

# ALPHACallisto Discrete Input Setup Guide & User Manual



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### **FCC Compliance**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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In order to configure the ALPHACallisto module and to download messages to the LED displays, the ALPHACallisto unit is connected to the PC via USB or RS232.

The LED displays are connected to the ALPHACallisto on a RS485 network.

The system can manage up to 32 inputs by connecting up to four (4) ALPHAallisto modules together.

Discrete inputs are dedicated for low voltage applications (12 to 36Vdc/Vac).

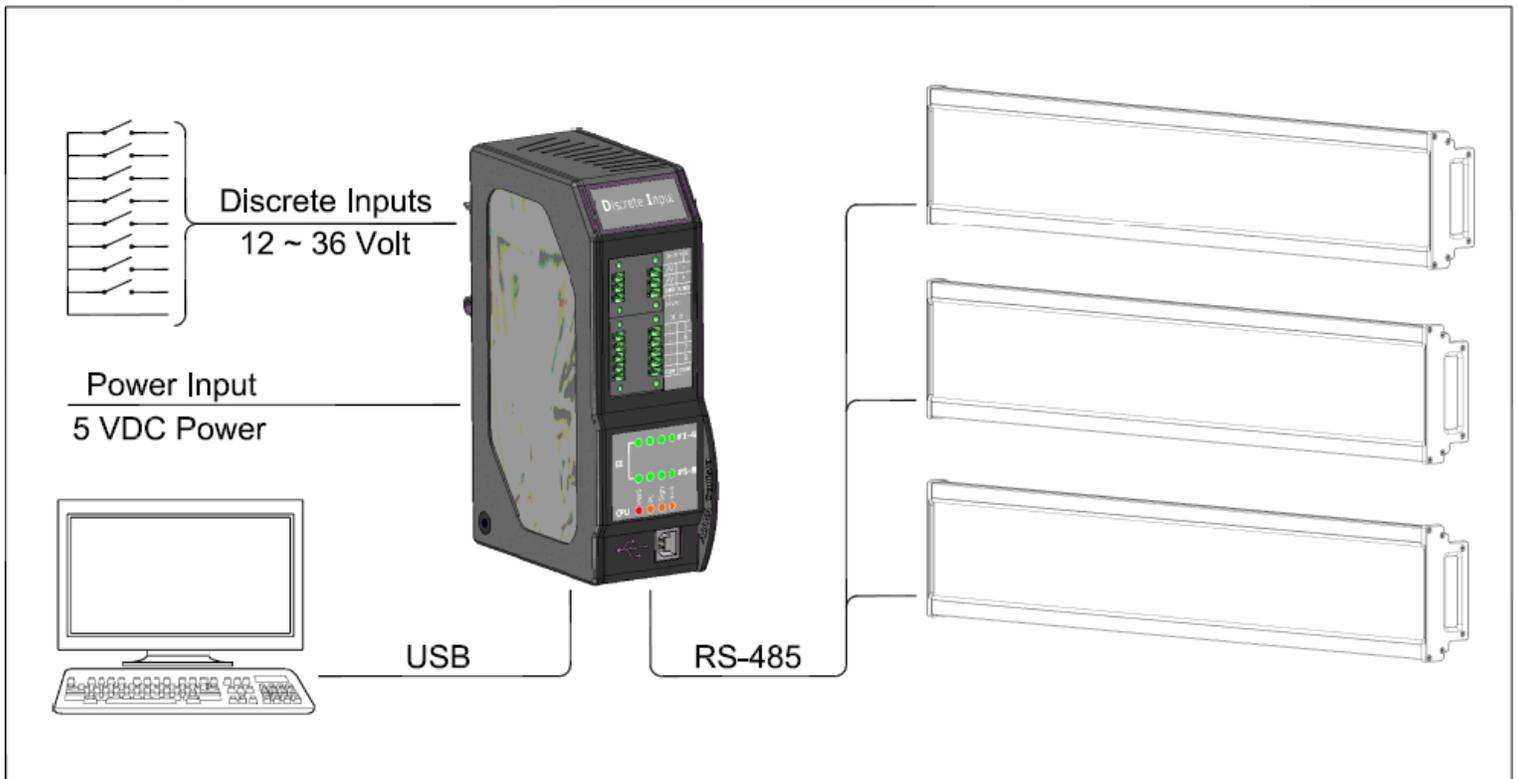


Figure 1.0 – System Overview for Configuration of ALPHACallisto and Transfer of Messages to ALPHA displays.

## Configuration Step by Step Overview

1. Install the ALPHACallisto hardware modules
  - a. Connect the AlphaCallisto to signs, dry contacts and power sources.
2. Connect the ALPHACallisto module to the PC via USB or COM port.
  - a. Install driver if USB is used.
3. Install AlphaNET software (v3.0.12 or higher) onto your PC
  - a. Using the AlphaNET Site Manager – create a Site Group.
  - b. Create and Save your messages using the AlphaNET Message Editor.
  - c. Add the newly created messages to the Site Group in the AlphaNET Site Manager.
4. Install the ALPHACallisto Supervisor onto your PC.
5. Connect the ALPHACallisto module to the PC via USB or COM port.
6. Download the messages from AlphaNET Site Manager to the Signs.



## ALPHA Callisto Connections

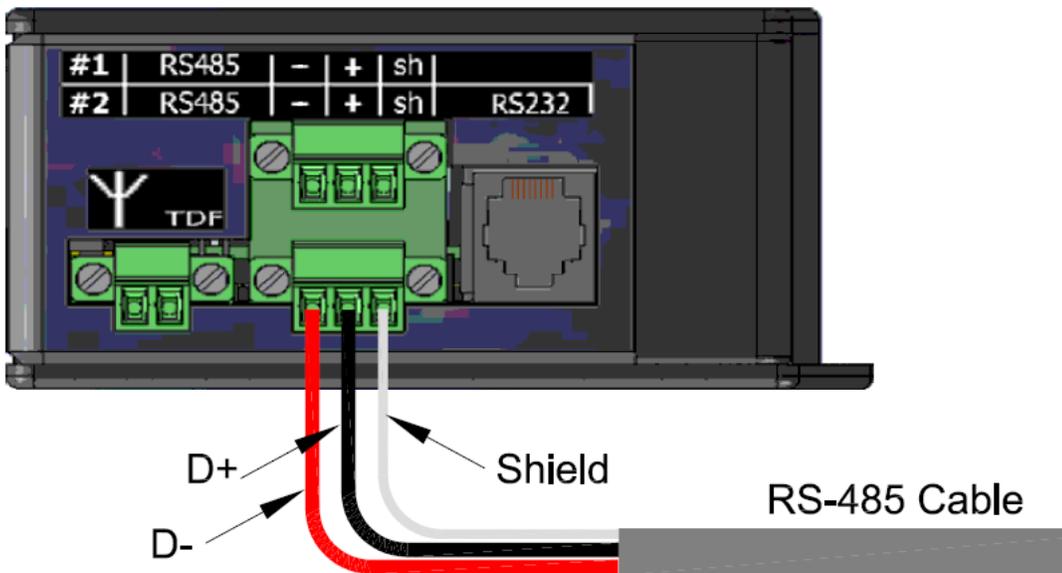
For this phase you'll need to have:

- ALPHA Callisto module.
- Power supply for the ALPHA Callisto (5VAC) that came packed in the box with the ALPHA Callisto.
- Power source for the switch contacts on the ALPHA Callisto (24 VAC or 18 to 36VDC) not provided by AMS.
- RS485 network running from the ALPHA Callisto to the LED display(s) not provided by AMS.
- Dry Contacts or test switches also not provided by AMS.
- Small screwdriver, not provided by AMS.

Ready?

Now, we are assuming that the ALPHA Callisto is standing upright so that the words DISCRETE INPUT are facing you at the top of the unit. Wire the RS485 cable to the one of the moxex connectors from the bottom of the ALPHA Callisto. Plug the moxex with the RS485 cable attached back into the Callisto.

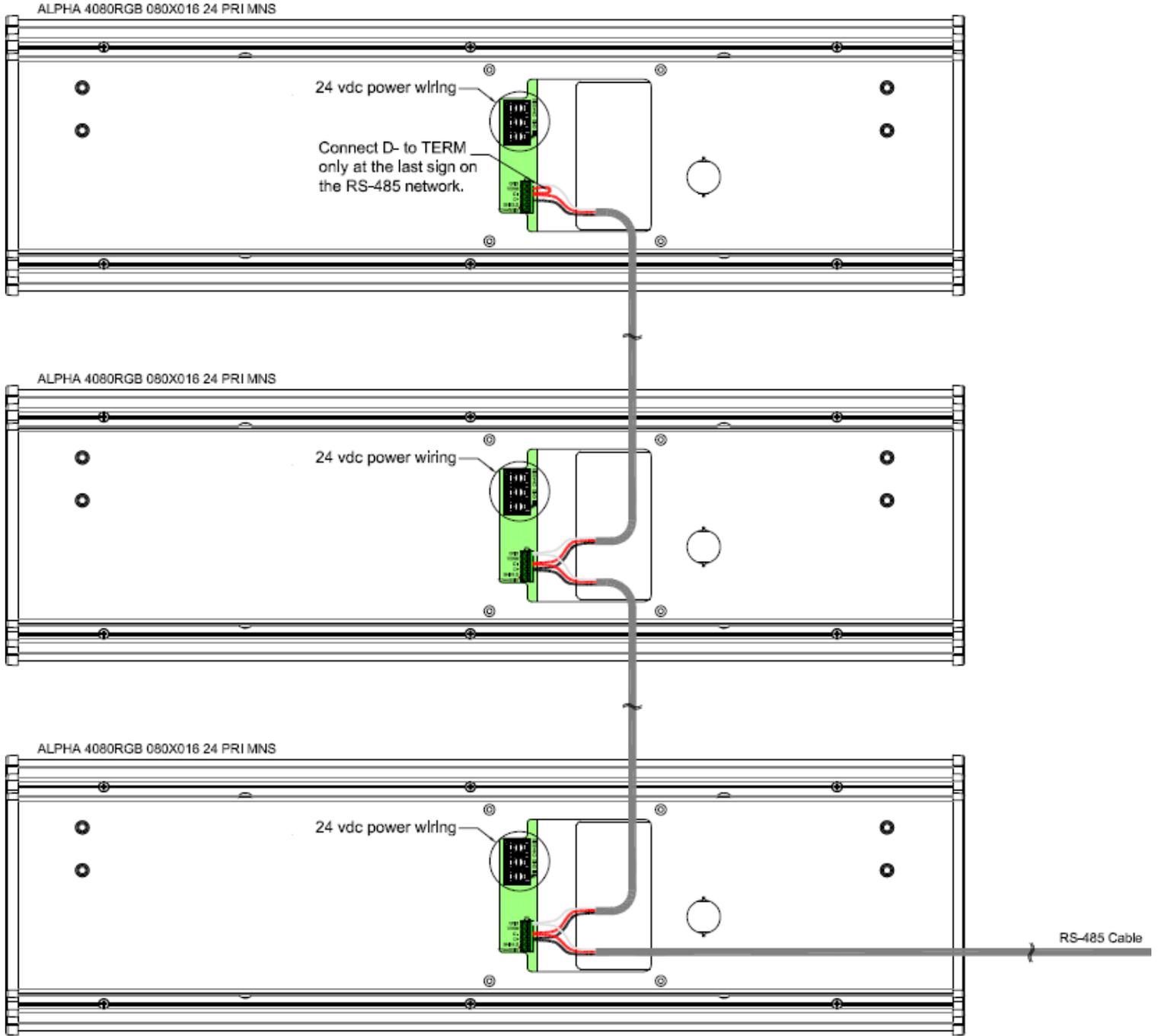
## bottom view





Now it's time to wire that RS-485 Cable to the displays.

\*For ALPHA RGB MNS Units only

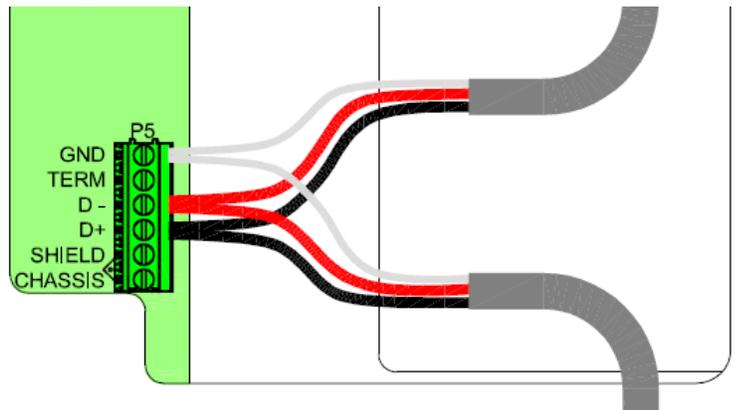


- Wire the RS-485 directly to the terminal block on the back of the LED Display. You will have to remove the plate on the back of the unit to access this.

- The - Terminal from the Callisto goes to D- on the sign
- The + Terminal on the Callisto goes to D+ on the sign
- The sh Terminal on the Callisto goes to GND on the sign

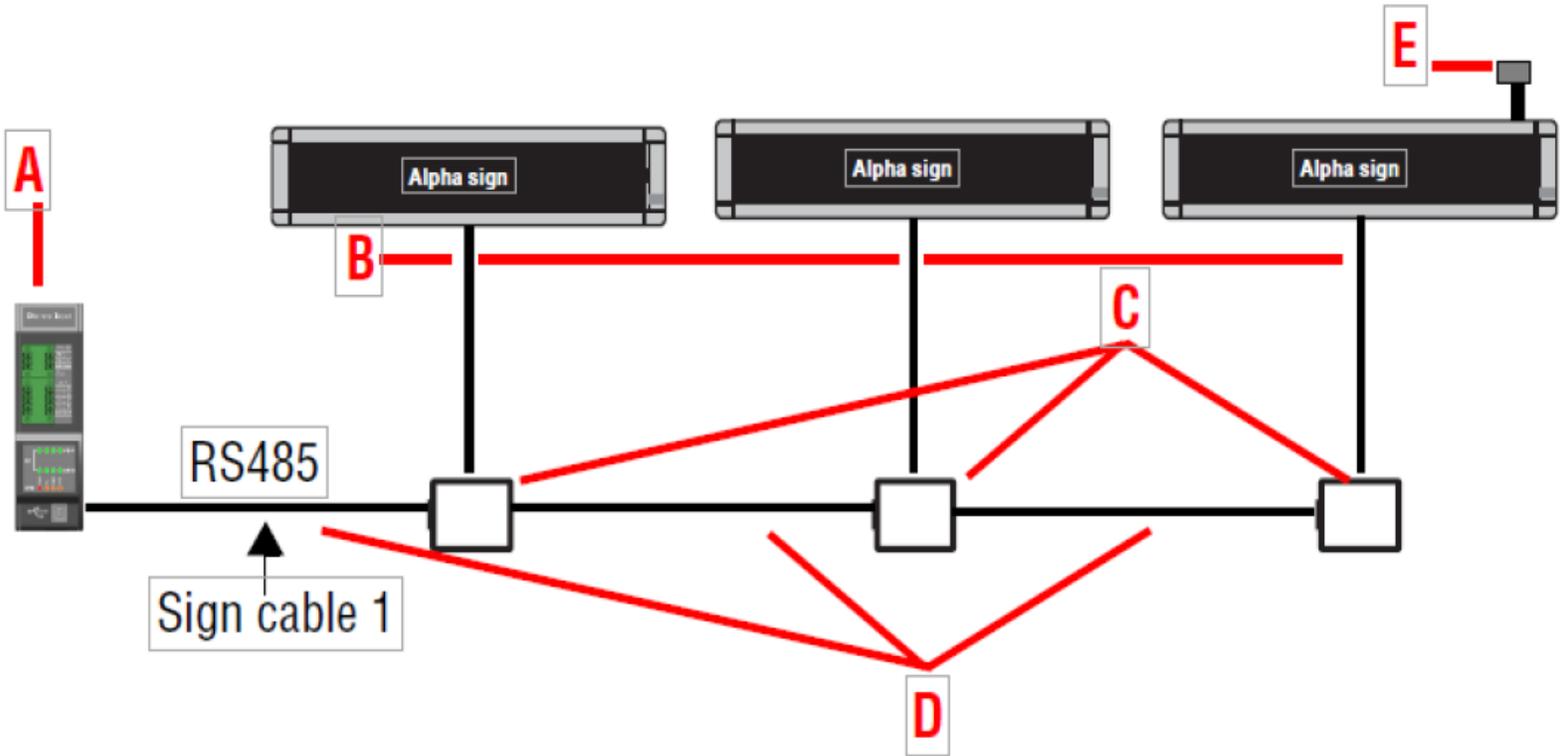
Daisy Chain any remaining displays following the same wire pattern

\*Connect D- to TERM only on the last sign on the RS-485 Network





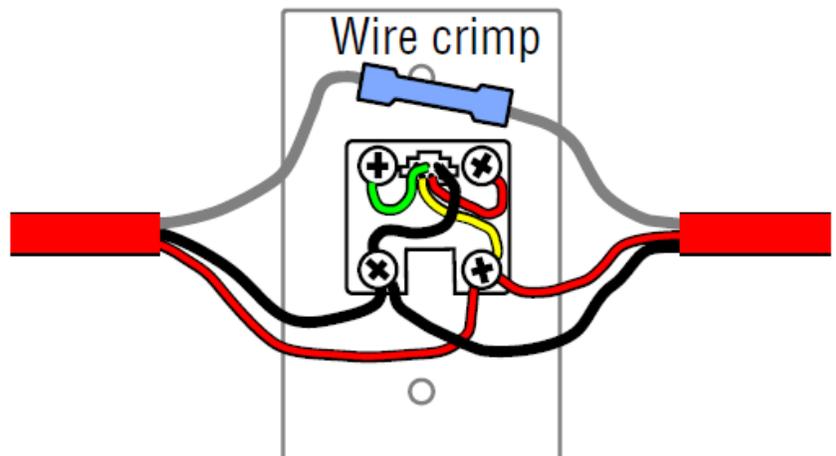
And this is the RS-485 wiring for ALHPA Tri-Color displays



- A** - Alpha Callisto
  - B** - 1ft. RS-485 Drop Cable (P/N 10888636LF)
  - C** - Modular Network Adapter (P/N 43310602)
  - D** - RS-485 Cable (P/N 7124-0203)
  - E** - End of Line Terminator (P/N 10889107)
- \*connect End of Line Terminator to the last display on the network

**Black - Black**  
**Red - Yellow**  
**Shield** - Connect Shield wires to each other, not to wall Plate

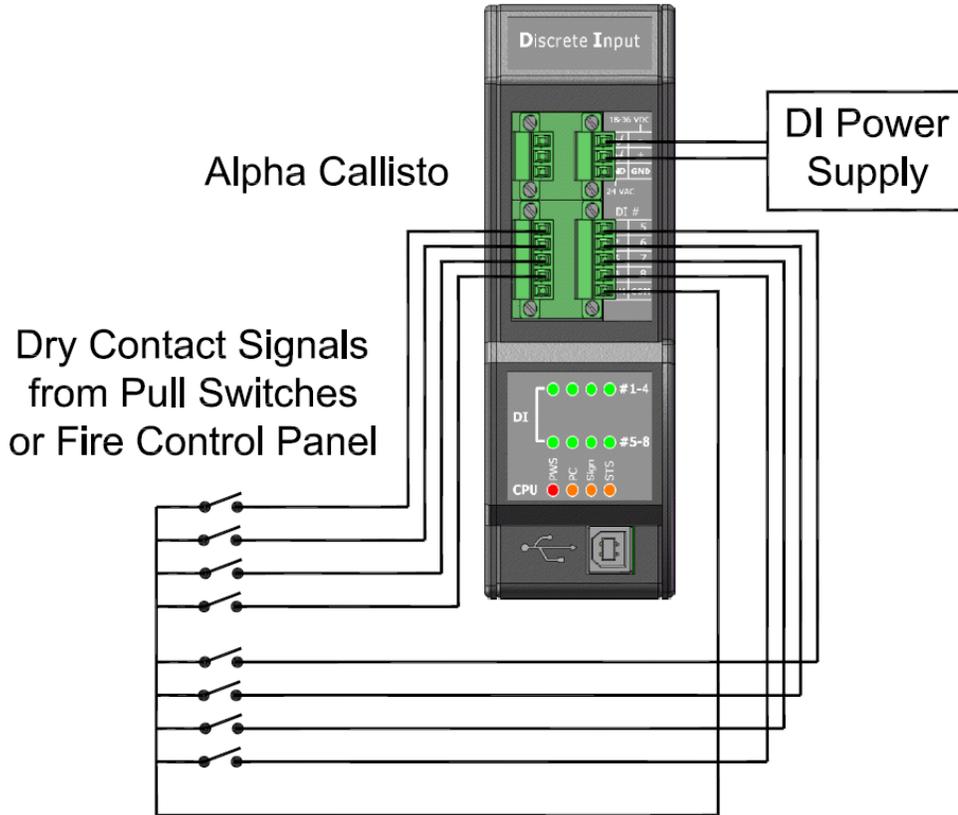
Modular Network Adapter detail





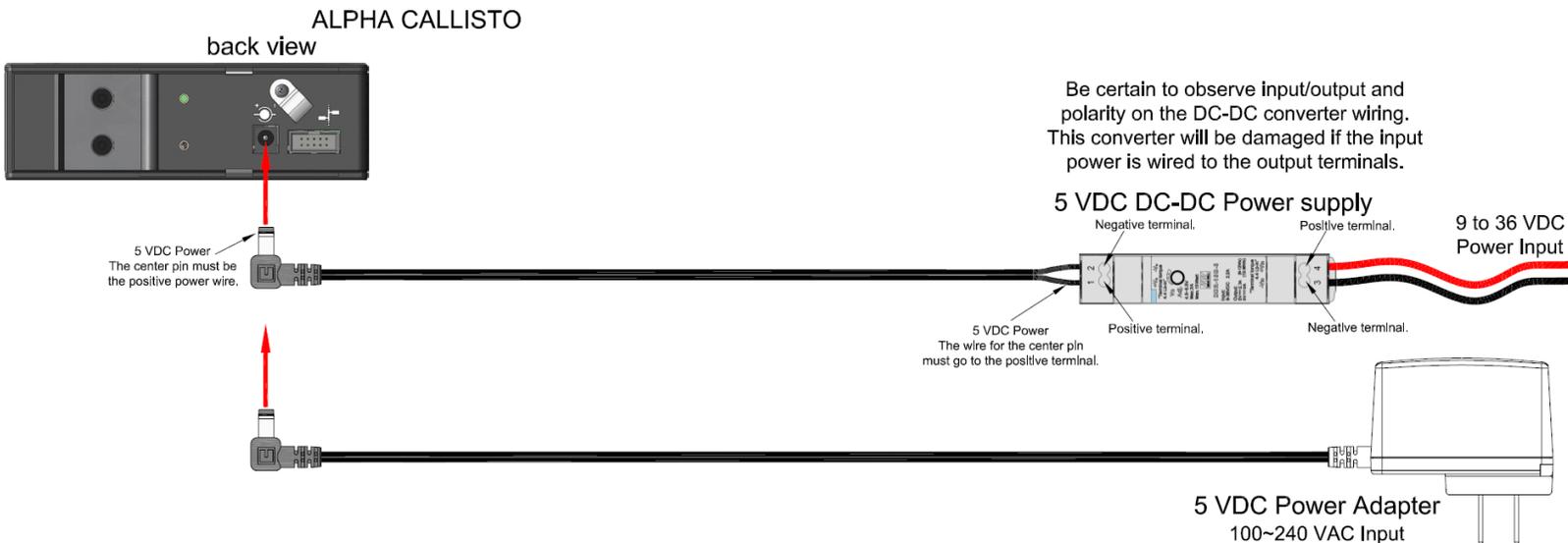
Wire up your dry contact connections to the two large molex connectors near the middle of the Callisto Module. Please note that only one of the COM connections is needed, and that it should be wired to each contact.

At this point, all of the Molex connectors should be reconnected to the Alpha Callisto, and the dry contacts are connected and ready for testing.



Wire up the power source for the switch contacts to one of the small 3 hole molex connectors located at the top of the ALPHA Callisto Module.

Finally, plug in the small power supply into the back of the Alpha Callisto unit and power it up.



After 20 to 30 seconds you should that the LED indicators on the front of the Alpha Callisto unit flash and you'll hear a beep. Once you've heard the beep, try each dry contact closure. If we've got it all wired up correctly, as each dry contact is closed the matching LED DI indicator on the Alpha Callisto should light up.



Install AlphaNet onto your PC.

Using the Windows Device Manager – determine which COM port Windows has configured the ALPHA Callisto as.

Launch the AlphaNET **Site Manager**.

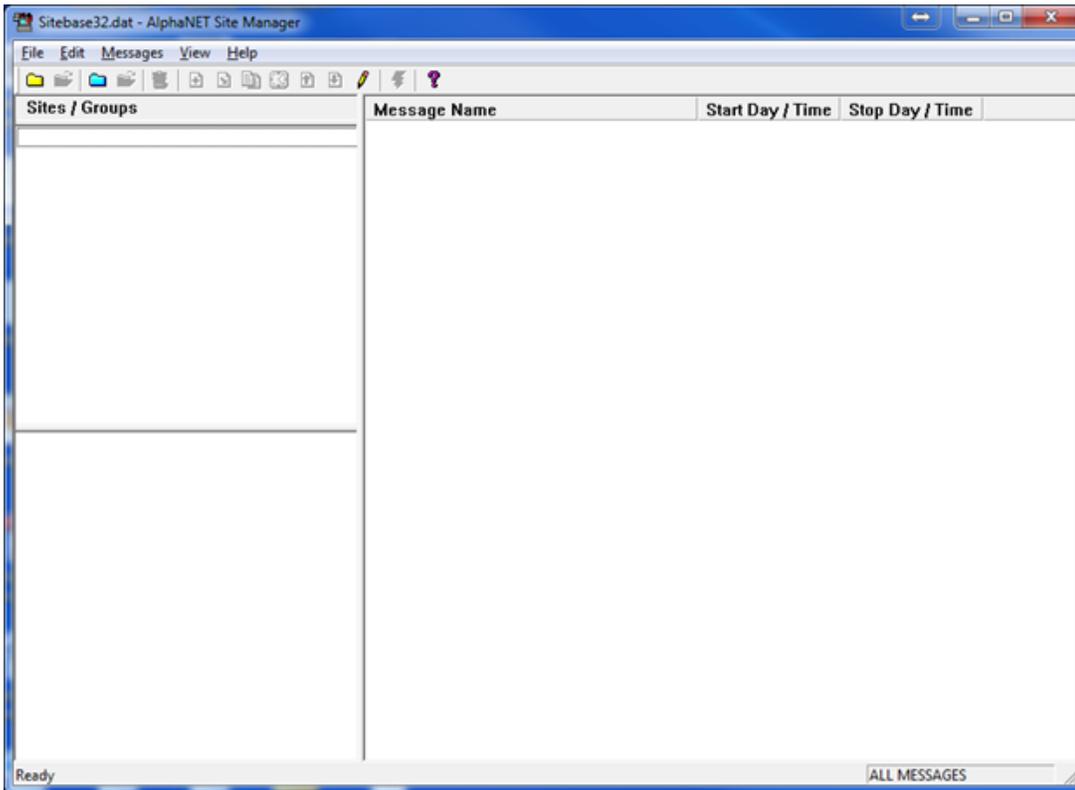


Figure 1.3 – AlphaNET Site Manager

Select **Connection Device** from the **Edit** pull down menu.

Select Edit then Connection Device

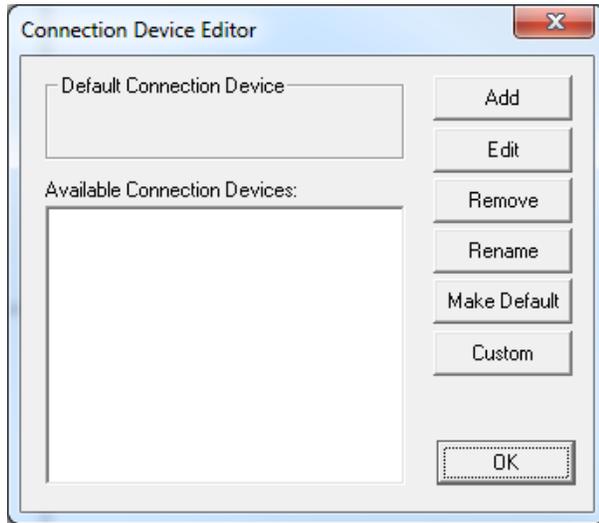


Figure 1.4 – AlphaNET Connection Device Editor

Select Add on the Connection Device Editor Screen.

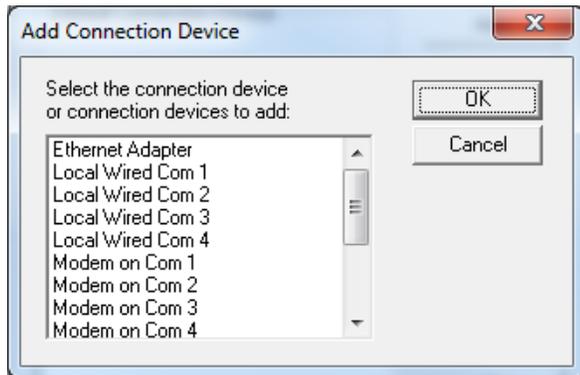


Figure 1.5 – Add Connection Device window

Select one of the Local Wired Com options



Figure 1.6 – Local Wired Com selected

Click OK

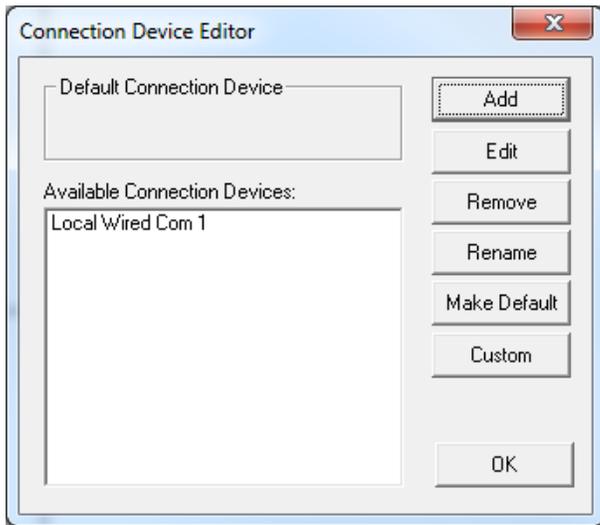


Figure 1.7

Click once on the Connection Device shown in the Available Connection Devices area.

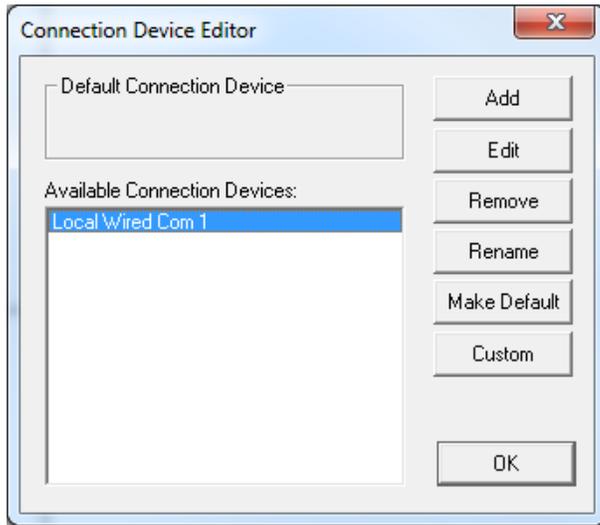


Figure 1.8

Click the Edit Button

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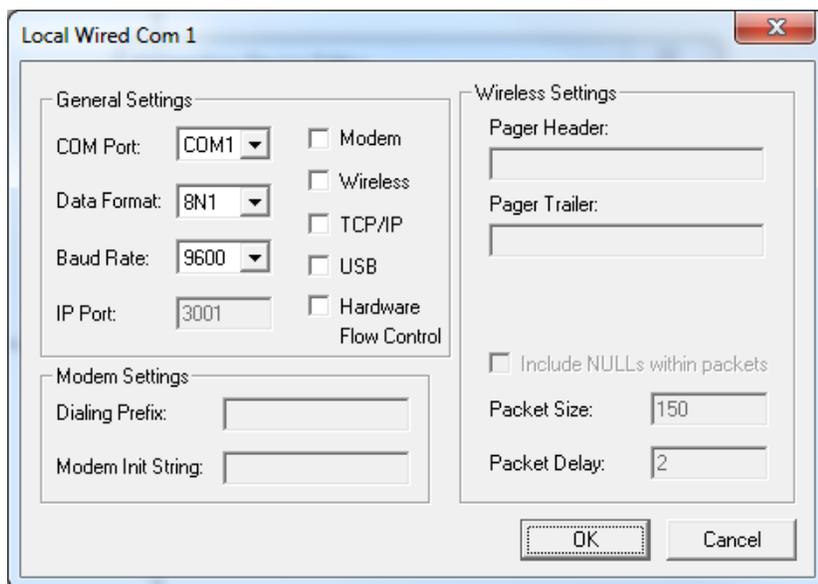


Figure 1.9

Select the appropriate COM Port that matches the COM Port that Windows has configured the ALPHA Callisto as, then click the OK button.

If desired, you can rename the device to match the assigned COM Port by clicking on the Available Connection Device then clicking on the Rename button. Assuming that Windows assigned the COM Port 8 to the ALPHA Callisto device, a typical name for the site may be ALPHA Callisto on COM 8.

Click OK to close the Connection Device Editor.

From the AlphaNET Site Manager – select New Site from the File pull down menu.

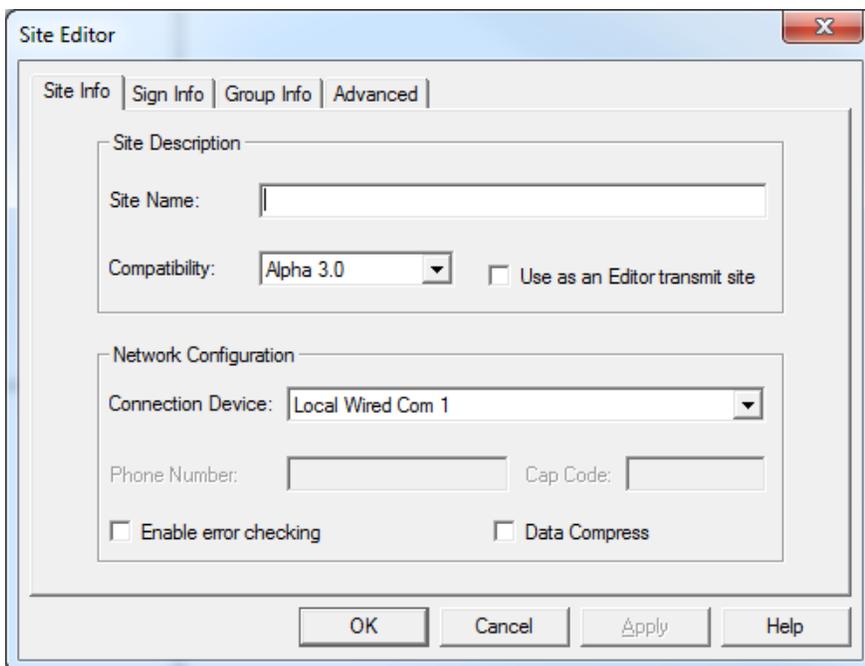


Figure 1.10 - Site Editor

Enter in a name for this site.

If you are connecting to an Alpha 4080 MNS unit, select Alpha 3.0 for Compatibility. Otherwise, use Alpha 1.0 (EZ95)

Click the Use as an Editor transmit site.

Select the Connection Device you created in the previous step.

Click on the Advanced tab on the top right of the Site Editor window.

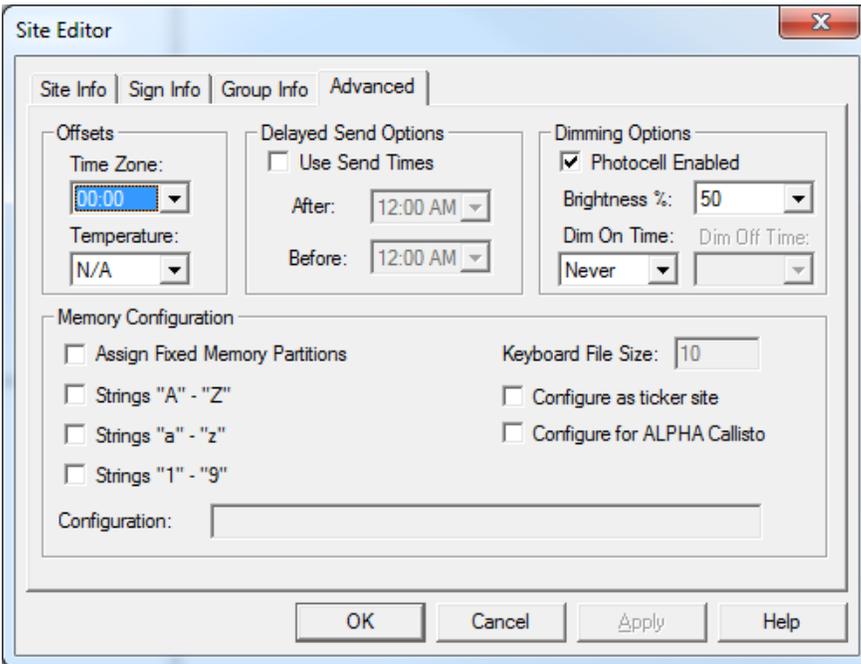


Figure 1.11 – Advanced options of the Site Editor window

Click on the Configure for ALPHA Callisto to ensure that it has a check mark in the box next to it. Click on OK.

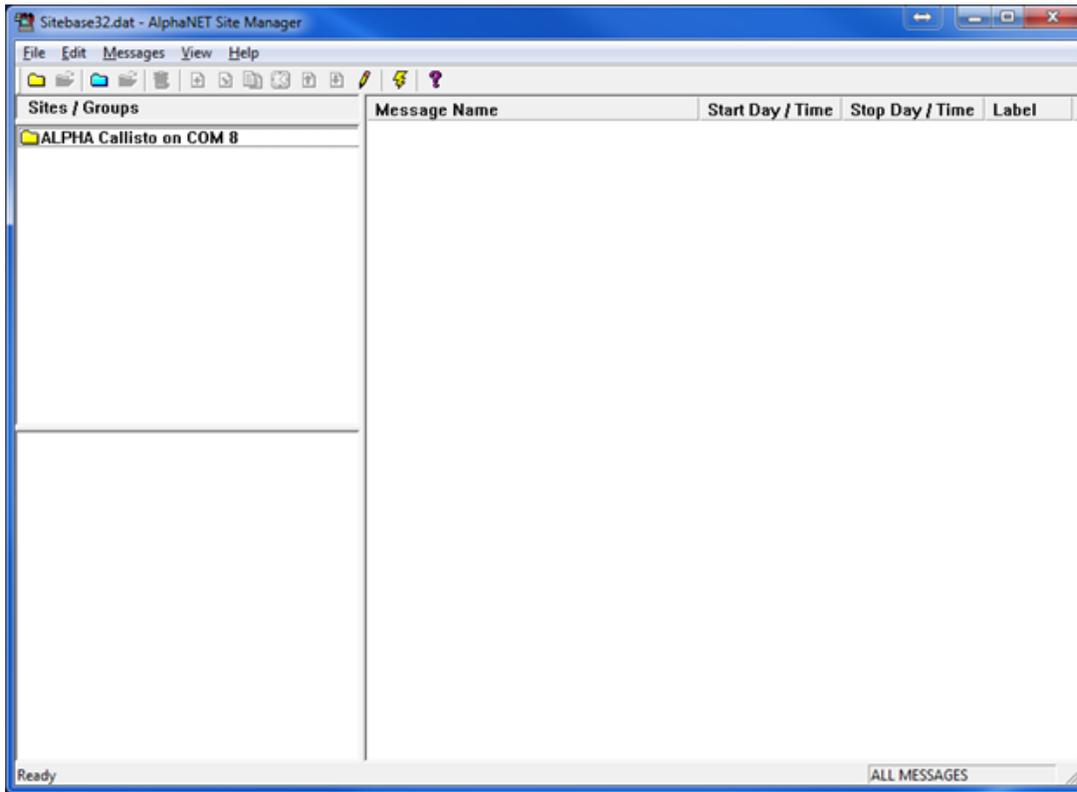


Figure 1.12 – AlphaNET Site Manager with a Site / Group defined for use with an ALPHA Callisto device.



## Using the AlphaNet Message Editor to Create Messages.

From the AlphaNET Site Manager, click the Pencil from the ribbon bar or select Edit from the Messages pull down menu.

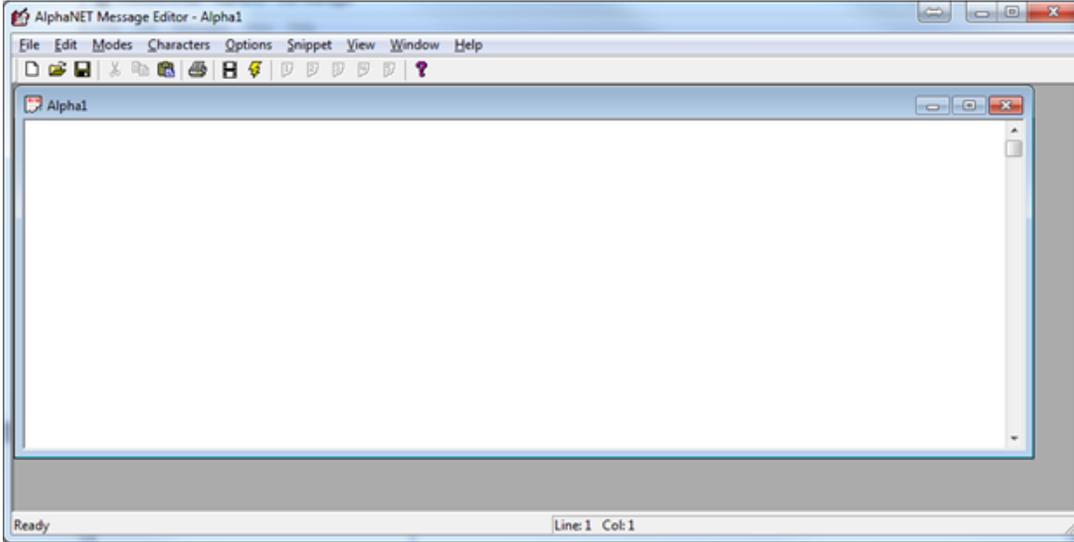


Figure 2.1 – AlphaNET Message Editor window

A message or alarm is comprised of a series of commands that will be sent to the LED display along with the actual text that you want shown on the face of the display when the message or alarm is activated. These commands include how and where you want the text shown, what font, what color, etc.

A 4080 RGB MNS-O LED display is capable of showing one single line of 4” high text, or two lines of 2” high text. For this message, we’re going to show how to create a two line message that displays a notice on the top line and scrolls important information to the viewer on the bottom line of the display.

For our first message, I’d like to show you how to create a message that shows ATTENTION on the top line of the display and a scrolling message asking the viewer to evacuate the building on the bottom of the sign.

A typical message should always start with a MODE. Using the Modes pull down menu, select HOLD from the pull down menu.

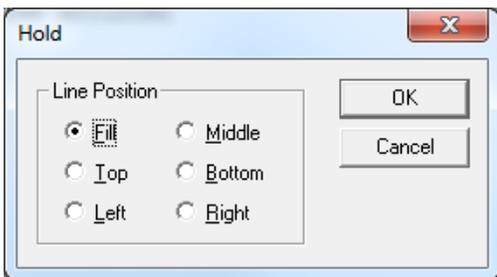


Figure 2.2 – Hold Mode Position Options

The Hold Line Position options tell the sign how and where to display the information. The modes that are relevant to the 4080 RGB MNS-O unit are outlined below.

**Fill**

The sign will fill all available lines on the sign, centering the text vertically. This mode is typically used when you want to show a 4" message on the display, or you want to show two lines of text on the display and both lines of text will fit on the display.

**Top**

The display will position the text on the top line centered across the face of the display. This mode is typically used when you want to show a 2" status message on the top line of the display while scrolling a longer message on the bottom line of the display.

**Bottom**

The display will position the text on the bottom line centered across the face of the display. This mode is typically used further down inside a message to display text on the bottom line of the sign.

Select **TOP** on the Hold mode position window then click OK.

Next you would normally put a command here to select which font we want the text displayed in, but I know that the display defaults to a 2" high character (7 row normal) so I'm having you skip that command for this message.

Click on the RGB color option by clicking on the CHARACTERS pull down menu, then the COLOR then the RGB option

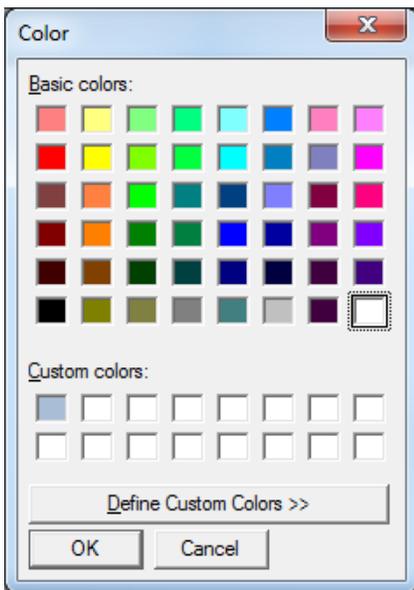


Figure 2.3

Select the color you want the text on the top line to be shown in then click OK.

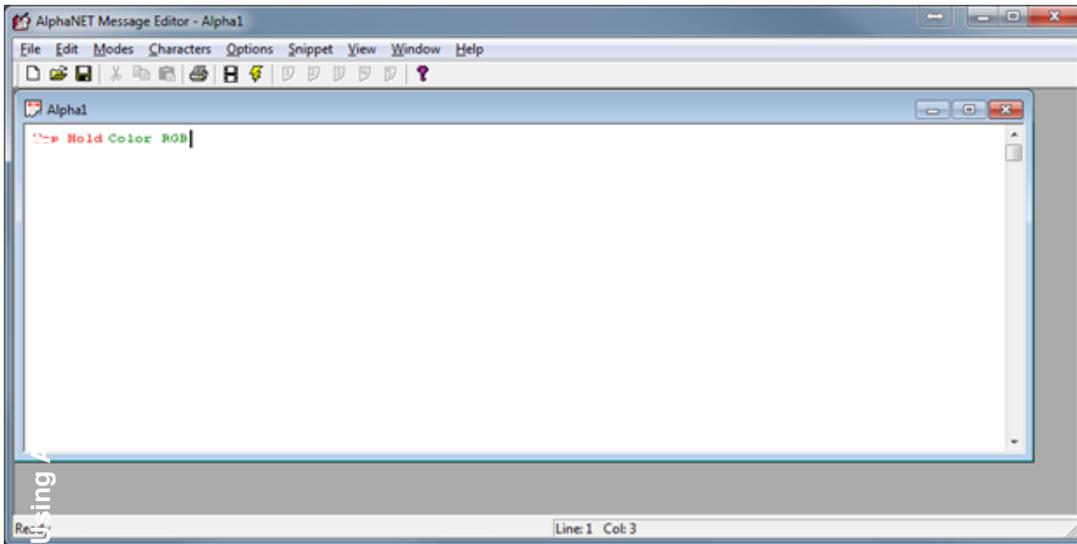


Figure 2.4

Type the word ATTENTION in all capitals.

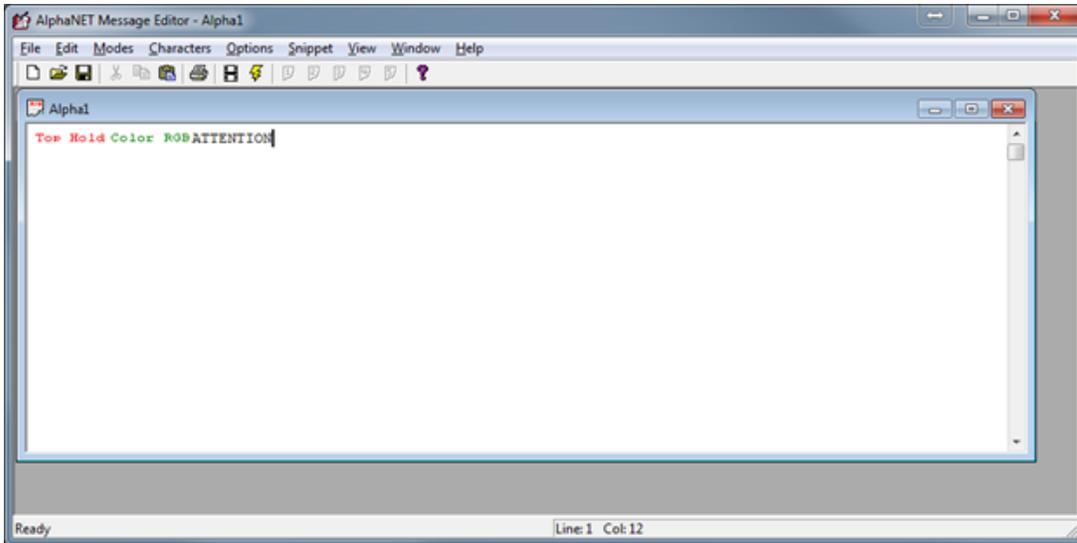


Figure 2.5

That's all the text we want to show on the top line, and we want to show a scrolling message on the bottom line of the sign, so we're going back to the MODES menu to select a new mode.

Select Rotate then Standard from the MODES menu.

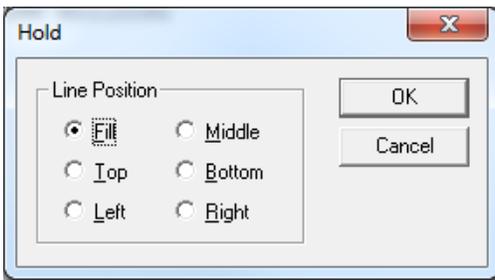


Figure 2.6

Select Bottom.

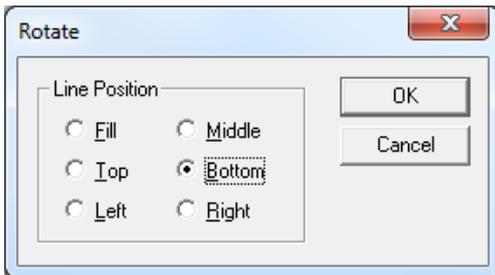


Figure 2.7

Click OK.

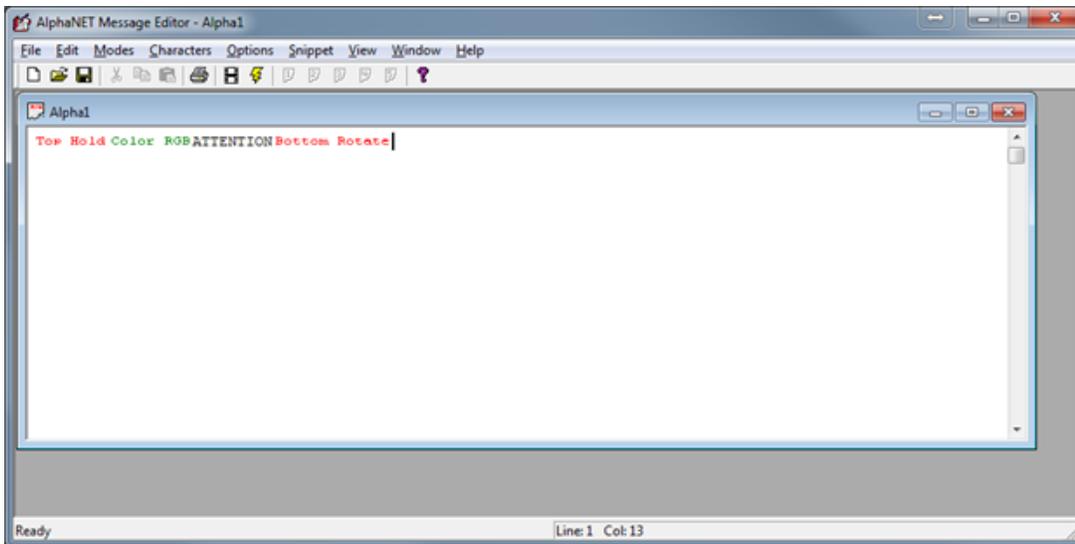


Figure 2.8

From the Characters menu, select COLORS then Amber.

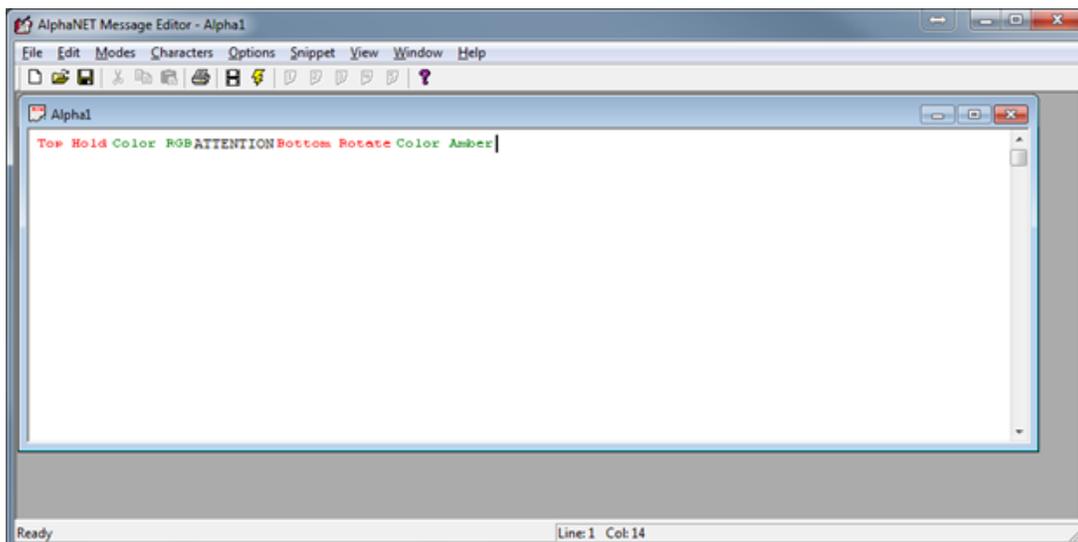


Figure 2.9

Hit your CAPS LOCK on your keyboard and then type in the following phrase: AN EMERGENCY HAS BEEN REPORTED EVACUATE THE BUILDING

(YOU CAN TURN OFF YOUR CAPS LOCK)

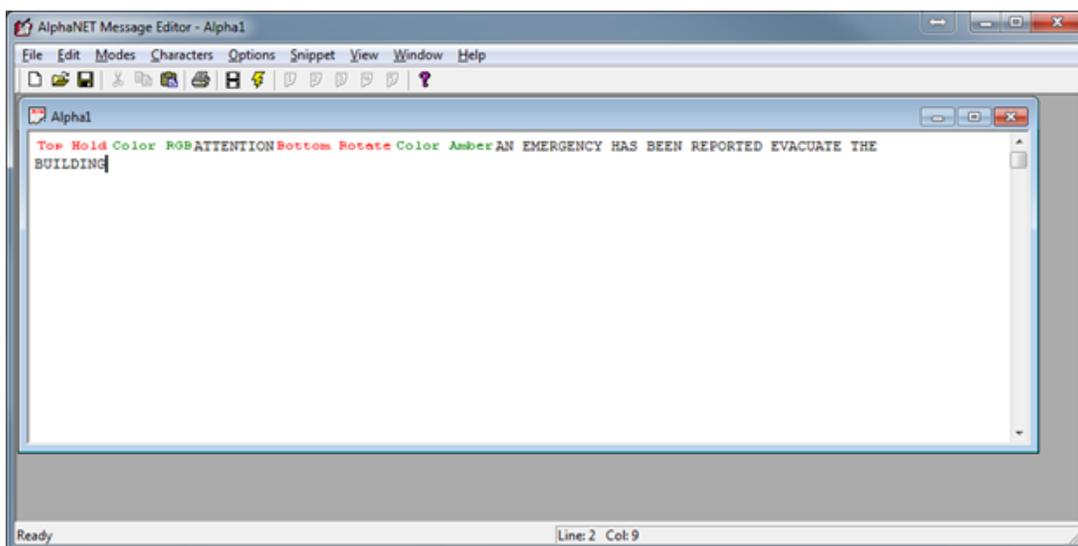


Figure 2.10

Go ahead and Save the message. Give it a message name that will remind you of what the message is (or more importantly why it will be shown).

Click once on the FILM STRIP on the top ribbon bar. The system should show you a new window that shows what the message is going to look like. Sorta. Right click on any area within the display area of the simulator and select CHANGE DISPLAY from the pop up menu. Select Alpha 4080 RGB from the option list, then click OK.



Now the simulator should match what we are going to see on the sign when we finally get around to transferring these messages to the display(s).

Create another message in the message editor. I'm going to give you a sequence of commands I'd like you to enter but I'm going to do it in short hand now that you're a little more familiar with our message editor.

Modes->Rotate->Standard->Fill  
 Characters->15/16 Row Normal  
 Characters->Color->RGB (Please select White or Blue)  
 (CAPS LOCK AGAIN) SYSTEM TEST IN PROGRESS.

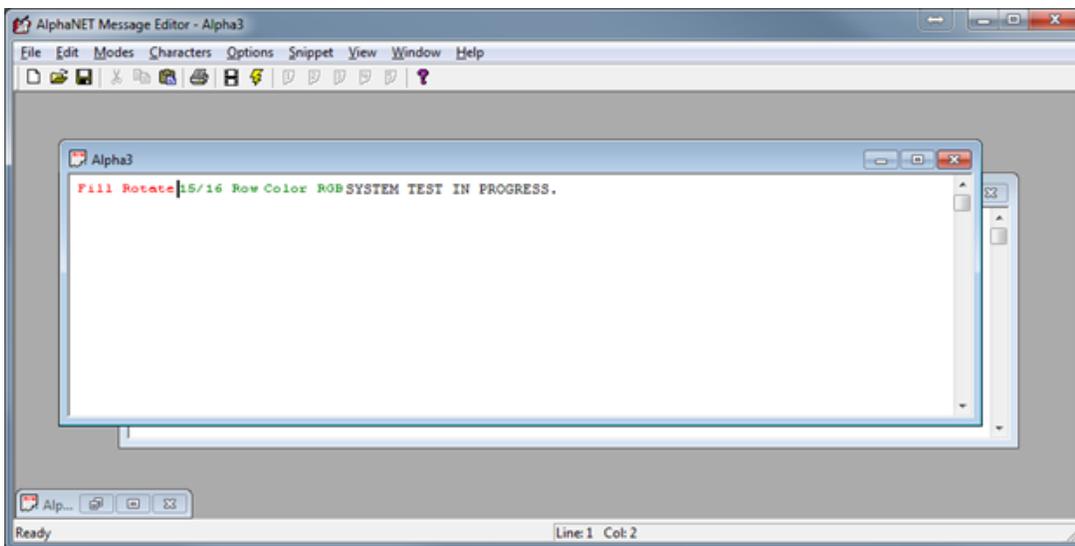


Figure 2.11

Save the message with a new file name. Again, try to make it meaningful. (SYSTEM TEST comes to mind for me)  
 Now I've got a homework assignment for you. I want you to create an additional six (6) messages that would be used as alarms or fault messages when activated by a dry contact, and one more message that will be the default message that is shown on the LED display when there is not an active dry contact. Remember that you can now see what the message is going to look like by simulating it.

## Creating a Message List with the AlphaNET Site Manager

Wow. You sure got through creating those extra 7 messages pretty quick. You feeling like a seasoned professional now with the message editor? Let's move on to getting the messages ready to be used on the sign(s) ...

In the AlphaNET Site Manager, click once on the Site/Groups folder we created earlier.

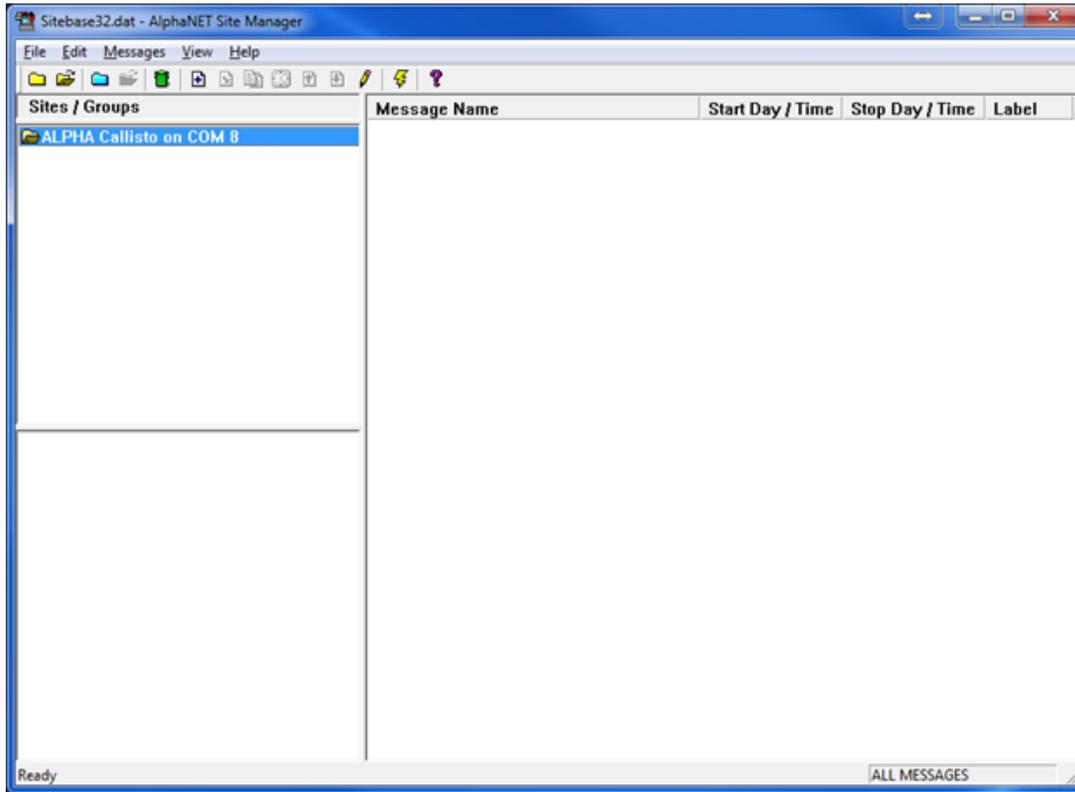


Figure 3.0 – AlphaNET Site Manager

Click on the White Paper with the + symbol on the ribbon bar, or select Add from the Messages menu.

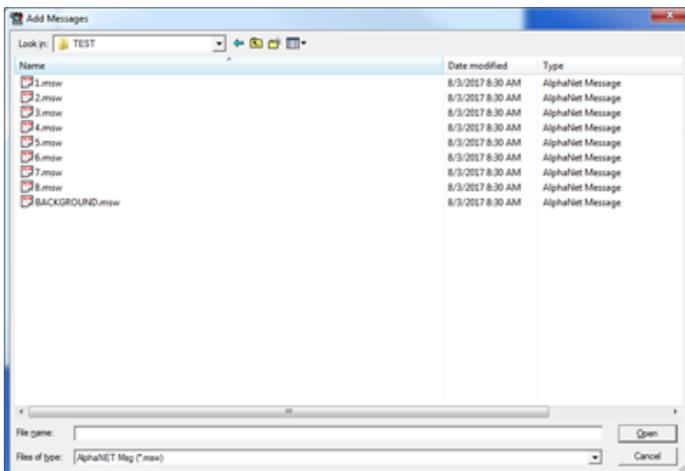


Figure 3.1 – Add Messages window

Browse to the folder you saved the messages in, and select them all by clicking on the first message and then holding down the shift key and clicking on the last message (assuming they're all in a row), or click on the first message then hold down the CTRL key and click on the rest.

Click the OPEN button.

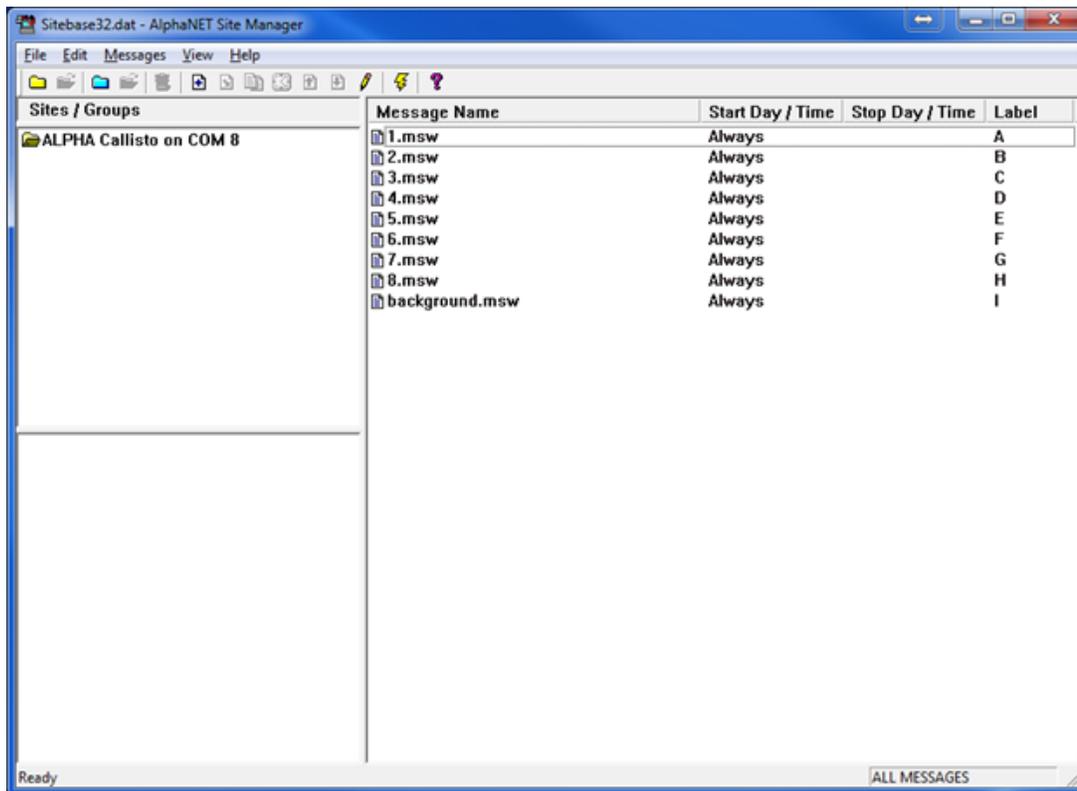


Figure 3.2 – AlphaNET Site Manager

Now, I forgot to give my messages meaningful names when I saved them so I don't remember what each message is for. I go back to the message editor by clicking on each message once then clicking on the pencil on the ribbon bar. This time I scribble a note to myself on paper of what each message is going to be used for.

We're basically going to associate each message with one of the eight dry contacts that are available to us with the ALPHA Callisto module. "When dry contact #X is activated, I want Message X to be displayed." I find it easier to keep the messages in label order that is going to match the contact number later one. Label A is used by Contact #1, Label B is used by Contact #2, etc. Finally the last label is going to be used as our background message.

If you need to change the messages around to get them in the proper sequence, click once on the message name to select it, then use the UP or DOWN papers on the ribbon bar to move the message up or down in the sequence. You're going to want to know which label corresponds to which message in the next few steps.

All finished? Excellent. Let's put this stuff into action...



## ALPHA Callisto Supervisor

The Alpha Callisto Supervisor software is used to configure and manage the Alpha Callisto module.

The Alpha Callisto unit should be plugged in and have a red light in the PWS indicator on the front of the unit near the bottom.

Using a USB Cable, connect your PC and the ALPHA Callisto module.

Load the Alpha Callisto Supervisor software.

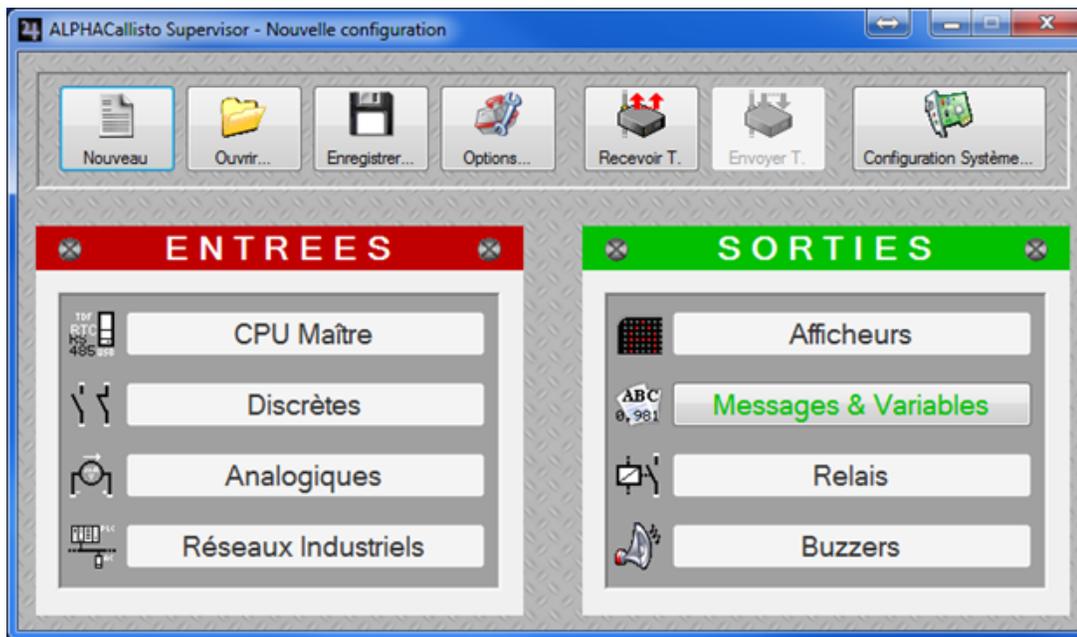


Figure 4.1

There's a good chance that the software is in French instead of English. Let's fix this first.

Click on the Options button.

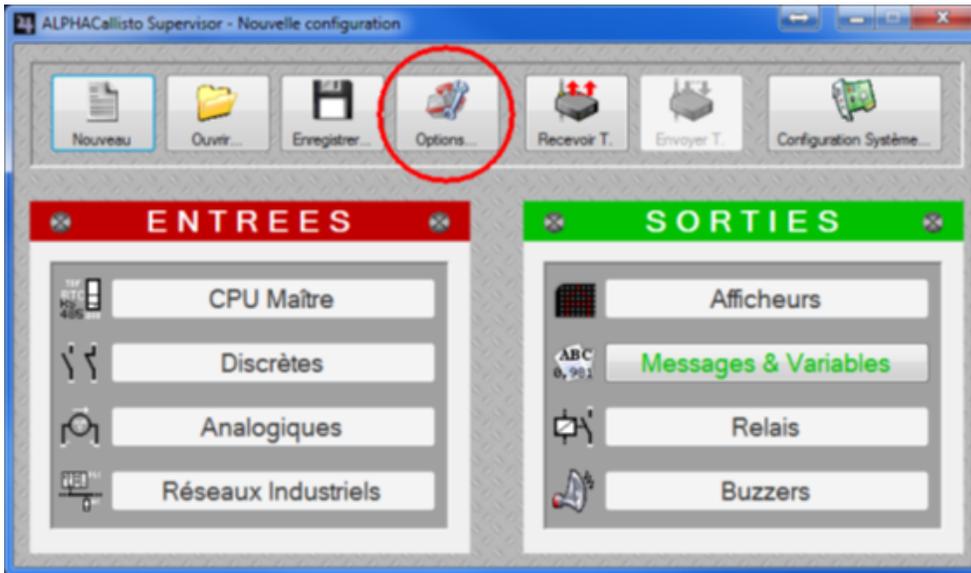


Figure 4.2



Figure 4.3

Click on the Preferences tab.

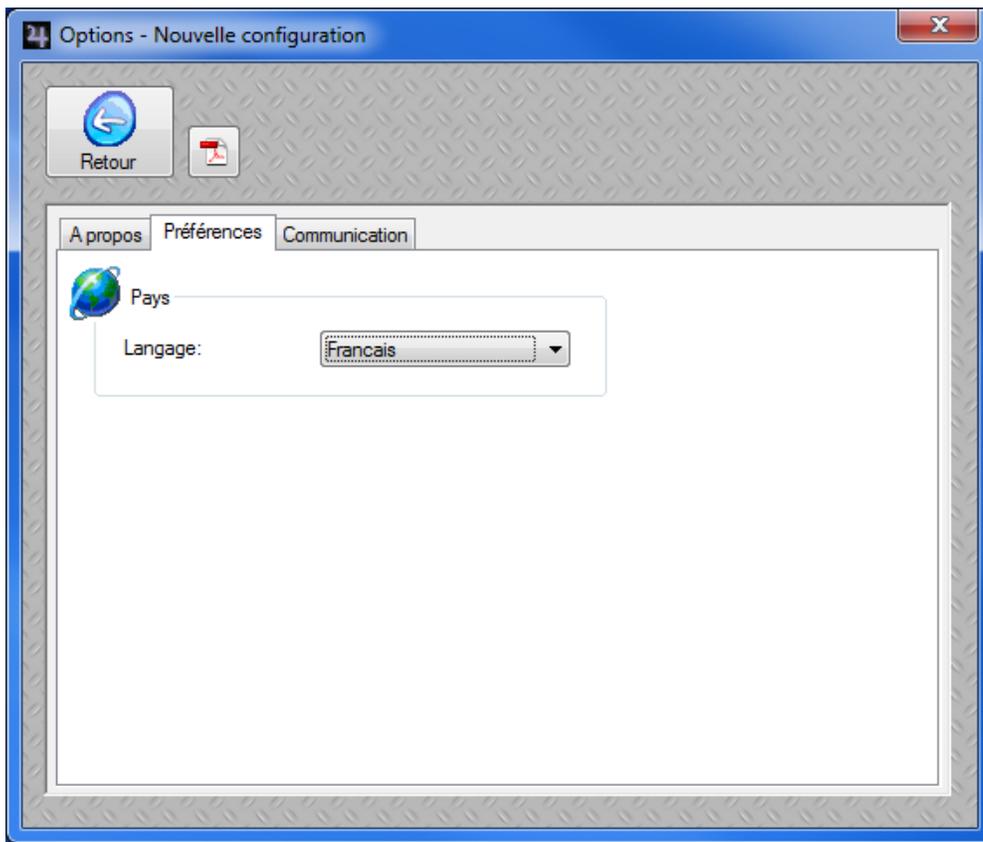


Figure 4.4

Click on the drop down language and select English.

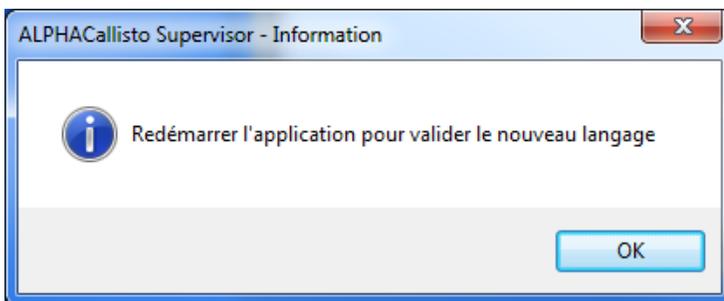


Figure 4.5

Believe it or not, that's a silly little message stating that we have to reload the software to change languages. Click OK, then exit out of the Alpha Callisto Supervisor software by clicking the X's in the upper corner of each window.

I swear to you – we will be in English from this point forward.

Reload the Alpha Callisto Supervisor software.

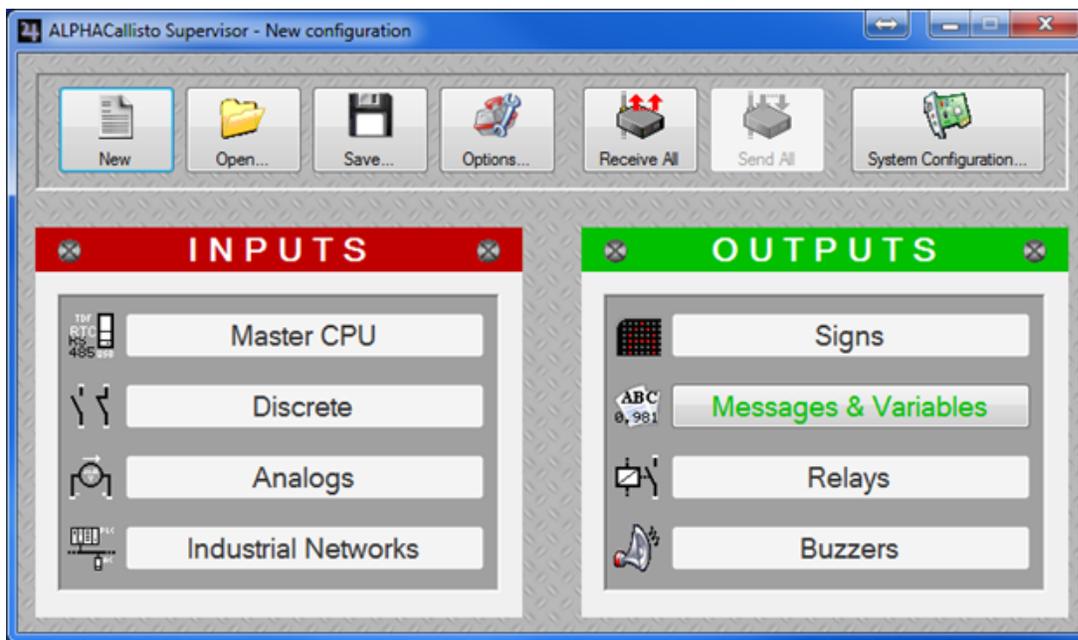


Figure 4.6

If this is your first time in the English version of the software, we'll have to create a new configuration.

Click on the Options button.

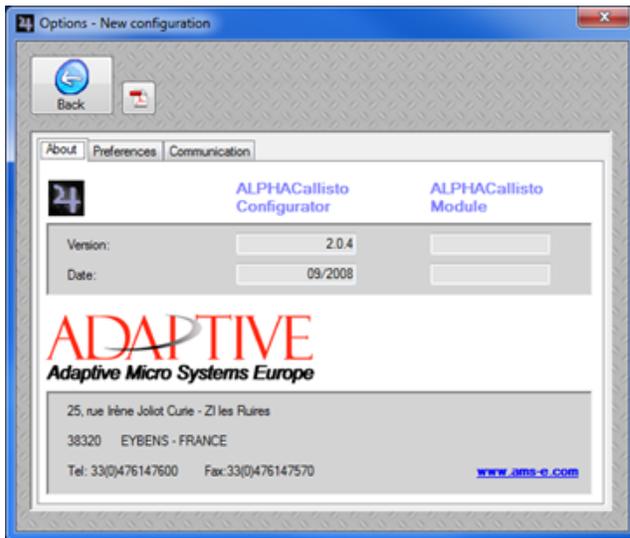


Figure 4.7

Click on the Communication tab. Select the appropriate COM Port that matches the COM Port that Windows has configured the ALPHA Callisto as, then close the window by clicking on the Back button.

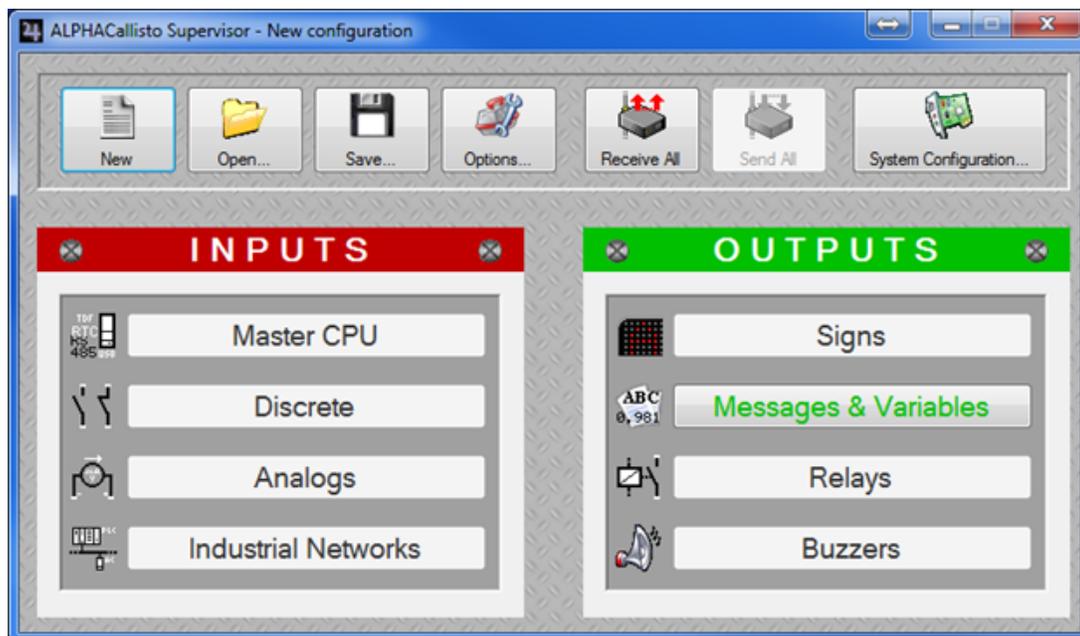


Figure 4.8

Click on the RECEIVE ALL OPTION.

When the Receive all window closes, the system should take you to the New Configuration option screen.

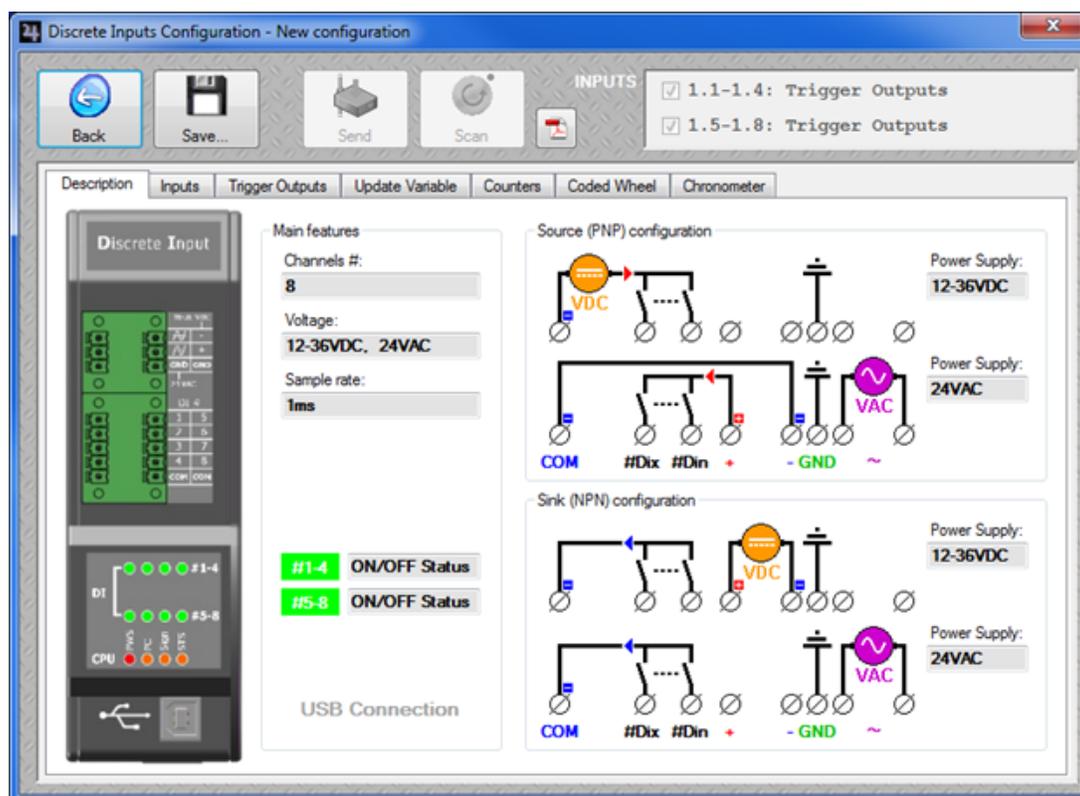


Figure 4.9

Click on the Inputs tab.

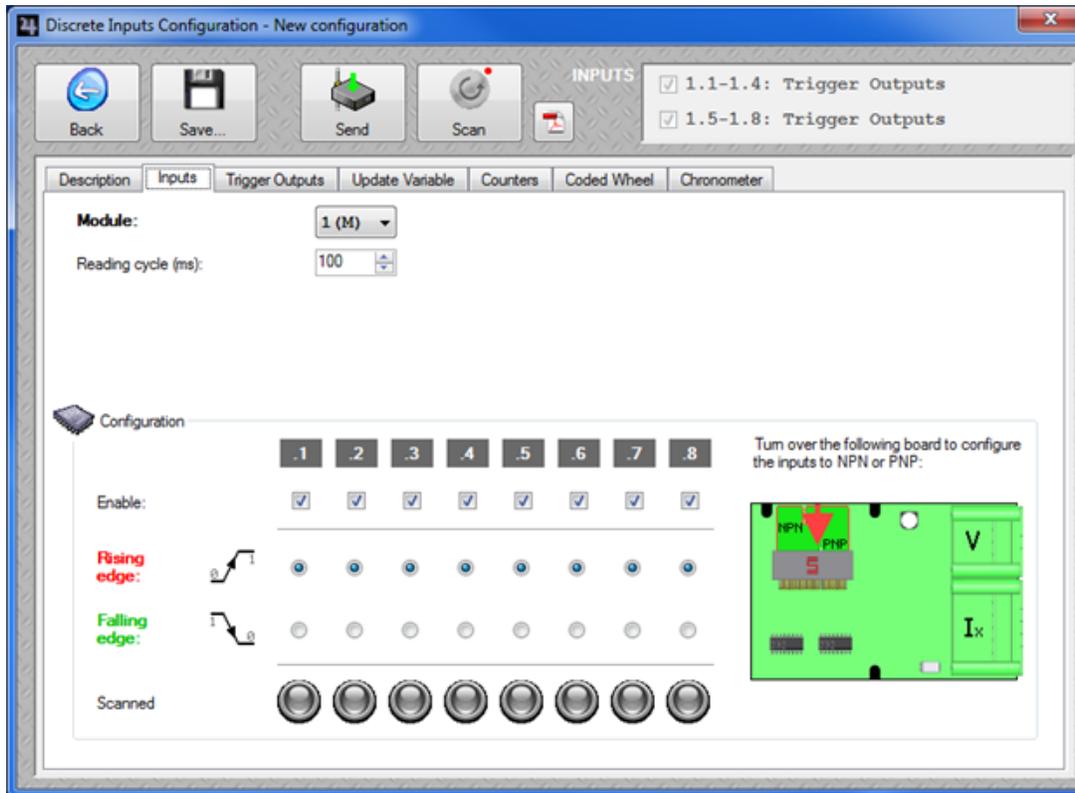


Figure 4.10

Click on the Trigger Outputs tab

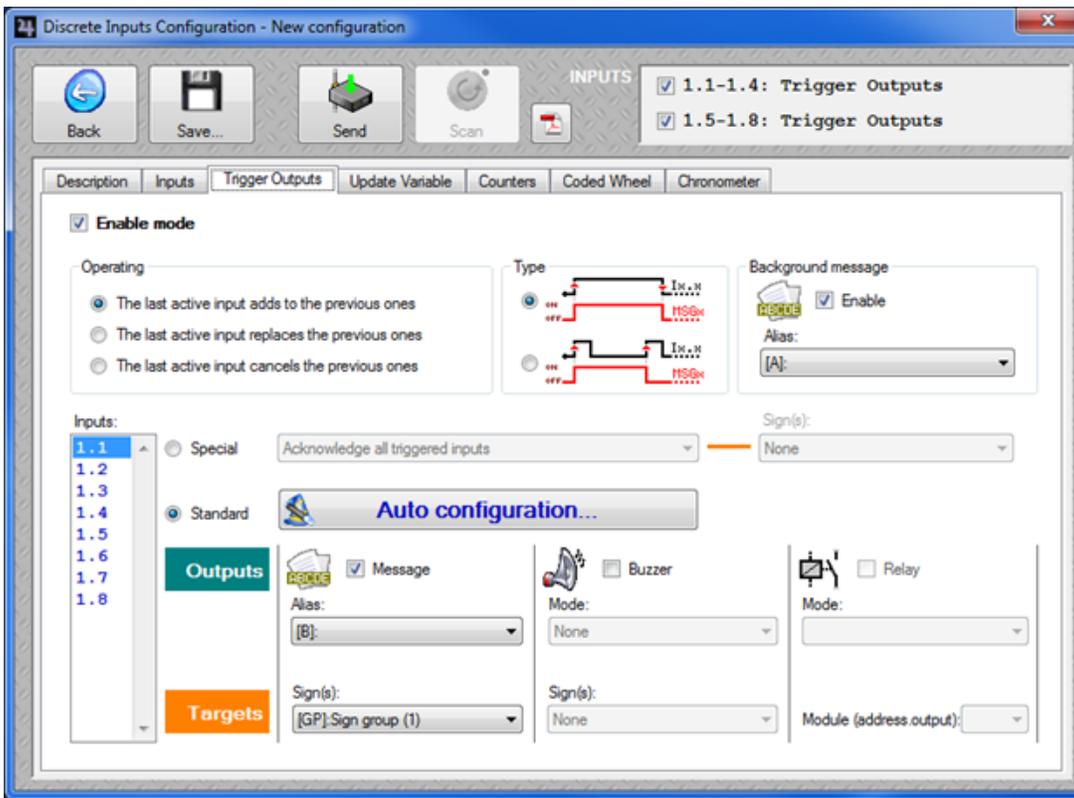


Figure 4.11

This one we're going to work with for a bit.

Make sure that the Enable Mode option is checked.

Enable the Background Message option.

In the Drop down menu below Background Message Enable – select the FILE LABEL from Alphanet Site Manager of the message that you want to be the background message.

The Operating is typically either the first or the second option.  
Click on Inputs 1.1.

Click on Standard.

Move over to the right and make sure that there is a checkmark in the Message option.

Below the Message option is the drop down to select which FILE LABEL from the Alphanet Site Manager message you would like activated when the contact is engaged.

From the Sign(s) list select [GP] Sign group (1) from the list.

Click on Inputs 1.2, enable the message option, select the file label to activate, and make sure the SG 1 is selected.  
Repeat for each of the Inputs.

Click the Back button to return to the Alpha Callisto Supervisor window.

Click on the Signs option on the right hand side of the Alpha Callisto Supervisor window.

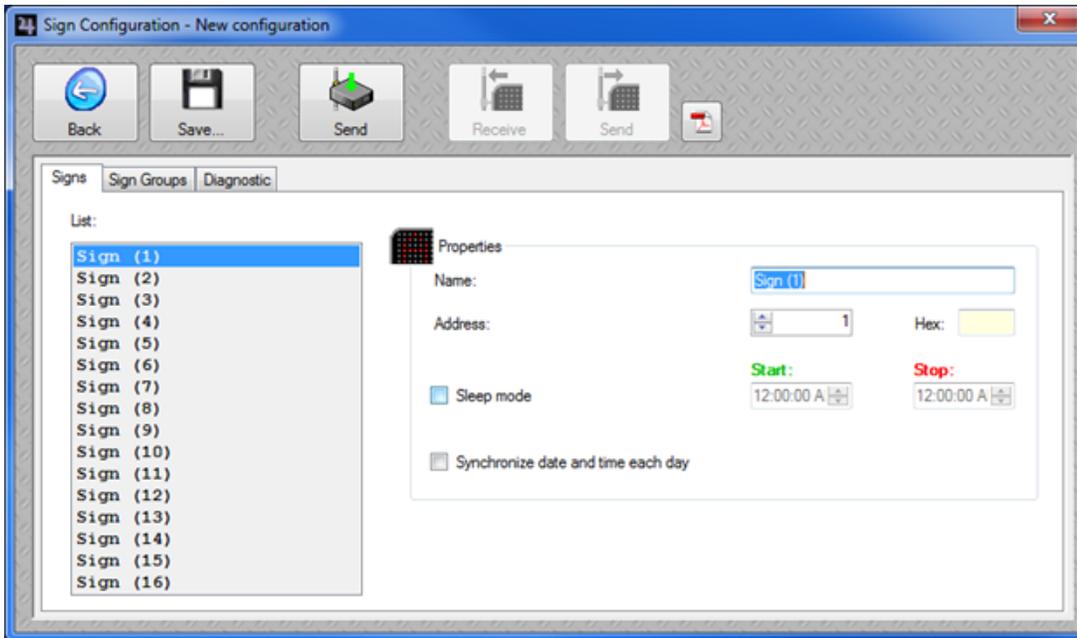


Figure 4.12

For now we're going to cheat and set the address of the first sign to be a global address that will send to all ALPHA displays on the network. Change the Name to Global Broadcast (00) and then Change the Address to 0.

Click on the Sign Groups tab.

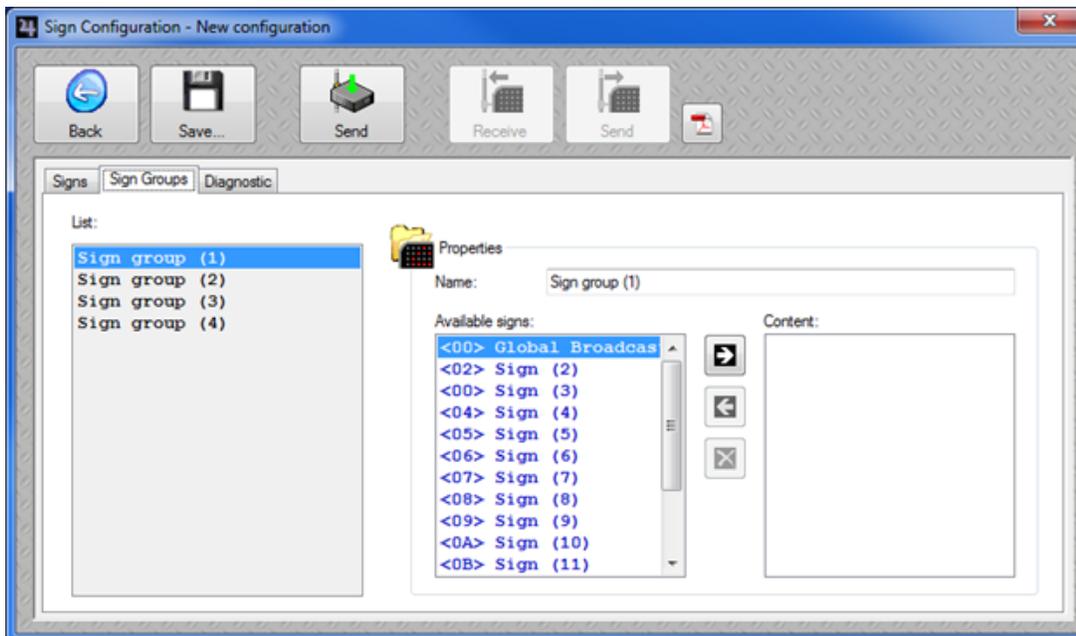


Figure 4.13

Click once on the Available signs - <00> Global Broadcast and then click on the arrow pointing to the right which moves the sign definition to the Content side of the screen.

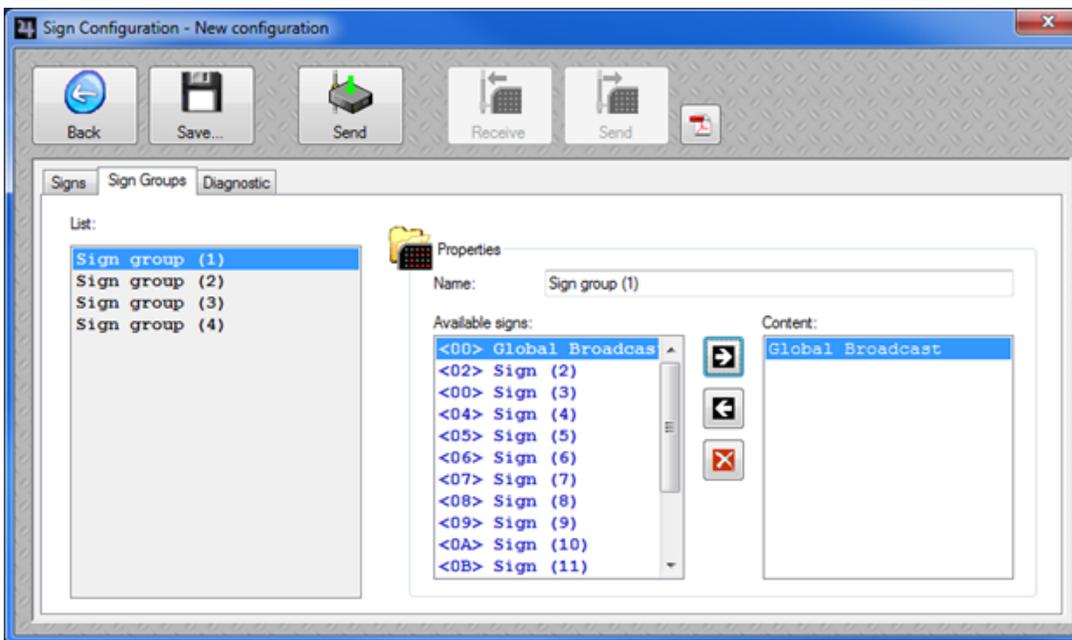


Figure 4.14

Click on the Back button once more to return to the Alpha Callisto Supervisor window.

Click on the Save button. Follow the prompts to save the configuration file.

Click once more on the Master CPU button.

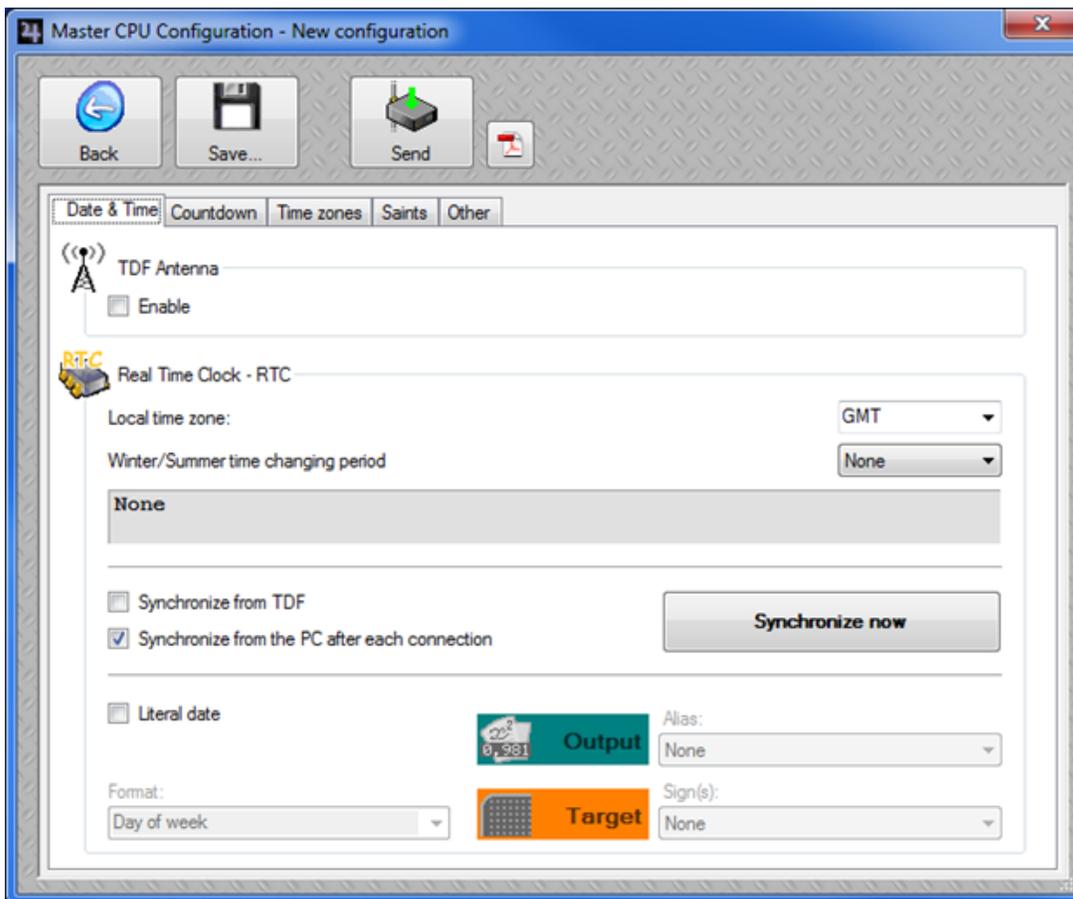


Figure 4.15

Click on the OTHER tab.

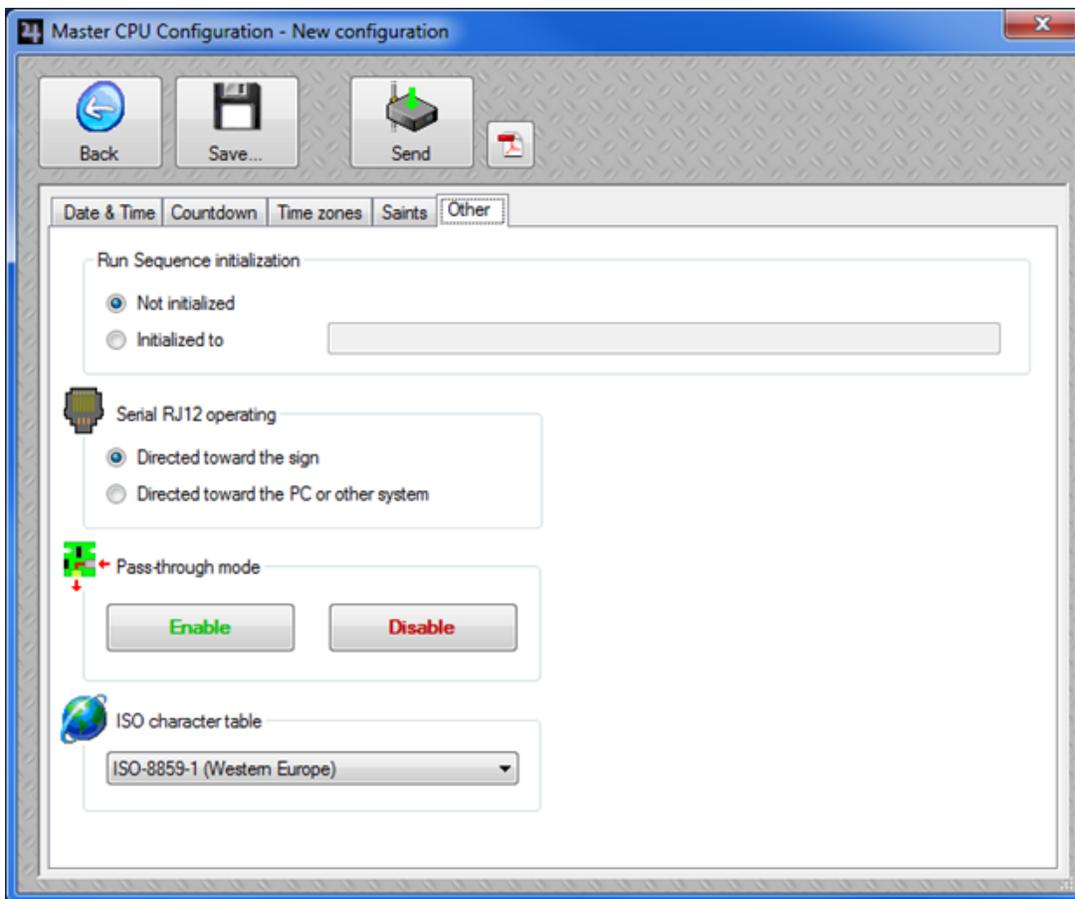


Figure 4.16

Click on the ENABLE button to enable Pass-through mode.

Switch back to the Alphanet Site Manager window.

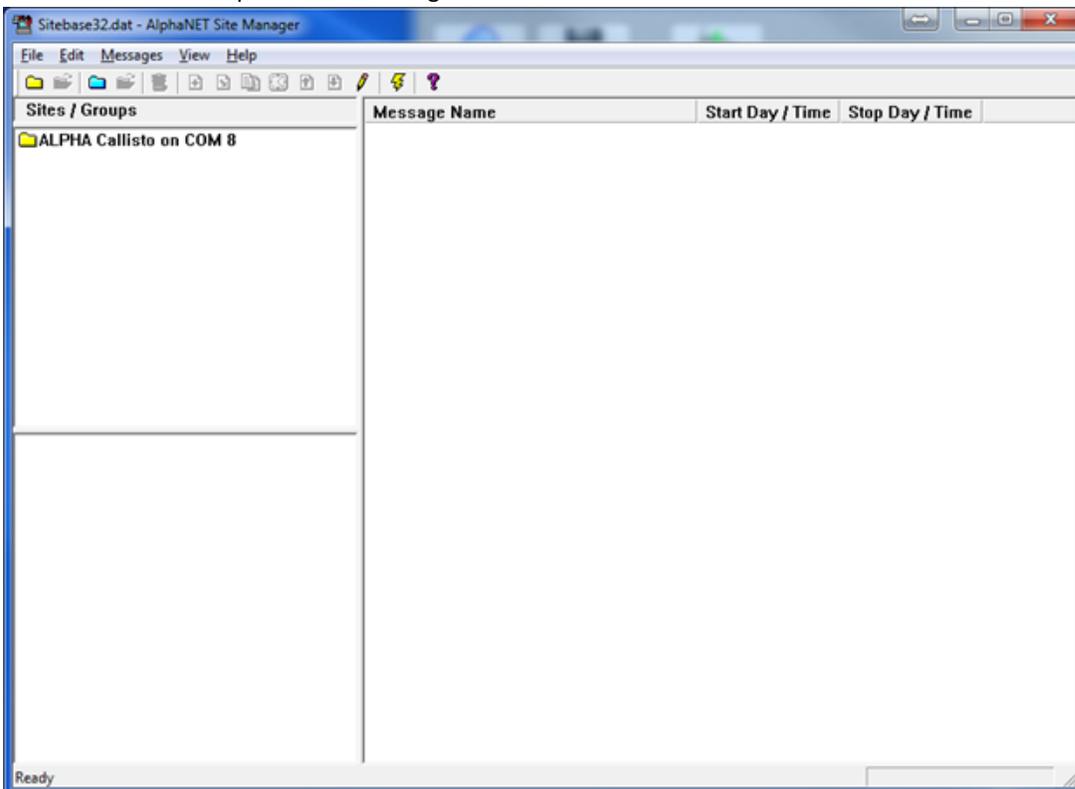


Figure 4.17

Click once on the Site Group for the group we created previously.

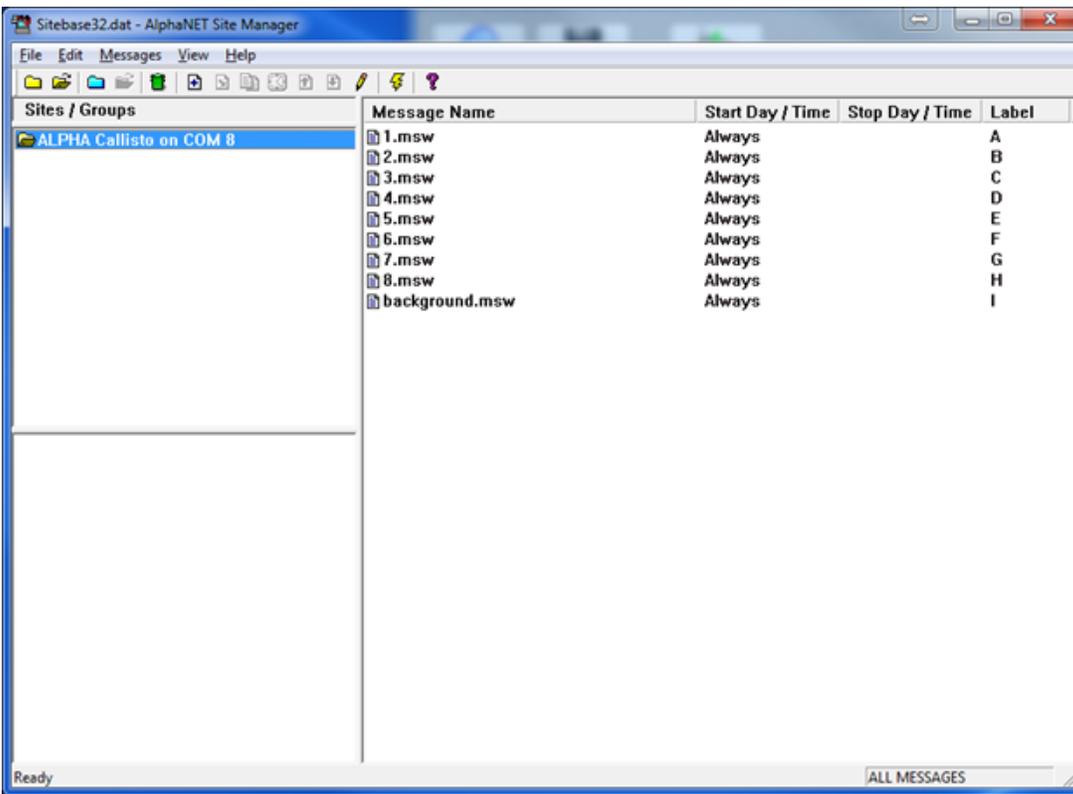


Figure 4.18

Click once on the Lightning Bolt on the ribbon bar.

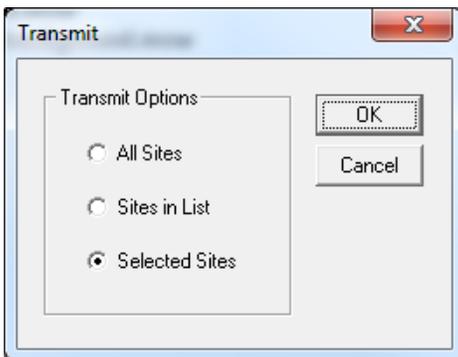


Figure 4.19

Make sure that Selected Sites is selected, then click OK.

Once the Alphanet program has finished communication with the sign (COMMGR will no longer be loaded – typically less than a 30 seconds) Return to the Alpha Callisto Supervisor Window.

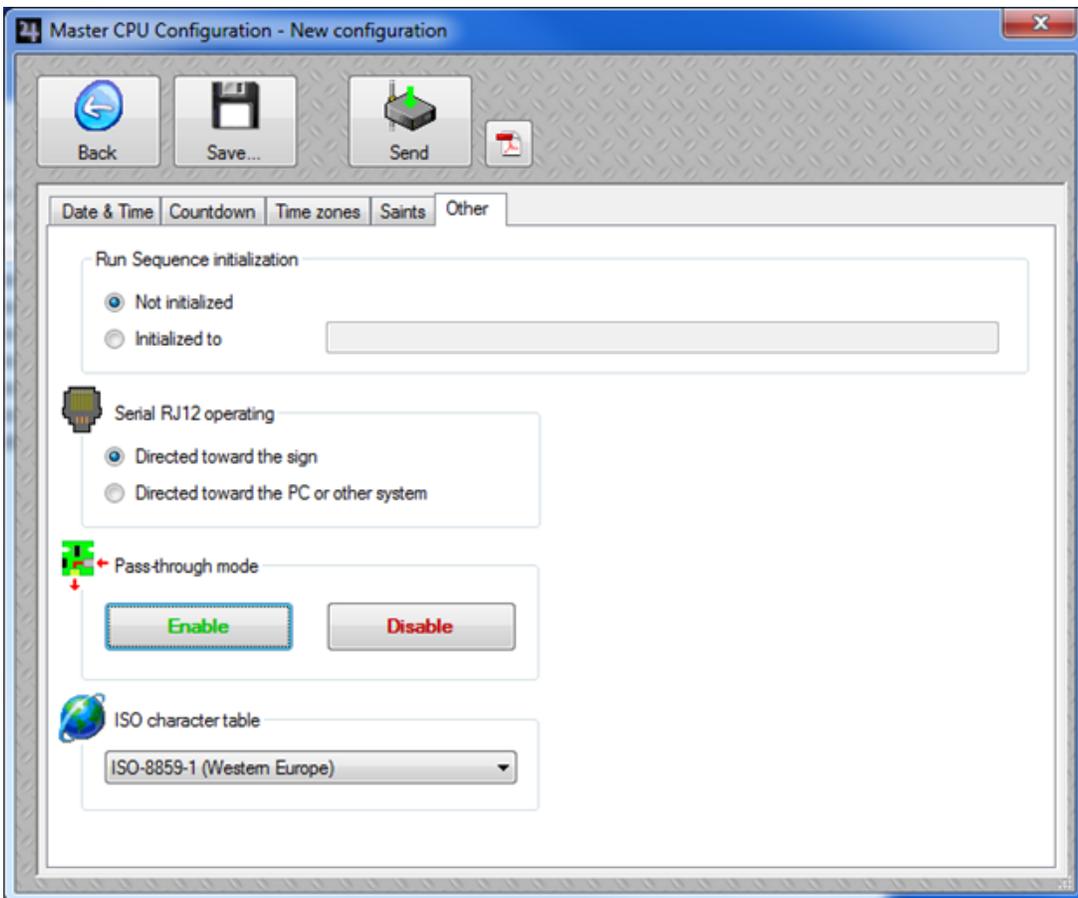


Figure 4.20

Click on the Disable button to disable the pass-through mode, then click Back.

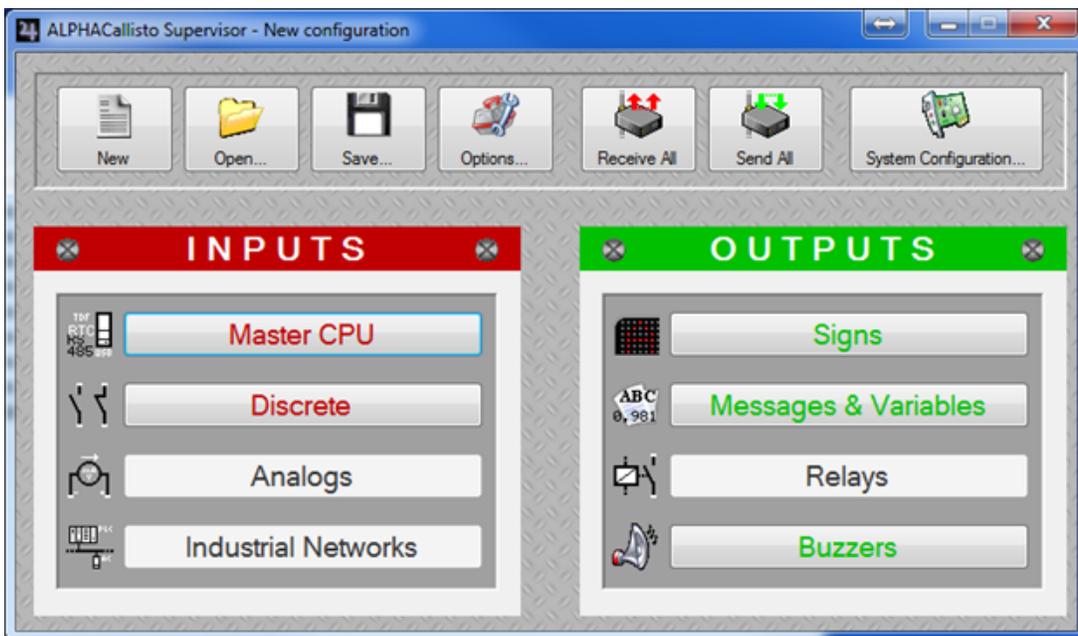


Figure 4.21

Click on the Send All button on the top of the window.

Click on the SEND ALL button to transmit the new configuration from the PC to the Callisto module. When the Communication window closes, exit out of the Alpha Callisto Supervisor window and also shut down the Alphanet Site Manager.

As you activate any contact, the message should appear on the LED displays almost instantaneously.

Thanks for following along. Please feel free to contact your Adaptive Sales Rep with any questions you may have.



## Triggering Messages with Binary Mode

The Alpha Callisto Module has the ability to be used as a simple message activation system. In the mode previously discussed, each Alpha Callisto module could be used to activate 1 to 8 different messages, and the messages can be “stacked” so that the display can show multiple alarm messages at once – alternating between each message. In this configuration a maximum of four (4) Alpha Callisto modules can be daisy chained together allowing for up to 32 different messages to be triggered by contacts.

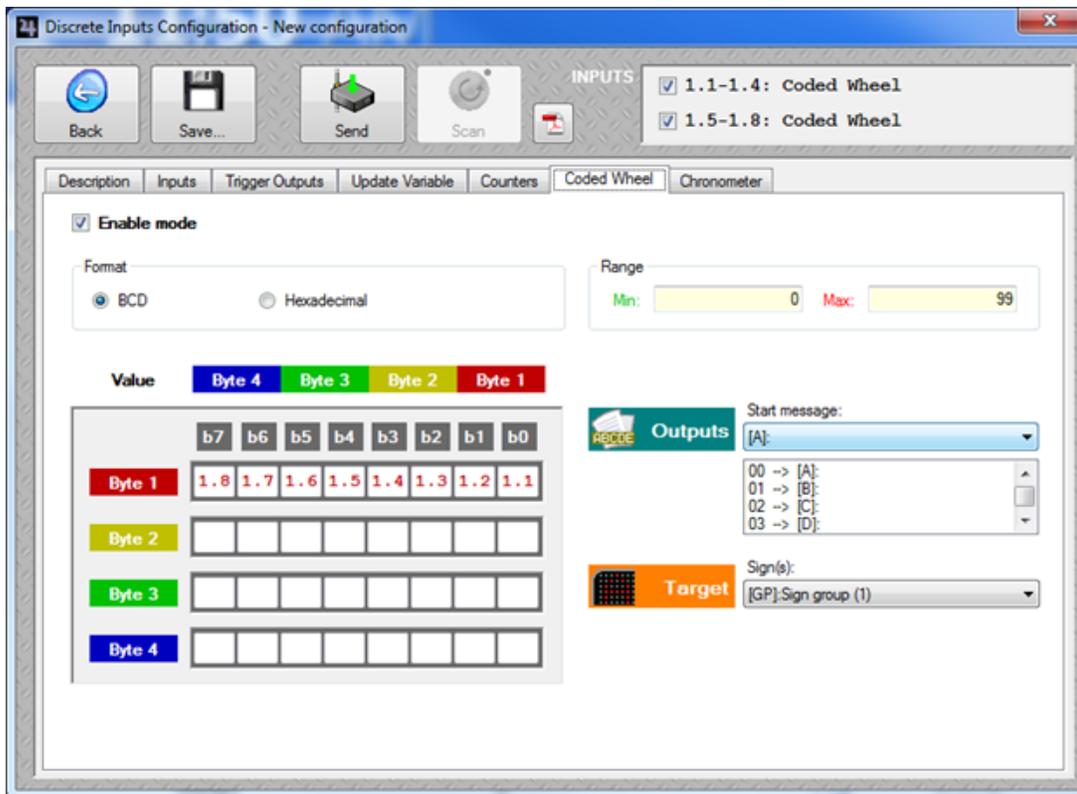
As an alternative solution to that – a single Alpha Callisto module has the ability to be configured to display any one of up to 99 different messages based on the same contact closures – but only one message can be displayed at a time. This is done by using the value of the contact rather than acting as just a simple switch. In this configuration the contacts connected to the Callisto take on the following values:

### Contact Values:

<b>Contact #:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>ON:</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>8</b>	<b>16</b>	<b>32</b>	<b>64</b>	<b>128</b>
<b>OFF:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Using this configuration – the individual messages can be activated by adding the values of the contacts together. If both contact #1 and #2 are enabled the system automatically adds the associated value for the contacts (1+2) and triggers message #3. If contacts #1, #2 and #4 are enabled the system automatically adds the associated values for the contacts (1+2+8) together and triggers message #11. Using this method, and Alphanet 3.1.13 to transmit the messages to the displays – it is possible to control up to 99 different messages from a single Alpha Callisto module.

This is accomplished by assigning the inputs to the CODED WHEEL and configuring the Coded Wheel to be in BCD format.





## Configuring the System to Use a Timeout Message

With the release of Alphanet 3.0.14, Adaptive has implemented a way to have the display show a timeout message when there is no 485 activity for X seconds. To use this feature, you must create a message in Alphanet with what message you want to be displayed on the sign when the display has not received a “heart beat” for a particular duration. Then you must edit the Site in the Alphanet Site Manager. On the Advanced tab, you select “Configure for ALPHA Callisto” then select the Timeout Msg as well as set the Timeout period.

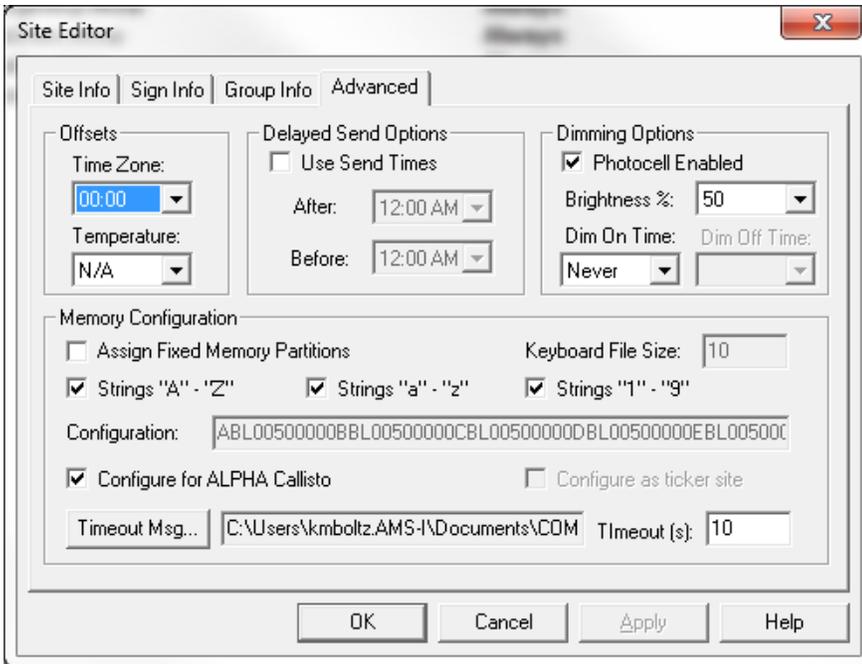


Figure 4.22 – Alphanet Site Editor – Advanced Tab showing a selected Timeout Msg and a 10 second timeout.

Once you have transmitted the messages to the display, you must then configure the Alpha Callisto unit to actually begin transmitting the heartbeat. This is done from the MASTER CPU option on the ALPHACallisto Supervisor software. Once you are on the Master CPU Configuration screen in the ALPHACallisto Supervisor software click on the COUNTDOWN tab.

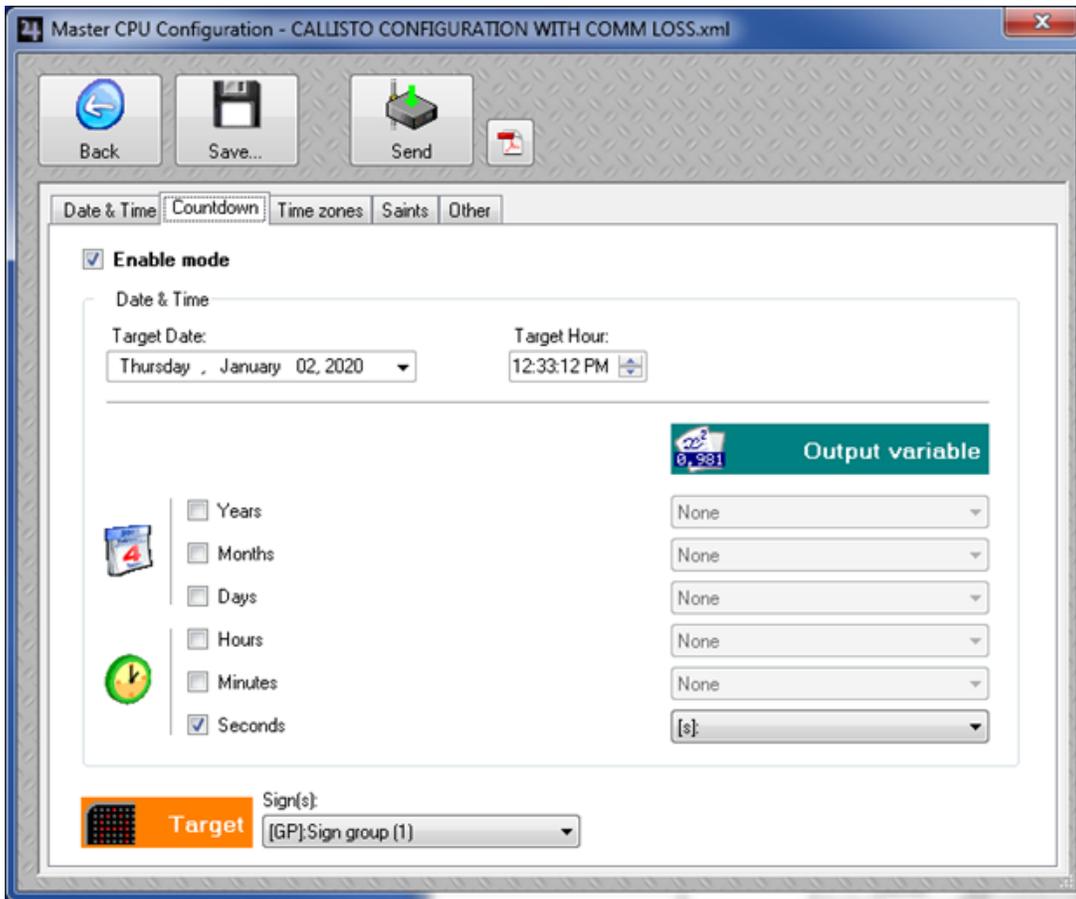


Figure 4.23 – Master CPU Configuration – Countdown tab

Click Enable mode to turn this feature on, then set a target date that is significantly in the future. Enable Seconds by checking the option and select an output variable for the timer to be transmitted to. Click Save.

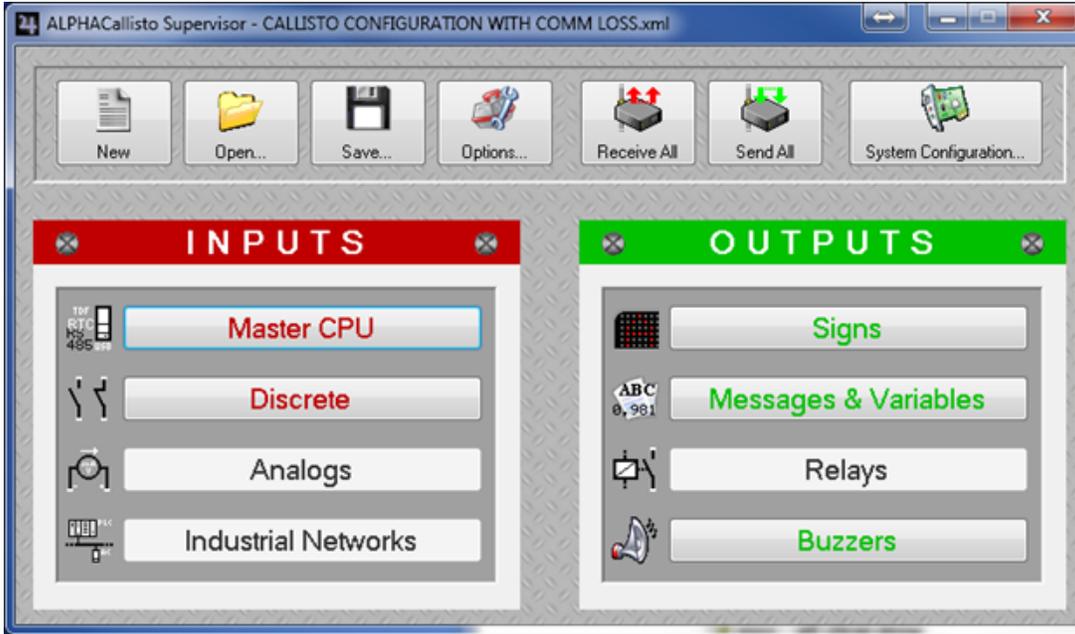


Figure 4.24 – ALPHACallisto Supervisor – Main Screen

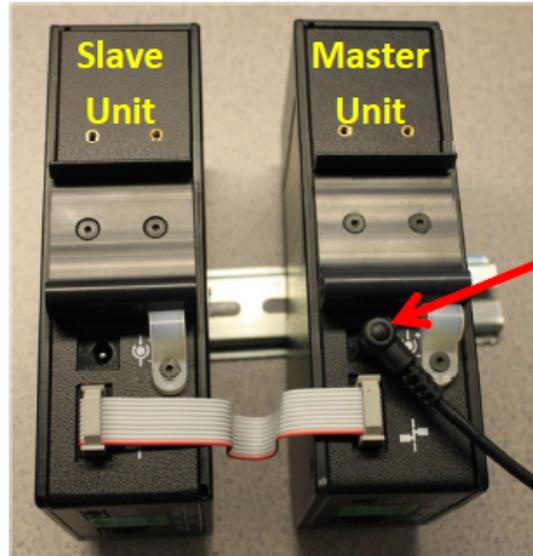
Once you have done that be sure to click the SEND ALL button on the ALPHACallisto Supervisor software to enable this feature. Once you have done this, you should see the SIGN led on the Callisto unit begin flashing roughly every second as it transmits the variable to the sign – acting as a heartbeat for the display.

You can test the overall functionality of the display's Timeout Message by disconnecting the 485 cable from the sign. Within the timeout period you set in the Alphanet Site Editor, the display should begin displaying the time out message you had previously defined in the Site Editor.



## Networking more than one Discrete Input

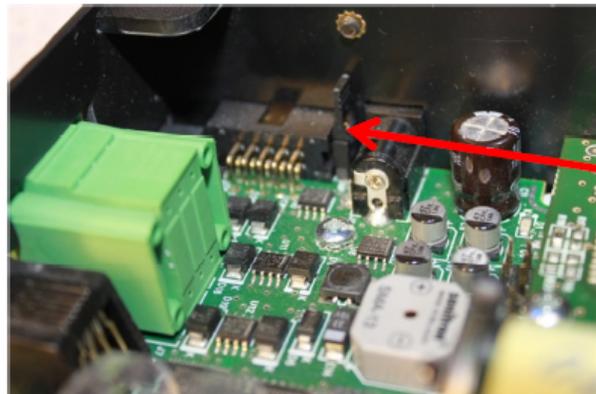
Callisto units are networked together with a ribbon cable. See the photo below. Up to 4 Callistos can be networked this way.



Connect 5vdc power only to the Master Unit

The ribbon cable supplies communications and 5vdc power to the slave Callistos from the master Callisto. Connect the master and slave Callistos together with the ribbon cable and apply 5vdc power only to the master Callisto. A jumper may need to be installed into each Callisto if all slave units do not power up. The following photos show how to install this jumper if it is missing.

See these photos for details on opening the Callistos to install this jumper.



Install this jumper in the master and all slaves units.

See these photos for details on opening the Callistos to install this jumper.



Remove 2 Screws



Spread the case sides



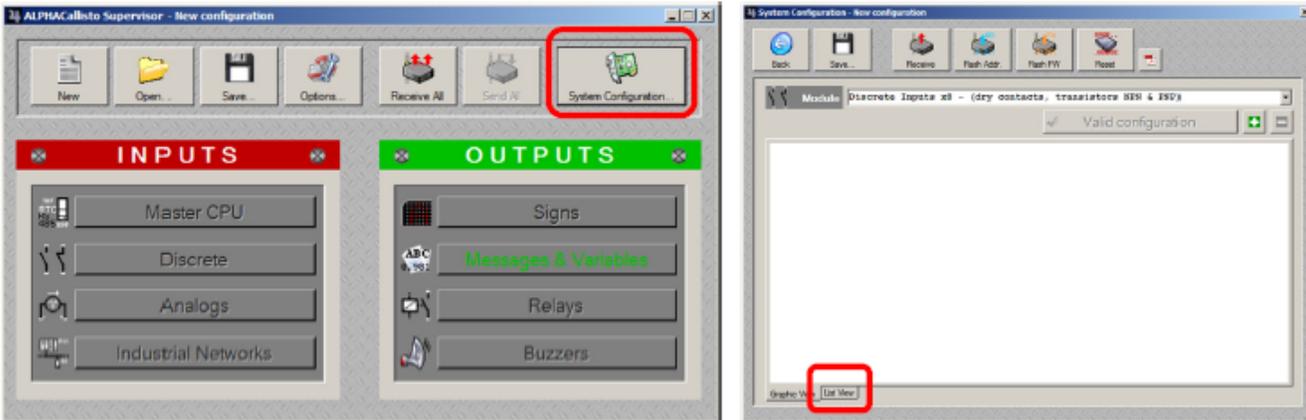
Slide the internal assembly out



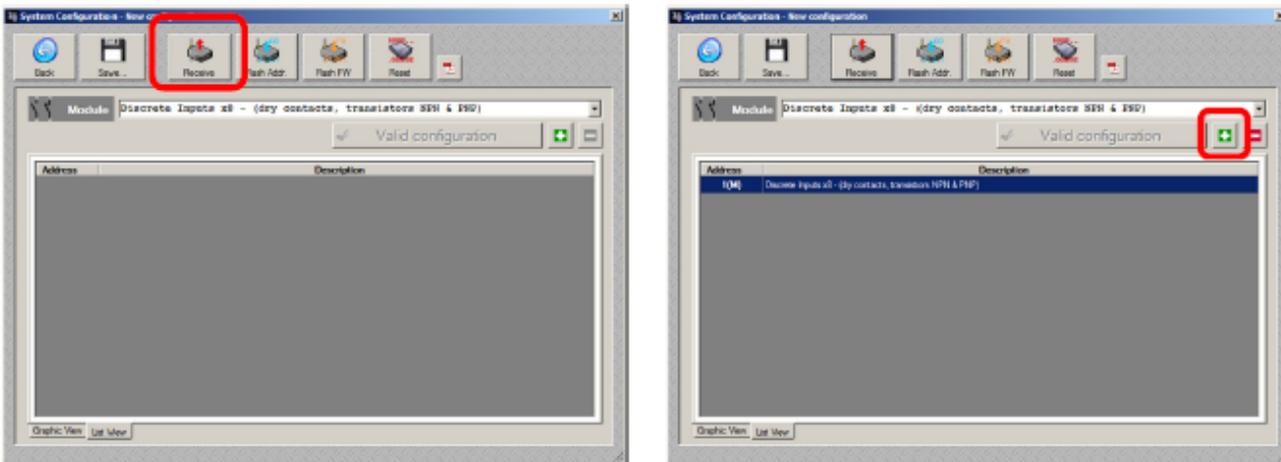
## Addressing the Callisto Units

The master and slave units need to be addressed in order to operate together. Addressing is done with the following procedure. It is recommended that you label the master and slave Callistos to identify them as Master, Slave 1, Slave 2, and Slave 3.

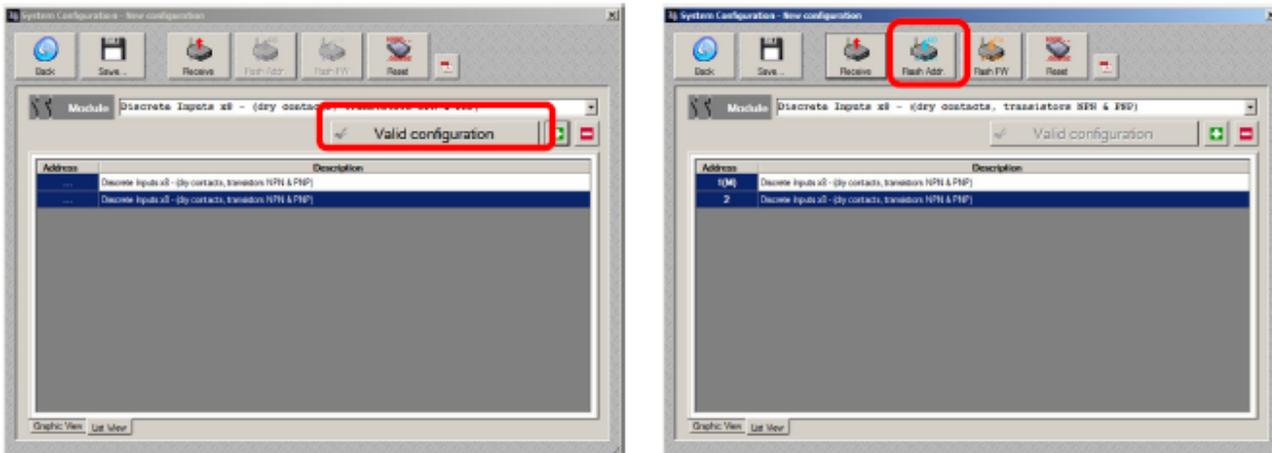
- Connect the master and slave Callistos together with the ribbon cable.
- Connect 5vdc only to the master Callisto.
- Wait for all units to power up and beep.
- Connect a USB cable from your PC to the master Callisto.
- Launch the AlphaCallistoSupervisor software and click on 'System Configuration'.



Click on the 'List View' tab and then the 'Receive' button.



The window should now list the master unit. Click the + to add each slave unit.

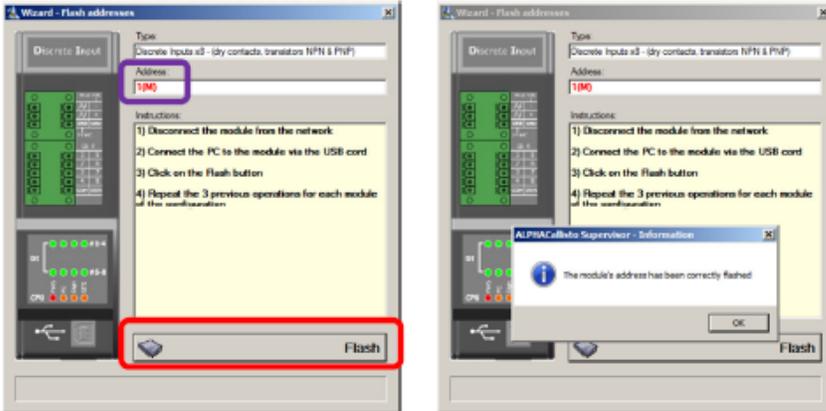


Click 'Valid configuration'. The new addressing will be shown. Click 'Flash Addr.'.



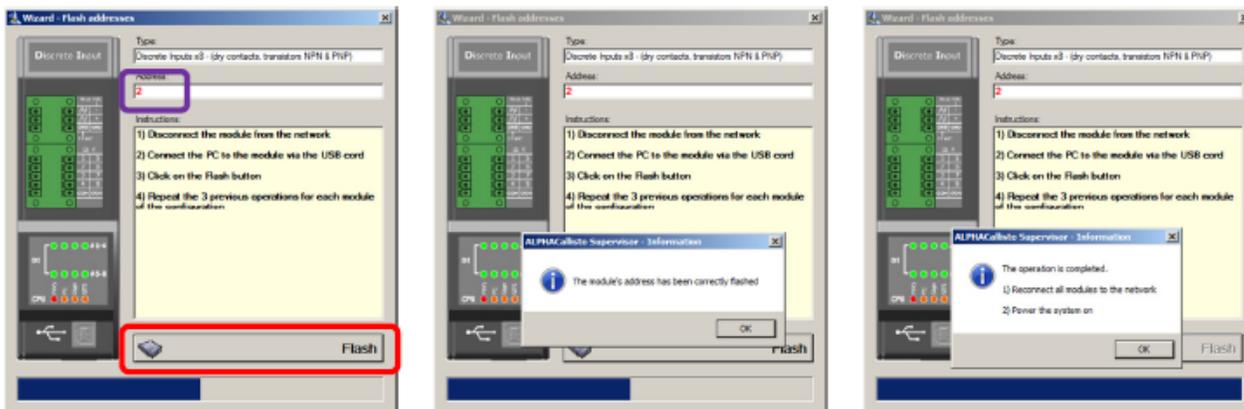
## Address Flashing

The Flash addresses window should appear. It should list the address for the master unit.



Disconnect the ribbon cable from all Callisto units and click the 'Flash' button. The system will report that the master unit address has been flashed. Click OK. The window will now show the address for a slave unit.

Move the USB cable and power cable from the master unit to the slave unit. Wait for the slave unit to fully power up and beep and then click the 'Flash' button again.



The system will report that the slave unit address has been flashed. Click OK.

Repeat the above steps if additional slave units need to be addressed.

The system will then report that all address flashing is done. Click OK.

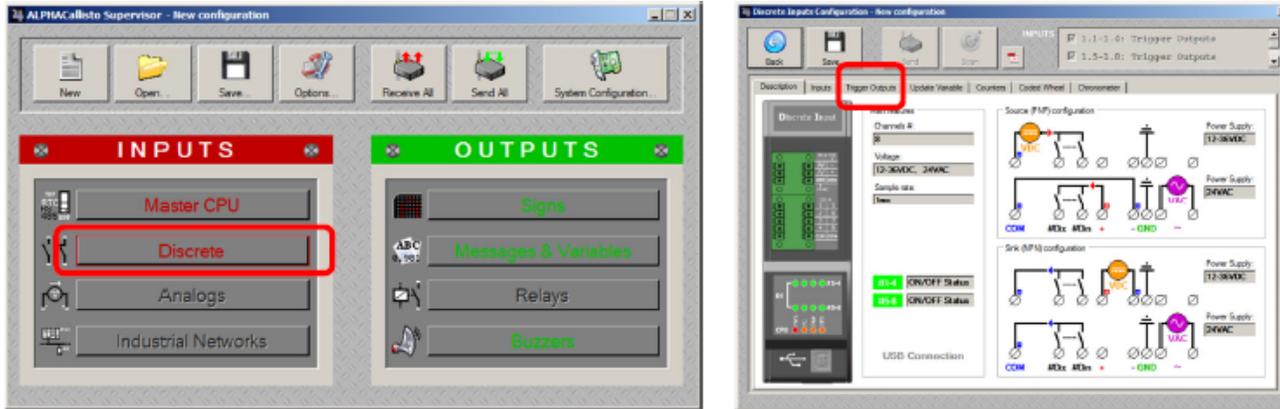
Re-assemble and apply 5vdc to the complete Callisto system. The slave units should now have their PC LEDs flashing to indicate the communication to the master unit. The PC LED on the master unit will not flash unless there is USB communication to your PC.



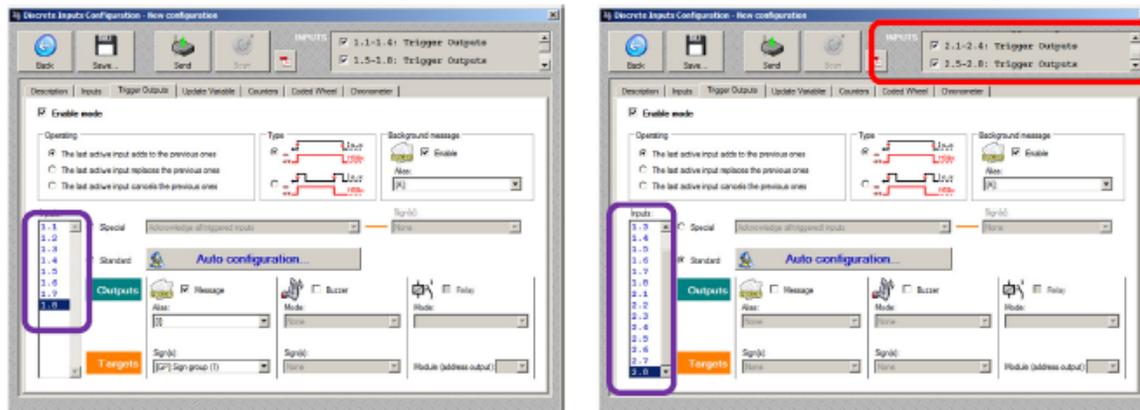
# Appendix

## Enabling the slave unit inputs.

The discrete inputs of the added slave units need to be enabled after the slave units are addressed. Click the 'Discrete' button on the main AlphaCallistoSupervisor window and then select the Trigger Outputs tab.



The inputs for the master unit will be shown by default. Scroll down the INPUTS menu in the upper right corner of the window and enable the inputs for the slave unit.



The slave unit inputs can now be used just like inputs on the master unit.

