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# Keysight N9032B Signal Analyzer

Internal Preamplifier

# Notices

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## Internal Preamplifier Installation

Products Affected:	N9032B PXA Signal Analyzer
Serial Numbers:	All
To Be Performed By:	(X) Keysight Service Center (X) Advanced User ( ) User
Estimated Installation Time:	0.5 Hours
Estimated Adjustment and Verification Time:	

### Introduction

This kit contains all of the instructions required to install one of the internal preamplifier options seen in the following table into an N9032B signal analyzer.

Upgrade Option	Description	Frequency Option Required
N9032BU-P08	Preamplifier, 8.4 GHz	Option 508
N9032BU-P13	Preamplifier, 13.6 GHz	Option 513
N9032BU-P26	Preamplifier, 26.5 GHz	Option 526
N9032BU-P44	Preamplifier, 44 GHz	Option 544
N9032BU-P4L	Preamplifier, 44 GHz, basic	Option 544
N9032BU-P50	Preamplifier, 50 GHz	Option 550
N9032BU-P5L	Preamplifier, 50 GHz, basic	Option 550
N9032BU-P55	Preamplifier, 55 GHz	Option 555
N9032BU-P5N	Preamplifier, 55 GHz, basic	Option 555

#### NOTE

The frequency range of the preamplifier upgrade being installed must match the frequency range option of the instrument that is being upgraded, as seen in the table above.

When one of the preamplifier options is installed, both the Preamplifier and the Low Noise Amplifier (Option LNA) are enabled.

## Internal Preamplifier Installation

### Instrument Calibration

The validity of any existing calibration that the instrument being upgraded may have will not be affected by the installation of this upgrade. However, the adjustments and performance verification testing prescribed in the following procedure must be run in order to validate the portion on the instrument calibration associated with the performance option being installed.

#### NOTE

At the time of manufacture the hardware related to this option was fully adjusted and the option performance was verified to be within its warranted specifications. Within one year of the initial calibration date of the instrument this option is fully calibrated with no further adjustment or verification testing.

To determine the initial calibration date, locate the original calibration certificate that was shipped with the instrument at the time of purchase. The Date of Calibration is printed on the original calibration certificate.

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## Contents

Quantity	Description
1	Installation Note
1	Option Upgrade Entitlement Certificate

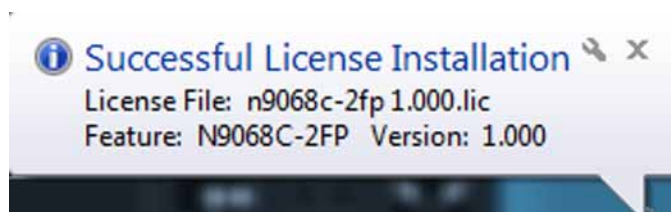
## Tools Required

- Personal computer with internet access and USB port
- USB storage device

## Installation Procedure over USB

1. Locate the Option Upgrade Entitlement Certificate from the kit.
2. Redeem the Option Upgrade Entitlement Certificate by following the instructions on the Certificate.
3. After redeeming your Option Upgrade Entitlement Certificate you will receive an email with an attached License File.
4. Locate a USB storage device. Perform a virus scan on this device before use.
5. Save the License File to the root directory of the USB Storage Device.
6. Connect the USB Storage Device to the signal analyzer USB port.
7. The signal analyzer will automatically consume the License File. (This may take a few minutes) When the License File is consumed the Keysight License Manager will display a “Successful License Installation” message similar to the one shown in **Figure 1**.

**Figure 1** Successful License Installation



### Alternate Installation Procedure

The License File can be manually installed over USB or LAN by placing the license file in the following folder on the signal analyzer

C:\Program Files\Agilent\licensing

### Verify the Installation

1. Cycle the power on the signal analyzer.
2. Press **System, Show System** to display a list of installed options.
3. Verify that the newly installed option(s) appears on the list. You should see both the option being installed and Option LNA in the options list.

### Functional Check:

To ensure that this newly installed option has been enabled correctly the following functional check is recommended.

1. Tap the message balloon at the bottom of the main display. Tap **Clear Message Queue** if any messages are displayed. This will remove out-of-date errors. Tap **X** to close the error history window.
2. Press the Gear icon (System), **Alignments, Align Now, Align Now All**.
3. Watch for any errors during the instrument alignment.
4. Tap the message balloon at the bottom of the main display to view the instrument error log.
5. Verify that there were no errors during the alignment. Tap **X** to close the error history window.

### Optional Functional Check

1. Preset the signal analyzer. Assure mode is **Spectrum Analyzer**.
2. Press **Input/Output, Calibrator Control, Cal Source, 4.8 GHz**
3. Press **Freq, Center Frequency**, enter 4.8 GHz to display the 4.8 GHz calibrator.
4. Press **Span, 1 MHz**.
5. Press **Amptd, Signal Path, Internal Preamp**, select **Full Range**, and **On** to turn preamp on. The displayed signal amplitude should not change more than 0.25 dB.
6. Select **LNA On**. The displayed signal amplitude should not change more than an additional +/- 0.25 dB.



## Utilities, Adjustments, and Performance Verification Tests

### Utilities Required

None

### Adjustments Required

<b>Adjustment Name</b>
None required if the instrument is less than one year old.
If the instrument is more than one year old:
50 MHz Calibrator Amplitude
4800 MHz Calibrator Amplitude
Freq Resp Below 3.6 GHz Preamp On
Freq Resp Below 3.6 GHz LNA
Wideband Calibrator Adjustment
Freq Resp Wideband MPB Preamp On
Freq Resp Wideband LNA MPB Preamp On
IF Frequency Response UWBIF & Phase Linearity
Freq Resp Above 3.6 GHz Preamp On
Freq Resp Above 3.6 GHz MPB Preamp On
Freq Resp Above 3.6 GHz LNA
Freq Resp Above 3.6 GHz LNA Preamp On
Freq Resp Above 3.6 GHz LNA MPB
Freq Resp Above 3.6 GHz LNA LNP
Freq Resp Above 3.6 GHz LNA FBP
Freq Resp Above 3.6 GHz LNA MPB Preamp On

## Internal Preamplifier Installation

### Performance Testing Required

#### Test Name:

Test Name
None required if the instrument is less than one year old.
If the instrument is more than one year old:
Noise Density
Residual Response
Displayed Average Noise Level
Frequency Response Above 50 MHz Preamp On LNA Off
Frequency Response Above 50 MHz Preamp Off LNA On
Frequency Response Above 3.6 GHz Preamp On LNA On
Frequency Response Below 50 MHz Preamp On LNA Off
Frequency Response Below 50 MHz Preamp Off LNA On
Absolute Amplitude Accuracy

For assistance, contact your nearest Keysight Technologies Sales and Service Office. To find your local Keysight office access the following URL, or if in the United States, call the following telephone number:

<https://www.keysight.com/find/assist>

1-800-829-4444



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