



BENEFITS

- software and user controlled phantom power
- balanced inputs support longer cables at higher noise immunity
- SNR can be optimized with multiple gain-stages

FEATURES

- balanced high performance inputs and outputs
- up to 87 kHz bandwidth
- high CMRR inputs
- phantom power supply integrated
- superb noise and distortion characteristics
- selectable 6/29 V_{PP} output range

DESCRIPTION

The XLR-Card is a hardware extension for the Klippel Analyzer 3 to interface analog Line signals. It features high precision DAC and ADC components and signal conditioning. A built in 48 V Phantom-Power Supply allows the use of XLR-Microphones without any additional hardware.

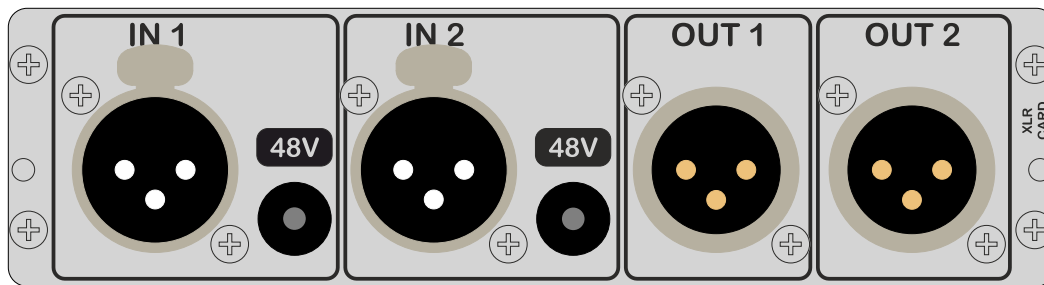
Item number

2000-430

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1 Introduction



XLR-Card

Elements	Comment
IN 1 / 2	The XLR input connectors IN 1 and IN 2 provide a balanced line input. Phantom power can be activated by switch or dB-Lab. The green LED indicates phantom power status. If asymmetric output is required use pin 2 (hot/+) and short pin 3 (cold/-) with pin 1 (ground).
OUT 1 / 2	The XLR output connectors OUT 1 and OUT 2 provide a balanced analog output signal at pin 2 (hot/+), pin 3 (cold/-) and pin 1 (ground). If asymmetric output is required use pin 2 (hot/+) and short pin 3 (cold/-) with pin 1 (ground).

2 Specification

2.1 Maximum Ratings

Parameter	Conditions	Max	Unit
Input voltage, any pin		50	V
Input current (DC), any pin		20	mA
Transient input current, any pin	t < 1 ms	6	A

2.2 Electrical Specification

XLR Outputs					
Parameter	Conditions	Min	Typ	Max	Unit
Accuracy	1 kHz, 1 V _{rms}		±0.02	±0.2	%
Differential output voltage	High-Range setup		14		V _{peak}
	Low-Range setup		2.1		V _{peak}
Common-Mode-Range ²			±13		V
Differential Offset Voltage (absolute)	w Offset-Compensation		100		µV
	w/o Offset-Compensation		10		mV
Differential output impedance			30		Ω
Shortcircuit duration			infinite		s
Output noise	BW = 20 kHz		24		µV _{rms}
THD @ 1kHz	All Sample-Rates, HiRange, -1 dBfs		-95		dB
Upper Frequency limit	F _s = 48 kHz, ±0.2 dB		20		kHz
	F _s = 96 kHz, ±0.2 dB		40		
	F _s = 192 kHz, ±0.2 dB		70		
	F _s = 192 kHz, +0.2/-1 dB		87		

XLR Inputs					
Parameter	Conditions	Min	Typ	Max	Unit
Phantom Power Voltage	Open input		48		V
Phantom Power Source Resistance			6.8		kΩ
Accuracy	1 kHz, 1 V _{rms}		±0.05	±0.2	%
Common-Mode-Range ²			±14		V _{peak}
Nominal sensitivity (0 dB)	Input voltage for 0 dBFs		3		V _{peak}
Noise level (@ nom sensitivity)	Shorted input, BW = 20 kHz		2.8		μV _{rms}
Sensitivity (gain-controlled) ¹	Input gain -20 dB		28		V _{peak}
	Input gain -14 dB		15.4		
	Input gain -8 dB		7.7		
	Input gain 6 dB		1.5		
	Input gain 12 dB		0.8		
	Input gain 20 dB		0.3		
	Input gain 26 dB		0.15		
	Input gain 32 dB		0.07		
Dynamic Range	Sinewave		115		dB
THD @ 1 kHz	All Sample-Rates, -1 dBFs		-100		dB
CMRR	0 Ω mismatch	50 Hz	78		dB
		100 Ω mismatch	50 Hz	78	
		5 kHz	55		
Input impedance			10		kΩ
Input capacitance			15	TBD	pF
Lower Frequency limit (-3dB) AC-coupling enabled	Fs = 48 kHz		3.5		Hz
	Fs = 96 kHz		4		
	Fs = 192 kHz		5		
Upper Frequency limit	Fs = 48 kHz, ±0.2dB		20		kHz
	Fs = 96 kHz, ±0.2dB		40		
	Fs = 192 kHz, ±0.2dB		87		

¹ Gain control is limited to certain values defined by software module.

² Pin voltage (common mode + signal) has to be below 14.3 V absolute to avoid clipping

2.3 Hardware Revision History

Revision	Changes
Rev. 1.2	<ul style="list-style-type: none"> • Input and output filter improvements • Phantom power switches replaced

Find explanations for symbols at:

<http://www.klippel.de/know-how/literature.html>

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