OT-BridgeAmp4
4 Channels General Purpose Amplifier

User Manual v1.0

INDEX

1. GENERAL FEATURES

1.1. GENERAL DESCRIPTION

The OT-BRIDGEAMP4 is a four channel general purpose amplifier. It can amplify and filters any referenced single ended or differential single ended signal. The four channels are completely independent and can be used simultaneously.

1.1. TECHNICAL SPECIFICATION

The OT-BRIDGEAMP4 is a programmable amplifier with selectable high pass filter, low pass filter, gain and offset compensation. The OT-BRIDGEAMP4 technical specifications are reported in Table 1.

	DC coupled
Selectable High pass filter	1 Hz (II order)
	10 Hz (II order)
	100 Hz (II order)
Selectable Low pass filter	10 Hz (VIII order)
	100 Hz (VIII order)
	200 Hz (VIII order)
	500 Hz (VIII order)
Selectable Gains	100, 200, 500, 1000, 2000, 5000 V/V
Gain error	< 5 %
Input resistance	> 10^{12} Ω
Input range	± 4 V
Output range	± 5 V
Output offset	< 5 mV
Offset compensation	± 3 V, when DC coupled

TAB. 1: Amplifier technical specification

2. DETAILED DESCRIPTION

2.1. FRONT PANEL

Figure 1 shows connectors switches and selectors of the OT-BRIDGEAMP4. The four channels are separated by vertical lines.

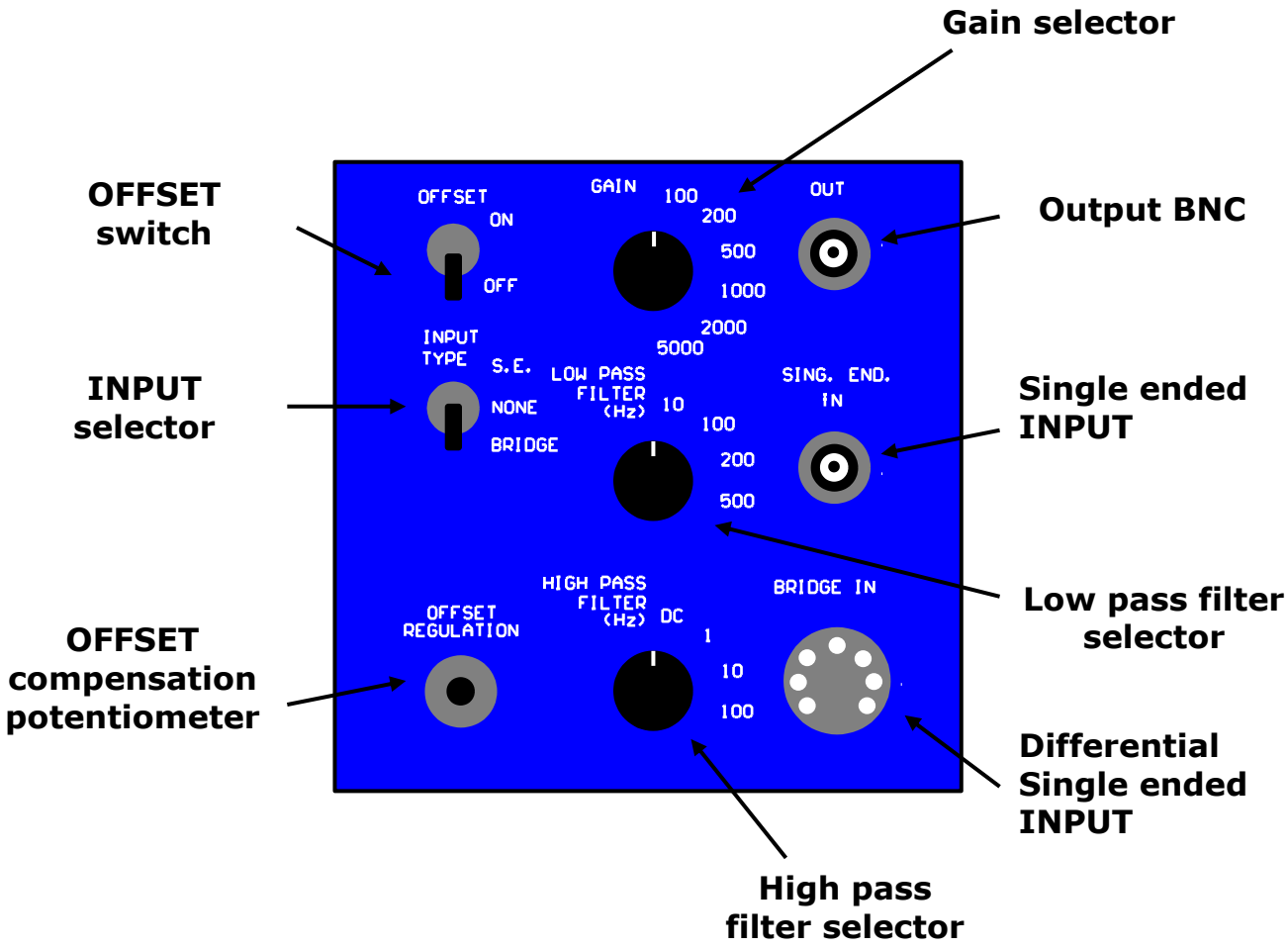

FIG. 1: *Detail of OT-BRIDGEAMP4 front panel reporting a channel*

Any indication reported in the following description can be associated to any OT-BRIDGEAMP4 channel.

Single Ended INPUT

This connector is the input for the corresponding single ended signal.

Differential Single Ended INPUT

This connector is the input for the corresponding differential single ended signal.

INPUT selector

This selector can be used to select the amplifier input. When the switch is in the S.E. position the signal present at the BNC single ended input is the input for the corresponding amplifier channel. When the switch is in the Bridge position the signal present at the differential single ended input is the input for the corresponding amplifier channel. When the switch is in the NONE position the input of the corresponding amplifier channel is connected to ground. The INPUT selector can be used to turn off the input and evaluate the offset amount introduced by the internal offset compensation at the amplifier channel output.

OFFSET switch

When the channel is DC coupled the offset compensation can be turned on or off using this switch. Note that this switch has no effects when the high pass filter is used.

Output BNC

This connector is the output for the corresponding amplifier channel.

OFFSET compensation potentiometer

This multi-turn potentiometer controls the offset compensation. To activate the offset compensation the channel have to be DC coupled (refer to LOW PASS FILTER selector) and the OFFSET switch have to be placed in the ON position.

Note that the offset is multiplied by the gain selected and the potentiometer sensitivity increase with the gain.

The offset value, introduced by the offset compensation circuit, can be sent to the output BNC and measured. The input signal has to be excluded by positioning the INPUT selector in the NONE position and the channel gain has to be set equal to 100. The measured offset value will be 100 time the real offset introduced by the system.

HIGH PASS FILTER selector

This four positions selector allows to select the -3 dB corner frequency of the second order high pass filter. The DC position indicates that no high pass filters are introduced and the channel is DC coupled. Available frequencies are: 1 Hz, 10 Hz and 100 Hz.
The frequency values are theoretical, refer to the "Modulo di collaudo" for the real values.

GAIN selector

This six positions selector allows to select the channel gain. Available gains are: 100, 200, 500, 1000, 2000, 5000.
The gain values are theoretical, refer to the "Modulo di collaudo" for the real values.

LOW PASS FILTER selector

This four positions selector allows to select the -3 dB corner frequency of the eighth order low pass filter. Available frequencies are: 10 Hz, 100 Hz, 200 Hz and 500 Hz.
The frequency values are theoretical, refer to the "Modulo di collaudo" for the real values.

2.2. BACK PANEL

Figure 2 shows the OT-BRIDGEAMP4 back panel.

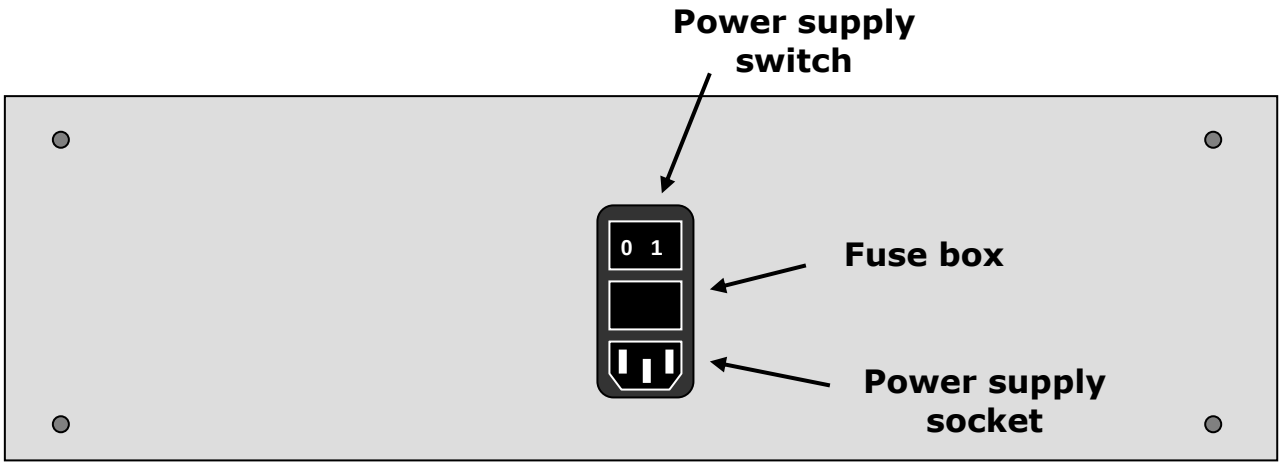

FIG. 2: *Back panel of OT-BRIDGEAMP4*

Power supply socket

On the back panel, the Power supply socket can be found. It is used for the connection of the power supply cable. The OT-BRIDGEAMP4 system can be supplied with a supply voltage ranging from 90 to 260 VAC, 50÷60 Hz; it is very important that the supply cable includes the earth connector.

DANGER: The use of extension cords or multiple sockets or adaptors can affect the performance of the instrumentation. The connection to sockets without earth connection or with a low quality earth connection can affect the performance of the instrumentation and cause potential harm to operators.

Power supply switch

On the back panel, together with the power supply connector, the power supply switch can be found. To switch the OT-BRIDGEAMP4 on, move the power supply switch to position 1; to switch it off, move it again to position 0. For higher safety, the switch interrupts connection to both power conductors. When the system is not used, this switch should be off.

Fuse box

On the back panel, together with the power supply connector, a box containing the two power supply fuses (one for each cable) can be found. In normal working conditions the two supply fuses must not be interrupted; the interruption of connection in either of them can occur only when the system is damaged; this means that the device could no longer be in compliance with the security standards, even if the fuses have been replaced correctly.

DANGER: In case of interruption of one or both fuses, do not replace them by yourself, but immediately contact the Technical Assistance Service of Ottino Bioelettronca.
Besides, replacing the fuses with others of different type can be dangerous. Always remove the power cable before testing the fuses.

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