## Product data sheet

### RM4TR31

three-phase network control relay RM4-T - range 160..220 V

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### Main

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range of product</td>
<td>Zelio Control</td>
</tr>
<tr>
<td>Product or component type</td>
<td>Industrial measurement and control relays</td>
</tr>
<tr>
<td>Relay type</td>
<td>Control relay</td>
</tr>
<tr>
<td>Product specific application</td>
<td>For 3-phase supply</td>
</tr>
<tr>
<td>Relay name</td>
<td>RM4-T</td>
</tr>
<tr>
<td>Relay monitored parameters</td>
<td>Overvoltage and undervoltage detection, Phase failure detection, Phase sequence</td>
</tr>
<tr>
<td>Time delay type</td>
<td>Adjustable 0.1...10 s</td>
</tr>
<tr>
<td>Measurement range</td>
<td>160...300 V</td>
</tr>
<tr>
<td>Contacts type and composition</td>
<td>2 C/O</td>
</tr>
<tr>
<td>Poles description</td>
<td>3P</td>
</tr>
</tbody>
</table>

### Complementary

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum switching voltage</td>
<td>440 V AC</td>
</tr>
<tr>
<td>Control threshold undervoltage</td>
<td>160...220 V</td>
</tr>
<tr>
<td>Control threshold overvoltage</td>
<td>220...300 V</td>
</tr>
<tr>
<td>Output contacts</td>
<td>2 C/O</td>
</tr>
<tr>
<td>Setting accuracy of the switching threshold</td>
<td>+/-3 %</td>
</tr>
<tr>
<td>Switching threshold drift</td>
<td>&lt;= 0.06 % per degree centigrade depending permissible ambient air temperature</td>
</tr>
<tr>
<td></td>
<td>&lt;= 0.5 % within the measuring range</td>
</tr>
<tr>
<td>Setting accuracy of time delay</td>
<td>10 P</td>
</tr>
<tr>
<td>Time delay drift</td>
<td>&lt;= 0.07 % per degree centigrade depending on the rated operational temperature</td>
</tr>
<tr>
<td></td>
<td>&lt;= 0.5 % within the measuring range</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>5 % fixed of de-energisation threshold</td>
</tr>
<tr>
<td>Run-up delay at power-up</td>
<td>&lt; 650 ms</td>
</tr>
<tr>
<td>Measuring cycle</td>
<td>&lt;= 80 ms</td>
</tr>
<tr>
<td>Marking</td>
<td>CE</td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>III conforming to IEC 60664-1</td>
</tr>
<tr>
<td>[Ui] rated insulation voltage</td>
<td>500 V conforming to IEC</td>
</tr>
<tr>
<td>Supply frequency</td>
<td>50/60 Hz +/- 5 %</td>
</tr>
<tr>
<td>Operating position</td>
<td>Any position without</td>
</tr>
</tbody>
</table>

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Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.
### Connections - terminals
- Screw terminals 2 x 1.5 mm², flexible cable with cable end
- Screw terminals 2 x 2.5 mm², flexible cable without cable end

### Tightening torque
- 0.6...1.1 N.m

### Mechanical durability
- <= 30000000 cycles

### [Ith] conventional free air thermal current
- 8 A

### [Ie] rated operational current
- 2 A at 70 °C 24 V DC-13 conforming to IEC 60947-5-1/1991
- 2 A at 70 °C 24 V DC-13 conforming to VDE 0660
- 3 A at 70 °C 115 V AC-15 conforming to IEC 60947-5-1/1991
- 3 A at 70 °C 115 V AC-15 conforming to VDE 0660
- 3 A at 70 °C 24 V AC-15 conforming to IEC 60947-5-1/1991
- 3 A at 70 °C 24 V AC-15 conforming to VDE 0660
- 3 A at 70 °C 250 V AC-15 conforming to IEC 60947-5-1/1991
- 3 A at 70 °C 250 V AC-15 conforming to VDE 0660
- 0.1 A at 70 °C 250 V DC-13 conforming to IEC 60947-5-1/1991
- 0.1 A at 70 °C 250 V DC-13 conforming to VDE 0660
- 0.3 A at 70 °C 115 V DC-13 conforming to IEC 60947-5-1/1991
- 0.3 A at 70 °C 115 V DC-13 conforming to VDE 0660

### Switching capacity in mA
- 10 mA at 12 V

### Switching voltage
- 250 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-L2-L3)CO

### Output relay state
- Tripped, fault present

### 9 mm pitches
- 2.5

### Product weight
- 0.11 kg

### Compatibility code
- RM4

### Environment

#### Electromagnetic compatibility
- Electrostatic discharge - test level 6 kV, level 3 - contact discharge conforming to IEC 61000-4-2
- Electrostatic discharge - test level 8 kV, level 3 - air discharge conforming to IEC 61000-4-2
- Resistance to electrostatic discharge - test level 6 kV - contact conforming to IEC 61000-4-2 level 3
- Resistance to electrostatic discharge - test level 8 kV - air conforming to IEC 61000-4-2 level 3

#### Standards
- EN/IEC 60255-6

#### Product certifications
- CSA
- GL
- UL

#### Directives
- 89/336/EEC - electromagnetic compatibility
- 73/23/EEC - low voltage directive

#### 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 ms (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
- IP20 (terminals) conforming to IEC 60529
- IP50 (casing) 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
- 6 kV contact conforming to IEC 61000-4-2 level 3
- 8 kV air 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

#### Disturbance radiated/conducted
- CISPR 11 group 1 - class A
- CISPR 22 - class A
<table>
<thead>
<tr>
<th>Contractual warranty</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Warranty period</td>
<td>18 months</td>
</tr>
</tbody>
</table>
3-phase Supply Control Relays

Dimensions

![Dimensions Diagram]

- Width: 80 mm
- Height: 315 mm
- Depth: 22.5 mm
- Other dimensions: 0.69 mm
Product data sheet

Mounting and Clearance

3-phase Supply Control Relays

Rail mounting

Screw fixing
3-Phase Supply Control Relays

Wiring Diagram

<table>
<thead>
<tr>
<th>L1</th>
<th>L2</th>
<th>L3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

L1, L2, L3 Supply to be monitored
15-18, 15-16 C/O contact of the output relay
25-28, 25-26 C/O contact of the output relay
**Electrical Durability and Load Limit Curves**

**AC Load**

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

![Graph](image)

<table>
<thead>
<tr>
<th>X</th>
<th>Current broken in A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Millions of operating cycles</td>
</tr>
</tbody>
</table>

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

![Graph](image)

<table>
<thead>
<tr>
<th>X</th>
<th>Power factor on breaking (cos φ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Reduction factor K</td>
</tr>
</tbody>
</table>

**DC Load**

Load limit curve

![Graph](image)

<table>
<thead>
<tr>
<th>X</th>
<th>Current in A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Voltage in V</td>
</tr>
</tbody>
</table>

1. L/R = 20 ms
2. L/R with load protection diode
3. Resistive load

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Function Diagram

Overvoltage and Undervoltage Detection
Functions "Fault detection delayed" or "Fault detection extended" (by switch selector)

Legend
- t Time delay
- U 3-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.