Model 7550
Precautions and Quick Start Guide

Very Important:
Please Read

Disclaimer

Important Notice

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Obtaining Technical Assistance

For all customers who hold a valid end-user license, Berkeley Nucleonics provides technical assistance 7 AM to 6 PM Pacific Time, Monday to Friday. Contact us at support@berkeleynucleonics.com or by calling +1.415.453.9955 or toll free at 1.800.234.5533. Before contacting support, please have the following information available:

- Model 7550 serial number and product version which are located on the identification label on the Model 7550's underside.
- The firmware version running on the Model 7550 which can be found by typing your connected device's IP address into a web browser.
- Versions of Berkeley Nucleonics software you are using, including the API libraries to third party applications.
- The operating system and version you are using.

Precautions when using the Model 7550

Ensure that you read and understand the following information about safety and electrostatic discharge before you unpack and install the Model 7550.

Warning: Only trained and qualified personnel should be allowed to install or replace this equipment. Read the installation instructions before you connect the system to its power source.

Preventing Electrostatic Discharge Damage

Electrostatic Discharge (ESD) is a single-event, rapid transfer of electrostatic charge between two objects, such as an operator and a piece of electrical equipment. ESD can occur when a high electrostatic field develops between two objects in close proximity. ESD occurs when electronic components are improperly handled and is one of the major causes of device failures in the semiconductor industry.

Electrostatic discharge is more likely to occur with the combination of synthetic fibers and dry atmosphere. Always follow these steps to prevent ESD.

Warning: Never open the front or rear panels of the Model 7550 as personal injury may result and opening the chassis will void the warranty. There are no user-serviceable parts inside. Always contact Berkeley Nucleonics support for service.

Caution: To prevent ESD, wear an ESD-preventive wrist strap that you provide, ensuring that it makes good skin contact.

Caution: Do not touch any exposed contact pins or connector shells of interface ports that do not have a cable attached. If cables are connected at one end only, do not touch the exposed pins at the unconnected end of the cable.

Connecting the Antenna, Ethernet and Power Cables

Caution: Never connect a transmitter directly to the receiver with a cable.

Caution: Do not over-tighten the antenna connector on the jack. Using a wrench, pliers or even your hand to over-tighten the antenna can cause permanent damage to the receiver.

1. Screw the antenna or the connector of the DUT onto the Model 7550 "RF IN" input SMA jack. Carefully turn the antenna or connector screw by hand until it encounters resistance. See below for the maximum allowable input and cautions.
2. Connect one end of the Ethernet cable to the Model 7550's Ethernet port and the other end to an Ethernet port on your router or PC.
3. Connect the Model 7550 to its power adapter or battery pack (optional).

Warning: Use only the power adapter provided with the unit.

4. Plug the power adapter into a power outlet.
5. Push the power switch towards the power symbol to power the unit on.

Note: See Status Indicator LEDs section for description of the Model 7550's status.

Connecting Signal Sources to the Receiver Front-end

Model 7550's receivers can tolerate a maximum input signal of +10 dBm. **<u>Injecting signal levels that exceed these specifications will result in permanent damage to the receiver</u>**.

It is therefore recommended that the output of a signal source be verified with the use of a power meter prior to connecting the source directly to the RF IN connector.

Additionally any external signal sources connected to RF IN must be turned on only after powering on the Model 7550 and turned off prior to powering down the Model 7550.

The use of External 10 MHz Reference

The Berkeley Nucleonics Model 7550 can be synchronized with the use of an external 10 MHz reference. The 10 MHz reference can be obtained, for example, from an external oscillator or from the digitizer section of the data acquisition system. As well, this 10 MHz is redistributed within the Model 7550 and sent to the 10 MHz OUT SMA connector for use by external equipment that needs a 10 MHz reference source.

To set the RTSA to use the external 10 MHz reference, send the SCPI command *:SOURCE:REFERENCE:PLL EXT* (Refer the Model 7550 Programmer's Guide for more details)

The external 10 MHz reference level must be between -10 dBm and 0 dBm.

Caution: Exceeding the level of 0 dBm will result in permanent damage to the internal clock circuit. Additionally the 10 MHz reference must be powered down prior to powering down the Model 7550.

For any questions on the above information please email Berkeley Nucleonics Support

Embedded Chassis Mounting and Heat Dissipation

Caution: The Berkeley Nucleonics Model 7550 embedded chassis is designed to be mounted in a cabinet or enclosure. Do not mount the Model 7550 in exposure to direct sunlight.

When used on a desktop, the rubber feet are inserted in the bottom of the embedded chassis and the heat is dissipated via the heat-spreader through the top of the chassis. Objects that would prevent proper heat-dissipation should not be placed upon the top of the chassis.

When used on a desktop or mounted in a rack, cabinet or enclosure, one must provide cooling to the Model 7550 by air convection across the embedded chassis's top surface or via heat conduction by mounting the embedded chassis's top surface to an appropriate heat conducting surface, capable of 15W of power dissipation.

Getting Started

Shipping Box Contents

Please ensure that your shipping box contains the following:

1. Model 7550 Real-Time Spectrum Analyzer
2. Power adapter and associated power cable
3. Straight-through Ethernet cable
4. USB flash drive with associated documents and software
5. Antenna (please note that the antenna is included for your convenience and only intended to perform adequately across a limited frequency range)
6. This Document "Precautions & Quickstart Guide "

Obtaining the Latest Documentation and Software

Please visit Berkeley Nucleonics Model 7550 webpage at the following URL to download the latest releases of new firmware and software, manuals, application notes and latest news about Model 7550

https://www.berkeleynucleonics.com/model-7550-0

Connecting to the Model 7550 via an IP Ethernet Network

Please note that your Model 7550 communicates only via its 10/100/1G Ethernet port and there is currently no software support for its USB console port.

The Model 7550 provides a means for obtaining an IP address dynamically using DHCP or the manually setting of a static IP address. The unit is set to use DHCP by factory default or on factory reset.

- Launch the RTSA software and all Model 7550s on the subnet will appear in the discovery window. Select the one you wish to connect to.

Note: The RTSA GUI will only find Model 7550s that are on the same IP network subnet as your computer.

- Alternatively, check with your network administrator to determine the IP address of the Model 7550.

Using the Model 7550

Please refer to the *"Administration Console"* section of the *Berkeley Nucleonics Model 7550 User Guide* for a comprehensive description of the following.

Changing from Dynamic to Static IP Addressing

1. Connect to the Model 7550's administration console by entering the IP address of the Model 7550 into your web browser's web address dialog. The Status web page should appear.
2. Click on the "IP Configuration" link in the left column menu of the administrative console web page. The IP Configuration web page should appear.
3. Select "Use the following static IP address", enter the fields accordingly and click the "Apply" button.

Changing from Static to Dynamic IP Addressing and/or Performing a Factory Reset

Changing the Model 7550 to dynamic IP addressing may be performed via the web console or via a factory reset.

1. Follow steps 1 and 2 of the above instructions and then Select "Select an IP address dynamically using DHCP" and click the "Apply" button.

    Note: Alternatively, performing a reset to factory settings will reset the Model 7550's IP configuration to obtain an IP address dynamically using DHCP. Perform this procedure if for any reason you can not connect to the Model 7550 via the Ethernet.

2. Power on the Model 7550
3. At any time while the Model 7550 is powered on, press and hold the reset button (located in The Rear Panel) for at least 5 seconds by inserting a paper clip or similar object

4. The STS LED will blink green fast several times to acknowledge that the factory reset has been performed
5. Wait for the unit to completely boot up (another ~30 seconds) and run the RTSA GUI to determine the unit's IP, or use the USB Console to verify the network settings (see Using the USB Console Section).

Updating the Firmware

1. Connect to the Model 7550's administration console by entering the IP address of the Model 7550 into your web browser's web address dialog. The Status web page should appear. The current firmware revision is indicated on the Status web page.
2. Click on the "Firmware Install" link in the left column. The Firmware Install web page should appear.
3. Enter or browse to the location of the firmware image file and then click the "Install" button. The Firmware Install web page should step through the progression of the firmware being uploaded and installed.
4. Upon completion, a web dialog box should appear. Press the "OK" button to restart the Model 7550 or "Cancel" to defer restarting until a later time.
5. Upon restart, the newly installed firmware will take effect.