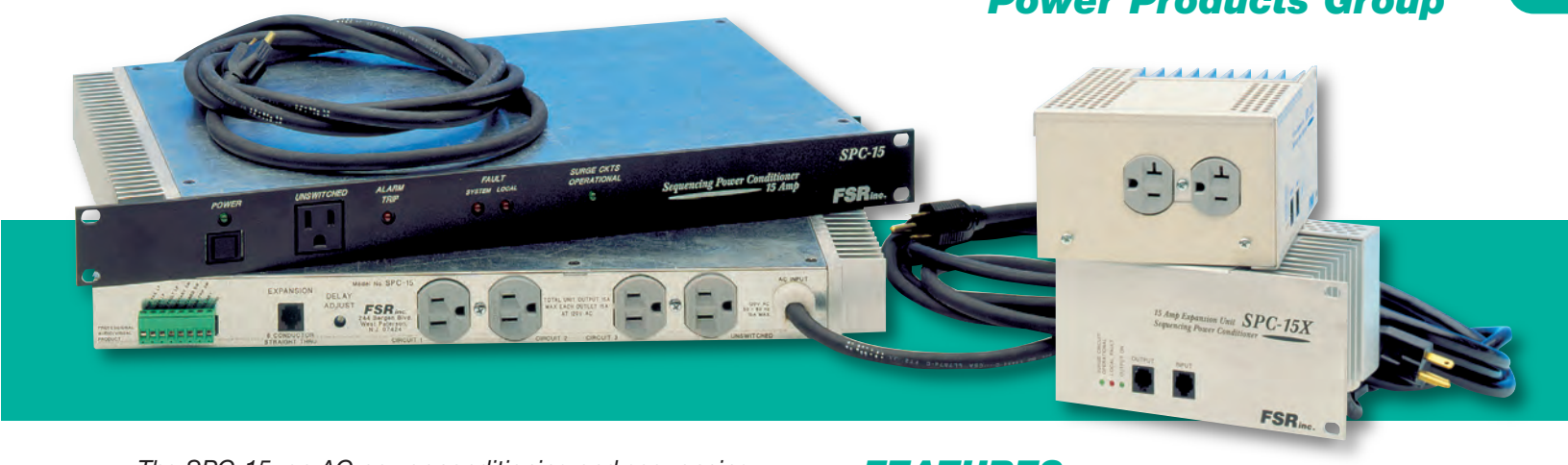
SPC-15 / SPC-15X

15 Amp Sequencing Power Conditioner

FSR

Power Products Group



The SPC-15, an AC power conditioning and sequencing system, provides in depth surge protection as well as superior RFI suppression. It can be expanded to power any number of additional circuits all connected via a six-wire low voltage line.

The SPC-15 switches the line with solid state devices insuring an extremely long, trouble-free life. There are no mechanical relay contacts to arc or pit and disrupt the systems operation.

This equipment should be used in all sound and video installations that have a system on/off switch. It performs two extremely important functions, insuring that equipment turn on is accomplished rapidly and in the proper order eliminating any possible damage to high power amplifiers and the associated speakers; and it protects all the equipment from harmful transients and surges.

Supervisory feedback circuits are used to provide an indication that AC power is available to every load in the installation. In the event a load fault is detected, the system fault indicator on the front of the unit is illuminated.

This equipment performs the all important task of turning the rack(s) on and then after an adjustable delay, turning the amplifier(s) on. At system turn off the process is reversed — the amp(s) turn off first and then after the same delay the rack(s) turn off. When expanded with the optional SPC-15X expansion units, the system will provide sequential start-up of an unlimited number of additional amp circuits. On power down, the process is reversed — the amps are sequenced down, starting with the furthest expansion stage and ending with the local rack circuit.

The SPC-15 is a 19 inch rack mounted equipment occupying only one rack unit space (1.65")

On the rear panel, a remote connector allows you to remote the system on/off switch. This switch can be either momentary or maintained. Lamp feed back for this switch is also provided. The 15 amp power cord plugs into branch circuits provided by the electrician.

FEATURES

- *Fully solid state, zero crossing, AC switching, 15 amp capacity (NO RELAYS)*
- *Advanced surge suppression on all the AC outputs with LED indicating active protection*
- *Line conditioning and RFI suppression on the AC input*
- *Full sequencing on both power up and power down*
- *Unlimited expansion capability*
- *Two AC outlets, one on the front and one on the rear, are active all the time*
- *An alarm terminal to sequence the system down when tripped*
- *UL Listed*

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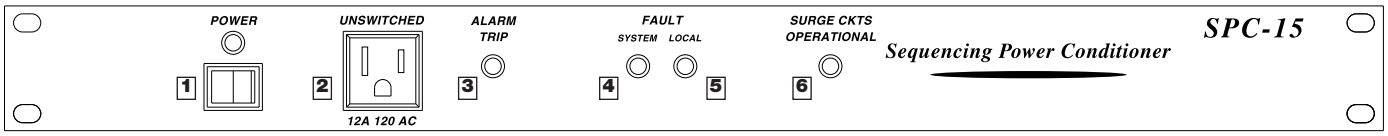
SPC-15 FRONT PANEL



1. ***SYSTEM POWER SWITCH AND LED:*** *when the system LED is off, pressing the system switch will start the turn-on procedure, and the LED will illuminate. When the system LED is on, pressing the system switch will start the turn-off procedure, and the LED will turn off. This LED blinks on power up and power down until the cycle is complete.*

2. ***UNSWITCHED OUTLET:*** *this outlet is active al all times that the equipment is plugged in.*

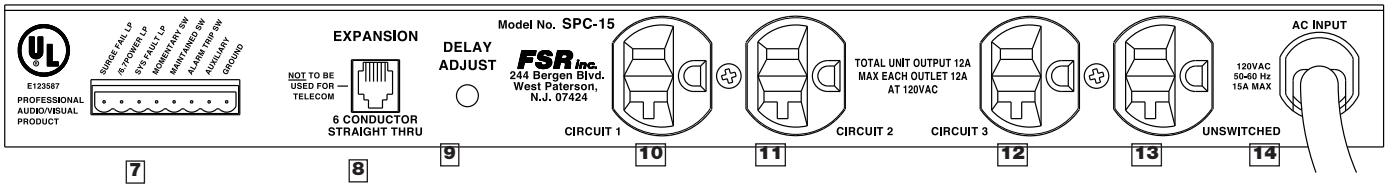
3. ***TRIP LAMP:*** *a ground closure on the remote trip input (rear panel remote control strip) will sequence the system down and latch on the trip lamp. After the remote trip input is cleared, the trip lamp can be reset by pressing the momentary system power switch.*

4. ***SYSTEM FAULT LAMP:*** *this supervisory indicator will illuminate to indicate that an enabled AC circuit is not receiving AC power (faulty output circuit), or that a disabled AC circuit continues to receive power (incorrect system wiring, shorted output circuit, etc.). A system fault indication will be provided when a fault indication is detected in the SPC-15 or any expansion stage.*

5. ***LOCAL FAULT LAMP:*** *this supervisory indicator will illuminate to indicate that a fault has occurred at This local unit. A local fault on any unit in the system will also activate the system fault lamp.*

6. ***SURGE CIRCUITS OPERATIONAL:*** *provides supervisory indication that the surge suppression circuitry is fully functional.*

SPC-15 REAR PANEL



NOTE: all remote control and expansion port connections are short circuit and overload protected.

7. ***REMOTE CONTROL PORT:*** *this pluggable screw terminal provides for remote operation of the SPC-15 as follows:*

   SURGE FAULT LAMP: provides 12 volts at 100 ma when the surge circuits are worn out. It is in a high impedance state when off.

   POWER LAMP: provides 12 volts at 100 ma when the system is on. High impedance when the system is off.

   SYSTEM FAULT OUTPUT: this output goes high (+12V) when there is a fault on the local or expansion units. Output rated at 100 ma.

   NOTE: While each lamp output is rate at 100 ma total current draw from all three together should not exceed 150 ma.

   SYSTEM MOMENTARY SWITCH: this input may be used to remotely control power-up/down of the system from momentary contact switch. Multiple control locations may be used by connecting switches in parallel.

SPC-15 REAR PANEL (continued)

SYSTEM MAINTAINED SWITCHED: this input may be used to remotely control power-up/down of the system from a security key switch or other maintained closure source. Only one control location may be used with a maintained switch input.

ALARM TRIP SWITCH: a closure on the remote trip input from the fire alarm or other emergency shut down system will latch the trip lamp and initiate a power-down sequence. This input will override all local and remote inputs for the duration of the closure. To clear the trip if a momentary switch is used to power up the system, just press the system on/off switch off and then on. A system using a maintained switch will automatically power up once the trip input is cleared.

AUXILIARY: this output provides a ground closure when the rack circuit is enabled. Output rated at 100 ma.

GROUND (GND): all switch inputs and lamp outputs are referenced to ground.

8. ***EXPANSION PORT:*** *control for expansion units. It requires a standard 6 conductor telephone type (RJ) cable wired straight through (pin 1 to pin 1 etc.).*
9. ***DELAY ADJUST:*** *trim control enables the user to set the initial delay (going from circuit 1 to circuit 2) over a range of 1 to 10 seconds. All subsequent steps will be 10 times faster than this initial setting.*
10. ***CIRCUIT 1 OUTLET****: this half of the duplex outlet will provide 120 VAC upon activation of the system on switch.*
11. ***CIRCUIT 2 OUTLET:*** *this half of the duplex outlet will provide 120 VAC after the initial delay time.*
12. ***CIRCUIT 3 OUTLET:*** *this half of the duplex outlet will provide 120 VAC after the faster delay.*
13. ***UNSWITCHED:*** *this half of the duplex outlet is powered all the time the unit is plugged in. Both this outlet and the one on the front have surge protection as well as line filtering, as do circuits 1-3.*
14. ***15 AMP LINE CORD:*** *must be plugged into a true 15 amp outlet.*

SPC-15X

The SPC-15X is the expansion unit to the SPC-15 and provides sequential switching of one load (amplifiers, etc.). It is controlled by the SPC-15. An unlimited number of SPC-15X's can be used in an installation.

Each SPC-15X can switch 15 amps of 120-volt AC power.

To initiate a power-up sequence, push the system power button. The system LED will start to blink to confirm system turn on and indicate that circuit 1 has been activated. The time between each circuit power-up is set by the initial delay adjust. When the final circuit is powered, the system LED will stay on and the power-up is complete.

To initiate a power-down sequence, push the system power switch again. The system LED will start to blink to confirm a power-down. At this time, the external circuits will begin to power down starting with the furthest stage. All delays are the same as the power-up. A trip input from the fire alarm or other emergency signal will override all other inputs and cause the system to sequence down. The trip LED will illuminate in response to a trip. In order to extinguish the trip lamp, the trip input must be cleared, and then the momentary system power switch must be pressed.

SPC-15 SPECIFICATIONS

AC SWITCHING	Solid state zero crossing (no relay contacts that bounce, arc, and pit)
AC INPUT	Full line conditioning and RFI suppression
AC OUTLETS	Surge suppression on all outlets
AC OUTLETS	Total of five outlets, two (one on the front panel on one on the rear panel) are active, the other three are switched on/off in sequence when the unit is operated.
SURGE PROTECTION	**Spike protection modes:** Line to neutral, neutral to ground, line to ground **Spike protection voltage:** Max clamping voltage 340V peak, L-N, N-G, L-G **Response time:** 1 nanosecond **Maximum surge current:** >100,000 AMPS (8 x 20 usec pulse) **Maximum spike energy:** 1,000 joules **Noise attenuation:** Differential 13 dB @ 150 kHz increasing to 45 dB @ 30 Mhz **Common mode:** 15dB @ 150 kHz, increasing to >45dB @ 30 Mhz
SWITCHING DELAY	1 to 10 seconds adjustable on the rear panel. This is the delay from circuit 1 to circuit 2. All subsequent delays will be one tenth that setting.
REMOTE CONNECTOR	Includes all connections for remote control of the unit (pluggable screw terminal connector)
REMOTE CONTROL	Momentary or maintained closure will operate this equipment. A lamp feedback signal (voltage) is also provided.
EXPANSION CONNECTOR	Feeds the first expansion unit if used (data/telephone connector 6 wide RJ12) wire this connector straight through.
LISTING	UL
SIZE	19" wide, 1.75" high, and 8.5" deep.
WEIGHT	14 lbs.

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SURGE PROTECTION	Spike protection modes: Line to neutral, neutral to ground, line to ground Spike protection voltage: Max clamping voltage 340V peak, L-N, N-G, L-G Response time: 1 nanosecond Maximum surge current: >29,000 AMPS (8 x 20 usec pulse) Maximum spike energy: 200 joules Noise attenuation: Differential 13 dB @ 150 kHz increasing to 45 dB @ 30 Mhz Common mode: 15dB @ 150 kHz, increasing to >45dB @ 30 Mhz
LISTING	UL
SIZE	6" wide, 5.5" high, and 3" deep.
WEIGHT	4 lbs.

MOUNTING DATA

SPC-15

Mount the SPC-15 in the lower section of the AV or control rack. Do not obstruct the heat sink fins on the left side of the chassis. Connect the appropriate wire to the remote connector as required. Connect a plug strips to the power receptacles. Plug in the power cord into a true 20 amp circuit provided by the electrical contractor.

SPC-15X

Mount the SPC-15X in the desired location away from high heat. Do not obstruct heat sink fins. Connect expand-in connector to expand-out connector of previous SPC-15X. NOTE: BE CAREFUL TO OBSERVE PIN 1 TO PIN 1 etc. ON ALL EXPANSION SIGNAL CABLES. The expand out connector of the last SPC-15X is left unconnected.

Connect the desired equipment into rear panel outlets. The outlets may be connected to plug strips if multiple loads per circuit are desired. The installation is complete.

Power up system from the SPC-15 system on/off button or any remote panel. The time delays between circuit 1 and 2 and successive circuits start up are controlled by the pot on the SPC-15 rear panel. The system fault indicator will light anytime AC power is lost to an enabled load, or if a disabled load continues to receive AC power. A local fault occurrence will also trip the system fault lamp on the SPC-15 unit.

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