



X6R-FX

ANALOGUE – SANE - FIBER INTERFACE AND NETWORK CONVERTER UNIT FOR OPTOCORE FIBER NETWORKS

12 in 1, the X6R-FX is a network converter unit with the highest degree of flexibility concerning the I/O configuration which can be directly integrated in a OPTOCORE Fibre Network and in a 64 channels SANE CAT5 network by OPTOCORE.

OVERVIEW

12 in 1, the X6R-FX is a converter unit with the highest degree of flexibility concerning the I/O configuration which can be directly integrated in a OPTOCORE Fibre Network and in a 64 channels SANE CAT5 network by OPTOCORE. Six different card types enable to customise the card slots on the rear of the device, whether the conversion of analogue signals - 16 inputs, 16 outputs, 8 inputs and 8 outputs, dual microphone inputs with two independent adjustable gains – to AES/EBU or a sample rate converter for AES3 input signals is required. Twelve different versions are available.

The X6R-FX is especially designed for rack mounted applications and permanent installation. All cards are equipped with Euroblock connectors. These common installation interfaces provide a simple and cost-efficient connection to other audio equipment.

The X6R-FX is seamlessly integrated into the OPTOCORE® OPTICAL DIGITAL NETWORK SYSTEM. All parameters of the converters can be remote controlled and monitored with the same software application as all the other OPTOCORE devices, the OPTOCORE CONTROL software.

The X6R-FX with the dual microphone input card relieves all FOH and monitor engineers of the decision about the control of the microphone preamps. Every microphone input incorporates two independent microphone preamps and both can be adjusted individually. Therefore, analogue split boxes and two stage racks to give FOH and monitor engineers the freedom to adjust their mic preamps directly at their own console can be a past.

The X6R-FX with the sample rate converters enables the connection of audio devices operating the different sample rates.

The X6R-FX with AES/EBU I/O, analogue mic input, line input and line output cards allow a customised I/O configuration. Two card slots can be equipped with two different cards, so ten combinations with 16 inputs, 16 outputs or 8 inputs and 8 outputs can be produced exactly according to the customer's requirements.

The microphone inputs include microphone preamp, phantom power and selectable gains in analogue 1dB steps from -4dB to +66dB.

The line inputs are equipped with selectable channel levels of -9 dB, -4 dB, +0 dB, +10 dB and the line output with a selectable channel level of +4dB, 0 dB, -6 dB, -10 dB round off the device. The high quality of the preamps, A/D- and D/A converters make the X6R-FX units ideal for the incorporation into audio systems even if no OPTOCORE network is established. They provide a wide dynamic range with negligible distortion and extremely low noise.

The channels of the SANE Ports and I/O Cards can be directly routed to OPTOCORE fibre network and vice versa.

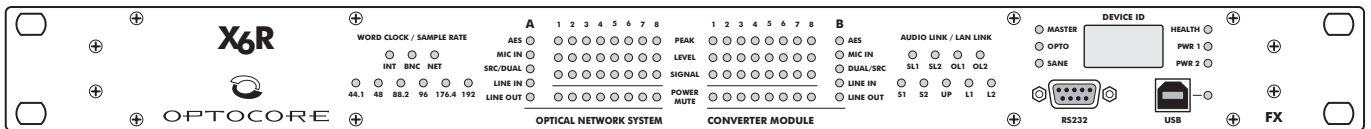
The Word Clock IN and OUT enable the synchronization of the units to an external source and are used to pass on the word clock from one unit to the next. For stand-alone applications, the devices are equipped with an internal word clock.

One X6R-FX can exchange up to 1024 audio channels from the fibre network, 128 audio channels from the SANE network and 16 audio channels from the I/O Cards. The X6R-FX units can be operated and controlled via the OPTOCORE network with OPTOCORE Control, without the necessity of any external data cable. For control in stand-alone applications, USB, RS232 or LAN port on the front / rear panel can be used.

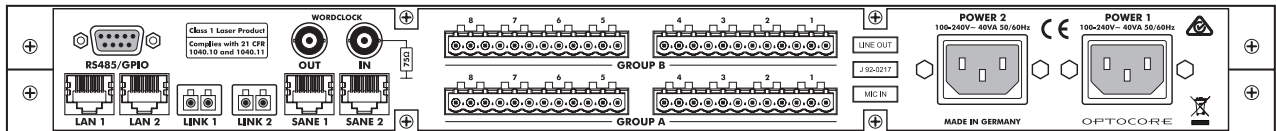
The FPGA (field programmable gate array) based concept of the internal logic circuitry permits updating of the firmware ensuring a continual state-of-the-art device.

SCHEMATICS

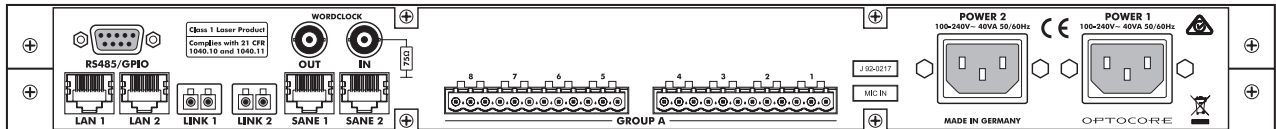
Front Panel of X6R-FX



Rear Panel of X6R-FX with Analogue Input - and Output Cards



Rear Panel of X6R-FX with Dual Microphone, AES/EBU or AES/EBU with Sample Rate Converter Card



FEATURES

- 16 channel converter unit in a 1 RU enclosure for OPTOCORE Fibre Network and SANE CAT5 Network by OPTOCORE
- Card slots for customized I/O configuration
- 6 types of cards with Euroblock connectors:
 - 8 mic inputs with one preamp
 - 8 mic inputs with two independent preamps each
 - 8 line inputs
 - 8 line outputs
 - 8 AES/EBU I/O with sample rate converters
 - 8 AES/EBU I/O
- 8 AES/EBU in- or outputs switchable in groups of four
- Sample rates up to 192 kHz
- Full integration into SANE and OPTOCORE network
- Mic inputs with selectable gain (-4 dB to +66 dB in true analogue 1 dB steps) and 48 V phantom power
- 2 optical 2 Gbps LINK interface with duplex LC connectors
- 2 RJ45 SANE Network Ports
- 4 RS485/GPIO Ports
- Word clock IN and OUT
- Embedded internal word clock for stand-alone applications
- USB, RS232 and LAN port for configuration and control
- Full remote access with OPTOCORE Control Software
- Upgradeable internal logic
- Comprehensive status control via LED banks on the front

TECHNICAL SPECIFICATIONS

Analog Audio Mic Inputs	ADC			
Impedance, Gain / steps Maximum input level SNR THD+N @ -1 dBFS	Single and Dual @-4dBGain @-4dBGain @-4dBGain	4.5kΩ +22 dBu 122.5 dB(A) ≤ -102 dB	-4 dB to +66 dB @ +66 dB Gain @ +66 dB Gain @ +66 dB Gain	1 dB steps -48 dBu 81.5 dB(A) ≤ -100 dB
Analog Audio Line Inputs	ADC			
Impedance, Gain / steps Maximum input level SNR THD+N @ -1 dBFS	@-9dBGain @-9dBGain @-9dBGain	10kΩ +27 dBu 127.5 dB(A) ≤ -102 dB	-9, -4, 0, +10 dB @ +10 dB Gain @ +10 dB Gain @ +10 dB Gain	4 steps +8 dBu 108 dB(A) ≤ -102 dB
Analog Audio Line Outputs	ADC			
Impedance, Gain / steps Maximum input level SNR THD+N @ -1 dBFS	@+4dBGain @+4dBGain @+4dBGain	22Ω +22 dBu 123 dB(A) ≤ -100 dB	+4, 0, -6, -10 dB @ -10 dB Gain @ -10 dB Gain @ -10 dB Gain	4 steps +8 dBu 108 dB(A) ≤ -103 dB
Digital AES3 audio in/out	8 AES/EBU Digital Audio Pairs = 16 audio channels with or without Sample Rate Converter Card (when equipped with AES card)			
Audio ports	Connector: 8x or 16x EuroBlock/Phoenix, Configuration: Software switchable I/O in 8-channel blocks; audio routing			
Fiber Ports	2 Duplex optical LINKs Protocol: OPTOCORE - 1014 audio channels, IP, data, sync Connector: 2 hot-swappable SFP modules Transmission, data rate: Dual ring, full duplex, 2Gbps data rate Cable lengths: Multimode 50 μm ≤ 350m, Singlemode 9 μm ≤ 20km; other lengths available on request with custom SFP			
SANE Links	2 RJ45 SANE links Protocol: SANE - 64 audio channels and 100Mbps LAN Transmission, data rate: Full duplex, 200 Mbps Cable length: CAT5, CAT5E, CAT6, CAT7 ≤ 100m			
LAN Links	2 RJ45 LAN links Protocol: FastEthernet, switch function across the entire OPTOCORE and Sane network Transmission, data rate: Full duplex, 10/100 Mbps Cable length: CAT5, CAT5E, CAT6, CAT7 ≤ 100m			
Auxiliary Ports	4 RS485/422 channels Connector: D-Sub9, Convention EIA/TIA-485, 120 Ohm termination			
Word Clock	1 Input, 1 output Protocol: Word Clock; sample rate: 44,1 / 48 / 88,2 / 96 / 176,4* / 192* kHz Connector: BNC, 75 Ohm termination			

TECHNICAL SPECIFICATIONS

Power Supply	2 independent power supplies with function check and automatic switch-over Type: Switch-mode, universal input Mains Voltage: 100-240 V Frequency: 50-60 Hz Power Consumption: 12 W typical
Remote Control	LAN: any LAN or SANE port RS232: Convention EIA / TIA-232: Rx/D, Tx/D / 57.600 Baud USB: Interface to PC
Dimensions (WxHxD)	1 RU / 19": 483 x 44 x 200 mm 19.2 x 1.73 x 7.87 inch
Weight	2.7 kg 6.0 lbs