

# Product data sheet

Specifications



## Modular 3 phase undervoltage control relay, Harmony, 8A, 2CO, 380...480V AC

RM22TU23

### Main

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	Undervoltage detection Phase sequence Phase failure detection
Time delay type	Without
Switching capacity in VA	2000 VA
Measurement range	380...480 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	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
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

<b>Hysteresis</b>	2 % fixed of selectable
<b>Run-up delay at power-up</b>	650 ms
<b>Maximum measuring cycle</b>	150 ms measurement cycle as true rms value
<b>Threshold adjustment voltage</b>	2...20 % of Un selected
<b>Voltage range</b>	380...480 V phase to phase
<b>Repeat accuracy</b>	+/- 0.5 % for input and measurement circuit
<b>Measurement error</b>	< 1 % over the whole range with voltage variation < 0.05 %/°C with temperature variation
<b>Response time</b>	<= 300 ms
<b>Overvoltage category</b>	III conforming to IEC 60664-1 III conforming to UL 508
<b>Insulation resistance</b>	> 100 MOhm at 500 V DC conforming to IEC 60255-27
<b>Mounting position</b>	Any position
<b>Connections - terminals</b>	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
<b>Tightening torque</b>	0.6...1 N.m conforming to IEC 60947-1
<b>Housing material</b>	Self-extinguishing plastic
<b>Status LED</b>	LED (yellow) relay ON LED (green) power ON
<b>Mounting support</b>	35 mm DIN rail conforming to EN/IEC 60715
<b>Electrical durability</b>	100000 cycles
<b>Mechanical durability</b>	10000000 cycles
<b>Utilisation category</b>	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
<b>Safety reliability data</b>	MTTFd = 388.1 years B10d = 350000
<b>Contacts material</b>	Cadmium free
<b>Width</b>	22.5 mm
<b>Net weight</b>	0.09 kg

## Environment

<b>Immunity to microbreaks</b>	10 ms
<b>Electromagnetic compatibility</b>	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
<b>Standards</b>	EN/IEC 60255-1
<b>Product certifications</b>	CSA RCM UL GL CE CCC EAC

<b>Ambient air temperature for storage</b>	-40...70 °C
<b>Ambient air temperature for operation</b>	-20...50 °C at 60 Hz -20...60 °C at 50 Hz AC/DC
<b>Relative humidity</b>	93...97 % at 25...55 °C conforming to IEC 60068-2-30
<b>Vibration resistance</b>	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
<b>Shock resistance</b>	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
<b>IP degree of protection</b>	IP20 (terminals) conforming to IEC 60529 IP40 (housing) conforming to IEC 60529 IP50 (front panel) conforming to IEC 60529
<b>Pollution degree</b>	3 conforming to IEC 60664-1 3 conforming to UL 508
<b>Dielectric test voltage</b>	2.5 kV, 1 min AC 50 Hz conforming to IEC 60255-27

## Packing Units

<b>Unit Type of Package 1</b>	PCE
<b>Number of Units in Package 1</b>	1
<b>Package 1 Height</b>	2.6 cm
<b>Package 1 Width</b>	8.2 cm
<b>Package 1 Length</b>	9.5 cm
<b>Package 1 Weight</b>	103.0 g
<b>Unit Type of Package 2</b>	S02
<b>Number of Units in Package 2</b>	40
<b>Package 2 Height</b>	15.0 cm
<b>Package 2 Width</b>	30.0 cm
<b>Package 2 Length</b>	40.0 cm
<b>Package 2 Weight</b>	4.656 kg
<b>Unit Type of Package 3</b>	P06
<b>Number of Units in Package 3</b>	640
<b>Package 3 Height</b>	75.0 cm
<b>Package 3 Width</b>	60.0 cm
<b>Package 3 Length</b>	80.0 cm
<b>Package 3 Weight</b>	82.996 kg

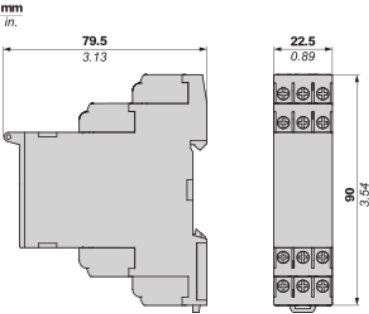
## Offer Sustainability

<b>Sustainable offer status</b>	Green Premium product
<b>REACH Regulation</b>	<a href="#">REACH Declaration</a>
<b>EU RoHS Directive</b>	Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>
<b>Mercury free</b>	Yes
<b>China RoHS Regulation</b>	<a href="#">China RoHS declaration</a>
<b>RoHS exemption information</b>	<a href="#">Yes</a>
<b>Environmental Disclosure</b>	<a href="#">Product Environmental Profile</a>
<b>Circularity Profile</b>	<a href="#">End of Life Information</a>



Dimensions

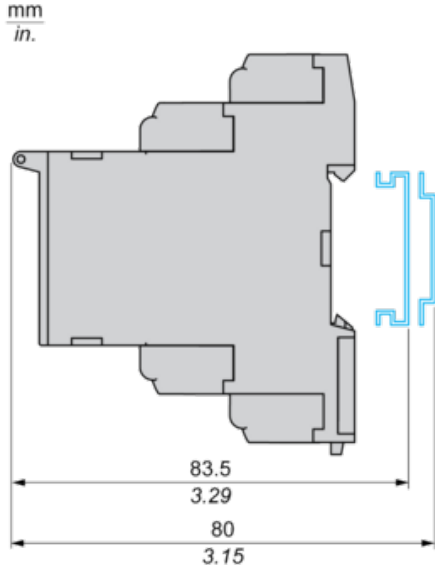
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**Mounting and Clearance**

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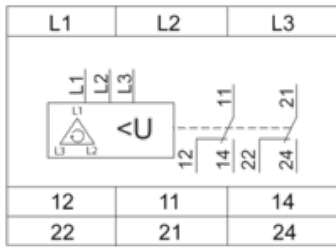
**Rail Mounting**



**3-Phase Undervoltage Control Relay**

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Wiring Diagram



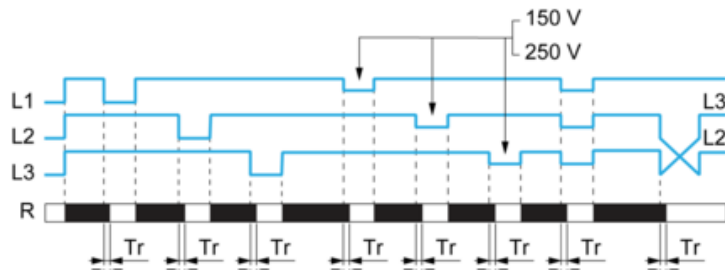
**L1,L2,L3** : Supply to be monitored

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

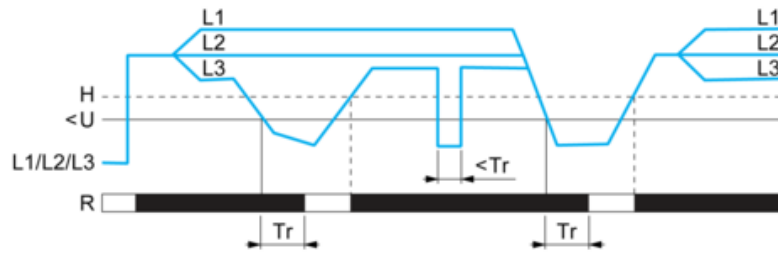
**21-24,22** : 2nd C/O contact of output relay

**Function Diagrams**

**Phase Sequence Control and Phase failure Detection**



**Undervoltage Control**



**Legend**

- Tr : Response time after cross the threshold
- $<U>$  : Undervoltage threshold
- L1, L2, L3 : Phases of the supply voltage monitored
- R : Relay output 11-12/11-14, 21-22/21-24
- H : Hysteresis
- Relay status : black color = energized.

**Recommended replacement(s)**