NRG: Solid state relays with real-time monitoring
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 and EtherNet/IP™.

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

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 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.

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.
- 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.
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

Selection guide

<table>
<thead>
<tr>
<th>Interface</th>
<th>Modbus RTU</th>
<th>PROFINET</th>
<th>EtherNet/IP™</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference</td>
<td>NRG</td>
<td>NRG-PN</td>
<td>NRG-EIP</td>
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</tbody>
</table>

NRG Solid state relays

<table>
<thead>
<tr>
<th>Rating @ T,40°C</th>
<th>25 AAC</th>
<th>30 AAC</th>
<th>37 AAC</th>
<th>43 AAC</th>
<th>65 AAC</th>
<th>50 AAC</th>
<th>90 AAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>w. heatsink</td>
<td>RGC160CM20KNE</td>
<td>RGC160CM32KNE</td>
<td>RGC160CM32GEN</td>
<td>RGC160CM42GEN</td>
<td>RGC160CM42GEN</td>
<td>RGC160CM62GEN</td>
<td></td>
</tr>
<tr>
<td>w./out heatsink</td>
<td>RGS160CM50KNE</td>
<td>RGS160CM92YEN</td>
<td>RGS160CM92YEN</td>
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<td></td>
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</table>

NRG Internal BUS cables

<table>
<thead>
<tr>
<th>Length</th>
<th>10 cm</th>
<th>75 cm</th>
<th>150 cm</th>
<th>350 cm</th>
<th>500 cm</th>
</tr>
</thead>
</table>

X = 'A' for zero cross switching, 'P' for phase angle switching
Y = 'K' for output screw terminals, 'G' for output box clamp terminals

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

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382069100 - BRO NFG SERIES SHORT ENG 04/21
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