



Installing the MEON v2

If mounting on standard rack rails it is important that four standard rack screws be used with plastic washers. When plugged into 120 - 240 VAC mains power, the MEON v2 is capable of up to 18 Amps of 12VDC current. This capacity assumes proper ventilation and an ambient temperature of 80°F (27°C). However, the MEON v2 has been extensively and successfully field tested in ambient temperatures exceeding 110°F (44°C) when powering typical sound carts drawing 8 Amps.. For proper ventilation there should be a minimum free-air-space of one rack-space (1-3/4") above and 1/2" below the MEON v2. If sitting on a flat surface, the supplied rubber feet should provide adequate free air space below the MEON v2. Also, the top cover should not be removed because 1) the top cover adds strength to the chassis needed for rack mounting, and 2) the top cover aids cooling by directing convection airflow where it is needed.

Charging the MEON v2

The MEON v2's internal battery is connected to its charger whenever 120 - 240 VAC is present. The five red LEDs labeled "Fuel Gauge" indicate the amount of charge remaining. The single LED on the right labeled "Charging Progress" verifies that charging is taking place at either the full rate, finishing rate, or maintaining rate, as indicated by the label. When fully charged, the LED status indicator is a steady green. Due to the microprocessor charge/discharge controller, the MEON v2 can remain connected to AC power indefinitely without fear of overcharging.

When the MEON v2 is fully discharged, it will recharge to approximately 99% of its capacity in 7 hours. However, it is normal for the charging status LEDs to take much longer than 7 hours to change to steady green (indicating 100% charge). The MEON v2 can be recharged from any state of discharge and can be partially recharged before reconnecting to a load, without fear of "memory effect." So that the MEON v2 is ready to provide its full capacity when needed, it is recommended that it be fully charged whenever possible. Also, to assure maximum life from the MEON v2's internal battery, it is recommended that it be fully charged prior to extended periods of non-use, and charged at least every four weeks while not in use.

Connecting the MEON v2

There are eleven DC power outlets on the back of the MEON v2, wired in the standard 4-pin XLR configuration

of PIN 4 +, PIN 1 -. Each outlet has auto-resetting breakers to protect against overload. The outlets are arranged in three groups of three, and one group of two, as indicated on the back panel. Each group is limited to a total of 13 Amps. The first outlet in each group has a capacity of 13A while the remaining outlets in each group are limited to 6A each. A master 24A breaker protects against combined overload when multiple outlets are used. This allows a typical sound cart (drawing 13A or less) to be powered through a single XLR outlet if desired. For example, if power distribution to the devices on a cart is done remotely, such as through the Remote Audio *BDS*, *Hot Box v2*, or *Hot Strip*, a single 13A XLR outlet on the MEON v2 may be used power multiple devices. Alternatively, each device being powered can be cabled directly to the MEON v2's eleven outlets.

Connecting the RM

The MEON v2 can be used in conjunction with Remote Audio's RM (Remote Meter). The RM allows remote voltage and current monitoring, as well as remote power cycling of the MEON v2. Connect the RM's cable to the 6-pin connector on the rear of the MEON v2. Turning on the RM will turn the MEON v2 on and cause the blue LED indicator on the MEON v2 to illuminate. This indicates that the RM is now the "master", and powering ON and OFF can only occur through the use of the RM. See the RM instruction manual for more details.

Using the MEON v2

To turn the MEON v2 ON or OFF, press both buttons simultaneously. Pressing any one of these buttons by itself will have no effect. This is to prevent accidental turning ON or turning OFF.

When plugged into 120 - 240VAC and when turned on, the MEON v2's internal AC-DC circuit is activated after three seconds and then supplies power to the outputs. The internal battery is then automatically connected to its charger. Assuming the battery has an adequate charge, the MEON v2 can be removed from AC power and the battery will instantly and seamlessly take over. When AC power is restored, the AC-DC circuit seamlessly takes over and the battery is reconnected to its charger.

The MEON v2's internal AC-DC power supply (which supplies power when plugged into a 120 - 240 VAC mains power) is rated for 18A maximum. This rating, however, assumes a maximum ambient temperature of 80°F (27°C) and unrestricted airflow at the top and bottom of the MEON v2. When the environment does not meet these conditions, it is recommended that the current draw on the MEON v2, when on AC power, be kept below 15A to reduce the chances of overheating. The current draw is easily monitored with the MEON v2's Amp meter or with the RM Remote Meter.

Front Panel Indicators

Illuminated On/Off Buttons

The On/Off buttons are illuminated to indicate whether AC power is present. When there is AC voltage present and the MEON v2's outputs are being powered by its internal power supply, the buttons will be illuminated GREEN. If the MEON v2 is not connected to AC power and is running on its internal battery, the buttons will be illuminated RED. This can be a quick way to make sure you're not draining the MEON v2's battery if you aren't intending to.

Volts / Amps Meters

The LED Volts / Amps meters are used to monitor the voltage and current at the output connectors. Both meters are calibrated at the factory for accuracy. However, there may be some temporary drift in readings based on ambient and internal temperature, typically less than 5%. Additionally, if an RM is connected for remote metering, there may be slight differences (less than 10mV) between the MEON v2 and the RM voltage readings, depending on the load present at the output connectors.

Fuel Gauge

When using the MEON v2 without AC power, the 5-LED fuel gauge illuminates to show remaining battery capacity. While the MEON v2's voltmeter can aid in determining the battery's state of charge, the fuel gauge is much more sophisticated than a simple voltmeter. It combines data including voltage, Amp-Hours used, battery temperature, amount of charge prior to discharging, and rate of discharge at current load to accurately calculate the battery's remaining charge.

Sleep Mode

When turned off and disconnected from AC power for more than 24 hours, the MEON v2's battery will go into "sleep mode," turning off its internal controller/processor to reduce the self-discharge of the battery. This allows the MEON v2 to retain a charge for extensive periods without having to be connected to AC power. Connecting to AC power will bring the MEON v2 out of sleep mode instantly. However, when in sleep mode and not connected to AC power, pressing the ON buttons will not turn the MEON v2 ON. When this is the case, pressing the TEST button on the front panel will instantly bring the MEON v2 out of sleep mode, and after a short analyzing period, the battery's state of charge will be displayed on the front panel. The MEON v2 will then function normally and can be turned on without AC power.

Supplemental External Lead-Acid Batteries

External sealed lead-acid batteries (often know as "Gel Cells") may be used with the MEON v2 to provide additional Amp-Hour capacity. Connecting lead-acid batteries to any of the MEON v2's outlets will route the battery through the other outlets, extending the Amp-Hour capacity of the MEON v2 beyond its internal battery. Keep in mind that the Amp meter will then seem to be in error because it will not display the current being supplied by the external battery. Also, the current capacity of the

external battery will be limited to the rating of the outlet being used. The MEON v2's AC-DC supply is set at the factory to output 13.8VDC, which optimally maintains a charged lead-acid battery. However, a properly sized dedicated lead-acid battery charger should be used to recharge an external lead-acid battery.

DC Power Cables

There is always some voltage drop in power cables, but the goal is to keep this drop as insignificant as possible. When using a battery system, managing this voltage drop is particularly important and can actually add hours of use before recharging is needed. For example, if a piece of equipment automatically shuts down when it's supply voltage goes below 11V, and there is a 1V drop in the cable, then the equipment will shut down when the battery supply goes below 12V. Since much of the capacity of most 12V battery systems is between 12V and 11V, it is easy to see how important it is to minimize the voltage drop within a cable.

The amount of voltage drop in a cable depends on three factors: 1) the amount of current drawn by the device being powered, 2) the size of the conductors inside the cable, and 3) the length of the cable. Simply put, the larger the conductors and shorter the cable, the less the voltage drop will be. But the more the current draw of a piece of equipment, the more the voltage drop. Therefore, a small cable that would have an insignificant drop with equipment drawing only 250mA (for example) may be completely inadequate for equipment drawing 6A.

There are equations and formulas available to help determine the amount of voltage drop given the length of cable, size of conductors (gauge), and amount a current being drawn. The best practice, however, is to use cables that are as large and short as practical. With the MEON v2 and a hand-held voltmeter, it is easy to know how much voltage drop is taking place. Measure the voltage at the connector going into the device being powered (with the device turned on) and compare that measurement with the voltage displayed on the front of the MEON v2. The difference is the amount of voltage lost within the cable(s). Your Remote Audio dealer should be able to supply cables of proper length and gauge for your needs.

Are the MEON v2's outputs filtered? No. In the majority of occasions when problem noise is caused by multiple devices sharing a single power supply, simple filters at the power supply would be insufficient or have no effect. DC-DC isolation converters can solve these rare issues by isolating the power supply from the device being powered. Therefore, it is recommended that when isolation is needed to solve power-loop noise, the Remote Audio "Juicer" isolating power cable (utilizing a 30 W DC-DC converter) be used between the MEON v2 and the problem device.