G2-ES Configuration Instructions

This instructional support document is written for the **G2-ES** (Gravimetric Gateway Ethernet to Serial Converter), which in this case, is the **MOXA NPort Express DE-211** Ethernet to Serial converter. These instructions will outline how to configure the G2-ES to enable the G2 Server to communicate with a Maguire Weigh Scale Blender over an Ethernet network.

REQUIREMENTS OVERVIEW:
Use of Ethernet for G2 communications to the Maguire Weigh Scale Blenders requires the following:

- **For installations using one G2-ES per blender** - An Ethernet CAT 5e (or better) cable must be run from the G2 Server to each blender that will be using a G2-ES. If more than one G2-ES will be used, an Ethernet hub or switch is required with all CAT 5e wires run to the Ethernet hub or switch. The G2 Server will also have an Ethernet CAT5 cable run to the same hub or switch. If a single blender is using a G2-ES and one run of CAT5e cable can be run from the G2 Server PC to the G2-ES, the Ethernet cable must be configured as a crossover type cable. *See crossover cable diagram at the end of this document*.

- **For installations using one G2-ES per 2 or more blenders** - If multiple blenders will share a single G2-ES unit, a signal amplifier may be required to boost the serial communications on the serial side of the G2-ES (place after the included null modem cable). If more than one G2-ES is to be used in this capacity, additional signal amplifiers may be required to boost the serial communications of each branch of blenders. Location of each signal amplifier is at the serial output of the G2-ES unit. Use the null modem cable supplied with the G2-ES to connect the signal amplifier's computer port to the G2-ES.

- The G2 Server PC must be configured to use the TCP/IP protocol. A Static I.P. address must be assigned if the G2 Server PC is to be accessed from other PCs on the network using the G2 Client software.

- Each G2-ES must be configured to the specifications within this document. See **CONFIGURATOR INSTALL/USAGE INSTRUCTIONS**.

- **Blender ID Number** - Each Maguire Weigh Scale Blender must be assigned a unique ID number between 001 and 254 using the *66 function. Instructions for assigning an ID are in this document.

Hardware Setup

Ethernet Only Blender Networks
Ethernet Only Blender Networks are described as networks where each blender has it's own G2-ES unit installed at the blender location. CAT5e Ethernet cable is then run from each blender to a hub or switch. The G2 Server's Ethernet runs to the hub or switch.

The G2-ES converts serial communications to Ethernet communications. The G2-ES should be placed at the Blender location and secured in a safe position. Using the provided 6-foot cable (DB-25 to DB-9 NULL modem), connect the 25-pin end to the G2-ES and the 9-pin end to the Maguire Weigh scale Blender. Provide power to the G2-ES by plugging the G2-ES's power supply into a 110-volt source (or 220 for G2-ES-12 units) and into the G2-ES's DC-IN. Connect the Ethernet cable into the G2-ES's 10BaseT Ethernet port. **Avoid vacuum loader lines and high voltage lines when routing the Ethernet and serial lines.**

Software Installation
The NPort Express device will be configured across the network from a PC located on the network. The PC that will configure the G2-ES can be the G2 Server. After the G2-ES is in place and powered on you will install a **Configurator Utility** to configure the NPort Express.

Other methods for configuring the G2-ES:

- Telnet to the IP address of the G2-ES located on the back of each unit (See Moxa's documentation for more info)
- NPort's **Batch Configurator** (See Moxa's documentation for more info)

NOTE: In some cases the Configurator program will not run correctly under Windows XP. This problem was observed in version 1.0 of the Configurator program. The problem may have been corrected in version 1.3, which is included on the enclosed CD-ROM.

Problem Description:
When running the Configurator's "Broadcast Search", the search will find the DE-211 unit(s) but does not list the unit(s) in the Configurator List. Other operating systems (95/98/ME/2000) have not experienced this problem. If you experience this problem, you may if possible choose to use a different OS to configure the G2-ES.

XP Workaround: As the Configurator is searching for DE-211 units; stop the search before the search is complete. If you have one or more DE-211 units, observe the search and when the last unit is found, stop the search. If the search stops on it's own (and does not display the units in the main Configurator list), run the search again and manually stop the search by clicking the "Stop" button. By stopping the search manually, in most cases the problem does not occur for that search nor any other searches and the DE-211 unit(s) are displayed in the Configurator correctly. Additionally, NPort's **Batch Configurator** can be used to configure the DE-211 Ethernet to Serial units.

CONFIGURATOR INSTALL/USAGE INSTRUCTIONS
From a PC on the same network as the G2-ES, follow these instructions:

1. Insert the **MOXA Software CD-ROM**. The CD should auto-start.
   If it does not auto-start, click the Start button and choose Run. Type D:\html\index.htm (*replace D: with your CD-ROM drive letter*).

2. Click the **Installation** button.

3. Click **Next** on the Welcome screen.

4. Check the **Configuration and Management Tools** (COM Port Mapping Tools are not necessary and can be un-checked)

5. Select the destination directory and click **Next** twice. (The default is c:\Program Files\NPortSuite)

6. The program installs and can be selected to automatically start the **Configurator** program.

7. If the program is not start automatically, from the Start menu click Programs, NPort Management Suite, **Configurator.**

8. In the **Configurator** program click **Locate Server**, then **Broadcast Search.** If no DE-211 units were found in a Broadcast Search, verify that the NPort Express is properly connected to the network and powered on.

9. With a successful search the Configurator will find your DE-211. Select your DE-211 from the list of found devices, and then click **Configuration** in the menu, then **Modify Configuration**.

   Note: If you are configuring multiple DE-211's (G2-ES's), a broadcast search will display all found in the list. To distinguish which DE-211 is which on your network, you should write down the unique MAC on the back of each G2-ES and configure them accordingly.

10. Under the **Network Tab**, check off **IP Address** and **Netmask**. Assign the DE-211 a fixed, un-used IP address and a Netmask in the same range as your G2 Server PC. (Example, if the G2 Servers IP address is 10.0.0.1 and the Netmask is 255.255.255.0, then assign the DE-211 an IP address of 10.0.0.2 with a Netmask of 255.255.255.0).

11. Under the **OP_Mode Tab,** check off **Change OP_Mode**, and select **TCP Server**.

12. Under the **Serial Setting Tab**, check off **Change Serial Port Settings**.
    Use the following settings:

Baud Rate – 1200	**Stop Bits- One**
Parity – None	**Flow Control – None**
Data Bits – 8	**UART FIFO – Disable**

13. Under the **Password Tab,** an *OPTIONAL* Password can be assigned to restrict access to the G2-ES. To assign a password, check **Change Password** and enter a password and re-enter the password to confirm.

14. When complete with the above instructions, click **OK** to upload settings to the DE-211 Ethernet to Serial converter unit. When Progress confirms **OK**, proceed to the next DE-211 or click close and exit the Configurator. The NPort Express is now configured to allow access to the Maguire Weigh scale blender from the G2 Server.

Assign Unique WSB Identification Numbers to Each Blender

Each WSB controller **must** have it's own **unique** identification number. This number must be entered at the controller using the keypad. These numbers can range from 001 to 254. Do not use 000 or 255. Do not allow 2 controllers to have the same number. This ID number is used for all communications, and for identifying the source of all report information. It may be helpful to you if you choose a numbering sequence that relates in some way to each controller's location. To enter an **identification** number into a controller, do the following at the controller:

1. Turn the "STOP END OF CYCLE" switch OFF (down),
2. Turn power ON
3. Press: *22222 to enter into Program Mode.
4. Press: *66. Enter the ID number you want to assign to the controller. Enter all 3 digits using leading zeros.

Write down the numbers. This list will be needed when manually entering WSB I.D. numbers into G2 using the G2 Client's Blender Edit Screen. Also record the IP Address assigned to the Ethernet to Serial converter located at the corresponding controller.

Adding Remote Blenders in G2

The Last step in configuring G2 to access a Weigh Scale Blender located on the network is to add the Blender's ID number and TCP/IP settings into the G2 Client's **Blender Edit Screen.**

Follow these instructions to add a Blender using TCP/IP Access:

1. With the G2 Server Running, open a G2 Client.

2. In the menu go to **Edit**, and then **Blenders**.

3. In the Blender Edit Screen, type the Blender ID of the blender you wish to add.

4. Check **TCP/IP Access** checkbox.

5. Under **WSB I.P.** enter the NPort Express's assigned IP address.

6. Under **Port**, enter **4001**.

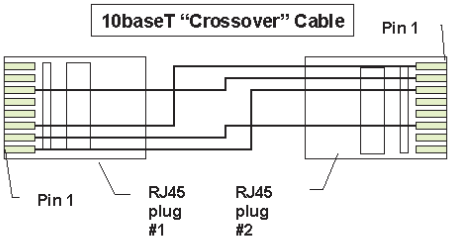
7. Click the **Add/Update** Button to add this blender location. G2 will pause for a few seconds as it collects information from the blender. By observing the LED lights on the NPort Express unit, you should see **SerialTx** and **SerialRx** blinking alternately. This indicates communications. Selecting the Blender ID from the **Blender List** will display the **State** of the Blender. The possible states are:
   Not Initialized – Indicates communication was never established.
   Offline – Indicates communication was established but then lost.
   Online – Indicates communication with blender is established.

   If the State of the blender is **Online**, the G2 Server is communicating with the Blender. You can now use G2 to download recipes, monitor and collect totals from this Blender.

TROUBLESHOOTING
If communications cannot be established check the following:

- All dipswitches on the G2-ES should be in the OFF position (down).
- Verify with your network administrator that your 10BaseT network is configured correctly. Look for a lit Link LED on the DE-211. From the command prompt, can you ping the IP address of the G2-ES?
- Verify the settings of NPort Express DE-211 as indicated above.
- Verify that you have assigned an un-used ID number to the blender and are associating that ID with the IP address of the G2-ES that is connected to that Blender.
- Verify that you are using the NULL Modem cable provided with the NPort Express Unit. Do not extend this serial cable beyond 15 feet or signal may degrade.
- Verify the settings in the Edit Blender screen. You must use Port 4001 unless otherwise re-assigned.

Crossover cable Reference Diagram:



-Viewed locking tab down, contacts up.
-Straight connections omitted for clarity.

RJ45 #1 Pin #	Signal Name	Wire Color	RJ45 #2 Pin #	Signal Name
1	T+	Orange/White	3	R+
2	T-	Orange	6	R-
3	R+	Green/White	1	T+
4		Blue	4	
5		Blue/White	5	
6	R-	Green	2	T-
7		Brown/White	7	
8		Brown	8	

RJ45 #2 Pin #	Wire Color	Signal Name
1	Green/White	T+
2	Green	T-
3	Orange/White	R+
4	Blue	
5	Blue/White	
6	Orange	R-
7	Brown/White	
8	Brown	

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