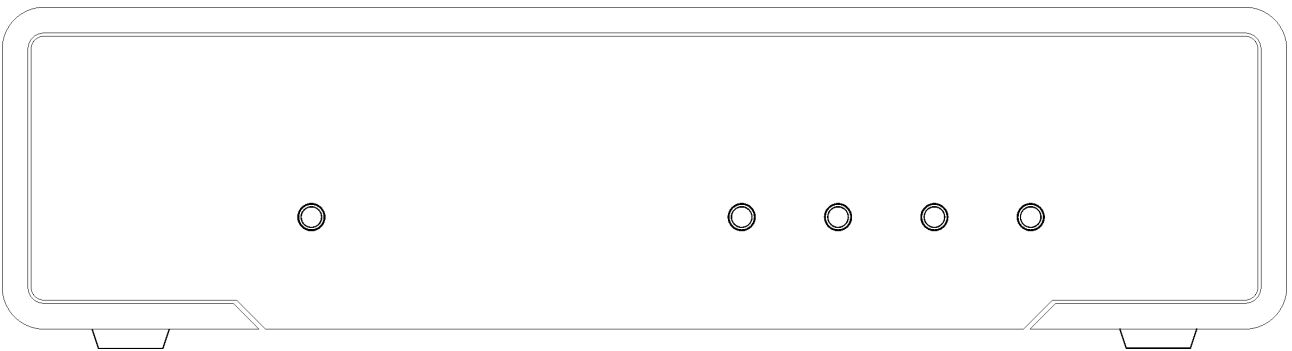


# M2TECH

## VAN DER GRAAF MKII

VERY LOW NOISE POWER SUPPLY

USER MANUAL



REV. PRB – 8/2017



## 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 MkII.**



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 MKII. 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 MKII 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 MKII is provided with a comprehensive set of outputs which allow for powering any M2TECH product, from old EVO series units to the YOUNG MKIII and the NASH.

We're sure that your expectations will be fulfilled by purchasing VAN DER GRAAF MKII: 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 MKII 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**

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## 1. Unpacking and Placing the Unit

Lay the package on a table and open the external box removing or cutting the adhesive tape seal. Then extract the internal box and open it by lifting the front wing. The following items are included:

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

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

Remove the VAN DER GRAAF MKII from the box 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 MKII is a power supply capable of delivering up to 50VA 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

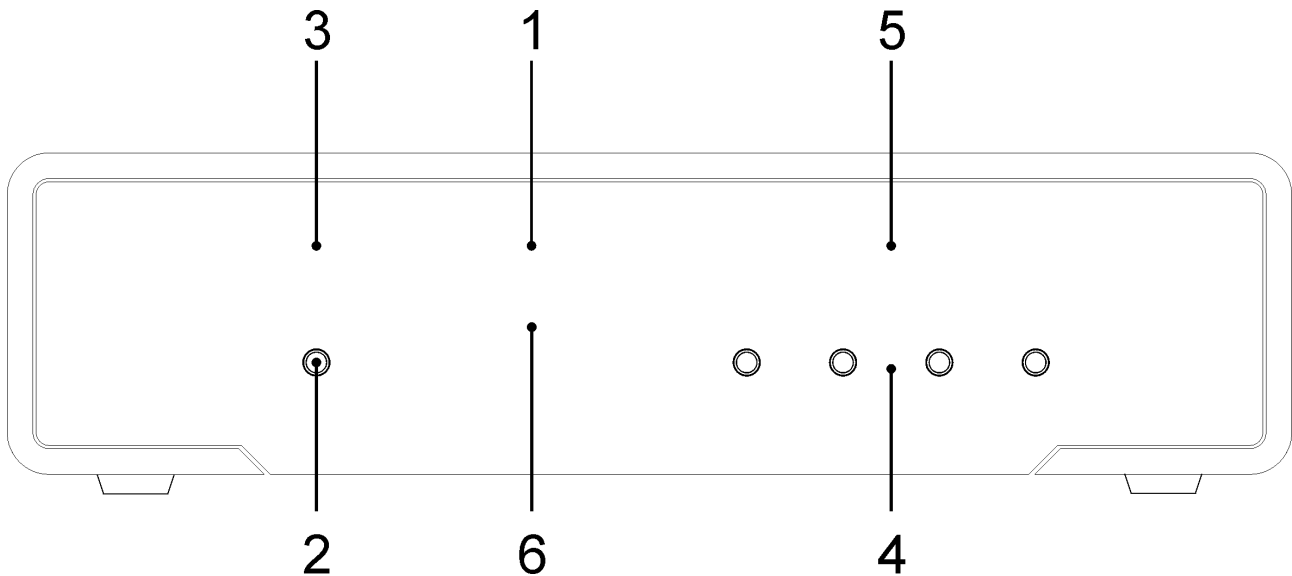


Figure 1

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

**2) Global enable button.** Push this button to activate the VAN DER GRAAF MKII when it's in standby (LED 1 on and LED 3 off). Following the operation of this button, all outputs previously enabled by the user with their buttons (item 4, 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 MKII is active, user may put the VAN DER GRAAF MKII 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.

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

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

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

**6) IR receiver.** The VAN DER GRAAF MKII senses the on/off commands from other M2Tech products' remote controls, when purposely set by the user. Operation is same as the global enable button (item 2, Fig. 1).



### 3. Back Panel

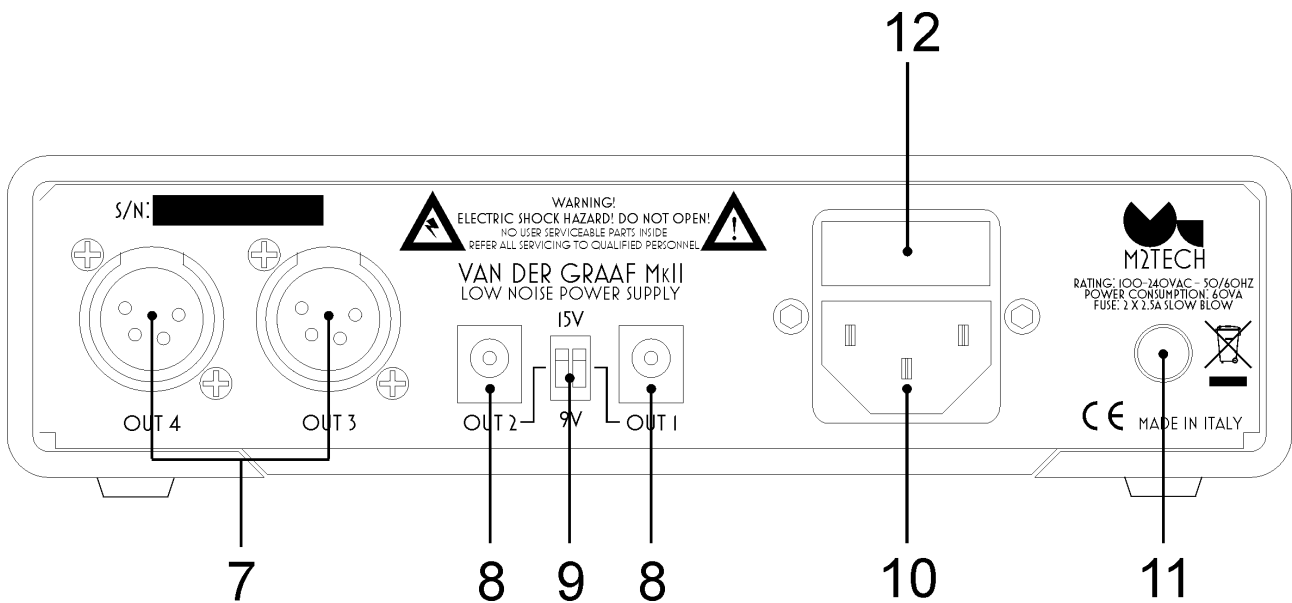


Figure 2

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

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

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

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

**11) Power switch.** Push this switch to toggle VAN DER GRAAF MKII power. When powering the unit, the power LED (item 1, Fig. 1, Pag. 9) will glow and the VAN DER GRAAF MKII will enter standby.

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



## 4. Connecting and Powering the Unit

**WARNING: All connections between the VAN DER GRAAF MKII 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 MKII 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 MKII output 1 and 2 (Fig. 2, 8), using the stock cable, after selecting the right output voltage for each powered unit. For example, when powering a YOUNG MKIII with output 1, the voltage selector closest to the output socket (Fig. 2, 9) must be set to the upper position. On the other hand, when output 2 is used to power an old HIFACE EVO, then the voltage selector closest 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 MKII output 3 and 4 (Fig. 2, 7), using the stock cables. One such unit is, for example the NASH.

**WARNING: VAN DER GRAAF MKII 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 MKII power socket (Fig. 2, 10) and to a wall outlet.

Push the power switch on the back panel (Fig. 2, 11) to turn the VAN DER GRAAF MKII on. The power LED on the front panel (Fig. 1, 1) will glow. The VAN DER GRAAF MKII will enter standby, waiting for enabling by the user.

Push the global enable button (Fig. 1, 2). 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 MKII 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 MKII is in standby (only power led on, item 1, Fig. 1, Page 9), it is possible to activate it pushing the global enable button (Fig. 1, 1) or, when purposely set, by sending an on/off command from an M2Tech Rockstars product's remote control. Immediately after this, 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 MKII is active, it can be put in standby pushing the global enable button once more or, when purposely set, by another on/off command from an M2Tech Rockstars product's remote control. 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 MKII when it enters standby. If the power switch (Fig. 2, 11, Page 11) is used to shut down the VAN DER GRAAF MKII, then the sequence, even if changed from the previous standby, is not stored and the VAN DER GRAAF MKII 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 MKII need to be turned on in a given order.

### 6.1. Setting and changing the activation sequence

Please refer to the VAN DER GRAAF MKII 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 MKII 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. Setting the VAN DER GRAAF MKII to sense IR on/off commands**

When used in an all-M2Tech system, the VAN DER GRAAF MKII can power all the other units in the right order by a single remote control's button push. This can be easily accomplished by instructing the VAN DER GRAAF MKII to sense the command using its IR receiver.

To enable the IR sensing, user must turn the VAN DER GRAAF MKII off by the mains switch on the rear panel, then press the second and third output enable buttons and then turn the VAN DER GRAAF MKII on by pressing the rear panel mains switch. The global enable LED with flash quickly for 5 seconds to indicate that the IR enable combination has been detected, then it will flash more slowly for 5 more seconds to indicate that the enable combination has been stored. After that, the front panel buttons may be released.

To disable the IR sensing, user must turn the VAN DER GRAAF MKII off by the mains switch on the rear panel, then press the second and fourth output enable buttons and then turn the VAN DER GRAAF MKII on by pressing the rear panel mains switch. The global enable LED with flash quickly for 5 seconds to indicate that the IR disable combination has been detected, then it will flash more slowly for 5 more seconds to indicate that the disable combination has been stored. After that, the front panel buttons may be released.

Regardless the current settings, the VAN DER GRAAF MKII can be reset to factory settings (IR detect disabled and all outputs off). To do that, user must turn the VAN DER GRAAF MKII off by the mains switch on the rear panel, then press the first and fourth output enable buttons and then turn the VAN DER GRAAF MKII on by pressing the rear panel mains switch. The global enable LED with flash quickly for 5 seconds to indicate that the IR reset combination has been detected, then it will flash more slowly for 5 more seconds to indicate that reset has been performed. After that, the front panel buttons may be released.

## **8. Overload and Protection**

All VAN DER GRAAF MKII 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 MKII 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 MKII.



## 9. Specifications

|                                 |   |
|---------------------------------|---|
| Output voltage: .....           | 9V <sub>DC</sub> or 15V <sub>DC</sub> (outputs 1 and 2)<br>+5V <sub>DC</sub> /+15V <sub>DC</sub> /-15V <sub>DC</sub> (output 3 and 4) |
| Output current: .....           | 500mA (outputs 1 and 2)<br>500mA (+5V, output 3 and 4)<br>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)<br>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: .....                   | 2.4kg (device and ancillaries)<br>2.9kg (packed)  |

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