

THE 10 COSTLIEST MISTAKES OPERATING & DESIGNING WITH SCR CONTROLLERS

10. OVER-SIZING THE SCR CONTROLLER

Control Concepts flat rates controllers for the full frame current at 50°C and 6000 Ft altitude. Over-sizing the controller results in additional cost for the controller and the enclosure.



9. DUST IN THE ENCLOSURE

We strongly recommend using and regularly maintaining cabinet filters to reduce the potential for dust contamination of the electronics. Conductive dust inside the cabinet and on the controller will significantly shorten the life of the SCR and electronics.

8. OPERATING ABOVE/BELOW RATED ENVIRONMENTAL CONDITIONS

Many people believe running electronics in a colder environment is advantageous to the device. For SCRs, however, the required SCR drive current increases as the temperature decreases and can over tax the system leading to misfires and potential saturation of downstream transformers. A small box heater is recommended for designs operating less than 32°F / 0°C.

Operating the SCR controller above 50C shortens the life of the SCR and the associated electronic components.

7. FAILURE TO MAINTAIN A MINIMUM LOAD

An open load condition or a failure to meet a minimum current on the primary can cause the SCR to not commute properly which could eventually lead to saturation of the transformer and blown fuses.

6. NOT FUSING ALL LEGS FEEDING THE SCR AND LOAD

A short to ground can lead to a runaway load in single phase or three phase applications possibly damaging expensive loads.

5. NEGLECTING TO TEST POSSIBLE FAULT / ALARM RECOVERY SCENARIOS

There is an increase in the number of possible fault conditions for modern SCR controllers using digital processors or digital communications. We recommend methodical and systematic testing to test all possible alarms and fault conditions before a system is placed in production to reduce startup costs and scrapped product.

4. A MECHANICAL CONTACTOR ON THE LOAD SIDE OF THE SCR

Customers often desire to switch loads using a mechanical contactor for safety or load trimming. When a mechanical contactor opens and closes, the contacts do not make simultaneously. If the contactor is opened under power, kickback voltages may be sent to the SCR which can cause premature failure.

Furthermore, when an SCR controller uses power or current feedback, the controller may momentarily apply full power to your load when the contactor is switched on causing damage to the load, saturation of a downstream transformer, or blown fuses.

3. NO SPARE ON HAND

While SCR controllers will give years of service if properly cooled and kept clean, inevitably they will fail. When this failure happens, losses from production, downtime, or scrapped product are often tenfold the cost of having a spare controller readily at hand.



2. NO ELECTROSTATIC SHIELD IN AN ISOLATION TRANSFORMER WITH AN UNGROUNDED LOAD

Without the electrostatic shield, AC can couple across the transformer due to inter-winding capacitance. This results in measuring a potentially lethal secondary high voltage to earth ground.

1. NO MECHANICAL DISCONNECT

SCRs are not mechanical disconnects and do not provide electrical isolation from the line even when off. This can cost you the ultimate price; your life.

Talk with the experts and avoid all the mistakes! Our application engineers are available to answer questions and solve problems.

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