

Solid State Relays

3-Phase, 2 Pole SOLITRON

With Integrated Heatsink

CARLO GAVAZZI



- Zero switching AC Solid State Relay
- Direct copper bonding (DCB) technology
- LED indication
- Built-in varistor
- Input range: 5 - 32 VDC
- Rated operational current: 3 x 15 and 3 x 30 AACrms
- Rated operational voltage: 3 x 220, 400 and 480 VACrms
- Non-repetitive voltage: Up to 1200 V_p
- Opto-insulation: > 4000 VACrms

Product Description

The SOLITRON Solid State Contactor is designed for industrial heating and motor control applications. The Solid State Contactor is capable of switching 3-phase loads by using only 2 switching elements for loads up to 3 x 30 AACrms AC51 load in Star (excl. Neutral) or Delta connections. The Solid State Contactor is designed for DIN-rail mounting with inte-

grated heatsink and overvoltage protection. The heatsink is moved to the front for optimal convection cooling in the panel.

The contactor elements are soldered directly to the direct copper bonded substrate (DCB-technology). DC control versions are available. Built-in LED status indication for applied control voltage.

Ordering Key

RN 3 A 40 D 30

Solid State Relay _____
 Number of phases _____
 Switching mode _____
 Rated operational voltage _____
 Control voltage _____
 Rated operational current _____

Type Selection

Rated operational voltage	Control voltage	Rated operational current
22: 3 x 220 VACrms	D: 5 to 32 VDC	15: 15 AACrms
40: 3 x 400 VACrms		30: 30 AACrms
48: 3 x 480 VACrms		

Selection Guide, 2 Pole Switching / 1-Pole direct

Rated operational voltage	Control voltage	Rated operational current	AC51: 3 x 15 AAC	AC51: 3 x 30 AAC
22: 3 x 220 VAC rms	5-32 VDC	RN3A22D15	RN3A22D30	
40: 3 x 400 VAC rms	5-32 VDC	RN3A40D15	RN3A40D30	
48: 3 x 480 VAC rms	5-32 VDC	RN3A48D15	RN3A48D30	

General Specifications

	RN3A22...	RN3A40...	R3A48...
Operational voltage range	24 - 265 VAC	42 - 440 VAC	42 - 530 VAC
Non-rep. peak voltage	650 V _p	800 V _p	1200 V _p
Varistor voltage	275 VAC	420 VAC	510 VAC
Zero voltage turn-on	< 20 V	< 20 V	< 20 V
Operational frequency range	45 - 65 Hz	45- 65 Hz	45 - 65 Hz
Power factor	> 0.5	> 0.5	> 0.5
Approvals	UL, cUL, CSA	UL, cUL, CSA	UL, cUL, CSA
CE-marking	Yes	Yes	Yes

Norms fulfilled
EN 60947-1
EN 61000-6-2

Low-voltage switchgear and control gear. Part 1- General Rules
Generic Immunity Standard. Industrial Environment

Input Specifications

Control voltage range	5-32 VDC	Response time pick-up	< 10 ms
Pick-up voltage	4.5 VDC	Response time drop-out	< 20 ms
Drop-out voltage	1 VDC	Green LED indication	Yes
Input current @ 24 VDC	< 10 mA		

Output Specifications

	RN3A..D15	RN3A..D30
Rated operational current AC51, Ta = 30°C	3 x 15 AACrms	3 x 30 AACrms
AC51, Ta = 40°C	3 x 14 AACrms	3 x 27 AACrms
AC51, Ta = 50°C	3 x 12 AACrms	3 x 24 AACrms
AC51, Ta = 60°C	3 x 10 AACrms	3 x 18 AACrms
AC53a, Ta = 30°C	3 x 6 AACrms	3 x 12 AACrms
Minimum operational current	200 mA	200 mA
Rep. overload current (t = 1 s)	< 55 AACrms	< 125 AACrms
Non-rep. surge current (t = 10 ms)	300 Ap	580 Ap
Off-state leakage current at rated voltage and frequency	< 6 mA	< 6 mA
I_tt for fusing (t = 1-10 ms)	450 A ² s	1680 A ² s
Critical dI/dt	50 A/μs	50 A/μs
On-state voltage drop at rated current	< 1.6 Vrms	< 1.6 Vrms
Critical dV/dt	500 V/μs	500 V/μs
Zero crossing detection	Yes	Yes

Thermal Specifications

	RN3A..D15	RN3A..D30
Operating temperature range	-20° to + 70°C (-4° to + 158°F)	-20° to + 70°C (-4° to + 158°F)
Storage temperature range	-40° to + 100°C (-40° to + 212°F)	-40° to + 100°C (-40° to + 212°F)

Housing Specifications

Mounting	DIN - rail 35 mm
Weight with RHN1	470 g
Weight with RHN2	780 g
Housing material	Noryl SEI, GFN1, Black
LED window material	PC Lexan 141 R
Base plate	Aluminium, nickel plated
Potting compound	Polyurethane, Casco Nobel
Terminals	Screw with captive wire clamp
Power and control terminals	4 mm ² or 2 x 2.5 mm ² AWG12 or 2 X AWG 14 Min. 0.5 mm ² , AWG 20
Mounting torque max.	0.6 Nm
Heatsink compound used	Electrolube HTS

Insulation

Rated insulation voltage input to output	4000 VACrms
Rated insulation voltage output to case	4000 VACrms

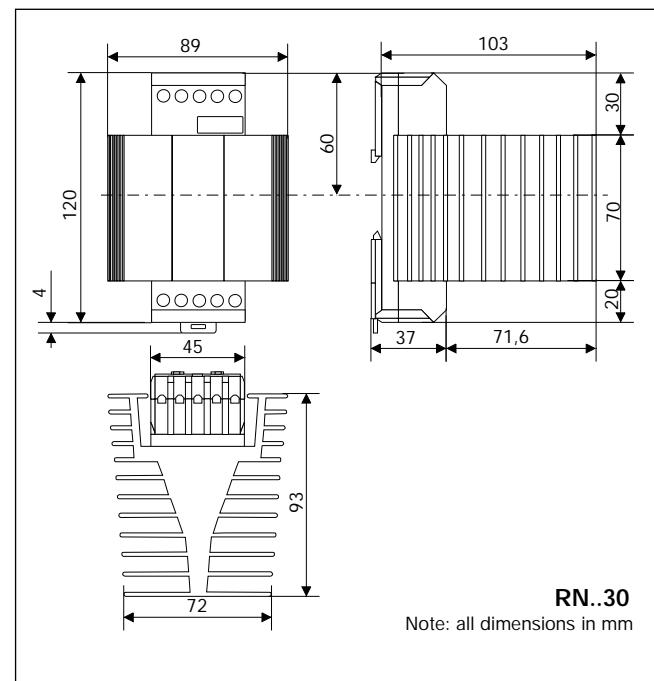
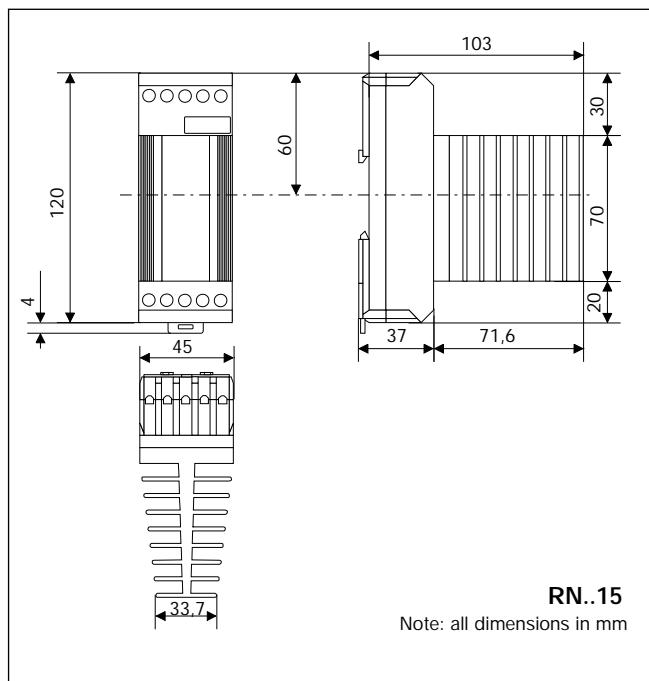
Environment Specifications

Humidity max.	95%, no condensation
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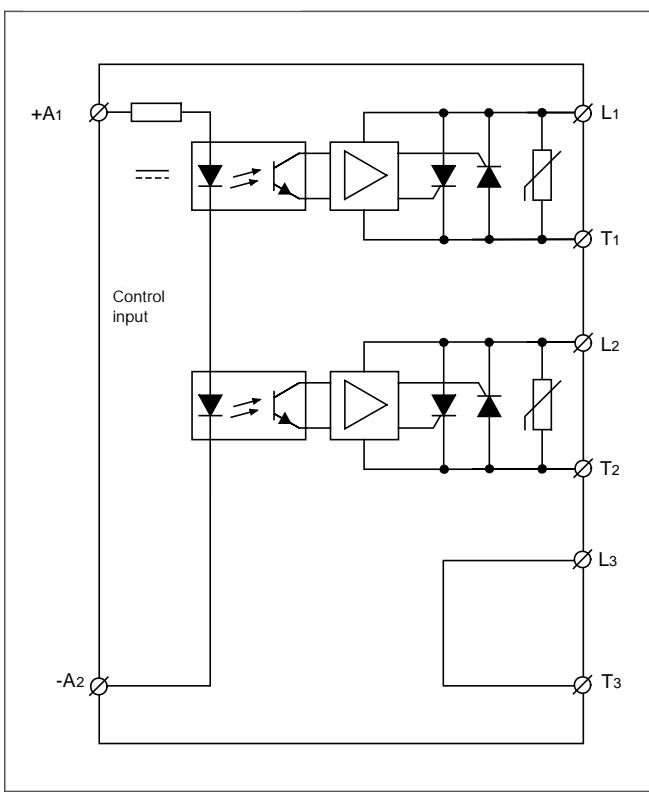
Dimensions

Dimensions	(H x W x D)
RN..15	120 x 45 x 110 mm
RN..30	120 x 90 x 110 mm

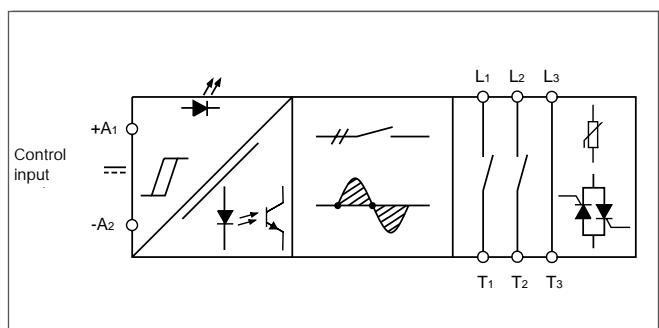
Dimensions



Wiring Diagram



Functional Diagram

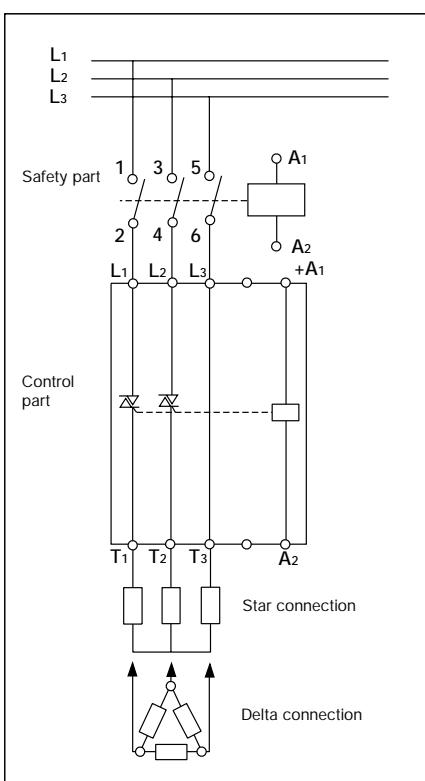


Accessories

Fuses

For further information refer to "General Accessories".

Applications



Economic switching of inductive and resistive Loads

3-phase 2 pole switching allows a very economical handling of heavy loads which have to be run in a 3-phase configuration either as a star connection or a delta connection of the loads. With 2-pole switching and the integration of a contactor instead of switching all 3-phases a substancial space and cost saving in the panel can be achieved as one third of the heatsinks can be taken out and also the ventilation of the panel can be reduced.

3-Phase, 2 pole Switching Principle

With SOLITRON RN.3.A.. 3-phase Relays switching with 2-poles and the integration of a contactor the electric configuration is splitted into a safety part and a control part. In the safety part the isolation of the load from the mains is assured by a small contactor mounted in series with the Solid State Relay. The contactor can be a very economical type as the switching is done by the Solid State Relay. As the contactors are already switched, when the Solid State Relay is in control of the power, no burning of the contacts will occur.