
The Easy Paragon Kiln Electrical Test – Ohmmeter Readings

An easy way to check electrical connections of a kiln is to use an ohmmeter. The ohms of a heating element is a measurement of the resistance of the heating element. A heating element will have the same ohms in the kiln factory, your shop, your customer's home, or any other part of the world. There will be a very slight difference in the readings of different persons—some ohmmeters are more accurate than others and some people read more accurately than others. The heating element is the power load of the kiln, and by measuring the power load possible for each switch, you will be checking all electrical connections from the power supply cord set through the element.

We do not recommend the use of an ammeter for checking kilns. Amperes are determined from ohms and volts and should not be used to check the electrical system of a kiln since volts can vary greatly from one location to another—even in the same building. Use only an ohmmeter for checking Paragon electric kilns.

Ohmmeter readings for two kilns of the same model will vary slightly depending upon the use of the kiln. One brand of heating element wire will require slightly different resistance in the elements than another brand of wire to produce the same firing results. This difference will produce slightly different ohm readings for the elements. You should therefore be concerned with the pattern formed by your readings for each switch rather than whether you read $7\frac{1}{2}$ or exactly 8 ohms on your meter for a given reading. For instance, if your meter gives a reading of $7\frac{1}{2}$ ohms for a position showing 8 ohms in the chart and you also get a reading of 15 ohms for a position showing 16 ohms in the chart, you are getting the same pattern.

The Basic Patterns

There are six basic patterns of ohmmeter readings, which can be easily recognized from the following electrical wiring:

1. 120/240 volt 3-pole (2 hot lines + line neutral), 4-wire grounding plug. Wired in parallel from element to 4-position rotary switch.

A-28B, A-29B, A-99B, A-100B, AA-10B, A-24B, A-123B, A-81B, A-82B, A-88B, A-77B, A-66B, H-16A, H-16B, H-17A, H-17B

2. 120/240 volt 3-pole (2 hot lines + line neutral), 4-wire grounding plug. Wired in series from element to 3-position rotary switch.

AA-8B, AA-6B, K-6A, K-6B

3. 240 volt 2-pole (2 hot lines only), 3-wire grounding plug. Wired in series from elements to stepless control switch.

E-14A, E-14B, and A-series kilns ending in "E" for the European voltage of 240 volts

4. 120 volt 2-pole (1 hot line + line neutral), 3-wire grounding plug. Wired in parallel from elements to 4-position rotary switch.

A-55B, A-11-9B

5. 120 volt 2-pole (1 hot line + line neutral), 3-wire grounding plug. Wired in series from elements to stepless control.

A-11-6B, X-14J, XX-4, E-10, E-10B, E-13, E-13B, Q-11A

6. 120 volt 2-pole (1 hot line + line neutral), 3-wire grounding plug. Wired in series from elements to power supply cord.

E-9A, E-9B, Q-11P

The Ohmmeter Reading

1. Unplug the power supply cord set and place it in a position that allows the blades of the attachment cap to be easily reached by the leads of the ohmmeter.

2. If the kiln is equipped with a limit timer, set clock for one hour before operating the kiln sitter. If the kiln has a kiln sitter, raise the weight, press in the plunger, and then gently lower the weight so that the kiln sitter is on manual control.

3. Turn all kiln switches to OFF position. Only one (1) switch is to be checked during a reading. Be certain to leave each switch in the OFF position after reading has been made.

4. Check meter and the connections of meter leads by measuring the ohms of the 10 ohm resistor attached to one lead. This meter check is to be made only after the meter is in position to be read.

5. Touch one lead of the meter to the grounding blade (round shape) of the power supply cap and the other lead to the kiln jacket to give 0 ohms reading.

6. Touch one lead of meter to the grounding blade of the attachment cap and the other lead to the line neutral terminal of the attachment cap. This will result in NO MOVEMENT (N-M) of the ohmmeter needle.

Repeat steps 1 through 6 each time the meter is moved.

Ohmmeter Reading Chart

Model or Section of kiln *	Switch Position	Step 7 One Hot to Neutral	Step 8 Other Hot to Neutral	Step 9 Hot to Hot	Notes
A-99B Top or Center Switch	High	8	8	16	
	Med	8	N-M**	N-M	
	Low	16	N-M	N-M	
A-99B Bottom Switch	High	7	7	14	
	Med	7	N-M	N-M	
	Low	14	N-M	N-M	
A-82B Either Switch	High	8	8	16	
	Med	8	N-M	N-M	
	Low	16	N-M	N-M	
A-88B Either Switch	High	9 $\frac{1}{4}$	9 $\frac{1}{4}$	18 $\frac{1}{2}$	
	Med	9 $\frac{1}{4}$	N-M	N-M	
	Low	18 $\frac{1}{2}$	N-M	N-M	
A-77B Either Switch	High	13	13	26	
	Med	13	N-M	N-M	
	Low	26	N-M	N-M	
A-66B	High	7 $\frac{1}{2}$	7 $\frac{1}{2}$	15	
	Med	7 $\frac{1}{2}$	N-M	N-M	
	Low	15	N-M	N-M	
A-55B	High	6	(Steps 8 & 9 do not apply to a 120 volt kiln.)		
	Med	12			
	Low	24			

*Kilns with same Replacement Element Part Number have same readings.

**N-M indicates no movement of the ohmmeter needle.