



References

Order code

RP1 □ □ D10

Enter the code entering the corresponding option instead of □

| Code | Option | Description | Notes |
|------|--------|---------------------------------------|---------------------------|
| R | - | Solid State Relay (PCB) | |
| P | - | | |
| 1 | - | Number of poles | |
| □ | A | Switching mode: zero switching | |
| | B | Switching mode: instant-On switching | |
| □ | 23 | Rated operational voltage: 230 VACrms | |
| | 40 | Rated operational voltage: 400 VACrms | |
| | 48 | Rated operational voltage: 480 VACrms | |
| D | - | Control voltage: 4 to 32 VDC | 3 to 32 VDC for RP1.23D10 |
| 10 | - | Rated operational current: 10AACrms | |

Selection guide

| Rated operational voltage | Blocking voltage | Control voltage | Rated operational current 10 AACrms |
|---------------------------|------------------|-----------------|--|
| 230 VACrms | 650 Vp | 3 to 32 VDC | RP1A23D10 |
| 400 VACrms | 850 Vp | 4 to 32 VDC | RP1A40D10 |
| 480 VACrms | 1000 Vp | 4 to 32 VDC | RP1A48D10 |

CARLO GAVAZZI compatible components

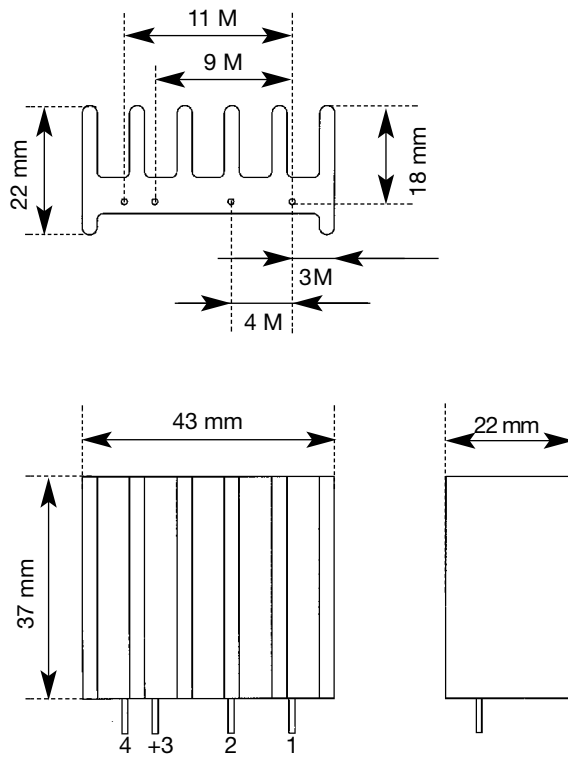
| Purpose | Component name/code | Notes |
|--------------|---------------------|---|
| DIN adaptors | RPM2 | DIN adaptor 600V with LED Note that when the RP..10 is mounted on DIN rail (vertical mounting), a derating factor has to be applied. |

Features

▶ General

| | |
|-----------------------------------|---------------------|
| Material | Black Epoxy coating |
| Weight | Approx. 40 g |
| Isolation: input to output | 4 kVACrms |

▶ Dimensions



M = 2.54 mm = 1/10 "



Performance

Mains supply

| | RP1.23D10 | RP1.40D10 | RP1.48D10 |
|--|------------------------------------|------------------------------------|------------------------------------|
| Operational voltage range RP1A RP1B | 12 - 265 VACrms 12 - 265 VACrms | 20 - 440 VACrms 12 - 440 VACrms | 20 - 530 VACrms 12 - 530 VACrms |
| Operational frequency range | 45 - 65 Hz | | |
| Blocking voltage | < 650 Vp | < 850 Vp | < 1000 Vp |
| Zero voltage turn-on | < 10 VACrms | | |

Outputs

| | |
|---|-----------------------|
| Rated operational current AC 51 @ $T_a = 25^\circ\text{C}$ AC 53a @ $T_a = 25^\circ\text{C}$ | 10 AACrms 7 AACrms |
| Min. operational load current | 10 mAACrms |
| Power factor | > 0.5 |
| Rep. overload current t=1 s | 16 AACrms |
| Non-rep. surge current t=20 ms | 250 Ap |
| Off-state leakage current @ rated voltage and frequency | < 3 mAACrms |
| I²t for fusing t=10 ms | 340 A ² s |
| Critical dV/dt off state min. | 1000 V/μs |
| On-state voltage drop @ rated current | < 1.5 VACrms |

Inputs

| | |
|--|----------------------------|
| Control voltage RP1.23D10 RP1.40D10, RP1.48D10 | 3-32 VDC 4-32 VDC |
| Pick-up voltage RP1.23D10 RP1.40D10, RP1.48D10 | 2.8 VDC 3.8 VDC |
| Drop-out voltage | 1.2 VDC |
| Max. input current RP1A..D10 RP1B..D10 | 10 mA 17 mA |
| Max. reverse voltage | 32 VDC |
| Response time pick-up RP1A..D10 RP1A..D10 @ Vin 5VDC | ≤ 1/2 cycle ≤ 200 μs |
| Response time drop-out RP1B..D10 RP1B..D10 @ Vin 5VDC | ≤ 1/2 cycle ≤ 1/2 cycle |

Derating curve

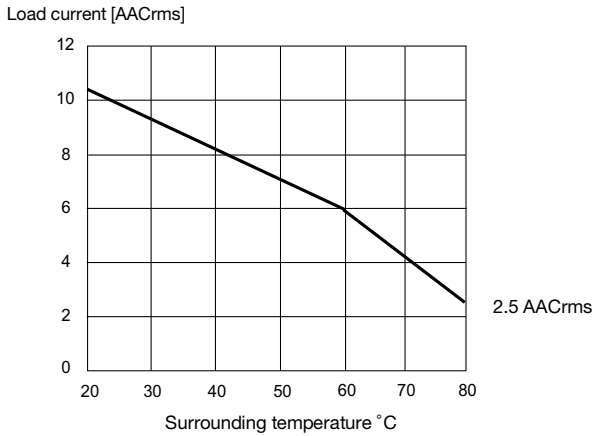


Fig. 1 Convection cooling

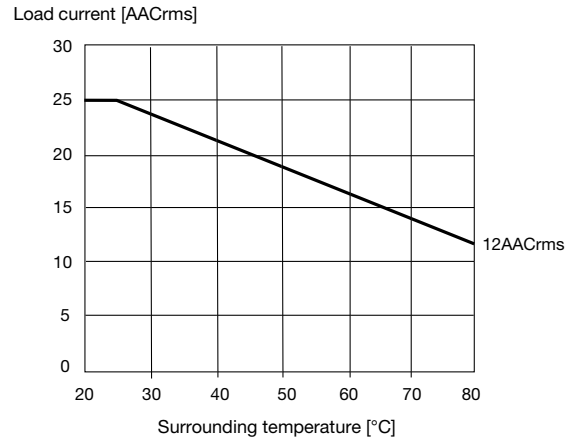


Fig. 2 Forced air cooling at 15m³/h

Derating curve is used for finding max. load current at an elevated ambient temperature.

Note: the above indicated current ratings apply only for the RP..10 mounted with fins in the vertical orientation to allow airflow through the heatsink fins. For other mounting orientations please consult your Carlo Gavazzi Sales representative.



Compatibility and conformity

| | |
|-----------------------------|---|
| Standards compliance | LVD: EN 60947-4-3 EMCD: EN 61000-6-2, EN 61000-6-4 UL508 C22.2 No. 14-13 |
| Approvals | |

| Electromagnetic compatibility (EMC) - immunity | |
|---|---|
| Electrostatic discharge (ESD) | EN/IEC 61000-4-2 8 kV air discharge, 4 kV contact (PC1) |
| Radiated radio frequency | EN/IEC 61000-4-3 10 V/m, from 80 MHz to 1 GHz (PC1) 10 V/m, from 1.4 to 2 GHz (PC1) 10 V/m, from 2 to 2.7 GHz (PC1) |
| Electrical fast transient (burst) | EN/IEC 61000-4-4 Output: 2 kV, 5 kHz (PC2) Input: 1 kV, 5 kHz (PC2) |
| Conducted radio frequency | EN/IEC 61000-4-6 10V/m, from 0.15 to 80 MHz (PC1) |
| Electrical surge | EN/IEC 61000-4-5 Output, line to line: 1 kV (PC2) Output, line to earth: 1 kV (PC2) ¹ Input, line to line: 500 V (PC2) ² Input, line to earth: 500 V (PC2) ² |
| Voltage dips | EN/IEC 61000-4-11 0% for 0.5, 1 cycle (PC2) 40% for 10 cycles (PC2) 70% for 25 cycles (PC2) |
| Voltage Interruptions | EN/IEC 61000-4-11 0% for 5000ms (PC2) |

| Electromagnetic compatibility (EMC) - emissions | |
|---|--|
| Radio interference field emission (radiated) | EN/IEC 55011 Class A: from 30 to 1000 MHz |
| Radio interference voltage emissions (conducted) | From 0.15 to 30 MHz EN/IEC 55011 Class A (industrial) with filter capacitor across the Mains supply EN/IEC 60947-4-3 Class A (no filtering needed) |

Note:

- Performance Criteria 1 (PC1): no degradation of performance or loss of function is allowed when the product is operated as intended.
- Performance Criteria 2 (PC2): during the test, degradation of performance or partial loss of function is allowed. However when the test is complete the product should return operating as intended by itself.
- Performance Criteria 3 (PC3): temporary loss of function is allowed, provided the function can be restored by manual operation of the controls.
- Control input lines must be installed together to maintain products' susceptibility to Radio Frequency interference.
- ¹ A suppression device, such as a varistor, needs to be connected across the output terminals L1, T1 for immunity against higher voltage levels.
- ² A suppression device, such as a transil, needs to be connected across the control terminals A1, A2 for immunity against higher voltage levels.
- Use of AC solid state relays may, according to the application and the load current, cause conducted radio interferences. Use of mains filters may be necessary for cases where the user must meet E.M.C requirements.



Environmental specifications

| | |
|------------------------------|---------------------------------|
| Operating temperature | -30° to +80°C (-22° to +176°F) |
| Storage temperature | -40° to +100°C (-40° to +212°F) |
| Pollution degree | 2 |
| EU RoHS compliant | Yes |
| China RoHS | |

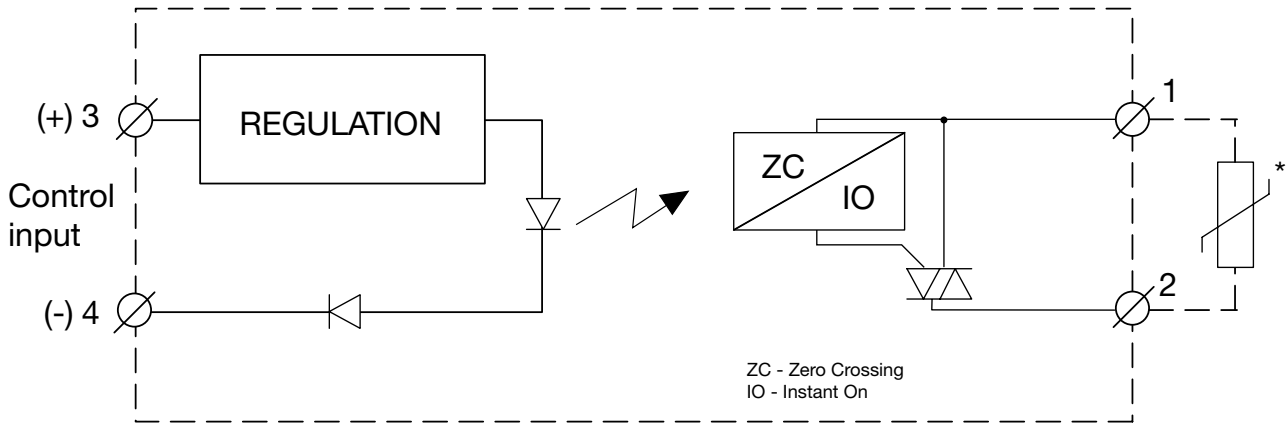
The declaration in this section is prepared in compliance with People's Republic of China Electronic Industry Standard SJ/T11364-2014: Marking for the Restricted Use of Hazardous Substances in Electronic and Electrical Products.

| Part Name | Toxic or Harardous Substances and Elements | | | | | |
|--|--|--------------|--------------|------------------------------|--------------------------------|---------------------------------------|
| | Lead (Pb) | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (Cr(VI)) | Polybrominated biphenyls (PBB) | Polybrominated diphenyl ethers (PBDE) |
| Power Unit Assembly | x | O | O | O | O | O |
| <p>O: Indicates that said hazardous substance contained in homogeneous materials for this part are below the limit requirement of GB/T 26572.</p> <p>X: Indicates that said hazardous substance contained in one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.</p> | | | | | | |

这份申明根据中华人民共和国电子工业标准 SJ/T11364-2014：标注在电子电气产品中限定使用的有害物质

| 零件名称 | 有毒或有害物质与元素 | | | | | |
|--|------------|--------|--------|--------------|-------------|--------------|
| | 铅 (Pb) | 汞 (Hg) | 镉 (Cd) | 六价铬 (Cr(VI)) | 多溴化联苯 (PBB) | 多溴联苯醚 (PBDE) |
| 功率单元 | x | O | O | O | O | O |
| <p>O:此零件所有材料中含有的该有害物低于GB/T 26572的限定。</p> <p>X: 此零件某种材料中含有的该有害物高于GB/T 26572的限定。</p> | | | | | | |

Functional diagram



* The varistor is not included in the solid state relay. Connecting a varistor across terminals 1-2 helps protect the solid state relay against damages by over-voltage

Connection specifications

| | |
|--|--------------------------|
| Terminals | Copper alloy, tin-plated |
| Terminals soldering temperature | max. 300°C for 5 seconds |



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