

General

JUMA TX136/500 can be set up for a stand-alone beacon. The WSPR parameters are programmed with a PC using a terminal emulator like Windows Hyper Terminal and are saved into the nonvolatile memory of JUMA TX136/500, thus the PC is needed only for the WSPR parameters programming. After programming the JUMA TX136/500 can be started for a continuous stand alone beacon. This release 1.06a allows only standard WSPR messages : callsign + 4 digit locator + dBm.

The optional GPS receiver must provide a \$GPGGA NMEA sentence with RS232 serial output. Without GPS device the internal WSPR timer supplies a good synchronization during a few hours.

Connection between JUMA TX136/500 and PC

1. Connect a RS232 serial cable between JUMA TX136/500 and a PC RS232 port. If a RS232 port is not available in your PC you can use a USB-RS232 converter. See separate cable wiring drawing.
2. Start the terminal emulator (e.g. Hyper Terminal) and select the following com port settings
 - Port number n (free port in your PC)
 - Baud rate = 9600
 - Data bits = 8
 - Parity = None
 - Stop bits = 1
 - Flow control = None
3. Start JUMA TX136/500 and go to the CONFIG pages with a long DISPLAY/CONFIG button push. Press DISPLAY button until in Serial Protocol page, select **RS232 = TX136/500** with UP/DOWN buttons. By pressing DISPLAY go to the Serial Speed page and select **Baud rate = 9600**. Quit CONFIG with long push.



Serial Protocol
RS232 = TX136/500

Serial Speed
Baud Rate=9600

4. Test the serial connection by entering **?I<CR>**. You should see JUMA TX136/500 responding with the software version : JUMA-TX136, SW 1.06a, DATE 08.10.2014

Programming WSPR parameters

1. Enter your standard callsign by entering **=WCMYCALL<CR>**.
 - The standard callsign can have 6 characters max.
 - Add-on prefix or suffix are not allowed.
2. Enter your **4-character** maidenhead grid locator by entering **=WGGRID<CR>**.
3. Enter the dBm level for the TX136/500 power max by entering **=WPDB<CR>**.
 - The acceptable dBm level is 00 to 60.
 - The power level is automatically modified according standard WSPR levels and TX136/500 power.
4. The terminal emulator can be closed.

Setting WSPR timer with optionnal GPS receiver

1. Go to the CONFIG pages with a long DISPLAY/CONFIG button push. Press DISPLAY button until in Serial Protocol page, select **RS232 = GPS NMEA** with UP/DOWN buttons. By pressing DISPLAY go to the Serial Speed page and select **Baud rate = 4800** (! some GPS receivers can use a different baud rate from the NMEA standard).

Serial Protocol
RS232 = GPS NMEA

Serial Speed
Baud Rate=4800

2. By pressing DISPLAY go to the Mode page and select **MODE = WSPR-2** or **MODE = WSPR-15**.

Mode type
Mode = WSPR-2

Mode type
Mode = WSPR-15

3. By pressing DISPLAY go to the WSPR page :

WSPR : T 01:17
MYCALL GRID DB



4. Connect the GPS receiver to the JUMA TX136/500 RS232 port. If the \$GPGGA NMEA sentence is read correctly then the * character is displayed with GPS timer value and the beep is stopped. Quit CONFIG with long push.

WSPR : T*22:47
MYCALL GRID DB



Setting internal WSPR timer if no GPS receiver used

1. Go to the CONFIG pages with a long DISPLAY/CONFIG button push. Press DISPLAY button until in Mode page, select **MODE = WSPR-2** or **MODE = WSPR-15** with UP/DOWN buttons.

Mode type
Mode = WSPR-2

Mode type
Mode = WSPR-15

2. By pressing DISPLAY go to the WSPR page :

WSPR : T 01:17
MYCALL GRID DB



3. Set the minute timer by pressing UP/DOWN buttons with the help of the beep. This setting must be correct within about ± 1 s. The easier method is to use your computer with an Internet time service. Quit CONFIG with long push.

WSPR : T 23:00
MYCALL GRID DB



Run the WSPR beacon

1. The WSPR timer can be displayed with short DISPLAY/CONFIG button pushes.

BEACON T*23:18
WF1P STBY 136000

2. Select the TX fraction with UP/DOWN buttons. 1P = one play, /1 = 100 %, /2 = 50 %, /3 = 33 % and /4 = 25 %. Then select OPER mode by pressing OPER button.

BEACON T*23:25
WF/4 OPER 136000

3. Run the WSPR beacon with a long OPER button push. The beacon is waiting the next timeslot.

```
S : - - - - T*23:27  
WF/4 WAIT 136000
```

4. The beacon is transmitting when the timeslot is enabled. The symbol number (1 to 162) and the symbol value (0 to 3) are displayed during the TX.

```
S :059 2 T*24:41  
WF/4 TX 136000
```

5. After a timeslot TX the beacon is waiting again the next available timeslot. The beacon can be stopped at any time with a long OPER button push.

internal WSPR timer calibration

1. The accuracy of the internal WSPR timer can be adjusted with the service mode. Start JUMA TX136/500 with a long PWR button push until service mode display.
2. Press DISPLAY button until in WSPR timer page, The default value is 10.

```
WSPR timer Cal  
10 Units
```

3. If the WSPR timer puts back, you can increase the value until 20. If the WSPR timer puts forward, you can decrease the value until 1. Quit and save value by pressing OPER. The calibration requires a working during few hours for noting an offset.