

BLADELIUS GRENDEL

Multi Channel Amplifier

Instruction & Installation Manual

Introduction

Safety Instructions

(standard set of safety instructions “boiler-plate” goes here)

Attention: Installation Personnel

Due to the high-power capability of the Grendel amplifier, the power supplies are heavy and may require more than one installation person to rack-mount the amplifier.

NOTE: The amplifier’s weight must always rest on its bottom feet when placed on to a surface. Never put the amplifier down on its rear panel, with its front panel facing up. Doing so risks damage to the input/output connectors.

The amplifier generates a moderate amount of heat, requiring internal ventilation. Do not permit the air inlet and outlet grilles on the top, bottom, side, and back cover to be obstructed by papers or other materials.

NOTE: To prevent a fire or shock hazard, do not permit liquid or moisture to enter the amplifier. If liquid is accidentally spilled on it, immediately shut off the power and unplug the AC Mains cable from the wall outlet.

Do not open the amplifier or attempt to modify or repair it yourself. Refer all servicing to a qualified technician.

d db e c d d b d B d db b d b

□ 3 *be*

Table of Contents

Introduction

Safety Instructions

Table of Contents

I Description

II Operation

III Installation

(Physical)

Rack Mount

Shelf Mount

(Electrical)

Speaker Hook-up

IV Troubleshooting

V Specifications

Description

Bladelius Grendel is a multi-channel amplifier with a modular structure. The amplifier can be configured with several different combinations of “mono” or “stereo” performance modules.

There are five available locations (slots) for power modules in your Grendel amplifier. It's possible for Grendel to accommodate any combination from 1 to 10 channels. The mono module produces 400 watts. The stereo module provides 2 channels {left/right}, rated at 140 watts /channel. The most common configuration is 5 mono channels yielding a 5 times 400 watt amplifier.

If your Grendel amplifier is configured with less than 5 power modules the unused locations (slots) are covered with cover plates. Additional power modules can always be added or changed to reconfigure your Grendel to meet your current requirements.

When viewing Grendel from the front, we recommend that you connect your front audio system channels beginning at the far left of the amplifier.

Operation

Front-Panel Controls and Indicators:

1. **POWER SWITCH**
2. **Five Status LEDs**

1. The front-panel momentary-contact switch will power on, and place the Grendel into standby. Once you turn on the amplifier via the front-panel switch, only the front-panel switch can return the amplifier to standby state.

2. The **STATUS** LEDs flash blue when the amplifier goes into protection mode. For example, in the unlikely event of overheating, shorting, or DC-input, protection mode would be activated and the LED will flash for the power module in fault. The amplifier will stay in this state until the cause of the fault has been corrected. Turn off the amplifier and check all connections (Please refer to the section about cooling). Once you have removed the cause of the fault, turn on the amplifier and it should return to normal operation. If the Grendel stays in protection mode you might need to replace a fuse or have the amplifier checked by a qualified service technician. If you have any questions about the operation of the amplifier we recommend that you consult your dealer.

Rear-Panel Controls and Connections:

Amplifier modules

1. **SPEAKERS Terminal Posts**
2. **INPUT SWITCH BALANCED/UNBALANCED**
3. **CHANNEL INPUT UNBALANCED**
4. **CHANNEL INPUT BALANCED**

Chassis

5. **COM-port (communication with other Bladelius products)**
6. **Indicator LEDs**
7. **RS 232 port (for control and software updates)**

8. Trigger 1
9. Trigger 2
10. Main power switch
11. AC Line connector and Fuse Holder

f (၁၈)၀၀၀၀၀၀၀၀

The Grendel is equipped with 2 trigger jacks (3.5mm monotype miniature phone jack). The TRIGGER allows you to control other products with a sensor, by the Grendel amplifier. The centre pin of each jack is the signal-sense and signal-drive. We recommend that you use a good quality cable with shielding when attaching your trigger cables so as to prevent false triggering of the amplifier due to electro-magnetic interference from nearby electronic equipment.

The TRIGGER allows you to have an external signal turn on the Grendel amplifier from standby. This signal must be a continuous signal in order to keep the amplifier in the on state (5V or 12V signal). Once you remove the signal the amplifier will return to standby. The TRIGGER can be used with both 5 and 12 volt trigger systems for maximum versatility.

NOTES:

- Check the specifications of the trigger input terminal on the other components to ensure that they are compatible with the Grendel amplifiers.
- All

Before connecting the AC-power cord to a live wall socket insure that all inputs/outputs are connected first. Always disconnect the AC-power cord from the live wall socket first, before disconnecting any cable from the amplifier. If you must use an extension cord, select a heavy-duty cord of the type used for large electrical appliances, such as an air conditioner AC-extension cord (16 AWG). We strongly recommend that you do not connect the amplifier's AC-power cord to the accessory AC outlets on a preamplifier. Such convenience outlets are not designed to supply the high-power levels that the Grendel amplifier requires.

Fuse holder. There is a fuse holder near the AC-power cord. In the unlikely event a fuse may need to be replaced, unplug the power cord from the wall. Then remove all connections from the amplifier. Only replace the fuse with the same type, size, and specification. Refer to "SPECIFICATIONS" at the back of this instruction manual for the correct number, type and size of the replacement fuse.

CAUTION: Failure to replace the fuse with the correct number, brand name, and type listed in the "FUSE REPLACEMENT – PLEASE NOTE CAREFULLY" chart, found in the back of this instruction manual under section "Fuse Replacement Chart" will eventually lead to either another blown fuse or amplifier damage.

Installation

(Physical)

Rack-Mount Installation:

Since the Grendel amplifier is quite heavy, we recommend that you mount the Grendel amplifier as close to the bottom of a rack as possible to promote a stable Rack-Mount installation. The Grendel amplifier needs special consideration when rack-mounting to allow sufficient ventilation space all around the amplifier. Thus we recommend one should allow at least a one-rack-space below and above the amplifier as clearance, and that you allow more than 2 to 3 inches (5 to 7.5 cm) of space on all six sides of the Grendel amplifier.

Cooling

Please note that the Grendel amplifier is provided with cooling fans for forced ventilation. Due to the amplifier being equipped with a switched power supply with high efficiency the fans will only be activated under very extreme conditions (or mounted in a confined space).

Installation

(Physical)

Shelf-Mount Installation:

For shelf-mount installations of the Grendel amplifier, we recommend that you do not place equipment on top of the amplifier. Leave at least 2 to 3 inches (5 to 7.5 cm) on all sides of the amplifier so that the Grendel amplifier achieves adequate airflow. We strongly recommend that you do not block the side, top, back and front, airflow vents.

Since its power transformer generates a significant magnetic hum field, a turntable (especially one with a magnetic pick-up cartridge) or a television should not be located adjacent to, directly above, or below the amplifier.

Installation

(Electrical)

Speaker Hook-up:

This amplifier is equipped with special high-current, binding-post speaker terminals to handle the highest peak-power levels that may occur with low-impedance speakers. At moments when the amplifier is producing maximum power, voltages of over 100V may be present on the speaker terminals, so plastic covers protect the terminals. To connect loudspeaker cables, first switch off the amplifier's power by disconnecting the AC-power cord from the wall outlet.

Connect the wires from one of your speakers to the "RED" and "WHITE" terminals on the rear panel of the Grendel amplifier. In each channel, the red terminal is the positive "+" output, and the black terminal is the negative "-" or "ground" terminal.

Use heavy-duty, high quality speaker cable. Bare wires can be connected directly to the binding-post terminals. For a longer lasting and more corrosion resistant connection, you may install speaker cables with gold-plated connectors (spade or banana plugs), or you can install such connectors on the wires yourself. Connections to each binding post may be made in the three ways described below.

- 1. Banana plugs:** A banana plug is a metal shaft that is crimped or soldered onto the end of a wire. The threaded shaft of each binding post contains an opening that accepts pin connectors up to 4mm in diameter. Insert the banana plug in the hole until it is tight.
- 2. Spade lugs:** Unscrew the plastic bushing, insert the U-shaped spade lug into the oblong gap and tighten the bushing down on it.
- 3. Bare wires:** Separate the two conductors of the cord (if they are supplied as a pair), and strip off a half-inch (1cm) of insulation from each. In each conductor, twist together the exposed wire strands. Unscrew the plastic bushings for "+" and "-", insert the bare wire through the hole in the metal shaft, and tighten the plastic bushing until it grasps the wire securely (see Figure 2). Check to be sure that no loose strand of wire is touching the chassis or an adjacent terminal. **Re-tighten the bushing after a week or so to make sure that any play that may have developed is eliminated.**

PHASING:

Stereo speakers must operate “in phase” with each other to produce a focused stereo blend and to reinforce rather than cancel each other’s output at low frequencies. An in-phase connection is assured if the red (positive) terminal on the amplifier is connected to the red (positive) terminal on the loudspeaker in each channel. If your speakers are easily moved, their phasing can easily be checked. Make the connections to both speakers, place the speakers face-to-face only a few inches apart, play some music, and listen. Then swap the connection of the two wires at the back of ONE of the speakers, and listen again. The connection that produces the fullest, most extended bass output is the correct one. Once you have determined the correct phasing, connect the wires securely to the speaker terminals, being careful not to leave any loose strands of wire that might touch the wrong terminal and create a partial short-circuit, then move the speakers to their intended locations.

If the speakers cannot easily be placed face-to-face, then phasing must rely on the “polarity” of the connecting wires. The speaker terminals on the amplifier are identified as red “+” and black “-“ in each channel. The terminals at the rear of the speakers are also marked for polarity, either via red and black connectors or by labels: “+”, “1”, or “8 ohms” for positive, “-”, “0”, or “G” for negative. The red “+” terminal on the amplifier should be connected to the red (positive) terminal of the speaker in each channel. To facilitate this, the two conductors comprising the speaker wire in each channel are different, either in the colour of the wire itself (copper vs. silver) or in the presence of a small ridge or rib-pattern on the insulation of one conductor. Use this pattern to establish consistent wiring to both speakers of a stereo pair. Thus if you connect the copper-coloured wire (or ribbed insulation) to the “+” amplifier terminal in the Left channel, do the same in the Right channel. At the other end of the wire, if you connect the copper-coloured wire (or the ribbed insulation) to the red (positive) terminal on the left channel speaker, do the same at the right channel speaker.

NOTE:

Safety organizations recommend that the speaker terminals of a very powerful amplifier should be covered. Potentially dangerous voltages are present on these terminals when the amplifier is producing maximum power. For your protection and in order to

	<ul style="list-style-type: none"> • The Protection mode is engaged. • External fuse blown. 	<ul style="list-style-type: none"> • Switch amplifier off. Make sure ventilation slots on top, side, and back of the amplifier are not blocked. After amplifier has cooled down, switch the amplifier on. • Replace fuse. • Consult dealer/installer.
No sound in one channel.	<ul style="list-style-type: none"> • Speaker not properly connected or damaged. • Input cable pulled loose or making poor contact at input socket. • Short-circuit or broken wire in a defective patch or speaker cable. 	<ul style="list-style-type: none"> • Check all connections both at the speakers and at the amplifier. • Check leads and signal cables. • Switch the amplifier to stand-by mode, check and replace cables if necessary.
Weak bass/ poor stereo image.	<ul style="list-style-type: none"> • Speakers wired out-of-phase. 	<ul style="list-style-type: none"> • Reverse connections at the back of the suspect amplifier output. • Check connections to all speakers in the affected zone/room.