Product data sheet
Characteristics

RM4TU01
three-phase network control relay RM4-T - range 160..220 V

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 failure detection Phase sequence Undervoltage detection
Time delay	Without time delay
Measurement range	160...300 V
Contacts type and composition	2 C/O
Poles description	3P

Complementary

[Us] rated supply voltage	220...240 V 50/60 Hz
Control threshold undervoltage	160...220 V
Output contacts	2 C/O
Setting accuracy of the switching threshold	+/-3 %
Switching threshold drift	<= 0.5 % within the measuring range <= 0.06 % per degree centigrade depending permissible ambient air temperature
Setting accuracy of time delay	10 P
Time delay drift	<= 0.5 % within the measuring range <= 0.07 % per degree centigrade depending on the rated operational temperature
Hysteresis	5 % fixed of de-energisation threshold
Delay at power up	< 650 ms
Measuring cycle	<= 80 ms
Marking	CE : EMC 89/336/EEC CE : LVD 73/23/EEC
Overvoltage category	III conforming to IEC 60664-1
[Ui] rated insulation voltage	500 V conforming to IEC
Supply frequency	50/60 Hz +/- 5 %
Operating position	Any position without
Electrical connection	2 conductors cable 2.5 mm² flexible without cable end conforming to IEC 60947-1 2 conductors cable 1.5 mm² flexible with cable end conforming to IEC 60947-1
Tightening torque	0.6...1.1 N.m
Mechanical durability	<= 30000000 cycles
[Ith] conventional free air thermal current	8 A
[Ie] rated operational current	0.3 A at 70 °C 115 V DC-13 conforming to VDE 0660 0.3 A at 70 °C 115 V DC-13 conforming to IEC 60947-5-1/1991 0.1 A at 70 °C 250 V DC-13 conforming to VDE 0660 0.1 A at 70 °C 250 V DC-13 conforming to IEC 60947-5-1/1991 3 A at 70 °C 250 V AC-15 conforming to VDE 0660 3 A at 70 °C 250 V AC-15 conforming to IEC 60947-5-1/1991 3 A at 70 °C 24 V AC-15 conforming to VDE 0660 3 A at 70 °C 24 V AC-15 conforming to IEC 60947-5-1/1991 3 A at 70 °C 115 V AC-15 conforming to VDE 0660 3 A at 70 °C 115 V AC-15 conforming to IEC 60947-5-1/1991 2 A at 70 °C 24 V DC-13 conforming to VDE 0660 2 A at 70 °C 24 V DC-13 conforming to IEC 60947-5-1/1991
Switching capacity in mA	10 mA at 12 V

Switching voltage	250 V AC <= 440 V AC
Contacts material	90/10 silver nickel contacts
Number of cables	2
Height	78 mm
Width	22.5 mm
Depth	80 mm
Terminals description ISO n°1	(15-16-18)OC (25-26-28)OC (L1-L2-L3)CO ALT
Output relay state	Tripped, fault present
9 mm pitches	2.5
Product weight	0.11 kg
Terminals description ISO n°2	(11-12-14)OC (21-22-24)OC (L1-L2-L3)CO ALT

Environment

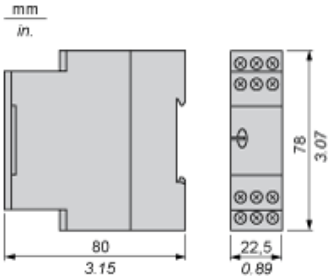
Standards	EN/IEC 60255-6
Product certifications	CSA GL UL
Ambient air temperature for storage	-40...85 °C
Ambient air temperature for operation	-20...65 °C
Relative humidity	15...85 % 3K3 conforming to IEC 60721-3-3
Vibration resistance	0.35 ms (f = 10...55 Hz) conforming to IEC 60068-2-6
Shock resistance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

Contractual warranty

Period	18 months

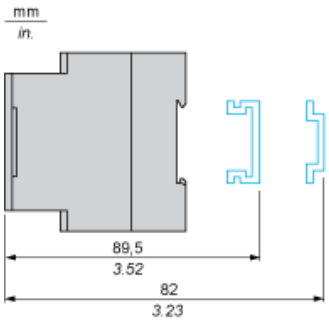
3-phase Supply Control Relays

Dimensions

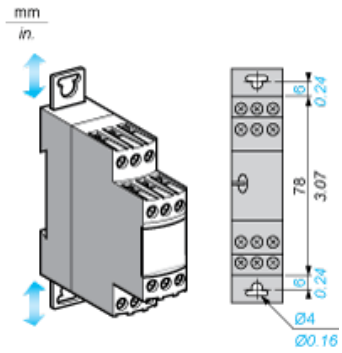


3-phase Supply Control Relays

Rail mounting

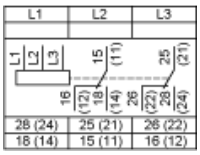


Screw fixing



3-Phase Supply Control Relays

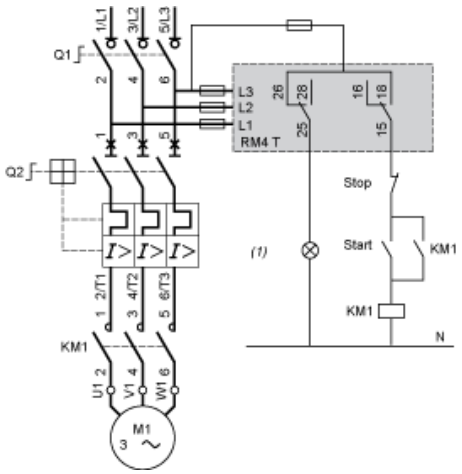
Wiring Diagram



L1, L2, L3 Supply to be monitored
15(11)-18(14) 1st C/O contact of the output relay
15(11)-16(12)
25(21)-28(24) 2nd C/O contact of the output relay
25(21)-26(22)

Application Scheme

Example

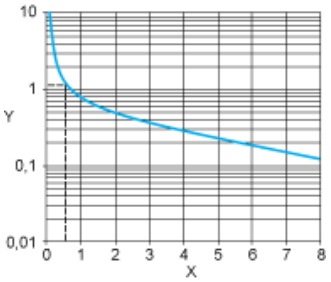


(1) Fault

Electrical Durability and Load Limit Curves

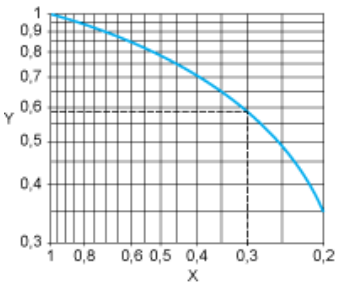
AC Load

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 φ)
Y Reduction factor K

Example: An LC1-F185 contactor supplied with 115 V/50 Hz for a consumption of 55 VA or a current consumption equal to 0.5 A and cos φ = 0.3.

For 0.5 A, curve 1 indicates a durability of approximately 1.5 million operating cycles.

As the load is inductive, it is necessary to apply a reduction coefficient k to this number of cycles as indicated by curve 2.

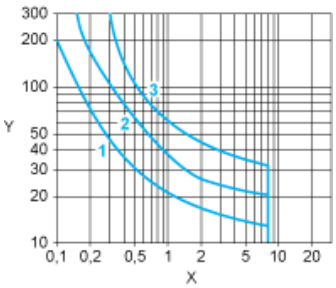
For cos φ = 0.3: k = 0.6

The electrical durability therefore becomes:

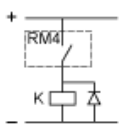
1.5 x 10^6 operating cycles x 0.6 = 900 000 operating cycles

DC Load

Load limit curve

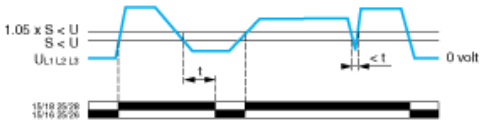


X Current in A
Y Voltage in V
1 L/R = 20 ms
2 L/R with load protection diode
3 Resistive load



Function Diagram

Undervoltage Detection Only



t Fixed time delay = 550 ms
U 3-phase supply voltage monitored (between terminals L1, L2 and L3)
S Overvoltage or undervoltage setting
15/18, 15/16; 25/28, 25/26 Output relays connections (refer to Connections and Schema)

Relay status: black color = energized.