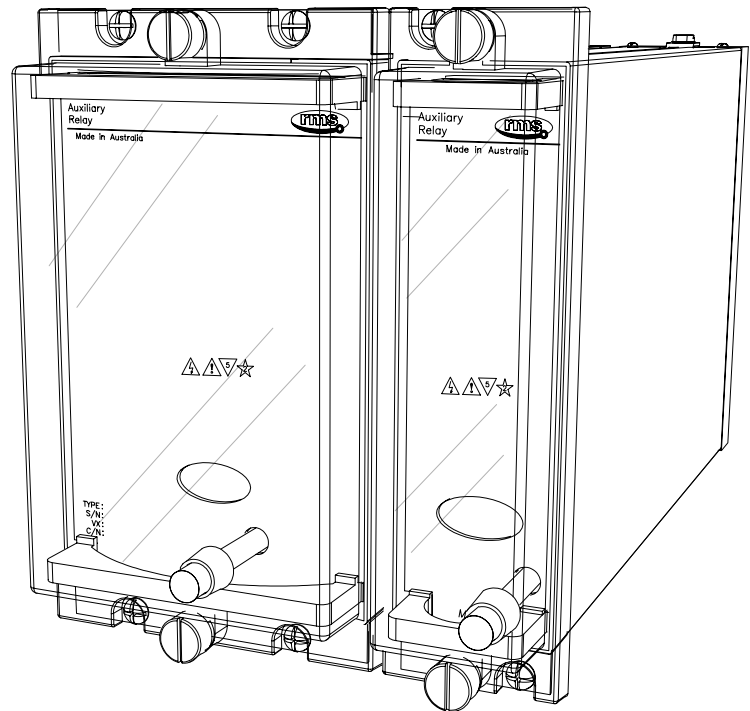


Pre-defined Relay Versions

Features

- Rugged modular construction
- Rack or flush mounting
- Range of function types
- Draw out module
- M4 screw terminals
- 5, 10 & 20 contact versions available
- Operating & reset coils are available for 24, 32, 48, 110, 125, 220, 240 or 250 Volts DC
- Contacts are of fine silver designed & manufactured to ensure low resistance & high reliability
- High visibility electro-mechanical flag indication
- Made in Australia



Application

The effect of a fault on a power system is dependent on the speed with which the fault can be detected & isolated. Modern protection schemes incorporate ever increasing functionality through the application of digital techniques to protection relay technology. The requirement for highly reliable tripping & control relay elements does however remain & often constitutes a significant cost & space requirement for protection panel designs. The 6R MATRIX system fulfils this need by providing a compact, flexible & cost effective solution.

Refer also to the following RMS data sheets for detailed information on product applications & technical specifications:

- [6R Relay Series](#)
- [6R Technical Data Supplement](#)
- [M Series MATRIX Case System](#)
- [6RM QUAD 4 Element Flag Relays](#)
- [3A20 Pilot Wire Send/Receive Relays](#)
- [6R MATRIX Pre Defined Relays](#)

Introduction

Made in Australia

The 6R MATRIX range was developed to provide design engineers with a modular system of auxiliary relays to meet specific system configurations. The versions described in this publication have pre-defined functional & contact configurations to offer the following advantages:

- ◆ Simpler to specify & order;
- ◆ Lower cost due to model rationalization;
- ◆ Direct cross reference to other manufacturers models;
- ◆ Standardized wiring details.

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M SERIES CASE SYSTEM	4
PRE-DEFINED RELAY DETAILS	5+

6RJ Series		High Speed Tripping Relays			
RMS	Areva	Functional Description	Contacts	6R MATRIX	Case
6RJ11-5	MVAJ11, MVAJ051	Low burden high speed trip relay Self reset contacts Hand reset flag	5	2HSM502	2M28
6RJ11-10	MVAJ11, MVAJ101		10		
6RJ13-5	MVAJ13, MVAJ053	Low burden high speed trip relay Hand reset contacts & flag	5	2HSM504	2M28
6RJ13-10	MVAJ13, MVAJ103		10		
6RJ14-5	MVAJ14, MVAJ054	Low burden high speed trip relay Electrical reset contacts Independent hand reset flag	5	2HSM506	2M28
6RJ14-10	MVAJ14, MVAJ104		10		
6RJ15-5	MVAJ15, MVAJ055	Low burden high speed trip relay Hand & electrical reset contacts Independent hand reset flag	5	2HSM509	2M28
6RJ15-10	MVAJ15, MVAJ105		10		
6RJ21-5	MVAJ21, MVAJ051	High burden high speed trip relay Self reset contacts Hand reset flag	5	2HSM512	2M28
6RJ21-10	MVAJ21, MVAJ101		10		
6RJ21-20	MVAJ201		20	2HSM520	4M56
6RJ23-5	MVAJ23, MVAJ053	High burden high speed trip relay Hand reset contacts & flag	5	2HSM514	2M28
6RJ23-10	MVAJ23, MVAJ103		10		
6RJ23-20	MVAJ203		20		4M56
6RJ24-5	MVAJ24, MVAJ054	High burden high speed trip relay Electrical reset contacts Independent hand reset flag	5	2HSM516	2M28
6RJ24-10	MVAJ24, MVAJ104		10		
6RJ24-20	MVAJ204		20		4M56
6RJ25-5	MVAJ25, MVAJ055	High burden high speed trip relay Hand & electrical reset contacts Independent hand reset flag	5	2HSM519	2M28
6RJ25-10	MVAJ25, MVAJ105		10		
6RJ25-20	MVAJ205		20		4M56

6RA Series		Auxiliary Flag Relays			
RMS	Areva	Functional Description	Contacts	6R MATRIX	Case
6RA11	MVAA11	Auxiliary flag relay – 1 element Self reset contacts / Hand reset flag	6	6RM202	2M28
6RA21	MVAA21	Auxiliary flag relay – 2 element Self reset contacts / Hand reset flag	6 x 2	6RM202 x2	2M28
6RA13	MVAA13	Auxiliary flag relay – 1 element Hand reset contacts & flag	6	6RM206	2M28
6RA23	MVAA23	Auxiliary flag relay – 2 element Hand reset contacts & flag	6 x 2	6RM206 x2	2M28
6RA15	MVAA15	Auxiliary flag relay – 1 element Hand & electrical reset contacts Independent hand reset flag	6	6RM211	2M28
6RA20	-	CT Shorting relay		6RM206 / 7	2M28 / 4M28

6RX Series		Trip Circuit Supervision Relays			
RMS	Areva	Functional Description	Contacts	6R MATRIX	Case
6RX11	MVAX11	Trip relay circuit supervision	2	1TM13	2M28
6RX12	MVAX12	Trip supply supervision	2	1TM11	2M28
6RX21	MVAX21	Trip circuit supervision	2	1TM10	2M28
6RX31	MVAX31	Trip circuit supervision – 3 element	2	1TM12	4M28

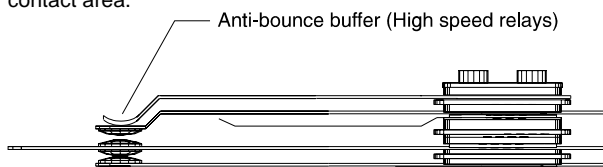
Contact Bounce & Self Cleaning

Contact bounce occurs due to the speed at which the contacts meet. If too much coil power is used then the contacts will come together with too much force causing excessive bounce. It is therefore important to only fit relay coils with adequate power to provide the force required to switch the relay at the minimum operate voltage 65% of nominal.

In addition contact bounce can be greatly reduced through the addition of anti-bounce buffers. These components are added to each contact to provide a damping wiping motion when the contacts meet thus dissipating the force which would otherwise produce bounce.

Contacts are constructed from silver / copper alloy, shaped & positioned to ensure very reliable, low resistance operation. Over travel of the contacts during each operation causes a wiping action ensuring a clean "make".

The design of the contact surface is spherical such that when the contacts are driven to an over travel position they actually wipe. This wiping motion is part of the damping action mentioned above but also provides a wiping action which serves to clean the contact area.



6R MATRIX relays are "All or Nothing" devices & continuous application of AC or DC voltages below the pick up level is not recommended.

AC VOLTAGES

Standard 2HSM relays are not intended for operation with AC voltages. Application of continuous AC voltage below the pick up level will cause excessive power dissipation in the capacitor discharge resistor & likely result in thermal damage to the device.

Contact Ratings

6R RELAY CONTACT RATINGS

Make & Carry Continuously

3,000 VA AC resistive with maximums of 660V & 12A

3,000 W DC resistive with maximums of 660V & 12A

Make & Carry for 3 Seconds

7,500 VA AC resistive with maximums of 660V & 30A

7,500 W DC resistive with maximums of 660V & 30A

AC Break Capacity

3,000 VA AC resistive with maximums of 660V & 12A

DC Break Capacity (Amps)

Voltage			24V	48V	125V	250V
Resistive rating		1	12	12	10	5
		2	12	2	0.5	0.25
L/R=40ms	Maximum break	1	30	15	5.5	3.5
		2	12	1	0.25	0.15
	1K operations (N3 Rating)	1	12	12	5	2.5

1 = With magnetic blowouts 2 = Without magnetic blowouts

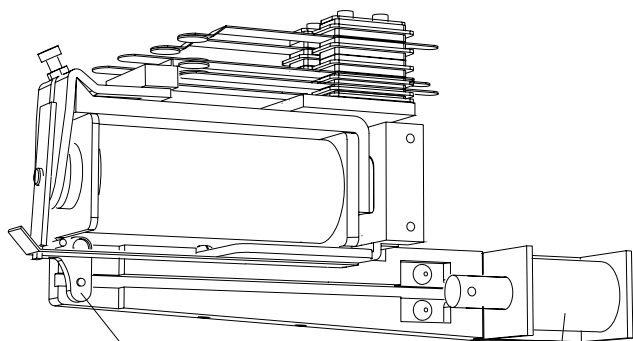
6R MATRIX Pre-Defined relay versions are supplied as standard without magnetic blowouts. If magnetic blowouts are needed for special applications this requirement must be specified when seeking quotation & placing orders.

Common Attributes

Flag Indicators

Each relay element is supplied with an operation (target) indicator. The indicator consists of a high visibility solid day glow orange mechanical flag which drops on energisation.

Electrical Reset Mechanism



Reset actuator

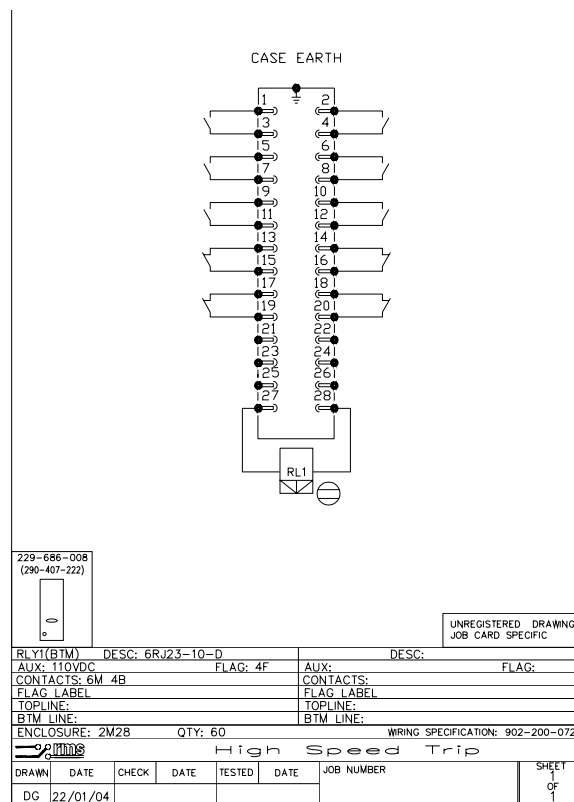
Electrical reset solenoid

Operate voltage: As per specified operate voltage.
Reset cut off: Instantaneous with main relay reset.

Continuous application of both the high speed pick up coil & the reset coil will defeat the cut throat contact & result in overheating & thermal damage to both coils & associated circuit.

Relay Wiring Diagrams

All relays have a label attached to the internal side plate depicting the wiring information. As this stays with the product (unlike the paper wiring diagram also supplied), it cannot be lost.



Example of wiring diagram label fitted to side of draw out module.

Australian Content

Unless otherwise stated the product(s) quoted are manufactured by RMS at our production facility in Melbourne Australia. Approximately 60% of our sales volume is derived from equipment manufactured in house with a local content close to 90%. Imported components such as semi-conductors are sourced from local suppliers & preference is given for reasonable stock holding to support our build requirements.

Quality Assurance

RMS holds NCSI (NATA Certification Services International), registration number 6869 for the certification of a quality assurance system to AS/NZS ISO9001-2008. Quality plans for all products involve 100% inspection and testing carried out before despatch. Further details on specific test plans, quality policy & procedures may be found in section A4 of the RMS product catalogue.

Product Packaging

Protection relays are supplied in secure individual packing cardboard boxes with moulded styrene inserts suitable for recycling. Each product & packing box is labeled with the product part number, customer name & order details.

Design References

The products & components produced by RMS are based on many years of field experience since Relays Pty Ltd was formed in 1955. A large population of equipment is in service throughout Australia, New Zealand, South Africa & South East Asia attesting to this fact. Specific product & customer reference sites may be provided on application.

Product Warranty

All utility grade protection & auxiliary relay products, unless otherwise stated, are warranted for a period of 24 months from shipment for materials & labour on a return to factory basis. Repair of products damaged through poor application or circumstances outside the product ratings will be carried out at the customer's expense.

Standard Conditions of Sale

Unless otherwise agreed RMS Standard Terms & Conditions (QF 907) shall apply to all sales. These are available on request or from our web site.



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