Zelio Control - Monitoring & Control Relays

1-phase voltage control relays RM22UA and RM22UB

RM22UA21MR

RM22UA31MR

Presentation

RM22UA and RM22UB 1-phase or DC voltage control relays monitor the following functions:

Functions	RM22	UA2●MR	UA3●MR	UA33MT	UB34
Overvoltage (without memory)		■	□	□	□
Overvoltage or undervoltage (with/without memory)		□	■	■	□
Overvoltage and undervoltage (window mode)		□	■	■	■

■ Function performed
□ Function not performed

RM22 control relays allow:
- Automatic AC or DC recognition
- Selection between overvoltage and undervoltage
- Monitoring of their own supply voltage measured as a true rms value
- Selectable memory function
- Clip-on mounting on a ⊔ rail

They feature a:
- Dial pointer LED indicator for relay power ON status
- Relay output status LED
- A sealable cover to help protect the settings
- A control status indicator LED

Applications

- Protection of electronic or electromechanical devices against overvoltage and undervoltage
- Emergency power supply switching in abnormal conditions
- DC motor overspeed control
- Monitoring of AC or DC supplies
- Battery and speed monitoring (with tacho-generator)

Description

RM22UA2●MR, RM22UA3●MR, RM22UA33MT, RM22UB34

1 Configuration: selection of operating mode **<U** (undervoltage), **>U** (overvoltage), **>U>** (overvoltage and undervoltage), MEMORY - NO MEMORY (with or without memory)

2a Voltage threshold setting potentiometer **U** value

2b Undervoltage setting potentiometer **<U**

2c Overvoltage setting potentiometer **>U**

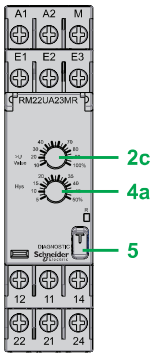
3 Time delay adjustment potentiometer **Tt**

4a Hysteresis adjustment potentiometer **Hys**

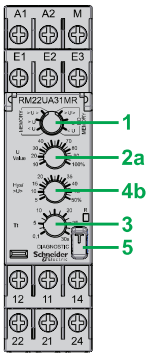
4b Hysteresis/overvoltage and undervoltage window mode adjustment potentiometer **Hys/>U>**

5 Diagnostic button

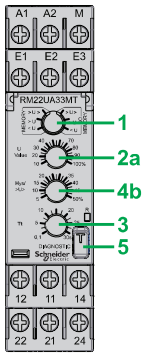
6 Configuration: selection of On-delay or Off-delay



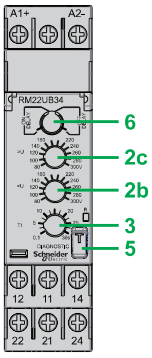
RM22UA2●MR



RM22UA3●MR



RM22UA33MT



RM22UB34

R *Yellow LED: indicates relay output status*

Zelio Control - Monitoring & Control Relays

1-phase voltage control relays
RM22UA and RM22UB

Operating principle

1-phase voltage control relays monitor:
- the voltage of 1-phase and DC supplies
- their own supply voltage for the RM22UB model

An adjustable time delay on threshold crossing, provides immunity to transients, and helps prevent spurious triggering of the output relay.

Function Diagram

- Power supply off
- Power supply on
- Output 11-14, 21-24 open
- Output 11-14, 21-24 closed

RM22 UA2●MR/UA3●MR/UA33MT

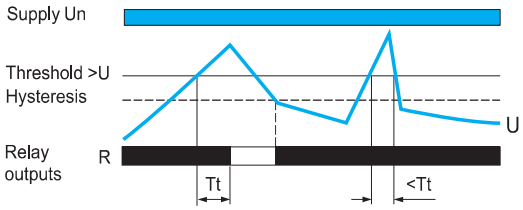
The operating mode is determined by the user:
- Undervoltage with or without memory
- Overvoltage with or without memory

The position of the configuration switch and the operating mode is read by the product on energization:
- If the configuration switch is set to an unacceptable position, the product detects a fault, the output relay stays open, and the LEDs flash to indicate the position error.
- If the configuration switch position is changed while the device is operating, all the LEDs flash, but the product continues to operate normally with the function selected at the time of energization preceding the position change.
- If the configuration switch is returned to the original position selected prior to the last energization, the LEDs return to their normal state.

The undervoltage or overvoltage threshold value is set by means of a potentiometer graduated as a percentage of the scale value of U to be monitored. The hysteresis is adjusted by means of a potentiometer graduated from 5…50% of the threshold setting. The hysteresis value must not exceed the limit values of the measuring range.

Overvoltage without memory

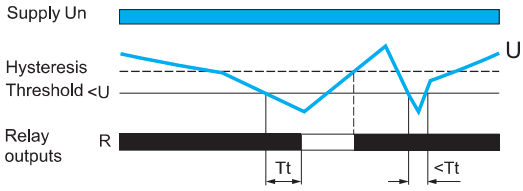
- Overvoltage control **> U**, without memory



If the controlled voltage exceeds the threshold setting for a time greater than that set on the front panel (0.1…30 s), the output relay opens and the R LED goes off. During the time delay, this LED flashes.
As soon as the voltage drops below the value of the threshold setting minus the hysteresis, the relay instantly closes.

Undervoltage without memory

- Undervoltage control **< U,** without memory



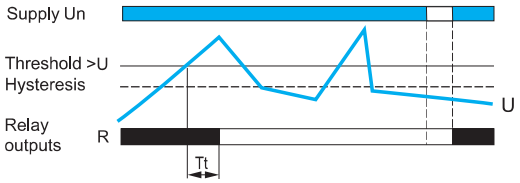
If the controlled voltage falls below the threshold setting for a time greater than that set on the front panel (0.1…30 s), the output relay opens and the R LED goes off. During the time delay, this LED flashes.
As soon as the voltage rises above the value of the threshold setting plus the hysteresis, the relay instantly closes.

Operating principle (continued)

RM22 UA2●MR/UA3●MR/UA33MT (continued)

Overvoltage/undervoltage with memory

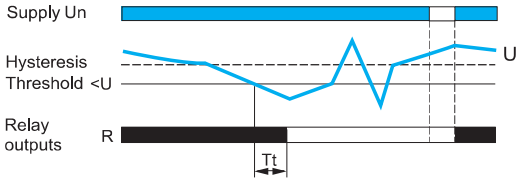
□ Overvoltage control **> U**, with memory



If "Memory" mode is selected, the relay opens when crossing of the threshold is detected and then stays in that position. The power has to be switched off to reset the product.

***Note**: Tt: time delay after crossing of the threshold*

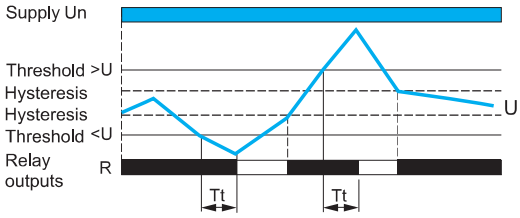
□ Undervoltage control **< U,** with memory



RM22 UA3●MR/UA33MT/UB34

Overvoltage + undervoltage control relay in window mode

■ Overvoltage and undervoltage control in window mode **<U<**



These relays operate in window mode where they check that the controlled voltage stays between a minimum and a maximum threshold.

■ The undervoltage or overvoltage threshold values are set by means of two graduated potentiometers clearly indicating the Un to be monitored. The hysteresis is fixed at 5% of the threshold setting.

■ If the controlled voltage exceeds the high threshold setting or falls below the low threshold setting for a time greater than that set on the front panel (0.1…30 s), the output relay opens and the R LED goes off. During the time delay, this LED flashes.

■ As soon as the voltage falls below the high threshold setting value minus the hysteresis, or rises above the low threshold setting value plus the hysteresis, the relay instantly closes.

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

***Note**: Tt: time delay after crossing of the threshold*

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1-phase voltage control relays
RM22UA and RM22UB

PF143409

RM22UA23MR

PF143412

RM22UA33MR

PF143413

RM22UA33MT

PF143414

RM22UB34

References

Function	Rated supply voltage	Measurement range	Time delay	Output	Reference	Weight
	V	V				kg/*lb*
■ Overvoltage without memory	24…240 ≂	0.05…5 ≂	No	2 CO 8 A	**RM22UA21MR**	0.110/ *0.242*
	24…240 ≂	1…100 ≂	No	2 CO 8 A	**RM22UA22MR**	0.110/ *0.242*
	24…240 ≂	15…500 ≂	No	2 CO 8 A	**RM22UA23MR**	0.110/ *0.242*
■ Overvoltage or undervoltage with/ without memory ■ Overvoltage and undervoltage in window mode with memory	24…240 ≂	0.05…5 ≂	Off delay (0.1...30 s)	2 CO 8 A	**RM22UA31MR**	0.110/ *0.242*
	24…240 ≂	1…100 ≂	Off delay (0.1...30 s)	2 CO 8 A	**RM22UA32MR**	0.110/ *0.242*
	24…240 ≂	15…500 ≂	Off delay (0.1...30 s)	2 CO 8 A	**RM22UA33MR**	0.110/ *0.242*
	380…415 ∼	15…500 ∼	Off delay (0.1...30 s)	2 CO 8 A	**RM22UA33MT**	0.110/ *0.242*
■ Overvoltage and undervoltage in window mode without memory	110…240 ≂	80…300 ≂	On/Off delay (0.1...30 s)	2 CO 8 A	**RM22UB34**	0.090/ *0.198*