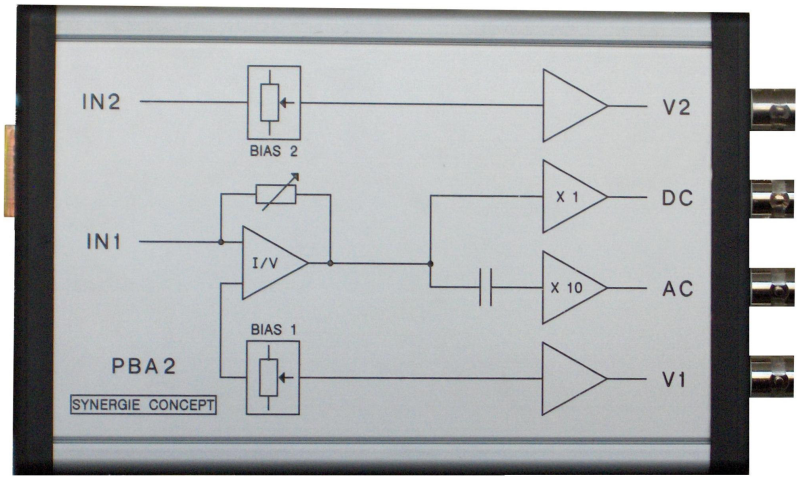
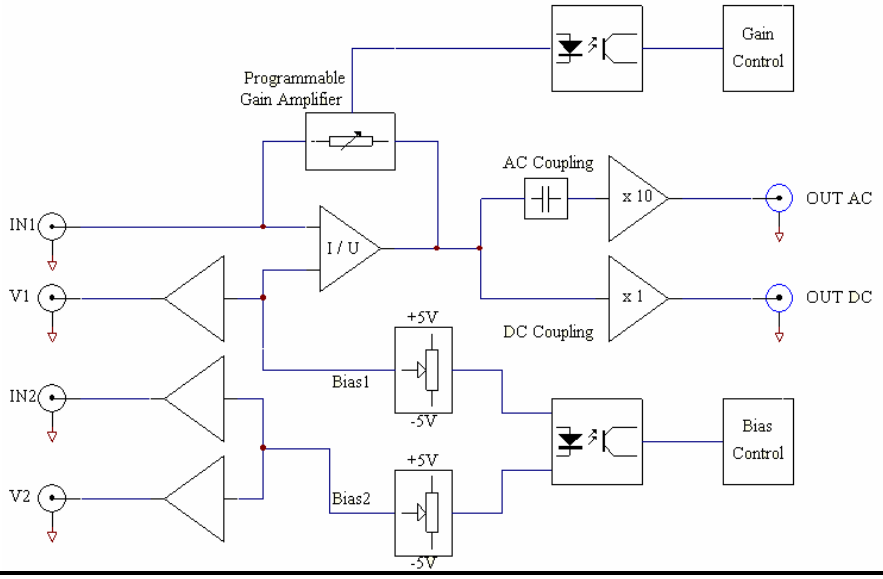
Programmable Gain and Bias Amplifier
Low noise I/V amplifier



Features	• Programmable Gain from 1 x 10^3 to 1 x 10^8 V/A • Bandwith DC / 1 Hz… 500 kHz • Two Programmable Voltage Outputs for Biasing
Applications	• Low Noise Current Amplifier
Block Diagram	

Programmable Gain and Bias Amplifier

Specifications

Test Conditions **Ta = 25°C**

Gain	Transimpedance	1×10^3 … 1×10^8 V/A					
	Gain Accuracy	± 1%					
Frequency Response	Lower Cut-Off Frequency	DC / 0.5 Hz					
	Upper Cut-Off Frequency	Up to 500 kHz (See Table Below)					
	Gain Flatness	± 0.1 dB					
Input	Equ. Input Noise Voltage	4 nV / √Hz (@ 100 Hz)					
	Input Bias Current	1 pA typ. (maximum 3 pA)					
Performance depending on Gain Setting	Sensitivity (A/V) DC	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}
	Sensitivity (A/V) AC	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}	10^{-8}
	Upper Cut-Off Frequency (-3dB)	500 kHz	480 kHz	510 kHz	290 kHz	138 kHz	33 kHz
	Equ Input Noise Current (A/√Hz)	200 pA	98.2 pA	10.1 pA	1.1 pA	168 fA	44.9 fA
	Max. biasing Current (±)	10 mA	10 mA	1 mA	100 µA	10 µA	0.1 µA
	Max. Offset Voltage	100 µA	10 µA	1 µA	0.1 µA	10 nA	1 nA
Output	Output Voltage	± 10 V (@ 10 kΩ Load)					
	Output Voltage for Biasing	± 5 V (0.1% Precision)					
	Output Impedance	50 Ω					
	Maximum Output Current	± 20 mA					
Digital Control	Control Input Voltage Range	Low : - 0.8 V… + 1.2 V, High : 2.3 V…+ 5.25 V					
	Control Input Current	1.5 mA @ 0 V, 4.5 mA @ + 5 V					
Power Supply	Supply Voltage	± 14 V					
	Supply Current max	+ 100 mA / - 100 mA					
	Stabilized Power Supply Output	± 12 V, maximum 100 mA, + 5 V, maximum 40 mA					
Case	Weight	380 gr.					
Temperature Range	Storage Temperature	- 40 °C + 100 °C					
	Operating Temperature	0 °C + 60 °C					
Absolute Max. Ratings	Control Input Voltage	+ 5.25 V					
	Power Supply Voltage	± 15 V					

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Connectors	Input	BNC, Isolated
	Output	BNC isolated
	Power Supply	LEMO Series 0S, 3-pin fixed Socket Pin 1 : - 15 V Pin 2 : GND Pin 3 : + 15 V

Control Port	Sub-D 15-pin, female, Quality Class 2		
	Pin 1 :	Potentiometer Low	F
	Pin 2 :	Potentiometer Hight	R
	Pin 3 :	Incrementation Input 1	G
	Pin 4 :	Incrementation Input 2	H
	Pin 5 :	Up / Down	D
	Pin 6 :	Selection Gain C	C
	Pin 7 :	Selection Gain B	B
	Pin 8 :	Selection Gain A	A
	Pin 9 :	+ 5 V	
	Pin 10 :	Bias 2 Sens +/-	
	Pin 11 :	Bias 1 Sens +/-	
	Pin 12 :	NC	
	Pin 13 :	NC	
	Pin 14 :	NC	
	Pin 15 :	GND	

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Remote Control Operation

Gain Setting

A	B	C	Gain (DC)	Gain (AC)
OFF	OFF	OFF	No selection	No selection
ON	OFF	OFF	10^2	10^3
OFF	ON	OFF	10^3	10^4
ON	ON	OFF	10^4	10^5
OFF	OFF	ON	10^5	10^6
ON	OFF	ON	10^6	10^7
OFF	ON	ON	10^7	10^8

Bias Voltage Setting

U/ D	CS / PL	CS / PH	INC1	INC2	Mode	Incrementation Value
ON	ON	ON	⎍	⎍	Stand By	
OFF	ON	OFF	⎍		Incrementation Input 1	- 50,5 mV
OFF	ON	OFF		⎍	Incrementation Input 2	- 50,5 mV
OFF	OFF	ON	⎍		Incrementation Input 1	- 5,05 mV
OFF	OFF	ON		⎍	Incrementation Input 2	- 5,05 mV
ON	ON	OFF	⎍		Incrementation Input 1	+ 50,5 mV
ON	ON	OFF		⎍	Incrementation Input 2	+ 50,5 mV
ON	OFF	ON	⎍		Incrementation Input 1	+ 5,05 mV
ON	OFF	ON		⎍	Incrementation Input 2	+ 5,05 mV

CS Potentiometer Low	CS / PL
CS Potentiometer Hight	CS / PH
Incrementation Input 1	INC 1
Incrementation Input 2	INC 2
Up / Down	U / D

Bias Sens +/-	Logic Level	Mode
Bias 1	Low (0V)	negative polarization
Bias 1	Hight (5V)	positive polarization
Bias 2	Low (0V)	negative polarization
Bias 2	Hight (5V)	positive polarization

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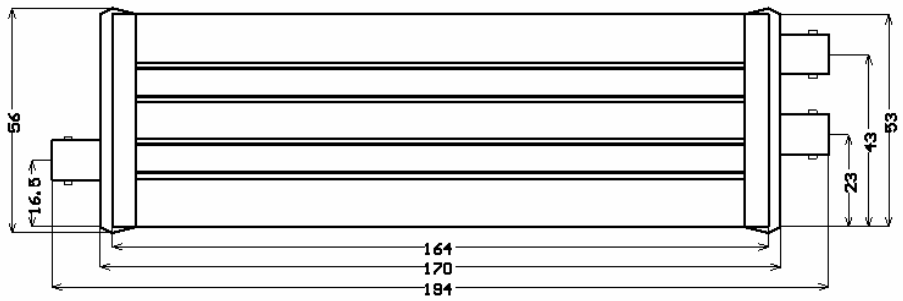
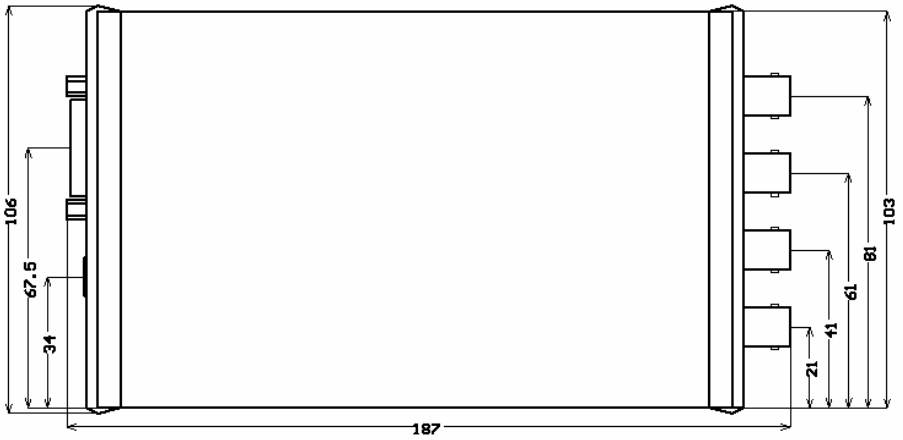
Dimensions





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