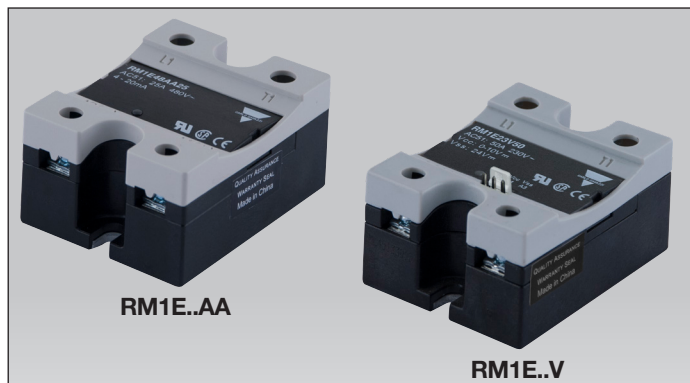


# Solid State Relays Industrial, 1-Phase Analog Switching Type RM1E



- AC Solid State Relay
- Analog switching (phase-angle control) for resistive and slightly inductive load applications
- 4 - 20 mA or 0 -10 V control input
- Rated operational current: 25, 50, 75, 100 and 125 AACrms
- Rated operational voltage: Up to 600 VACrms
- Variable intensity LED-indication according to input current
- Integral snubber network
- Polarized lockable control connector for safe connection for voltage controlled version



## Product Description

The analog switching relay works in accordance with the phase angle control principle, i.e., the output switching point in the AC sine wave depends on the control input which can be either 4-20 mA or 0-10 VDC. 4 mA or 0 VDC correspond to

zero output power whilst 20 mA or 10 VDC correspond to full output power (near linear power response). The relay switches off every time the output current crosses zero, and switches ON in accordance with the applied control input.

## Ordering Key

**RM 1E 60 AA 50**

Solid State Relay \_\_\_\_\_  
Number of Poles \_\_\_\_\_  
Switching mode \_\_\_\_\_  
Rated operational voltage \_\_\_\_\_  
Control input \_\_\_\_\_  
Rated operational current \_\_\_\_\_

## Type Selection

| Switching mode      | Rated operational voltage                                             | Rated operational current                                                             | Control input                    |
|---------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------|
| E: Analog switching | 23: 230 VACrms*<br>40: 400 VACrms<br>48: 480 VACrms<br>60: 600 VACrms | 25: 25 AACrms<br>50: 50 AACrms<br>75: 75 AACrms<br>100: 100 AACrms<br>125: 125 AACrms | AA: 4 - 20 mADC<br>V: 0-10 VDC** |

\* For nominal operational voltage of 110 VACrms, use RM1E23...

\*\* RM1E..V.. require an external supply voltage

## Selection Guide

| Rated op. voltage | Blocking voltage    | Control input         | Rated operational current |                         |            |                           |                           |
|-------------------|---------------------|-----------------------|---------------------------|-------------------------|------------|---------------------------|---------------------------|
|                   |                     |                       | 25 A                      | 50 A                    | 75A        | 100 A                     | 125 A                     |
| 230 VAC           | 650 V <sub>p</sub>  | 4 - 20 mA<br>0-10 VDC | RM1E23AA25<br>RM1E23V25   | RM1E23AA50<br>RM1E23V50 |            | RM1E23AA100<br>RM1E23V100 | RM1E23AA125<br>RM1E23V125 |
| 400 VAC           | 850 V <sub>p</sub>  | 4 - 20 mA             | RM1E40AA25                | RM1E40AA50              |            | RM1E40AA100               |                           |
| 480 VAC           | 1200 V <sub>p</sub> | 4 - 20 mA<br>0-10 VDC | RM1E48AA25<br>RM1E48V25   | RM1E48AA50<br>RM1E48V50 | RM1E48AA75 | RM1E48AA100<br>RM1E48V100 | RM1E48AA125<br>RM1E48V125 |
| 600 VAC           | 1400 V <sub>p</sub> | 4 - 20 mA<br>0-10 VDC | RM1E60AA25<br>RM1E60V25   | RM1E60AA50<br>RM1E60V50 |            | RM1E60AA100<br>RM1E60V100 |                           |

## General Specifications

|                                                      | RM 1E 23 ...                   | RM 1E 40 ...        | RM 1E 48 ...                     | RM 1E 60 ...                     |
|------------------------------------------------------|--------------------------------|---------------------|----------------------------------|----------------------------------|
| Operational voltage range<br>RM1E..AA..<br>RM1E..V.. | 90 to 280 VAC<br>90 to 265 VAC | 340 to 460 VAC<br>- | 200 to 550 VAC<br>200 to 550 VAC | 410 to 660 VAC<br>410 to 660 VAC |
| Blocking voltage                                     | 650 V <sub>p</sub>             | 850 V <sub>p</sub>  | 1200 V <sub>p</sub>              | 1400 V <sub>p</sub>              |
| Operational frequency range                          | 45 to 65 Hz                    | 45 to 65 Hz         | 45 to 65 Hz                      | 45 to 65 Hz                      |
| Power factor                                         | > 0.75                         | > 0.75              | > 0.75                           | > 0.75                           |
| Approvals                                            | UR, cUR, CSA, EAC              | UR, cUR, CSA, EAC   | UR, cUR, CSA, EAC                | UR, cUR, CSA, EAC                |
| CE-marking                                           | Yes                            | Yes                 | Yes                              | Yes*                             |
| UKCA-marking                                         | Yes                            | Yes                 | Yes                              | Yes*                             |

\* Heatsink must be connected to ground for 600 V types

Specifications are subject to change without notice (23.08.2021)

## Output Specifications

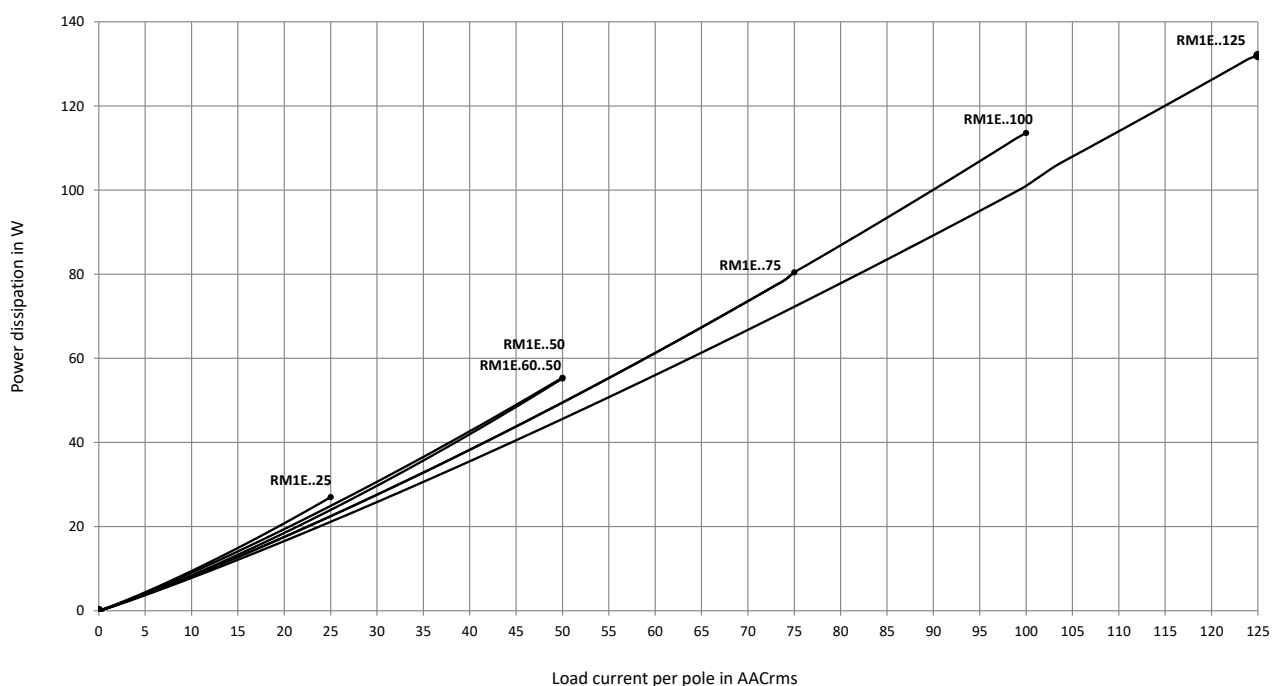
|                                       | RM1E...25            | RM1E...50             | RM1E...75             | RM1E...100            | RM1E...125             |
|---------------------------------------|----------------------|-----------------------|-----------------------|-----------------------|------------------------|
| Rated operational current             |                      |                       |                       |                       |                        |
| AC51 Ta=25 °C                         | 25 AACrms            | 50 AACrms             | 75 AACrms             | 100 AACrms            | 125 AACrms             |
| AC53a Ta=25 °C                        | 5 AACrms             | 15 AACrms             | 20 AACrms             | 20 AACrms             | 30 AACrms              |
| Minimum operational current           | 150 mA               | 250 mA                | 400 mA                | 400 mA                | 500 mA                 |
| Rep. overload current t = 1 s         | 55 AACrms            | 125 AACrms            | 150 AACrms            | 150 AACrms            | 200 AACrms             |
| Non-rep. surge current t = 10 ms      | 325 A <sub>p</sub>   | 600 A <sub>p</sub>    | 1150 A <sub>p</sub>   | 1150 A <sub>p</sub>   | 1900 A <sub>p</sub>    |
| Off-state leakage current             | < 3 mA               | < 3 mA                | < 3 mA                | < 3 mA                | < 3 mA                 |
| I <sup>2</sup> t for fusing t = 10 ms | 525 A <sup>2</sup> s | 1800 A <sup>2</sup> s | 6600 A <sup>2</sup> s | 6600 A <sup>2</sup> s | 18000 A <sup>2</sup> s |
| Critical dV/dt off-state min.         | 1000 V/μs            | 1000 V/μs             | 1000 V/μs             | 1000 V/μs             | 1000 V/μs              |

## Input Specifications

|                                 | RM1E..AA..       |                                          | RM1E..V..                          |
|---------------------------------|------------------|------------------------------------------|------------------------------------|
| <b>Current controlled input</b> |                  | <b>Voltage controlled input</b>          |                                    |
| Control current range (A1-A2)   | 4-20 mADC        | Supply voltage, V <sub>ss</sub> (A3-A2)  | 24 VDC ±20%                        |
| Pick up current                 | 4.2 mADC         | Max. supply current                      | 15 mA @ 19.2 VDC<br>20 mA @ 30 VDC |
| Drop out current                | 4.1 mADC         | Control voltage, V <sub>cc</sub> (A1-A2) | 0-10 VDC                           |
| Response time (input to output) | ≤ 20 ms          | Pick up voltage                          | 0.2 VDC                            |
| Voltage drop                    | < 10 VDC @ 20 mA | Drop out voltage                         | 0.1 VDC                            |
| Dynamic impedance               | ≥ 330 Ω          | Control input current                    | 0.15 mA @10 VDC                    |
| Max. allowable input current    | 50 mA            | Response time (input to output)          | ≤ 20 ms                            |
| Reverse polarity protected      | Yes              | Supply reverse protected                 | Yes                                |

Note: The use of twisted pair cable for the control input is recommended

## Output Power Dissipation



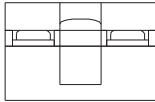
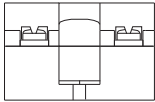
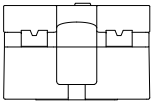
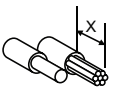
## Electromagnetic Compatibility

|                                                        |                                               |                                                     |                        |
|--------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------|------------------------|
| <b>Immunity</b>                                        | EN60947-4-3                                   | <b>Radiated Radio Frequency Immunity</b>            | IEC/EN 61000-4-3       |
| <b>Electrostatic Discharge (ESD) Immunity</b>          | IEC/EN 61000-4-2                              | 10 V/m, 80 - 1000 MHz                               | Performance Criteria 1 |
| Air discharge, 8 kV                                    | Performance Criteria 2                        | 10 V/m, 1.4 - 2.0 GHz                               | Performance Criteria 1 |
| Contact, 4 kV                                          | Performance Criteria 2                        | 3 V/m, 2.0 - 2.7 GHz                                | Performance Criteria 1 |
| <b>Electrical Fast Transient (Burst) Immunity</b>      | IEC/EN 61000-4-4                              | <b>Conducted Radio Frequency Immunity</b>           | IEC/EN 61000-4-6       |
| Output: 2 kV, 5 kHz                                    | Performance Criteria 1                        | 10 V/m, 0.15 - 80 MHz                               | Performance Criteria 1 |
| Input: 1 kV, 5 kHz                                     | Performance Criteria 1                        | <b>Voltage Dips Immunity</b>                        | IEC/EN 61000-4-11      |
| <b>Electrical Surge Immunity</b>                       | IEC/EN 61000-4-5                              | 0% for 0.5 , 1 cycle                                | Performance Criteria 2 |
| Output, line to line, 1 kV                             | Performance Criteria 2                        | 40% for 10 cycles                                   | Performance Criteria 2 |
| Output, line to earth, 1 kV                            | Performance Criteria 2                        | 70% for 25 cycles                                   | Performance Criteria 2 |
| Output, line to earth, 2 kV                            | Performance Criteria 2 with external varistor | 80% for 250 cycles                                  | Performance Criteria 2 |
| Input, line to line, 1 kV                              | Performance Criteria 2                        | <b>Voltage Interruptions Immunity</b>               | IEC/EN 61000-4-11      |
| Input, line to earth, 2 kV                             | Performance Criteria 2                        | 0% for 5000 ms                                      | Performance Criteria 2 |
| <b>EMC Emission</b>                                    | EN60947-4-3                                   | <b>Radio Interference Field Emission (Radiated)</b> | IEC/EN 55011           |
| <b>Radio Interference Voltage Emission (Conducted)</b> | IEC/EN 55011                                  | <b>30 - 1000 MHz</b>                                | Class B                |
| <b>0.15 - 30 MHz</b>                                   | Class A (industrial) with filters             |                                                     |                        |

### Notes:

- 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. The capacitor values given inside the filtering specification tables should be taken only as indications, the filter attenuation will depend on the final application.
- The manufacturer has set the maximum allowable deviation under the influence of RFI to +/- 1.0% FSD or +/-1 step in distributed modes.
- Control input lines must be installed together to maintain products' susceptibility to Radio Frequency interference.
- Performance Criteria 1: No degradation of performance or loss of function is allowed when the product is operated as intended.
- Performance Criteria 2: 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: Temporary loss of function is allowed, provided the function can be restored by manual operation of the controls.

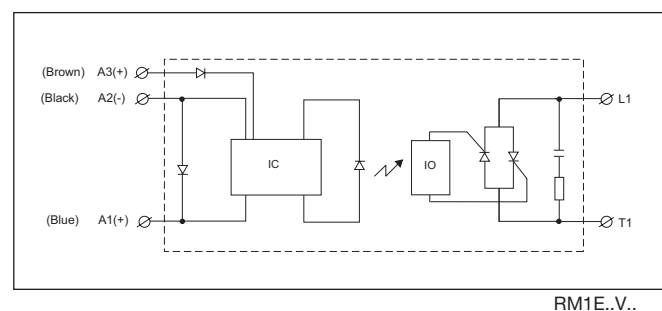
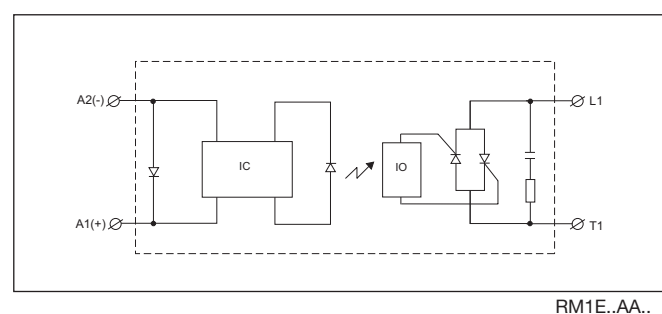
## Connection Specifications

| Connection terminals                      | L1, T1                                                                                                                               | A1, A2                                                                                           | A1, A2, A3                                                                                            |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
|                                           |                                                     |                |                    |
| Stripping length (X)                      | 12 mm                                                                                                                                | 8 mm                                                                                             |                                                                                                       |
| Connection Type                           | M5 screw with captivated washer                                                                                                      | <b>RM1E..AA..:</b><br>M3 screw with captivated washer                                            | <b>RM1E..V..:</b><br>3 pins, pitch 2.54 mm square pin 0.64'<br>Accessory: RCS3-100-1 terminated cable |
| Rigid (solid & stranded)<br>UR rated data | <br>1x 2.5 - 6.0 mm <sup>2</sup><br>1x 14 - 10 AWG  | 2x 2.5 - 6.0 mm <sup>2</sup><br>2x 14 - 10 AWG                                                   | 1x 0.5 - 2.5 mm <sup>2</sup><br>1x 18 - 12 AWG                                                        |
| Flexible with end sleeve                  | <br>1x 1.0 - 4.0 mm <sup>2</sup><br>1x 18 - 12 AWG  | 2x 1.0 - 2.5 mm <sup>2</sup><br>2x 2.5 - 4.0 mm <sup>2</sup><br>2x 18 - 14 AWG<br>2x 14 - 12 AWG | 1x 0.5 - 2.5 mm <sup>2</sup><br>1x 18 - 12 AWG                                                        |
| Flexible without end sleeve               | <br>1x 1.0 - 6.0 mm <sup>2</sup><br>1x 18 - 10 AWG | 2x 1.0 - 2.5 mm <sup>2</sup><br>2x 2.5 - 6.0 mm <sup>2</sup><br>2x 18 - 14 AWG<br>2x 14 - 10 AWG |                                                                                                       |
| Torque specification                      | <br>Pozidrive 2<br>2.4 Nm (21.2 lb-in)            | Pozidrive 1<br>0.5 Nm (4.4 lb-in)                                                                |                                                                                                       |
| Aperture for termination lug              | 12 mm                                                                                                                                | 7.5 mm                                                                                           |                                                                                                       |

## Housing Specifications

|                    |                       |
|--------------------|-----------------------|
| Weight             |                       |
| 25 A, 50 A         | Approx. 60 g          |
| 75 A, 100 A, 125 A | Approx. 100 g         |
| Housing material   | Noryl, black          |
| Baseplate          |                       |
| 25 A, 50 A         | Aluminium             |
| 75 A, 100 A, 125 A | Copper, nickel-plated |
| Relay              |                       |
| Mounting screws    | M5                    |
| Mounting torque    | 1.5-2.0 Nm            |

## Functional Diagram



## Thermal Specifications

|                       |                                 |
|-----------------------|---------------------------------|
| Operating temperature | -20° to +70°C (4° to +158 °F)   |
| Storage temperature   | -20° to +100°C (-4° to +212 °F) |
| Junction temperature  | ≤125°C (257 °F)                 |

## Isolation

|                         |             |
|-------------------------|-------------|
| Rated isolation voltage |             |
| Input to output         | ≥ 4000 Vrms |
| Output to case          | ≥ 4000 Vrms |

## Heatsink Dimensions (load current versus ambient temperature)

With the output fully ON (360° conduction angle)

### RM1E..25

| Load current [A] | Thermal resistance [°C/W] |       |       |       |       |      |
|------------------|---------------------------|-------|-------|-------|-------|------|
|                  | 20                        | 30    | 40    | 50    | 60    | 70   |
| 25.0             | 3.23                      | 2.80  | 2.37  | 1.94  | 1.51  | 1.09 |
| 22.5             | 3.70                      | 3.21  | 2.73  | 2.24  | 1.75  | 1.26 |
| 20.0             | 4.30                      | 3.74  | 3.17  | 2.61  | 2.05  | 1.49 |
| 17.5             | 5.07                      | 4.41  | 3.76  | 3.10  | 2.44  | 1.78 |
| 15.0             | 6.12                      | 5.33  | 4.54  | 3.75  | 2.96  | 2.17 |
| 12.5             | 7.58                      | 6.61  | 5.64  | 4.66  | 3.69  | 2.72 |
| 10.0             | 9.80                      | 7.19  | 6.14  | 5.08  | 4.02  | 2.97 |
| 7.5              | 13.5                      | 11.80 | 10.09 | 8.37  | 6.66  | 4.94 |
| 5.0              | -                         | 18.3  | 15.7  | 13.04 | 10.39 | 7.74 |
| 2.5              | -                         | -     | -     | -     | -     | 7    |

Ambient temp. [°C]

### RM1E..50

| Load current [A] | Thermal resistance [°C/W] |      |      |      |      |      |
|------------------|---------------------------|------|------|------|------|------|
|                  | 20                        | 30   | 40   | 50   | 60   | 70   |
| 50.0             | 1.25                      | 1.07 | 0.88 | 0.70 | 0.52 | 0.34 |
| 45.0             | 1.46                      | 1.25 | 1.04 | 0.84 | 0.63 | 0.42 |
| 40.0             | 1.73                      | 1.49 | 1.25 | 1.01 | 0.77 | 0.52 |
| 35.0             | 2.08                      | 1.80 | 1.51 | 1.23 | 0.94 | 0.66 |
| 30.0             | 2.56                      | 2.22 | 1.87 | 1.53 | 1.18 | 0.84 |
| 25.0             | 3.24                      | 2.81 | 2.38 | 1.95 | 1.52 | 1.09 |
| 20.0             | 4.26                      | 3.71 | 3.15 | 2.59 | 2.03 | 1.47 |
| 15.0             | 5.99                      | 5.22 | 4.45 | 3.67 | 2.90 | 2.12 |
| 10.0             | 9.49                      | 8.27 | 7.06 | 5.85 | 4.64 | 3.43 |
| 5.0              | -                         | 17.5 | 15.0 | 12.4 | 9.91 | 7.39 |

Ambient temp. [°C]

### RM1.60..50

| Load current [A] | Thermal resistance [°C/W] |      |       |       |       |      |
|------------------|---------------------------|------|-------|-------|-------|------|
|                  | 20                        | 30   | 40    | 50    | 60    | 70   |
| 50.0             | 0.99                      | 0.81 | 0.63  | 0.44  | 0.26  | 0.08 |
| 45.0             | 1.28                      | 1.07 | 0.86  | 0.65  | 0.44  | 0.23 |
| 40.0             | 1.64                      | 1.40 | 1.15  | 0.91  | 0.67  | 0.42 |
| 35.0             | 2.11                      | 1.82 | 1.54  | 1.25  | 0.96  | 0.67 |
| 30.0             | 2.60                      | 2.25 | 1.90  | 1.55  | 1.20  | 0.85 |
| 25.0             | 3.30                      | 2.86 | 2.43  | 1.99  | 1.55  | 1.11 |
| 20.0             | 4.36                      | 3.79 | 3.22  | 2.65  | 2.08  | 1.51 |
| 15.0             | 6.1                       | 5.4  | 4.6   | 3.77  | 2.97  | 2.18 |
| 10.0             | 9.76                      | 8.52 | 7.3   | 6.0   | 4.8   | 3.54 |
| 5.0              | --                        | --   | 15.47 | 12.85 | 10.24 | 7.6  |

Ambient temp. [°C]

### RM1E...75

| Load current [A] | Thermal resistance [°C/W] |       |       |      |      |      |
|------------------|---------------------------|-------|-------|------|------|------|
|                  | 20                        | 30    | 40    | 50   | 60   | 70   |
| 75.0             | 1.00                      | 0.88  | 0.75  | 0.63 | 0.50 | 0.38 |
| 67.5             | 1.15                      | 1.00  | 0.86  | 0.72 | 0.57 | 0.43 |
| 60.0             | 1.33                      | 1.16  | 1.00  | 0.83 | 0.66 | 0.50 |
| 52.5             | 1.56                      | 1.37  | 1.17  | 0.98 | 0.78 | 0.59 |
| 45.0             | 1.88                      | 1.65  | 1.41  | 1.18 | 0.94 | 0.71 |
| 37.5             | 2.33                      | 2.04  | 1.75  | 1.46 | 1.17 | 0.87 |
| 30.0             | 3.01                      | 2.64  | 2.26  | 1.88 | 1.51 | 1.13 |
| 22.5             | 4.16                      | 3.64  | 3.12  | 2.60 | 2.08 | 1.56 |
| 15.0             | 6.46                      | 5.66  | 4.85  | 4.04 | 3.23 | 2.42 |
| 7.5              | 13.42                     | 11.74 | 10.06 | 8.39 | 6.71 | 5.03 |

Ambient temp. [°C]

## Heatsink Dimensions (load current versus ambient temperature)

### RM1E..100

| Load current [A] | Thermal resistance [°C/W] |      |      |      |      |      |
|------------------|---------------------------|------|------|------|------|------|
|                  | 20                        | 30   | 40   | 50   | 60   | 70   |
| 100.0            | 0.60                      | 0.52 | 0.43 | 0.34 | 0.26 | 0.17 |
| 90.0             | 0.74                      | 0.64 | 0.54 | 0.44 | 0.34 | 0.24 |
| 80.0             | 0.91                      | 0.79 | 0.68 | 0.56 | 0.45 | 0.33 |
| 70.0             | 1.09                      | 0.96 | 0.82 | 0.68 | 0.55 | 0.41 |
| 60.0             | 1.33                      | 1.16 | 1.00 | 0.83 | 0.66 | 0.50 |
| 50.0             | 1.66                      | 1.45 | 1.24 | 1.04 | 0.83 | 0.62 |
| 40.0             | 2.16                      | 1.89 | 1.62 | 1.35 | 1.08 | 0.81 |
| 30.0             | 3.01                      | 2.64 | 2.26 | 1.88 | 1.51 | 1.13 |
| 20.0             | 4.73                      | 4.14 | 3.55 | 2.96 | 2.37 | 1.78 |
| 10.0             | 9.94                      | 8.70 | 7.45 | 6.21 | 4.97 | 3.73 |

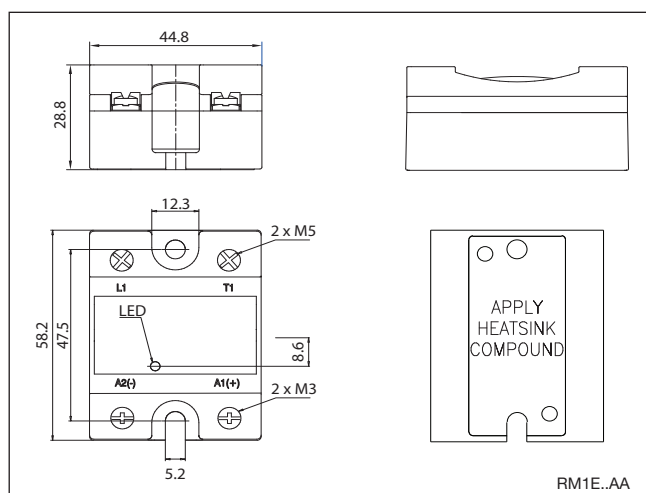
Ambient temp. [°C]  $T_A$

### RM1E..125

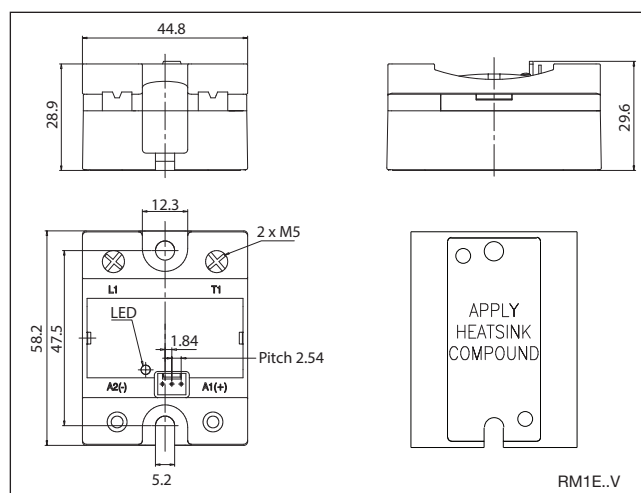
| Load current [A] | Thermal resistance [°C/W] |      |      |      |      |      |
|------------------|---------------------------|------|------|------|------|------|
|                  | 20                        | 30   | 40   | 50   | 60   | 70   |
| 125.0            | 0.63                      | 0.55 | 0.47 | 0.40 | 0.32 | 0.24 |
| 112.5            | 0.73                      | 0.64 | 0.54 | 0.45 | 0.36 | 0.27 |
| 100.0            | 0.84                      | 0.74 | 0.63 | 0.52 | 0.42 | 0.32 |
| 87.5             | 0.99                      | 0.87 | 0.74 | 0.62 | 0.50 | 0.37 |
| 75.0             | 1.20                      | 1.05 | 0.90 | 0.75 | 0.60 | 0.45 |
| 62.5             | 1.48                      | 1.30 | 1.11 | 0.93 | 0.74 | 0.56 |
| 50.0             | 1.92                      | 1.68 | 1.44 | 1.20 | 0.96 | 0.72 |
| 37.5             | 2.65                      | 2.32 | 1.98 | 1.65 | 1.32 | 0.99 |
| 25.0             | 4.12                      | 3.60 | 3.09 | 2.57 | 2.06 | 1.54 |
| 12.5             | 8.55                      | 7.48 | 6.41 | 5.34 | 4.27 | 3.21 |

Ambient temp. [°C]  $T_A$

## Dimensions

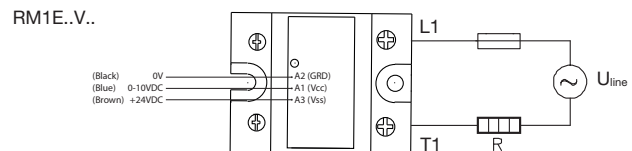
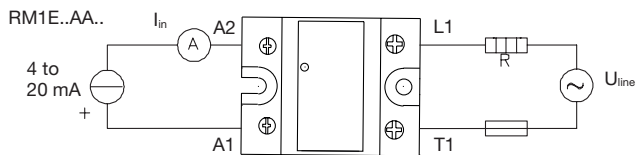


All dimensions in mm



All dimensions in mm

## Applications



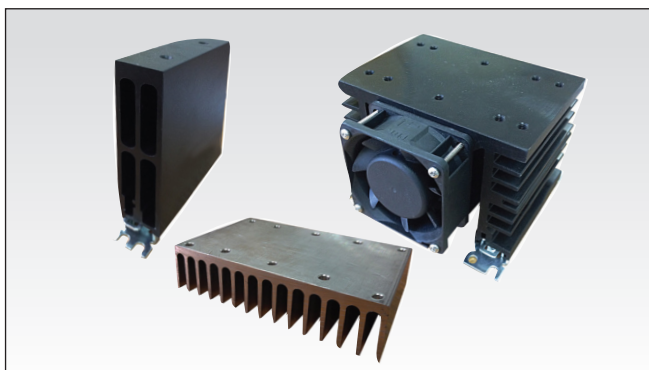
### Transfer Characteristics

Output power as a function of control output

| Control current (mA) | Control voltage (VDC) | Output power |
|----------------------|-----------------------|--------------|
| 4                    | 0                     | 0            |
| 8                    | 2.5                   | 25           |
| 12                   | 5                     | 50           |
| 16                   | 7.5                   | 75           |
| 20                   | 10                    | 99           |

This relay is suitable for control of heaters, lighting and slightly inductive loads such as small fans. The relay can also be used for soft turn-on of high-power incandescent lamps.

## Heatsink Selection



Heatsink Range Overview:

[https://gavazziautomation.com/images/PIM/DATASHEET/ENG/SSR\\_Accessories.pdf](https://gavazziautomation.com/images/PIM/DATASHEET/ENG/SSR_Accessories.pdf)

Heatsink Selector Tool:

[https://gavazziautomation.com/nsc/HQ/EN/solid\\_state\\_relays](https://gavazziautomation.com/nsc/HQ/EN/solid_state_relays)

## Ordering Key

**RHS..**

- Heatsinks and fans
- 5.40°C/W to 0.12°C/W thermal resistance
- DIN, panel or thru wall mounting
- Single or multiple SSR mounting

## Short Circuit Protection

Protection Co-ordination, Type 1 vs. Type 2:

Type 1 protection implies that after a short circuit, the device under test will no longer be in a functioning state. In type 2 co-ordination the device under test will still be functional after the short circuit. In both cases, however, the short circuit has to be interrupted. The fuse between enclosure and supply shall not open. The door or cover of the enclosure shall not be blown open. There shall be no damage to conductors of terminals and the conductors shall not separate from terminals. There shall be no breakage or cracking of insulating bases to the extent that the integrity of the mounting of live parts is impaired. Discharge of parts or any risk of fire shall not occur.

The product variants listed in the table hereunder are suitable for use on a circuit capable of delivering not more than 65,000 Arms Symmetrical Amperes, 600 Volts maximum when protected by fuses. Tests at 65,000 A were performed with Class J, fast acting: please refer to the table below for maximum allowed ampere rating of the fuse. Use fuses only.

### Co-ordination Type 1 (UL508)

| Part No.    | Prospective short circuit current [kArms] | Max. fuse size [A] | Class                | Voltage [VAC] |
|-------------|-------------------------------------------|--------------------|----------------------|---------------|
| RM1E..25..  | 65                                        | 30                 | J / CC               | 600           |
| RM1E..50..  | 65                                        | 30<br>20           | J<br>HSJ20 (Mersen*) | 600<br>600    |
| RM1E..75..  | 65                                        | 100                | J                    | 600           |
| RM1E..100.. | 65                                        | 80<br>60           | J<br>HSJ60 (Mersen*) | 600<br>600    |
| RM1E..125.. | 65                                        | 125<br>60          | J<br>HSJ60 (Mersen*) | 600<br>600    |

### Co-ordination Type 2 (IEC/EN60947-4-3)

| Part No.                        | Prospective short circuit current [kArms] | Max. fuse size [A] | Brand   | Model                   | Size      |
|---------------------------------|-------------------------------------------|--------------------|---------|-------------------------|-----------|
| RM1E.xx.25.. (xx = 23,40,48)    | 10                                        | 25                 | Mersen* | 6.9gRB 10-25            | 10.3 x 38 |
| RM1E.60..25..                   | 10                                        | 20                 | Mersen* | 6.9gRB 10-20            | 10.3 x 38 |
| RM1E.xx.50.. (xx = 23,40)       | 10                                        | 50                 | Mersen* | 6.9zz CP gRC 14x51/50   | 14 x 51   |
| RM1E.xx.50.. (xx = 48,60)       | 10                                        | 50                 | Mersen* | 6.9zz CP gRC 22x58/50   | 22 x 58   |
| RM1E.xx.75.. (xx = 23,40,48,60) | 10                                        | 63                 | Mersen* | 6.9zz CP gRC 22x58/63   | 22 x 58   |
| RM1E.xx.100.. (xx = 23,40,48)   | 10                                        | 100                | Mersen* | 6.9zz CP gRC 22x58/100  | 22 x 58   |
| RM1E.xx.100.. (xx = 23,40,48)   | 10                                        | 80                 | Mersen* | 6.9zz CP gRC 22x58/80   | 22 x 58   |
| RM1E.xx.125.. (xx = 23 or 48)   | 10                                        | 125                | Mersen* | 6.921 CP URGD 27x60/125 | 27 x 60   |

zz = 00, without fuse trip indication

zz = 21, with fuse trip indication

\* Formerly Ferraz Shawmut

## Type 2 Protection with Miniature Circuit Breakers (M.C.B.s)

| Solid State Relay type                  | ABB Model no. for Z - type M. C. B. (rated current) | ABB Model no. for B - type M. C. B. (rated current) | Wire cross sectional area [mm <sup>2</sup> ] | Minimum length of Cu wire conductor [m]* |
|-----------------------------------------|-----------------------------------------------------|-----------------------------------------------------|----------------------------------------------|------------------------------------------|
| <b>RM1E..25..</b>                       | <b>1-pole</b>                                       |                                                     |                                              |                                          |
|                                         | S201-Z4 (4 A)                                       | S201-B2 (2 A)                                       | 1.0                                          | 21.0                                     |
|                                         | S201-Z6 UC (6 A)                                    | S201-B2 (2 A)                                       | 1.0                                          | 21.0                                     |
|                                         |                                                     |                                                     | 1.5                                          | 31.5                                     |
| <b>RM1E..50..</b>                       | <b>1-pole</b>                                       |                                                     |                                              |                                          |
|                                         | S201-Z10 (10 A)                                     | S201-B4 (4 A)                                       | 1.0                                          | 7.6                                      |
|                                         |                                                     |                                                     | 1.5                                          | 11.4                                     |
|                                         |                                                     |                                                     | 2.5                                          | 19.0                                     |
|                                         | S201-Z16 (16 A)                                     | S201-B6 (6 A)                                       | 1.0                                          | 5.2                                      |
|                                         |                                                     |                                                     | 1.5                                          | 7.8                                      |
|                                         |                                                     |                                                     | 2.5                                          | 13.0                                     |
|                                         |                                                     |                                                     | 4.0                                          | 20.8                                     |
|                                         | S201-Z20 (20 A)                                     | S201-B10 (10 A)                                     | 1.5                                          | 12.6                                     |
|                                         |                                                     |                                                     | 2.5                                          | 21.0                                     |
|                                         | S201-Z25 (25 A)                                     | S201-B13 (13 A)                                     | 2.5                                          | 25.0                                     |
|                                         |                                                     |                                                     | 4.0                                          | 40.0                                     |
|                                         | <b>2-poles</b>                                      |                                                     |                                              |                                          |
|                                         | S202-Z25 (25 A)                                     | S202-B13 (13 A)                                     | 2.5                                          | 19.0                                     |
|                                         |                                                     |                                                     | 4.0                                          | 30.4                                     |
| <b>RM1E..75..</b><br><b>RM1E..100..</b> | <b>1-pole</b>                                       |                                                     |                                              |                                          |
|                                         | S201-Z20 (20 A)                                     | S201-B10 (10 A)                                     | 1.5                                          | 4.2                                      |
|                                         |                                                     |                                                     | 2.5                                          | 7.0                                      |
|                                         |                                                     |                                                     | 4.0                                          | 11.2                                     |
|                                         | S201-Z32 (32 A)                                     | S201-B16 (16 A)                                     | 2.5                                          | 13.0                                     |
|                                         |                                                     |                                                     | 4.0                                          | 20.8                                     |
|                                         |                                                     |                                                     | 6.0                                          | 31.2                                     |
|                                         | <b>2-poles</b>                                      |                                                     |                                              |                                          |
|                                         | S202-Z20 (20 A)                                     | S202-B10 (10 A)                                     | 1.5                                          | 1.8                                      |
|                                         |                                                     |                                                     | 2.5                                          | 3.0                                      |
|                                         |                                                     |                                                     | 4.0                                          | 4.8                                      |
|                                         | S202-Z32 (32 A)                                     | S202-B16 (16 A)                                     | 2.5                                          | 5.0                                      |
|                                         |                                                     |                                                     | 4.0                                          | 8.0                                      |
|                                         |                                                     |                                                     | 6.0                                          | 12.0                                     |
|                                         |                                                     |                                                     | 10.0                                         | 20.0                                     |
|                                         | S202-Z50 (50 A)                                     | S202-B25 (25 A)                                     | 4.0                                          | 14.8                                     |
|                                         |                                                     |                                                     | 6.0                                          | 22.2                                     |
|                                         |                                                     |                                                     | 10.0                                         | 37.0                                     |
| <b>RM1E..125..</b>                      | <b>1-pole</b>                                       |                                                     |                                              |                                          |
|                                         | S201-Z50 (50 A)                                     | S201-B25 (25 A)                                     | 4.0                                          | 4.8                                      |
|                                         |                                                     |                                                     | 6.0                                          | 7.2                                      |
|                                         |                                                     |                                                     | 10.0                                         | 12.0                                     |
|                                         |                                                     |                                                     | 16.0                                         | 19.2                                     |
|                                         | S201-Z63 (63 A)                                     | S201-B32 (32 A)                                     | 6.0                                          | 7.2                                      |
|                                         |                                                     |                                                     | 10.0                                         | 12.0                                     |
|                                         |                                                     |                                                     | 16.0                                         | 19.2                                     |

\* Between MCB and Load (including return path which goes back to the mains).

Note: A prospective current of 6 kA and a 230/400 V power supply system is assumed for the above suggested specifications. For cables with different cross section than those mentioned above please consult Carlo Gavazzi's Technical Support Group.

## Environmental Information

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                                     |
| O: Indicates that said hazardous substance contained in homogeneous materials fot this part are below the limit requirement of GB/T 26572.                |                                            |              |              |                              |                                |                                       |
| 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. |                                            |              |              |                              |                                |                                       |

## 环境特性

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            |
| O:此零件所有材料中含有的该有害物低于GB/T 26572的限定。  |            |        |        |              |             |              |
| X: 此零件某种材料中含有的该有害物高于GB/T 26572的限定。 |            |        |        |              |             |              |



## FASTON Terminals



- Faston tabs
- Tab dimensions according to DIN 46342 part 1
- Pure tin-plated brass

### Ordering Key

#### Screw mounted Faston terminals

**RM1E48V25 F 4**

RAM Solid State Relay

Faston terminals

Tab orientation

Input Tab width: 4.8 mm

Output Tab width: 6.3 mm

#### Faston terminals in packs of 20

**RM48 F4**

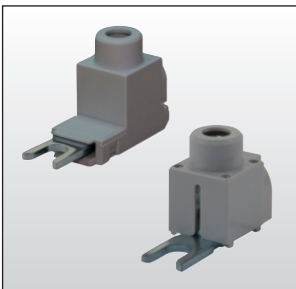
RS, RM Solid State Relay

Tab orientation

- \* 0: Flat (0°)
- 4: Angled (45°)

- \*\* 48: 4.8 mm faston for input
- 63: 6.3 mm faston for output

## Fork Terminals



- Terminal adaptors for 35 mm² cable
- Type RM635FK
- Pack size: 10 pieces

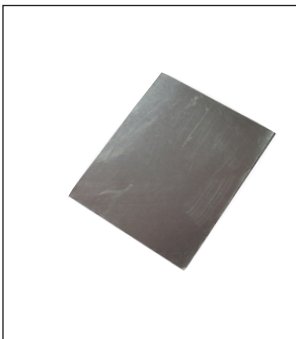
### Ordering Key

**RM635FK P**

RM terminal adaptor

Touch protected (optional)

## Other Accessories



- Graphite thermal pad with adhesive on one side
- Type KK071CUT
- Dimensions: 35 x 43 x 0.25 mm
- Packing quantity: 50 pcs.



- Touch safety cover
- Type RMIP20\*
- IP20 protection degree
- Pack size: 20 pieces

- \* Cover not suitable with RM1E..V..

All accessories can be ordered pre-assembled with Solid State Relays.  
Other accessories include DIN rail adaptors, fuses, varistors and spacers.

For further information refer to Accessories datasheets at:  
[www.productselection.net/PDF/UK/SSR\\_Accessories.pdf](http://www.productselection.net/PDF/UK/SSR_Accessories.pdf)

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