Document for example file in easySoft-Safety

Function name: **ZM – Zero monitoring**

Example

The standstill of a machine is to be detected and transferred
to marker MS01 as a signal for further processing. A standstill
is recognised at a rotation speed of less than 10 rpm.
Two inductive proximity switches in conjunction with a cam
disk with 12 cams on the shaft measure the speed.

The zero speed monitoring function is always active
(ZM01SA = 1).

The rotation frequency to be set on the easySafety is:
12 x 10 rpm / 60 = 2 Hz.
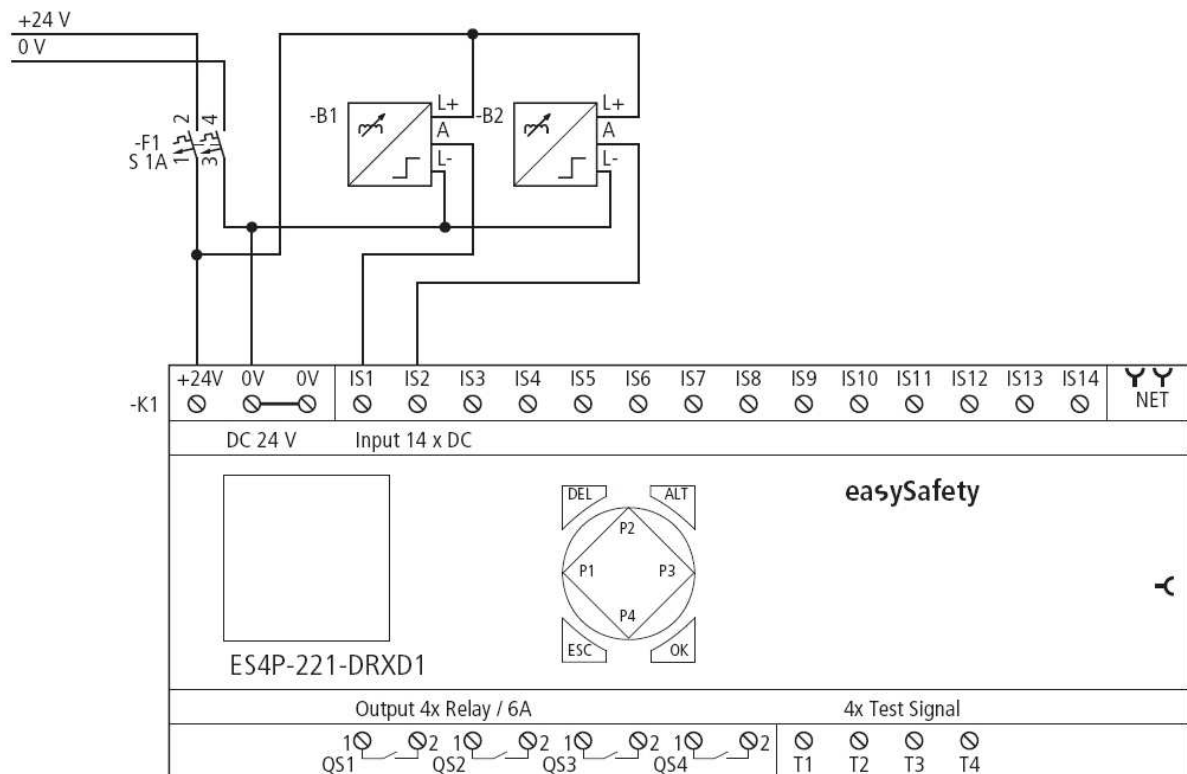
This looks as follows in the electrical circuit diagram:

Figure 1: Electrical circuit diagram

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We keep power under control.

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

• the dependence of the enable contact ZM01QS on the
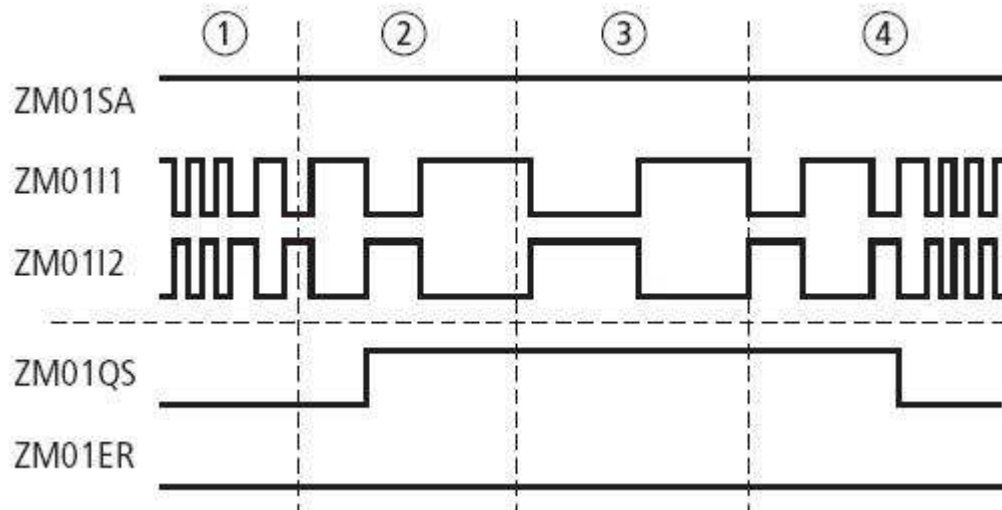measured frequency at function block coils I:

Figure 2: Signal diagram

1   The speed is more than 10 rpm, ZM01QS signals: "no standstill".
2   The speed is less than 10 rpm, ZM detects the standstill and
     closes contact ZM01QS.
3   The speed of the motor increases and exceeds 10 rpm + 10 %
     hysteresis (= 11 rpm). ZM01QS opens and thus no zero speed
     indicated.

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