

# A<sup>TM</sup> Netlinx Interface Guide

Version 6.0.0

Control of 1 or more AudioReQuest<sup>TM</sup> devices from an AMX Netlinx control system through RS232 or Ethernet





# Table of Contents

Revision History ..... II

Introduction..... 1

    Rear Serial Port Pinout (Male RS-232 Port) ..... 1

    Serial Cable Pinout (Female → Female RS232 cable) ..... 1

    COM Settings ..... 1

Design Changes and New Features ..... 2

    Playlist Creation and Management ..... 2

    Browse Scrollbar ..... 2

    Cover Art per Browse Line ..... 2

    Improvements to the DMS Interface ..... 2

Modifying the Netlinx Program..... 3

    The Master Source File..... 3

    The 'ARQ MAIN v600' Include File ..... 4

    The 'ARQ TP Interface v600' Include File ..... 5

    The 'ARQ DMS Interface v600' Include File ..... 5

Appendix A: Adding AlbumArt to Modero Panels ..... 6

Technical Support..... 7

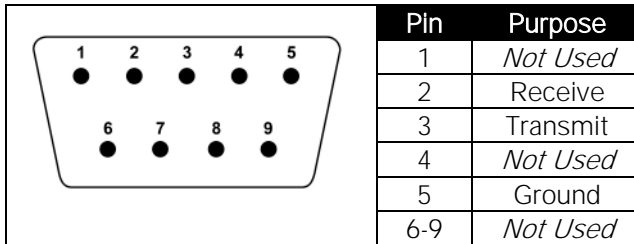
## Revision History

Revision Number	Changes
2.5.0	Initial Version
2.5.1	Minor graphic and layout changes
3.0.1	Complete redesign/rewrite for new program
3.0.2	Updated version numbers to match new program
5.0.0	Updated to support new F.Series line of products Added Disconnect channel to filter unnecessary data
6.0.0	Added new features <ul style="list-style-type: none"> <li>• Browse scroll bar</li> <li>• Full browse breadcrumb string</li> <li>• Cover art per browse line</li> <li>• Playlist creation/management</li> </ul>

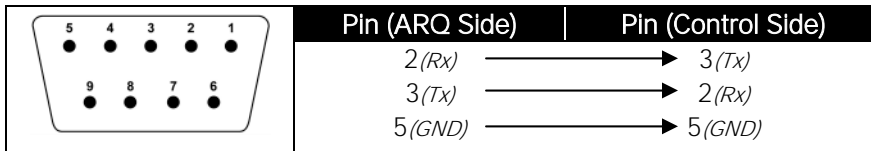
## Introduction

This document explains how to interface all models of AudioReQuest Digital Music Servers with AMX Netlinx control systems using the AudioReQuest AMX Netlinx Demo Program version 6.0.0. 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](http://www.request.com).

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



### Serial Cable Pinout (Female →Female RS232 cable)



## 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



## Design Changes and New Features

ReQuest is constantly improving upon the AMX experience. Below are a few of the new features in the latest version of the program.

### Playlist Creation and Management

It has long been a requested feature to be able to create playlists and add media to playlists from the touch panel. With the latest firmware these features are now available. You can create a playlist from a selection on the browse page or from something that is currently playing. You can also add items to an existing playlist.

### Browse Scrollbar

With the latest version of the AudioReQuest firmware, it is now possible to show a scrollbar to indicate how far down you are in a list. This scrollbar is also clickable so you can quickly jump down in a list to find the music you want. On the AMX Modero panels, this is done using 256 states on a multi-state bargraph with a graphical background and an icon that moves up and down depending on state.

### Cover Art per Browse Line

Another new addition is the ability to show a cover art image for each line on the browse page. In previous versions, you could only get the image for the currently highlighted item. That method is still available, however this new feature expands it to show an image for every line. For information on setting up Album Art on your touchscreen, see [Appendix A](#).

### Improvements to the DMS Interface

With the help of some feedback from users, we have improved the refresh performance on the DMS keypad when searching through your collection. There are now 2 search results pages and the module handles refreshing each one and flipping from one to the other when needed.

## Modifying the Netlinx Program

The following sections describe how to modify the Netlinx code to fit your system.

### The Master Source File

When integrating the AudioReQuest Demo program in an existing program that already has a Master Source file, there are 2 options available:

- 1) Copy everything from the AudioReQuest Master Source file into your Master Source file
- 2) Leave the AudioReQuest Master Source file intact and use a **#INCLUDE** statement to *include* the AudioReQuest code into your program (i.e. **#INCLUDE 'AudioReQuest Demo v6\_0\_0.axs'**).

When using option #2, you **MUST** define the TP and ARQ devices in the AudioReQuest Source file and **NOT** in your Master Source file or you will get compile errors.

Regardless of the method you choose, follow these steps to modify the master source file:

1. From the Workspace, double-click on **AudioReQuest Demo v6\_0\_0** (Figure 1)

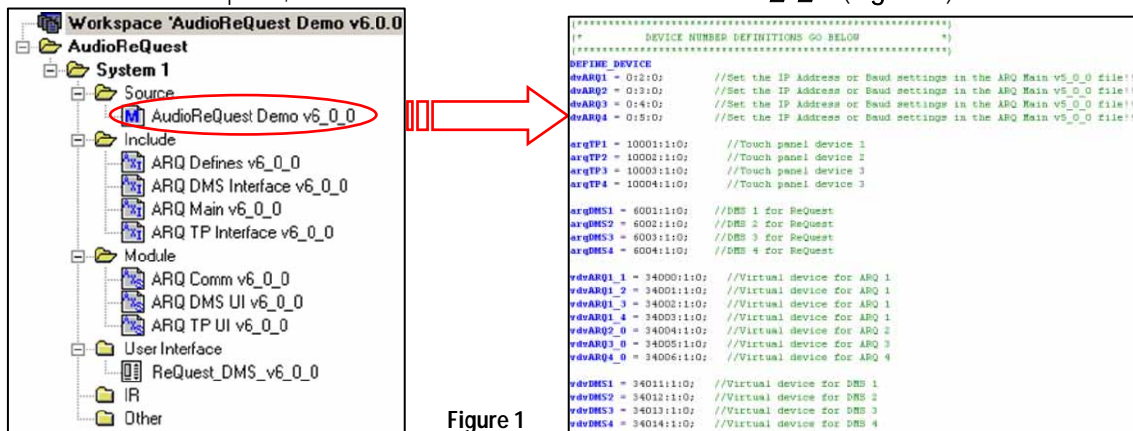


Figure 1

2. Under **DEFINE\_DEVICE**, modify the device names or numbers as necessary according to the following guidelines:
  - a. **dvARQ#**: You need 1 of these for each *physical* AudioReQuest you have in the system.
  - b. **arqTP#**: You need 1 of these for each touch panel in the system that will be controlling the AudioReQuest.
  - c. **arqDMS#**: You need 1 of these for each DMS keypad in the system that will be controlling the AudioReQuest.
  - d. **vdvARQ#**: You need 1 of these for each "real" AudioReQuest *Zone* device.  
*Note: N-Series and older have 1 Zone, F-Series units have 2 or 4 Zones*
  - e. **vdvDMS#**: You need 1 of these for each "real" DMS device.
3. Under **DEFINE\_START**, modify the following:
  - a. You must have 1 definition of the **DMS-IMSMod** module for each DMS device in the system.
  - b. You must have 1 definition of the **ARQ Comm v6\_0\_0** module for each "real" AudioReQuest device in the system.
  - c. You must have 1 definition of the **ARQ TP UI v6\_0\_0** module for each touch panel in the system that will control the AudioReQuest.
    - i. Read the comments next to each parameter for more information on customizing the functionality of the touch panel.
  - d. You must have 1 definition of the **ARQ DMS UI v6\_0\_0** module for each DMS device in the system.

## The 'ARQ MAIN v600' Include File

1. Under **DEFINE\_VARIABLE**, modify the following:
  - a. For each "real" AudioReQuest device in the program, create an instance of the **ARQ\_COMM\_DATA** variable.
  - b. Make sure that the **ARQ\_UNITS** device array contains all of the "virtual" AudioReQuest devices defined in the program.
2. Under **DEFINE\_START**, set the parameters for how you will communicate with each AudioReQuest defined in the program. It is recommended that you use TCP/IP to communicate with the AudioReQuest in order to display the AlbumArt™ images on your Modero™ panels. If you choose to use RS232 communication, you can still receive AlbumArt™ images over TCP/IP if you set the IP address correctly. If you choose to use TCP/IP to communicate with the AudioReQuest, be sure to put "0" for the baud rate.

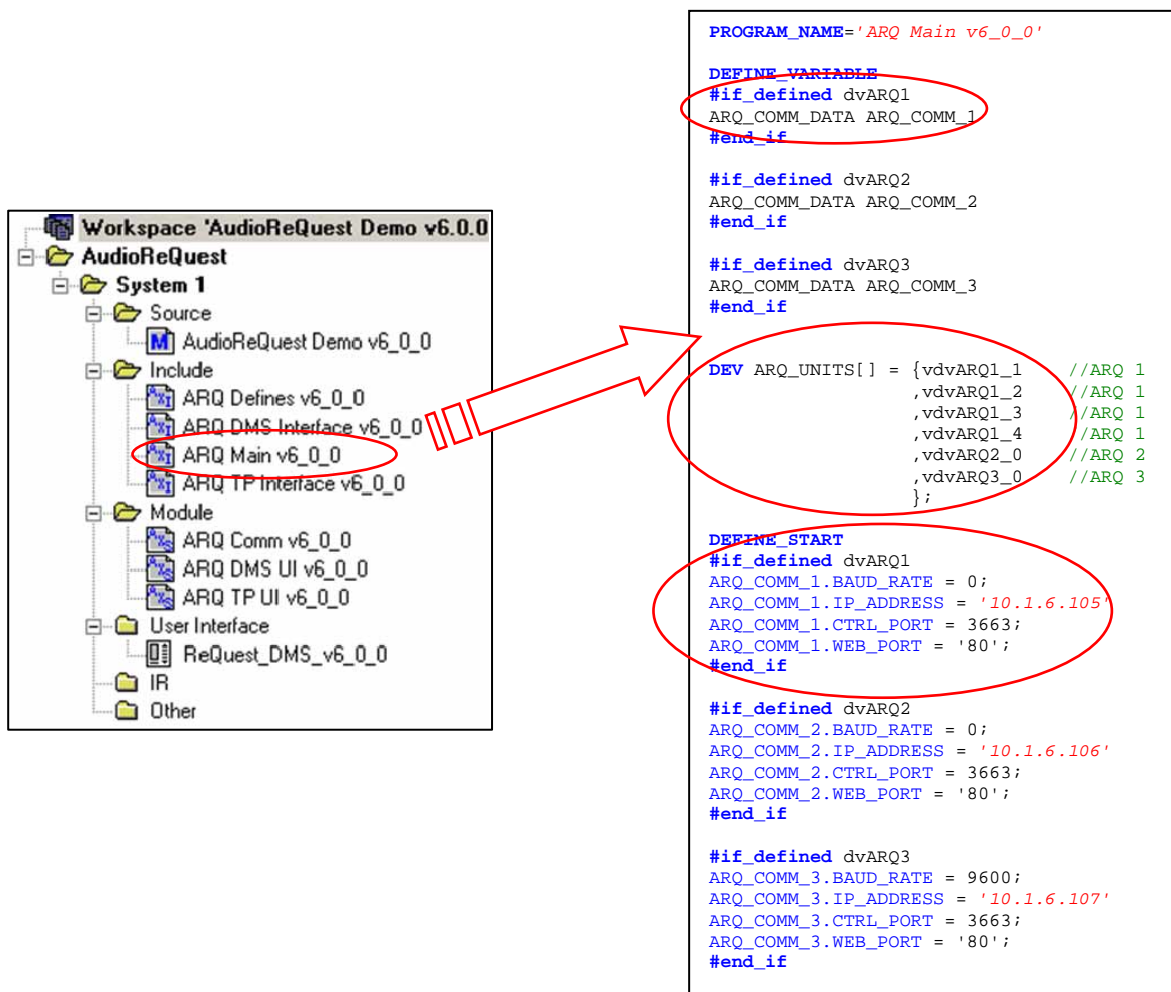


Figure 2



## The 'ARQ TP Interface v600' Include File

Under **DEFINE\_VARIABLE**, modify the following:

- a. The **ARQ\_DYNAMIC\_IMAGES** array should contain the names of the dynamic image resources on their respective pages (see the comments next to each line for a description of each image). This variables should not be modified unless necessary.
- b. The **ARQ\_SELECT** array should contain the channel numbers for the source buttons for each AudioReQuest you have in the system. You need a unique channel number for each source button on the touch panel.
- c. The **ARQ\_DISCONNECT** variable should contain the channel number for the button the returns you to your source page. This tells the modules that you are no longer talking to the AudioReQuest from that panel, and helps minimize unnecessary data traffic.
- d. The **ARQ\_CMDS** array contains all the channel numbers for the commonly used commands in the module. This array **MUST** remain in order, however the actual channel number may be modified if necessary. For any commands that you do not plan to use, you may set those channel numbers to 9999.
- e. The **ARQ\_ADV\_CMDS** array contains all the channel numbers for the more advanced, less commonly used features available in the module. This array **MUST** remain in order, however the actual channel number may be modified if necessary. For any commands that you do not plan to use, you may set those channel numbers to 9999.
- f. The **ARQ\_KEYBOARD\_CH** array contains all the channel numbers for the keyboard commands. This array **MUST** remain in order, however the actual channel number may be modified if necessary. For any commands that you do not plan to use, you may set those channel numbers to 9999.
- g. The **ARQ\_NUM\_CH** array contains all the channel numbers for the number commands (0-9). This array **MUST** remain in order, however the actual channel number may be modified if necessary. For any commands that you do not plan to use, you may set those channel numbers to 9999.
- h. The **ARQ\_FB\_CH** array contains all the address numbers for the text feedback available in the module. This array **MUST** remain in order, however the actual channel number may be modified if necessary. For any commands that you do not plan to use, you may set those channel numbers to 9999.
- i. The **ARQ\_ELAPSED\_LVL** integer contains the level value of the progress bar.

## The 'ARQ DMS Interface v600' Include File

Every array in the file has the same properties as the corresponding array in the 'ARQ TP Interface v6\_0\_0' include file. For example, the **ARQ\_SELECT\_DMS** array corresponds to the **ARQ\_SELECT** array in the 'ARQ TP Interface v6\_0\_0' file. The only exceptions are as follows:

1. The **ARQ\_DMS\_FILENAME** variable should contain the name of the .KPD file used on the DMS keypads.
2. The **REFRESH\_RATE** variable should be set to the number of milliseconds after the module receives text before the DMS keypads refresh. The lower the number, the faster it will refresh, but it may slow down your system.
3. You must have 1 of the **ARQ\_DMS\_TEXT\_#** variables for each DMS keypad defined in the system. These variables contain the text feedback for the DMS keypad.

**NOTE:** According to AMX Tech Note #440, the variable text is defined as follows:

**CHAR strVarText[XX][YY]**

Where:

**XX** is the highest number variable text channel and,

**YY** is the max number of characters each variable text string can contain

Therefore, if you use 101-115 for the variable text channels, you must set **XX** to 115



## Appendix A: Adding AlbumArt to Modero Panels

1. Create a dynamic image resource for each image type you wish to display (i.e. Current Song image, Next Song image, Browse Line 1-8 images).
  - a. From the "Panel" menu, select "Resource Manager" (Figure 3).
  - b. In the "Resource Manager" dialog box, click the "New" button in the upper right. This will open the "Create Dynamic Image" dialog box (Figure 4).
  - c. Set the parameters of the dynamic image as follows:
    - i. Set the name to a name describing the image
    - ii. Set Protocol to HTTP.
    - iii. Set Host to the IP address of your AudioReQuest.
    - iv. Path can be left blank as it is driven by the feedback.
    - v. File should be set to "album.jpg"
    - vi. Leave all other parameters as default and click "OK".
  - d. Repeat the above steps for each separate resource you need to create.
2. After you have created the dynamic image resources, draw a button on the page where you want the image displayed. Be sure to set the size to either 70x70 or 170x170, depending on the size image you choose.
3. Set the bitmap of the OFF state of the button to the dynamic image resource you wish to use.
4. In Netlinx Studio, open the 'ARQ TP Interface v6\_0\_0.axi' include file.
5. At the top of the file, locate the CHAR array containing the names of the dynamic image resources(Figure 5).
6. Enter the names of the dynamic images you created, using the comments and guidelines. For any image that you aren't using, leave the default name or enter something as a placeholder.
7. Save the file, upload the program and the panel, and test.

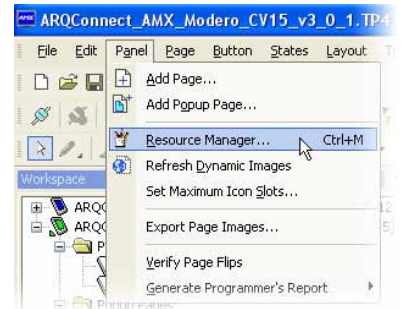


Figure 3

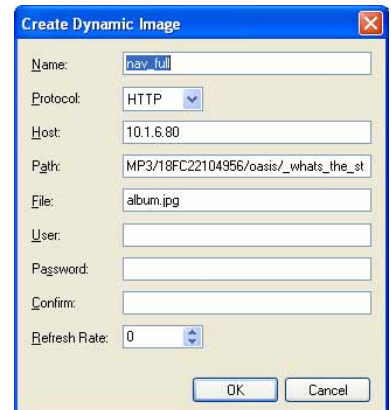


Figure 4

**\*\*NOTE:** It is important that you have cover art for every album on your system. For any albums that do not have cover art, the panel will display the previously found image, which could cause confusion.

```

PROGRAM_NAME='ARQ TP Interface v6_0_0'

DEFINE_VARIABLE
CHAR ARQ_DYNAMIC_IMAGES[6][25] = {'nav_thumb'           //Thumbnail image
                                  , 'nav_full'           //Full size image
                                  , 'player_cur_thumb'    //Thumbnail image
                                  , 'player_cur_full'     //Full size image
                                  , 'player_next_thumb'   //Thumbnail image
                                  , 'player_next_full'    //Full size image
                                  , 'nav_line_1'          //Image for line 1
                                  , 'nav_line_2'          //Image for line 2
                                  , 'nav_line_3'          //Image for line 3
                                  , 'nav_line_4'          //Image for line 4
                                  , 'nav_line_5'          //Image for line 5
                                  , 'nav_line_6'          //Image for line 6
                                  , 'nav_line_7'          //Image for line 7
                                  , 'nav_line_8'          //Image for line 8
                                  };
    
```

Figure 5



## Technical Support

If you encounter any problems or have any questions that are not answered in this document, please call ReQuest Technical Support at (800)236-2812 or send an email to [arqip@request.com](mailto:arqip@request.com).

For any questions related to AMX hardware or software, please contact AMX Tech Support at (800)932-6993 or visit [www.amx.com](http://www.amx.com) for further assistance.