![Keysight Technologies logo] **KEYSIGHT**
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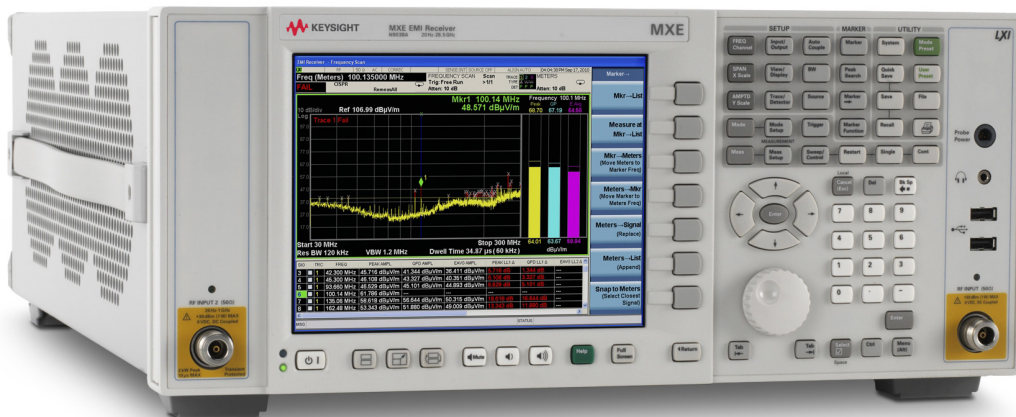Unlocking Measurement Insights

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.

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
– Receiver identification response settings to respond as R&S ESU, ESR, and ESL receivers in MXE receiver mode
– USB mouse and keyboard
– User and Getting Started Guides (U.S. English) embedded and on CD
– 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	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 Keysight sources from the front panel of the MXE
Time domain scan	N9038A-TDS	Provides high-overlap FFT scanning for fast signal capture
External mixing	N9038A-EXM	Connects with Keysight and third party mixers to extend frequency coverage to 1.1 THz; single port [1] for LO out and IF in (SMA female)

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 3.6 GHz and 40 MHz above 3.6 GHz.

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 as DPL313B.

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, audio analysis and AF spectrum. Supports analog output.
	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 9. Choose warranty length

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

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]

You can upgrade!

Options can be added after your initial purchase.

UP GRADE

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

Description	Upgrade number	Additional information
Windows Embedded Standard 7	N9094AK-W7X N9094AK-PC6	Upgrade existing 32-bit processor with Windows XP to a 64-bit performance processor with Windows 7, 16 GB RAM and removable solid-state drive; must be ordered under N9038AK
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 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	For Serial Prefix less than MY5322 or SG5322, option TDS also requires option N9038AK-HL4.
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 3.6 GHz and 40 MHz above 3.6 GHz.
External mixing	N9038AK-EXM	Provides external mixing capability for all option 544 instruments and all option 503, 508 and 526 instruments with serial prefix >= MY/SG 5526. Includes hardware and license key.
External mixing	N9038AK-HL6	Provides external mixing capability for all option serial prefix < MY/SG 5526 503, 508 and 526 instruments with a serial prefix < MY/SG 5526. Includes hardware and license key.

Related Literature

Keysight MXE EMI receiver

Publication title	Publication number
MXE EMI Receiver, Data Sheet	5990-7421EN
MXE EMI Receiver, Brochure	5990-7422EN