Zelio Control - Monitoring & Control Relays

Liquid level control relays
RM22LA and RM22LG

RM22LG11MR

RM22LA32MT

Presentation

RM22LA and RM22LG liquid level control relays control one or two liquid levels, with a fill or empty function:

Functions	RM22LA 32MR/32MT	RM22LG 11MR/11MT
Level 1/Level 2	■	■
Fill operation	■	■
Empty operation	■	■
Low sensitivity	■	▫
Standard sensitivity	■	■
High sensitivity	■	▫

■ Function performed
▫ Function not performed

RM22 liquid level control relays feature:
- A dial pointer LED indicator for relay power ON status
- A relay output status LED
- A sealable cover to help protect the settings
- A control status indicator LED

The relays are designed for clip-on mounting on a ⊔ rail.

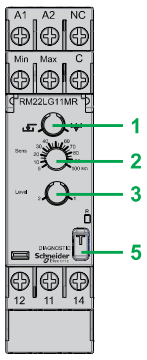
Applications

These devices monitor the levels of conductive liquids.
They control the actuation of pumps or valves to regulate levels and can also help prevent submersible pumps “dry running”, or tanks “overflowing”. They can also be used to control dosing of liquids in mixing processes and to help protect heating elements in the event of non-immersion.
They have a transparent, hinged cover on their front panel to avoid any accidental alteration of the settings. This cover can be directly sealed.

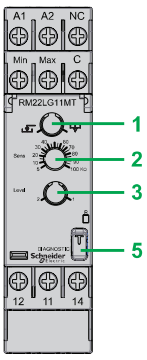
- Application examples for compatible liquids:
  - spring, town, industrial, and sea water
  - metallic salt, acid, or base solutions
  - liquid fertilizers
  - non-concentrated alcohol (< 40%)
  - liquids in the food processing industry: beer, coffee, etc.

Description

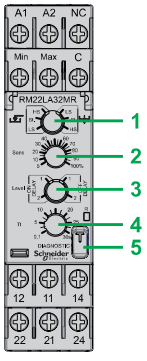
RM22LG11MR, RM22LG11MT, RM22LA32MR, RM22LA32MT



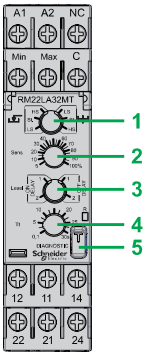
RM22LG11MR



RM22LG11MT



RM22LA32MR



RM22LA32MT

1 Configuration: selection of the operating mode (Fill or Empty) and the sensitivity range (**LS/St/HS**)
2 Sensitivity control potentiometer (kΩ or %)
3 Configuration: selection of the number of levels and the On/Off time delay
4 Time delay control potentiometer **Tt**
5 Diagnostic button

R *Yellow LED: indicates relay output status*

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RM22LA and RM22LG

Operating principle

Liquid level control relays are designed to measure and control the levels of conductive liquids by means of resistive probes.
The operating principle is based on measurement of the apparent resistance of the liquid between two submerged probes. When this value is less than the threshold setting on the front panel of the device, the relay changes state. To avoid electrolytic phenomena, an AC current runs across the probes.
A selector switch on the front panel allows selection of the required function and the sensitivity range. Control of a single level can be achieved by using the second selector switch. In this case, the Max. level probe stays up in the air and an adjustable time delay avoids any wave effect. Both products activate their output relay when a tank is either emptying or filling.

Function Diagram

- Power supply Off
- Power supply On
- Output 11-14, 21-24 open
- Output 11-14, 21-24 closed

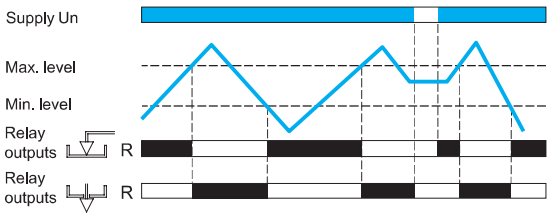
RM22LA and RM22LG

A selector switch on the front panel of these relays allows selection of the required sensitivity range and the empty or fill function. A second switch allows selection of the number of levels (1 or 2) and the type of time delay in the case of level 1 mode. The position of these configuration switches is taken into account 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 signal 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 change of position.
- If the configuration switch is returned to the original position selected prior to the last energization, the LEDs return to their normal state.

Control of two levels, empty and fill function

□ Fill/Empty function **(2 levels)**



■ Empty function
level: 2, function:
- **LS** (Low Sensitivity: 250 Ω…5 kΩ)
- **St** (Standard Sensitivity: 5 kΩ…100 kΩ)
- **HS** (High Sensitivity: 50 kΩ…1 MΩ)

The output relay stays open until the liquid reaches the Max. level probe. As soon as the Max. level is reached, the contact closes and then allows emptying of the tank (valve opens, pump starts, etc.). When the level drops below the Min. level, the contact opens to stop the emptying process.

■ Fill function
level: 2, function:
- **LS** (Low Sensitivity: 250 Ω…5 kΩ)
- **St** (Standard Sensitivity: 5 kΩ…100 kΩ)
- **HS** (High Sensitivity: 50 kΩ…1 MΩ)

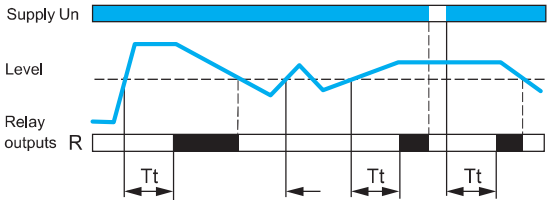
The output relay stays energized until the liquid reaches the Max. level probe. As soon as the Max. level is reached, the contact opens and the pump stops. When the level drops below the Min. level, the contact closes again and pumping restarts to raise the level.

Operating principle (continued)

RM22LA and RM22LG (continued)

Control of one level, empty function

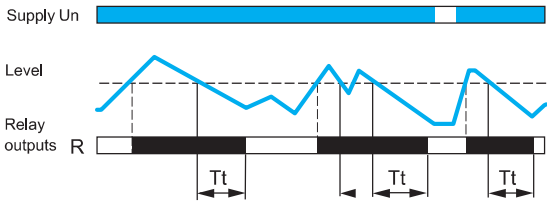
□ Empty function T on



■ level: 1 - **on delay** functions:
- **LS** (Low Sensitivity: 250 Ω…5 kΩ)
- **St** (Standard Sensitivity: 5 kΩ…100 kΩ)
- **HS** (High Sensitivity: 50 kΩ…1 MΩ)

When the liquid level rises above the probe for a time greater than the time delay value Tt set on the front panel, the relay is energized and stays energized until the liquid level drops back to the probe.
If the liquid drops back below the set level before the end of the time delay, the relay is not energized.

□ Empty function T off

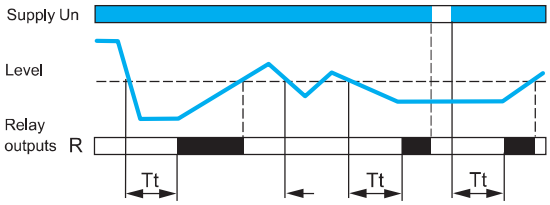


■ level: 1 - **off delay** functions:
- **LS** (Low Sensitivity: 250 Ω…5 kΩ)
- **St** (Standard Sensitivity: 5 kΩ…100 kΩ)
- **HS** (High Sensitivity: 50 kΩ…1 MΩ)

When the liquid level rises above the probe, the relay is energized instantly and stays energized until the liquid again reaches the probe level for a time Tt set on the front panel.
If the liquid drops back below the set level before the end of the time delay period, the relay stays energized.

Control of one level, fill function

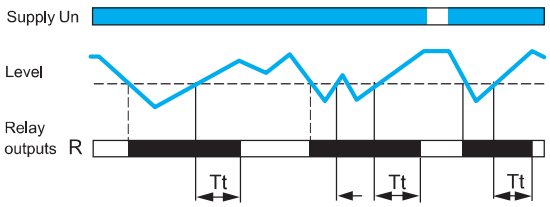
□ Fill function T on



■ level: 1 - **on delay** functions:
- **LS** (Low Sensitivity: 250 Ω…5 kΩ)
- **St** (Standard Sensitivity: 5 kΩ…100 kΩ)
- **HS** (High Sensitivity: 50 kΩ…1 MΩ)

When the liquid level drops below the probe for a time greater than the time delay value Tt set on the front panel, the relay is energized and stays energized until the liquid level rises back up to the probe.
If the liquid rises back above the set level before the end of the time delay period, the relay is not energized.

□ Fill function T off



■ level: 1 - **off delay** functions:
- **LS** (Low Sensitivity: 250 Ω…5 kΩ)
- **St** (Standard Sensitivity: 5 kΩ…100 kΩ)
- **HS** (High Sensitivity: 50 kΩ…1 MΩ)

When the liquid level drops below the probe, the relay is energized instantly and stays energized until the liquid level again reaches the probe level and stays above it for a time greater than the time delay period Tt set on the front panel.
If the liquid drops back below the set level before the end of the time delay period, the relay stays energized.

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

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RM22LA and RM22LG

PF143419

RM22LG11MR

PF143420

RM22LG11MT

PF143421

RM22LA32MR

PF143422

RM22LA32MT

References

Function	Rated supply voltage	Measurement range	Time delay	Output	Reference	Weight
	V	Ω				kg/*lb*
■ Level 1/ Level 2 ■ Fill operation ■ Empty operation	24…240 ≂	5 K…100 K	No	1 CO 8 A	**RM22LG11MR**	0.100/ *0.220*
	380…415 ∼	5 K…100 K	No	1 CO 8 A	**RM22LG11MT**	0.100/ *0.220*
	24…240 ≂	250...1 M	On/Off delay (0.1...30 s)	2 CO 8 A	**RM22LA32MR**	0.110/ *0.242*
	380…415 ∼	250...1 M	On/Off delay (0.1...30 s)	2 CO 8 A	**RM22LA32MT**	0.110/ *0.242*