequency from 7 to 44 GHz	N9010BU-F09	507	
Increase frequency from 13.6 to 26.5 GHz	N9010BU-F10	513	
Increase frequency from 13.6 to 32 GHz	N9010BU-F11	513	
Increase frequency from 13.6 to 44 GHz	N9010BU-F12	513	
Increase frequency from 26.5 to 32 GHz	N9010BU-F13	526	
Increase frequency from 26.5 to 44 GHz	N9010BU-F14	526	
Increase frequency from 32 to 44 GHz	N9010BU-F15	532	Includes 44 GHz preamp
Increase analysis bandwidth from 25 to 40 MHz	N9010BU-B40	503, 507, 513, or 526	Includes hardware and license key; adds license for Option DP2; also adds microwave preselector bypass; not compatible with Options 532 or 544
Increase analysis bandwidth from 25 to 40 MHz	N9010BU-BUN	532 or 544	Includes hardware and license key; adds license for Option DP2; also adds microwave preselector bypass; not compatible with Options 503, 507, 513, or 526

Description	Upgrade Number	Requirements (EXA must already include the following)	Additional Information
Add preamplifier, 3.6 GHz	N9010BU-P03	None	
Add preamplifier, 7 GHz	N9010BU-P07	507, 513, 526, 532, or 544	Not compatible with Option 503
Add preamplifier, 13.6 GHz	N9010BU-P13	513 or 526	Not compatible with Option 503, 507, 532, or 544
Add preamplifier, 26.5 GHz	N9010BU-P26	526	Only compatible with Option 526
Add preamplifier, 32 GHz	N9010BU-P32	532	Only compatible with option 532
Add preamplifier, 44 GHz	N9010BU-P44	544	Only compatible with Option 544
Upgrade to the precision frequency reference	N9010BU-PFR	None	
Add time domain scan capability	N9010BU-TDS	N6141EM0E and DP2 or B40	For EMC pre-compliance tests only. Also orderable at N90EMTDSB (requires F/W revision A.21.04 onward)
Add basic EMI precompliance features	N9010BU-EMC	None	Also orderable at N90EMEMCB (requires F/W revision A.21.04 onward)
Add external mixing	N9010BU-EXM	532 or 544	Includes additional hardware
Add second IF output	N9010BU-CR3	B40, DP2 or MPB, or CRP, 532, or 544	
Add arbitrary IF output	N9010BU-CRP	Front end controller with hardware ID 41 or 75	Press System, Show, Hardware to determine hardware Id
Add second IF output and arbitrary IF output	N9010BU-HL3	None	Includes hardware and license key
Add fast power	N9010BU-FP2	B40	For fast power measurements such as ACPR. Also orderable at N90EMFP2B (requires F/W revision A.21.04 onward)
Add noise floor extension	N9010BU-NF2	None	Instrument alignment based
Add security features, exclude launch program	N9010BU-SF1	None	Prevents the launching of Windows programs from the instrument application
Add security features, prohibit saving results	N9010BU-SF2	None	Prevents the saving/recall of measurement results or user

Description	Upgrade Number	Requirements (EXA must already include the following)	Additional Information
			configurations to/from instrument's data storage
Add security feature, secure RAM disk boot	N9010BU-SF3	PC9, PCB, or PCD	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
Add Y-axis screen video output	N9010BU-YAS	None	
Add enhanced display package	N9010BU-EDP	None	Also orderable at N90EMEDPB (requires F/W revision A.21.04 onward)
Add removable solid-state drive (SSD)	N9094BU-SS1 (under N9010BU)	PC7, or PC7S	Provides additional removable solid-state drive, with Windows 10 operating system
Add removable solid-state drive (SSD)	N9094BU-SS2 (under N9010BU)	PC9	Provides additional removable solid-state drive, with Windows 10 operating system
Add removable M.2 NVMe solid-state drive (SSD)	N9094BU-SS3 (under N9010BU)	PCB	Provides additional removable solid-state drive, with Windows 10 operating system
Add removable solid-state drive (SSD)	N9094BU-SS6 (under N9010BU)	PC9	Provides additional removable solid-state drive, with Windows 11 operating system
Add removable M.2 NVMe solid-state drive (SSD)	N9094BU-SS7 (under N9010BU)	PCB	Provides additional removable M.2 NVMe solid-state drive, with Windows 11 operating system
Add removable M.2 NVMe solid-state drive (SSD)	N9094BU-SS9 (under N9010BU)	PCD	Provides additional removable M.2 NVMe solid-state drive, with Windows 11 operating system
Upgrade operating system to Windows 10	N9094BU-SS1/W10 (under N9010BU)	PC7, W7X	Provides a removable solid-state drive with Windows 10 operating system
Upgrade operating system to Windows 11	N9094BU-SS6/W11 (under N9010BU)	PC9, W10	Provides additional removable solid-state drive, with Windows 11 operating system

Description	Upgrade Number	Requirements (EXA must already include the following)	Additional Information
Upgrade operating system to Windows 11	N9094BU-SS7/W11 (under N9010BU)	PCB, W10	Provides additional removable M.2 NVMe solid-state drive, with Windows 11 operating system
Upgrade operating system to Windows 11	N9094BU-PC9/W11 (under N9010BU)	PC7, W7X or W10	Upgrade to PC9, quad-core, high performance processor, 16 GB RAM, with flash calibration file memory and removable solid-state drive
Upgrade operating system to Windows 11	N9094BU-PCB/W11 (under N9010BU)	PC7, W7X or W10	Upgrade to PCB, quad-core, high performance processor, 16 GB RAM, with flash calibration file memory and removable M.2 NVMe solid-state drive, version 1
Upgrade operating system to Windows 11	N9094BU-PCD/W11 (under N9010BU)	PC7, W7X or W10	Upgrade to PCD, quad-core, high performance processor, 16 GB RAM, with flash calibration file memory and removable M.2 NVMe solid-state drive, version 2
Upgrade to PC7S, quad-core, high- performance processor, 16 GB RAM, with flash calibration file memory	N9094BU-PCS (under N9010BU)	PC7	Upgrade to dual-core, high-performance processor, 16 GB RAM, with flash calibration file memory and removable solid-state drive
Upgrade to PC9, quad-core, high-performance processor, 16 GB RAM, with flash calibration file memory	N9094BU-PC9 (under N9010BU)	PC7, or PC7S	Upgrade to PC9, quad-core, high-performance processor, 16 GB RAM, with flash calibration file memory and removable solid-state drive
Upgrade to PCB, quad-core, high-performance processor, 16 GB RAM, with flash calibration file memory	N9094BU-PCB (under N9010BU)	PC7, PC7S, or PC9	Upgrade to PCB, quad-core, high performance processor, 16 GB RAM, with flash calibration file memory and removable M.2 NVMe solid-state drive, version 1
Upgrade to PCD, quad-core, high-performance processor, 16 GB RAM, with flash calibration file memory	N9094BU-PCD (under N9010BU)	PC7, PC7S, or PC9	Upgrade to PCD, quad-core, high performance processor, 16 GB RAM, with flash calibration file memory and removable M.2 NVMe solid-state drive, version 2
Portable configuration	N9010BU-PRC	None	Not compatible with 1CP105A, 1CM113A, 1CN103A, 1CR013A
USB DVD-ROM/CD-R/RW drive	N9010BU-DVR	None	
Electronic attenuator, 3.6 GHz	N9010BU-EA3	None	
Fine step attenuator	N9010BU-FSA	None	

Description	Upgrade Number	Requirements (EXA must already include the following)	Additional Information
Minimum loss pad, 50 to 75 Ω (type-N to BNC)	MLP001A	None	
Mouse, USB interface	1MSE001A	None	
Rack mount kit	1CM113A	None	Not compatible with Option PRC, 1CP105A, 1CN103A
Front handle kit	1CN103A	None	Not compatible with Option PRC, 1CP105A, 1CM113A
Rack mount and handle kit	1CP105A	None	Not compatible with Option PRC, 1CN103A, 1CM113A
Rack slide kit	1CR013A	None	Not compatible with Option PRC

Related Literature

Keysight EXA Signal Analyzers

Publication Title	Publication Number
X-Series Signal Analyzers - Brochure	5992-1316EN
N9010B EXA X-Series Signal Analyzer, Multi-touch - Data Sheet	5992-1256EN
X-Series Measurement Applications - Brochure	5989-8019EN

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

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



Figure 1. EXA bench top configuration

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