



# *Power Star*

## Power Distribution Platform



Operation Manual Version 1.0  
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Thank you for purchasing the Professional Sound Corporation Power Star power distribution platform. PSC is confident that the Power Star has set new standards for clean, quiet powering of your portable audio equipment. Please feel free to contact us at the address below if you have any comments, suggestions, or questions about your new PSC Power Star. Additionally, we are always open to suggestions for new products that you would like to see developed.

PSC extends a one-year, limited, parts and labor warranty to all Power Star system owners who return their warranty card at the time of purchase. This warranty gives you specific rights, which are stated on the card, and enables us to keep you informed of product updates.

The PSC Power Star provides the clean, quiet, reliable power required for your entire digital audio recording package. Its rugged design allows for complete confidence that you will have uninterrupted power throughout your recording sessions.

**PLEASE BE SURE THAT YOU HAVE READ AND UNDERSTOOD THIS ENTIRE OPERATIONAL MANUAL BEFORE OPERATING THE PSC POWER STAR!**

**CAUTION! THE CASE OF THE POWER STAR MAY GET HOT DURING USE. DO NOT ALLOW ANYTHING TO BLOCK THE COOLING VENT OPENINGS. ALWAYS ALLOW AT LEAST A ONE INCH AIR GAP ABOVE THE VENT OPENINGS.**

**ALL AUXILIARY EQUIPMENT SHOULD BE REVERSE POLARITY PROTECTED AND PROPERLY FUSED AT ALL TIMES.**

**THE POWER STAR IS DESIGNED FOR USE WITH SEALED LEAD ACID BATTERIES AND IS FACTORY ADJUSTED FOR PROPER CHARGING OF SEALED LEAD ACID BATTERIES ONLY! PLEASE CONSULT THE FACTORY FOR USE WITH OTHER BATTERY TYPES. YOUR POWER STAR MAY NEED INTERNAL ADJUSTMENTS TO BE COMPATIBLE WITH OTHER BATTERY TYPES.**

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## DESCRIPTION:

The Professional Sound Corporation Power Star power distribution system has been designed and built specifically to provide clean, quiet, reliable power for your complete digital audio recording package. This new design easily handles the heavy power requirements of today's digital recorders and mixers. When connected to a sealed lead acid battery it can output 12Vdc at up to 24 amps. The PSC Power Star contains a high capacity, on board battery charger that is designed to operate from 100Vac to 240Vac or from 127Vdc to 370Vdc for worldwide operation without adjustment. Each of the PSC Power Star's 10 output connectors are equipped with dedicated EMI/RFI output filters to ensure clean, noise-free power for your equipment. In addition, each of the 10 output connectors are individually Polyfuse protected and are monitored for proper voltage output and over current faults. The status of all of these monitors can be viewed from the front panel LEDs. A Green LED indicates proper operation, a Yellow LED, indicates a tripped Polyfuse (overload condition). The PSC Power Star will operate as an un-interruptible power supply when used with a re-chargeable battery.

## REMOTE MONITOR/CONTROL BOX:



The PSC Power Star comes with a small remote monitor and control box. This box contains both a DC Volt Meter and a DC Current Meter. In addition, it contains the Power Star's main power Switch. Each unit is provided with a 4' (1.3M) cable to allow the remote monitor/control box to be mounted in a convenient place. The DC Voltage Meter reads the battery voltage when a

battery is being used. Typical readings are 14.4 volts DC when the battery is fully charged, ranging down to 10.8 volts DC when the PSC Power Star is ready to shut down due to low battery charge. When connected to AC, the readings will typically be 13.6 to 14.4 volts DC. The DC Current Meter reads total equipment current consumption in DC Amps. For example if your entire connected equipment package consumes 8 Amps, this meter will reflect that amount.

### **RACK MOUNTING:**

The PSC Power Star is designed to be rack mounted. The rack mount brackets are removable for use when the unit is not rack mounted. The rack mount brackets are designed for two position mounting. Allowing the unit to be mounted flush to the front of the rack or mounted so that the output connectors are recessed within the rack. Simply remove the 4 rack mount bracket screws and re-position the brackets to suit your needs.



Rack Mount Brackets Shown in Standard and Recessed Positions:

### **CHARGING:**

The PSC Power Star contains a built in charger designed to charge external Sealed Lead Acid (SLA) batteries. These external batteries can be the industry standard 12V, 33AH Pelican battery boxes or large Deep Cycle batteries such as Optima Yellow Top batteries. The PSC Power Star will operate from a wide

range of AC or DC power so you can plug it in anywhere in the world without having to worry about making adjustments. The charger circuit used in the Power Star has been specifically designed for charging the batteries while the batteries are in use powering low noise audio equipment. Unlike our competitor's battery chargers, our design has a very low noise floor. Using a typical 33amp/hour SLA battery you can expect a recharge time of about 2.5 hours. The charging function is automatic and it does not require your interaction in any way. Simply plug the PSC Power Star into an AC outlet, and the charging begins. A front panel mounted BLUE LED indicates AC is on and charging is possible if a battery is connected. The Power Star may get warm during use. Be careful when touching the surface of the Power Star and be sure to allow a minimum of a 1" air gap around the top panel mounted ventilation slots for proper heat dissipation.

The PSC Power Star is designed primarily for use with Sealed Lead Acid batteries. These batteries do not have the memory effects associated with NiCad batteries and unlike NiCads, SLA battery life expectancy is based on how deeply it is discharged, how long it is left in that condition and the number of discharge cycles. If you want to get the greatest life from your SLA batteries, you should keep them charged at all times. This is easily accomplished with the PSC Power Star as it can be used while charging. The PSC Power Star has a built in Voltage meter that allows you to visually see the remaining battery capacity at a quick glance. The Power Star is also designed to protect your batteries from over discharge. When your battery voltage drops to a pre-determined level (approximately 10.8Vdc) the Power Star will automatically shut itself off and disconnect the load from the battery. You cannot over discharge your batteries from misuse or by accidentally leaving your equipment on over a weekend, etc.

Because the PSC Power Star is equipped with such a high capacity charger, care must be exercised in the type and condition of batteries to be charged. The Power Star is primarily designed to charge Sealed Lead Acid (SLA) batteries. Additionally, it is recommended that you **inspect your batteries weekly for any signs of damage such as case cracks, leaks or bulging cases. Do not connect the PSC Power Star to batteries that are damaged, or beyond their recommended life span.** Failure to heed this warning could result in product damage and/or personal injury. Bulging battery cases are a sure sign of a damaged battery and/or shorted battery cell. Charging a battery in this condition can result in excessive heat build up and battery venting (hydrogen gas discharge and/or explosion). While charging, the sealed lead acid batteries should only get slightly warm to the touch. If they get very warm or hot, something is wrong and charging should be discontinued immediately and the batteries should be inspected by a qualified technician.

When used with one 12V, 33AH Pelican style battery and no AC power connected, your battery only run time may be anywhere from 2 to 6 hours depending upon your equipment's power requirements. When connected to AC power, your run time is virtually limitless. We highly recommend that you use

Pelican case batteries that are equipped with Neutrik Speakon connectors rather than 4 pin XLR connectors. Standard 4 pin XLR connectors are only rated for use at up to 9 amps of current. As the Power Star can charge at up to 15 amps per battery connection, the use of Speakon connectors is highly recommended.

### **BATTERY STORAGE:**

Always make sure to charge your batteries before putting them into storage. Your batteries should not be allowed to go below 10.6Vdc for any extended period of time. Doing so will permanently damage them. Because all rechargeable batteries slowly self discharge while in storage, it is recommended that you charge them every two to three months when you are not using them for extended periods of time. This will ensure that the batteries never self discharge to a damaging level.

### **POWER STAR USE:**

The PSC Power Star is designed for use in powering your entire digital audio recording package. The Power Star's ten (10), 4-pin female XLR output connectors provide output voltage at all times when the Power Star is switched on. All power cables wired for use between the Power Star and your equipment must be wired correctly and professionally.

Anytime the Power Star is plugged in, its battery charger is operational. Your battery may be charged without the Power Star's front panel electronics being turned on. By switching "ON" the power switch on the small remote control box, the Power Star will turn on and begin to supply power to your equipment. If the Power Star is connected to a battery, but not plugged into AC, all of the power will come from the battery. If the battery is discharged below a safe point, the Power Star will not turn on when the power switch is set to "ON". If the battery level is good, the Power Star will operate normally. When the batteries are discharged to the point where they are in danger of being damaged due to over discharge, the Power Star will automatically shut itself off and disconnect the load. **This low battery shut off occurs at approximately 10.8 Volts as read on the meter.** You can also shut off the Power Star at any time by simply turning the main power switch to "OFF". The power switch is centered between the Voltage and Current meters on the small remote control box. The box has built in overhangs to prevent accidental switching of the main power switch. You can also operate the Power Star without a battery connected by simply plugging the Power Star into AC and switching "ON" the main powers switch. The Power Star will power your equipment at up to 15 amps current consumption (approximately 225 watts of total output power) when connected to AC only.

## **OPERATING VOLTAGE: (100Vac to 240Vac or 127 to 370Vdc)**

The PSC Power Star has a “universal” input voltage and can even be operated from high voltage DC current. This design was chosen to facilitate the Power Star operating worldwide without having to be adjusted. Simply plug it into a properly wired outlet and you are ready to go.

## **AC LINE SAFETY:**

Electrical safety codes require that electrical equipment be properly grounded for operator safety. Many electrical outlets have been mis-wired with hot and neutrals reversed as well as having missing grounds. This is especially true on film sets where all power lines are portable and neutrals get kicked out time and time again. For your own safety and for the good of your equipment, you should test any AC line before connecting to it. This can be done by using a small, low cost line checker available at most hardware stores. These checkers look like an AC plug with three or four lights on them that indicate when the AC outlet is wired correctly.

## **OUTPUT OVERLOAD PROTECTION:**

The PSC Power Star is equipped with Raychem Polyfuses that automatically reset to protect the outputs of the Power Star and also to provide a degree of protection to your equipment. These solid state devices act like ordinary fuses or circuit breakers. They interrupt the flow of dangerously high electrical current in the case of a fault condition in the equipment being powered. The PSC Power Star contains Polyfuses on its battery input and on all 10 outputs. The 10 separate Polyfuses that protect the 10 output connectors are monitored separately.

The front panel of the PSC Power Star has 20 LEDs (10 green and 10 Yellow) that provide a convenient means to monitor for proper operation. Under normal operation, all 10 of the GREEN LEDs should be lit. This indicates that there are no faults on any of the 10 outputs. If any one of the GREEN LEDs is off and the corresponding YELLOW LED is lit, this indicates that this particular output connection Polyfuse has tripped. This is a fault condition that must be corrected immediately. By noticing which YELLOW LED is lit, you can easily know which piece of equipment is having a problem. Simply put, Green is Good, Yellow is Bad!

Because each of the individual outputs is individually polyfuse protected, if any one piece of your equipment has a fault, the rest of your sound package will continue to operate. These Polyfuses will only reset after the fault has been removed and the Polyfuse allowed time to cool down (approximately 30

seconds). Please note that these output protection devices should not trip during normal use of the Power Star! If you experience tripping of these devices on any continuing basis, something is wrong and a qualified technician should check your equipment and cables immediately. Additionally, these polyfuses are rated at 8 Amps and 3.5 Amps as noted on the front panel silk-screening. These polyfuse current ratings may be higher than is safe for various types of equipment. Always make sure your individual equipment is properly fused for its own protection.



Example of Proper Operation



Example of Tripped Polyfuse

Additionally, the Power Star has an internal fuse on the AC supply that protects this main power supply. This 5mm x 20mm white ceramic fuse is rated at 6.3



amps and is of the “slow blow” type. This fuse should not fail under normal operating conditions. If this fuse ever fails, please take your PSC Power Star to a qualified technician for repair. Failure of this fuse or the power supply itself is indicated when the front panel, BLUE LED, AC indicator is not lit when the unit is connected to AC. This front panel, BLUE LED indicator is labeled “AC”

Safety note: There are no user serviceable parts within the PSC Power Star. **Within the PSC Power Star, there may be hazardous voltages present. Do not disassemble the PSC Power Star. Refer all servicing to a qualified technician.**

### **PROPER POWER STAR COOLING:**

Your new PSC Power Star is a high power device. It has a rated output of 225 watts. Although it has been designed using a high efficiency switch-mode power supply, the unit still does generate a considerable amount of heat when running at its full rated capacity. This heat must be dissipated for proper operation of the Power Star. Because of this, the Power Star is designed with a housing that contains rows of cooling vents. These cooling vents must not be blocked at any time. Failure to provide adequate airflow around the PSC Power Star will cause damage to the unit and will not be covered under warranty. Always leave a minimum of 1” (2.5cm) open space above the PSC Power Star for proper ventilation.

### **SILENT OPERATION:**

The PSC Power Star is convection cooled. It does not contain any fans that generate any mechanical noise. Therefore it can be used without concern on even the most quiet film set.

### **EQUIPMENT POWER CABLES:**

**PSC recommends that you use only two conductor, unshielded, 16AWG power cable for power distribution.** Shielded cable is not recommended as the shield may cause short circuits between adjacent pins on the connectors.

**NOTE: Use only the pins necessary to operate your specific piece of equipment!** For example, if your Solice Mixer requires 12Vdc to operate, then you should only connect pins 1 (ground) and pin 4 (+12Vdc). Many pieces of equipment use pins 2 and 3 for other functions such as battery charging. There are no industry standards for the use of pins 2 and 3. Their use may not be compatible with the Power Star. **Remember, use only 2-conductor cable and wire only pins 1 and 4 on your connectors!**

## TYPICAL 12Vdc POWER CABLES:

For use with PSC Solice Mixer, PSC M6 RetroMix, PSC RF MultiMax, PSC RF Multi Dual 1x8, Cooper CS208, Audio Developments Mixers, and most other audio mixers and recording devices that operate form 12Vdc and use a 4 pin XLR power connector.

POWER STAR

SOLICE MIXER

4P MALE XLR

4 PIN FEMALE XLR

PIN 1-----PIN 1

PIN 4-----PIN 4

## BATTERY POWER CABLES:

The cable used to connect the battery to your PSC Power Star is of special importance as it carries the entire electrical load of your sound recording package from the battery. In addition, it must carry the entire charge current to the battery. **This battery cable must be made from heavy gauge cable (12AWG) and kept as short as possible to eliminate voltage drops across the cable.** Because you are working with a 12 volt DC system, the loss of even 1 volt across a cable run is unacceptable. We have equipped the PSC Power Star with a Neutrik Speakon connector for connecting your battery. This connector is rated for use up to 30 amps. Each Power Star is supplied with a Speakon to Speakon cable for use with your SLA batteries. We recommend that you have all your cables professionally built or buy specially built cables made by PSC from any authorized PSC dealer.

**WARNING:** It is highly recommended that you have your cables built by qualified personnel and tested prior to use with your Power Star. All power cables should be clearly labeled on both ends as to what they are to be connected to. For example, label one end "Power Star" and the other end "Solice Mixer". This will help prevent inadvertently connecting the cables to the wrong piece of equipment. We cannot stress enough the importance of good quality power cables and careful connections. Poorly constructed and/or labeled cables can result in equipment damage!

## PANEL CONNECTIONS:

### Rear Panel:



### AC Power Connection

### Front Panel:



### Remote Control Connection    10x Outputs    Battery Speakon Connector

## WARNING!

THE PSC POWER STAR OUTPUTS DC VOLTAGE AT SUBSTANTIAL CURRENT! ALL AUXILIARY EQUIPMENT SHOULD BE REVERSE POLARITY PROTECTED AND PROPERLY FUSED TO EQUIPMENT MANUFACTURERS RECOMMENDATIONS AT ALL TIMES! THE PSC POWER STAR IS CAPABLE OF SUPPLYING MORE THAN 15 AMPS OF OUTPUT CURRENT INTO A SHORT CIRCUIT BEFORE THE INTERNAL POLYSWITCH TRIPS. THIS IS MORE THAN ENOUGH POWER TO SEVERELY DAMAGE UNPROTECTED EQUIPMENT!

DO NOT DISASSEMBLE THE PSC POWER STAR! IT CONTAINS NO USER SERVICEABLE PARTS OR ADJUSTMENTS. HIGH VOLTAGE AND CURRENT MAY BE PRESENT. REFER ALL SERVICE TO QUALIFIED PERSONNEL ONLY.

## **TERMS OF USE:**

THE IMPROPER CONNECTION OF THIS POWER SUPPLY TO AUXILIARY EQUIPMENT MAY RESULT IN DAMAGE TO SAID EQUIPMENT AND/OR PERSONAL INJURY. THIS PRODUCT IS DESIGNED TO BE OPERATED BY PROFESSIONALS IN THE FILM AND TELEVISION INDUSTRIES. THE PSC POWER STAR SHOULD ONLY BE OPERATED AFTER READING AND UNDERSTANDING THIS ENTIRE INSTRUCTION MANUAL. THE OPERATOR OF THIS POWER SUPPLY ASSUMES ALL RESPONSIBILITY AND LIABILITY FOR SAFE AND PROPER USE AND OPERATION OF THIS EQUIPMENT! PROFESSIONAL SOUND CORPORATION AND/OR ITS EMPLOYEES AND OFFICERS ASSUME NO RESPONSIBILITY OR LIABILITY FOR PERSONAL AND PROPERTY DAMAGE INCURRED DUE TO ACCIDENT, CARELESS HANDLING, ABUSE OR MISSUSE, IMPROPER CONNECTION, AND/OR INSTALLATION, IMPROPER ELECTRICAL CONTACT OR GROUNDING. OWNERSHIP AND/OR USE OF THE PSC POWER STAR CONSTITUTES AGREEMENT WITH THESE TERMS.

## **SPECIFICATIONS:**

<b>Size:</b>	<b>17.50" x 7.5" x 1.75" (45cm x 19cm x 4.5cm)</b>
<b>Weight:</b>	<b>5Lbs (2.3Kg)</b>
<b>Input Power:</b>	<b>100Vac to 240Vac, or, 127Vdc to 370Vdc</b>
<b>Battery Input:</b>	<b>SLA batteries, minimum capacity of 33Amp/hour each Speakon 2 Pole Connector</b>
<b>Max Output Power: (All outputs combined)</b>	<b>AC Only, 15 Amps Battery Only, 24 Amps, Battery+AC, 24 Amps</b>
<b>Individual Outputs:</b>	<b>All individual outputs are polyfuse protected at 3.5 Amps and 8 amps as noted on front panel silk-screening</b>
<b>Charging Time:</b>	<b>2.5 hours, typical per 33amp/hour battery, each output</b>
<b>Charger Type:</b>	<b>Constant Voltage Type, Current Limited to 15 amps.</b>
<b>Warranty:</b>	<b>Limited, One Year, Parts and Labor.</b>

## DECLARATION OF CONFORMITY

**EMC:** This product is in compliance with the Electromagnetic Compatibility Directive, 89/336/EEC as defined in EN 50081-1, EN55022 and EN 50082-1. IEC801-2, IEC801-3 and IEC801-4.

**LVD:** This product is in compliance with the requirements of the Low Voltage Directive, 73/23/EEC. 93/68/EEC as defined in EN60065, 1993 and/or EN60950/A1/A2/A3: 1995

**TRADE NAME:** PSC  
**MODEL:** Power Star

**RESPONSIBLE PARTY:** Professional Sound Corp.  
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Valencia, CA 91355 USA

**CONTACT PERSON:** Ronald Meyer  
(661) 295-9395

**TYPE OF PRODUCT:** Power Supply

**MANUFACTURER:** Professional Sound Corp.  
28085 Smyth Drive  
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We hereby declare that the equipment bearing the trade name and model number listed above has been tested in accordance with the requirements contained in the above listed directives. All necessary steps have been taken and are in force to assure that production units manufactured will conform to Directive guidelines.

March 2010

Professional Sound Corporation.