

Keysight Technologies

## First-Generation MXG Signal Generators

N5181A MXG Analog

N5182A MXG Vector

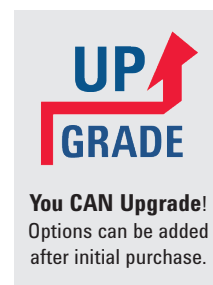
Configuration Guide



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](http://www.keysight.com/find/X_Series_SG)



[www.keysight.com/find/N5181A\\_upgrades](http://www.keysight.com/find/N5181A_upgrades)

## Keysight N5181A MXG analog configuration steps

### Step 1. Choose model number

| Model  | Description                                  | Matching EXG options<br>For more information go to<br><a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|--------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| N5181A | First-generation MXG analog signal generator | N5171B                                                                                                                         |

### Step 2. Choose one frequency option (required)

| Option | Description                           | Not compatible | Upgrade | Matching EXG options<br>For more information go to<br><a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|--------|---------------------------------------|----------------|---------|--------------------------------------------------------------------------------------------------------------------------------|
| 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<br>For more information go to<br><a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|--------------------------------------------------------------------------------------------------------------------------------|
| UNZ              | Fast switching                                                                                                                                                                                                                         |                | Yes <sup>2</sup> | N5171B-UNZ                                                                                                                     |
| UNT              | AM, FM, phase modulation                                                                                                                                                                                                               |                | Yes <sup>2</sup> | N5171B-UNT                                                                                                                     |
| 1EQ              | Low power (< -110 dBm)                                                                                                                                                                                                                 |                | Yes <sup>2</sup> | Standard <sup>4</sup>                                                                                                          |
| 006              | Instrument security                                                                                                                                                                                                                    |                | Yes              | N5171B-006                                                                                                                     |
| UNU              | Pulse modulation                                                                                                                                                                                                                       | UNW            | Yes <sup>2</sup> | N5171B-UNW                                                                                                                     |
| UNW              | Narrow pulse modulation                                                                                                                                                                                                                | UNU            | Yes <sup>2</sup> | N5171B-UNW                                                                                                                     |
| 320              | Pulse train generator                                                                                                                                                                                                                  |                | Yes <sup>3</sup> | N5171B-320                                                                                                                     |
| 1EA              | High output power                                                                                                                                                                                                                      |                | Yes <sup>2</sup> | N5171B-1EA                                                                                                                     |
| 099 <sup>1</sup> | Expanded license key upgradeability<br>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 <sup>1</sup> | N5171B-099                                                                                                                     |

1. 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](http://www.keysight.com/find/SSupgrades).

2. Upgrade requires Option 099.

3. Option 320 requires Option UNU or UNW.

4. 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<br>For more information go to<br><a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|--------|----------------------------------------|----------------|---------|--------------------------------------------------------------------------------------------------------------------------------|
| 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<br>For more information go to<br><a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|--------------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                  |
| 0BW    | Service documentation, assembly level                                                                                                                                                                                                                                                     |                | Yes     | N5171B-0BW                                                                                                                     |
| AXT    | Hard transit case                                                                                                                                                                                                                                                                         |                | Yes     | N5171B-AXT                                                                                                                     |

## Step 6. Choose warranty and calibration options

| Option       | Description                                                          | Matching EXG options<br>For more information go to<br><a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|--------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Included     | 3-year warranty (return-to-Keysight), standard                       | Standard                                                                                                                       |
| R-51B-001-5C | Warranty Assurance Plan, Return to Keysight, 5 years                 | R-51B-001-5C                                                                                                                   |
| 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<br>For more information go to<br><a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|-------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 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<br>For more information go to <a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|------------------|-----------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                 |
| 0BW              | N5181AK-0BW     | Service documentation, assembly level                           | Printed copy of the assembly level service guide                | None                    | None              | N5171B-0BW                                                                                                                  |
| AB1 <sup>1</sup> | 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 <sup>1</sup> | 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 <sup>1</sup> | 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 <sup>1</sup> | 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<br>For more information go to<br><a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|--------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| N5182A | First-generation MXG vector signal generator | N5172B                                                                                                                         |

### Step 2. Choose one frequency option (required)

| Option | Description                           | Requires | Not compatible | Upgrade | Matching EXG options<br>For more information go to<br><a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|--------|---------------------------------------|----------|----------------|---------|--------------------------------------------------------------------------------------------------------------------------------|
| 503    | Frequency range from 100 kHz to 3 GHz |          | 506            | No      | N5172B-503<br>(9 kHz to 3 GHz)                                                                                                 |
| 506    | Frequency range from 100 kHz to 6 GHz |          | 503            | No      | N5172B-506<br>(9 kHz to 6 GHz)                                                                                                 |

### Step 3. Choose performance enhancement options

| Option | Description                                                                                                                                                                                                                         | Requires         | Not compatible | Upgrade          | Matching EXG options<br>For more information go to<br><a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------|------------------|--------------------------------------------------------------------------------------------------------------------------------|
| UNZ    | Fast switching                                                                                                                                                                                                                      |                  |                | Yes <sup>2</sup> | N5172B-UNZ                                                                                                                     |
| UNT    | AM, FM, phase modulation                                                                                                                                                                                                            |                  |                | Yes <sup>2</sup> | N5172B-UNT                                                                                                                     |
| UNU    | Pulse modulation                                                                                                                                                                                                                    |                  | UNW            | Yes <sup>2</sup> | N5172B-UNW                                                                                                                     |
| UNW    | Narrow pulse modulation                                                                                                                                                                                                             |                  | UNU            | Yes <sup>2</sup> | N5172B-UNW                                                                                                                     |
| 320    | Pulse train generator                                                                                                                                                                                                               | UNU/UNW          |                | Yes              | N5172B-320                                                                                                                     |
| UNV    | Enhanced dynamic range                                                                                                                                                                                                              | 651, 652, or 654 |                | Yes <sup>2</sup> | N5172B-UNV                                                                                                                     |
| 1EQ    | Low power (< -110 dBm)                                                                                                                                                                                                              |                  |                | Yes <sup>2</sup> | Standard <sup>3</sup>                                                                                                          |
| 006    | Instrument security                                                                                                                                                                                                                 |                  |                | Yes              | N5172B-006                                                                                                                     |
| 1EA    | High output power                                                                                                                                                                                                                   |                  |                | Yes <sup>2</sup> | 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 <sup>1</sup> | 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<br>For more information go to<br><a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|--------|------------------------------------------------|------------------|----------------|---------|--------------------------------------------------------------------------------------------------------------------------------|
| 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](http://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](http://www.keysight.com/find/signalstudio).

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

\* 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<br>For more information go to <a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|--------|-------------------------------------|----------|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------|
| 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<br>For more information go to <a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                               |
| 0BW    | Service documentation, assembly level                                                                                                                                                                                                                                                     |                | Yes     | N5172B-0BW                                                                                                                  |
| AXT    | Hard transit case                                                                                                                                                                                                                                                                         |                | Yes     | N5172B-AXT                                                                                                                  |

## Step 8. Choose warranty and calibration options

| Option       | Description                                                          | Matching EXG options<br>For more information go to <a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|--------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Included     | 3-year warranty (return-to-Keysight), standard                       | Standard                                                                                                                    |
| R-51B-001-5C | Warranty Assurance Plan, Return to Keysight, 5 years                 | R-51B-001-5C                                                                                                                |
| 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<br>For more information go to<br><a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|-------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 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<br>For more information go to<br><a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|---------|-----------------|-----------------------------------------------------------|----------------------------------------------|-------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 006     | N5182AK-006     | Instrument security                                       | Customer installable - software, License key | None                    | None              | N5172BU-006                                                                                                                    |
| 012     | N5182AK-012     | L0 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                                                                                                           |
| 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                                                                                                                    |

| Product          | Order number | Description                                                     | Upgrade contents                                                | Additional requirements | Incompatible with       | Matching EXG options<br>For more information go to <a href="http://www.keysight.com/find/exg">www.keysight.com/find/exg</a> |
|------------------|--------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                 |
| 0BW              | N5182A-0BW   | Service documentation, assembly level                           | Printed copy of the assembly level service guide                | None                    | None                    | N5172B-0BW                                                                                                                  |
| 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 <sup>1</sup> | 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 <sup>1</sup> | 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 <sup>1</sup> | 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 <sup>1</sup> | 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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