# Diff1
# Differential Amplifier Module




Differential Amplifier Module type **DIFF1** is a is a self-contained signal conditioning module designed to be used with any of the Logitech Electronics range of standard Magnetic Pick-ups.

Ordinarily, the module will be used in conjunction with one of our **200 SERIES**, or **2000 SERIES** or **3000 SERIES** instruments.

However, it can be used also in conjunction with other instrumentation or control equipment as long as a suitable power supply within the range of +10V DC to +40V DC is available for the module.

The module amplifies the signal difference between input-A and input-B and feeds this into a high sensitivity comparator circuit allowing adjustable sensitivity.

It provides an output comprising of current sink to 500mA and a pull-up to positive supply of 2.2kΩ.

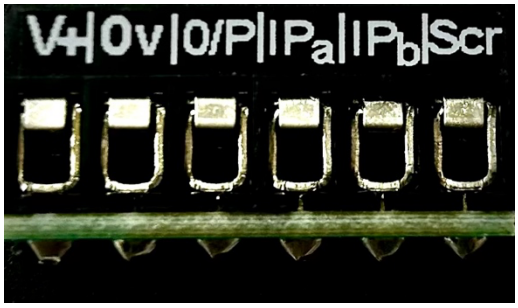
The module has a high input sensitivity with good common mode rejection and is user adjustable from a low input level of 12mV minimum (protected to 100V).

Type **DIFF1** is encapsulated in a compact 40mm x 40mm x 20mm box and can be used in operating temperatures between 0°C and +80°C.

Please note that the design is not intended for use in exposed conditions. For applications where additional environmental protection is necessary, it must be provided by the user during installation.

## Notes on Installation

**1.** For best results the Module should be fitted as close as practical to the Magnetic Pick-up although, because of its differential operation, there will be good noise rejection wherever it is fitted.



**2.** Preferably the input signal to the module should be via twin-core screened cable and the output from the module should also be via twin-core screened cable.

The two cores of the output cable are connected to Vs+ supply and O/P at the module, and supply output (10V to 40V) and signal input (I/Pa) at the instrument.

The cable screen is used to connect to 0V at both module and instrument.

**3.** Logitech instruments will read zero if the sensitivity is turned to maximum, as the input level will be saturated. Find the best adjustment for sensitivity over the normal operating range for the instrument.

It is recommended that the sensitivity level is increased only as far as necessary to obtain a steady signal. This minimises the risk of detecting spurious signals.

If an alternative signal-processing device is used you will need to determine whether or not there is a signal level adjustment facility.

**4.** With Logitech instruments, if a higher than expected frequency is displayed then the cable should be terminated at the instrument end by connecting a resistor between the input terminal and 0V (e.g. I/Pa and 0V on a Logitech Tachometer type **2000T**).

We suggest three resistors for this purpose — 100R, 470R and 1K. The higher value resistor should be tried first. It will be necessary to re-adjust the instrument's sensitivity control after adding or changing a resistor.