



# L-ACOUSTICS Q-SYS PLUG-IN FOR NETWORK AUDIO CONVERTERS

technical bulletin - v.1.0

## Introduction

The L-Acoustics Q-SYS plug-in for Network Audio Converters allows integrating L-Acoustics sound reinforcement systems in projects where highly customizable user interface or monitoring solutions are required and addressed using QSC Q-SYS platform.

Supported device types: LC16D

The L-Acoustics Q-SYS plug-in version 1.0.0 is compatible with Q-SYS Designer software from minimum version 8.4.0.

## Release notes (July 2024)

First release.

## Compatibility

### Device Compatibility

<b>L-Acoustics Q-SYS plug-in Version</b>	<b>Firmware versions</b>	<b>Drive System Release</b>	<b>Q-SYS Designer minimum version</b>
1.0.0	From: 2.13.2.x To: 2.13.x	From: Feb. 2024	8.4.0

## Installing the L-Acoustics Q-SYS plug-in for Network Audio Converters

The L-Acoustics Q-SYS plug-in for Network Audio Converters is available in the Q-SYS Asset Manager as **L-Acoustics Network Audio Converter**.

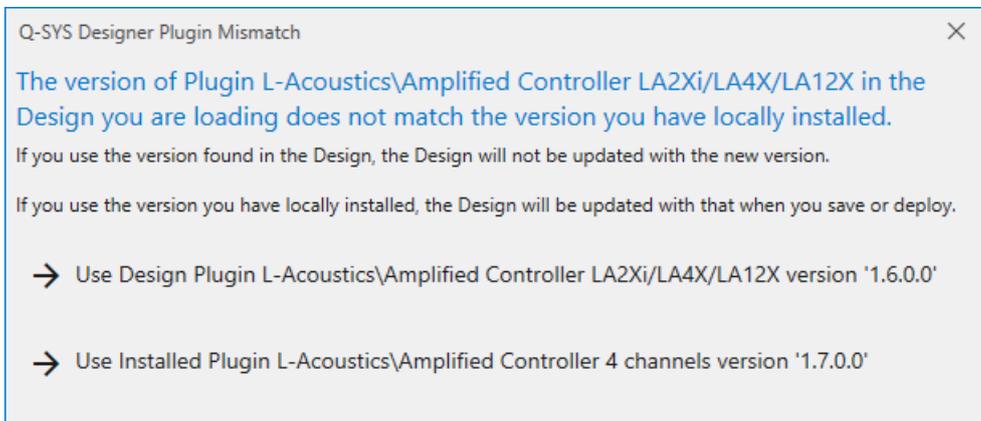
Use the Q-SYS Asset Manager **Version**, **Install**, **Update** and **Remove** functions to manage the plug-in versions in the local Q-SYS Designer plug-ins library.

### Updating existing designs

When opening an existing design created with another version of a plug-in, Q-SYS Designer asks which plug-in version to keep for this design.

It is possible to save the design with a past version of the plug-in even if the plug-in was deleted. The whole plug-in is included in the design when saving.

When asked, either click **Use Design Plugin** for the past version or click **Use Installed Plugin** for the latest version.



Each new release is backward compatible with previous versions.

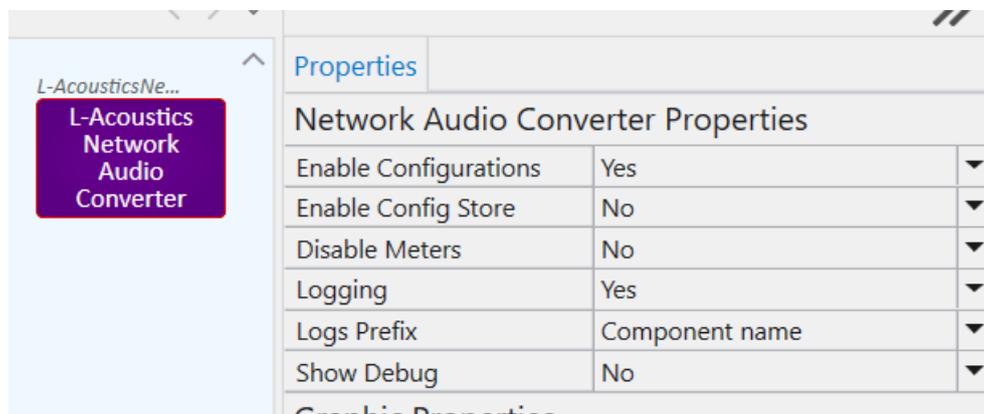
With the **Use Installed Plugin** option, the dialog pops up as many times as there are instances of the plug-in in the design. This is Q-SYS Designer expected behavior.

 When the **Q-SYS Designer Plugin Mismatch** dialog opens while connected to a hardware Q-SYS Core, and the option **Use Installed Plugin** is selected, the plug-ins are updated locally in Q-SYS Designer with the newest version, but it is required to trigger **Save to Core & Run** afterwards in order to also update the design running inside the Q-SYS Core. Failing to do so will result in an unpredictable behavior of the plug-ins.

## Component description

Drag the plug-in from **Schematic Elements** to the design.

Clicking the Component block in the design displays its **Properties**.



<b>Enable Configurations</b>	enable the possibility to recall audio configurations stored inside the Network Audio Converter
<b>Enable Config Store</b>	enable the possibility to save current Network Audio Converter state into an audio configuration slot
<b>Disable Meters</b>	unsubscribe from / subscribe to meters notifications from the device Disabling meters may save control processing power on the Q-SYS core.
<b>Logging</b>	enable or disable writing status messages to system logs
<b>Control Pins</b>	expand to edit which control pins should be displayed on the component, as necessary The <b>Control Pins</b> tree is dynamically updated according to the device properties.

## User Interface description

Double-click the component to open the user interface. The list of tabs depends on the component's properties.

### Main

This tab displays the main status and controls of the Network Audio Converter: IP address (primary and secondary), firmware version, audio protocol and network modes, device global status, socket connection, power sources, clock status, configuration selection, device identification and reboot, GPIO control and monitoring.

### IP Connection

- **IP:** enter the primary IP address (and secondary IP address when applicable) of the device.
- **Connected:** the plug-in is currently connected to the device.
- **Available:** the device is responding on primary and/or secondary IP addresses and IP connection is possible.
- **Active:** the plug-in is targeting primary or secondary IP address for socket connection.
- **Go Active:** manually failover to primary/secondary IP address.
- **Automatic Failover:** the plug-in automatically fails over to the alternative IP address (if available) when active connection is lost.

## Converter Status

The screenshot shows the 'Converter Status' web interface. It is divided into several sections:
 

- Device Info:** Type: LC16D, Name: LC16D 100, FW: 2.13.4.1
- Network Settings:** Audio Network Protocol: Milan-AVB, Network Mode: Redundancy
- Global Status:** A large green bar indicating 'OK - Primary'.
- Power:** A green indicator for 'MAINS'.
- Clock:** A green bar indicating 'OK - CRF in - Locked'. Below it, 'Sampling rate: 96 kHz'.
- Current Configuration:** A dropdown menu showing '\*00: DEFAULT'. Below it are 'Identify' (yellow) and 'Reboot' (red) buttons.

- **Name:** the name of the device can be customized from its embedded Web interface.
- **Network Mode:** Normal or Redundancy. Change this setting from the embedded Web interface of the device.
- **Power:** The device has three possible power sources: Mains and PoE on each Ethernet port.
- **Clock:** current status and type of clock source (Internal, Word Clock, AVB, CRF, MADI, AES), and current device sampling rate (48 kHz or 96 kHz). The clock and sampling rate settings can be changed from the embedded Web interface of the device.
- **Current Configuration:** enter an audio configuration number, name or select one of the available audio configurations from the dropdown list. A star (\*) sign means that the current state has not been saved to an audio configuration memory slot or that the current audio configuration has been modified compared to its saved state.

## GPIO

This frame displays the current GPIO settings of the device. These settings can be modified from the embedded Web interface of the device.

For more information on how to use GPIO with L-Acoustics products, refer to **L-Acoustics GPIO** Technical Bulletin available in the Documentation Center on the L-Acoustics website.

GPIO						
Setup GPIO modes and functions using the device Web page						
	State	Mode	GPIO High Func.	GPIO Low Func.	GPO Func.	GPO Manual
GPIO 1	●	GPI	No function	No function	No function	Closed
GPIO 2	●	GPI	No function	No function	No function	Closed
GPIO 3	●	GPI	No function	No function	No function	Closed
GPIO 4	●	GPI	No function	No function	No function	Closed

- **State:** On = High/Open, Off = Low/Closed
- **Mode:** GPI (input) or GPO (output)
- **GPIO High Function:** function executed when the GPIO mode is set to GPI and a rising edge is detected.
- **GPIO Low Function:** function executed when the GPIO mode is set to GPI and a falling edge is detected.
- **GPO Function:** role played by the GPO when the GPIO mode is set to GPO. When the GPO Function is set to Manual State, the GPO Manual button controls the Open/Closed state of the GPO relay.

## Configurations

This tab allows to store and recall audio configurations.

Slot	Configuration Name	Created/Modified
1	Console A	01.01.2000 00:03:01
2	Console B	01.01.2000 00:03:08
3	L-ISA	01.01.2000 00:03:28
4		
5		
6		
7		
8		
9		
10		

An audio configuration contains all the device's audio settings: clock source selection, AES/EBU ASRC, and AVB input and output channel mapping. However, the sampling rate setting (48 kHz - 96 kHz) is not recalled with audio configurations and must be changed using the embedded Web interface of the device.

- **Store:** push a button to store the current state of the device in one of the available audio configuration memory slots. Use the text field on the top right-hand side corner to customize the name of the audio configuration.



**If an audio configuration already exists in the selected memory slot, it is overwritten.**

- **Recall:** push a button to recall the associated audio configuration.

## AES/EBU in

This tab allows monitoring and control of AES/EBU inputs.

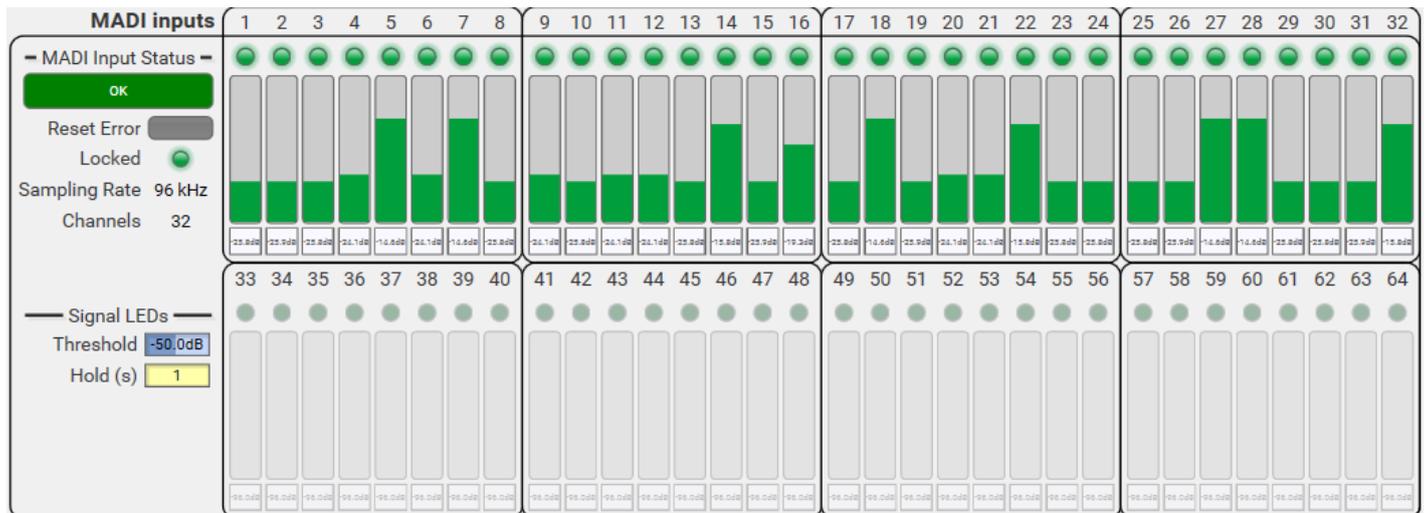
- **Input Status:** status of the AES/EBU stereo input, with some details on the warning or error when present.
- **Reset Error:** reset the AES/EBU input status from FAULT to NOT PRESENT in case the AES/EBU input signal was removed and this should no longer be considered as an error (not used anymore).
- **ASRC:** enable or disable the Asynchronous Sample Rate Converter on each AES/EBU input.



When the device clock source is set to **AES/EBU input 1-2**, ASRC cannot be enabled on AES/EBU input 1-2.

## MADI in

This tab allows monitoring of the MADI inputs.



- **MADI Input Status:** reception status of the MADI input, with some details on the warning or error if present.
- **Reset Error:** reset the MADI input status from FAULT to NOT PRESENT in case the MADI input signal was removed and this should no longer be considered as an error (not used anymore).



MADI inputs 33 to 64 are disabled when the sampling rate of the device is set to 96 kHz.

## AVB out

This tab allows monitoring of the AVB output streams and mapping from the digital inputs (AES/EBU and MADI).

AVB outputs	1	2	3	4	5	6	7	8
Primary Status	OK - Streaming							
Secondary Status	OK - Streaming							
Channels	8	8	8	8	8	8	8	8
Sampling Rate	96 kHz							
Presentation Time	2.00 ms							
Channel 1	AES 1	AES 9	MADI 1	MADI 9	MADI 17	MADI 25	MADI 33	MADI 41
Channel 2	AES 2	AES 10	MADI 2	MADI 10	MADI 18	MADI 26	MADI 34	MADI 42
Channel 3	AES 3	AES 11	MADI 3	MADI 11	MADI 19	MADI 27	MADI 35	MADI 43
Channel 4	AES 4	AES 12	MADI 4	MADI 12	MADI 20	MADI 28	MADI 36	MADI 44
Channel 5	AES 5	AES 13	MADI 5	MADI 13	MADI 21	MADI 29	MADI 37	MADI 45
Channel 6	AES 6	AES 14	MADI 6	MADI 14	MADI 22	MADI 30	MADI 38	MADI 46
Channel 7	AES 7	AES 15	MADI 7	MADI 15	MADI 23	MADI 31	MADI 39	MADI 47
Channel 8	AES 8	AES 16	MADI 8	MADI 16	MADI 24	MADI 32	MADI 40	MADI 48
Primary Status	NOT RECEIVED - Waiting							
Secondary Status	NOT RECEIVED - Waiting							
Channels	8	8	8	8	8	8	8	8
Sampling Rate	96 kHz							
Presentation Time	2.00 ms							
Channel 1	MADI 49	MADI 57	NONE	NONE	NONE	NONE	NONE	NONE
Channel 2	MADI 50	MADI 58	NONE	NONE	NONE	NONE	NONE	NONE
Channel 3	MADI 51	MADI 59	NONE	NONE	NONE	NONE	NONE	NONE
Channel 4	MADI 52	MADI 60	NONE	NONE	NONE	NONE	NONE	NONE
Channel 5	MADI 53	MADI 61	NONE	NONE	NONE	NONE	NONE	NONE
Channel 6	MADI 54	MADI 62	NONE	NONE	NONE	NONE	NONE	NONE
Channel 7	MADI 55	MADI 63	NONE	NONE	NONE	NONE	NONE	NONE
Channel 8	MADI 56	MADI 64	NONE	NONE	NONE	NONE	NONE	NONE

- **Primary Status:** status of the AVB talkers on primary network (when applicable).
- **Secondary Status:** status of the AVB talkers on secondary networks (when applicable).
- **Presentation Time:** AVB network latency for each AVB output stream. This setting can be changed from the embedded Web interface of the device.
- **Channel #:** select which digital audio input channel (AES/EBU or MADI) is mapped to each AVB output stream channel. Select 'DEFAULT' to restore the default value.

## AVB in

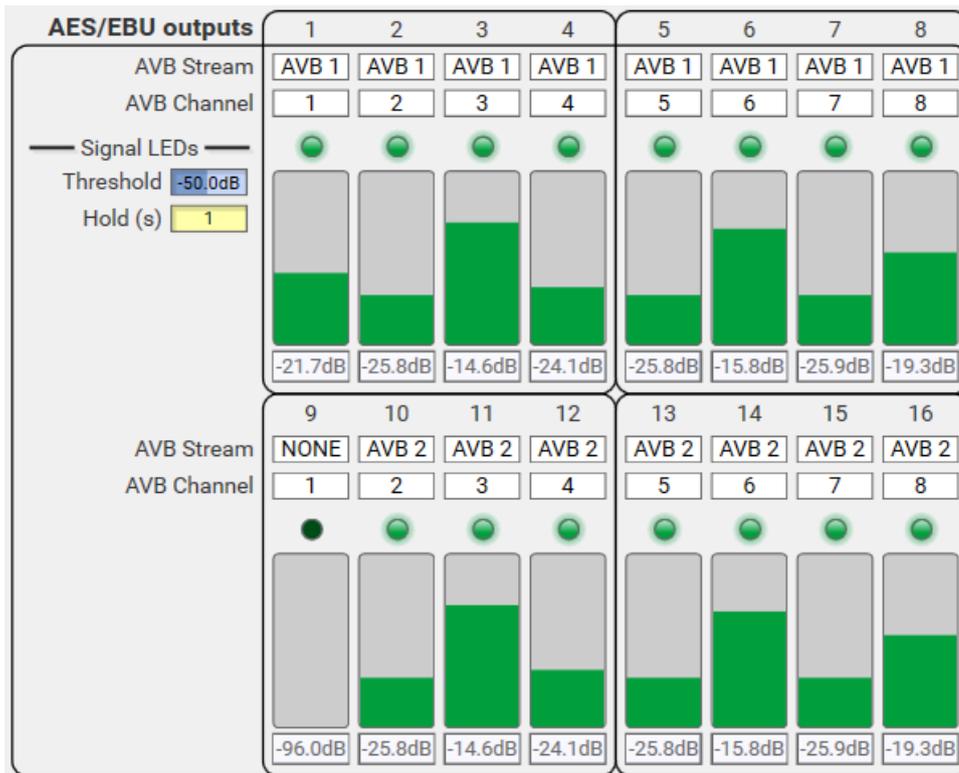
This tab allows monitoring of the AVB input streams.

AVB inputs	1	2	3	4	5	6	7	8
Summary Status	OK	OK	OK	OK	OK	OK	Not Present	Not Present
Sampling Rate	96 kHz							
Channels	8	8	8	8	8	8	8	8
Primary Stream	OK	OK	OK	OK	OK	OK	Not Present	Not Present
Media Locked								
Secondary Stream	OK	OK	OK	OK	OK	OK	Not Present	Not Present
Media Locked								
Summary Status	Not Present							
Sampling Rate	96 kHz							
Channels	8	8	8	8	8	8	8	8
Primary Stream	Not Present							
Media Locked								
Secondary Stream	Not Present							
Media Locked								

- **Summary Status:** combined status for both primary and secondary streams. 'OK' when both streams are locked, 'COMPROMISED' when one stream is not locked, 'FAULT' when both streams are not locked.
- **Primary/Secondary Status:** status of the AVB input stream, with details on the error when present.
- **Media Locked:** this LED is turned on when the input stream is connected and also locked to the media clock.

## AES/EBU out

This tab allows monitoring of the AES/EBU outputs and mapping from AVB input streams.



- **AVB Stream / AVB Channel:** select which AVB input stream and channel is mapped to an AES/EBU output. Select 'DEFAULT' to restore the default value.

## MADI out

This tab allows monitoring of MADI outputs and mapping from AVB input streams.

MADI outputs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
AVB Stream	AVB 2	AVB 1	AVB 2	AVB 3	AVB 4	AVB 2	AVB 1									
AVB Channel	2	7	5	4	3	4	3	5	4	2	4	4	2	6	7	8
Signal LEDs																
Threshold	-50.0dB															
Hold (s)	1															
AVB Stream	AVB 2	AVB 1	AVB 1	AVB 2	AVB 2	AVB 5	AVB 2	AVB 6	AVB 1							
AVB Channel	5	3	7	4	4	6	5	5	5	7	3	3	2	2	7	6
Signal LEDs																
Level	-25.8dB	-25.9dB	-25.8dB	-24.1dB	-24.1dB	-15.8dB	-25.8dB	-25.8dB	-25.8dB	-25.9dB	-14.6dB	-14.6dB	-25.8dB	-25.8dB	-25.9dB	-15.8dB
AVB Stream	AVB 7	AVB 8														
AVB Channel	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Signal LEDs																
Level	-96.0dB															
AVB Stream	AVB 9	AVB 10														
AVB Channel	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Signal LEDs																
Level	-96.0dB															

- **AVB Stream / AVB Channel:** select which AVB input stream and channel is mapped to a MADI output. Select 'DEFAULT' to restore the default value.



MADI outputs 33 to 64 are disabled when the device's sampling rate is set to 96 kHz.

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