

StreetSounds Fixed Master Installation Guide

V1.2 - December 2023





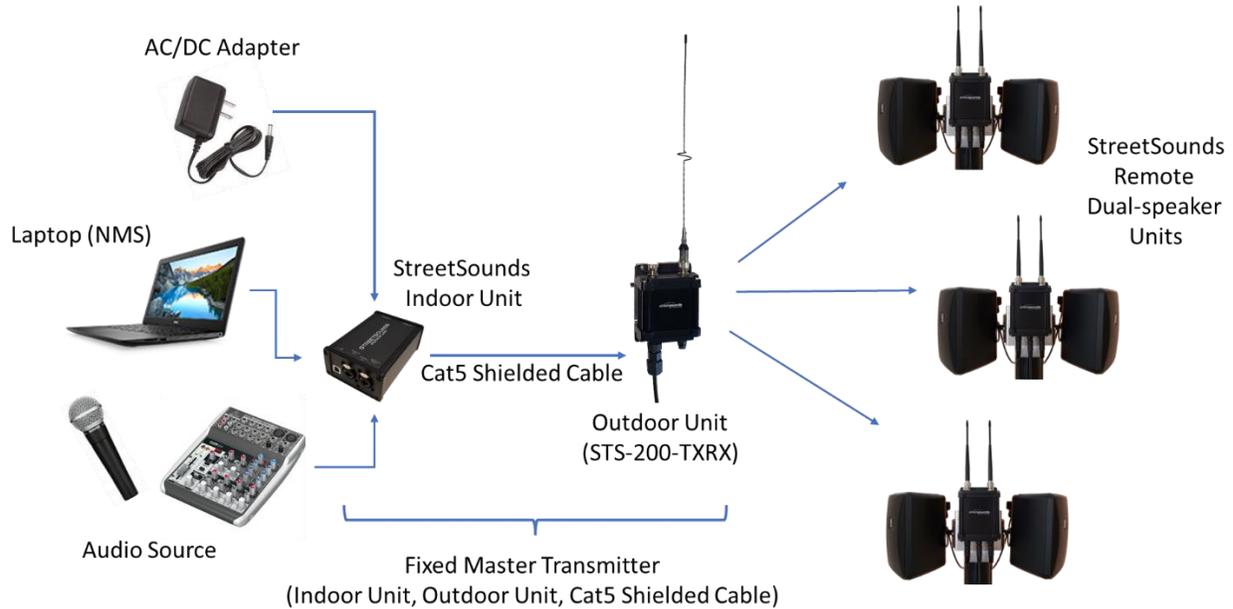
Contents

- Selecting a location for the Fixed Master 3
- Equipment Overview 4
- Outdoor Unit (ODU) 5
- Directional Antenna Assembly..... 6
 - Single Yagi Antenna Configuration..... 6
 - Dual-Yagi Antenna Configuration 8
- Roof Mount 9
 - Attach the Weather Boot for RJ45 Connector 11
- Indoor Unit (IDU) Kit 12
 - Indoor Unit Assembly (ASSY-ST5-200-IDU-USB) 13
- PC Requirements for the Network Management System (NMS) Laptop or PC..... 14
- Enabling Remote Access to the Laptop 14
- Assembly Instructions for RJ-45 Weather Connector 16

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This guide gives a step by step set of instructions to help you install your StreetSounds Fixed Master Transmitter.



Selecting a location for the Fixed Master

It is critical that the Fixed Master be installed in a location that provides a "very good" line-of-sight to as many of the remote speaker units as possible. It doesn't have to be "perfect", but the better the line-of-sight, the better the signal quality. The best location for a Fixed Master is at, or near the center of the network coverage area, preferably on a second-story rooftop overlooking the main street. However, this is not a firm requirement. Consult with AirNetix for acceptable locations.

It is also desirable to house the equipment in a Customer/City-owned building so that you have 24/7 access should problems arise. Keep in mind that the laptop used for running the network must have good, reliable internet access so that you, and/or AirNetix, can remotely log into the laptop using Chrome Remote Desktop. This means that the network can be run "remotely" and that you don't necessarily need constant direct access to its keyboard. The laptop can in fact be in a closet with its lid closed if desired. We regularly log into many of our customers' laptops remotely to help with configuration or troubleshooting issues.

Below are a couple of examples of Fixed Master locations that provide excellent coverage.



Equipment Overview

The STS-200 Fixed Master Transmitter Kit (KIT-STS-200-FMST) consists of 3 pieces of equipment:

Outdoor Unit (ODU) – The ODU is a “transceiver” (transmitter/receiver) which is configured to be the main transmitter for the StreetSounds network.

Indoor Unit (IDU) – The IDU is the “breakout box” used at an indoor location to provide physical interfaces to the ODU (USB, Audio, Power).

IDU to ODU Cat5 interconnect cable – this cable is a weatherized outdoor compatible Cat5 shielded cable that connects the IDU to the ODU. The cable provided by AirNetix is normally 150’ long. However, if necessary, it can be up to 1000’ long. Keep in mind that a longer cable will introduce more “USB noise” into the audio.

Outdoor Unit (ODU)

The STS-200 Fixed Master ODU is a “transceiver” (transmitter and receiver) that is configured to act as the main transmitter for a StreetSounds network. The current model number of the transceiver is “STS-200-TXR”. The KIT-STS-200-FMST includes the ODU and a pole mount as shown below.



Figure 2- STS-200-TXR Outdoor Unit

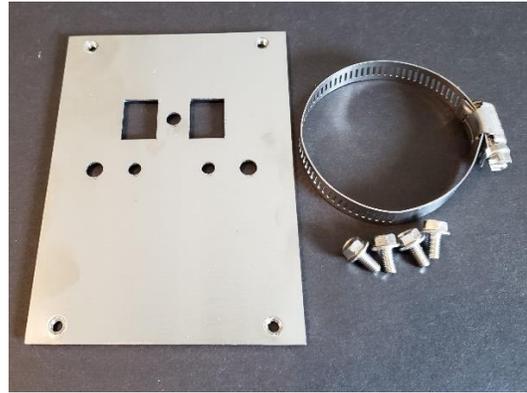


Figure 1- Pole Mount Kit

The pole mount kit includes 4 hex screws for attaching the STS-200-TXR to be mounting plate, as well as a hose clamp used to attach the assembly to a ~2” pole as shown below.



Directional Antenna Assembly

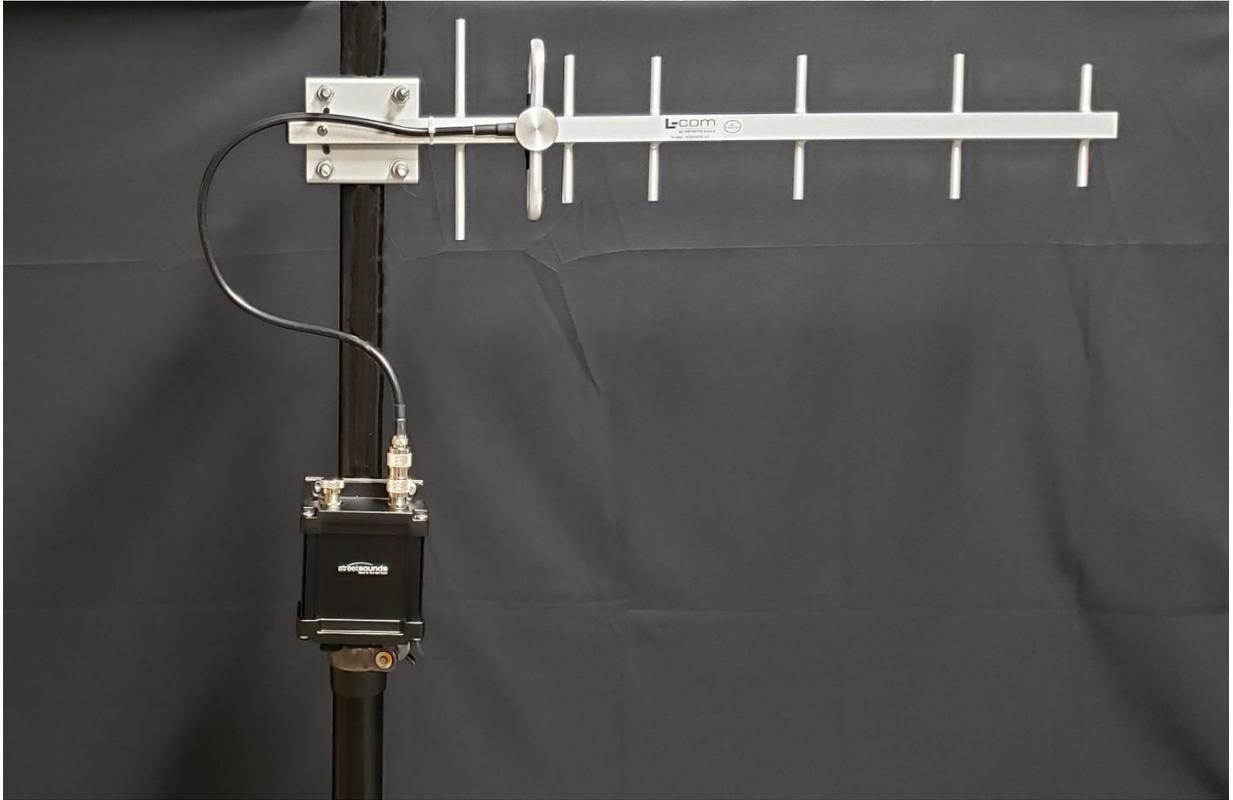
The most common antennas used in StreetSounds networks are “directional Yagi antennas”. These antennas give the best performance, especially in the face of local interference. AirNetix will recommend either a “single-Yagi” or “dual-Yagi” configuration depending on your network coverage requirements.

Single Yagi Antenna Configuration

The photo below shows a single “9db Yagi” attached to a current generation ODU. The antenna cable is normally attached to the right-hand antenna connector (as you face the ODU). The left-hand antenna port is capped with a weather-protective cap. **MAKE SURE THIS CAP IS IN PLACE PRIOR TO MOUNTING.** If the cap is not installed, the warranty will not be valid. Note that the “fingers” or “elements” of the antennas are pointed vertically, not horizontally.

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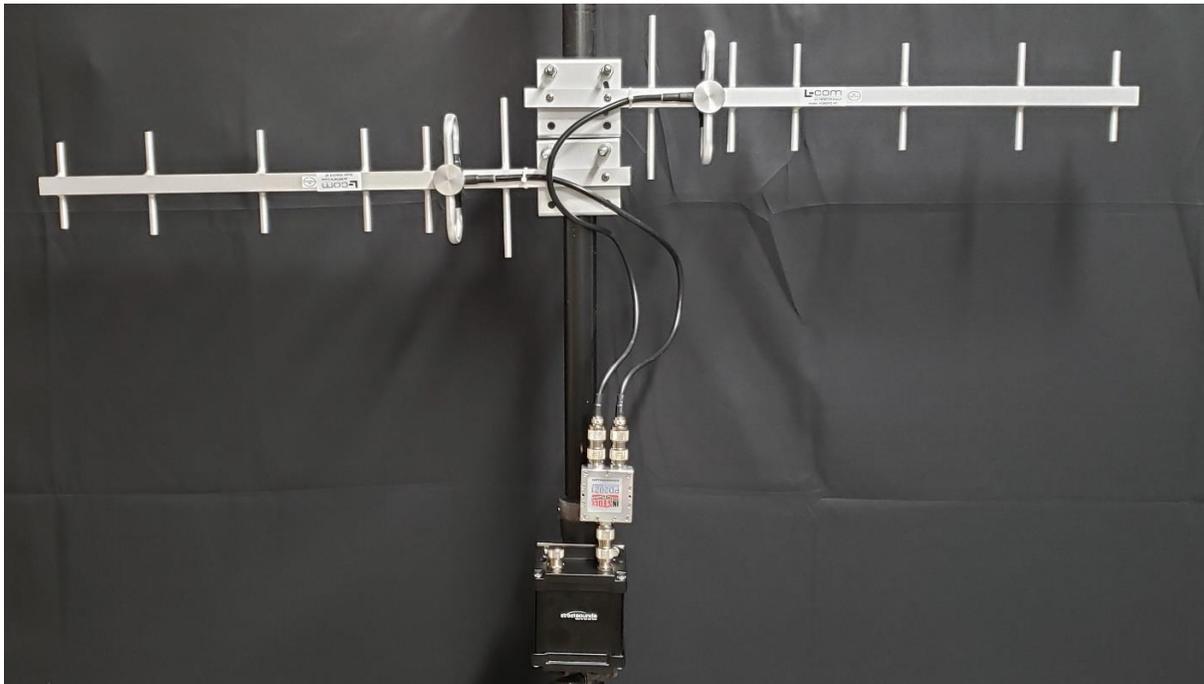
Dual-Yagi Antenna Configuration

The photo below illustrates a “dual-Yagi” Master antenna configuration. This configuration includes two Yagi antennas (typically 9db gain) aimed in opposite directions (depending on network coverage requirements). Note that the “fingers” or “elements” of the antennas are pointed vertically, not horizontally.

This assembly includes a “power divider” or “power splitter” that divides the output from the transmitter it two different signal paths. Each output feeds either the left-facing antenna, or the right-facing antenna as shown below. The power splitter is normally mounted on the right-hand antenna port of the ODU.

The kit also includes three “barrel” connector cable adapters. One barrel is used to connect the power splitter to the ODU, while the other two adapt the antenna cables to the power splitter outputs. **MAKE SURE THESE ARE VERY TIGHT TO KEEP WATER FROM ENTERING THE CONNECTIONS.**

Typically, the antennas are aimed at a point slightly across the street from the Fixed Master location, about 2 – 3 blocks away. This will give the best coverage on both sides of the street. AirNetix will provide aiming recommendations prior to installation.



Roof Mount

In most cases AirNetix recommends mounting the ODU and associated antennas on the roof of a 2-story building overlooking the main coverage area on the street below.

The customer is responsible for purchasing and assembling a suitable mount for the ODU/Antenna assembly. We highly recommend that you purchase a “non-penetrating roof mount” like the satellite dish mount shown below. The benefit of this particular mount is that the mounting pole is offset to one side so the mount can be located as near the front edge of the roof as possible, giving the antennas an unobstructed view of the street below.

RF Armor

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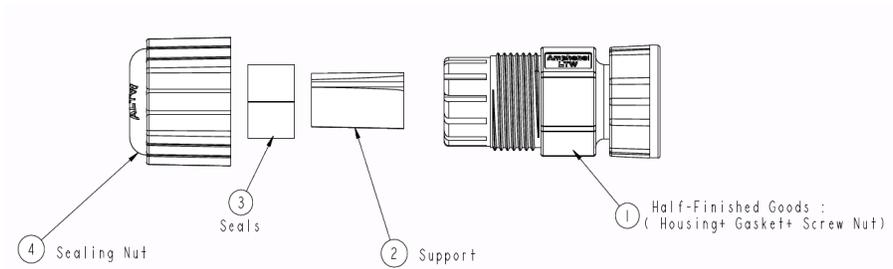
[ADD TO COMPARE](#)

We are sorry for the price increase but with increased fuel / transportation and commodity prices we have no choice but to raise prices or go out of business. Example, 1.5" EMT10 pipe used to cost less than \$15 and is now selling for between \$35 and \$40. Steel is up between 200% and 300%.

6 Block Non-Penetrating Mount
58.25" MAST INCLUDED

Ideally, the mount should provide a minimum of 3' of clearance above the parapet (short protection wall surrounding the roof). If the antennas are mounted too close to the roof, or obstructed by the parapet, a significant portion of the transmit signal will be blocked, or absorbed, by the obstruction. Stay as high above roof obstructions as possible.

Attach the Weather Boot for RJ45 Connector



The KIT-ST5-200-FMST also includes a weather boot to protect the outdoor end of the RJ45 cable from the elements. IF NOT ATTACHED, THE RJ45 CONNECTOR WILL DETERIORATE OVER TIME AND CAUSE ISSUES WITH CONNECTIVITY BETWEEN IDU AND ODU. FAILURE TO ATTACH THE WEATHER BOOT WILL VOID THE WARRANTY. Please see detailed assembly instructions at the end of this document.

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Indoor Unit (IDU) Kit

The Fixed Master kit also includes an Indoor Unit (IDU) kit (KIT-STS-200-IDU-USB) that acts as a breakout box for inserting power, audio, and USB signals into the ODU via the Cat5 cable. The photo below shows the contents of the kit.

- IDU Assembly (ASSY-STS-200-IDU-USB)
- USB Cable
- AC wall adapter (+18VDC center positive)



Indoor Unit Assembly (ASSY-ST5-200-IDU-USB)

The IDU includes the following connections:

-Audio Inputs (front panel of unit)

- Balanced analog XLR Left & Right inputs. – or –
- 1/8" (3mm) unbalanced Left & Right inputs – or –
- USB audio (STS-200-IDU-**USB** model only).

-USB (front panel of unit)

- USB control signal for Network Management System running on laptop or desktop.
- The "STS-200-IDU-USB" is capable of accepting audio via the USB connection from the laptop. This device (as viewed in the Device Manager) appears as a "USB Audio DAC".

-DC Power (rear panel of unit)

- +18VDC from wall adapter.

-RJ45 (rear panel of unit)

- RJ45 connector for Cat5 cable running from IDU to ODU.
- NOTE: THIS CABLE IS NOT A "NETWORK" CABLE AND IS NOT COMPATIBLE WITH YOUR LAN SIGNALS. IT CAN ALSO BE DAMAGED BY CONNECTING IT TO A "POE" POWER SUPPLY.



Connect the Cat5 cable from the ODU to the RJ45 connector on the rear panel of the IDU.

Apply power to the unit by plugging in the AC adapter. Note the green LED indicating the unit is powered.

Connect a USB cable from the IDU to your laptop running the Network Management System application.



PC Requirements for the Network Management System (NMS) Laptop or PC

AirNetix provides a comprehensive Network Management System application for controlling and monitoring the StreetSounds network. This can be downloaded from the Support page of our website.

The NMS is primarily used to initially configure the StreetSounds network. It can also be used for troubleshooting the network since it provides “real-time” measurements of received signal levels and settings of remote speakers. HOWEVER, A STREETSOUNDS NETWORK CAN OPERATION WITHOUT THE NMS RUNNING. In larger networks it may be preferable to close the NMS application to prevent the possibility of issues with Windows updates or other PC-related issues. When properly configured, the NMS can be started and stopped without affecting the network operation or performance.

The customer must provide a laptop that is dedicated to the StreetSounds network. It must be a Windows PC running either Windows 7 or Windows 10 or Windows 11. The Network Management System will not run on a Mac. There are no special hardware requirements for the PC, so a mid-range or used laptop should work fine. Below are desired specs for the laptop:

Windows 10, or 11

6GB RAM

Intel i5 or better processor.

Minimum screen resolution of 1366 x 768

Enabling Remote Access to the Laptop

AirNetix will need to have open, full-time remote access to the NMS PC. We recommend that you create a unique Gmail account for your StreetSounds network (i.e. yourcitystreetsounds@gmail.com). Create a password that you can share with AirNetix and any others who may need access to the laptop remotely.

Once the Gmail account has been created, download and install the Chrome browser (if not already installed). Log into the newly created account on the Chrome browser, then download and install the Chrome Remote Desktop extension (remotedesktop.google.com). You can do this by entering “remotedesktop.google.com” in the browser

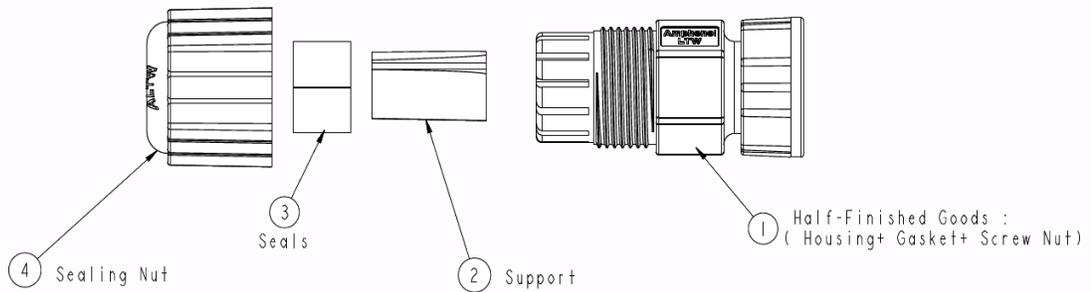


address bar. You should then click on the "Remote Access" tab at the top of the screen. This will lead you through the installation of the "host" application that allows remote access by authorized users. When creating the account, you will be asked to create a PIN. We generally use 515151 so it is easy to remember. Finally, you must "Enable remote connections" to enable remote access. After doing this, you can test the connection from any other computer by logging into the new Gmail account and typing "remotedesktop.google.com" in the address bar. The remote laptop should show up as a green icon in the "Remote Devices" section of the screen.

THIS IS A VERY IMPORTANT FIRST STEP IN THE INSTALLATION PROCESS AND MUST BE DONE BEFORE WE CAN ASSIST WITH THE CONFIGURATION OF THE NETWORK. If you need help with this, AirNetix can walk you through the process.

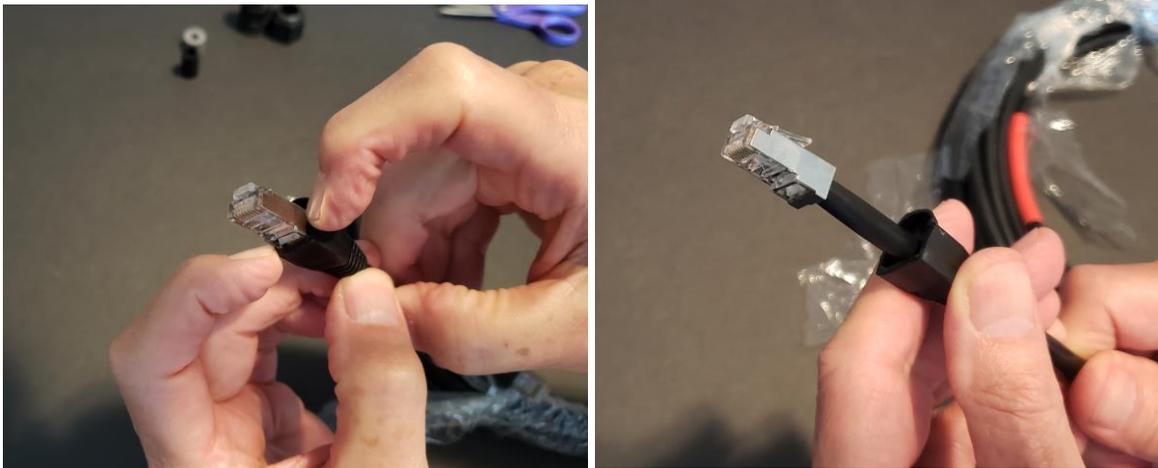
Assembly Instructions for RJ-45 Weather Connector

LTW RCP-00BMMS-SLM7001



Remove Boot

Remove the rubber/plastic boot covering the RJ-45 connector. In some cases this boot can be slipped over a ridge on the bottom of the RJ45 and pushed down far enough to be out of the way of the weather cover. If not, carefully remove the boot with an Xacto knife. The boot will not be used.



Install Sealing Nut

With the boot removed, slide the Sealing Nut over the RJ45 connector.



Attach the Housing Assembly

Slide the RJ45 connector up through the bottom of the Housing Assembly. Make sure the keep the RJ45 connector sticking as far out of the housing as possible.



Install the Support

Slide the support piece over the cable as shown. Push the support up into the housing so that it is pushing against the bottom of the RJ45 connector. This will help keep the RJ45 connector sticking out as far as possible when the rest of the parts are installed.



Install the Rubber Seal

Slide the rubber seal over the cable as shown.



Push the seal upward into the housing so that it is fully inside the housing.



Tighten the Sealing Nut

While applying constant force on the bottom of the cable, and pushing the RJ45 connector as far out of the housing as possible, tighten the sealing nut until it is completely tight (by hand).



Attach Cable to Radio

Once the weather cap has been installed, you can now attach it to the radio.

Try to keep the connector as straight as possible while screwing into the mating connector on the radio.

MAKE SURE NOT TO CROSS THREAD THE CONNECTOR AS YOU INSTALL IT.

Hand tighten the connector until it is fully engaged with the radio connector. The connector assembly should feel “solid” and should not rock back and forth. If there is any movement, remove and re-attach to the radio making sure the threads are going on smoothly.

