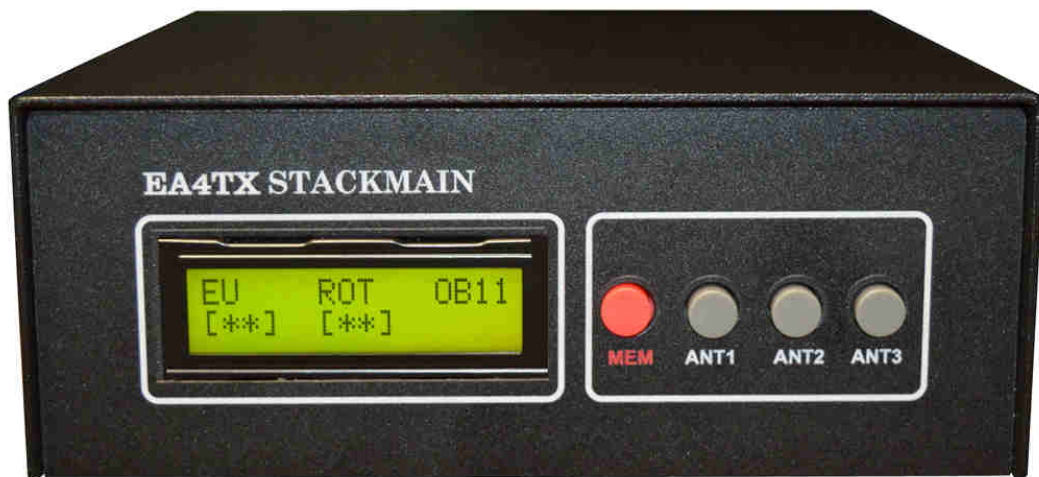


StackMain Controller



StackMain Controller Reference Manual

Jan/2016

Rev 1.1c

Introduction

Thank you for purchasing our StackMain Controller.

The StackMain Controller is a unit that can control any standard Antenna Stack as StackMatch by Array Solutions or compatible systems (SJ2W, etc).

Connected into an external Stack switch you can control with a simple user interface any antenna combination, example antenna A, B, C, A+B, A+C, B+C or A+B+C

Also a windows program will allow you to control the StackMain Controller locally (via USB port) or remotely with a Raspberry Pi (RsPi) or similar devices.

◆ ***It's very important*** that you read this manual carefully. Failure to understand the contents of the manual could lead to damaging the StackMain Controller through incorrect wiring. Remember that the time you spend reading the manual and understanding how the system works, could save you time and money by avoiding an incorrect installation. If any questions occur when reading the manual, please contact us. Our goal is to provide you will a state of the art StackMain Controller unit.

📖 The StackMain Controller is not powered by the USB port neither directly from a main 127/220 Vac. It requires a 12-14Vdc from a power supply (not included).

When connected to the computer and powered on the unit, a virtual COM Port will be added to the computer. Via this COM Port, StackMain software can control locally the unit.

📖 Windows will require a driver the first time the unit was connected to a computer. Linux or Max OS X will automatically detect the unit a Serial port (TTY)

When you want to control remotely a StackMain Controller from other location, once of the simples and more effective solution will be using a Raspberry Pi unit. This part will be described later in this manual.

About this manual

The manual is divided into several parts.

It covers the installation and configuration of the StackMain Controller hardware and software.

Please be sure to properly install and configure the hardware and software as described in the manual.

After reading the manual, if you have questions or concerns, please contact Interlanco Communications. You may check our website or reach us by email. We are committed to helping you achieve a successful implementation of the StackMain Controller unit.

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Driver Installation for the StackMain Controller on Windows

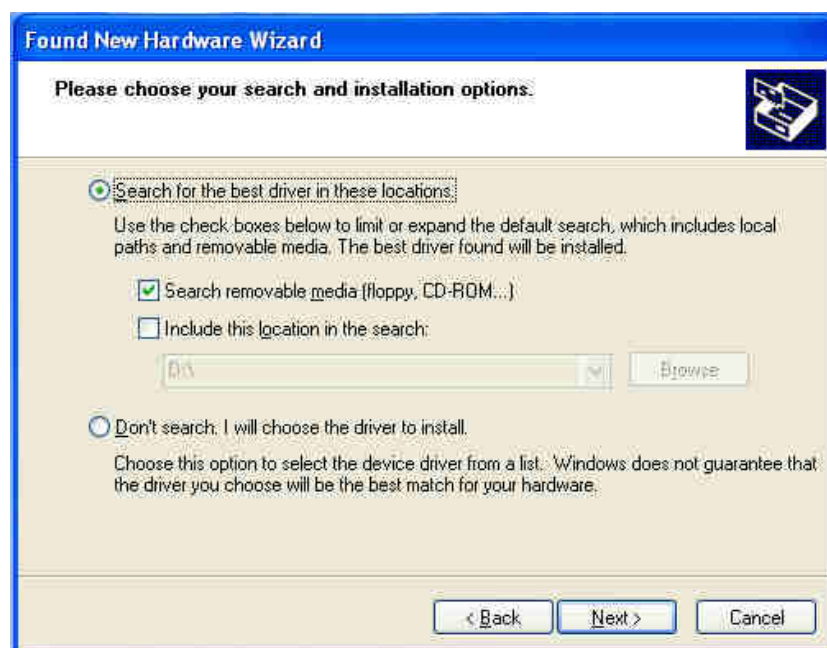
Plug your unit into a USB Port and wait for Windows to begin. It will guide you through the driver installation process.

When asked **Can Windows connect to Windows Update to search for Windows?** Select, **No, not this time.**

Click next to continue.



Select **Install from Removable Media (Supplied)**. Click next.



The driver is included in the CD-Rom. Once you finish the installation process, a COM Port will be added



Now determine if the port was added correctly and verify the COM Port number assigned by the system:

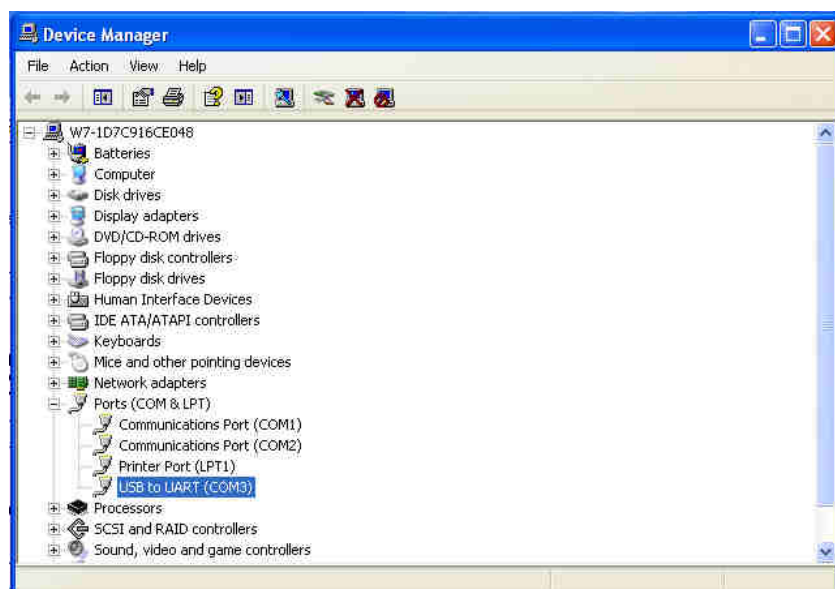
1) Go to the Device Manager:

Windows XP/Vista/Win7 -> Start -> Control Panel -> System -> Hardware -> Device Manager

Windows 2000/2003 -> Start -> Settings -> Control Panel -> System -> Hardware -> Device Manager

2) Click plus (+) next to "Ports"

3) If the device is installed properly, you will see "USB to UART (COMx). Note that x is the number of the COM Port. This COM port will be configured by Remote Box Manager software for controlling the unit.



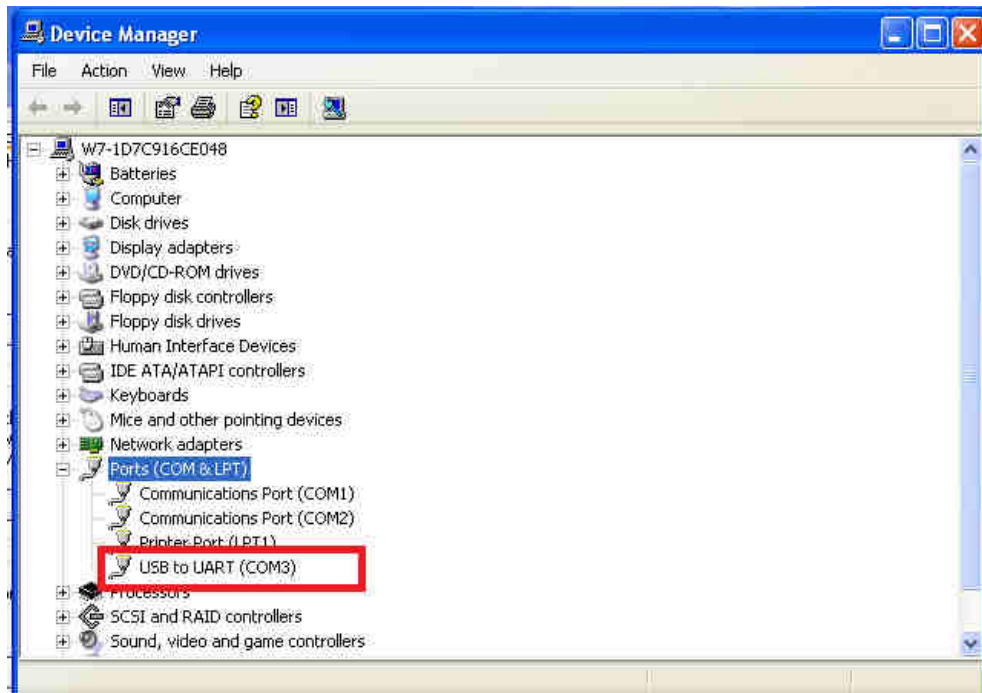
1.1 Port reassignment

If you need to change the port assigned:

1) Go to Device Manager:

Windows XP/Vista/Win7 -> Start -> Control Panel -> System -> Hardware -> Device Manager

Windows 2000/2003 -> Start -> Settings -> Control Panel -> System -> Hardware -> Device Manager



2) Right click on the "USB to UART." Click properties.

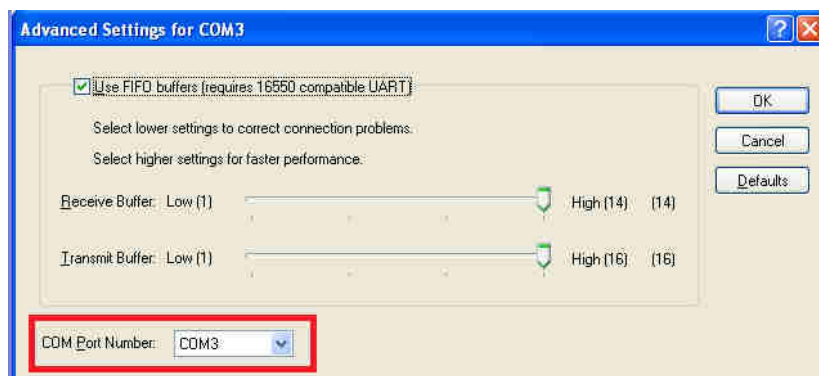
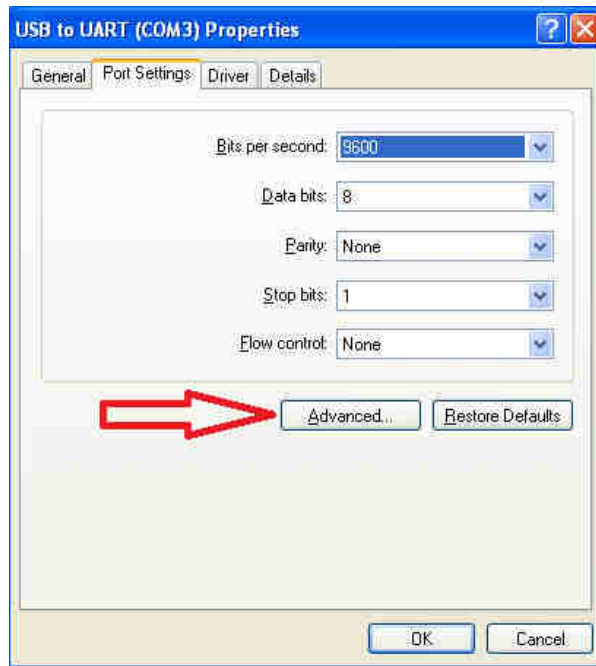
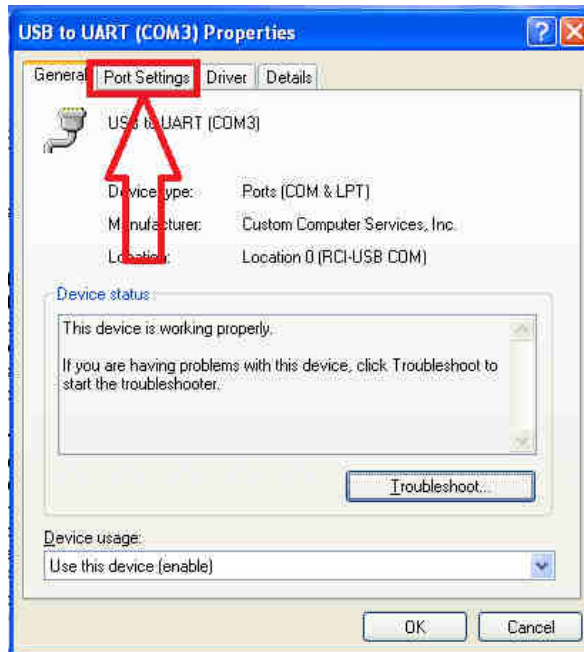
3) Click on the "Port Settings" tab and then click the "Advanced" button.

4) Pull down the scrollbar on the bottom left side. You will see several COM ports listed. Select one that doesn't say "in use" next to it. Then click "OK".

5) Click "OK" again. Notice that the device will now appear on the previously unassigned port you just selected. Verify this by closing Device Manager and selecting it again.

6) Close device manager.

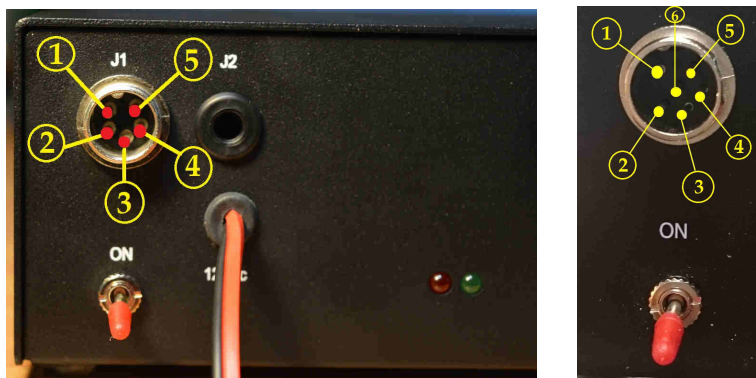
7) This process is illustrated on the following page.



StackMain Controller circuit Setup

The StackMain unit include the following connectors:

- **ON:** This is the power on switch
- **12V cable:** You must connect the unit to a 12-14Vdc Power Supply.
- **J1:** Stack connector



2.1 Connector J1

This is the connector used to control the external Stack Switch. The configuration of the 5 pins is as follows:

- Pin1: Relay 1.....J1d
- Pin2: Relay 2.....J1c
- Pin3: Relay 3.....J1b
- Pin4: Relay IN.....J1a
- Pin5: Ground.....J1e

The StackMain will provide 12V on those pins, so in case you need a different voltage some changes internally will be required.

J1a, J1b, J1c, J1d and J1e are used in the schematic of the typical Stack Match, see bellow.

By default, the StackMain true table is as follows:

Ant combination	Relay1	Relay2	Relay3	RelayIN
A	1	0	0	1
B	0	1	0	1
C	0	0	1	1
A+B	0	0	1	0
A+C	0	1	0	0
B+C	1	0	0	0
A+B+C	0	0	0	0

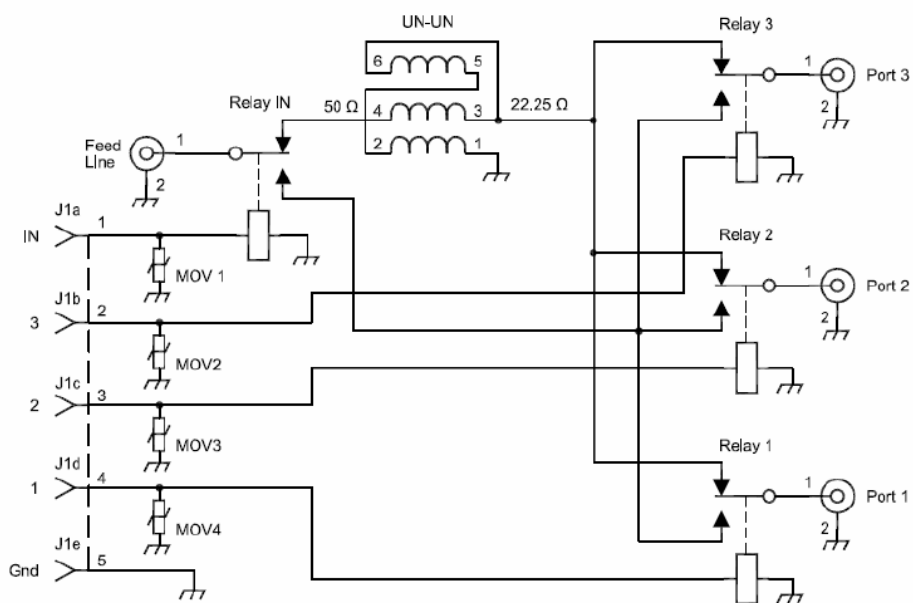
Standard Table or Mode A

But it can also support the true table of the “One to Three StackMatch” by OK2ZAB (RemoteQTH):

Ant combination	Ant1	Ant2	Ant3	Balun
A	1	0	0	0
B	0	1	0	0
C	0	0	1	0
A+B	1	1	0	1
A+C	1	0	1	1
B+C	0	1	1	1
A+B+C	1	1	1	1

RemoteQTH Table or Mode B

Stack Match



This is a typical schematic for a Stack Match. J1 is the Stack Match connector

Working with the StackMain Unit

The unit includes a 2x16 LCD where the 3 antenna names and status are displayed.

Also 4 keys are available:

- F1: Memory Preset
- F2: Antenna 1
- F3: Antenna 2
- F4: Antenna 3



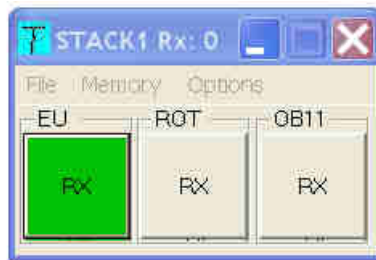
F1 will allow you to recall 2 presets memories, meanwhile F2, F3 or F4 are used to activated/desactivated any antenna.

For instance, each time F1 key is pressed, it's recalled a bank memory (in flip/flop secuencely). However if F1 is pressed during several seconds, the system will allow you to save the actual antennas status into the bank memory 0. If you continue pressing some more second it will change to memory 1.

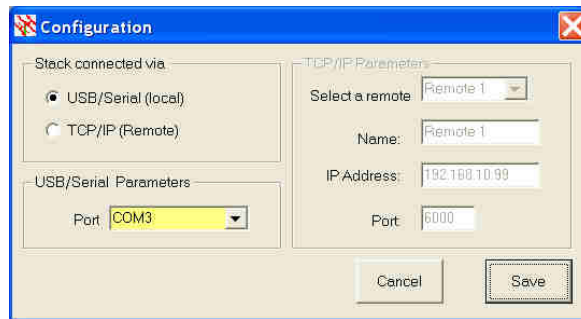
The memory is a useful option that allow you to have 2 presets, for instance a USA setup in memory 0 and Europe setup in memory 1, so pressing F1 (short time) will be loaded the USA or EU presets. Simple a useful!

3.1 StackMain Software:

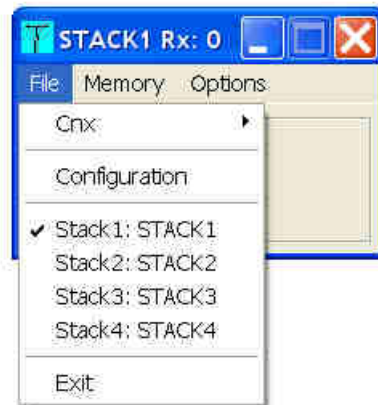
The StackMain is the program included with the StackMain Product and it is used to configure the StackMain Controller (antenna names, stack name, etc) or to activate/desactivate any antenna.



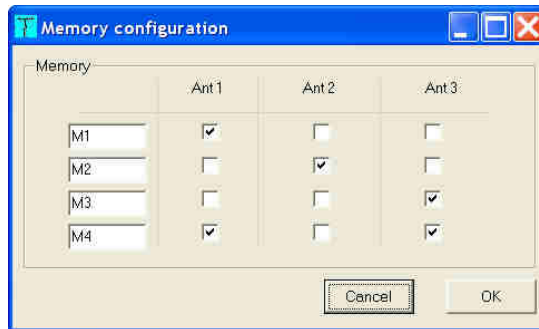
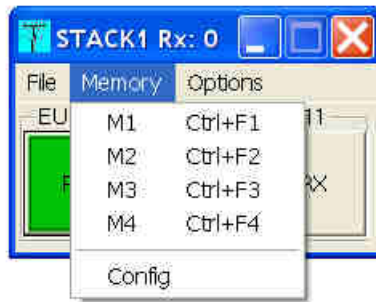
Once you have installed the program, you need to configure if the StackMain is connected via the USB Port or remotely via TCP/IP (for instance with a Raspberry Pi).



In case you have the unit remotely, you can define till 5 remote sites with the IP address and the Port used by the remote site (for instance with a Raspberry Pi and the Ser2net service).



Also you can define 4 memories with some antenna presets.



3.2 Special Keypad option: Bootloader - F1

The StackMain unit can be upgraded with a new release without opening the unit and change the microprocessor or any component.

Some time ago, the only option for upgrade a microcontroller with a new firmware (code) was to request a new chip from the manufacturer. As you can imagine this is a slow and expensive method. A bootloader is an option for loading a new firmware into the microcontroller and the StackMain includes it.

You can enable the bootloader code, by pressing F1 button during the power on.

Note: When the bootloader is enable, the LCD will not work (no information is displayed) and the green led of the back panel will blink (4 peer second).

Now you need a program that helps you to send the new firmware (hex file) into the microcontroller. You can use HyperTerminal (send the firmware as a text file) or use the Teleloader program, included on the CD-ROM. So locate inside the CD-ROM the directory Teleloader, and run the setup.exe, and the teleloader will be installed on your computer.

3.3 Special Keypad option: Change True Table Mode A or B – F3

The StackMain supports 2 true tables for Standard (Mode A) or RemoteQTH (Mode B) stackmatches.

You can change Mode A/B true table by pressing F3 during the power on. Hold down F3 key and release when you select the mode required.

Notes

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