

BENEFITS

- operating two laser heads at the same time
- software and user controlled mic IEPE supply
- simplified laser head setup without external power supply unit
- IEPE sensor detection

FEATURES

- dual laser Input with short-circuit-proof power supply
- IEPE compliant sensor-supply integrated
- monitoring output
- 24 V_{DC} sensor supply voltage
- supports Klippel B-Field sensor
- IEPE status monitoring

DESCRIPTION

The Laser-Card is a hardware extension for the Klippel Analyzer 3 intended to host microphone and displacement sensors. It features a universal BNC output to monitor signals with third party devices such as oscilloscopes. Built in IEPE compliant power supply at BNC inputs eliminates the need for external power circuitry if using microphones, accelerometer or other IEPE compliant sensors. The Laser-Card also offers short-circuit proof 24V power supply on 8 pin-coax inputs to power the displacement- or a B-field sensor.

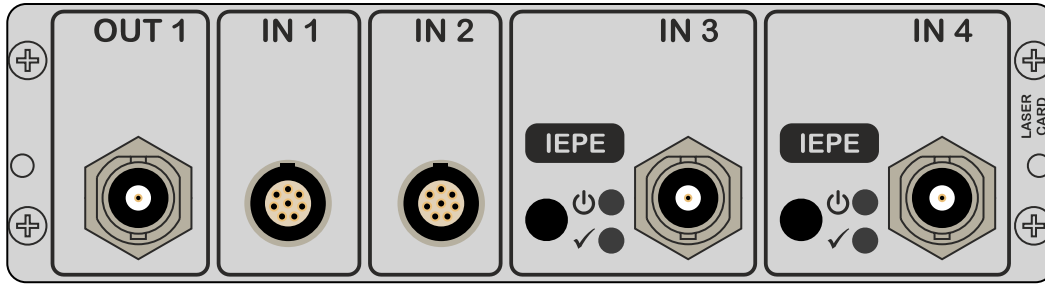
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2180



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1 Introduction



Laser-Card

Element	Comment
OUT 1	Unbalanced universal BNC output
IN 1 / 2	The 8 pin-coax socket provides a balanced input as well as power for external sensors. It may host a laser displacement sensor or a B-field sensor.
IN 3 / 4	Unbalanced BNC input with switchable IEPE compliant power supply. The power supply can be switched by pressing the black button or via dB-Lab. The LED  indicates IEPE power is switched on. The LED  indicates power consumption of the connected sensor.

2 Specification

2.1 Maximum Ratings

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

2.2 Electrical Specification

BNC Output					
Parameter	Conditions	Min	Typ	Max	Unit
Output voltage			10		V _{peak}
Accuracy ²			TBD	±1	%
Offset Voltage (absolute)	w Offset-Compensation		400		μV
	w/o Offset-Compensation		25		mV
Differential output impedance			TBD		Ohm
Short circuit duration			infinite		s
Output noise	BW = 20 kHz		11		μV _{rms}
THD @ 1kHz	F _s = 48 – 192 kHz, 2 V _{rms}		-90		dB
Lower Frequency limit (-3 dB)	Offset-Compensation active		1.1		Hz

BNC Inputs					
Parameter	Conditions	Min	Typ	Max	Unit
IEPE supply current			7.3		mA
Max IEPE voltage		28			V
Accuracy ²				±0.6	%
Nominal sensitivity (0 dB)	Input voltage for 0 dBFs		3.9		V _{peak}
Sensitivity range	See gain table below				
Noise level (@ nom sensitivity)	Shorted input, BW = 20 kHz		15		μV
SNR ¹	sinusoidal signal, BW = 20 kHz		108		dB
THD @ 1 kHz (all Sample-Rates)	-1 dBFs		-88		dB
Input impedance			10		kOhm
Input capacitance			15		pF
Lower Frequency limit (-3 dB)	AC-coupling enabled		1.6		Hz
Upper Frequency limit	Fs = 48 kHz, +/-0.1 dB		19		kHz
	Fs = 96 kHz, +/-0.3 dB		34		
	Fs = 192 kHz, -1 dB		49		
	Fs = 192 kHz, -3 dB		66		

LEMO Inputs (Laser)					
Parameter	Conditions	Min	Typ	Max	Unit
Laser supply voltage			24		V
Laser supply current	short-circuit-proof (infinite time)			0.5	A
Accuracy ²				±0.6	%
Common-Mode-Range			±14		V _{peak}
Nominal sensitivity (0 dB)	Input voltage for 0 dBFs		3.9		V _{peak}
Sensitivity range	See gain table below				
Noise level (@ nom sensitivity)	Shorted input, BW = 20 kHz		15		μV
SNR ¹	sinusoidal signal, BW = 20 kHz		109		dB
THD @ 1 kHz (all Sample-Rates)	-6 dBFs (5.5 V _{rms})		-88		dB
CMRR	0 R mismatch ¹		70		dB
	10 R mismatch ²		60		
Input impedance	differential		20		kOhm
Input capacitance			15		pF
Upper Frequency limit	Fs = 48 kHz, +/-0.1 dB		19		kHz
	Fs = 96 kHz, +/-0.3 dB		34		
	Fs = 192 kHz, -1 dB		49		
	Fs = 192 kHz, -3 dB		66		

Common gain settings for Lemo and BNC inputs					
Parameter	Conditions	Min	Typ	Max	Unit
Sensitivity (gain-controlled) ³	Input gain -12 dB		15.5		V _{peak}
	Input gain -9 dB		11.0		
	Input gain -6 dB		7.8		
	Input gain -3 dB		5.5		
	Input gain 3 dB		2.8		
	Input gain 6 dB		2.0		
	Input gain 9 dB		1.4		
	Input gain 12 dB		1.0		
	Input gain 15 dB		0.7		
	Input gain 18 dB		0.5		
	Input gain 21 dB		0.35		
	Input gain 24 dB		0.25		
	Input gain 27 dB		0.17		

¹ SNR refers to signal levels instead of power levels

² refers to standard KA3 (Laser-, Speaker-, XLR-Card) operated at 22-32°C ambient temperature and minimum of 30 minutes warm-up time

³ Gain control is limited to certain values defined by software module

Find explanations for symbols at:

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

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