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ROBA®-SBCplus

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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 personal protection according to the standards for functional reliability, such as for example ISO 13849 and IEC 62061.

Characteristics:

- c US c UL us LISTED
- Applicable up to PLe and SIL CL3, TÜV Süd (German Technical Inspectorate), Type examination
- Safe electronic switching of two brakes
- Input voltage power circuit 24 / 48 VDC
- Connection for up to 2 brakes up to 5,5 A / 24 VDC or 2,75 A / 48 VDC (132 W)
- Output voltage (holding voltage) can be selected as 6,8,12,24,32,48 VDC
  → 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, 24 VDC 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

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	24 VDC -15 % / +20 %
Supply voltage power	24 VDC or 48 VDC -10 % / +20 %
Inputs:	
Safe inputs	4 (Y10 – Y23)
Standard inputs	4 (S35, S36, Y1, Y2)
Monitoring times	30 ms ... 4000 ms
Outputs:	
Supply voltage	24 V 0.1 A
Acknowledgement outputs	24 V 0.1 A O3 Fault message O4 Status circuit 1 O5 Status circuit 2
Test pulse outputs	T0, T1, 24 V, 0.1 A
Power outputs	O1, O2
Continuous operation	24 V / 2 x 5.5 A max.
Continuous operation	48 V / 2 x 2.75 A max.
Overexcitation	24 V / 2 x 6.5 A max.
Overexcitation	48 V / 2 x 3.25 A max.

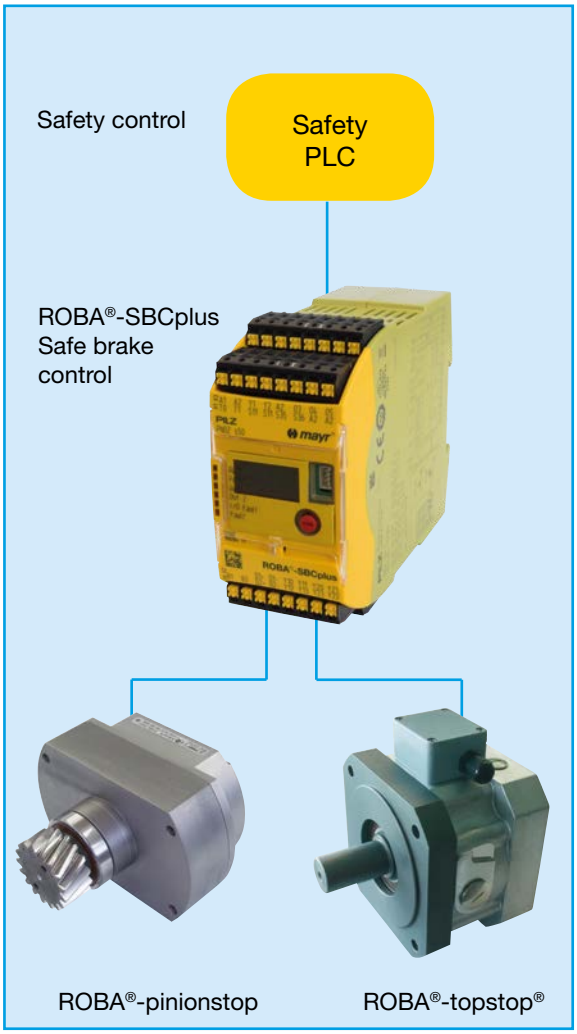
Reduced voltages	6/8/12/16/24/32 V ±10 %
Overexcitation times	100 ms ... 2500 ms
Cycle frequency	4/min max.
Ambient temperature	0 – 45 °C
Protection	IP20
Installation into control cabinet	IP54
Dimensions	45×100×120 mm
Connection terminal	0.20 – 2.5 mm², 24 – 12 AWG
Clamping terminals per connection	2

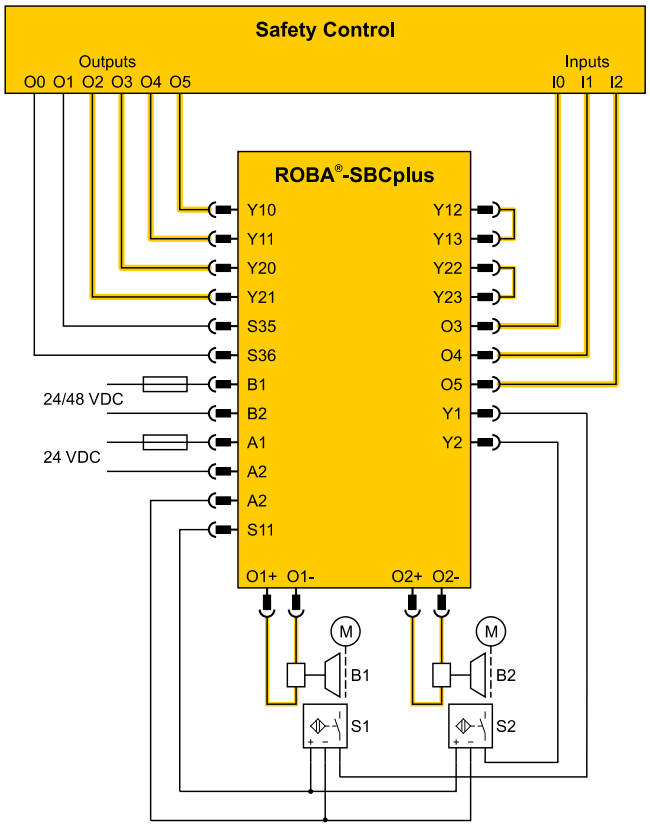
Certification:
Type examination tested by
TÜV (German Technical Inspectorate), CE

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





Headquarters

Chr. Mayr GmbH + Co. KG
Eichenstrasse 1, D-87665 Mauerstetten
Tel.: +49 83 41/8 04-0, Fax: +49 83 41/80 44 21
www.mayr.com, E-Mail: info@mayr.com

mayr®
your reliable partner

Service Germany

Baden-Württemberg
Esslinger Straße 7
70771 Leinfelden-Echterdingen
Tel.: 07 11/78 26 26 40
Fax: 07 11/78 26 26 39

Bavaria
Industriestraße 51
82194 Gröbenzell
Tel.: 0 81 42/50 19 80-7

Chemnitz
Bornaer Straße 205
09114 Chemnitz
Tel.: 03 71/4 74 18 96
Fax: 03 71/4 74 18 95

Franken
Unterer Markt 9
91217 Hersbruck
Tel.: 0 91 51/81 48 64
Fax: 0 91 51/81 62 45

Kamen
Herbert-Wehner-Straße 2
59174 Kamen
Tel.: 0 23 07/24 26 79
Fax: 0 23 07/24 26 74

North
Schiefer Brink 8
32699 Extertal
Tel.: 0 57 54/9 20 77
Fax: 0 57 54/9 20 78

Rhine-Main
Kreuzgrundweg 3a
36100 Petersberg
Tel.: 06 61/96 21 02 15

Austria
Pummerinplatz 1, TIZ I, A27
4490 St. Florian, Austria
Tel.: 0 72 24/2 20 81-12
Fax: 0 72 24/2 20 81 89

Branch office

China
Mayr Zhangjiagang
Power Transmission Co., Ltd.
Fuxin Road No.7, Yangshe Town
215637 Zhangjiagang
Tel.: 05 12/58 91-75 67
Fax: 05 12/58 91-75 66
info@mayr-ptc.cn

Great Britain
Mayr Transmissions Ltd.
Valley Road, Business Park
Keighley, BD21 4LZ
West Yorkshire
Tel.: 0 15 35/66 39 00
Fax: 0 15 35/66 32 61
sales@mayr.co.uk

France
Mayr France S.A.S.
Z.A.L. du Minopole
Rue Nungesser et Coli
62160 Bully-Les-Mines
Tel.: 03.21.72.91.91
Fax: 03.21.29.71.77
contact@mayr.fr

Italy
Mayr Italia S.r.l.
Viale Veneto, 3
35020 Saonara (PD)
Tel.: 049/879 10 20
Fax: 049/879 10 22
info@mayr-italia.it

Singapore
Mayr Transmission (S) PTE Ltd.
No. 8 Boon Lay Way Unit 03-06,
TradeHub 21
Singapore 609964
Tel.: 00 65/65 60 12 30
Fax: 00 65/65 60 10 00
info@mayr.com.sg

Switzerland
Mayr Kupplungen AG
Tobeläckerstraße 11
8212 Neuhausen am Rheinfall
Tel.: 0 52/6 74 08 70
Fax: 0 52/6 74 08 75
info@mayr.ch

USA
Mayr Corporation
10 Industrial Avenue
Mahwah
NJ 07430
Tel.: 2 01/4 45-72 10
Fax: 2 01/4 45-80 19
info@mayrcorp.com

Turkey
Representative Office Turkey
Kucukbakkalkoy Mah.
Brandium Residence R2
Blok D:254
34750 Atasehir - Istanbul, Turkey
Tel.: 02 16/2 32 20 44
Fax: 02 16/5 04 41 72
info@mayr.com.tr

Representatives

Australia
Drive Systems Pty Ltd.
8/32 Melverton Drive
Hallam, Victoria 3803
Australien
Tel.: 0 3/97 96 48 00
info@drivesystems.com.au

India
National Engineering
Company (NENCO)
J-225, M.I.D.C.
Bhosari Pune 411026
Tel.: 0 20/27 13 00 29
Fax: 0 20/27 13 02 29
nenco@nenco.org

Japan
MATSUI Corporation
2-4-7 Azabudai
Minato-ku
Tokyo 106-8641
Tel.: 03/35 86-41 41
Fax: 03/32 24 24 10
info@matsui-corp.co.jp

Netherlands
Groneman BV
Amarilstraat 11
7554 TV Hengelo OV
Tel.: 074/2 55 11 40
Fax: 074/2 55 11 09
aandrijftechniek@groneman.nl

Poland
Wamex Sp. z o.o.
ul. Pozaryskiego, 28
04-703 Warszawa
Tel.: 0 22/6 15 90 80
Fax: 0 22/8 15 61 80
wamex@wamex.com.pl

South Korea
Mayr Korea Co. Ltd.
15, Yeondeok-ro 9beon-gil
Seongsan-gu
51571 Changwon-si
Gyeongsangnam-do. Korea
Tel.: 0 55/2 62-40 24
Fax: 0 55/2 62-40 25
info@mayrkorea.com

Taiwan
German Tech Auto Co., Ltd.
No. 28, Fenggong Zhong Road,
Shengang Dist.,
Taichung City 429, Taiwan R.O.C.
Tel.: 04/25 15 05 66
Fax: 04/25 15 24 13
abby@zfgta.com.tw

Czech Republic
BMC - TECH s.r.o.
Hviezdoslavova 29 b
62700 Brno
Tel.: 05/45 22 60 47
Fax: 05/45 22 60 48
info@bmc-tech.cz

More representatives:

Belgium, Brazil, Canada, Colombia, Croatia, Denmark, Finland, Greece, Hongkong, Hungary, Indonesia, Israel, Luxembourg, Malaysia, Mexico,New Zealand, Norway, Philippines, Portugal, Romania, Russia, Slovakia, Slovenia, South Africa, Spain, Sweden, Thailand

You can find the complete address for the representative responsible for your area under www.mayr.com in the internet.

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