



Main

Range of Product	Zelio Control
Product or Component Type	Industrial measurement and control relays
Relay Type	Control relay
Product Specific Application	For 3-phase supply
Relay name	RM4-T
Relay monitored parameters	Phase sequence Phase failure detection Asymmetry
Time delay	Adjustable 0.1...10 s
Measurement range	290...484 V
Contacts type and composition	2 C/O
Poles description	3P

Complementary

Maximum switching voltage	440 V AC
Output contacts	2 C/O
Setting accuracy of the switching threshold	+/-3 %
Switching threshold drift	<= 0.06 % per degree centigrade depending permissible ambient air temperature <= 0.5 % within the measuring range
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 measuring range
Hysteresis	50 % fixed asymmetry percentage
Delay at power up	650 ms
Maximum measuring cycle	80 ms
Adjustment of asymmetry threshold	5...15 %
Marking	CE
Overvoltage category	III IEC 60664-1
[Ui] rated insulation voltage	500 V IEC
Supply frequency	50/60 Hz +/- 5 %
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
[I _{th}] conventional free air thermal current	8 A
[I _e] 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	(25-26-28)OC (L1-L2-L3)CO (15-16-18)OC
Output relay state	Tripped, fault present
9 mm pitches	2.5
Net Weight	0.24 lb(US) (0.11 kg)
Time delay on de-energisation	0.1...10 s

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 Resistance to electrostatic discharge 6 kV contact) IEC 61000-4-2 level 3 Resistance to electrostatic discharge 8 kV air) IEC 61000-4-2 level 3
Standards	EN/IEC 60255-6
Product Certifications	UL CSA 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
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	00785901481621
Package weight(Lbs)	0.29 lb(US) (0.130 kg)
Returnability	No
Country of origin	ID

Packing Units

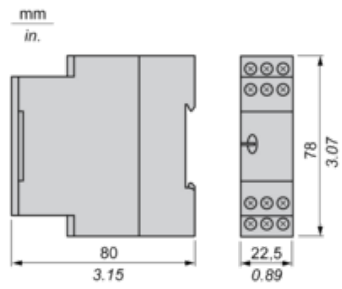
Package 1 Height	0.270 dm
Package 1 width	0.820 dm
Package 1 Length	0.850 dm

Contractual warranty

Warranty	18 months
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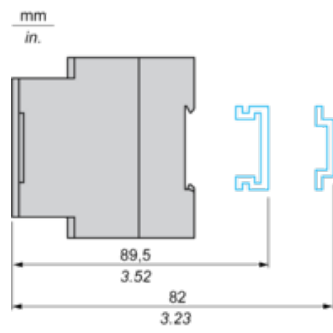
3-phase Supply Control Relays

Dimensions

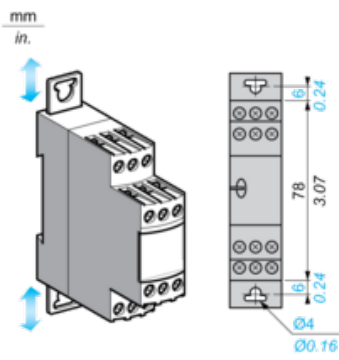


3-phase Supply Control Relays

Rail mounting

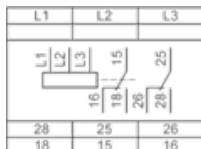


Screw fixing



3-Phase Supply Control Relays

Wiring Diagram



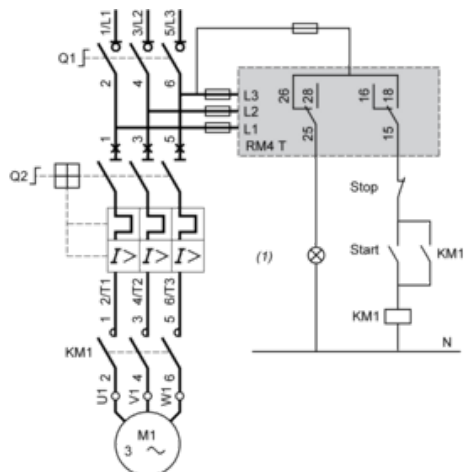
L1, L2, L3 Supply to be monitored

15-18, 15-16 1st C/O contact of the output relay

25-28, 25-26 2nd C/O contact of the output relay

Application Scheme

Example

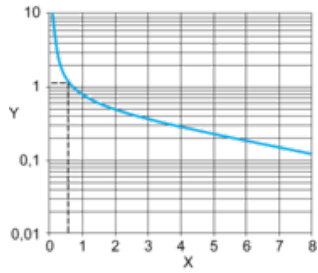


(1) Fault

Electrical Durability and Load Limit Curves

AC Load

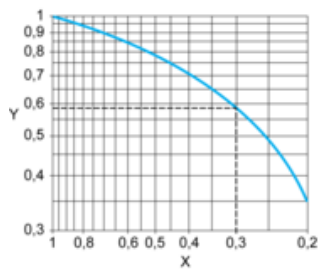
Curve 1: Electrical durability of contacts on resistive load in millions of operating cycles



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)

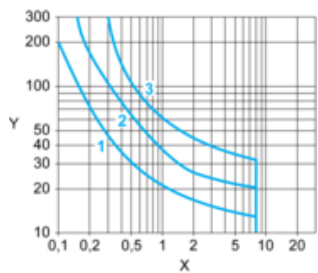


X Power factor on breaking ($\cos \phi$)

Y Reduction factor K

DC Load

Load limit curve



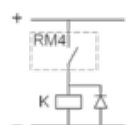
X Current in A

Y Voltage in V

1 L/R = 20 ms

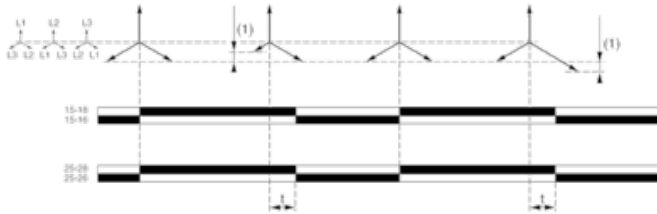
2 L/R with load protection diode

3 Resistive load



Function Diagram

Detection of Phase Asymmetry



Legend

t Time delay

(1) Asymmetry > set threshold

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

Relay status: black color = energized.

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