

USBPIA-S1 USB Programmable Single Channel Instrumentation Amplifier

Software selectable gain of 1, 2X, 5X, 10X, 20X, 50X, 100X, 200X, 500X, 1000X, 2000X, 5000X, 10000X

Compatible with any 12-, 16, or 24-bit A/D converter device Differential or single ended input

± 10Vmax Signal Input and Output with input protection up to ±40V Selectable AC or DC coupling for input offset nulling

Use multiple USBPIA-S1 units for multi-channel applications

USB 2.0 compatible communication for setup and control

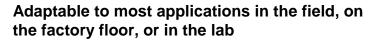
Non-volatile configuration retains all settings through power cycles

Does not need to be attached to a PC to operate

AC/DC converter included for 115VAC or 220VAC power

Optional 9 to 12V battery operation

All Windows OS compatible menu setup software and SDK



The USBPIA-S1 stand alone USB controllable module is a single channel high-quality instrumentation amplifier with optional AC coupling, for front-end signal conditioning. It is compatible with all popular A/D converter devices.

The USBPIA-S1 is powered with 9 to 12VDC so it can be connected to a battery voltage source or the supplied 115-220VAC adapter may be used for operation with wall power anywhere in the world.

When programmed from the USB port, the USBPIA-S1 will remember all of the programmed properties between power cycles. Program once and operate as a stand- alone signal conditioner without having to reprogram for every use. This is perfect for turn-key applications.

It's easy to connect the USBPIA-S1 into the data collection system. Input and output signals can be routed through BNC connection or using the detachable screw terminal connectors. Optional SMA type adapters are also available.

Protection from high input voltages

The USBPIA-S1 provides strong input protection and can withstand up to +/-40V at the analog signal input.

Amplify single-ended or differential signals

The USBPIA-S1 high-quality instrumentation amplifier provides software-selectable gain as well as differential inputs with high-common mode rejection.



Gain can be set at 1, 2, 5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000, or 10000.

AC couple at any time

The USBPIA-S1 can AC couple or DC couple the input signal under software control. This feature is useful in applications where the input signal is riding on a large DC offset. AC coupling will remove the DC offset.

All Software is Included

The USBPIA-S1 comes with complete easy-to-use menudriven software and SDK tools to custom build control. **SystemViewUSBPxx** is a ready-made application compatible with all versions of Windows. Use a few simple mouse clicks to program the parameters of each USBPIA-S1 connected to the PC. Once selected, the desired parameters are set and saved to non-volatile memory in the USBPIA-S1 so that they are reapplied after every subsequent power up.

An ActiveX/COM control is provided for custom software development. The COM interface of the ActiveX control can be integrated into any high level language application. Example code is provided in a variety of software languages.

Instrumentation Amplifier

Software selectable steps	max mV Offset	max gain error	-3dB bandwidth
1	0.350	0.06%	10MHz
•			
2	1.100	0.10%	10MHz
5	2.150	0.19%	10MHz
10	1.250	0.06%	4MHz
20	2.900	0.10%	4MHz
50	6.650	0.19%	4MHz
100	2.150	0.06%	550kHz
200	4.700	0.10%	550kHz
500	11.150	0.19%	550kHz
1000	3.050	0.07%	60kHz
2000	6.500	0.12%	60kHz
5000	15.650	0.24%	60kHz
10000	29.900	0.44%	60kHz

CMRR to 60Hz.....80dBmin, 100dB typ. at gain of 1

Common Mode Voltage+/-10V max

Input Voltage+/-10V max at gain of 1

Input Protection+/-40V max, with power off or on Input Impedance20M Ω differential (10M Ω each side to

analog ground)

DC offset vs. temperature.....±2 µV/℃

Output impedance.....<0.01 Ω

AC/DC Couple

AC Couple Frequency0.03 Hz AC/DC Coupling Software Selectable

Physical

Number of channels1

Size 108mm(4.25")x83mm(3.25")x28mm(1.125")

Power consumption500mA at +9VDC Operating temperature......0°C to 70°C

Software

GUI, API, and SDK Included for all versions of the Windows OS

System Accessories

Connectors

USBPIA-S1/STA	Screw terminal adapter kit(one 2-lead
	STA and one 3-lead STA)

USBPxx-S1/SMAM two BNC to SMA Male adapters

USBPxx-S1/SMAF two BNC to SMA Female adapters

Power Adapters

P9V500MA

PAP-NA

PAP-EU

PAP-AS

PAP-UK

PAP-UK

POWER Adapter Plug Europe

PAP-UK

POWER Adapter Plug Australia

POWER Adapter Plug United Kingdom

DC regulator for 9 to 30VDC sources

Multi-channel Accessories

USBDR-8 19" rack, DIN rail, and wall mountable

8-channel Power and USB

distribution rack.