

How does a Smoke Chef SC-200 work?

The Southern Pride, model SC-200-SM smoker oven is an all-electric unit, requiring a 120/208 or a 120/240-volt 4 wire single-phase 30-amp circuit. The unit consists of a 208 or 240-volt main heating element a 110/120-volt smoker element, a hi-limit thermostat, a contactor, and a 110/120-volt convection fan motor. There is also an option for a second smoker box and element.

The SC-200 has a digital control system. The digital control panel consists of six button touch pad to set a menu, select the desired cook temperature, cook time, hold time, and smoke ON or OFF.

DIGITAL CONTROL SYSTEM (on all current models)

The digital system consists of a digital controller, a 110/120 volt to 24 volt step-down transformer, two 10 amp and one 40 amp solid state relays. A menu can be programmed with a cook time, cook temp, a hold time and a hold temperature, or the hold can be turned off and the smoker can also be turned off or on. Once the oven heats up to near set temperature the controller will pulse the current to the heating element to maintain the set temperature.

Once the time, temperature and hold on or off have been selected press Start/Stop, the control will ask for wood chips - press up button for smoke down button for no smoke. A 5- volt DC current is sent to the 40-amp relay, the smoker relay (if selected) and to the fan relay. The fan relay sends 110/120 volts to the fan motor and thru the hi-limit to the coil connection of the contactor. When the oven heats up to within a few degrees of set temperature the controller will pulse the heating element current. The smoke element will stay on for four hours and shut off or shut off when the cook cycle ends if less than four hours. When the cook cycle is completed the oven will shut off and sound an audible alarm or go into a hold cycle, depending on how the menu was programmed at the beginning of the cook cycle. With the technology of the digital controls the oven will maintain the set point temperature to within a few degrees.

STANDARD CONTROL SYSTEM (on older models)

The standard control circuit is relatively simple, 110/120 volts from the terminal block is fed to the power switch and the smoke element switch. 208/240 volts is sent to the contactor. When the power switch is turned on current is sent to the convection fan motor and to the thermostat. A thermocouple inside the oven sends a mili-volt current to the thermostat. When the thermostat calls for heat 110/120 volts from the thermostat is sent thru the hi-limit thermostat to the coil of the contactor, the contactor closes sending 208/240 volt current to the heating element. In the event the thermostat fails to cut off current to the contactor coil causing the oven to over heat the hi-limit will open at 340 degrees cutting off the current to the coil of the contactor. The contactor will open cutting off power to the heating element. The smoke switch on the control panel controls the smoker element.