

# Product data sheet

Specifications



3-phase control relay, Harmony  
Control Relays, 8A, 2CO,  
overvoltage and undervoltage  
detection, 200â€"240V AC

RM22TR31

## Main

Range Of Product	Harmony Control Relays
Relay Type	Control relay
Product Or Component Type	3-phase control relay
Network Number Of Phases	3 phases
Relay Name	RM22TR
Relay Monitored Parameters	Phase sequence Phase failure detection Overvoltage and undervoltage detection
Time Delay Type	Adjustable 0.1...30 s, +/- 10 % of the full scale value Tt- time delay upon fault
Switching Capacity In Va	2000 VA
Measurement Range	200...240 V voltage AC
Contacts Type And Composition	2 C/O

## Complementary

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	AC/DC
Supply Voltage Limits	160...288 V AC
Operating Limits	- 20 % + 20 % Un
Power Consumption In Va	10 VA at 240 V AC 60 Hz
Voltage Detection Threshold	< 100 V AC
Supply Voltage Frequency	50...60 Hz +/- 10 %
Output Contacts	2 C/O
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
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

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

Maximum Measuring Cycle	150 ms measurement cycle as true rms value
Threshold Adjustment Voltage	2...20 % of Un selected
Voltage Range	200...240 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 <sup>2</sup> (AWG 20...AWG 14) solid without cable end Screw terminals, 2 x 0.2...2 x 1.5 mm <sup>2</sup> (AWG 24...AWG 16) flexible with cable end Screw terminals, 1 x 0.5...1 x 3.3 mm <sup>2</sup> (AWG 20...AWG 12) solid without cable end Screw terminals, 1 x 0.2...1 x 2.5 mm <sup>2</sup> (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 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
[Un] Rated Nominal Voltage	, self-powered
Safety Reliability Data	MTTFd = 388.1 years B10d = 350000
Contacts Material	Cadmium free
Control Type	With test button
Width	22.5 mm
Net Weight	0.09 kg

## Environment

Immunity To Microbreaks	10 ms
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Electromagnetic Compatibility	Immunity for residential, commercial and light-industrial environments conforming to IEC 61000-6-1 Immunity for industrial environments conforming to IEC 61000-6-2 Emission standard for residential, commercial and light-industrial environments conforming to IEC 61000-6-3 Emission standard for industrial environments conforming to 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	IEC 60255-1
Product Certifications	CSA CCC EAC RCM CE GL UL
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

Unit Type Of Package 1	PCE
Number Of Units In Package 1	1
Package 1 Height	8.2 cm
Package 1 Width	9.5 cm
Package 1 Length	2.6 cm
Package 1 Weight	101.0 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	4.495 kg
Unit Type Of Package 3	PAL
Number Of Units In Package 3	640
Package 3 Height	50.0 cm
Package 3 Width	60.0 cm
Package 3 Length	80.0 cm
Package 3 Weight	86.18 kg

## Sustainability

**Green Premium™ label** is Schneider Electric's commitment to delivering products with best-in-class environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> products.

**Guide to assessing product sustainability** is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

[Learn more about Green Premium >](#)

[Guide to assess a product's sustainability >](#)



Transparency   RoHS/REACH

## Well-being performance



Mercury Free



RoHS Exemption Information

Yes

## Certifications & Standards

Reach Regulation

[REACH Declaration](#)

Eu RoHS Directive

Pro-active compliance (Product out of EU RoHS legal scope)

China RoHS Regulation

[China RoHS declaration](#)

Environmental Disclosure

[Product Environmental Profile](#)

Circularity Profile

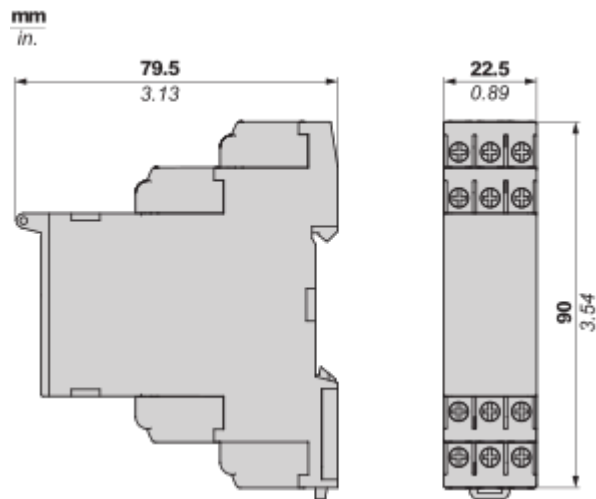
[End of Life Information](#)

California Proposition 65

WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

Dimensions Drawings

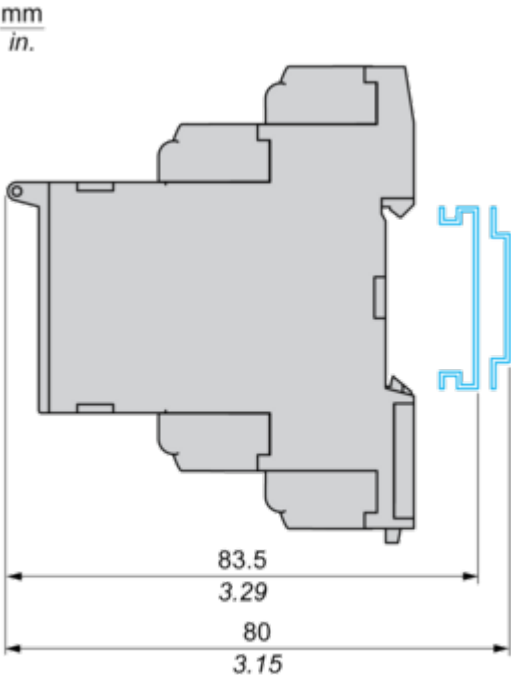
Dimensions



Mounting and Clearance

Mounting and Clearance

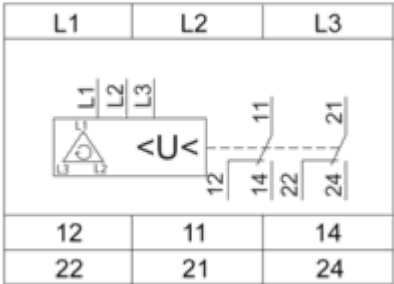
Rail Mounting



Connections and Schema

3-Phase Voltage Control Relay

Wiring Diagram



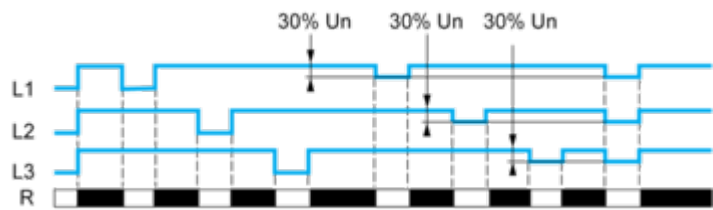
- L1,L2,L3 : Supply to be monitored
- 11-14,12 : 1st C/O contact of output relay
- 21-24,22 : 2nd C/O contact of output relay



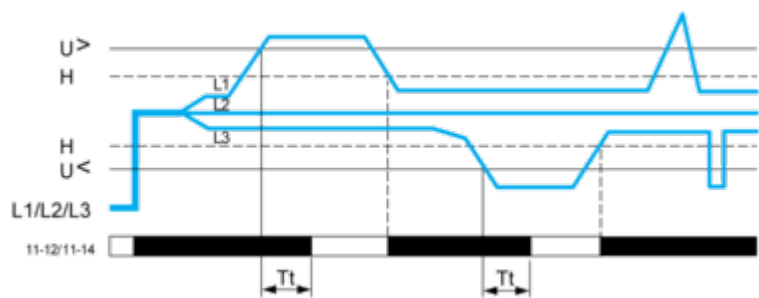
Technical Description

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.