

<b>The following is accomplished with the Transformer/Relay not being placed in any circuit.</b>		
<b>Item</b>	<b>Task</b>	<b>Results</b>
	<b>Do not apply power until instructed to do so.</b>	
1	Measure resistance using an ohm meter from Black to Brown on the relay.	0 Ohms
2	Measure resistance using an ohm meter from Black to Red on the relay.	Infinite ohms
3	Measure using an ohm meter resistance from Brown to Red on the relay.	Infinite Ohms
4.	Measure from White to Black pair of leads on the transformer.	Approximately 22 Ohms
5.	Measure from Blue to Black pair of leads on the relay.	Approximately 12 Ohms
6.	<b>. Be sure to place wire nuts on the junction to avoid getting an electrical shock.</b> On the bench apply 120 VAC to the Black and White leads. This will be putting power to the transforme. Place a jumper between termianls “G” and “R” on the terminal board that is mounted on the relay. This will cause the relay to activate	<b>Use caution as 120 Volts AC is being applied.</b>
6a.	<b>Use caution to avoid making contact with leads other than described as follows:</b> Measure the <b>resistance</b> using an ohm meter from Black to Brown PAIR of wires on the relay.	Infinite Ohms
6b.	Measure the <b>resistance</b> using an ohm meter from the Black to Red PAIR of leads on the relay.	0 ohms
7a..	Relay Defective	If any of the result readings are other that what is show in the chart above then the relay has been damaged and should be replaced.
7b.	Relay Accepted.	If all of the readings match those shown above then the relay is acceptable to be used.

**Theory of operation:**

The item ZE-16 is a 120 ac volts in and 24 ac volt out transformer connected to the primary of a 24 volt ac relay switch.

The relay switch is a single pole double throw relay switch.

24 ac volts is also used to power your electronics at your thermostat.

When power **is not** applied to the input of the transformer, the relay switch is not activated and the normally closed relay switch has continuity between leads Black and Brown.

When power **is** applied to the input of the transformer the relay switch is activated and there will be continuity between the Black and Red wires at the relay.

Since the normally closed portion of the switch is not use, the brown wire had been capped with a wire nut.

**The function of the relay is as follows:**

The thermostat will call for heat when the temperature of the room is below the thermostat setting. Activation of the secondary of the relay activates the 24 volt relay switch.

Activation of the relay turns the pump on.

When the pump turns on fluid flows through the SEISCO heater. When the difference of temperature of the fluid at two points within the heater is great enough, that will cause the elements of the heater to be activated. The amount of activation is dependent on the amount of temperature differential of the fluid. The greater the temperature difference the greater the amount of electrical power (current), that is applied to the elements of the heater.

Therefore at the start up of your system, the elements will receive the full amount of power and draw the maximum amount of current that can be delivered to the elements.

Once the system has stabilized, the SEISCO heater will modulate, operating just enough to keep the fluid temperature at what is needed to keep your room temperature at the setting of the thermostat. Your thermostat has the ability to sense and activate the heating system with as little variation as 1 degree.