Document for example file in easySoft-Safety

Function name: OM – Overspeed monitoring

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

The speed of a shaft is required to not exceed 400 rpm.
Two inductive proximity switches in conjunction with a cam disk
with 10 cams on the shaft record the speed.
The function block is required to remove the enable for
driving the shaft as soon as the maximum speed is exceeded.
The drive must stand still before the function block allows a
re-enabling via OM01RE. This is implemented using the ZM
zero monitoring function block. The wiring of the ZM function
block is not explained further in this example.
The coil SA is always active for the safe activation in this
example.

The rotation frequency to be set on easySafety:
10 x 400 rpm / 60 = 66 Hz.
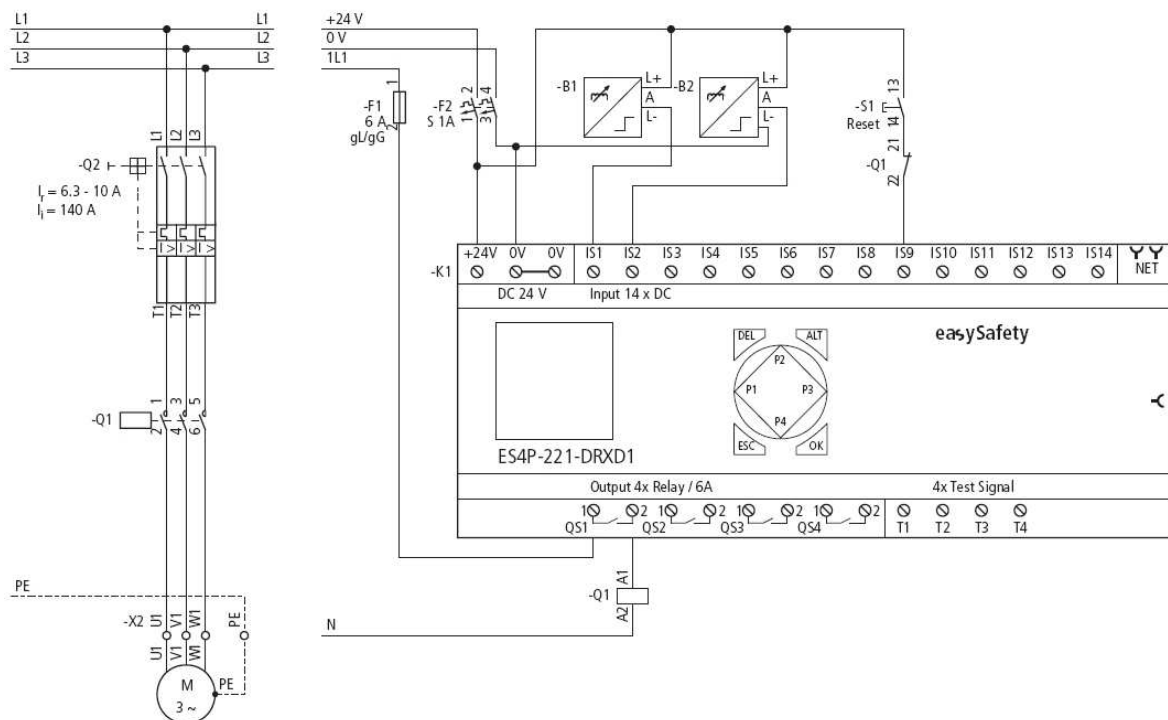
This looks as follows in the electrical circuit diagram:

Figure 1: Electrical circuit diagram

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We keep power under control.

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

• the dependence of the enable contact OM01QS on
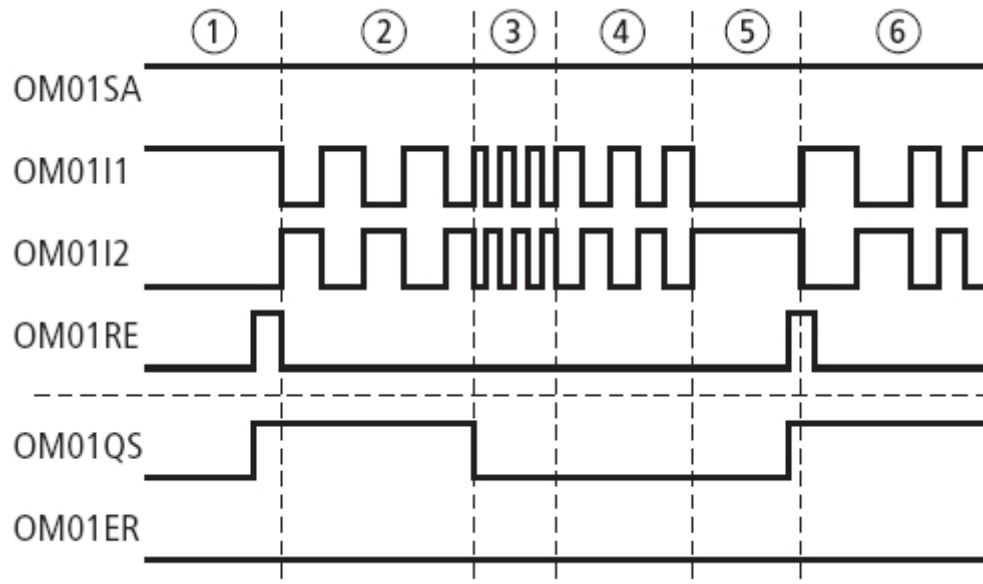the measured frequency at the function block coils I1 and I2

Figure 2: Signal diagram

1	The overspeed monitoring function block OM01 is activated via OM01SA, speed monitoring is started via the Reset input OM01RE. As the motor is standing still, the function block issues the enable via OM01QS (OM01QS = 1).
2	The motor rotates below the limit frequency of 66 Hz.
3	The motor rotation exceeds the limit frequency. The OM01 function block removes its enable (OM01QS = 0).
4	The motor gets slower and runs down.
5	The motor is at a standstill. The function block OM01 is reset via the Reset input and issues its enable again, OM01QS closes.
6	The motor rotates below the maximum rotation frequency.

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

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We keep power under control.