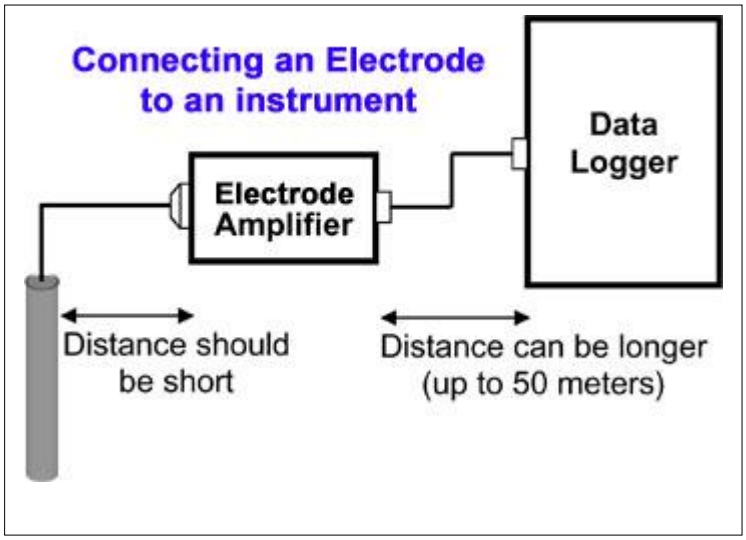
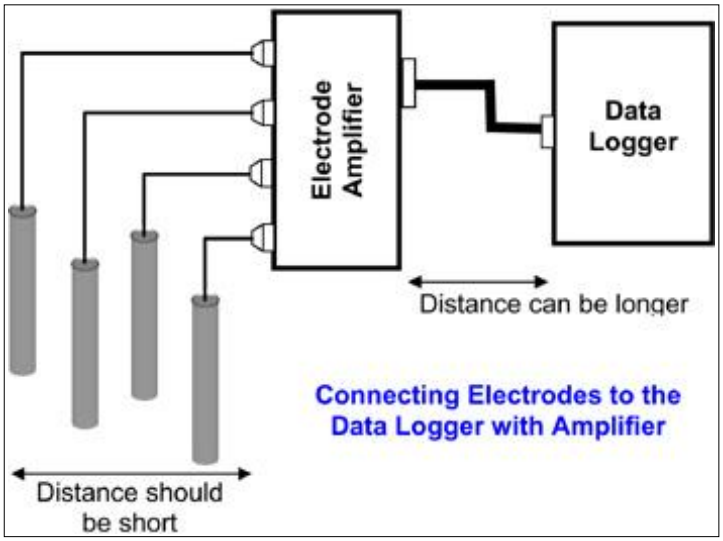
Electrode Signal Amplifiers

Amplify mV signals from Ion-selective, ORP and pH electrodes to permit longer distance between electrodes and Data Acquisition Systems,
e.g. Computer interface, Data Logger, Display, Process Controller, etc.





We offer 3 types of Electrode Signal Amplifiers:

Signal Amplifier Specifications							End User Price (GBP) Exc. VAT
Type	**Input**	**Output**	**Power Supply**	**Max. Distance**	**Isolated**	**Electrode**	
TRA-IS1-B	**pH / ORP / Ion (mV)**	**mV, 1:1 , 1:5** [1]	**Battery (3 Year)**	**50 meter**	**No**	**1x pH/ORP/Ion electrode**	**120.00**
LAB-EA4-C	**pH / ORP / Ion (mV)**	**mV, 1:2** [2]	**12 V DC**	**50 meter**	**No**	**4x pH/ORP/Ion electrode**	**260.00**
LAB-EA4-CI	**pH / ORP / Ion (mV)**	**mV, 1:2** [2]	**12 V DC**	**50 meter**	**Yes**	**4x pH/ORP/Ion electrode**	**350.00**

Battery Powered Amplifier

for pH / ORP / Ion

TRA-IS1-B

- Dimensions: 100 x 70 x 50 mm plus 15 mm Flanges
- Mounting: 4 Drill holes with 5 mm Diameter on both flanges
- Enclosure: ABS, Protection Class: IP 52 (NEMA 2/3).
- Net Weight: 165 g (Including Batteries and BNC Caps)
- Connectors:
  One BNC Socket (50 Ohm type) for Electrode signal Input;
  One 2mm socket for external Reference Electrode
  One BNC Socket (50 Ohm type) for Electrode Output.
- Power Supply: 2 Li-Mn Batteries(CR2032) last for 3 years.
- Input Impedance: typical 1 Tera Ohm (10 exp 12 Ohm).
- Input Bias Current: typical 0.1 pA (10 exp -13).
- Load Resistance: must be 250 kOhm or higher.

Transfer Characteristic: 2 modes
On-board Jumper settings:
1:1 - when the Jumper Jp1 is **Open**, the Input mV range and the Output mV range are ±2000 mV.
1:5 - when Jumper Jp1 is **Closed**, the Input mV range is ±400 mV, and the Output range is ±2000 mV.

4-Channel Amplifier

Fig. 2: LAB-EA4-C. 4-Channel Electrode Amplifier for pH, ORP and Ion-Selective Electrodes

Fig.3: Analogue Signal Output and DC Power Input.

Fig.4: LAB-EA4-CI, 4-Channel Electrode Amplifier for pH, ORP and Ion-Selective Electrodes with completely isolated channels.

LAB-EA4-C and LAB-EA4-CI

- **Input Channels:** 4 x pH/ORP/ISE via BNC Connectors
- **Output:** ± Voltage via a 25-way sub-D Connector (Fig.3)
- **Transfer Function:** ±1500 mV input gives ±3000 mV Output(1:2 transfer)
- **Enclosure:** ABS, Dimensions: 190 x 135 x 40 mm, IP 60
- **Power Supply:** 12 V DC, stabilised, 300 mA
- **Isolation:**

LAB-EA4-C: (FIg.2)

- **Non-isolated**, Common Ground for all 4 Channels Inputs and Outputs.
  All BNC casings and 2-mm Reference sockets are connected
- It is suitable when measuring with up to 4 electrodes (e.g. pH, ORP, Ion-Selective) in one vessel and using one Reference System (e.g. of the pH electrode)
- It is also suitable when measuring in up to 4 separate vessels (e.g. Glass or Plastic beakers) where the solutions have no electric connection.
- If there is a risk of electrical "Ground Loops" please use the LAB-EA4-CI Version, where the 4 channels are "Galvanically Isolated" from each other

LAB-EA4-CI:(Fig.4)

- 4 High-quality Electrode Amplifier Channels with **complete Isolation.**
- Each Channel has its own GND which is not connected to the GNDs of the other Channels. Thus, Electrical "Ground Loops" are avoided as the 4 channels are "Galvanically Isolated" from each other.
- The Input Ground of each channel is connected to the Output Ground of each channel, when using a Data Acquisition System, use it in "Differential Input" or "Isolated Inputs" Mode to get the best results in respect of interference and signal noise.
- It is suitable for measuring up to 4 electrodes (e.g pH, ORP, Ion-Selective) in 4 separate vessels or up to 4 electrodes in one vessel.