

Keysight
N5166B CXG
N5171B/72B/73B EXG
N5181B/82B/83B MXG
X-Series Signal Generators

For the latest revision of this installation note,
go to the following website:

<http://www.keysight.com/find/mxg>

Notices

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Firmware Update Guide

Product Affected:	N5166B/71B/72B/73B/81B/82B/83B
Serial Numbers:	All
Options:	All
To Be Performed By:	(X) Keysight Technologies Service Center (X) Advanced User (X) User
Estimated Installation Time:	5 minutes
Estimated Verification Time:	1 minute

Introduction

The instructions in this firmware update guide enable you to update firmware on a Keysight X-Series signal generator from the Keysight Technologies website.

Before using this guide, you should be familiar with the basic operation of the signal generator. If you are not comfortable with using the signal generator's menus and with entering parameter values, refer to the instrument's **User's Guide** and familiarize yourself with the basic operation information.

Basic Update Process

1. Confirm required equipment ([page 5](#)).
2. Run the signal generator's functionality check ([page 6](#)).
3. Connect the signal generator to a PC ([page 7](#)).
4. Download and install the firmware ([page 8](#)).
5. Rerun signal generator's functionality check ([page 6](#)).

Step 1. Confirm Required Equipment

PC Requirements	
450 MHz Pentium® II or higher	
Operating System, Windows XP, Windows 7, Windows 10	
128 MB RAM	
20 MB free disk space	
Internet browser to download firmware files from the Internet, or to view firmware release information on your PC over the Internet. Either browser must be Java enabled with Java 1.02 or above.	
	Microsoft® Internet Explorer 4.01 or later Netscape Navigator 4.0 or later
<p>If using GPIB:</p> <ul style="list-style-type: none"> – an installed and configured GPIB IO interface card and a GPIB cable – either the Keysight or National Instruments I/O Libraries 	
<p>If using LAN:</p> <ul style="list-style-type: none"> – an installed and configured LAN interface card – To connect either directly to the PC, or the PC through to LAN, use a 100Base-T LAN cable – See the FAQ: “How do I connect the Keysight MXG Signal Generator to a PC using LAN?” <p>If you encounter problems, contact your network administrator.</p>	
<p>If using USB:</p> <ul style="list-style-type: none"> – an unused USB port – a USB cable with Micro USB connector – the Keysight I/O Library 15.5 or later or the National Instruments VISA library 4.0 or later. 	

Step 2. Run the Signal Generator's Functionality Check

Use the following procedure to confirm that the signal generator powers up and that the internal check identifies no errors. The internal check evaluates the operation of the signal generator and returns an error message if it detects a problem.

1. Turn on power to the signal generator and let it warm up for at least five minutes.
2. Check to see if the `ERR` annunciator is on.
 - If the `ERR` annunciator is **off**, the signal generator's functionality check passed.
 - If the `ERR` annunciator is **on**:
 - a. View the error queue:
Press **Error**.
 - b. Resolve all problems causing errors.
If you are unable to resolve the errors, contact Keysight Technologies (see [page 11](#)).
 - c. Clear the error queue: Press **Clear Error Queue(s)** and go to [step 3](#).
3. Repeat the functionality check:
Cycle the signal generator's power.
4. Repeat [step 2](#).

Step 3. Connect the Signal Generator to the PC

Using LAN

Connect the signal generator to the PC:

Either

- use a 100 Base-T LAN cable to connect the signal generator to the PC,
- or
- connect both the PC and the signal generator to the LAN using 100 Base-T LAN cables.

There are numerous ways to configure the signal generator to connect to the LAN. Refer to:

- Keysight MXG FAQ's "How do I connect the Keysight MXG Signal Generator to a PC using LAN?".
- Keysight Technologies IO Libraries USB/LAN/GPIB Interfaces Connectivity Guide (E2094–90009).
- Keysight X-Series **Programming Guide** or,
- www.keysight.com/find/mxg

Depending on the signal generator's current LAN settings and which procedure you choose, the signal generator's LAN settings may be changed. Since these settings are persistent (retained through presets and power cycles) it is recommended that you record the current LAN settings so you can restore them back to their original settings after upgrading the firmware. Information on the LAN softkeys is provided in key **Help** of the instrument. See also the **User's Guide**.

Using GPIB

1. Connect a GPIB cable between the PC and the signal generator.
2. Set the GPIB address:

Press **Utility** > **I/O Config** > **GPIB Setup** > **GPIB Address** > **19**

The signal generator's GPIB address is set to 19 at the factory. The acceptable range of addresses is 0 through 30. Once initialized, the state of the GPIB address is not affected by a signal generator preset or by a power cycle. Other instruments on the GPIB cannot use the same address as the signal generator.

NOTE

If there is more than one signal generator on the same bus whose GPIB address is 19, turn the power off to the instrument(s) or change the address of the signal generator of interest.

Using USB

Connect a USB cable between the PC and the signal generator's rear panel Micro USB connector. If the "Found New Hardware" wizard activates, select **Install the Software Automatically**.

Step 4. Download and Install the Firmware Files

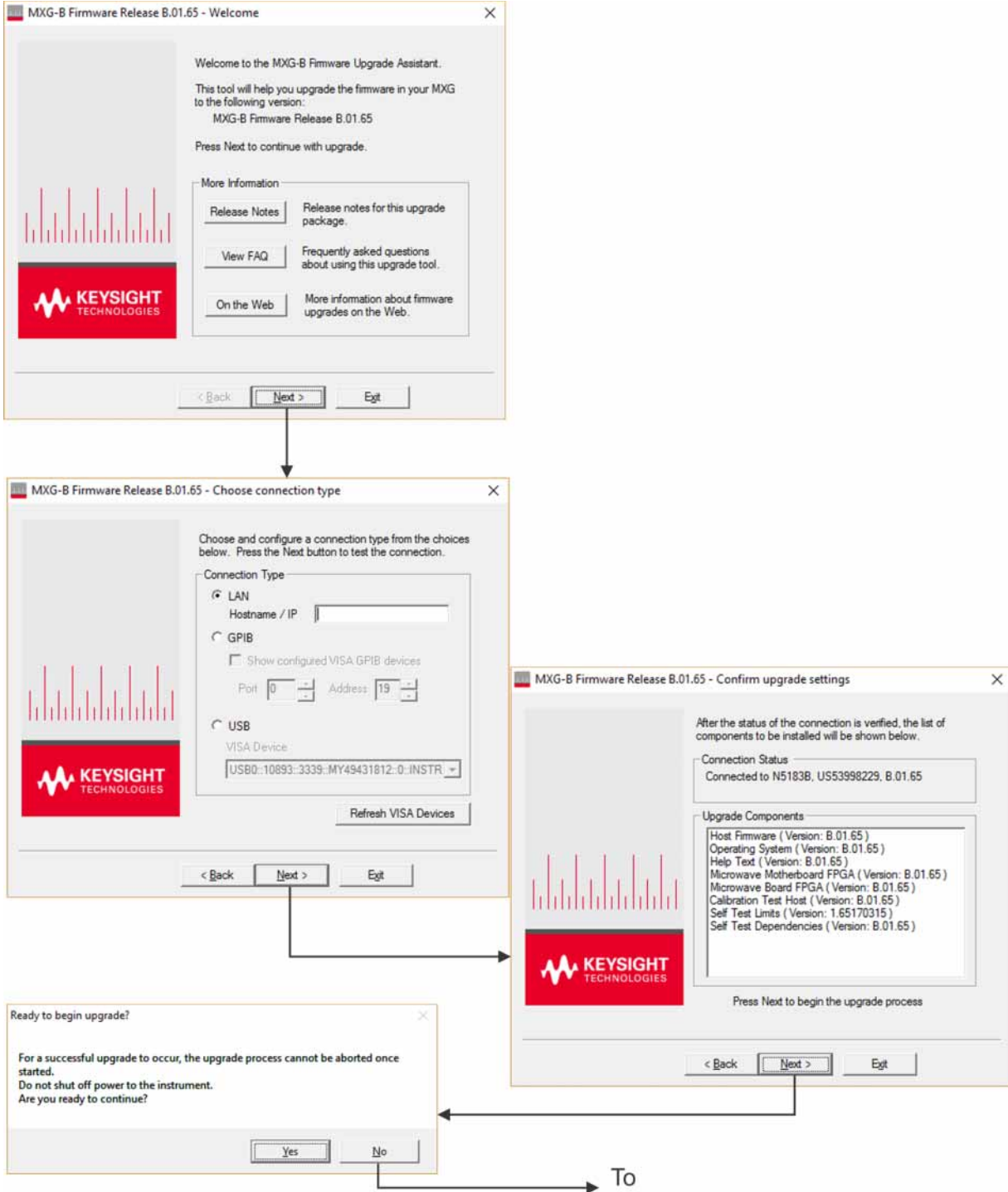
From the Keysight Technologies website

1. In an internet browser, enter http://www.keysight.com/find/ss_firmware.
2. Download and run the latest Keysight X-Series Firmware Package for the instrument being updated.
3. Once the update starts, follow the program's prompts (see [page 9](#)).
4. After the update completes, press the signal generator's **Local** hardkey to return front panel control.
5. Run the signal generator's functionality check (see [page 6](#)).

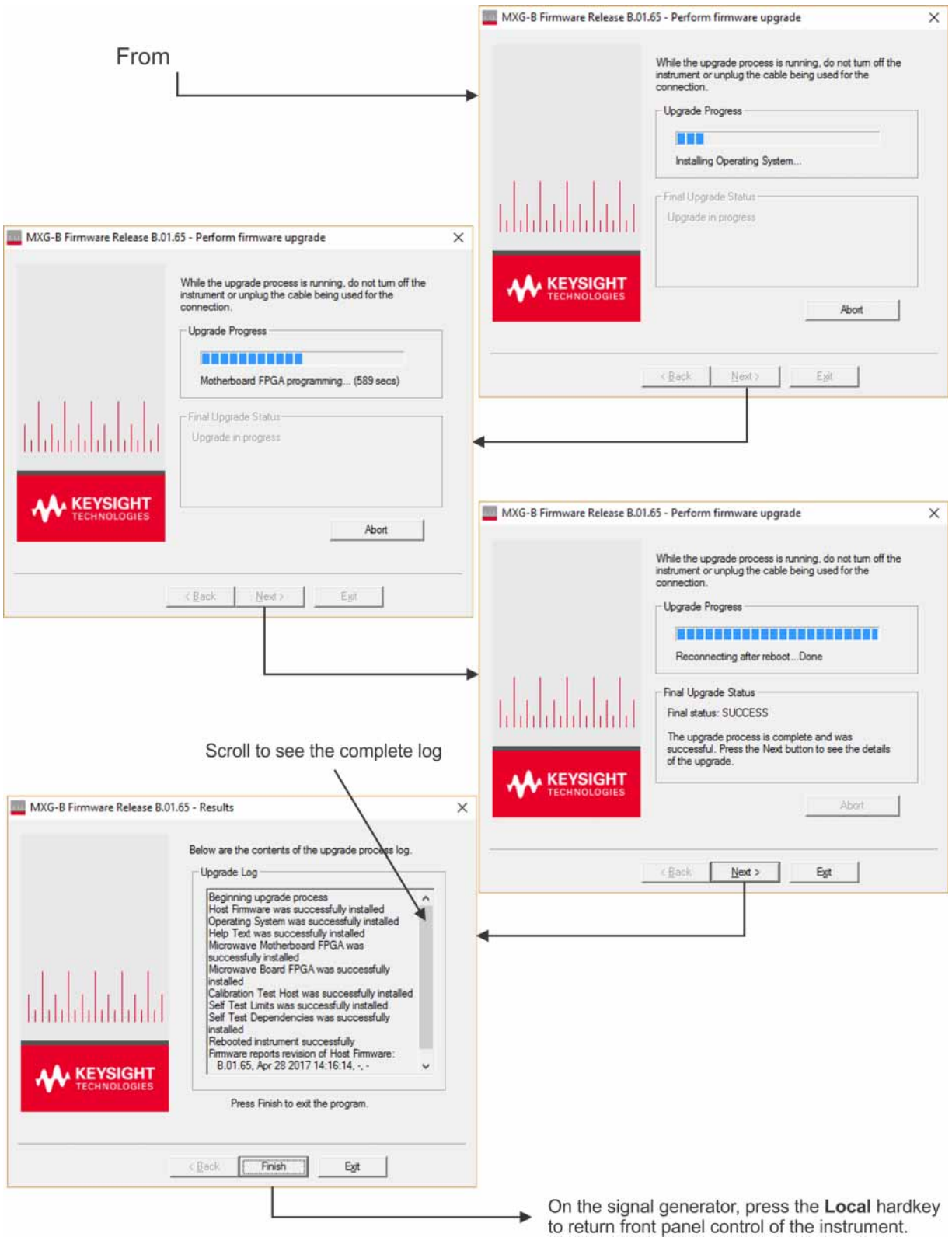
NOTE

If the update is interrupted, the instrument tries to load a recovery image; if errors appear, they can be safely ignored. Run the firmware installer again to install the proper firmware; additional errors may appear, but these can also be ignored unless pressing **Error > Clear Error Queue** does not clear them. If you cannot clear the errors, contact Keysight Technologies (see [page 11](#)).

Running the Update Program



Firmware Update Guide



Contacting Keysight Technologies

- assistance with test and measurements needs, and information on finding a local Keysight office:
<http://www.keysight.com/find/assist>
- accessories or documentation: <http://www.keysight.com/find/mxg>
- new firmware releases: http://www.keysight.com/find/ss_firmware

If you do not have access to the Internet, please contact your field engineer.

NOTE

In any correspondence or telephone conversation, refer to the signal generator by its model number and full serial number. With this information, the Keysight representative can determine whether your unit is still within its warranty period.

Returning a Signal Generator to Keysight

Use the following steps to return a signal generator to Keysight Technologies for servicing:

1. Gather as much information as possible regarding the signal generator's problem.
2. Call the phone number listed on the Internet (<http://www.keysight.com/find/assist>) that is specific to your geographic location. If you do not have access to the Internet, contact your Keysight field engineer.

After sharing information regarding the signal generator and its condition, you will receive information regarding where to ship your signal generator for repair.

3. Ship the signal generator in the original factory packaging materials, if available, or use similar packaging to properly protect the signal generator.



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