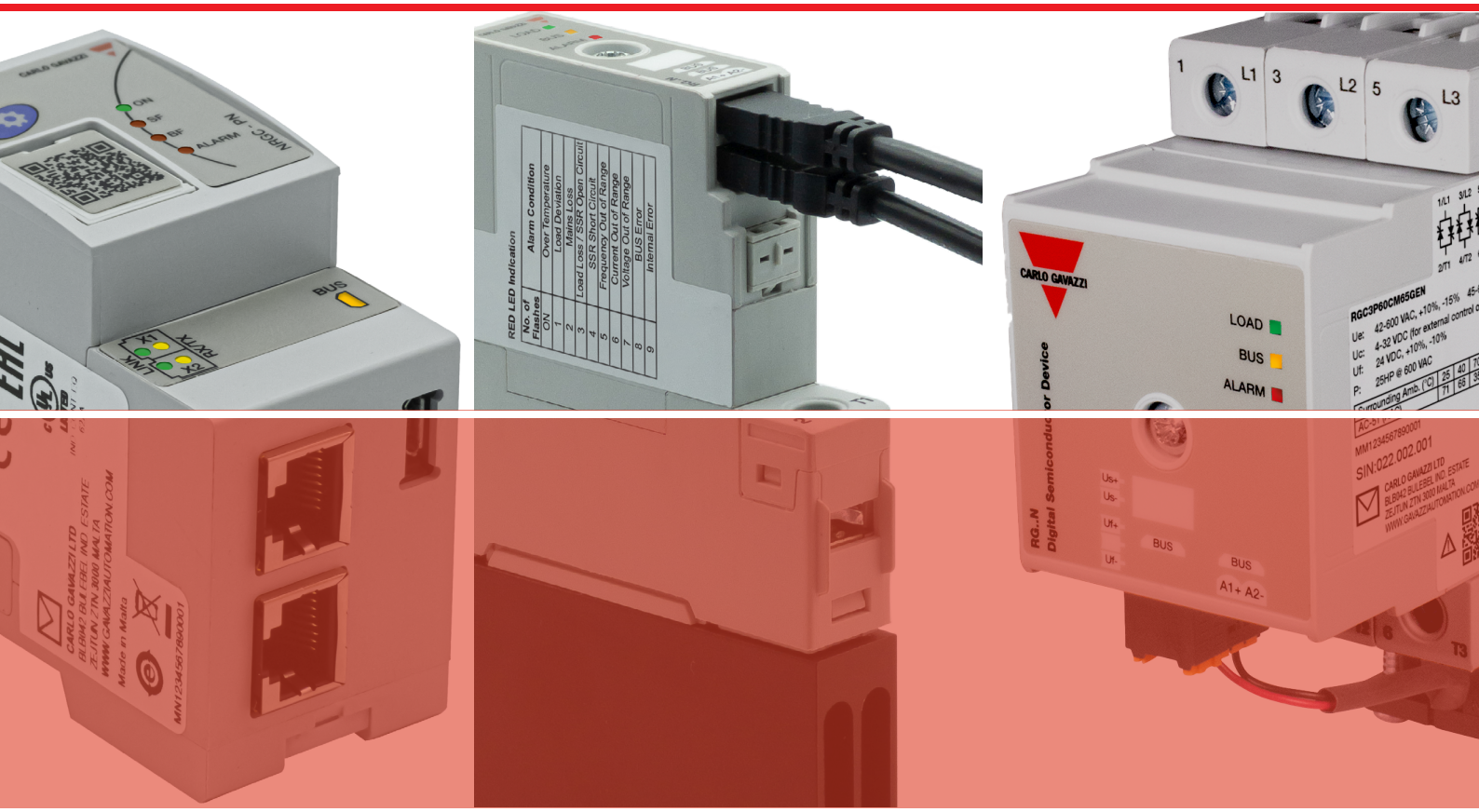
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NRG: Solid state relays with real-time monitoring

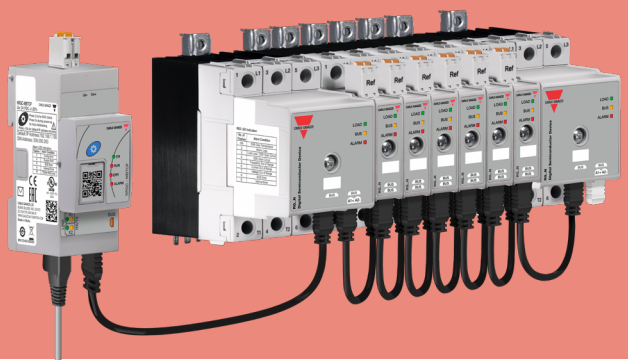
Switches

NRG series
Digital solid state relays

In order for machine builders to make informed decisions, solve urgent problems on short notice and develop machines that are more autonomous, data from the various components within the machine needs to be collected and analysed. The **NRG** has been developed to fit this purpose. Through the added communication interface, the solid state relays (SSRs) can exchange data with the machine controller in real-time. The switching of the SSRs is also controlled through this communication interface.

The NRG is a system that may consist of multiple bus chains. Each bus chain is made up of an NRG controller daisy chained to a number of SSRs. The NRG controller interfaces with the machine controller (or PLC) and is available in Modbus RTU, PROFINET, EtherNet/IP™ and EtherCAT and Modbus TCP.

Applications
Any heating application where precise temperature control is crucial to guarantee the quality of the end product and where machine stoppages are predicted to avoid unnecessary downtimes:
- Plastic machinery
- Semiconductor manufacturing equipment
- Glass tempering



Modbus EtherNet/IP PROFINET EtherCAT

Reduced unplanned downtime with real-time monitoring

Features:

Switching
ON/OFF switching or % power control for the RG..Ns. Burst, Distributed or Advanced Full Cycle firing mode are possible with % power control. Phase Angle switching and Soft Starting are additionally available on the RGx1P..N and RGC3P..N variants.

Measurements
Read out of parameters such as voltage, current, frequency, power, energy consumption, SSR and Load running hours is available in real-time.

Diagnostics
Each RG..N on the bus is equipped with on-board diagnostics for systems, load or communication malfunction.

NB: CCC certification applicable only to RGx1..N

Benefits:

Time and space savings
Less wiring and I/O modules are required with switching, monitoring and diagnostic capabilities via the communication.

Flexibility
Various firing modes are available to configure the most appropriate SSR switching mode. The % power control function saves computational power from the PLC.

Versatility
Possibility to control 1-phase and 3-phase loads with a combination of 1-pole, 2-pole, and 3-pole SSRs

Easy configuration
The NRG offers an auto-addressing function via the NRG Controller for a quick system setup.

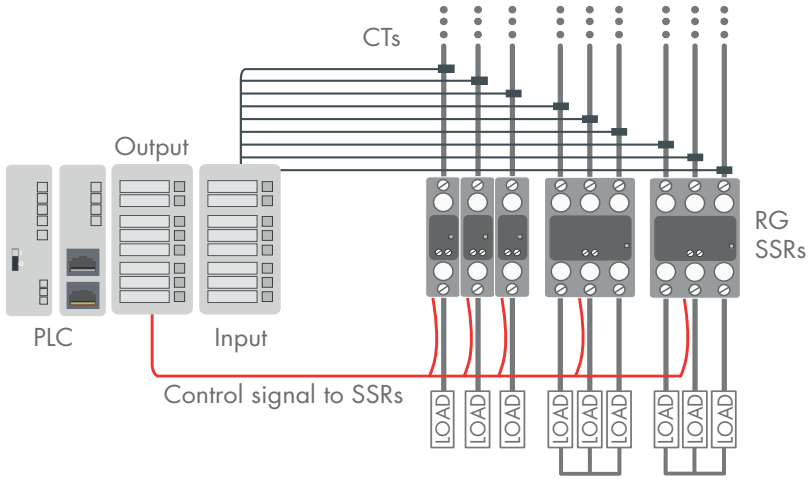
Maximised throughput
Possibility for predictive maintenance by analysing system parameters.

Higher quality end products
PLC can perform timely decisions for optimal process control through real time monitoring.

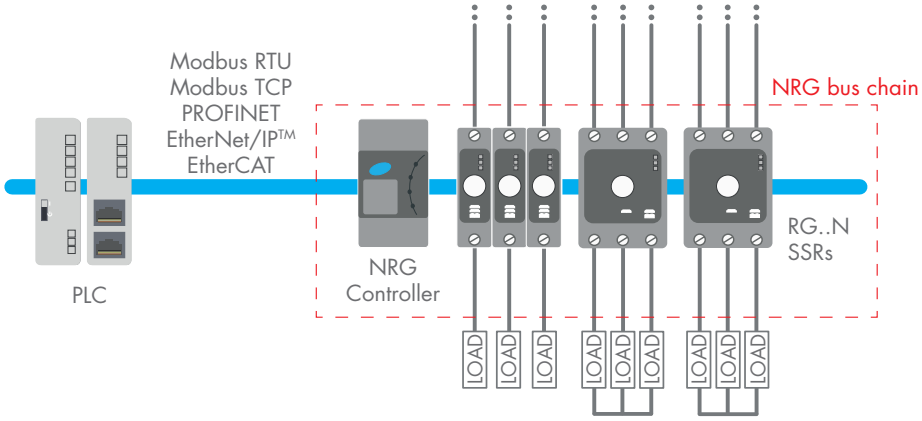
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Cost and space savings with the NRG series of solid state relays

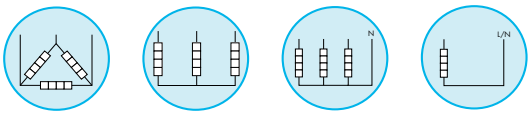
Monitoring and load switching with a traditional system setup



Real-time monitoring and load switching with the NRG system setup



RGC2/3P..N load configurations:



- Less wiring
- Current Transformers redundant
- Reduced Input modules
- Reduced Output modules

Selection guide

NRG Controller	Interface	Modbus RTU	PROFINET	EtherNet/IP™	EtherCAT	Modbus TCP		
	Reference	**NRGC**	**NRGC-PN**	**NRGC-EIP**	**NRGC-ECAT**	**NRGC-MBTCP**		
NRG Solid state relays	Rating	25 AAC	30 AAC	37 AAC	43 AAC	65 AAC	50 AAC**	90 AAC**
	1-pole switching	**RGC1X60CM25KEN**	**RGC1X60CM32KEN**	**RGC1X60CM32GEN**	**RGC1X60CM42GEN**	**RGC1X60CM62GEN**		
	1-pole switching						**RGS1X60CM50KEN**	**RGS1X60CM92YEN**
	Rating	20 AAC	25 AAC	30 AAC	40 AAC	65 AAC	75 AAC	
	2-pole switching		**RGC2P60CM25KEN**		**RGC2P60CM40GEN**		**RGC2P60CM75GEN**	
	3-pole switching	**RGC3P60CM20KEN**		**RGC3P60CM30GEN**		**RGC3P60CM65GEN**		
NRG bus cables	Length	10 cm	25 cm	75 cm	150 cm	350 cm	500 cm	
	Reference	**RCRGN-010-2***	**RCRGN-025-2**	**RCRGN-075-2**	**RCRGN-150-2**	**RCRGN-350-2**	**RCRGN-500-2**	*Packed by 4 pcs.

X = 'A' for zero cross switching, 'P' for phase angle switching
Y = 'K' for output screw terminals, 'G' for output box clamp terminals
** RGS is the version without integrated heatsink

Further details are available on online data sheets at www.gavazziautomation.com

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