Eflex iD48 System Controller

Due to the flexibility of its processing, Inspired Audio's new **iD48** advanced system controller is equally suited for duty as a high-performance loudspeaker crossover or for overall system control and management.

The **iD48** takes audio performance to the next level with new audio converters and advanced DSP algorithms that make full use of the processing power offered by the latest 4th generation SHARC DSPs.

Unique to the industry on the **iD48** are the revolutionary new LIR Linear Phase crossover filters, and for the ultimate in driver protection with maximum SPL, the new VX Limiters. This state of the art limiter creates a **V**irtual **X**over, with optimised limiter settings above and below this frequency.

Function is coupled with plug-and-play' Ethernet connectivity that allows simple and painless software control of one or multiple units.

- **Four input & Eight output channels**
- **AES3 inputs & outputs selected in pairs**
- Dante networked audio option
- 96 kHz 4th generation SHARC DSP algorithms
- Powerful *Drive Module* speaker-centric presets
- LIR Linear Phase crossovers
- Multi-stage peak & RMS limiters
- **V**irtual **X**over Limiter for passive systems
- PEQ & FIR equalisers on all inputs
- User grouping & EQ Overlays
- Software PC control over Ethernet
- Contact closure 'Snapshot' recall

Introduction / Key Features

The Inspired Audio eFlex iD48 is a high performance, digital signal processor, which can be used to optimize the performance of mFlex iQ series cabinets within an installation project, act as a network hub where multiple Flex racks are being configured as part of an Optima system, or configured to control third party loudspeaker enclosures. Taking advantage of the latest advances in analogue to digital conversion and digital signal processing technologies, the units offer premium quality performance levels. The iD48 provides generous amounts of signal processing capability and a wide variety of crossover shapes.

The iD48 includes minimal signal path design, and a 96 kHz sampling frequency provides for a nominally flat response beyond 40 kHz. Three rotary encoders, illuminated buttons and graphical display provide a rapid, intuitive and user-friendly front panel control interface. The units can also be software controlled over high-speed Ethernet communication ports, which will allow direct connection from a laptop without the need for a router or a switch. Alternatively, multiple units can be linked on a network which will support DHCP, static-IP or auto-IP.

Class-leading sonic performance is achieved by the use of state of the art 4th Generation Analogue Devices Sharc DSP and highly advanced DSP algorithms. Filters include unique LIR linear phase crossover shapes giving FIR-like performance without the drawbacks of such filters.

An innovative limiter suite includes;

- VX limiter which provides dynamic control for passive 2-way enclosures.
- Xmax excursion limiter with a sliding High Pass Filter which retains dynamic impact whilst effectively protecting driver excursion,
- Tmax transducer thermal modelling provides regulation limiters, addressing long term thermal overload
- Overshoot limiter governs the amplitude of transient signals, retaining average power whilst constraining peaks.

The iD48 has the option of routing audio in both analogue and digital formats with both analogue and AES3 inputs and outputs (switchable in pairs) as standard and the option of a Dante audio networking card.

Crossover shapes

As well as the standard Butterworth, Bessel, Linkwitz-Riley and Hardman filters, Inspired Audio offers a unique “Linea Impulse Response” (LIR) crossover filter which gives a Linear Phase crossover that has a constant delay regardless of frequency (unlike other types of crossover which delay different frequencies to a different extent, thus smearing the arrival time).

The LIR crossover can thus be described as having a flat Group Delay response, and thus entirely free of Group Delay Distortion, this is exactly the same as can be provided by common FIR filtering but without the complications and disadvantages inherent with the FIR technique. The shape of the LIR crossover filter is similar to a 4th order Linkwitz-Riley filter, and maintains zero phase difference between the adjacent bands across the crossover region to keep the polar response rock steady.

As we also employ phase matching on our Bessel filters; adjacent bands are in-phase throughout the crossover region.

Presets

The iD48 uses Drive Module presets, which are defined as a number of outputs driven from one DSP input. This system allows for better flexibility and greater functionality when loading and storing presets. Drive Modules allow for a less processor-centric and more speaker-orientated system design. The iD48 allows 50 drive module presets to be stored.

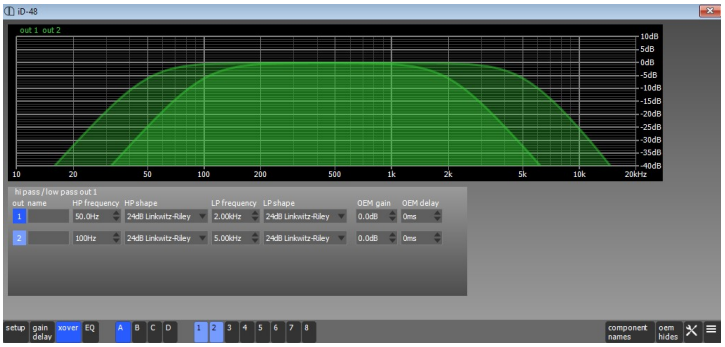
Presets are stored permanently inside the iD48 and so will always be available even if the iD48 is not being used with System Engineer. Inspired Audio supply a library file for all brand products and associated Reflex bass enclosures. Third parties are also able to create and store pre-sets and build library files.

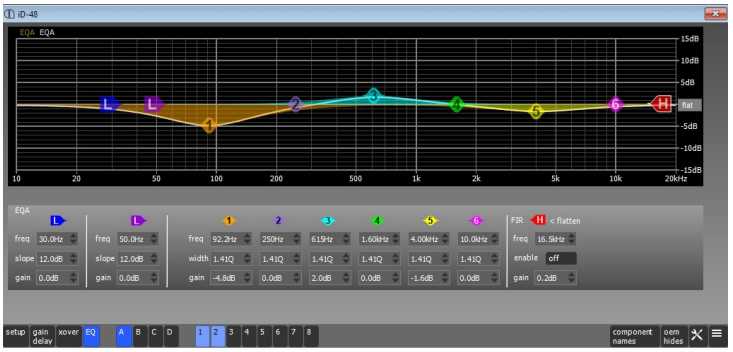
System Engineer: Application

System Engineer becomes much more than just a remote-control panel for an iD48. System Engineer and any connected device(s), which could also include the Eflex Q6 & Q20 system amplifiers, become intimately intertwined, faithfully duplicating any control adjustments whether they are made in System Engineer or on the front panel of the device itself. Adjust a gain control on the device, and watch the gain value in System Engineer smoothly slide in sympathy. They simply cannot get out of ‘sync’. You can also update the firmware in the unit via System Engineer – even via the network.

Each input and each output can be named in System Engineer. These names not only appear for the User on the System Engineer control panels, but also show when scrolling through the inputs and outputs on the device itself.

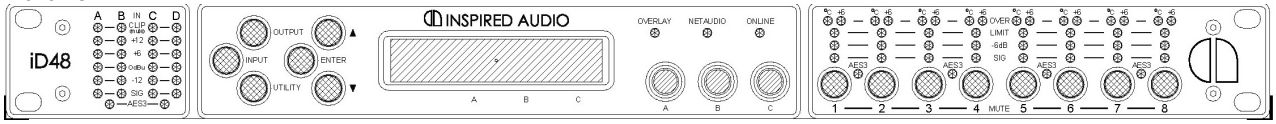
Samples of System Engineer device panels:



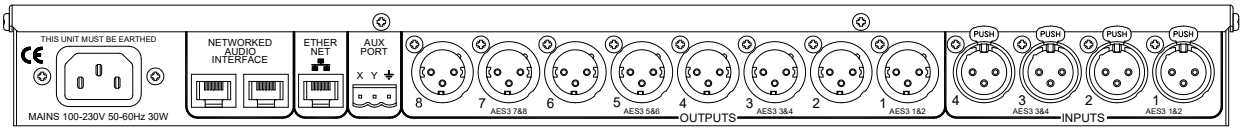


Panel Views

Front view



Rear view



inspired audio

Technical Specifications

Input impedance	>10k Ohm balanced
Output Imp	<100R imp. balanced
Max Input level	+20dBu
Max Output level	+18dBu into 600R
Sample rate	96kHz
Frequency Resp.	10Hz - 40kHz
Input Dyn. Range	>120dBa Typical
Out Dyn. Range	>118dBa Typical
THD (20Hz–20kHz)	<0.008% Typical
Mains required	85-230VAC 50-60Hz
Mains power	30W

Connectors

Audio input	3 pin female XLR
Audio output	3 pin male XLR
Ethernet	Shielded RJ45
Aux Contact	3 pin Phoenix
Mains	3 pin IEC

Environmental

Temperature	0 to +45°C
Humidity	0 to 80% RH (Non-condensing)

Dimensions

Height	1U (44mm)
Width	482mm
Depth	254mm
Weight	2.7kg net

Options

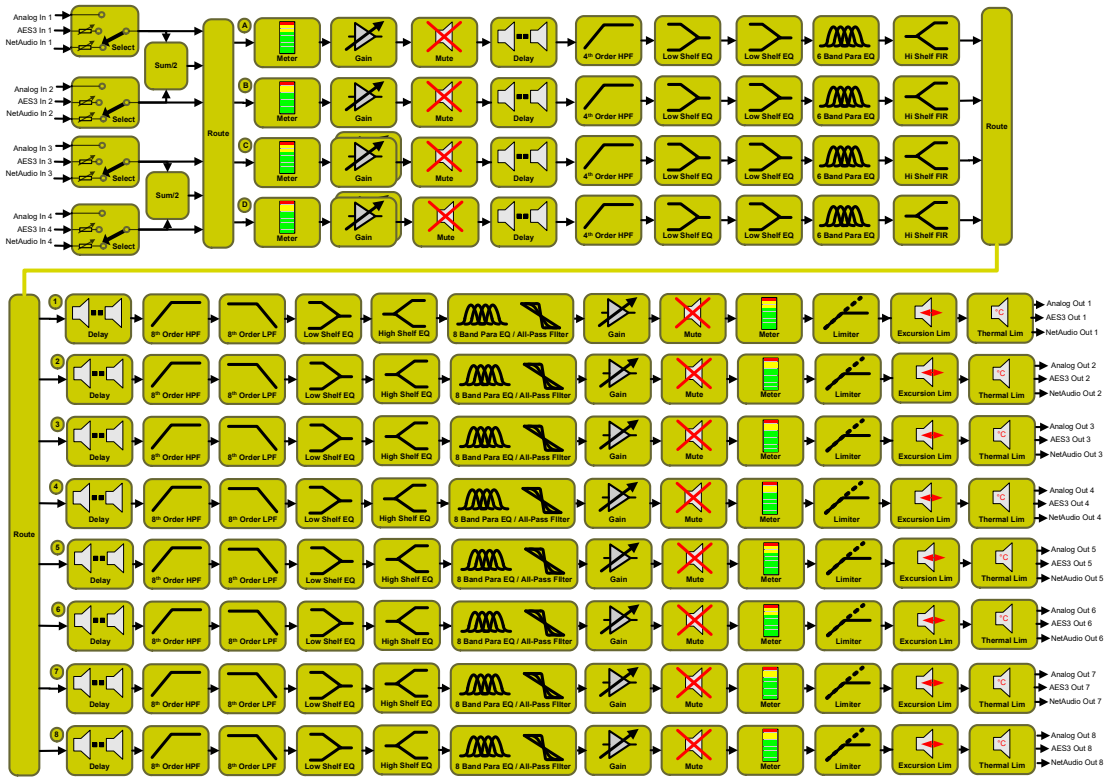
There is internal provision for a Dante digital audio network input card to be fitted. This option adds two shielded RJ45 connections to the rear panel for Dante primary and redundant. Alternatively, the connections can be configured as a switch, to allow Dante primary input and link.

Regulatory compliance

This product complies with the EMC Directive (89/336/EEC) as issued by the Commission of the European Community. Compliance with these directives implies conformity with the following European standards:

- EN55103-1 Electromagnetic Interference (Emission)
- EN55103-2 Electromagnetic Susceptibility (Immunity)
- EN60065 Electrical Safety

It also meets the requirements of UL6500 (Electrical Safety) and FCC part 15B (EMC). This product is intended for operation in the E2 (commercial) & E3 (urban) Electromagnetic Environments.



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