



Main

Range of product	Harmony Control Relays
Product or Component Type	3-phase control relay
Relay Type	Control relay
Phase	3 phase
Relay name	RMNF22
Relay monitored parameters	Phase sequence Phase failure detection Overvoltage detection Undervoltage detection Overfrequency and underfrequency Asymmetry
Supported OS	Android
Software Version	V4.4 and above
App for product	Zelio NFC (downloadable from Google Play store)
Product Compatibility	NFC enabled mobile device
Time delay type	On-delay 0.1 s...60 min Off-delay 0.1 s...60 min
Switching capacity in VA	2000 VA

Complementary

NFC operating frequency	13.56 MHz
Maximum RF power transmitted	0.0002 mW
Reset time	1500 ms at maximum voltage
Maximum switching voltage	250 V AC
Minimum switching current	100 mA 6 V
Maximum switching current	8 A AC
[Us] rated supply voltage	208...480 V AC line to line 120...277 V AC line to neutral
Supply voltage limits	166.4...576 V AC line to line 96...332.4 V AC line to neutral
Power consumption in VA	4 VA 480 V AC 60 Hz
On-load factor	100 %
Supply voltage frequency	50...60 Hz +/- 10 %
Output contacts	2 C/O
Setting accuracy of the switching threshold	+/- (1.5 % + 1 V)
Setting accuracy of time delay	+/- 3 % 10 s...60 min +/- 300 ms 0...10 s
Hysteresis	3 % fixed phase failure detection
Alarm threshold	166...576 V adjustable overvoltage and undervoltage detection (line to line) 96...332 V adjustable overvoltage and undervoltage detection (line to neutral) 5...150 V adjustable asymmetry 45...66 Hz adjustable overfrequency or underfrequency
Run-up delay at power-up max	650 ms
Maximum measuring cycle	150 ms measurement cycle as true rms value
Repeat accuracy	+/- 0.5 % input circuit +/- 3 % time delay
Setting accuracy of the switching threshold	+/- (1.5 % + 1 V)
Measurement error	< 0.05 %/Hz with frequency variation < 0.05 %/°C with temperature variation

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Response time	<= 300 ms
Insulation resistance	> 100 MOhm 500 V DC IEC 60255-27
[Ui] rated insulation voltage	400 V
[Uimp] rated impulse withstand voltage	4 kV 1.2/50 µs
Dielectric test voltage	2.5 kV AC 50 Hz, 1 min 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 0.5...2 x 1.5 mm ² AWG 20...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 0.5...1 x 2.5 mm ² AWG 20...AWG 14) flexible with cable end
Tightening torque	5.31...8.85 Lbf.in (0.6...1 N.m) IEC 60947-1 5.3...8.8 lbf.in (0.60...0.99 N.m) IEC 60947-1
Housing material	Self-extinguishing plastic
Local signalling	Un, green LED steady)power ON R1, amber LED steady)relay energised R1, amber LED blinking)timing in progress R2, amber LED steady)relay energised R2, amber LED blinking)timing in progress PL, red LED steady)alarm phase failure triggered PS, red LED blinking)alarm phase sequence failure triggered UV, red LED steady)alarm undervoltage failure triggered OV, red LED blinking)alarm overvoltage failure triggered UF, red LED steady)alarm underfrequency failure triggered OF, red LED blinking)alarm overfrequency failure triggered ASYM, red LED steady)alarm asymmetry failure triggered
Mounting support	35 mm DIN rail conforming to EN/IEC 60715
Electrical durability	100000 cycles
Mechanical durability	10000000 cycles
Utilisation category	AC-15 IEC 60947-5-1 DC-13 IEC 60947-5-1 AC-1 IEC 60947-4-1 DC-1 IEC 60947-4-1
[Ith] conventional free air thermal current	8 A
Contacts material	Cadmium free
Width	0.89 in (22.5 mm)
Height	3.54 in (90 mm)
Depth	3.90 in (99 mm)
Contacts type and composition	2 C/O
Product Weight	0.28 lb(US) (0.125 kg)

Environment

Immunity to microbreaks	10 ms
Electromagnetic compatibility	Voltage dips and interruptions immunity test 70 % 25/30 cycles) IEC 61000-4-11 Electrostatic discharge 6 kV contact discharge)level 3 IEC 61000-4-2 Conducted and radiated emissionsclass B group 1 CISPR 11 Conducted and radiated emissionsclass B CISPR 22 Radiated radio-frequency electromagnetic field immunity test 10 V/mlevel 3 IEC 61000-4-3 Immunity for industrial environments EN/IEC 61000-6-2 1 MHz damped oscillating wave 2.5 kV CM, 1 kV DMcriteria B IEC 61000-4-18 Voltage dips and interruptions immunity test 0 % 0.5...25 cycles) IEC 61000-4-11 Magnetic field at power frequency 30 A/m (continuous)-300 A/m (1-3 s)level 4 IEC 61000-4-8 Surge immunity test 2 kV differential mode)level 4 IEC 61000-4-5 Immunity for residential, commercial and light-industrial environments EN/IEC 61000-6-1 Voltage dips and interruptions immunity test 40 % 10/12 cycles) IEC 61000-4-11 Voltage interruptions 0 % 250/300 cycles)criteria C IEC 61000-4-29 Electrical fast transient/burst immunity test 4 kV direct)criteria B IEC 61000-4-4 Emission standard for industrial environments EN/IEC 61000-6-4 Emission standard for residential, commercial and light-industrial environments EN/IEC 61000-6-3 Surge immunity test 4 kV common mode)level 4 IEC 61000-4-5 Electrostatic discharge 8 kV air discharge)level 3 IEC 61000-4-2 Conducted RF disturbanceslevel 3 IEC 61000-4-6
Standards	EN/IEC 60255-1
Product Certifications	CE UL CSA CCC EAC RCM
Directives	2014/30/EU - electromagnetic compatibility 2014/35/EU - low voltage directive 2014/53/EU - radio equipment directive
Ambient Air Temperature for Storage	-40...158 °F (-40...70 °C)
Ambient air temperature for operation	-4...140 °F (-20...60 °C)
Relative humidity	93...97 % 77...131 °F (25...55 °C) IEC 60068-2-30
Vibration resistance	0.075 mm 10...58.1 Hz) not in operation IEC 60068-2-6 1 gn 58.1...150 Hz) not in operation IEC 60068-2-6 0.035 mm 10...58.1 Hz) in operation IEC 60068-2-6 0.5 gn 58.1...150 Hz) in operation IEC 60068-2-6
Shock resistance	15 gn 11 ms) not in operation IEC 60068-2-27 5 gn 11 ms) in operation IEC 60068-2-27
IP degree of protection	IP20 IEC 60529 terminals) IP40 IEC 60529 housing) IP40 IEC 60529 front panel)
Pollution degree	3 IEC 60664-1 3 UL 508
Overvoltage category	III IEC 60664-1 III UL 508

Ordering and shipping details

Category	22376 - RELAYS-MEASUREMENT(RM4)
Discount Schedule	CP2
GTIN	3606489591120
Nbr. of units in pkg.	1
Package weight(Lbs)	4.80 oz (136 g)
Returnability	No

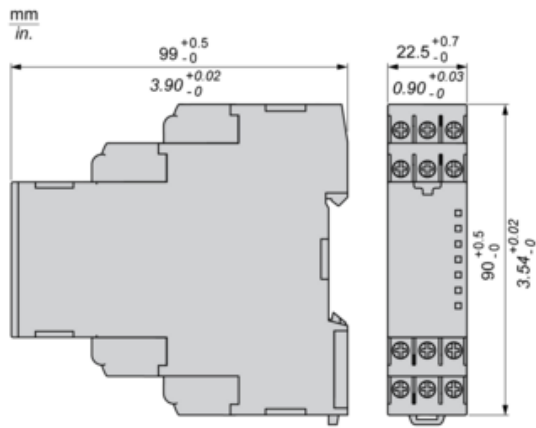
Packing Units

Unit Type of Package 1	PCE
Package 1 Height	3.78 in (9.6 cm)
Package 1 width	0.98 in (2.5 cm)
Package 1 Length	4.25 in (10.8 cm)
Unit Type of Package 2	S02
Number of Units in Package 2	36
Package 2 Weight	12.30 lb(US) (5.578 kg)
Package 2 Height	5.91 in (15 cm)
Package 2 width	11.81 in (30 cm)
Package 2 Length	15.75 in (40 cm)

Offer Sustainability

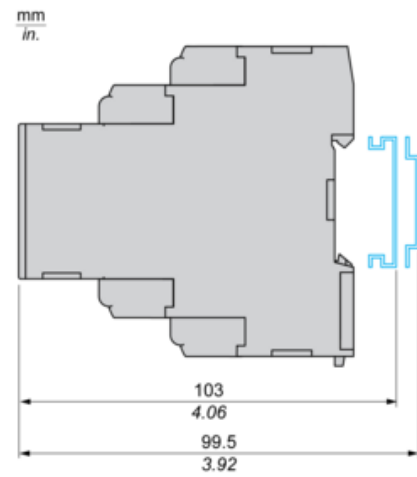
Sustainable offer status	Green Premium product
California proposition 65	WARNING: This product can expose you to chemicals including: Nickel compounds, which is known to the State of California to cause cancer, and Di-isodecyl phthalate (DIDP), which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov
REACH Regulation	REACH Declaration
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration
Mercury free	Yes
RoHS exemption information	Yes
China RoHS Regulation	China RoHS Declaration
Environmental Disclosure	Product Environmental Profile
Circularity Profile	End Of Life Information
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.

Dimensions

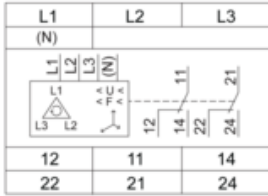


Mounting and Clearance

Rail Mounting



3-Phase Control Relay



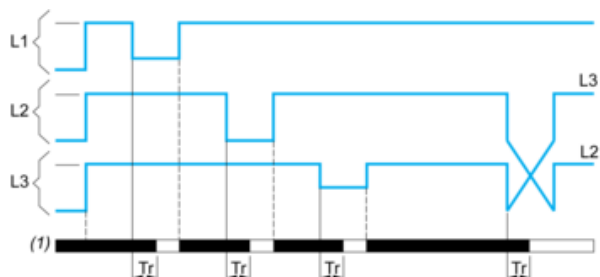
L1, L2, L3, (N) : Supply to be monitored (with or without neutral)

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

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

Function Diagrams

Phase Loss and Phase Sequence



T_r : Response after crossing of threshold ($< 300\text{ms}$)

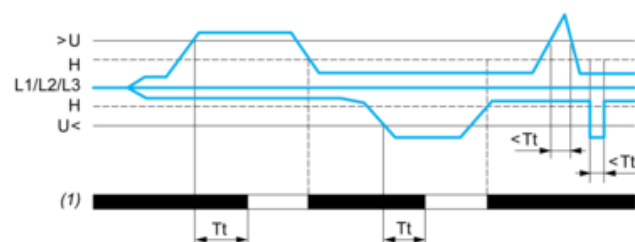
L1, L2, L3 : Phases of the supply voltage monitored

Alarm status:

- White color: Alarm triggered
- Black color: Alarm not triggered

(1) : Alarm

Overvoltage & Undervoltage



$>U$: Overvoltage threshold

H : Hysteresis

$U<$: Undervoltage threshold

L1, L2, L3 : Phases of the supply voltage monitored

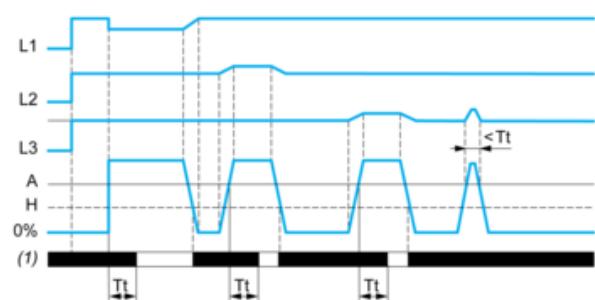
T_t : Time delay after crossing of threshold (adjustable on app)

Alarm status:

- White color : Alarm triggered
- Black color : Alarm not triggered

(1) : Alarm

Asymmetry



L1, L2, L3 : Phases of the supply voltage monitored

A : Asymmetry threshold (adjustable from 5...150V of the nominal supply voltage)

H : Hysteresis

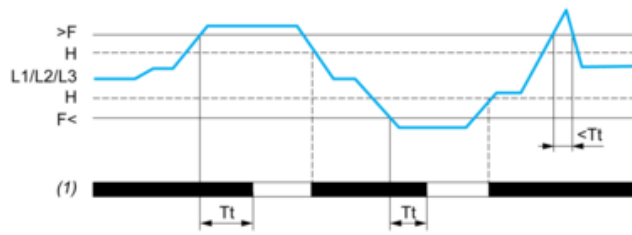
T_t : Time delay after crossing of threshold (adjustable on app)

Alarm status:

- White color : Alarm triggered
- Black color : Alarm not triggered

(1) : Alarm

Over Frequency & Under Frequency



$>F$: Over frequency threshold

H : Hysteresis

$F<$: Under frequency threshold

$L1, L2, L3$: Line frequency

Tt : Time delay after crossing of threshold (adjustable on app)

Alarm status:

- White color : Alarm triggered
- Black color : Alarm not triggered

(1) : Alarm

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