



Audio Control

M4800

M6400

D4600

Crestron Driver User Guide

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## Introduction

This driver has been designed to provide two-way control of AudioControl M4800, M6400 and D4600 network amplifiers, via TCP/IP.

The package includes a demonstration file in smw format to aid with integration into a Crestron project. Additionally, touch panel designs have been created, these can be used for demonstration purposes and for compatibility testing.

This Crestron module will work on both Series 2 and 3 processors and has been tested with firmware version 0.1.16\_NCB RA.

There are four modules included in the package:

### **Comms**

This module has three purposes:

- Sending and receiving commands to/from the amplifier
- Routing feedback to the other modules
- Assigning zones to groups

### **Zone Analogue**

This driver handles source selection, volume, power, EQ and feedback for a specified analogue zone. There will be one instance of this driver per analogue zone.

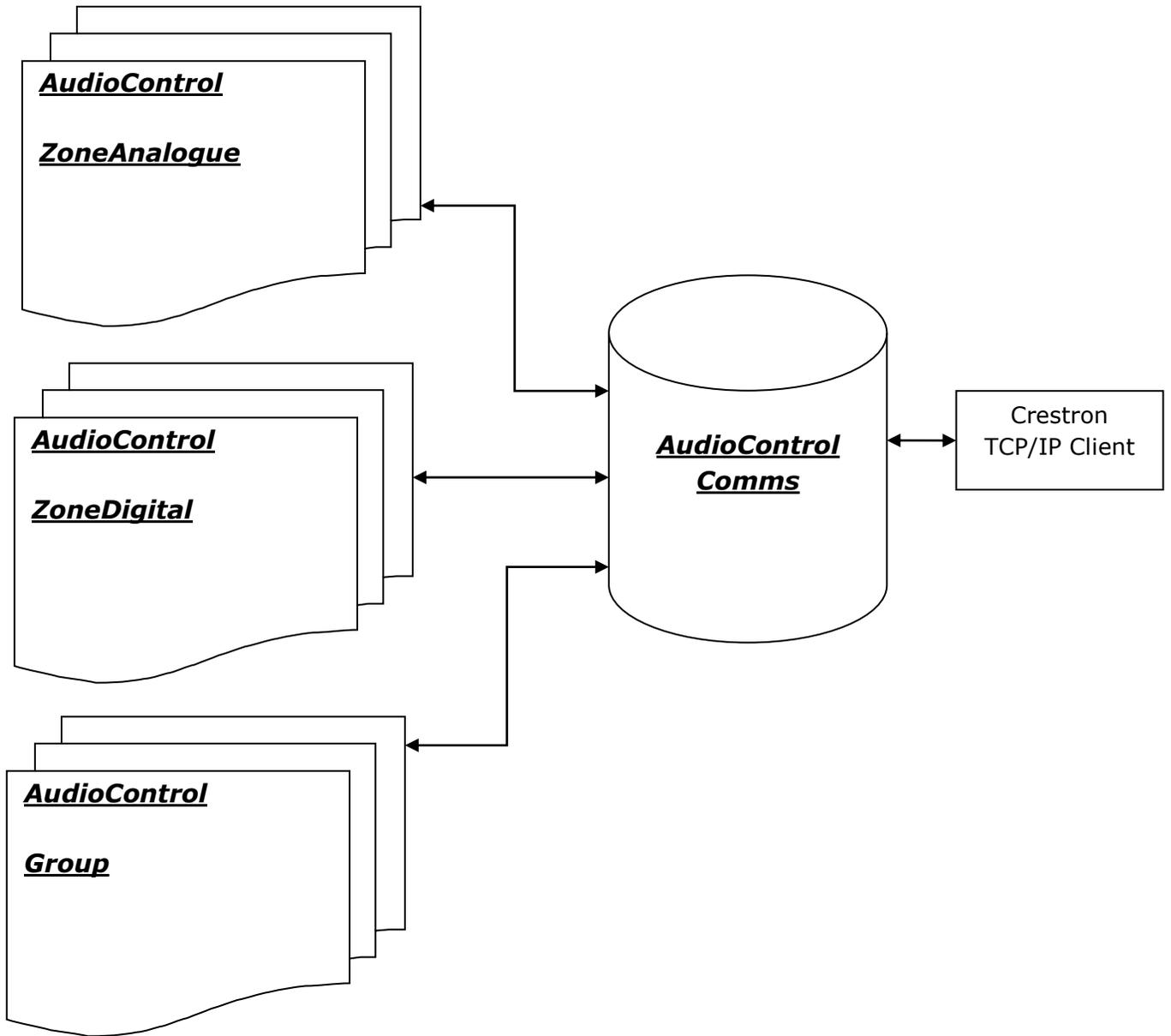
### **Zone Digital**

This driver handles the source selection and power control for a specified digital zone. There will be one instance of this driver per digital zone.

### **Group**

This driver handles source selection, volume, power, EQ and feedback for a specified group of zones. There will be one instance of this driver per group.

## Diagram



## Module Definitions

### AudioControl {Model} Comms VX XX.umc

The central module handling all communications between Crestron and the amplifier. This module will require a "TCP/IP Client" device to be configured in the SIMPL Windows program, with the IP address of the amplifier defined, and the port defined as "23".

Signal Name	Type	Description
<a href="#">CommsConnected</a>	Input	Signal FROM TCP/IP Client 'Connect-F'.
CommsRx		Signal FROM TCP/IP Client 'RX\$'.
ZoneCommsTx		Signal FROM Zone modules
GroupCommsTx		Signal FROM Group modules
<a href="#">SetZone[x]_ToGroup1</a>		Adding and removing a zone to a group*
<a href="#">SetZone[x]_ToGroup2</a>		
<a href="#">SetZone[x]_ToGroup3</a>		
<a href="#">SetZone[x]_ToGroup4</a>		
Poll Interval	PARAMETER	Time interval between polling attempts. Polling will keep the module feedback in sync with the amplifier when changes are made to the device locally. (The default is 30 seconds. If 0 seconds is set, polling is disabled).
<a href="#">CommsConnected</a>	OUTPUT	Signal TO TCP/IP Client 'Connect'.
CommsTx	OUTPUT	Signal TO TCP/IP Client 'TX\$'.
Zone1CommsTx Zone10CommsTx	- OUTPUT	Signal TO one or more AudioControl_ZoneAnalogue.umc modules. 1 to 8
		Signal TO one or more AudioControl_ZoneDigital.umc modules. 9 and 10
Group1CommsTx Group 10CommsTx	- OUTPUT	Signal TO one or more AudioControl_Group.umc modules.
<a href="#">Zone[x]_ToGroup1</a>	OUTPUT	Feedback indicating which zones are in Gwhich groups.
<a href="#">Zone[x]_ToGroup2</a>		
<a href="#">Zone[x]_ToGroup3</a>		
<a href="#">Zone[x]_ToGroup4</a>		

\*AudioControl supports 4 groups; these groups can contain any number of zones. A zone can only be associated to one group at any one time. If you set the zone to a group when the zone is already associated to another group, then the zone will be removed from its current group and added to the new group.

[SetZone\[x\]\\_ToGroup\[x\]](#) works like a toggle button – pulse it to add the zone to the group.

**AudioControl ZoneAnalogue VX XX.umc**

Signal Name	Type	Description
ZoneCommsRX	INPUT	Signal FROM AudioControl_{Module}_Comms.umc This signal must match the Zone parameter. Example: If 'Zone3CommsTx' is connected, Zone must be set to 'Zone 3'.
VolumeUp	INPUT	Pulse to nudge volume up by 1 value. Hold to ramp volume up.
VolumeDown	INPUT	Pulse to nudge volume down by 1 value. Hold to ramp volume down.
Mute	INPUT	Pulse to mute zone.
Unmute	INPUT	Pulse to unmute zone.
MuteToggle	INPUT	Pulse to toggle current mute state.
BassUp	INPUT	Pulse to nudge Bass up by 1 value. Hold to ramp Bass up.
BassDown	INPUT	Pulse to nudge Bass down by 1 value. Hold to ramp Bass down.
TrebleUp	INPUT	Pulse to nudge Treble up by 1 value. Hold to ramp Treble up.
TrebleDown	INPUT	Pulse to nudge Treble down by 1 value. Hold to ramp Treble down.
PowerOn	INPUT	Enable zone output.
PowerOff	INPUT	Disable zone output.
LoudnessOn	INPUT	Enable zone loudness setting. This will override zone Bass/Treble settings.
LoudnessOff	INPUT	Disable zone loudness setting. This will override zone Bass/Treble settings.
SourceSelect	INPUT	Select the zone source. Valid range 1d to 15d. 1. Analogue Channel 1-2 2. Analogue Channel 3-4 3. Analogue Channel 5-6 4. Analogue Channel 7-8 5. Analogue Channel 9-10 6. Analogue Channel 11-12 7. Analogue Channel 13-14 8. Analogue Channel 15-16 9. Digital A 10. Digital B 11. Digital C (M4800 only) 12. Digital D (M4800 only) 13. Bus A (D4600 only) 14. Bus B (D4600 only) 15. Local (D4600 groups only)
VolumeSet	INPUT	Set the zone volume level. Valid range 0d to 100d.
BassSet	INPUT	Set the zone bass level. Valid range 0d (-10) to 20d (+10). A value of 10d is equivalent to 0 cut/boost or flat response.
TrebleSet	INPUT	Set the zone treble level. Valid range 0d (-10) to

		20d (+10). A value of 10d is equivalent to 0 cut/boost or flat response.
Zone	PARAMETER	The zone that this module is controlling. This must match ZoneCommsRx.
PowerIsOn	OUTPUT	Indicates zone is enabled.
PowerIsOff	OUTPUT	Indicates zone is disabled.
IsMuted	OUTPUT	Indicates zone is muted.
IsUnmuted	OUTPUT	Indicates zone is unmuted.
LoudnessIsOn	OUTPUT	Indicates zone loudness is enabled.
LoudnessIsOff	OUTPUT	Indicates zone loudness is disabled.
CurrentSource	OUTPUT	Indicates currently selected source. (see SourceSelect for value range).
CurrentVolume	OUTPUT	Indicates currently set volume. (see VolumeSet for value range).
CurrentBass	OUTPUT	Indicates currently set bass. (see BassSet for value range).
CurrentTreble	OUTPUT	Indicates currently set treble. (see TrebleSet for value range).
CurrentSource	OUTPUT	Indicates currently selected source. (see SourceSelect for value range).

### **AudioControl ZoneDigital VX XX.umc**

Signal Name	Type	Description
ZoneCommsRX	INPUT	Signal FROM AudioControl_{Model}_Comms.umc (Zone1CommsTx - Zone8CommsTx). This signal must match the Zone parameter. Example: If 'Zone3CommsTx' is connected, Zone must be set to 'Zone 3'.
PowerOn	INPUT	Enable zone output.
PowerOff	INPUT	Disable zone output.
Zone	PARAMETER	The zone that this module is controlling. This must match ZoneCommsRx.
PowerIsOn	OUTPUT	Indicates zone is enabled.
PowerIsOff	OUTPUT	Indicates zone is disabled.
CurrentSource	OUTPUT	Indicates currently selected source. (see SourceSelect for value range).

### **AudioControl Group VX XX.umc**

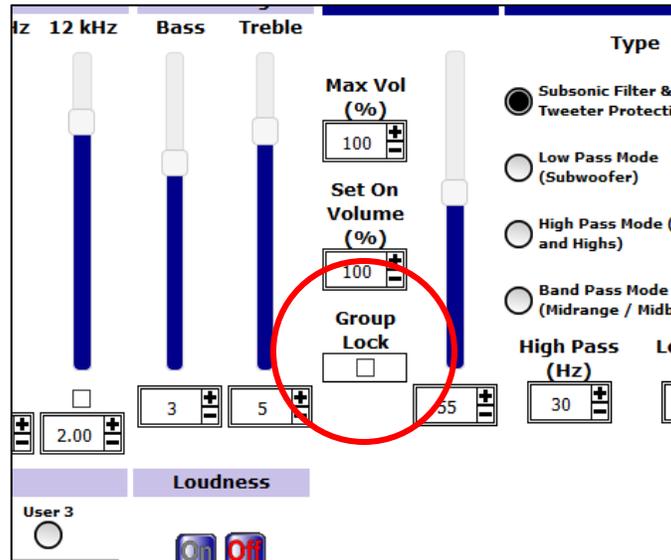
Signal Name	Type	Description
GroupCommsRx	INPUT	Signal FROM AudioControl_M6400_Comms.umc (Zone1CommsTx - Zone8CommsTx). This signal must match the Zone parameter. Example: If 'Zone3CommsTx' is connected, Zone must be set to 'Zone 3'.
VolumeUp	INPUT	Pulse to nudge volume up by 1 value. Hold to ramp volume up.
VolumeDown	INPUT	Pulse to nudge volume down by 1 value. Hold to ramp volume down.

Mute	INPUT	Pulse to mute zone.
Unmute	INPUT	Pulse to unmute zone.
MuteToggle	INPUT	Pulse to toggle current mute state.
BassUp	INPUT	Pulse to nudge Bass up by 1 value. Hold to ramp Bass up.
BassDown	INPUT	Pulse to nudge Bass down by 1 value. Hold to ramp Bass down.
TrebleUp	INPUT	Pulse to nudge Treble up by 1 value. Hold to ramp Treble up.
TrebleDown	INPUT	Pulse to nudge Treble down by 1 value. Hold to ramp Treble down.
PowerOn	INPUT	Enable zone output.
PowerOff	INPUT	Disable zone output.
LoudnessOn	INPUT	Enable zone loudness setting. This will override zone Bass/Treble settings.
LoudnessOff	INPUT	Disable zone loudness setting. This will override zone Bass/Treble settings.
SourceSelect	INPUT	Select the zone source. Valid range 1d to 10d. 1. Analogue Channel 1-2 2. Analogue Channel 3-4 3. Analogue Channel 5-6 4. Analogue Channel 7-8 5. Analogue Channel 9-10 6. Analogue Channel 11-12 7. Analogue Channel 13-14 8. Analogue Channel 15-16 9. Digital A 10. Digital B 11. Digital C (M4800 only) 12. Digital D (M4800 only) 13. Bus A (D4600 only) 14. Bus B (D4600 only) 15. Local (D4600 groups only)
VolumeSet	INPUT	Set the zone volume level. Valid range 0d to 100d.
BassSet	INPUT	Set the zone bass level. Valid range 0d (-10) to 20d (+10). A value of 10d is equivalent to 0 cut/boost or flat response.
TrebleSet	INPUT	Set the zone treble level. Valid range 0d (-10) to 20d (+10). A value of 10d is equivalent to 0 cut/boost or flat response.
Zone	PARAMETER	The zone that this module is controlling. This must match ZoneCommsRx.
GroupCommsRx	OUTPUT	
PowerIsOn	OUTPUT	Indicates zone is enabled.
PowerIsOff	OUTPUT	Indicates zone is disabled.
IsMuted	OUTPUT	Indicates zone is muted.
IsUnmuted	OUTPUT	Indicates zone is unmuted.
LoudnessIsOn	OUTPUT	Indicates zone loudness is enabled.
LoudnessIsOff	OUTPUT	Indicates zone loudness is disabled.
CurrentSource	OUTPUT	Indicates currently selected source. (see

		SourceSelect for value range).
CurrentVolume	OUTPUT	Indicates currently set volume. (see VolumeSet for value range).
CurrentBass	OUTPUT	Indicates currently set bass. (see BassSet for value range).
CurrentTreble	OUTPUT	Indicates currently set treble. (see TrebleSet for value range).
CurrentSource	OUTPUT	Indicates currently selected source. (see SourceSelect for value range).

## Grouping

When setting up groups, there is an option to lock the groups on the zone configuration page:



It is recommended that you **do not use this feature**. If a group is locked and the *group* volume +/- buttons are pressed, the device will only change the volume for the first zone in the group. If a group is locked and the *zone* volume +/- buttons are pressed, the device will change the volume for all grouped zones but will only feed back that the zone pressed has changed.

Consequently, best practice for using this driver's grouping feature are as follows:

### **If zones are grouped:**

Only expose the group commands to the user (volume, bass, treble, switch, etc.) and *do not lock the groups*.

### **If zones are not grouped:**

Only expose the zone commands to the user for those specific zones.