Zelio Control - Monitoring & Control Relays

Multifunction 3-phase supply control relays RM17TT, RM17TA, RM17TU, and RM17TE

RM17T●00

Presentation

RM17TT, RM17TA, RM17TU and RM17TE multifunction control relays monitor the following on 3-phase supplies:

Functions	RM17TT	RM17TA	RM17TU	RM17TE
Sequence of phases L1, L2, and L3	■	■	■	■
Phase loss	*(1)*	■	■	■
Asymmetry	□	■	□	■
Undervoltage	□	□	■	□
Overvoltage and undervoltage	□	□	□	■

■ Function performed
□ Function not performed

Depending on the model, RM17T●00 control relays:
- Accept different nominal 3-phase voltages: 208...480 V ∿
- Monitor their own power supply measured as a true rms value
- Are designed for clip-on mounting on a ⊔ rail

They feature:
- A sealable cover to help protect the settings
- A control status indicator LED

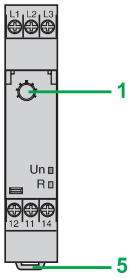
Applications

- Control for connection of moving equipment (site equipment, agricultural equipment, refrigerated trucks)
- Control against reverse motor operation (lifting, handling, elevators, escalators, etc.)
- Control of sensitive 3-phase supplies
- Emergency power supply switching in abnormal conditions

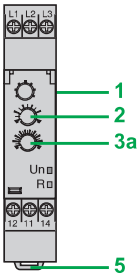
Description

RM17TT00, RM17TA00, RM17TU00, RM17TE00

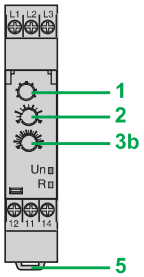
1 Voltage range selector switch (208, 220, 380, 400, 415, 440, and 480 V ∿)
2 Time delay adjustment potentiometer Tt
3a Asymmetry threshold setting potentiometer **Asy**
3b Undervoltage setting potentiometer **<U**
3c Undervoltage/overvoltage setting potentiometer **ΔU**
4 Asymmetry threshold setting potentiometer **Asy**
5 Spring for clip-on mounting on 35 mm/*1.38 in.* ⊔ rail



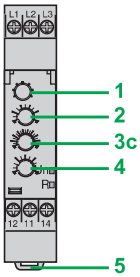
RM17TT00



RM17TA00



RM17TU00



RM17TE00

Un *Green LED: indicates that supply to the product is on*
R *Yellow LED: indicates relay output status*

(1) Phase loss with regeneration.

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Operating principle

3-phase supply control relays monitor:
- Correct sequence of phases L1, L2, and L3
- Phase loss, including voltage regeneration
- Undervoltage from - 2…- 20% of the supply voltage Un
- Overvoltage from 2…20% of the supply voltage Un
- Asymmetry from 5…15% of the supply voltage Un
- Fault signaling is by LED

Function Diagram

Output 11-14, 21-24 open

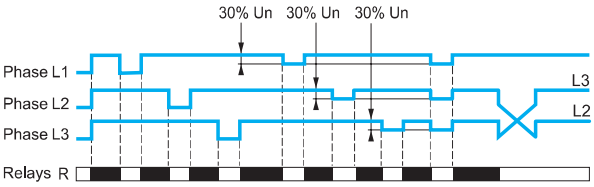
Output 11-14, 21-24 closed

Voltage switch operation:
- Set the switch to the 3-phase supply voltage Un.
- The position of this switch is taken into account on energization of the device.
- If the switch position is changed while the device is operating, all the LEDs flash, but the product continues to operate normally with the voltage selected at the time of energization preceding the change of position.
- If the selector switch is returned to the original position selected prior to the last energization, the LEDs return to their normal state.

RM17TT00

Phase + Voltage regeneration

- ☐ Sequence of phases L1, L2, and L3
- ☐ Phase loss

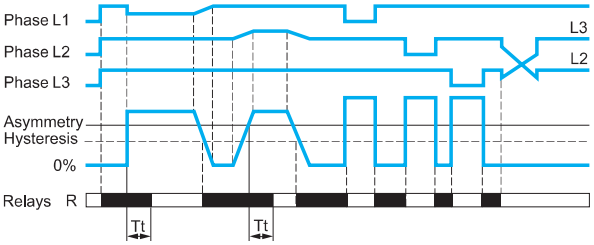


The relay monitors:
- ☐ correct sequence of the three phases
- ☐ phase loss of at least one of the three phases (U measured < 0.7 x Un)
- If a sequencing or phase loss fault is detected, the relay opens instantly.
- On energization of the device with a detected measured fault, the relay stays open.

RM17TA00

Phase + Asymmetry

- ☐ Sequence of phases L1, L2, and L3
- ☐ Phase loss
- ☐ Asymmetry **Asy**



The relay monitors:
- ☐ correct sequence of the three phases
- ☐ phase loss of at least one of the three phases (U measured < 150 V)
- ☐ asymmetry adjustable from 5…15% of Un
- If a sequencing or phase loss fault is detected, the relay opens instantly.
- If an asymmetry fault is detected, the relay opens at the end of the time delay set by the user.
- On energization of the device with a detected measured fault, the relay stays open.

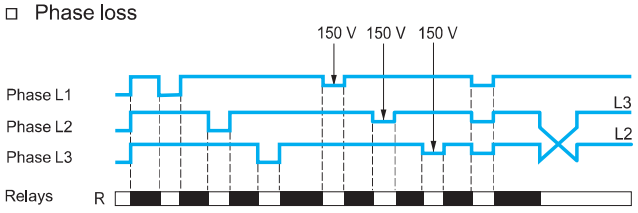
***Note**: Tt: time delay after crossing of the threshold (adjustable on front panel).*

Operating principle (continued)

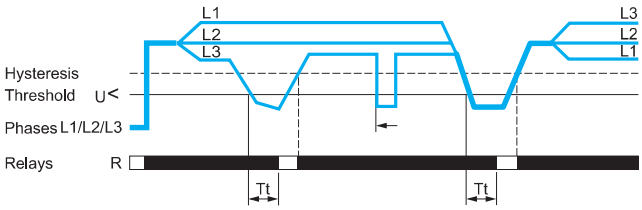
RM17TU00

Phase + Undervoltage

- ☐ Sequence of phases L1, L2, and L3
- ☐ Phase loss



- ☐ Undervoltage control **U<**



Tt: time delay after crossing of the threshold (adjustable on front panel)

The relay monitors:
- ☐ correct sequence of the three phases
- ☐ phase loss of at least one of the three phases (U measured < 150 V)
- ☐ undervoltage adjustable from - 2…- 20% of Un (- 2… - 12% in the range 3 x 208 V ∼ and - 2%…- 17% in the range 3 x 220 V ∼ due to the minimum voltage 183 V ∼)

■ If a sequencing or phase loss fault is detected, the relay opens instantly.

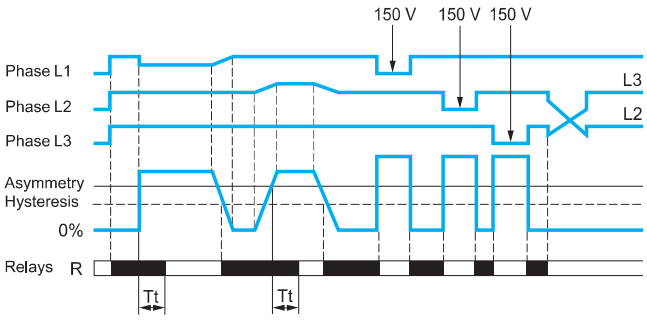
■ If a voltage fault is detected, the relay opens at the end of the time delay set by the user.

■ On energization of the device with a detected measured fault, the relay stays open.

RM17TE00

Phase + Asymmetry + Undervoltage/overvoltage

- ☐ Sequence of phases L1, L2, and L3
- ☐ Phase loss
- ☐ Asymmetry **Asy**



Tt: time delay after crossing of the threshold (adjustable on front panel)

The relay monitors:
- ☐ correct sequence of the three phases
- ☐ phase loss of at least one of the three phases (U measured < 150 V)
- ☐ asymmetry adjustable from 5…15% of Un
- ☐ the overvoltage and undervoltage difference in window mode, adjustable from 2…20% of Un

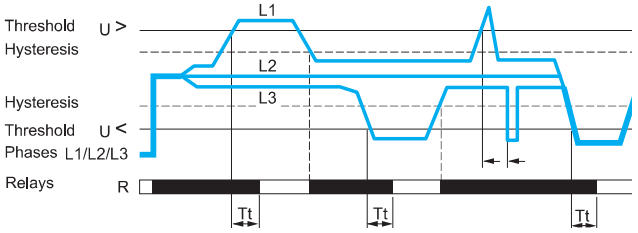
Un		208 V	220 V	380, 400, 415, 440 V	480 V
Voltage threshold (%)	<	- 12…- 2	- 17…- 2	- 20…- 2	- 20…- 2
	>	+ 2…+ 20	+ 2…+ 20	+ 2…+ 20	+ 2…+ 10

■ If a sequencing or phase loss fault is detected, the relay opens instantly.

■ If an asymmetry or voltage fault is detected, the relay opens at the end of the time delay set by the user.

■ On energization of the device with a detected measured fault, the relay stays open.

- ☐ Control of overvoltage and undervoltage in window mode **U> / U<**



Tt: time delay after crossing of the threshold (adjustable on front panel)

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RM17TT00

RM17TA00

RM17TU00

RM17TE00

References

Function	Measurement range	Output	Reference	Weight
	V			kg/*lb*
■ Phase sequence ■ Phase loss with voltage regeneration	208…480 ∼	1 CO 5 A	**RM17TT00**	0.080/ *0.176*
■ Phase sequence ■ Phase loss ■ Asymmetry	208…480 ∼	1 CO 5 A	**RM17TA00**	0.080/ *0.176*
■ Phase sequence ■ Phase loss ■ Undervoltage	208…480 ∼	1 CO 5 A	**RM17TU00**	0.080/ *0.176*
■ Phase sequence ■ Phase loss ■ Asymmetry ■ Undervoltage and overvoltage in window mode	208…480 ∼	1 CO 5 A	**RM17TE00**	0.080/ *0.176*