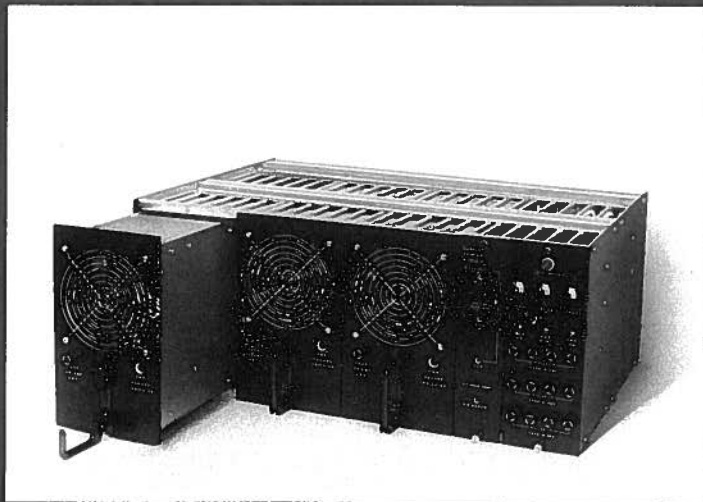


**PIONEER MAGNETICS, INC.**

# Power Shelf

**Model PM2974P/PM3076P**  
PLUG-IN RACK POWER SHELF  
UP TO 2500 WATTS



## FEATURES

- Plug-in rack mounted power system.
- Supply Modules can be replaced without system shutdown.
- Single lever lock-in-place handles.
- Dedicated AC or DC input (115VAC, 230VAC, or 48VDC).
- Independently regulated, fully floating channels (up to four).
- True automatic load-sharing on main channel (PM2864 Current Sharing Module).
- N+1 redundancy (automatic back-up upon module failure).
- Failure indicators.
- Meets UL478; CSA142, 143 and 154; IEC 380 and 435; VDE 0806 SELV.
- Typical 70% efficiency (5V main channel).
- Self-contained forced air cooling.

## GENERAL DESCRIPTION

Pioneer's PM2870/71 Power Shelf is a high power, rack mounted system with up to three plug-in power supply Modules. The Modules can be individually replaced without system shutdown. Each supply provides up to four completely floating, independently regulated channels ideally suited for telecommunications, mainframe computer and peripheral environments. All Power Shelf Modules meet today's stringent international safety and EMI standards.

When fully expanded, the Power Shelf provides up to 2500 watts of output power with a range of highly regulated output voltages from 2 to 48\* volts DC. Main channel output currents of up to 150 amps and secondary outputs of 6, 12, or 15 amps per supply are standard. Single output versions are available over the entire voltage range. Multiple output combinations consist of 5 volt main and 12/12/5 or 15/15/24 volt secondaries (consult factory for other voltage combinations). Dedicated input voltages at 48VDC, 115 VAC and 230 VAC are offered.

Each individual supply Module is connected to the Power Shelf busses via a single plugable connector; this makes

field replacement quick and simple. If a failure indicator signals a malfunctioning unit, the supply can be pulled out and a replacement unit substituted—all while the system is running. Single lever, lock-in-place handles make supply removal and insertion nearly effortless.

In addition to the three power Modules, the Power Shelf houses the PM2864 Current Sharing Module. This unit offers true automatic load sharing on the main channel. Fault tolerant and accurate to within 1%, the Module optimizes system MTBF for the main output bus. The secondary channels are diode isolated and OR'd together to prevent a shorted output on one channel from bringing down the entire system.

The PM2870/71 is packaged in a 24" rack assembly with optional control switches, fuses, circuit breakers and indicators as needed by the user. Other voltage/current combinations, options, or rack dimensions may be available. Consult factory for your application.

\* (SELV approvals affected by output voltages.)

## SYSTEMS SPECIFICATIONS

### INPUT:

- Continuous voltage range: 90 to 138 VAC, single phase (PM2870A). 180 to 264 VAC, single phase (PM2870-2A). 42 to 56 VDC, (PM2871-2A).
- Frequency: 47 to 63 Hz. (AC models).
- Inrush Limiting (AC models only): Inrush current will not exceed 75A. Inrush circuitry will reset within 100 msec at full load.
- Turn-on Delay: 1 second maximum from application of AC line. 200 msec. maximum from inhibit turn-on.
- Surge Withstand test: IEEE Spec 472, Rev 1974.

### OUTPUT:

See selection chart on page 55

**OUTPUT VOLTAGE ADJUSTMENT RANGE:**  
±10% of nominal output voltage.

**STATIC REGULATION:**  
(Main Channel)

- Line: ±0.25% over full line range.
- Load: ±0.25% over no load to full load.
- Voltage Stability: ±0.1% after 30 minutes warm-up for a 24 hour period.
- Temperature coefficient: ±0.02% per °C from 0°C to 50°C.

### PARALLELING:

- Main channel—true load sharing to within 1%. Uses PM2864 Current Sharing Module.
- Secondary channels: direct paralleling with diode isolation.

### HOLD-UP TIME:

(AC Input models only): 30 milliseconds minimum from 115/230 VAC (20 msec for PM2925P and PM2975P).

### OVERSHOOT:

No turn-on or turn-off overshoot.

# Power Shelf

## MULTI-OUTPUT MODULES SELECTION CHART

Model Number		AC Input		48V DC Input		
		PM2974P	PM2975P	PM3074P	PM3075P	PM3076P
Maximum Total Output Power (Watts)		750W	850W	750W	850W	1000W
Main Channel (1)	DC Voltages Available	2, 3, 5, 12, 15, 24, 28, or 48				
	Max 5V Power (Watts)	600W	750W	600W	750W	750W
	Max Current @ 5V (Amps)	120A	150A	120A	150A	150A
Channels 2, 3, & 4 Maximum Output Current (Amps) (2)	DC Voltages Available	12V/12V/5V or 15V/15V/24V				(4)
	Low Current	6A				
	Standard	12A				
	High Current (3)	15A				

## SINGLE OUTPUT MODULES SELECTION CHART

Model Number	AC Input		48V DC Input		
	PM2924P	PM2925P	PM3024P	PM3025P	PM3026P
Maximum 5V power (Watts)	750W	850W	750W	850W	1000W
Output Voltage	Output Current (Amps)				
2 Volts	200A	—	200A	—	—(5)
3 Volts	200A	—	200A	—	—(5)
5 Volts	150A	170A	150A	170A	200A
12 Volts	60A	71A	60A	71A	85A
15 Volts	50A	57A	50A	57A	70A
24 Volts	33A	35A	33A	35A	40A
28 Volts	27A	30A	27A	30A	36A
48 Volts	16A	18A	16A	18A	30A

- (1) No Minimum Load required.
- (2) Sum of all channel output wattages may not exceed maximum supply rating.
- (3) 30 and 45 amp channels available. Consult factory.
- (4) Consult factory for other voltages.
- (5) Consult factory for output currents over 150A.

### OVERVOLTAGE PROTECTION:

Shut-down type: 125% ±10% of nominal output, 3V-48V outputs, 3.0 ±0.1V for 2V output.

### OVERLOAD PROTECTION:

(Automatic recovery from overload or short circuit).

### OVERTEMPERATURE PROTECTION:

Automatic latching shut-down type. After a suitable cool down period unit will reset by cycling AC power.

### REVERSE VOLTAGE PROTECTION:

Protection against reverse voltage applied across output terminals up to rated output current (with fan running).

### OPTIONS:

- (-0) Remote sense—Compensates for up to 0.5 volts total loop drop.
- (-1) Power Fail—Provides 5 msec. warning of output drop upon loss of AC Power.
- (-2) Logic Inhibit and Enable—System can be turned on or off with a TTL compatible signal or switch contact.
- (-5) Remote Margining/Programming—Allows either ±5% or ±10% change of main output bus.
- (-8UV) Undervoltage Detect—Provides fault indication of one or more supply module channels.
- (-CP) Control Panel.

### ISOLATION:

(with shield for Class I SELV)

- Input/Output: 3536 VDC: 2000V on DC to DC
- Input/Chassis: 3536 VDC: 2000V on DC to DC
- Output/Chassis: 707 VDC

### SAFETY:

Meets UL478; CSA 22.2 -142/143/154; and VDE 0806 SELV.

### MECHANICAL DIMENSIONS:

- Models PM2870A, PM2870-2A: 9.37" H x 24.30" W x 16.61" D (excluding front panel hardware).
- Model PM2871-2A: 9.37" H x 24.30" W x 17.26" D (excluding front panel hardware).

### WEIGHT:

Rack with three supply modules, Current Sharing Module and optional control panel. 93 pounds (42.3kg.) maximum.

### CONNECTORS:

- Main Output: (5 sets) ¼-20 screw holes on 0.750" x 0.375" copper bus bar
- Secondary Outputs and Remote Sense: (2) 15 ckt 6-32 screw terminal block Buchanan SSBGTG150504.
- AC Input: 3 ckt. 10-32 screw terminal block. Magnum 495303-NL
- DC Input: (2) ¼-20 threaded brass screw studs on steatite insulator.
- Options Interface: (1) 9 pin Molex. Mates with Molex 03-09-2092 connector and Molex 03-06-2202 Male Pin.

### FRONT PANEL HARDWARE:

- Plug-in handle (standard).
- Optional control panel with switches, fuses, circuit breakers and indicators as needed by the user.

Pioneer Magnetics reserves the right to change specifications at any time without prior notice. It is Pioneer Magnetics' policy to improve products as new techniques and components become available.

