

6.3.13 Livewire® Card (VISTA, OnAir, ROUTE 6000*)

5014376

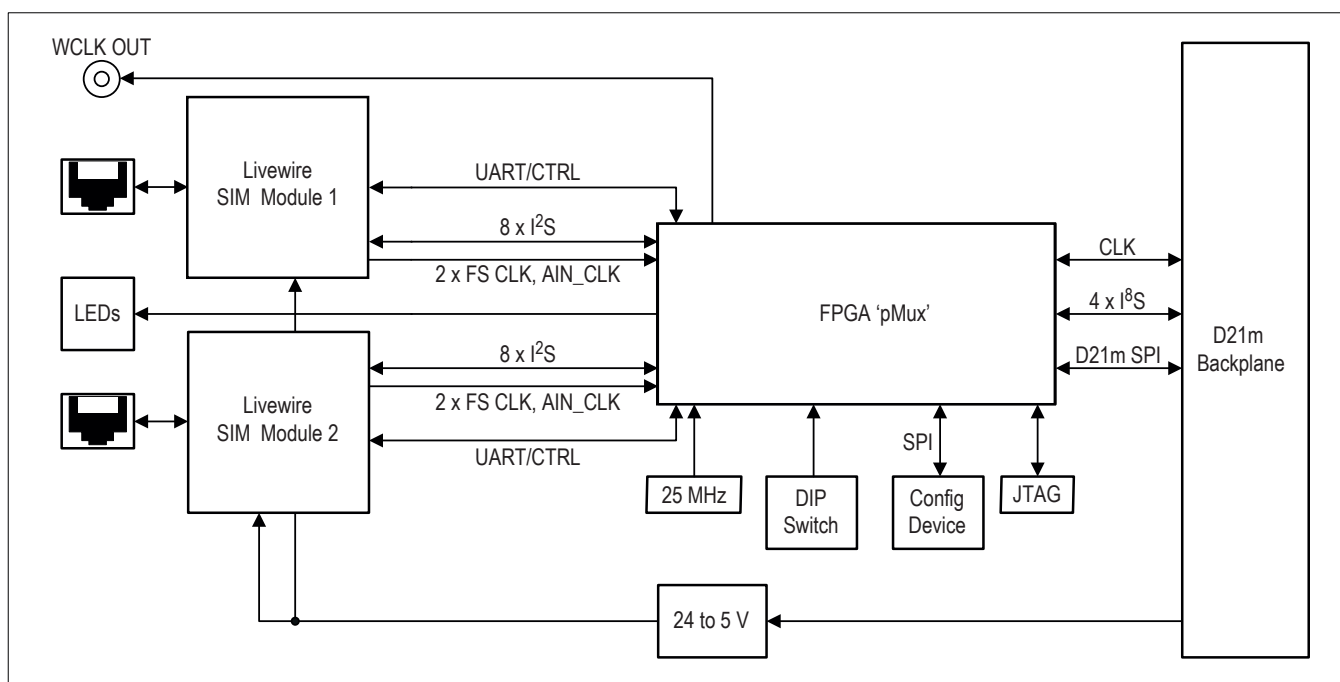


One or several D21m Livewire cards can be plugged into a D21m frame and can be seamlessly integrated in an environment of Studer I/Os, consoles, and/or routers. This allows transferring audio data over Ethernet via Axia's Livewire technology – not only among Studer products featuring D21m card slots, but also in combination with 3rd-party components supporting the Livewire standard. The D21m Livewire card features 16 stereo channels in and out (8 per Ethernet connector). The channels are configurable with a DIP switch in groups: 0, 16 or 32 input signals, and 0, 16 or 32 output signals. Please note that Livewire only 'knows' about stereo channel pairs. The D21m Livewire card, however, will split or combine these pairs on the D21m system's backplane into/from mono signals. Therefore, if mono channels are required, this can only be realized via the console's configuration but not in the Livewire domain.

A word clock output is provided on the card and can be used for synchronizing other Livewire devices.

* Supported Product family	from SW Version
Vista	V 5.0
OnAir	V 5.0
Route 6000	V 2.2

Current consumption (24 V) 300 mA
 (3.3 V) 60 mA
Operating temperature 0-40 °C



Integration In order to use Livewire audio and control data by Monitors via TCP/IP, the PC or Server with a radio automation software must have a virtual com port. Installing 'Virtual Serial Port' by Eltima, <http://www.eltima.com/products/vspdxp/> is recommended.

In addition, the designated I/O setup needs to be configured in the OnAir console.

Besides interfacing to other Livewire hardware nodes, Studer's Livewire card can also connect to a virtual Livewire audio device. To connect to a virtual Livewire device, a Livewire virtual audio driver must be integrated by the 3rd party system, such as a radio automation. Audio can be played back then out of the 3rd party system to a Studer console via Livewire.

The radio automation system can control the OnAir console (routing, snapshots, faders) using the Monitora protocol (requires support of Monitora by the 3rd party system). It is also possible that the console triggers a playback by manually opening the dedicated console fader.

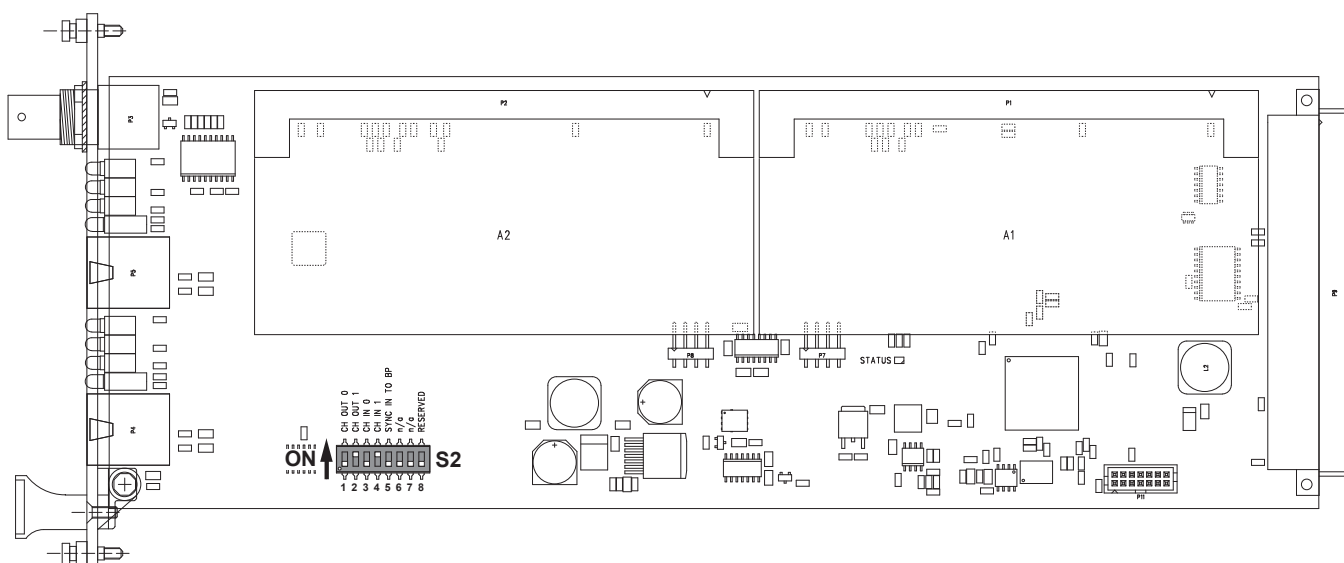
Notes In order to have a reliable Livewire configuration, installation of a Livewire-recommended switch is mandatory (such as the Cisco 2960).

The Livewire card requires an update of OnAir software to version 5.0.

Livewire operation is limited to the standard sampling rate of 48 kHz.

GPIO over IP is currently not supported; however, the Monitora protocol may be used for controlling channel functions of the mixing console by the playout system. The console will need two separate Ethernet connections then – one for AoIP (Audio over Internet Protocol), the second for Monitora control.

Front Panel LEDs	LNK (Link)	When continuously illuminated, this LED indicates the presence of a live Ethernet link to another Ethernet 100BASE-T device, which means that a connection is present and some device is connected. It does not indicate the quality of the connection, however. If no Ethernet link is present, it will flash slowly.
	LW (Livewire)	This LED indicates that the connected Ethernet segment has Livewire traffic present. If the LNK LED is illuminated but the LW LED is not, there are either no other Livewire devices connected, or the Ethernet switch has not been programmed to pass such traffic.
	SY (Sync)	If sync packets are being received by the Livewire node, this LED will begin to flash. The LED will continue to flash until the Livewire node has locked its local clock to the network master. Once the local node's PLL is locked, the LED will illuminate continuously.
	MST (Master)	The Livewire system employs a sophisticated master/slave clocking system over the Ethernet network. Any device may become the clock master by default, however this can be changed if desired. The system has the ability to automatically change to a different clock master if the current master is disconnected or otherwise inoperative. This happens transparently and without any audible glitches. The LED indicates that this node is currently acting as master.
	SY and MST	Only one of these two LEDs should be illuminated at a time. If neither LED illuminates, something is faulty. The SY LED indicates incoming clock information from another (master) Livewire node. The MST LED indicates that its node is acting as the master clock source for the Livewire network.
	ERR (Error)	Both ERR LEDs alternately flash if the D21m frame has no lock or if it runs at a sampling rate different from 48 kHz. The individual ERR LEDs are illuminated if <ul style="list-style-type: none"> • the corresponding Livewire module has detected an internal error, or • the UART communication fails, or • the corresponding Livewire module is missing.



DIP Switch S2 Segments 1 & 2

1	2	Option
OFF	OFF	0 outputs
ON	OFF	16 outputs
OFF	ON	32 outputs (<i>factory default setting</i>)
ON	ON	not used

Segments 3 & 4

3	4	Option
OFF	OFF	0 inputs
ON	OFF	16 inputs
OFF	ON	32 inputs (<i>factory default setting</i>)
ON	ON	not used

Segment 5 reserved for future use (*must always be OFF*)
Segments 6 & 7 not used (*factory default setting: OFF*)
Segment 8 reserved for future use (*must always be OFF*)

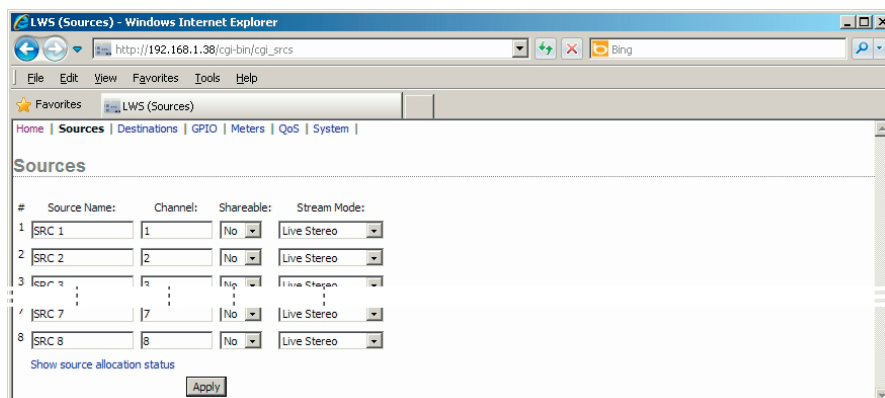
6.3.13.1 Configuration via Web GUI

Connect your computer to one of the card's ports with an Ethernet cable. Enter the IP address (default: 192.168.1.38) in the address line of your browser and hit Enter. Refer to the following chapter if the IP Address of your device is unknown. Login to open any page (user name: axia, no password required).

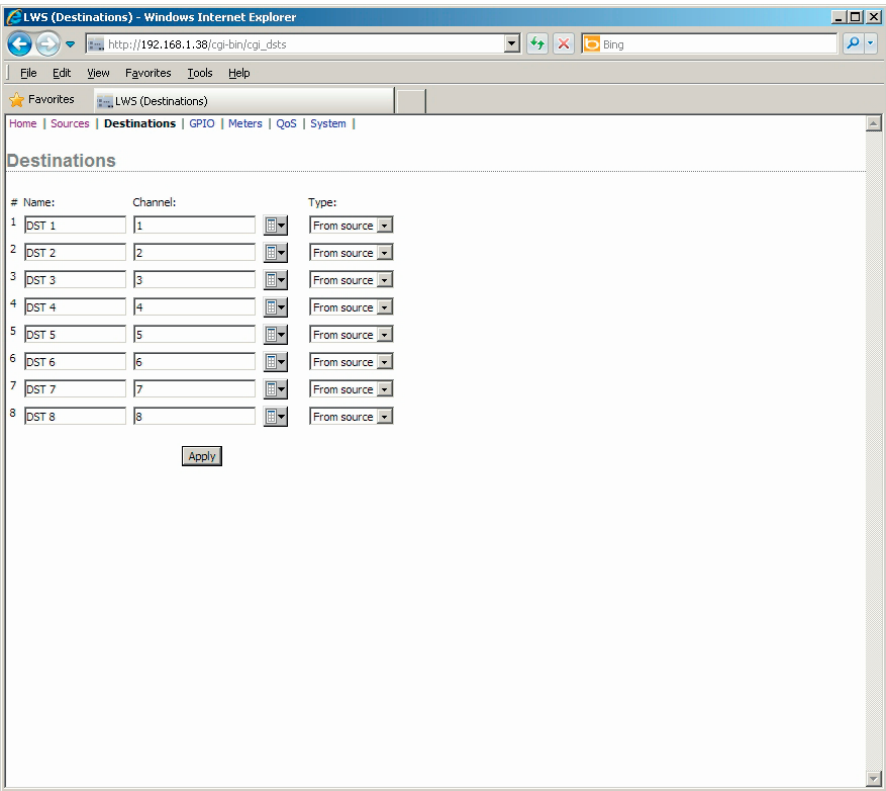
Sources Page

(Factory default settings shown).

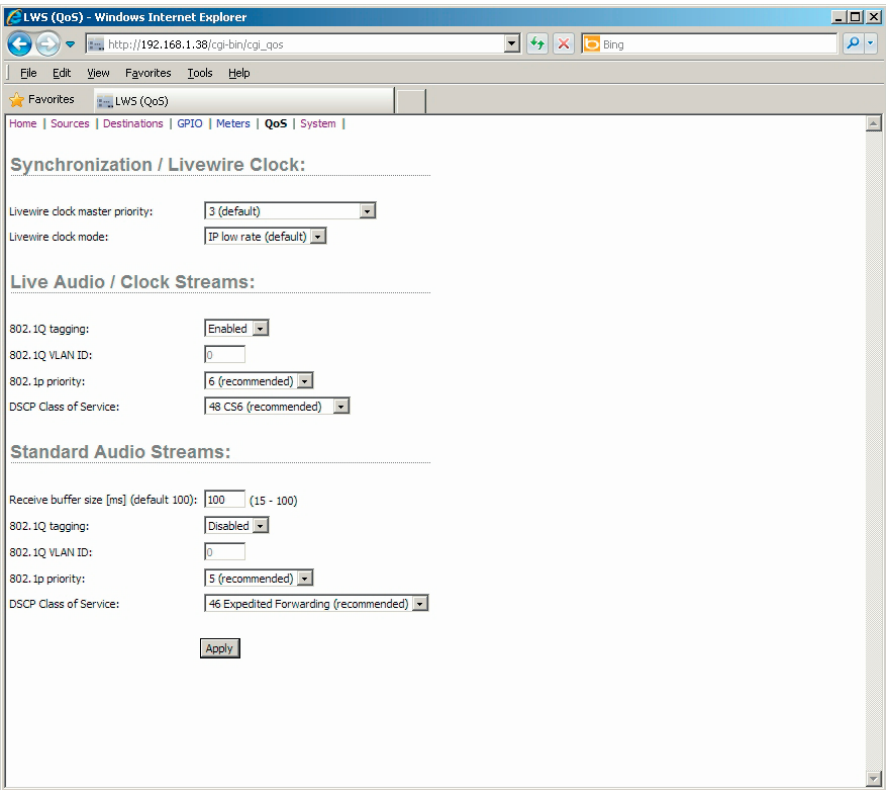
Displays the source channels sent to the Livewire network by this module.



Destinations Page (Factory default settings: Local loopback).
Displays the source channels received from the Livewire network by this module.



QoS (Quality of Service) Page (Factory default settings shown).
If this module will be used as Livewire clock master, select '7 (always master)' for 'Livewire clock master priority'.



System Page (Factory default settings shown). Use 'Network address' to change the IP address.

This page can also be used for firmware updates. Switch to 'Bank 0', upload the new firmware to 'Bank 1' and switch back to 'Bank 1'.

LWS (System) - Windows Internet Explorer
 http://192.168.1.38/cgi-bin/cgi_sys

File Edit View Favorites Tools Help

Home | Sources | Destinations | GPIO | Meters | QoS | **System**

IP settings:

Host name: LWS (1-12 characters: letters, numbers, hyphen)
 Network address: 192.168.1.38
 Netmask: 255.255.255.0
 Gateway: 0.0.0.0
 NTP server: 0.0.0.0 (takes effect after reset)
 Timezone: UTC+0 (takes effect after reset)
 Syslog server (IP address): 10.2.254.155
 Syslog severity level filter: Warning: warning conditions

User password:

New password: (5-8 characters: letters and numbers)
 Retype new password: (verify)

Firmware version:

Hardware revision: Axia LWSIMM

☐ Bank 0 ver. 1.0.1a (build Wed Apr 25 15:48:58 EDT 2012)
☒ Bank 1 ver. 1.0.2f (build Thu Aug 9 12:42:49 EDT 2012)
☐ commit this version to Bank 0

Warning: System will reboot after changing current bank.

Apply

Note Repeat this procedure for the second Livewire SIM module if required.

6.3.13.2 Livewire Network Node Detection

In order to retrieve unknown IP addresses in the network proceed as follows:

- Install Pathfinder PC/PRO on your computer (download from www.axiaudio.com; use the 'PathfinderPC Server x.xx Release' link). The free version has restricted functionality but is sufficient for our purposes. It is specified for computers running Windows® XP but also seems to be compatible with Windows® 7.
- Connect your computer to the network.
- Start PathFinderServer. Skip the License Dialog by a click on 'Exit'. After confirming to work in restricted functionality mode, the following window pops up:

PathFinderServer - PEZUPMUS 1

File View Preferences Help

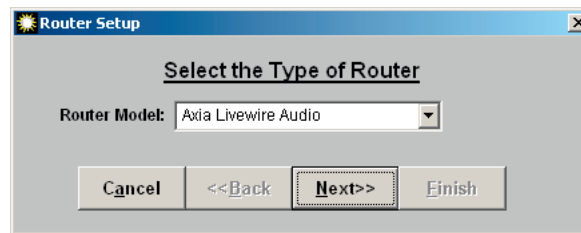
Routers Events Stacking Events Protocol Translator Panels Logs Clustering

ID	Name	Description
2	LWS	LWS

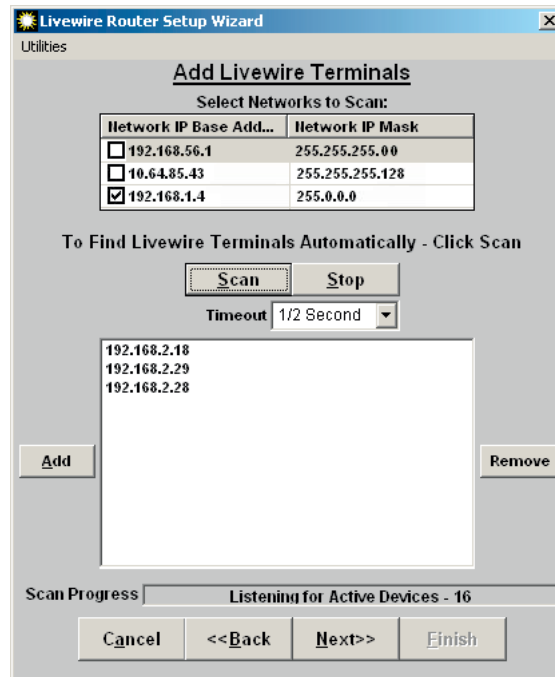
Add Router Remove Router Edit Router Route Names

Client Socket Open

- Select 'Add Router'.



- Select 'Axia Livewire Audio' as 'Router Model' and click 'Next'.



- Select the network adapter according to your Livewire setup and click 'Scan'.
- In the lower window you can see all Livewire nodes available, regardless of the network adapter IP settings. Livewire uses a broadcast message to advertise Livewire nodes.