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

Are you using a current command into P1? (Like 4/20mA or 12/20mA).

No Yes Back

With the command at 100%, the DC voltage across P1 (with CCW being common and 5 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

With the command at 100%, measure the DC voltage across P1 as follows:
Use CCW as common for all readings in this step.

Follow directions for command that you are using.
0/10V command - W being positive, should be about 10Vdc (a positive reading).
0/5V command - 5 being positive, should be about 5Vdc (a positive reading).
Potentiometer command - W being positive, should be about 10Vdc (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

Are you using a current command into P1? (Like 4/20mA or 12/20mA).

No Yes Back

With the command at 100%, the DC voltage across P1 (with CCW being common and 5 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

With the command at 100%, measure the DC voltage across P1 as follows:
Use CCW as common for all readings in this step.

(Follow directions for the command that you are using).
0/10V command - W being positive, should be about 10Vdc (a positive reading).
0/5V command - 5 being positive, should be about 5Vdc (a positive reading).
Potentiometer command - W being positive, should be about 10Vdc (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 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 between the positive inputs as follows:

If using a 0/5Vdc command or a milliamp command, measure from 5 on one firing circuit to 5 on another circuit (measure between cards whose LEDs interacted).
If using a 0/10Vdc command, measure from W on one firing circuit to W on another circuit (measure between cards whose LEDs interacted).

Is the reading less than 50ohms?

No Yes Back

Are you using a current command into P1? (Like 4/20mA or 12/20mA).

NO YES

BACK to "Running mulitple cards?"

BACK to "Other LEDs vary?"

BACK to "Less than 50 ohms?"

With the command at 100%, the DC voltage across P1 (with CCW being common and 5 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

With the command at 100%, measure the DC voltage across P1 as follows:
Use CCW as common for all readings in this step.

(Follow directions for the command that you are using).
0/10V command - W being positive, should be about 10Vdc (a positive reading).
0/5V command - 5 being positive, should be about 5Vdc (a positive reading).
Potentiometer command - W being positive, should be about 10Vdc (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

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 (± 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 (± 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.

BACK

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 (± 3Vac).
Are both of the above statements true?

NO YES BACK

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.

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.

BACK

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

With an AC Voltmeter, measure across the Load or place a clamp-on Ammeter around the wire that goes to the Load. Set the command to 100%.
Turn the LIMIT potentiometer one turn clockwise as you watch the meter.
Did the reading increase?
NO YES BACK
(Turn the LIMIT potentiometer back to it's original location).

It appears that the current Limit is not set correctly for your load or that your load is not drawing the current that you expected. Verify that the load is wired properly and is the correct wattage. Once you are positive that the load is correct, you may wish to adjust the Limit potentiometer to a new value. The Limit potentiometer allows adjustment from 20% to 105% of the frame rated current. For example, if you are using a 70 Amp controller, the Limit potentiometer will allow adjustment from approximately 14 Amps to 74 Amps. Place a clamp-on Ammeter around the wire that goes to the Load. While watching the Ammeter, adjust the load current to your required limit.

If you need more help after you verify that your wiring and load are correct, please call Control Concepts, Inc. at 1-800-765-2799 for further troubleshooting help.