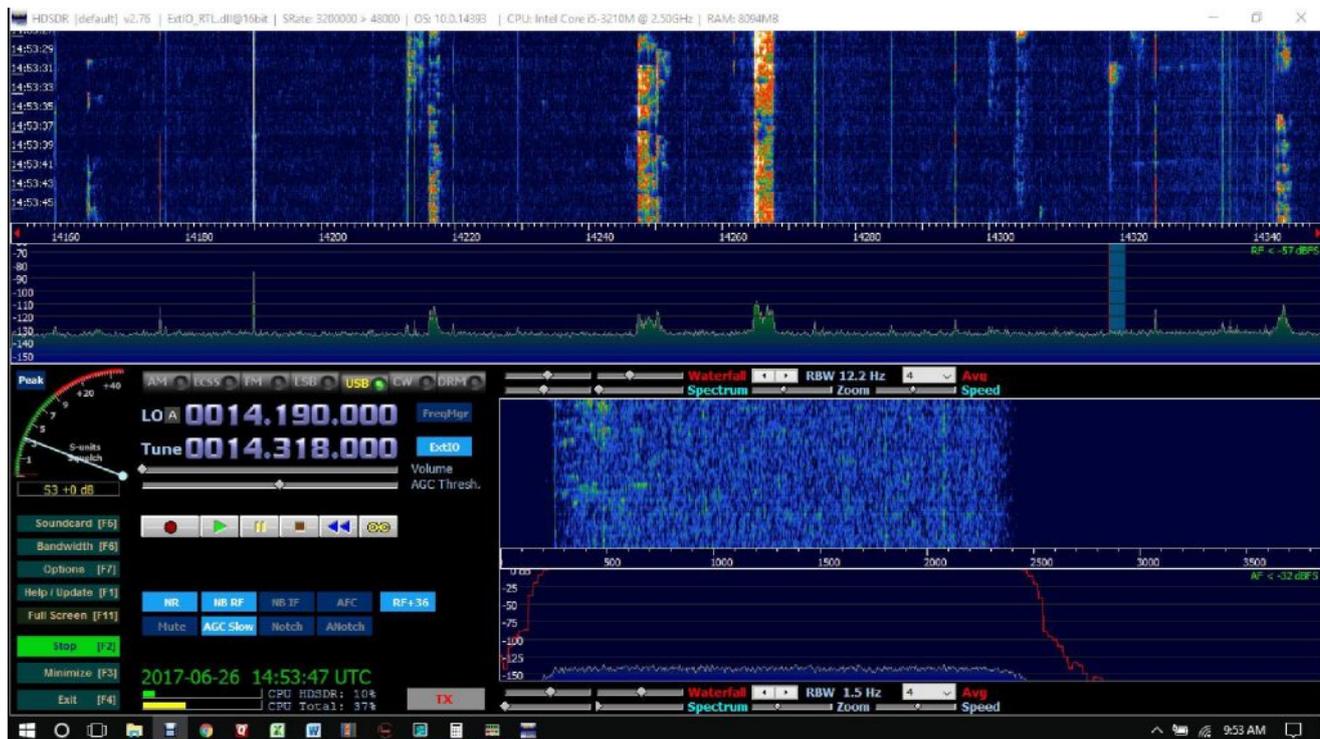


Icom 7300 Panadapter With DXPatrol, Mini Circuits Splitter And HSDR

The Icom 7300 panadapter includes an Inrad RX7300, [Mini Circuits ZFSC-2-1 splitter/combiner](#), a DXPatrol SDR, a few cables and HSDR. See my previous post on the [Inrad RX7300 modification](#). I have been using HSDR as a panadapter with my Icom 7300 for a few weeks now. The SDR is the [DXPatrol](#). I tried a cheap RTL-SDR, but got too much interference from our local AM broadcast station.

UPDATE: THERE IS A MINI CIRCUITS ZSC-2-2+ AVAILABLE ESPECIALLY FOR AMATEUR RADIO. SEE [HERE](#).

HSDR displays the 7300's scope on an external monitor (not technically correct, but sufficient). We get better resolution and a larger picture of the spectrum scope. It's possible to see an entire band or more and we can tune the 7300 with our panadapter. Use the mouse, point and click on the desired signal in HSDR and the radio follows. Any changes done to the VFO, band and mode made by HSDR are tracked by the 7300 and



With a panadapter I can see an entire band on my screen and jump from station to station ([See this short clip](#)). This will work extremely well in a contest or even Field Day if you were searching and pouncing. It's also just nice to have in normal operating.

The LCD on the Icom 7300 is FB, but small. It is hard to touch a signal and jump to the frequency. The Icom 7300 HDSDR panadapter setup is much better for that.

The DXPatrol receiver is no match for the Icom 7300 receiver, so I listen to the Icom 7300 receiver 99.8% of the time because it is so much better. The DXPatrol just provides HDSDR with a receiver.

Total cost for this is around \$200. The DXPatrol was \$108 and can be used for other things as well. You could try a RTL-SDR for \$25 and it may work for you. You could also try a simple RCA "Y" cable splitter in place of the Mini Circuits splitter/combiner. I tried one, but it had too much noise and interference. See my list at the end of this article.

Icom 7300 Panadapter Installation Instructions

Steps

1. Install the Inrad RX7300. See my [previous post](#).
2. Attach the cables and Mini Circuits splitter/combiner. Attach the left (looking from the rear) RCA to the "S" SMA connector on the Mini Circuits splitter. Connect the right RCA to the "1" SMA connector on the Mini Circuits and finally, connect the SDR you have to the "2" SMA connector on the Mini Circuits. (Other configurations are possible.)

Icom 7300 Menu>SET>Connectors

Here are the [screen shots](#) from the Icom 7300. I use two cables, a CI-V for rig control and USB for data modes.

Software installation of Zadig, HSDR and Omnirig on page 2.



Click on the image for a full view.



Sits on top of the Icom 7300.



DXPatrol SDR



RTL-SDR AM Broadcast Filter

Icom 7300 DXPatrol HSDR Omnirig Installation On Windows 10 Pro

I used a three step process this time around and a new computer (new to me) with a fresh install of Windows 10 Pro.

1. Download [Zadig](#) and install the driver for your SDR. Mine is the DXPatrol.
2. Download and install [HSDR](#) and [Omnirig](#).
3. Download [EXT_IO.dll](#) and copy it to the HSDR directory.

There is a lot more to operating HSDR than I have here and it is somewhat complicated at first.

The four alternatives: Continue to use the LCD on the Icom 7300, use the 12kHz (very narrow) IF and HSDR (some have accomplished this), use RS-BA 1 or use RUMLogNG.

None seem to be as good in my opinion as HSDR. With RS-BA1 the spectrum scope screen lags a bit. While RUMLogNG is great Macintosh logging software and provides a spectrum scope, it isn't the quality of HSDR.

Conclusion: If you like your Icom 7300 and want to get more out of it, this is a good way to do it.

Icom 7300 RTL-SDR HSDR Configuration

If you have an RTL-SDR dongle, it will work, but we just need to make a couple of configuration changes in HSDR.

[AM Broadcast Filter on E-Bay](#)

There are other benefits for using the Icom 7300 panadapter. One configuration I have been using is the DXPatrol receiver to monitor a SSB net, while at the same time working JT65 and JT9 with the Icom 7300. Two independent receivers!

The one drawback or tradeoff: Because of the added hardware (ZFSC-2-1) there is about 3 db loss on receive. That loss is minimal and only on the DXPatrol. I do not believe the receive on the IC-7300 is affected.

As always, thanks for coming by. If you have any questions or comments, please make them below. I'm always happy to respond.
Best 73! – Rich, K0PIR

Hardware/Software List:

UPDATE: THERE IS A MINI CIRCUITS ZSC-2-2+ AVAILABLE ESPECIALLY FOR AMATEUR RADIO. SEE [HERE](#).

1. [Inrad RX7300](#)
2. [Mini Circuits ZFSC-2-1 Splitter/Combiner](#)
3. [Two short RG174 Cables](#)
4. [One long RG174 Cable](#)
5. SDR of your choice. I have used the [DXPatrol](#) and RTL-SDR.
6. [Zadig](#) (USB driver installer).
7. [HSDR](#)
8. [Omnirig](#)

References for this article include:

[Mini Circuits PDF](#)

[Icom IC-7600 IF Scope Display Using An RTL-SDR Dongle and HSDR for Point and Click Tuning](#)

[IC-7600 Scope IF Tap For RTL-SDRs](#)

Inrad RX7300 Modification While Keeping The External Tuner Jack

Finally the [Inrad RX7300](#) modification! I'm in the process of adding a panadapter to my Icom 7300. The Inrad RX7300 is installed and I managed to keep the external antenna tuner jack on the rear of the IC-7300. All I did was let it dangle from the rear of the radio. This is temporary and I make no guarantees about this.

The alternative is to provide power to the external tuner and use the tuner button on it. That has it's drawbacks. For one, I won't be able to use software (HRD) to start the autotuner.

I have an LDG AT-600ProII Autotuner connected to the Icom 7300 and I use it with my amplifier.

In a few months when I move the radio into my camper, I'll keep the Inrad RX7300 and do away with the external tuner jack altogether. I won't need the external tuner in the camper.

Inrad RX7300 Modification

Installation of the Inrad RX7300 is a breeze. Another Ham (Steve Ellington) has a [YouTube video on the installation](#), so

I won't be making one. I have some photos on the next page.

What is different from mine is the external antenna tuner jack.

The instructions included with the Inrad RX7300 are well written. However, the black and white photos in the instructions are tough to make out. Go to page 2.

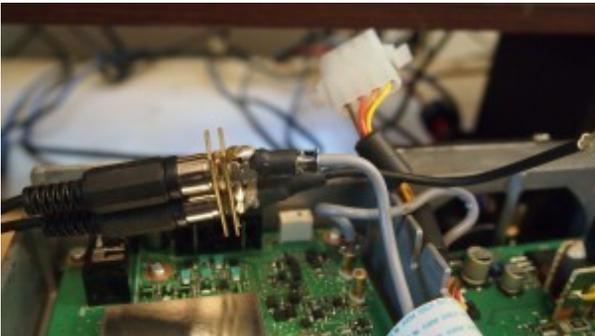
Click on a photo to see a larger image



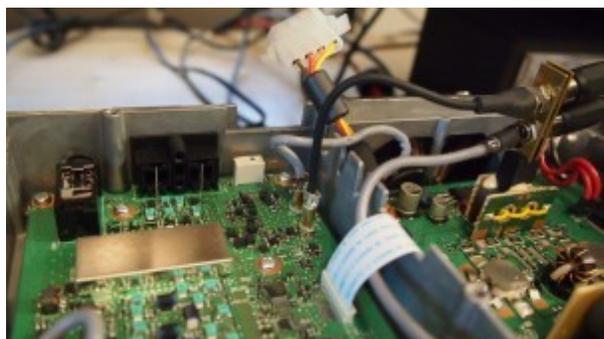
Remove all 10 screws on the top cover and 2 screws from each side.



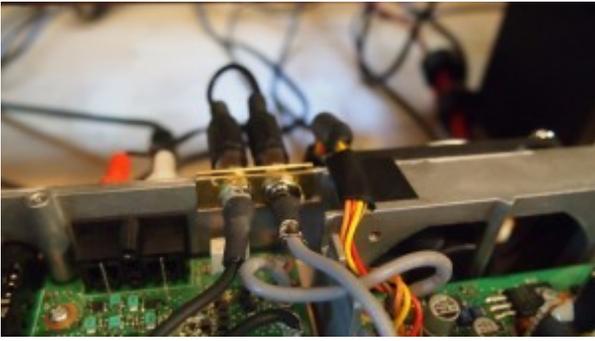
Top cover removed. We'll be looking at the rear of the radio.



Lift out the antenna tuner jack. Pull the cable (TMP connector) out of the jack (J1701) closest to the front of the radio and plug it into the female TMP connector.



Plug the cable from the RX7300 into the vacant J1701 jack in the radio. It is a little tough getting these into the jacks.



Slide the RX7300 mod into place. Let the external antenna tuner hang out of the rear. As a precaution use a little electrical tape to protect the wiring harness. Do not tighten down cover screws at the rear.



Finished product. I connected my LDG to the tuner port and all is well. Try this at your own risk!
Go to page 3.

How To Use The RX7300 For A Panadapter

One point of confusion may be the jacks on the rear and which one to use?

If you want to connect an RTL-SDR (or other) and use it as the sole receiver, while looking at the radio from the rear, connect the RTL-SDR to the RCA jack on the left leaving the RCA jack on the right open.

If you want to connect a RX antenna (just for receiving), connect it to the RCA jack on the right and leave the one on the left open (or connect an SDR to the one on the left).

No RX antenna? Use a splitter, connect an SDR to it and have two receivers!

BTW, I have a cheap RTL-SDR and I tried a simple VGA splitter from Amazon and it did not work for me. There was too much noise and interference on mine. It may work for others and may be worth a try. The VGA splitter was only a few dollars and it might work better with a better SDR too.

Icom 7300, RX7300, RTL-SDR and Mini-Circuits Splitter

So I got the [Inrad RX7300](#) installed easy enough and now I have a [Mini-Circuits ZFSC-2-1](#) SMA Splitter attached to the Inrad RX7300.

With [HDSDR](#) and a cheap RTL-SDR dongle I have a panadapter going. The RTL-SDR receiver is not very good compared to the Icom 7300 receiver. Also, it picks up local AM and FM broadcast stations on the HF bands. That is the downside to the cheap RTL-SDR. If you don't have strong local AM and/or FM broadcast stations close-by, it should work fine. There are filters you can buy or make for it too.

I have another SDR coming and I'm looking forward to trying it. I'll post the rest of the installation and results when I have them, so there's more to come.

Thanks for dropping by, please comment below. Have you tried this?

73 – Rich, K0PIR