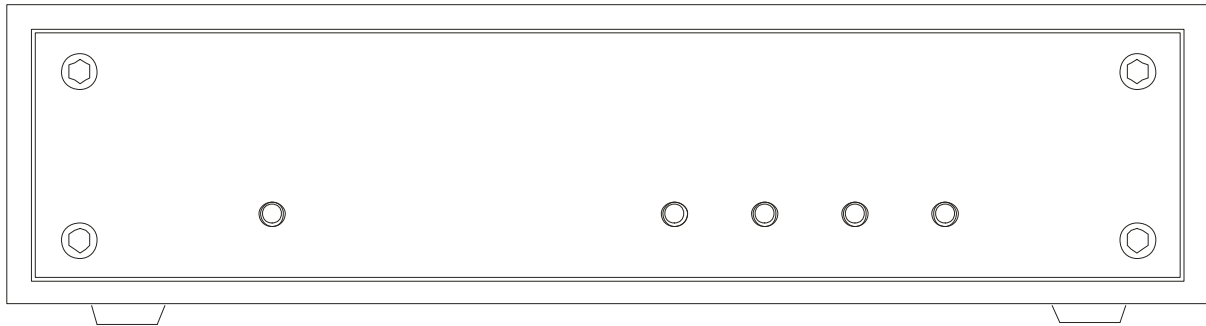


# M2TECH

## VAN DER GRAAF

VERY LOW NOISE POWER SUPPLY

### USER MANUAL



REV. PRA – 6/2014



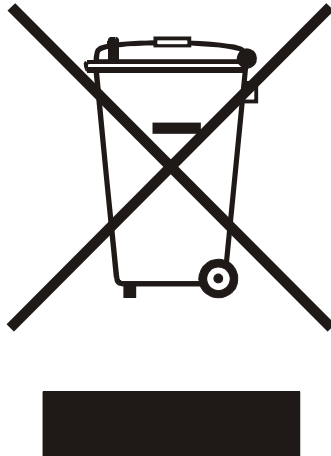
## Warning!

***Changes or modifications not authorized by the manufacturer can invalidate the compliance to CE regulations and cause the unit to be no more suitable to use. The manufacturer refuses every responsibility regarding damages to people or things due to the use of a unit which has been subject to unauthorized modifications or to misuse or to malfunction of a unit which has been subject to unauthorized modifications.***



This unit is compliant with the following CE regulations: CEI EN 55022:2009 Class B (Radiated Emissions), CEI EN 55024:1999, CEI EN 55024:A2/2003, CEI EN 55024:IS1/2008 (Radio Frequency Electromagnetic Fields, 50Hz Magnetic Field Immunity Test and Electrostatic Discharges – ESD).

**For a proper operation of this unit, all connections to other equipment in the system must be done when all equipment are off. Failing to comply with this advice may lead to damage to the Van Der Graaf.**



The label above, printed on the product case, indicates that the product, when no more usable, can't be treated as generic garbage, but must be disposed of at a collection point for recycling of electrical and electronic equipment, in compliance with the WEEE regulation (Waste of Electrical and Electronic Equipment).

By making sure that this unit is correctly recycled, you will help preventing potential damages to environment and human health, which could be caused by a wrong treatment of this product as generic garbage. Materials' recycling helps saving natural resources. For more in-depth information about recycling this product, please contact M2Tech Srl.

**WARNING: the information contained in this manual are considered to be reliable and accurate. M2Tech reserves the right to change or modify the information any time, without prior advice. It's up to the customer to ensure that the manual being consulted is the latest version.**

Dear customer,

Thank you for purchasing VAN DER GRAAF. You are the owner of a very high quality power supply with many unique features, designed to obtain the best performance in conjunction with every M2TECH product.

VAN DER GRAAF implements a specific set of technological and functional solutions, from the ultra-low noise, discrete components regulators, to the ability of selecting the voltage at some outputs, to the sequence activation of used outputs.

VAN DER GRAAF is provided with a comprehensive set of outputs which allow for powering any M2TECH product, from EVO series units to the MARLEY.

We're sure that your expectations will be fulfilled by purchasing VAN DER GRAAF: your M2TECH products will exhibit an incredible increase of their sonic performance, so you can now prepare for a whole new listening experience!

Nadia Marino, CEO

Please note here your VAN DER GRAAF serial number and purchase info for future reference:

S/N: \_\_\_\_\_ Date of Purchase: \_\_\_\_\_

Place of Purchase \_\_\_\_\_

**Note: Proof of retail purchase, such as your purchase receipt, will be required in the unlikely event that any warranty service will be required**



## TABLE OF CONTENTS

1. Unpacking and Placing the Unit.....	9
2. Front Panel .....	11
3. Back Panel.....	13
4. Connecting and Powering the Unit .....	15
5. Cleaning the Unit .....	17
6. Outputs Toggle .....	18
6.1. Setting and changing the activation sequence .....	19
7. Overload and Protection .....	21
8. Specifications.....	22





## 1. Unpacking and Placing the Unit

Lay the box on a table and open it by separating it from the external paperwork and removing or cutting the adhesive tape seal. The following items are included:

- one VAN DER GRAAF;
- one power cord;
- two output cables with 5.5/2.1mm jacks;
- two output cables with 4-pole XLR connectors;
- this manual.

Should one or more item be missing, please contact your retail dealer.

Remove the VAN DER GRAAF from the foam enclosure and place it onto a stable base, far from heat sources. Avoid full sunlight on the unit. Allow for ample room around the unit for venting.

The VAN DER GRAAF is a power supply capable of delivering up to 60VA when operating. Even if its regulators are high efficiency ones, and even if not always all outputs are used, the unit can produce a relevant heat. Therefore, an adequate air flow is recommended.

Avoid smoke, moisture, dirt and liquids from reaching the unit. Please note that any signs of abuse will void warranty coverage.

Do not place the unit on thick carpets or inside a box or piece of furniture, not even close to curtains.



## 2. Front Panel

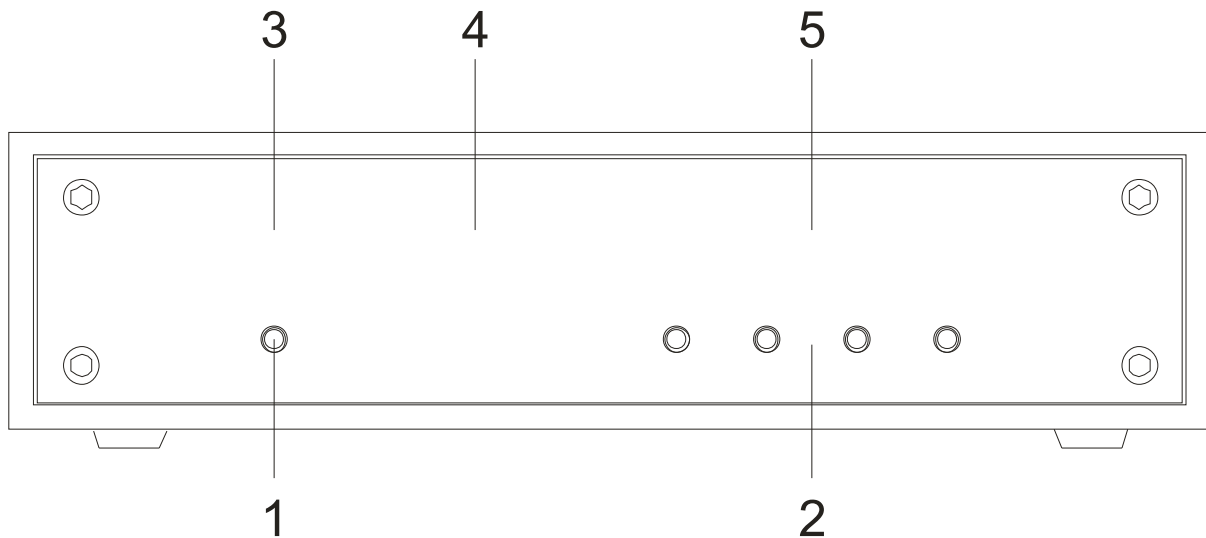


Figure 1

**1) Global enable button.** Push this button to activate the VAN DER GRAAF when it's in standby (LED 4 on and LED 3 off). Following the operation of this button, all outputs previously enabled by the user with their buttons (item 2, Fig. 1) will activate, in the same sequence as the user manually activated them, with 1 second intervals. The related LED's will turn on to indicate activation. During the process, LED 3 blinks. At the end of activation process, LED 3 glows steadily. When the VAN DER GRAAF is active, user may put the VAN DER GRAAF in standby, disabling the outputs in reverse

order with regards to activation, by pushing this button. In the process, LED 3 blinks. At the end of disable process, LED 3 turns off.

**2) Single output enable buttons.** When the VAN DER GRAAF is active (both LED 4 and 3 on), it is possible to toggle each output by pushing the related button.

**3) General enable LED.** It's on when the VAN DER GRAAF is active. It blinks when enabling and disabling outputs.

**4) Power on LED.** It's on when the VAN DER GRAAF is powered.

**5) Single output enable LED's.** Each LED is on when the related VAN DER GRAAF output is enabled.

### 3. Back Panel

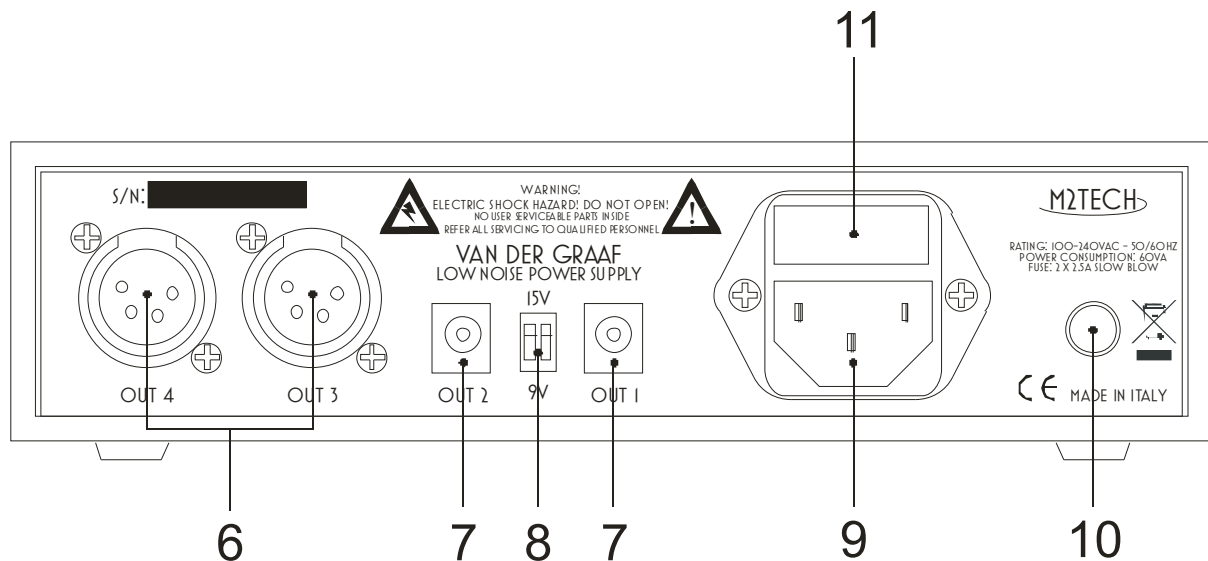


Figure 2

**6) Composite outputs.** Connect M2TECH units provided with input for composite supply +5V/+15V/-15V (e.g. the MARLEY) to this outputs using the stock cables. Female 4-pole XLR sockets.

**7) Single voltage outputs.** Connect M2TECH units provided with input for single 15V or 9V supply and maximum current sink 500mA (e.g. the YOUNG DSD) to this outputs, using the stock cables. Female 5,5/2,1mm jack.

**8) Output voltage selectors.** Allow for choosing the voltage provided by outputs 1 and 2. Select voltage before connecting the units.

**9) Power cord socket.** Connect the stock power cord to this socket.

**10) Power switch.** Push this switch to toggle VAN DER GRAAF power. When powering the unit, LED 4 (Fig. 1, Pag. 11) will glow and the VAN DER GRAAF will enter standby.

**11) Fuse holder.** It holds 2 slow blow 2.5A fuses.

## 4. Connecting and Powering the Unit

**WARNING: All connections between the VAN DER GRAAF and other equipment must be made when all units are turned off and completely powered down or unplugged. Failing to do so may cause damage to the VAN DER GRAAF and/or other units.**

Please refer to chapter 3, “Back Panel”.

Connect one or two units with +15V or +9V single supply input to VAN DER GRAAF output 1 and 2 (Fig. 2, 7), using the stock cable, after selecting the right output voltage for each powered unit. For example, when powering a YOUNG DSD with output 1, the voltage selector closest to the output socket (Fig. 2, 8) must be set to the upper position. On the other hand, when output 2 is used to power a HIFACE EVO, then the voltage selector closet to it must be set to the lower position.

Connect one or two units with composite supply input (+5V/+15V/-15V) to VAN DER GRAAF output 3 and 4 (Fig. 2, 6), using the stock cables. One such unit is, for example the MARLEY.

**WARNING: VAN DER GRAAF total maximum current capability on +15V e -15V rails of outputs 3 and 4 is set to 1.5A.**

Connect the stock power cord to VAN DER GRAAF power socket(Fig. 2, 9) and to a wall outlet.

Push the power switch on the back panel (Fig. 2, 10) to turn the VAN DER GRAAF on. The power LED on the front panel (Fig. 1, 4) will glow. The VAN DER GRAAF will enter standby, waiting for enabling by the user.

Push the global enable button (Fig. 1, 1). At first enable, this action will have no effect on outputs. At following enables, if the user has previously enabled one or more outputs, they will activate in the same order as the user manually enabled them..



## **5. Cleaning the Unit**

The VAN DER GRAAF should be cleaned with a soft, slightly damp cloth. Do not use alcohol or any other types of cleaning fluids as they could damage the unit.

Avoid fluids from dropping or leaking inside the unit. Fluids of any type poured into the unit will void your warranty.

Be careful not to scratch the Plexiglas front screen.

## 6. Outputs Toggle

When the VAN DER GRAAF is in standby (only LED 4 on), it is possible to activate it pushing the global enable button (Fig. 1, 1). Immediately after this button operation, the global enable LED (Fig. 1, 3) starts blinking and the previously enabled outputs are activated in the order chosen by the user, at one second intervals. At the end of the activation process, the active outputs are indicated by the related LED, which is on, and the global enable LED glows steadily.

When VAN DER GRAAF is active, it can be put in standby pushing the global enable button once more. Following this action, the global enable LED starts blinking and the active outputs are shut down in the reverse order with respect to the activation order. For example: if the activation sequence is: OUT3-OUT1-OUT2, the outputs will be shut down in the following order: OUT2-OUT1-OUT3. At the end of the process, the enable indication LED's of all outputs are off and the global enable LED stops blinking and remains off.

**NOTE: the outputs activation sequence is stored by the VAN DER GRAAF when it enters standby. If the power switch (Fig. 2, 10) is used to shut down the VAN DER GRAAF, then the sequence, even if changed from the previous standby, is not stored and the VAN DER GRAAF will use the last stored sequence upon following activation, not the latest one.**

The ability to activate the outputs in a chosen order is very useful whenever the units in the chain powered by the VAN DER GRAAF need to be turned on in a given order.

## 6.1. Setting and changing the activation sequence

Please refer to the VAN DER GRAAF as it is right after delivery from the dealer, turn it on and push the global enable button. The global enable LED turns on. No output is active (all output enable LED 's are off).

Enable the first output pushing its enable button.

**NOTE: the first output to be enable must not necessarily be the one labelled as 'OUT 1'. More simply, it will be the first one that the user wishes or needs to activate.**

As well, enable other outputs (all the available outputs or a part of them) in the desired order.

**NOTE: the order of activation chosen by the user will be stored by the VAN DER GRAAF when it goes in standby. Should the unit, after outputs order setup be turned off toggling the power switch while it's active, it will not store the sequence.**

If an output is disabled, it will be deleted from the enable sequence. Any output activated while a sequence is already set, will be added to the sequence as the last output to be enabled. Therefore, if the present sequence is: OUT2-OUT1-OUT3 and output 1 is disabled to be enabled again shortly after, the new sequence becomes: OUT2-OUT3-OUT1.



## **7. Overload and Protection**

All VAN DER GRAAF outputs are protected against unwanted overloads by solid state, automatically resettable fuses. Anyway, continuous short-circuits may damage the unit and must always be avoided.

In case of overload or short-circuit at one output, the behaviour of the unit is such that other outputs may be affected.

Whenever an overload condition is detected, it's recommended that user turns the VAN DER GRAAF off and detaches all powered units. Each unit must then be checked with its stock wall adaptor to find out which unit is defective.

Then working units may be connected back to the VAN DER GRAAF.

## 8. Specifications

Output voltage: .....	9V <sub>DC</sub> or 15V <sub>DC</sub> (outputs 1 and 2) +5V <sub>DC</sub> /+15V <sub>DC</sub> /-15V <sub>DC</sub> (output 3 and 4)
Output current: .....	500mA (outputs 1 and 2) 500mA (+5V, output 3 and 4) 1A (+/-15V, output 3 and 4)*
Noise: .....	2.9uVrms (20Hz-20kHz, A weighted, rated load)
Outputs: .....	5.5/2.1mm jacks, positive on tip (outputs 1 and 2) female 4-poles XLR (outputs 3 and 4)
Input voltage: .....	90-260V <sub>AC</sub> , 50/60Hz
Power consumption: .....	60VA
Fuse: .....	slow blow 2.5A
Input: .....	IEC socket with fuse holder and EMI filter
Output voltage selection: .....	by DIP-switches on back panel
Outputs activation: .....	sequence set by user
Output reset: .....	inverse sequence with regards to activation
Size: .....	200x50x200mm (w x h x d)
Weight: .....	2.2kg (device only) 3.5kg (packed)

\* maximum total current available on each of the two outputs rails is 1,5A