

# Alternating Relay CT-PAC.22

## Balance the twin pump runtime



The alternating relay CT-PAC.22 is designed to evenly use the electromechanical resource of a twin pump, dual compressors and generators. The alternating relay has two normally open contacts. When the control supply voltage is applied to A1-A2 terminals, one of the normally open contacts remains open, whereas the other closes and maintains its respective positions until the control supply voltage is disconnected. Once connected again, the position of the relay contacts alternates and continues to do so for every power cycle.



### Continuous operation

The alternating relay extends the running time of twin motors until the next service due to equal load distribution. Thanks to the rotary switch (R1/R2/alt.), one motor can still run, while the other is in maintenance.



### Complete solution for pumps

ABB offers complete and scalable solutions for efficient starting, control and protection of twin pump: liquid level monitoring relays, voltage monitoring relays, alternating relay, contactors, softstarters and much more.

## Operating controls

**Rated control supply voltage**  
24 - 240 V AC / 24 - 48 V DC



**Connection terminals**  
Wide terminal spacing makes wiring connections easier: 2 x 1.5 mm<sup>2</sup> (2 x 14 AWG) with wire end ferrules or 2 x 2.5 mm<sup>2</sup> without ferrules.

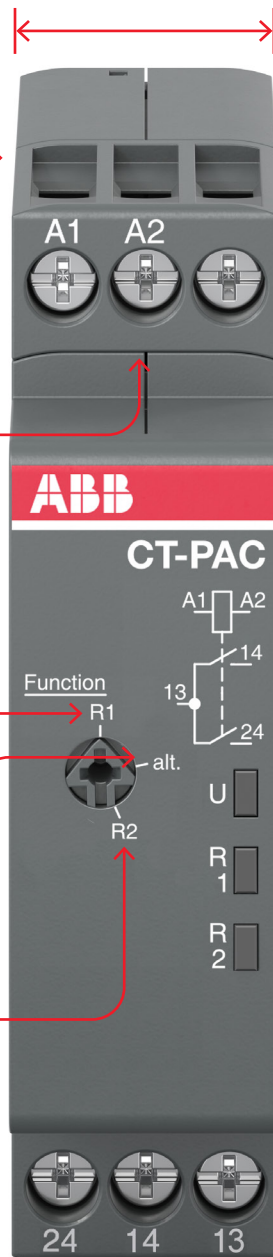


**Selection of the operating function**

**R1** – each power cycle contact 13-14 closes

**alt.** (default) – output contacts alternate each power cycle

**R2** – each power cycle contact 13-24 closes





**Width 17.5 mm**  
With a width of just 17.5mm like all devices in CT-C time relays range



**LEDs for status indication**

All actual operational states are displayed by front-facing LEDs, simplifying commissioning and troubleshooting.

- U - green LED:  
 control supply voltage applied
- R1, R2 - yellow LED:  
 output relay energized

**2 n/o contacts**

## Ordering details

Rated control supply voltage	Type	Order code	Weight (1 pc) kg (lb)
24-240 V AC 24-48 V DC	CT-PAC.22	1SVR508180R0100	0.059 (0.130)

Scan the QR Code to find the the technical details in the time relays chapter of ABB electronic relays and controls catalogue.

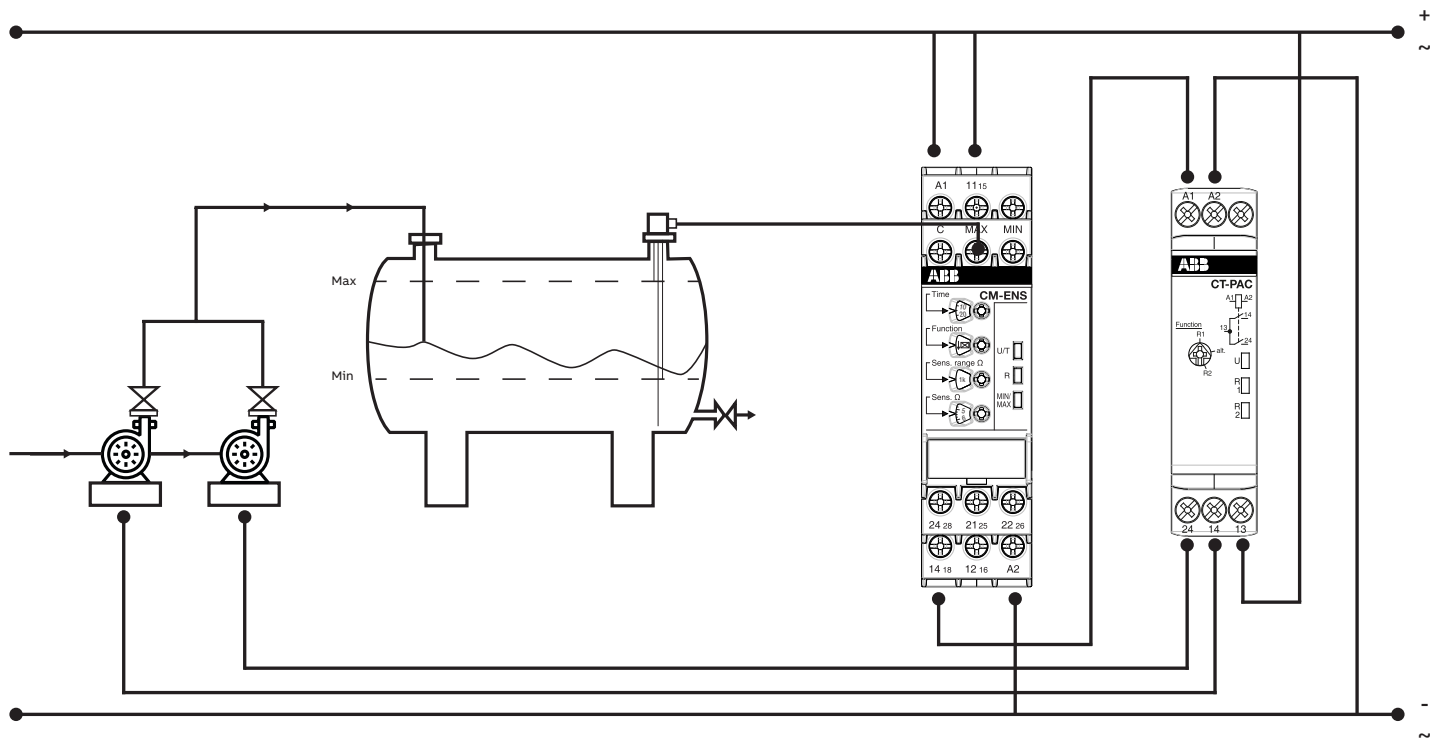


# Application example with an alternating twin pump control

The alternating relay is commonly used in applications with a twin pump for even wear of both electrical motors. The picture below shows an application of the alternating relay CT-PAC.22 with the liquid level monitoring relay CM-ENS.31 for filling a tank using two alternating pumps. In this application the CM-ENS.31 is used with three electrodes C, MIN and MAX and the function fill (^) is selected via a front-face potentiometer. The CM-ENS.31 also allows to set up a ON or OFF time delay from 0.1 to 10s.

As soon as the tank is empty, the liquid level monitoring relay CM-ENS.31 detects this condition (MIN-electrode is dry) and energizes through its relay output the alternating relay CT-PAC.22. The alternating relay in turn energizes the motor starter of the first pump by means of closing the contact 13-14. After the tank is filled with the water (MAX-electrode is wet) CM-ENS.31 de-energizes the alternating relay along with the first pump.

During the next cycle of tank filling, the liquid level monitoring relay will behave in the same way. However, the position of the CT-PAC.22 relay contacts alternate, so that the contact 12-24 and the tank is filled by the second pump. The alternating relay CT-PAC.22 will continue to do so for every power cycle.



## Function diagram of the CT-PAC.22 alternating relay operation:



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### Additional information

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