3B SCIENTIFIC® BIOLOGY

...going one step further

Bio-Amplifier (230 V, 50/60 Hz) 1020599
Bio-Amplifier (115 V, 50/60 Hz) 1020600

Instruction Sheet

07/17 MH/JS

1 Ground jack
2 Input channel 1
3 Operating voltage display
4 Input channel 2
5 Connection for Bio-Interface
6 Operating mode switch
7 Output channel 2
8 Connection for AC adapter
9 Output channel 1

1. Description

The Bio-Amplifier is a two-channel amplifier for electrophysiological experiments. The gain and frequency response depend on the selected operating mode. Selectable operating modes are: “Action and muscle potentials on the intact earthworm” (WORM), “Electroretinogram” (ERG), “Electrocardiogram” (ECG) and “Electromyogram” (EMG).

You have the choice of displaying the amplified derived signals from both channels either with a storage oscilloscope or, if using the Bio-Measurement Interface (1020602), on a connected computer.

For computer-aided acquisition and presentation of the derived signals, the operating mode switch must be set to PC. There is measurement and evaluation software specific to each experiment. The measurement software also includes the relevant experiment instructions.

2. Technical data

Measurement range:	Max. ±1 mV (Worm), Max. ±10 mV (ECG, EMG, ERG)
Input resistance:	2 MΩ
Frequency ranges:	120 – 1800 Hz (Worm) 0.5 – 1800 Hz (ERG, EMG) 0.5 – 30 Hz (ECG)
Amplifier inputs:	3.5 mm jack sockets
Amplifier outputs:	BNC sockets or via Bio-Interface (1020602)
Connection for Bio-Measurement Interface:	D-sub socket, 15-pin
Power supply:	5 V DC / 100 mA via AC adapter or via Bio-Interface (1020602)
Dimensions:	Approx. 175x105x30 mm³
Mass:	Approx. 335 g

3. Safety instructions

Electrophysiological experiments on humans must not be performed without reliable isolation from the mains voltage!

Power is supplied to the Bio-Amplifier either by the included AC adapter, which is equipped with reliable isolation, or via the connected Bio-Interface (1020602), which is connected to a computer via the USB port.

- When performing electrophysiological experiments on humans, use only the included AC adapter for supplying power by AC adapter.
- Do not use any storage oscilloscope with a mains connection to display the measurement curves in the experiment; instead, use either the Bio-Interface or a storage oscilloscope with a USB link to a computer.
- Operate the computer used in these experiments with battery power only.

When performing electrophysiological experiments on humans, the measured values and measurement curves obtained with the Bio-Amplifier must never be used to assess the state of health of a person!

- Use measured values and measurement curves solely for educational purposes.

The Bio-Amplifier complies with the safety requirements for electrical equipment for measurement, control and laboratory use set out in DIN EN 61010 Part 1. It is intended for use in dry areas that are suitable for electrical equipment.

When it is used as intended, the safe operation of the device is guaranteed. The safety of the device is, however, not guaranteed if it is operated incorrectly or handled carelessly.

If it is suspected that it is no longer possible to operate the device safely (e.g. in the event of visible damage), the device must be taken out of service without delay.

In schools and training facilities, the use of the device must be supervised by suitably trained staff.

- Before using the device, read the operating instructions carefully and completely.
- Connect only the Bio-Interface (1020602) to the Bio-Interface connection in order to operate the Bio-Amplifier by means of the measurement software!

4. Operation

Operation without Bio-Interface (1020602):

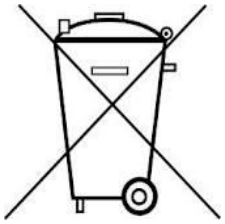
- Connect the included AC adapter to supply power.

Operation with Bio-Interface (1020602) and measurement software:

- Connect the Bio-Interface (1020602).
- Do not connect the AC adapter.
- Move the operating mode switch to the “PC” position.

5. Storage, cleaning, disposal

- Store the device in a clean, dry and dust-free place.
- Disconnect the device from the power supply before cleaning it.
- Do not use aggressive cleaning agents or solvents for cleaning.
- Use a soft, damp cloth for cleaning.
- Dispose of the packaging at the local recycling points.
- When the time comes for the device itself is to be scrapped, it does not belong in the normal domestic waste. If the device is used in private households, it may be disposed of at the local public disposal facilities.



- Observe the applicable regulations for the disposal of electronic waste.