Using SDR-Kits External Clock-in Cable with the SDRPlay

RSPdx, RSPduo, RSP2 and RSP2pro and the Leo Bodnar Precision GPSDO

The External Clock-in Cable produced by SDR-Kits, is a tested & cost-effective method to supply a 24 MHz GPSDO Master clock signal from the Leo Bodnar Precision GPSD Disciplined Oscillator to the SDRplay RSP2, RSP2pro and RSPduo SDR Radio Receivers to achieve superior Frequency Stability during reception.

The cable consists of a BNC plug to MCX plug cable, a 3 way BNC T Adapter and a 50 Ohm BNC Load. This Cable assembly connects direct to the BNC GPSDO Output socket on the 2 Port GPSDO.
Connection to the **Mini GPSDO** requires an **additional** Male SMA (Plug) to female BNC (Jack) Adapter.

This leaflet shows the sequence of steps to connect the Leo Bodnar GPSDOs to the SDRplay RSP2, RSPdx and RSPduo. Make sure you read and follow these steps

A) Leo Bodnar 2 Port GPSDO External Clock to RSPdx, RSPduo, RSP2 and RSP2pro

1. Connect the 2-Port GPSDO to a Windows PC USB Port and start the Leo Bodnar GPSDO Application. The SDRplay Receiver should **NOT be powered up** at this stage.

2. The Setup screen will now be displayed.
    Set the parameters as shown to the right

3. **Important:** Output drive strength must be set to 16mA,

4. Set Frequency to **24 MHz** - note this field is in Hertz,   Check it is set to 24 followed by 6 zeros

5. Press "**Find**" and the GPSDO should LOCK

6. Connect the BNC Male plug on the BNC T adapter to GPSDO Output 1. Connect the MCX connector to the Clock-in connector of the RPS2, RSP2pro, RSPdx or RSPduo Radio

7. Connect the RSP2, RSP2pro, RSPdx or RSPduo to a USB port You should hear the familiar sound indicating that the SDRplay receiver is powered up and enumerated by the Windows Operating system.

8. Now start SDRuno or other SDRplay application and your RSP should now operate as normal using the GPSDO Precision 24 MHz clock supplied by the GPSDO.

9. In case of issues please see Notes 1-3 on the next page:
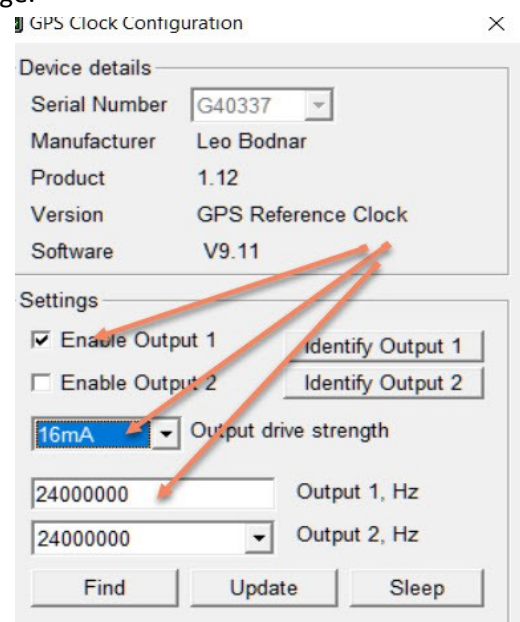
B)   Leo Bodnar Mini GPSDO External Clock to SPdx, RSPduo, RSP2 and RSP2pro

Connection to the Mini GPSDO requires an **additional** Male SMA (Plug) to female BNC (Jack) **Adapter.**

1. Connect the Mini GPSDO to a Windows PC USB Port and start the Leo Bodnar GPS Application.
   The SDRplay Receiver should **NOT be powered up** at this stage.

2. Set the parameters as shown to the right

3. Set Frequency to 24 MHz - note this field
    is in Hertz,   Check it is set to 24 followed
    by 6 zeros   **24 MHz = 24000000 Hertz**

4. Click on "**Advanced" button**, The right
    hand screen now becomes visible

5. **Imporrtant:** Output drive strength **must
    be set to 16mA**

6. Press "**Update**" and the GPSDO should
    LOCK.
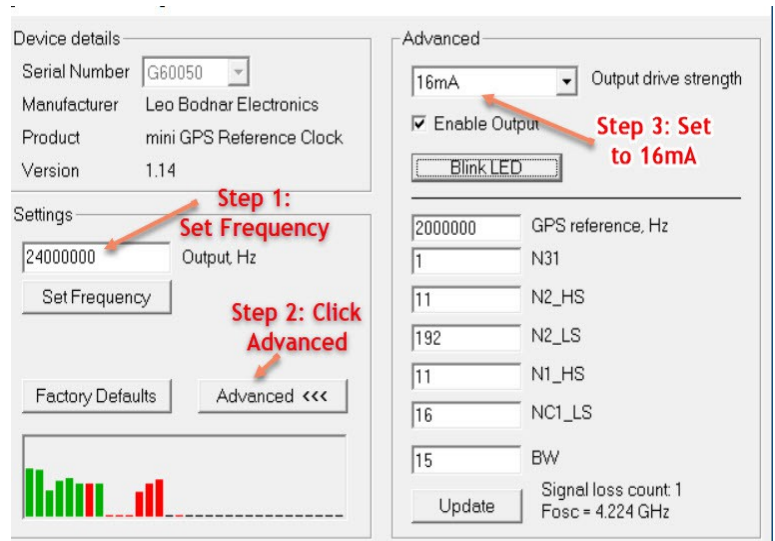
7. Connect the BNC Male plug on the BNC T adapter of the Ext Clock-in cable to the GPSDO Output 1 using
    the optional SMA plug to BNC Jack adapter, Plug in the MCX end of the Clock-in cable to the Clock-in
    connector on the RPS2, RSP2pro, RSPdx or RSPduo

8. Connect the RSP2, RSP2pro, RSPdx or RSPduo to a USB port
    You should hear the familiar sound indicating that the SDRplay receiver is enumerated by the Windows
    Operating system.

9. Now start SDRuno or another SDRplay application and your RSP should now operate as normal using the
    GPSDO Precision 24 MHz clock supplied by the GPSDO.

Troubleshooting:

Note 1:   If for any reason the RSP Radio stops operating on the GPSDO Master clock signal then you must exit
the SDRplay application and physically remove the USB cable connected to the Radio from the PC.   Restart the
above procedure by waiting 5 seconds and the plugging in the USB cable to re-enumerate the Radio.
Without re-enumerating the RSP hardware it is not possible to resume ext Clock-in operation.

Note 2:   **T**he 50R BNC load is critical for succesful operation, main purpose is to provide a DC return path to
signal to the RSP2 and RSP2pro that an external clock cable has been plugged in and to change to an external
clock source as well as providing a 50 Ohm load to correctly set the Output level.

Note 3:   These above procedures may not work on other equipment that may be used to supply a External Clock
Signal to the RSP2, 2pro, RSPdx or RSPduo.   In this case please refer to the official SDRplay link:

https://www.sdrplay.com/docs/SDRplay_RSPII_Reference_Clock_Application_Note_R1P0.pdf