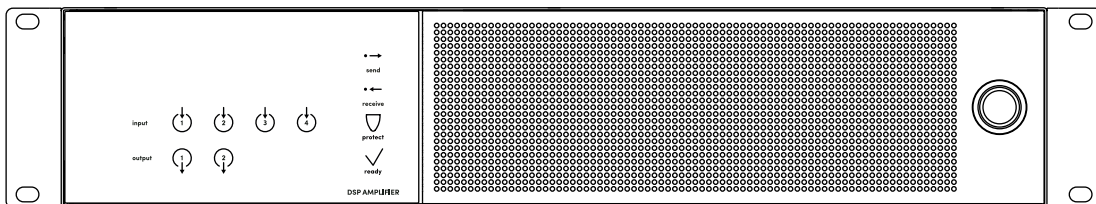


DSP AMPLIFIERS

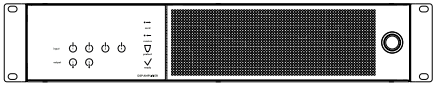
DI-2.4000

THE LATEST GENERATION OF DIGITAL HIGH-PERFORMANCE AMPLIFIERS



DI-2.4000

PRODUCT DESCRIPTION



The new **DI-SERIES** digital amplifiers have been developed and manufactured in house by **FOHNN** in Germany. At every stage of development, new intelligent technologies have been implemented. The DSP-controlled amplifiers perform at the highest level and guarantee maximum operational reliability, highest power density and excellent sound.

Since 2002, **FOHNN** has been developing extremely high quality, reliable digital electronics that have been consistently incorporated into the company's own product lines. The **DI-SERIES** amplifiers represent 15 years of know-how in digital electronics, with a great many customer wishes brought to fruition as a result.

Developed for mobile sound reinforcement applications and fixed installations, the amplifiers offer all the essential features plus virtually unlimited connectivity with regard to audio signal inputs. Even if you opt right now for an AES/EBU, Dante™, Optocore or Analog option, you are not permanently committed: The optional input interfaces can be changed, as required, customizing your amplifier to suit the relevant digital or analogue network.

Extensive DSP input and output processing enables you to intelligently adapt your loudspeaker systems to the particular sound reinforcement situation and room acoustic. All DSP functions can be controlled in real time using **FOHNN AUDIO SOFT**.

The **DI-2.4000** has an output power of 4000 W / 4 ohm per channel, four input- and two output channels. It has a compact 2U / 19" enclosure and weighs just 9.8 kg. The amplifier works extremely quietly and its fans are not used while idling.

Important features at a glance:

- developed for mobile applications and fixed installations
- network compatible, remote control, remote monitoring
- extensive DSP input and output processing
- input options: AES/EBU (terminal block or XLR), Dante™, Optocore or Analog
- output options: terminal block or Speakon connectors
- microprocessor-controlled universal power supply, 100-240 V AC, with Power Correction Factor (PFC) and sensory functions for mains voltage, power consumption and temperature
- Auto Power Save for fan-free idling, temperature-controlled fans
- two configurable switching contacts, one fault contact
- performance presets for all relevant Fohhn loudspeakers
- up to 10 seconds peak power

Virtually unlimited connectivity

The **DI-2.4000** is available with a range of different connection options. Input options include AES/EBU (terminal block or XLR), Dante™, Optocore or Analog (XLR). For outputs, you can choose between terminal blocks and Speakon connectors. Depending on the sound reinforcement requirement, the optional input and output interface modules can be swapped over. The amplifier is equipped as standard with digital AES/EBU inputs and terminal blocks.

Innovative power electronics

At the heart of the **DI-2.4000** is the in-house developed, digital, high-performance power supply. As with all amplifiers, this is largely responsible for the sound. It constantly analyses the supply voltage and processes it accordingly (Power Factor Correction). The power supply gives the CLASS D amplifier an enormous performance capability of up to 4000 W within a few milliseconds and a peak duration of several seconds! Therefore, during live music applications the amplifier can perfectly reproduce the full dynamic range across the entire audible frequency spectrum at any time. The result is a significant increase in the available peak power over several seconds. Due to its integrated microprocessor, the power supply is equipped with measuring, monitoring and communications functionality. As a result, important factors such as temperature, supply voltage and capacity can be monitored and controlled accordingly.

Intelligent control – maximum reliability

The **DI-2.4000** is equipped with highly efficient DSP technology. The integrated Fohhn Audio DSPs on each input and output channel include all the essential audio tools such as 10-Band Parametric EQ, Delay, X-Over, Phase, Dynamics Processor or Tone Generator. All settings can be saved as user presets and recalled in real time. Factory setup/performance presets are available for all Fohhn loudspeakers. These provide optimal protection for the speakers and ensure the best possible sound performance for the power level.

The amplifier is network compatible and can be remotely controlled and monitored. Direct access to all presets and DSP functions is therefore guaranteed at all times. Up to 254 amplifiers can be centrally controlled within a network via **FOHNN AUDIO SOFT**. Seamless connection to all current media control systems is also possible.

An integral Power-Up Delay enables sequential (remote) power up of multiple connected amplifiers within a rack. For larger installations and live sound applications involving multiple systems, this function significantly eases the general handling.

Quiet operation

The amplifier fans are temperature controlled and optimised for extremely quiet operation. While idling, the fans are not used (Auto Power Save function). The fan and filter foam can be manually cleaned, without the need for tools.

DI-2.4000

TECHNICAL DATA

Amplifier technology	Class D
Output power	2 × 4000 W / 4 ohm 2 × 2000 W / 8 ohm (1 kHz, THD+N < 1 %)
Minimum impedance	4 ohm
Input channels	4
Amplifier outputs	2
DSP-Routing (Matrix)	4 × 2
Frequency response	20 Hz – 20 kHz
S/N ratio	>100 dB/A
THD+N	0.15 % (1 kHz, 8 ohm, 3 dB below clipping)
Dynamic range	>120 dB
Remote control	Fohhn-Net over RS-485, USB-C, Fohhn Audio Soft
Remote monitoring	Temperature, Protect, AES/EBU Signals, Power Supply, Fohhn-Net, Fohhn Audio Soft
Fault contact	1 × Relais, 2 × UM, 3-pin Phoenix
Switching contact	Load Preset, Standby On/Off
Password protection	yes
Auto Power Save	yes, time adjustable 1 s to 12 h, or never active
Protective circuit	over voltage protection, over current protection, over temperature protection, short circuit protection, DC protection power on delay, soft start and inrush current limit
Power supply	100 – 240 V AC 50/60 Hz, universal power supply with Power Factor Correction (PFC)
Power consumption	Maximum (RMS) 1800 W, idle state 80 W, Auto Power Save 10 W, Standby 5 W, Power On/Off switch / Remote power off 2 W
Heat dissipation	Maximal 300 W, 1020 BTU/h, 258 kcal/h (Pink Noise, 6 dB crest, 1/4 Pmax)
Temperature range	0 – 40 °C
Cooling	temperature-controlled fan
Weight	9.8 kg
Dimensions (W × H × D)	2 HE / 19", 485 × 89 × 425 mm

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TECHNICAL DATA

CONTROLLERS

Digital signal processors	2
Independent limiters	12
Selective 3-band limiting	bass/mid/high
Band-specific time constants	yes
Filter technology	80-bit double precision
Input	AES/EBU 32 kHz – 96 kHz, 16/24 bit
Input DSP processing	yes
FIR filter	yes
Input Gain	-80 dB – +12 dB
Routing Gain	-80 dB – +12 dB
Output Gain	-80 dB – +12 dB
EQ	6 x 10 fully parametric filters, Gain +/-12 dB, Frequency 10 Hz – 20 kHz, Q 0.1 – 100
Limiter, Compressor	6
Noise Gate	6
X-over	6 x Linkwitz-Riley 4th Order (24 dB / Oktave), High pass 10 Hz – 20 kHz, Low pass 10 Hz – 20 kHz
Delay	2 x 0 – 350 ms (0 – 120 m) outputs, 4 x 0 – 88 ms (0 – 30 m) inputs
User Presets	100
Speaker Presets	100
System latency	1.2 ms

CONNECTIONS AND CONTROLS

Controls	Power On/Off switch
USB Config	1 x USB-C socket
Mains connection	1 x PowerCON
Fault contact (open/close)	1 x Phoenix 3-pin
Switching contact 1 and 2	1 x Phoenix 3-pin
Remote power in/out	2 x Phoenix 2-pin
Power supply for external small devices 24 V / 5 W	1 x Phoenix 2-pin
24 V / 5 W Power LED	green = on

STANDARD INPUT (AES/EBU)

Inputs	2 x Phoenix 3-pin AES/EBU, 1 x Phoenix 3-pin Fohhn-Net
Outputs	2 x Phoenix 3-pin AES/EBU, 1 x Phoenix 3-pin Fohhn-Net
Signal inputs	AES/EBU 32 kHz – 96 kHz, 16/24 bit
Signal outputs	AES/EBU link out from input
Latency	0.0 ms

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TECHNICAL DATA

INPUT INTERFACE (AES/EBU XLR), OPTIONAL

Inputs	2 × XLR AES/EBU, 1 × etherCON Fohhn-Net
Outputs	2 × XLR AES/EBU, 1 × etherCON Fohhn-Net
Signal inputs	AES/EBU 32 kHz – 96 kHz, 16/24 bit
Signal outputs	AES/EBU link out from input
Latency	0.0 ms

INPUT INTERFACE (ANALOG XLR), OPTIONAL

Inputs	4 × XLR analog, 1 × etherCON Fohhn-Net
Outputs	4 × XLR analog, 1 × etherCON Fohhn-Net
Signal inputs	Analog, max. level +15 dBu
Signal outputs	Analog link out from input
Frequency response	20 Hz – 20 kHz
THD	< 0.003 % typ. < 0.0005 % 1 kHz 0 dBu
S/N ratio	> 110 dB/A
Input impedance	10 k ohm
Latency	1.0 ms

INPUT INTERFACE (DANTE), OPTIONAL

Inputs	2 × RJ-45 1000BASE-T Ethernet, Dante and Fohhn-Net
Outputs	-
Latency	Dante +0.6 ms

INPUT INTERFACE (OPTOCORE), OPTIONAL

Inputs	2 × LWL, Optocore und Fohhn-Net
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STANDARD OUTPUT (TERMINAL BLOCKS)

Outputs	1 × Phoenix 4-pol
Conductor cross section	max. 6 mm ² flexible, 10 mm ² rigid

OUTPUT OPTION (SPEAKON)

Outputs	2 × Speakon
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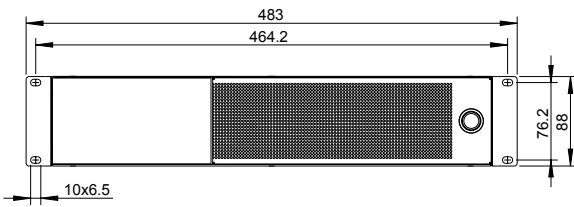
DISPLAY (FRONT)

Receive / Send LED	remote control, Fohhn-Net
Ready LED	blue = Power on blue flashing = Sign
Protect LED	red = Error / Protect / Standby
Input LED	4 × input signal LED, white = signal (> -50 dBFS), red = clip (> -3 dBFS)
Output LED	2 × output signal LED, white = signal (> -50 dBFS)
USB Config LED	configuration via USB

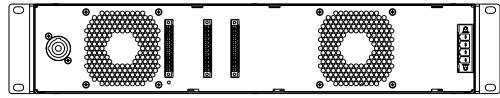
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TECHNICAL DRAWINGS

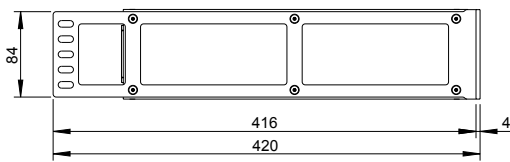
FRONT VIEW



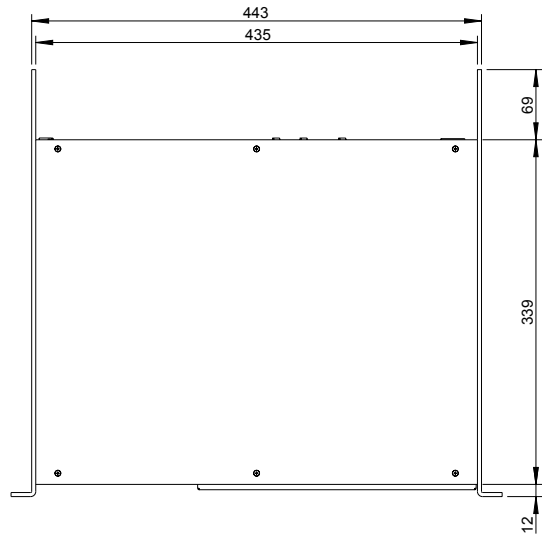
BACK VIEW



SIDE VIEW



TOP VIEW



DI-2.4000

INPUT INTERFACES

The **DI-2.4000** is available with five different input options:

AES/EBU

- AES/EBU is the most common digital standard.
- The amplifier is equipped as standard with terminal blocks. An interface with XLR inputs is optionally available.

Dante™

- Dante is a popular digital audio network.
- Audio data is transmitted over IP network.
- Dante offers complex audio routing possibilities.
- Redundant cabling (star-shaped) is possible.



OPTOCORE

- Optocore is a network that enables routing of control signals and audio signals via fibre optic cables.
- This permits long cable runs (e.g. as in airport installations).
- The signal transmission has extremely low latency.
- Optocore offers complex audio routing possibilities.
- Redundant cabling (ring-shaped) is possible.

Analog

- Balanced analogue input signals will suffice.

DI-2.4000

FOHNN AUDIO SOFT

The new **FOHNN** amplifiers can be operated entirely via a single piece of intuitive control software: **FOHNN AUDIO SOFT** enables the central monitoring and control of all functions in networked **FOHNN** devices – in real time. Using the **FOHNN-NET** control network, the software has access to all the loudspeakers and amplifiers within the whole audio system.

The software's clear, graphic user interface enables speedy access to grouping functions and user DSP functions (such as volume control, routing, EQ or 100 user presets). In the "Beam Steering" section, users can set parameters that include, amongst others, beam width- and beam inclination angles, acoustic centre, high pass filtering, Two Beam Mode and Optimize (Side Lobe Free). They can also remotely monitor the audio signal-, hardware- and network status, as well as pilot tone presence, temperature and operating time – depending on the **FOHNN** speaker system.

New functions include access control via password protection and a configurable Auto Power Save function. Also, DSP functions are now available at the signal inputs. The new software version additionally allows simultaneous configuration of the Beam Steering parameters of several loudspeaker systems.

FOHNN AUDIO SOFT is a control software for Windows computers. Connection between amplifiers with AES/EBU- or analogue signal inputs and the control computer is via the use of either an **NA-11 FOHNN-NET USB ADAPTER** or **NA-3 FOHNN-NET ETHERNET ADAPTER**. Amplifiers with Dante™ and Optocore inputs are connected via Ethernet.

The software and its associated user manual can be downloaded free of charge from: www.fohnn.com



The new amplifiers can only be configured via **FOHNN AUDIO SOFT** version 5.x.

DIGITAL 2-CHANNEL DSP AMPLIFIER WITH NETWORK CONNECTION

Network compatible, DSP-controlled high performance amplifier with 4 input channels and 2 output channels. CLASS D amplifier technology with 4000 W output power at 4 ohm per channel.

Remote control and monitoring possible via PC and control software. Network-compatible in combination with active DSP devices from the same manufacturer within its own RS-485 based control network.

Extensive DSP processing with a programmable EQ, Delay, X-Over and Dynamics Processor on each input and output channel.

Integrated factory presets for protecting connected loudspeakers through selective multiband limiting for high-, mid- and low frequency ranges. Storage of up to 100 custom user presets is also possible.

Equipped with universal power supply with Power Factor Correction and integrated microprocessor with measurement, monitoring and communication functions. Monitoring and control of supply voltage, capacity and temperature. Shutdown in the event of overload.

Power supply and in-house developed technologies enable a significant increase in peak power over several seconds.

An integrated Power-Up Delay enables sequential (remote) power up of multiple connected amplifiers in a rack.

The amplifier has a 19" / 2U enclosure with power switch, LED display and a magnetically attached front panel for manual, tool-free fan and filter cleaning. The amplifier's fans are temperature controlled and are not used during idling.

Ideal for mobile applications due to its low weight (9.8 kg) and for fixed installations due to its high energy efficiency.

The amplifier is equipped with two programmable switching contacts (switch) and a fault contact for easy integration into the building services.

Different input- and output options are available.

Input options: AES/EBU (2 × Phoenix 3-pin), AES/EBU (2 × XLR), Analogue (4 × XLR), Dante™ (2 × RJ-45 1000BASE-T Ethernet) or Optocore (2 × LWL).

Output options: 1 × 4-pin terminal block or 2 × Speakon connectors

For more information on our amplifiers and loudspeaker systems,
please visit our website or contact us directly:

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