

TRUTH AMPLIFIER APPLICATION TIPS

by O.T. Hudson

IMPORTANT! PLEASE READ VERY CAREFULLY BEFORE OPERATION AND SAVE FOR FUTURE REFERENCE!

Thank you for your purchase of our handmade "Truth" TV signal RF amplifier. If you have any problems or questions after purchase, please email: LHD521@yahoo.com (the eBay contact forms are character and content limited and, thereby, difficult to use for detailed correspondence!). As of 2014, I now build the TRUTH amps entirely from scratch using all custom mounted, highest quality components inside a metal "mint-tin" case. Please overlook any minor scuffs, scratches and dents as we assure you these are inevitable with this type metal when used for this purpose and certainly do not adversely affect performance. While the mint tin cases make ideal, RF tight enclosures, they are NOT easy to work with, solder to, and fabricate. Great effort is taken just to get the finished product to look even as well as it does! These finished units are NOT "fragile" but do require some care in handling and when making connections. Please do not use excessive pressure on coax F connectors when tightening or allow the cables to cause stress or strain on the connectors. Finger tightening is perfectly sufficient for coax connectors- no need for pliers or wrenches!

PLEASE DO NOT FORCE OPEN THE CASE FOR THE PROTECTION OF INTERIOR COMPONENTS!
Opening the case voids all warranties!

APPLICATION - When you insert an amplifier in your signal chain, it should always be as close to the antenna as possible which means, for indoor units, it should be inserted as close to where the antenna cable enters the house as possible. With an inside unit this is not overly critical but it should NOT be located after a coax run of more than 75 feet or so for best results. For an amplifier to be beneficial, it should be inserted, at least, somewhere between 50 feet and 75 feet from the antenna (although some runs as long as 100 feet before amplification have been used with some success).

Any splitters, or additional driver amplifiers, should be located AFTER the "TRUTH" amp since few, if any, other amplifiers will have a lower noise figure, or more stable operation, than your "TRUTH" amplifier.

This assures that highest signal integrity, proper impedance matching, and lowest noise is established at the head of your signal chain directly after the antenna. *Also note that some digital TVs can, themselves, radiate interference that may be detected by an amplifier mounted very close by (this goes for other digital devices as well and especially wifi routers-another reason for trying to isolate an amplifier location as much as possible).*

The included AC/DC wall plug outboard power adapter will be a TRANSFORMER BASED, AC/DC adaptor nominally rated at 9 to 12 VDC. If replacement is ever necessary, any standard 9 to 12VDC AC/DC adapter could also be used with the unit so long as it has a 100 ma, or higher, current rating. In that case, make sure the the mini-plug tip is positive and the sleeve is negative. As long as the green LED indicator is well lit, the device is receiving proper power. Switching type (like lightweight cell phone chargers) supplies are NOT recommended.

NOTE: DO NOT CONNECT A POWER SOURCE *NOMINALLY* RATED GREATER THAN 12VDC TO THE UNIT AS THIS COULD CAUSE DAMAGE! (Unloaded voltage will measure higher however- up to 15 volts before connecting.) When connecting a power supply to the amplifier by plugging the plug into the jack, it is always advisable to make the plug to jack connection BEFORE plugging the adaptor into the AC wall receptacle!

When connecting your antenna cable ... and your jumper cable to your receiver ... always use a high quality coax, RG-6 or better, with properly dressed and crimped F connectors. It is also necessary to use a grounding block connector, well grounded, between the rooftop antenna and the cable entrance into the building. The TRUTH amp is diode clamped at the input for protection against frontend overload and static discharge. **However, nothing protects against an UNGROUNDED antenna!**

MAST MOUNT VERSION-

As of 2015, we began offering a two component mast mount version for do-it-yourself mounting on the antenna mast near the antenna. This version comes with a "power injector" which includes our standard AC/DC wall plug transformer adapter.

The power injector is mounted inside the house and the DC voltage is fed up the coax on the signal cable itself. This type of powering is known as "phantom power". The injector does not have an LED indicator but the amplifier does and its indicator will light when the coax is connected between the amp output and the injector input so long as the power adapter is plugged into an AC outlet on the AC side and the mini plug is inserted in the injector power jack. You may also test the voltage by measuring with a DC volt meter. A coax cable attached to the injector input side will read the supply voltage with the plus lead on the connector center conductor and the negative lead on the connector flange.

The simplest way to mount the amplifier to an antenna mast is to strap it with two, large (heavy gauge) plastic cable tie-wraps around each end of the amplifier. Then, after connecting the coax cables to the input and output, they should also be strapped to the mast at intervals with the plastic tie wraps. Keep in mind that NOTHING should be in the line between the injector and the amplifier except for a grounding block connector at the house cable entrance. Also keep in mind that coax connectors are ALL IMPORTANT and must be PROPERLY INSTALLED AND CRIMPED to the coax ends. IF you do not know how to properly cut and dress coax and mount the required connectors, please get help from someone who does.

The sealed cases themselves are weather resistant and, essentially waterproof. However, it is good practice with any outside, mast mount unit that the connections should be sealed with coax sealer and the edges of the case and power supply entrance may, optionally, be caulked with a bead of silicon for good measure. However, with ALL versions of the TRUTH amp, interior components have been partially enclosed with thermal epoxy, as well as the edges of the top and bottom, so the case itself should be water tight. Some users of the mast mount version even apply a spray coat of enamel paint since the housing is, after all, a "tin can" and will rust over time. Obviously, if you decide to paint yours, the connections and LED should be masked with tape before hand. ***NOTE- As of fall 2015 tins for mast mount are NOT sanded and, instead, retain the manufacturer's print coating which helps to prevent surface rust.**

PERFORMANCE- As mentioned previously, your "TRUTH" amplifier is designed as a PREAMplifier which means it should always be used at the head of the chain, following your antenna, and before any other splitters/combiners or line amplifiers. The action of this preamplifier is most noted on weak signals, whereas, strong signals are held relatively constant so as to prevent overload. The TRUTH amp utilizes an inherent current limit design and provides some automatic gain control for incoming signals. Maximum signal gain will be around 18 dB. This is why we do NOT recommend cascading two TRUTH preamps since they are NOT designed for follower, or buffer, application but for ideal PREAMplification of direct antenna signals. The TRUTH amp can be used as a follower in some instances but is best utilized strictly as a PREAMplifier.

Keep in mind that built-in, averaging, signal meters on receivers and TVs are not always the perfect indicator of linear change in incoming signal level or strength. Often, signal level increases are internally limited at the input of the receiver so that, while you may not notice a drastic, or any, increase in signal strength, you may receive signal lock and reception of a signal that was not present before at the same signal level indication! The signal to noise ratio will have been improved in those cases and the critical carrier signal elevated to detection point even though the apparent signal level remains the same on the meter/indicator. Some converter boxes, we have learned, also have built-in front end gain reduction so that stronger signals at their input show NO INCREASE in signal level and can sometimes actually result in LOWER internal signal meter readings due to the triggering of the automatic gain reduction circuitry.

Also keep in mind that it is possible to sometimes observe a very high signal level on such meters/indicators and still receive NO useable signal. This would be because the meter is reading a high level of interference, or noise, instead of the quality signal the detector is looking for. Sometimes,

in these cases, the "TRUTH" amplifier may appear to REDUCE level while allowing a signal lock on the channel.

If you are receiving SOME channels but losing others after installing an amplifier, particularly the actual channels either side of, and near, actual channels 6 & 7 (keep in mind that often the REAL channel is NOT the "virtual channel" displayed by your TV! You can check this at TVFool.com), it is possible you are receiving strong FM broadcast interference for that channel, in which case you may need to add an FM "TRAP" in line with your antenna signal. While Radio Shack no longer exists, you can usually find an FM trap on-line for around \$10.00. We are thinking of offering an outboard FM trap filter in the future so please check our website - OneOfAKindCraft.com for future developments. If you have strong local FM radio stations located between you and the TV transmitting stations, FM interference is very possible! **An FM TRAP is the only component that should be placed in line BEFORE the amplifier!**

NOTE- Certain types of noise and interference may cause a NO SIGNAL reading display and block ALL detectable signals, especially if the offending noise is stronger than the incoming TV signals- wideband, linear, high gain amps like the TRUTH are inherently very susceptible to airborne interference! The only way to cure this is to remove the interference source or, perhaps, relocate the antenna and/or amplifier.

There are other things to be mindful of when checking performance and doing comparative signal testing. First of all, signal conditions can vary drastically from season to season, month to month, week to week and day to day. *The most perplexing thing is, digital capture and signal strength can sometimes vary drastically, from moment to moment!* In the "old days" of analog, sometimes a few dB swing in signal strength was hardly noticeable. With digital, it can mean a complete loss of service since it either locks or it doesn't, no in-between! A point to remember with digital reception, when you make any change in your system and it doesn't quite perform like you think it should, make further comparisons over several hours time, at least. It is not uncommon for digital signal meter readings to fluctuate from, say, 70% or better to near nil in a matter of seconds!

There is no such thing as a perfect "everything" amplifier. But, as stated in our listing, if you need an amplifier in your line to improve your reception, then our "smart", TRUTH amplifier should do the job if any will! Although the TRUTH amp has a measured signal gain of just 18 dBmv into a 75 ohm test load, it will sometimes outperform higher gain preamps because their higher noise figure, essentially, negates their higher voltage gain. However, do not necessarily expect your amp to outperform other expensive amps IF they can TRULY deliver better specifications (although few out there have better noise specs, than the TRUTH amp, at any price!).

However, NO amplifier can improve your system if you have a poor antenna and connections, a high noise to signal margin, or a location subject to abnormally high interference (signal or electrical). Sometimes "glitching" is caused by signal borne (antenna coupled) interference, atmospheric disturbances, and nearby EMF radiation (EMI) and NOT weak signal!

Sometimes this electrical interference is power line coupled. In all these cases, of course, an amplifier will NOT help but may actually make things worse until the disturbance subsides or is removed! You may find it helpful, if you live in an "electrically noisy" location (industrial area or a neighbor with lots of power tools etc.) to obtain one or more AC line filters in line with your AC power strip (see above for FM broadcast interference).

Also be aware that electrical storms, either near you or near the TV transmitter station, are also a seasonal cause of frustrating drop-outs and glitches. In short, digital reception can be more frustrating, at times, than the old analog signals in terms of noise and interference. But, with the 3-D like quality of digital when all is well, it is usually worth living with the "glitches" ... besides, we have no choice since such is digital life!

DO NOT PLACE THIS AMPLIFIER AFTER AN "AMPLIFIED ANTENNA" BUT INSTEAD CONNECT IT TO A QUALITY PASSIVE (non-powered) ANTENNA AND BEFORE ANY OTHER AMPS OR SPLITTERS! ONLY AN FM TRAP SHOULD BE PLACED BEFORE THE AMPLIFIER.

If you do NOT have a good, PASSIVE antenna, you may want to consider our plans for building your own, complementary, TRUTH antenna - "TruTenna" - plans sold separately on eBay. With a TruTenna, or similar quality antenna, you should be able to get the channels shown on a chart for your location at <http://www.TVFool.com>. Simply go to that site and enter your address into their search form and they will display a chart with signals available at your specific location listed according to strength with locator directions, and all parameters, displayed. You should be able to get all of the stations shown in the green, yellow and pink areas. The first few (strongest) in the grey area will be able to be detected, at times, particularly at night.

TROUBLESHOOTING-

First of all, if you feel you have some issues with your amp, PLEASE re-read these tips carefully as there are already many tips and preventives already interspersed throughout!

Keep in mind that your amplifier was tested THOROUGHLY prior to shipping and they seldom fail after the fact so your amp should be the LAST thing to suspect as faulty should you have signal disturbances after connection. Most often when this happens, it is some kind of local interference as has already been discussed previously. We have recently learned that, in some cases, even nearby cell towers can cause problems for wideband amplifiers or even some TV tuner front-ends themselves can backfeed upon amplification. In house wireless devices such as wifi and wireless security systems can also cause problems with wideband amps like the TRUTH. However, some interference issues can be minimized by relocating the amplifier or the antenna, or, in some case, by simply using a power line filtered power strip.

Another often overlooked source of trouble is a failure of the 300 ohm to 75 ohm balun transformer located on the antenna. These can go bad after years out in the weather and when this happens, they MUST be replaced as an amplifier will NOT help when signal is lost through a failed transformer at the antenna.

If you have any issues in application, PLEASE email us supplying ALL details and information about your setup-type and model of antenna, its height and position, your coax length, any devices or splitters in your line and the type model of your TV/receiver. Also describe in as much detail as possible exactly what channels you receive and/or lose and what you were hoping to achieve by using an amplifier.

We will correspond with you by email to try and isolate your problems and help you correct them if possible. We have solved MOST (about 80%) of all applications issues by this method in the past!

In closing, I would like to mention that, as of 2014, about 20% of my amp business is now REPEAT business! So, if you should ever desire an extra amp for yourself, or friends, please contact us direct at the email address listed herein, or visit our website OneOfAKindCraft.com, mention the code "USER2" and we can offer you a subsequent buyer/user discount direct through PayPal!

We would very much like to hear from you in the future about how your amp is working for you! **Please email us, at my associate's email address - LHD521@yahoo.com - (the eBay forms are character and content limited and difficult to use for detailed correspondence!. You may now also email me through our website email- OT@OneOfAKindCraft.com)** with your performance results, or questions, anytime you care to do so! We will be happy to "walk you through" any application issues that may arise. If you bought on eBay, your positive feedback would also be greatly appreciated, and promptly returned! Thank you very much!

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