

# Keysight Technologies

## EXG X-Series Signal Generators

### N5171B Analog & N5172B Vector

## Configuration Guide



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

## Configure Your EXG X-Series Signal Generator

This step-by-step process will help you configure your EXG signal generator and choose options to meet your requirements. For detailed specifications, refer to the EXG signal generator data sheet (5991-0039EN).

### N5171B EXG X-Series RF Analog Signal Generator

#### Configure your new EXG analog signal generator

##### Step 1. Select maximum frequency range (required option; frequency range not upgradeable)

Description	Option number	Additional information
Frequency range from 9 kHz to 1 GHz	N5171B-501	Not compatible with 503, 506
Frequency range from 9 kHz to 3 GHz	N5171B-503	Not compatible with 501, 506
Frequency range from 9 kHz to 6 GHz	N5171B-506	Not compatible with 501, 503

##### Step 2. Choose connector configuration

Description	Option number	Additional information
Move all connectors to rear panel	N5171B-1EM	Not upgradeable

##### Step 3. Choose performance enhancement options

Description	Option number	Additional information
AM, FM, phase modulation	N5171B-UNT	
Narrow pulse modulation	N5171B-UNW	
Avionics	N5171B-302	
Multifunction generator	N5171B-303	
Pulse train generator	N5171B-320	Requires UNW
Instrument security and removable memory card	N5171B-006	
Fast switching	N5171B-UNZ	
High output power	N5171B-1EA	
Flexible reference input (1-50 MHz)	N5171B-1ER	
Expanded license key upgradability	N5171B-099	Option 099 is recommended for anyone considering future upgrades. Option 099 simplifies the upgrade process by enabling upgrades via a license key for Options 1EA and UNZ. Without Option 099, upgrades for these options require purchase and installation of hardware in a field retrofit kit. For more information, visit <a href="http://www.keysight.com/find/exg_upgrades">www.keysight.com/find/exg_upgrades</a> .

##### Step 4. Choose accessory and documentation options

Description	Option number
Rack slide kit	1CR012A
Front handle kit	1CN006A
Rack mount flange kit	1CM010A
Rack mount flange kit with front handles	1CP004A
Hard transit case	N5171B-AXT
CD-ROM containing English documentation set	N5171B-CD1
Service documentation, assembly and component	N5171B-0BW

**Step 5. Choose warranty and calibration options**

Description	Option number	
Return to Keysight Warranty, 3 years	Standard	
Warranty Assurance Plan, Return to Keysight, 5 years	R-51B-001-5Z	
Warranty Assurance Plan, Return to Keysight, 7 years	R-51B-001-7Z	
Warranty Assurance Plan, Return to Keysight, 10 years	R-51B-001-10Z	
Calibration Assurance Plan, Return to Keysight, 5 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	
Keysight Calibration + Uncertainties, 5 years	R-50C-011-MU-5	
Keysight Calibration + Uncertainties + Guardbanding (accredited cal)	N5171B-AMG	Only available at time of new instrument purchase
Keysight Calibration + Uncertainties + Guardbanding, 5 years	R-50C-016-5	
ANSI Z540-1-1994 calibration	N5171B-A6J	Only available at time of new instrument purchase
ANSI Z540-1-1994 Calibration, 5 years	R-50C-021-5	
Onsite warranty – 1 year	R-51C-001-1CU	
Onsite warranty – 3 year	R-51C-001-3CU	
Commercial calibration certificate with test data	N5171B-UK6	Only available at time of new instrument purchase

**Step 6. Choose startup assistance service options**

Description	Option number	
Remote scheduled assistance 1- 999 hours	PS-S10	
Daily productivity assistance	PS-S20	
Signal generator and source basics; half-day, maximum of eight students on site	PS-T10-ASG	

## Upgrade your existing EXG analog signal generator

Fast license-key upgrades for 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 using Keysight License Manager
4. Begin using the new capability

Installation, calibration, and verification information is available at:  
[www.keysight.com/find/exg\\_upgrades](http://www.keysight.com/find/exg_upgrades)

### 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	Additional information
Instrument security and removable memory card	N5171BU-006	None	Hardware and license key upgrade
Expanded license key upgradability	N5171BU-099	None	Hardware and license key upgrade
High output power	N5171BU-1EA	099	Customer installable – software, license key
Flexible reference input (1-50 MHz)	N5171BU-1ER	None	Customer installable – software, license key
Avionics	N5171BU-302	None	If serial number is less than MY/SG/US 5620xxxx - return to Keysight Service Center required for installation. If serial number is greater than or equal to MY/SG/US 5620xxxx - customer installable - software, license key.
Multifunction generator	N5171BU-303	None	Customer installable – software, license key
Pulse train generator	N5171BU-320	UNW	Customer installable – software, license key
AM, FM, phase modulation	N5171BU-UNT	None	Customer installable – software, license key
Narrow pulse modulation	N5171BU-UNW	None	Customer installable – software, license key
Fast switching	N5171BU-UNZ	099	Customer installable – software, license key

## N5172B EXG X-Series RF Vector Signal Generator

### Configure your new EXG vector signal generator

#### Step 1. Select maximum frequency range (required option; frequency range not upgradeable)

Description	Option number	Additional information
Frequency range from 9 kHz to 3 GHz	N5172B-503	Not compatible with 506
Frequency range from 9 kHz to 6 GHz	N5172B-506	Not compatible with 503

#### Step 2. Choose connector configuration

Description	Option number	Additional information
Move all connectors to rear panel	N5172B-1EM	Not upgradeable

#### Step 3. Choose performance enhancement options

Description	Option number	Additional information
AM, FM, phase modulation	N5172B-UNT	
Enhanced dynamic range	N5172B-UNV	Requires 653
Narrow pulse modulation	N5172B-UNW	
Fast switching	N5172B-UNZ	
Internal bit error rate analyzer	N5172B-UN7	
Avionics	N5172B-302	
Multifunction generator	N5172B-303	
Pulse train generator	N5172B-320	Requires UNW
Instrument security and removable memory card	N5172B-006	
Internal solid-state memory	N5172B-009	
High output power	N5172B-1EA	
Differential I/Q outputs	N5172B-1EL	Requires 653
Flexible reference input (1-50 MHz)	N5172B-1ER	
LO in/out for phase coherency	N5172B-012	
Expanded license key upgradability	N5172B-099	Option 099 is recommended for anyone considering future upgrades. Option 099 simplifies the upgrade process by enabling upgrades via a license key for Options 1EA, UNV, and UNZ. Without Option 099, upgrades for these options require purchase and installation of hardware in a field retrofit kit. For more information, visit <a href="http://www.keysight.com/find/exg_upgrades">www.keysight.com/find/exg_upgrades</a> .

#### Step 4. Choose baseband generator options

Description	Option number	Additional information
ARB baseband generator (60 MHz RF bandwidth, 32 MSa)	N5172B-653	
Upgrade baseband generator from 60 to 120 MHz RF bandwidth	N5172B-655	Requires 653
Upgrade baseband generator memory from 32 to 256 MSa	N5172B-021	Requires 653
Upgrade baseband generator memory from 32 to 512 MSa	N5172B-022	Requires 653
Upgrade baseband generator with real-time capability	N5172B-660	Requires 653
Digital output connectivity with the N5102A	N5172B-003	Requires 653
Digital input connectivity with the N5102A	N5172B-004	Requires 653

**Step 5. Choose Signal Studio and embedded software**

Note: The following software can be added at purchase or as an upgrade. To configure Signal Studio applications, refer to the configuration assistant at: [www.keysight.com/find/signalstudio](http://www.keysight.com/find/signalstudio). For more information on Signal Studio configuration and licenses, go to [www.keysight.com/find/SS\\_licensing](http://www.keysight.com/find/SS_licensing).

Product number	Description	Hardware requirements	Recommended hardware options
<b>Cellular communications</b>			
N7600B	Signal Studio for W-CDMA/HSPA+ (ARB and real-time)	653 660 for real-time	403, 503, 660, UNV
N7601B	Signal Studio for cdma2000®/1xEV-DO (ARB and real-time)	653 660 for real-time	403, 503, 660, UNV
N7602B	Signal Studio for GSM/EDGE/Evo (ARB and real-time)	653 660 for real-time	403, 503, 660, 1ER, UNV, UNZ, 1ER
N7612B	Signal Studio for TD-SCDMA/HSDPA	653	403, 503, UNV
N7624B	Signal Studio for LTE/LTE-Advanced FDD (ARB and real-time)	653 660 for real-time	403, 506, 655, 660, UNV
N7625B	Signal Studio for LTE/LTE-Advanced TDD (ARB and real-time)	653 660 for real-time	403, 506, 655, 660, UNV
<b>Wireless connectivity</b>			
N7606B	Signal Studio for <i>Bluetooth</i> ®	653	403, 506, UNV
N7607B	Signal Studio for DFS radar profiles	653, 506	655
N7610B	Signal Studio for short range communications	653	
N7615B	Signal Studio for Mobile WiMAX™	653	403, 506, UNV
N7617B	Signal Studio for WLAN 802.11a/b/g/j/p/n/ac/ah	653	403, 506, 655, UNV
<b>Audio/video broadcasting</b>			
N7611B	Signal Studio for broadcast radio	653	403, 506, UNV
N7623B	Signal Studio for digital video (ARB and real-time)	653 660 for real-time	022, 506, 660, UNV
<b>Navigation and radar</b>			
N7609B	Signal Studio for Global Navigation Satellite Systems (GNSS) (ARB and real-time)	653 660 for real-time	022, 403, 503, 660
N7620B	Signal Studio for Pulse Building	653, UNW	403, 655, UNV, 1EA
<b>General purpose</b>			
N5172B-403	Calibrated AWGN	653	
N5172B-430	Multitone and two-tone	653	
N5172B-431	Custom digital modulation	653	
N5172B-432	Phase noise impairment	653	
N7605B	Signal Studio for real-time fading (real-time)	403, 653, 660	506, 655
N7608B	Signal Studio for custom modulation	653, 506	
N7614B	Signal Studio for power amplifier test	653 660 for real-time	655, 660, 1EA
N7621B	Signal Studio for multitone distortion	653, UNV, 1EA	655
N7622B	Signal Studio toolkit – free utility	653	503, UNV
N5172B 221-229	Waveform license 5-pack 1 to 9 (purchase up to 9 packs for 45 Signal Studio waveforms)	653	503, UNV
N5172B 250-259	Waveform license 50-pack 1 to 10 (purchase up to 10 packs for 500 Signal Studio waveforms)	653	503, UNV
N6171A	MATLAB software		503, 653, UNV

**Step 6. Choose accessory and documentation options**

Description	Option number
Rack slide kit	1CR012A
Front handle kit	1CN006A
Rack mount flange kit	1CM010A
Rack mount flange kit with front handles	1CP004A
Hard transit case	N5172B-AXT
CD-ROM containing English documentation set	N5172B-CD1
Service documentation, assembly and component	N5172B-OBW

**Step 7. Choose warranty and calibration options**

Description	Option number	
Return to Keysight Warranty, 3 years	Standard	
Warranty Assurance Plan, Return to Keysight, 5 years	R-51B-001-5Z	
Warranty Assurance Plan, Return to Keysight, 7 years	R-51B-001-7Z	
Warranty Assurance Plan, Return to Keysight, 10 years	R-51B-001-10Z	
Calibration Assurance Plan, Return to Keysight, 5 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	
Keysight Calibration + Uncertainties, 5 years	R-50C-011-MU-5	
Keysight Calibration + Uncertainties + Guardbanding (accredited cal)	N5172B-AMG	Only available at time of new instrument purchase
Keysight Calibration + Uncertainties + Guardbanding, 5 years	R-50C-016-5	
ANSI Z540-1-1994 calibration	N5172B-A6J	Only available at time of new instrument purchase
ANSI Z540-1-1994 Calibration, 5 years	R-50C-021-5	
Onsite warranty – 1 year	R-51C-001-1CU	
Onsite warranty – 3 year	R-51C-001-3CU	
Commercial calibration certificate with test data	N5172B-UK6	Only available at time of new instrument purchase

**Step 8. Choose startup assistance service options**

Description	Option number
Remote scheduled assistance 1 - 999 hours	PS-S10
Daily productivity assistance	PS-S20

## Upgrade your existing EXG vector signal generator

Fast license-key upgrades for 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 using Keysight License Manager
4. Begin using the new capability

Installation, calibration, and verification information is available at:

[www.keysight.com/find/exg\\_upgrades](http://www.keysight.com/find/exg_upgrades)

### 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	Additional information
Instrument security and removable memory card	N5172BU-006	None	Hardware and license key upgrade
Internal solid-state memory	N5172BU-009	None	Customer installable – software, license key
LO in/out for phase coherency	N5172BU-012	None	Hardware and license key upgrade
Upgrade baseband generator memory from 32 to 256 MSa	N5172BU-021	653	Customer installable – software, license key
Upgrade baseband generator memory from 32 to 512 MSa	N5172BU-022	653	Customer installable – software, license key
Upgrade baseband generator memory from 256 to 512 MSa	N5172BU-042	021 and 653	Customer installable – software, license key
Expanded license key upgradability	N5172BU-099	None	Hardware and license key upgrade
High output power	N5172BU-1EA	099	Customer installable – software, license key
Differential I/Q outputs	N5172BU-1EL	653	Customer installable – software, license key
Flexible reference input (1-50 MHz)	N5172BU-1ER	None	Customer installable – software, license key
5-pack waveform license	N5172BU-221	653	Customer installable – software, license key
50-pack waveform license	N5172BU-250	653	Customer installable – software, license key
Avionics	N5172BU-302	None	If serial number is less than MY/SG/US 5620xxxx – return to Keysight Service Center required for installation. If serial number is greater than or equal to MY/SG/US 5620xxxx – customer installable – software, license key.
Multifunction generator	N5172BU-303	None	Customer installable – software, license key
Pulse train generator	N5172BU-320	UNW	Customer installable – software, license key
Calibrated AWGN	N5172BU-403	653	Customer installable – software, license key
Multitone and two-tone	N5172BU-430	653	Customer installable – software, license key
Custom digital modulation	N5172BU-431	653	Customer installable – software, license key
Phase noise impairment	N5172BU-432	653	Customer installable – software, license key
ARB baseband generator (60 MHz RF bandwidth, 32 MSa)	N5172BU-653	None	Customer installable – software, license key
Upgrade baseband generator from 60 to 120 MHz RF bandwidth	N5172BU-655	653	Customer installable – software, license key
Upgrade baseband generator with real-time capability	N5172BU-660	653	Hardware and license key upgrade



Description	Upgrade number	Requirements	Additional information
Digital output connectivity with the N5102A	N5172BU-003	653	
Digital input connectivity with the N5102A	N5172BU-004	653	
AM, FM, phase modulation	N5172BU-UNT	None	Customer installable – software, license key
Enhanced dynamic range	N5172BU-UNV	653, 099	Customer installable – software, license key
Narrow pulse modulation	N5172BU-UNW	None	Customer installable – software, license key
Fast switching	N5172BU-UNZ	099	Customer installable – software, license key

## Related Literature

EXG & MXG Technical Overview 5990-9957EN  
 EXG Data Sheet 5991-0039EN

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