

# Product data sheet

## Characteristics

# RM35JA31MW

Modular 1-phase current control relay, 5 A, 2 CO, 2...500 mA, , 24...240 V AC/DC



## Main

|                                 |   |
|---------------------------------|---|
| Range of product                | Harmony Control Relays  |
| Relay type                      | Current control relay   |
| Product or component type       | Current control relay   |
| Relay name                      | RM35JA  |
| Time delay                      | Adjustable 0.3...30 s, 0 + 10 % Tt- time delay upon fault<br>Adjustable 1...20 s, 0 + 10 % Ti- inhibition time delay upon startup   |
| Switching capacity in VA        | 1250 VA   |
| Minimum switching current       | 10 mA at 5 V DC   |
| Maximum switching current       | 5 A AC  |
| Maximum power consumption in VA | 3.5 VA AC   |
| Measurement range               | 2...500 mA AC/DC E2-M terminals   |
| Utilisation category            | AC-12 conforming to IEC 60947-5-1<br>AC-13 conforming to IEC 60947-5-1<br>AC-14 conforming to IEC 60947-5-1<br>AC-15 conforming to IEC 60947-5-1<br>DC-12 conforming to IEC 60947-5-1<br>DC-13 conforming to IEC 60947-5-1<br>DC-14 conforming to IEC 60947-5-1 |
| Contacts type and composition   | 2 C/O   |

## Complementary

|                                |   |
|--------------------------------|---|
| Reset time                     | 1500 ms time delay  |
| Maximum switching voltage      | 250 V AC  |
| Supply voltage limits          | 20.4...264 V AC/DC  |
| Operating voltage tolerance    | - 15 % + 10 % Un  |
| Maximum power consumption in W | 0.6 W DC  |
| Control circuit frequency      | 40...70 Hz +/- 10 %   |
| Resistance across terminals    | 1 Ohm at E2-M terminals<br>5 Ohm at E1-M terminals<br>0.2 Ohm at E3-M terminals               |
| Output contacts                | 2 C/O   |
| Nominal output current         | 5 A   |
| Maximum measuring cycle        | 30 ms measurement cycle as true rms value   |
| Hysteresis                     | 5...50 % of threshold setting   |
| Delay at power up              | 0.3 s   |
| Measurement accuracy           | +/- 10 % of the full scale value  |
| Repeat accuracy                | +/- 0.5 % for input and measurement circuit<br>+/- 2 % for time delay                         |
| Measurement error              | 0.05 %/°C with temperature variation<br>1 by volt over the whole range with voltage variation |
| Polarity                       | No DC   |

|                               |  |
|-------------------------------|--|
| Threshold setting             | 10...100 %   |
| Marking                       | CE : EMC 89/336/EEC<br>CE : 73/23/EEC  |
| Overvoltage category          | III conforming to IEC 60664-1  |
| Insulation resistance         | > 500 MOhm at 500 V DC between supply and relay output conforming to IEC 60255-5<br>> 500 MOhm at 500 V DC between measurement and relay output conforming to IEC 60664-1<br>> 1 MOhm at 500 V DC between supply and measurement conforming to IEC 60255-5<br>> 500 MOhm at 500 V DC between supply and relay output conforming to IEC 60664-1<br>> 500 MOhm at 500 V DC between measurement and relay output conforming to IEC 60255-5<br>> 1 MOhm at 500 V DC between supply and measurement conforming to IEC 60664-1 |
| [Ui] rated insulation voltage | 250 V conforming to IEC 60664-1  |
| Operating position            | Any position without derating  |
| Connections - terminals       | Screw terminals, 1 x 0.5...1 x 4 mm <sup>2</sup> (AWG 20...AWG 11) solid without cable end<br>Screw terminals, 2 x 0.5...2 x 2.5 mm <sup>2</sup> (AWG 20...AWG 14) solid without cable end<br>Screw terminals, 1 x 0.2...1 x 2.5 mm <sup>2</sup> (AWG 24...AWG 12) flexible with cable end<br>Screw terminals, 2 x 0.2...2 x 1.5 mm <sup>2</sup> (AWG 24...AWG 16) flexible with cable end   |
| Tightening torque             | 0.6...1 N.m conforming to IEC 60947-1  |
| Housing material              | Self-extinguishing plastic   |
| Local signalling              | LED (green) for power ON<br>LED (yellow) for relay ON  |
| Mounting support              | 35 mm symmetrical DIN rail conforming to IEC 60715   |
| Electrical durability         | 100000 cycles  |
| Mechanical durability         | 30000000 cycles  |
| Operating rate                | ≤ 360 operations/hour full load  |
| [Un] rated nominal voltage    | 24...240 V AC/DC 50/60 Hz, non self-powered  |
| Safety reliability data       | MTTFd = 296.8 years<br>B10d = 270000   |
| Contacts material             | Cadmium free   |
| Width                         | 35 mm  |
| Control type                  | Without test button  |
| Net weight                    | 0.13 kg  |



## Environment

|                                       |  |
|---------------------------------------|--|
| Immunity to microbreaks               | 50 ms  |
| Electromagnetic compatibility         | Emission standard for industrial environments conforming to IEC 61000-6-4<br>Emission standard for residential, commercial and light-industrial environments conforming to IEC 61000-6-3<br>Immunity for industrial environments conforming to NF EN/IEC 61000-6-2 |
| Standards                             | IEC 60255-6  |
| Product certifications                | GL[RETURN]CSA[RETURN]GOST[RETURN]UL[RETURN]C-Tick  |
| Ambient air temperature for storage   | -40...70 °C  |
| Ambient air temperature for operation | -20...50 °C  |
| Relative humidity                     | 95 % at 55 °C conforming to IEC 60068-2-30   |
| Vibration resistance                  | 0.35 mm (f= 5...57.6 Hz) conforming to IEC 60068-2-6<br>1 gn (f= 57.6...150 Hz) conforming to IEC 60255-21-1   |
| Shock resistance                      | 15 gn for 11 ms conforming to IEC 60255-21-1   |
| IP degree of protection               | IP20 (terminals) conforming to IEC 60529<br>IP30 (casing) conforming to IEC 60529  |
| Pollution degree                      | 3 conforming to IEC 60664-1  |
| Dielectric test voltage               | 2 KV, 1 min AC 50 Hz conforming to IEC 60255-5<br>2 kV, 1 min AC 50 Hz conforming to IEC 60664-1   |
| Non-dissipating shock wave            | 4 KV conforming to IEC 60255-5<br>4 KV conforming to IEC 60664-1<br>4 kV conforming to IEC 61000-4-5   |

## Packing Units

|                              |           |
|------------------------------|-----------|
| Unit Type of Package 1       | PCE       |
| Number of Units in Package 1 | 1         |
| Package 1 Height             | 4.500 cm  |
| Package 1 Width              | 7.800 cm  |
| Package 1 Length             | 9.500 cm  |
| Package 1 Weight             | 138.000 g |
| Unit Type of Package 2       | S03       |
| Number of Units in Package 2 | 48        |
| Package 2 Height             | 30.000 cm |
| Package 2 Width              | 30.000 cm |
| Package 2 Length             | 40.000 cm |
| Package 2 Weight             | 7.350 kg  |

## Offer Sustainability

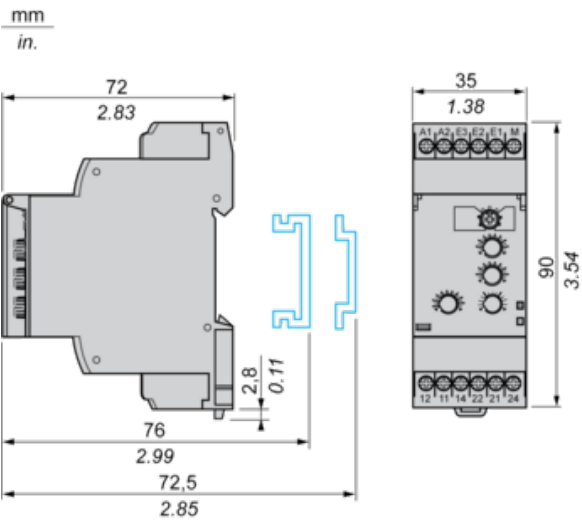
|                            |   |
|----------------------------|---|
| Sustainable offer status   | Green Premium product   |
| REACH Regulation           | <a href="#"> REACH Declaration</a>             |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope)  |
| Mercury free               | Yes   |
| China RoHS Regulation      | <a href="#"> China RoHS Declaration</a>        |
| RoHS exemption information | <a href="#"> Yes</a>                           |
| Environmental Disclosure   | <a href="#"> Product Environmental Profile</a> |
| Circularity Profile        | <a href="#"> End Of Life Information</a>     |
| WEEE                       | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins     |

## Contractual warranty

|          |           |
|----------|-----------|
| Warranty | 18 months |
|----------|-----------|

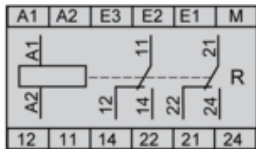
Current Control Relays

Dimensions and Mounting



## Current Control Relays

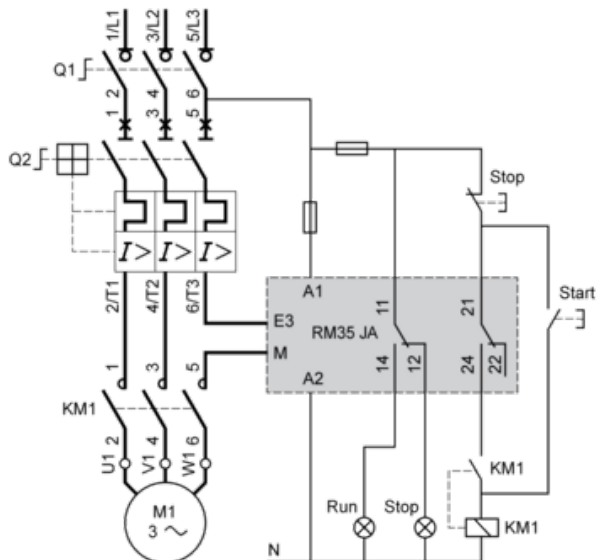
### Wiring Diagram



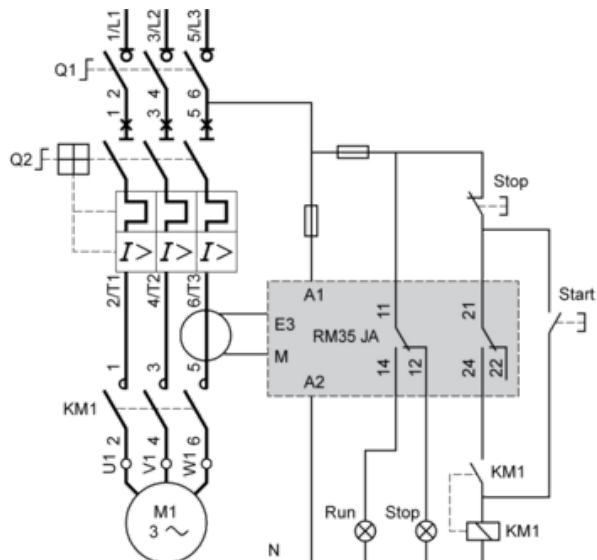
### Application Schemes

#### Example: Detection of Jamming on a Crusher (Overcurrent Function)

Current measured  $\leq 15$  A



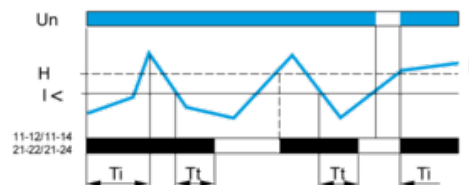
Current measured  $> 15$  A



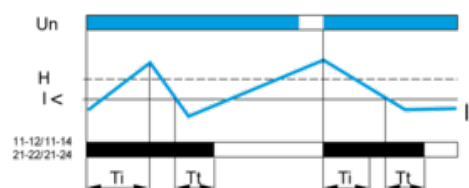
## Function Diagrams

### Undercurrent Detection

Without memory ("No Memory" mode)

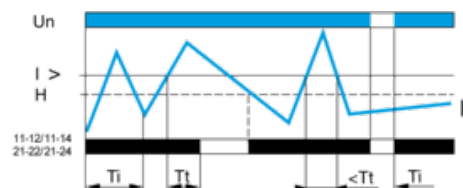


With memory ("Memory" mode)

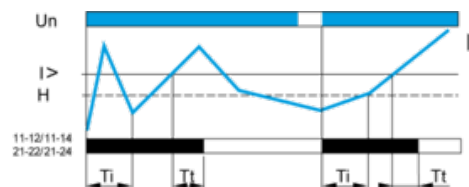


### Overcurrent Detection

Without memory ("No Memory" mode)



With memory ("Memory" mode)



### Legend

$T_i$  Starting inhibition time delay

$T_t$  Time delay after crossing of threshold

$U_n$  Supply voltage

$I$  Monitored current

$H$  Hysteresis

$I_{>}$  Overcurrent threshold

$I_{<}$  Undercurrent threshold

11-12/11-14, 21-22/21-24 Output relay connections

Relay status: black color = energized.

NOTE: In "Memory" mode, the relay opens when crossing of the threshold is detected and then stays in that position. The power supply voltage must be switched off to reset the product.