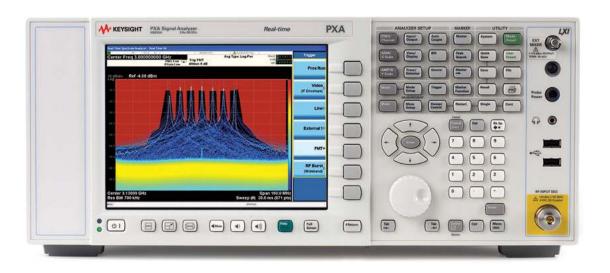# Keysight PXA
# X-Series Signal Analyzer
# N9030A

## Configuration Guide

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



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# Configure Your Keysight Technologies PXA Signal Analyzer

This step-by-step process will help you configure your new PXA X-Series signal analyzer. Tailor the performance to meet your requirements. For detailed specifications, refer to the PXA signal analyzer specifications guide (N9030-90017). For a summary of detailed specifications, refer to the PXA signal analyzer data sheet (5990-3952EN).

## Included in base product

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

- Spectrum analyzer measurement application
- Single-core, high-performance processor, 4 GB RAM, removable solid-state drive
- Mechanical attenuator
- 10 MHz analysis bandwidth
- Digital processor with 2 GB capture memory
- Enhanced phase noise
- Fast sweep capability
- LO/IM nulling
- Low frequency extension
- Noise floor extension
- Precision frequency reference
- Windows Embedded Standard 7
- Real-time link
- Mouse and keyboard
- User guides
- Front-panel protective cover
- Power cord
- 3-year return-to-Keysight warranty

| Step 1.  Select maximum frequency range (required option) | | |
|---|---|---|
| **Description** | **Option number** | **Additional information** |
| Frequency range, 3 Hz to 3.6 GHz | N9030A-503 | |
| Frequency range, 3 Hz to 8.4 GHz | N9030A-508 | |
| Frequency range, 3 Hz to 13.6 GHz | N9030A-513 | |
| Frequency range, 3 Hz to 26.5 GHz | N9030A-526 | |
| Frequency range, 3 Hz to 43 GHz | N9030A-543 | |
| Frequency range, 3 Hz to 44 GHz | N9030A-544 | |
| Frequency range, 3 Hz to 50 GHz | N9030A-550 | |

### Step 2. Add a preamplifier

| Description | Option number | Additional information |
|---|---|---|
| Preamplifier, 100 kHz to 3.0 GHz | N9030A-P03 | Compatible with frequency range options: N9030A-503, N9030A-508, N9030A-513, N9030A-526, N9030A-543, N9030A-544, and N9030A-550 |
| Preamplifier, 100 kHz to 8.4 GHz | N9030A-P08 | Compatible with frequency range options: N9030A-508, N9030A-513, N9030A-526, N9030A-543, N9030A-544, and N9030A-550 |
| Preamplifier, 100 kHz to 13.6 GHz | N9030A-P13 | Compatible with frequency range options: N9030A-513, N9030A-526, N9030A-543, N9030A-544, and N9030A-550 |
| Preamplifier, 100 kHz to 26.5 GHz | N9030A-P26 | Compatible with frequency range options: N9030A-526, N9030A-543, N9030A-544, and N9030A-550 |
| Preamplifier, 100 kHz to 43 GHz | N9030A-P43 | Compatible with frequency range option: N9030A-543 |
| Preamplifier, 100 kHz to 44 GHz | N9030A-P44 | Compatible with frequency range option: N9030A-544 |
| Preamplifier, 100 kHz to 50 GHz | N9030A-P50 | Compatible with frequency range option: N9030A-550 |

### Step 3. Choose an attenuator

| Description | Option number | Additional information |
|---|---|---|
| Mechanical attenuator | Standard | 2 dB steps, 0 to 70 dB; installed as N9030A-FSA |
| Electronic attenuator up to 3.6 GHz | N9030A-EA3 | Add in addition to the mechanical attenuator; 1 dB steps, 0 to 24 dB |

### Step 4. Choose analysis bandwidth

| Description | Option number | Additional information |
|---|---|---|
| 10 MHz analysis bandwidth | Standard | Useful for most 2G and 3G measurement applications |
| 25 MHz analysis bandwidth | N9030A-B25 | Extends the analysis bandwidth from 10 to 25 MHz |
| 40 MHz analysis bandwidth | N9030A-B40 | Extends the analysis bandwidth from 10 to 40 MHz (Option MPB required for measurements > 3.6 GHz) |
| 85 MHz analysis bandwidth | N9030A-B85 | Extends the analysis bandwidth from 10 to 85 MHz (Option MPB required for measurements > 3.6 GHz) |
| 160 MHz analysis bandwidth | N9030A-B1X | Extends analysis bandwidth from 10 to 160 MHz (Option MPB required for measurements > 3.6 GHz) |
| Microwave preselector bypass | N9030A-MPB | Bypass the microwave preselector for wider bandwidth IF |

## Step 5.  Choose performance options

| Description | Option number | Additional information |
| --- | --- | --- |
| Digital processor with 2 GB capture memory | Standard | Installed as N9030A-DP2 |
| Enhanced phase noise | Standard | Installed as N9030A-EP1 |
| Fast sweep capability | Standard | Improves sweep speed at swept-tune mode; installed as N9030A-FS1 |
| LO/IM nulling | Standard | Minimizes the LO feed-thru and intermodulation distortion; installed as N9030A-NUL |
| Noise floor extension | Standard | Improves displayed average noise level (DANL), second-generation algorithm (instrument alignment process); installed as N9030A-NF2 |
| Precision frequency reference | Standard | Aging rate: ± 1 x 10-7/year; installed as N9030A-PFR |
| Atomic frequency reference | J7203A | Aging rate: ± 1 x 10-9/year; ordered as an accesory |
| Low noise path | N9030A-LNP | Improves sensitivity (DANL) in frequency bands above 3.6 GHz |
| External mixing | N9030A-EXM | Provides external mixing with Keysight and third party mixers; single port[1] for LO out and IF in (SMA female) |
| Fast power | N9030A-FP2 | Accelerates the power measurements such as ACPR; requires Option B40 (or B85, B1X) |
| APC 3.5 mm connector | N9030A-C35 | 3.5 mm connector on 26.5 GHz PXA (Compatible with Option 526 only) |
| I/Q baseband inputs, analog | N9030A-BBA | Single-ended/differential, 50 Ω/1 MΩ impedance (Compatible with Options 503, 508, 513, and 526) |

## Step 6.  Add real-time spectrum analysis

| Description | Option number | Additional information |
| --- | --- | --- |
| Real-time analysis up to 160 MHz BW, basic detection | N9030A-RT1 | Includes Frequency mask trigger; minimum 17.3 µs signal duration for 100% probability of intercept (POI); requires N9030A-B85 or N9030A-B1X which determines the maximum real-time BW |
| Real-time analysis up to 160 MHz BW, optimum detection | N9030A-RT2 | Includes Frequency mask trigger; minimum 3.57 µs signal duration for 100% probability of intercept (POI); requires N9030A-B1X or N9030A-B85 which determines the maximum real-time BW |
| Real-time spectrum recorder and analyzer application | N9030A-RTR | Enables recording, analyzing and playback of spectrum density data over time for detecting and analyzing signal anomalies; requires Option RT1 or RT2 |

## Step 7.  Add optional features

| Description | Option number | Additional information |
| --- | --- | --- |
| Basic EMI precompliance | N9030A-EMC | Perform EMI precompliance measurements with CISPR 16-1-1 detectors and bandwidths: tune and listen, and measure at marker are also available |
| Enhanced display package | N9030A-EDP | Includes spectrogram, trace zoom, and zone span |
| External source control | N9030A-ESC | External source control for Keysight EXG, MXG, and PSG signal generators; supports external mixing; includes 3 BNC cables and 1 crossover LAN cable |

## Step 8.  Choose operating system

| Description | Option number | Additional information |
| --- | --- | --- |
| Windows Embedded Standard 7 | Standard | Installed as N9030A-W7X |

## Step 9.  Add security features

| Description | Option number | Additional information |
| --- | --- | --- |
| Additional removable solid-state drive (SSD) | N9030A-SSD | Provides a fully-imaged, removable SSD in addition to the one installed in instruments |
| Exclude launch program | N9020A-SF1 | Prevents the launching of Windows programs from the instrument application |
| Prohibit saving results | N9020A-SF2 | Prevents the saving/recall of measurement results or user configurations to/from instrument's data storage |

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 DPL313B.

**Step 10.  Add rear panel output utilities**

| Description | Option number | Additional information |
|---|---|---|
| Second IF output | N9030A-CR3 | Wideband IF out; center frequency depends on IF path; output on Aux IF connector at rear panel |
| Arbitrary IF out | N9030A-CRP | IF out 10 to 75 MHz (in 500 kHz steps); output on Aux IF connector at rear panel |
| Y-axis video out | N9030A-YAV | Screen video (0-1 volt open circuit); log video and linear video |
| Aux log video out | N9030A-ALV | Fast rise time video out; output on Aux IF connector |
| 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; installed as N9030A-RTL |

**Step 11.  Choose measurement application or software and license type**

Note: 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 - Windows 7 OS. N9080A-1FP/1TP available for Windows XP |
| | N9080B-2FP | N9080B-2TP | Standard-based, one-button LTE-Advanced FDD measurements; requires W7X, and N9080A or N9080B-1FP/1TP |
| LTE/LTE-Advanced TDD | N9082B-1FP | N9082B-1TP | Standard-based, one-button LTE-TDD measurements; requires W7X - Windows 7 OS. N9082A-1FP/1TP available for Windows XP |
| | N9082B-2FP | N9082B-2TP | Standard-based, one-button LTE-Advanced TDD measurements; requires W7X, and N9082A or 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; supports analog baseband analysis with Option BBA (BBIQ inputs) |
| | N9073A-2FP | N9073A-2TP | Adds HSPA measurements; requires 1FP/1TP |
| | N9073A-3FP | N9073A-3TP | Adds HSPA+ measurements; requires 1FP/1TP, 2FP/2TP |
| GSM/EDGE/EVO | N9071A-2FP | N9071A-2TP | Standard-based, one-button GSM/EDGE measurements; supports analog baseband analysis with Option BBA (BBIQ inputs) |
| | N9071A-3FP | N9071A-3TP | Adds EDGE Evolution and VAMOS measurements; requires 2FP/2TP |
| TD-SCDMA/HSPA | N9079A-1FP | N9079A-1TP | Standard-based, one-button TD-SCDMA measurements; supports analog baseband analysis with Option BBA (BBIQ inputs) |
| | N9079A-2FP | N9079A-2TP | Adds HSPA/8PSK measurements, requires 1FP/1TP |
| 1xEV-DO | N9076A-1FP | N9076A-1TP | Standard-base, one-button 1xEV-DO measurements; supports analog baseband analysis with Option BBA (BBIQ inputs) |
| cdma2000®/cdmaOne | N9072A-2FP | N9072A-2TP | Standard-based, one-button cdma2000 and cdmaOne; supports analog baseband analysis with Option BBA (BBIQ inputs) |
| iDEN/WiDEN/MotoTalk | N6149A-2FP | N6149A-2TP | Standard-based, one-button iDEN measurements |
| Wireless connectivity | | | |
| Mobile WiMAX™ | N9075A-2FP | N9075A-2TP | Standard-based, one-button Mobile WiMAX measurements; supports analog baseband analysis with Option BBA (BBIQ inputs) |
| WLAN 802.11a/b/g/n/ac | N9077A-2FP | N9077A-2TP | Standard-based, one-button 802.11a/b/g measurement |
| | N9077A-3FP | N9077A-3TP | Adds 802.11n; requires 2FP/2TP |
| | N9077A-4FP | N9077A-4TP | Adds 802.11ac; requires 2FP/2TP, 3FP/3TP |
| *Bluetooth*® | N9081A-2FP | N9081A-2TP | Standard-based, one-button *Bluetooth* version 2.1+ EDR and Low Energy (LE) measurements |

| Step 11. Choose measurement application or software and license type, continued | | | |
|---|---|---|---|
| Description | Fixed license | Transportable license | Additional information |
| Digital video | | | |
| CMMB | N6158A-2FP | N6158A-2TP | Standard-based, one-button CMMB measurement; supports analog baseband analysis with Option BBA (BBIQ inputs) |
| Digital cable TV | N6152A-2FP | N6152A-2TP | Standard-based, one-button DVB-C (J.83 Annex A/C) measurements; supports analog baseband analysis with Option BBA (BBIQ inputs) |
|  | N6152A-3FP | N6152A-3TP | Standard-based, one-button J.83 Annex B measurements; supports analog baseband analysis with Option BBA (BBIQ inputs) |
| DTMB (CTTB) | N6156A-2FP | N6156A-2TP | Standard-based, one-button DTMB (CTTB) measurements; supports analog baseband analysis with Option BBA (BBIQ inputs) |
| DVB-T/H/T2 | N6153A-2FP | N6153A-2TP | Standard-based, one-button DVB-T/H measurements; supports analog baseband analysis with Option BBA (BBIQ inputs) |
|  | N6153A-3FP | N6153A-3TP | Adds DVB-T2 measurements; requires 2FP/2TP |
| ISDB-T/Tmm | N6155A-2FP | N6155A-2TP | Standard-based, one-button ISDB-T, ISDB-TB, and ISDB-TSB; supports analog baseband analysis with Option BBA (BBIQ inputs) |
|  | N6155A-3FP | N6155A-3TP | Adds ISDB-Tmm measurements; requires 2FP/2TP |
| General purpose | | | |
| Spectrum analyzer | Standard | Not available | Traditional spectrum analysis plus many new and enhanced functions; power measurements based on industry specifications; installed as N9060B |
| Analog demodulation | N9063A-2FP | N9063A-2TP | 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) |
|  | 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), supports external mixing |
| Noise figure | N9069A-1FP (requires preamplifier) | N9069A-1TP (requires preamplifier) | 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 USB external preamplifiers |
|  | N9069A-2FP | N9069A-2TP | 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; 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 |
|  | 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 | Basic signal analysis package; adds MATLAB software environment and the Instrument Control Toolbox (not upgradeable) |
|  | N6171A-M02 | Not available | Standard signal analysis package; includes basic package and adds Communications Toolbox and Signal Processing Toolbox (not upgradeable) |
|  | N6171A-M03 | Not available | Advanced signal analysis package; includes standard package and adds Filter Design Toolbox, RF Toolbox, and System Test (not upgradeable) |

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

| Description | Fixed license | Transportable license | Additional information |
|---|---|---|---|
| General purpose, continued | | | |
| Pulse | N9051A-2FP | Not available | Automates pulse measurements; combines signal analysis and amplitude vs. time measurements |
| | N9051A-3FP | Not available | Adds phase and frequency measurement; requires 2FP |
| | N9051A-4FP | Not available | Adds extended analysis and statistics; requires 2FP |
| 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 HP/Agilent 8566/68 spectrum analyzers |
| | N9061A-2FP | Not available | Adds capability to emulate the HP/Agilent 856xE/EC spectrum analyzers |
| 89600 vector signal analysis (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 30 measurement platforms, plus more than 75 signal standards and modulation types including MIMO analysis; www.keysight.com/find/89600_VSA |

**Step 12. Choose accessories**

| Description | Option number | Additional information |
|---|---|---|
| Mouse, USB interface | Standard | Enhances usability of the Windows operating system |
| Keyboard, USB interface | Standard | Enhances the usability of the Windows operating system |
| User guides | Standard | US – English localization<br>All user documentation is included in the embedded context-sensitive help system inside the PXA and on a DVD that is shipped with the instrument<br>User documentation can be downloaded from:<br>www.keysight.com/find/pxa_manuals |
| Front-panel protective cover | Standard | |
| Power cord | Standard | Depends on the region of use |
| Adapter, 2.4 mm (f) to 2.4 mm (f) | Standard | Only for PXA with Option 543, 544, or 550 |
| Adapter, 2.4 mm (f) to 2.92 mm (f) | Standard | Only for PXA with Option 543, 544, or 550 |
| Rack mount | N9030A-1CM | Adds rack mount flanges to the PXA |
| Front handles | N9030A-1CN | Adds front handles to the PXA |
| Rack mount with handles | N9030A-1CP | Adds rack mount flanges and handles to the PXA |
| Rack slide | N9030A-1CR | Adds a non-tilting rack slide to the PXA |
| USB DVD-ROM/CD-R/RW drive | N9030A-DVR | Enhances the usability of the Windows operating system |
| US 65-key USB keyboard | N9030A-KB2 | Smaller keyboard |
| Minimum loss pad, 50 to 75 Ω (type-N to BNC) | N9030A-MLP | 50 Ω type-N male to 75 Ω BNC female adapter<br>Frequency range: 9 MHz to 2 GHz<br>Input/output return loss: 20 and 11 dB<br>Insertion loss: 5.7 dB |
| 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 |
| 26 to 40 GHz waveguide harmonic mixer | 11970A | Requires Option EXM and N9029AE13 diplexer |
| 33 to 50 GHz waveguide harmonic mixer | 11970Q | Requires Option EXM and N9029AE13 diplexer |
| 40 to 60 GHz waveguide harmonic mixer | 11970U | Requires Option EXM and N9029AE13 diplexer |
| 50 to 75 GHz waveguide harmonic mixer | 11970V | Requires Option EXM and N9029AE13 diplexer |
| 75 to 110 GHz waveguide harmonic mixer | 11970W | Requires Option EXM and N9029AE13 diplexer |
| LO/IF diplexer | N9029AE13 | Ordering convenience; required for 11970 Series external mixers |
| 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 |

**Step 12.  Choose accessories**

| Description | Option number | Additional information |
| --- | --- | --- |
| 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 |
| 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 |
| Atomic frequency reference | J7203A | Improves long-term frequency stability; requires firmware A.14.00 or higher |
| 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 |

**Step 13.  Choose localized Getting Started guides**

| Description | Option number |
| --- | --- |
| Getting started guide PXA Korean localization | N9030A-AB1 |
| Getting started guide PXA Chinese localization | N9030A-AB2 |
| Getting started guide PXA German localization | N9030A-ABD |
| Getting started guide PXA French localization | N9030A-ABF |
| Getting started guide PXA Japanese localization | N9030A-ABJ |
| Getting started guide PXA Russian localization | N9030A-AKT |

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

**Step 14.  Choose warranty length**

| Description | Option number | Additional information |
| --- | --- | --- |
| Return-to-Keysight warranty, 3 years | Standard | 3-year warranty is included at no additional charge |
| Warranty Assurance Plan, Return-to-Keysight, 5 years | R-51B-001-5C | |

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

| Description | Option number | Additional information |
| --- | --- | --- |
| Commercial calibration certificate with test data | N9030A-UK6 | Calibration certificate only available at time of instrument purchase; only provides measurement results |
| Keysight Calibration + Uncertainties + Guardbanding (accredited cal) | N9030A-AMG | Provides ISO 17025A accredited calibration from factory |
| ANSI Z540-1-1994 Calibration | N9030A-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 |

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

# 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 PXA
4. Begin using the new capability 1, 2 Installation and testing information is available at: www.keysight.com/find/pxa_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.

**UP GRADE**

Most X-Series options are license-key upgradeable.

| Description | Upgrade number | Requirements (PXA must already include the following) | Additional information |
|---|---|---|---|
| Increase frequency from 3.6 to 8.4 GHz | N9030AK-F01 | 503 | |
| Increase frequency from 3.6 to 13.6 GHz | N9030AK-F02 | 503 | |
| Increase frequency from 3.6 to 26.5 GHz | N9030AK-F03 | 503 | |
| Increase frequency from 3.6 to 44 GHz | N9030AK-F04 | 503 | Not compatible with Option BBA |
| Increase frequency from 3.6 to 50 GHz | N9030AK-F05 | 503 | Not compatible with Option BBA |
| Increase frequency from 8.4 to 13.6 GHz | N9030AK-F06 | 508 | |
| Increase frequency from 8.4 to 26.5 GHz | N9030AK-F07 | 508 | |
| Increase frequency from 8.4 to 44 GHz | N9030AK-F08 | 508 | Not compatible with Option BBA |
| Increase frequency from 8.4 to 50 GHz | N9030AK-F09 | 508 | Not compatible with Option BBA |
| Increase frequency from 13.6 to 26.5 GHz | N9030AK-F10 | 513 | |
| Increase frequency from 13.6 to 44 GHz | N9030AK-F11 | 513 | Not compatible with Option BBA |
| Increase frequency from 13.6 to 50 GHz | N9030AK-F12 | 513 | Not compatible with Option BBA |
| Increase frequency from 26.5 to 44 GHz | N9030AK-F13 | 526 | Not compatible with Option BBA |
| Increase frequency from 26.5 to 50 GHz | N9030AK-F14 | 526 | Not compatible with Option BBA |
| Increase frequency from 43/44 to 50 GHz | N9030AK-F15 | 543/544 | Includes 50 GHz preamp |

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 the following) | Additional information |
|---|---|---|---|
| Increase analysis bandwidth from 10 to 25 MHz | N9030AK-B25 | None | Also enables 25 MHz per channel baseband bandwidth if Option BBA is installed |
| Increase analysis bandwidth from 10 to 40 MHz | N9030AK-B40 | MPB (for measurements > 3.6 GHz) | Also enables 40 MHz per channel baseband bandwidth if Option BBA is installed |
| Increase analysis bandwidth from 25 to 40 MHz | N9030AK-BU1 | MPB (for measurements > 3.6 GHz) | Also enables 40 MHz per channel baseband bandwidth if Option BBA is installed |
| Increase analysis bandwidth from 40 to 85 MHz | N9030AK-HLB | MPB (for measurements > 3.6 GHz) | Includes additional hardware |
| Increase analysis bandwidth from 40 to 160 MHz | N9030AK-BU2 | MPB (for measurements > 3.6 GHz) | Includes additional hardware |
| Increase analysis bandwidth from 10/25 to 85 MHz | N9030AK-B85 | MPB (for measurements > 3.6 GHz) | Includes additional hardware |
| Increase analysis bandwidth from 10/25 to 160 MHz | N9030AK-B1X | MPB (for measurements > 3.6 GHz) | Includes additional hardware |
| Increase analysis bandwidth from 85 to 160 MHz | N9030AK-BU5 | MPB (for measurements > 3.6 GHz) | |
| Increase analysis bandwidth from 140 to 160 MHz | N9030AK-BU3 | MPB (for measurements > 3.6 GHz) | |
| Real-time analysis up to 160 MHz BW, basic detection | N9030AK-RT1 | B85 or B1X (Analysis BW option determines maximum real-time BW) | Includes frequency mask trigger; minimum 17.3 µs signal duration for 100% POI. Combination of Win7/PC4 or WinXP/PC2 required for optimal display performance. |
| Real-time analysis up to 160 MHz BW, optimum detection | N9030AK-RT2 | B1X or B85 (Analysis BW option determines maximum real-time BW) | Includes frequency mask trigger; minimum 3.57 µs signal duration for 100% POI. Combination of Win7/PC4 or WinXP/PC2 required for optimal display performance. |
| Real-time spectrum recorder and analyzer application | N9030AK-RTR | RT1 or RT2 | Enables recording, analyzing and playback of spectrum density data for detecting and analyzing signal anomalies over time |
| Add an electronic attenuator, 3.6 GHz | N9030AK-EA3 | None | |
| Add preamplifier, 3.6 GHz | N9030AK-P03 | 550, 544, 543, 526, 513, 508, or 503 | |
| Add preamplifier, 8.4 GHz | N9030AK-P08 | 550, 544, 543, 526, 513, or 508 | |
| Add preamplifier, 13.6 GHz | N9030AK-P13 | 550, 544, 543, 526, or 513 | |
| Add preamplifier, 26.5 GHz | N9030AK-P26 | 550, 544, 543, or 526 | |

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 the following) | Additional information |
|---|---|---|---|
| Add preamplifier, 43 GHz | N9030AK-P43 | 543 | |
| Add preamplifier, 44 GHz | N9030AK-P44 | 544 | |
| Add preamplifier, 50 GHz | N9030AK-P50 | 550 | |
| Add APC 3.5 mm connector | N9030AK-C35 | 526 | Includes additional hardware |
| Add I/Q baseband inputs, analog | N9030AK-BBA | 526, 513, 508, or 503 | Includes additional hardware |
| Upgrade operating system to Windows Embedded Standard 7 | | | |
|    From 32-bit processor | N9094AK-W7X N9094AK-PC4 (Under the N9030AK) | PC2 | Upgrade the existing 32-bit processor with Windows XP to a 64-bit performance processor, 8 GB RAM, with removable solid-state drive and Windows 7. |
|    From 64-bit processor | N9094AK-W7X N9094AK-SSD (Under the N9030AK) | PC4 | For existing 64-bit processors provides operating system and removable solid-state drive |
| Upgrade to dual core 64-bit performance processor, 8 GB RAM, removable solid-state drive | | | |
|    With Windows 7 operating system | N9094AK-W7X N9094AK-PC4 (Under the N9030AK) | PC2 | |
| Add removable solid-state drive | | | |
|    With Windows 7 operating system | N9094AK-W7X N9094AK-SSD (Under the N9030AK) | PC4 | For Windows 7 operating system provides additional removable solid-state drive |
|    With Windows XP operating system | N9094AK-WXP N9094AK-SSD (Under the N9030AK) | None | For Windows XP operating system provides additional removable solid-state drive; last order date is March 1, 2015 |
| Add external mixing | N9030AK-EXM | 550, 544, or 543; 526, 513, 508, or 503 with serial prefix ≥ MY/SG/US5138 | Includes additional hardware |
| Add external mixing | N9030AK-HL6 | 526, 513, 508, or 503 with serial prefix < MY/SG/US5138 | Includes additional hardware |
| Add second IF output | N9030AK-CR3 | None | Provides wideband IF out, output center frequency depends on IF path |
| Add microwave preselector bypass | N9030AK-MPB | LNP or B1X | |
| Add low noise path | N9030AK-LNP | MPB or B1X | |
| Hardware and license preselector bypass and low noise path | N9030AK-HL1 N9030AK-HL2 | 526, 513, 508 550, 544, 543 | Includes additional hardware; installs both Options MPB and LNP when neither are previously installed |
| Add Y-axis video output | N9030AK-YAV | None | |
| Arbitrary IF output | N9030AK-CRP | None | Provides user-programmable IF out (10 to 75 MHz, at 500 kHz step) |
| Add auxiliary log video out | N9030AK-ALV | None | |
| Add fast power | N9030AK-FP2 | B40, B85, or B1X | Accelerates power measurements such as ACPR |

| Description | Upgrade number | Requirements (PXA must already include the following) | Additional information |
|---|---|---|---|
| Add precompliance EMI features | N9030AK-EMC | None | Compliant with CISPR 16-1-1 2007 detectors and BWs |
| Add enhanced display package | N9030AK-EDP | None | |
| Add external source control | N9030AK-ESC | None | Adds feature to control the Keysight EXG, MXG, and PSG signal generators for scalar stimulus/response measurements. Ships with 3 BNC cables and 1 cross-over LAN cable. |
| Add security features, exclude launch program | N9030AK-SF1 | None | Prevents the launching of Windows programs from the instrument application |
| Add security features, prohibit saving results | N9030AK-SF2 | None | Prevents the saving /recall of measurement results or user configurations to/from instrument's data storage |
| USB DVD-ROM/CD-R/RW drive | N9030AK-DVR | None | Includes additional hardware |
| Keyboard, USB interface | N9030AK-KYB | None | Full-sized USB keyboard; includes additional hardware |
| 65-key USB keyboard | N9030AK-KB2 | None | Smaller keyboard than Option KYB; includes additional hardware |
| Rack mount and handle kit | N9030AK-1CP | None | Includes additional hardware |
| Rack slide kit | N9030AK-1CR | None | Includes additional hardware |
| Front handle kit | N9030AK-1CN | None | Includes additional hardware |
| Rack mount kit | N9030AK-1CM | None | Rack mount flanges; not compatible with Options 1CP, 1CN; includes additional hardware |
| Minimum loss pad, 50 to 75 Ω (type-N to BNC) | N9030AK-MLP | 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; includes additional hardware |
| Front panel protective cover, additional | N9030AK-CVR | None | Includes additional hardware |
| Getting started guide PXA Korean localization | N9030AK-AB1 | None | |
| Getting started guide PXA Chinese localization | N9030AK-AB2 | None | |
| Getting started guide PXA German localization | N9030AK-ABD | None | |
| Getting started guide PXA French localization | N9030AK-ABF | None | |
| Getting started guide PXA Japanese localization | N9030AK-ABJ | None | |
| Getting started guide PXA Russian localization | N9030AK-AKT | None | |

# Related Literature

## Keysight PXA signal analyzers

| Publication title | Publication number |
|---|---|
| Brochure | 5990-3951EN |
| Data Sheet | 5990-3952EN |
| X-Series Measurement Applications Brochure | 5990-8019EN |

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