

Function name: ES – Emergency-stop

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

Monitoring of a 2-channel emergency-stop switch and cross circuit monitoring of its external wiring. The actuation of the pushbutton triggers the emergency-stop function. Releasing the Reset button after the removal of the hazard initiates the re-enabling in a controlled manner. The discrepancy time is set to 0.5 seconds.

The break contacts of the emergency-stop switch S1 are connected to the device terminals IS9 and IS10 and are provided with the test signals T3 and T4. The safety device outputs QS1 and QS3 switch the contactors Q1 and Q2 directly. The enable is initiated by the function block after the emergency-stop switch has been released and the Reset button has been actuated.

This looks as follows in the electrical circuit diagram:

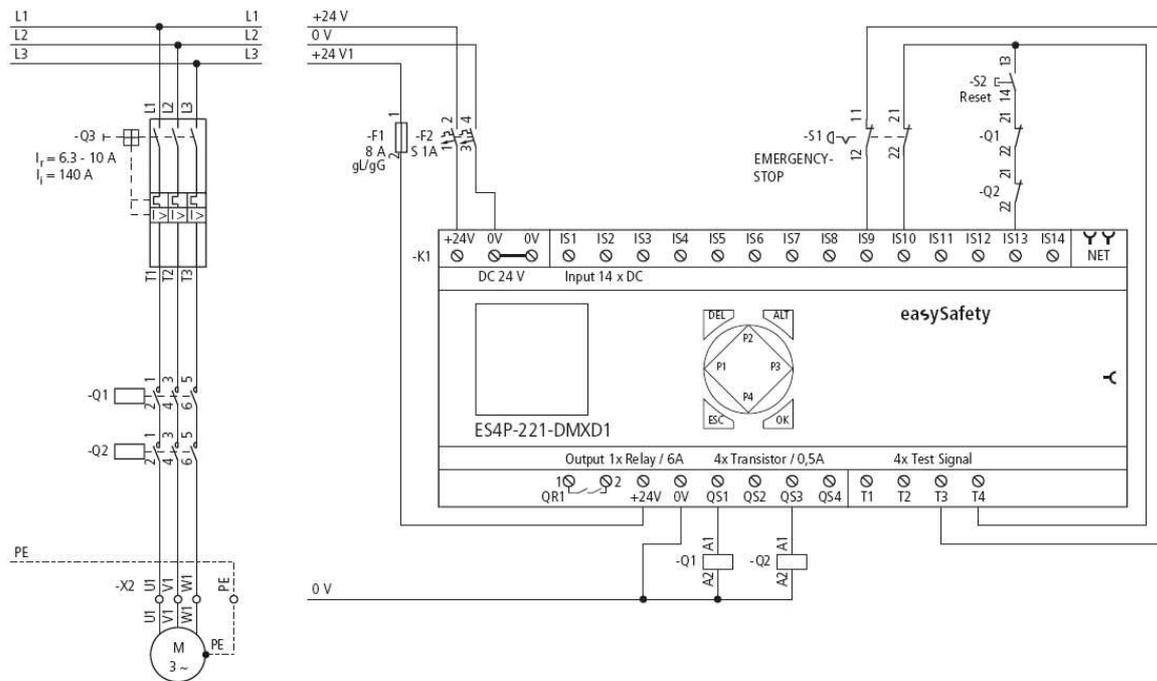


Figure 1: Electrical circuit diagram



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

- the dependence of the enable contact of ES01QS on the state of coils ES01I1 and EM01I2.
- the relationship between elapsed discrepancy time ES01DT and the error output ES01ER.
- the error acknowledgement with coils ES01I1 and ES01I2.
- the controlled re-enabling after the hazard has been rectified and the Reset coil ES01RE has dropped out.

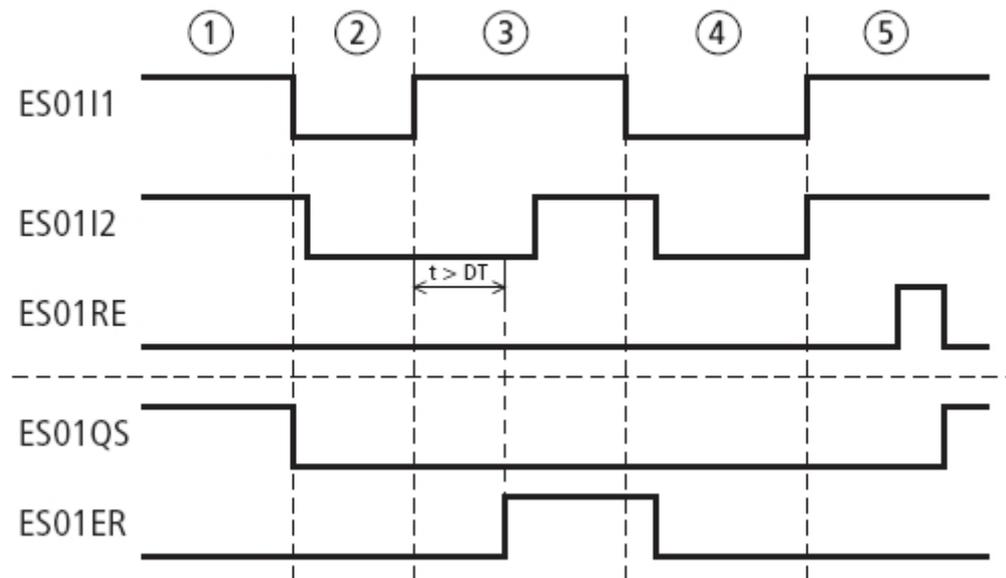


Figure 2: Signal diagram

- 1 Normal operation.
- 2 Triggered emergency-stop after a hazardous situation occurs.
- 3 Discrepancy time exceeded when releasing the emergency-stop button. Error signal at contact ES01ER.
- 4 Error acknowledgement by actuation of the emergency-stop pushbutton.
- 5 Release of the emergency-stop pushbutton and subsequent controlled re-enabling after the Reset coil has dropped out.

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