



Dr. Neil Presents

Install & Troubleshoot

**Your Own
Home Loop System**

**with
Confidence**



The Center for
Hearing Loss Help

www.hearinglosshelp.com



**This presentation teaches
you how to install the
Univox DLS-50 home loop
system in your home or
apartment.**





Part I

Loop System Basics



A loop system consists of two parts:

1. The transmitting section
2. The receiving section



Transmitting Section

The transmitting section consists of 4 components:



1. Sound Source (TV)





2. Audio Cable



Connects the audio output of your TV to the loop amplifier.



3. Loop Amplifier (1)



The Univox DLS-50 Loop Amplifier is the most-commonly installed home loop amplifier. It gives you control over the various settings, and the blue lights let you know what is happening.

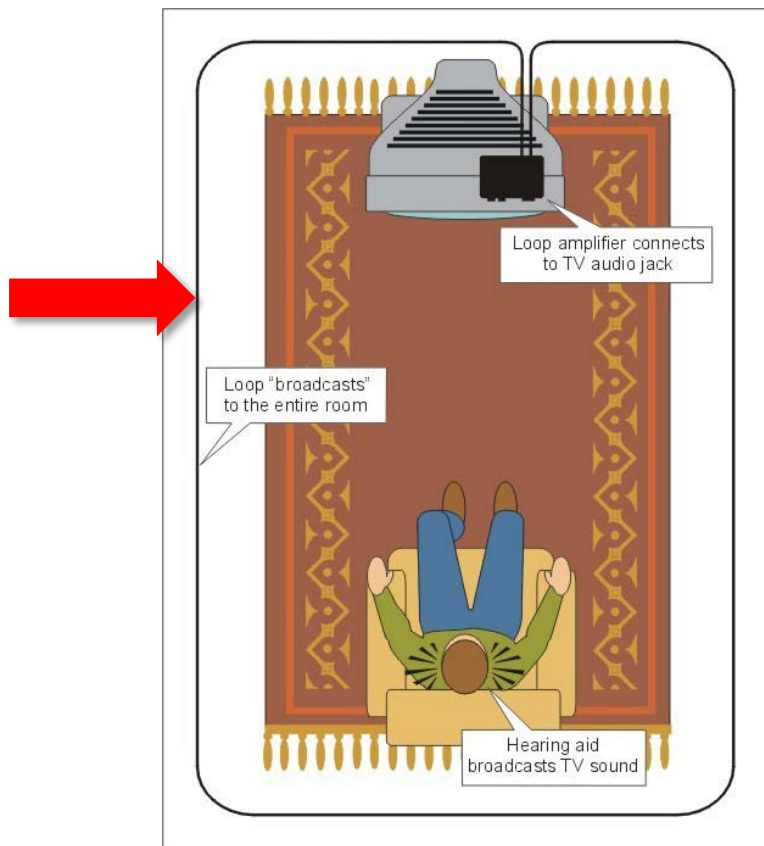


3. Loop Amplifier (2)



The Univox AutoLoop is for people that don't like fiddling with controls. It adjusts everything automatically. It's the same size, power and price as the Univox DLS-50.

4. Room Loop or Loop Pad



Red arrow points to room loop wire



Red arrow points to loop pad

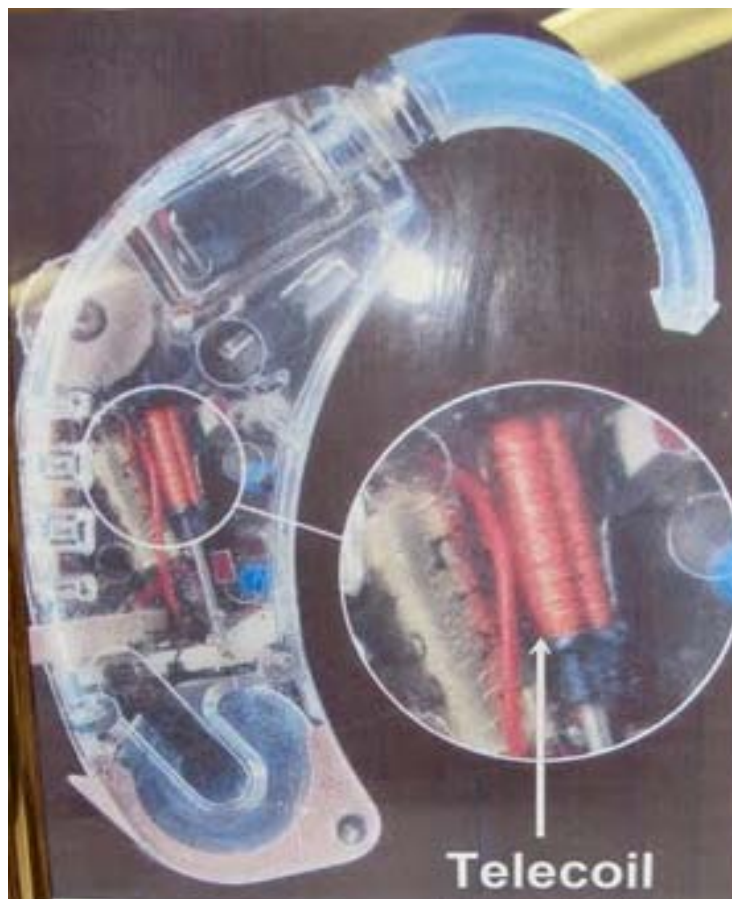


Receiving Section

The receiving section of a loop system consists of a single component. There are two choices, depending whether you wear hearing aids with t-coils or not. These components are:



Hearing Aid with T-coil





Loop Receiver



ET-LR Loop Receiver

Loop receivers are useful for people who do not wear hearing aids, or do not have t-coils in their hearing aids. Some, like the one shown here, also give visual indication that the loop is working and that it is set at the proper level.



Part II

Ideal TV Features for Use with Loop Systems



Five Features of the Ideal TV for Use with Loop Systems

Hooking the loop amplifier to your TV can be simple or more complex depending on the TV you have. It will be easier (less complex) if your TV has the following **5 features**.



Five Features of the Ideal TV for Use with Loop Systems

1. Your TV has **RCA** (red & white) analog **audio output** jacks.





Five Features of the Ideal TV for Use with Loop Systems

2. Your TV has **fixed**, not **variable**, audio outputs. This means you always have full volume going to the loop system. (You need this for good results.)



Five Features of the Ideal TV for Use with Loop Systems

3. In your TV, the sound going to the speakers (variable) and the sound going to the audio output jacks (fixed) is **mutually independent**. This means you can mute the speakers and yet still hear full volume via the loop, among other things.



Five Features of the Ideal TV for Use with Loop Systems

4. Your TV has a menu setting to change the **audio delay** from between 0 ms and 300 ms on the **audio output** jacks **without** affecting the speaker settings. With the delay set correctly, the TV picture and the sound on the loop will be synchronized.



Five Features of the Ideal TV for Use with Loop Systems

5. Your TV has **good closed captions** because your damaged ears may not understand everything, even when using a wonderful loop system.



Five Features of the Ideal TV for Use with Loop Systems

If your TV, doesn't have all **5 of these features** (few do) don't worry. You can work around all of them except poor captions. However...



Five Features of the Ideal TV for Use with Loop Systems

If your current TV doesn't have many of the above **5 features** and you are thinking about getting a new TV, now would be a good time to get one with these features. It will make hooking a loop system to your TV much simpler.



Part III

Connecting “Easy” TVs to the Loop System



Setting up your Univox DLS-50 Loop System is a four-step process

1. Plug in the power adapter.
2. Attach the audio cable to your TV (or other audio device) and to the loop amplifier.
3. Hook up the room loop or loop pad.
4. Adjust the controls—and you're done!



Univox DLS-50 (rear)



Rear view of the Univox DLS-50 showing the position of the various jacks.

Univox DLS-50 (power plug)

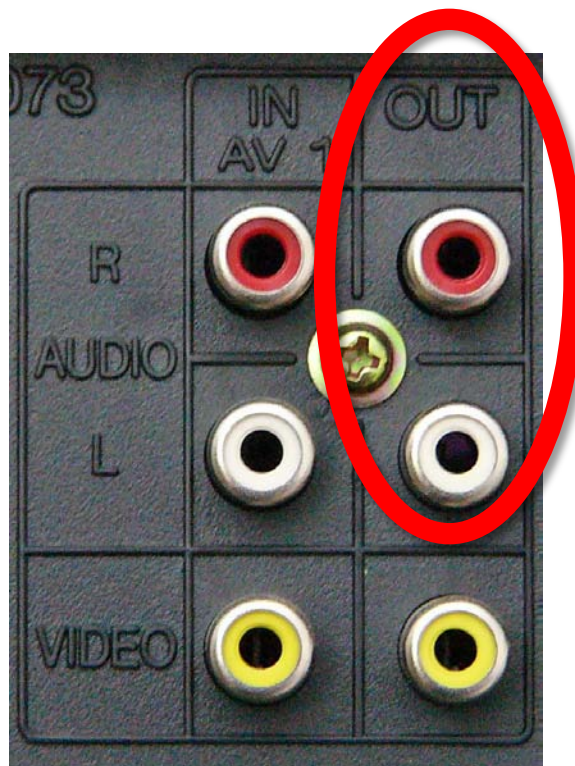


Plug in the power adapter plug to the power jack on the left.



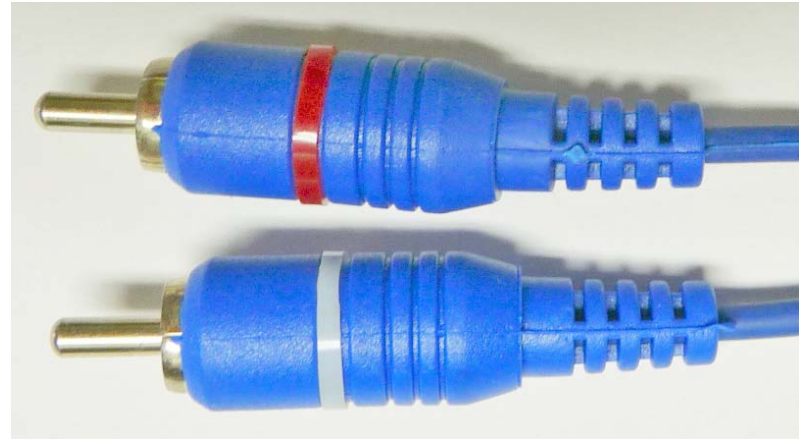
Locate the red and white audio output RCA jacks on the back of your TV

Note: make sure you use the **audio out** jacks, not the audio **in** jacks.





Plug the red and white RCA plugs of your audio cable into the corresponding audio output RCA jacks



Some audio cables just have a red and white band on them.



Plug the 1/8" (3.5 mm) mini-phone plug (on the other end of the audio cable) into the **Line** jack on the back of the Univox DLS-50





Analog Devices Other than TVs

Incidentally, you can hook up almost any audio device such as portable TVs, computers, iPods, MP3 players, etc. to the Univox DLS-50 if the audio device has a standard 1/8" (3.5 mm) stereo earphone jack.



To hook these devices to the Univox DLS-50, all you need is a double male 1/8" (3.5 mm) stereo audio patch cord like this one.





Choose whether to install a

Loop Pad

or

Room Loop





Advantages of a Loop Pad

- Fast and easy to install
- Portable—easy to move





Disadvantages of a Loop Pad

- Have to sit in one specific chair in order to hear on the loop
- Typically only one person can hear at a time



Advantages of a Room Loop

- Can sit anywhere or move around freely anywhere inside the looped area
- As many people as can fit inside the looped area can hear via the loop





Disadvantages of a Room Loop

- Harder to install the loop wire
- Depending on your place, may be hard to hide the loop wire
- May not be allowed to fasten loop wire in apartments



Here's how to install a Loop Pad



The Loop Pad comes with a 32' cord so it typically reaches around the room from the TV to your favorite chair.



Loop Pad Extension Cord



If you need a longer cord, the loop pad extension cord gives you another 32'.



Loop Pad Plug & Jack



Plug the loop pad cord into the special jack on the back (center) of your DLS-50 loop amplifier.



Loop Pad “Y” Adapter



The Univox DLS-50 can easily handle two loop pads so two people can listen at the same time. All you need is this “Y” adapter and a second loop pad. The “Y” adapter plugs into the back of the DLS-50 and the two loop pads plug into it.



Where should you place your Loop Pad?

- On the floor under your favorite chair
- Under the cushion you sit on
- On your headrest, especially if you use a recliner chair



Many people place the loop pad on the floor under their favorite chair



Run the loop pad cord behind your chair and along the walls to your TV.



Here's how to install a Room Loop

Before installing a room loop, you have to decide where you want to place the wire. You can place it:

- Behind a baseboard or crown molding
- Under the carpet
- In the crawl space (attic) above the ceiling
- Under the floor if you have an unfinished basement or crawl space
- Along the walls at the ceiling or floor level

How big can a room loop be?



The room loop can be as big or small as you want it. The DLS-50 can handle up to about 100 lineal feet of loop wire. This would cover an area of 20' x 30', for example.

If you are installing the loop in a basement or attic, you can cover all or parts of several rooms without regard to where the walls are, or you can choose to only cover part of one room.



Wire for a Room Loop

Use insulated stranded copper wire—18, 20 or 22 gauge

You can use single or two-conductor wire, but typically a single wire loop works well in most situations





What Size Wire Do I Use?

You want 1 ohm DC resistance + or - 30% (i.e. 0.7 to 1.3 ohms) on the loop.

20 gauge wire is the ideal size for 70' - 100' loops (1.015 ohms/100 ft).

22 gauge wire is good for 40' - 70' loops (1.614 ohms/100 ft).

18 gauge wire is good for two-turn loops (0.639 ohms/100 ft).





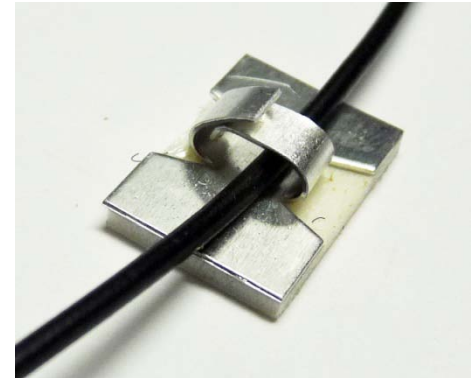
Fasten the loop wire using insulated staples or stick-on aluminum clips



Insulated staple



Aluminum clip with peel and stick back for use on finished surfaces





Leave the wire loose



Leave wire loose

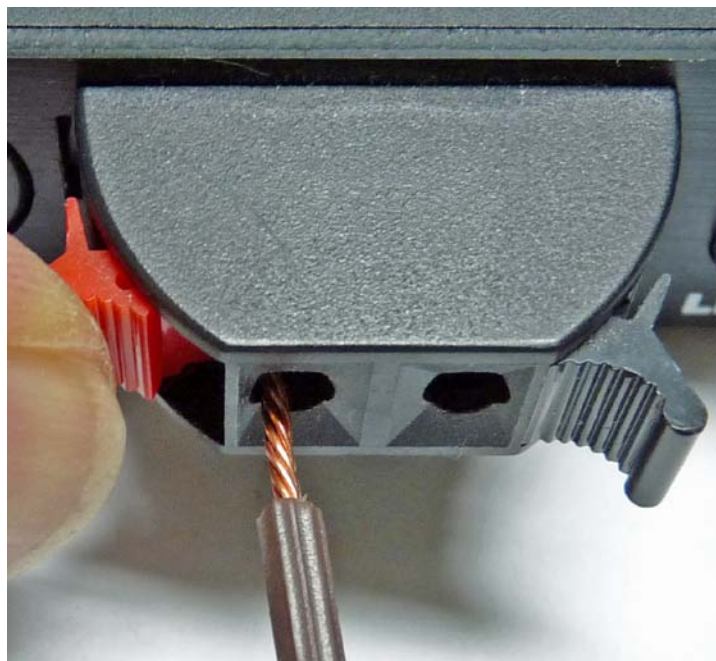


Wrong—too tight

Don't "mash" the fastener into the wood and thus damage the wire and/or insulation.



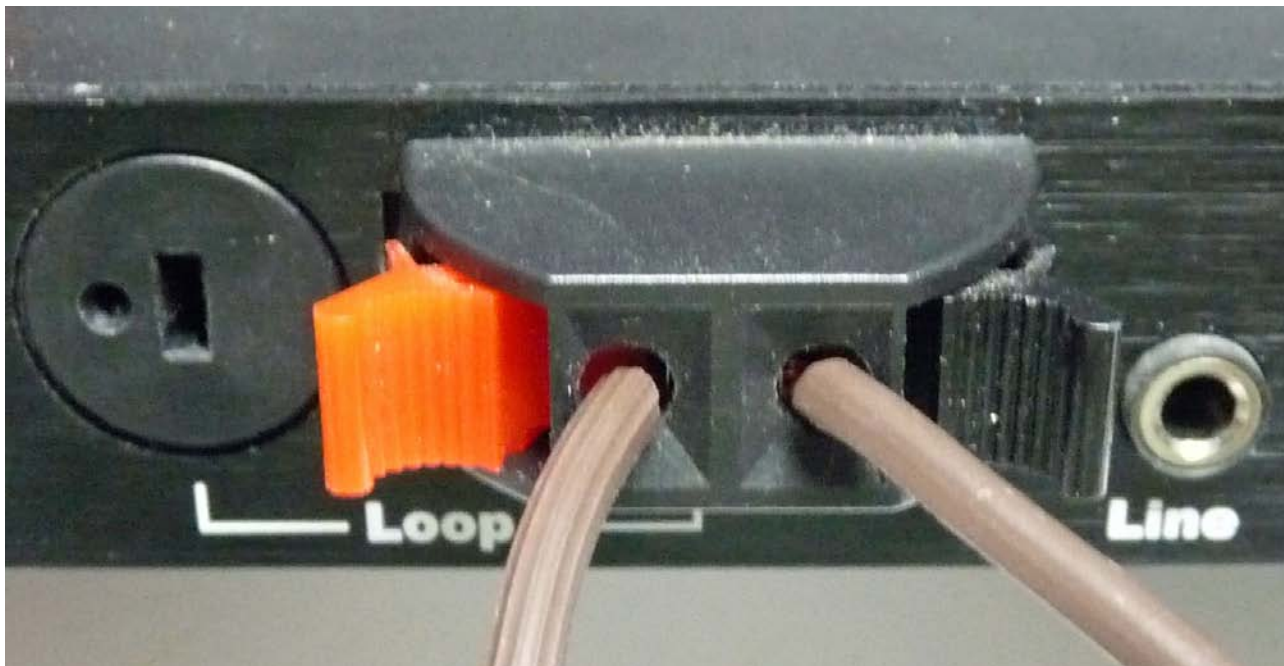
Insert the loop wire into the Univox DLS-50



Strip the insulation from the end of the loop wire, then press and hold the thumb clip down, insert the tip of the loop wire in the hole and let go.



Room loop wire properly installed in the Univox DLS-50



Loop wires properly inserted in the back of the Univox DLS-50 loop amplifier.



Univox DLS-50 (lights)



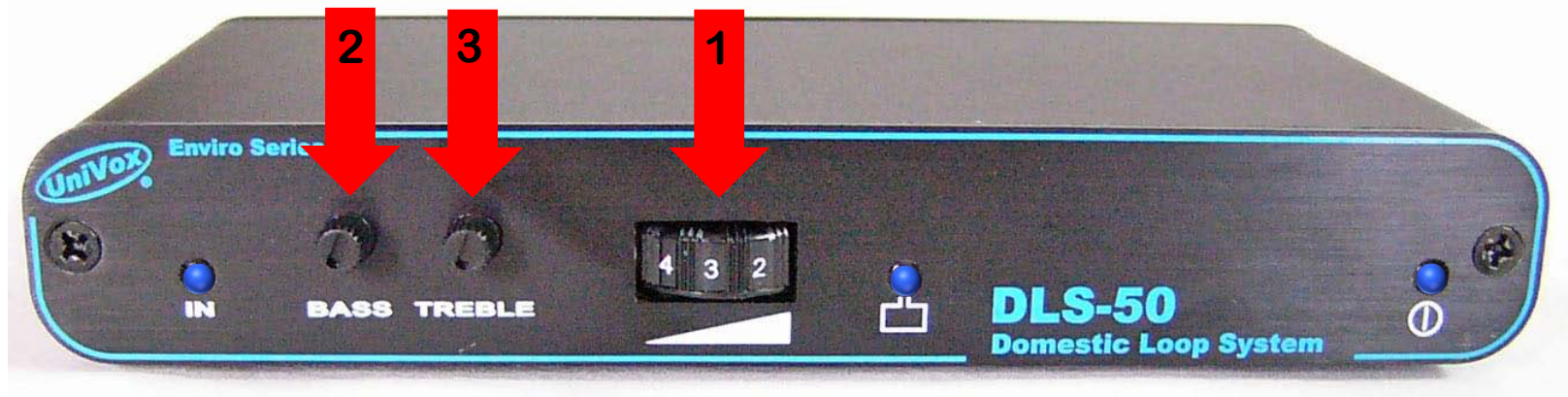
The right blue light indicates there is power to the DLS-50.

The left blue light indicates a sound signal is reaching the DLS-50.

The center blue light indicates the sound signal is going into the loop.

All three blue lights must be on for the loop system to work.

Univox DLS-50 (front controls)



1. Set the **VOLUME** to 4 or 5 to start with. Note: if the volume is 0 you won't hear anything and the middle blue light won't go on.
2. Set the **BASS** to a comfortable level.
3. Set the **TREBLE** to a comfortable level.

Note: the Bass and Treble controls don't provide a whole lot of variation, maybe 10 dB or so. You may not notice any difference.

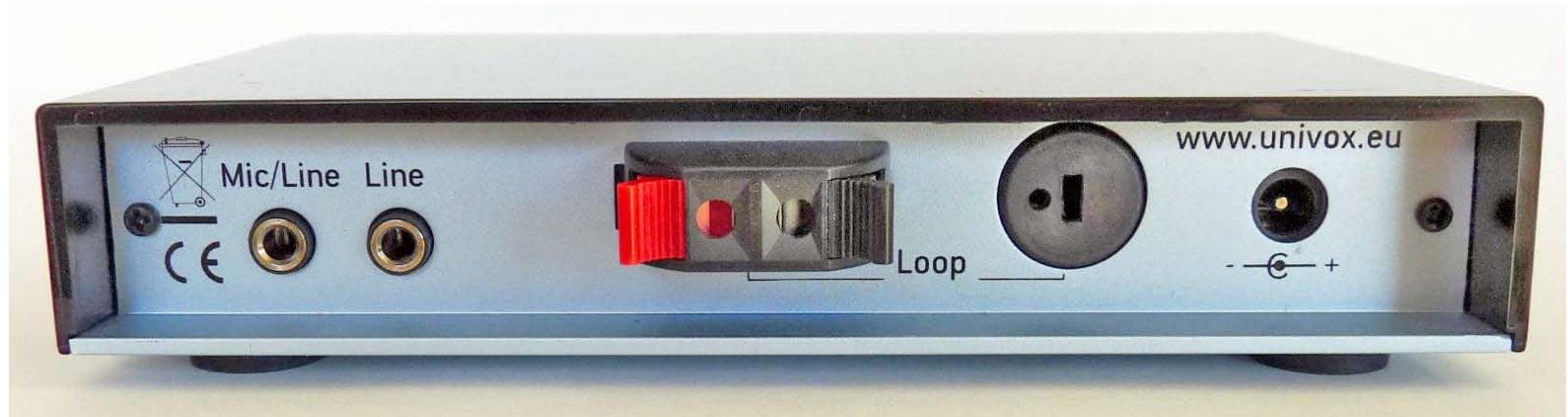
Univox DLS-50 (rear controls)



1. If you want to plug a microphone into the DLS-50 use the dedicated microphone jack on the right.
2. Beside it is the mic gain control. Make sure it is not all the way off!
3. You can also listen to the DLS-50 via headphones. Plug them into the headphone jack.
4. The Mic/Line jack works with either a mic or line level input.



Univox AutoLoop (back)



The back of the AutoLoop looks much the same as the DLS-50. Just note that the jacks are in different places. You hook it up the same way as you do the DLS-50. It does not have the separate mic jack, nor the headphone jack.



Part IV

Hooking “More Difficult” TVs to a Loop System



The preceding hook-up was the “easy” version

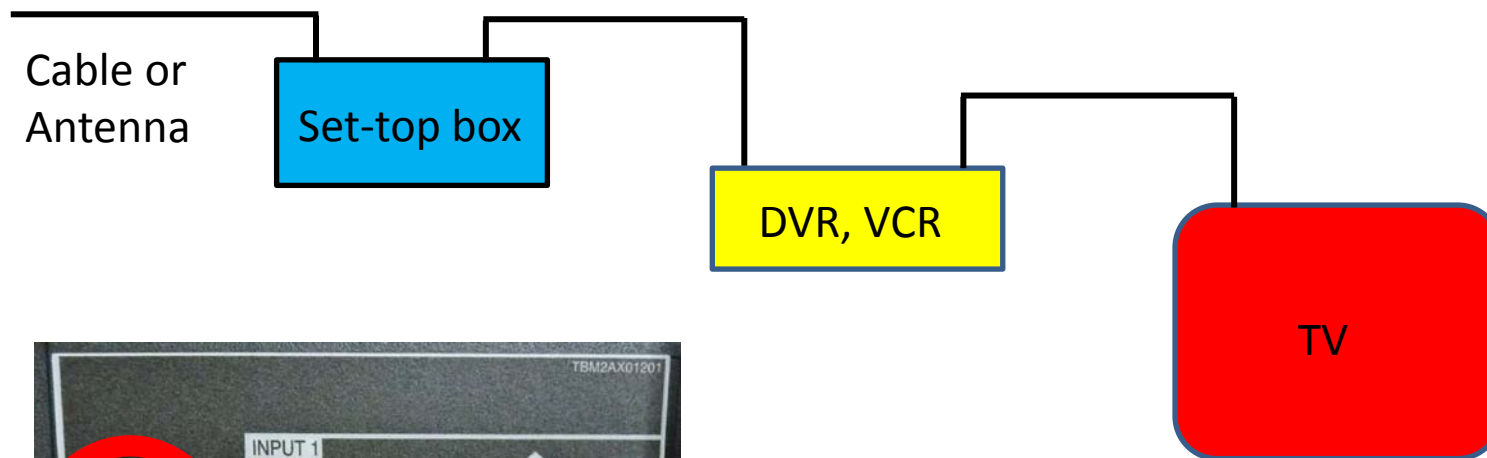
If your TV has fixed, independent, RCA audio-out jacks you are all done.

However, if your TV is missing some of the “ideal” features, following are work-arounds to help you successfully hook your TV to your loop system.



Work-arounds for Missing Features

1a. Your TV doesn't have **any** audio outputs at all



Use audio outs on any “box” ahead of the TV hooked in **series** with the cable, or ...



Work-arounds for Missing Features

- 1a. Your TV doesn't have **any** audio outputs at all and you have no "box" ahead of the TV



Use Microphone 13A (shown above) and velcro it to the front of your TV's speaker. Plug it into the microphone jack on Univox DLS-50.



Work-arounds for Missing Features

1b. Your TV doesn't have **RCA** audio output jacks

There are two solutions:

1. If you have a cable or set-top box, etc. **ahead** of the TV, and it has RCA audio output jacks, you can use these jacks.

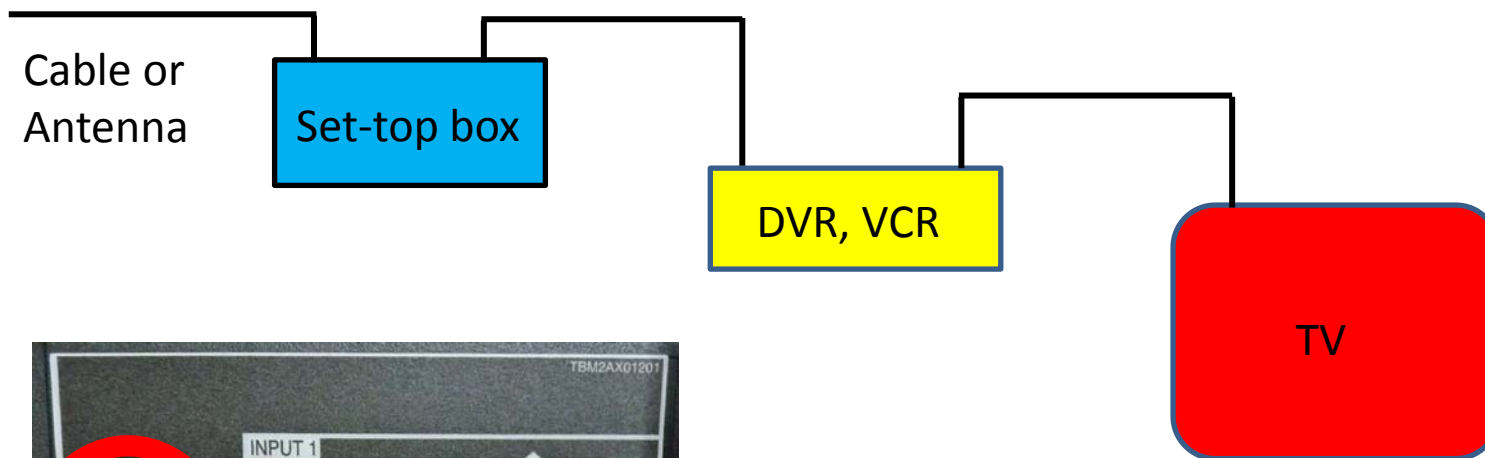
(See following slide.)





Work-arounds for Missing Features

1b. TV doesn't have any **RCA** audio outputs



Use RCA audio outs on any “box” ahead of the TV hooked in **series** with the cable.



Work-arounds for Missing Features

1b. Your TV doesn't have RCA audio output jacks

Second solution:

2. Use a **Toslink** or **coaxial** digital audio output jack. (Note: if you use one of these, you'll also need to get a DAC (digital to analog converter.)



Work-arounds for Missing Features

Coaxial connectors look like RCA jacks, but are typically colored orange.



Coaxial jack & plug

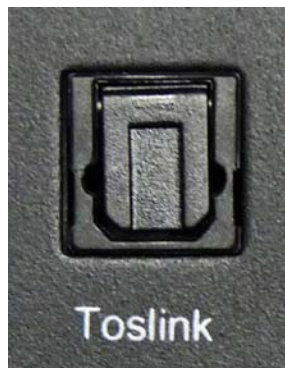
Special coaxial patch cord.



Work-arounds for Missing Features



Toslink connectors look like this



Toslink plug & jack

Toslink (short for Toshiba Link)

Optical—uses a fiber optic cable



Notice the red laser light escaping around the trap door

Jack has a hinged “trap door” that swings inward

Do **not** look inside jack as the laser light can damage your eyes





Work-arounds for Missing Features

1b. TV only has Toslink or coaxial audio output jacks

1. Digital to Analog Converters (DAC) work with **both** Toslink and Coaxial jacks.
2. There are **two kinds** of DACs. One only works with PCM (stereo) outputs.
3. The more expensive kind also works with Dolby 5.1 Surround Sound.



Work-arounds for Missing Features

1b. TV only has Toslink or coaxial audio output jacks

This DAC **only** works with PCM (**stereo**) outputs





Work-arounds for Missing Features

1b. TV only has Toslink or coaxial audio output jacks

These DACs work with Dolby 5.1 surround sound outputs as well as with PCM (stereo) outputs.





Sources for Digital to Audio Converters

1. PCM (Stereo) DAC. www.monoprice.com and search for Product No. 6884.
2. Dolby 5.1 surround sound DAC.

Gefen: www.gefen.com and search for SKU# GTV-DD-2-AA.

Parts Express: www.parts-express.com and search for Part # 180-999.



Work-arounds for Missing Features

1b. TV only has Toslink or coaxial audio output jacks

To use either DAC, plug in a Toslink or coaxial cable between the TV and the DAC. Then plug in the RCA audio cord that came with the Univox DLS-50 to the RCA output jacks on the DAC and the other end to the DLS-50.



The DAC has Toslink and Coaxial jacks on the Input end

Toslink jack
Coaxial jack



Toslink fiber-optic cable

The Toslink (or Coaxial) cable goes between the TV and the DAC.



The DAC has RCA jacks on the Output end

RCA Jacks

RCA Plugs



The RCA audio cable plugs into the DAC's output jacks and the other end goes to the loop amplifier.

Note that the DAC needs power to operate. Its wall adapter plugs into the power jack (left side).



Work-arounds for Missing Features

2. TV Only Outputs **Variable** Audio

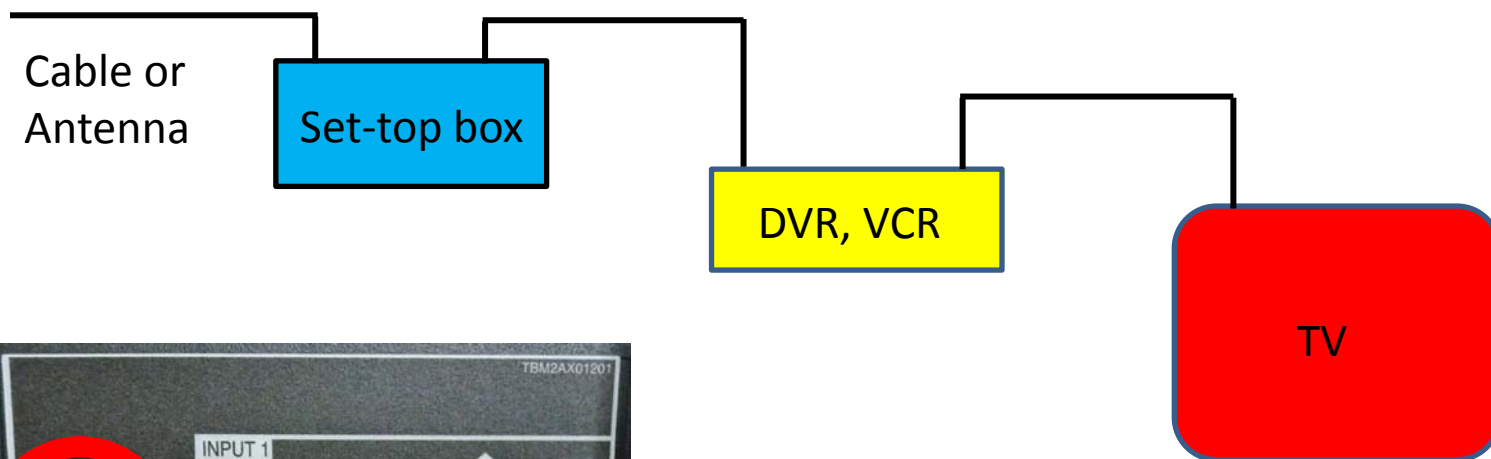
If your TV only outputs variable audio, then in order to get enough signal to drive the loop amplifier, you'll have to have the TV's volume turned up too loud. And, if you mute the TV's speakers, you'll mute the loop system as well. That's why you want **fixed** audio output.

Check the TV's menu to see if you can switch the audio output to "fixed". If not, go to a "box" ahead of the TV.



Work-arounds for Missing Features

2. TV Only Outputs Variable Audio



Using audio outs on any “box” ahead of the TV hooked in series with the cable will give you **fixed** audio output.



Work-arounds for Missing Features

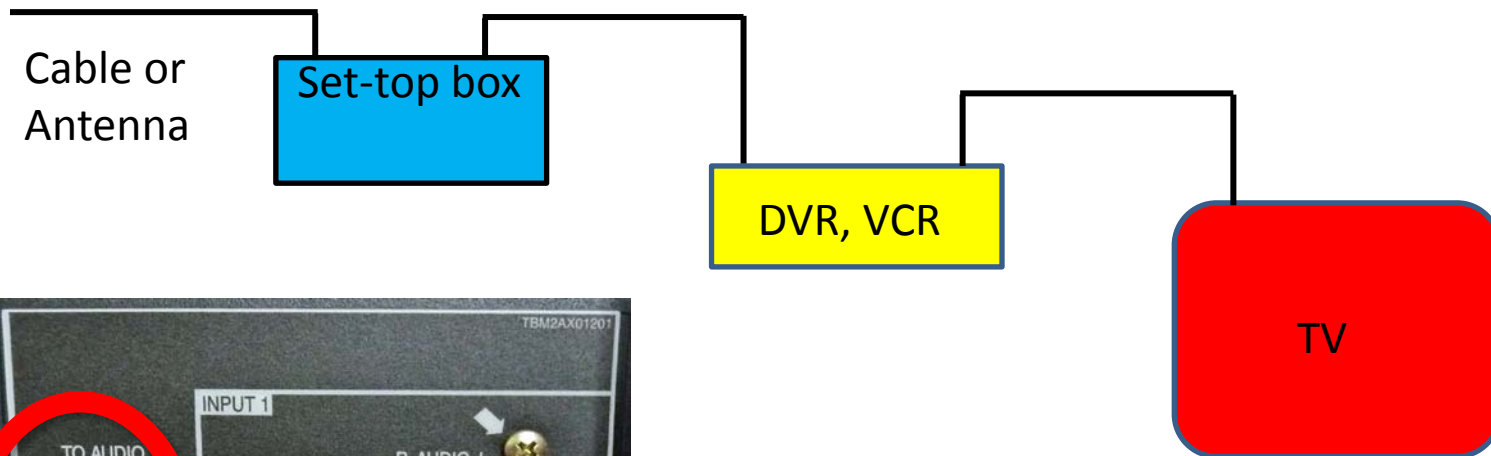
3. TV's speakers and audio outputs are not mutually independent

If your TV's speakers and audio outputs are not mutually independent, what you do to one affects the other—e.g. turning down the volume on the speakers affects the volume on the loop. Also, note that with some TVs, setting the audio output to “fixed” permanently mutes the TV's speakers. Again, the solution is to use the audio outs on any “box” ahead of the TV hooked in series with the cable.



Work-arounds for Missing Features

3. TV's speakers and audio outputs are not mutually independent



Using audio outs on any “box” ahead of the TV hooked in series with the cable will also give you independent audio outs.



Work-arounds for Missing Features

4. TV does not have sound delay for audio outs

Flat screen TVs take longer to process the video than the audio. Thus, the audio runs ahead of the video making what you see and what you hear out of sync. The TV's speakers have a delay built in that corrects this, but often this is not available for the audio outs. As a result, the loop signal will be out of sync with both the video and the speaker's audio.

The solution is to get a sound delay corrector.



Work-arounds for Missing Features

4. TV Does Not Have Sound Delay for Audio Outs



Use a sound delay corrector (\$85.00 and \$79.00).
Set the delay so the sound syncs with the picture.



Sources for Sound Delay Correctors

1. AP-411 Lip Sync Corrector.
www.bhphotovideo.com and search for #AVAP411.
2. Sescom Digital Audio Delay.
www.bhphotovideo.com and search for #SESAVSYNC.

Work-arounds for Missing Features



4. TV does not have sound delay for audio outs

Note that sound delay correctors have RCA jacks on them so if your TV has digital audio outs (Toslink or coaxial) you'll need a DAC ahead of the sound delay corrector.

In this case, you'll also need a double male RCA patch cord.



Use double-male RCA to RCA patch cord for sound delay corrector.



Work-arounds for Missing Features

5. The audio outputs are already in use by another device

If the audio output jacks are RCA, simply get a pair of RCA splitters (“Y” adapters)



Two styles of RCA “Y” adapters



Work-arounds for Missing Features

5. The audio outputs are already used by another device

If the audio output jacks are Toslink, you'll need a digital optical splitter.

However, watch out. There are two kinds of splitters—passive and amplified.

The passive splitter halves the signal to each leg of the “Y” so its output is not enough for reliable operation and “flakey” things can happen. Use an amplified splitter and avoid the headaches.

Work-arounds for Missing Features



5. The Toslink audio outs are already used



Toslink, **passive** Digital Optical Splitter \$5.52.
(**Don't** use unless you like flakey results.)



Work-arounds for Missing Features

5. The Toslink audio outs are already used



Use an **amplified** Digital Optical Splitter \$45.00 - \$48.00



Sources for Amplified Digital Optical Splitters

1. Lindy 70407 2-way Digital Optical Audio Splitter.
www.amazon.com and search for Lindy 70407.
2. SIIG Signal Splitter/Amplifier.
www.govtechdepot.com and search for # CE-TS0011-S1.



Work-arounds for Missing Features

6. Correct order for hooking up additional devices

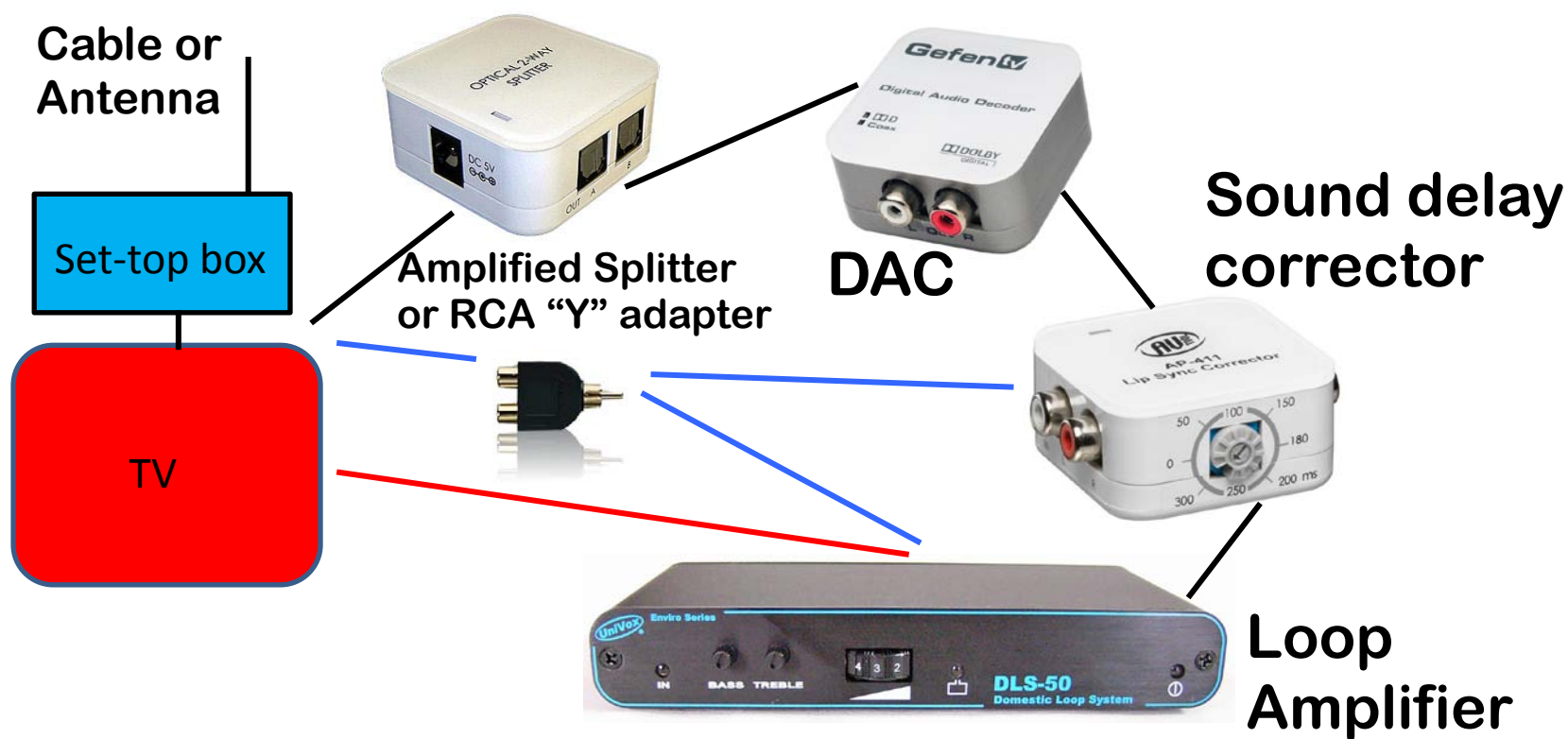
If needed, any extra devices should be attached in the following order from TV to loop amplifier:

1. TV (or set-top box)
2. Splitter
3. DAC
4. Sound delay corrector
5. Univox DLS-50 loop amplifier



Work-arounds for Missing Features

6. Order of Additional Devices





Contact us for your home looping needs

You can see the wonderful Univox DLS-50 and its accessories, as well as a link to this presentation at www.hearinglosshelp.com/products/univoxdls50.htm

Center for Hearing Loss Help

Neil Bauman, Ph.D.

49 Piston Court

Stewartstown, PA 17363

Phone: 717-993-8555

FAX: 717-993-6661

Email: neil@hearinglosshelp.com

Website: <http://www.hearinglosshelp.com>

The Center for
Hearing Loss Help

www.hearinglosshelp.com