Example 12. Maintaining power supply to the control board at reduced DC bus voltage

Purpose:

This configuration is intended for use in automation systems with unstable supply mains quality. During short-term voltage dips or a complete loss of supply voltage, the frequency inverter (RD) enters braking mode, during which the control circuit keeps its power supply through regeneration of the rotating motor's energy. After the supply voltage returns to normal, the frequency inverter automatically resumes operation without operator intervention.

Wiring diagram:

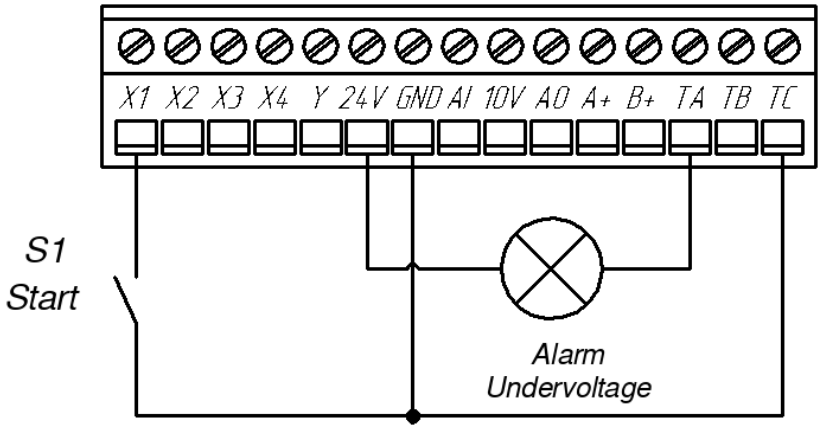


Figure 1. Wiring diagram.

Parameter list:

Table 1. List of configurable parameters.

№	Code	Name	Value	Note
1	F01.01	Start signal source	1	Start and stop mode via digital input
2	F01.02	Frequency reference source	0	Frequency reference from the control panel
3	F01.10	Maximum output frequency	50	Rated nameplate speed, Hz
4	F01.13	Lower frequency limit setting	0	Lower limit of motor speed
5	F01.22	Acceleration time	5	Motor acceleration time
6	F01.23	Deceleration time	5	Motor deceleration time
7	F02.00–F02.06	Rated motor parameters		According to the motor nameplate
8	F05.00	Terminal X1 function selection	1	Forward start
9	F05.20	Control mode selection	0	Two-wire system 1
10	F05.22	Operating signal selection for terminals X1–X4	0000	Activation on contact closure
11	F06.22	Relay output 1 (TA-TB-TC)	7	Activation of the alarm indication on undervoltage
12	F07.00	Start mode	0	Start from the starting frequency
13	F07.06	Restart after power failure	1	After power is applied, a restart with speed tracking will be performed
14	F07.07	Restart after power failure	1	After a power failure and subsequent power restoration, the motor will start after the set time
15	F10.16	Undervoltage protection of the frequency inverter DC bus	1	On loss of power, the control board will be powered by braking energy

Note:

1. The greater the inertia of the controlled system, the longer the control board will remain powered.