

Solid State Relays Industrial, 1-Phase DCS Types RD 0605 -D, RD 2001 -D, RD 3501 -D

CARLO GAVAZZI



- DC Solid State Relay
- Rated operational current: 1 and 5 ADC
- Operational voltage range: Up to 350 VDC
- Input range: 3 to 32 VDC
- Insulation: OPTO (input-output) 4000 VACrms

Product Description

The DC switching relay is used in applications in which there is a need for fast switching of small DC loads with a high input/output insulation of more

than 4000 VACrms. The DC switching transistor relay always switches ON and OFF in accordance with the applied control voltage.

Ordering Key **RD 06 05 -D**

Solid State Relay _____
Switching mode _____
Rated operational voltage _____
Rated operational current _____
Control current _____

Type Selection

Switching mode	Rated operational voltage	Rated operational current	Control voltage
D: DC switching	06: 60 VDC 20: 200 VDC 35: 350 VDC	01: 1 ADC 05: 5 ADC	-D: 3 to 32 VDC

Selection Guide

Rated operational voltage	Control voltage	Rated operational current 1 ADC	5 ADC
60 VDC	3 to 32 VDC		RD 0605 -D
200 VDC	3 to 32 VDC	RD 2001 -D	
350 VDC	3 to 32 VDC	RD 3501 -D	

General Specifications

	RD 0605 -D	RD 2001 -D	RD 3501 -D
Operational voltage range	3 to 60 VDC	3 to 200 VDC	3 to 350 VDC
Off-state blocking voltage	≥ 60 VDC	≥ 200 VDC	≥ 350 VDC
Approval	CSA	CSA	CSA

Input Specifications

	RD 2001 -D RD 3501 -D	RD 0605 -D
Control voltage range	3 to 32 VDC	3 to 32 VDC
Pick-up voltage	≤ 3 VDC	≤ 3 VDC
Drop-out voltage	≥ 1 VDC	≥ 1 VDC
Reverse voltage	≤ 32 VDC	≤ 32 VDC
Activating frequency	≤ 100 Hz	≤ 100 Hz
Input impedance	1 k Ω	1 k Ω
Response time pick-up @ $V_{in} \geq 5$ V	≤ 100 μ s	≤ 100 μ s
Response time drop-out	≤ 1 ms	≤ 1 ms
Input pulse rise and fall time	≤ 100 μ s	no limit

Output Specifications

	RD 2001 -D RD 3501 -D	RD 0605 -D
Rated operational current DC 1	1 A	5 A
Minimum operational current	1 mA	1 mA
Rep. overload current $t=1$ s	≤ 2 A	≤ 10 A (15A@80ms)
Off-state leakage current @ rated voltage	≤ 1 mA	≤ 1 mA
On-state voltage drop @ rated current	≤ 1.5 V	≤ 1.5 V

Thermal Specifications

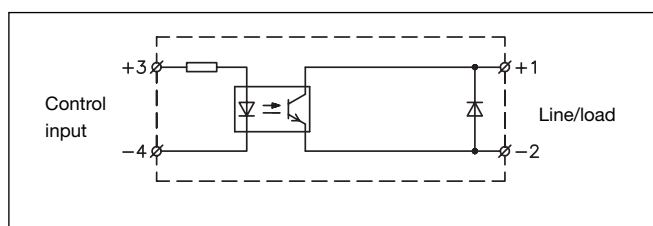
Operating temperature	-40 to +100°C (-40 to 212°F)
Storage temperature	-40 to +100°C (-40 to 212°F)
Junction temperature	≤ 150 °C (302° F)
R_{th} junction-case	≤ 3 K/W
R_{th} junction to ambient	≤ 15 K/W

Insulation

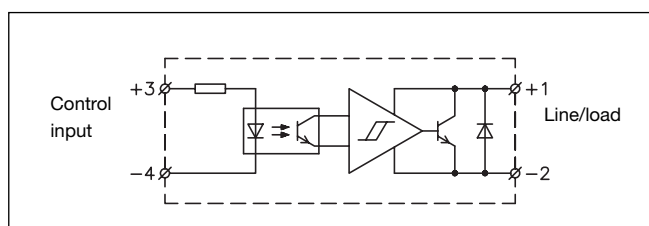
Rated insulation voltage Input to output	≥ 4000 VACrms
Rated insulation voltage Output to case	≥ 4000 VACrms
Insulation resistance Input to output	$\geq 10^{10}$ Ω
Insulation resistance Output to case	$\geq 10^{10}$ Ω
Insulation capacitance Input to output	≤ 8 pF
Insulation capacitance Output to case	≤ 50 pF

Wiring Diagrams

RD 2001-D RD 3501-D

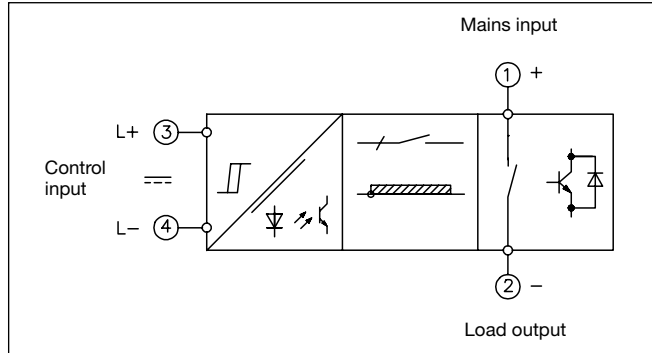


RD 0605 -D

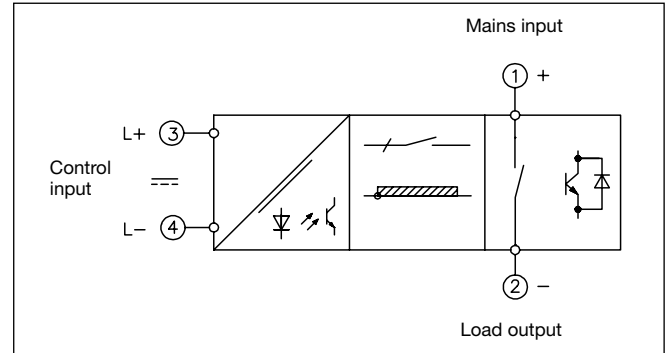


Functional Diagrams

RD 0605-D

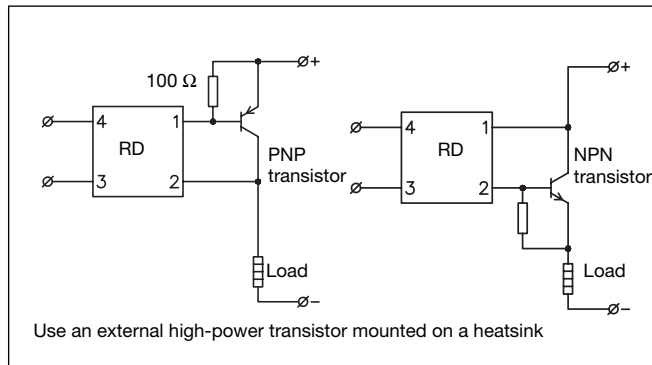


RD 2001-D RD 3501-D

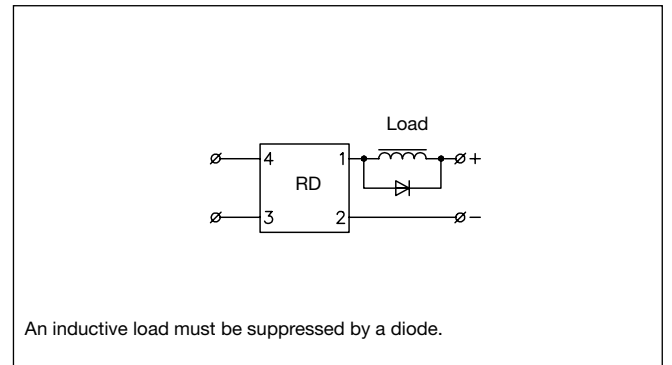


Applications

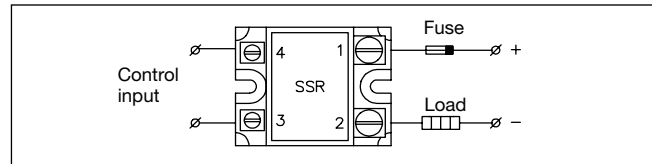
High-power switching



Inductive load



Fusing



Heatsink Dimensions

RD 0605 -D

	Load current [A DC]						Thermal resistance [K/W]					
	5	4	3	2	1	0	5	4	3	2	1	0
5	10.7	9.3	8	6.7	5.3	4						
4	13.3	11.7	10	8.3	6.7	5						
3	-	-	13.3	11.1	8.8	6.7						
2	-	-	-	-	13.3	10						
1	-	-	-	-	-	-						
	20	30	40	50	60	70	T_A Ambient temp. [°C]					

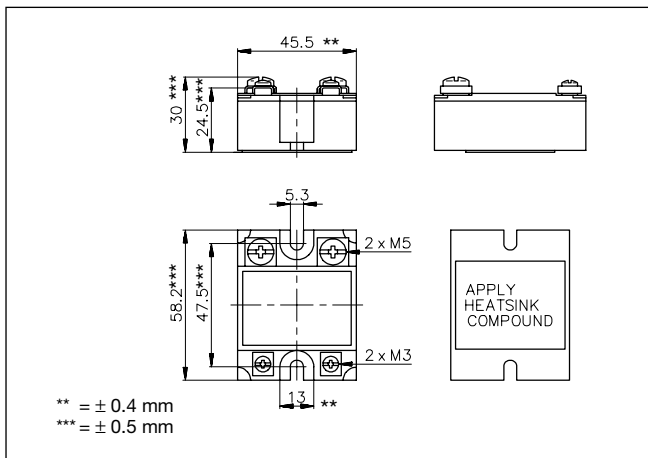
Heatsink Selection

Carlo Gavazzi Heatsink (see Accessories)	Thermal resistance
No heatsink required RHS 100 Assy	$R_{th\ s-a} > 12.5$ K/W 3.0 K/W

Compare the value found in the current versus temperature chart with the standard heatsink values and select the heatsink with the next lower value.

Frequency = 0 to 10 Hz.
Types RD 2001-D and RD 3501-D require no heatsinking.

Dimensions



Accessories

Protection cover
Heatsinks
DIN rail adapter
Varistors
Fuses

For further information refer to "General Accessories".

Housing Specifications

Weight	Approx. 110 g
Housing material	Noryl GFN 1, black
Base plate	Aluminium
Potting compound	Polyurethane
Relay	
Mounting screws	M5
Mounting torque	≤ 1.5 Nm
Control terminal	
Mounting screws	M3 x 6
Mounting torque	≤ 0.5 Nm
Power terminal	
Mounting screws	M5 x 6
Mounting torque	≤ 2.4 Nm