Warning!

Line voltage exists on this unit, only qualified personnel should attempt to troubleshoot the controller.
Use extreme caution when taking measurements.

Additional ideas for troubleshooting.

1. Do you have a spare controller or firing circuit that you could swap? Or do you have multiple zones and could swap loads between controllers? If the problem stays with the load (i.e. does not follow the controller) then the problem is not the controller.

2. If your load can handle full line voltage, connect the two heavy wires from the USD block (the output terminal block) together. This removes the controller and puts full line voltage to the load.

3. When running multiple solid state relays from one card, the maximum current draw from the firing circuit is 20mA.

4. When running multiple firing circuits from one transformer, allow 2VA per firing circuit.

You are now ready to start the troubleshooting questions. Click on the correct answer for each question, you may use the BACK link to see the previous screen. Click HERE to start.

Turn the power on and run the system.
Looking at the firing circuit on the controller; is the LED on at least part of the time?
NO   YES BACK

Is there voltage to the load?
NO   YES   BACK

With an AC Voltmeter, measure across P2. Is the reading between 20Vac and 36Vac?
No   Yes   Back

With the command at 100%, the DC voltage across P1 (with the - terminal being common and the + terminal being positive), should be about 6Vdc (a positive reading).
As you vary the command from 0% to 100%, the LED intensity should vary.
Are both of the above OK?
NO   YES BACK

Does the LED intensity vary as you vary the command signal?
NO   YES BACK

With the command at 100%, the DC voltage across (with the - terminal being common and the
+ terminal being positive), should be about 6Vdc (a positive reading).
As you vary the command from 0% to 100%, the LED intensity should vary.
Are both of the above OK?
NO   YES BACK

Is there voltage to the load?
NO   YES BACK

Is there voltage across the USD block?
NO   YES BACK

Is there voltage across the USD block?
NO   YES BACK

Is the output what you expected?
[NO](#)   [YES](#) [BACK](#)

Are you running multiple firing circuits from one transformer?
[No](No)   [Yes](Yes)   Back

As you vary the command signal to one firing circuit, is the LED intensity on other firing circuits affected?
No   Yes   Back

Turn all power off.
With an Ohmmeter, measure from the positive input of P1 to the positive input of P1 on another card (measure between cards whose LEDs interacted).

Is the reading less than 50ohms?
No   Yes   Back

With the command at 100%, the DC voltage across P1 (with the - terminal being common and the + terminal being positive), should be about 6Vdc (a positive reading).
As you vary the command from 0% to 100%, the LED intensity should vary.
Are both of the above OK?
NO   YES

BACK to "Running mulitple cards?"

BACK to "Other LEDs vary?"

BACK to "Less than 50 ohms?"

With the command at 100%, is the DC voltage across the USD block less than 2 volts?
NO   YES BACK

With the command at 0% (off), is the AC voltage across the USD block equal to the line voltage?
NO   YES   BACK

With the command at 0% (off), the LED should be OFF and the load voltage should be 0Vac. With the command at 100%, the LED should be ON and the load voltage should be equal to the line voltage ($\pm$ 3Vac). Are both of the above statements true?

NO   YES   BACK

1. With the command at 0% (off), turn the ZERO pot. CW until the LED just turns on, then turn the ZERO pot. CCW until the load voltage reads 0Vac.
2. With the command at 100%, turn the SPAN pot. CCW until the LED starts to dim, then turn the SPAN pot. CW until the load voltage equals the line voltage ($\pm$ 3Vac).
3. There is some interaction between the ZERO and SPAN pots. so you must repeat the above steps until no further adjustment is needed.

It appears that the transformer is not wired correctly. Double-check the transformer wiring, fusing and how it is connected to the controller. If you need more help after you verify that your transformer wiring is correct, please call Control Concepts, Inc. at 1-800-765-2799 for further troubleshooting help.

It appears that the solid state relay has failed. Please call 1-800-765-2799 for spare parts, warranty service or further troubleshooting help.

It appears that either the line or load is not wired correctly. Because of the many different loads that are possible, this troubleshooter can not help you any further. If you need more help after you verify that your load is correct, please call Control Concepts, Inc. at 1-800-765-2799 for further troubleshooting help.

It appears that the command is not wired correctly. Double-check the command source, command polarity and how it is connected to the controller. If you need more help after you verify that your command is correct, please call Control Concepts, Inc. at 1-800-765-2799 for further troubleshooting help.

It appears that the firing circuit has failed. Please call 1-800-765-2799 for spare parts, warranty service or further troubleshooting help.

It appears that power is not getting to the controller or not getting from the controller to the load. Check for open fuses or circuit breakers. Verify that the wiring is correct. If you need more help after you verify that your wiring, fusing and circuit breakers are correct, please call Control Concepts, Inc. at 1-800-765-2799 for further troubleshooting help.

The source of your command signal is an "open collector" type.
Please call Control Concepts, Inc. at 1-800-765-2799 and tell them that you have an "open collector" source for your command and need the command to be isolated.
Control Concepts, Inc. model number 5500 will isolate your command signal.

We have not found the answer to your problem with this troubleshooter.
Please call 1-800-765-2799 and we will help you with further troubleshooting.

It appears that the 24Vac transformer is wired across the wrong phase or is across the load instead of the line. For proper operation, the transformer must be across the same line as the load you are attempting to control.
Verify that the wiring and phasing are correct. If you need more help after you verify that your wiring and phasing are correct, please call 1-800-765-2799 for further troubleshooting help.

As you vary the command signal from 0% to 100%, the LED (and therefore the load voltage) should linearly ramp from off to fully on. Does the LED and load voltage make sudden, unexpected jumps (either on or off)?
NO   YES BACK