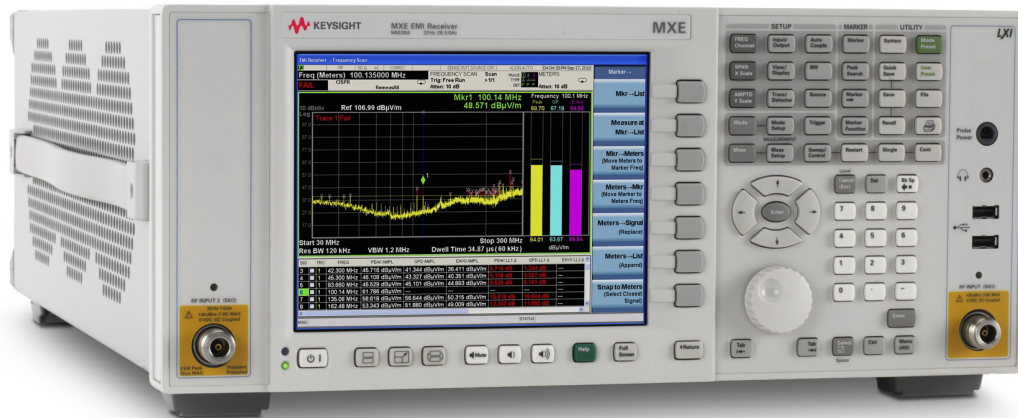# Keysight N9038A
# MXE EMI Receiver

## Configuration Guide

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



**KEYSIGHT**
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# Configure Your Keysight MXE EMI Receiver

This step-by-step process will help you configure your new MXE EMI receiver. Tailor the performance to meet your requirements. For detailed specifications, refer to the MXE specification guide (N9038-90010). For a summary of specifications, refer to the MXE EMI receiver data sheet (5990-7421EN).

## Included in base product

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

– Full-band, built-in preamplifier for frequency range selected
– High-performance digital signal processing with 2 GB capture memory
– Precision frequency reference (aging rate ± x $10^{-7}$/year)
– Mechanical attenuator (2 dB steps, 0 to 70 dB)
– Full spectrum analysis capability
– 10 MHz analysis bandwidth
– Front panel control for two automatic external line impedance stabilization networks (LISN)
– Enhanced display package with spectrogram, trace zoom, and zone span
– Second IF output on rear-panel Aux IF connector for wideband
– SCPI language compatibility to emulate R&S ESU, ESR, and ESL receivers
– USB mouse and keyboard
– User and Getting Started Guides (U.S. English) embedded and on CD

### Step 1. Select maximum frequency range (required option)

| Description | Option number | Additional information |
| --- | --- | --- |
| Frequency range, 3 Hz to 3.6 GHz | N9038A-503 | Includes preamplifier ,100 kHz to 3.6 GHz (N9038A-P03) |
| Frequency range, 3 Hz to 8.4 GHz | N9038A-508 | Includes preamplifier ,100 kHz to 8.4 GHz (N9038A-P08) |
| Frequency range, 3 Hz to 26.5 GHZ | N9038A-526 | Includes preamplifier ,100 kHz to 26.5 GHz (N9038A-P26) |
| Frequency range, 3 Hz to 44 GHZ | N9038A-544 | Includes preamplifier ,100 kHz to 44 GHz (N9038A-P44) |

### Step 2. Choose analysis bandwidth

| Description | Option number | Additional information |
| --- | --- | --- |
| 10 MHz analysis bandwidth | Standard | |
| 25 MHz analysis bandwidth | N9038A-B25 | Optional |

### Step 3. Choose optional features

| Description | Option number | Additional information |
| --- | --- | --- |
| Type-N RF connector, female | N9038A-CNF | Type-N RF connector, female |
| 3.5 mm connector, male | N9038A-C35 | Choose 3.5 mm connector for input 1 on Option 526 only (input 2 remains type-N) |
| External source control | N9038A-ESC | Control MXG sources from the front panel of the MXE |
| Time domain scan | N9038A-TDS | Provides high-overlap FFT scanning for fast signal capture |

### Step 4. Add data storage

| Description | Option number | Additional information |
| --- | --- | --- |
| Additional removable solid-state drive | N9038A-SSD | Provides a fully-imaged removable solid-state drive in addition to the one installed in the instrument |

### Step 5. Add rear panel output utility

| Description | Option number | Additional information |
| --- | --- | --- |
| Y-axis screen video output | N9038A-YAS | Screen video (0-1 volt open circuit) on rear panel analog out |

### Step 6. Add real-time spectrum analysis

| Description | Option number | Additional information |
| --- | --- | --- |
| Real-time analysis up to 85 MHz BW, basic detection | N9038A-RT1 | Includes frequency mask trigger (FMT) and time qualified trigger (TQT); minimum 3.7 µs signal duration for 100% probability of intercept (POI); requires Option B85. |
| Analysis bandwidth, up to 85 MHz | N9038A-B85 | Provides real-time analysis bandwidth of up to 85 MHz below 3.6GHz and 40MHz above 3.6 GHz. |

**Step 7. Choose measurement application 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; for more information about transportable licenses visit www.keysight.com/find/X-Series_transportable

| Description | Fixed license | Transportable license | Additional information |
|---|---|---|---|
| General purpose | | | |
| Analog demodulation | N9063A-2FP | N9063A-2TP | Adds one-button measurement for AM/FM/PM demodulation with metrics, tune and listen, and AF spectrum |
| | N9063A-3FP | N9063A-3TP | Adds FM Stereo and RDS; requires 2FP/2TP |
| 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 Technologies, Inc. N400xA Series smart noise sources and 346 Series noise sources |
| Phase noise | N9068A-2FP | N9068A-2TP | Adds one-button measurements for analyzing phase noise in frequency domain (log plot) and time domain (spot frequency) |
| 89600 VSA software | 89601B | Not available | 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 8. Choose accessories and documentation**

| Description | Option number | Additional information |
|---|---|---|
| Rack mount | N9038A-1CM | Adds rack mount flanges to the MXE |
| Front handles | N9038A-1CN | Adds front handles to the MXE |
| Rack mount with handles | N9038A-1CP | Adds rack mount and handles to MXE |
| USB DVD-ROM/CD-R/RW | N9038A-DVR | Enhances the usability of the Windows 7 professional operating system |
| US 65-key USB keyboard | N9038A-KB2 | Compact design for easy storage |

| Step 10. Add calibration, technical training, support, and upgrade services | | |
|---|---|---|
| **Description** | **Option number** | **Additional information** |
| ANSI Z540-1-1994 calibration | N9038A-A6J | |
| Commercial calibration certificate with test data | N9038A-UK6 | Calibration certificate only available at time of purchase; only provides measurement results |
| Accredited calibration plus uncertainties plus guardbanding, at time of purchase | N9038A-AMG | ISO 17025 accredited calibration at time of purchase |
| Service: 1-day start-up assistance | PS-S20-01 | Training on how to operate your instrument effectively (recommended) |
| Keysight calibration, 3 years | R-50C-011-3 | |
| Keysight calibration, 5 years | R-50C-011-5 | |
| Keysight calibration + uncertainties + guardbanding, 3 years | R-50C-016-3 | ISO 17025 accredited calibration |
| Keysight calibration + uncertainties + guardbanding, 5 years | R-50C-016-5 | ISO 17025 accredited calibration |
| ANSI Z540-1-1994 calibration - 3 years | R-50C-021-3 | |
| ANSI Z540-1-1994 calibration - 5 years | R-50C-021-5 | |

# Instrument Upgrades

## Upgrade your existing MXE

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 software entitlement certificate 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 MXE
4. Begin using the new capability [1, 2]

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

You Can Upgrade!

Options can be added after your initial purchase.

UP GRADE

Most X-Series options are license-key upgradeable.

| Description | Upgrade number | Additional information |
|---|---|---|
| Windows Embedded Standard 7 | N9094AK-W7X<br>N9094AK-PC4 | Upgrade existing 32-bit processor with Windows XP to a 64-bit performance processor with Windows 7, 8 GB RAM and removable solid-state drive; must be ordered under N9038AK; requires PC2 |
| Increase frequency from 3.6 to 8.4 GHz | N9038AK-F01 | Requires Option 503 |
| Increase frequency from 3.6 to 26.5 GHz | N9038AK-F03 | Requires Option 503 |
| Increase frequency from 3.6 to 44 GHz | N9038AK-F04 | Requires Option 503 |
| Increase frequency from 8.4 to 26.5 GHz | N9038AK-F07 | Requires Option 508 |
| Increase frequency from 8.4 to 44 GHz | N9038AK-F08 | Requires Option 508; for Serial prefix less than MY/SG5322, upgrade kits include N9038AK-HL4 |
| Increase frequency from 26.5 to 44 GHz | N9038AK-F13 | Requires Option 526; for Serial prefix less than MY/SG5322, upgrade kits include N9038AK-HL4 |
| Increase analysis bandwidth from 10 MHz to 25 MHz[1] | N9038AK-B25 | |
| Additional removable solid-state drive | N9094AK-WX7<br>N9094AK-SSD | For Windows 7 operating systems only, provides additional removable solid-state drive; not compatible with Win XP systems; requires PC4 or greater; additional Windows XP drive last order date was March 1, 2015; must be ordered under N9038AK |
| Add Y-axis screen video output | N9038AK-YAS | |
| USB DVD-ROM/CD-R/RW drive | N9038AK-DVR | |
| Keyboard, USB interface | N9038AK-KYB | |
| US 65 key USB keyboard | N9038AK-KB2 | |
| Rack mount and handle kit | N9038AK-1CP | Not compatible with Options 1CM and 1CN |
| Front handle kit | N9038AK-1CN | Not compatible with Options 1CM and 1CP |
| Rack mount kit | N9038AK-1CM | Not compatible with Options 1CP and 1CN |
| External source control kit | N9038AK-ESC | |
| Type "N" connector for input | N9038AK-CNF | Makes both inputs 1 and 2 type-N connectors |
| 3.5 mm connector for input | N9038AK-C35 | Input 2 remains type-N |
| Hardware to enable monitor spectrum, APD, and time domain scan | N9038AK-HL4 | Includes high-performance digital signal processor (Option DP2) and wideband second IF rear panel output (Option CR3) |

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 | Additional information |
|---|---|---|
| Time domain scan | N9038AK-TDS | |
| LISN control hardware | N9038AK-LSN | |
| Real-time analysis up to 85 MHz BW, basic detection | N9038AK-RT1 | Includes frequency mask trigger (FMT) and time qualified trigger (TQT); minimum 3.7 µs signal duration for 100% probability of intercept (POI); requires Option B85. |
| Analysis bandwidth, up to 85 MHz | N9038AK-B85 | Provides real-time analysis bandwidth of up to 85 MHz below 3.6GHz and 40MHz above 3.6 GHz. |

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