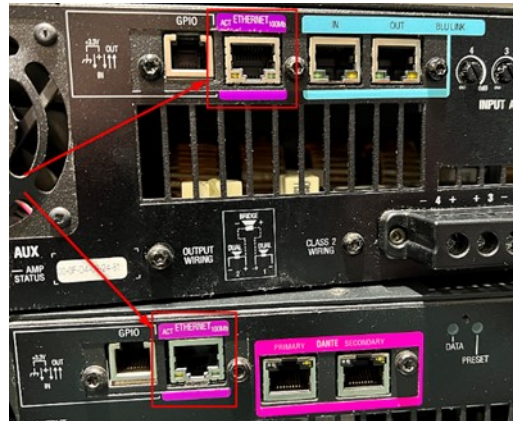


### DCi Ethernet Network Port

DCi DriveCore Install amplifiers with Ethernet provide network access via HiQnet, TCP/IQ, Telnet, and TFTP.



Users may want to block these Ethernet port protocols for security reasons. DCiN (DCi Drivecore Install Network Series) and DCiDA (DriveCore Install Dante Series) amplifiers provide the ability to selectively disable these protocols via dedicated SVs (State Variables).

### DCi Dante Network Ports

The DCiDA Dante network ports are configured via Dante Controller. Their configuration is outside the scope of this Technical Support Guide.



**CAUTION:** Failure to properly configure the port settings can result in a total lack of network access to the amplifier via its Ethernet port. If all network access protocols are disabled and the control port has not been configured properly, the only way to restore access will be via a factory reset. This will result in a loss of all saved data on the device, including all presets. It is **strongly recommended** that a device file with the current settings is created before the network security settings are changed. If Ethernet access is lost and your defaults must be restored, this will provide a way to recover the device settings.

## Implementation Assumptions and Disclaimer

**Network port lockout functions, and this help guide, are provided only as general concepts and tools to aid Audio/Visual system designers and installers. The system designer, installer, and owner are fully responsible to implement, maintain, test, and verify all system functions per the specific installation requirements. HARMAN assumes no liability for any damages or loss of any kind resulting from the use of, misuse of, or the inability to use the network security features.**

## Configuration and Control – DCi Network and DCi Dante amplifiers

Network port settings are controlled by three **SVs** (State Variables) found in the **Amp Global** object:

**Disable Protocol** – a value from 0-3, corresponding to the following conditions:

0 = both HiQnet **3804** and TCP/IQ **5600** are enabled

1 = TCP/IQ **5600** is disabled, HiQnet **3804** is enabled (for blocking access via IQwic)

2 = HiQnet **3804** is disabled, TCP/IQ **5600** is enabled (for blocking access via Audio Architect)

3 = both HiQnet **3804** and TCP/IQ **5600** are disabled (both Audio Architect and IQwic are blocked)

**Disable Telnet** – a value of 0 or 1:

0 = Telnet **23** is enabled

1 = Telnet **23** is disabled

**Disable TFTP** – a value of 0 or 1:

0 = TFTP **69** is enabled (to allow firmware transfers)

1 = TFTP **69** is disabled (to disable firmware transfers)

It is important to remember that **any change in these SVs will not take effect until the device has been rebooted**, which can be done either via the **Tools->Reboot** function on the device panel or via the **Firmware Update** window in Audio Architect, or via a power cycle.

# DCi Ethernet Port Management

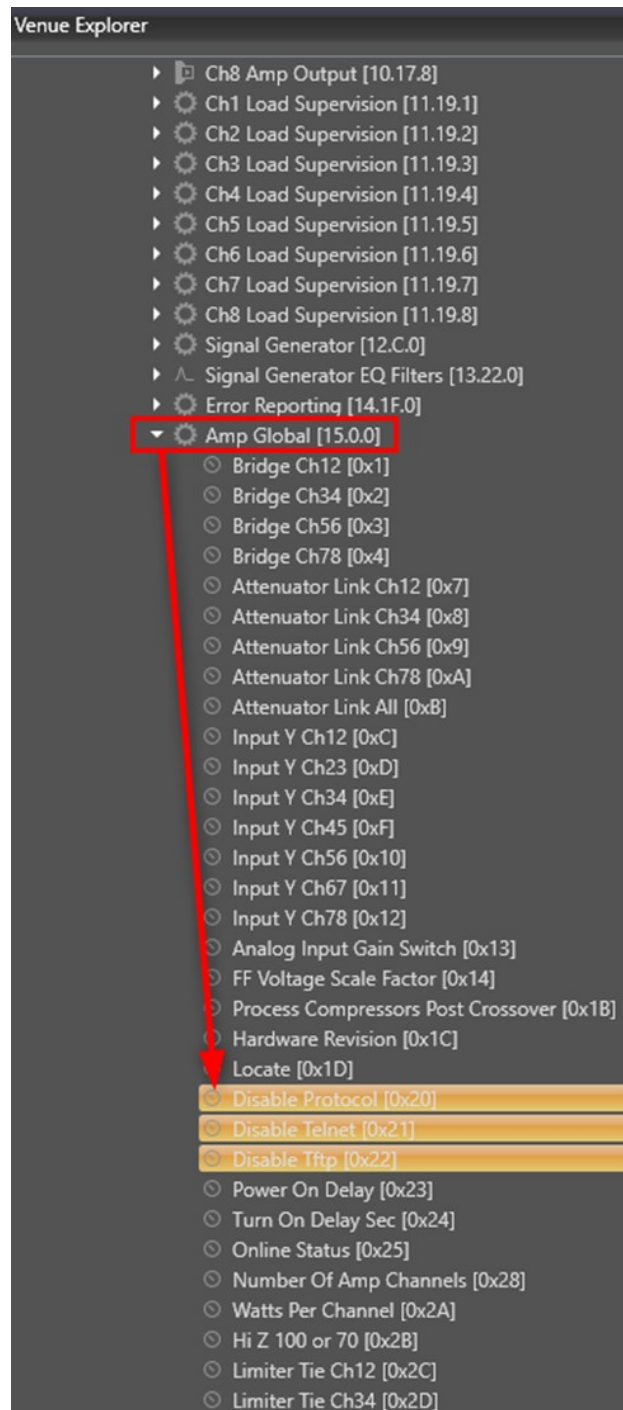


## Audio Architect examples

The examples below were created using Audio Architect v2.45.2.12. The AA files are included with this Technical Support Guide.

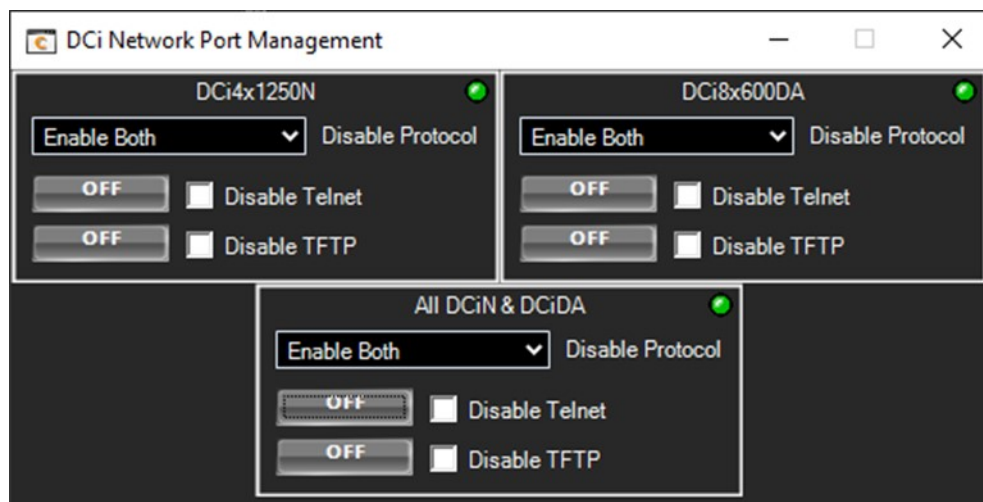
The Ethernet port SVs are shown in the venue explorer below.

The *Amp Global* object contains the *Disable Protocol*, *Disable Telnet*, and *Disable TFTP* SV's (State Variables).



## Using a Control Panel to enable/disable Ethernet Ports

The DCi Ethernet port SVs do not appear on any of the default device panels in Audio Architect. However, a custom panel can easily be created to control them. Simply select **New->Standard** from the Panel section in the Audio Architect toolbar to create a new panel, then assign these SVs to buttons in the panel (see the Help files which can be accessed from the amplifier master panel, for more detailed information about designing and activating custom panels). The device panel shown below is used in all three of the attached example files.



*Note: a reboot of the amp is required after changing these settings. This may be done in Audio Architect via the amplifier's device panel Tools menu, via the AA Firmware Update window, or by physically cycling power to the amp.*

## Using DCi GPIO to enable/disable Ethernet ports

Mapping the Ethernet port SVs to the GPIO control port can provide a convenient way to restore access when needed, without having to resort to a reset to factory settings. Below is an example of using this feature as a *hardware lock* for system technicians and operators with equipment room or access.

### Network port control via GPIO example 1 – HiQnet is always enabled. TFTP is disabled/enabled via input 1.

File: *DCI\_Ethernet\_Port\_Management\_example1.audioarchitect*

In this example, HiQnet is always enabled to allow Audio Architect control of the system. TFTP is disabled/enabled via input 1 to disable/enable firmware transfers. Telnet and TCP/IQ are always disabled, via the control panel described above.

# DCi Ethernet Port Management



INPUT	PARAMETER ASSIGNMENT	MODE	ON VALUE	OFF VALUE
1	3001: Crown DCIN 4: Amp Global: Disable Tftp	Direct Action	1	0
2	Unassigned			

OUTPUT	PARAMETER ASSIGNMENT	MODE	HIGH LIMIT	LOW LIMIT	OUTPUT POLARITY
1 Enabled	3001: Crown DCIN 4: Amp Global: Disable Tftp	Programmabl	1	0	Inverted
2 Disabled	Unassigned	Programmabl			Inverted

GPIO output feedback for Disable TFTP, example 1

The *Disable TFTP* SV has been mapped to control input 1. When input 1 is pulled high by connecting it to +3.3V then this *Disable* SV is on, and TFTP is disabled.

When input 1 is allowed to float low then this *Disable* SV is off, TFTP is enabled.

*Note: a reboot of the amp is required after changing this setting. This may be done in Audio Architect via the amplifier's device panel Tools menu, via the AA Firmware Update window, or by physically cycling power to the amp.*

INPUT	PARAMETER ASSIGNMENT	MODE	ON VALUE	OFF VALUE
1	3001: Crown DCIN 4: Amp Global: Disable Tftp	Direct Action	1	0
2	Unassigned			

OUTPUT	PARAMETER ASSIGNMENT	MODE	HIGH LIMIT	LOW LIMIT	OUTPUT POLARITY
1 Enabled	3001: Crown DCIN 4: Amp Global: Disable Tftp	Programmabl	1	0	Inverted
2 Disabled	Unassigned	Programmabl			Inverted

When set with a High Limit of 1 and a Low Limit of 0: If the TFTP Ethernet port is disabled, the output will be ON. If enabled, the output will be OFF. Output polarity is inverted, for use with AMX NetLinX GPIO or similar which are ON when low.

## Network port control via GPIO example 2 – HiQnet is disabled/enabled via input 2. TFTP is disabled/enabled via input 1

File: *DCI\_Ethernet\_Port\_Management\_example2.audioarchitect*

In this second example, HiQnet is disabled/enabled via input 2. This allows the GPIO to disable/enable Audio Architect control of the amplifier. TFTP is disabled/enabled via input 1 to disable/enable firmware transfers. Telnet and TCP/IQ are always disabled, via the control panel described above.

INPUT	PARAMETER ASSIGNMENT	MODE	ON VALUE	OFF VALUE
1	4388: Crown DCIDA 8: Amp Global: Disable Tftp	Direct Action	1	0
2	4388: Crown DCIDA 8: Amp Global: Disable Protocol	Direct Action	Disable TCP/IQ and HiQnet	Disable TCP/IQ

OUTPUT	PARAMETER ASSIGNMENT	MODE	HIGH LIMIT	LOW LIMIT	OUTPUT POLARITY
1 Enabled	4388: Crown DCIDA 8: Amp Global: Disable Tftp	Programmabl	1	0	Inverted
2 Enabled	4388: Crown DCIDA 8: Amp Global: Disable Protocol	Programmabl	Disable TCP/IQ	Enable Both	Inverted

The *Disable TFTP* SV has been mapped to control input 1. When input 1 is pulled high by connecting it to +3.3V then this *Disable* SV is on, and TFTP is disabled.

When input 1 is allowed to float low then this *Disable* SV is off, TFTP is enabled.

# DCi Ethernet Port Management



DCi Port Mgmt: 4388: DCi8x600DA - Control Ports					
INPUT	PARAMETER ASSIGNMENT	MODE	ON VALUE	OFF VALUE	
1	4388: Crown DCIDA 8: Amp Global: Disable Tftp	Direct Action	1	0	
2	4388: Crown DCIDA 8: Amp Global: Disable Protocol	Direct Action	Disable TCP/IQ and HiQnet	Disable TCP/IQ	
OUTPUT	PARAMETER ASSIGNMENT	MODE	HIGH LIMIT	LOW LIMIT	OUTPUT POLARITY
1	Enabled 4388: Crown DCIDA 8: Amp Global: Disable Tftp	Programmabl	1	0	Inverted
2	Enabled 4388: Crown DCIDA 8: Amp Global: Disable Protocol	Programmabl	Disable TCP/IQ	Enable Both	Inverted

The *Disable Protocol SV* has been mapped to control input 2. When input 2 is pulled high by connecting it to +3.3V then this SV is set to *Disable Both*, and both HiQnet and TCP/IQ are disabled.

When input 2 is allowed to float low then this SV is set to *Disable TCP/IQ* only, and HiQnet is enabled.

*Note: a reboot of the amp is required after changing these settings. This may be done in Audio Architect via the amplifier's device panel Tools menu, via the AA Firmware Update window, or by physically cycling power to the amp.*

## GPIO output feedback for Disable TFTP, example 2

DCi Port Mgmt: 4388: DCi8x600DA - Control Ports					
INPUT	PARAMETER ASSIGNMENT	MODE	ON VALUE	OFF VALUE	
1	4388: Crown DCIDA 8: Amp Global: Disable Tftp	Direct Action	1	0	
2	4388: Crown DCIDA 8: Amp Global: Disable Protocol	Direct Action	Disable TCP/IQ and HiQnet	Disable TCP/IQ	
OUTPUT	PARAMETER ASSIGNMENT	MODE	HIGH LIMIT	LOW LIMIT	OUTPUT POLARITY
1	Enabled 4388: Crown DCIDA 8: Amp Global: Disable Tftp	Programmabl	1	0	Inverted
2	Enabled 4388: Crown DCIDA 8: Amp Global: Disable Protocol	Programmabl	Disable TCP/IQ	Enable Both	Inverted

When set with a High Limit of 1 and a Low Limit of 0: If the TFTP Ethernet port is disabled, the output will be ON. If enabled, the output will be OFF. Output polarity is inverted, for use with AMX NetLinx GPIO or similar which are ON when low.

## GPIO output feedback for Disable Protocol, example 2

The GPIO only tracks whether the Disable HiQnet state on/off. Disable TCP/IQ is not tracked via the GPIO.

DCi Port Mgmt: 4388: DCi8x600DA - Control Ports					
INPUT	PARAMETER ASSIGNMENT	MODE	ON VALUE	OFF VALUE	
1	4388: Crown DCIDA 8: Amp Global: Disable Tftp	Direct Action	1	0	
2	4388: Crown DCIDA 8: Amp Global: Disable Protocol	Direct Action	Disable TCP/IQ and HiQnet	Disable TCP/IQ	
OUTPUT	PARAMETER ASSIGNMENT	MODE	HIGH LIMIT	LOW LIMIT	OUTPUT POLARITY
1	Enabled 4388: Crown DCIDA 8: Amp Global: Disable Tftp	Programmabl	1	0	Inverted
2	Enabled 4388: Crown DCIDA 8: Amp Global: Disable Protocol	Programmabl	Disable TCP/IQ	Enable Both	Inverted

High Limit is *Disable TCP/IQ* and the Low Limit is *Enable Both*: the output feedback will be ON when HiQnet is disabled via the *Disable TCP/IQ and HiQnet* or *Disable TCP/IQ* settings. It will be OFF when HiQnet is enabled via the *Enable Both* or *Disable TCP/IQ* settings. Output polarity is inverted, for use with AMX NetLinx GPIO or similar which are ON when low.

# DCi Ethernet Port Management



## Network port control via GPIO example 3 – HiQnet and TCP/IQ is disabled/enabled via input 2, TFTP and Telnet is disabled/enabled via input 1

File: DCI\_Ethernet\_Port\_Management\_example3.audioarchitect

This third example allows disabling/enabling all four protocols via GPIO. *Note: this example is based on the one from the earliest version of this document.*

INPUT	PARAMETER ASSIGNMENT	MODE	ON VALUE	OFF VALUE		
1	4388: Crown DCIDA & Amp Global: Disable Tftp	Direct Action	1	0		
	4388: Crown DCIDA & Amp Global: Disable Telnet	Direct Action	1	0		
	4388: Crown DCIDA & Amp Global: Disable Protocol	Direct Action	Disable TCP/IQ and HiQnet	Enable Both		
OUTPUT	PARAMETER ASSIGNMENT	MODE	HIGH LIMIT	LOW LIMIT	OUTPUT POLARITY	
1	Enabled	4388: Crown DCIDA & Amp Global: Disable Tftp	Programmabl	1	0	Inverted
	Enabled	4388: Crown DCIDA & Amp Global: Disable Telnet	Programmabl	1	0	Inverted
	Enabled	4388: Crown DCIDA & Amp Global: Disable Protocol	Programmabl	Enable Both	Enable Both	Inverted

The *Disable Telnet* and *Disable TFTP* SVs have been mapped to control input 1. When input 1 is pulled high by connecting it to +3.3V these Disable SV's are on, both TFTP and Telnet are disabled. When input 1 is allowed to float low then they are off, both TFTP and Telnet are enabled.

INPUT	PARAMETER ASSIGNMENT	MODE	ON VALUE	OFF VALUE		
1	4388: Crown DCIDA & Amp Global: Disable Tftp	Direct Action	1	0		
	4388: Crown DCIDA & Amp Global: Disable Telnet	Direct Action	1	0		
	4388: Crown DCIDA & Amp Global: Disable Protocol	Direct Action	Disable TCP/IQ and HiQnet	Enable Both		
OUTPUT	PARAMETER ASSIGNMENT	MODE	HIGH LIMIT	LOW LIMIT	OUTPUT POLARITY	
1	Enabled	4388: Crown DCIDA & Amp Global: Disable Tftp	Programmabl	1	0	Inverted
	Enabled	4388: Crown DCIDA & Amp Global: Disable Telnet	Programmabl	1	0	Inverted
	Enabled	4388: Crown DCIDA & Amp Global: Disable Protocol	Programmabl	Enable Both	Enable Both	Inverted

The *Disable Protocol* SV has been mapped to control input 2. When input 2 is pulled high, this SV is set to disable both HiQnet and TCP/IQ. When input 2 floats low, they are both enabled.

*Note: a reboot of the amp is required after changing these settings. This may be done in Audio Architect via the amplifier's device panel Tools menu, via the AA Firmware Update window, or by physically cycling power to the amp.*

## GPIO output feedback for Disable Telnet and Disable TFTP, example 3

INPUT	PARAMETER ASSIGNMENT	MODE	ON VALUE	OFF VALUE		
1	4388: Crown DCIDA & Amp Global: Disable Tftp	Direct Action	1	0		
	4388: Crown DCIDA & Amp Global: Disable Telnet	Direct Action	1	0		
	4388: Crown DCIDA & Amp Global: Disable Protocol	Direct Action	Disable TCP/IQ and HiQnet	Enable Both		
OUTPUT	PARAMETER ASSIGNMENT	MODE	HIGH LIMIT	LOW LIMIT	OUTPUT POLARITY	
1	Enabled	4388: Crown DCIDA & Amp Global: Disable Tftp	Programmabl	1	0	Inverted
	Enabled	4388: Crown DCIDA & Amp Global: Disable Telnet	Programmabl	1	0	Inverted
	Enabled	4388: Crown DCIDA & Amp Global: Disable Protocol	Programmabl	Enable Both	Enable Both	Inverted

# DCi Ethernet Port Management



*Disable Protocol High Limit and the Low Limit are set to Enable Both:* GPIO output 2 will be on if either TCP/IQ or HiQnet is disabled via the *Disable TCPIQ and HiQnet*, *Disable HiQnet*, or *Disable TCPIQ* settings. GPIO output 2 will be Off only when both are enabled via the *Enable Both* setting. Output polarity is inverted, for use with AMX NetLinx GPIO or similar which are ON when low.

For more detailed instructions on configuring the control port, see the control port page in the Audio Architect Help files.

## DCi Ethernet Port Management by Model

Models	Disable HiQnet/TCPIQ	Disable Telnet	Disable TFTP
DCi4x300DA,DCi4x600DA,DCi8x300DA, DCi4x1250DA, DCi8x600DA	Yes, all firmware versions	Yes, all firmware versions	Yes, all firmware versions
DCi2x2400N, DCi4x2400N	Yes, with firmware v1.0.1.2 or higher, released 02/2017	Yes, with firmware v1.0.1.2 or higher, released 02/2017	Yes, with firmware v1.0.1.2 or higher, released 02/2017
DCi2x300N,DCi2x600N,DCi2x1250N, DCi4x300N,DCi4x600N,DCi8x300N, DCi4x1250N,DCi8x600N	Yes, with firmware v1.0.2.19 or higher, released 01/2017	Yes, with firmware v1.0.2.19 or higher, released 01/2017	Yes, with firmware v1.0.2.19 or higher, released 01/2017
DCi4x1250ND,DCi8x600ND	N/A	N/A	N/A

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