

# 工业级固态继电器 **Solid State Relays** **Industrial, 1-Phase ZS (IO) w. LED and Built-in Varistor** **Types RM 23, RM 40, RM 48, RM 60**

- Zero switching (RM1A) or instant-on switching (RM1B) AC Solid State Relay
- Direct copper bonding (DCB) technology
- LED indication
- Built-in varistor 230, 400, 480, 600V
- Clip-on IP 20 protection cover
- Self-lifting terminals
- Housing free of moulding mass
- 2 input ranges: 3-32\* VDC and 180-280VAC
- Operational ratings: Up to 100AACrms and 600VACrms
- Non-repetitive voltage: Up to 1400V<sub>p</sub>
- Opto-insulation: > 4000VACrms



## 产品描述 **Product Description**

这个工业级单相固态继电器是采用2只SCR可控硅高可靠性背靠背连接增强输出作为开关元件，提供用途广泛的各个场合，这个固态继电器可以使用阻性和感性及容性负载。A：在交流波过零点导通和关闭。B：随机型，DC控制输入可以是相位控制的调节讯号。内置氧化锌压敏变阻器过电压保护LED指示控制输入开关状态 附带安全盖符合IP 20的防护标准。输出功率端子可连接16mm<sup>2</sup>端头电缆。

The industrial, 1-phase relay with antiparallel thyristor outputs the most widely used industrial SSR due to its multiple application possibilities. The relay can be used for resistive, inductive and capacitive loads. The zero switching relay switches ON when the sinusoidal curve crosses zero and switches OFF when the current crosses zero. The instant-on relay

with DC control input can be used for phase control. The built-in varistor secures transient protection for the heavy industrial applications, and the LED indicates the status of the control input. The clip-on cover is securing touch protection to IP 20. Protected output terminals can handle cables up to 16mm<sup>2</sup>.

## 定货索引 **Ordering Key**

**RM 1 A 23D 50**

固态继电器 **Solid State Relay**

相数 (1相) **Number of poles**

开关方式 **Switching mode**

额定操作电压范围 **Rated operational voltage**

控制电压 **Control voltage**

额定的操作电流 **Rated operational current**

## 型号选择 **Type Selection**

开关方式 <b>Switching mode</b>	额定操作电压 <b>Rated operational voltage</b>	控制电压 <b>Control voltage</b>	额定操作电流 <b>Rated operational current</b>
A: 零点开关 Zero Switching	23: 230VACrms	A: 180-280VAC	25: 25AACrms
B: 随机型 Instant-on switching (DC Control only)	40: 400VACrms	D: 3-32VDC*	50: 50AACrms
	48: 480VACrms	*4 to 32VDC for 400, 480 and 600VAC types	75: 75AACrms
	60: 600VACrms	*4 to 32VDC for RM1B types	100: 100AACrms

## 选型指南 **Selection Guide**

额定操作电压 <b>Rated operational voltage</b>	峰值电压 <b>Non-rep. voltage</b>	控制电压 <b>Control voltage</b>	额定操作电流 <b>Rated operational current</b>			
			25A	50A	75A	100A
230VACrms	650V <sub>p</sub>	3 - 32VDC	RM1A23D25	RM1A23D50	RM1A23D75	RM1A23D100
		180 to 280VAC	RM1A23A25	RM1A23A50	RM1A23A75	RM1A23A100
400VACrms	850V <sub>p</sub>	4 - 32VDC	RM1A40D25	RM1A40D50	RM1A40D75	RM1A40D100
		180 to 280VAC	RM1A40A25	RM1A40A50	RM1A40A75	RM1A40A100
480VACrms	1200V <sub>p</sub>	4 - 32VDC	RM1A48D25	RM1A48D50	RM1A48D75	RM1A48D100
		180 to 280 VAC	RM1A48A25	RM1A48A50	RM1A48A75	RM1A48A100
600VACrms	1400V <sub>p</sub>	4 - 32VDC	RM1A60D25	RM1A60D50	RM1A60D75	RM1A60D100
		180 to 280VAC	RM1A60A25	RM1A60A50	RM1A60A75	RM1A60A100

## 操作电压范围 Operational voltage range

Rated operational current	RM1A23...	RM1A40...	RM1A48...	RM1A60...
操作的电压范围 (Operational voltage range)				
RM1A... RM1B...	24 to 265VACrms 42 to 265VACrms	42 to 440VACrms 42 to 440VACrms	42 to 530VACrms 42 to 530VACrms	42 to 660VACrms 42 to 660VACrms
非重复 峰值电压 <b>Non-rep. peak voltage</b>	≥ 650Vp	≥ 850Vp	≥ 1200Vp	≥ 1400Vp
零点打开电压 <b>Zero voltage turn-on</b>	≤ 10V	≤ 10V	≤ 10V	≤ 10V
操作的频率范围 <b>Operational frequency range</b>	45 to 65Hz	45 to 65Hz	45 to 65Hz	45 to 65Hz
功率因素 <b>Power factor</b>	> 0.5 @ 230VACrms	> 0.5 @ 400VACrms	> 0.5 @ 480VACrms	> 0.5 @ 600VACrms

\* Heatsink must be connected to ground

## 输入规格 Input Specifications

	RM1...D..	RM1...A..
控制电压范围 <b>Control voltage range</b>		
RM1A23...	3 - 32VDC	180 - 280VAC
RM1A40... RM1A48... RM1A60...	4 - 32VDC	180 - 280VAC
RM1B...	4 - 32VDC	-
起始电压 <b>Pick-up voltage @ Ta = 25°C</b>		
RM1A23...	2.5VDC	120VAC
RM1A40... RM1A48... RM1A60...	3.5VDC	120VAC
RM1B □	3.5VDC	-
反向电压 <b>Reverse voltage</b>	32VDC	-
脱离电压 <b>Drop out voltage</b>	1.2VDC	30VAC
输入电流@ 最大输入电压 <b>Input current @ max input voltage</b>		
RM1A	≤ 12 mA	≤ 20mA
RM1B	≤ 15 mA	-
反应时间 <b>Response time pick-up</b>		
RM1A	≤ 1/2 cycle	≤ 12ms
RM1B	≤ 0.1ms	-
反应时间 <b>Response time drop-out</b>	≤ 1/2 cycle	≤ 40ms

## 输出规格 Output Specifications

	RM1...25	RM1...50	RM1...75	RM...100.
额定的操作电流 <b>Rated operational current</b>				
AC51@ Ta=25°C AC53a @ Ta=25°C	25Arms 5Arms	50Arms 15Arms	75Arms 20Arms	100Arms 30Arms
最少的操作的电流 <b>Min. operational current</b>	150mA	150mA	150mA	150mA
过电流 <b>Rep. overload current t=1 s</b>	< 55AACrms	< 125AACrms	< 150AACrms	< 200AACrms
非重复 冲击电流 <b>Non-rep. surge current t=10 ms</b>	300Ap	580Ap	1150Ap	1900Ap
断态泄露电流 @ 对电压和频率估计 <b>Off-state leakage current @ rated voltage and frequency</b>	< 3mArms	< 3mArms	< 3mArms	< 3mArms
<b>I<sub>2t</sub> for fusing t=1-10 ms</b>	< 450 A <sub>2s</sub>	< 1680A <sub>2s</sub>	< 6600A <sub>2s</sub>	< 18000A <sub>2s</sub>
临界的 <b>Critical di/dt</b>	≥ 50A/μs	≥ 50A/μs	≥ 100A/μs	≥ 100A/μs
通态电压降 <b>On-state voltage drop @ rated current</b>	1.6Vrms	1.6Vrms	1.6Vrms	1.6Vrms
通态电压上升率 <b>Critical dV/dt off-state min.</b>	1000V/μs	1000V/μs	1000V/μs	1000V/μs



温度规格 Thermal Specifications

	RM1....25	RM1....50	RM1....75	RM1....100
操作温度 <b>Operating temperature</b>	-20° to 70°C	-20° to 70°C	-20° to 70°C	-20° to 70°C
储藏温度 <b>Storage temperature</b>	-40° to 100°C	-40° to 100°C	-40° to 100°C	-40° to 100°C

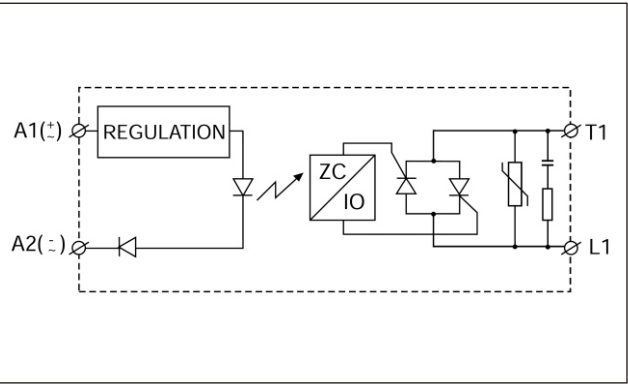
整体规格 Housing Specifications

<b>重量 Weight</b> 25A, 50A 75A, 100A	Approx. 60g Approx. 100g	<b>继电器 (Relay)</b> 安装螺钉 (Mounting screws) 架置扭矩 (Mounting torque)	M5 1.5-2.0 Nm
<b>外壳材料 Housing material</b> 黑色尼龙Noryl GFN 1, black		<b>控制端子 (Control terminal)</b> 安装螺钉 (Mounting screws) 架置扭矩 (Mounting torque)	M3 x 9 0.5 Nm
<b>底板 Baseplate</b> 25A, 50A 75A, 100A	铝 Aluminium 铜镀镍Copper, nickel-plated	<b>Power terminal</b> 安装螺钉 (Mounting screws) 架置扭矩 (Mounting torque)	M5 x 9 2.4 Nm
<b>Potting compound</b>	None		

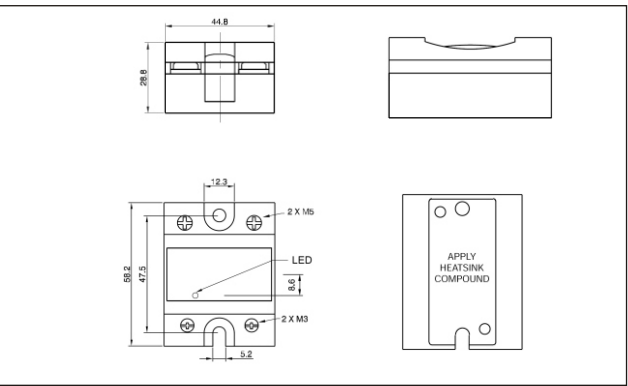
绝缘 Insulation

<b>Rated insulation voltage</b> 输入-输出Input to output	≥ 4000 VACrms
<b>Rated insulation voltage</b> 输出-外壳Output to case	≥ 4000 VACrms

内部结构图表 Functional Diagram



尺寸 Dimensions



所标的尺寸: mm (All dimensions in mm)