



Main

Range of Product	Zelio Control
Product or Component Type	Industrial measurement and control relays
Relay Type	Voltage measurement relay
Relay name	RM4U
Relay monitored parameters	Overvoltage or undervoltage detection
Time delay	Adjustable 0.05...30 s
Power consumption in VA	1.9...3.3 VA AC
Measurement range	0.05...0.5 V voltage AC 50/60 Hz 0.3...3 V voltage AC 50/60 Hz 0.5...5 V voltage AC 50/60 Hz 0.05...0.5 V voltage DC 0.3...3 V voltage DC 0.5...5 V voltage DC
Contacts type and composition	2 C/O

Complementary

Maximum switching voltage	440 V AC
[Us] Rated Supply Voltage	110...130 V AC 50/60 Hz +/- 5 %
Output contacts	2 C/O
Internal input resistance	43000 Ohm 6600 Ohm 71000 Ohm
Permissible continuous overload	80 V 60 V 20 V
Permissible non repetitive overload	100 A <= 1 s 25 A <= 1 s 80 A <= 1 s
Setting accuracy of the switching threshold	+/- 5 %
Switching threshold drift	<= 0.06 % per degree centigrade depending permissible ambient air temperature <= 0.5 % within the supply voltage range (0.85...1.1 Un)
Setting accuracy of time delay	10 P
Time delay drift	<= 0.07 % per degree centigrade depending on the rated operational temperature <= 0.5 % within the supply voltage range (0.85...1.1 Un)
Hysteresis	5...30 % adjustable voltage threshold setting
Quality labels	CE
Overvoltage category	III IEC 60664-1
[Ui] rated insulation voltage	500 V IEC
Operating voltage tolerance	0.85...1.1 Uc
Supply disconnection value	> 0.1 Uc
Operating position	Any position without derating
Connections - terminals	Screw terminals, 2 x 1.5 mm ² flexible with cable end Screw terminals, 2 x 2.5 mm ² flexible without cable end
Tightening torque	5.31...9.74 lbf.in (0.6...1.1 N.m)
Mechanical durability	30000000 cycles
[Ith] conventional free air thermal current	8 A

[Ie] rated operational current	2 A 158 °F (70 °C) 24 V DC-13 IEC 60947-5-1/1991 2 A 158 °F (70 °C) 24 V DC-13 VDE 0660 3 A 158 °F (70 °C) 115 V AC-15 IEC 60947-5-1/1991 3 A 158 °F (70 °C) 115 V AC-15 VDE 0660 3 A 158 °F (70 °C) 24 V AC-15 IEC 60947-5-1/1991 3 A 158 °F (70 °C) 24 V AC-15 VDE 0660 3 A 158 °F (70 °C) 250 V AC-15 IEC 60947-5-1/1991 3 A 158 °F (70 °C) 250 V AC-15 VDE 0660 0.1 A 158 °F (70 °C) 250 V DC-13 IEC 60947-5-1/1991 0.1 A 158 °F (70 °C) 250 V DC-13 VDE 0660 0.3 A 158 °F (70 °C) 115 V DC-13 IEC 60947-5-1/1991 0.3 A 158 °F (70 °C) 115 V DC-13 VDE 0660
Switching capacity in mA	10 mA 12 V
Switching voltage	250 V AC
Contacts material	90/10 silver nickel contacts
Number of cables	2
Height	3.07 in (78 mm)
Width	0.89 in (22.5 mm)
Depth	3.15 in (80 mm)
Terminals description ISO n°1	(15-16-18)OC (A1-A2)CO (C-B1-B2-B3)CO (25-26-28)OC
Output relay state	Tripped if A measured > A set
9 mm pitches	2.5
Net Weight	0.37 lb(US) (0.168 kg)
Compatibility code	RM4

Environment

Electromagnetic compatibility	Electrostatic discharge 6 kV contact discharge)level 3 IEC 61000-4-2 Electrostatic discharge 8 kV air discharge)level 3 IEC 61000-4-2
Standards	EN/IEC 60255-6
Product certifications	CSA UL GL
Directives	73/23/EEC - low voltage directive 89/336/EEC - electromagnetic compatibility
Ambient Air Temperature for Storage	-40...185 °F (-40...85 °C)
Ambient air temperature for operation	-4...149 °F (-20...65 °C)
Relative humidity	15...85 % 3K3 IEC 60721-3-3
Vibration resistance	0.35 ms 10...55 Hz)IEC 60068-2-6
Shock resistance	15 gn 11 ms IEC 60068-2-27
IP degree of protection	IP20 IEC 60529 terminals) IP50 IEC 60529 casing)
Pollution degree	3 IEC 60664-1
Dielectric test voltage	2.5 kV
Non-dissipating shock wave	4.8 kV
Resistance to electrostatic discharge	6 KV contact IEC 61000-4-2 level 3 8 kV air IEC 61000-4-2 level 3
Resistance to electromagnetic fields	9.14 V/m (10 V/m) IEC 61000-4-3 level 3
Resistance to fast transients	2 kV IEC 61000-4-4 level 3
Protection against electric shocks	2 kV level 3 IEC 61000-4-5
Disturbance radiated/conducted	CISPR 22 - class A CISPR 11 group 1 - class A

Ordering and shipping details

Category	22376-RELAYS-MEASUREMENT(RM4)
Discount Schedule	CP2
GTIN	3389110336276
Nbr. of units in pkg.	1
Package weight(Lbs)	6.60 oz (187 g)

Returnability	No
Country of origin	ID

Packing Units

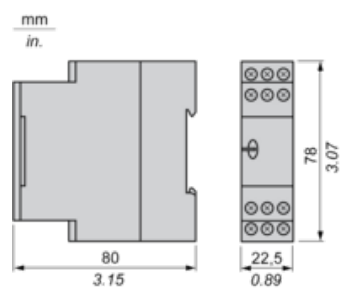
Unit Type of Package 1	PCE
Package 1 Height	1.06 in (2.7 cm)
Package 1 width	3.23 in (8.2 cm)
Package 1 Length	3.35 in (8.5 cm)
Unit Type of Package 2	S02
Number of Units in Package 2	47
Package 2 Weight	20.38 lb(US) (9.244 kg)
Package 2 Height	5.91 in (15 cm)
Package 2 width	11.81 in (30 cm)
Package 2 Length	15.75 in (40 cm)

Contractual warranty

Warranty	18 months
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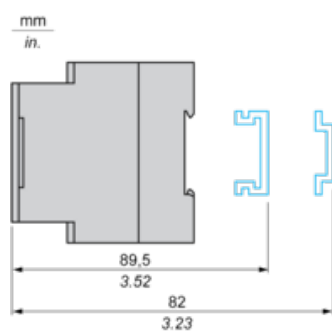
Voltage Measurement Relays

Dimensions

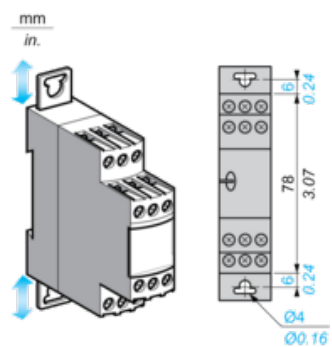


Voltage Measurement Relays

Rail mounting

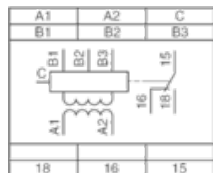


Screw fixing



Voltage Measurement Relays

RM4UA01 and RM4UA02 Wiring Diagram

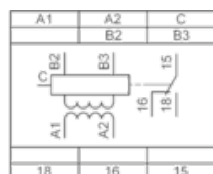


A1-A2 Supply voltage

B1, B2, B3, C Voltages to be measured (see table below)

Connection and current values to be measured		
RM4UA•1	B1-C	0.05...0.5 V
B2-C	0.3...3 V	
B3-C	0.5...5 V	
RM4UA•2	B1-C	1...10 V
B2-C	5...50 V	
B3-C	10...100 V	

RM4UA03 Wiring Diagram

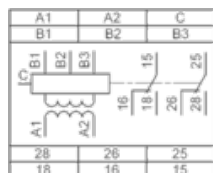


A1-A2 Supply voltage

B2, B3, C Voltages to be measured (see table below)

Connection and current values to be measured		
B2-C	30...300 V	
B3-C	50...500 V	

RM4UA31 and RM4UA32 Wiring Diagram

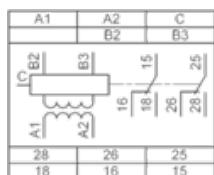


A1-A2 Supply voltage

B1, B2, B3, C Voltages to be measured (see table below)

Connection and current values to be measured		
RM4UA•1	B1-C	0.05...0.5 V
B2-C	0.3...3 V	
B3-C	0.5...5 V	
RM4UA•2	B1-C	1...10 V
B2-C	5...50 V	
B3-C	10...100 V	

RM4UA33 Wiring Diagram



A1-A2 Supply voltage

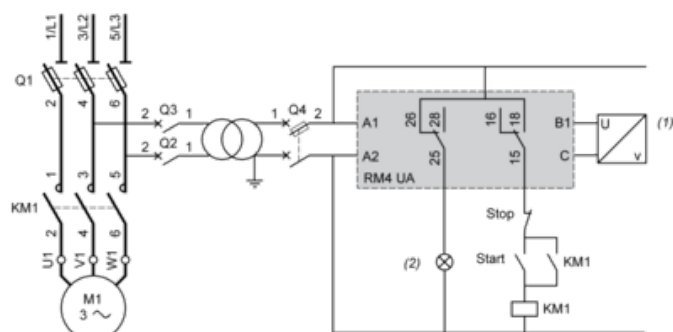
B2, B3, C Voltages to be measured (see table below)

Connection and current values to be measured	
B2-C	30...300 V
B3-C	50...500 V

Voltage Measurement Relays

Application Scheme

Example: overspeed monitoring (undervoltage function)



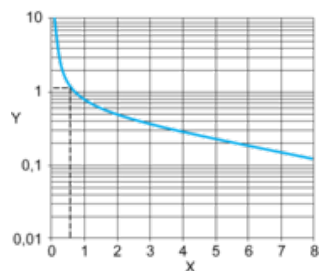
(1) Tachogenerator

(2) Overspeed

Electrical Durability and Load Limit Curves

AC Load

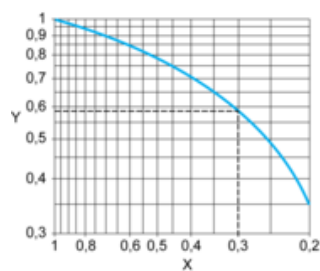
Curve 1: Electrical durability of contacts on resistive load in millions of operating cycles



X Current broken in A

Y Millions of operating cycles

Curve 2: Reduction factor k for inductive loads (applies to values taken from durability Curve 1)

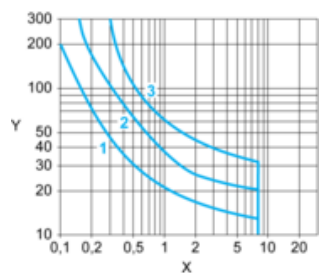


X Power factor on breaking ($\cos \phi$)

Y Reduction factor K

DC Load

Load limit curve



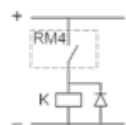
X Current in A

Y Voltage in V

1 L/R = 20 ms

2 L/R with load protection diode

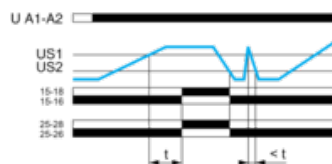
3 Resistive load



Function Diagram

Overvoltage Control

Function ">"



Legend

t Time delay

U A1-A2 Supply voltage

US1 Setting voltage threshold

US2 Voltage measured

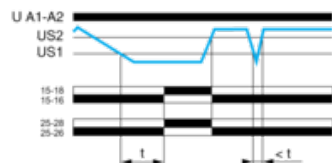
15-18, 15-16; 25-28, 25-26 Output relays connections

Relay status: black color = energized.

Function Diagram

Undervoltage Control

Function "<"



Legend

t Time delay

U A1-A2 Supply voltage

US1 Setting voltage threshold

US2 Voltage measured

15-18, 15-16; 25-28, 25-26 Output relays connections

Relay status: black color = energized.

Mouser Electronics

Authorized Distributor

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[RM4UA31F](#)