CARLO GAVAZZI
Automation Components

Application notes

Application Note : August 2015

Market involved : Materials Handling

Product : RGC1P..K..ED

Customer : OEM

Subject : Switching of short wave infrared heaters

CUSTOMER ISSUE :

Short wave infrared (SWIR) heaters are becoming more common in applications that need a heating process (such as pre-heating of material, drying, curing, sterilization, etc…) since they can reach high temperatures in a short period of time. This means a reduction in production cycle time.

One of the issues with such heaters is related to their change in resistance from cold to hot, which results in a very high inrush (15x In) when such heaters are switched ON from a cold state. This causes the upstream circuit breakers to trip.

OUR SOLUTION :

The RGC1P..K series provides a solution to this problem.

As soon as the SSR is powered up for the first time (which means that the SWIR is cold), a soft start is performed. This soft start function limits the inrush current.

After this start, the RGC1P..K behaves as a standard SSR, i.e., switches ON when the control is ON and switches OFF when the control is OFF.

In the case of the control OFF period >5s, which means that the SWIR has returned to a cold state, on the next control ON a soft start is performed to prevent a high inrush current.

BENEFITS :

- **Energy savings;** reduction of peak inrush current
- **Cost savings;** no need to over-engineer the solid state switch to handle the max. inrush that a SSR without soft start would need to withstand
- **Extended heater lifetime;** the lower inrush current also results in an extended heater lifetime
- **Less downtime;** no needless tripping of upstream protection
- **Space-saving;** the RGC1P..K is a minimum 35mm product that fits into the same space occupied by a standard SSR