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ROBA®-SBCplus

Safe brake control
for use up to PLe and SIL CL3



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ROBA®-SBCplus

The safe brake control - for use up to PLe and SIL CL3

Application

The safe brake control ROBA®-SBCplus is used to control and monitor two ROBA®-stop safety brakes, especially in applications, which have to fulfill requirements regarding person protection according to the standards for functional reliability, such as for example ISO13849 and IEC62061.

Characteristics:

- Safe electronic switching of two brakes
- Input voltage power circuit 24/48V-
- Connection for up to 2 brakes up to 4,5A/24V or 2,25A/48V (108 W)
- Output voltage (holding voltage) can be selected 6,8,12,24,48V-
→ Power reduction, temperature reduction, electricity costs reduction
- Overexcitation time configurable
- Feedback inputs release monitoring for proximity switch or microswitch
- Monitoring for plausibility of the feedback
→ Error diagnostics of the brake
- Status and error outputs for feedback to the control
- No mechanic contacts for controlling and monitoring
→ High reliability, no wear, independent of cycle frequency and cycle rate
- Fast (“DC-side”) or slow (“AC-side”) switch off possible
- Galvanic separation between the control part and the power part
→ Prevention of EMC issues
- Four integrated functions: Contactor, 24V- fast-acting rectifier, safety relay, spark quenching
- Safe holding voltage and overexcitation time
- Safety functions are programmed into the ROBA®-SBCplus and only have to be parameterised
→ Plausibility check integrated and must not be programmed and validated
- Applicable up to PLe and SIL CL3, Type examination tested TÜV Süd (German Technical Inspectorate)



Maximum switching reliability

The brake control must safely interrupt the current in the magnetic coil on switching off the brake. The ROBA®-SBCplus module works with wear-free electronic semiconductors and thus achieves almost unlimited switching frequencies and switching reliability.

Safe inner configuration

Amongst other things, the internal diagnostics inspections for short circuits, earth short circuits and line breaks as well as safe overexcitation for releasing the brake and switching to reduced holding voltage when the brake is opened are the components required for “fail-safe” inner configuration.

Numerous safety functions

Numerous safety functions permit comprehensive error diagnostics. The brake voltage is monitored. An excessively high voltage could dangerously extend the drop-out time on switch-off, if, for example, this were to cause a vertical axis to drop to an unpermittedly low level. The monitoring of the switching times, which influence the braking distance, is therefore another component of error diagnostics.

Safe switching condition monitoring

The signal evaluation of the release monitoring with plausibility check permits a switching condition monitoring of the brake. The plausibility is controlled as follows: If voltage is applied, the brake must be opened after a defined time and vice versa. The switching condition monitoring can be used to reliably prevent the drive starting up against a closed brake. In this way, creeping errors, such as gradually increasing wear, which affects the switching times, can be detected.



ROBA®-SBCplus

Type 021.100.2

Technical Data

Electrical connection

Supply voltage logic 24VDC -15%/+20%
Supply voltage power 24VDC or 48VDC ±10%

Inputs:

Safe inputs 4 (Y10 – Y23)
Standard inputs 4 (S35, S36, Y1, Y2)
Monitoring times 30 ms ... 4000 ms

Outputs:

Supply voltage 24V 0,1A
Acknowledgement outputs 24V 0,1A
O3 fault message
O4 Status circuit 1
O5 Status circuit 2
T0, T1, 24V, 0,1A
O1, O2
Test pulse outputs
Power outputs
Continuous operation 24V/2 x 4,5A max.
Continuous operation 48V/2 x 2,25A max.
Overexcitation 24V/2 x 6,5A max.
Overexcitation 48V/2 x 3,25A max.
Reduced voltages 6/8/12/16/24V ± 10%

Overexcitation times 100 ms ... 2500 ms
Cycle frequency 4/min max.
Ambient temperature 0 – 45 °C
Protection IP20
Installation into control cabinet IP54
Dimensions 45×100×120mm
Connection terminal 0,20 – 2,5mm², 24 – 12AWG
Clamping terminals per connection 2

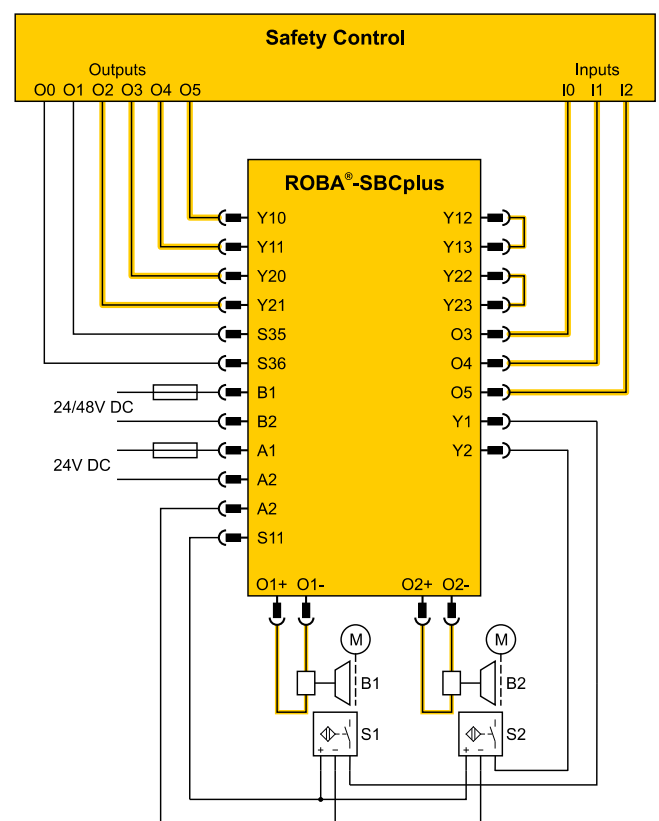
Certification:

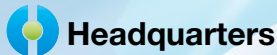
Type examination tested TÜV Süd
CE

Parameterisation:

- On delivery, the device is completely parameterised for the respective ROBA-stop® brake
- Only due to the correct parameterisation, a diagnostic coverage DC of 60% can be assumed for the brake without additional measures via the feedback of the release monitoring signal.

Application Example





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