



Quick Start Guide

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Overview

This guide provides assistance when preparing an SPLnet system for initial use. After completing only a few simple tasks operation can begin. The first step is to connect a Model 121 or Model 122 microphone to the Model 100 Main Electronics Unit. Then Ethernet connections appropriate for the specific application will be made to the Model 100 Main Electronics Unit and an associated personal computer. The Ethernet connection made to the Model 100 is somewhat unique as it must include Power-over-Ethernet (PoE) power. This PoE power source provides all operating power for the Model 100. Finally, web browser software on the personal computer will be used to connect to and configure the Model 100.

If you purchased an SPLnet Complete Configuration all items required for operation are included in the shipping carton. This includes a Model 100, Model 121 or Model 122 measurement microphone, PoE midspan power injector, and both straight-thru and crossover Ethernet cables.

Connecting the Measurement Microphone

Connect the BNC plug located on one end of the coaxial microphone cable to the mating connector located on the top panel of the Model 100's enclosure. Connect the other BNC plug, located on the other end of the cable, to the BNC connector on the Model 121 or Model 122 microphone.

Ethernet Connections

The following sections provide three methods of connecting an SPLnet Model 100 Main Electronics Unit to a personal computer or local-area network (LAN). The first method details how to create a direct data connection between the Model 100 and a personal computer with no involvement of a LAN. This method includes using a midspan PoE power injector. The second method describes making a connection to a LAN port that doesn't include integrated PoE power. This method also includes the use of a PoE midspan power injector. The third method describes connecting the Model 100 to a LAN connection that includes PoE power.

Model 100 Direct Connection to a Personal Computer

Figure 1 provides details on implementing a direct data connection from a Model 100 to a personal computer. Begin by connecting a crossover Ethernet cable from the LAN (input) port on the PoE midspan injector to the Ethernet port on the personal computer. Next connect one end of a straight-thru Ethernet cable to the powered (output) port of the Power-over-Ethernet (PoE) midspan injector. Connect the other end of the cable to the Ethernet port on the Model 100. In addition, the PoE midspan power injector must be connected to AC mains power.

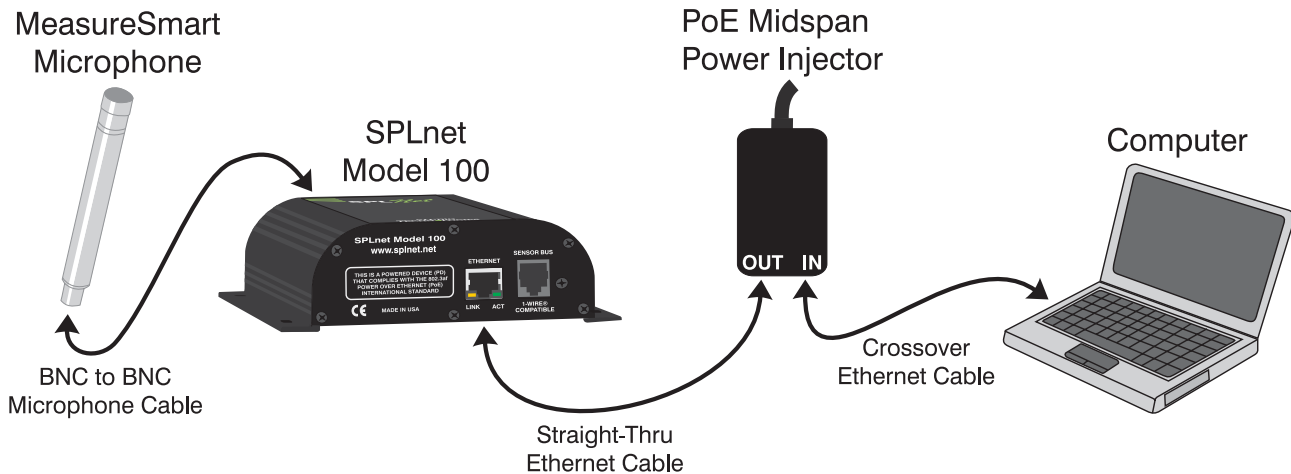


Figure 1. Model 100 Direct Connection to a Personal Computer

The Model 100 will begin its start-up process as soon as PoE power is applied. Once the Model 100 is fully functional (approximately 30 seconds after power is applied) and the personal computer is operating, the yellow “link” LED on the Model 100’s Ethernet connector will be lit. The link LED on the personal computer’s network connector should also be lit. The green “data activity” LED, also located adjacent to the Model 100’s Ethernet connector may also be blinking. The personal computer may also include an activity LED which could be blinking.

Model 100 Connection to a Non-PoE-Enabled Ethernet Switch

Figure 2 describes connecting a Model 100 to a LAN port that doesn’t provide PoE power. Begin by connecting a straight-thru Ethernet cable from the LAN (input) port on the PoE midspan injector to a port on an Ethernet switch that’s part of the LAN. Then connect one end of a straight-thru Ethernet cable to the powered (output) port of the Power-over-Ethernet (PoE) midspan injector. Connect the other end of the cable to the Ethernet port on the Model 100. The personal computer will be connected to the LAN in its normal fashion. After connecting the data cables apply AC mains power to the PoE midspan unit.

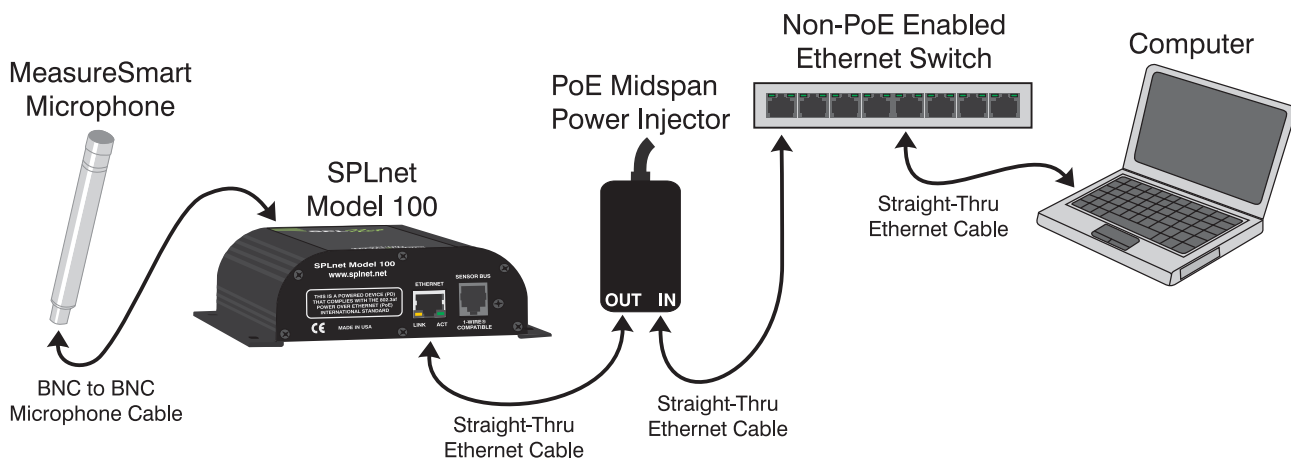


Figure 2. Model 100 Connection to a Non-PoE-Enabled Ethernet Switch

The Model 100 will begin its start-up process as soon as PoE power is applied. Once the Model 100 is fully functional the yellow “link” LED on the Model 100’s Ethernet connector should be lit. The green “data activity” LED on the Model 100 may be blinking. The link LED on the personal computer’s network connector should be lit. The personal computer may also include an activity LED which could be blinking.

Model 100 Connection to a PoE-Enabled Ethernet Switch

Figure 3 shows how the Model 100 is connected to a LAN port that includes PoE power. This method is simple and shows the advantage of integrating one or more Model 100 units into a contemporary PoE-enabled network. Begin by connecting one end of a straight-thru Ethernet cable to a port on the PoE-enabled Ethernet switch. Connect the other end of the cable to the Ethernet port on the Model 100. The personal computer is connected to the LAN in the normal fashion.

The Model 100 will begin its start-up process as soon as PoE power is applied. Once the Model 100 is fully functional the yellow link LED on the Model 100’s Ethernet connector should be solidly lit. The green activity LED on the Model 100 may be blinking. The link LED on the personal computer’s network connector should be lit. The personal computer may also include an activity LED which could be blinking.

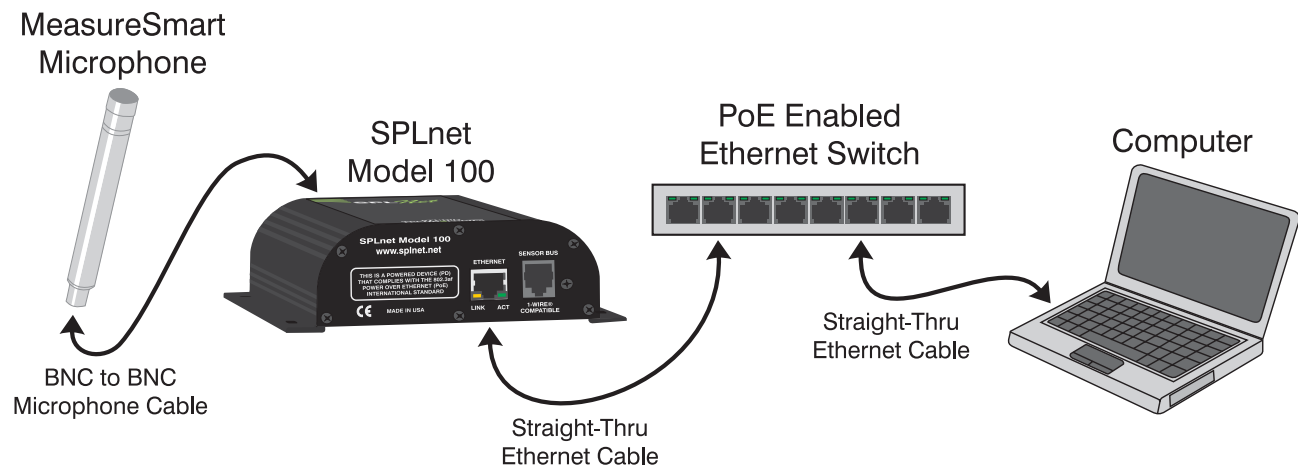


Figure 3. Model 100 Connection to a PoE-Enabled Ethernet Switch

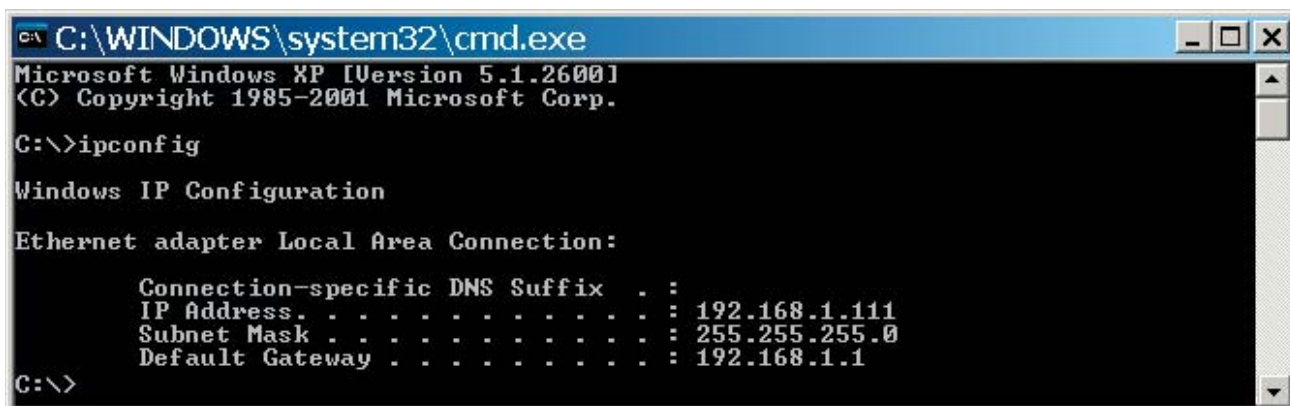
Network Settings

Once the Model 100 and associated personal computer have been connected via an Ethernet network it’s time to begin the system configuration. The important first steps are reviewing and, if required, revising the network settings on the Model 100 and the personal computer. The Model 100 is shipped with the following default network settings:

IP Address:	192.168.1.100
Subnet Mask:	255.255.255.0
Gateway IP Address:	192.168.1.1
DNS IP Address:	64.27.151.34

If the Model 100 is connected to a LAN it's likely that the personal computer is able to directly access the unit. However, to access a Model 100 that is directly connected to a personal computer, you will need to make certain that the personal computer is not set to automatically obtain its IP address from a DHCP server. Instead, manually set the personal computer to a fixed IP address of 192.168.1.x, where x is any number from 1 to 255, but not 100. In this guide we'll select x to be 111. Confirm that the Subnet Mask is 255.255.255.0. If it is not, change it to those values. At this point you do not need to worry about the Gateway IP Address or DNS IP Address.

If the personal computer is running Windows XP a quick way to check the current network configuration is to run "ipconfig" from the command prompt. To open the command prompt click Start, Run..., type "cmd," and then enter. Then type "ipconfig" to check your configuration. Your screen should display something similar to this. (If you are running OS X on an Apple® Macintosh®, open a terminal window and type "ifconfig" for similar functionality.)



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\>ipconfig

Windows IP Configuration

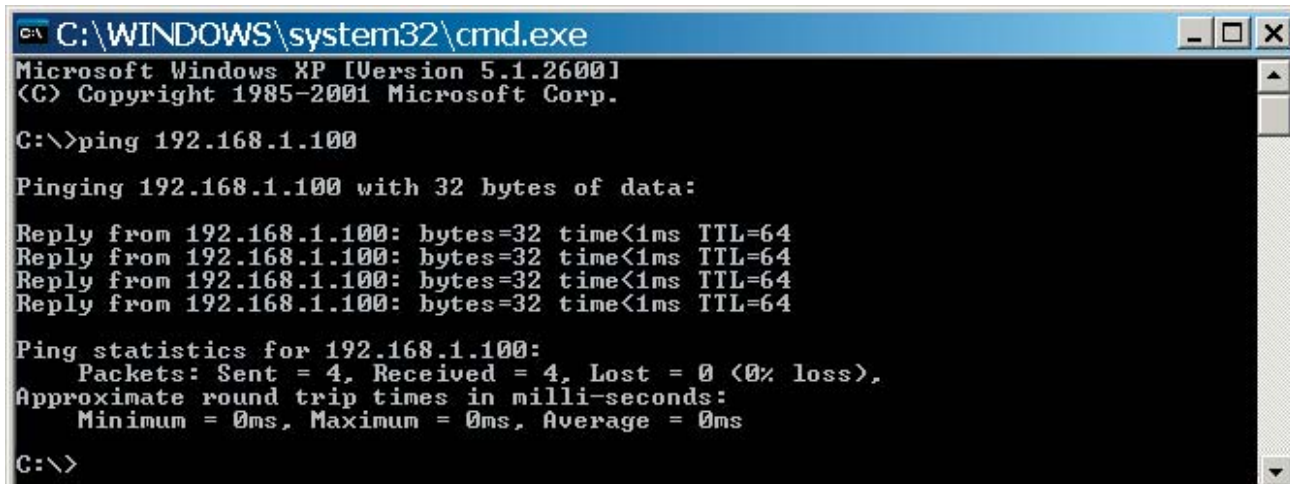
Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . .               : 192.168.1.111
    Subnet Mask . . . . .             : 255.255.255.0
    Default Gateway . . . . .         : 192.168.1.1

C:\>
```

Ping Test

Once the personal computer has been configured to access the Model 100 a connection test using the ping command is recommended. Under Windows XP entering "ping 192.168.1.100" at the command prompt would be appropriate. You should see something similar to this:



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\>ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:

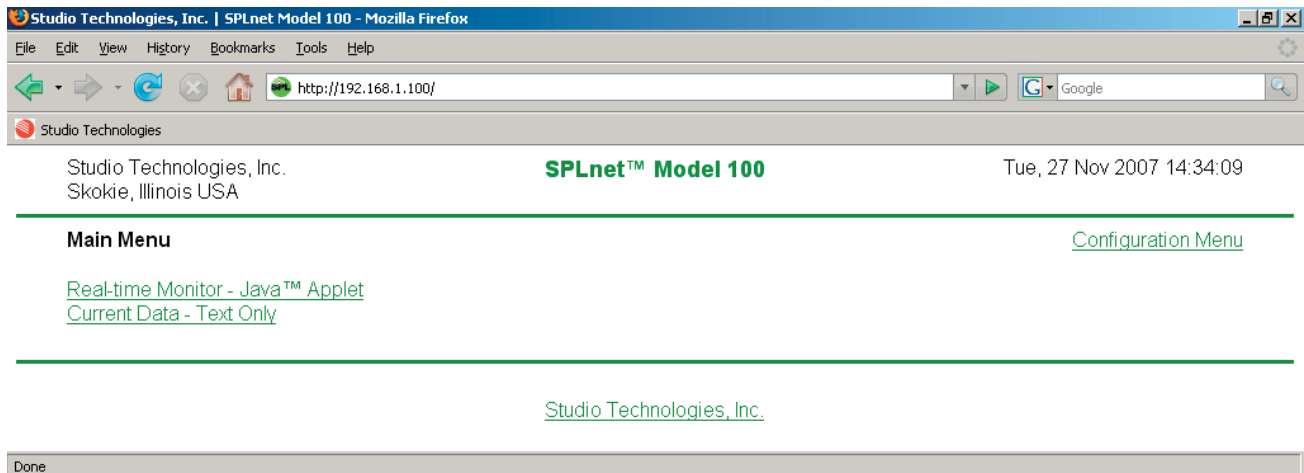
Reply from 192.168.1.100: bytes=32 time<1ms TTL=64
Reply from 192.168.1.100: bytes=32 time<1ms TTL=64
Reply from 192.168.1.100: bytes=32 time<1ms TTL=64
Reply from 192.168.1.100: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Accessing the Model 100 Web Pages

Now it is time to login to the Model 100 using the personal computer's web browser. Compatible browsers include Internet Explorer®, Mozilla Firefox®, and Safari®. Type "192.168.1.100" into the address bar and hit Enter. The Model 100's main web page should appear. In the upper right, click the link for the configuration menu. Once in the configuration menu, enter your login information or press submit if the default user name and password (guest, guest) appear. At the configuration menu select the Network and Time link. From the Network and Time menu you can configure the Model 100's network properties, making selections such that the unit will peacefully coexist on your local network. If necessary, contact your network administrator for more details.



Note that it's possible that you will not see the Configuration Menu link on the main web page. This is because the unit has been configured to not display the link. In this case type '192.168.1.100/config.htm' into the address bar of your web browser to directly access the configuration menu. You can select whether or not to display the menu link from the Device Identity, Configuration Menu Access, and Applet configuration page.

Online Configuration Help

After the basic Model 100 network configuration has been completed use the online help to learn more about the unit's resources. The help links redirect the browser to a website where the actual help content is located. As such, the personal computer's network connection must allow internet access.

Using the Java™ Applet

After the Model 100 has been configured to function correctly on a network normal operation can begin. To view the SPL data in real-time using your computer's web browser you will need to have the Java™ Runtime Engine (JRE), version 5 or later, installed. To download the latest version, go to <http://www.java.com>, click Download Now, and follow the installation instructions.

From the home page of the Model 100 you can now click Real-time Monitor – Java Applet to view the SPL data in real-time. You can also click Current Data – Text Only to view a snapshot of the current measurements. This is appropriate for computing devices which are not running Java such as some mobile phones and PDAs.

Additional Technical Notes

Start Up and Ethernet Connectivity

Each time power is applied to the Model 100, or a manual reset is performed via the “hidden” pushbutton switch or web page, the unit goes through a start-up process. This “boot” sequence takes approximately 30 seconds to complete. During this period the red and green LED arrays, visible through the label on the front surface of the enclosure, will light to indicate the start-up status. About ten seconds after start up commences the LED arrays will begin alternately lighting green and red. This indicates that the digital signal processing (DSP) integrated circuit is loading and initializing its software. After another approximately 15 seconds has passed the LEDs will no longer light. After a pause of about two seconds the LEDs will again alternately light for about four seconds. Once the LEDs are no longer lit the Model 100 is fully functional. The SPL measurement functions, primarily performed by the DSP integrated circuit, will now begin. During the start-up interval the yellow “link” and green “data activity” LEDs associated with the Ethernet jack will light in response to the connection present on the jack. This is a pure hardware response and doesn’t indicate true connectivity with a fully operating Model 100.

Only after the unit completes its start-up process can a TCP/IP data connection be established over the Ethernet interface. Once the Model 100 is fully functional a connection sequence begins, starting with an attempt to auto negotiate with the device connected to the Model 100’s Ethernet port. If this is unsuccessful the Model 100 will try connecting at 100 Mbps, full duplex (100BaseTx). If this again proves unsuccessful it will attempt to connect at 10 Mbps, half duplex (10BaseT). If no connection can be established, such as if power is applied to the Model 100 but no valid data connection is present, the unit will remain in a 10BaseT mode. Any subsequent data connection made to the Model 100’s Ethernet port will be recognized by the connected device as 10BaseT. This typically wouldn’t be an issue as the 10BaseT data rate is more than adequate for Model 100 operation.

Don’t be alarmed if upon initial Model 100 start up establishing a valid TCP/IP connection doesn’t occur. This can be easily remedied. First confirm that the Ethernet signal connected to the Model 100’s Ethernet jack is able to pass data; just having Power-over-Ethernet (PoE) voltage present isn’t sufficient. Then restart the Model 100 by unplugging the Ethernet cable from the unit, pausing a few seconds, then again plugging it in. This will cause the Model 100 to go through its initial start-up procedure, followed by its TCP/IP connection routine. A valid connection should quickly be established. Note that at the factory the only instance where the Model 100 had issues was when attempting to make a direct data connection with a personal computer. There was never a problem when connecting with a port associated with an Ethernet switch.

Unknown IP Address

If the IP address assigned to a specific Model 100 unit is ever forgotten, pressing the “hidden” reset button, accessible via a small hole located on the top panel of the unit’s enclosure, will always allow access. A short tap with the point of a pencil or pen is all that’s required to restart the unit. When the unit has been restarted in this special mode it will have the default network settings active, including IP address 192.168.1.100 and subnet mask 255.255.255.0. In addition the user name and password entries are ignored, ensuring that the Model 100 can be accessed. (Using the default name/password combination of “guest” and “guest” is acceptable.) While the network settings can be changed if desired, restarting under the special mode doesn’t automatically change the stored configuration values. (If the unit is again restarted using the menu system, or by first disconnecting and reconnecting power, the stored network configuration values will again become active.)

Sensor Bus

In addition to SPL measurements, the Model 100 allows a temperature or combination temperature and relative humidity sensor to be connected. The sensors, available from Studio Technologies, were selected from the iButton® 1-Wire® family of measurement devices. To attach a sensor to the Model 100 is very simple. Begin by inserting the actual sensor module into the socket on the interface cable assembly. The module will “snap” into the socket and can, with a little practice, be removed without the use of a tool. After the sensor has been mated with the socket the 6-position modular “RJ11” plug can be inserted into the Model 100’s jack labeled Sensor Bus. This can be safely done whether or not the Model 100 is powered and operational. If powered up, once per minute the Model 100’s software will look for the presence of a sensor. As soon as the sensor is detected the Model 100 will begin taking measurements from it.

Using the Sensor Bus configuration menu the operational status of the connected device can be confirmed. Status text will display whether a temperature-only or a combination temperature and relative humidity sensor is connected. While newly-connected devices will be identified using the once-per-minute auto detect function, the submit button can also be used to immediately check for the presence of a connected device. The menu is also used to select whether the temperature measurement is provided in the Celsius or Fahrenheit scale. The configuration menu will also display the measurement temperature and, if available, relative humidity.