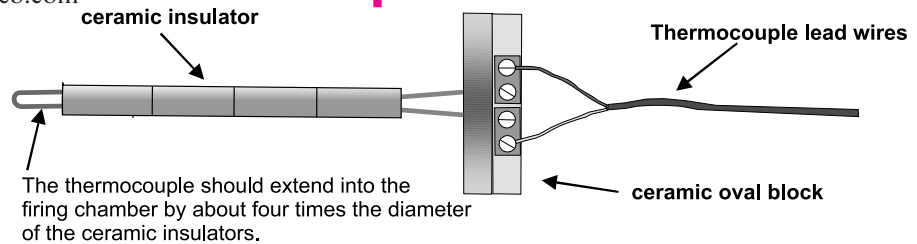


Installing the 1/4" and 1/2" K-Type Thermocouples

The thermocouple includes ceramic insulators, which are 1/4" or 1/2" in diameter. If the insulators are too large for the hole in your kiln wall, please call us to order the correct size thermocouple.

Top View



Important Guidelines

- 1 The thermocouple lead wires connect the thermocouple to the digital controller. The wires must not touch the hot kiln case. The thermocouple itself must not touch the steel kiln case.
- 2 Even though they are protected by insulation, thermocouple lead wires are sensitive to electromagnetic interference. Inside the kiln switch box, position the thermocouple lead wires away from other switch box wires. Never let a thermocouple wire wrap around other wires.
- 3 The yellow and red thermocouple lead wires must be attached to the correct terminals on the oval connection block and the controller. Make a note of color coding when removing the old wires.
- 4 Be sure the thermocouple lead wire ends do not touch each other where the insulation has been stripped.
- 5 The 1/4" diameter thermocouple must protrude 1" or more into the firing chamber; the 1/2" thermocouple, 1 1/2" - 2".
- 6 The thermocouple wires must be connected properly or you will get inaccurate readings. If your controller gives an error message that thermocouple wires are reversed (TCR), remove the switch box. Make a visual inspection of the thermocouple connections on the ceramic block and back of the controller. Be sure the red lead wire is connected to the red (-) side of the block and the red thermocouple terminal on the controller.

Remove the Old Thermocouple

- 1 UNPLUG/disconnect the kiln from the power.
- 2 Remove and save the screws on the sides of the switch box that hold it to the kiln. Gently lift the box away from the kiln.
Hinged switch box: (Your switch box is hinged if it has a folding arm on the side of the box.) Remove the top two screws of the switch box. The box will open forward.



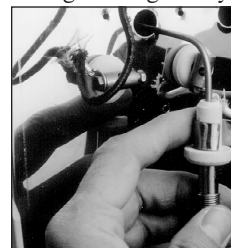
The hinged switch box has a support arm on the side.



On some kilns, the element cover must be removed to gain access to the thermocouple.

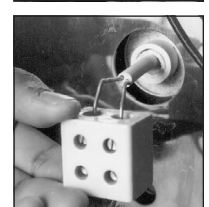
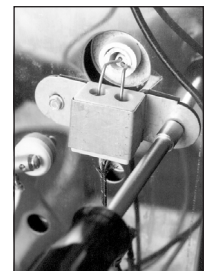
- 3 Remove the two screws securing the thermocouple oval ceramic block. Pull the thermocouple from its firebrick hole.

Old-style kilns: Remove the screw(s) from the thermocouple block hold down bracket, which holds the thermocouple in place. Pull thermocouple from its firebrick hole. If your kiln has a thermocouple protection tube that is large enough for your new thermocouple,

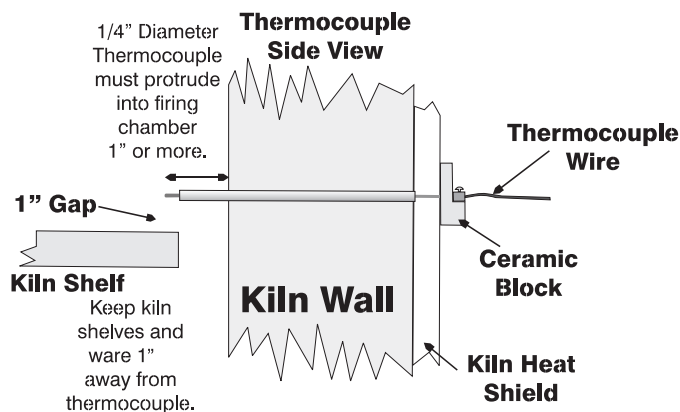


Removing old-style bent thermocouple.

you can leave the tube in place. If the protection tube is too small for the new thermocouple, either remove the protection tube or order the correct sized thermocouple.

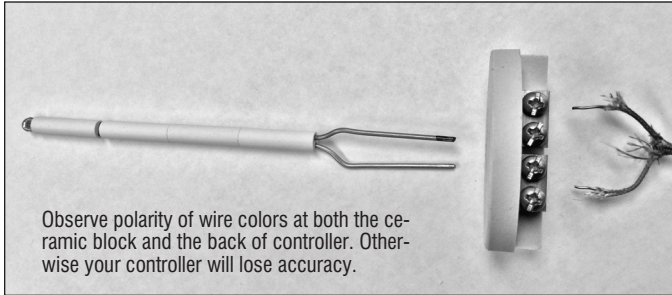


Removing old-style thermocouple block.



Assemble the Thermocouple

If your thermocouple is already assembled, skip this section.



Observe polarity of wire colors at both the ceramic block and the back of controller. Otherwise your controller will lose accuracy.

The thermocouple screws must be tight. Observe wire color coding. The thermocouple wire that attracts the magnet connects to the red lead wire.

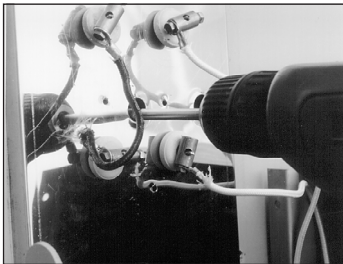
1 You will find four screw connectors on the ceramic block. Turn the ceramic block so the screws are away from the thermocouple. Insert the wires from the thermocouple into the two center screws. The red wire goes into the side marked “-” on the ceramic block. Do not tighten the screws yet.

2 If you are installing new thermocouple lead wires, remove 2” of outer insulation from one end of the wire. Remove ½” of insulation from the two exposed wires. (See photo above.)

3 Insert the wires into the ceramic block outer screw holes. Insert the red wire on the side marked “-”. Tighten the two screws just enough to hold the wires in place. Don’t tighten the 4 screws securely until after adjusting the thermocouple length for your kiln.

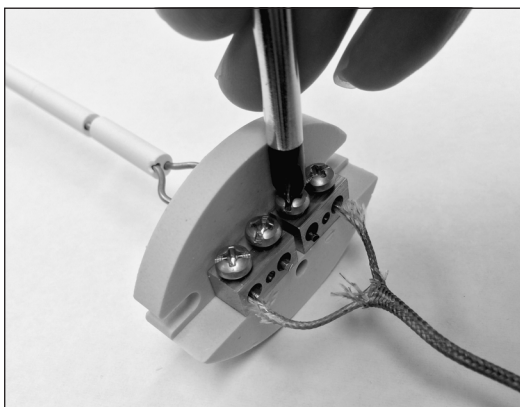
Install the Thermocouple

1 Slide the new thermocouple into the thermocouple hole. If the hole is 1/8” in diameter, enlarge the hole. Use an electric drill with ¼” bit.



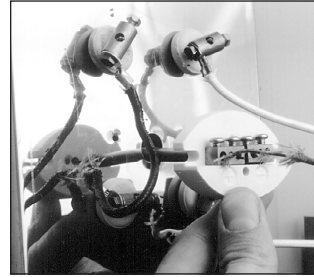
If the thermocouple hole is 1/8”, redrill the hole using a ¼” bit.

2 The ¼” thermocouple should protrude into the firing chamber 1” or more; the ½” thermocouple, 1 ½” - 2”. To adjust the thermocouple length, change the gap between the thermocouple and ceramic block. You may need to remove a ceramic insulator to shorten a thermocouple. Once you have adjusted the thermocouple for the correct length, securely tighten the four screws in the ceramic block.

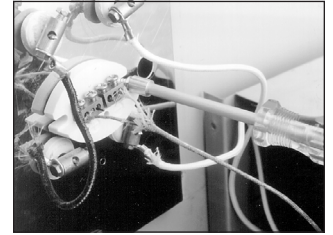


Before fastening the thermocouple connection block to the kiln, tighten all four screws.

3 Slide the thermocouple into its hole. Fasten the ceramic block in place with the two screws. If you are reusing the old thermocouple lead wires, skip to Step 6.



Slide the thermocouple into the hole in the kiln.

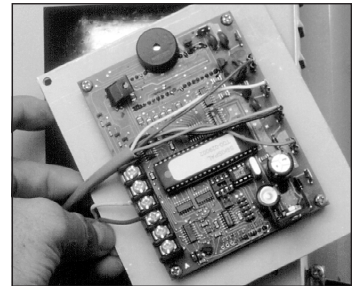


Fastening connector block to the heat shield.

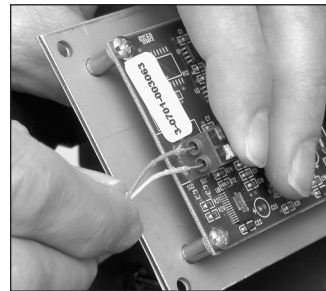
Old-style kilns: The oval ceramic block is held in place with two screws. If you are installing an oval block on a kiln that had an old-style block with hold down bracket, drill holes in the heat shield for the new oval connection block. Make a mark on the kiln’s heat shield where those screws will go. Drill 1/8” screw holes.

4 To install new thermocouple lead wires, remove the controller faceplate from the kiln. Remove the old thermocouple wires attached to the back of the controller.

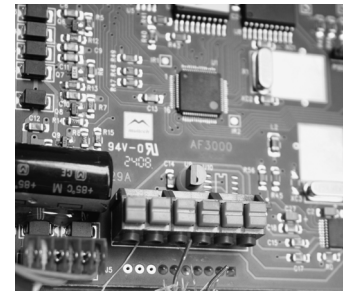
5 Attach the new thermocouple lead wires to the correct terminals on the back of the controller. If your controller has screw-on thermocouple terminals, hold the terminal block as you turn the screwdriver. This prevents the terminal block from twisting. Reinstall the controller faceplate to the kiln.



An old-style controller with screw-on thermocouple connections.



The thermocouple connections on a Sentry Xpress controller.



The thermocouple connections on the Sentry 2.0 controller.

6 Position the thermocouple lead wires so they are away from the hot sides of the kiln case and electrical wiring. (Placing thermocouple wires next to or looped around other wires could cause erratic controller readings.)

7 Check that no wires or wire nuts touch the kiln case or element connectors. Wires touching element connectors or kiln case will burn. Reinstall switch box.