Sensors	Switches	Controls

Application notes

Application Note : March 2022

Market involved : Semiconductor industry

Product : NRGC-ECAT, RGC1A60CM32GEN, RGC1P60CM32GEN

Customer : OEMs

Subject : Control of heaters in wafer bonding machines

CUSTOMER ISSUE :

Wafer bonding is a highly specialised process whereby monitoring of system parameters is important to ensure a good quality end-product.

The OEM would like to offer monitoring and diagnostic capabilities in their machines without the need of digital output cards, current transformers and energy meters, which take up valuable panel space.

The OEM would also like to incorporate an IIoT system into their machines whereby data is analysed in the cloud to develop predictive maintenance plans and optimise machine availability.

The customer utilises Beckhoff PLCs in their machines which utilise EtherCAT communication.

OUR SOLUTION :

The NRG system of solid state relays incorporates switching, monitoring and diagnostics via a communication interface.

The advanced diagnostics of the NRG can be used to immediately detect system, SSR and load failures. Specific diagnostics such as load deviation alarms can be incorporated in predictive maintenance plans.

Monitoring of system parameters can be used for data modelling and analysis to optimise the heating process and improve productivity.

To control the heating process, the OEM can utilise Phase angle or Full Cycle switching within the same bus chain.

Utilising the ESI configuration file, the functionality of the NRG can be incorporated in the PLC in a matter of minutes.

BENEFITS :

- **Low machine downtime**: with fast diagnostics and real-time monitoring of parameters via EtherCAT

- **Precise temperature control** with the availability of various switching modes for all application needs

- **Labour-time saving** during installation with switching, monitoring and diagnostics available via the communication network

- **Panel space savings** with an all-in-one solution

- **Easy to integrate and configure** via the PLC engineering tool