

Product datasheet

Specifications



Modular 3-phase control relay, 8 A, 2 CO, 380...480 V AC

RM22TR33

Main

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|-------------------------------|--|
| Range of product | Harmony Control Relays |
| Product or component type | 3-phase control relay |
| Relay type | Control relay |
| Network number of phases | 3 phases |
| Relay name | RM22TR |
| Relay monitored parameters | Overvoltage and undervoltage detection Phase sequence Phase failure detection |
| Time delay type | Adjustable 0.1...30 s, +/- 10 % of the full scale value on crossing the threshold Tt |
| Switching capacity in VA | 2000 VA |
| Measurement range | 380...480 V voltage AC |
| Contacts type and composition | 2 C/O |

Complementary

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| Reset time | 1500 ms at maximum voltage |
| Maximum switching voltage | 250 V AC |
| Minimum switching current | 10 mA at 5 V DC |
| Maximum switching current | 8 A AC |
| [Us] rated supply voltage | 380...480 V AC |
| Supply voltage limits | 304...576 V AC |
| Operating limits | - 20 % + 20 % Un |
| Power consumption in VA | 15 VA at 480 V AC 60 Hz |
| Voltage detection threshold | < 100 V AC |
| Supply voltage frequency | 50...60 Hz +/- 10 % |
| Output contacts | 2 C/O |
| Nominal output current | 8 A |
| Setting accuracy of the switching threshold | +/- 10 % of the full scale |
| Switching threshold drift | <= 0.05 % per degree centigrade depending permissible ambient air temperature <= 1 % within the supply voltage range |
| Setting accuracy of time delay | 10 P |

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| Time delay drift | <= 0.05 % per degree centigrade depending permissible ambient air temperature <= 1 % within the supply voltage range |
| Hysteresis | 2 % fixed of selectable |
| Run-up delay at power-up | 650 ms |
| Maximum measuring cycle | 150 ms measurement cycle as true rms value |
| Threshold adjustment voltage | 2...20 % of Un selected |
| Voltage range | 380...480 V phase to phase |
| Repeat accuracy | +/- 0.5 % for input and measurement circuit +/- 3 % for time delay |
| Measurement error | < 1 % over the whole range with voltage variation < 0.05 %/°C with temperature variation |
| Response time | <= 300 ms |
| Overvoltage category | III conforming to IEC 60664-1 III conforming to UL 508 |
| Insulation resistance | > 100 MOhm at 500 V DC conforming to IEC 60255-27 |
| Mounting position | Any position |
| Connections - terminals | Screw terminals, 2 x 0.5...2 x 2.5 mm ² (AWG 20...AWG 14) solid without cable end Screw terminals, 2 x 0.2...2 x 1.5 mm ² (AWG 24...AWG 16) flexible with cable end Screw terminals, 1 x 0.5...1 x 3.3 mm ² (AWG 20...AWG 12) solid without cable end Screw terminals, 1 x 0.2...1 x 2.5 mm ² (AWG 24...AWG 14) flexible with cable end |
| Tightening torque | 0.6...1 N.m conforming to IEC 60947-1 |
| Housing material | Self-extinguishing plastic |
| Status LED | LED (yellow) relay ON LED (green) power ON |
| Mounting support | 35 mm DIN rail conforming to EN/IEC 60715 |
| Electrical durability | 100000 cycles |
| Mechanical durability | 10000000 cycles |
| Utilisation category | AC-15 conforming to IEC 60947-5-1 DC-13 conforming to IEC 60947-5-1 AC-1 conforming to IEC 60947-4-1 DC-1 conforming to IEC 60947-4-1 |
| Safety reliability data | MTTFd = 388.1 years B10d = 350000 |
| Contacts material | Cadmium free |
| Width | 22.5 mm |
| Net weight | 0.09 kg |

Environment

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|--------------------------------------|--|
| Immunity to microbreaks | 10 ms |
| Electromagnetic compatibility | Immunity for residential, commercial and light-industrial environments conforming to EN/IEC 61000-6-1 Immunity for industrial environments conforming to EN/IEC 61000-6-2 Emission standard for residential, commercial and light-industrial environments conforming to EN/IEC 61000-6-3 Emission standard for industrial environments conforming to EN/IEC 61000-6-4 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 Radiated radio-frequency electromagnetic field immunity test - test level: 10 V/m level 3 conforming to IEC 61000-4-3 Electrical fast transient/burst immunity test - test level: 4 kV level 4 (direct) conforming to IEC 61000-4-4 Electrical fast transient/burst immunity test - test level: 2 kV level 4 (capacitive coupling) conforming to IEC 61000-4-4 Surge immunity test - test level: 4 kV level 4 (common mode) conforming to IEC 61000-4-5 Surge immunity test - test level: 2 kV level 4 (differential mode) conforming to IEC 61000-4-5 Conducted and radiated emissions class B group 1 conforming to CISPR 11 Conducted and radiated emissions class B conforming to CISPR 22 |
| Standards | EN/IEC 60255-1 |
| Product certifications | GL CSA RCM CE |

EAC
CCC
UL

| | |
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| Ambient air temperature for storage | -40...70 °C |
| Ambient air temperature for operation | -20...50 °C at 60 Hz -20...60 °C at 50 Hz AC/DC |
| Relative humidity | 93...97 % at 25...55 °C conforming to IEC 60068-2-30 |
| Vibration resistance | 0.075 mm (f= 10...58.1 Hz) not in operation conforming to IEC 60068-2-6 1 gn (f= 10...58.1 Hz) not in operation conforming to IEC 60068-2-6 0.035 mm (f= 58.1...150 Hz) in operation conforming to IEC 60068-2-6 0.5 gn (f= 58.1...150 Hz) in operation conforming to IEC 60068-2-6 |
| Shock resistance | 15 gn (duration = 11 ms) for not in operation conforming to IEC 60068-2-27 5 gn (duration = 11 ms) for in operation conforming to IEC 60068-2-27 |
| IP degree of protection | IP20 (terminals) conforming to IEC 60529 IP40 (housing) conforming to IEC 60529 IP50 (front panel) conforming to IEC 60529 |
| Pollution degree | 3 conforming to IEC 60664-1 3 conforming to UL 508 |
| Dielectric test voltage | 2.5 kV, 1 min AC 50 Hz conforming to IEC 60255-27 |

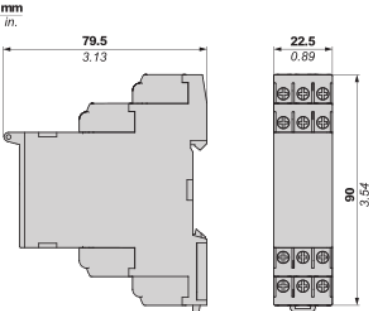
Packing Units

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| Unit Type of Package 1 | PCE |
| Number of Units in Package 1 | 1 |
| Package 1 Height | 2.6 cm |
| Package 1 Width | 8.2 cm |
| Package 1 Length | 9.5 cm |
| Package 1 Weight | 104.0 g |
| Unit Type of Package 2 | S02 |
| Number of Units in Package 2 | 40 |
| Package 2 Height | 15.0 cm |
| Package 2 Width | 30.0 cm |
| Package 2 Length | 40.0 cm |
| Package 2 Weight | 4.535 kg |
| Unit Type of Package 3 | P06 |
| Number of Units in Package 3 | 640 |
| Package 3 Height | 75.0 cm |
| Package 3 Width | 60.0 cm |
| Package 3 Length | 80.0 cm |
| Package 3 Weight | 81.06 kg |

Offer Sustainability

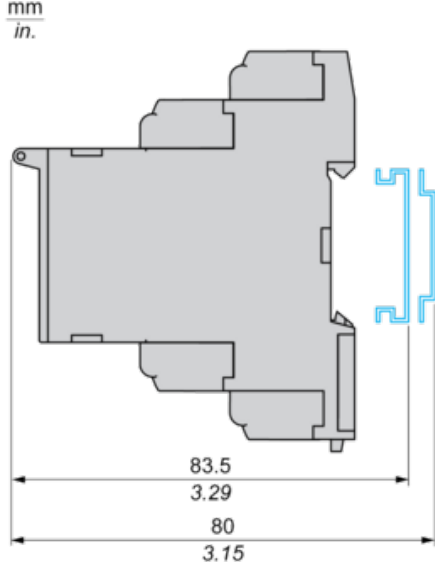
| | |
|-----------------------------------|---|
| Sustainable offer status | Green Premium product |
| REACH Regulation | REACH Declaration |
| EU RoHS Directive | Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration |
| Mercury free | Yes |
| China RoHS Regulation | China RoHS declaration |
| RoHS exemption information | Yes |
| Environmental Disclosure | Product Environmental Profile |

Dimensions



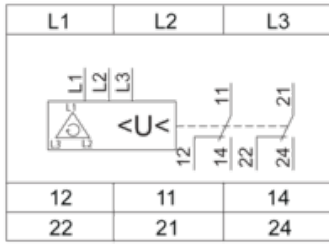
Mounting and Clearance

Rail Mounting



3-Phase Voltage Control Relay

Wiring Diagram



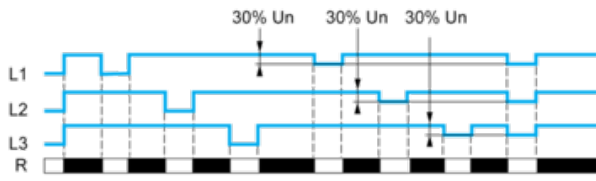
L1,L2,L3 : Supply to be monitored

11-14,12 : 1st C/O contact of output relay

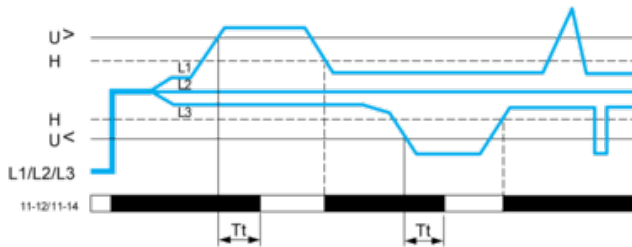
21-24,22 : 2nd C/O contact of output relay

Function Diagrams

Phase Failure Detection (U measured < 0.7 x nominal supply voltage)



Control of Overvoltage and Undervoltage



Legend

- Un Nominal supply voltage
- R Output relay
- Tt Overvoltage and undervoltage threshold delay (adjustable on front panel from 0.3 to 30 s)
- H Hysteresis
- U> Overvoltage threshold
- U< Undervoltage threshold
- L1, L2, L3 Phases of the supply voltage monitored
- 11-12, 11-14 R1 output relay connections
- Relay status: black color = energized.

Recommended replacement(s)