



# USBPHP-S1 USB Programmable Single Channel Instrumentation Amplifier, and High Pass Filter

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  
Differential or single ended input with software selectable amplifier gains of 1 to 1000  
 $\pm 10V$ max Signal Input and Output with input protection up to  $\pm 40V$   
Filter rejection band attenuation up to -90dB  
High Pass Filter available as 4-pole Butterworth or Bessel.  
High Pass Software select any Corner Frequency (Fc) from 5Hz to 1275Hz in HyN model (185Hz to 47.22kHz in -HyE model)  
factory calibrated for unity gain and very low DC offset filter output  
Use multiple USBPHP-S1 units for multi-channel applications  
Windows 7/Vista/XP compatible menu setup software



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

The USBPHP-S1 stand alone USB controllable module provides a single channel of high pass filtering and high-quality instrumentation amplifier for front-end signal conditioning compatible with all popular A/D converter devices.

The USBPHP-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 USBPHP-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 USBPHP-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 USBPHP-S1 provides strong input protection and can withstand up to  $\pm 40V$  at the analog signal input.

## Amplify to improve signal resolution

The USBPHP-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. The USBPHP-S1 Instrumentation Amplifier provides an excellent common-mode rejection of 90 to 100 dB typical at high gains.

## Multiple unit operation individually software select any high corner frequency

Each USBPHP-S1 module in a multi-channel data collection system can have a unique filter characteristic, a unique set of corner frequencies, and a unique amplification.

## All Software is Included

The USBPHP-S1 comes with a complete menu-driven program.

**SystemViewUSBPxx** is a ready-made Windows 7/Vista/XP compatible application that uses a few simple mouse clicks to program the parameters of each USBPHP-S1 connected to the PC. Once selected, the desired parameters are set and saved to non-volatile memory in the USBPHP-S1 so that they are reapplied after every subsequent power up.

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## Ordering information

USBPHP-S1/yz

y = high pass characteristic

z = high pass range

### High Pass Range Options

Normal range z = N

Continuously tunable from 5Hz to 1275Hz

Extended range z = E

Continuously tunable from 185Hz to 47.22kHz

### High Pass Filter Options

4-pole Butterworth y = B

4-pole Bessel y = L

### Instrumentation Amplifier

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

Gain Error .....<±0.01dB @ 10kHz at gain of 1

Gain Tolerance .....@2-100 0.15%max

.....@200-1000 0.3% max

CMRR.....75dBmin, 86dB 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 Impedance .....20MΩ differential (10MΩ each side to  
analog ground)

DC offset, Factory Adjusted..<±0.1mV @ 10kHz at gain of 1

DC offset vs. temperature.....<±20 μV/°C

DC offset, long term drift.....<±5 μV/Month

Output impedance.....<0.01 Ω

### Physical

Number of channels..... 1

Size.....108mm(4.25")x83mm(3.25")

Power consumption .....500mA at +9VDC

Operating temperature.....0°C to 70°C

### Software

SystemViewUSBPxx.....Windows 7/Vista/XP compatible

### System Accessories

#### Connectors

USBPxx-S1/STA Screw terminal adapter kit(one 2-lead  
STA and two 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

PAP-EU Power Adapter Plug Europe

PAP-AS Power Adapter Plug Australia

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