# Product data sheet
## Characteristics

# RM4UB35
## single-phase network control relay RM4-U - range 160..220 V

### 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<br>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 mm² flexible cable without cable end conforming to IEC 60947-1<br>2 conductors cable 1.5 mm² 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 | 160...300 V AC |
| Supply voltage limits | 160...300 V AC |
| Control threshold undervoltage | 160...220 V 50/60 Hz |
| Control threshold overvoltage | 220...300 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<br><= 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<br><= 0.07 % per degree centigrade depending on the rated operational temperature |
| Hysteresis | 5 % fixed of de-energisation threshold |
| [Ue] rated operational voltage | >= 160 V |
| Maximum permissible voltage | <= 300 V L1 and L3 |
| Marking | CE : EMC 89/336/EEC<br>CE : LVD 73/23/EEC |
| Overvoltage category | III conforming to IEC 60664-1 |
| Insulation resistance | > 500 MOhm at 500 V DC conforming to IEC 60255-5 |
| [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 |

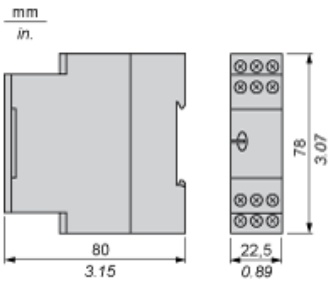
| | |
|---|---|
| [Ie] rated operational current | 0.3 A at 115 V DC-13 70 °C conforming to VDE 0660<br>0.3 A at 115 V DC-13 70 °C conforming to IEC 60947-5-1<br>0.1 A at 250 V DC-13 70 °C conforming to VDE 0660<br>3 A at 250 V AC-15 70 °C conforming to VDE 0660<br>3 A at 250 V AC-15 70 °C conforming to IEC 60947-5-1<br>3 A at 24 V AC-15 70 °C conforming to VDE 0660<br>3 A at 24 V AC-15 70 °C conforming to IEC 60947-5-1<br>3 A at 115 V AC-15 70 °C conforming to VDE 0660<br>3 A at 115 V AC-15 70 °C conforming to IEC 60947-5-1<br>2 A at 24 V DC-13 70 °C conforming to VDE 0660<br>2 A at 24 V DC-13 70 °C conforming to IEC 60947-5-1 |
| Switching voltage | 250 V AC<br><= 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 |
| 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<br>GL<br>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<br>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<br>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<br>CISPR 22 - class A |

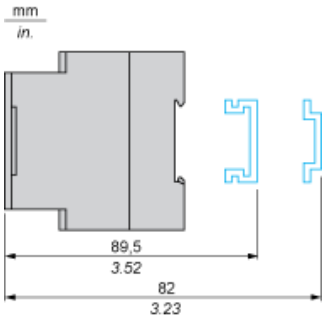
## Voltage Control Relays

### Dimensions

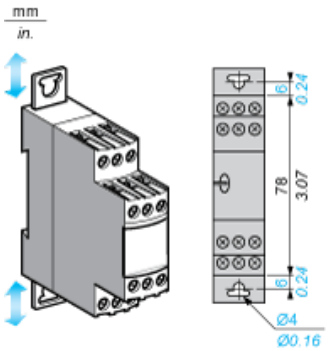


## Voltage Control Relays

### Rail mounting

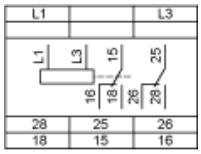



### Screw fixing



## Voltage Control Relays

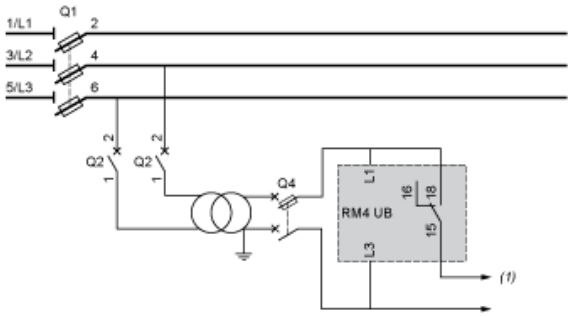
### Wiring Diagram




L1, L3 Voltage to be monitored
15-16 1st C/O contact of the output relay
25-26 2nd C/O contact of the output relay

### Application Scheme

Example

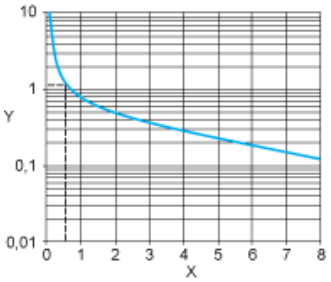



(1) To sensitive loads

## Electrical Durability and Load Limit Curves

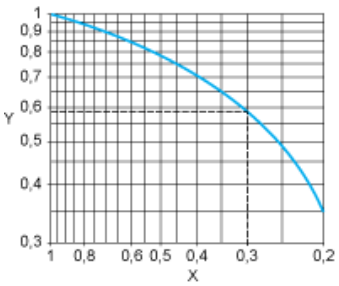
### AC Load

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




X Current broken in A
Y Millions of operating cycles

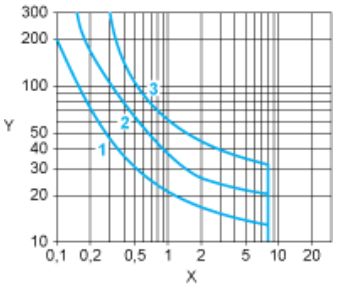
Curve 2: Reduction factor k for inductive loads (applies to values taken from durability Curve 1)



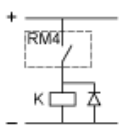

X Power factor on breaking (cos φ)
Y Reduction factor K

### DC Load

Load limit curve



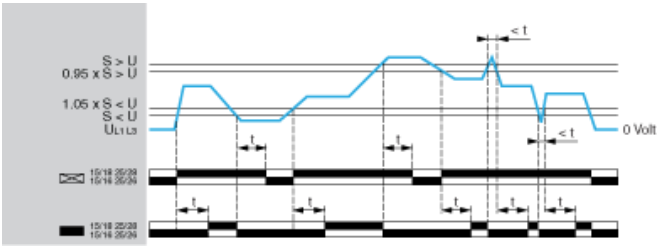

X Current in A
Y Voltage in V
1 L/R = 20 ms
2 L/R with load protection diode
3 Resistive load



## 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.