

Keysight Technologies

First-Generation MXG Signal Generators

N5181A MXG Analog

N5182A MXG Vector

Configuration Guide



This guide is to assist in the ordering process for the first-generation MXG analog and vector signal generators.

Migrate to the new Keysight Technologies, Inc. EXG X-Series Signal generator and generate true performance

The new EXG offers more capability than the first-generation MXG, including low frequency coverage to 9 kHz, reduced spurious levels, larger waveform memory, wider modulation bandwidth and robust reverse power protection. New features include real-time signal generation and a built-in, multi-function generator. For more information, visit www.keysight.com/find/X_Series_SG



www.keysight.com/find/N5181A_upgrades

Keysight N5181A MXG analog configuration steps

Step 1. Choose model number

Model	Description	Matching EXG options For more information go to www.keysight.com/find/exg
N5181A	First-generation MXG analog signal generator	N5171B

Step 2. Choose one frequency option (required)

Option	Description	Not compatible	Upgrade	Matching EXG options For more information go to www.keysight.com/find/exg
501	Frequency range from 100 kHz to 1 GHz	503,506,N5161A	No	N5171B-501 (9 kHz to 1 GHz)
503	Frequency range from 100 kHz to 3 GHz	501,506	No	N5171B-503 (9 kHz to 3 GHz)
506	Frequency range from 100 kHz to 6 GHz	503,506	No	N5171B-506 (9 kHz to 6 GHz)

Step 3. Choose performance enhancement options

Option	Description	Not compatible	Upgrade	Matching EXG options For more information go to www.keysight.com/find/exg
UNZ	Fast switching		Yes ²	N5171B-UNZ
UNT	AM, FM, phase modulation		Yes ²	N5171B-UNT
1EQ	Low power (< -110 dBm)		Yes ²	Standard ⁴
006	Instrument security		Yes	N5171B-006
UNU	Pulse modulation	UNW	Yes ²	N5171B-UNW
UNW	Narrow pulse modulation	UNU	Yes ²	N5171B-UNW
320	Pulse train generator		Yes ³	N5171B-320
1EA	High output power		Yes ²	N5171B-1EA
099 ¹	Expanded license key upgradeability 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, 1EQ, UNU, UNW, UNT and UNZ.		Yes ¹	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, 1EQ, UNU, UNW, UNT, and UNZ. Without Option 099, upgrades for these options require purchase and installation of a field retrofit kit. For more information, visit www.keysight.com/find/SSupgrades.
- Upgrade requires Option 099.
- Option 320 requires Option UNU or UNW.
- The N5171B EXG comes standard with a power range settable down to -144 dBm.

Step 4. Choose input/output options

Option	Description	Not compatible	Upgrade	Matching EXG options For more information go to www.keysight.com/find/exg
1EM	Move all connectors to rear panel		No	N5171B-1EM
1ER	Flexible reference input (1 to 50 MHz)		Yes	N5171B-1ER

Step 5. Choose accessories and documentation options

Option	Description	Not compatible	Upgrade	Matching EXG options For more information go to www.keysight.com/find/exg
1CM	Rackmount kit	1CN, 1CP, 1CR	Yes	1CM010A
1CN	Front handle kit	1CM, 1CP	Yes	1CN006A
1CP	Rackmount kit with front handles	1CM, 1CN, 1CR	Yes	1CP004A
1CR	Rack slide kit	1CM, 1CP	Yes	1CR012A
CD1	CD-ROM containing the English documentation set, including user's guide, installation guide, programming guide, service guide, SCPI command reference, error messages, programming examples, and data sheets. In addition, Korean, Chinese, Japanese and Russian localized users's guide.		Yes	N5171B-CD1
ABA	Printed copy of the English documentation set		Yes	Not available
AB1	Printed copy of user's guide – Korean localization		Yes	Not available
AB2	Printed copy of user's guide – Chinese localization		Yes	Not available
ABJ	Printed copy of user's guide – Japanese localization		Yes	Not available
AKT	Printed copy of user's guide – Russian localization		Yes	Not available
OBW	Service documentation, assembly level		Yes	N5171B-OBW
AXT	Hard transit case		Yes	N5171B-AXT

Step 6. Calibration options

Option	Description	Matching EXG options For more information go to www.keysight.com/find/exg
UK6	Commercial calibration certificate with test data	UK6
R-50C-011-5	Calibration Assurance Plan, Return to Keysight, 5 years	R-50C-011-5
AMG	Keysight Calibration + Uncertainties + Guardbanding (accredited cal)	AMG
R-50C-016-5	Keysight Calibration + Uncertainties + Guardbanding, 5 years	R-50C-016-5
A6J	ANSI Z540-1-1994 Calibration	A6J
R-50C-021-5	ANSI Z540-1-1994 Calibration, 5 years	R-50C-021-5

Step 7. Choose start up assistance service options

Option	Description	Matching EXG options For more information go to www.keysight.com/find/exg
PS-S10	Remote scheduled assistance 1 - 999 hours	PS-S10
PS-S20	Daily productivity assistance	PS-S20
PS-T10-ASG	Signal generator and source basics; 0.5 day, max. 8 students on site	PS-T10-ASG
PS-X10	Custom services to be qualified by Keysight	PS-X10

Product configuration includes country specific power cord.

Available options and upgrades for the N5181A MXG analog signal generator

Product	Order number	Description	Upgrade contents	Additional requirements	Incompatible with	Matching EXG options For more information go to www.keysight.com/find/exg
006	N5181AK-006	Instrument security	Customer installable - software, License key	None	None	N5171BU-006
099	N5181AK-099	Expanded license key upgradeability	Customer installable - hardware, License key	None	None	N5171BU-099
1CR	N5181A-1CR	Rack slide kit	Customer installable - hardware, License key	None	1CM, 1CP	1CR012A
1CM	N5181A-1CM	Rackmount kit	Customer installable - hardware, License key	None	1CN, 1CP, 1CR	1CM010A
1CN	N5181A-1CN	Front handle kit	Customer installable - hardware, License key	None	1CM, 1CP	1CN006A
1CP	N5181A-1CP	Rackmount and front handle kit	Customer installable - hardware, License key	None	1CM, 1CN, 1CR	1CP004A
1EA	N5181AK-1EA	High power	Customer installable - software, License key	099	None	N5171BU-1EA
1EM	Not Upgradeable	n/a	n/a	n/a	n/a	
1EQ	N5181AK-1EQ	Low power (< -110 dBm)	Customer installable - software, License key	099	n/a	Standard
1ER	N5181AK-1ER	Flexible reference input (1-50 MHz)	Customer installable - software, License key	None	None	N5171BU-1ER
ALB	N5181AK-ALB	LXI Class B functionality	Customer installable - software, License key	None	None	Not available
UNT	N5181AK-UNT	AM , FM phase modulation	Customer installable - software, License key	099	None	N5171BU-UNT
UNU	N5181AK-UNU	Pulse modulation	Customer installable - software, License key	099	None	N5171BU-UNW
UNW	N5181AK-UNW	Narrow pulse modulation	Customer installable - software, License key	099	None	N5171BU-UNW
320	N5181AK-320	Pulse train generator	Customer installable - software, License key	UNU/UNW	None	N5171BU-320
AXT	N5181A-AXT	Hard transit case	Hard transit case	None	None	N5171B-AXT
UNZ	N5181AK-UNZ	Fast switching	Customer installable - software, License key	099	None	N5171BU-UNZ
OBW	N5181AK-OBW	Service documentation, assembly level	Printed copy of the assembly level service guide	None	None	N5171B-OBW
AB1 ¹	N5181A-AB1	Printed copy of MXG family user's guide - Korean localization	Printed copy of MXG family user's guide - Korean localization	None	None	Not available
AB2 ¹	N5181A-AB2	Printed copy of MXG family user's guide - Chinese localization	Printed copy of MXG family user's guide - Chinese localization	None	None	Not available
ABA	N5181A-ABA	Printed copy of MXG family English documentation set	Printed copy of MXG family English documentation set	None	None	Not available
ABJ ¹	N5181A-ABJ	Printed copy of MXG family user's guide - Japanese localization	Printed copy of MXG family user's guide - Japanese localization	None	None	Not available
AKT ¹	N5181A-AKT	Printed copy of MXG family user's guide - Russian localization	Printed copy of MXG family user's guide - Russian localization	None	None	Not available
CD1	N5181A-CD1	CD-ROM containing the MXG family English documentation set.	CD-ROM containing the MXG family English documentation set.	None	None	N5171B-CD1

1. Refer to the online MXG family documentation for the most current information.

Keysight N5182A MXG vector configuration steps

Step 1. Choose model

Model	Description	Matching EXG options For more information go to www.keysight.com/find/exg
N5182A	First-generation MXG vector signal generator	N5172B

Step 2. Choose one frequency option (required)

Option	Description	Requires	Not compatible	Upgrade	Matching EXG options For more information go to www.keysight.com/find/exg
503	Frequency range from 100 kHz to 3 GHz		506	No	N5172B-503 (9 kHz to 3 GHz)
506	Frequency range from 100 kHz to 6 GHz		503	No	N5172B-506 (9 kHz to 6 GHz)

Step 3. Choose performance enhancement options

Option	Description	Requires	Not compatible	Upgrade	Matching EXG options For more information go to www.keysight.com/find/exg
UNZ	Fast switching			Yes ²	N5172B-UNZ
UNT	AM, FM, phase modulation			Yes ²	N5172B-UNT
UNU	Pulse modulation		UNW	Yes ²	N5172B-UNW
UNW	Narrow pulse modulation		UNU	Yes ²	N5172B-UNW
320	Pulse train generator	UNU/UNW		Yes	N5172B-320
UNV	Enhanced dynamic range	651, 652, or 654		Yes ²	N5172B-UNV
1EQ	Low power (< -110 dBm)			Yes ²	Standard ³
006	Instrument security			Yes	N5172B-006
1EA	High output power			Yes ²	N5172B-1EA
099	Expanded license key upgradeability 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, 1EQ, UNU, UNW, UNT and UNZ.			Yes ¹	N5172B-099
012	LO In/Out for phase coherency			Yes	N5172B-012

Step 4. Choose baseband generator options

Option	Description	Requires	Not compatible	Upgrade	Matching EXG options For more information go to www.keysight.com/find/exg
651	Internal baseband generator (30 MSa/s, 8 MSa)		652, 654	Yes	N5172B-653
652	Internal baseband generator (60 MSa/s, 8 MSa)		651, 654	Yes	N5172B-653
654	Internal baseband generator (125 MSa/s, 8 MSa)		651, 652	Yes	N5172B-655
019	Upgrade baseband generator memory to 64 MSa	651, 652, or 654		Yes	N5172B-021 or 022

1. Option 099 enables future upgrades via a license key for Options 1EA, 1EQ, UNU, UNW, UNT, UNV, and UNZ. Without Option 099, upgrades for these options require the installation of a field retrofit kit which installs Option 099. For more information, visit www.keysight.com/find/SSupgrades.

2. Upgrade requires Option 099.

3. The N5171B EXG comes standard with a power range settable down to -144 dBm.

Step 5. Choose signal studio and embedded software

When ordering signal creation software, please refer to each product's technical overview for detailed required and recommended configurations. Available in the online documentation from www.keysight.com/find/signalstudio.

Order item	Description	Requires	Recommended	Upgrade	Matching EXG options For more information go to www.keysight.com/find/exg
N5182A 221 - 229	Waveform License 5-packs 1 to 9 (purchase up to 9 packs for 45 Signal Studio waveforms)	651, 652, or 654	654	Yes	N5172B -221 to -229
N5182A 250 - 259	Waveform License 50-packs 1 to 10 (purchase up to 10 packs for 500 Signal Studio waveforms)	651, 652, or 654	654	Yes	N5172B -250 to -259
403	Calibrated AWGN	651, 652, or 654	651	Yes	N5172B-403
430	Multitone and two-tone	651, 652, or 654	651	Yes	N5172B-430
431	Custom digital modulation	651, 652, or 654	654	Yes	N5172B-431
432	Phase noise impairments	651, 652, or 654	651	Yes	N5172B-432
N7600B*	Signal Studio for W-CDMA/HSPA+	651, 652, or 654	652, 503, 019, UNV	Yes	N7600B Signal Studio for W-CDMA/HSPA+
N7601B*	Signal Studio for cdma2000®/1xEV-DO	651, 652, or 654	651, 503, 019, 403, 1EL, UNV	Yes	N7601B Signal Studio for cdma2000/1xEV-DO
N7602B *	Signal Studio for GSM/EDGE/Evo	651, 652, 654	654, 503, 1EL, 1ER, UNV, UNZ	Yes	N7602B Signal Studio for GSM/EDGE/Evo
N7606B *	Signal Studio for <i>Bluetooth</i> ®	651, 652, 654	652, 506, 019, 403, UNV	Yes	N7606B Signal Studio for <i>Bluetooth</i>
N7611B*	Signal Studio for Broadcast Radio	651, 652, or 654	652, 506, 019, 403, UNV	Yes	N7611B Signal Studio for Broadcast Radio
N7612B*	Signal Studio for TD-SCDMA/HSDPA	651, 652, or 654	652, 503, 019, 403, UNV	Yes	N7612B Signal Studio for TD-SCDMA/HSDPA
N7613A	Signal Studio for Fixed WiMAX™	652, or 654	654, 506, 019, 403, UNV	Yes	N7613A Signal Studio for Fixed WiMAX
N7615B*	Signal Studio for Mobile WiMAX	651, 652, or 654	652, 506, 019, 403, UNV	Yes	N7615B Signal Studio for Mobile WiMAX
N7616B*	Signal Studio for T-DMB	652, or 654	652, 503, 019, 403, UNV	Yes	
N7617B*	Signal Studio for WLAN 802.11a/b/g/n/ac	654	654, 506, 019, 403, UNV	Yes	N7617B Signal Studio for WLAN 802.11a/b/g/n/ac
N7621B*	Signal Studio for Multitone Distortion	651, 652, or 654	654, 019	Yes	N7621B Signal Studio for Multitone Distortion
N7622A*	Signal Studio toolkit	651, 652, or 654	651, 019, 1EL, UNV	Yes	N7622A Signal Studio toolkit
N7623B*	Signal Studio for Digital Video	651, 652, or 654	652, 506, 019, 403, UNV	Yes	N7623B Signal Studio for Digital Video
N7624B*	Signal Studio for LTE/LTE-Advanced FDD	654	654, 506, 019, 403, UNV	Yes	N7624B Signal Studio for LTE/ LTE-Advanced FDD
N7625B*	Signal Studio for LTE/LTE-Advanced TDD	654	654, 506, 403, UNV, 1EA, 1EL	Yes	N7625B Signal Studio for LTE/ LTE-Advanced TDD

1. * For factory installation of Signal Studio fixed perpetual licenses, Signal Studio model-number must be ordered under the N5182A configuration.

Step 6. Choose input/output options

Option	Description	Requires	Not compatible	Upgrade	Matching EXG options For more information go to www.keysight.com/find/exg
1EM	Move all connectors to rear panel			No	N5172B-1EM
1EL	Differential I/Q outputs			Yes	N5172B-1EL
1ER	Flexible reference input (1-50 MHz)			Yes	N5172B-1ER

Step 7. Choose accessories and documentation options

Option	Description	Not compatible	Upgrade	Matching EXG options For more information go to www.keysight.com/find/exg
1CM	Rackmount kit	1CN, 1CP, 1CR	Yes	1CM010A
1CN	Front handle kit	1CM, 1CP	Yes	1CN006A
1CP	Rackmount kit with front handles	1CM, 1CN, 1CR	Yes	1CP004A
1CR	Rack slide kit	1CM, 1CP	Yes	1CR012A
CD1	CD-ROM containing the English documentation set, including user's guide, installation guide, programming guide, service guide, SCPI command reference, error messages, programming examples, and data sheets. In addition, Korean, Chinese, Japanese and Russian localized users's guide.		Yes	N5172B-CD1
ABA	Printed copy of the English documentation set		Yes	Not available
AB1	Printed copy of user's guide – Korean localization		Yes	Not available
AB2	Printed copy of user's guide – Chinese localization		Yes	Not available
ABJ	Printed copy of user's guide – Japanese localization		Yes	Not available
AKT	Printed copy of user's guide – Russian localization		Yes	Not available
OBW	Service documentation, assembly level		Yes	N5172B-OBW
AXT	Hard transit case		Yes	N5172B-AXT

Step 8. Calibration options

Option	Description	Matching EXG options For more information go to www.keysight.com/find/exg
UK6	Commercial calibration certificate with test data	UK6
R-50C-011-5	Calibration Assurance Plan, Return to Keysight, 5 years	R-50C-011-3
AMG	Keysight Calibration + Uncertainties + Guardbanding (accredited cal)	AMG
R-50C-016-5	Keysight Calibration + Uncertainties + Guardbanding, 5 years	R-50C-016-5
A6J	ANSI Z540-1-1994 Calibration	A6J
R-50C-021-5	ANSI Z540-1-1994 Calibration, 5 years	R-50C-021-5

Step 9. Choose start up assistance options

Order item	Description	Matching EXG options For more information go to www.keysight.com/find/exg
PS-S10	Remote scheduled assistance 1-999 hours	PS-S10
PS-S20	Daily productivity assistance	PS-S20
PS-T10-ASG	Signal generator and source basics; .05 day, max. 8 students on site	PA-T10-ASG
PS-X10	Custom services to be qualified by Keysight	PS-X10

Product configuration includes country specific power cord.

Available options and upgrades for the N5182A MXG vector signal generator

Product	Order number	Description	Upgrade contents	Additional requirements	Incompatible with	Matching EXG options For more information go to www.keysight.com/find/exg
006	N5182AK-006	Instrument security	Customer installable - software, License key	None	None	N5172BU-006
012	N5182AK-012	LO in/out for phase coherency	Customer installable - hardware, License key	None	None	N5172BU-012
019	N5182AK-019	Increase baseband generator memory to 64 MSa	Customer installable - software, License key	651, 652, or 654	None	N5172BU-021 or -022
099	N5182AK-099	Expanded license key upgradability	Customer installable - hardware, License key	None	None	N5172BU-099
1EA	N5182AK-1EA	High power	Customer installable - software, License key	099	None	N5172BU-1EA
1EL	N5182AK-1EL	Differential I/Q outputs	Customer installable - software, License key	651, 652, or 654	None	N5172BU-1EL
1EM	Not Upgradeable	Move RF output to rear panel	n/a	n/a	n/a	Not available
1EQ	N5182AK-1EQ	Low power (<-110 dBm)	Customer installable - software, License key	099	None	Standard
1ER	N5182AK-1ER	Flexible reference input (1-50 MHz)	Customer installable - software, License key	None	None	N5172BU-1ER
221-229	N5182AK-221	Waveform License 5-Pack	Customer installable - software, License key	None	None	N5172BU-22x
250-259	N5182AK-250	Waveform License 50-Pack	Customer installable - software, License key	None	None	N5172BU-25x
403	N5182AK-403	Calibrated AWGN	Customer installable - software, License key	651, 652, or 654	None	N5172BU-403
430	N5182AK-430	Multitone and two tone	Customer installable - software, License key	651, 652, or 654	None	N5172BU-430
431	N5182AK-431	Custom digital modulation	Customer installable - software, License key	651, 652, or 654	None	N5172BU-431
432	N5182AK-432	Phase noise impairment	Customer installable - software, License key	651, 652, or 654	None	N5172BU-432
503	Not Upgradeable	Frequency range 100 kHz to 3 GHz	n/a	n/a	n/a	Not available
506	Not Upgradeable	Frequency range 100 kHz to 6 GHz	n/a	n/a	n/a	Not available
651	N5182AK-651	Internal baseband generator (30 MSa/s, 8 MSa)	Customer installable - software, License key	None	None	N5172BU-653
652	N5182AK-652	Internal baseband generator (60 MSa/s, 8 MSa)	Customer installable - software, License key	None	None	N5172BU-653
654	N5182AK-654	Internal baseband generator (125 MSa/s, 8 MSa)	Customer installable - software, License key	None	None	N5172BU-653 and -655

Product	Order number	Description	Upgrade contents	Additional requirements	Incompatible with	Matching EXG options For more information go to www.keysight.com/find/exg
670	N5182AK-670	Upgrade baseband generator from 30 MSa/sec to 60 MSa/sec	Customer installable - software, License key	651	None	N5172BU-653
671	N5182AK-671	Upgrade baseband generator from 30 MSa/sec to 125 MSa/sec	Customer installable - software, License key	651	None	N5172BU-655
672	N5182AK-672	Upgrade baseband generator from 60 MSa/sec to 125 MSa/sec	Customer installable - software, License key	652	None	N5172BU-655
ALB	N5182AK-ALB	LXI Class B functionality	Customer installable - software, License key	None	None	Not available
UNT	N5182AK-UNT	AM, FM, phase modulation	Customer installable - software, License key	099	None	N5172BU-UNT
UNU	N5182AK-UNU	Pulse modulation	Customer installable - software, License key	099	N5182A-UNW, N5182AK-UNW	N5172BU-UNW
UNW	N5182AK-UNW	Narrow pulse modulation	Customer installable - software, License key	099	None	N5172BU-UNW
320	N5182AK-320	Pulse train generator	Customer installable - software, License key	UNU/UNW	None	N5172BU-320
UNV	N5182AK-UNV	Enhanced dynamic range	Customer installable - software, License key	099	None	N5172BU-UNV
UNZ	N5182AK-UNZ	Fast Switching	Customer installable - software, License key	099	None	N5172BU-UNZ
OBW	N5182A-OBW	Service documentation, assembly level	Printed copy of the assembly level service guide	None	None	N5172B-OBW
1CM	N5182A-1CM	Rackmount kit	Customer installable - hardware, License key	None	1CN, 1CP, 1CR	1CM010A
1CN	N5182A-1CN	Front handle kit	Customer installable - hardware, License key	None	1CM, 1CP	1CN006A
1CP	N5182A-1CP	Rackmount and front handle kit	Customer installable - hardware, License key	None	1CM, 1CN, 1CR	1CP004A
1CR	N5182A-1CR	Rack slide kit	Customer installable - hardware, License key	None	1CM, 1CP	1CR012A
AB1 ¹	N5182A-AB1	Printed copy of MXG family user's guide - Korean localization	Printed copy of MXG family user's guide - Korean localization	None	None	Not available
AB2 ¹	N5182A-AB2	Printed copy of MXG family user's guide - Chinese localization	Printed copy of MXG family user's guide - Chinese localization	None	None	Not available
ABA	N5182A-ABA	Printed copy of MXG family English documentation set	Printed copy of MXG family English documentation set	None	None	Not available
ABJ ¹	N5182A-ABJ	Printed copy of MXG family user's guide - Japanese localization	Printed copy of MXG family user's guide - Japanese localization	None	None	Not available
AKT ¹	N5182A-AKT	Printed copy of MXG family user's guide - Russian localization	Printed copy of MXG family user's guide - Russian localization	None	None	Not available
AXT	N5182A-AXT	Hard transit case	Hard transit case	n/a	n/a	N5172B-AXT
CD1	N5182A-CD1	CD-ROM containing the English documentation set.	CD-ROM containing the English documentation set.	None	None	N5172B-CD1
R2C	N5182AK-R2C	Revision to current, core instrument FW enhancements	Customer installable - software, License key	None	None	Standard

1. Refer to the online MXG family documentation for the most current information.

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