User's Manual

Digital Audio Matrix **ZES-22**

LDA audioTech

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WARNINGS

1. Read this manual before handling the equipment.
2. Keep this manual for future reference.
3. Keep this equipment away from humidity. Do not put liquid containers on/beside the equipment.
4. Do not block ventilation inlet/outlet holes or install the equipment next to heat sources.
5. If this equipment is to be mounted on rack, make sure that good ventilation is provided.
6. Use only original accessories supplied by the equipment manufacturer.
7. Unplug the device if it is not going to be used for a long time.
8. Clean the equipment with a damp cloth, do not use chemical products.

1 TECHNICAL DESCRIPTION

LDA ZES-22 is an audio DSP matrix based on the COBRANET™. over Ethernet market standards.

The ZES-22 has 4 channels of audio input and 4 channels of audio output being these configured by software as channel input or output. It may have up to four channels of input or output so be able to send the audio over Ethernet using the COBRANET™. Standard.

2 FUNCTIONING DESCRIPTION

The ZES-22 allows both, the injection and extraction of analog audio channel in a network of Ethernet COBRANET™.

COBRANET™ allows up to 65536 "bundles" (where a ´bundle´is a package with up to 8 channels of digital audio). A ZES-22 can get up to 4 input channels and 4 output channels within the COBRANET™ network. These channels can be connected to any of the analog channels using the internal array.

Also, it has a digital system integrated with the signals (DSP) being able to make signal gain adjustments, equalization, filtering, limitations, etc.

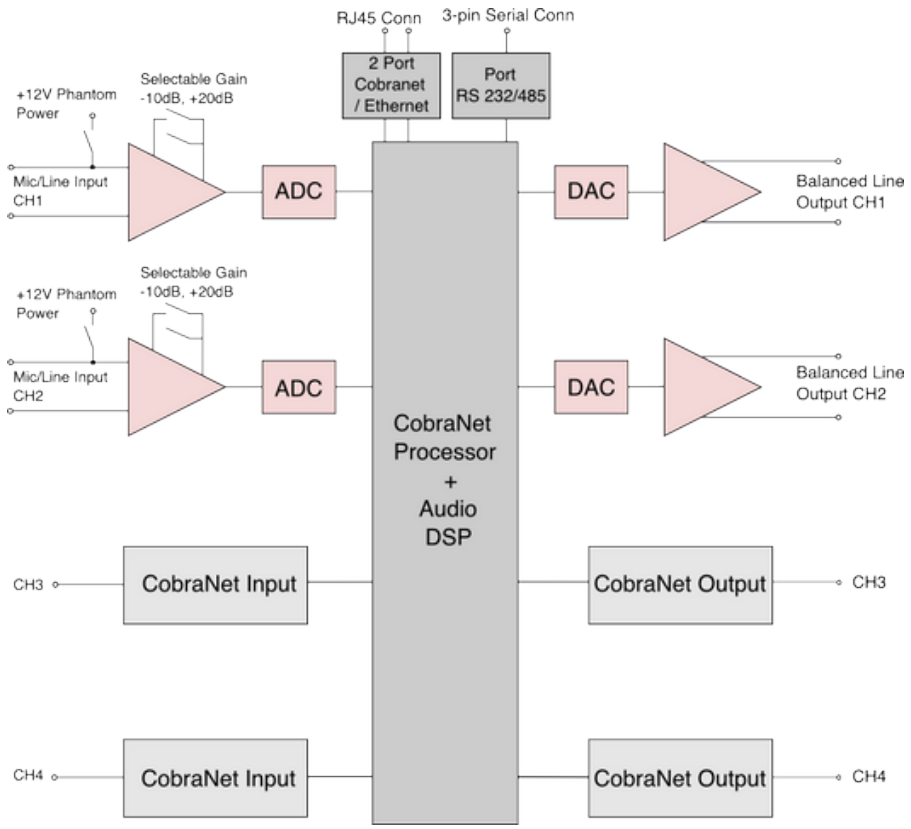


Figure 1: Internal Diagram (Default)

Figure 1 shows a ZES22 configured as 2 channels of analog audio input + 2 CobraNet input channels and 2 analog output channels + 2 CobraNet output channels.

The analog input channels can be microphone inputs with 12V Phantom power or balanced line inputs. For these inputs a selectable gain of -10dB to + 20dB can be applied. The analog audio outputs are balanced audio outputs. Other possible configurations are:

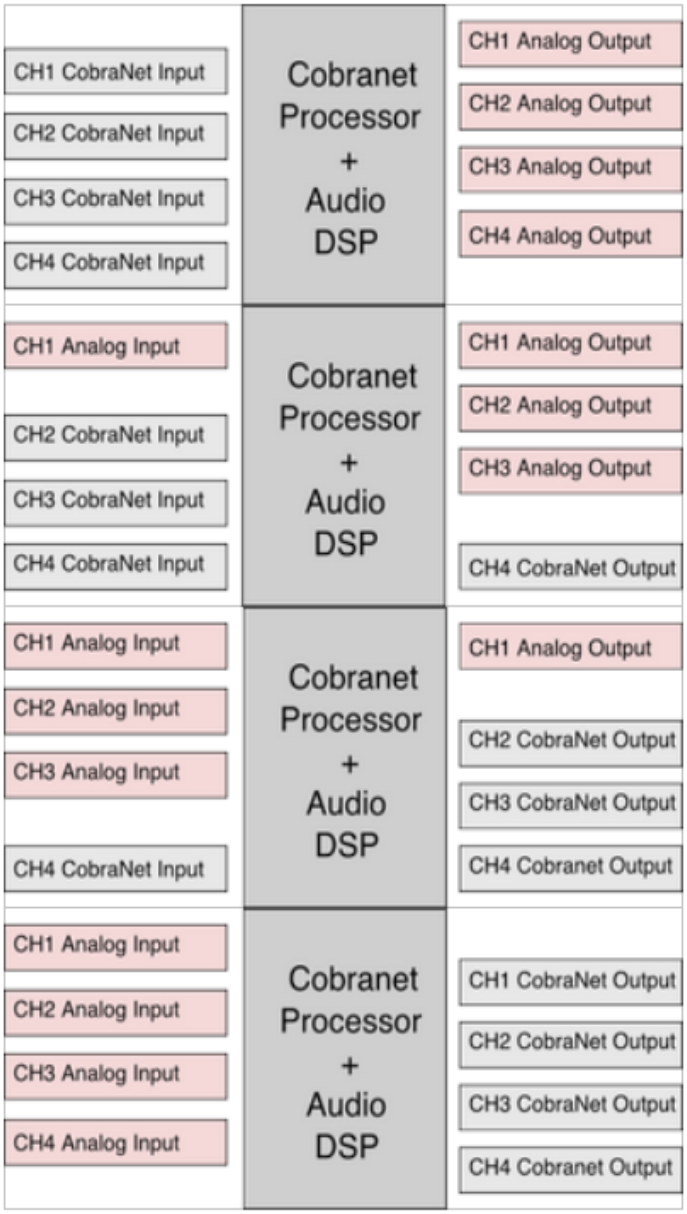


Figure 2: Possible configurations

2.1 CONNECTION

In the image below you can view the back of the system and its different types of connections.

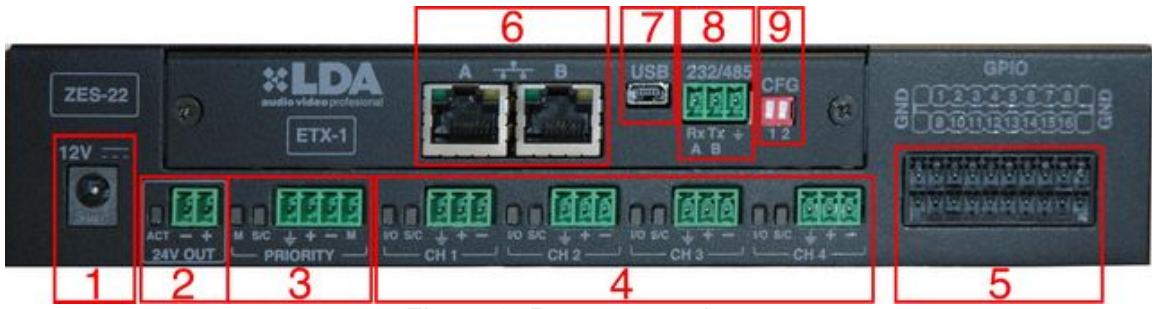


Figure 3: Rear connections

No	ELEMENT	DESCRIPTION
1	Power Connector	Power Connector 12VDC
2	Maneuver for attenuators and sirens	Output caused by software to control the atenuators or sirens powered at 24V max 1A: Description of the output led: Orange- Open Circuit / Short Circuit Green- Line Ok.
3	Priority Input	Priority input. Description of the pins: 1- GND 2- Audio+ 3- Audio- 4- Maneuver (C.C. or 5V TTL) Description of the led indicators: Led M- active maneuver → Led in Orange Led S/C- Maneuver Input VU meter (Orange/Green/Red) (O/G/R).
4	Audio Channels	4 configurable audio channels through the software as audio inputs or audio outputs. Description of the pins: 1- GND 2- Audio+ 3- Audio- Description of the led indicators: Led I/O → **Blue** → Channel selected as audio **input** Led I/O → **Orange** → Channel selected as audio **output**. Led S/C → VU meter of input signal or of output signal (O/G/R)
5	GPIO Interface	E/S configurable through software for signal interface TTL (0-5V) with the system.
6	Cobranet/Ethernet Connectors	Cobranet or Ethernet configurable connectors. The configuration is done through the selector switch. See section 9.

<table>
<tr><td>7</td><td>Mini-USB Connector</td><td>Mini-Usb Female Connector Type AB.</td></tr>
<tr><td>8</td><td>Interface 232/485</td><td>Interface 232/485:
Description of the pins:
1- Rx-A
2- TX-B
3- GND</td></tr>
<tr><td>9</td><td>Switch selector of Cobranet/ Ethernet connectors.

Port X, only available in some models.

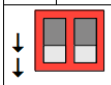
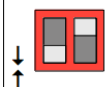
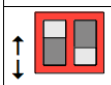
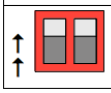
Configuration for FW 1.0.4 or higher for ETX v05 plate.(*)</td><td>Description of the selection:
<table>
<tr><th>1</th><th>2</th><th>Port X</th><th>Port A ETH</th><th>Port B ETH</th></tr>
<tr><td colspan="2">  </td><td>Flexnet</td><td>CONTROL</td><td>AUDIO</td></tr>
<tr><td colspan="2">  </td><td>Control</td><td>CONTROL(VLAN1)+ AUDIO (VLAN2) FlexNet</td><td>CONTROL (VLAN1)+ AUDIO(VLAN 2) FlexNet</td></tr>
<tr><td colspan="2">  </td><td>Cobranet</td><td>CONTROL(VLAN1)+ AUDIO (VLAN2) FlexNet</td><td>CONTROL (VLAN1)+ AUDIO(VLAN 2) FlexNet</td></tr>
<tr><td colspan="2">  </td><td>Flexnet</td><td>Flexnet</td><td>Flexnet</td></tr>
</table></td></tr>
</table>

Table 1: Connections Description

(*) Versions of HW V05 are recognized by software by the MAC address. Those start with a different number of: 00: 50: c2 .... or 70: B3: D5.

2.1.1 ANALOGIC CONNECTION

The ZES22 accepts and manages the devices of balanced and unbalanced audio. The following diagrams explain how to connect different types of audio devices.

2.1.1.1 UNBALANCED SOURCE INPUT

To be able to connect an unbalanced source of 2 wires to the ZES22, you have to connect the positive output of the unbalanced source to the positive I/O input of the ZES22. Connect the ground input source with ZES22 main source, and unite the negative input with the ground source of the ZES22 input.

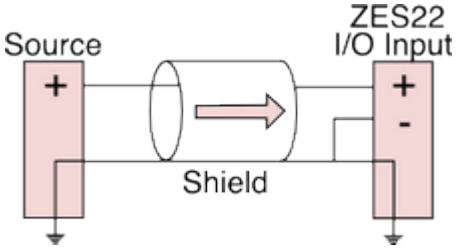


Figure 4: Unbalanced source input 2 wires

To connect an unbalanced source with 3 wires to the ZES22, unite the negative conductor and the shield of the source.

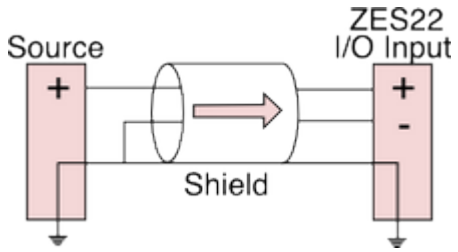


Figure 5: Unbalanced source input 3 wires

2.1.1.2 BALANCED SOURCE INPUT

To connect a balanced source to ZES22 connect the positive power of the source to the positive power of the ZES22 and unite the ground through the cable shield.

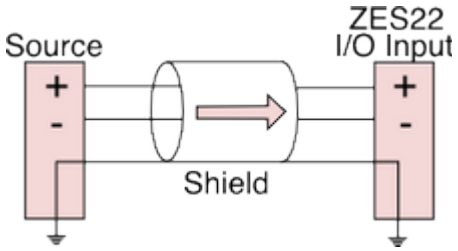


Figure 6: Balanced source input

2.1.1.3 BALANCED OUTPUT TO DESTINATION

To connect to a balanced input from a destination device, connect the positive, negative and ground connections of the ZES22 and the destination device.

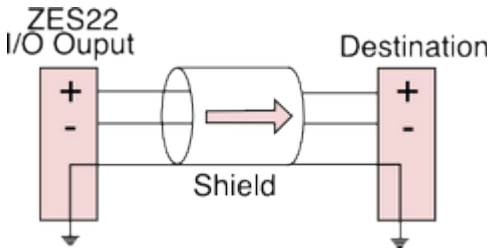


Figure 7: Balanced output to destination

2.1.1.4 UNBALANCED OUTPUT TO DESTINATION

To connect the output of the ZES22 to an unbalanced input of 2 wire, connect the positive output to the positive input of the destination device. Unite the ground of the ZES22 and the destination device through the shield cable.

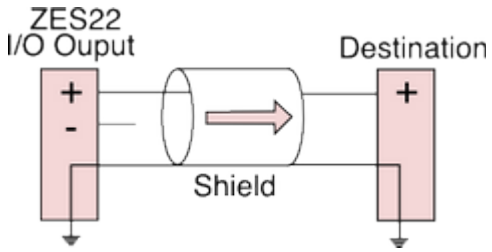


Figure 8: Unbalanced output to destination

3 FIRMWARE UPDATE

3. 1 UNIT ACCESS

To establish a connection with the equipment, we must know the IP address assigned to it. By default, the device IP address is 192.168.0.3. In a web browser, we enter this address in the navigation bar and the page that can be seen in the following illustration will appear:

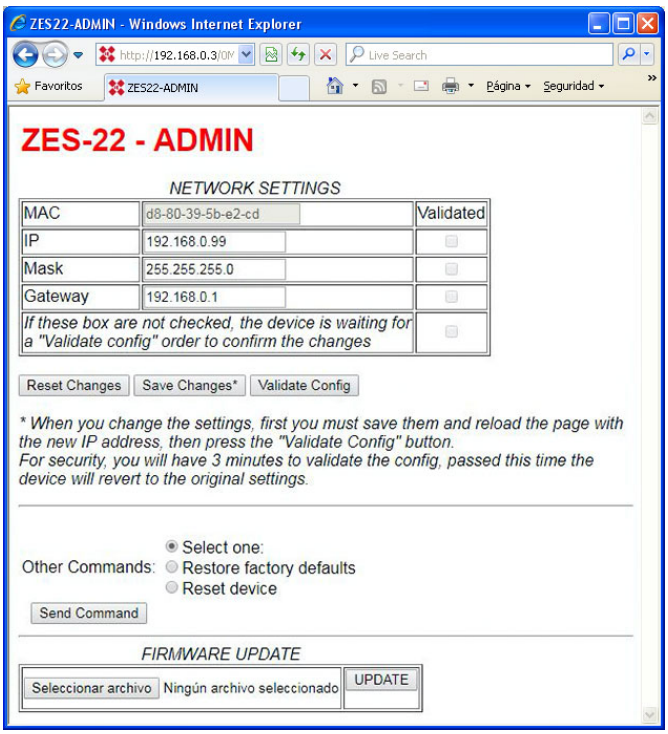


Figure 9: Unit access

3.2 FIRMWARE LOADING

At the bottom of the configuration screen in Figure 9 you can see a field for the firmware update. Operation step by step:

1. the update file is selected by pressing the "Browse ..." button that will open a window to search for the file on our computer;
2. the update is launched by pressing the "COLDFIRE" button;
3. next, the confirmation screen shown in figure 10 will be displayed, and the device will restart automatically;
4. Once the equipment has been updated and restarted, the initial configuration screen of figure 9 will be shown again with the new firmware already running.

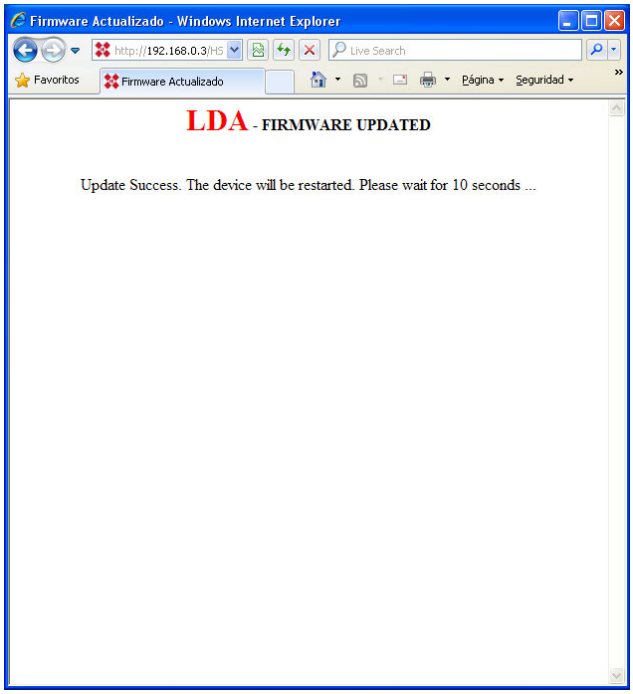


Figure 10: Firmware loading

4 TECHNICAL SPECIFICATIONS

Model	LDAZES22S02
Power	110 - 240V ~ 50/60 Hz
Consumption	<20W
Phantom Power	12V (configurable in all the inputs)
Frequency Response	20Hz-20kHz +/-0,05dB
Input Sensitivity	1Vp, 0,707Vrms
Audio Input	Analog, balanced
Sensitivity Adjustment	+20dB / 0dB / -10dB
S/N	>94dB @1Vrms
Audio Connectors	Euroblock type connector
DSP Resolution	48kHz 24bits
GPIO	16 E/S configurable TTL 5V
Interface Ethernet and Cobranet	2 x RJ-45. Redundant
Manouver Output ATT	24V 50mA, monitored and protected
Weigh	1Kg
Dimensions (width x depth x height)	218 x 153 x 42mm (1U height, ½U wide)

Rev. 3.2