

NoiseMeters

LiveNoise Terminal

LNT-320 Noise Processor

LNT-EAR Noise Sign

LNT-IND Industrial Sign

Installation and User's Manual

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Introduction

This manual covers the LiveNoise LNT-320, LNT-EAR and LNT-IND Noise Monitors, version 1.2.x.

The LiveNoise Terminal provides the following:

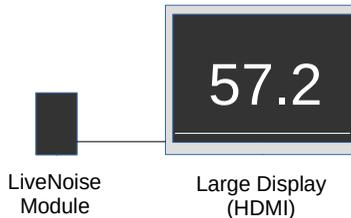
- Interface to the Noise Warning Sign or Noise Processor
- Data Logging of:
 - Noise Profile - LAeq,1s – the average A weighted sound level every second
 - Periodic Noise Parameters, LAeq, LAFmin, LAFmax, L5, L10, L50, L90, L95, L99 over 5, 10, 15, 30 and 60 minute periods
 - Threshold triggered noise alarms
- Connection to Supervisor software
- Connection to LiveNoise Web Reporter
- Connection to an HDMI display

This noise monitoring interface and the associated noise warning signs are for indoor use and are not protected against the weather or extreme levels of dust.

Possible Configurations

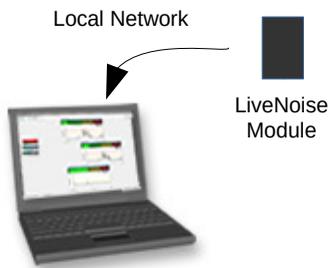
Display

The LiveNoise Terminal can be connected to a monitor or TV with HDMI input.



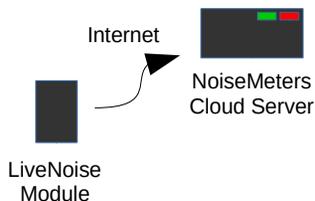
Local Network

Connected to your WiFi or wired Ethernet network, with live noise levels and reporting on a local PC.



Internet

Connected to your WiFi or wired Ethernet network. Measurements viewed in a web browser.



Noise Monitor Installation

The Noise Warning Sign and the LiveNoise Interface unit are in separate enclosures which can be mounted on a wall.



The LiveNoise Terminal connects to the Noise Warning Sign via a USB to Micro USB cable, and to the 5V power adapter via a similar USB to Micro USB cable. Shorter cables can be used, but it is unlikely that you will get reliable operation with cables longer than those supplied.

LNT-EAR and LNT-IND Models

The Noise Warning Sign can be mounted on a wall using a single screw, similar to hanging a picture.



It can also be mounted on an optional VESA wall mounted using the four threaded holes that can be seen on the image above.

LNT-320 Model

First remove the mounting plate from the back of the Noise Processor by first removing the security screw.



Mount the plate to the wall, attach the Noise Processor and fit the security screw.

LiveNoise Terminal

The LiveNoise Terminal should be mounted within reach of the Noise Warning Sign and within reach of a power outlet. It can be wall mounted or it can sit on a desk. This is the part that should be in an area with a good WiFi signal or in range of a wired Ethernet connection.

Connection – Noise Sign to Interface Box

Connect the Noise Warning Sign or Noise Processor to the LiveNoise Terminal using one of the USB cables that are

included. Due to the connectors available it is possible to connect this cable the wrong way round. This will not cause any damage, but the system will not operate.

As shown below, the smaller connector fits into the Noise Sign/Processor and the larger connector fits into the LiveNoise Terminal.



The LiveNoise Terminal has three spare USB ports. You can use any of these to connect to the Noise Sign.

If you are mounting the Interface unit close to the Noise Sign then a shorter USB to Micro USB cable can be used to make the installation more tidy.

Power Connection

Connect the remaining USB cable from the supplied power adapter to the LiveNoise Terminal. The larger connection goes to the power adapter and the smaller one goes to the LiveNoise Terminal.

Plug it in and switch on. After a brief startup time the display should start showing the sound levels. The monitor is now recording and storing noise measurements. It will also be trying to connect to the **Supervisor** software or our cloud server, but will not succeed until you have connected it to the network.

Wired Ethernet Connection

The LiveNoise Terminal has an RJ45 Ethernet Port on the bottom of the box.

A standard Cat5e Ethernet cable can be used.

WiFi Settings

With the LiveNoise Terminal plugged in and powered up, it now just needs to know the name and password for your WiFi router. This information set using one of the following methods:

1. From the LiveNoise menu (requires keyboard and monitor connected)
2. Using a USB memory stick

If you have a display connected and a USB keyboard handy then method 1 is the easiest.

WiFi Settings by Menu

Connect the display and USB keyboard and press **ESC** to get to the menu. Select the **Networking** option followed by **WiFi Setup**.

The LiveNoise Terminal will look for networks and show a list. Select your network and then enter the password.

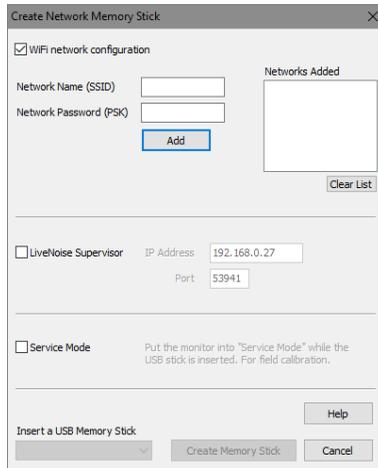
If you know the IP address of the computer running the **Supervisor** software then you can enter it by selecting the **Supervisor Connection** option.

WiFi Settings by USB Stick

If you don't have a display connected then the WiFi settings can be set using a memory stick - the Supervisor software writes the WiFi settings to a memory stick, which you then insert into the LiveNoise Terminal.

- Run the **LiveNoise Supervisor** software
- Select the **System | Device Setup | Create Memory Stick** option from the menu

You should see a window similar to this:



- Select the **WiFi network configuration** option
- Enter the name of your network (SSID) and the password (PSK) and click the **[Add]** button
- If you have multiple routers and want the noise monitor to connect to whichever is available then enter the name and password for each, followed by the **[Add]** button
- Click the **LiveNoise Supervisor** option - this informs the noise monitor where to find the **Supervisor** computer on your network
- Insert a memory stick in your computer's USB port - a suitable one will have been included
- Select the memory stick drive from the **Select Memory Stick** option
- Click the **Create Memory Stick** button

You can now remove the memory stick from your computer's USB port.

This memory stick can now be used to configure the WiFi settings of one or more noise monitors. With the LiveNoise Terminal switched on and left for at least 30 seconds to start up, plug the memory stick into its USB port. After three or four seconds the red display on the Noise Warning Sign, which shows the current sound levels, will go off and then back on again. This means the monitor has read the memory stick and is ready to connect to the network.

When you remove the memory stick the Interface and Noise Sign will restart and connect to the network.

The memory stick contains your network name and password and so should be erased or stored securely.

Networks and Firewalls

The noise monitors communicate with the **Supervisor** software and / or with the Cloud server over your network. They also synchronize their clocks via the Internet. On a basic local area network the noise monitors should work with no additional changes. However, extra security and firewalls may restrict communications.

The following information is intended for the network supervisor or IT manager and assumes a certain level of knowledge about networks, firewall and router configuration, and access rights.

Fixing Local IP Addresses

The IP address for each monitor need **not** be fixed. Under normal operation communication is initiated by the noise monitor connecting to the **Supervisor** software or the cloud server, so the actual noise monitor's IP address can change without issue.

Firewalls and Ports

Port 53941 - Noise Monitor Communications

The LiveNoise Terminal uses Port 53941 to communicate with the **Supervisor** software. The system will not function at all if the network or the computer's firewall restrict communication on this port.

Port 53942 - Search for Noise Monitors

The **Supervisor** software can be instructed to search for noise monitors on the local network. It uses Port 53942 for this purpose, sending a message out, instructing noise monitors to connect up. If this port is not open for communication then you can use a memory stick to inform each noise monitor of the **Supervisor's** IP address and the system will function correctly.

Port 53943 – LiveNoise Cloud Link

The LiveNoise Terminal uses port 53943 to communicate with the cloud server (Int.livenoise.net). The LNT connects to the server on this port, there is no need for incoming connections to be routed to the LiveNoise Terminals.

Port 123 - Network Time Protocol

The noise monitors need to connect to an NTP server on the Internet to keep their clocks in synchronization. This is done approximately once every hour.

Noise Monitor Calibration

The Noise Warning Sign connected to your LiveNoise Interface is factory calibrated along with its attached microphone. If the microphone is changed, the noise monitor's calibration should be checked.

In normal operation we recommend regular checking of calibration if the measurements are going to be used for legal purposes. Some regulations demand that the calibration is checked regularly.

To calibrate the noise sign or noise processor, you need a suitable Sound Level Calibrator with a 94 dB output and 1/2" cavity. You also need a short microphone extension cable, which is included.

If the LiveNoise Terminal is connected to a display (monitor or TV) and you have a USB keyboard handy then you can carry out the calibration from the LiveNoise Terminal's menu.

Without a display connected, you can calibrate using a USB memory stick to put the LiveNoise Terminal in calibration mode. A memory stick is included with the noise monitor, but most standard USB memory sticks will work.

Calibration with Keyboard & Display

With a keyboard and display connected, press the ESC key to access the menu options.

Select the **Service Mode** option. The terminal will stop recording noise measurements (so the calibration level isn't included) and will display the last successful calibration date and time.

Switch the calibrator on and fit it on the microphone. The LiveNoise Terminal will detect the presence of the calibrator and automatically complete the process. You should see the calibration date and time update once complete.

Remove the calibrator and press Enter to return to normal operation.

Calibration using a Memory Stick

If you don't already have a Service Mode memory stick then please refer to the **Supervisor User's Manual** for instructions on creating one.

The memory stick is used to switch the noise monitor into "Service Mode". In this state the noise monitor continues to operate but stops storing noise measurements and looks for the calibration tone.

- Insert the memory stick into one of the LiveNoise Terminal's USB port. After about 3 seconds the noise sign's display should blink off and then on again to indicate it has seen the memory stick and switched to service mode.
- Unplug the microphone from the bottom of the sign and connect it back up using the short microphone extension cable.
- Switch the Calibrator on to 94 dB and push firmly onto the microphone.

Once the noise monitor has detected the Calibrator it will once again switch the noise sign's display off while it carries out the calibration. This takes at least 8 seconds, and longer if the sound level is not steady.

Once calibration has finished the display will come back on and settle to 94.0 dB +/- 0.2dB.

Remove the Calibrator and memory stick. The noise monitor will switch out of Service Mode and automatically continue making its measurements.

Calibration Failure

If calibration is not successful after about 30 seconds or more during the calibration process then the noise monitor considers the sound level from the calibrator to be unstable.

If the display fails to settle to 94.0 +/- 0.2 dB after calibration then this also suggests a failure.

Noise Monitor calibration failures are usually due to microphone damage. Please contact your supplier or NoiseMeters if you have calibration failures so we can help to rectify the problem.

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