

Upgrading a Duncan Digital Kiln to the Sentry Controller

Read these instructions plus pages 28 – 29 in the Sentry instruction manual.

Parts Needed

- 1 – Sentry controller
- 2 or 3 – TF-3 relays (quantity depends on Duncan kiln—see your wiring diagram)
- 1 – PY-3 lead wires for thermocouple
- 1 – 32” Sentry wiring harness, for Duncan kilns

1 Remove the Duncan controller from the switch box. Unplug and remove the controller wires from the controller wire harness.

2 Open the main switch box. You will find relays and a transformer near the bottom of the box. Remove the relay(s).

3 Replace the relays you removed with Paragon’s TF-3 relays. This replacement is necessary because the TF-3 uses a 12-volt coil, which the Sentry controller requires. You may need to drill new holes to fasten the relays in the switch box. They must be near the bottom of the box, just as the Duncan relays were.

4 Remove the plug from the tube that goes to the controller box. Thread the new wiring harness through that tube so that the end with the two red connectors is in the controller box.

5 Remove the old wires from transformer terminal #7. Attach the new blue wire to terminal 7.

6 Attach new white wire to transformer terminal #8, and the orange wire to terminal #5.

7 Remove the old wiring harness completely from the switch box.

8 Attach the black wires and red wires to the relays as shown in the chart on page 29 in the Sentry manual. Attach the power wires and element wires to the new relays as shown on the chart.

9 Disconnect the thermocouple wires from the connector strip inside the switch box. Attach new thermocouple wires being sure to attach to the correct terminals. Thread the other end of the thermocouple wires to the tube that goes to the controller box.

10 Arrange the wires in the switch box so that no wire will touch an element connector or the kiln’s case when the box is closed. Then close the box.

11 Attach the two wire connectors to the back of the Sentry. Attach the thermocouple wires to the center thermocouple connectors on the back of the Sentry. Observe color coding. (Ignore the other thermocouple connectors, which are for multiple zone kilns.)

12 Mount the Sentry to the controller box with screws. Use a piece of sheet metal to cover the open area under the new controller.