GENERAL INFORMATION

SIMPLWINDOWS NAME:	L-Acoustics Amplified Controller Basics
CATEGORY:	MULTI-CHANNEL AUDIO AMPLIFIER
VERSION:	V3.2.0
SUMMARY:	The module provides a selection of control 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.
CRESTRON HARDWARE REQUIRED:	C3ENET, 3-Series Processor
SETUP OF CRESTRON HARDWARE:	The processor's IP address must be in the same subnet as the amplified controllers (typically 192.168.1.x/255.255.255.0, but other classes are possible, see amplified controller user manual). If not the case, then the TCP/IP connection will be impossible, as L-Acoustics amplified controllers currently don't support Layer 3 IP routing.
VENDOR FIRMWARE:	LA4/LA8/LA4X/LA12X minimum firmware version: V2.9.8 Maximum firmware version: V2.10.x
VENDOR SETUP:	Amplified Controller connected to the Ethernet Network

SUPPORT CONTACT

COMPANY NAME:	L-Acoustics
SUPPORT CONTACT:	Application, Electronics / AV Control System
EMAIL ADDRESS:	avcontrol@l-acoustics.com
PHONE:	+33 (0) 1 69 63 69 63
ADDRESS:	L-Acoustics 13 rue Levacher Cintrat 91460 Marcoussis France

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15 Volvo Drive • Rockleigh, NJ 07647
800.237.2041 / 201.767.3400

www.crestron.com

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RELEASE NOTES

- **Version 3.2.0**

New features/Improvements

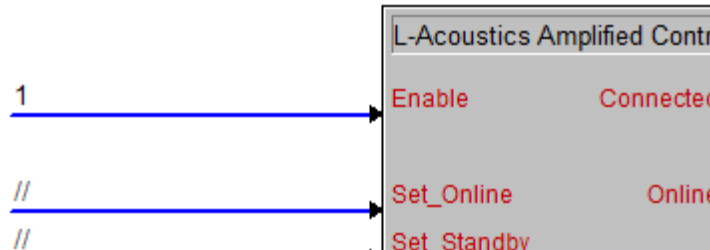| 0007733	Support of LA2Xi and firmware 2.11.x

Fixed issues

0007704	Digital inputs don't work well with 0 and 1 standard signals

- **Version 3.1.0** (April 2020)
  - Support of Firmware 2.10.x
- **Version 3.0.0** (February 2019)

Initial release

GENERAL INFORMATION

- **Standard signals "1" and "0"**

It is possible to use the standard "**1**" signal on all digital inputs of the module, especially on the **Enable** input. This will have the effect to instantly connect the module at program startup (for **Enable** input), or send the associated command as soon as the module connection is established (for other digital inputs).

However, the stand signal "**0**" cannot be used to automatically trigger the falling edge of a command. Using **"0"** on an input has the same effect as commenting **"//"** the input.

CONTROL

Enable	D	The **Enable** signal is used to activate the functions of the module. As soon as this signal is HIGH, the module tries to connect to the amplified controller over TCP/IP. When the connection is successful, all other input signals are effective. When the signal is LOW, the TCP/IP connection gets closed, and input signals become ineffective.
Set_Online **Set_Standby**	D	**Set_Online** and **Set_Standby** react to rising edges. Setting these signals HIGH turns the amplified controller into either Online state or Standby state. Of course, it cannot be in both states at the same time, so the latest rising edge will prevail.
Mute_Ch1 **Mute_Ch2** **Mute_Ch3** **Mute_Ch4**	D	**Mute_Ch[X]** react to rising edges. Push these signals to mute the individual outputs of the amplified controller.
Unmute_Ch1 **Unmute_Ch2** **Unmute_Ch3** **Unmute_Ch4**	D	**Unmute_Ch[X]** react to rising edges. Push these signals to unmute the individual outputs of the amplified controller.
Master_Mute **Master_Unmute**	D	**Master_Mute** and **Master_Unmute** react to rising edges. These signals have a different behavior than **Mute_All** and **Unmute_All**, because they don't act on channels that are already muted. **Master_Mute** is muting all the unmuted channels. **Master_Unmute** is unmuting only the channels that were muted by **Master_Mute**.
Gain_Up **Gain_Down**	D	**Gain_Up** and **Gain_Down** react to rising edges. Pushing these signals raises/lowers all channels' gain value by ±1.0dB. If one of the channels' gain value is reaching the boundaries of −60dB or +15dB, then the gain won't increase/decrease any further (relative gain differences are preserved).

FEEDBACK

Connected_fb	D	This signal is HIGH when the TCP/IP connection to the amplified controller is established, and the remote device is compatible with the module.
Online_fb	D	HIGH = the amplified controller is Online. LOW = the amplified controller is in Standby mode.
Display_Lock_fb	D	HIGH = the front panel controls are locked. LOW = the front panel controls are unlocked.
Mute_Ch1_fb **Mute_Ch2_fb** **Mute_Ch3_fb** **Mute_Ch4_fb**	D	HIGH = the output channel is muted. LOW = the output channel is unmuted.
Limit_fb#	A	This analog signal is a bit-field representing the limiting status flag of each output channel: - bit1 (LSB) = output 1 limiting - bit 2 = output 2 limiting - bit 3 = output 3 limiting - bit 4 = output 4 limiting HIGH = the internal DSP is currently limiting the audio level for the channel LOW = the internal DSP is not limiting the audio level for the channel
Clip_fb#	A	This analog signal is a bit-field representing the clipping status flag of each output channel: - bit1 (LSB) = output 1 clipping - bit 2 = output 2 clipping - bit 3 = output 3 clipping - bit 4 = output 4 clipping HIGH = the output level is reaching 0dBFS. Audio is clipping on the channel. LOW = the output level is below 0dBFS.
Master_Mute_fb	D	HIGH = Master Mute is active, all channels are muted. LOW = Master Mute is inactive, or some channels were manually muted/unmuted.
Gain_Ch1# **Gain_Ch2#** **Gain_Ch3#** **Gain_Ch4#**	A	These analog signals represent the gain value of the output channels. The full analog signal range (0d ~ 65535d) is used to represent the full gain range (−60.0 ~ +15.0dB) of the output channels, which means that: - **Gain_Ch[X]#** = 0d (minimum) ⇒ gain = −60.0dB (minimum) - **Gain_Ch[X]#** = 65535d (maximum) ⇒ gain = +15.0dB (maximum) - **Gain_Ch[X]#** = 52428d ⇒ gain = 0.0dB (unity)
Error_Present_fb	D	HIGH = an error is present in the module. LOW = no error present in the module.
Error_Message$	S	This signal gives details on the nature of the errors present in the module or the unit. If several errors occur, they are delimited by '\r' (\x0D) carriage return characters.

PARAMETERS

IpAddress	S	IP address of the Amplified Controller, for example "192.168.1.100". The IP address must be in the following ranges: - 10.0.0.1 – 10.255.255.254 (Class A) - 172.16.0.1 – 172.31.255.254 (Class B) - 192.168.0.1 – 192.168.255.254 (Class C) - 100.64.0.1 – 100.127.255.254 (SAS) - 169.254.0.1 – 169.254.255.254 (APIPA)

TESTING

OPS USED FOR TESTING:	RMC3 v1.601.3857
SIMPL WINDOWS USED FOR TESTING:	4.14.20
CRESTRON DB USED FOR TESTING:	90.00.004.00
DEVICE DB USED FOR TESTING:	115.08.002.00
SAMPLE PROGRAM:	L-Acoustics Amplified Controller Basics (single unit) L-Acoustics Amplified Controller Basics (60 units)
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 V 3.0.0 Module rebuilt from scratch using SIMPL# (December 2018) V 3.1.0 Added compatibility with firmware 2.10.x V 3.2.0 Support of LA2Xi and firmware 2.11.x

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