

# RM35JA32MW

Harmony, Modular 1-phase current control relay, 5 A, 2 CO, 0.15...15 A,, 24...240 V AC/DC



## Main

|                                 |                                                                                                                                                                                                                                                                 |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Range of product                | Harmony Control Relays                                                                                                                                                                                                                                          |
| Product or component type       | Current control relay                                                                                                                                                                                                                                           |
| Relay type                      | Current control relay                                                                                                                                                                                                                                           |
| Relay name                      | RM35JA                                                                                                                                                                                                                                                          |
| Relay monitored parameters      | Overcurrent or undercurrent detection                                                                                                                                                                                                                           |
| Time delay                      | Adjustable 1...20 s, 0 + 10 % on energisation Ti<br>Adjustable 0.3...30 s, 0 + 10 % on crossing the threshold Tt                                                                                                                                                |
| Switching capacity in VA        | 1250 VA                                                                                                                                                                                                                                                         |
| Minimum switching current       | 10 mA at 5 V DC                                                                                                                                                                                                                                                 |
| Maximum switching current       | 5 A AC/DC                                                                                                                                                                                                                                                       |
| Maximum power consumption in VA | 3.5 VA AC                                                                                                                                                                                                                                                       |
| Measurement range               | 0.15...1.5 A E1-M terminals<br>0.5...5 A E2-M terminals<br>1.5...15 A E3-M terminals<br>150 mA...15 A current                                                                                                                                                   |
| 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/DC                                                                              |
| [Us] rated supply voltage      | 24...240 V AC/DC 50/60 Hz +/- 10 %                                                       |
| 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    | 0.005 Ohm at E3-M terminals<br>0.015 Ohm at E2-M terminals<br>0.05 Ohm at E1-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 EN/IEC 60715                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Electrical durability         | 100000 cycles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Mechanical durability         | 30000000 cycles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Operating rate                | <= 360 operations/hour full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Safety reliability data       | MTTFd = 296.8 years<br>B10d = 270000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Contacts material             | Cadmium free                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Width                         | 35 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Net weight                    | 0.13 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

## Environment

|                                       |                                                                                                                                                                                                                                                                          |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Immunity to microbreaks               | 50 ms                                                                                                                                                                                                                                                                    |
| Electromagnetic compatibility         | Emission standard for industrial environments conforming to EN/IEC 61000-6-4<br>Emission standard for residential, commercial and light-industrial environments conforming to EN/IEC 61000-6-3<br>Immunity for industrial environments conforming to NF EN/IEC 61000-6-2 |
| Standards                             | EN/IEC 60255-6                                                                                                                                                                                                                                                           |
| Product certifications                | GL<br>UL<br>GOST<br>C-Tick<br>CSA                                                                                                                                                                                                                                        |
| 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 Weight             | 139 g    |
| Package 1 Height             | 4.5 cm   |
| Package 1 width              | 7.8 cm   |
| Package 1 Length             | 9.7 cm   |
| Unit Type of Package 2       | S03      |
| Number of Units in Package 2 | 48       |
| Package 2 Weight             | 7.385 kg |
| Package 2 Height             | 30 cm    |
| Package 2 width              | 30 cm    |
| Package 2 Length             | 40 cm    |

### Offer Sustainability

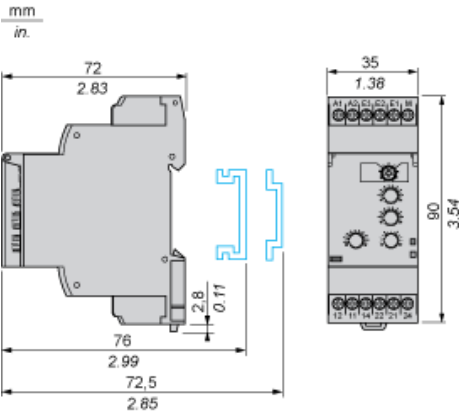
|                            |                                                                                                                                                                                    |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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) <a href="#"> EU RoHS Declaration</a> |
| Mercury free               | Yes                                                                                                                                                                                |
| RoHS exemption information | <a href="#"> Yes</a>                                                                            |
| China RoHS Regulation      | <a href="#"> China RoHS Declaration</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 |
|----------|-----------|

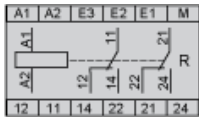
Current Control Relays

Dimensions and Mounting



## Current Control Relays

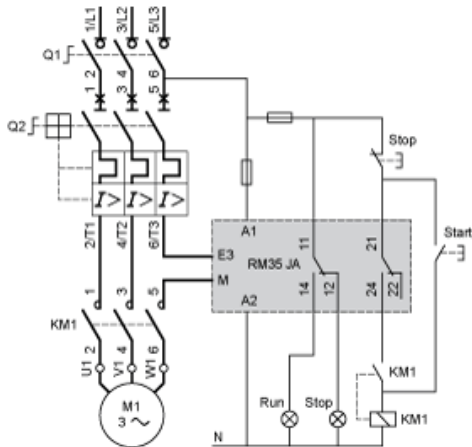
## Wiring Diagram



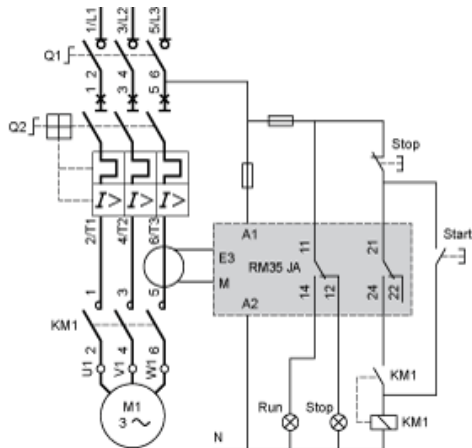
## Application Schemes

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

Current measured  $\leq 15$  A



Current measured > 15 A



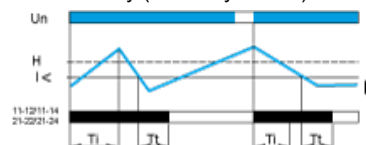
## Function Diagrams

### Undercurrent Detection

Without memory ("No Memory" mode)



With memory ("Memory" mode)

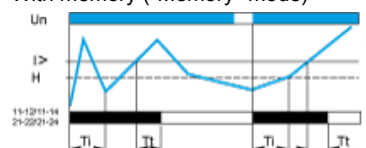


### Overcurrent Detection

Without memory ("No Memory" mode)



With memory ("Memory" mode)



### Legend

Ti Starting inhibition time delay

Tt Time delay after crossing of threshold

Un 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.