

Differential or single ended input

USBPIA-S1 USB Programmable Single Channel Instrumentation Amplifier

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
Compatible with any 12-, 16, or 24-bit A/D converter device

± 10Vmax Signal Input and Output with input protection up to ±40V Software selectable gain of 1, 2X, 5X, 10X, 20X, 50X, 100X, 200X, 500X,

Use 2 USBPIA-S1 in series to reach gains of 1000000X
Selectable AC or DC coupling for input offset nulling
Use multiple USBPIA-S1 units for multi-channel applications
Windows NT/2000/XP/Vista,7 compatible menu setup software

Adaptable to most applications in the field, on the factory floor, or in the lab

The USBPIA-S1 stand alone USB controllable module provides a single channel of high-quality instrumentation amplifier and optional AC coupling, for front-end signal conditioning 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 or 1000. Since the USBPIA-S1 amplifiers introduce very low noise, two can be placed in series to reach gains of 10000 and more.

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 a complete menu-driven program. **SystemViewUSBPxx-S1** is a ready-made Windows NT,XP,Vista, 7 compatible application that uses 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 control is provided for custom software development. The COM interface of the ActiveX control can be integrated into any high level language application.

Instrumentation Amplifier

Gain Error		-		
Frequency Range (-3dB)		1.2MHz typ.		
	Gain 200-1000	400kHz typ.		
CMRR to 60Hz	80dBmin, 98dB typ.			
CMRR to 50kHz				
Common Mode Voltage	+/-10V max			
Input Voltage	+/-10V max at gai	n of 1		
Input Protection				
Input Impedance	20MΩ differential	(10M Ω each side to		
	analog ground)			
DC offset @gain 1	±.1.65 mV typ. 5.0	0mV max.		
DC offset @gain 2				
DC offset @gain 5	±.1.65 mV typ. 5.0	0mV max.		
DC offset @gain 10				
DC offset @gain 20				
DC offset @gain 50				
DC offset @gain 100	±.100.25 mV typ. 2	251.025mV max.		
DC offset @gain 200	±.100.25 mV typ. 2	251.025mV max.		
DC offset @gain 500	±.100.25 mV typ. 2	251.025mV max.		
DC offset @gain 1000	±.100.25 mV typ. 2	251.025mV max.		
DC offset vs. temperature	±2 μV/°C			
Gain error @gain 1				
Gain error @gain 2				
Gain error @gain 5	±0.015% typ. ±0.	12% max		
Gain error @gain 10	±0.12% typ. ±1.05	5% max		
Gain error @gain 20	±0.12% typ. ±1.0	5% max		
Gain error @gain 50	±0.12% typ. ±1.0	5% max		
Gain error @gain 100	±1.04% typ. ±10.2	2% max		
Gain error @gain 200	±1.04% typ. ±10.2	2% max		
Gain error @gain 500	±1.04% typ. ±10.2	2% max		
Gain error @gain 1000	±1.04% typ. ±10.2	2% max		
Output impedance	<0.01 Ω			
AC/DC Couple				

Gain of 1, 2, 5, 10, 100, 200, 500, 1000 Software selectable

AC Couple Frequency......0.03 Hz AC/DC Coupling Software Selectable

Physical

1	N	uml	her	of a	har	nnel	s'	1
П	IN	ullii	JEI	OI (u lai		5	

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

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

Software

SystemViewUSBPxx-S1for Windows NT/2000/XP/Vista/7

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 Universal to 9V DC 500mA

PAP-NA Power Adapter Plug North America

Power Adapter Plug Europe **PAP-EU** PAP-AS Power Adapter Plug Australia

Power Adapter Plug United Kingdom PAP-UK

Multi-channel Accessories

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

8-channel Power and USB distribution

rack.