

Mixing plant with two stirrers

Task definition

easy is required to control two stirrers that operate together in a mixing tank. Both stirrers can rotate in the same or opposite direction.

Main switch S1 is used to switch the system on or off.

When switched off (S1 = OFF) you can use S2 to set the rotation direction (same or opposite). If the system is switched on (S1 = ON), the rotation direction can no longer be changed and you can start the system via the start button S5.

Stirring stage 1 starts after 2 seconds. After a period (T02) of 2 seconds, the stirrer stops for 2 seconds to stir in the reverse direction (same or opposite) for a further 20 seconds. This means: S1 Switch off - S2 Set rotation direction - S1 restart and - S5 start button.

Both motors are protected against overload via motor-protective circuit-breakers (I03 and I04).

Markers used

Same direction: M02
Opposite direction: M01
Mixing stage 1: M03
Mixing stage 2: M04

Device class used

easyE4

Wiring

Inputs

I01 S1 Main switch (ON/OFF)
I02 S2 Set rotation direction
I03 Motor-protective circuit-breaker for motor M1
I04 Motor-protective circuit-breaker for motor M2
I05 Start button

Outputs

Q01 M1 Stirrer 1 Clockwise
Q02 M1 Stirrer 1 Anti-clockwise
Q03 M2 Stirrer 2 Clockwise
Q04 M2 Stirrer 2 Anti-clockwise

Parameters

T01 On-delay 1 for M1 + M2 (2 sec.)
T02 Stage 1: run time for M1+ M2 (10 sec.)
T03 On-delay 2 for M1 + M2 (2 sec.)
T04 Stage 2: run time for M2 + M2 (20 sec.)

Same direction (M02 = 1)

Mixing stage 1: M03 + M02 = M06 → Q01 Motor 1 = Clockwise
Q03 Motor 2 = Clockwise

Mixing stage 2: M04 + M02 = M08 → Q02 Motor 1 = Anti-clockwise
Q04 Motor 2 = Anti-clockwise

Opposing direction (M02 = 0)

Mixing stage 1: M03 + M01 = M05 → Q01 Motor 1 = Clockwise
Q04 Motor 2 = Anti-clockwise

Mixing stage 2: M04 + M01 = M07 → Q02 Motor 1 = Anti-clockwise
Q03 Motor 2 = Clockwise