RG
Технические характеристики

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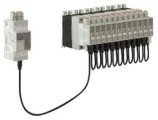
RG..CM..N



RG 1-phase solid state relays with a communications interface

Communication interface for control of solid state relay and real time monitoring

RGC..CM..N

RGS..CM..N

Benefits

- **Communications interface.** Reduced wiring and I/O modules. Solid state relay can exchange data with the system controller via this interface.
- **Reduced maintenance costs and downtime.** Use of real-time data for prevention of machine stoppages during operation.
- **Good quality products and low scrap rates.** Real-time monitoring allows timely decisions for better machine and process management.
- **Reduced efforts in troubleshooting.** Distinguished faults to facilitate and reduce troubleshooting time.
- **Configurable.** The switching mode of the RG..CM..N can be selected to either ON/OFF switching or power control.
- **Fast installation and set-up.** The solid state relays on the BUS are automatically configured for fast set-up and prevention of incorrect settings.
- **Compact dimensions.** Slimline RG series for a minimum product width of 17.8 mm, 1x DIN, up to 37 AAC at 40°C.

Description

The **RG..N** solid state relays are the switching components in the NRG BUS chain.

Similar to the RG..D..N, the **RG..CM..N** has integrated monitoring and a communication interface to provide variables and diagnostic information in real-time. The variables that can be read out are current, voltage, frequency, power, energy consumption, load and SSR running hours. The status of each **RG..CM..N** is accessible. Faults are specifically indicated to facilitate troubleshooting.

With the **RG..CM..N** solid state relays it is additionally possible to control the outputs of the solid state relays via the communication interface. There are two variants, the RGx1A..CM..N is the zero cross relay including various switching modes such as ON/OFF switching, Burst, Distributed full cycle and Advanced Full cycle modes. The RGx1P..CM..N is the proportional control variant which on top of the aforementioned switching modes includes also phase angle switching and soft starting features.

The **RG..N** cannot interface directly with the system controller (PLC) but needs to be configured in an **NRG BUS chain** (as explained further on). 1 **NRG BUS chain** can handle up to 32 **RG..CM..Ns**. The first **RG..N** in the BUS chain is connected to the NRG controller, whilst the last **RG..N** in the BUS chain has to be terminated with a BUS terminator provided with the NRG controller.

The **RGC..N** (with integrated heatsink) output ratings go up to 660 VAC, 65 A whilst the **RGS..N** (without heatsink) output ratings go up to 660 VAC, 90 A. Specifications are noted at 25°C unless otherwise specified.

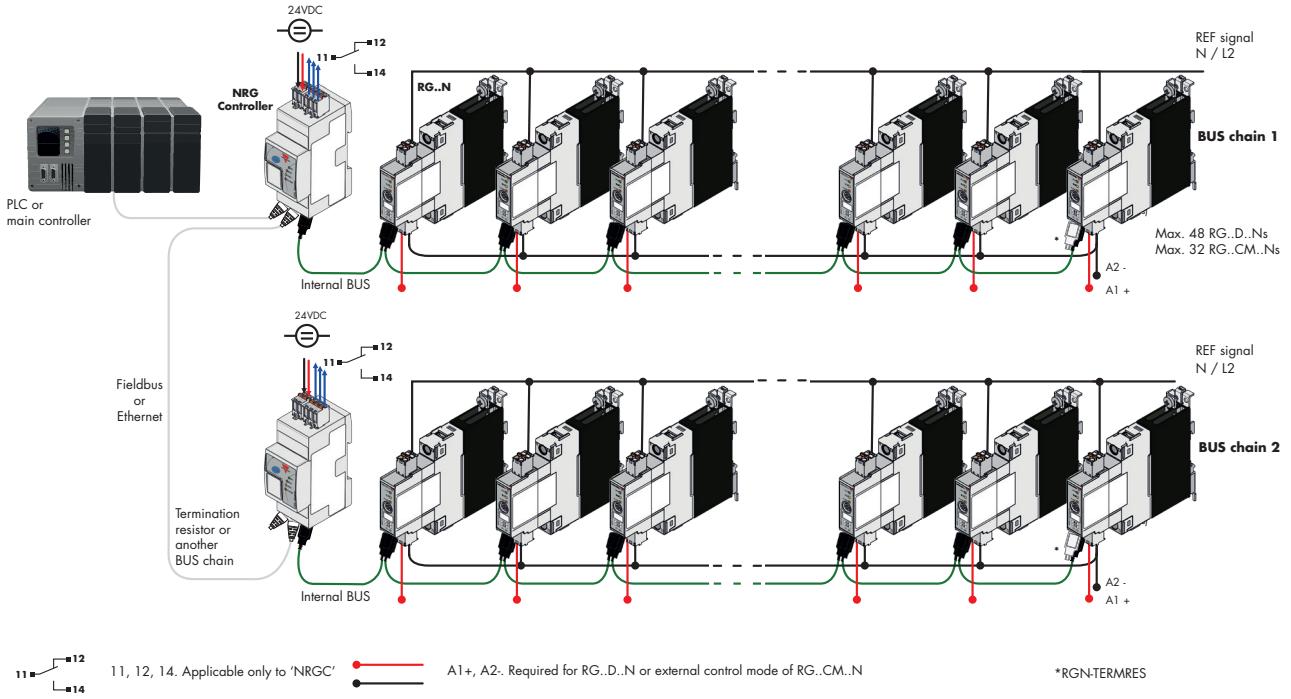
Applications

Any heating application where reliable and precise maintenance of temperatures is crucial to the quality of the end product. Typical applications include plastic machinery such as injection machines, extrusion machines and PET blow moulding machines, packaging machinery, sterilisation machinery, drying tunnels and semiconductor manufacturing equipment.

Main function

- RGx1A..CM..N: 1 phase, AC zero cross solid state relays up to 660VAC, 90AAC
  RGx1P..CM..N: 1 phase, AC proportional control solid state relays up to 660VAC, 90AAC
- RGx1A..CM..N switching modes: ON/OFF, Burst, Distributed full cycle, Advanced full cycle, External control (via a DC control voltage)
  RGx1P..CM..N switching modes: Phase angle, ON/OFF, Burst, Distributed full cycle and Advanced full cycle. Soft starting and Voltage compensation available with all switching modes
- Measurements and diagnostics accessible through the communication interface

The NRG system



System Overview

The NRG is a system consisting of one or more BUS chains that enable communication between the field devices (such as the solid state relays) and the control devices (such as the machine controller or PLC).

Each **NRG BUS** chain consists of the following 3 components:
- the NRG controller
- the NRG solid state relay(s)
- the NRG internal BUS cables

The **NRG controller** is the interface to the machine controller. It acts as the master of the BUS chain when performing specific actions on the respective BUS chain, and acts as a gateway for the communication between the PLC and the RG..N solid state relays. It is not possible to operate the NRG system without the NRG controller.

The NRG controllers available are:

- **NRGC**
  The NRGC is an NRG controller with a Modbus RTU interface over RS485. The NRGC is addressed via the assigned Modbus ID (from 1-247). In an NRG system operating on Modbus it is possible to have 247 NRG BUS chains.

- **NRGC-PN**
  NRGC-PN is an NRG controller with a PROFINET communication interface. The NRGC-PN is identified by a unique MAC address which is printed on the facade of the product

- **NRGC-EIP**
  NRGC-EIP is an NRG controller with an EtherNet/IP communication interface. The IP address is provided automatically via a DHCP server.

System Overview - Cont.

The **NRG solid state relay** is the switching component in the NRG system. Each **RG..N** integrates a communication interface to exchange data with the machine controller (or PLC). The available RG..Ns that can be used in an NRG system are:

- **RG..D..N**
  The RG..D..N are solid state relays for use in an NRG system having the communication interface only for real time monitoring. Control of the RG..N is done via a DC control voltage. It is possible to have maximum 48 **RG..D..Ns** in one NRG BUS chain.

- **RG..CM..N**
  The RG..CM..N are solid state relays for use in an NRG system having a communication interface for control of the RG..N through the BUS and for real time monitoring. It is possible to have a maximum of 32 RG..CM..N in one NRG bus chain. There are two variants of the RG..CM..N:
  RGx1A..CM..N - the solid state relay with zero cross switching
  RGx1P..CM..N - the solid state relay with proportional switching.

  For a review of the features available in both variants refer to the table below:

Feature	RGx1A..CM..N	RGx1P..CM..N
External control	●	-
ON / OFF switching	●	●
Burst switching	●	●
Distributed full cycle switching	●	●
Advanced full cycle switching	●	●
Phase angle	-	●
Soft start with time mode	-	●
Soft start with current limit mode	-	●
Voltage compensation	-	●
Monitoring of system parameters	●	●
SSR diagnostics	●	●
Load diagnostics	●	●
Overtemperature protection	●	●

It is not possible to mix RG..D..N and RG..CM..N in the same BUS chain.

The **NRG internal BUS cables** are proprietary cables that connect the NRG controller to the first RG..N in the NRG BUS chain and respective RG..Ns on the BUS. The internal BUS terminator, provided in the same package with the NRG controller, shall be plugged to the last RG..N in the NRG BUS chain.

NRG system required components

Description	Component code	Notes
Solid state relays	RG..N	NRG solid state relays
NRG controller	NRGC..	• **NRGC:** NRG controller with Modbus communication. • **NRGC-PN:** NRG controller with PROFINET communication. • **NRGC-EIP:** NRG controller with EtherNet/IP communication. 1x RGN-TERMRES is included in the NRGC.. packaging. The RGN-TERMRES is to be mounted on the last RG..N on the bus chain.
NRG internal BUS cables	RCRGN-xxx	Proprietary cables terminated at both ends with a micro USB connector

References

Order code

RG ☐ 1A60CM ☐ ☐ EN

Enter the code entering the corresponding option instead of ☐

Code	Option	Description	Notes
R	-	Solid State Relay (RG)	
G	-		
☐	C	Version with integrated heatsink	
	S	Version without heatsink	
1	-	Number of poles	
☐	A	Switching mode: zero cross	
	P	Switching mode: proportional	
60	-	Rated voltage: 600 VAC (42-660 VAC) 50/60 Hz	
CM	-	Control through the communication interface (ON/OFF or power control)	External control only applicable for RGx1A..CM..N
☐	25	Rated current - 25 AAC	For RGC..only
	32	Rated current - 30 AAC, 37 AAC	For RGC..only
	42	Rated current - 43 AAC	For RGC..only
	62	Rated current - 65 AAC	For RGC..only
	50	Rated current - 50 AAC	For RGS..only
	92	Rated current - 90 AAC	For RGS..only
☐	K	Screw connection for power terminals	
	G	Box clamp connection for power terminals	
E	-	Connection configuration	
N	-	For integration in an NRG system	
☐	HT	Pre- attached thermal pad for RGS	Option

Selection guide - versions with integrated heatsink (RGC)

Rated voltage	Switching	Connection power	Rated operational current @ 40°C				
			25 AAC	30 AAC	37 AAC	43 AAC	65 AAC
			Product width				
			17.8 mm	17.8 mm	17.8 mm	35 mm	70 mm
600 VACrms	zero cross	Screw	RGC1A60CM25KEN	RGC1A60CM32KEN	-	-	-
		Box clamp	-	-	RGC1A60CM32GEN	RGC1A60CM42GEN	RGC1A60CM62GEN
	proportional	Screw	RGC1P60CM25KEN	RGC1P60CM32KEN	-	-	-
		Box clamp	-	-	RGC1P60CM32GEN	RGC1P60CM42GEN	RGC1P60CM62GEN

Selection guide - versions without heatsink (RGS)

Rated voltage	Switching	Connection power	Maximum rated operational current				
			50 AAC	90 AAC	-	-	-
			Product width				
			17.8 mm	17.8 mm		-	-
600 VACrms	zero cross	Screw	RGS1A60CM50KEN	RGS1A60CM92KEN	-	-	-
		Box clamp	-	RGS1A60CM92GEN	-	-	-
	proportional	Screw	RGS1P60CM50KEN	RGS1P60CM92KEN	-	-	-
		Box clamp	-	RGS1P60CM92GEN	-	-	-

Selection guide - versions with attached thermal pad (RGS..HT)

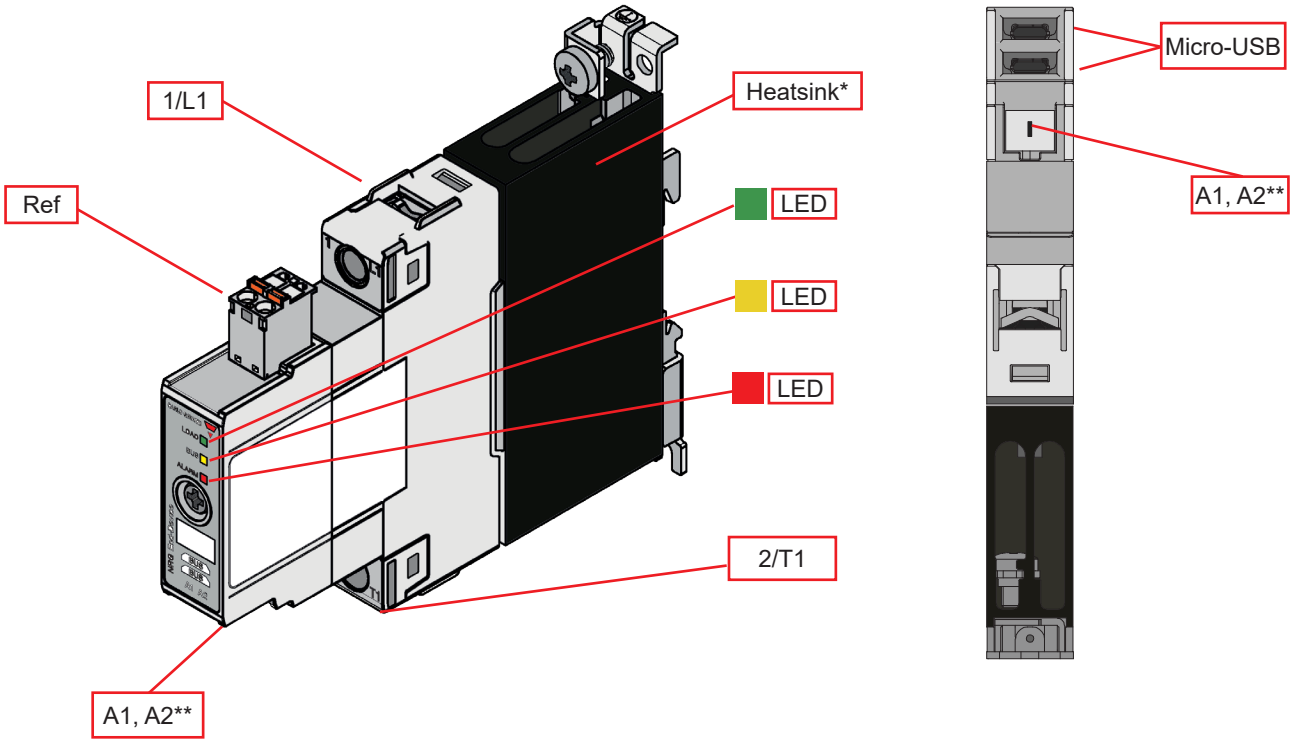
Rated voltage	Switching	Connection power	Maximum rated operational current				
			90 AAC	-	-	-	-
			Product width				
			17.8 mm	-	-	-	-
600 VACrms	zero cross	Box clamp	RGS1A60CM92GENHT	-	-	-	-
600 VACrms	proportional	Box clamp	RGS1P60CM92GENHT	-	-	-	-

Carlo Gavazzi compatible components

Description	Component code	Notes
NRG controller	NRGC..	• **NRGC:** NRG controller with Modbus communication. • **NRGC-PN:** NRG controller with PROFINET communication. • **NRGC-EIP:** NRG controller with EtherNet/IP communication. 1x RGN-TERMRES is included in the NRGC.. packaging. The RGN-TERMRES is to be mounted on the last RG..N on the bus chain.
NRG Internal BUS cables	RCRGN-010-2	10cm cable terminated at both ends with a microUSB connector. Packed x4 pcs.
	RCRGN-075-2	75cm cable terminated at both ends with a microUSB connector. Packed x1 pc.
	RCRGN-150-2	150cm cable terminated at both ends with a microUSB connector. Packed x1 pc.
	RCRGN-350-2	350cm cable terminated at both ends with a microUSB connector. Packed x1 pc.
	RCRGN-500-2	500cm cable terminated at both ends with a microUSB connector. Packed x1 pc.
Termination resistor	RGN-TERMRES	Internal BUS chain terminator. 1 pc. is included in the NRGC.. packaging
Plugs	RGMREF	Spring plug labelled 'Ref'. Packed x10 pcs. 1 pc. included in the RG..N packaging
	RGM25	Spring plug labelled 'A1 A2'. Packed x10 pcs. (not applicable for RGx1P..CM..N)
Heatsinks	RHS…	Heatsinks for RGS models
Thermal pads	RGHT	Thermal pad mounted on RGS Pack of 10 thermal pads size 34.6 x 14mm

Structure

RGC..CM..N



* integrated for RGC..N versions. RGS..N do not have an integrated heatsink
** optional for RGx1A..CM..N and not applicable for RGx1P..CM..N

Element	Component	Function
1/L1	Power connection	Mains connection
2/T1	Power connection	Load connection
Ref	Voltage reference connection	Reference signal (L2 or N) for voltage measurement 2-pole plug internally shorted to allow for looping
A1, A2	Control connection (optional)	Terminal for control voltage in case of external control. RGM25 plug is required (not applicable for RGx1P..CM..N)
Green LED	LOAD indicator	Indicates status of RG..N output
Yellow LED	BUS indicator	Indicates ongoing communication
Red LED	ALARM indicator	Indicates presence of an alarm condition
Micro-USB	Micro-USB ports for internal BUS	Interface for RCRGN cable connection for the internal BUS communications line
Heatsink	Integrated heatsink	Integrated for RGC..N versions RGS..N versions do not have an integrated heatsink

Features

General data

Material	PA66 or PA6 (UL94 V0), RAL7035 850°C, 750°C/2s according to GWIT and GWFI requirements of EN 60335-1
Mounting	DIN rail (for RGC only) or panel
Touch Protection	IP20
Overvoltage Category	III, 6kV (1.2/50µs) rated impulse withstand voltage
Isolation	Input to Output: 2500 Vrms Input and Output to heatsink: 4000 Vrms
Weight	RGS..50: approx. 170 g RGS..92: approx. 170 g RGC..25: approx. 310 g RGC..32: approx. 310 g RGC..42: approx. 520 g RGC..62: approx. 1030 g
Compatibility	NRGC (NRG controller with Modbus RS485 interface) NRGC-PN (NRG controller with PROFINET interface) NRGC-EIP (NRG controller with EtherNet/IP interface)

Performance

RGS.. Output

	RGS..50..	RGS..92..
Operational voltage range, Ue	42 – 660 VAC	
Switching mode	RGS1A.. : zero cross switching RGS1P.. : proportional switching	
Max. operational current: AC-51 rating[1]	50 AAC	90 AAC
Operational frequency range	50/60 Hz	
Blocking voltage	1200 Vp	
Power factor	> 0.9	
Output overvoltage protection	Integrated varistor across L1-T1	
Leakage current @ rated voltage	< 5 mAAC	
Minimum operational current	300 mAAC 1 AAC (Phase Angle)	500 mAAC 1 AAC (Phase Angle)
Maximum transient surge current (I_{TSM}), t=10 ms	600 Ap	1900 Ap
I^2t for fusing (t=10ms), minimum	1800 A^2s	18000 A^2s
LED indication - LOAD	Green, ON when ouput is ON	
Critical dV/dt (@Tj init = 40°C)	1000 V/µs	
Transfer characteristics	Linear with output power	

1. Max. rated current with suitable heatsink. Refer to RGS heatsink selection tables.

RCRGN..

NRG internal BUS cable

Main features

- Cables available at various lengths to provide the internal BUS of the NRG system
- Cables terminated at both ends with a microUSB plug
- Connects the NRG controller to the RG..N solid state relay and respective RG..N solid state relays

Description

The **RCRGN** cables are proprietary cables that must be used with the NRG system for the internal BUS. These cables connect the NRG controller to the RG..N solid state relays and respective RG..N solid state relays.

The RCRGN... are 5-way cables carrying the communication, supply and autoconfiguration / auto-addressing lines. By means of autoconfiguration / auto-addressing, the RG..Ns are assigned a unique ID based on the physical location and on the internal BUS.

Carlo Gavazzi compatible components

Description	Component code	Notes
NRG Controller	NRGC..	• **NRGC:** NRG controller with Modbus communication. • **NRGC-PN:** NRG controller with PROFINET communication. • **NRGC-EIP:** NRG controller with EtherNet/IP communication. 1x RGN-TERMRES is included in the NRGC.. packaging. The RGN-TERMRES is to be mounted on the last RG..N on the bus chain.
Solid state relays	RG..N	NRG solid state relays

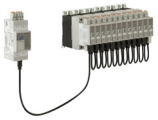
Order code

RCRGN - □ - 2

Enter the code entering the corresponding option instead of □

Code	Option	Description	Notes
R	-	Cables	
C	-		
R	-	Suitable for the NRG system	
G	-		
N	-		
□	010	10 cm cable length	packed x 4 pcs.
	075	75 cm cable length	packed x 1 pc.
	150	150 cm cable length	packed x 1 pc.
	350	350 cm cable length	packed x 1 pc.
	500	500 cm cable length	packed x 1 pc.
2	-	Terminated at the both ends with a microUSB connector	

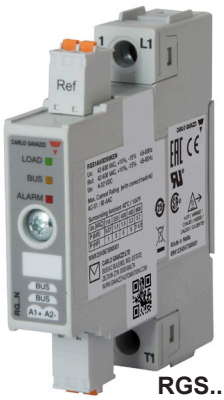
RG..D..N



RG 1-phase solid state relays with a communications interface

Communication interface for real time monitoring only

RGC..D..N



RGS..D..N

Benefits

- **Communications interface.** Solid state relay parameters and diagnostic data are accessible in real time.
- **Reduced maintenance costs and downtime.** Use of real-time data for prevention of machine stoppages during operation.
- **Good quality products and low scrap rates.** Real-time monitoring allows timely decisions for better machine and process management.
- **Reduced efforts in troubleshooting.** Distinguished faults to facilitate and reduce troubleshooting time.
- **Versatile.** Easy integration in existing machines as the control of the solid state relay does not change compared to a solid state relay without a communication interface.
- **Fast installation and set-up.** The solid state relays on the BUS are addressed by Auto- addressing for fast set-up and prevention of incorrect settings.
- **Compact dimensions.** Slimline RG series for a minimum product width of 17.8 mm, 1x DIN, up to 37 AAC at 40°C.

Description

The **RG..N** solid state relays are the switching components in the NRG BUS chain.

Switching of the **RG..D..N** is controlled by a voltage in the range of 4-32 VDC applied to the specific **RG..D..N**. In addition to the typical switching function of a solid state relay, the **RG..N** has integrated monitoring and a communication interface to provide data of the monitored variables and diagnostic information in real-time. The variables that can be read out from each **RG..D..N** are current, voltage, frequency, power, energy consumption and running hours. The status of each **RG..N** is accessible and in case of an unhealthy status, the specific fault is indicated to facilitate troubleshooting.

The **RG..N** cannot interface directly with the system controller (PLC) but needs to be addressed in an **NRG BUS chain** (as explained further on). 1 **NRG BUS chain** can handle up to 48 **RG..D..Ns**. The first **RG..N** in the BUS chain is connected to the NRG controller, whilst the last **RG..N** in the BUS chain has to be terminated with a BUS terminator provided with the NRG controller.

The **RGC..N** has an integrated heatsink and output ratings go up to 660 VAC, 65 A. The **RGS..N** does not have an integrated heatsink. Maximum output ratings of the **RGS..N** go up to 660 VAC, 90 A. LEDs on the front facade give a visual indication of the status of the **RG..N** output, any ongoing communication and the alarm status of the **RG..N** and its respective load.

Specifications are noted at 25°C unless otherwise specified.

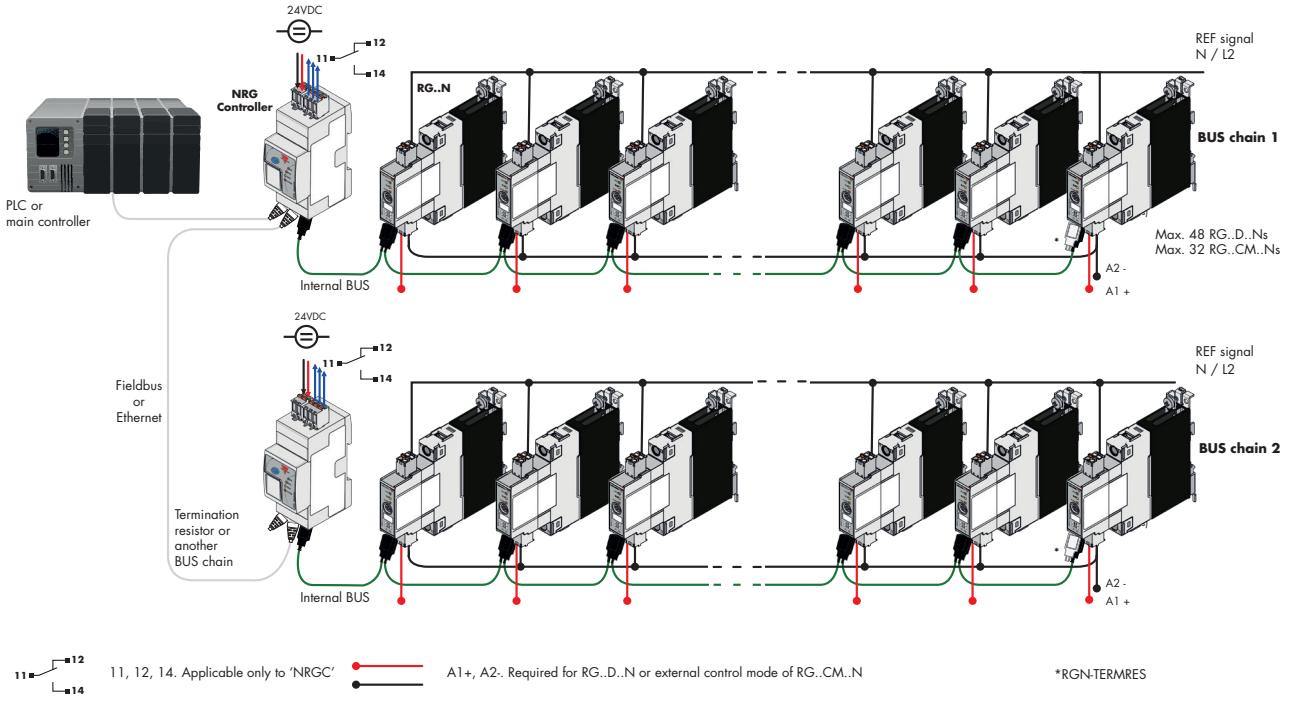
Applications

Any heating application where reliable and precise maintenance of temperatures is crucial to the quality of the end product. Typical applications include plastic machinery such as injection machines, extrusion machines and PET blow moulding machines, packaging machinery, sterilisation machinery, drying tunnels and semiconductor manufacturing equipment.

Main function

- 1-phase AC zero cross solid state relays up to 660 VAC, 90 AAC
- 4-32 VDC control for switching of the solid state relay
- Communications interface for real-time monitoring

The NRG system



System Overview

The NRG is a system consisting of one or more BUS chains that enable communication between the field devices (such as the solid state relays) and the control devices (such as the machine controller or PLC).

Each **NRG BUS** chain consists of the following 3 components:
- the NRG controller
- the NRG solid state relay(s)
- the NRG internal BUS cables

The **NRG controller** is the interface to the machine controller. It acts as the master of the BUS chain when performing specific actions on the respective BUS chain, and acts as a gateway for the communication between the PLC and the RG..N solid state relays. It is not possible to operate the NRG system without the NRG controller.

The NRG controllers available are:

- **NRGC**
  The NRGC is an NRG controller with a Modbus RTU interface over RS485. The NRGC is addressed via the assigned Modbus ID (from 1-247). In an NRG system operating on Modbus it is possible to have 247 NRG BUS chains.

- **NRGC-PN**
  NRGC-PN is an NRG controller with a PROFINET communication interface. The NRGC-PN is identified by a unique MAC address which is printed on the facade of the product.

- **NRGC-EIP**
  NRGC-EIP is an NRG controller with an EtherNet/IP communication interface. The IP address is provided automatically via a DHCP server.

System Overview - continued

The **NRG solid state relay** is the switching component in the NRG system. Each **RG..N** integrates a communication interface to exchange data with the machine controller (or PLC). The available RG..Ns that can be used in an NRG system are:

- **RG..D..N**
  The RG..D..N are solid state relays for use in an NRG system having the communication interface only for real time monitoring. Control of the RG..N is done via a DC control voltage. It is possible to have maximum 48 **RG..D..Ns** in one NRG BUS chain.

- **RG..CM..N**
  The RG..CM..N are solid state relays for use in an NRG system having a communication interface for control of the RG..N through the BUS and for real time monitoring. It is possible to have a maximum of 32 RG..CM..N in one NRG bus chain. There are two variants of the RG..CM..N:
  RGx1A..CM..N - the solid state relay with zero cross switching
  RGx1P..CM..N - the solid state relay with proportional switching.

  For a review of the features available in both variants refer to the table below:

Feature	RGx1A..CM..N	RGx1P..CM..N
External control	●	-
ON / OFF switching	●	●
Burst switching	●	●
Distributed full cycle switching	●	●
Advanced full cycle switching	●	●
Phase angle	-	●
Soft start with time mode	-	●
Soft start with current limit mode	-	●
Voltage compensation	-	●
Monitoring of system parameters	●	●
SSR diagnostics	●	●
Load diagnostics	●	●
Overtemperature protection	●	●

It is not possible to mix RG..D..N and RG..CM..N in the same BUS chain.

The **NRG internal BUS cables** are proprietary cables that connect the NRG controller to the first RG..N in the NRG BUS chain and respective RG..Ns on the BUS. The internal BUS terminator, provided in the same package with the NRG controller, shall be plugged to the last RG..N in the NRG BUS chain.

NRG system required components

Description	Component code	Notes
Solid state relays	RG..N	NRG solid state relays
NRG controller	NRGC..	• **NRGC:** NRG controller with Modbus communication. • **NRGC-PN:** NRG controller with PROFINET communication. • **NRGC-EIP:** NRG controller with EtherNet/IP communication. 1x RGN-TERMRES is included in the NRGC.. packaging. The RGN-TERMRES is to be mounted on the last RG..N on the bus chain.
NRG internal BUS cables	RCRGN-xxx	Proprietary cables terminated at both ends with a micro USB connector

References

Order code

RG ☐ 1A60D ☐ ☐ EN

Enter the code entering the corresponding option instead of ☐

Code	Option	Description	Notes
R	-	Solid State Relay (RG)	
G	-		
☐	C	Version with integrated heatsink	
	S	Version without heatsink	
1	-	Number of poles	
A	-	Switching mode: zero cross	
60	-	Rated voltage: 600 VAC (42-660 VAC) 50/60 Hz	
D	-	Control voltage: 4-32 VDC	
☐	25	Rated current - 25 AAC	For RGC..only
	32	Rated current - 30 AAC, 37 AAC	For RGC..only
	42	Rated current - 43 AAC	For RGC..only
	62	Rated current - 65 AAC	For RGC..only
	50	Rated current - 50 AAC	For RGS..only
	92	Rated current - 90 AAC	For RGS..only
☐	K	Screw connection for power terminals	
	G	Box clamp connection for power terminals	
E	-	Connection configuration	
N	-	For integration within an NRG system	

Selection guide - versions with integrated heatsink (RGC)

Rated voltage	Control voltage	Connection power	Rated operational current @ 40°C				
			25 AAC	30 AAC	37 AAC	43 AAC	65 AAC
			Product width				
			17.8 mm	17.8 mm	17.8 mm	35 mm	70 mm
600 VACrms	4 - 32 VDC	Screw	RGC1A60D25KEN	RGC1A60D32KEN	-	-	-
		Box clamp	-	-	RGC1A60D32GEN	RGC1A60D42GEN	RGC1A60D62GEN

Selection guide - versions without heatsink (RGS)

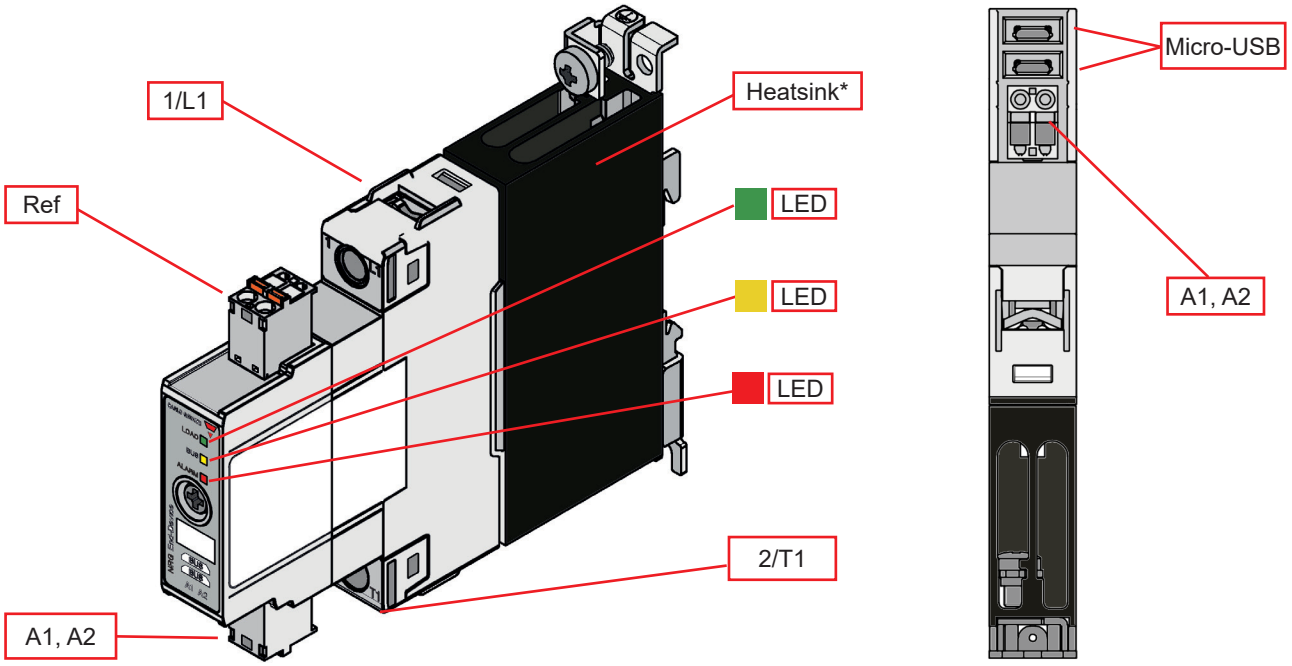
Rated voltage	Control voltage	Connection power	Maximum rated operational current				
			50 AAC	90 AAC	-	-	-
			Product width				
			17.8 mm	17.8 mm		-	-
600 VACrms	4 - 32 VDC	Screw	RGS1A60D50KEN	RGS1A60D92KEN	-	-	-
		Box clamp	-	RGS1A60D92GEN	-	-	-

Carlo Gavazzi compatible components

Description	Component code	Notes
NRG controller	NRGC	NRG controller with Modbus RS485. 1x RGN-TERMRES is included in the NRGC packaging
NRG Internal BUS cables	RCRGN-010-2	10 cm cable terminated at both ends with a microUSB connector. Packed x4 pcs.
	RCRGN-075-2	75 cm cable terminated at both ends with a microUSB connector. Packed x1 pc.
	RCRGN-150-2	150 cm cable terminated at both ends with a microUSB connector. Packed x1 pc.
	RCRGN-350-2	350 cm cable terminated at both ends with a microUSB connector. Packed x1 pc.
	RCRGN-500-2	500 cm cable terminated at both ends with a microUSB connector. Packed x1 pc.
Termination resistor	RGN-TERMRES	Internal BUS chain terminator. 1 pc. is included in the NRGC packaging
Plugs	RGMREF	Spring plug labelled 'Ref'. Packed x10 pcs. 1 pc. included in the RG..N packaging
	RGM25	Spring plug labelled 'A1 A2'. Packed x10 pcs. 1 pc. included in the RG..N packaging
Heatsinks	RHS…	Heatsinks for RGS models

Structure

RGC..D..N



* integrated for RGC..N versions. RGS..N do not have an integrated heatsink

Element	Component	Function
1/L1	Power connection	Mains connection
2/T1	Power connection	Load connection
Ref	Voltage reference connection	Reference signal (L2 or N) for voltage measurement 2-pole plug internally shorted to allow for looping
A1, A2	Control connection	2-pole plug for control voltage
Green LED	LOAD indicator	Indicates status of RG..N output
Yellow LED	BUS indicator	Indicates ongoing communication
Red LED	ALARM indicator	Indicates presence of an alarm condition
Micro-USB	Micro-USB ports for internal BUS	Interface for RCRGN cable connection for the internal BUS communications line
Heatsink	Integrated heatsink	Integrated for RGC..N versions RGS..N versions do not have an integrated heatsink

Features

General data

Material	PA6 or PA66 (UL94 V0), RAL7035 850°C, 750°C/2s according to GWIT and GWFI requirements of EN 60335-1
Mounting	DIN rail (for RGC only) or panel
Touch Protection	IP20
Overvoltage Category	III, 6 kV (1.2/50 µs) rated impulse withstand voltage
Isolation	Input to Output: 2500 Vrms Input and Output to heatsink: 4000 Vrms
Weight	RGS..50: approx. 170 g RGS..92: approx. 170 g RGC..25: approx. 310 g RGC..32: approx. 310 g RGC..42: approx. 520 g RGC..62: approx. 1030 g
Compatibility	NRGC (NRG controller with Modbus RS485 interface)

Performance

RGS.. Output

	RGS..50..	RGS..92..
Operational voltage range, Ue	42 – 660 VAC	
Switching mode	Zero cross switching	
Max. operational current: AC-51 rating[1]	50 AAC	90 AAC
Operational frequency range	50/60 Hz	
Blocking voltage	1200 Vp	
Power factor	> 0.9	
Output overvoltage protection	Integrated varistor across L1-T1	
Leakage current @ rated voltage	< 5 mAAC	
Minimum operational current	300 mAAC	500 mAAC
Maximum transient surge current (I_{TSM}), t=10 ms	600 Ap	1900 Ap
I^2t for fusing (t=10 ms), minimum	1800 A^2s	18000 A^2s
LED indication - LOAD	Green, ON when control output is ON	
Critical dV/dt (@Tj init = 40°C)	1000 V/µs	

1. Max. rated current with suitable heatsink. Refer to RGS heatsink selection tables.

RCRGN..

NRG internal BUS cable

Main features

- Cables available at various lengths to provide the internal BUS of the NRG system
- Cables terminated at both ends with a microUSB plug
- Connects the NRG controller to the RG..N solid state relay and respective RG..N solid state relays

Description

The **RCRGN** cables are proprietary cables that must be used with the NRG system for the internal BUS. These cables connect the NRG controller to the RG..N solid state relays and respective RG..N solid state relays.

The RCRGN... are 5-way cables carrying the communication, supply and autocofiguration lines. By means of autoconfiguration, the RG..Ns are assigned a unique ID based on the physical location and hence internal BUS wiring sequence when an autoconfiguration command is sent to the RG..Ns.

Carlo Gavazzi compatible components

Description	Component code	Notes
NRG Controller	NRGC..	• **NRGC:** NRG controller with Modbus communication. • **NRGC-PN:** NRG controller with PROFINET communication. • **NRGC-EIP:** NRG controller with EtherNet/IP communication. 1x RGN-TERMRES is included in the NRGC.. packaging. The RGN-TERMRES is to be mounted on the last RG..N on the bus chain.
Solid state relays	RG..N	NRG solid state relays

Order code

RCRGN - □ - 2

Enter the code entering the corresponding option instead of □

Code	Option	Description	Notes
R	-	Cables	
C	-		
R	-	Suitable for the NRG system	
G	-		
N	-		
□	010	10cm cable length	packed x 4 pcs.
	075	75cm cable length	packed x 1 pc.
	150	150cm cable length	packed x 1 pc.
	350	350cm cable length	packed x 1 pc.
	500	500cm cable length	packed x 1 pc.
2	-	Terminated at the both ends with a microUSB connector	

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