

Hybrid Relay

1-Phase Solid State Relay with electromechanical bypass relay

Type RMD (for resistive loads)



- Hybrid relay: Solid State Relay / Electromechanical Relay
- Operational ratings up to 230V, 20A ACrms
- Integral bypassing of semiconductors
- Internal over-temperature protection
- Compact 17.5mm wide housing
- Standard modular design
- DIN rail mounting
- No need for external heatsink
- Minimum audible noise
- Fit and forget: millions of switching cycles
- Ideal for switching of resistive single phase loads in residential buildings

Product Description

The RMD houses semiconductor triacs and mechanical contacts that compliment each other. On applying the control voltage, triacs are activated. After a short delay, an electromechanical relay is activated. This switching method protects the contacts of the electromechanical relay and reduces heating of the triacs. The same principle applies during removal of the control input. The result is millions of trouble-free cycles in a compact and modular switching package.

Ordering Key

RMD 1 H 23 D 20

Hybrid Relay _____
 Number of Poles _____
 Switching mode _____
 Rated operational voltage _____
 Control voltage _____
 Rated operational current _____

Type Selection

Switching mode	Rated operational voltage	Rated operational current	Control voltage
H: Hybrid Switching	23:230 VAC	20: 20AACrms	D: 4-32 VDC A: 24-275VAC/ 24-190VDC

Selection Guide

Rated operational voltage	Blocking voltage	Control voltage	Rated operational current * 20 AACrms
230 VAC	600 V _p	4-32 VDC 24-275 VAC 24-190 VDC	RMD1H23D20 RMD1H23A20

* refer to Current Derating Curve

General Specifications

Operational voltage range	195 - 253 VACrms
Blocking voltage	600V _p
Zero voltage turn-on	<15V
Operational frequency range	45-65Hz
Power factor	≥ 0.9 @ 230VACrms

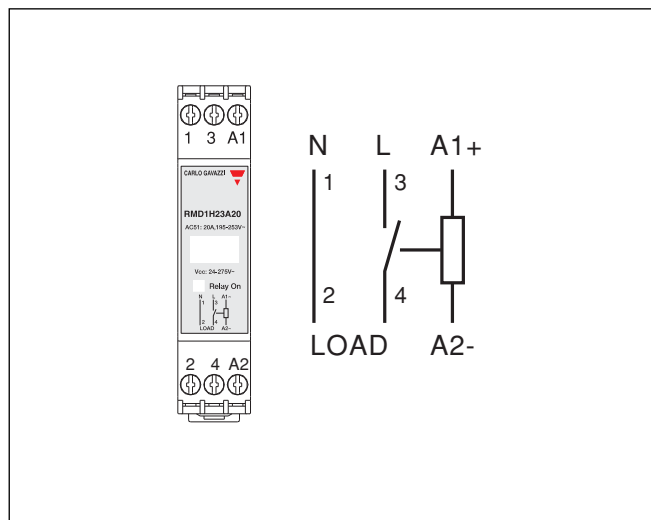
Output Specifications

Rated operational current AC1/AC51/AC7a @ 25°C	20AACrms,(16AACrms UL rating)	Power dissipation at rated operational current	6.4W
@ 40°C	16AACrms	Number of commutations per minute @ 25°C	6
@ 55°C	11.5AACrms	Minimum load current	100mA
Assigned load rating (resistive)	4.5kW @ 25°C	Max. leakage current	3mA
Rep. overload current t=1s	37AACrms	Relay contacts	Normally open AgCdO
Non-rep. surge current, t=10ms	200A _p	Recommended fusing (not supplied)	660 gRB 10-20 Fuse type ST10
I ² t for fusing, t=10ms	200A ² s		
Critical dV/dt off state min.	500 V/μs		

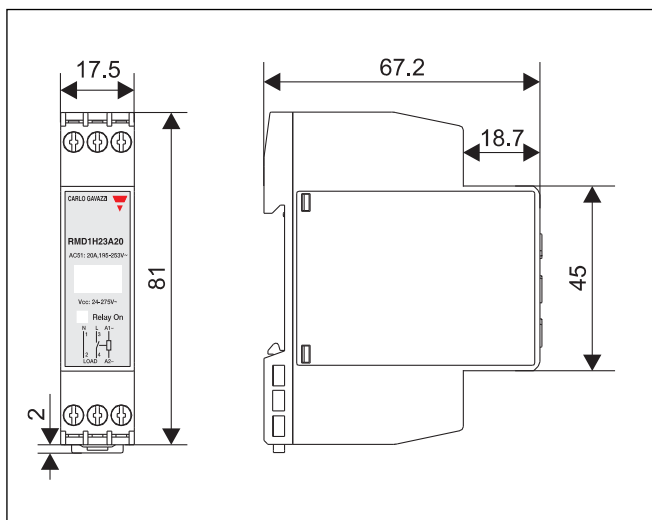
Input Specifications

	RMD1H23D20	RMD1H23A20
Control voltage	4-32VDC	24-275VAC/ 24-190VDC
Pick-up voltage	2VDC	9VAC/ 12VDC
Drop-out voltage	1VDC	5VAC/ 4VDC
Reverse voltage	32VDC	-
Max. input current	5mADC	2.5mAAC
Response time pick-up	≤ 40ms	40ms
Response time drop-out	≤ 70ms	≤ 100ms

Connection Diagram



Dimensions



All dimensions in mm

Standards

Approvals	UR, cUR	Pollution degree	2
Markings	CE	Degree of protection	IP20 (IEC 60529)
Emission		Numbers of cycles	> 5,000,000
RMD1H23D20	EN55011/CISPR11 Class B	Audible noise	< 40dB at 1m
RMD1H23A20	EN55011/CISPR11 Class B ¹	Control status indication	LED, Green
Immunity		Dielectric withstand voltage input to output	2.5kVACrms
Conducted immunity EN 61000-4-6	Performance criteria 1 @ 10 V/m	EMC emissions	
Radiated immunity EN 61000-4-3	Performance criteria 1 @10 V/m	Discontinued clicks EN 55014-1	Pass ²
Surge EN 61000-4-5	Performance criteria 1 @ 2kV L-E Performance criteria 1 @1kV L-L	Harmonic current EN 61000-3-2	Pass
ESD EN 61000-4-2	Performance criteria 1 @ 4kV & 8 kV	Fluctuations and flicker EN 61000-3-3	Pass ^{2, 3}
Burst EN 61000-4-4	Performance criteria 1 @ 2 kV		

1. Control input conditions apply

2. Results dependent on 'starts per hour' rate

3. Load conditions apply

Housing Specifications

Weight	60g (approx)	Max. terminal tightening torque	0.6Nm (5.3 lb.in)
Housing material	self extinguishing UL94V0	Max. cross-sectional area of cable (stranded)	4.0mm ² (AWG 12) 2.5mm ² (AWG12) accord. to IEC 60947-1
Potting compound	none		
Terminals			
Tightening screws	M3		

Thermal Specifications

Operating temperature	-5° to +55°C
Storage temperature	-40° to +85°C
Relative humidity	< 95% non-condensing

Over Temperature Protection

Over-temperature indication	LED intermittent
Reset	Switch OFF supply and switch back ON in > 100ms
Temperature limit	100°C

Current Derating

