

# SENSOR

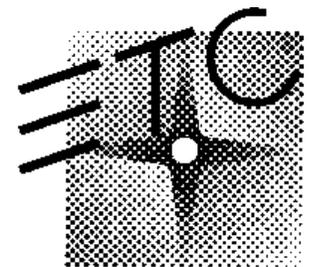
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## *Portable Pack* USER MANUAL

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## ***Electronic Theatre Controls, Inc.***



### **UL and C UL Listed**

*AC Lighting Loads Only  
For Indoor Use Only  
Utilizer Dans Un Endroit A L'Abri*

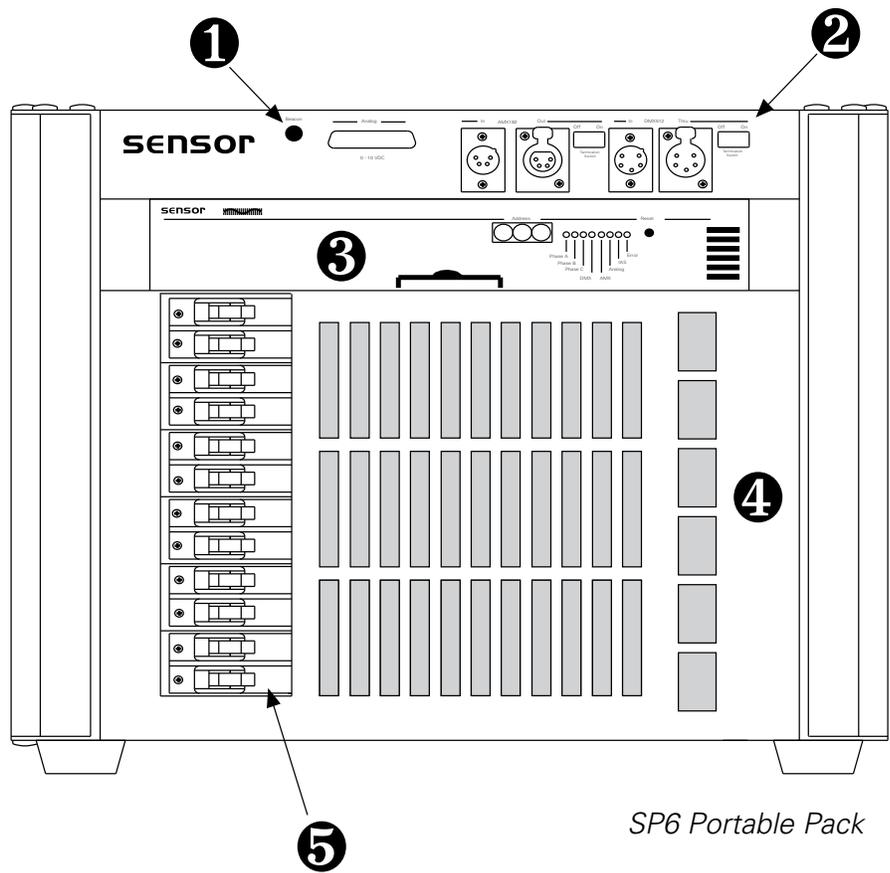
ETC Sensor dimming equipment is protected by  
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7052M1002

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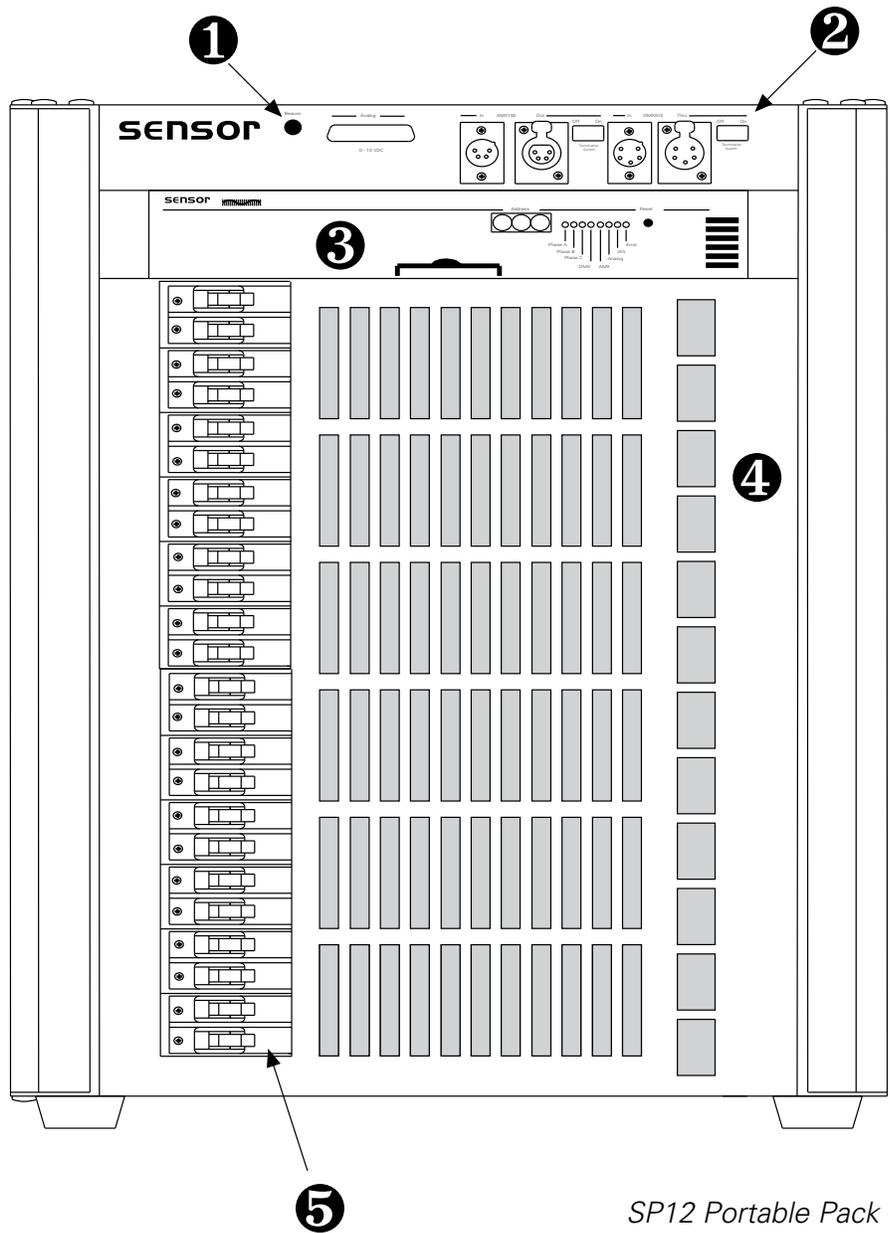


## Introduction

The Sensor Portable Pack is a modular dimming system that consists of a single electronics module and multiple dimmer modules in a fan-cooled, aluminum and steel housing. It is available in standard and Advanced Features (AF) configurations.



- ① LED beacon
- ② Input connector panel
- ③ Electronics module (MPE shown)
- ④ Door
- ⑤ Circuit breakers



*SP12 Portable Pack*

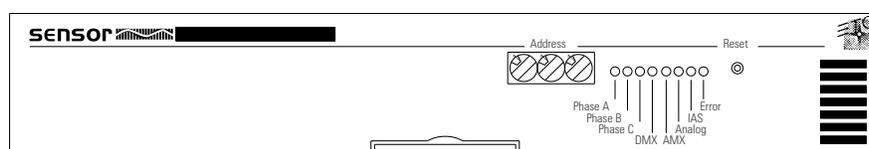
- ① LED beacon
- ② Input connector panel
- ③ Electronics module
- ④ Door
- ⑤ Circuit breakers

## Electronics modules

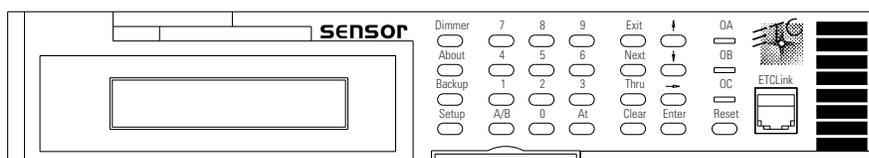
Standard configuration Sensor Portable Packs are generally equipped with a Multi-Protocol Electronics (MPE) module. MPE modules are factory-configured for seven user-selectable dimmer configurations and accept DMX512, AMX192 and 0 – 10V DC analog input. Advanced Features (AF) packs are equipped with a Control Electronics Module (CEM). CEMs accept only DMX512, but feature an easy-to-use user interface that incorporates an integral LCD and keypad.

Like all Sensor dimming systems, the Portable Pack provides feedback on dimming system status. In packs equipped with the MPE, this is accomplished via a warning beacon and a system of flashing LEDs. AF packs also provide a warning beacon, but the CEM also provides extensive error messages and warnings on the integral LCD. In addition, AF packs may be networked on ETCLink, and provide feedback information on individual dimmer modules.

For more information regarding the electronics module, see the *CEM User Manual* or *MPE User Manual* that was shipped with your system.



*Multi-Protocol Electronics (MPE) Module*



*Control Electronics Module (CEM)*

## Removing electronics modules

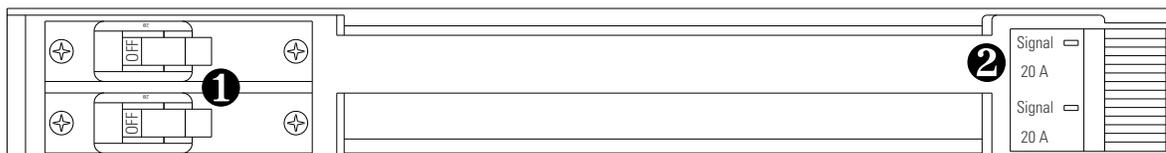
To remove the electronics module, follow these steps:

1. Open the door.
2. Pull the small metal handle out of the bottom edge of the front panel.
3. Grasp the handle and gently pull the electronics module out.

To replace the module, insert it firmly until you feel it seat securely. When the module is correctly seated, it should be flush with the dimmers. Be sure to slide the handle back into the front panel.

## Dimmer modules

Each SP6 contains one electronics module and either six standard or three double-height dimmer modules. Each SP12 contains one electronics module and either twelve standard or six double-height dimmer modules. Sensor packs support 15A, 20A, 50A, or 100A dimmer modules in various combinations. (Custom dimmer configurations are available by special order.)



Standard Sensor 20A dimmer module (D20)

Except for 15A and 20A modules, which are interchangeable, module slots are designed to accept only the size module specified for that space. Do not attempt to insert a module into a slot configured for a different size module.

### 1 Dimmer module circuit breakers

On the left end of a dimmer module's front panel are either one or two circuit breakers (depending on whether the module is single or dual). If the breaker switch is to the right, the circuit is off or tripped. If the breaker switch is to the left, the circuit is on.

### 2 LEDs

All modules have an LED marked **Signal** on the right end of the front panel. The Signal LED is on whenever the pack is receiving DMX512 input.

Sensor AF (Advanced Features) dimmer modules also have an LED marked **Output** which is on whenever the dimmer has an output voltage. Dual modules have two sets of LEDs.

## Removing dimmer modules

To remove dimmer modules, open the door, then grasp the center part of the face panel with both hands and pull.

To replace the module, insert it firmly until you feel it seat securely. When the module is correctly seated, it should be flush with the other dimmer modules.

*Warning: Do not touch the AC power bus. If more than one adjacent modules are removed, the AC bus is exposed.*

## **Line and load connectors**

The back panel of the Sensor Portable Pack contains both line and load connectors.

### **Load connectors**

The Sensor Portable Pack may be configured with either stage pin; grounded twistlock; parallel blade; or multi-pin connectors (Veam, Socapex or Pyle) to connect the pack to lights or other output devices.

### **Line feed connectors**

The back panel contains Cam-Lok® E1016 series line feed connectors. Line feed cables with mating connectors (not supplied) must be connected to the Cam-Lok power connectors in the order described below. To connect the Cam-Lok connector, insert it into the back of the pack, then twist clockwise until it locks in place. Reverse this procedure to disconnect the cables.

Connect cables in this order:

1. Grounding plug (Green)
2. Neutral plug (White)
3. Phase plugs (Black/Red/Blue)

*Warning: Cables must be disconnected in the reverse sequence!*

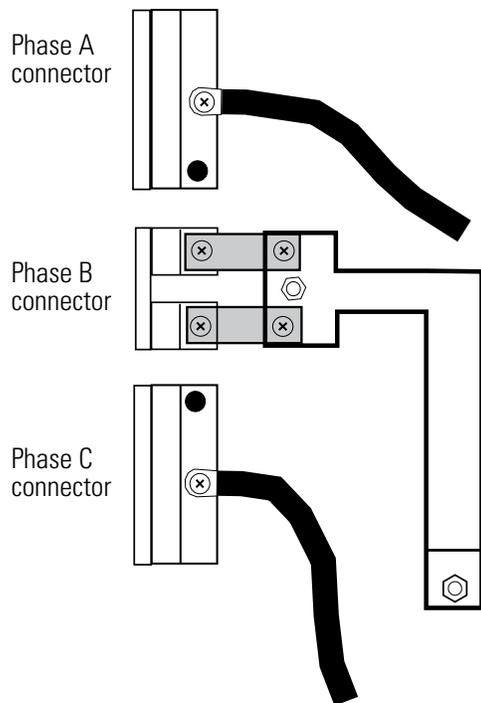
*Warning: Multiple power leads may be attached to the Portable Pack. Disconnect all power leads before servicing or attempting to work on any part of this device. Service connectors must be installed and removed by qualified personnel only.*

## Setting up SP6 for single phase operation

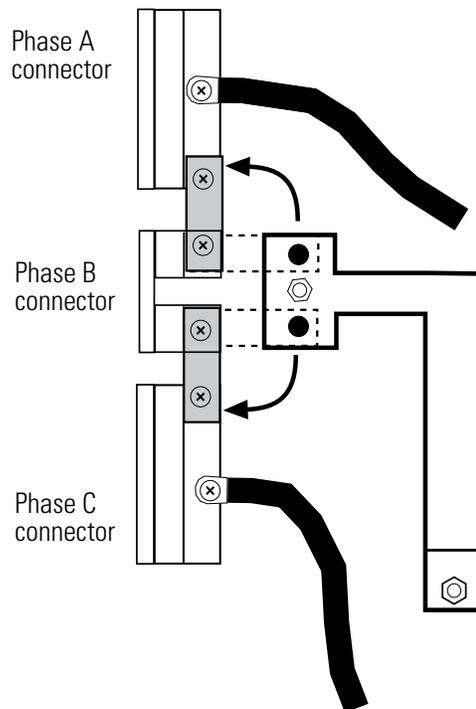
To convert a Sensor SP6 Portable Pack from three phase to single phase operation, follow these steps:

1. Disconnect power from all Cam-Loks.
2. Remove all dimmer modules from the Portable Pack, exposing the bus bars and connectors.
3. Remove the screws at the right ends of the two inch long copper bars that connect the phase B connector to the phase B bus bar. Loosen the screws at the left end of the bars.
4. Rotate the top bar up and secure it to the phase A connector.
5. Rotate the bottom bar down and secure it to the phase C connector.
6. Tighten all screws to 40 inch/pounds of torque.
7. Replace dimmer modules.
8. Connect power to the A and C phase Cam-Loks. Do not connect power to the B phase Cam-Lok.

Single phase operation is automatically detected by both the CEM and the MPE, so no additional configuration is necessary.



Phase connectors wired for three phase operation



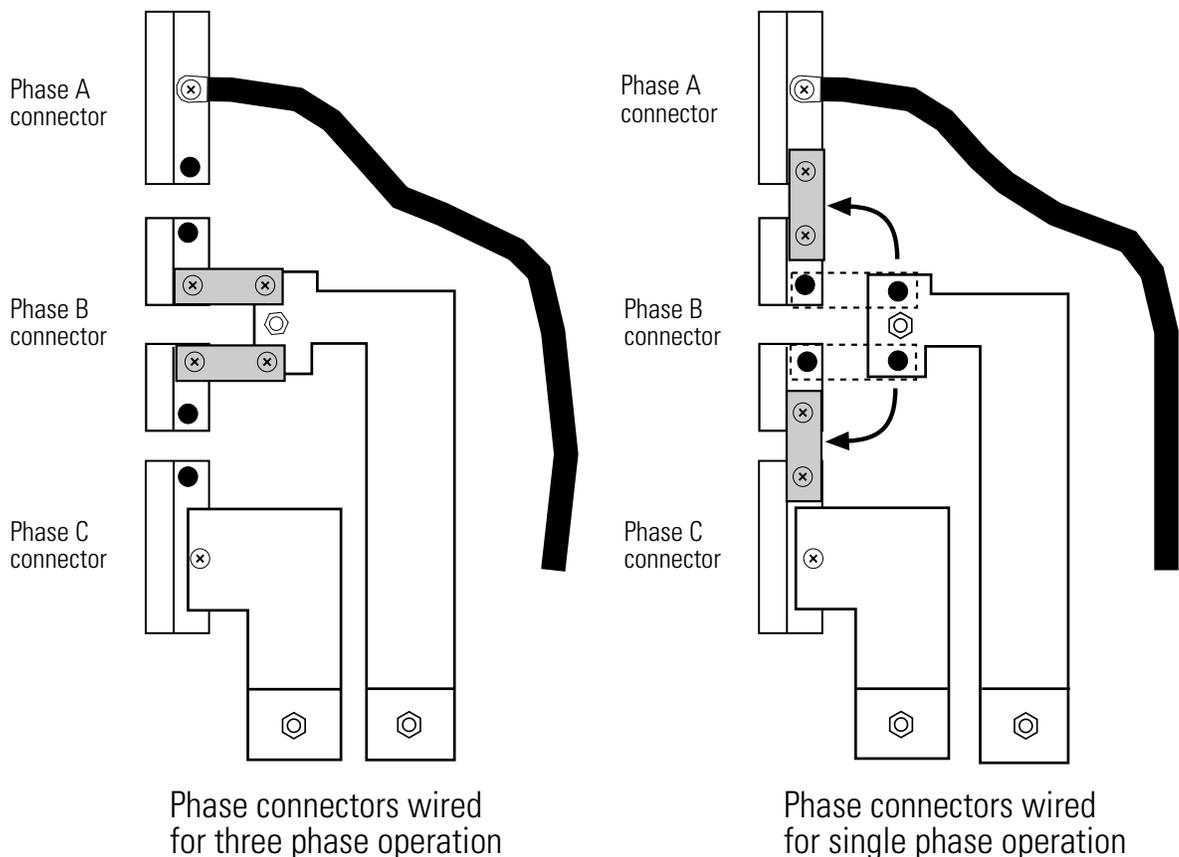
Phase connectors wired for single phase operation

## Setting up SP12 for single phase operation

To convert a Sensor SP12 Portable Pack from three phase to single phase operation, follow these steps:

1. Disconnect power from all Cam-Loks.
2. Remove all dimmer modules from the Portable Pack, exposing the bus bars and connectors.
3. Remove the screws at both ends of the two inch long copper bars that connect the phase B connector to the phase B bus bar. Loosen the screws at the left end of the bars.
4. Use the top bar to connect the phase A connector to the phase B connector, as shown below.
5. Use the bottom bar to connect the phase B connector to the phase C connector, as shown below.
6. Tighten all screws to 40 inch/pounds of torque.
7. Replace dimmer modules.
8. Connect power to the A and C phase Cam-Loks. Do not connect power to the B phase Cam-Lok.

Single phase operation is automatically detected by both the CEM and the MPE, so no additional configuration is necessary.



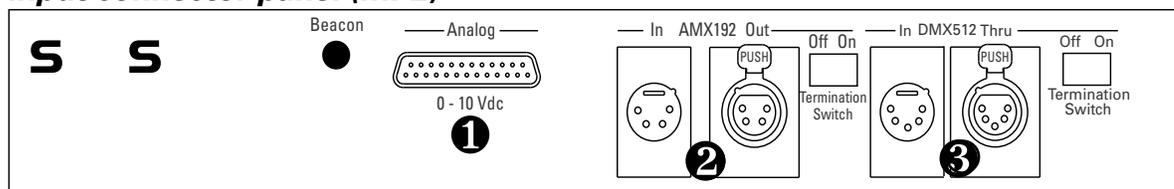
## Input connectors

The Sensor Portable Pack is available with two input connector panel options. Standard configuration packs are equipped with input and pass-through connectors for DMX512 and AMX192, as well as a single analog input. Advanced Features packs are equipped with DMX512 and ETCLink input and pass-through connectors. On an SP12, each analog channel controls two dimmers. Analog channel 1 controls dimmers 1 and 13, channel 2 controls dimmers 2 and 14, and so forth.

*Note: Sensor electronics modules are somewhat interchangeable. The CEM will work in a standard pack, but it will not accept AMX192 or analog input. On the other hand, an MPE will work in an AF pack, but it will not support Sensor's Advanced Features (AF) option.*

DMX512 and AMX192 termination switches are located next to their respective connectors. The termination switch on the last pack in the series must be in the **ON** position. Termination switches on all other packs must be in their **OFF** positions.

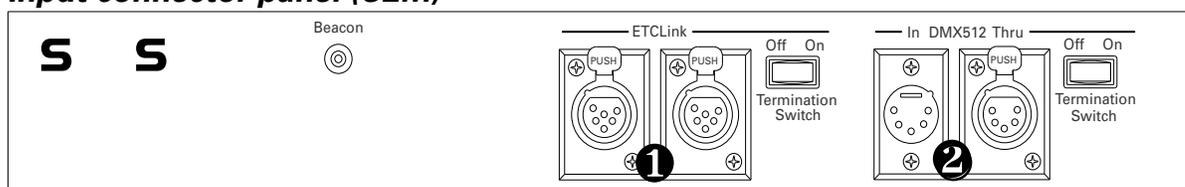
### Input connector panel (MPE)



- ① 0 - 10 Vdc analog input
- ② AMX192 input and pass-through
- ③ DMX512 input and pass-through

*Note: You may use DMX512 and AMX192 inputs simultaneously or DMX512 and analog inputs simultaneously, but you may not use AMX192 and analog inputs simultaneously.*

### Input connector panel (CEM)



- ① ETCLink input and pass-through
- ② DMX512 input and pass-through

### Connector pinout information

#### DMX512 in

XLR 5-pin male

#### DMX512 thru

XLR 5-pin female

#### Pin Signal

1 ..... Common  
 2 ..... Data (-)  
 3 ..... Data (+)  
 4 ..... Pass through  
 5 ..... Pass through

#### AMX192 in

XLR 4-pin female

#### AMX192 thru

XLR 4-pin male

#### Pin Signal

1 ..... Common  
 2 ..... Clock (+)  
 3 ..... Analog multiplex  
 4 ..... Clock (-)

#### Analog In

D-sub 25-pin female

#### Pin Signal

1-12 ..... Signal  
 13-24 ..... Not used  
 25 ..... Common

## **Beacon**

An LED status beacon is mounted in the top left corner of the pack's front panel. Under normal operating conditions, this beacon is illuminated. If the pack's electronics module senses an error condition in the pack, the beacon flashes until the error is corrected.

In packs with the MPE, the beacon alerts you to run the MPE diagnostic routines to determine what the problem is. See the *MPE User Manual* for more information.

In packs with the CEM, the beacon alerts you to check the CEM's LCD for error messages. See the *CEM User Manual* for more information.

## **Door**

Each Sensor Portable Pack is equipped with a door that protects the dimmer modules and contains the cooling system's electrostatic air filter. To ensure proper cooling, always keep the door closed except when you are working on the pack.

## **Cooling system**

The Sensor Portable Pack is cooled by a fan located on the back panel. The pack's cooling fan draws air through the filter, over the surfaces of the modules and then blows it out the back of the pack. The fan runs when any of the dimmers in the pack are on. They continue to run for three minutes after all dimmers are off.

*Warning: Never obstruct the fan exhaust by placing objects that may block air flow behind your pack.*

For optimum performance, the average ambient temperature in an area where a Sensor Portable Pack is being used should be about 68°F (20°C). Under no circumstances should the ambient temperature be allowed to exceed 104°F (40°C).

### **Air filter**

A door-mounted, electrostatic air filter removes dust and other airborne debris from the cooling air. This filter must be kept clean to ensure proper cooling. The filter should be cleaned every six months (more often in dirty locations). Follow these steps to clean the filter:

1. Open the door.
2. Brush or vacuum filter from both sides.
3. If a more thorough cleaning is necessary, use compressed air to blow out embedded dust and dirt.
4. Close the door.

To remove air filter (for replacement or more thorough cleaning) follow these steps.

1. Open the door.
2. Use a Phillips-head screwdriver to remove the metal strip holding down the left side of the filter.
3. Remove filter from door.
4. Reverse procedure to replace filter.

## **Specifications**

### **SP6**

15 $\frac{1}{8}$ " H x 17 $\frac{1}{2}$ " W x 12 $\frac{1}{2}$ " D  
Empty weight: 40 pounds

#### **Input power**

80A, 120/208, 3Ø, 5-wire, 50/60HZ  
120A, 120/240, 1Ø, 4-wire, 50/60HZ  
10,000 Amps RMS @ 120/240 VAC

### **SP12**

24 $\frac{1}{4}$ " H x 17 $\frac{1}{2}$ " W x 12 $\frac{1}{4}$ " D  
Empty weight: 68 pounds

#### **Input power**

160A, 120/208, 3Ø, 5-wire, 50/60HZ  
240A, 120/240, 1Ø, 4-wire, 50/60HZ  
10,000 Amps RMS @ 120/240 VAC