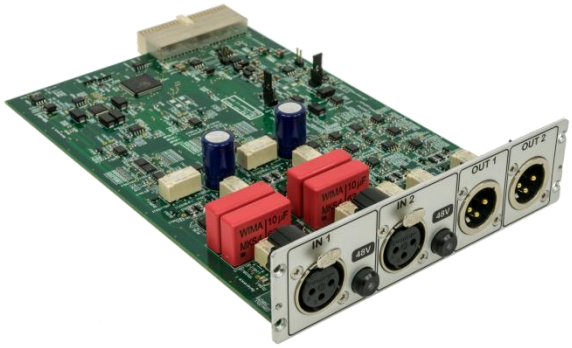
XLR-Card Rev. 1.1 H9

Hardware Extension for the Klippel Measurement System (document revision 1.3)



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

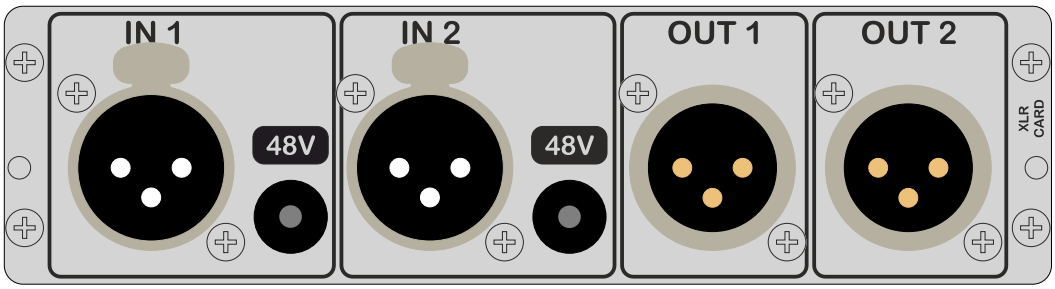
DESCRIPTION

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.

Article number	2179

CONTENT

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	Fs = 48 kHz, ±0.2 dB		20		kHz
	Fs = 96 kHz, ±0.2 dB		40		
	Fs = 192 kHz, +0/-0.7 dB		70		
	Fs = 192 kHz, +0/-1.5 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, ±0.2 dB			20		kHz
	Fs = 96 kHz, ±0.2 dB			40		
	Fs = 192 kHz, +0.7/-0 dB			70		
	Fs = 192 kHz, +1/-0 dB			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

Find explanations for symbols at:
http://www.klippel.de/know-how/literature.html
Last updated: April 24, 2025