ALC Director

8 channel class-D amplified loudspeaker controller

user's manual

Featured models:

Director6

evolutionary audio solutions™

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1. Introduction

Dear customer,

Congratulations on your purchase of an Alcons Audio ALC Director amplified loudspeaker controller, and thank you for your confidence in Alcons products. We are very honoured to welcome you to the growing family of Alcons ambassadors!
For your safety, please read the Important safety instructions and the Precautions section before installing and operating the amplifier.
The “engine” behind every Alcons sound system is the Amplified Loudspeaker Controller. The ALC is a combination of a loudspeaker controller and a very high efficiency power amplifier. The Director range sets new standards in sound quality, by bringing Alcons famous pro-ribbon sound into the digital amplification domain, while increasing system performance to the highest levels.
The ALC Director is proprietary designed and developed by Alcons Audio and features a powerful 8-channel DSP-based controller with patented Class-D amplifier stages onboard.
Main focus in the development of the Director range was to obtain an installation-focused high density multi-channel amplification power pack with an efficient cost-per-channel.

ALC Director features

Fully-intuitive control and feedback
The Director features on-unit control over the complete amplifier and processor sections through a 3.12” (256 x 64 pixels) monochrome OLED display, a multi-colour LED-illuminated rotary encoder and eight multi-colour LED-illuminated channel buttons. A dedicated micro-computer monitors and controls all processes, for maximum operating efficiency and full status/application logging.

Compact and light weight
The combination of Class-D designed amplifier stages with integrated switch-mode power supplies and specific focus on a weight and space-saving structure, brings a highly efficient power-to-size/weight ratio.

8 x 8 Input / Output matrix
With 8 individual inputs, a free-configurable input / output matrix is formed. Each channel offers a choice of up to 8 inputs, incl. input-summing, with selectable analogue or digital (AES3) input signals.

Audiophile signal processing
The internal D/A conversion accepts signals of up to 192kHz, with all sample rates being automatically up-/down-sampled to 96kHz native processing.

Powerful Drive Processing
The speaker- and signal processing is taken care of by several audio engines, including an 1GHz Analog Devices SHARC™ processor and multiple audio co-processors. This SHARC™ processor is one of the most powerful DSP engines available and enables fastest processing of even the most complex (IIR, FIR) algorithms for protection, filtering, power and response optimisation. On-board features include 8-band parametric/shelf/pass-filter EQ. per channel, delay, factory presets for all systems and system configurations, as well as VHIR™ phase processing.

1. Introduction

SIS Compatible™
With SIS Compatible™ feature, the non-SIS™ Director-series amplifiers are compatible with SIS™ pre-wired installations and still optimize the system damping factor. By channeling the amplifier output signals also to the sense-lines, the effective capacity of the drive lines is maximized, the influence of the cable length is minimized, thus achieving a high signal integrity.

Intelligent power-supply
The Director features four digitally controlled highly efficient regulated main power supplies with active Power Factor Correction allowing worldwide input voltage ranges.

Next-gen Class-D amplifier stages
The Class-D amplifier control loop features dynamic drive and control technology, with exceptionally low intermodulation figures and a significant improvement over the cone excursion and transient response; This results in a high resolution, wide stereo imaging with natural low-end performance.

Bridged mono mode
Bridged mono mode combines the output power of two amplifier channels into one loudspeaker load, resulting in twice the voltage swing and four times the power in a specific load. See the Connections section!

Easy servicing and upgrading
The modular design of the ALC, caters for easy servicing and upgrading; The two integrated power and amplifier stages can be individually exchanged in case of emergency, significantly reducing down-time. The DSP is mounted on a separate PCB, thus can be easily “future-proof” upgraded when required. This needs to be done by authorized personnel only!

Remote-control
The Director seamlessly integrates in ALControl™; Alcons Audio’s proprietary, Ethernet-based ALC network . ALControl™ can control individual or clusters of Sentinels and Directors together, with functions like grouped EQ’ing, event and (on-line) system monitoring and repairs, firmware uploads, a.o.

Networked audio
Through an RJ45 connector and an optional network module, the Director is prepared for the Milan™ audio-over-network protocol. Future-proofed via open IEEE standards, Milan delivers reliable, high-performance, synchronized audio streaming over Ethernet networks.

Maximum operating reliability
The Director features most advanced protection circuitries for optimal reliability; digital controlled amplifier stage protection against DC, subsonic, RF, short circuit for the speaker signal as well as over-/under voltage; SMPS supplies are protected against over-/under AC voltage.

2. Important safety instructions

Warning: – To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water or in a dusty environment.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as, the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

The lightning flash with arrowhead symbol within a triangle, is intended to alert the user to the presence of uninsulated dangerous voltage within the enclosure that may be a risk of electric shock to humans.

The exclamation point within a triangle is intended to alert the user to the presence of important operating instructions in the literature accompanying the product.

3. Precautions

Save the packing material. Should you ever need to ship the amplifier, use only the original packing.
Read this manual carefully before installing and operating your amplifier. Retain this documentation for future reference.

Do not use this amplifier in mobile applications. Be aware this device is developed for permanent installations and not for applications where the unit will be exposed to transporting, (re-)connecting, temperature and humidity changes i.e.

Always operate the amplifier with a grounded AC mains supply. Ensure that the quality of the mains supply is good enough and that it can supply the required peak currents. In addition, proper earthing is necessary to prevent hum and safety problems.

Do not use the amplifier if there is visual damage to the enclosure or cables. Inspect the amplifier and wiring before use. When in doubt, have the amplifier inspected by authorized technical personnel.

Do not make connections to the amplifier while it is switched on. Always shut off the amplifier when making connections to it, and mute the inputs when making connections to preceding equipment in the chain.

Do not spill water or any other liquid on or into the amplifier. Do not operate the amplifier if suspected or standing in liquid. Do not use liquid or aerosol cleaners. Clean only with dry cloth. Leave the amplifier switched-on overnight during multi-day outdoor events, due to night-time air moisture differences. Ensure proper weather protection.

Do not block the air intake for the fans on the front, or the exhaust ports on the rear side of the amplifier. The amplifier can run hot, or even go into protect mode if there is insufficient cooling air.

Do not operate the product near any heat source, such as radiators or other devices or expose to direct sunlight. This will affect the temperature headroom.

Do not remove the cover. There are no user serviceable parts inside the amplifier. Removing the cover exposes you to dangerous voltages inside the amplifier.

Refer servicing to qualified service personnel. Servicing is required when the amplifier has been damaged in any way, liquid has been spilled on or into the amplifier, does not operate normally or has been dropped.

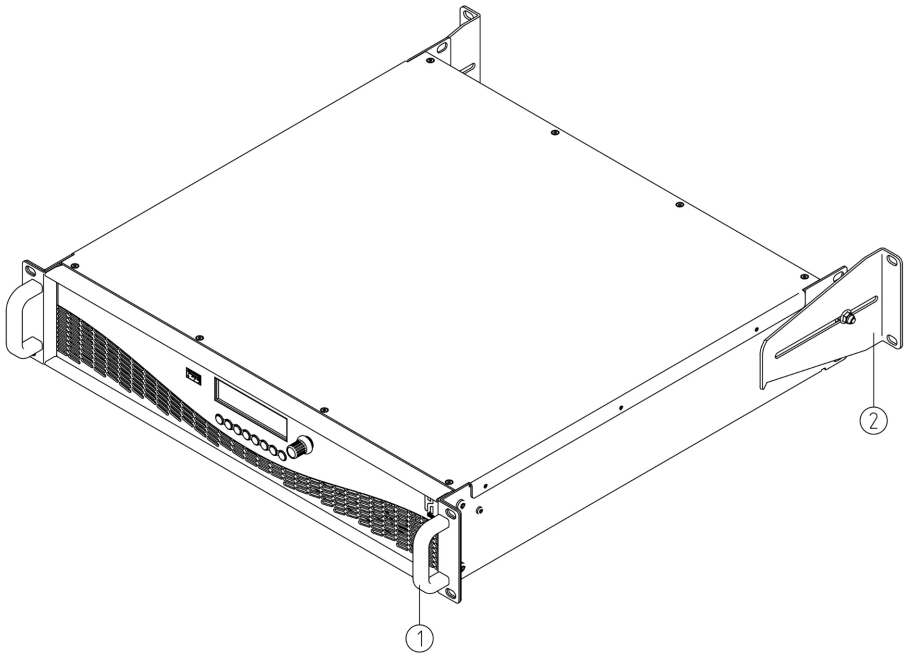
Do not series or parallel connect an amplifier output with any other amplifier output. Connecting outputs together will cause damage to the amplifier stages.

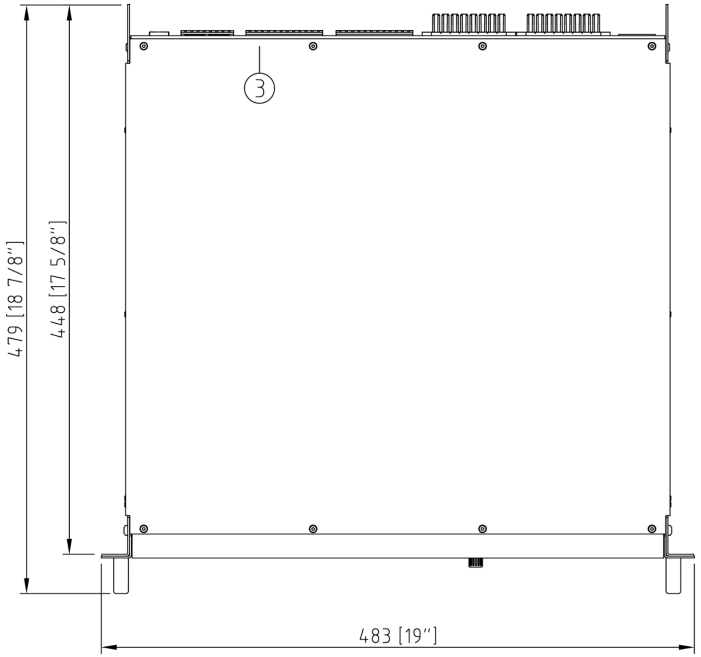
Use the mains plug as the disconnecting device. Keep it readily accessible. If the mains plug is not readily accessible due to mounting in a 19" rack, then the mains plug for the entire rack must be readily accessible.

4.Installation

Unpacking
Carefully open the shipping carton and inspect the amplifier. Every Alcons amplifier is thoroughly tested and inspected before leaving the factory and should arrive in perfect condition. If you find any damage, notify the shipping company immediately. Only you, the consignee, may initiate a claim for shipping damage. Be sure to save all packing materials for the carrier's inspection.

Please save the packing material. If you ever need to ship the amplifier back to your dealer or the factory, you should only use the original packing.





Director parts and dimensions

1) Rack handle
2) SRMB rear rack mounting set

4.Installation

Mounting
The ALC Director amplifiers mount in standard 19-inch installation racks. A rear mounting set gives additional support. Rear support is highly recommended in all applications. ALC Directors can be stacked directly on top of each other. There is no need for spacing between units. Ensure that the bottom ALC Director has a bottom support over the entire depth.

Cooling and ventilation
The ALC Director amplifier uses forced air cooling in order to maintain a low operating temperature. In this device the cooling air enters at the front and the hot air leaves the amplifier at back side. Make sure that there is an adequate supply of fresh, cool air at the front of the amplifier, and that there is sufficient space in the rack for the exhaust air to escape.

Note the reversed rear-to-front air flow of the Sentinel ALC; See section 8!

The 4 cooling fans are level and temperature-controlled, to minimize noise-interference; Due to the small diameter of the fans, higher noise levels can be encountered at higher output levels.

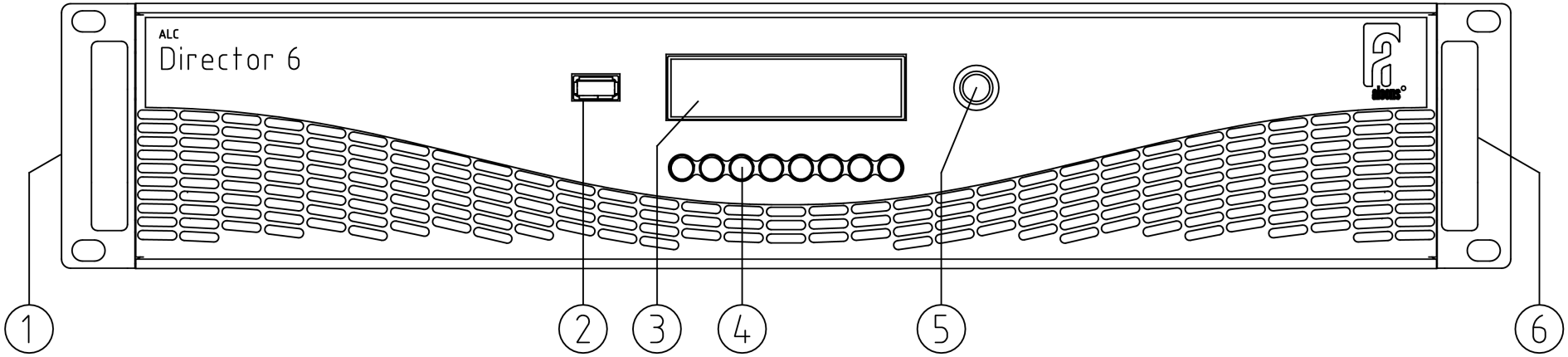
Mains Power
The AC mains voltage for the ALC Director amplifier is stated at the rear of the amplifier near the PowerCon® input.
Your local power will be detected automatically. For safety reasons you must also ensure that the AC supply is properly grounded. The AC current draw is measured according to the IEC 65 safety standard. The normal operating power is measured using pink noise, with an average power equal to 1/8 of full power. This corresponds to normal music being played to the clip level of the amplifier. The table below shows the AC current draw for different loudspeaker loads. Make sure your AC power distribution can handle the currents demanded by the amplifiers. The AC mains power may not deviate more than +/-10% from the nominal values.

Only use two (2) Director6 per 16A mains outlet for optimal performance. It is possible to use multiple ALC Director6 amplified loudspeaker controllers in "low power" applications. Due to high inrush current, it is advised to switch on a maximum of two units at the same time.

Director6	Peak output power/channel	BTU/W
8 Ω	500	1253/368
4 Ω	750	2244/658

BTU measurements were conducted with all channels operating simultaneously at 1/8th of their rated peak power.

5.Overview



Front panel

1) Mounting ears 19” rack mounting

2) USB port USB Host A port – for all USB storage devices

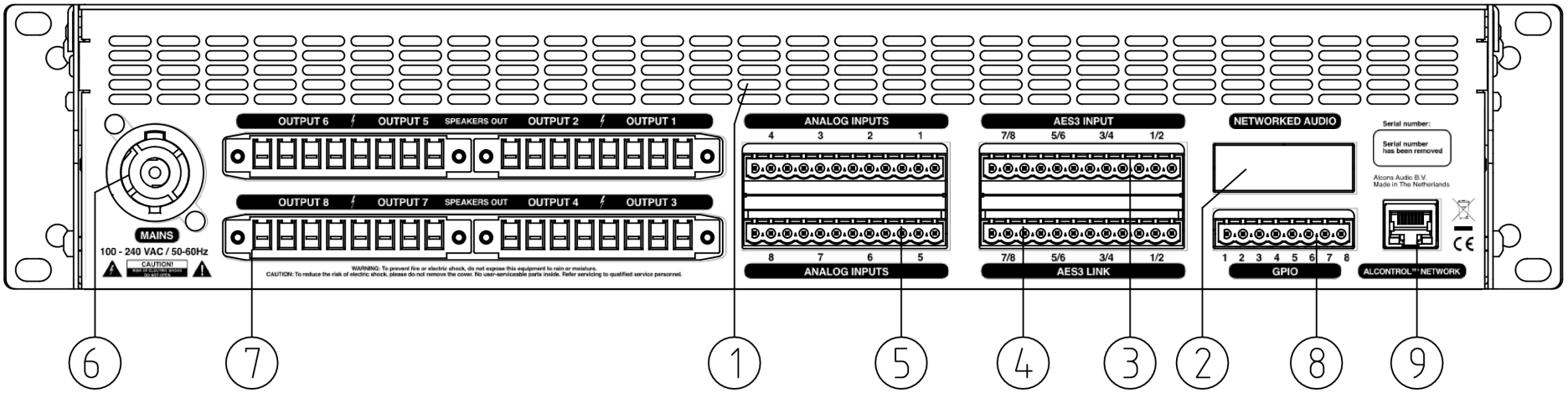
3) OLED Display Monochrome high-contrast display

4) Eight Channel buttons Multi Colour channel buttons

5) Encoder Multi Colour Encoder

6) Rack handle Use both handles for manual transportation

5.Overview



Rear panel

The Director is primarily aided for the installation market and it features installation specific standard terminal block type connectors from Phoenix. All cable counterpart connectors are included.

1) Airflow exhaust Do not block this area, because this will reduce the airflow.

2) Networked Audio Inputs 2,1 Connect two RJ-45 connectors and leads for the networked audio inputs. One lead is for redundancy. OPTIONAL

3) AES/EBU* inputs 1-4 Connect your AES/EBU signal source for channel 1 to 8 to the 12 pin Phoenix terminal block connector.

4) AES/EBU link** The AES/EBU link outputs provides buffered AES/EBU signals to feed the inputs of the next amplifiers and thereby daisy chaining channels among multiple amplifiers. A fail-safe relay switches each AES/EBU link automatically to hardwired (non-buffered) feedthrough in case of a power failure, therefor preventing audio interruption.

5) Analog Input 8,7,6,5,4,3,2,1 Connect your analog signal source for channel 1 to 8 to the two 12 pin terminal connectors.

5.Overview

6) AC power input Connect the supplied AC mains cable to this connector. Make sure your mains supply matches the specifications stated on the label next to this connector.

7) Outputs 1-8 Four 8-pole terminal connectors are installed to connect your loudspeakers to the amplifier channel 1 to 8. Each terminal connects two speaker outputs. It features SIS Compatible wiring and is backward compatible with all existing SIS Signal Integrity Sensing wired loudspeakers from Alcons.

8) GPIO connector A GPIO-connector is installed, enabling several installation specific control and signaling functions. The connector has four dedicated general-purpose inputs and three general-purpose outputs.

9) ALControl™ Connect an RJ-45 connector and lead for the ALControl™ communication. See the ALControl™ manual for further instructions.

6.Connections

AES/EBU input

AES/EBU input 4			AES/EBU input 3			AES/EBU input 2			AES/EBU input 1		
pos	neg	GND	pos	neg	GND	pos	neg	GND	pos	neg	GND

AES/EBU link

AES/EBU link 4			AES/EBU link 3			AES/EBU link 2			AES/EBU link 1		
pos	neg	GND	pos	neg	GND	pos	neg	GND	pos	neg	GND

Analog inputs

Analog input 4			Analog input 3			Analog input 2			Analog input 1		
pos	neg	GND	pos	neg	GND	pos	neg	GND	pos	neg	GND

Analog input 8			Analog input 7			Analog input 6			Analog input 5		
pos	neg	GND	pos	neg	GND	pos	neg	GND	pos	neg	GND

Speaker outputs

Speaker Output 6				Speaker Output 5			
OUT +	SENS +	OUT -	SENS -	OUT +	SENS +	OUT -	SENS -

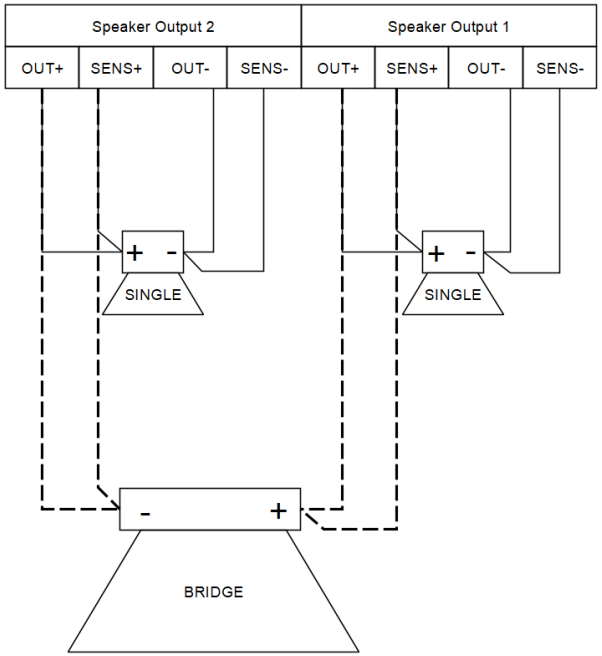
Speaker Output 2				Speaker Output 1			
OUT +	SENS +	OUT -	SENS -	OUT +	SENS +	OUT -	SENS -

Speaker Output 8				Speaker Output 7			
OUT +	SENS +	OUT -	SENS -	OUT +	SENS +	OUT -	SENS -

Speaker Output 4				Speaker Output 3			
OUT +	SENS +	OUT -	SENS -	OUT +	SENS +	OUT -	SENS -

6.Connections

Speaker outputs bridge mode



GPIO

1	2	3	4	5	6	7	8
Input 1	Input 2	Input 3	Input 4	Output 1	Output 2	Output 3	GPIOGND

6.Connections

GPIO hardware description

Inputs: the four inputs are galvanic isolated input (opto-coupled) with each pin connection to the optocoupler via a 5.6Kohm series resistor. To use the GPI, an external DC power supply is required.

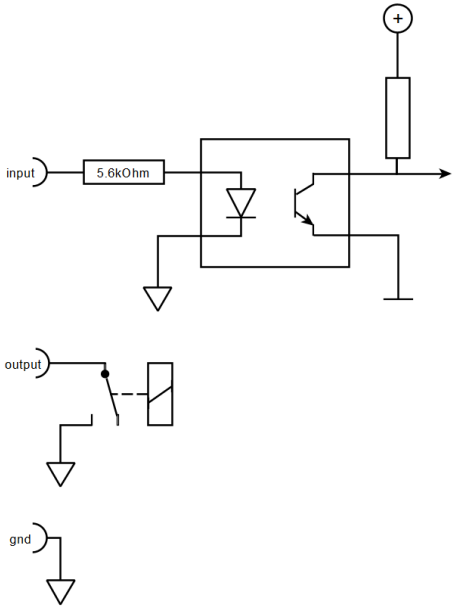
High-level voltage on the inputs: 12-30VDC

Low-level voltage on the inputs: 0-9VDC

Outputs: the three outputs are connected to corresponding relays and switch to the ground.

Maximum current through each output is 2 A.

Maximum voltage on each output is 30VDC.



6.Connections

For a given loudspeaker impedance, the proportional power loss as a function of cable length and cable gauge is given in the next table:

	8 Ω				4 Ω			
	1.5 mm^2	2.5 mm^2	4 mm^2	6 mm^2	1.5 mm^2	2.5 mm^2	4 mm^2	6 mm^2
5 meters	1.4 %	0.8 %	0.5 %	0.4 %	2.8 %	1.7 %	1.1 %	0.7 %
10 meters	2.8 %	1.7 %	1.1 %	0.7 %	5.4 %	3.3 %	2.1 %	1.4 %
15 meters	4.1 %	2.5 %	1.6 %	1.1 %	7.8 %	4.9 %	3.1 %	2.1 %
20 meters	5.4 %	3.3 %	2.1 %	1.4 %	10.2 %	6.4 %	4.1 %	2.8 %
25 meters	6.6 %	4.1 %	2.6 %	1.7 %	12.4 %	7.8 %	5.0 %	3.4 %
30 meters	7.8 %	4.9 %	3.1 %	2.1 %	14.5 %	9.3 %	6.0 %	4.1 %
40 meters	10.2 %	6.4 %	4.1 %	2.8 %	18.5 %	12.0 %	7.8 %	5.4 %
50 meters	12.4 %	7.8 %	5.0 %	3.4 %	22.1 %	14.5 %	9.6 %	6.6 %

To calculate the SPL losses from these percentages in dB's, the following equation may be used: dB loss = 20 * log(1 – (%loss/100))
In the next table a few percentages are converted to dBs:

% loss	dB loss
1 %	0.1 dB
2 %	0.2 dB
5 %	0.4 dB
10 %	0.9 dB
15 %	1.4 dB
20 %	1.9 dB
25 %	2.5 dB
30 %	3.1 dB
35 %	3.7 dB

7.Operation

Power On/Off
The mains AC power of the amplifier is switched on when the PowerCon is connected.

Each setting is automatically stored in memory, 30 seconds after the last user change. Settings are also stored during switching-off the amplifier.

Using AES3 signal in daisy chain – when interlinking the AES3 signal with amplifiers on, the AES3 signal is actively buffered; When one of the interlinked amplifiers is switched off, the following amplifier will still receive the AES3 signal, albeit not actively buffered.

Stand-by mode - By pressing the rotary encoder for 4 seconds, the amplifier can be put in Stand-by mode through the pop-up on/off selection menu:

In Stand-by mode the power supplies and amplifier stages are switched on/off.
Do note: In this state, the display will stay on; It is advised to switch-off the screen in the screen saver menu, when putting the amplifier on standby for a long time, to prevent unnecessary display wear.

Another way of switching on/off, is through the PowerCON connector on the rear of the amplifier; This way, every function (also the front) is switched off.

7.Operation

Multi-colour LED encoder

Fig 1

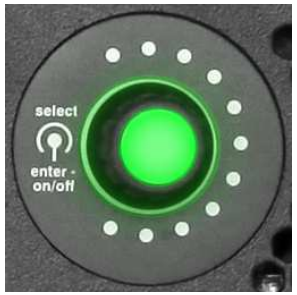


Fig 2

Fig 3

The rotary encoder features a multi-colour LED, which show the status of the amplifier.

Blue	Normal operation
Blue blinking	EQ or delay settings changed – with changing settings in the equalizer or delay section, the encoder will blink, indicating that changes have been made to the stored settings.
Green	Initialisation – the dsp is being synchronized with the user interface (only during startup)
	Saving EQ or delay settings – after pressing the blue-blinking encoder, the new setting is confirmed by a short, green-blinking encoder (in the EQ and delay menu).
Red blinking	Error detected – what causes the error notification can be checked in the oplog menu.

If the encoder is not used for 10 seconds, the encoder will dim to extend the life of the LED

7.Operation

Display menu
The Director6 has a simple yet effective user interface using the display as user interface together with 8 channel buttons and the encoder.
In each menu, the channel button functionality differs and their colours change in a way most usable in that specific menu.

Menu overview
The menu overview consists of a list with all the menu-items. Use the encoder to scroll through the list. Press the encoder button to enter the selected menu. Here are the menu-items:

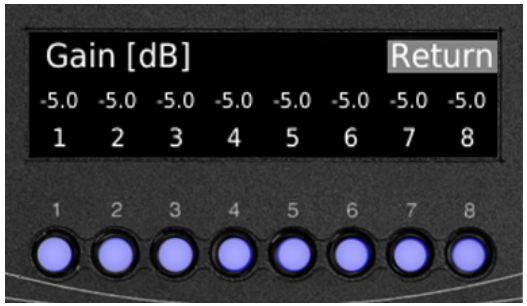
Overview	This menu gives an overview showing all channel and their real-time audio signals, input and output
Gain	This menu is used for setting the gain of each channel
Mute	This menu is used for muting or unmuting each channels output
EQ	This menu is used for setting the user EQ's for each channel
Delay	This menu is used for setting the delay of each channel
Preset	This menu is used for selecting speaker preset for each channel
Routing	This menu is used for routing inputs signals to each output channel
Polarity	This menu is used for setting the polarity of each channel
Projects	This menu is used for storing and recalling project files from and to a USB drive.
Oplog	This menu shows the oplog, a list with all timestamped status updates.
Setup	This menu is used for system settings of the amplifier
GPIO settings	This menu is used for GPIO settings of the amplifier

7.Operation

Menu-items

Overview
This menu gives an overview showing all channel and their real-time audio signals, input and output. The buttons function as signal detect indicators, changing it illuminated colour according to the input level (from green to orange to red). This menu is just for showing an overview, no settings can be configured here.

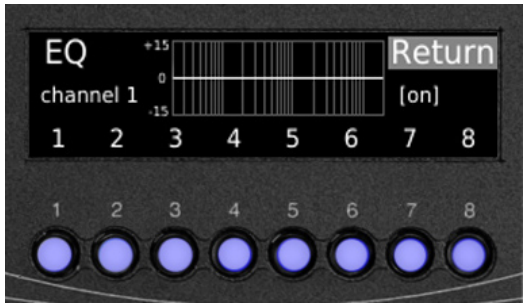
Gain
Use the channel buttons to directly select the channel or scroll to the channel using the encoder and press it.
Turning the encoder increases or decreases the gain of the selected channel.
Gain values can be entered between-60dB up to +6dB in steps of 0,5dB.

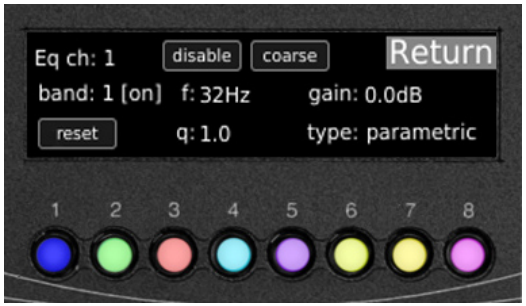


7.Operation

Mute
Use the channel buttons to directly mute/unmute the channel or scroll to the channel using the encoder and press it to mute/unmute the channel. Channel buttons are illuminated red when the corresponding channel is muted.

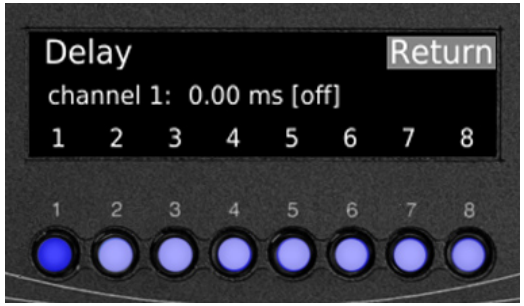
EQ
Scrolling through the channels with the encoder shows the frequency plot of the equalizers set up in the selected channel and if it is on or off. Selecting a channel opens up the submenu where each of the 8 band EQ's can be configured and turned on/off. Equalizer type are: low pass, high pass, parametric, low shelf, high shelf, all pass.



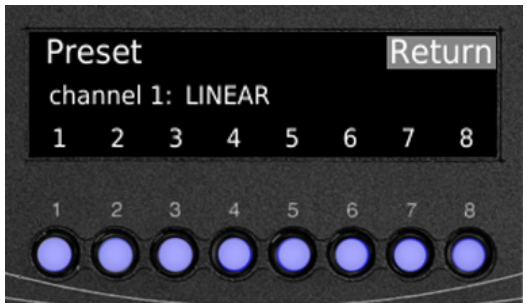


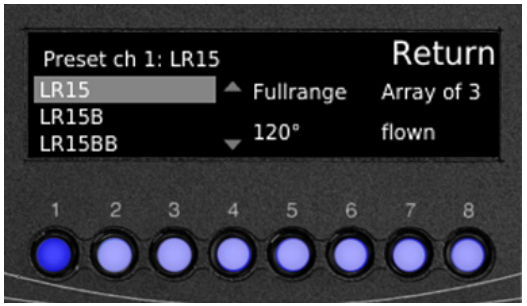
7.Operation

Delay
Use the channel buttons to directly set the channel delay or scroll to the channel using the encoder and press it to set the channel delay.
In the submenu, the delay can be set in milliseconds or in meters. Also the delay can be switch on/off and the step-size of the delay increments can be set to coarse or fine.



Preset
Scrolling through the channels with the encoder shows the current preset for each channel. Selecting a channel opens up a list where a loudspeaker preset may be selected. Depending on the preset, certain specific preset options are also configured here.

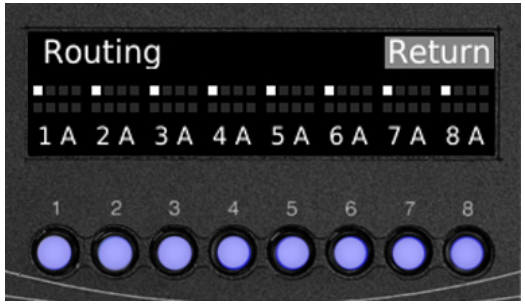




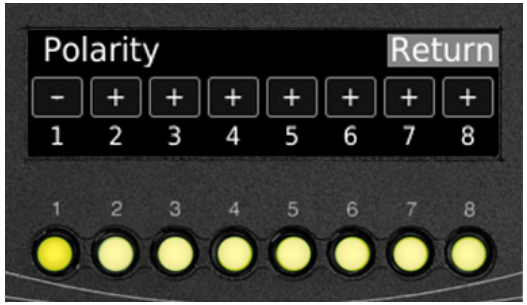
To prevent transducer damage, please make sure the correct preset has been selected in the Amplified Loudspeaker Controller.

7.Operation

Routing
The routing menu show a overview with each channel and its routed inputs. Selecting a channel opens up the submenu where the input signal may be selected. Use the channel buttons to quickly enable/disable each input signal. Digital or analog input may be selected and also bridge mode can be enabled here.



Polarity
Use the channel buttons to directly set the channel polarity or scroll to the channel using the encoder and press it to set the channel polarity. Channel buttons are illuminated yellow when the corresponding channel polarity is inverted.



7.Operation

Projects
Scroll through the menu items to store a project from a usb drive or recall or remove a project from the local drive. When storing a project from a usb drive to the local drive, make sure to first connect a usb drive to the usb port next to the display.

Oplog
This menu shows the oplog, a list with all timestamped status updates. Scrolling through the menu, the oplog can be cleared or copied to a connected usb drive for further logging capabilities.

7.Operation

Setup

The setup menu consists of the following items:

- audio fallback, used to configure AES3 fallback to analog and to individually arm each channel.

- AES3 gain trim, used to trim the gain a certain amount of dB to equal the AES3 levels with analog levels.

7.Operation

- power-up mode, select to start the amplifier in On mode, Standby mode, or in Previous mode. Default is "on"; this is the normal behavior where the amplifier starts up completely, when the amplifier is connected with Mains power. If "Standby" is selected, the amplifier will start up the front controller but the power amplifier stages will remain off. The "Previous" mode allows the amplifier to return to the situation it was in before the Mains power went out.

- network, this menu shows the MAC-address and the current IP-address of the Director. Automatic IP-address assignment (DHCP) as well as static IP-address assignment may be selected. Also the Alcons logo can be set to blink for visual recognition, this is mainly useful in an application with multiple Directors.

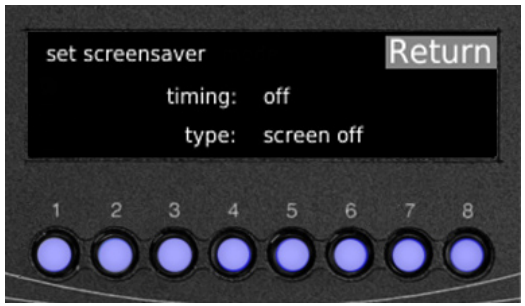
7.Operation

- ALControl name, this menu lets you set a name for the Director and is visible in ALControl when it discovers the Director.

- firmware, this menu allows you to update either the front firmware, dsp firmware or the preset library with all Alcons speaker presets. It is advised to regularly check for updates (introducing possible bugfixes, adding new features etcetera).

- date/time, the menu is used to configure time and date.

- screensaver, this menu is used to configure the screensaver. The type may be set to Screen off or Animation. Also the timing can be set to Off, 30 seconds, 5 minutes, 10 minutes and 30 minutes.



-return, to return to the main menu.

7.Operation

GPIO settings
Go to the tab Setup and head for the GPIO settings

In the GPIO settings, select the GPI and for each pin their functionality and polarity. The GPO outputs are fixed currently.

(See next page)

7.Operation

The following input functionality may be configured:

- not_assigned = 0
- standby_toggle – toggles standby mode
- mute_toggle – toggles mute state for all channels (mute becomes unmute and vice versa)
- mute_on – mutes all channels
- mute_off – unmutes all channels
- mute_latched – for use with a latching switch; ON = mute, OFF = unmute
- source_aes – switches all channels to AES input
- source_analog – switches all channels to analog input
- gain_up – increases gain by +1 dB on all channels
- gain_down – decreases gain by -1 dB on all channels

You can also choose whether the GPI is active high or active low.

The following output functionality may be connected:

- ALARM – indicates a fault condition (e.g. red encoder)
- standby – unit is in standby mode
- mute active – all channels are muted

8. Installing Director ALC with Sentinel ALC

When installing the Director in combination with a Sentinel amplified loudspeaker controller, a number of precautions have to be taken into account:

A) Due to the different design of the Director compared to the Sentinel, the air flows of the cooling systems differ:
- Sentinel: has a back-to-front airflow
- Director: has a front-to-back airflow

It is advised not to mount the Director in the same rack as the Sentinel!
In situations where this separated installation is not possible, enough distance between the two different ALC's needs to be taken into account, to prevent the intake of too hot air. This distance is depending on the installation environment, i.e. in a climatized room, open or enclosed rack, convection or forced cooling.
Also, due to the different amplifier stage thermal management, it is advised to always mount the Sentinel above the Director.

B) Due to the different design of the Director compared to the Sentinel, the signal paths, both analog and digital, differ:

When the Sentinel and Director series amplifiers are used together, it is crucial to align the latencies to ensure proper synchronization; This to prevent timing discrepancies between the two amplified loudspeaker controllers, causing a non-matched phase-response between speakers, possibly resulting in comb-filtering.
To ensure optimal synchronization between the analog and digital audio sources, adjustments have to be made to align the latencies of the different input types.
The following basic latencies for both the Sentinel and Director series amplifiers should be considered:

Sentinel Series Basic Latencies:
Digital (AES3) to speaker: 2.38 ms
Analog to speaker: 2.60 ms

Director Series Basic Latencies:
Digital (AES3) to speaker: 2.62 ms
Analog to speaker: 3.90 ms

As seen from the basic latencies listed above, in most cases, the Sentinel Series ALC will require additional latency to match the basic latency of the Director Series ALC. This can be set with the Delay function.

9.Service and support

Warranty

Summary
Alcons Audio BV warrants the original purchaser and any subsequent owner of each new Alcons product, for a period of three years from the date of the original purchase by the original purchaser that the new Alcons product is free of defects in materials and workmanship. Alcons Audio BV warrants the new Alcons product regardless of the reason for failure, except as excluded in this warranty. In order to obtain warranty, you must keep the original sales receipt to establish the exact date of purchase.

Items excluded from warranty
Warranty does not cover any product which has been damaged because of any misuse, accident, or negligence. Warranty also does not extend to a new Alcons product if the serial number has been defaced, altered or removed.

What we will do
Alcons Audio BV will replace defective parts and repair malfunctioning products, regardless of the reason for failure (except as excluded). Warranty work can only be performed at our authorized service centres, or at our factory.

Disclaimer
Alcons Audio BV is not liable for any damage to loudspeakers, amplifiers, or any other equipment that is caused by negligence, misuse or improper installation of the ALC Director amplifiers. Alcons Audio BV is not liable for any incidental damages resulting from any defect in the new Alcons product. This includes any damage to another product or products resulting from such a defect.

Alcons Audio BV reserves the right to change specifications without notice

9.Service and support

Contact information

Mailing address:

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Tel.: +31 (0)229 283090

World Wide Web:
https://www.alconsaudio.com

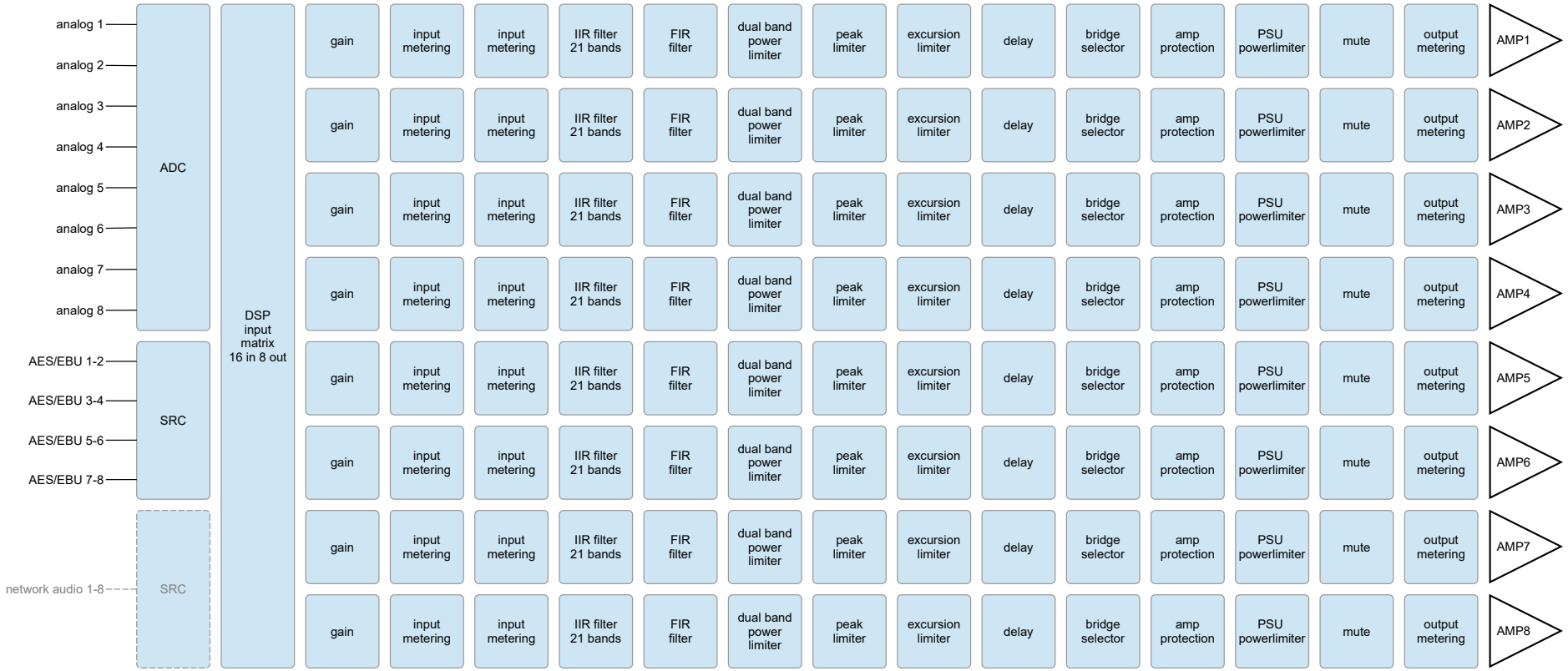
E-mail (general):
info@alconsaudio.com

E-mail (technical support):
support@alconsaudio.com

10.Specifications

Nr of channels		8 input + 8 output
AES3 supported formats		32kHz, 44.1kHz., 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
User interface		3.12” monochrome OLED (256 x 64 pixel) screen
		„Click & turn“ rotary encoder, RGB-LED illuminated
		8x RGB-LED illuminated channel buttons
Connectors:	rear	8x Phoenix (analog input) + 4x Phoenix AES/EBU (digital input)
		8x Phoenix (speakers out) + 4x Phoenix AES/EBU (digital link)
		1x 32A powerCON® (power)
		1x RJ45 (remote control)
		2x RJ45 (networked audio) *optional
		1x Phoenix GPIO (3x GPO, 4x GPI)
	front	1x USB (service in/out)
Cooling		4x fan, front-to-rear flow, regulated speed
Input sensitivity for max RMS power @ 8 Ω		1.41 Vrms / +5.22 dBu
Maximum input level		+21 dBu
Input impedance		10 kOhm balanced
Input CMRR @ 1 kHz		43 dB
Frequency response all loads		10 Hz – 25 kHz +0dB, -3dB
Gain		32 dB / 40x
Channel separation		63 dB
THD+N, IMD @ 20 Hz -20 kHz, 1000 W, 4 Ω		<0.05 %
S/N ratio analog input		>118 dB A-wght
S/N ratio digital input		>140 dB A-wght
Noise floor		< 100uV (unweighted)
Damping factor	@ 1 kHz, 8	>4.000:1
Stereo power	@ 8 Ω RMS 1% THD	500 W
	@ 4 Ω RMS 1% THD	750 W
	@ 2 Ω RMS 1% THD	750 W
Bridged Mono power	@ 8 Ω RMS 1% THD	1500 W
	@ 4 Ω RMS 1% THD	1500 W
Mains supply voltage		100 – 240 VAC @ 50-60 Hz
Power supply		universal switch mode power supply with Active PFC (PF>0,9)
	idle	100 VA
	@ 1/8 of full power into 4 Ω	1400 VA
	@ full power into 4 Ω	2300 VA
Latency (AES3)		2.62 ms
Operating condition		0°C …+40°C
Weight		6,8 kg / 15.0 lb
Housing		inch rack mount, 2 HE, 448 mm / 17.6 inch deep behind the mounting surface
Dimensions (h x w x d)		88x483x480mm/3.5”x19”x18.9”
Warranty		3 years

11.Block diagram



12.EC declaration of conformity

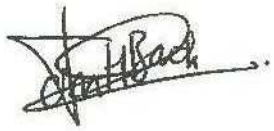
Alcons Audio BV
De Corantijn 10
1689 AP ZWAAG
The Netherlands

States that the following products:
ALC Director 6

Are in conformity with the provisions of:
Low Voltage Directive, 2006/95/EC
Electro-Magnetic Compatibility Directive, 2004/108/EC

Applied rules and standards:
EN60065 (Electrical Safety)
EN55103-1 (Emission)
EN55103-2 (Immunity)

Established at Zwaag, the Netherlands,
April 4th, 2025



T.H. Back
Managing Director

13.Notes