



# XMIC+

High-end microphone and  
analog converter



A U D I O   E X C E L L E N C E

# XMIC+

## The world class: Microphone reference transducer with 158 dB dynamic range and continuous self-calibration

The XMIC+ microphone input board features eight TrueMatch® 32-bit converters, each with a 4-channel active microphone splitter. Each of the channels has separate gain control, adjustable low cut filter and a phase inverter and works in a permanent self-monitoring and self-calibration. The audio quality of the converters is highly praised by professional sound engineers worldwide and has never been achieved by any other product to date.



The XMIC+ card is a first-class 8-channel microphone converter with a unique circuit design. The patented TrueMatch process works on the XMIC+ cards with four converter stages and intelligent DSP technology, thus achieving the legendary dynamic range of 158 dB(A). Due to the mode of operation of the conversion process and the 32-bit resolution of the entire AD stage, it is virtually impossible to overdrive the inputs. The subsequent requantization to the NEXUS-internal 24 bits takes place using the level adjustment set by the user, so that the very best audio values are achieved at all times.

In addition to the outstanding, principle-related advantages of this method, the quality of the AD converters themselves is also remarkable: minimal converter errors, very low distortion and excellent aliasing suppression are decisive factors for the much-cited tonal neutrality. Since the

quantization noise is below the inherent noise of a microphone capsule, there is another advantage that should not be underestimated: Stage Tec's TrueMatch microphone converters do not require any analog preamplification. This results in the purest signal, unclouded from any analog component noise, with an extremely short group delay and the very best impulse fidelity. Even the quietest sound sources are reproduced with maximum transparency and absolute neutrality.

Each input on the XMIC+ card features a gain, adjustable subsonic filter and phase inverter, as well as extremely fast, automatic muting when input mating is detected. All parameters can be remotely controlled via the NEXUS system and can be fully integrated with Stage Tec's mixing console systems. As an option, the module offers an active 4-way microphone splitter, which makes it possible

to operate all the above parameters of up to four mixing consoles separately, i.e. without influencing the other consumers. The resulting up to four signals per input can be routed and distributed as separate signals over the entire NEXUS network.

XMIC+ cards are available in three structural versions: Classic with eight XLR sockets distributed over two 8DU panels and two 4DU wide versions. Here D-Sub connectors are available, which are suitable for firmly screwed rack cabling or the like, or RJ45 sockets, which in conjunction with CAT5 cables can offer great advantages for remote connection panels, e.g. in domestic installations. For the latter, the outstanding analog circuit design with galvanic transformer isolation and excellent common mode rejection plays the decisive role; features that are standard for all inputs from Stage Tec modules.



### 158 dB dynamic range due to patented TrueMatch technology

The TrueMatch technology, based on first-class analog circuit design and modern DSP technology, is characterized by minimal converter errors, low distortion and improved aliasing suppression. It ensures that an unrivalled large dynamic range is achieved.

### Integrated 4-channel split possible

Optionally, the signal is available four times for each microphone input after conversion. This allows to adjust the gain, impact filter and phase inverter separately for up to four different consumers. The signals are independently available in the NEXUS network, which supports the completely self-sufficient operation of the various users in the best possible way. It can be operated via Stage Tec consoles or the NEXUS operating program.

### On-board gain, phase inverter, impact sound filter

After the conversion, a digital level setting in 1 dB steps is available. When the internal microphone splits are activated, these parameters can be set separately for up to four different users.

### Auto-mute during plugging operations at the connection

To avoid level peaks when plugging and unplugging cables, an auto mute function is integrated. This mutes the input for a short time.

### Completely eliminates the need for analog pre-amplification

Due to the special four-stage operation of the TrueMatch converters, the XMIC+ does not require any analog pre-amplification. Overdriving is thus excluded and analog component noise is unknown to these inputs.

### Integrated DI function

For short lines, it is possible to connect unbalanced signals directly to the XMIC card, as the module has excellent galvanic isolation. A simple jack-XLR adapter is sufficient to eliminate distortion or noise of a DI box.

### Studio applications and recording with the highest sound standards

In the recording studio and in other recording situations, the highest demands are placed on the quality of the signals. A lot of time is spent to find the right sound, it would be a pity if not every detail is transmitted! When using the XMIC+ board, the recorded signal recreates the full dynamic range of the microphone capsule, thanks to the unique circuit design. Therefore the board meets every quality requirement. The signal from the connected microphones is transmitted unchanged without adding any noise. Unlike conventional recording chains that rely on a microphone preamplifier, the XMIC+ microphone input board converts the signal directly to reproduce the sound true to the source. The XMIC+ board shines, not only in situations where nuances matter, but also in everyday tasks a clear difference to other digital converters is noticeable.

### Direct conversion of critical signals Lowest level

When it comes to digitizing low level signals, the XMIC+ card is the means of choice, as the noise level is lower than that of conventional microphones. By means of an innovative converter concept which, with the aid of several digital converters per input, finds the appropriate level control for the

respective level and intelligent DSP technology which measures and corrects the smallest deviations that occur, e.g. by heating the module. With the purely digital amplification, an excellent signal can be provided for further use. This feature is particularly noticeable with low level microphones or even with quiet sound sources, because in a normal procedure, the gain increases the signal before digitization in order to better control the converter, but also the noise of the amplifier. This effectively reduces the dynamics, the upper limit represents the clip boundary. With an amplifierless circuit and gain only in the digital range the entire dynamic range of the microphone is maintained and the noise carpet to be raised is that of the microphone itself.

### Applications with a high number of simultaneously open microphones

In situations with a large number of simultaneously open microphones, such as orchestra recordings, a disturbing noise carpet quickly adds up from the basic noise of the microphone preamplifiers and the quantization noise of the digital converters. This phenomenon does not occur when using the XMIC+ card, because in these situations it shines with its very low noise level, which is lower than that of conventional microphones and thus leaves room for even the smallest levels. In addition, the

excellent common mode rejection ensures an excellent reduction of interference such as that of lighting systems, which are usually installed in the immediate vicinity of the stage and thus of the microphone sections.

### Setups with changing requirements for microphone or line inputs

If you need high-quality analog inputs, but want to connect signal sources with different levels, the XMIC card is the right choice. Although the board still converts the smallest microphone signals with high resolution, it can be controlled with up to 24 dBu, which is significantly above the usual line levels. Using the patented TrueMatch principle, each level is converted with the appropriate amplifier stage, enabling unsurpassed dynamics. This gives the user the freedom to connect line sources to microphone inputs and eliminates the need to think in two categories of input types.

Connections			
Variant: XLR		2 x 8DU	
XLR female	8x	Mic Level, Line Level	Input
Variant: D-Sub 25		1 x 4DU	
D-Sub 25 Socked female	1x	Mic Level, Line Level	Input
Variant: RJ45		1 x 4DU	
RJ45	2x	Mic Level, Line Level	Input

<b>Technical specifications</b>	
<b>Audio Data</b>	
Dynamic range	157,6 dB (A) total range; >144 dB (RMS) or >147 dB (A), limited by the 24-bit output format
Distortion factor (THD+N)	0.003 %@24 dBu (typ.); <0.004 % granted; 0.003 %@-50...0 dBu (typ.); < 0.004 % granted
Frequency response	20...20,000 Hz: < 0.05 dB (< ±0.1 dB typ.); @ 20 Hz: -3 dB (typ.) (18-dB/oct. slope below, in compliance with IRT specifications)
Equivalent noise level at the input	< -129,5 dBu(A) @ 200 ohm input impedance; < -126 dBu(RMS) @ 200 ohm input impedance; < -133,6 dBu(A) @ 0 ohm input impedance; < -115 dBqp CCIR1K @ 200-ohm input impedance
Configuration, available separately for each channel	Adjustable digital gain 48-V phantom power Subsonic filter, Phase inversion Limiter (fixed settings, requires XCPU08 and Matrix5 software or later)
Input levels	24 dBu balanced (max.); unbalanced input signal (up to 24 dBu) with phantom power disabled
HF resistance	HF-demodulation resistant according to IRT standards (IRT-Pflichtenheft 3/5) and European standards
Phantom power	11 mA (max.), fused; can be enabled/disabled
Latency	395 µs @ 48 kHz sample rate
Dielectric strength	< ±200 V (common-mode signal, with disabled phantom power)
Subsonic filter	Switchable between 20/40/60/80 Hz, 18 dB/oct.
Crosstalk attenuation	> 140 dB @ 20...20,000 Hz; > 170 dB @ 1 kHz (typ.); > 150 dB @ 20 kHz (typ.)
Input-impedance CMR	125 dB@50 Hz (typ.); 105 dB@1 kHz (typ.); 80 dB@20 kHz (typ.)
Gain	Up to 70 dB (clickfree digital adjustment in 1-dB steps)
<b>Operation Conditions</b>	
Temperature range	0° C to +50° C
Max humidity	max. 90 %, non-condensing
<b>Storage Conditions</b>	
Temperature range	-35° C to +70° C
Max humidity	max. 90 %, non-condensing
<b>Power Supply</b>	
Voltage	+4,75...5,25 V
Current	1200 mA
<b>Mechanical Data</b>	
Weight	0,32 kg
Note	In the XLR version, the two front panels are connected with a Cat5 cable.

# Stage Tec NEXUS: A global reference!\*



\*The map shows selected reference locations. To date more than 1,000 Stage Tec NEXUS systems have been delivered and installed worldwide.

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