



APPLICATION NOTES

VCA OPERATION AND REMOTE OFF
QUATTROCANALI & DUECANALI

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This document has been prepared for the purpose of explaining how to set up Voltage Controlled Amplifier (VCA) inputs, in Quattrocanali and Duecanali amplifier series, for basic channel and overall volume attenuation controls. It also provides information on how to set up the 'Remote OFF' connectors for putting amplifiers in standby mode remotely. Finally, an application example is given where an external trigger connected to a fire alarm is used to remotely put an amplifier in standby mode via the GPI terminals.

All information referred to in these notes relate to the 'Input Level' and 'Remote OFF' pins located on the amplifier's rear panel (Figure 1).

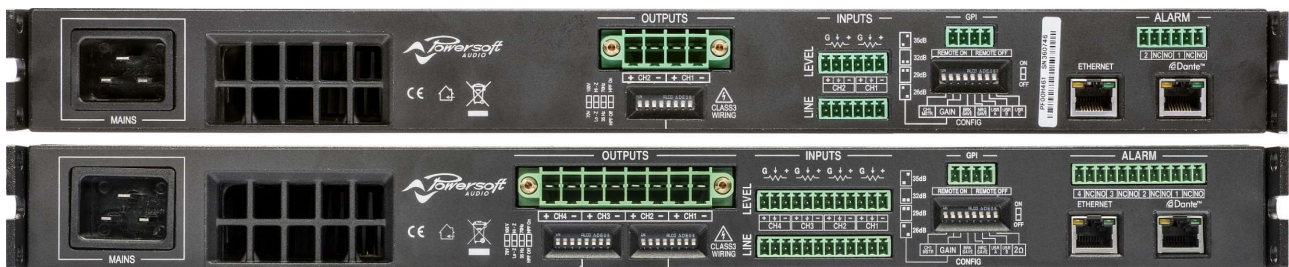


Figure 1 – Rear panel of a Duecanali 4808 DSP+D (top) and a Quattrocanali 4804 DSP+D (bottom).

The information presented in this document is applicable to the following amplifiers:

- Quattrocanali Series:
 - 4804 4804 (DSP+D)
 - 2404 2404 (DSP+D)
 - 1204 1204 (DSP+D)
- Duecanali Series:
 - 4804 4804 (DSP+D)
 - 1604 1604 (DSP+D)
 - 804 804 (DSP+D)

Important note: The main purpose of this document is to illustrate how basic GPI connections should be made for remote volume and standby on/off control. Powersoft shall not take any responsibility for misuse of the information here provided. If any queries arise, please contact our technical support team at support.audio@powersoft.com.



VCA Operation

The levels of each channel in Duecanali and Quattrocanali amplifiers can be remotely adjusted through the 'Input Level' connectors located at rear panel (Figure 1). This can be done by connecting a 10k Ω linear potentiometer to the 'Input Level' of the specific channel to be controlled.

Figure 2 below displays a sketch of two linear potentiometers connected to the input levels of a Duecanali amplifier. This configuration enables level controls for each channel individually.

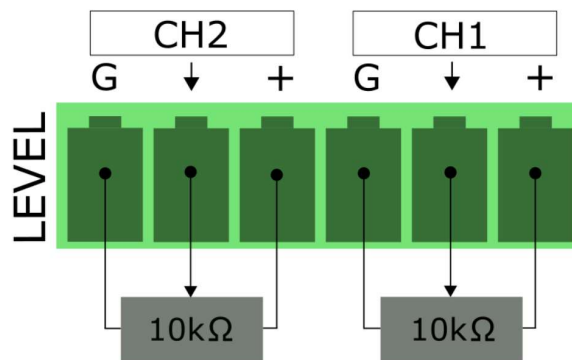


Figure 2 – Schematics for VCA operation in a Duecanali amplifier.

The 'CH1 MSTR' switch, located in the far-left side of the 'Config' DIP switches on the rear pane of Duecanali and Quattrocanali amplifiers, can be used to select how the VCA operates in all channels. When the 'CH1 MSTR' switch is in the OFF position, the volume of each channel can be controlled independently by means of the remote potentiometers. When 'CH1 MSTR' is switched to the ON position, the potentiometer connected to Channel 1 will act as a master level controller for all channels.

Alternatively, simultaneous control of multiple channels can be done using the centre pins of the input level connectors. Figure 3 below displays an example where a potentiometer, connected to Channel 1 of a Quattrocanali, is also used to control the attenuation levels in Channels 3 and 4.

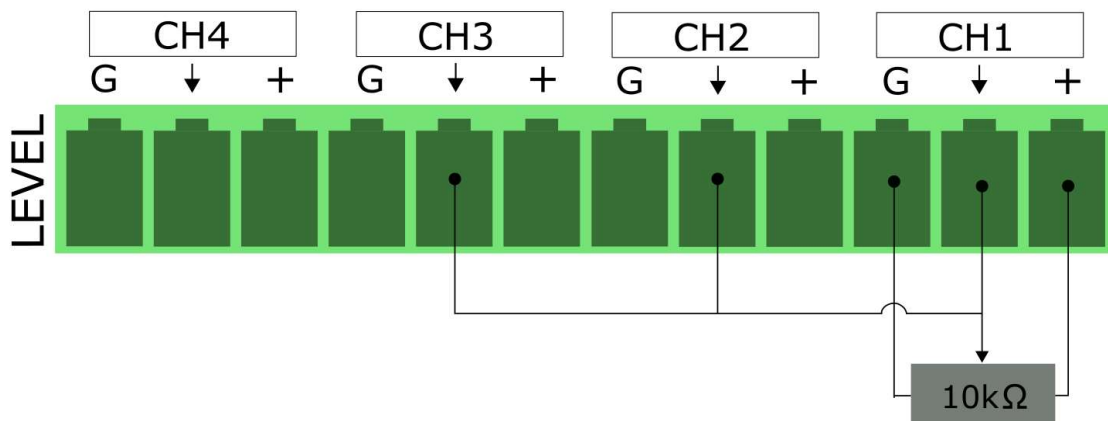


Figure 3 – Schematics for VCA operation in multiple channels.



In ArmoniaPlus, the attenuator level can be monitored in the amplifier properties window, between 'Speaker EQ' and 'Ways' configurations (Figure 4). The attenuator operates in the range $-\infty$ to 0dB.

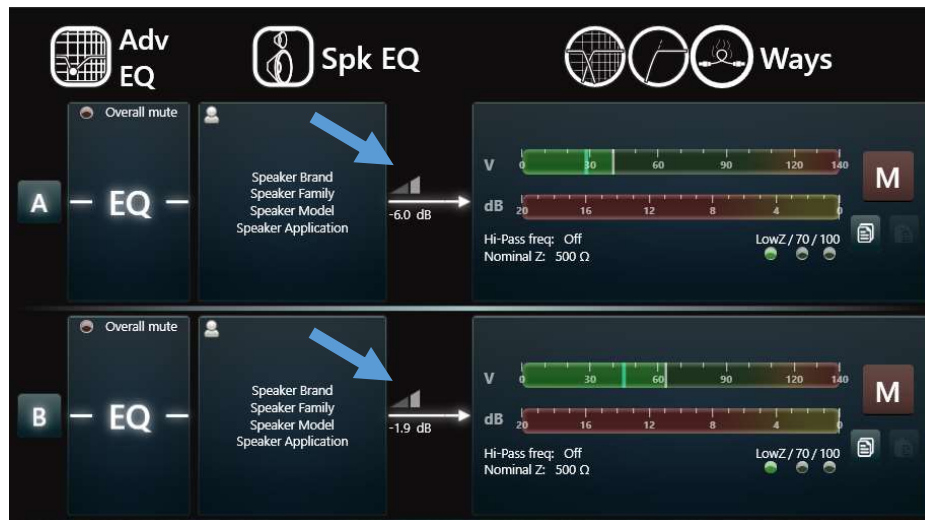


Figure 4 – Volume attenuator monitoring in ArmoniaPlus.



Remote OFF Triggering with a DC Power Supply

It is possible to remotely put an amplifier in standby mode through the dedicated GPI terminals on the rear panel (Figure 1). The 'Remote OFF' connectors respond to the differential voltage between the contacts, and an applied voltage difference in the range $5V_{DC} - 24V_{DC}$ will trigger the control.

Important note: Any voltage exceeding $28 V_{DC}$ may damage the input circuitry.

For best practice and performance, it is strongly recommended that an external DC power supply is used to trigger the 'Remote OFF' terminals, with $12V_{DC}$ being the most recommended output value. It is also important to mention that a single $12V_{DC}$ power supply is sufficient to remotely put an entire rack of amplifiers in standby mode.

Figure 5 below displays a sketch for putting the amplifier in standby remotely using a $12V_{DC}$ external power supply and an external single pole switch. Once the external switch is turned on, closing the circuit and allowing the flow of current, the differential voltage applied to the GPI pins will put the amplifier in standby. As soon as the switch is turned off and the voltage applied is removed, the amplifier will instantaneously switch back on.

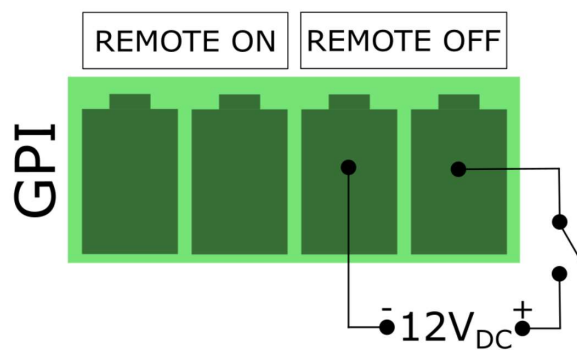


Figure 5 – Schematics for remote standby triggering with a DC power supply.

The schematics in Figure 5 are applicable to both Quattrocanali and Duecanali amplifiers.

In the configuration above, a single external switch is used to control the differential voltage applied to the GPI pins. If a second external trigger is introduced to the system, it can be connected to the GPI terminals following the schematics in Figure 6 below.

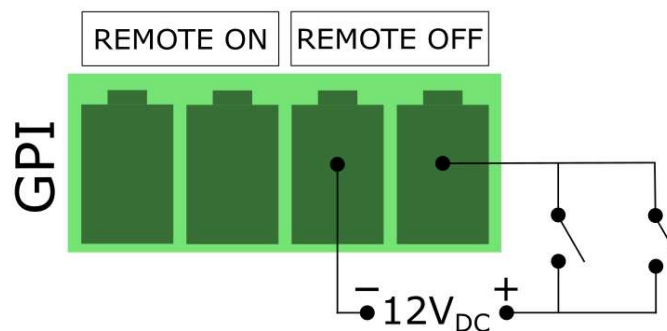


Figure 6 – Addition of a second external switch for remote standby triggering.



Remote OFF Triggering without a DC Power Supply

Remotely triggering the GPI terminals to put an amplifier in standby can also be done without using an external DC power supply. However, it is important to note that this option is only applicable to installations comprising a maximum of two amplifiers and where power redundancy is not required. Regardless of the size of the installation, it is still strongly recommended that an external DC power supply is used for a simpler set up, and a safer and smoother system operation. It should be emphasised that one 12V_{DC} power supply is sufficient to remotely put an entire rack of amplifiers in standby.

In order to use the GPI pins without an external power supply, the positive pins from the 'Input Level' connectors can be used to provide the necessary differential voltage to trigger the 'Remote OFF' terminals.

Figure 7 below presents an example for putting a Quattrocanali amplifier in standby mode using the 'Input Level' connectors.

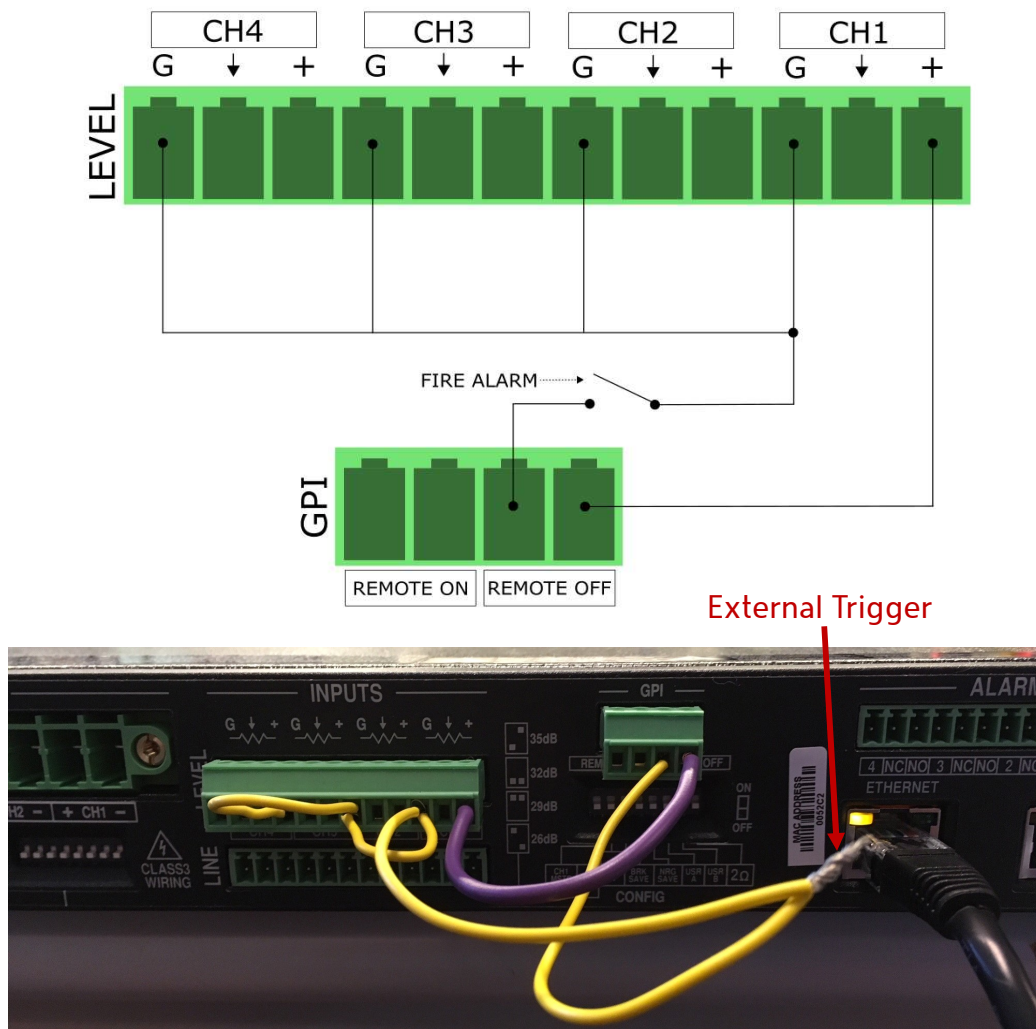


Figure 7 - Remote standby triggering schematics without an external DC power supply (top). Image of the physical connections in the back of the amplifier.



Note that in Figure 7, all 'Input Level' positive pins are used, in order to ensure that sufficient differential voltage is applied to the GPI connectors. The same configuration can be used for a Duecanali amplifier.

For completeness, Figure 8 below illustrates the same setup, but with the addition of a linear potentiometer connected to Channel 1 for VCA operation.

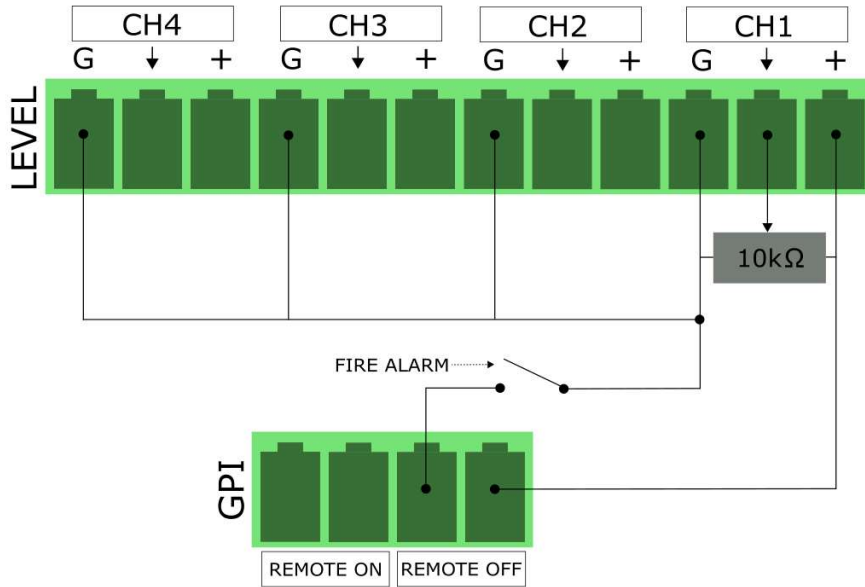


Figure 8 - Remote standby triggering schematics without an external DC power supply and with the addition of a potentiometer for VCA operation.



Document Title: VCA OPERATION AND REMOTE OFF - QUATTROCANALI & DUECANALI
Reference: D0000254.01 REV.00

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