# LX4AP

### NETWORK UNIT WITH ANALOG INTERFACES

## OPTICAL DIGITAL
## NETWORK DEVICE



## Product Features

- **48 XLR analog mic/line inputs with selectable 48 V phantom power**

- **16 XLR return outputs**

- **2 x 48 analog post-preamp split outputs**

- **2 RS485 interfaces for the exchange of control data. (e.g. RS422, RS485, DMX, MIDI)**

- **Composite video input**

- **48 mic pre-amps, selectable gain: 0 dB to +66 dB in 1 dB steps**

- **2 optical 1 Gbps LINK interface with duplex SC-connectors**

- **Dual power supply with automatic switchover**

- **USB / RS232 port for configuration and control**

- **Full remote access with OPTOCORE CONTROL software**

- **Upgradeable internal logic**

- **Comprehensive status control and via LED banks on the front**

The LX4AP is an OPTOCORE® OPTICAL DIGITAL NETWORK SYSTEM device with analog interfaces. The A/D and D/A converters provide 48 microphone or line level inputs and 16 analog return outputs. It was developed as a network device for highest performances, able to convert the analog signals generally found on stage, which require a wide dynamic range, negligible distortion and extremely low noise.

The LX4AP can be considered as a stage box with direct LINK to the Optocore network. 48 XLR input channels stand for 48 microphone channels, each including microphone pre-amp, phantom power and selectable gains in 1 dB steps from 0 dB to +66 dB. 16 XLR return channels with a selectable channel level of 0dB and –10dB round off the device. A headphone jack is supplied to control the gain-level of every in- and output channel on stage. The analog signals are leveled by high quality pre-amps and converted by premium A/D technology.

The rear panel of the LX4AP supplies 2 x 48 channel splits on 6 x 8 channel multi-pin jacks. The analog post-preamp signals can be sent at line level to two other mixing systems, e.g. a monitor console and a recording system. No additional equipment such as split boxes is necessary.

Redundant fiber connections can be established using the two provided optical LINK-interfaces. Depending on the fiber optic transceivers, distances from 700 m up to 70 km can be covered. The dual redundant ring structure provides maximum safety in a network with an outstanding low latency.

In addition to audio signals, the LX4AP provides a composite video input as well as two RS485 interfaces usable for a wide range of data standards such as RS422, DMX and MIDI. The dual power supply unit, with automatic switchover, permits a redundant power supply and safeguards against malfunctions of the unit if one power supply fails to run.

The front panel offers the possibility to control the gains, phantom power, etc. Levels and status are indicated in banks of eight channels by the LED display. Furthermore, the LCD display enables information on the status of every single channel as well as bank information.

OPTOCORE CONTROL software provides easy access to all configuration and control tools, including routing, naming, gain setting, and phantom power activation, storage and recall of configurations on the computer, off- and online mode, real-time level display of the individual channels in online mode.

## Line Drawings
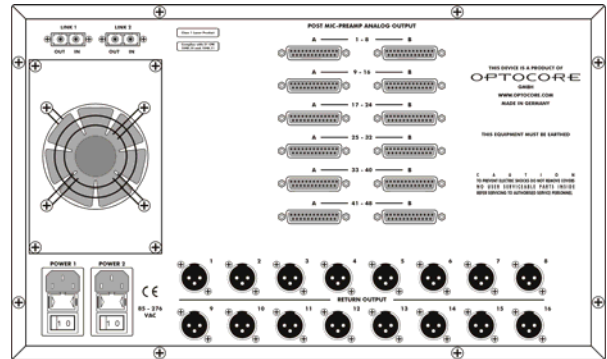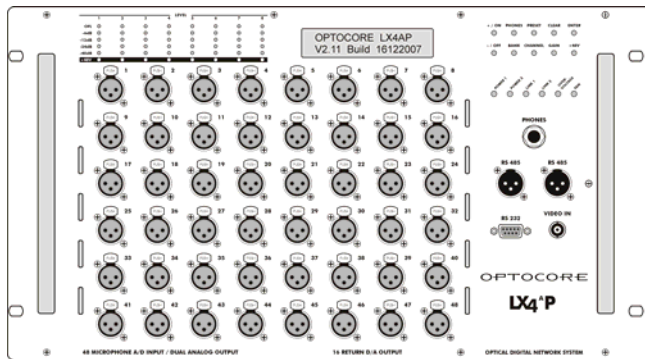


## Technical Specifications

| Analog Audio Inputs | Analog → ADC | | | |
|---|---|---|---|---|
| Mic / line inputs | | | | 48 |
| Gain / steps | | | 0 dB – +66 dB | 1 dB steps |
| Maximum input level | @ 0 dB Gain | 18 dBu | @ 66 dB Gain | -48 dBu |
| Frequency response ( ≤ -1 dB-drop) | @ 48 kHz | 15 Hz – 21 kHz | @ 96 kHz | 15 Hz – 42 kHz |
| Input impedance | | | | 5 kΩ |
| Phantom power | selectable per channel | | | 48 V |
| Distortion THD+N | @ 0 dB Gain | ≤ 0,002% ≡ -94 dB | @ 50 dB Gain | ≤ 0,025% ≡ -72 dB |
| Equivalent Input Noise | | | @ 50 dB Gain | -127 dBu |
| Dynamics | @ 0 dB Gain | ≥. 113 dB | @ 50 dB Gain | 145 dB |
| CMR | @ 1 kHz | ≥ 60 dB | @ 16 kHz | ≥ 54 dB |
| Crosstalk | @ 1 kHz | ≤ -112 dB | @ 16 kHz | ≤ -92 dB |
| Converter | | | 24-bit @ 48 kHz | 24-bit @ 96 kHz |
| Delay | ADC-channels | = $39 / F_S$ | @ 48 kHz: 0.82 ms | @ 96 kHz: 0.41 ms |
| Analog Audio Outputs | DAC → Analog | | | |
| Return outputs | | | | 16 |
| Gain / steps | | | 0 dB, -10 dB | 2 steps |
| Maximum output level | @ 0 dB Gain | 18 dBu | @ -10 dB Gain | 8 dBu |
| Frequency response ( ≤ -1 dB-drop) | @ 48 kHz | DC – 21 kHz | @ 96 kHz | DC – 42 kHz |
| Distortion THD+N | - | | @ 0 dB Gain | ≤ 0,002% ≡ -94 dB |
| Dynamics | @ 0 dB Gain | ≥ 114 dB | @ -10 dB Gain | ≥ 113 dB |
| Converter | | | 24-bit @ 48 kHz | 24-bit @ 96 kHz |
| Delay | ADC-channels | = $28 / F_S$ | @ 48 kHz: 0.59 ms | @ 96 kHz: 0.29 ms |
| Post Preamp Analog Outputs | | | | |
| Balanced outputs | | | | 2 x 48 |
| Maximum output level | | | | 8 dBu |
| Dynamics | | | @ 0 dB Gain | ≥ 115 dB |
| Headphones | Termination imp. | ≥ 2 x 8 Ω | Max. power | 2 x 150 mW @ 8 Ω |
| Auxiliary Ports | Convention EIA / TIA-485 | | | |
| Data channels / rate | Digital control data | | 2 / up to 10 Mbps | |
| Impedance | Termination | 330 Ω | Source | ≤ 10 Ω |
| Video | Hardware standard 75 Ω / BNC | | 1 x input, Composite video | |
| Link | Input, Output, Dual – Full bandwidth | | | |
| Connection | | | Duplex SC | |
| Protocol | | | Optocore | |
| Transmission | | | Full duplex | |
| Data rate | | | 2 x 1 Gbps | |
| Optical wave guide cable lengths | Multimode fiber 50 µm | | ≤ 700 m | |
| | Monomode fiber 9 µm | | ≤ 70 km (on request) | |
| Power supply | 2 independent power supplies with function check and automatic switch-over | | | |
| Type | Switch-mode, universal input | | | |
| Mains voltage | 100 ... 240 V, 400 $V_{AC}$ tolerant, 85VA-idle, 120VA-peak | | | |
| Frequency | 50 ... 60 Hz | | | |
| Remote Control | | | | |
| RS232 / USB port | RS232: Convention EIA / TIA-232 | | R x D, T x D / 57 600 Baud | |
| Dimensions | | | 6 RU / 19" | |
| W x H x D | 483 x 264 x 310mm | | 19.2 x 10.4 x 12.2 inch | |
| Weight | 14.4 kg | | 31.8 lbs | |