

# M2TECH

## PALMER POWER STATION

LOW NOISE BATTERY POWER SUPPLY/CHARGER

USER MANUAL



REV. PRB – 12/2011

### **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.***

### **Warning!**

***This unit includes a Li-Ion battery. Do not expose the unit to heat of fire! Do not open unit nor replace the battery. Refer to qualified personnel for servicing.***



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).

### **Recycling**



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.

Dear customer,

thank you for purchasing PALMER POWER STATION. What you have is not just a simple power supply, but a first-rate dedicated power supply with many unique features conceived to obtain the best audio performance out of the YOUNG 384/32 DAC and other 15V-operated M2TECH products.

PALMER POWER STATION features a Li-Po battery with capacity sufficient to many hours of continuous listening with the YOUNG, an integrated battery charger and a low noise regulator which is either fed by the battery or by a pre-regulator while the battery is being charged. This allows for uninterrupted operation and certain full charge time.

PALMER POWER STATION has two outputs to power two M2TECH 15V devices, like the YOUNG 384/32 DAC and the JOPLIN 384/24 ADC. They can be switched off when the powered devices are not used to save battery charge.

A universal mains input internal supply allows for operation all over the world without need for settings. The supply may be switched off when using the battery to minimize the interferences from the mains.

We feel that your expectations will be fulfilled by PALMER POWER STATION: you'll hear your music in a way like never before, prepare for a whole new experience!

Nadia Marino, CEO

Please annotate here your PALMER POWER STATION serial number for future reference:

S/N: \_\_\_\_\_

Date of purchase: \_\_\_\_\_

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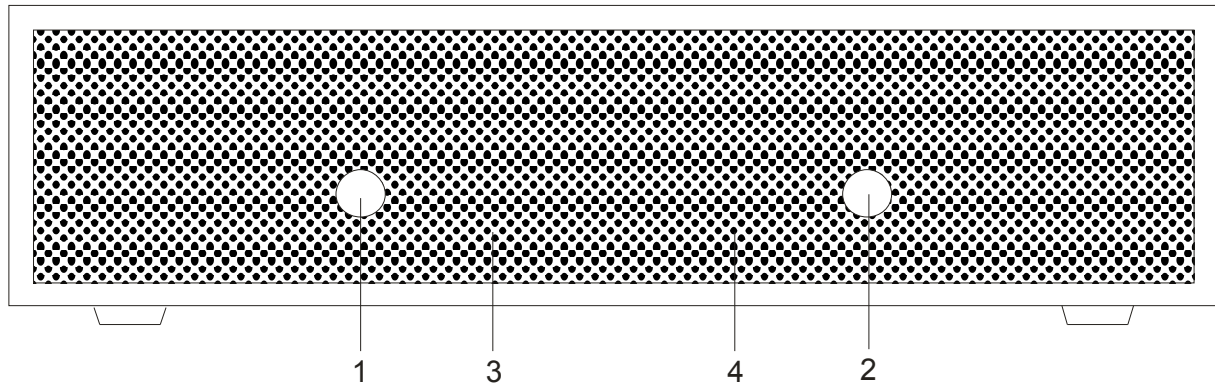
## 1. Unpacking

The PALMER POWER STATION box contains the following items:

- Palmer Power Station
- 1 supply cable terminated with 5.5/2.1mm plug on one end and with Bulgin heavy duty plug on the other end
- 1 power cord

Should any item be missing, please contact your dealer for a warranty claim. Please note the supply cable may be obtained as a separate item if needed.

## 2. Front Panel



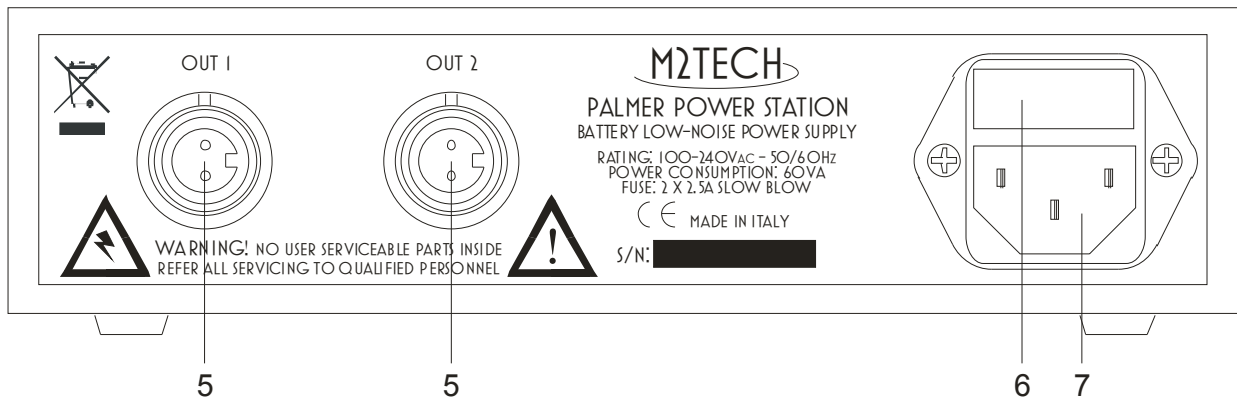
**1) Mains switch.** Push to apply mains power to the PALMER POWER STATION. Depending on the status of the output switch (item 2) and the battery charge level, switching power on may start battery charge. Also, charge may be terminated at any time by switching power off. Please see Section 5 for the effect of this switch status over battery charge start policy.

**2) Output switch.** Enables and disables both outputs. It's useful to switch powered units off by this switch when not listening to music to save battery charge and avoid undesired charge cycles, thus increasing battery life. Please see Section 5 for the effect of this switch status over battery charge start policy.

**3) Power indicator.** A red led glows when the mains switch (item 1) is on.

**4) Charge indicator.** A red led glows when charge is in progress.

### 3. Back Panel



**5) Outputs.** Connect the supply cable provided in the package. Positive is the upper hole, negative is the lower hole.

**6) Fuses holder.** Contains two 2.5A slow blow 5x20mm fuses.

**7) Mains socket.** Connect the power cord included in the package.

## 4. Connections

Connect the female plug of power cord to the mains socket (Page 7, no.7) of PALMER POWER STATION.

Connect the Bulgin plug of the supply cable to one of the PALMER POWER STATION output connectors (Page 7, no.5).

Connect the 5.5/2.1mm plug of the supply cable to the supply input of a 15V-operated M2Tech device. Of course, two cables may be used when two devices need supply; otherwise the other output will be unused.

Connect the plug of the power cord to a wall outlet.

## 5. Operation

### 5.1. Charge policy

Charge is activated whenever one of the following events occur:

- a) the unit is powered, the battery is in use and the battery voltage falls below the low battery limit;
- b) the unit is off (mains switch released, Page 6 no.1), the output switch is on and the unit is powered by pushing the mains switch.

When the unit gets powered with the outputs enabled, chances are that the battery has been previously used down to the full capacity, so a charge cycle needs to be started. User may use this to start a charge at any time by just powering the unit with the outputs enabled.

On the other hand, powering the unit with the outputs disabled puts the unit in a “charge idle” status in which a charge is only activated when the battery is depleted.

### 5.2. Forced battery operation

As stated in paragraph 5.1., the PALMER POWER STATION initiates a charge cycle every time the battery voltage reaches the low battery level while the unit is powered. When the charge is in progress, the low-noise post-regulator is fed by a pre-regulator to ensure uninterrupted operation of the unit(s) connected to the PALMER POWER STATION output(s).

User may prefer not to have the charge started before ending the listening session, thus using all the safe battery capacity. This is achieved by simply switching the PALMER POWER STATION off. The battery will feed the post-regulator even when its voltage falls below the low battery threshold, down to a safety depletion level. When this depletion level is reached, a protection circuit will disable the output, totally isolating the battery and avoiding any further depletion which may damage it.

### 5.3. Battery safety and life duration

The Li-Po battery used inside the PALMER POWER STATION is a very high quality unit, with long life and high surge current. To avoid damaging it, protections are included in the PALMER POWER STATION circuit, as well as inside the battery itself.

The battery is protected against:

- a) undervoltage (depletion);
- b) overvoltage due to charge circuit faults;
- c) overcurrent, by both the internal circuit and a resettable polyswitch fuse.

Battery life can be increased by avoiding complete discharges: user should force a charge cycle after a listening session even if the battery is not completely depleted. This is obtained by powering the unit while the output switch is engaged.

Despite the aforementioned protection circuits, a Li-Po battery is a delicate device (even if not as delicate as a Li-Ion battery) which needs to be properly used to avoid damages. Particularly, do not expose the PALMER POWER STATION to excessive heat or cold or fire, nor drop liquids on it. Do not short-circuit the outputs. Should the PALMER POWER STATION be exposed to temperature beyond the allowed range, put the unit in a normal environment and allow for at least one hour before operating it. Too cold or too hot a battery would result in damage when operated. Please refer to the specifications section (Page 11) for temperature limits.

Moreover, it's advisable not to overcharge nor short-circuit the outputs in order to avoid excessive stress to the battery and to the post-regulator.

#### **5.4. Placement**

The PALMER POWER STATION can generate heat during operation, particularly when charging the battery and when the maximum output current is required. Do not place the PALMER POWER STATION on carpets or moquette, allow for adequate ventilation, particularly at the front panel. Venting holes are present to the right of the front counterpanel that should not be covered.

## 6. Technical Specifications

Supply voltage: .....	100-240V <sub>AC</sub> , 50-60Hz
Power consumption: .....	2.5A peak, 60VA rated
Fuse:.....	2 x T2.5A
Output voltage: .....	15V <sub>DC</sub> (battery)
Output current: .....	1A (peak, both outputs)
Output noise: .....	20µVrms (20-20,000Hz bandwidth, 200mA out)
Output regulation: .....	TBD (0 to 500mA output current)
Battery capacity: .....	3400mAh
Battery duration: .....	min. 12 hours (@ 240mA output current)
Battery charge time.....	3.5 hours +/- 30 minutes
Battery charge cycles.....	1000
Operative temperature range:.....	0°C to 40°C
Size: .....	200x50x200mm (w x h x d, cabinet) 200x55x210mm (w x h x d, with connectors and feet) 360x120x260mm (w x h x d, box)
Weight:.....	2.5kg (unit only) 3kg (box)