

EXG X-Series Signal Generators N5171B Analog and N5172B Vector

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	
Multifunction generator	N5171B-303	
Instrument security and removable memory card	N5171B-006	
No internal non-volatile memory	N5171B-SD0	Requires firmware B.01.80 or newer
Fast switching	N5171B-UNZ	
High output power	N5171B-1EA	
Flexible reference input (1 to 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 www.keysight.com/find/exg_upgrades .

Step 4. Choose accessory and documentation options

Description	Option number
Rack slide kit	1CR112A
Front handle kit	1CN106A
Rack mount flange kit	1CM110A
Rack mount flange kit with front handles	1CP104A
Front panel cover	N5171B-CVR
Hard transit case	N5171B-AXT
CD-ROM containing English documentation set	N5171B-CD1

Step 5. Choose embedded software

Note: The following software can be added at purchase or as an upgrade. For more information on licenses, go to www.keysight.com/find/SS_licensing

Description	Option number	Hardware requirements
Avionics (VOR/ILS)	N5180302B	
Pulse train generator	N5180320B	UNW

Step 6. Choose calibration options

Description	Option number	
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 + Guardbanding (uncredited cal)	N5171B-AMG	Only available at time of new instrument purchase
ANSI Z540-1-1994 Calibration	N5171B-A6J	Only available at time of new instrument purchase
Commercial calibration certificate with test data	N5171B-UK6	Only available at time of new instrument purchase

Step 7. Choose startup assistance service options

Description	Option number
Remote scheduled assistance 1 to 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



You Can Upgrade!



Options can be added after your initial purchase. Most X-Series 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
No internal non-volatile memory	N5171BU-SD0	None	Customer installable - software, license key Requires firmware B.01.80 or newer
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 to 50 MHz)	N5171BU-1ER	None	Customer installable – software, license key
Avionics (VOR/ILS)	N5180302B	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	N5180320B	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
Rack slide kit	1CR112A	None	Hardware
Front handle kit	1CN106A	None	Hardware
Rack mount flange kit	1CM110A	None	Hardware
Rack mount flange kit with front handles	1CP104A	None	Hardware
Front panel cover	N5180-40019	None	Hardware

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
Frequency range from 9 kHz to 7.2 GHz	N5172B-FRQ	Requires 506 and N5182BX07 Frequency Extender ¹

1. The N5182BX07 Frequency Extender is orderable separately. Refer to the N5182BX07 configuration guide for more information.

Step 2. Choose connector configuration

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

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	
Multifunction generator	N5172B-303	
Instrument security and removable memory card	N5172B-006	
Internal solid-state memory	N5172B-009	
No internal non volatile memory/solid state drive	N5172B-SD0	Not compatible with option 009 and 660 Requires firmware B.01.80 or newer
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 www.keysight.com/find/exg_upgrades .

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 from 120 to 160 MHz RF bandwidth	N5172B-657	Requires 653 and 655
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, not upgradable
Digital input connectivity with the N5102A	N5172B-004	Requires 653, not upgradable

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. For more information on Signal Studio configuration and licenses, go to www.keysight.com/find/SS_licensing.

Product number	Description	Hardware requirements	Recommended hardware options
Cellular communications			
N7600C	Signal Studio for W-CDMA/HSPA+ (ARB and real-time)	653 660 for real-time	403, 503, UNV
N7601C	Signal Studio for cdma2000®/1xEV-DO (ARB and real-time)	653 660 for real-time	403, 503, UNV
N7602C	Signal Studio for GSM/EDGE/Evo (ARB and real-time)	653 660 for real-time	403, 503, 1ER, UNV, UNZ
N7612C	Signal Studio for TD-SCDMA/HSDPA	653	403, 503, UNV
N7624C	Signal Studio for LTE/LTE-Advanced FDD (ARB and real-time)	653 660 for real-time	403, 506, 655, UNV
N7625C	Signal Studio for LTE/LTE-Advanced TDD (ARB and real-time)	653 660 for real-time	403, 506, 655, UNV
N7626C	Signal Studio for V2X	653, 506	403, 1EA, 1ER, 009, 655, UNV, UNZ
N7630C	Signal Studio for Pre-5G	653	403, 506, 655, UNV
N7631C	Signal Studio for 5G NR	653	403, 506, 655, UNV
Wireless connectivity			
N7606C	Signal Studio for Bluetooth®	653	403, 506, UNV
N7607C	Signal Studio for DFS radar profiles	653, 506	655
N7610C	Signal Studio for Internet of Things (IoT)	653	
N7615C	Signal Studio for Mobile WiMAX™	653	403, 506, UNV
N7617C	Signal Studio for WLAN 802.11a/b/g/j/p/n/ac/ah	653	403, 506, 655, UNV

Audio/video broadcasting			
N7611C	Signal Studio for broadcast radio	653	403, 506, UNV
N7623C	Signal Studio for digital video (ARB and real-time)	653 660 for real-time	022, 506, UNV
N7640C	Radio Test LMR	653	403, 506, 655, 009
Navigation and radar			
N7609C	Signal Studio for Global Navigation Satellite Systems (GNSS) (real-time)	653 660 for real-time	022, 403, 503
N7620B	Signal Studio for Pulse Building	653, UNW	403, 655, UNV, 1EA
General purpose			
N5180302B	Avionics (VOR/ILS)		
N5180320B	Pulse train generator	UNW	
N5180403B	Calibrated AWGN	653	
N5180430B	Multitone and two-tone	653	
N5180431B	Custom digital modulation	653	
N5180432B	Phase noise impairment	653	
N5180UN7B	Internal bit error rate analyzer		
N7605C	Signal Studio for real-time fading (real-time)	403, 653, 660	506, 655
N7608C	Signal Studio for custom modulation	653, 506	
N7614C	Signal Studio for power amplifier test	653 660 for real-time	655, 1EA
N7621B	Signal Studio for multitone distortion	653, UNV, 1EA	655
N7622C	Signal Studio toolkit – free utility	653	503, UNV
N5172B 221-229	Waveform license 5-pack 1 to 9 (purchase up to 9-pack 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	1CR112A
Front handle kit	1CN106A
Rack mount flange kit	1CM110A
Rack mount flange kit with front handles	1CP104A
Front panel cover	N5172B-CVR
Hard transit case	N5172B-AXT
CD-ROM containing English documentation set	N5172B-CD1

Step 7. Choose calibration options

Description	Option number	
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 + Guardbanding (accredited cal)	N5172B-AMG	Only available at time of new instrument purchase
ANSI Z540-1-1994 Calibration	N5172B-A6J	Only available at time of new instrument purchase
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:

- Place an order for the upgrade with Keysight and request to receive the software entitlement certificate through email
- Redeem the certificate through the Web by following the instructions on the certificate
- Install the license file using Keysight License Manager
- Begin using the new capability

Installation, calibration, and verification information is available at:

www.keysight.com/find/exg_upgrades



You Can Upgrade!



Options can be added after your initial purchase. Most X-Series 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
No internal non volatile memory/solid state drive	N5172BU-SD0	None	Customer installable - software, license key and hardware Requires firmware B.01.80 or newer Not compatible with option 009 and 660
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 to 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 (VOR/ILS)	N5180302B	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	N5180320B	UNW	Customer installable – software, license key
Calibrated AWGN	N5180403B	653	Customer installable – software, license key
Multitone and two-tone	N5180430B	653	Customer installable – software, license key
Custom digital modulation	N5180431B	653	Customer installable – software, license key
Phase noise impairment	N5180432B	653	Customer installable – software, license key
Internal bit error rate analyzer	N5180UN7B	None	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 from 120 to 160 MHz RF bandwidth	N5172BU-657	653 and 655	Customer installable – software, license key
Upgrade baseband generator with real-time capability	N5172BU-660	653	Hardware and license key upgrade
AM, FM, phase modulation	N5172BU-UNT	None	Customer installable – software, license key
Enhanced dynamic range	N5172BU-UNV	653 and 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
Rack slide kit	1CR112A	None	Hardware
Front handle kit	1CN106A	None	Hardware
Rack mount flange kit	1CM110A	None	Hardware
Rack mount flange kit with front handles	1CP104A	None	Hardware
Front panel cover	N5180-40019	None	Hardware
Frequency extender connectivity	N5182BU-FRQ	506	Customer installable - software, license key Requires N5182BX07 Frequency Extender

Related Literature

Description	Additional information
<i>X-Series Signal Generators N5181B/N5171B Analog N5182B/N5172B Vector –Technical Overview</i>	5990-9957EN
<i>MXG X-Series Signal Generators N5181B Analog & N5182B Vector – Data Sheet</i>	5991-0038EN
<i>N5182BX07 Frequency Extender User Guide</i>	N5182-90001

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