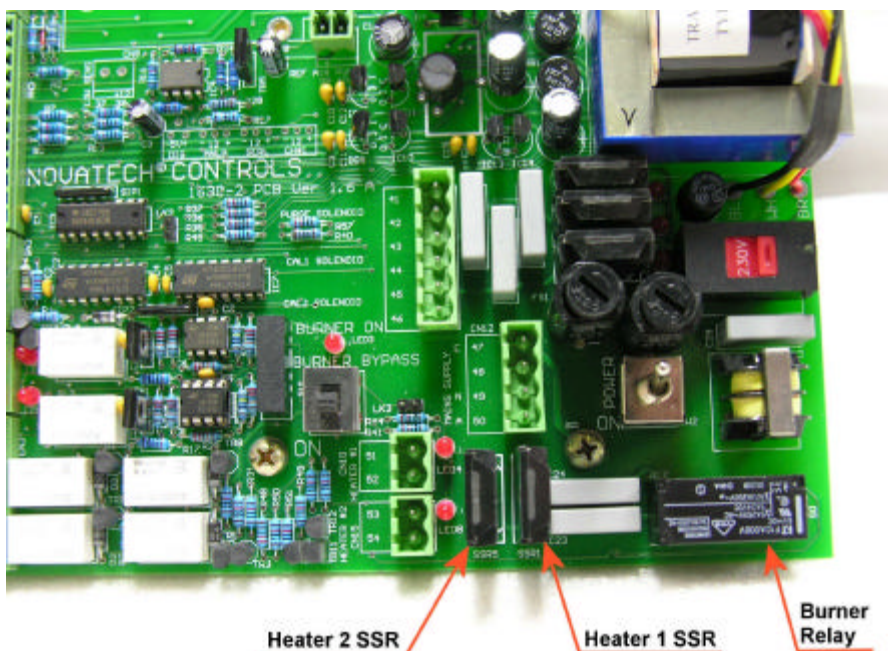


## 163x SSR Fail Alarm

Question: "What does the "Htr SSR Fail" alarm mean?"

The power to the heater in a 1231 probe or 1234 sensor is powered through a solid state relay (SSR). SSR1 controls heater 1 and SSR5 controls heater 2. The electromechanical relay RL7 (Burner on Relay) switches the active and neutral lines to both SSRs and is used to disable power to the sensors' heaters if: -

- 1) The terminals 18 and 19 (Burner On Switch) are open circuit
- 2) The probe or sensor temperature is greater than 735°C



The most common mode of failure for a solid state relay is a short circuit. This will result in 100% power applied to the probe or sensor's heater that will destroy the heater due to excessive temperature.

The 163x instrument turns off the electromechanical burner relay when the sensor temperature reaches 735°C. If the temperature is caused by the process then heater power is not required; if the temperature is caused by a "shorted" SSR then heater power is not desired. The electromechanical burner relay is turned off.

When the probe or sensor temperature drops below 735°C the electromechanical burner relay is re-energised. If the SSR is shorted and the process temperature is above 715°C then the shorted SSR is not a threat to the heater because the heater will be powered for a relatively short time before it reaches 735°C again. If the process is considerably lower than 715°C then the 100% power applied to the heater will be significantly longer and detrimental to the heater before the temperature reaches 735°C again. If the temperature cycles between 735°C and 715°C three times then the instrument raises the "Htr SSR Fail" alarm and shuts power off to the heaters until a "warm start" is initiated (power off then back on).

The number of cycles that will cause the alarm is selectable in the Extended Menu set-up under "SSR fail Alarm". The alarm can be disabled if "Disabled" is selected for this menu item.