# WINBUILD 5000
# SERIAL INTERFACING

If ESA Technology does not have a communications driver built for your serial device, but it communicates simple serial ASCII communications, read through this tutorial for a quick idea on how to communicate to it using the built-in communication BASIC Codes in WinBuild 5000. In our example here, we will communicate back to Windows HyperTerminal.

## STEP 1

Start a new project. “FILE ▸ NEW”

Choose the operator terminal you would like to use. Click on “PROJECT ▸ HARDWARE” and select the right ET. *Changing the terminal type during or after a project development will not automatically resize the screens or objects, you must do this yourself.*

Go to “PROJECT ▸ TAGS” and add in the following tags to your project:

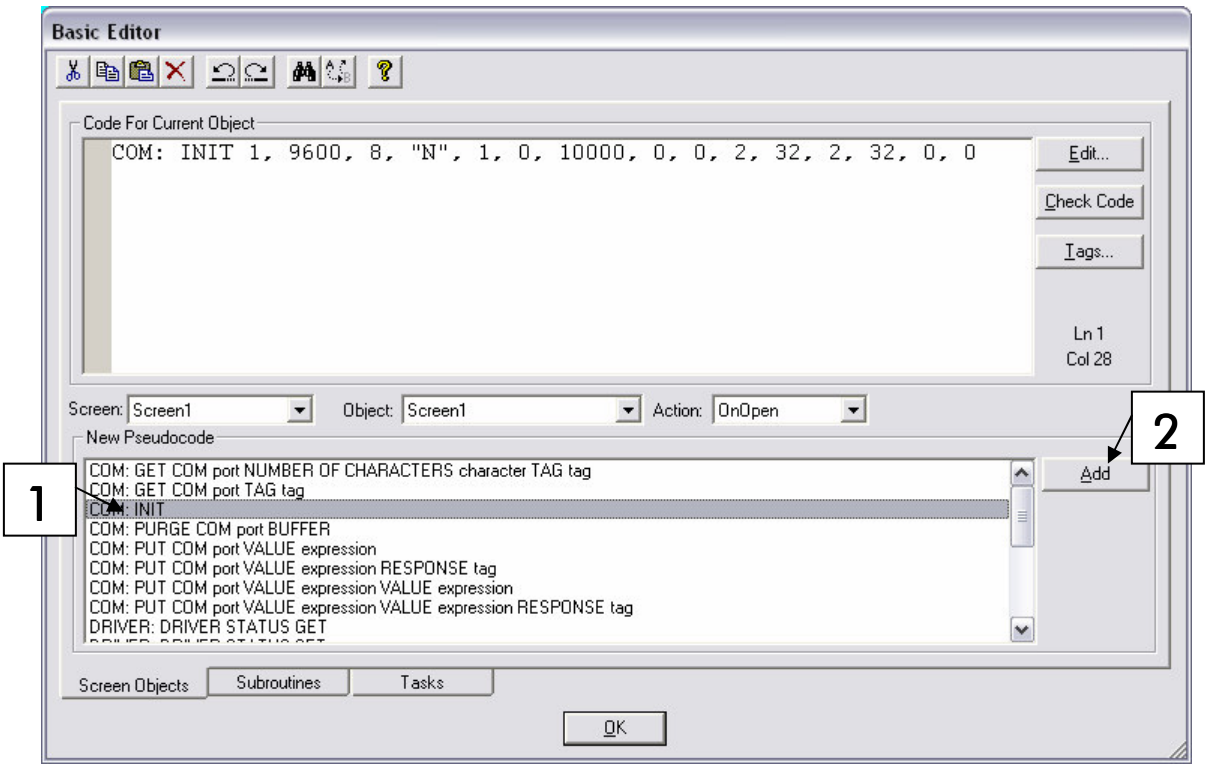
Tag Table (double-click on column headings to sort)

| | Tag Name | Source | Address | Type | Default |
|---|---|---|---|---|---|
| 1 | TAG_ONE | Internal Volatile | W | Word | |
| 2 | TAG_TWO | Internal Volatile | W | Word | |

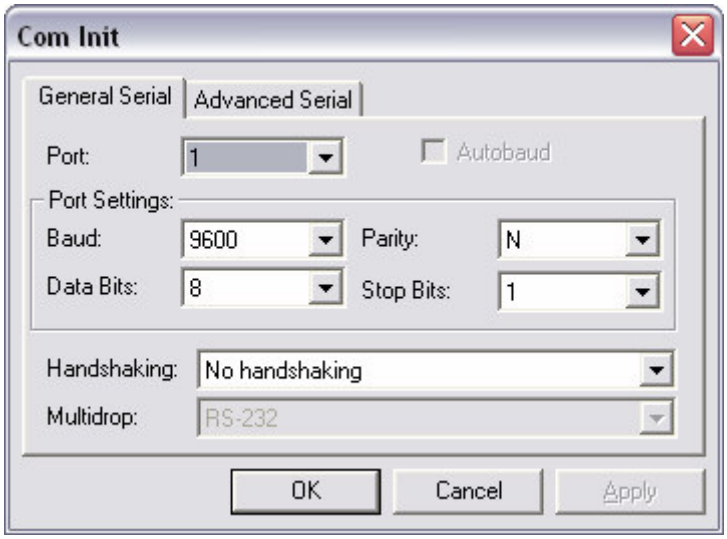
Click “OK” to exit the table.

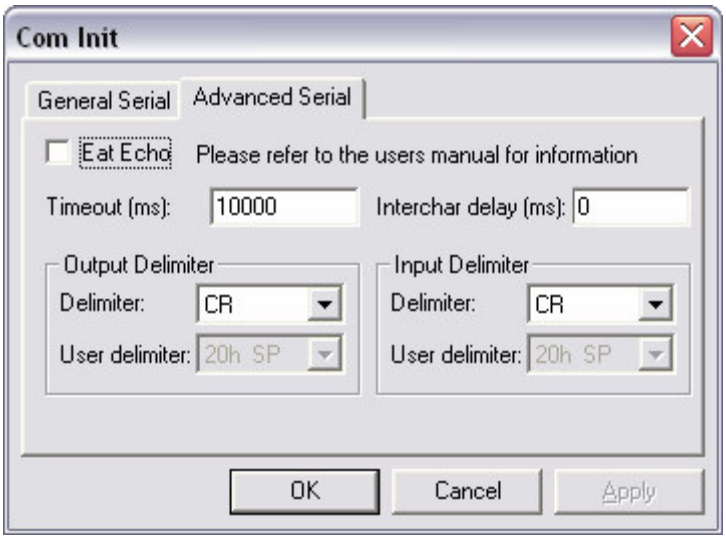
## STEP 2

On SCREEN001 of your project, double click the background. Click to the BASIC Code tab, and click “ON OPEN”. ADD the COM:INIT pseudocode to initialize the communication port with the correct parameters for your device.




In this case, we are going to connect to Windows HyperTerminal. So set the COM INIT to:



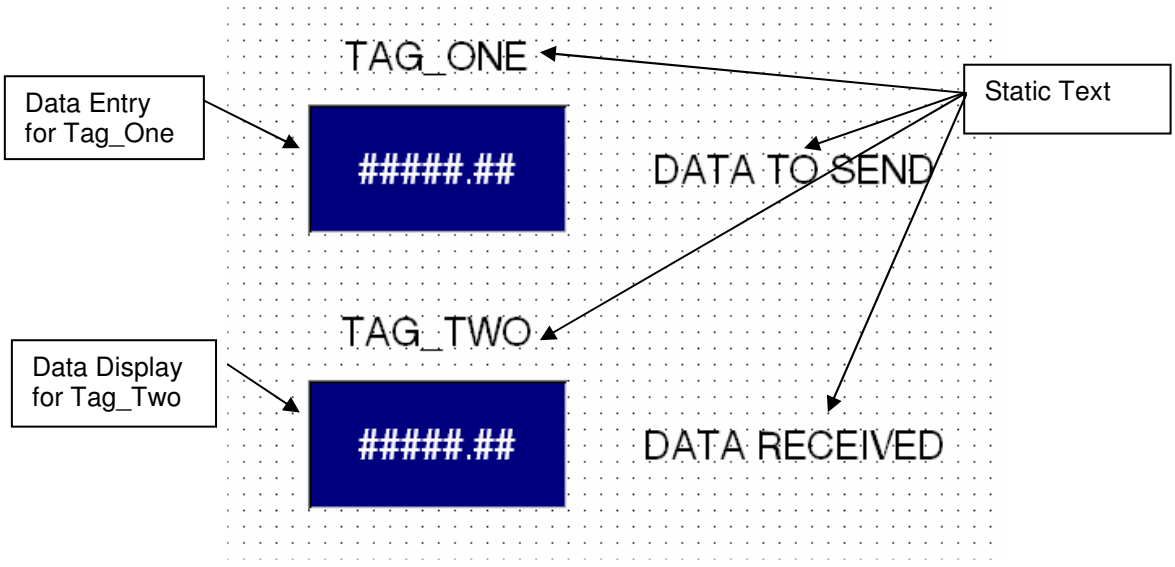



For most devices, a time out 250 ms is sufficient. However for our example we will be hooking up to HyperTerminal, and typing manually on the PC. Increase the timeout to as large of a number as you can to give us humans a reasonable time to respond.

When you are done, click OK to exit and save the COM INIT code you created. Click "OK" again to exit the Screen Properties box.

**STEP 3**

Make two data display items on the screen. Associate one with Tag_One, and the other Tag_Two.

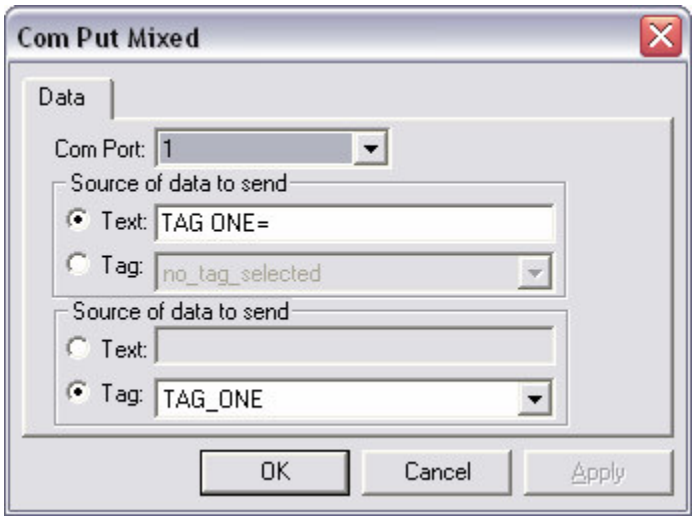


## STEP 4

Add a button to the screen and put the word “SEND” on it. Double click on the button, and click to the BASIC Code tab. Click on the “On Release” button. Now add the pseudocode called:

**COM: PUT COM port VALUE expression VALUE expression**

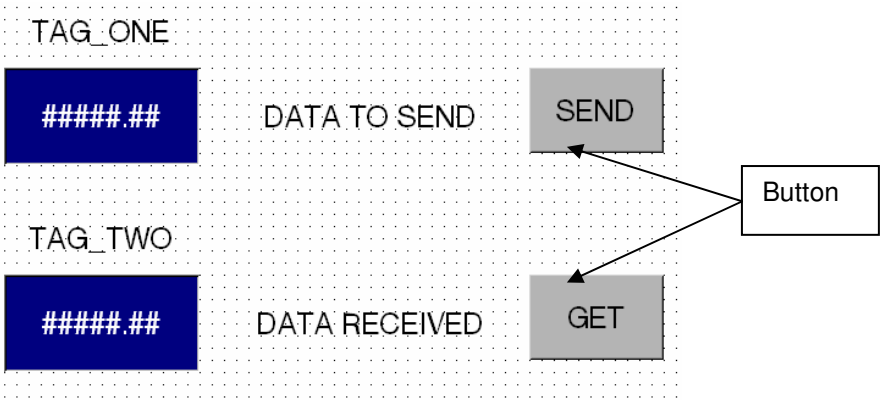
**Do this with care; there are a number of COM pseudocodes**. The most common error in this lab and for customers using pseudocodes for the first time is selecting the wrong pseudocode. This one can take two expressions and send them out the COM port strung together. Fill in the pseudocode dialog box as shown:




This will send out a combination of text “TAG ONE=” and then the value of tag “Tag_One.”

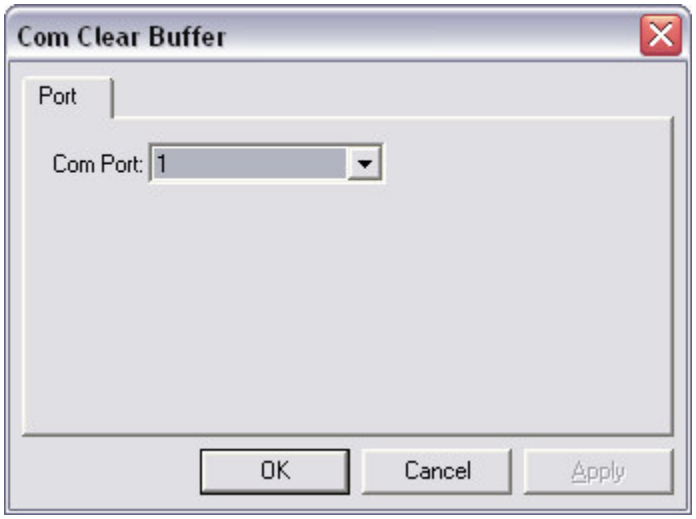
## STEP 5

Add another button to the screen called “GET.”



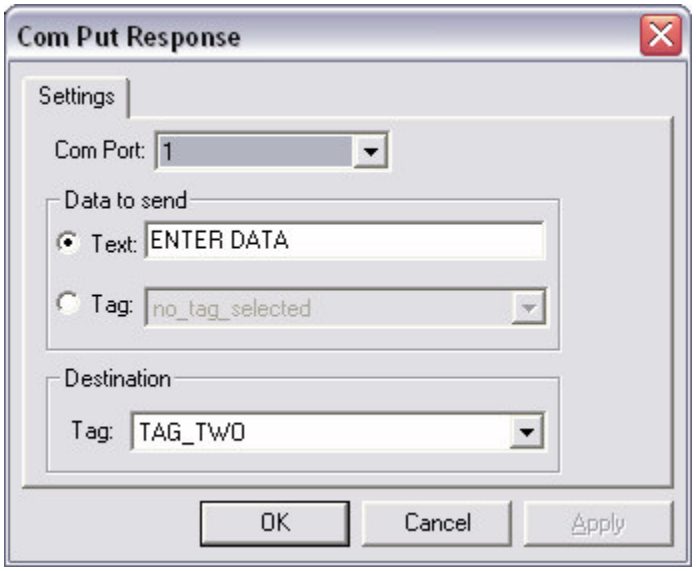
**STEP 6**

Double click on the button, and add the "**COM: PURGE COM port BUFFER**" pseudocode to the "On Release." This will clear out any unwanted "junk" in the com buffer that may have occurred due to the fact that we will be manually interfacing to the com port with our PC.




**STEP 7**

Next, add the "**PUT COM port VALUE expression RESPONSE tag**" pseudocode to the "On Release."




This will send out text “ENTER DATA” to HyperTerminal, and wait for a response. The response will then be placed into the tag “Tag_Two.” Click “OK” to exit the editor when you are done.

When you are finished, your BASIC should look like this:

```
COM: PURGE COM 1 BUFFER
COM: PUT COM 1 VALUE "ENTER DATA" RESPONSE TAG_TWO
```

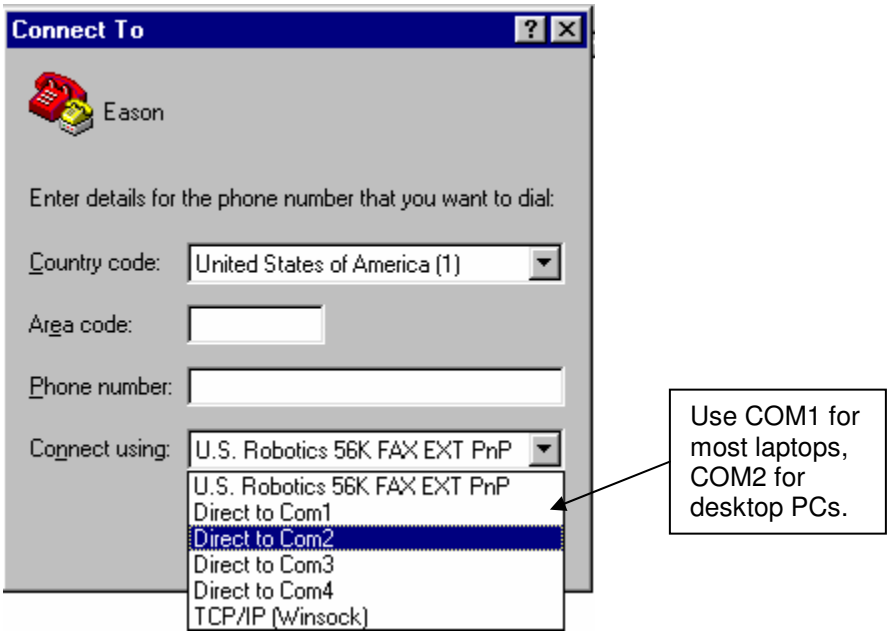
**STEP 8**

Compile, download, and then reboot your unit.

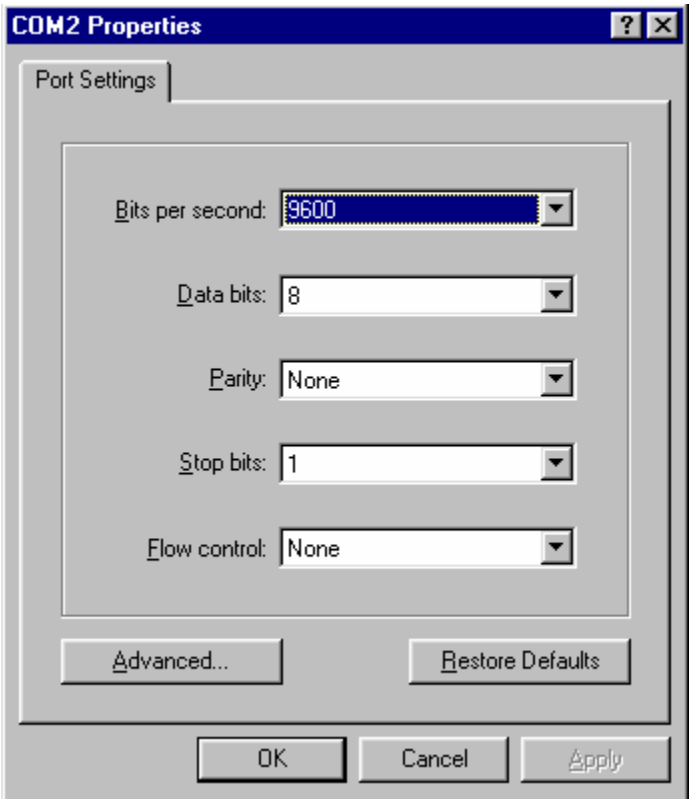
Hook up a null-modem cable from COM1 of the HMI unit to a COM port on your PC.

Start Windows HyperTerminal. On most systems this is found under
“START ▸ PROGRAMS ▸ ACCESSORIES ▸ COMMUNICATIONS ▸ HYPERTERMINAL.”

Click Hyperterm.exe to start a new connection. Name it “ESATECH.” Select the connection to be “Direct to COM X” where X is the available COM port on your PC.




Set the COM port up for 9600 baud, NO parity, 1 stop bit, and no flow control.



**STEP 9**

Enter in a value for your TAG_ONE in the first data entry box. (For example, 1234)

When you push the “SEND” button, see in HyperTerminal how the full message “TAG ONE=1234” comes through. This is an example of sending a value down to a serial device.

Now push the button “GET.” See in HyperTerminal how it prompts you for data? The HMI unit will wait for a response.

On your PC type “1234” and push enter. The value will now be displayed in the second data entry box in the MMI. This is an example of how to request information from a serial device.