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:

<table>
<thead>
<tr>
<th>Type</th>
<th>Input</th>
<th>Output</th>
<th>Power Supply</th>
<th>Max. Distance</th>
<th>Isolated</th>
<th>Electrode</th>
<th>End User Price (GBP) Exc. VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRA-IS1-B</td>
<td>pH / ORP / Ion (mV)</td>
<td>mV, 1:1 , 1:5</td>
<td>Battery (3 Year)</td>
<td>50 meter</td>
<td>No</td>
<td>1x pH/ORP/Ion electrode</td>
<td>120.00</td>
</tr>
<tr>
<td>LAB-EA4-C</td>
<td>pH / ORP / Ion (mV)</td>
<td>mV, 1:2</td>
<td>12 V DC</td>
<td>50 meter</td>
<td>No</td>
<td>4x pH/ORP/Ion electrode</td>
<td>260.00</td>
</tr>
<tr>
<td>LAB-EA4-CL</td>
<td>pH / ORP / Ion (mV)</td>
<td>mV, 1:2</td>
<td>12 V DC</td>
<td>50 meter</td>
<td>Yes</td>
<td>4x pH/ORP/Ion electrode</td>
<td>350.00</td>
</tr>
</tbody>
</table>

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

- **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.