

# Fișă tehnică produs

Specificatii



## voltage measurement relay RM4-U - range 30..500 V - 24..240 V AC DC

RM4UA33MW

⚠ Fabricatie intrerupta la data de: 31 dec. 2016

⚠ Produs retras de la  
comercializare

### Principale

|                                    |                                         |
|------------------------------------|-----------------------------------------|
| gama de produse                    | Harmony Relay                           |
| tip releu                          | Voltage measurement relay               |
| Tip produs sau componenta          | Relee industriale de masura si control  |
| nume releu                         | RM4U                                    |
| parametri monitorizati ai releului | Detectare supratensiune sau subtensiune |
| time delay                         | Adjustable 0.05...30 s                  |
| tip si compozitie contacte         | 2 C/O                                   |

### Suplimentare

|                                        |                                                                                                                                     |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| tensiunea maxima de comutatie          | 440 V c.a.                                                                                                                          |
| operating voltage tolerance            | 0,85...1,1 Uc                                                                                                                       |
| puterea consumata in VA                | 1,5...3,3 VA c.a.                                                                                                                   |
| consum de putere maxim in W            | 1,2 W c.c.                                                                                                                          |
| contacte de iesire                     | 2 C/O                                                                                                                               |
| histerezis                             | 5...30 % reglabil din voltage threshold setting                                                                                     |
| rezistenta interna de intrare          | 11110000 Ohm<br>1111000 Ohm<br>668000 Ohm                                                                                           |
| suprasarcina continua permisa          | 550 V<br>400 V                                                                                                                      |
| suprasarcina nerepetitiva permisa      | 500 A pentru <= 1 s<br>550 A pentru <= 1 s                                                                                          |
| prag abatere comutare                  | <= 0.06 % pe grad centigrad în funcție de temperatura admisă a aerului înconjurător<br><= 0.5 % în gama de tensiune (0.85...1.1 Un) |
| setarea preciziei temporizarii         | 10 P                                                                                                                                |
| abatere intarziere                     | <= 0.07 % pe grad centigrad în funcție de temperatura nominală de funcționare<br><= 0.5 % în gama de tensiune (0.85...1.1 Un)       |
| etichete privind calitatea             | CE                                                                                                                                  |
| setarea preciziei pragului de comutare | +/-5 %                                                                                                                              |
| pozitie de functionare                 | Orice pozitie fără declasare                                                                                                        |
| categorie de supratensiune             | III conforming to SR EN 60664-1                                                                                                     |
| [Ui] tensiune nominala de izolatie     | 500 V conformitate cu IEC                                                                                                           |
| valoare de decuplare a alimentarii     | > 0,1 Uc                                                                                                                            |

Declinare de responsabilitate: Această documentație nu se substituie și nu trebuie utilizată pentru stabilirea adecvării sau fiabilității acestor produse pentru aplicații utilizator

|                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| conexiuni - borne                             | Borne cu surub, 2 x 1,5 mm <sup>2</sup> flexibil cu pini<br>Borne cu surub, 2 x 2,5 mm <sup>2</sup> flexibil fara terminale de cablu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| [Ie] curent nominal de utilizare              | 2 A la 70 °C 24 V DC-13 conformitate cu IEC 60947-5-1/1991<br>2 A la 70 °C 24 V DC-13 conformitate cu VDE 0660<br>3 A la 70 °C 115 V AC-15 conformitate cu IEC 60947-5-1/1991<br>3 A la 70 °C 115 V AC-15 conformitate cu VDE 0660<br>3 A la 70 °C 24 V AC-15 conformitate cu IEC 60947-5-1/1991<br>3 A la 70 °C 24 V AC-15 conformitate cu VDE 0660<br>3 A la 70 °C 250 V AC-15 conformitate cu IEC 60947-5-1/1991<br>3 A la 70 °C 250 V AC-15 conformitate cu VDE 0660<br>0,1 A la 70 °C 250 V DC-13 conformitate cu IEC 60947-5-1/1991<br>0,1 A la 70 °C 250 V DC-13 conformitate cu VDE 0660<br>0,3 A la 70 °C 115 V DC-13 conformitate cu IEC 60947-5-1/1991<br>0,3 A la 70 °C 115 V DC-13 conformitate cu VDE 0660 |
| cuplu de strangere                            | 0,6...1,1 N.m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| durabilitate mecanica                         | 30000000 cic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| [Ith] curent termic conventional in aer liber | 8 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| capacitate de comutare in mA                  | 10 mA la 12 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Material contacte                             | Contacte din aliaj de argint cu nichel 90/10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| numar de cabluri                              | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| latime                                        | 22,5 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| inaltime                                      | 78 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| adancime                                      | 80 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| descriere borne ISO nr. 1                     | (25-26-28)OC<br>(C-B2-B3)CO<br>(15-16-18)OC<br>(A1-A2)CO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| stare releu de iesire                         | Declansat daca A masurat > A setat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Numar de pasi de 9mm pe rand                  | 2,5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| greutate neta                                 | 0,168 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## Mediu

|                                         |                                                                                                                                                                                                                  |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| compatibilitate electromagnetica        | Descărcare electrostatică - test level: 6 kV nivel 3 (descarcare pe contact) conforming to IEC 61000-4-2<br>Descărcare electrostatică - test level: 9 kV nivel 3 (descarcare în aer) conforming to IEC 61000-4-2 |
| temperatura ambientala de utilizare     | -20...65 °C                                                                                                                                                                                                      |
| rezistenta la vibratii                  | 0.35 ms (f= 10...55 Hz) conforming to IEC 60068-2-6                                                                                                                                                              |
| rezistenta la socuri                    | 15 gn pentru 11 ms conformitate cu IEC 60068-2-27                                                                                                                                                                |
| standarde                               | EN/IEC 60255-6                                                                                                                                                                                                   |
| certificari produs                      | GL<br>CSA<br>UL                                                                                                                                                                                                  |
| temperatura ambietala pentru depozitare | -40...85 °C                                                                                                                                                                                                      |
| umiditate relativa                      | 15...85 % 3K3 conformitate cu IEC 60721-3-3                                                                                                                                                                      |
| grad de protectie IP                    | IP20 conformitate cu SR EN 60529 (borne)<br>IP50 conformitate cu SR EN 60529 (carcasă)                                                                                                                           |
| grad de poluare                         | 3 conformitate cu SR EN 60664-1                                                                                                                                                                                  |
| directive                               | 89/336/EEC - electromagnetic compatibility<br>73/23/EEC - directiva joasa tensiune                                                                                                                               |
| rezistenta la descarcari electrostatice | 6 kV contact conformitate cu IEC 61000-4-2 nivel 3<br>8 kV aer conformitate cu IEC 61000-4-2 nivel 3                                                                                                             |

|                                        |                                               |
|----------------------------------------|-----------------------------------------------|
| rezistenta la campuri electromagnetice | 10 V/m conformitate cu IEC 61000-4-3 nivel 3  |
| rezistenta la tranzienti rapizi        | 2 kV conformitate cu IEC 61000-4-4 nivel 3    |
| protectia la electrocutare             | 2 kV nivel 3 conformitate cu IEC 61000-4-5    |
| perturbatie radiata/condusa            | CISPR11 grup 1 - clasa A<br>CISPR22 - clasa A |
| tensiune de incercare                  | 2,5 kV                                        |
| unda de soc nedisipativa               | 4,8 kV                                        |

## Unitati de ambalare

|                                                     |     |
|-----------------------------------------------------|-----|
| Unitate de masura pentru prima forma de impachetare | PCE |
| Numar unitati in prima forma de impachetare         | 1   |

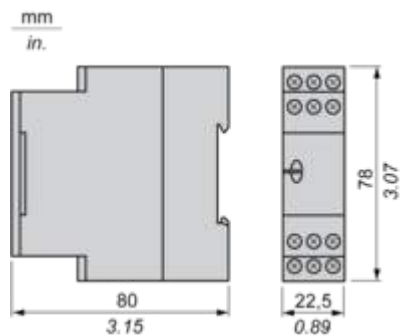
## Garanție contractuală

|          |           |
|----------|-----------|
| Garantie | 18 months |
|----------|-----------|

Dimensions Drawings

Voltage Measurement Relays

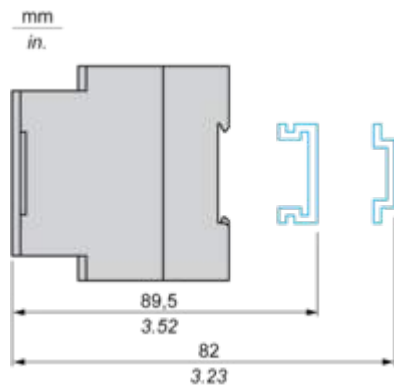
Dimensions



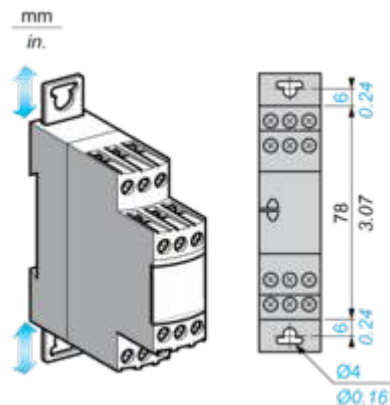
Mounting and Clearance

Voltage Measurement Relays

Rail mounting



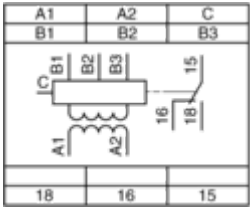
Screw fixing



Connections and Schema

Voltage Measurement Relays

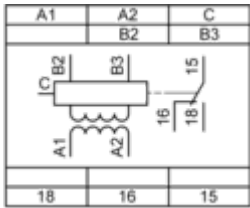
RM4UA01 and RM4UA02 Wiring Diagram



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   |

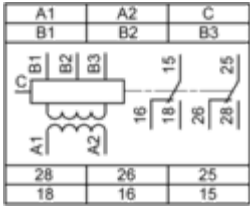
RM4UA03 Wiring Diagram



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 |

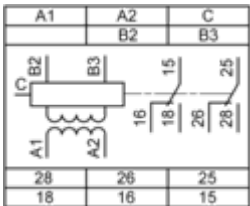
RM4UA31 and RM4UA32 Wiring Diagram



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



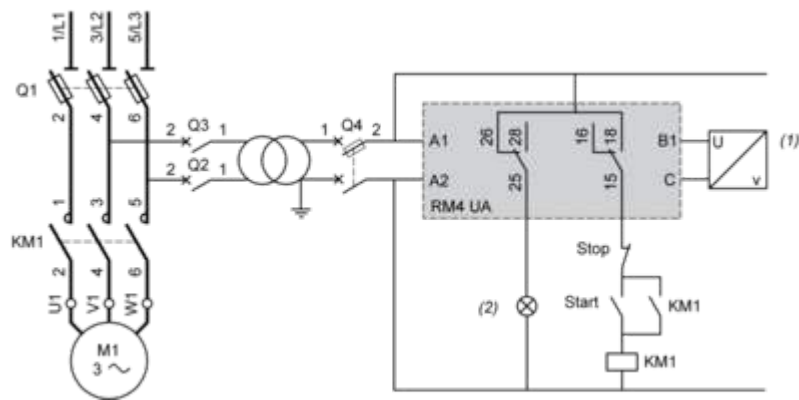
A1-A2 Supply voltage  
B2, B3, C Voltages to be measured (see table below)

| 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

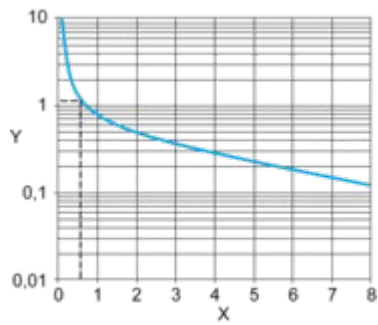
(2) Overspeed

Performance Curves

Electrical Durability and Load Limit Curves

AC Load

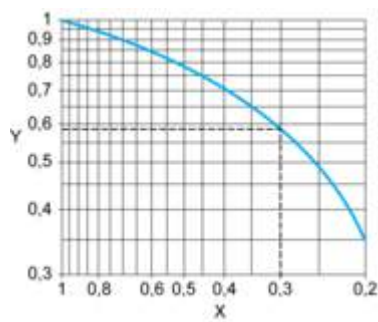
Curve 1: Electrical durability of contacts on resistive load in millions of operating cycles



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)

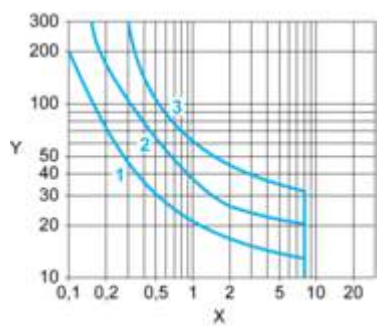


X Power factor on breaking (cos φ)

Y Reduction factor K

DC Load

Load limit curve



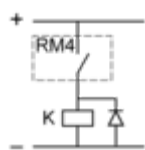
X Current in A

Y Voltage in V

1 L/R = 20 ms

2 L/R with load protection diode

3 Resistive load

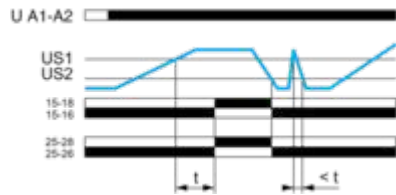


Technical Description

Function Diagram

Overvoltage Control

Function “>”



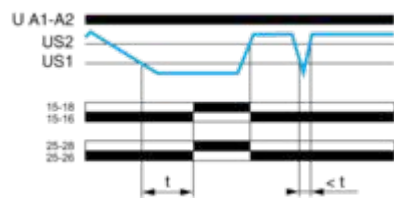
Legend

- 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.