

Function name: **SG – Safety gate**

Example - architecture of category 4 to EN 954-1 and ISO 13849-1

2-channel monitoring of a safety gate with guard locking and cross-circuit monitoring of its external wiring.
The actuation of the release button opens the guard, the safety gate is enabled and removes the enable from the hazardous movement. Pressing the Reset button after the safety gate closes initiates the re-enabling. The discrepancy time is set to 0.5 seconds.

The safety gate is monitored with a safety position switch B1 with guard locking and a further position switch B2. Both limit switches and the feedback of the guard locking are supplied with test signals T1 to T3 and are connected to the device inputs IS2, IS5 and IS6. The safety device outputs QS1 and QS2 switch contactors Q1 and Q2 directly.

The enable is initiated by the function block after the safety gate is closed and the Reset button has been actuated.

This looks as follows in the electrical circuit diagram:

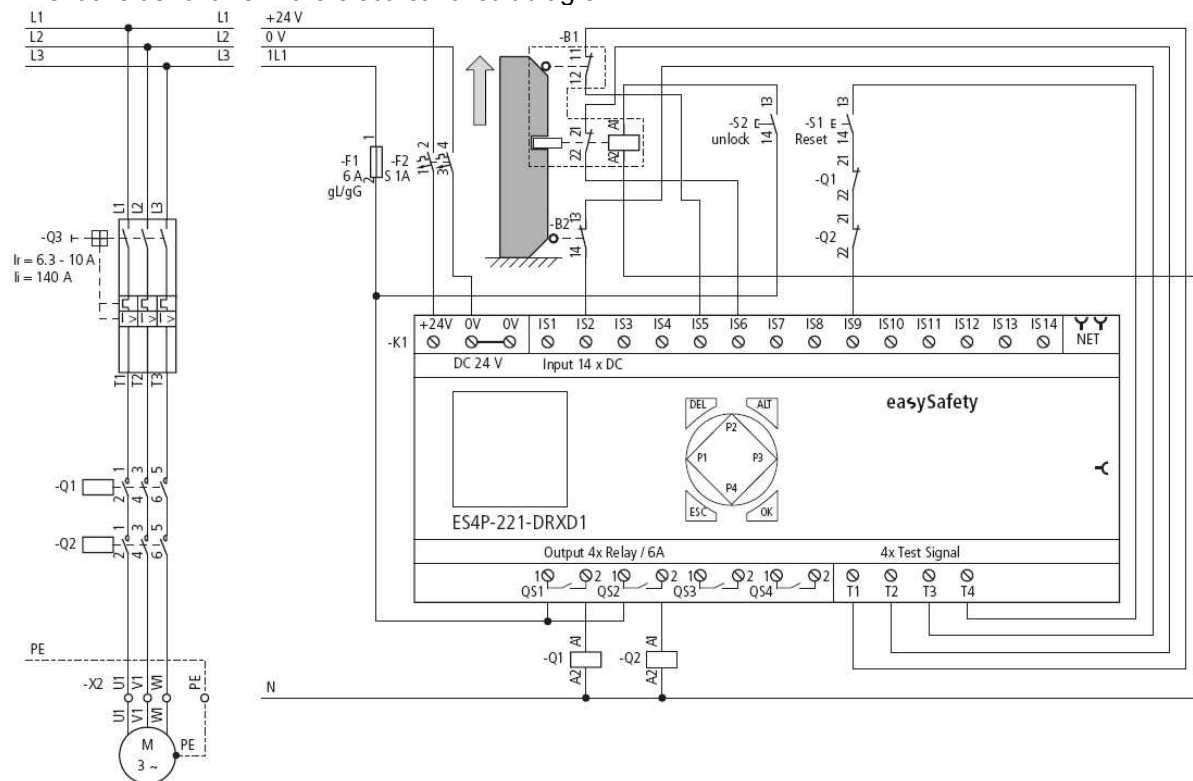


Figure 1: Electrical circuit diagram

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The signal diagram of the function block for this application shows:

- the dependencies of the enable contact of SG01QS on the status of coils SG01I1 and SG01I2.
- the interrelationship between timed out discrepancy time SG01DT and the error output SG01ER.
- the error acknowledgement with the coils SG01I1 and SG01I2.
- the manual re-enabling after the safety gate is closed and the Reset coil SG01RE has dropped out.

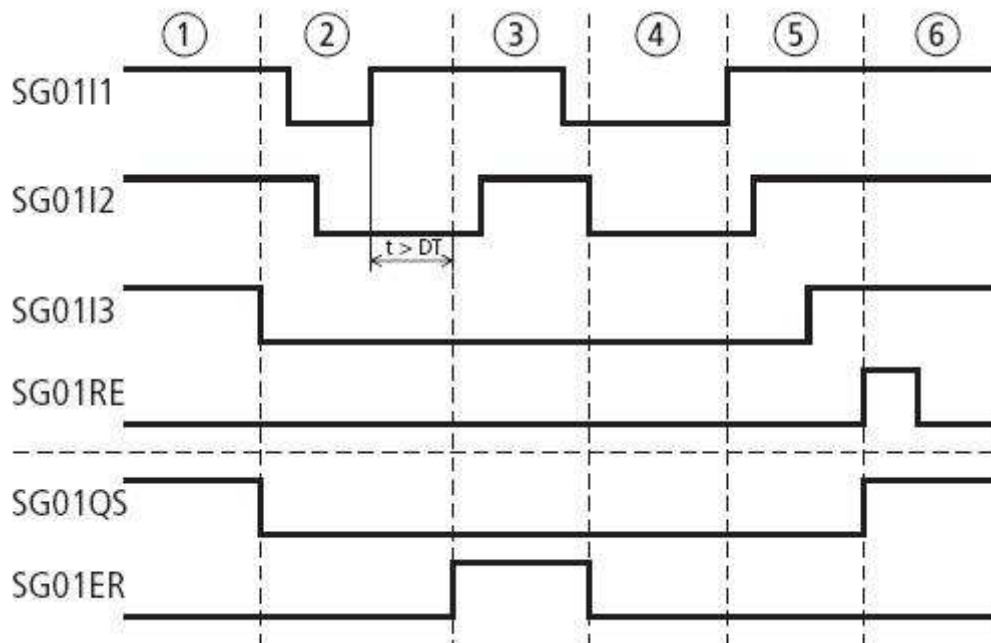


Figure 2: Signal diagram

- 1 Closed safety gate, release of guard locking.
- 2 Opening of the safety gate, timeout of the discrepancy time.
- 3 Error acknowledgement by closing the safety gate.
- 4 Closing of the safety gate.
- 5 Guard locking.
- 6 Manual re-enabling after the Reset coil has picked up.

Please note: The master-password for the example file is: "111111".