

# Instructions to configure ELAD S1/S2 as an auxiliary receiver for a transceiver

By properly configuring the FDM-SW2 program, you can ensure that the receiver connected to it operates synchronously with the transceiver. To do so you must install the program OmniRig on the same PC on which it is installed FDM-SW2.

## Possible scenarios

Depending on the available transceiver, as well as your preferences, the receiver can be connected in three different ways.

- *Auxiliary connected receiver* if you have a transceiver with RX OUT output. This is the most flexible configuration, since it allows to use simultaneously both the transceiver's internal receiver and the ELAD device.
- *Panadapter* if you have a transceiver with IF OUT output. This configuration also allows to simultaneously use both the transceiver's internal receiver and the ELAD device. The major limitation of this configuration is that both receivers must operate on the same band; it is not possible, for instance, to listen to a band while operating the transceiver on a different one.
- *Auxiliary switched receiver* if you have a transceiver with no RX OUT or IF OUT output. In this case you have to use an external switch such as, for example, the model ELAD ASW-1. This is the most penalized configuration because it does not allow you to use the transceiver's internal receiver.

## Auxiliary receiver

The *auxiliary connected receiver* and *auxiliary switched receiver* modes logically operate in the same way. The difference between the two modes depends on the availability, on the transceiver, of a switched outlet (RX OUT).

The RX OUT socket allows you to connect an external receiver using the Rx/Tx switching inside the transceiver itself. When this socket is present, simply connect the receiver input (S1 or S2). If this socket is not present, you must have an external switchbox (like, for instance, ELAD ASW-1). Task of this switchbox is to connect the antenna to the receiver (S1/S2) while receiving and connect the antenna to the transceiver while in transmission. The switchbox is controlled by the transceiver itself, usually using the line normally used to switch any linear amplifier (ELAD ASW-1 is able to switch sensing the power on the transceiver antenna outlet).

## Panadapter

The term *panadapter* refers to the possibility to connect the receiver to the socket where it is present the IF signal of the transceiver's receiver.

In this case, the FDM-SW2 program will continue to display the reception frequency even if it operates within the IF channel.

Operating in panadapter mode you are limited to the transceiver's IF available bandwidth. Usually this is not a problem because the socket extracts the IF signal before the roofing filter.

## Software installation

The first program that you must install is FDM-SW2. For this installation we suggest to refer to its user manual.

The second necessary program is OmniRig (<http://www.dxatlas.com/omnirig>): this program allows you to use the transceiver CAT interface. The OmniRig installation is covered by the appropriate manuals; we don't cover it here since you basically need to download an installer and then run it.

While not a program in itself, we point out the fact that normally the CAT cables require you to download a driver (in many cases FTDIO) that allows the computer to communicate with the USB circuit inside the cable. This is normally shown in the quick guides available with the CAT cable.

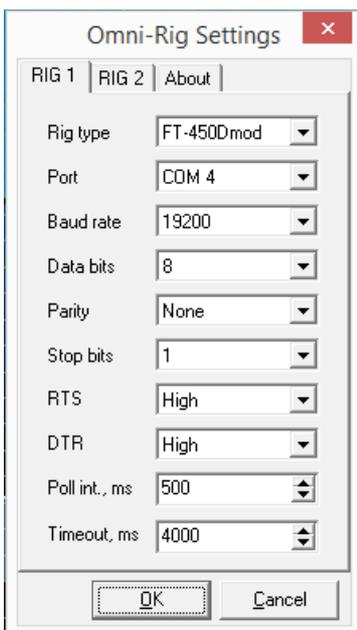
## Software configuration - OmniRig



In the upper-left corner of the FDM-SW2 screen you see an icon appear with the word Omnirig; when you click it, a configuration dialog is shown (see below).



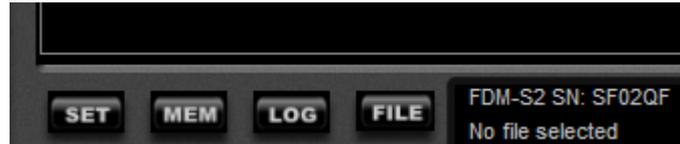
In this setup only one device should be configured: it will be specified as Rig1. By checking the *Show Dialog* box on the left, the OmniRig configuration window shown below will appear.



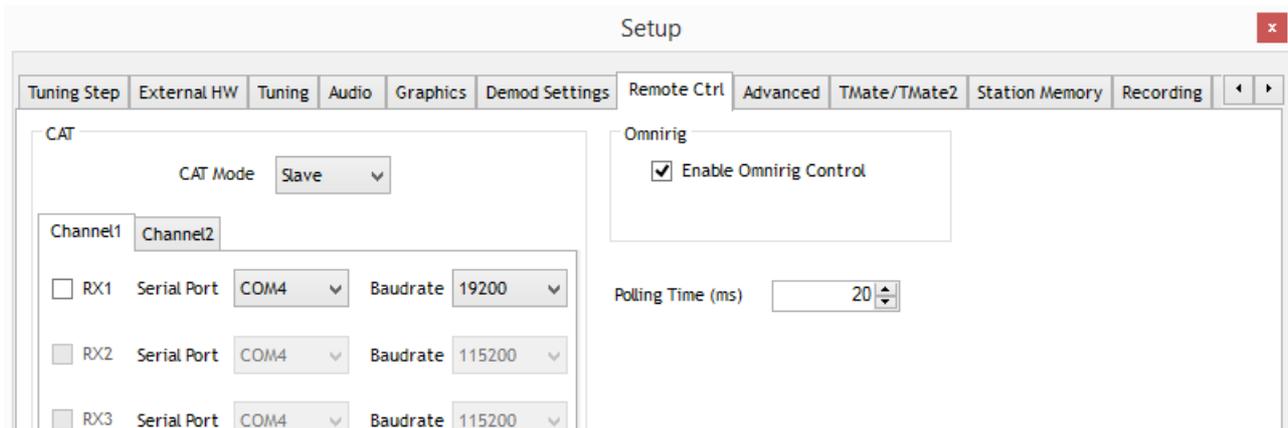
In this windows there are three important settings that must be correctly set:

- *Rig type*, which must match the transceiver to be controlled (the drop-down list lets you choose from the many supported devices);
- *Port*, which must match the port where the OS sees the CAT cable;
- *Baud rate*, which must match the one used by the transceiver (usually set up with the appropriate configuration menu on the transceiver).

## Software Configuration – FDM-SW2



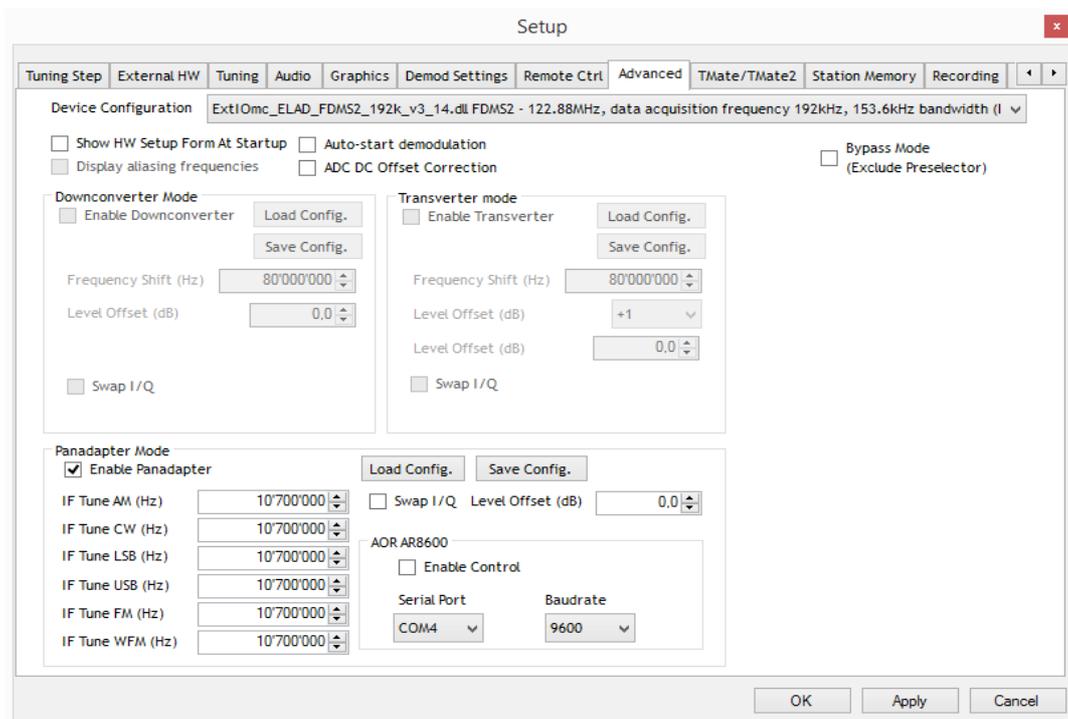
In the lower-left corner, above the button activation of FDM-SW2, there is the *Set* button; clicking it displays the program setting window shown below.



To correctly configure the communications you need to click the *Remote Control* tab and then tick the *Enable Omnirig Control* control box at the top center of the window. Then you will have to confirm with the OK button.

If you act in *auxiliary connected receiver* or *auxiliary switched receiver* modes, the configuration ends here.

If you use the *Panadapter* mode, you must click the *Advanced* tab to display the screen below.

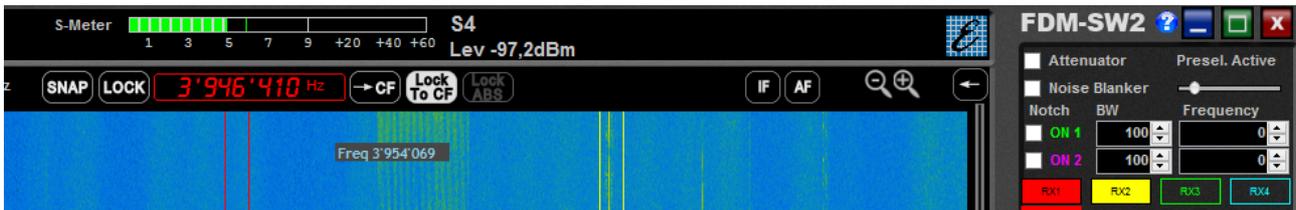


In this window you must select the *Enable Panadapter* box and choose the frequency values for the various modulations. At the end you have to confirm by clicking the OK button.

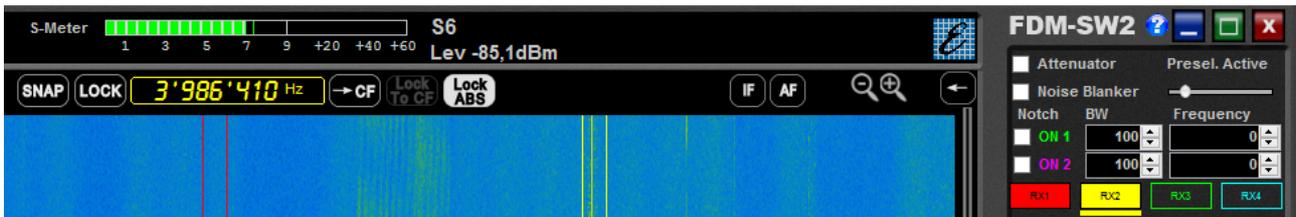
Be careful when setting of various frequencies: in some devices the frequencies vary according to modulation: for example, in some transceivers, the reception chain of the FM modulation differs from that of AM/SSB and requires different values; also in many devices you need to set the values taking into account the BFO settings for CW and SSB.

## Use Notes

FDM-SW2 has four receivers. You might set the first so that the transceiver's tuning commands and the FDM-SW2 ones operate together. This is achieved by selecting the option *Lock to CF* (Lock to Central Frequency) that is at the right side of tuning indication, as you can see in the figure below.



If you want to activate a second receiver making sure that it locks on the signal you are receiving, use the option *Lock ABS* (Absolute Lock), as shown below, that relates to RX2.



With these settings the transceiver tuning knob moves the center frequency of the FDM-SW2 and with it also the tune RX1, which is then in isofrequency with the transmitter. The RX2 receiver instead remain fixed on the chosen frequency without losing contact with the station you are listening to.

An example of use of this configuration is what you can do when trying to connect a DX-spedition operating in split by calling on a fixed frequency and listening to some kHz away.

In this case RX2 is used to listen to the fixed frequency and RX1 to move to an unused frequency on which to make the call.

You can also try with RX1 to hear the OM contacting the DX-spedition in order to have an idea of the frequency on which the DX-spedition is listening to in that moment, trying to understand how it is moving so you can make the call on the right frequency at the right time.

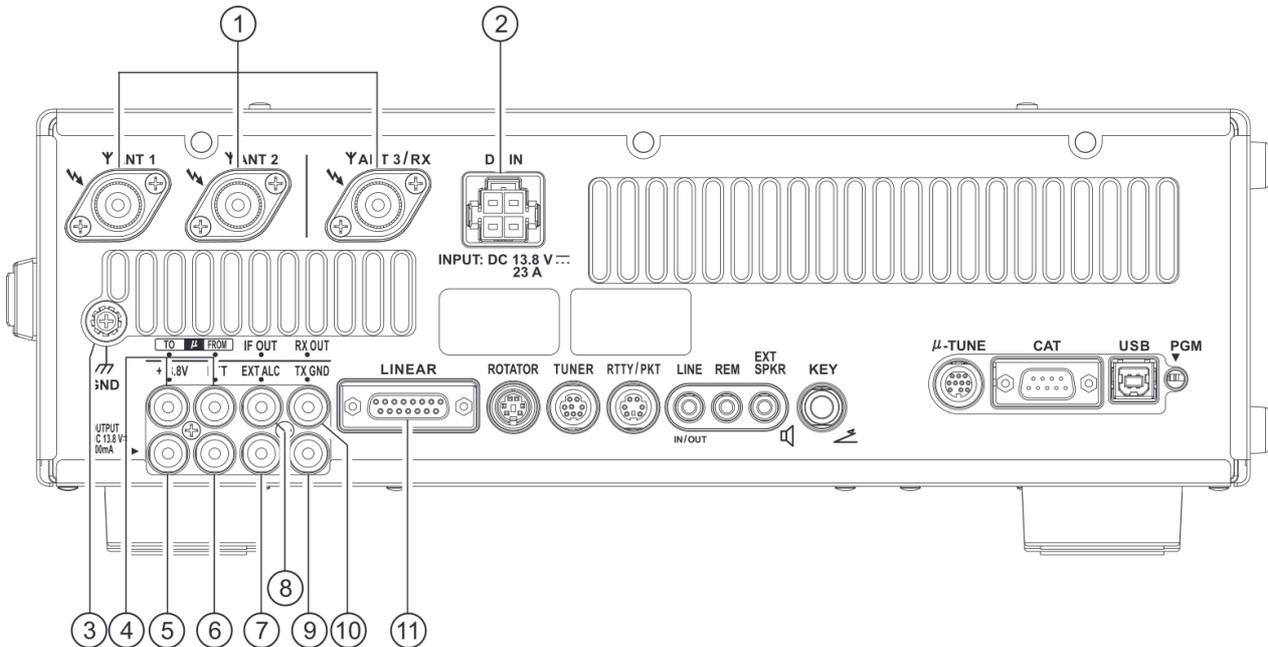
To facilitate listening and distinguish more easily the DX station by the calling OMs you can decide to connect the two receivers to two different earphones so that you have, for example, RX1 on the left headset and RX2 on the right one.

All this is just an example. You can also work in different ways, suggested by your experience.

## An example of a connection with a transceiver

Below are shown, from the manual of Yaesu FTDX-3000, the connections on the rear panel. There are two ways to connect an S1/S2:

- as an *Auxiliary connected receiver* using the socket marked with the number 10 (RX antenna)
- as *Panadapter* using the socket marked with the number 8 (IF OUT); in this case you must remember that the IF frequency is 9 MHz; this value should be set in the *Advanced* window in correspondence of the IF Tune values.



### ⑧ IF OUT Jack

This RCA jack outputs the receiver 9 MHz IF signal. This signal does not pass through the roofing filter.

### ⑨ TX GND Jack

This RCA jack's center pin is closed to ground while the transceiver's transmitter is engaged. The transistor open collector circuit used for this jack is capable of switching a DC voltage of 60 V at 200 mA, or DC 30 V at up to 1Amp.

### ⑩ RX OUT Jack

This RCA jack provides output of the receiver signal lines from the Antenna jack.