# AudioReQuest Crestron™ Interface Guide

Version 7.0.0

Control of 1 or more AudioReQuest™ devices from a Crestron control system through RS232 or Ethernet

# Table of Contents

# Revision History

| Revision Number | Changes |
| --- | --- |
| 4.0.2 | Updated for 1.7.11, updated graphics |
| 4.0.3 | Updated for 1.7.5 (genre commands) |
| 4.1.0 | Updated for 1.8.1 |
| 4.1.5 | Updated version number to match program version number.  No changes to document |
| 4.5.0 | Complete redesign<br>Added new 1.9.0 commands |
| 4.5.1 | Added POWER-ON and POWER-OFF to Basic Module |
| 4.5.5 | Added info about single Start Comm signal<br>Minor formatting changes |
| 5.0.0 | Initial F-Series Version |
| 5.5.0 | Added support for cover art using Dynamic Graphics |
| 6.0.0 | Redesigned module<br>Added Keyboard Handler and Touchpanel modules<br>Added support for new 4.6.0 features<br>Added support for classical mode |
| 7.0.0 | Simplified module, removing a lot of legacy code<br>Went back to single module design |

# Crestron Install Checklist

Client Name: _____Date Installed:_____

Module Version:_____Processor Type:_____

Number of ReQuests:_____Connection to ARQ: ☐ Ethernet ☐ Serial

## Hardware Requirements

☐ 1) 2-Series Crestron Processor and AudioReQuest Digital Music Server

☐ 2) Female→Female NULL Modem serial cable if connecting serially (one ships with the ARQ). It is HIGHLY recommended to use a cable that is no longer than 10ft to prevent ground problems.

## Hardware Configuration

☐ 1) Install ARQ unit and Crestron processor in rack
☐ 2) Connect cables for control (NULL Modem Serial or Ethernet)

## Software Requirements/Setup

☐ 1) Ensure that you have the all the latest SIMPL Windows and VTPro programs and components installed. Don't forget the SIMPL Windows Cross Compiler!

## Software Configuration

☐ 1) Import the ReQuest demo program into SIMPL Windows using **File→Import Archived Program** (see page 2 below for more info)
☐ 2) Select a control method (Ethernet or Serial). The demo is setup for Serial. If using Ethernet, comment out the COM port, uncomment the TCP/IP client, and configure it with your AudioReQuest's IP address.
☐ 3) If integrating the AudioReQuest into an existing Crestron program, copy the logic from the demo program to your program. Be sure to copy Digital, Analog, and Serial joins for the touch screens. Modify the joins as necessary to fit into your system.
☐ 4) If using the ReQuest demo touch screen interfaces, open those in VTPro and modify as necessary. Copy our screens to yours if integrating with an existing system

## Introduction:

This document explains how to interface all models of AudioReQuest Digital Music Servers with Crestron control systems using the AudioReQuest Crestron Demo Program version 7.0.0.  It will not give a detailed explanation of the protocol used to communicate with the AudioReQuest via Ethernet, Serial, or IR.  For this information, please download the Communication Protocol Guide from www.request.com.

## Rear Serial Port Pinout (Male RS-232 Port)

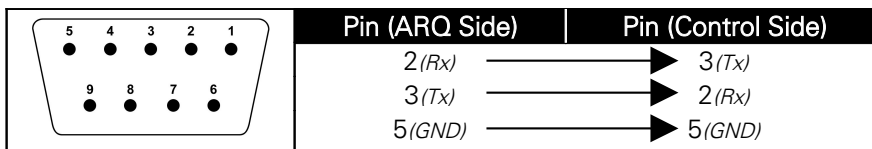| Pin | Purpose |
|-----|---------|
| 1 | *Not Used* |
| 2 | Receive |
| 3 | Transmit |
| 4 | *Not Used* |
| 5 | Ground |
| 6-9 | *Not Used* |
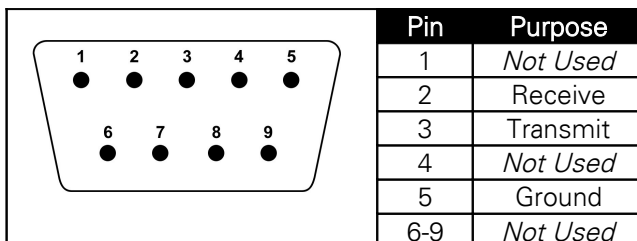
## Serial Cable Pinout (Female →Female RS232 cable)

| Pin (ARQ Side) | Pin (Control Side) |
|----------------|--------------------|
| 2 *(Rx)* | → | 3 *(Tx)* |
| 3 *(Tx)* | → | 2 *(Rx)* |
| 5 *(GND)* | → | 5 *(GND)* |

## COM Settings

The **rear serial port** is used for integrating the AudioReQuest with a control system.  Connection to the **rear serial port** requires a **Female→Female NULL MODEM** serial cable.  The **front serial port**(if equipped) is used **ONLY** for configuring certain settings on the AudioReQuest, such as the IP Address.  You **CANNOT** use the **front serial port** to control the ARQ.

The default baud rate depends on the model of AudioReQuest unit.  On newer AudioReQuest units, the baud rate is configurable in the webserver (**Settings→Hardware→Control Port Baud Rate**).  The table below shows the default baud rates by model.

| Rear Serial Port (Single Zone Units) | |
|-----------|------|
| **Parameter** | **Value** |
| Baud | 9600 |
| Data Bits | 8 |
| Stop Bits | 1 |
| Parity | None |
| Flow Control | None |

| Rear Serial Port (Multi Zone Units) | |
|-----------|------|
| **Parameter** | **Value** |
| Baud | 57600 |
| Data Bits | 8 |
| Stop Bits | 1 |
| Parity | None |
| Flow Control | None |

**What To Do First:**

*Do Not Unzip The Demo Program You Download!!!*

Download *ARQConnect_Crestron_Demo_v7_0_0.zip* from www.request.com.
Open SIMPL Windows.
Select **Import Archived Program** from the **File** pull-down menu
Click **Browse** and find the zipped file you downloaded in step 1 above.
Click **Start** to import the file.

Following the above steps is CRITICAL to the success of your project.  Although it is typically sufficient to simply copy the files to the appropriate place on your hard drive, SIMPL Windows performs better when the file is imported.

Importing the file will unzip the project, placing the .smw, .umc and .usp files in the appropriate places, and open our demo program in SIMPL Windows.  This program works as a complete solution with our touch panel designs, which are also available on our website.  If you choose to use our module in another program, but you plan to use our panel designs, you MUST copy over the Subpage Logic subsystem in order for the panels to work correctly.  If you have any questions or problems, call (800) 236-2812 for further assistance.
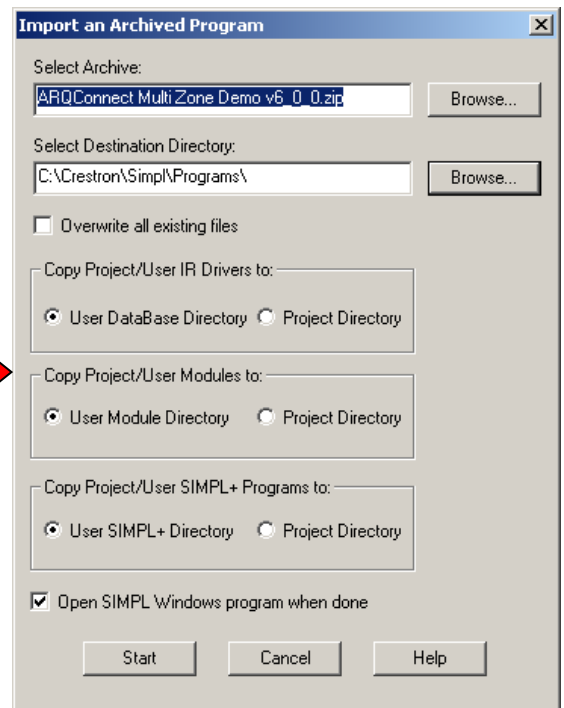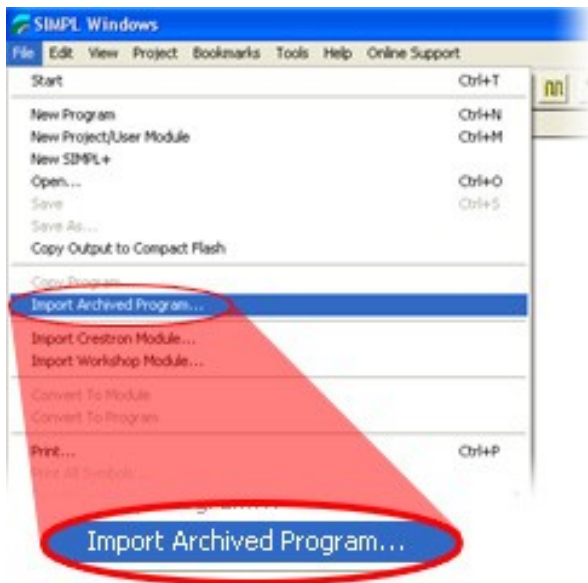
# Design Changes and New Features

In an effort to simplify integration between Crestron and AudioReQuest, ReQuest has made a number of changes to the demo program, the ARQConnect module, and the demo touch screens. This section describes the changes that have been made.

## Multiple Product Model Support

ReQuest now has 3 main types of AudioReQuest unit: Single Zone (N.Series), 2 Output Multizone (F2.Series), and 4 Output Multizone (F4.Series and S.Series). Using the ARQConnect Demo Program, you can interface to any number of units of any type simply by changing the zone number on the module/

## Single START-COMMUNICATIONS Signal

Previous versions of the demo program and touch screen interfaces contained 2 separate Start-Communications signals: One for Ethernet (join 771) and one for Serial (join 772). These 2 signals have been combined into 1 signal named ARQ-CONNECT (join 771). This allows you to switch between Ethernet and Serial communications by simply moving the ARQ-CONNECT signal from the [START-SERIAL-COMMUNICATIONS] input to the [START-ETHERNET-COMMUNICATIONS] input on the module.

For more information on using Ethernet, see the **Ethernet Control** section on the next page.

## Simplified Design

Version 5.0.0 introduced a new 2 module design: Basic and Advanced. While beneficial for organization, this design caused problems in timing and processor usage. For version 7.0.0 we have returned to a single, simplified module design. We have added a number of things from the Advanced module to make it a complete solution.

*\*\*NOTE: The Keyboard Handler and Touchpanel Controller modules are still used.*

### The Keyboard Handler Module

This is a stand-alone module that handles all the necessary work for displaying an onscreen keyboard and building a string based on input from the touch panel. This is used mainly for creating playlists.

### The Touchpanel Controller Module

This module handles all the logic for displaying subpages on the touch panel. Previously, this logic lived in the demo program. This made it more difficult to integrate a ReQuest into an existing project.

# Ethernet Control

The demo program provided by ReQuest includes a commented out TCP/IP client that is ready to use.

In order to control AudioReQuest with Ethernet:
1. Uncomment the TCP/IP client that is already in our demo program (**Slot-08, IP-ID-04**).
2. Verify that the TCP/IP client is configured as shown in the figure below.
3. Switch to Configure view and set the IP address of the TCP/IP client to the IP address of your AudioReQuest.  You can find the IP by going to **Menu→System Information** on the AudioReQuest.
4. Switch back to Program View and delete the **AUDIO-REQUEST-RX$** and **AUDIO-REQUEST-TX$** signals going to the COMM Port (**Slot-04, Port-A**).
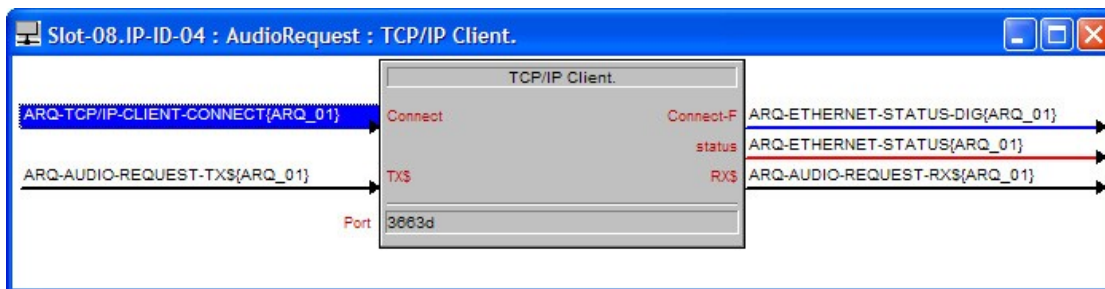


**Figure 2**

# Cover Art on Supported Panels

With the addition of Dynamic Graphics on newer Crestron panels, you can now get cover art images on your touch panel without the need for a video input.  The module contains a number of serial outputs you can use (see **Module Outputs** on page 15 for details on the different outputs).

For the Player image as well as the single Browse image, you have the option of choosing a large image (170 x 170px) or a small image (75 x 75px).  The Browse images per line are hard-coded to use a smaller image size to increase performance.

To use cover art and set the browse image sizes you desire:
1. Open the Module into detail view
2. At the bottom of the module, set the **IP_ADDRESS** and **WEB-PORT** parameters to the ip address and web port of your AudioReQuest
3. Set the cover art modes for the size of image you wish to receive
    **0d**:  Disable this image
    **1d**:  Large Image (170 x 170 pixels) *default*
    **2d**:  Small Image (75 x 75 pixels)
4. If you wish to use cover art on each browse line, set **ENABLE-BROWSE-LINE-ART** to **1d**
5. Connect the serial outputs from the module to the appropriate serial joins on the panels that will display the images (see image below for more info)

# Customizing the Program

## Adding Touch Panels

To simplify customization of the program, we have added templates for the Touch Screens and Panel Specific Logic folders.  The demo program has **five** 2-way panels already in it.  If you wish to add more panels, you can use the templates to make it easier.

*NOTE:  You may find it easier to delete all but one AudioReQuest Zone subsystem, add the new panel logic, then add back in the ARQ Zone logic folders.*

**To add another touch screen:**

1. Add your new touch screen to the system in Configure View.
2. Under Program View, locate **ID-FE : Xpanel: ARQ Template{Panel_TEMP}** (**Figure 3**).
3. Right-Click **AND HOLD** on the **TEMPLATE**.
4. Move the mouse over top of the new touch panel
5. Release the mouse button.
6. Select **Copy all signals and parameters** from the menu that pops up (**Figure 4**).  This will copy all the Digital, Analog, and Serial signals from the template to your new touch screen.
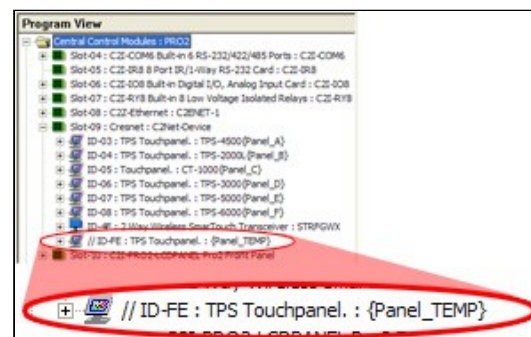
**Figure 3**

*All of the signals for the touch screens have a suffix that distinguishes that screen from the others.  This is used to isolate one panel from another.  The template has the suffix {Panel_TEMP} on all signals.  The next steps will walk you through changing this.  You will need to use a unique suffix for each new touch screen you add.  In the demo, we use {Panel_A} through {Panel_E.  If you add panels, you could start with {Panel_F} and continue alphabetically from there (Panel_G, Panel_H, etc.).*
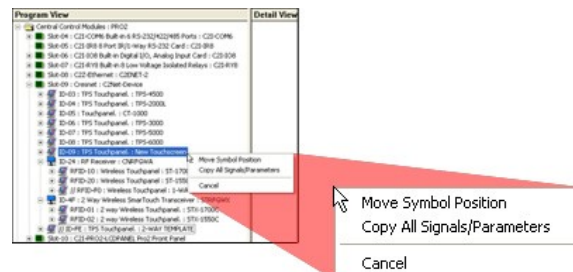
**Figure 4**

7. Select the new touch screen in Program View and press **F9** on your keyboard to begin a **Search and Replace**.
8. Search for **Panel_TEMP** and replace it with the suffix you decided to use above.
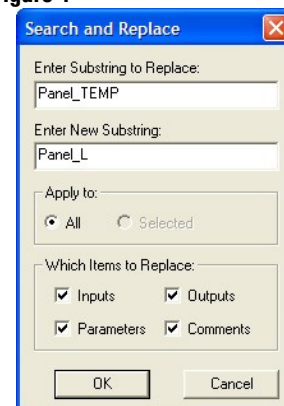
*The next step is to create the* **Panel Logic** *folder for the new panel.*
9.   Select the **S-1.4.10 : {Panel_TEMP}** subsystem and press **Ctrl-C** on your keyboard.
10.  Select the **S-1.4 : Panel Logic** subsystem and press **Ctrl-V**.
11.  Uncomment the newly copied subsystem.
12.  Select the newly copied subsystem and press **F9** on your keyboard.
13.  Search for **Panel_TEMP** and replace it with the same as in Step 8 on the previous page.
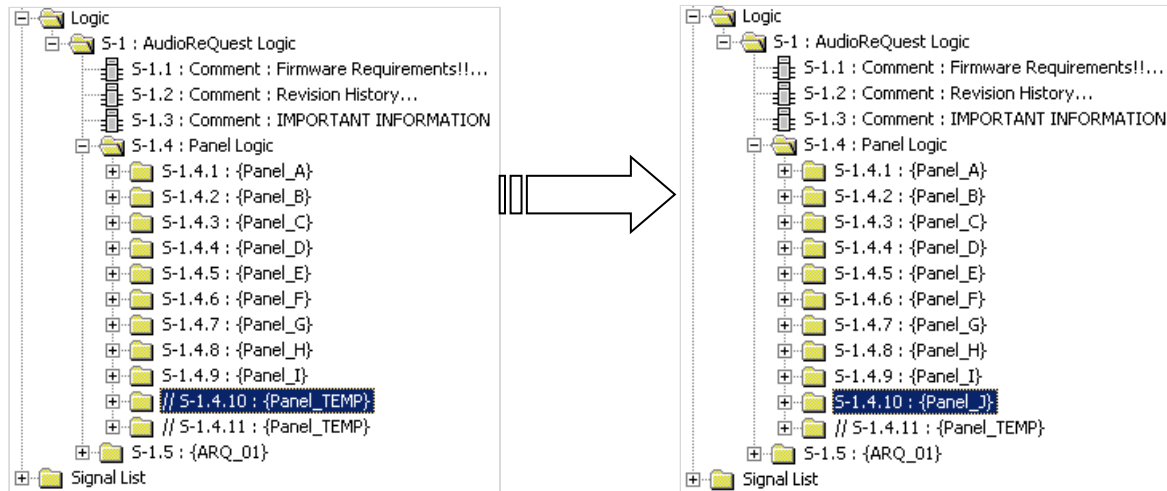


**Figure 5**

*You must also create the* **Panel Specific Logic** *in* **each zone** *for the new panel.*

14.  Select **S-1.5.2.2.10 : {Panel_TEMP}** subsystem and press **Ctrl-C** on your keyboard.
15.  Select **S-1.5.2.2 : Panel Specific Logic for This Zone** subsystem and press **Ctrl-V**.  This will create **S-1.5.2.2.11 : {Panel_TEMP}**.
16.  Uncomment the newly copied subsystem.
17.  Select the newly copied subsystem and press **F9** on your keyboard.
18.  Search for **Panel_TEMP** and replace it with the same as in Step 8 on the previous page.
19.  Repeat steps 14-18 above for ALL remaining **{ZONE_XX}** subsystems.
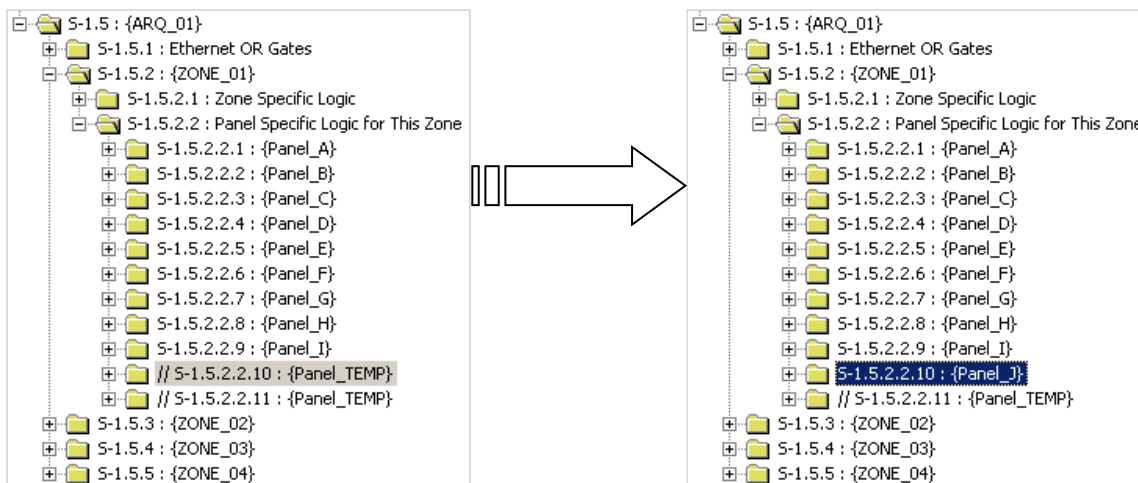


**Figure 6**

## Adding AudioReQuests

The Multi Zone program is designed in such a way that adding more AudioReQuests to the program is as simple as possible.

1. Select the **S-1.5 : {ARQ_01}** subsystem and press **Ctrl-C** on your keyboard.
2. Select the **S-1 : AudioReQuest Logic** folder and press **Ctrl-V** to paste.
3. Select the newly copied subsystem and press **F9** on your keyboard.
4. In the **Search and Replace** dialog box, replace all instances of ARQ_01 with ARQ_02.
   a. If you already have an ARQ_02 folder, use the next available number.
5. Click **OK**.

If you are adding an F4.Series unit (4 Zone box), skip to step 10 below.  Otherwise, continue.

6. Open the **S-1.6.1 : Ethernet OR Gates** subsystem
7. Open all 3 gates into detail view by double clicking on each one.
8. If the unit you are adding is a 2 zone box (F2.Series):
   a. Remove the last 2 input/output pairs on each gate
   b. Comment out the **S-1.6.4 : {ZONE_03}** and **S-1.6.5 : {ZONE_04}** subsystems
9. If the unit you are adding is a 1 zone box (N.Series, Fusion, Nitro, etc):
   a. Remove the last 3 input/output pairs on each gate
   b. Comment out the **S-1.6.3 : {ZONE_02}** through **S-1.6.5 : {ZONE_04}** subsystems
   c. If the unit you are adding is running firmware earlier than 2.1.0:
      i. Open the **S-1.6.2.1.1 : ARQConnect…** module into detail view
      ii. Scroll to the bottom of the module and change the Zone number from 1 to 0

10. If desired, open every **ARQConnect** module and modify the **[ZONE_NAME]** parameter to something more descriptive for your install.

The next step is to add the **ARQ-CONNECT** signal to the Connection Interlock:
11. Open **S-1.4.1.1 : Interlock** into Detail View
12. Select the last line on the input side and press **Alt-'plus'** once for each AudioReQuest Zone you have added to the system (4 times for one F4, 2 times for one F2, etc)
13. Select the last line with a signal name on it and press **Ctrl-C**
14. Select the first empty line and press **Ctrl-V**.  This will copy the ARQ-CONNECT signal to the new line.
15. Change the **ARQ_XX** and **ZONE_XX** numbers appropriately.
16. If the unit you are adding is a F2 or F4, select the remaining lines and press **F4** on the keyboard.  This will copy the signal name to the remaining lines and automatically increment the **ZONE_XX** number.
17. Do the same for the output side of the interlock
18. Repeat the above steps for the interlock in each **Panel_X** folder
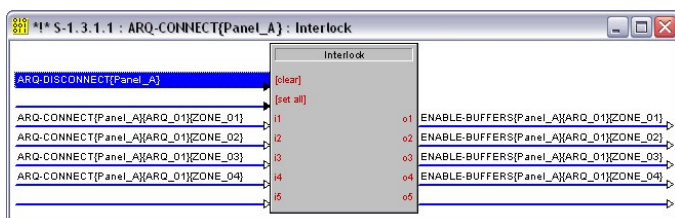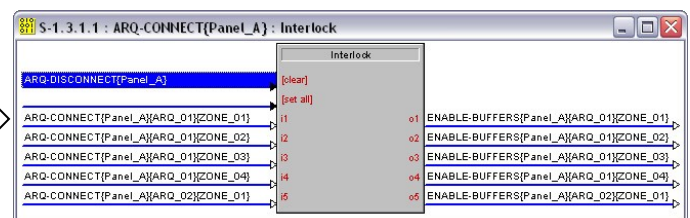


**Figure 8a**                                                                 **Figure 8b**

Next you want to add the **ARQ-CONNECT** signal to the touch panel:

19. Double click on the first touch panel to open that panel in Detail View
20. Select Join 774 and press **Ctrl-C** on your keyboard.
21. Select  the next open join and press **Ctrl-V**.
22. Adjust the **ARQ_XX** and **ZONE_XX** numbers appropriately as in step 15 above.
23. Repeat steps 20-22 for every AudioReQuest Zone you have added above
24. Repeat steps 19-23 for every panel in the system
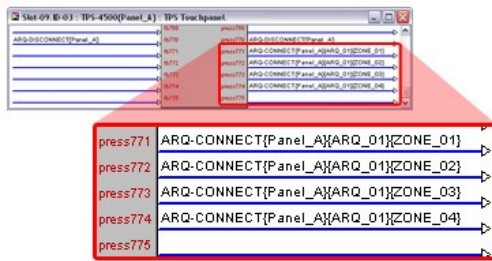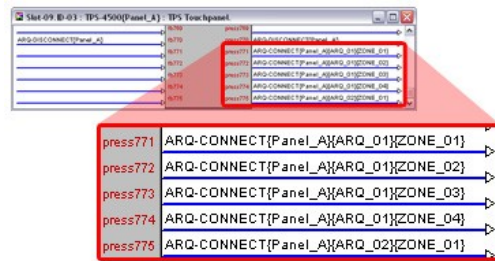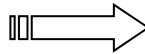


**Figure 9a**                                                    **Figure 9b**

*NOTE:  For each ARQ you add to the program, you must also add corresponding buttons to the VTPro files for your touch screens.*

The final step is to determine how you will control the newly added ARQ devices and connect the signals to/from the module.

## Serial Control
1.   Select an open COM port for each ARQ you have added to the system.
2.   Copy the signals from **Port A** to the new COM port
3.   Modify the signal names, changing **ARQ_01** to **ARQ_***XX*, where *XX* is the number of the AudioReQuest you are adding.
4.   Open the **ARQConnect v7_0_0** module into detail view and make sure the **ARQ-CONNECT{ARQ_***XX***}** signal is connected to the *[START-SERIAL-COMMUNICATIONS]* input.

## Ethernet Control
**NOTE:      There is one TCP/IP client in the system already and is configured for **ARQ_01**.  Use that one first before adding another to the system.  Be sure to modify **ARQ_01** to the ARQ number you need if necessary.*
1.   Switch to Configure View and add a TCP/IP client to your list of Ethernet Units (**Figure 10**).
2.   Edit the TCP/IP client, entering the IP Address of your AudioReQuest (**Figure 11**).
3.   Switch back to Program View.
4.   Copy the signals from the existing TCP/IP client to the newly added TCP/IP client.
5.   Modify the signal names, changing **ARQ_01** to **ARQ_***XX*, where *XX* is the number of the AudioReQuest you are adding.
6.   Open the **ARQConnect v7_0_0** module into detail view and make sure the **ARQ-CONNECT{ARQ_***XX***}** signal is connected to the *[START-ETHERNET-COMMUNICATIONS]* input.
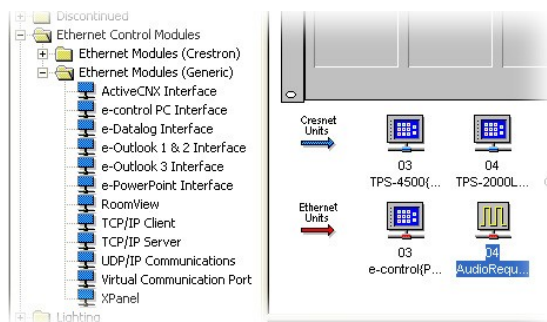


**Figure 10**
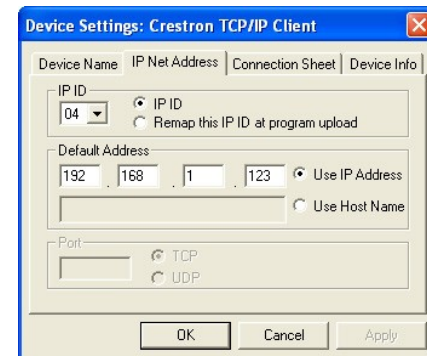


**Figure 11**

# Complete List of Module Inputs and Outputs

* The **FW** column indicates the minimum firmware on the AudioReQuest that supports that command
* If **N/A** appears in the **FW** column, then there are no restrictions
* Brackets ( [ ] ) around a signal name indicates that command is optional and does not need to be driven to compile the program without errors.

## ARQConnect Module – Inputs

| SIGNAL NAME | D/A/S | FW | DESCRIPTION |
|---|---|---|---|
| ARQ-RECEIVE$ | S | N/A | Serial String for feedback.  Connected to RX line of COM Port or TCP/IP Client |
| [START-SERIAL-COMMUNICATIONS] | D | N/A | Initializes serial feedback.  The ARQ will NOT send feedback unless this input is pulsed |
| [START-ETHERNET-COMMUNICATIONS] | D | N/A | Initializes an Ethernet connection and turns on feedback.  The ARQ will NOT send feedback unless this signal is pulsed. |
| [ETHERNET-STATUS] | A | N/A | Connected to analog status output from the TCP/IP client |
| [ETHERNET-CONNECT-FB] | D | N/A | Connected to the **Connect-F** output of the TCP/IP client |
| [STOP-COMMUNICATIONS] | D | N/A | Used mainly in Multizone connection.  Should be pulsed when returning from ARQ pages back to the source page |
| [REFRESH] | D | 1.9.0 | Refreshes all Digital, Analog, and Serial feedback |
| [POWER-ON] | D | N/A | Turns ON the AudioReQuest from a Soft Power OFF state |
| [POWER-OFF] | D | N/A | Soft Powers OFF the AudioReQuest |
| [CURSOR-UP] | D | N/A | Acts as cursor up on the Browse page<br>Acts as previous song on the Player page |
| [CURSOR-DOWN] | D | N/A | Acts as cursor down on the Browse page<br>Acts as next song on the Player page |
| [CURSOR-LEFT] | D | N/A | Acts as cursor left on the Browse page<br>Acts as rewind on the Player page |
| [CURSOR-RIGHT] | D | N/A | Acts as cursor right on the Browse page<br>Acts as fast forward on the Player page |
| [GOTO-HOME] | D | N/A | Brings the cursor back to the uppermost level of the Browse page |
| [GOTO-CD] | D | N/A | Browses to the CD Track List |
| [GOTO-ALL-SONGS] | D | N/A | Browses to the All Songs list |
| [GOTO-ARTIST] | D | N/A | Browses to the Artists list |
| [GOTO-ALBUM] | D | N/A | Browses to the Albums list |
| [GOTO-PLAYLISTS] | D | N/A | Browses to the list of user Playlists |
| [GOTO-GENRES] | D | 1.7.52 | Browses to the list of Genres |
| [GOTO-COMPOSERS] | D | 4.6.0 | Browses to the list of Composers *(Classical mode required)* |
| [GOTO-CONDUCTORS] | D | 4.6.0 | Browses to the list of Conductors *(Classical mode required)* |
| [GOTO-PERFORMANCES] | D | 4.6.0 | Browses to the list of Performances *(Classical mode required)* |
| [GOTO-ORCHESTRAS] | D | 4.6.0 | Browses to the list of Orchestras *(Classical mode required)* |
| [GOTO-NOWPLAYING] | D | N/A | Browses to the Now Playing list |
| [NAV-JUMP-UP] | D | N/A | Moves the cursor up 1 page at a time on the Browse page. |
| [NAV-JUMP-DOWN] | D | N/A | Moves the cursor down 1 page at a time on the Browse page. |
| [NAV-MOVE-LEFT] | D | N/A | Moves the cursor back 1 page at a time on the Browse page. |
| [JUMP-UP-4] | D | 1.9.0 | Moves the cursor up 4 lines at a time on the Browse page |
| [JUMP-DOWN-4] | D | 1.9.0 | Moves the cursor down 4 lines at a time on the Browse page |
| [JUMP-UP-5] | D | 1.9.0 | Moves the cursor up 5 lines at a time on the Browse page |
| [JUMP-DOWN-5] | D | 1.9.0 | Moves the cursor down 5 lines at a time on the Browse page |
| [JUMP-UP-6] | D | 1.9.0 | Moves the cursor up 6 lines at a time on the Browse page |
| [JUMP-DOWN-6] | D | 1.9.0 | Moves the cursor down 6 lines at a time on the Browse page |
| [JUMP-UP-7] | D | 1.9.0 | Moves the cursor up 7 lines at a time on the Browse page |
| [JUMP-DOWN-7] | D | 1.9.0 | Moves the cursor down 7 lines at a time on the Browse page |
| [JUMP-UP-8] | D | 1.9.0 | Moves the cursor up 8 lines at a time on the Browse page |
| [JUMP-DOWN-8] | D | 1.9.0 | Moves the cursor down 8 lines at a time on the Browse page |
| [GOTO-TOP-OF-LIST] | D | 1.9.0 | Browses to the top of the current list on the Browse page |
| [GOTO-BOTTOM-OF-LIST] | D | 1.9.0 | Browses to the bottom of the current list on the Browse page |
| [PLAY-NOW] | D | 1.8.1 | Plays the currently highlighted item on the Browse page |
| [PLAY-NEXT] | D | 4.6.0 | Inserts the selected item into the queue immediately after the current track |
| [QUEUE] | D | N/A | Queues the currently highlighted item to the end of the Now Playing list |
| [DISCRETE-PLAY] | D | N/A | Begins music playback if the ARQ is in the Stopped or Paused state |
| [PLAY/PAUSE-TOGGLE] | D | N/A | Toggles music playback between Pause and Play |
| [PAUSE-TOGGLE] | D | N/A | Toggles Pause ON/OFF |
| [STOP] | D | N/A | Stops music playback |
| [DISCRETE-PAUSE] | D | N/A | Pauses music playback |
| [DISCRETE-UNPAUSE] | D | N/A | Unpauses music playback |
| [DISCRETE-FAST-FORWARD] | D | N/A | Jump ahead 5 seconds in the current track..  This will repeat if held high |
| [DISCRETE-REWIND] | D | N/A | Jump back 5 seconds in the current track.  This will repeat if held high |
| [PREVIOUS-TRACK] | D | N/A | Plays the previous track in the Now Playing queue |
| [NEXT-TRACK] | D | N/A | Plays the next track in the Now Playing queue |
| [SHUFFLE-TOGGLE] | D | N/A | Toggles Shuffle ON/OFF (reorders the Now Playing list) |
| [REPEAT-TOGGLE] | D | N/A | Toggles Repeat ON/OFF (repeats the current play queue) |

| Command | Type | Version | Description |
|---|---|---|---|
| [CONTINUOUS-TOGGLE] | D | N/A | Toggles Continuous ON/OFF (Continues playback to the next alphabetical list when the current list is finished) |
| [REPEAT-CONT-OFF-TOGGLE] | D | N/A | Cycles between Repeat, Continuous, or neither |
| [RANDOM-TOGGLE] | D | N/A | Toggles Random mode ON/OFF (plays a completely random song off the entire system) |
| [DISCRETE-CONTINUOUS-ON] | D | N/A | Turns ON Continuous Mode |
| [DISCRETE-CONTINUOUS-OFF] | D | N/A | Turns OFF Continuous Mode |
| [DISCRETE-SHUFFLE-ON] | D | N/A | Turns ON Shuffle |
| [DISCRETE-SHUFFLE-OFF] | D | N/A | Turns OFF Shuffle |
| [DISCRETE-REPEAT-ON] | D | N/A | Turns ON Repeat |
| [DISCRETE-REPEAT-OFF] | D | N/A | Turns OFF Repeat |
| [DISCRETE-RANDOM-IN] | D | N/A | Turns ON Random Mode |
| [DISCRETE-RANDOM-OUT] | D | N/A | Turns OFF Random Mode |
| [SEEK-VALUE] | A | 1.8.1 | Contains a number between 0 and 65535, depending on where the Progress Bar is pressed |
| [BEGIN-SEARCH] | D | 1.8.1 | Always puts the ARQ into search mode, rather than toggling |
| [CANCEL-SEARCH] | D | 1.8.1 | Cancels search mode |
| [TOGGLE-SEARCH] | D | 1.8.1 | Toggles search mode ON/OFF |
| [RESTART-SEARCH] | D | 1.8.1 | Clears the search string and restarts the search |
| [SEARCH-NEXT-MATCH] | D | 1.8.1 | Finds the next match for the current search |
| [SEARCH-SONGS] | D | 1.8.1 | Begins a search for All Songs |
| [SEARCH-ARTISTS] | D | 1.8.1 | Begins a search for Artists |
| [SEARCH-ALBUMS] | D | 1.8.1 | Begins a search for Albums |
| [SEARCH-GENRES] | D | 1.8.1 | Begins a search for Genres |
| [SEARCH-COMPOSERS] | D | 4.6.0 | Begins a search for Composers *(Classical mode required)* |
| [SEARCH-CONDUCTORS] | D | 4.6.0 | Begins a search for Conductors *(Classical mode required)* |
| [SEARCH-PERFORMANCES] | D | 4.6.0 | Begins a search for Performances *(Classical mode required)* |
| [SEARCH-ORCHESTRAS] | D | 4.6.0 | Begins a search for Orchestras *(Classical mode required)* |
| [KEYBOARD-CHAR] | D | N/A | Takes CHARACTER_PASSTHROUGH output from Keyboard Handler Module |
| [BACKSPACE] | D | N/A | Takes BACKSPACE_PASSTHROUGH output from Keyboard Handler Module |
| [VOLUME-UP] | D | N/A | Increases the Volume of the Analog Output |
| [VOLUME-DOWN] | D | N/A | Decreases the Volume of the Analog Output |
| [MUTE] | D | N/A | Mute the analog output (does not affect digital) |
| [UNMUTE] | D | N/A | Unmute the analog output (does not affect digital) |
| [VOLUME-LEVEL-IN] | D | N/A | Set the volume level (0 – 65535d from a slider) |
| [SAVE-TO-PLAYLIST-BROWSE] | D | 4.6.0 | Prepares the module to save the currently selected item in the Browse page to a playlist |
| [SAVE-CUR-TRACK-TO-PLAYLIST] | D | 4.6.0 | Prepares the module to save the current track to a playlist |
| [SAVE-NOW-PLAYING-TO-PLAYLIST] | D | 4.6.0 | Prepares the module to save the now playing queue to a playlist |
| [GET-PLAYLISTS] | D | 4.6.0 | Retrieves the list of playlists (does not browse to playlists, unlike GOTO-PLAYLISTS) |
| [GET-NEXT-PLAYLISTS] | D | 4.6.0 | Retrieves the next 6 playlists |
| [GET-PREVIOUS-PLAYLISTS] | D | 4.6.0 | Retrieves the previous 6 playlists |
| [NEW-PLAYLIST-NAME] | S | 4.6.0 | Takes STRING_FB output from the Keyboard Handler Module |
| [SAVE-NEW-PLAYLIST] | D | 4.6.0 | Saves the previously selected item to a playlist named using NEW-PLAYLIST-NAME |
| [CLEAR-NOW-PLAYING] | D | N/A | Empties the now playing queue |
| [GOTO-BROWSE] | D | N/A | Flips the ARQ to the Navigator page |
| [GOTO-PLAYER] | D | N/A | Flips the ARQ to the Player page |
| [NEXT-GENRE] | D | 1.8.1 | Plays songs under the next genre, alphabetically |
| [PREV-GENRE] | D | 1.8.1 | Plays songs under the previous genre, alphabetically |
| [NEXT-PLAYLIST] | D | N/A | Plays songs under the next Playlist, numerically |
| [PREV-PLAYLIST] | D | N/A | Plays songs under the previous Playlist, numerically |
| [NEXT-ALBUM] | D | 1.8.1 | Plays songs under the next album, alphabetically |
| [PREV-ALBUM] | D | 1.8.1 | Plays songs under the previous album, alphabetically |
| [NEXT-ARTIST] | D | 1.8.1 | Plays songs under the next artist, alphabetically |
| [PREV-ARTIST] | D | 1.8.1 | Plays songs under the previous artist, alphabetically *(Classical mode required)* |
| [NEXT-COMPOSER] | D | 4.6.0 | Plays songs under the next composer, alphabetically *(Classical mode required)* |
| [PREV-COMPOSER] | D | 4.6.0 | Plays songs under the previous composer, alphabetically *(Classical mode required)* |
| [NEXT-CONDUCTOR] | D | 4.6.0 | Plays songs under the next conductor, alphabetically *(Classical mode required)* |
| [PREV-CONDUCTOR] | D | 4.6.0 | Plays songs under the previous conductor, alphabetically *(Classical mode required)* |
| [NEXT-ORCHESTRA] | D | 4.6.0 | Plays songs under the next orchestra, alphabetically *(Classical mode required)* |
| [PREV-ORCHESTRA] | D | 4.6.0 | Plays songs under the previous orchestra, alphabetically *(Classical mode required)* |
| [NEXT-PERFORMANCE] | D | 4.6.0 | Plays songs under the next performance, alphabetically *(Classical mode required)* |
| [PREV-PERFORMANCE] | D | 4.6.0 | Plays songs under the previous performance, alphabetically *(Classical mode required)* |
| [PLAY-PLAYLIST-1] | D | N/A | Plays songs on Playlist #1 |
| [PLAY-PLAYLIST-2] | D | N/A | Plays songs on Playlist #2 |
| [PLAY-PLAYLIST-3] | D | N/A | Plays songs on Playlist #3 |
| [PLAY-PLAYLIST-4] | D | N/A | Plays songs on Playlist #4 |
| [PLAY-PLAYLIST-5] | D | N/A | Plays songs on Playlist #5 |
| [PLAY-PLAYLIST-6] | D | N/A | Plays songs on Playlist #6 |
| [PLAY-PLAYLIST-7] | D | N/A | Plays songs on Playlist #7 |
| [PLAY-PLAYLIST-8] | D | N/A | Plays songs on Playlist #8 |
| [PLAY-PLAYLIST-9] | D | N/A | Plays songs on Playlist #9 |
| [PLAY-PLAYLIST-10] | D | N/A | Plays songs on Playlist #10 |
| [GOTO-CURRENT-GENRE] | D | 1.9.0 | Browses to the currently playing song's Genre |
| [GOTO-CURRENT-PLAYLIST] | D | 1.9.0 | Browses to the currently playing song's Playlist |
| [GOTO-CURRENT-SONG] | D | 1.9.0 | Browses to the currently playing song in All Songs |
| [GOTO-CURRENT-ARTIST] | D | 1.9.0 | Browses to the currently playing song's Artist |

| | | | |
|---|---|---|---|
| [GOTO-CURRENT-ALBUM] | D | 1.9.0 | Browses to the currently playing song's Album |
| [BROWSE-PRESS-LINE-1] | D | N/A | Moves to Line 1 on the Browse page.  Issues Enter command if cursor is on this line OR if LINE-PRESS-MODE module parameter is set to **single** |
| [BROWSE-PRESS-LINE-2] | D | N/A | Same as above for line 2 |
| [BROWSE-PRESS-LINE-3] | D | N/A | Same as above for line 3 |
| [BROWSE-PRESS-LINE-4] | D | N/A | Same as above for line 4 |
| [BROWSE-PRESS-LINE-5] | D | N/A | Same as above for line 5 |
| [BROWSE-PRESS-LINE-6] | D | N/A | Same as above for line 6 |
| [BROWSE-PRESS-LINE-7] | D | N/A | Same as above for line 7 |
| [BROWSE-PRESS-LINE-8] | D | N/A | Same as above for line 8 |
| [BROWSE-PRESS-MORE-LINE-1] | D | N/A | Displays Browse Popup.  Tells module to retrieve the ID for Line 1 |
| [BROWSE-PRESS-MORE-LINE-2] | D | N/A | Displays Browse Popup.  Tells module to retrieve the ID for Line 2 |
| [BROWSE-PRESS-MORE-LINE-3] | D | N/A | Displays Browse Popup.  Tells module to retrieve the ID for Line 3 |
| [BROWSE-PRESS-MORE-LINE-4] | D | N/A | Displays Browse Popup.  Tells module to retrieve the ID for Line 4 |
| [BROWSE-PRESS-MORE-LINE-5] | D | N/A | Displays Browse Popup.  Tells module to retrieve the ID for Line 5 |
| [BROWSE-PRESS-MORE-LINE-6] | D | N/A | Displays Browse Popup.  Tells module to retrieve the ID for Line 6 |
| [BROWSE-PRESS-MORE-LINE-7] | D | N/A | Displays Browse Popup.  Tells module to retrieve the ID for Line 7 |
| [BROWSE-PRESS-MORE-LINE-8] | D | N/A | Displays Browse Popup.  Tells module to retrieve the ID for Line 8 |
| [SELECT-PLAYLIST-LINE-1] | D | 4.6.0 | Saves previously selected item to the playlist on line 1 |
| [SELECT-PLAYLIST-LINE-2] | D | 4.6.0 | Saves previously selected item to the playlist on line 2 |
| [SELECT-PLAYLIST-LINE-3] | D | 4.6.0 | Saves previously selected item to the playlist on line 3 |
| [SELECT-PLAYLIST-LINE-4] | D | 4.6.0 | Saves previously selected item to the playlist on line 4 |
| [SELECT-PLAYLIST-LINE-5] | D | 4.6.0 | Saves previously selected item to the playlist on line 5 |
| [SELECT-PLAYLIST-LINE-6] | D | 4.6.0 | Saves previously selected item to the playlist on line 6 |
| [SELECT-PLAYLIST-LINE-7] | D | 4.6.0 | Saves previously selected item to the playlist on line 7 |
| [SELECT-PLAYLIST-LINE-8] | D | 4.6.0 | Saves previously selected item to the playlist on line 8 |
| [BROWSE-SCROLLBAR-VALUE] | A | 4.6.0 | Jump to a particular point in a browse list (0 – 65535d from a slider) |

**The Double Press means that to "drill-into" an item on the Browse page, the line needs to be pressed twice

## ARQConnect Module – Outputs

| SIGNAL NAME | D/A/S | FW | DESCRIPTION |
|---|---|---|---|
| ARQ-TRANSMIT$ | S | N/A | Serial string for transmitting commands to the ARQ.  Connected to the TX input of the COM port or TCP/IP Client |
| [TCP/IP-CLIENT-CONNECT] | D | N/A | Controls the TCP/IP connection to the ARQ. |
| [PAGE-STATE-ID] | A | N/A | Analog value for the server's current page.  This is used by the Touchpanel Controller module if you wish to have the Crestron panel follow the state of the server |
| [BROWSE-LEVEL] | A | N/A | This should be connected to the Touchpanel Controller and is used to determine when to show the Browse Options page rather than the standard Browse page. |
| [REPEAT-FB] | D | N/A | Repeat Flag.  High if Repeat is ON |
| [SHUFFLE-FB] | D | N/A | Shuffle Flag.  High if Shuffle is ON |
| [CONTINUOUS-FB] | D | N/A | Continuous Flag.  High if Continuous Mode is ON |
| [RANDOM-FB] | D | N/A | Random Flag.  High if Random Mode is ON |
| [STOP-FB] | D | N/A | Stop Flag.  High if music is Stopped |
| [PLAY-FB] | D | N/A | Play Flag.  High if music is Playing |
| [PAUSE-FB] | D | N/A | Pause Flag.  High if music is Paused |
| [BROWSE-LINE-1-FB] | D | N/A | Line 1 flag.  High if the cursor is on Line 1 |
| [BROWSE-LINE-2-FB] | D | N/A | Line 2 flag.  High if the cursor is on Line 2 |
| [BROWSE-LINE-3-FB] | D | N/A | Line 3 flag.  High if the cursor is on Line 3 |
| [BROWSE-LINE-4-FB] | D | N/A | Line 4 flag.  High if the cursor is on Line 4 |
| [BROWSE-LINE-5-FB] | D | N/A | Line 5 flag.  High if the cursor is on Line 5 |
| [BROWSE-LINE-6-FB] | D | N/A | Line 6 flag.  High if the cursor is on Line 6 |
| [BROWSE-LINE-7-FB] | D | N/A | Line 7 flag.  High if the cursor is on Line 7 |
| [BROWSE-LINE-8-FB] | D | N/A | Line 8 flag.  High if the cursor is on Line 8 |
| [BROWSE-LINE-1-ENABLED] | D | N/A | High if there is text on Line 1, Low if Line 1 is blank.  Used for hiding blank lines on the TP. |
| [BROWSE-LINE-2-ENABLED] | D | N/A | High if there is text on Line 2, Low if Line 2 is blank.  Used for hiding blank lines on the TP. |
| [BROWSE-LINE-3-ENABLED] | D | N/A | High if there is text on Line 3, Low if Line 3 is blank.  Used for hiding blank lines on the TP. |
| [BROWSE-LINE-4-ENABLED] | D | N/A | High if there is text on Line 4, Low if Line 4 is blank.  Used for hiding blank lines on the TP. |
| [BROWSE-LINE-5-ENABLED] | D | N/A | High if there is text on Line 5, Low if Line 5 is blank.  Used for hiding blank lines on the TP. |
| [BROWSE-LINE-6-ENABLED] | D | N/A | High if there is text on Line 6, Low if Line 6 is blank.  Used for hiding blank lines on the TP. |
| [BROWSE-LINE-7-ENABLED] | D | N/A | High if there is text on Line 7, Low if Line 7 is blank.  Used for hiding blank lines on the TP. |
| [BROWSE-LINE-8-ENABLED] | D | N/A | High if there is text on Line 8, Low if Line 8 is blank.  Used for hiding blank lines on the TP. |
| [BROWSE-WINDOW-TITLE$] | S | N/A | Title above the Navigator list |
| [BROWSE-LINE-1$] | S | N/A | Text on Line 1 of the Browse page |
| [BROWSE-LINE-2$] | S | N/A | Text on Line 2 of the Browse page |
| [BROWSE-LINE-3$] | S | N/A | Text on Line 3 of the Browse page |
| [BROWSE-LINE-4$] | S | N/A | Text on Line 4 of the Browse page |
| [BROWSE-LINE-5$] | S | N/A | Text on Line 5 of the Browse page |
| [BROWSE-LINE-6$] | S | N/A | Text on Line 6 of the Browse page |
| [BROWSE-LINE-7$] | S | N/A | Text on Line 7 of the Browse page |
| [BROWSE-LINE-8$] | S | N/A | Text on Line 8 of the Browse page |
| [PLAYLIST-LINE-1$] | S | 4.6.0 | Text on Line 1 of the Playlists page |
| [PLAYLIST-LINE-2$] | S | 4.6.0 | Text on Line 2 of the Playlists page |
| [PLAYLIST-LINE-3$] | S | 4.6.0 | Text on Line 3 of the Playlists page |
| [PLAYLIST-LINE-4$] | S | 4.6.0 | Text on Line 4 of the Playlists page |
| [PLAYLIST-LINE-5$] | S | 4.6.0 | Text on Line 5 of the Playlists page |
| [PLAYLIST-LINE-6$] | S | 4.6.0 | Text on Line 6 of the Playlists page |
| [EXT-NAV-ARTIST$] | S | 1.9.0 | Contains the Artist of the currently highlighted item on the Browse page |
| [EXT-NAV-ALBUM$] | S | 1.9.0 | Contains the Album of the currently highlighted item on the Browse page |
| [EXT-NAV-GENRE$] | S | 1.9.0 | Contains the Genre of the currently highlighted item on the Browse page |
| [EXT-NAV-PLAYLIST$] | S | 1.9.0 | Contains the Playlist of the currently highlighted item on the Browse page |
| [EXT-NAV-TOTAL-ITEMS$] | S | 1.9.0 | Contains the number of items in the currently highlighted list on the Browse page |
| [EXT-NAV-TOTAL-TIME$] | S | 1.9.0 | Contains the total time of the currently highlighted item on the Browse page |
| [PLAYER-SONG-TITLE$] | S | N/A | Contains the Title of the current song |
| [PLAYER-ARTIST$] | S | N/A | Contains the Artist of the current song |
| [PLAYER-ALBUM$] | S | N/A | Contains the Album of the current song |
| [PLAYER-PLAYLIST$] | S | N/A | Contains the Playlist of the current song |
| [PLAYER-GENRE$] | S | 1.9.0 | Contains the Genre of the current song |
| [PLAYER-COMPOSER$] | S | 4.6.0 | Contains the Composer of the current song *(Classical mode required)* |
| [PLAYER-CONDUCTOR$] | S | 4.6.0 | Contains the Conductor of the current song *(Classical mode required)* |
| [PLAYER-PERFORMANCE$] | S | 4.6.0 | Contains the Performance of the current song *(Classical mode required)* |
| [PLAYER-ORCHESTRA$] | S | 4.6.0 | Contains the Orchestra of the current song *(Classical mode required)* |
| [PLAYER-NEXT-TITLE$] | S | N/A | Contains the Title of the next song |
| [PLAYER-NEXT-ARTIST$] | S | 1.9.0 | Contains the Artist of the next song |
| [PLAYER-NEXT-ALBUM$] | S | 1.9.0 | Contains the Album of the next song |
| [PLAYER-NEXT-GENRE$] | S | 1.9.0 | Contains the Genre of the next song |
| [PLAYER-TOTAL-TIME$] | S | N/A | Contains the Total Time of the current song |
| [PLAYER-ELAPSED-TIME$] | S | N/A | Contains the Elapsed time of the current song |
| [PLAYER-REMAINING-TIME$] | S | N/A | Contains the Remaining time of the current song |
| [PLAYER-TRACK-NUMBER$] | S | 1.9.0 | Contains the current Track Number |
| [PLAYER-TOTAL-TRACKS$] | S | 1.9.0 | Contains the total number of tracks in the Now Playing queue |
| [PLAYER-TRACK-X-OF-Y$] | S | 1.9.0 | A string containing the current track and the total tracks joined by " of " (ex: "2 of 10") |
| [PLAYER-SONG-PROGRESS] | A | N/A | Contains the progress of the currently playing song.  Used for the Progress Bar |

| SIGNAL NAME | D/A/S | FW | DESCRIPTION |
|---|---|---|---|
| [SEARCH-STRING-OUT$] | S | 1.8.1 | Contains the string being searched for |
| [SEARCH-MODE-FB] | D | 1.8.1 | Flag is high if the ARQ is in Extended Search mode |
| [PLAY-NOW-AN-FB] | A | 1.8.1 | Contains a value between 0 and 5, and should be tied to the analog value of the Play Now and Queue multi-state buttons. |
| [ZONE-NUMBER-ANALOG] | A | N/A | Contains the analog value of the **ZONE-NUMBER** parameter |
| [ZONE-NAME-STRING$] | S | N/A | Contains the name of the zone provided by the **[ZONE-NAME]** parameter |
| [UP-ARROW-FB] | D | N/A | Flag is high if the ARQ is in Intro mode |
| [DOWN-ARROW-FB] | D | 1.8.1 | Flag is high if there are more lines above line 1 on the Browse page |
| [TIMED-DIALOG-FLAG] | D | 1.9.0 | Flag is high when a timed dialog is being displayed on the ARQ |
| [TIMED-DIALOG-HEADER$] | S | 1.9.0 | Contains the title of the timed dialog |
| [TIMED-DIALOG-MESSAGE$] | S | 1.9.0 | Contains the text in the timed dialog box |
| [PLAYER-COVER-FULL] | S | 2.1.0 | String containing the URL to the Large Player image |
| [PLAYER-COVER-THUMB] | S | 2.1.0 | String containing the URL to the Small Player image |
| [BROWSE-COVER-FULL] | S | 2.1.0 | String containing the URL to the Large Browse image |
| [BROWSE-COVER-THUMB] | S | 2.1.0 | String containing the URL to the Small Browse image |
| [BROWSE-COVER-LINE-1] | S | 4.6.0 | String containing the URL to the image for Browse Line 1 |
| [BROWSE-COVER-LINE-2] | S | 4.6.0 | String containing the URL to the image for Browse Line 2 |
| [BROWSE-COVER-LINE-3] | S | 4.6.0 | String containing the URL to the image for Browse Line 3 |
| [BROWSE-COVER-LINE-4] | S | 4.6.0 | String containing the URL to the image for Browse Line 4 |
| [BROWSE-COVER-LINE-5] | S | 4.6.0 | String containing the URL to the image for Browse Line 5 |
| [BROWSE-COVER-LINE-6] | S | 4.6.0 | String containing the URL to the image for Browse Line 6 |
| [BROWSE-COVER-LINE-7] | S | 4.6.0 | String containing the URL to the image for Browse Line 7 |
| [BROWSE-COVER-LINE-8] | S | 4.6.0 | String containing the URL to the image for Browse Line 8 |
| [BROWSE-FULL-WINDOW-TITLE$] | S | 4.6.0 | Full Browse breadcrumb string (Artists > Miles Davis > Kind of Blue) |
| [BROWSE-NUM-LINES] | A | 4.6.0 | Number of lines in the current Browse list |
| [BROWSE-OFFSET] | A | 4.6.0 | Offset in the current Browse list (i.e. which line is displayed on line 1) |
| [BROWSE-SCROLL-PROGRESS] | A | 4.6.0 | Analog value used to drive Browse scrollbar |
| [VOLUME-LEVEL] | A | 1.9.0 | Analog value from 0 to 65535(range of values accepted from a slider) indicating the volume level of the Analog audio output |

## ARQConnect Module – Parameters

| SIGNAL NAME | D/A/S | FW | DESCRIPTION |
|---|---|---|---|
| ZONE-NUMBER | A | N/A | The number that signifies which zone this module is talking to.  For Multi Zone units (F.Series), this number should be 1-4.  For Single zone units running firmware 2.1.0 or higher, this number should be 1.  For all other units, this number should be 0. |
| [ZONE-NAME] | S | N/A | Optional parameter that allows you to name a zone.  This name will appear in the [ZONE-NAME-STRING$] output from the module |
| LINE-PRESS-MODE(double/single) | S | N/A | Tells the module how to handle Line Presses.  "double" means move the cursor to the line pressed.  If the cursor is already on the selected line, issue an ENTER command.  "single" means issue an ENTER command on the line, regardless of where the cursor is. |
| [IP_ADDRESS] | S | N/A | The IP address of the AudioReQuest (used for retrieving cover art images) |
| [WEB-PORT] | A | N/A | The Web Port of the AudioReQuest (used for retrieving cover art images).  Default is 80d |
| [ENABLE-BROWSE-LINE-ART] | D | N/A | Set this value to 1 to enable browse line art, 0 to disable. |
| [NAV-COVERART-MODE] | A | N/A | Set this value to 0 to disable Browse Cover Art for the selected line (does not affect Browse images per line from the Basic module)<br>Set this value to 1 to use full size cover art images<br>Set this value to 2 to use thumbnail size cover art images |
| [PLAYER-COVERART-MODE] | A | N/A | Set this value to 0 to disable Player Cover Art<br>Set this value to 1 to use full size cover art images<br>Set this value to 2 to use thumbnail size cover art images |

## Touchpanel Controller Module – Inputs

| SIGNAL NAME | D/A/S | FW | DESCRIPTION |
|---|---|---|---|
| [BROWSE-PRESS-MORE-LINE-1] | D | N/A | Displays the Browse Popup (no command sent to ARQ) |
| [BROWSE-PRESS-MORE-LINE-2] | D | N/A | Displays the Browse Popup (no command sent to ARQ) |
| [BROWSE-PRESS-MORE-LINE-3] | D | N/A | Displays the Browse Popup (no command sent to ARQ) |
| [BROWSE-PRESS-MORE-LINE-4] | D | N/A | Displays the Browse Popup (no command sent to ARQ) |
| [BROWSE-PRESS-MORE-LINE-5] | D | N/A | Displays the Browse Popup (no command sent to ARQ) |
| [BROWSE-PRESS-MORE-LINE-6] | D | N/A | Displays the Browse Popup (no command sent to ARQ) |
| [BROWSE-PRESS-MORE-LINE-7] | D | N/A | Displays the Browse Popup (no command sent to ARQ) |
| [BROWSE-PRESS-MORE-LINE-8] | D | N/A | Displays the Browse Popup (no command sent to ARQ) |
| [PLAY-NOW] | D | N/A | Hides the Browse Popup (no command sent to ARQ) |
| [PLAY-NEXT] | D | N/A | Hides the Browse Popup (no command sent to ARQ) |
| [QUEUE] | D | N/A | Hides the Browse Popup (no command sent to ARQ) |
| [BROWSE-POPUP-HIDE] | D | N/A | Hides the Browse Popup (no command sent to ARQ) |
| [BROWSE-POPUP-ADD-TO-PLAYLIST] | D | N/A | Hides the Browse Popup (no command sent to ARQ) |
| [------BROWSE_OPTIONS_PAGE_LOGIC------] | | | |
| [PANEL-IS-ON-BROWSE] | D | N/A | Connect to the output from the touchpanel for the Browse Page feedback join.  This lets the module know when to flip you to the Browse Options page |
| [SERVER-BROWSE-LEVEL] | A | N/A | Connect to the output from the main module for Server Browse Level.  Lets the module know where you are in the navigation tree.  Used for flipping you to the Browse Options page |
| [------BROWSE_LETTER_JUMP_SUBPAGE_LOGIC------] | | | |
| [SHOW/HIDE-LETTER-JUMP-SUBPAGE] | D | N/A | Toggles the display of the letter jump subpage |
| [------BROWSE_OPTIONS_PAGE_LOGIC------] | | | |
| [PAGE-STATE-ID] | A | N/A | Connect to the page state id output from the main module.  Used for feedback-driven page logic |
| [------LEGACY-SMALL-PANEL-LOGIC------] | | | |
| [SHOW-MAIN-TAB] | D | N/A | For legacy interfaces, replaces program logic.  Shows the Main tab. |
| [SHOW-TRANSPORT-TAB] | D | N/A | For legacy interfaces, replaces program logic.  Shows the Transport tab. |
| [SHOW-QUICKPLAY-TAB] | D | N/A | For legacy interfaces, replaces program logic.  Shows the QuickPlay tab. |
| [SHOW-PLAYLIST-TAB] | D | N/A | For legacy interfaces, replaces program logic.  Shows the Playlist tab. |
| [------LEGACY-LARGE-PANEL-LOGIC------] | | | |
| [SHOW/HIDE-QUICKPLAY-SUBPAGE] | D | N/A | For legacy interfaces, replaces program logic.  Shows the QuickPlay subpage. |
| [SHOW/HIDE-QUEUE-SUBPAGE] | D | N/A | For legacy interfaces, replaces program logic.  Shows the Queue subpage. |

## Touchpanel Controller Module – Outputs

| SIGNAL NAME | D/A/S | FW | DESCRIPTION |
|---|---|---|---|
| [BROWSE-POPUP-FB] | D | N/A | Goes high when any of the Browse Press More Line inputs are pulsed.  Goes low otherwise |
| [SHOW-BROWSE-OPTIONS-PAGE] | D | N/A | If panel is on browse page and browse level is 1 (root), this output will go high, sending the touchpanel to the Browse Options page |
| [LETTER-JUMP-SUBPAGE-FB] | D | N/A | Feedback for showing/hiding the letter jump subpage |
| [ON-PLAYER-PAGE] | D | N/A | Goes high when server is on its Player page.  Used for server-driven page logic. |
| [ON-BROWSE-PAGE] | D | N/A | Goes high when server is on its Browse page.  Used for server-driven page logic. |
| [ON-ENCODER-PAGE] | D | N/A | Goes high when server is encoding a CD.  Used for server-driven page logic. |
| [ON-OTHER-PAGE] | D | N/A | Goes high when server is in a state that is not one of the other 3.  Used for server-driven page logic. |
| [MAIN-TAB-FB] | D | N/A | Goes high when the panel should show the Main Tab (Interlocked with other TAB outputs) |
| [TRANSPORT-TAB-FB] | D | N/A | Goes high when the panel should show the Transport Tab (Interlocked with other TAB outputs) |
| [QUICKPLAY-TAB-FB] | D | N/A | Goes high when the panel should show the QuickPlay Tab (Interlocked with other TAB outputs) |
| [PLAYLIST-TAB-FB] | D | N/A | Goes high when the panel should show the Playlist Tab (Interlocked with other TAB outputs) |
| [QUICKPLAY-SUBPAGE-ON] | D | N/A | Goes high when the panel should show the QuickPlay subpage |
| [QUICKPLAY-SUBPAGE-OFF] | D | N/A | Goes high when the panel should hide the QuickPlay subpage |
| [QUEUE-SUBPAGE-ON] | D | N/A | Goes high when the panel should show the Queue subpage |
| [QUEUE-SUBPAGE-OFF] | D | N/A | Goes high when the panel should hide the Queue subpage |

## Touchpanel Controller Module – Parameters

| SIGNAL NAME | D/A/S | FW | DESCRIPTION |
|---|---|---|---|
| LETTER-JUMP-SUBPAGE-TIMEOUT | D | N/A | Set this to the number of seconds the Letter Jump subpage will be displayed before it is hidden automatically.  Set this value to 0d to disable auto-hide. |

## Keyboard Handler Module – Inputs

| SIGNAL NAME | D/A/S | FW | DESCRIPTION |
|---|---|---|---|
| [SHOW_KEYBOARD] | D | N/A | Show the keyboard (LOWERCASE or UPPERCASE output goes high) |
| [HIDE_KEYBOARD_CANCEL] | D | N/A | Hide the keyboard when Cancel pressed (LOWERCASE and UPPERCASE output goes low) |
| [HIDE_KEYBOARD_ENTER] | D | N/A | Hide the keyboard when Enter/Save pressed (LOWERCASE and UPPERCASE output goes low) |
| [TOGGLE_KEYBOARD] | D | N/A | If keyboard is showing, hide it.  Otherwise, show it |
| [SHIFT_ON] | D | N/A | Turn on SHIFT.  If CAPS is on, keyboard will be in lowercase mode.  Only applies to next character |
| [SHIFT_OFF] | D | N/A | Turn off SHIFT |
| [SHIFT_TOGGLE] | D | N/A | Toggle SHIFT mode |
| [CAPS_LOCK_ON] | D | N/A | Turn on CAPS.  If SHIFT is on, keyboard will be in lowercase mode.  Stays on until disabled |
| [CAPS_LOCK_OFF] | D | N/A | Turn off CAPS |
| [CAPS_LOCK_TOGGLE] | D | N/A | Toggle CAPS mode |
| [SPACE] | D | N/A | Spacebar on the keyboard |
| [BACKSPACE] | D | N/A | Backspace key on the keyboard |
| [LETTER_A] | D | N/A | The Letter 'A' |
| [LETTER_B] | D | N/A | The Letter 'B' |
| [LETTER_C] | D | N/A | The Letter 'C' |
| [LETTER_D] | D | N/A | The Letter 'D' |
| [LETTER_E] | D | N/A | The Letter 'E' |
| [LETTER_F] | D | N/A | The Letter 'F' |
| [LETTER_G] | D | N/A | The Letter 'G' |
| [LETTER_H] | D | N/A | The Letter 'H' |
| [LETTER_I] | D | N/A | The Letter 'I' |
| [LETTER_J] | D | N/A | The Letter 'J' |
| [LETTER_K] | D | N/A | The Letter 'K' |
| [LETTER_L] | D | N/A | The Letter 'L' |
| [LETTER_M] | D | N/A | The Letter 'M' |
| [LETTER_N] | D | N/A | The Letter 'N' |
| [LETTER_O] | D | N/A | The Letter 'O' |
| [LETTER_P] | D | N/A | The Letter 'P' |
| [LETTER_Q] | D | N/A | The Letter 'Q' |
| [LETTER_R] | D | N/A | The Letter 'R' |
| [LETTER_S] | D | N/A | The Letter 'S' |
| [LETTER_T] | D | N/A | The Letter 'T' |
| [LETTER_U] | D | N/A | The Letter 'U' |
| [LETTER_V] | D | N/A | The Letter 'V' |
| [LETTER_W] | D | N/A | The Letter 'W' |
| [LETTER_X] | D | N/A | The Letter 'X' |
| [LETTER_Y] | D | N/A | The Letter 'Y' |
| [LETTER_Z] | D | N/A | The Letter 'Z' |
| [NUMBER_0] | D | N/A | The Number '0' in lowercase, the Symbol '!' in uppercase |
| [NUMBER_1] | D | N/A | The Number '1' in lowercase, the Symbol '@' in uppercase |
| [NUMBER_2] | D | N/A | The Number '2' in lowercase, the Symbol '#' in uppercase |
| [NUMBER_3] | D | N/A | The Number '3' in lowercase, the Symbol '$' in uppercase |
| [NUMBER_4] | D | N/A | The Number '4' in lowercase, the Symbol '%' in uppercase |
| [NUMBER_5] | D | N/A | The Number '5' in lowercase, the Symbol '^' in uppercase |
| [NUMBER_6] | D | N/A | The Number '6' in lowercase, the Symbol '&' in uppercase |
| [NUMBER_7] | D | N/A | The Number '7' in lowercase, the Symbol '*' in uppercase |
| [NUMBER_8] | D | N/A | The Number '8' in lowercase, the Symbol '(' in uppercase |
| [NUMBER_9] | D | N/A | The Number '9' in lowercase, the Symbol ')' in uppercase |
| [SYMBOL_BACKTICK] | D | N/A | The Symbol '`' in lowercase, the Symbol '~' in uppercase |
| [SYMBOL_HYPHEN] | D | N/A | The Symbol '-' in lowercase, the Symbol '_' in uppercase |
| [SYMBOL_EQUALS] | D | N/A | The Symbol '=' in lowercase, the Symbol '+' in uppercase |
| [SYMBOL_OPEN_SQUARE_BRACKET] | D | N/A | The Symbol '[' in lowercase, the Symbol '{' in uppercase |
| [SYMBOL_CLOSE_SQUARE_BRACKET] | D | N/A | The Symbol ']' in lowercase, the Symbol '}' in uppercase |
| [SYMBOL_BACKSLASH] | D | N/A | The Symbol '\' in lowercase, the Symbol '|' in uppercase |
| [SYMBOL_SEMICOLON] | D | N/A | The Symbol ';' in lowercase, the Symbol ':' in uppercase |
| [SYMBOL_SINGLE_QUOTE] | D | N/A | The Symbol ''' in lowercase, the Symbol '"' in uppercase |
| [SYMBOL_COMMA] | D | N/A | The Symbol ',' in lowercase, the Symbol '<' in uppercase |
| [SYMBOL_PERIOD] | D | N/A | The Symbol '.' in lowercase, the Symbol '>' in uppercase |
| [SYMBOL_FRONTSLASH] | D | N/A | The Symbol '/' in lowercase, the Symbol '?' in uppercase |

## Keyboard Handler Module – Outputs

| SIGNAL NAME | D/A/S | FW | DESCRIPTION |
|---|---|---|---|
| [LOWERCASE_FB] | D | N/A | Goes high when keyboard is in Lowercase mode |
| [UPPERCASE_FB] | D | N/A | Goes high when keyboard is in Uppercase mode |
| [SHIFT_FB] | D | N/A | Goes high when SHIFT is enabled |
| [CAPS_LOCK_FB] | D | N/A | Goes high when CAPS LOCK is enabled |
| [STRING_FB] | D | N/A | Contains the full string created using the keyboard |
| [CHARACTER_PASSTHROUGH] | S | N/A | When keyboard is not enabled, passes characters through for use elsewhere (i.e. Search) |
| [BACKSPACE_PASSTHROUGH] | D | N/A | When keyboard is not enabled, passes backspace through for use elsewhere (i.e. Search) |

## Keyboard Handler Module – Parameters

| SIGNAL NAME | D/A/S | FW | DESCRIPTION |
|---|---|---|---|
| [DEFAULT_STRING] | S | N/A | String to default to when keyboard is enabled (only if Reset On Show is set to 1) |
| RESET_ON_SHOW(1/0) | A | N/A | Set to 1d to reset keyboard when enabled (turns off SHIFT and CAPS and uses DEFAULT_STRING) Set to 0d to disable this feature |

# Appendix A: Troubleshooting

## A) Can't establish 1-way serial communication:
1. If connecting serially:
   a) Make sure Serial settings are correct according to the model of AudioReQuest you have. See Page 1 for more info.
   b) Double check to make sure flow control is turned off.
   c) Follow the steps in Appendix B to run HyperTerminal to verify that the ARQ can cable are fine.
   d) If you have an ARQ1 make sure it has a serial port. There were early models that did not have a serial port. Call ReQuest with the hardware version if you are not sure. *(You can find the hardware version in MENU->SYSTEM INFORMATION)*
2. If connecting via Ethernet:
   a) Make sure you set the IP address correctly in the TCP/IP client
   b) Make sure you are pulsing START-ETHERNET-COMMUNICATIONS from the source button
   c) When you upload the program, be sure to send the default IP table
   d) Open Test Manager and verify that the feedback from the TCP/IP client shows that you are connected
3. Check to make sure the AudioReQuest is not encoding or doing any File Transfers.
4. If the AudioReQuest is running firmware earlier than 2.1.0, verify that the Zone Number parameter in the module is set to 0. Otherwise, it will not work.

## B) I have one-way control but I can't get any feedback:
1. Make sure you are not getting any errors when you compile the program. Pay special attention to errors such as "SIMPL Windows Cross Compiler not installed" or "SIMPL Windows can not open *ARQ-Decoder-v7_0_0.usp*". The second of these suggests that the program was not imported correctly. See page 2 for information on importing the program.
2. Make sure you are pulsing the *START-SERIAL-COMMUNICATIONS* or *START-ETHERNET-COMMUNICATIONS* input to the module. This will send the data feedback request to the ARQ. AudioReQuest will not send any data until it is requested. Make *sure* that this is being sent by verifying in Test Manager. The most commonly used data request (used in all demo Crestron programs) is Delimited GUI. Send the following hex numbers and you should see feedback: 33*h*, 47*h*, 63*h*.
3. Follow the steps in Appendix B to run HyperTerminal to verify that the ARQ and cable are fine.
4. Check the firmware version in AudioReQuest. *(You can find the software version in MENU->SYSTEM INFORMATION)* Much of the feedback sent requires firmware version 1.9.0 or higher. *(Software updates can be done either by CDROM or online)*
5. Make sure you have the latest version of the ARQ Crestron Demo Program by going to www.request.com and clicking on Support along the top, then Crestron down the left side.
6. Upload ONLY the ARQ Crestron demo program and demo touch screens available on our web site. This will eliminate any errors made when integrating the AudioReQuest Macro into your Crestron program and will help you determine if the problem is in the programming or the AudioReQuest.

## C)  Getting garbage text or lines not refreshing on Crestron Touch panels:

If you are using an X-Series processor, you are most likely overflowing the buffer (255 Bytes) that goes with the internal serial port.  It is HIGHLY recommended that you use a 2 series processor.  If this is not possible, you may find some improvement by using a CNX-COM2 card.

## D)  The text is being drawn slowly on the touch screens:

If there are a lot of touch panels attached to one control processor then make sure you are using an "Indirect Text Broadcast" to send the serial data out to the touch panels.  This does a broadcast of serial text to all of the touch panels instead of sending each line to each touch panel individually. *\*\*NOTE:  This will not work with more than one AudioReQuest since the join numbers are used for both units.  The only fix in this case is to use different joins for each AudioReQuest and duplicate the pages on the touchpanel.*

## E)  When I go into the ARQ pages on my touch panel nothing happens:

1.      Verify that you are pulsing the START-SERIAL-COMMUNICATIONS signal when you select the ARQ from your source page

2.      Try to navigate on the panel.  Occasionally after a program or touch panel is loaded, the indirect text doesn't update automatically.

# Appendix B:  Using Hyper Terminal:

1. Run **HyperTerminal** from the start menu (**Figure B1**)
   (Start→Programs→Accessories→Communications→HyperTerminal)



**Figure B1 - Start Menu**

2. This will open the *New Connection* dialog box (**Figure B2**).  Enter a name for the connection and click **OK**.  The name is arbitrary.
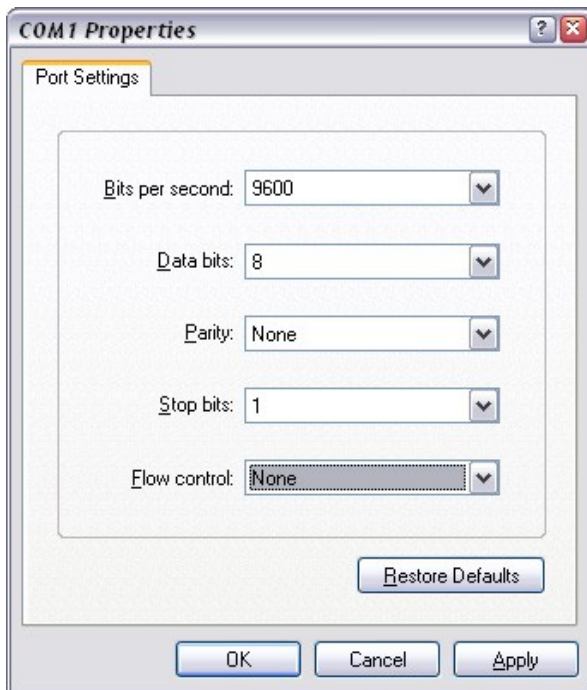


**Figure B2 - New Connection Name**

3. This will open the *Connect To* dialog box. Be sure to select your correct COM port under **Connect using:** (**Figure B3**).
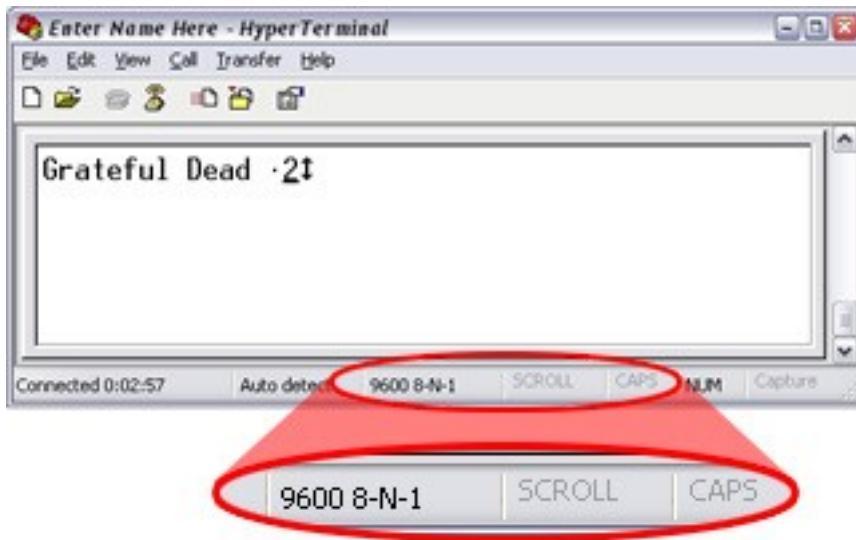

**Figure B3 - Connect To...**

4. This will open the *COMx Properties* dialog box. Be sure to set the settings as shown in **Figure B4** below (9600-8-N-1-No Flow) for any Single Zone box. For F-Series multizone boxes, be sure to use 57600-8-N-1-No Flow.


**Figure B4 - COMx Properties**

5. Once you click **OK**, you will see a blank white window.  It will say **Connected** in the lower left corner, and the time will be increasing.  Before continuing, verify that the connection settings are correct and that neither **Scroll Lock** nor **Caps Lock** is on by looking at the status bar at the bottom of the window (**Figure B5**).

6. Type '3','G','c' into the Hyper Terminal window.  You will not see what you type appearing in the window, but that is normal.  Once you type the 3$^{rd}$ character, you should see information come back from the AudioReQuest (**Figure B5**).  Some words will be recognizable, but some will be garbage.  The main thing is that you got something back.  That means that the cable and AudioReQuest are working fine.



**Figure B5 - Feedback**