



Main

Range of product	Zelio Control
Product or component type	Industrial measurement and control relays
Relay type	Voltage control relay
Relay name	RM4U
Relay monitored parameters	Overvoltage and undervoltage detection Self-powered
Time delay	Adjustable 0.1...10 s
Minimum switching current	10 mA at 12 V
Maximum switching current	8 A at 250 V AC
Electrical connection	2 conductors cable 2.5 mm ² flexible cable without cable end conforming to IEC 60947-1 2 conductors cable 1.5 mm ² flexible cable with cable end conforming to IEC 60947-1
Contacts type and composition	2 C/O
Poles description	1P

Complementary

[Us] rated supply voltage	80...220 V AC/DC
Supply voltage limits	60...300 V AC/DC
Control threshold undervoltage	80...120 V
Control threshold overvoltage	160...220 V
Output contacts	2 C/O
Measuring cycle	<= 80 ms
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
[Ue] rated operational voltage	>= 60 V
Maximum permissible voltage	<= 300 V L1 and L3
Marking	CE : EMC 89/336/EEC CE : LVD 73/23/EEC
Overvoltage category	III conforming to IEC 60664-1
Insulation resistance	> 500 MOhm at 500 V DC conforming to IEC 60664-1
[Ui] rated insulation voltage	500 V conforming to IEC
Control circuit voltage limits	0.85...1.1 Uc
Supply frequency	50/60 Hz +/- 5 %
Supply disconnection value	> 0.1 Uc
Operating position	Any position without derating
Tightening torque	0.6...1.1 N.m
Mechanical durability	30000000 cycles
[Ith] conventional free air thermal current	8 A

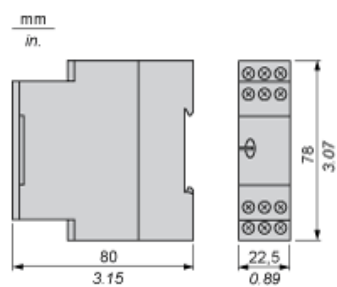
[I _e] rated operational current	0.3 A at 115 V DC-13 70 °C conforming to VDE 0660 0.3 A at 115 V DC-13 70 °C conforming to IEC 60947-5-1 0.1 A at 250 V DC-13 70 °C conforming to VDE 0660 0.1 A at 250 V DC-13 70 °C conforming to IEC 60947-5-1 3 A at 250 V AC-15 70 °C conforming to VDE 0660 3 A at 250 V AC-15 70 °C conforming to IEC 60947-5-1 3 A at 24 V AC-15 70 °C conforming to VDE 0660 3 A at 24 V AC-15 70 °C conforming to IEC 60947-5-1 3 A at 115 V AC-15 70 °C conforming to VDE 0660 3 A at 115 V AC-15 70 °C conforming to IEC 60947-5-1 2 A at 24 V DC-13 70 °C conforming to VDE 0660 2 A at 24 V DC-13 70 °C conforming to IEC 60947-5-1
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-L3)CO
Output relay state	Tripped, fault present
9 mm pitches	2.5
Product weight	0.11 kg

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 mm (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

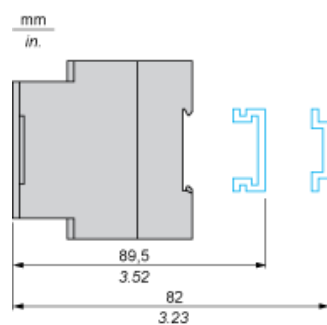
Voltage Control Relays

Dimensions

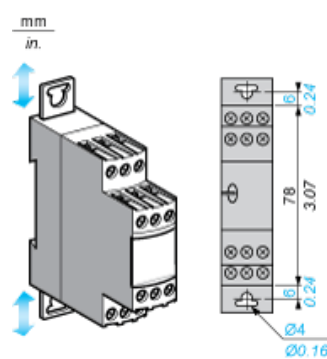


Voltage Control Relays

Rail mounting

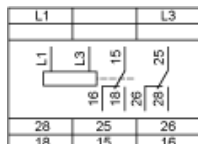


Screw fixing



Voltage Control Relays

Wiring Diagram



L1, Voltage to be monitored

L3

15-18¹st C/O contact of the output relay

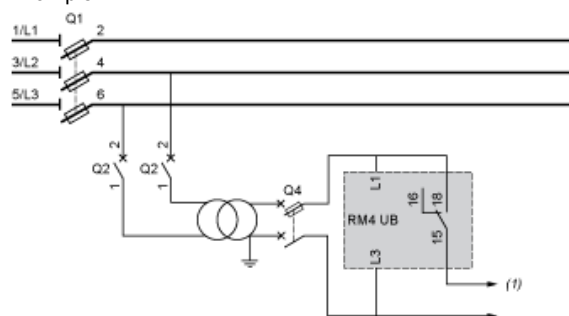
15-16

25-28²nd C/O contact of the output relay

25-26

Application Scheme

Example

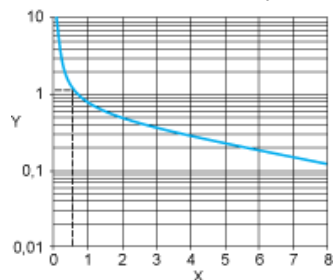


(1) To sensitive loads

Electrical Durability and Load Limit Curves

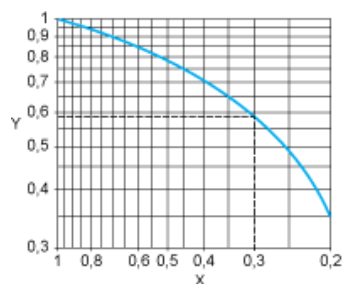
AC Load

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



X Current broken in A
Y Millions of operating cycles

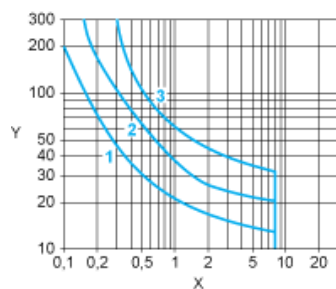
Curve 2: Reduction factor k for inductive loads (applies to values taken from durability Curve 1)



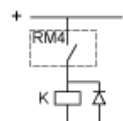
X Power factor on breaking ($\cos \varphi$)
Y Reduction factor K

DC Load

Load limit curve



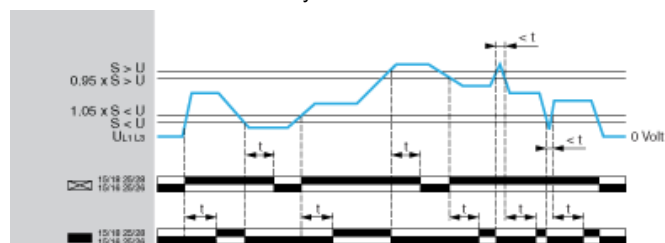
X Current in A
Y Voltage in V
1 $L/R = 20$ ms
2 L/R with load protection diode
3 Resistive load



Function Diagram

Overvoltage or Undervoltage Detection

Functions "Fault detection delayed" and "Fault detection extended"



Legend

t Time delay

U Single-phase supply voltage monitored

S Overvoltage or undervoltage setting

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

Relay status: black color = energized.