

Dual Channel High Voltage Linear Amplifiers

pendulum

DATA SHEET

- Dual-Channel High Voltage Linear Amplifiers from 100Vp-p up to 1600Vp-p
- Two amplifiers in one box
- Ultra-linear amplification
- High Bandwidth, up to 1 MHz
- High Slew rate, up to 500V/ μ s
- Low output impedance, down to 0.1 Ohm
- Wide range of models to suit any performance and/or budget demand

Overview

Pendulum Instruments High Voltage Linear Amplifiers are general purpose broadband linear amplifiers having a fixed or variable amplification and capable of bipolar or unipolar output. The amplifiers outputs are linear from DC up to Megahertz range, and exist in Single-Channel and Dual-Channel versions.

Pendulum Instruments High Voltage Linear Amplifiers are valuable tools, for research institutes, R&D labs and component manufacturing industries, in a wide range of applications. Common examples are driving piezo actuators, MEMS, OLEDs, liquid crystals, etc.

The amplifiers are designed to drive resistive and/or small capacitive loads. The output is equipped with a current limiting circuit that withstands accidental short-circuits.

Dual-channel Amplifier selection

We offer a wide range of Dual-Channel Hi-Voltage Linear Amplifiers to suit any performance demand for Output voltage, Output current, Speed/Bandwidth and/or budget.

The Dual-Channel Amplifiers comes in two basic design versions: the D-models with two independent amplifiers in one box, and the DI-models, which include an additional input signal inverter for the second amplifier. The DI-models can either be used as a dual output amplifier, like the D-models, OR as a single-output amplifier with doubled nominal amplitude

In models A400DI or A800DI, the first amplifier outputs the amplified in-phase input signal, and the second amplifier outputs the inverted signal (180 degrees phase shift). By combining the outputs of the two individual amplifiers you will effectively double the output p-p Voltage, compared to the output of individual amplifiers.



Select your Amplifier from one of our two series:

F-series (F10A, F20A) – Low Cost series

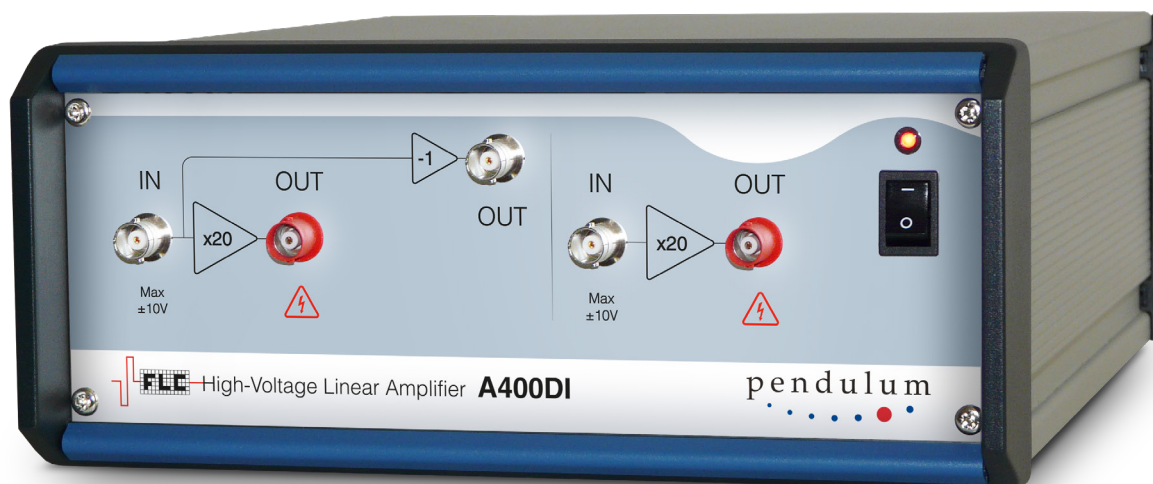
A-series (A400, A600, A800) – High Voltage series

Explore details of the individual models on the follow pages.

For Single-Channel Amplifiers, we refer to our [Single Channel High Voltage Linear Amplifiers Datasheet](#).

Model	Output Voltage per channel	Output Current per channel	Bandwidth	Gain
F10AD	-100 to +100V	185 mA	1 MHz	x10, fixed
F20AD	-150 to +150V	150 mA	500 kHz	x20, fixed
A400D	-200 to +200V	150 mA	500 kHz	x20, fixed
A400DI	-200 to +200V or 800Vpp	150 mA	500 kHz	x20, fixed
A600D	-300 to +300V	75 mA	350 kHz	x100, fixed
A800D	-400 to +400V	60 mA	300 kHz	x100, fixed
A800DI	-400 to +400V or 1600Vpp	60 mA	300 kHz	x100, fixed

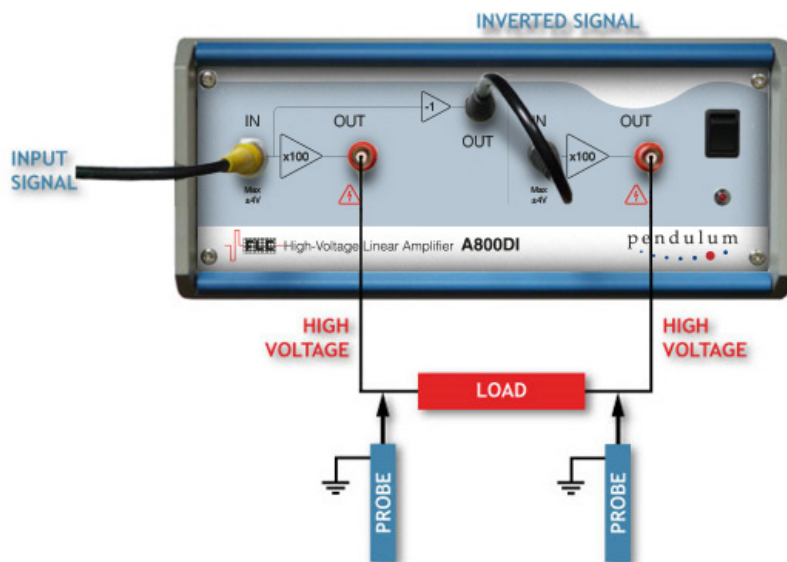
Dual Channel HV Amplifier with Phase Inverter A400DI



The Pendulum Instruments Dual Channel High Voltage Linear Amplifier A400DI contains two independent A400 amplifiers that share common ground reference and power supply. It features also a low voltage phase inverter that inverts the signal applied to the input of channel 1. The resulting signal can then be connected to the input of channel 2 by means of a short BNC cable (supplied).

As a result the two outputs operate in counter-phase. Connecting a load between the outputs effectively doubles the amplitude range. Please note that the load cannot have any connection to ground. Also, in order to see the signal over the load you must use two oscilloscope probes and use the math function.

The phase inverter is present in models A400DI and [A800DI](#). The idea is illustrated below:



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		A400D/DI	A600D	A800D/DI	F10AD	F20AD
Bandwidth	at 100 Vpp	DC to 1 MHz	DC to 1 MHz	DC to 1 MHz	DC to 1 MHz	DC to 1 MHz
	at max. Vpp	DC to 500 kHz	DC to 350 kHz	DC to 300 kHz	DC to 1 MHz	DC to 500 kHz
Amplification	type	fixed				
	level	x 20	x 100	x 100	x 10	x 20
Load	type	resistive capacitive				
	full bandwidth	400 pF	300 pF	200 pF	400 pF	400 pF
Impedance	input	1 Mohm 30 pF				
	output	<0.1 ohm in the linear mode				
Voltage	input	nominal ± 10 V	nominal ± 3 V	nominal ± 4 V	nominal ± 10 V	nominal ± 7.5 V
	output	max ± 200 V	max ± 300 V	max ± 400 V	max ± 100 V	max ± 150 V
Current	each channel	150 mA continuous	75 mA continuous	60 mA continuous	185 mA continuous	150 mA continuous
Slew Rate	output	400 V/ μ s	500 V/ μ s	500 V/ μ s	400 V/ μ s	400 V/ μ s
Operating Ambient Temperature		0°C to 30°C				
Storage Temperature		0°C to 60°C				
Relative Humidity		up to 90% (operation), 30% to 50% (storage)				
Power Requirements		100V or 110 V or 220 V, 50/60 Hz or 110/220V selector switch				
Fuse		100/110 V: 3.15 A (slow), 220/230 V: 2 A (slow)				
Dimensions (H/W/L)		102 x 257 x 262 mm (4.0" x 10.1" x 10.3")				
Weight		4 kg (8.8 lbs)				
Country of Origin		Poland				

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Specifications subject to change or improvements without notice.

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