

# POWER SEQUENCER

## MODELS PS-8, PS-8R



Model PS-8R

### FEATURES

- Power-up in three delayed outlet groups
- Power-down reverses sequence
- Triple-mode varistor spike and surge suppression
- RFI filtering with multi-stage EMI/RFI filter
- Power Status LED's indicate which outlets have power
- Mains Wiring indicators monitor wiring integrity, show Normal and five kinds of faults
- Rated 15 amps
- Remote option (model PS-8R) allows turn-on/turn-off at a distance simply by connecting a switch (and LED if desired)
- Multiple units may be daisy-chained using PS-REL relay
- Three unswitched outlets (one front, two rear)
- Circuit breaker

### DESCRIPTION

The Furman **PS-8 Power Sequencer** is needed whenever various kinds of equipment must be powered up or down in groups, rather than all simultaneously. In audio systems, sequenced powering is often necessary to allow turn-on transients from low level amplifiers and processors to settle down before any power amps are turned on, because simultaneous powering would result in a loud, annoying, and potentially destructive "pop" reaching the speakers. And in any large system whose components present an inductive load to the AC line (including electric motors, power supplies, and power amplifiers of all kinds), sequenced powering can avoid excessive inrush currents that cause circuit breakers to trip even though the steady-state currents are not excessive.

Using the PS-8 is a simple and inexpensive way to apply and remove power in a controlled, repeatable, foolproof 3-step sequence. It is ideal when large installations must be switched by inexperienced personnel.

The PS-8 provides three outlet pairs labeled Delay 1, Delay 2, and Delay 3, that receive power almost immediately, 5 and 10 seconds respectively after the front panel switch is thrown to "ON." When thrown to "OFF," the sequence is reversed, with

Delay 3 losing power almost immediately, Delay 2 after 5 seconds, and Delay 1 after 10 seconds. The delay intervals are preset at these durations, but may be altered by means of an internal trimpot adjustment. In addition to the delayed outlets, a single front panel outlet and a rear panel pair are unswitched. All rear panel outlets are standard 120V, 15A duplex types; isolated-ground "super spec" outlets may be substituted at additional cost.

The PS-8 offers all basic power conditioning features besides its sequencing capability. It provides varistor spike and surge protection across all three modes, as well as a sophisticated EMI/RFI filter for blocking radio frequency line noise. Clean, filtered power is provided at all 9 outlets, even the unswitched ones.

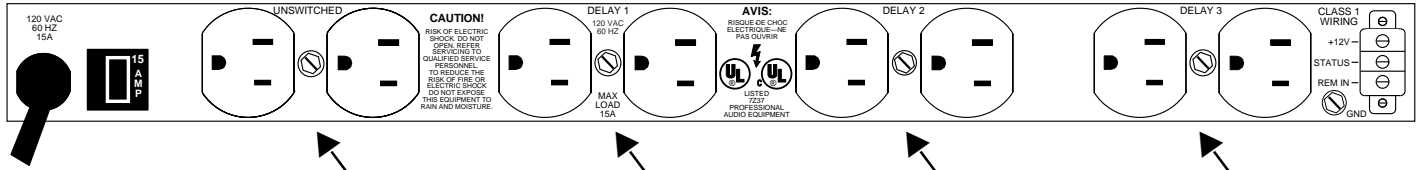
The PS-8 also assists in analyzing any faults that may occur in the AC mains wiring. Two green and one red neon indicators light in a specific pattern for normal wiring and in different patterns for various faults. When the AC wiring is correct, both green indicators will be lit. If a fault is present, a chart next to the indicators will identify its exact nature.

### OPTIONS

- **Model PS-8R: Power Sequencer with Remote Switching:** This model is identical to the PS-8 with the addition of a barrier terminal strip on the rear panel that allows a switch (which may be either a momentary or maintained-contact type) to be connected to turn the unit on and off at a distance. If a 3-conductor cable is used, an LED may also be installed at the remote end to indicate that the power is on. The Delay 1 LED on the PS-8R blinks to indicate the remote switch is off.
- **Models PS-8E and PS-8RE:** Same as PS-8 and PS-8R except 230 VAC operation at 10 amps, using IEC-320 outlets.
- **Model PS-PRO:** 20 amp version with locking key switch and advanced conditioning features. See separate data sheet.
- **PS-REL Relay Accessory:** Allows a PS-8R to be turned on by sensing AC at a preamp's switched outlet; also allows daisy-chaining PS-8R's for 6 or more delayed outlet groups.

# PS-8R rear view

Model PS-8R is shown here and overleaf. Model PS-8 is similar except the "Initiate On-Off Sequence" button on the front panel and the barrier terminal strip at right are not present.



<b>ON POWER UP:</b>	This pair of outlets plus the one on the front panel are on regardless of the switch position.	This pair of outlets comes on about 1/2 second after the switch is turned on.	This pair of outlets comes on 5 seconds after the switch is turned on.	This pair of outlets comes on 10 seconds after the switch is turned on.
<b>ON POWER DOWN:</b>	Same as above.	This pair of outlets goes off 10 seconds after the switch is turned off.	This pair of outlets goes off 5 seconds after the switch is turned off.	This pair of outlets goes off about 1/2 second after the switch is turned off.

Note: "The switch" referred to in this chart is either the front panel switch or, if used, the remote switch connected to the terminal strip of a PS-8R. An internal jumper allows selection of either momentary or maintained action.

## PS-8R Architects and Engineers Specifications

The Power Sequencer shall provide three delayed outlet pairs with a delay time interval of 5 seconds, controlled by a front panel master switch. The on-off sequence shall be initiated either locally or with a momentary or maintained contact switch at a remote location, connected with Class 1 wiring. Outlet switching shall be by means of relays with silver cadmium oxide contacts rated at least 30 amps for inductive or resistive loads. Relay life expectancy shall be at least 100,000 operations at rated load. Printed circuit boards shall be 3 oz. copper FR4 glass epoxy. Indicator lights shall be provided to signal when power is available at each of the delayed outlets. All outlets shall be rated 15 amps. Unswitched outlets shall be provided both in front and rear. Spikes at all outlets shall be clamped to no more than 250 V peak (line to neutral, line to ground, or neutral to ground.) Response time shall not exceed 1 nanosecond. The unit shall absorb a surge current of up to 5000 amperes for 10 μs without damage. RF noise attenuation shall exceed 40 dB (transverse mode) and 60 dB (common mode) from 1 to 200 MHz. A 15 amp circuit breaker shall be provided, and the AC cord shall be 14 ga. and ten feet long.

The Power Sequencer shall mount in a standard 19" rack, and occupy no more than one unit (1.75") of rack space. It shall be designated the Furman PS-8R.

## Three Year Warranty

The Furman PS-8 and PS-8R are protected by a three year limited warranty covering defects in materials and workmanship.

**AVAILABLE FROM:**

## PS-8, PS-8R SPECIFICATIONS

Maximum load:	PS-8: 15 amps (1800 watts at 120 VAC) PS-8E: 10 amps (2300 watts at 230 VAC)
Input Voltage Range:	PS-8: 85 to 135 VAC; PS-8E: 190 to 270 VAC
Mains Wiring analyzer:	Detects 1 normal mode and 5 fault modes
Delay Interval:	5 seconds (adjustable with internal trimpot)
Remote Switch (PS-8R only):	Momentary or maintained action. Screw terminals, 3 for switch, 1 additional for optional LED (22 ga. wiring minimum).
Spike Protection Modes:	Line to neutral, neutral to ground, line to ground
Spike Clamping Voltage:	PS-8: TVSS rating 400V peak, L-N, N-G, L-G (tested to UL 1449); PS-8E: 500V peak
Response time:	1 nanosecond
Maximum surge current:	6,500 amps (8 x 20 ms pulse)
Maximum spike energy:	80 joules per mode, 240 joules total protection ("E" versions 130 joules L-N, 160 joules N-G, L-G, 450 joules total)
Noise attenuation:	PS-8 and PS-8R: Transverse and common modes: 20 dB at 200 kHz, rising to >40 dB, 1 to 100 MHz
Mechanical:	Dimensions: 1.75" H x 19" W x 8" D. Weight: 6 lbs (2.7 kg). Construction: Steel chassis, zinc chromate plating; .125" brushed and black anodized aluminum front panel; 3 oz. copper double-sided glass epoxy printed circuit board
Power Consumption:	Switch off: 6 watts Switch on: 8.5 watts
Safety Agency Approvals:	UL, CUL, CE listed.

