RN
Технические характеристики

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Solid State Relays
1- and 2 Pole *SOLITRON*
With Integrated Heatsink

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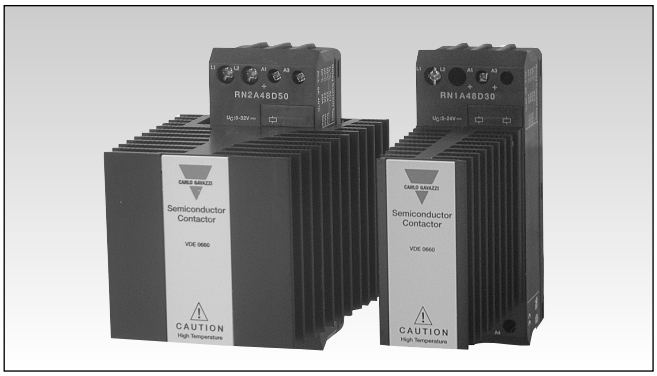

- **AC Solid State Contactor, 1- and 2 poles**
- **Zero switching (RN1A) for heating and motor applications**
- **Instant-on switching (RN1B)**
- **Rated operational current: 1-pole: 30 A, 50 A and 63 A**
  2-pole: 2 x 15 A and 2 x 25 A
- **Rated operational voltage 230 VAC, 400/480 VAC**
- **Transient overvoltage protection built-in**
- **LED-indication**
- **IP 20 protection**
- **DIN-rail mountable**

Product Description

The *SOLITRON* Solid State Contactor is designed for industrial heating and motor control applications.

The Solid State Contactor is capable of switching 1-, 2-, and 3-phase applications with loads up to 63 A AC51 load and up to 24 A AC53a load. The Solid State Contactor is designed for DIN-rail mounting with integrated heatsink and overvoltage protection. The heatsink is moved to the front for optimal convection cooling in the panel. Cable ducting system will not stop the airflow.

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

Ordering Key

RN 1 A 23 A 50

- **Solid State Relay**
- **Number of poles**
- **Switching type**
  - **A: Zero switching**
  - **B: Instant on switching**
- **Rated operational voltage**
- **Control voltage**
- **Rated operational current**

Type Selection, 1 Pole

Rated operational voltage	Control voltage	Rated operational current AC51: 30 A AC53a: 6 A	AC51: 50 A AC53a: 12 A	AC51: 63 A AC53a: 24 A
230 VAC	5-32 VDC	**RN 1A23D30**	**RN 1A23D50**	**RN 1A23D63**
	5-32 VDC	**RN 1B23D30**	**RN 1B23D50**	**RN 1B23D63**
	24-230 ± 15% VAC/DC	**RN 1A23A30**	**RN 1A23A50**	**RN 1A23A63**
400/480 VAC	5-32 VDC	**RN 1A48D30**	**RN 1A48D50**	**RN 1A48D63**
	5-32 VDC	**RN 1B48D30**	**RN 1B48D50**	**RN 1B48D63**
	24-230 ± 15% VAC/DC	**RN 1A48A30**	**RN 1A48A50**	**RN 1A48A63**

Type Selection, 2 Pole

Rated operational voltage	Control voltage	Rated operational current AC51: 2 x 15 A AC53a: 2 x 6 A	AC51: 2 x 25 A AC53a: 2 x 12 A
230 VAC	5-32 VDC	**RN 2A23D30**	**RN 2A23D50**
	5-32 VDC	**RN 2B23D30**	**RN 2B23D50**
	24-265 VAC/DC	**RN 2A23A30**	**RN 2A23A50**
400/480 VAC	5-32 VDC	**RN 2A48D30**	**RN 2A48D50**
	5-32 VDC	**RN 2B48D30**	**RN 2B48D50**
	24-265 VAC/DC	**RN 2A48A30**	**RN 2A48A50**

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General Specifications

	RN..23...	RN..48...
Operational voltage range	24 to 265 VAC	42 to 530 VAC
Blocking voltage	800 V_p	1200 V_p
Varistor voltage	275 VAC	510 VAC
Operational frequency range	45 to 65 Hz	45 to 65 Hz
Power factor at rated voltage	≥ 0.5	≥ 0.5
Approvals	UL, CSA	UL, CSA
CE-marking	Yes	Yes

Norms fulfilled	EN 60947-1	Low-voltage switchgear and control gear. Part 1- General Rules
	EN 61000-6-2	Generic Immunity Standard. Industrial Environment

Input Specifications

	RN....D	RN....A..
Rated control voltage range		
RN1	5 to 32 VDC	24 to 265 VAC/DC
RN2	2 x 5 to 32 VDC	2 x 24 to 265 VAC/DC
Pick-up voltage	4 VDC	14 VAC/DC
Drop-out voltage	3 VDC	6 VAC/DC
Reverse voltage max.	32 VDC	-
Input current		
RN1	< 9 mA	< 12 mA
RN2	< 9 mA per pole	< 12 mA per pole
Response time		
Pick-up time max. (50 Hz)		
RN.A	10 ms	20 ms
RN.B	< 1 ms	-
Drop-out time max. (50 Hz)		
RN.A	10 ms	20 ms
RN.B	10 ms	-
Input-ON indication (LED, green)	Yes	Yes

Output Specifications

			RN.....30	RN.....50	RN.....63
Rated operational current					
RN1A..	AC51	@Ta=30°C	30 A	50 A	63 A
	"	@Ta=40°C	30 A	50 A	50 A
	"	@Ta=50°C	23 A	38 A	40 A
	"	@Ta=60°C	20 A	30 A	30 A
	AC53a	@Ta=40°C	6 A	12 A	24 A
RN2A..	AC51	@Ta=30°C	2 x 15 A	2 x 25 A	-
	"	@Ta=40°C	2 x 15 A	2 x 25 A	-
	"	@Ta=50°C	2 x 11.5 A	2 x 19 A	-
	"	@Ta=60°C	2 x 10 A	2 x 15 A	-
	AC53a	@Ta=40°C	2 x 6 A	2 x 12 A	-
Zero crossing detection			Yes	Yes	Yes
Min. operational current			200 mA	250 mA	400 mA
Rep. overload current t=1 s (Tj init.=25°C)			55 AACrms	125 AACrms	150 AACrms
Non-rep. surge current t=10 ms (Tj init.=25°C)			325 A_p	600 A_p	1150 A_p
Off-state leakage current, @ rated voltage and frequency (Tj.=125°C, max.)			< 1 mA	< 1 mA	< 1 mA
I^2t for fusing t=10 ms			525 A^2s	1800 A^2s	6600 A^2s
Critical dV/dt off-state			500 V/µs	500 V/µs	500 V/µs

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Thermal Specifications

	RN.....30	RN.....50	RN.....63
Operational temperature	-20 to +70°C (-4 to +158°F)	-20 to +70°C (-4 to +158°F)	-20 to +70°C (-4 to +158°F)
Storage temperature	-40 to +100°C (-40 to +212°F)	-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 141R
Base plate	Aluminium, nickel-plated
Potting compound	Polyurethane, Casco Nobel
Terminals	Screw with captive wire clamp
Control terminals nominal	4 mm^2 or 2 x 2.5 mm^2 AWG 12 or 2 x AWG 14
Min.	0.5 mm^2, AWG 20
Mounting torque max.	0.6 Nm
Power terminals nominal	10 mm^2 or 2 x 6 mm^2 AWG 6 or 2 x AWG 10
Min.	1 mm^2, AWG 16
Mounting torque max.	2.0 Nm
Heatsink compound used	Electrolube HTS

Insulation

Rated impulse withstand voltage Input to output	4000 V_{imp}
Rated impulse withstand voltage Output to heatsink	4000 V_{imp}

Environment Specifications

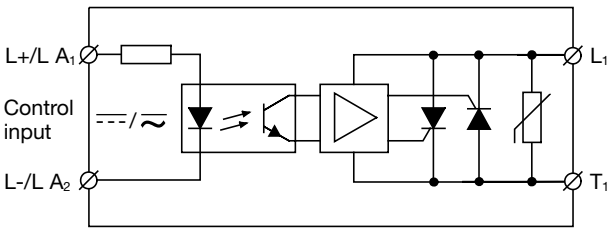
Humidity max.	95%, no condensation

Dimensions

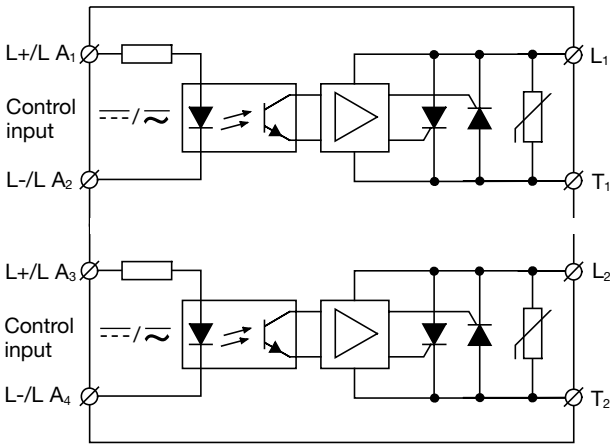
Dimensions	(H x W x D)
RN..30	120 x 45 x 110 mm
RN..50	120 x 90 x 110 mm
RN..63	120 x 90 x 110 mm

Wiring Diagrams

1-pole RN...



2-pole RN...



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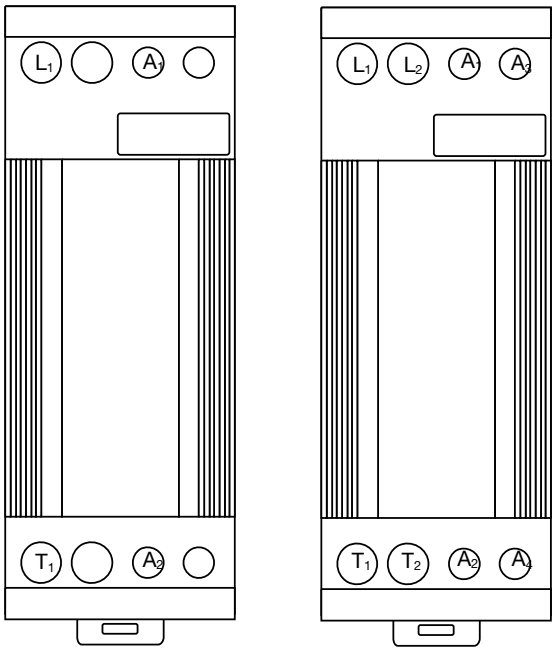
Terminal Layout

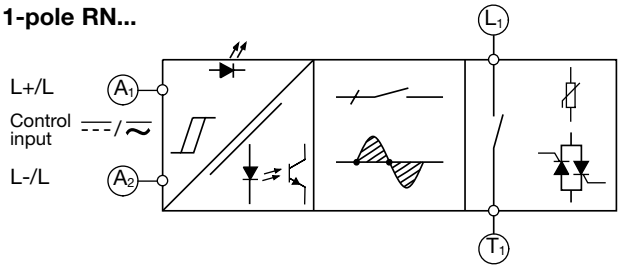
1-pole RN.. **2-pole RN..**



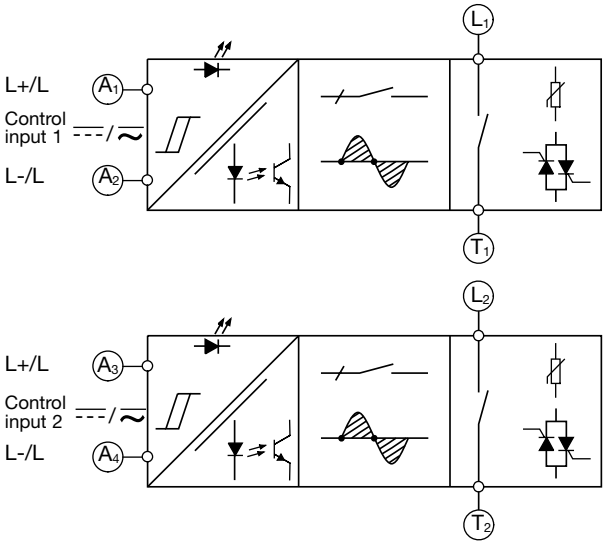
RN..30

Functional Diagrams

1-pole RN...

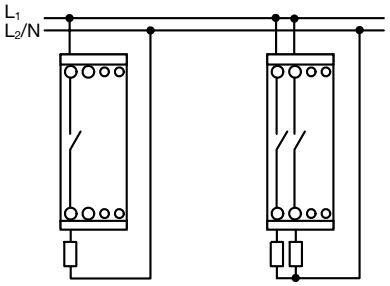


2-pole RN...

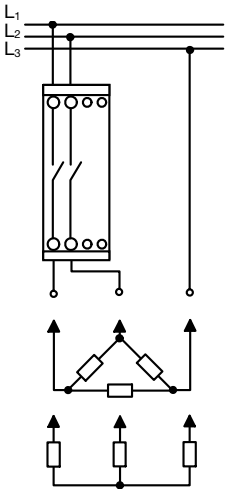


Applications

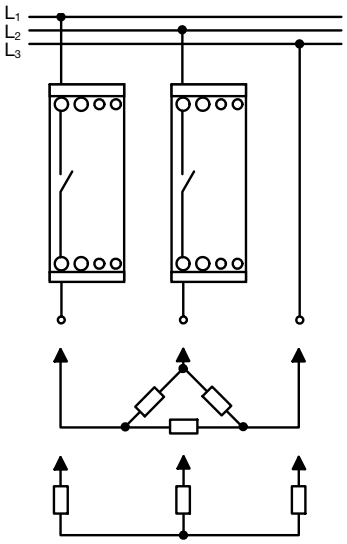
Single and double pole relay application
Line-Neutral
Line-Line



Double pole relay in
3-phase application
Delta and star application
(Economy Switch)

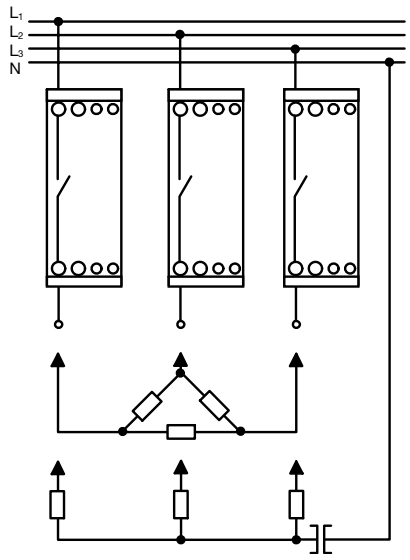


Two single pole relays in
3-phase application
Delta and star.
(Economy Switch)

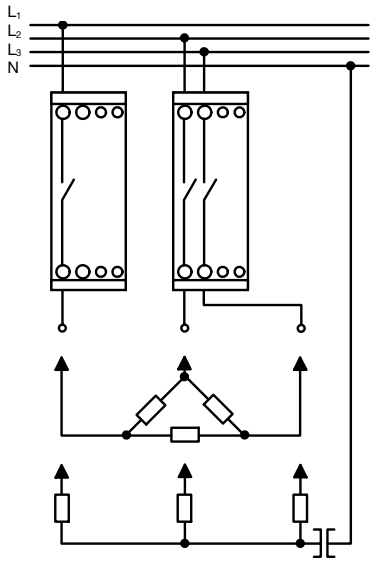


Applications (cont.)

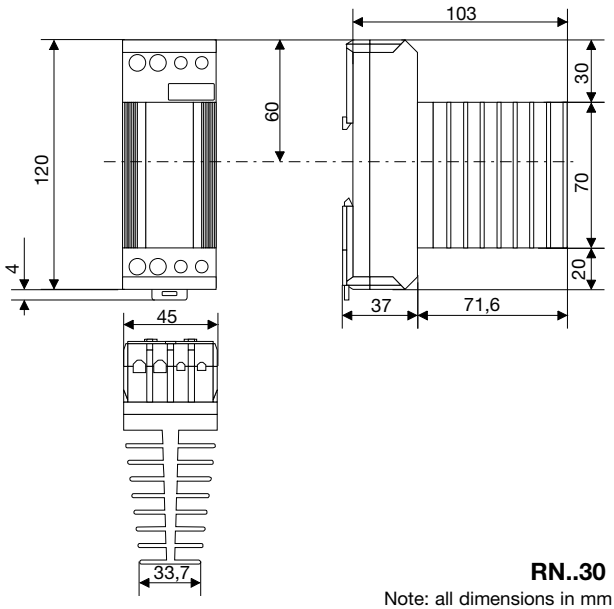
3 single pole relays in
3-phase application
Delta, Star, Star with neutral



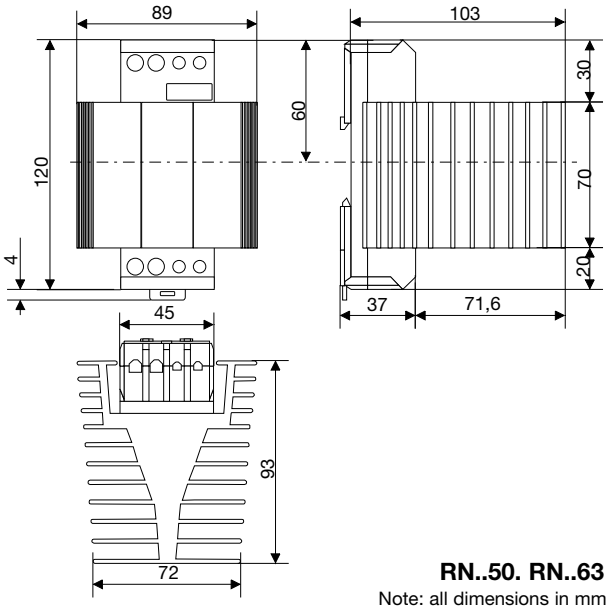
Single and double pole relay in
3-phase application
Delta, Star, Star with neutral



Dimensions



RN..30
Note: all dimensions in mm



RN..50. RN..63
Note: all dimensions in mm

Solid State Relays
Analog Full Cycle Switching
Type RN.F

- **AC solid state relay, 1- and 2-poles**
- **Analog switching for resistive loads (heating)**
- **4-20 mA or 0-10 V controls**
- **Rated operational current: 1-pole : 30A and 50A**
  2-pole : 2 x15A and 2 x 25A
- **Rated operational voltage up to 480 VAC**
- **LED-indication for normal operation and alarm status**
- **IP 20 protection**
- **DIN-rail mountable**

Product Description

The analog switching relay provides a number of full cycles, evenly distributed over a fixed period, depending of the control input. The input of 4-20 mA or 0-10 VDC respectively, corresponds to zero and full output within a period of 1.28 s @ 50 Hz (1.07 s @ 60 Hz). This principle makes the transfer characteristics fully linear. The principle operates with zero switching, thus ensuring a reduced level of radiated and wire conducted noise. The 2-pole type has alarm LED indication by loss of master phase. The analogue Full Cycle Switching is not recommended for light control due to light-flickering.

Ordering Key

RN 1 F 40 V 30

- **Solid State Relay**
- **Number of poles**
- **Switching type**
- **Rated operational voltage**
- **Control signal**
- **Rated operational current**

Type Selection, 1-Pole

Rated operational voltage	Control input	Control supply	Rated operational current 30 A	50 A
120 VAC	4-20 mA		**RN 1F12I30**	**RN 1F12I50**
	0-10 VDC	12-32 VDC, 24 VAC	**RN 1F12V30**	**RN 1F12V50**
230 VAC	4-20 mA		**RN 1F23I30**	**RN 1F23I50**
	0-10 VDC	12-32 VDC, 24 VAC	**RN 1F23V30**	**RN 1F23V50**
480 VAC	4-20 mA		**RN 1F48I30**	**RN 1F48I50**
	0-10 VDC	12-32 VDC, 24 VAC	**RN 1F48V30**	**RN 1F48V50**

Type Selection, 2-Pole

Rated operational voltage	Control input	Control supply	Rated operational current 30 A Total (2 x 15A)	50 A Total (2 x 25A)
120 VAC	4-20 mA		**RN 2F12I30**	**RN 2F12I50**
	0-10 VDC	12-32 VDC, 24 VAC	**RN 2F12V30**	**RN 2F12V50**
230 VAC	4-20 mA		**RN 2F23I30**	**RN 2F23I50**
	0-10 VDC	12-32 VDC, 24 VAC	**RN 2F23V30**	**RN 2F23V50**
480 VAC	4-20 mA		**RN 2F48I30**	**RN 2F48I50**
	0-10 VDC	12-32 VDC, 24 VAC	**RN 2F48V30**	**RN 2F48V50**

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General Specifications

	RN.F12...	RN.F23...	RN.F48...
Operational voltage range	85 to 140 VAC	85 to 265 VAC	190 to 530 VAC
Blocking voltage	800 V_p	800 V_p	1000 V_p
Varistor voltage	275 VAC	275 VAC	510 VAC
Zero voltage turn-on	< 10 V	< 10 V	< 20 V
Operational frequency range	45 to 65 Hz	45 to 65 Hz	45 to 65 Hz
Power factor at rated voltage	≥ 0.9	≥ 0.9	≥ 0.9
Average output power	0 to 100%	0 to 100%	0 to 100%
Output power resolution	1/64 of 100%	1/64 of 100%	1/64 of 100%
Approvals	UL, cUL, CSA	UL, cUL, CSA	UL, cUL, CSA
CE-marking	Yes	Yes	Yes

Norms fulfilled EN 60947-1 Low-voltage switchgear and control gear. Part 1- General Rules.
EN 61000-6-1 Generic Immunity Standard. Residential, Commercial & Light Industry Environment
EN 61000-6-2 Generic Immunity Standard. Industrial Environment

Input Specifications

Current controlled input	**RN.F..I..**
Control current range	4 - 20 mA
Allowable input current	50 mA
Reverse polarity protected	Yes
Voltage drop	10 VDC @ 20 mA

Voltage controlled input	**RN.F..V..**
Supply voltage range	21 - 27 VAC, 12 - 32 VDC
Supply current	30 mA @ 24 VAC/32 VDC
Control voltage range	0 - 10 V
Control input current	0.1 mA @ 10 VDC

Output Specifications

			RN.F..30	**RN.F..50**
Rated operational current				
RN1F..	AC51	@Ta=30°C	30 A	50 A
	"	@Ta=40°C	30 A	50 A
	"	@Ta=50°C	23 A	38 A
	"	@Ta=60°C	20 A	30 A
RN2F..	AC51	@Ta=30°C	30 A total sum (2 x 15A)	50 A total sum (2 x 25A)
	"	@Ta=40°C	30 A total sum (2 x 15A)	50 A total sum (2 x 25A)
	"	@Ta=50°C	23 A total sum (2 x 11.5A)	38 A total sum (2 x 19A)
	"	@Ta=60°C	20 A total sum (2 x 10A)	30 A total sum (2 x 15A)
Zero crossing detection			Yes	Yes
Min. operational current (per pole)			500 mA	1.8 A
Rep. overload current t=1 s (Tj init.=25°C)			55 A (rms)	125 A (rms)
Non-rep. surge current t=10 ms (Tj init.=25°C)			< 325 A_p	< 600 A_p
Off-state leakage current, @ rated voltage and frequency (Tj.=125°C, max.)			< 6 mA	< 6 mA
I^2t for fusing t=10 ms			525 A^2s	1800 A^2s
Critical dV/dt off-state			500 V/µs	500 V/µs

Thermal Specifications

	RN.F..30	**RN.F..50**
Operational temperature	-30° to +70°C (-22° to +158°F)	-30° to +70°C (-22° to +158°F)
Storage temperature	-30° to +100°C (-22° to +212°F)	-30° to +100°C (-22° to +212°F)
Junction temperature	< 125°C (257°F)	< 125°C (257°F)
R_{th} junction to ambient (AC load)	2.8 K/W	1.7 K/W

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 141R
Base plate	Aluminium, nickel plated
Potting compound	Polyurethane, Casco Nobel
Terminals	Screw with captive wire clamp
Control terminals nominal	4 mm^2 or 2 x 2.5 mm^2 AWG 12 or 2 x AWG 14
Min.	0.5 mm^2, AWG 20
Mounting torque max.	0.6 Nm
Power terminals nominal	10 mm^2 or 2 x 6 mm^2 AWG 6 or 2 x AWG 10
Min.	1 mm^2, AWG 16
Mounting torque max.	2.0 Nm
Heatsink compound used	Electrolube HTS

Insulation

Rated impulse withstand voltage Input to output	4000 V_{imp}
Rated impulse withstand voltage Output to heatsink	4000 V_{imp}

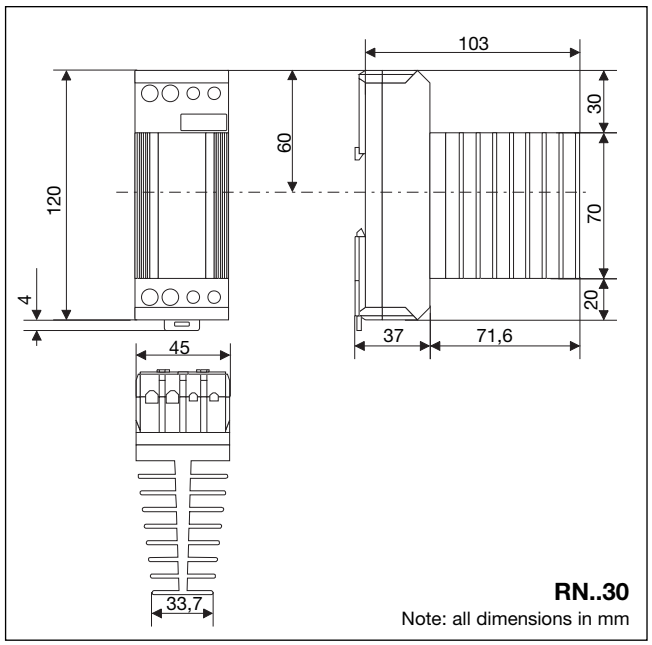
Environment Specifications

Humidity max.	95%, no condensation

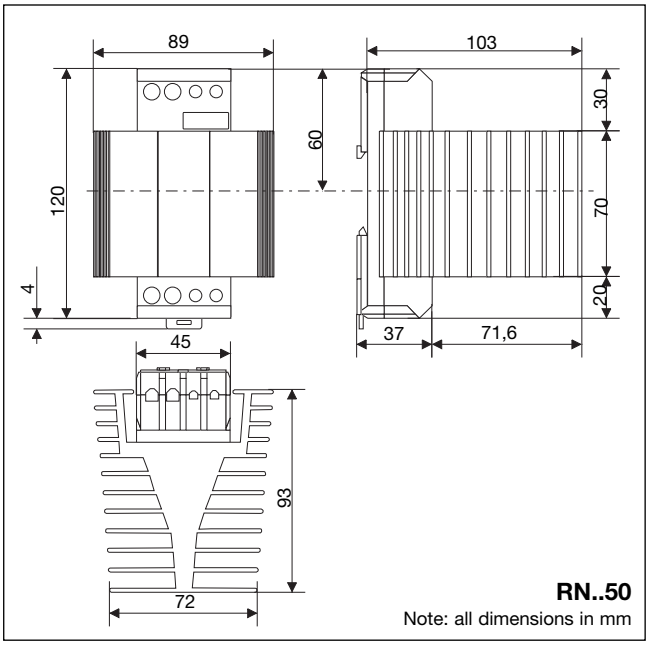
Dimensions

Dimensions	(H x W x D)
RN..30	120 x 45 x 110 mm
RN..50	120 x 90 x 110 mm

Dimensions

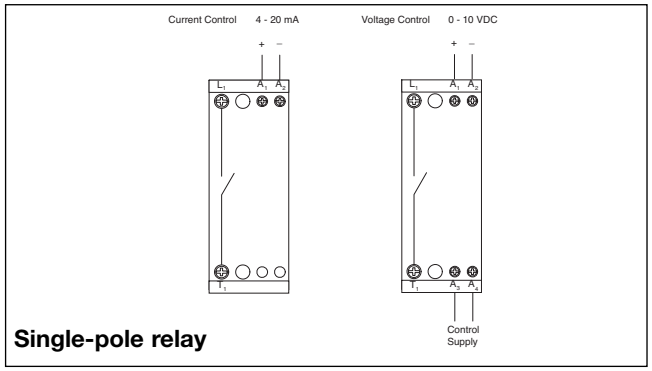


RN..30
Note: all dimensions in mm

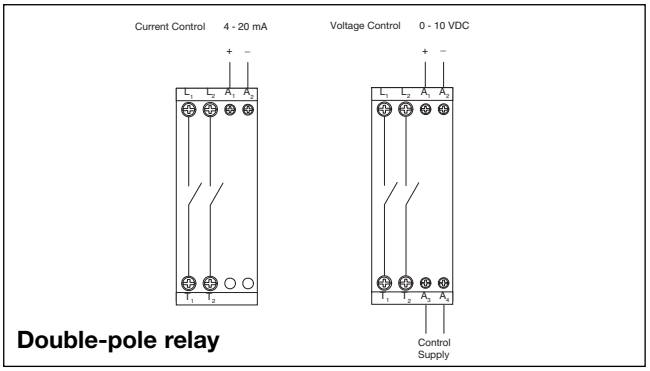


RN..50
Note: all dimensions in mm

Wiring Diagrams

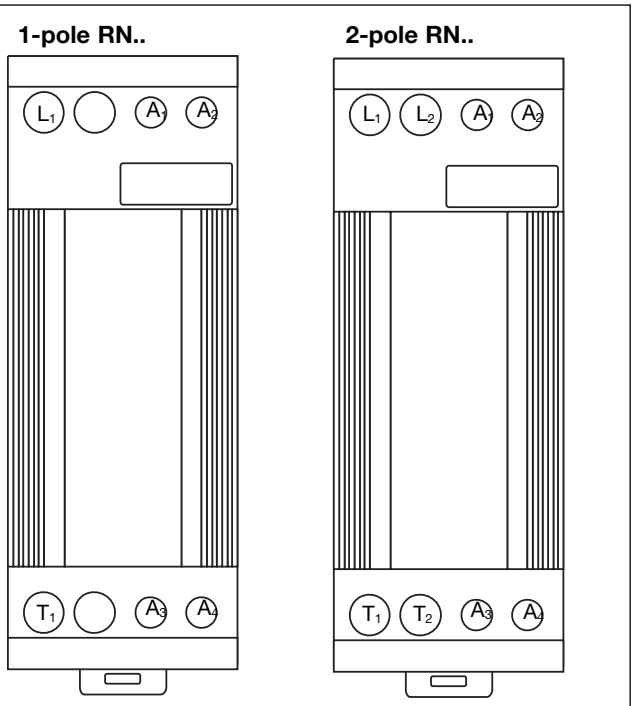


Single-pole relay



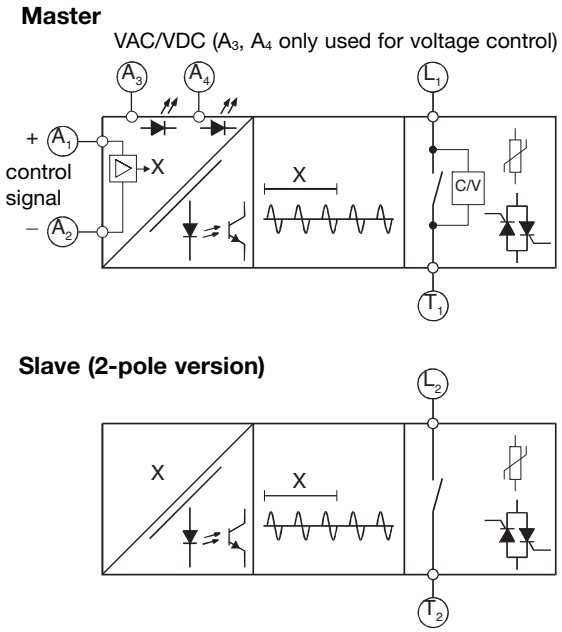
Double-pole relay

Terminal Layout



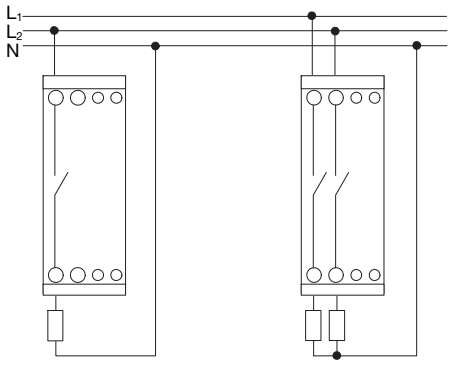
Functional Diagrams

2-pole current controlled input

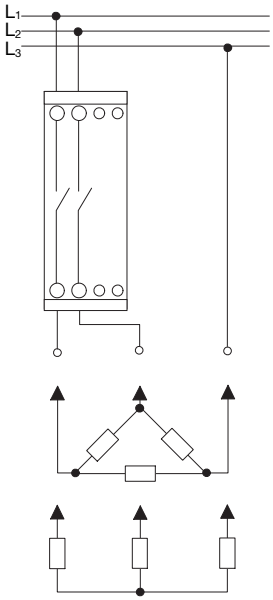


Applications

Single and double pole relay application
Line-Neutral



Double pole relay in 3-phase application
Star and delta application (Economy Switching only)



Solid State Relays
System Monitoring Relay (*SOLITRON*)
Type RN1S (Sense Relay)

- **System (line and load) monitoring relay**
- **Rated operational current: 30 A and 50 AACrms**
- **Zero switching for heating and motor applications**
- **Rated operational voltage: 230, 400 and 480 VACrms**
- **Transient overvoltage protection built-in**
- **Alarm output signal**
- **LED-indication for alarm and supply/relay ON**
- **DIN-rail mountable**

Product Description

The system monitoring Solid State Relay (Sense Relay) provides an alarm output in the event of a circuit failure. Internal circuits monitor:
- line voltage
- load current
- correct functioning of the SSR
- SSR input status

The relay is designed for applications where immediate fault detection is required.

A red LED indicates an alarm, a green LED indicates DC control supply OK (half LED light intensity) resp. relay switched ON (full LED light intensity).

Ordering Key

RN 1S 23 H 30 NO

- **Solid State Relay**
- **Number of poles**
- **Rated operational voltage**
- **Control input**
- **Rated operational current**
- **Alarm output type**

Type Selection

Rated operational voltage	Control input	Rated operational current	Alarm output type
23: 230 VACrms	H: Active high	30: 30 AACrms	NO: NPN, NO
40: 400 VACrms	L: Active low	50: 50 AACrms	NC: NPN, NC
48: 480 VACrms			PO: PNP, NO
			PC: PNP, NC

Selection Guide

Rated operational voltage	Alarm output type	Rated operational current 30 AACrms Active high	30 AACrms Active low	50 AACrms Active high	50 AACrms Active low
230 VACrms	NPN, NO	**RN 1S23H30NO**	**RN 1S23L30NO**	**RN 1S23H50NO**	**RN 1S23L50NO**
	NPN, NC	**RN 1S23H30NC**	**RN 1S23L30NC**	**RN 1S23H50NC**	**RN 1S23L50NC**
	PNP, NO	**RN 1S23H30PO**	**RN 1S23L30PO**	**RN 1S23H50PO**	**RN 1S23L50PO**
	PNP, NC	**RN 1S23H30PC**	**RN 1S23L30PC**	**RN 1S23H50PC**	**RN 1S23L50PC**
400 VACrms	NPN, NO	**RN 1S40H30NO**	**RN 1S40L30NO**	**RN 1S40H50NO**	**RN 1S40L50NO**
	NPN, NC	**RN 1S40H30NC**	**RN 1S40L30NC**	**RN 1S40H50NC**	**RN 1S40L50NC**
	PNP, NO	**RN 1S40H30PO**	**RN 1S40L30PO**	**RN 1S40H50PO**	**RN 1S40L50PO**
	PNP, NC	**RN 1S40H30PC**	**RN 1S40L30PC**	**RN 1S40H50PC**	**RN 1S40L50PC**
480 VACrms	NPN, NO	**RN 1S48H30NO**	**RN 1S48L30NO**	**RN 1S48H50NO**	**RN 1S48L50NO**
	NPN, NC	**RN 1S48H30NC**	**RN 1S48L30NC**	**RN 1S48H50NC**	**RN 1S48L50NC**
	PNP, NO	**RN 1S48H30PO**	**RN 1S48L30PO**	**RN 1S48H50PO**	**RN 1S48L50PO**
	PNP, NC	**RN 1S48H30PC**	**RN 1S48L30PC**	**RN 1S48H50PC**	**RN 1S48L50PC**

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General Specifications

	RN1S23.....	RN1S40.....	RN1S48.....
Operational voltage range	120 to 265 VAC	150 to 440 VAC	180 to 530 VAC
Blocking voltage	800 V_p	1000 V_p	1200 V_p
Varistor voltage	275 VAC	420 VAC	510 VAC
Zero voltage turn-on	≤ 15 V	≤ 15 V	≤ 25 V
Operational frequency range	45 to 65 Hz	45 to 65 Hz	45 to 65 Hz
Power factor	≥ 0.5 @ 230 VAC	≥ 0.5 @ 400 VAC	≥ 0.5 @ 480 VAC
Approvals	UL, cUL, CSA	UL, cUL, CSA	UL, cUL, CSA
CE-marking	Yes	Yes	Yes

Norms fulfilled	EN 60947-1	Low-voltage switchgear and control gear. Part 1- General Rules.
	EN 61000-6-2	Generic Immunity Standard. Industrial Environment

Control Specifications

Supply voltage range	20 to 32 V
Supply current	≤ 40 mA
Response time pick-up @ 50 Hz	≤ 10 ms
Response time drop-out @ 50 Hz	≤ 10 ms
Active high control input	
Pick-up voltage	Typ. 7 VDC
Drop-out voltage	Typ. 6.8 VDC
Input current (Vc = 32 V)	≤ 4 mA
Active low control input	
Pick-up voltage	Typ. Vcc - 10 VDC
Drop-out voltage	Typ. Vcc - 10 VDC
Input current (Vcc = 32 V)	≤ 4 mA

PNP alarm output	
Alarm output voltage open	≤ 0 VDC
Alarm output voltage @ 100 mA	Vcc - 2 VDC
Alarm output current	≤ 100 mA
NPN alarm output	
Alarm output voltage open	≤ 32 VDC
Alarm output voltage @ 100 mA	2 VDC
Alarm output current	≤ 100 mA

Output Specifications

		RN1S...30..	RN1S...50..
Rated operational load current			
AC 51	@T_a = 30°C	30 Arms	50 Arms
	@T_a = 40°C	30 Arms	50 Arms
	@T_a = 50°C	23 Arms	38 Arms
	@T_a = 60°C	20 Arms	30 Arms
AC 53a	@T_a = 40°C	6 Arms	12 Arms
Zero crossing detection		Yes	Yes
Min. operational current		200 mA	250 mA
Non-rep. surge current t = 10 ms (Tj init. = 25°C)		≤ 325 A_p	≤ 600 A_p
Off-state leakage current @ rated voltage and frequency (Tj. = 125°C, max.)		< 6 mA	< 6 mA
I^2t for fusing t = 10 ms		525 A^2s	1800 A^2s
Critical dV/dt off-state		500 V/µs	500 V/µs

Sense Specifications

	RN1S23.....	RN1S40.....	RN1S48.....
Current			
Sensed load current	≥ 50 mA	≥ 50 mA	≥ 50 mA
Non-sensed leakage current	≤ 20 mA	≤ 20 mA	≤ 20 mA
Voltage			
Sensed line voltage	≥ 120 Vrms	≥ 150 Vrms	≥ 180 Vrms
Non-sensed line voltage	≤ 50 Vrms	≤ 80 Vrms	≤ 100 Vrms
Timing			
Response time from fault to alarm output	≤ 100 ms	≤ 100 ms	≤ 100 ms
Short-circuit of semiconductor	Will be sensed	Will be sensed	Will be sensed

Thermal Specifications

Operating temperature	- 20° to +70°C (-4° to +158°F)
Storage temperature	- 40° to +100°C (-40° to +212°F)

Insulation

Rated impulse withstand voltage Input to output	4000 V_{imp}
Rated impulse withstand voltage Output to case	4000 V_{imp}

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 141R
Base plate	Aluminium, nickel plated
Potting compound	Polyurethane, Casco Nobel
Terminals	Screw with captive wire clamp
Control terminals nominal	4 mm^2 or 2 x 2.5 mm^2 AWG 12 or 2 x AWG 14
Min. cable dimenssion	0.5 mm^2, AWG 20
Mounting torque max.	0.6 Nm
Power terminals nominal	10 mm^2 or 2 x 6 mm^2 AWG 6 or 2 x AWG 10
Min. cable dimension	1 mm^2, AWG 16
Mounting torque max.	2.0 Nm
Heatsink compound used	Electrolube HTS

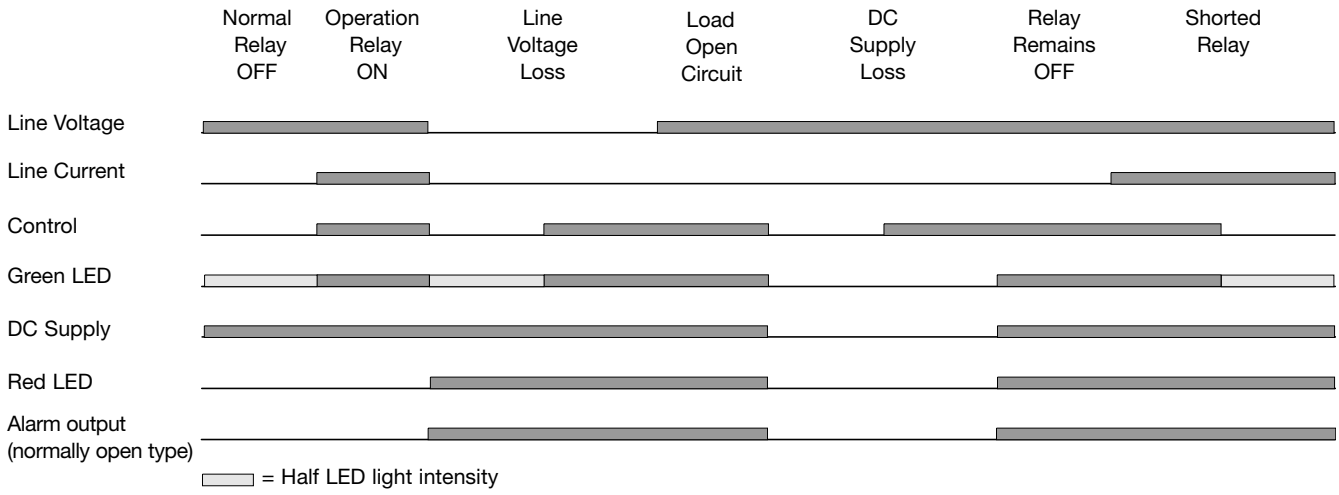
Environment Specifications

Humidity max.	95%, no condensation

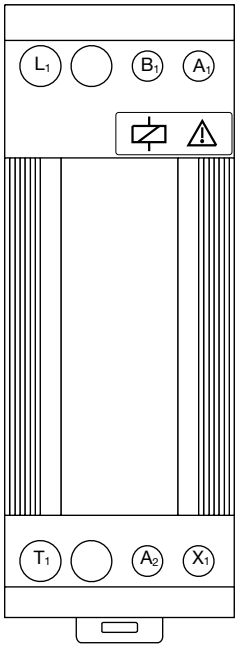
Dimensions

Dimensions	(H x W x D)
RN..30	120 x 45 x 110 mm
RN..50	120 x 90 x 110 mm

Operation Diagram



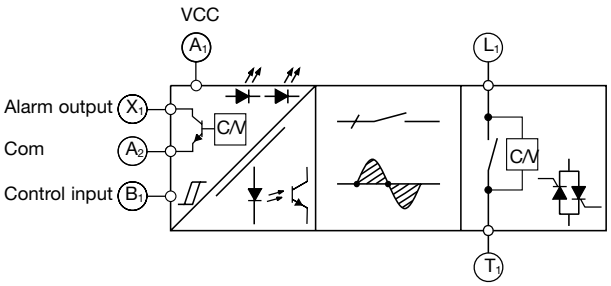
Terminal Layout



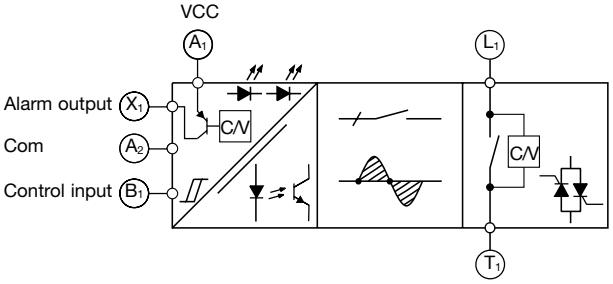
RN..30

Functional Diagrams

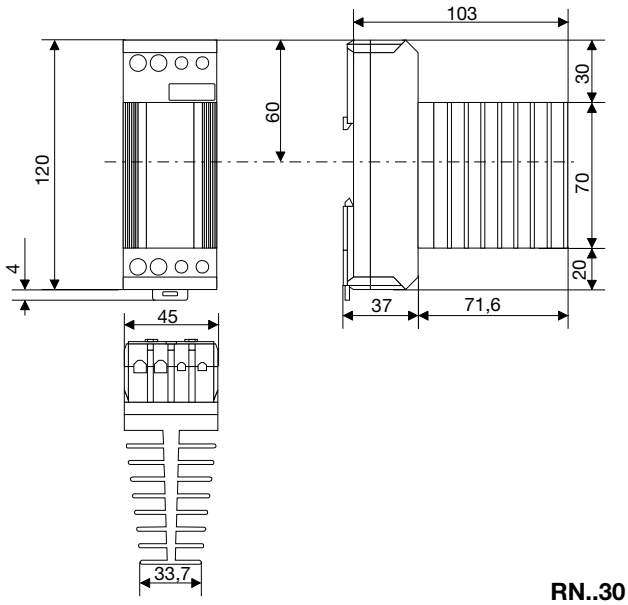
RN1S .....N.



RN1S .....P.

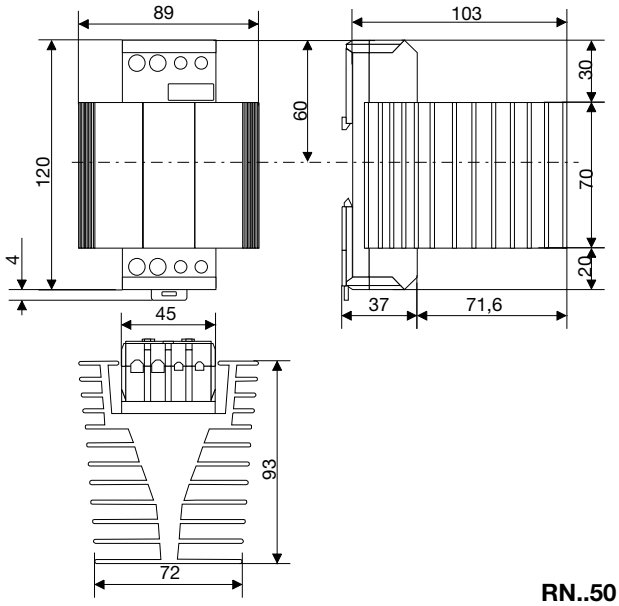


Dimensions



RN..30

Note: all dimensions in mm



RN..50

Note: all dimensions in mm

Solid State Relays
3-Phase, 2 Pole *SOLITRON*
With Integrated Heatsink

- **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**
- **Blocking voltage: Up to 1200 V_p**
- **Opto-isolation: > 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 integrated 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 availiable. 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 40: 3 x 400 VACrms 48: 3 x 480 VACrms	D: 5 to 32 VDC	15: 15 AACrms 30: 30 AACrms

Selection Guide, 2 Pole Switching / 1-Pole direct

Rated operational voltage	Control voltage	Rated operational current AC51: 3 x 15 AAC AC53a: 3 x 6 AAC	 AC51: 3 x 30 AAC AC53a: 3 x 12 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**

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General Specifications

	RN3A22...	RN3A40...	R3A48...
Operational voltage range	24 - 265 VAC	42 - 440 VAC	42 - 530 VAC
Blocking 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 Low-voltage switchgear and control gear. Part 1- General Rules
EN 61000-6-2 Generic Immunity Standard. Industrial Environment

Input Specifications

Control voltage range	5-32 VDC
Pick-up voltage	4.5 VDC
Drop-out voltage	1 VDC
Input current @ 24 VDC	< 10 mA

Response time pick-up	< 10 ms
Response time drop-out	< 20 ms
Green LED indication	Yes

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	250 mA
Rep. overload current (t = 1 s)	< 55 AACrms	< 125 AACrms
Non-rep. surge current (t = 10 ms)	325 Ap	600 Ap
Off-state leakage current at rated voltage and frequency	< 6 mA	< 6 mA
I^2t for fusing (t =10 ms)	525 A^2s	1800 A^2s
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)

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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

Isolation

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

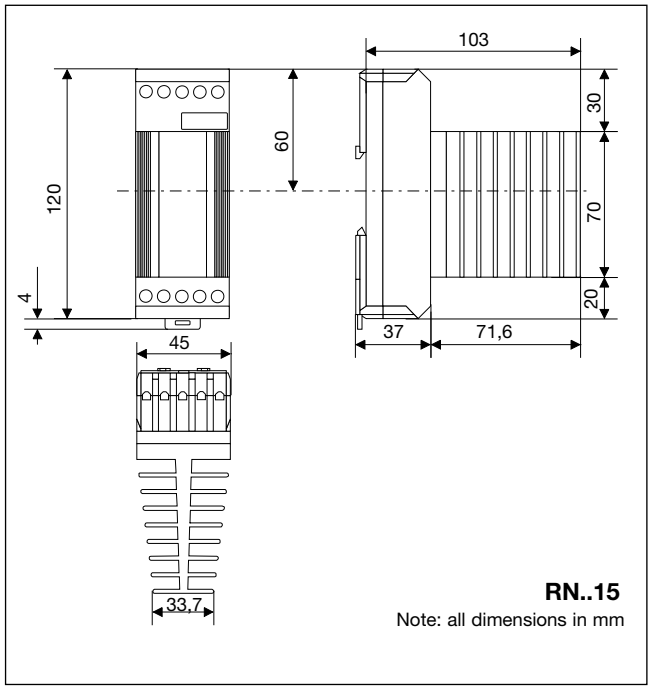
Environment Specifications

Humidity max.	95%, no condensation

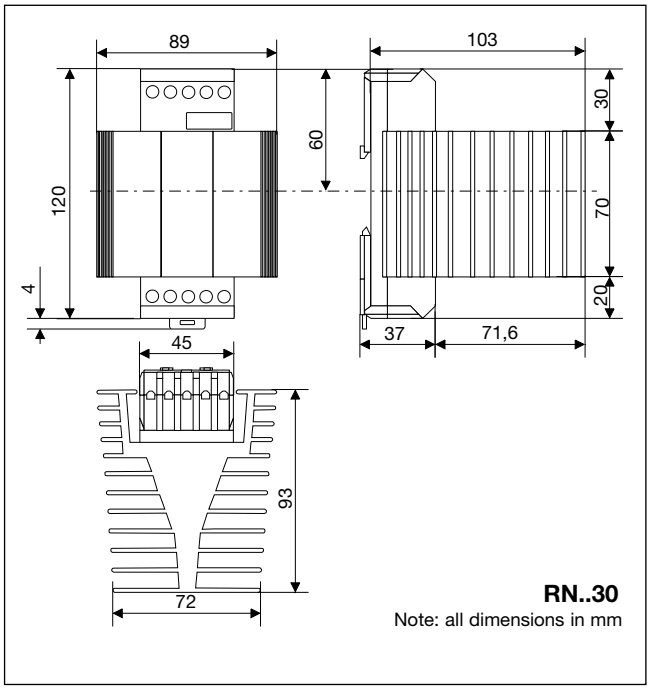
Dimensions

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

Dimensions

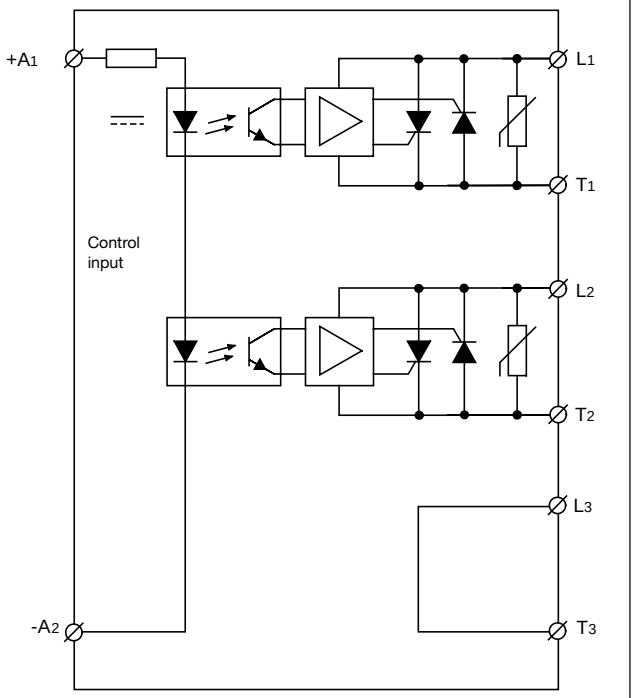


RN..15
Note: all dimensions in mm

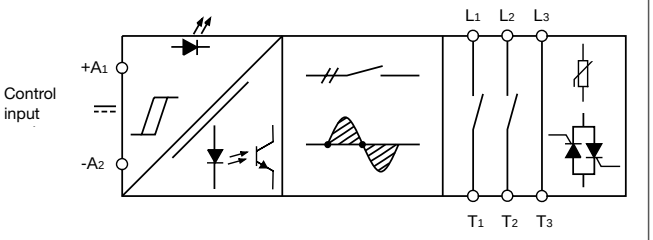


RN..30
Note: all dimensions in mm

Wiring Diagram



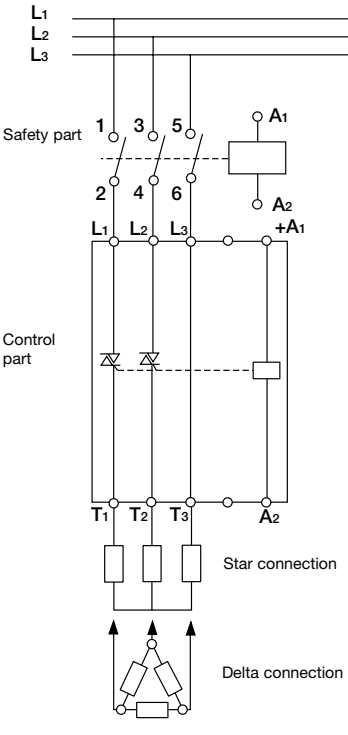
Functional Diagram



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.

По вопросам продаж и поддержки обращайтесь:

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Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
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