Partner: L-ACOUSTICS
Model: LA4/LA8/LA4X/LA12X
Device Type: Amplified Controller

GENERAL INFORMATION:

SIMPLWINDOWS NAME:	L-ACOUSTICS LA4/LA8/LA4X/LA12X AMPLIFIED CONTROLLER V2.3
CATEGORY:	MULTI-CHANNEL AUDIO AMPLIFIER
VERSION:	V2.3
SUMMARY:	The module provides the major control and preset functions via TCP/IP.
GENERAL NOTES:	This module is for the control of LA4, LA8, LA4X and LA12X Amplified Controllers. Each Amplifier to be connected and controlled will require one complete module assigned to it. Each module should therefore use unique digital, analog and serial joins. The simplest way of achieving this is to use a unique prefix which identifies the amplifier such as AMP1_MUTE and AMP2_MUTE. The module features error/status messaging that is designed to comply with the regulations regarding fault monitoring set in EN 60849.
CRESTRON HARDWARE REQUIRED:	C2ENET-1/2, 2 or 3 series processor
SETUP OF CRESTRON HARDWARE:	Valid IP range: 192.168.1.000 – 192.168.1.233
VENDOR FIRMWARE:	LA4/LA8 minimum firmware version: V2.3.0 LA4X minimum firmware version : V1.2.0 LA12X minimum firmware version : V1.7.0
VENDOR SETUP:	Amplified Controller connected to the Ethernet Network

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CONTROL:

Cmd_Toggle_Activate	D	Push this digital signal to activate or deactivate the communication between the Crestron hardware and the Amplified Controller (depending on the current activation state, cf. the “Activated” feedback).
[Cmd_Toggle_Standby_Mode]	D	Push this digital signal to put the Amplified Controller in standby mode or wake it up from standby (depending on the current state, cf. the “Standby_Mode” feedback).
[Cmd_Toggle_Key_Lock]	D	Push this digital signal to lock or unlock the keys of the Amplified Controller’s front panel (depending on the current lock state, cf. the “Key_Lock” feedback).
[Cmd_Toggle_Input_Mode_AB]	D	Push this digital signal to switch the input mode from Analog to AES or AES to Analog on input channels A and B. The current input mode is given by the “Input_Mode_AB” feedback.
[Cmd_Toggle_Input_Mode_CD]	D	[Only for LA4X and LA12X] Push this digital signal to switch the input mode from Analog to AES or AES to Analog on input channels C and D. The current input mode is given by the “Input_Mode_CD” feedback.
[Cmd_Toggle_Fallback_Mode]	D	Push this digital signal to enable or disable the fallback mode (depending on the enabled state, cf. the “Fallback_Mode” feedback).
[Cmd_View_Next_User_Preset]	D	Push this digital signal to seek for the next user preset available in the Amplified Controller and copy its name in the “Previewed_Preset_Name” feedback.
[Cmd_Load_User_Preset]	D	Push this digital signal to load the currently selected user preset (whose name is currently shown in the “Previewed_Preset_Name” feedback).
[Cmd_Toggle_Mute_Ch1]	D	Push this digital signal to mute or unmute the output channel 1 of the Amplified Controller (depending on the current mute state, cf. the “Mute_Ch1” feedback).
[Cmd_Toggle_Mute_Ch2]	D	Push this digital signal to mute or unmute the output channel 2 of the Amplified Controller (depending on the current mute state, cf. the “Mute_Ch2” feedback).
[Cmd_Toggle_Mute_Ch3]	D	Push this digital signal to mute or unmute the output channel 3 of the Amplified Controller (depending on the current mute state, cf. the “Mute_Ch3” feedback).
[Cmd_Toggle_Mute_Ch4]	D	Push this digital signal to mute or unmute the output channel 4 of the Amplified Controller (depending on the current mute state, cf. the “Mute_Ch4” feedback).
[Cmd_Mute_All]	D	Push this digital signal to mute simultaneously all the output channels of the Amplified Controller (whatever their current state).
[Cmd_Gains_Up]	D	Push this digital signal to increase simultaneously the gains of all output channels by 1 dB (the current gains are given by the “Gain_Ch1”, “Gain_Ch2”, “Gain_Ch3” and “Gain_Ch4” feedbacks). Please note that the gain of an output channel cannot go over 15dB.
[Cmd_Gains_Down]	D	Push this digital signal to decrease simultaneously the gains of all output channels by 1 dB (the current gains are given by the “Gain_Ch1”, “Gain_Ch2”, “Gain_Ch3” and “Gain_Ch4” feedbacks). Please note that the gain of an output channel cannot go under -60dB.

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[Cmd_Clear_Error]	D	Push this digital signal to clear the error feedback signals (“Error_Sticky” and “Error_Message”).

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FEEDBACK:

[Activated]	D	Current state of the communication between the Crestron hardware and the Amplified Controller : 0 = deactivated 1 = activated This state can be changed by the “Cmd_Toggle_Activate” command.
[Communication_Status_Text]	S	User information regarding the TCP/IP connection between the Crestron hardware and the Amplified Controller : “Deactivated” : module not activated, no TCP/IP connection “Trying to connect” : trying to establish a TCP/IP connection “Synchronizing” : TCP/IP connection established, reading current state of the Amplified Controller “Ready” : TCP/IP connection established, waiting for a command from the user “Disconnecting” : Disconnecting following a user request “Disconnected” : Disconnected because of a network problem
[Error_Sticky]	D	When high, this signal indicates that an error occurred. This signal is sticky, which means that it stays high until it is explicitly cleared by pushing the “Cmd_Clear_Error” signal. 0 = no error occurred since last clear 1 = one or several error(s) occurred since last clear
[Error_Message]	S	String containing the last error or warning message. If it’s an error, it is associated with the “Error_Sticky” signal going high. This string signal must be explicitely cleared by the user by pushing the “Cmd_Clear_Error” signal.
[Unit_Type]	S	String containing the type of the connected Amplified Controller. This module is able to handle only the following types of Amplified Controllers: “LA4”, “LA8”, “LA4X”, “LA12X”.
[Unit_Fw_Version]	S	String containing the firmware version of the connected Amplified Controller. This version is composed of 4 decimal numbers separated by dots, for example “1.2.0.29”.
[Standby_Mode]	D	Current state of the Amplified Controller : 0 = active 1 = standby (low power consumption) This state can be changed by the “Cmd_Toggle_Standby” command.
[Standby_Mode_Text]	S	Same as the “Standby_Mode” feedback, but fit in a text : “Unit active” when “Standby_Mode=0” “Unit in standby” when “Standby_Mode=1”
[Key_Lock]	D	Current state of the front panel keys : 0 = unlocked 1 = locked

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		This state can be changed by the “Cmd_Toggle_Key_Lock” command.
[Key_Lock_Text]	S	Same as the “Key_Lock” feedback, but fit in a text : “Keys not locked” when “Key_Lock =0” “Keys locked” when “Key_Lock=1”
[Input_Mode_AB]	D	Current user selection for the input mode of channels A and B : 0 = Analog 1 = AES This mode can be changed by the “Cmd_Toggle_Input_Mode_AB” command.
[Input_Mode_AB_Text]	S	Current input mode of channels A and B, as it appears on the front-panel of the Amplified Controller : “ANALOG” : The analog input signal is processed normally “AES” : The AES input signal is processed normally “FALLBACK” : Fallback is active: [LA4/LA8] The analog signal is processed, [LA4X] The CD input is duplicated to AB
[Input_Mode_CD]	D	[Only for LA4X and LA12X] Current user selection for the input mode of channels C and D : 0 = Analog 1 = AES This mode can be changed by the “Cmd_Toggle_Input_Mode_CD” command.
[Input_Mode_CD_Text]	S	[Only for LA4X and LA12X] Current input mode of channels C and D, as it appears on the front-panel of the Amplified Controller : “ANALOG” : The analog input signal is processed normally “AES” : The AES input signal is processed normally
[AES1_State]	S	String containing the status of the AES 1 signal. Possible text values are : “NC” : The AES signal is not connected, no information available “UNLOCK” : No AES signal detected, or bad signal “LOCK xx kHz” : Valid AES signal, “xx” is the sample rate of the signal
[AES2_State]	S	[Only for LA4X and LA12X] String containing the status of the AES 2 signal. Possible text values are : “NC” : The AES signal is not connected, no information available “UNLOCK” : No AES signal detected, or bad signal “LOCK xx kHz” : Valid AES signal, “xx” is the sample rate of the signal
[Fallback_Mode]	D	Current user selection for the fallback mode enabling: 0 = Fallback feature disabled 1 = Fallback feature enabled This selection can be changed by the “Cmd_Toggle_Fallback_Mode” command.

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[Fallback_Mode_Text]	S	Same as the “Fallback_Mode” feedback, but fit in a text : “Fallback disabled” when “Fallback_Mode =0” “Fallback enabled” when “Fallback_Mode =1”
[Current_Preset_Name]	S	Name of the preset which is currently active in the Amplified Controller. To change the currently active preset, use the “Cmd_Load_User_Preset” command (only user presets can be loaded by this module).
[Current_Preset_Family]	S	Family name of the preset which is currently active in the Amplified Controller. To change the currently active preset, use the “Cmd_Load_User_Preset” command (only user presets can be loaded with this module).
[Previewed_Preset_Name]	S	Name of the previewed user preset (use the “Cmd_View_Next_User_Preset” command to preview another user preset). Note: is no user preset is available then this string is “<No user preset available>”.
[Output_Name_Ch1]	S	Name given to output channel 1 (this depends on the currently active preset).
[Output_Name_Ch2]	S	Name given to output channel 2 (this depends on the currently active preset).
[Output_Name_Ch3]	S	Name given to output channel 3 (this depends on the currently active preset).
[Output_Name_Ch4]	S	Name given to output channel 4 (this depends on the currently active preset).
[Mute_Ch1]	D	Mute state of output channel 1 : 0 = unmuted 1 = muted This state can be changed by the “Cmd_Toggle_Mute_Ch1” command.
[Mute_Ch2]	D	Mute state of output channel 2 : 0 = unmuted 1 = muted This state can be changed by the “Cmd_Toggle_Mute_Ch2” command.
[Mute_Ch3]	D	Mute state of output channel 3 : 0 = unmuted 1 = muted This state can be changed by the “Cmd_Toggle_Mute_Ch3” command.
[Mute_Ch4]	D	Mute state of output channel 4 : 0 = unmuted 1 = muted This state can be changed by the “Cmd_Toggle_Mute_Ch4” command.
[Mute_All]	D	This signal is a logical OR of the “Mute_Ch1”, “Mute_Ch2”, “Mute_Ch3” and “Mute_Ch4” feedbacks.

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[Gain_Ch1]	A	Current value of the gain on output channel 1. Unit is tenth of dB (0.1dB). This analog signal can be a positive or negative value, ranging from -600 (-60dB) to150 (+15dB). This value can be changed by the “Cmd_Gain_Up” and “Cmd_Gain_Down” commands.
[Gain_Ch2]	A	Current value of the gain on output channel 2. Unit is tenth of dB (0.1dB). This analog signal can be a positive or negative value, ranging from -600 (-60dB) to150 (+15dB). This value can be changed by the “Cmd_Gain_Up” and “Cmd_Gain_Down” commands.
[Gain_Ch3]	A	Current value of the gain on output channel 3. Unit is tenth of dB (0.1dB). This analog signal can be a positive or negative value, ranging from -600 (-60dB) to150 (+15dB). This value can be changed by the “Cmd_Gain_Up” and “Cmd_Gain_Down” commands.
[Gain_Ch4]	A	Current value of the gain on output channel 4. Unit is tenth of dB (0.1dB). This analog signal can be a positive or negative value, ranging from -600 (-60dB) to150 (+15dB). This value can be changed by the “Cmd_Gain_Up” and “Cmd_Gain_Down” commands.
[Signal_Ch1]	D	Indicates whether a signal is present on output channel 1 (voltage > 100mV) : 0 = signal absent 1 = signal present
[Signal_Ch2]	D	Indicates whether a signal is present on output channel 2 (voltage > 100mV) : 0 = signal absent 1 = signal present
[Signal_Ch3]	D	Indicates whether a signal is present on output channel 3 (voltage > 100mV) : 0 = signal absent 1 = signal present
[Signal_Ch4]	D	Indicates whether a signal is present on output channel 4 (voltage > 100mV) : 0 = signal absent 1 = signal present
[Limit_Ch1]	D	Indicates the activity of the L-Drive protection on output channel 1: 0 = L-Drive protection inactive (not limiting) 1 = L-Drive protection active (limiting)
[Limit_Ch2]	D	Indicates the activity of the L-Drive protection on output channel 2: 0 = L-Drive protection inactive (not limiting) 1 = L-Drive protection active (limiting)

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[Limit_Ch3]	D	Indicates the activity of the L-Drive protection on output channel 3: 0 = L-Drive protection inactive (not limiting) 1 = L-Drive protection active (limiting)
[Limit_Ch4]	D	Indicates the activity of the L-Drive protection on output channel 4: 0 = L-Drive protection inactive (not limiting) 1 = L-Drive protection active (limiting)
[Clip_Ch1]	D	Indicates whether the signal is clipped or not on output channel 1: 0 = not clipped 1 = clipped
[Clip_Ch2]	D	Indicates whether the signal is clipped or not on output channel 2: 0 = not clipped 1 = clipped
[Clip_Ch3]	D	Indicates whether the signal is clipped or not on output channel 3: 0 = not clipped 1 = clipped
[Clip_Ch4]	D	Indicates whether the signal is clipped or not on output channel 4: 0 = not clipped 1 = clipped
[Ui_Busy]	D	This feedback signal is pulsed high for 100ms each time a user action is required on the module (“Cmd_xxx” has been pushed) but the module is busy and cannot process it. When high, this signal indicates that the last action from the user has not been taken into account by the module.
[Network_Busy]	D	This feedback signal is high when the Crestron hardware is exchanging information with the Amplified Controller through the LCOM protocol. It is a network traffic activity indicator. This signal is for information only and can be used to drive a “traffic activity” led.

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PARAMETERS:		
IP Adr	S	IP address of the Amplified Controller, for example “192.168.1.100”.

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TESTING:	
OPS USED FOR TESTING:	PRO2 v4.007.004 CP3 v1.011.0023
SIMPL WINDOWS USED FOR TESTING:	4.03.10
CRESTRON DB USED FOR TESTING:	52.00.016.00
DEVICE DB USED FOR TESTING:	66.05.002.00
SAMPLE PROGRAM:	L-ACOUSTICS LA4X-8 V2.3 DEMO
REVISION HISTORY:	V. 1.0 First release V. 1.1 Update to handle new firmware V. 2.0 Major update (change in the input and output signals of the module) V. 2.1 Added compatibility with October 2015 firmware V. 2.2 Added support for LA12X and compatibility with 2016 firmwares V. 2.3 Added compatibility with firmwares up to February 2018

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