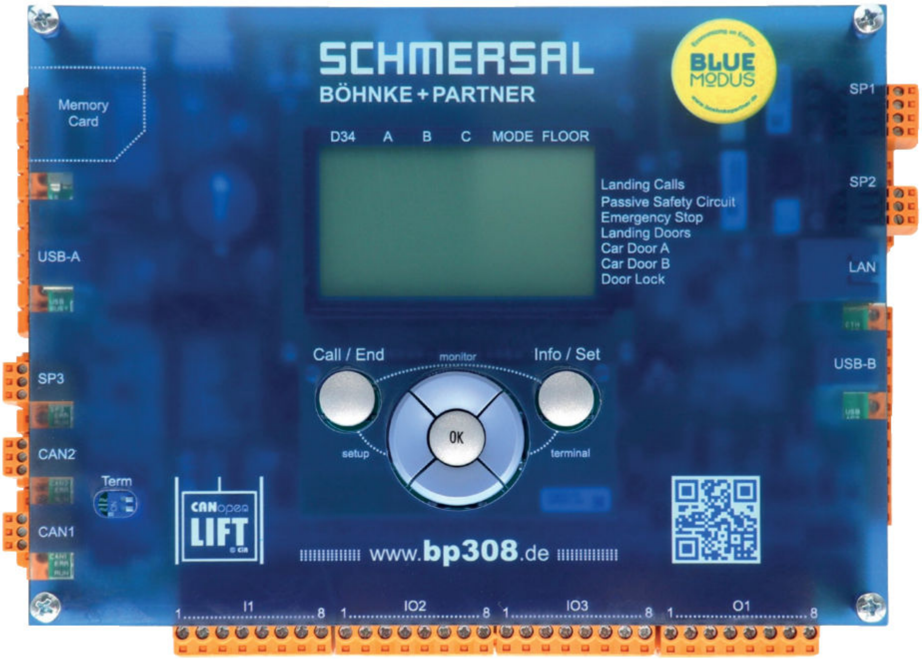

Operating Instructions

of the bp308 Safety Module

- General Information
- EU type examination
- Safety Module

This document has been translated from the German source text. If there is any conflict between this translation and the German version, only the German version shall be legally considered as binding.

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Release date: June 2025

Contents

1 General information

1.1 Thank you very much

Thank you for the trust you have shown in Böhnke + Partner GmbH by purchasing a "bp308" system.

Please take the time to read this installation manual and the documentation for the components carefully. There is a high risk of injury due to improper handling . Observe all instructions and you will save yourself a lot of time and queries during commissioning.

The term "manual" is used to refer to our entire set of documentation, which we use to inform our customers of our company and its products. To improve clarity and structuring, the manual was divided into multiple parts. The Operation Instructions of the bp308 Safety Module" also considers the dangers and risks, which may lead to severe health related as well as economic damage in case of misuse. Additionally, you are also provided with the information required in order for commission the safety circuit and to check its functions

Should you still have any questions, please contact us:

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1.2 Intended use

The Safety Module is a piece of equipment for use in elevator systems.

1.3 Documentation notes

This manual does not provide information on all our delivery options. All information is provided solely for the purpose of product description and is not to be understood as warranted characteristics in the legal sense. Any claims for damages against us - for whatever legal reason - are excluded, unless we are guilty of intent or gross negligence. No guarantee is given that the specified circuits or processes are free from third-party property rights.
Reprinting - even in extracts - is only permitted with the consent of Böhnke + Partner GmbH and with exact reference to the source. The Böhnke + Partner logo and company name are protected trademarks.

The information in this manual is reviewed regularly. Any necessary corrections are included in subsequent editions.

Hazard warnings and special information are identified in this technical manual as follows and are emphasised by a corresponding symbol.

CAUTION!
This warning is used when inaccurate observation of or non-compliance with instructions or procedures can lead to the device being damaged, injuries or lethal accidents.

WARNING!
This symbol is used when inaccurate compliance with or failure to comply with instructions or procedures can result in injuries or fatal accidents due to electric current.

NOTE!
This symbol is used to bring attention to a specific characteristic.

2 Safety instructions

NOTE!
Before installing and commissioning this appliance, please read these safety and warning instructions carefully and observe all warning signs attached to the appliance. Ensure that the warning signs are legible and replace any missing or damaged signs.

2.1 Qualified personnel

Qualified persons as defined in the documentation or the warning notices on the product itself are persons who are familiar with the installation, assembly, commissioning, operation and maintenance of the product and have the appropriate qualifications, e.g.:

- Training and instruction or authorisation to switch circuits and devices on and off, to earth them and to label them in accordance with safety engineering standards.
- Training and instruction in accordance with safety engineering standards in the care and use of appropriate safety equipment.
- Training in first aid.

2.2 Safety instructions for the control unit

ATTENTION!

Extracts from Chapter 5 of "DGUV 209-053 Activities on elevator systems" (Edition 02/2017):
5.1 Registration
Before starting work on an existing elevator system, the fitter must register with the person using (operating) the elevator or their representative and inform them of the scope of work and the expected duration of the work.
After completion of the work, a cancellation must be made.
...

5.2 Locking the elevator system
Before starting work on an elevator system, the installer must reliably block it and affix a clearly visible and permanent sign, e.g. with the inscription "Elevator out of order", at each shaft access point.
...
5.3 Securing the shaft accesses
Open shaft access points must be locked in such a way that unauthorised persons (third parties) cannot access the shaft.

Work that requires elevator shaft doors to be open may only be carried out when the car is behind them. If this is not possible, additional measures must be taken.

...

5.4 Support from a second person

If a fitter carries out work that requires the presence of a second person, this person must be competent or, depending on the risk, trained.

...

5.5 Carrying out the work

5.5.1 Entering and leaving the car roof

The car roof may only be entered in the presence of qualified persons. Before entering the car roof, the emergency brake switch ("emergency stop") and, if accessible, the inspection switch on the car roof must be activated and their function must be checked.

The elevator shaft doors may only be closed when the inspection control is switched on. The function of the emergency brake switch and inspection switch is checked, for example, by closing the doors and pressing the landing call. The system must not move during this process.

Before leaving the car roof, the effectiveness of the landing door contact on the exit door must be checked, the emergency brake switch actuated, and the inspection switch unlocked again after opening the landing door. The emergency brake switch may only be unlocked again after leaving the car roof.

...

5.5.2 Shaft lighting

Before starting work in the shaft, adequate lighting must be ensured, e.g. the shaft lighting must be switched on and a mains-independent light must be carried.

5.5.3 Staying and travelling in the shaft

No more people may be on the car roof and no more material may be carried there than is necessary to carry out the work. The load capacity and usable area must be observed. Journeys on the car roof may only be carried out if there are no persons in the danger zone.

It is prohibited to carry out work while travelling. Inspection activities (visual inspections) are only permitted when travelling downwards. When travelling upwards, there is a risk of crushing, e.g. on counterweights and shaft installations (see section 5.2.5.7 DIN EN 81-20).

...

5.5.4 Electrical hazard

After switching off the main switch, voltage may still be present at various devices and components of the elevator system.

...

5.5.5 Bridging safety devices and control lines

Bridging the safety devices, control lines and switches is generally prohibited. If bridging cannot be avoided to carry out the work, this may only be done if

- those carrying out the work are trained to do so

- the bridges are suitable and clearly recognisable for everyone.

...

Bridges must be removed immediately after completion of the work.

5.5.6 Temporary switching agreements

Agreements to carry out switching operations or car movements car movements at a specific time are prohibited.

...

5.6 Completion of the activities

On completion of the work, all equipment, in particular the safety equipment associated with the work, must be checked for proper functioning.

After repairs requiring acceptance, the elevator system may only be operated again after acceptance by an authorised inspection body (ZÜS).

2.3 Requirements for installers and operators

ATTENTION!

- The "bp308" control system is built according to the state of the art and is safe to operate. Dangers only arise if untrained personnel use the devices improperly or for purposes other than those for which they are intended.
- Correct and safe operation of the appliances requires proper transport, storage, installation and assembly as well as careful operation and maintenance.
- Any method of operation that impairs the safety of the devices must be avoided.
- Unauthorised conversions and modifications that affect the safety of the devices are not permitted.
- During operation, the drive units have dangerous live, moving or rotating parts. They can therefore cause serious damage to health or property, e.g. if the required covers are removed without authorisation or insufficient maintenance is carried out.
- Only qualified personnel may be authorised to work on the devices. The personnel must always have the supplied operating instructions and all product documentation available when working on the appliances and observe them consistently. Unqualified personnel must be prohibited from working on or near the appliances.
- The operator is responsible for ensuring that the drive is brought to a safe state if the devices fail, as otherwise personal injury or damage to property may occur.

- The packaging material produced must be disposed of in an environmentally friendly manner; paper, plastic, metal, electronic components etc. must be recycled.

WARNING!
Disconnect the appliances from the mains and check that they are de-energised before carrying out any work.

3 Product Certificates

3.1 Declaration of Conformity

The declarations of conformity for the control components used can be found in the current versions in our online catalogue in the elevator technology section under the documents for the respective component:

https://products.schmersal.com/en_IO/bp308-1000337419.html

Figure :1
Documentation area in online catalogue for the bp308

3.2 EU type Examination

The system module bp308 contains an electronic monitoring unit for the Safety Module and a pre-control for the contactors. Moreover, a safety module (SMZ) is located on the circuit board. The Safety Module can be used in the following cases of DIN EN 81 -20/-50:

- Preparatory measures with with elevator car and shaft door open
- Leveling with elevator car and shaft door open
- Re-leveling with elevator car and shaft door open
- Detection of an unintended movement of the elevator car with open doors (UCM).

3.3 EU- Type-Examination Certificate BPL-03

ZERTIFIKAT | CERTIFICATE | CERTIFICAT | CERTIFICADO | СЕРТИФИКАТ | شهادة | 证书 | 인증서

TÜV-A-AT-1-16-0468-EUES-1

TÜV AUSTRIA

EU-Baumusterprüfbescheinigung

nach EU Richtlinie für Aufzüge 2014/33/EU

Certificate of EU-Type Examination

according EU Directive for Lifts 2014/33/EU

Produkt / *Product:* Sicherheitsschaltung und Abfrageschaltung für Aufzüge
Safety circuit and gathering information circuit for lifts

Type / *Type:* BPL-03

Antragsdatum / *Date of application:*
29.11.2019

Bescheinigungsnummer / *Certificate number:*
TÜV-A-AT-1-16-0468-EUES-1

Zugelassene Stelle / *Approved body:*
TÜV AUSTRIA SERVICES GMBH
Deutschstraße 10
A-1230 Wien
ID-Nr.: 0408

Bescheinigungsinhaber / *Certificate holder:*
Böhnke + Partner GmbH, Steuerungssysteme
Member of the Schmersal Group
Heinz-Fröling-Strasse 12, D-51429 Bergisch Gladbach, DE

Prüfstelle / *Test laboratory:*
TÜV AUSTRIA SERVICES GMBH
Deutschstraße 10
A-1230 Wien

Hersteller / *Manufacturer:*
Böhnke + Partner GmbH, Steuerungssysteme
Member of the Schmersal Group
Heinz-Fröling-Strasse 12, D-51429 Bergisch Gladbach, DE

Prüfgrundlage:
Basis of examination:
EN 81-20:2014, 5.6.7.7, 5.11.2.3, 5.12.1.4
EN 81-50:2014, 5.6, 5.8, 5.15

Datum und Nummer des Prüfprotokolls:
Date and number of laboratory report:
04.02.2020, 2020-AT-EP-0013

Bemerkungen:
Remarks:
Das geprüfte Produkt erfüllt die Prüfgrundlagen im Rahmen des im Anhang 1 dieser Bescheinigung definierten Anwendungsbereichs.
The product fulfils the base of examination in the scope of application, defined in the annex 1 of this certificate.

Verbreitung dieser Bescheinigung nur im Ganzen mit Anhang 1 und darin angeführten Unterlagen.
Spread of this certificate allowed complete only with annex 1 and documents called there.

05.02.2020
Gültig ab
Valid from

Ing. Thomas Maldet
Zertifizierungsstelle
Certifying Department

TÜV AUSTRIA SERVICES GMBH

Akkreditierung Austria
0274
ISO/IEC 17065

FM-ITR-KA-0001a, Rev.00

Seite / *Page:* 1/1

TÜV AUSTRIA SERVICES GMBH

Notified Body 0408

Anhang 1 zu / *Annex 1 to*
EU-Baumusterprüfbescheinigung / *Certificate of EU-Type Examination*
TÜV-A-AT-1-16-0468-EUES-1

Wien, 05.02.2020

Dieser Anhang wurde erstellt in: ☒ Deutsch / *German*
This annex has been issued in: ☒ Englisch / *English*

1. Anwendungsbereich / *Scope of application*

1.1 Die Bescheinigung umfasst den sicherheitsrelevanten Teil der Baugruppe BPL-03, welcher gekennzeichnet ist. Hier handelt es sich um 6 Abgriffe aus dem Sicherheitskreis, Klemmen X2.2 bis X2.7. Der gemeinsame Leiter für die Sicherheitskette wird über die Klemmen X2.1 (NN) und X2.8 (NF) geführt. Die Abfrageschaltung dient zum Abrufen von Informationen für Steuerungszwecke, Fernüberwachung, Alarmmeldungen usw. von der Sicherheitskette. Darüber hinaus beinhaltet die Baugruppe BPL-03 eine Sicherheitsschaltung mit dem Überbrückungsstromkreis Klemmen X1.1 (SSZ) und X1.2 (SKA) und Freigabestromkreise Klemmen X1.3 (K11) bis X1.9 (K14), welche im Sicherheitskreis eingebunden werden können.

The certification covers the safety-relevant part of the BPL-03 module, which is marked. These are 6 connections, pins X2.2 to X2.7, to the safety chain. The common of the connections to the safety chain is wired through pins X2.1 (NN) and X2.8 (NF). The gathering information circuit is used to retrieve information for control purposes, remote monitoring, alarm messages, etc. from the safety chain. In addition, the BPL-03 module contains a safety circuit with the overbridging circuit pins X1.1 (SSZ) and X1.2 (SKA) and the enable circuits pins X1.3 (K11) to X1.9 (K14), which can be integrated in the electric safety chain.

1.2 Folgende Anforderungen wurden definiert / *The following requirements have been defined:*

a. EN 81-50: 2014, Abschnitt / *Clause* 5.6:

Baumusterprüfung für Sicherheitsschaltungen mit elektronischen Bauelementen
Type examination of safety circuits containing electronic components

b. EN 81-50: 2014, Abschnitt / *Clause* 5.8:

Baumusterprüfung für Schutzeinrichtungen gegen unbeabsichtigte Bewegungen des Fahrkorbs
Type examination of unintended car movement protection means

c. EN 81-50: 2014, Abschnitt / *Clause* 5.15:

Elektronische Bauelemente – Fehlerausschlüsse / *Electronic components - Failure exclusion*

d. EN 81-20: 2014, Abschnitt / *Clause* 5.11.2.3:

Sicherheitsschaltungen / *Safety circuits*

e. EN 81-20: 2014, Abschnitt / *Clause* 5.6.7.7:

Die unbeabsichtigte Bewegung des Fahrkorbs muss durch eine elektrische Sicherheitseinrichtung nach 5.11.2 spätestens beim Verlassen der Entriegelungszone erkannt werden (5.3.8.1).

The unintended movement of the car shall be detected by an electric safety device in conformity with 5.11.2 at latest when the car leaves the unlocking zone (5.3.8.1).

f. EN 81-20: 2014, Abschnitt / *Clause* 5.12.1.4:

Das Bewegen des Fahrkorbs ist bei nicht geschlossenen und nicht verriegelten Schacht- und Fahrkorbtüren zum Einfahren, Nachstellen und für vorbereitende Maßnahmen unter folgenden Bedingungen zulässig:

a) Die Bewegung ist durch elektrische Sicherheitseinrichtungen nach 5.11.2 auf die Entriegelungszone (5.3.8.1) beschränkt.

Movement of the car with landing and car doors not closed and not locked is permitted for levelling, re-levelling and preliminary operation on condition that:

a) The movement is limited to the unlocking zone (5.3.8.1) by electric safety device in conformity with 5.11.2.

2. Bedingungen und Voraussetzungen / *Conditions and Preconditions*

2.1 Abgriffspannung des Sicherheitskreises (X2.2-X2.7):
Voltage of the connection to the safety chain (X2.2-X2.7):

max. 230VAC & max. 48VDC, Variante gekennzeichnet / *Variant marked*

2.2 Überlast-, Kurzschlussschutz Sicherheitskreis: max. 2 A
Overload, short cut protection safety circuit:

2.3 Versorgungsspannung / *Supply voltage* SMZ: 24 VDC ±20%

Die 24 VDC Versorgungsspannung muss PELV gemäß EN 60950-1:2013 entsprechen.
The 24 VDC supply voltage must follow the requirements for PELV according to EN 60950-1:2013.

2.4 Überbrückungssicherheitsstromkreis / *Overbridging safety circuit* K551 bis/*to* K554 (X1.1/X1.2):
max. 230VAC/2A (AC-15) / max. 48VDC/2A (DC-13)

2.5 Freigabesicherheitsstromkreis / *Enable safety circuit* K11 bis K14 (X1.3-X1.9):
max. 230VAC/2A / max. 48VDC/2A

2.6 Überspannungskategorie / *Over voltage category*: III

2.7 Isolierstoffgruppe / *Isolation material group*: III

2.8 Inhomogenes Feld / *Inhomogeneous field*

2.9 Verschmutzungsgrad / *Degree of pollution*: 3

2.10 Verschmutzungsgrad (Schutz gegen elektrischen Schlag): 2
Degree of pollution (protection against electric shock):

2.11 Schutzgrad: IP00, eingebaut im geschützten und geerdeten Gehäuse ≥*IP43*
Degree of protection: IP00, installed in a protected and grounded housing ≥IP43

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2.12 Betriebstemperatur / *Operating temperature:* 0°C bis / *to* 60 °C

2.13 Lager- und Transporttemperatur / *Storage and transport temperature*: -20°C bis / *to* 70°C

2.14 Relative Luftfeuchte / *Relative humidity*: max. 90%, ohne Kondensation / *without condensation*

2.15 Luftdruck / *Air pressure* max. 230VAC: 1013 hPa - 800 hPa bis / *up to* 2000 m über / *above* NN

2.16 Luftdruck / *Air pressure* max. 48 VAC/VDC: 1013 hPa - 620 hPa bis / *up to* 4000 m über / *above* NN

2.17 Identifikationsnummer der Platine / *Identification number of PCB*: TÜV-A-AT-1-16-0468-EUES

2.18 Systemreaktionszeit / *System reaction time*: 10 ms

2.19 Zwei unabhängige und redundante Geberelemente ZS1/ZS2 (X3.3/X3.4)*:
*Two self-contained and redundance transmitter elements ZS1/ZS2 (X3.3/X3.4)**:

EN 81-20:2014, 5.11.2.5 / EN 81-50:2014, 5.6.3.1.1

* ... Geberelemente nicht Gegenstand dieser Baumusterprüfbescheinigung.
Transmitter elements not subject of this type examination certificate.

2.20 Eingang für externe Geschwindigkeitsschwelle / Freigabe ZV1 (X3.5): EN 81-20, 5.12.1.4 c) / d)
Input of external speed threshold / release ZV1 (X3.5):

Anmerkung: Die Schutzeinrichtung gegen unbeabsichtigte Bewegung muss in der Lage sein, die Anforderungen zu erfüllen, ohne dabei andere Aufzugsbauteile, die im Normalbetrieb die Geschwindigkeit oder Verzögerungen kontrollieren oder den Fahrkorb anhalten oder halten, zu benutzen, es sei denn sie sind redundant aufgebaut und die ordnungsgemäße Funktion ist selbstüberwachend.

Note: The mean against the unintended movement shall be capable of performing as required without assistance from any lift component that, during normal operation, controls the speed or retardation, stops the car or keeps it stopped, unless there is built-in redundancy and correct operation is self-monitored.

2.21 Ausgang Freigabe Überbrückung / *Output release overbridging* ZV2 (X3.6)

2.22 Ausgang internes Zonensignal / *Output internal zone signal* IZS (X3.1)

2.23 Zonenlänge / *Zone length*: EN 81-20:2014, 5.3.8.1

2.24 Elektrische Leitungen / *Electric wiring:* EN 81-20:2014, 5.10.6

2.25 Elektromagnetische Verträglichkeit / *Electromagnetic compatibility:* EN 12015:2014, EN 12016:2013

2.26 Vibrationsfestigkeit / *Vibration resistance:* EN 81-50:2014, 5.6.3.1

2.27 Bei Auftreten eines Fehlers bei den Geberelementen oder innerhalb der Sicherheitsschaltung bleibt der Schaltzustand des elektrischen Ausgangskanals „offen", somit erfolgt keine Überbrückung. Über die Informationskanäle ist der Schaltzustand der Sicherheitsschaltung zu entnehmen. Der Aufzug muss spätestens bei der nächsten im Betriebsablauf folgenden Zustandsänderung, bei der das erste fehlerhafte Funktionsglied mitwirken soll, stillgesetzt werden. Jeder weitere Betrieb des Aufzuges muss verhindert sein, solange der Fehler weiterbesteht.

In the event of a fault in the transmitter elements or within the safety circuit, the switching state of the electrical output channel remains "open", so there is no overbridging. The switching state of the safety circuit is monitored by the information channels. The lift shall be stopped at the latest at the next operating sequence in which the first faulty element should participate. All further operation of the lift shall be impossible as long as this fault persists.

2.28 Ein Redundanzverlust der Geberelemente, wie z.B.: Kurzschlüsse ist durch geeignete Maßnahmen zu verhindern.

A loss of redundancy of the transmitter elements, such as: short circuits must be prevented by appropriate measures.

2.29 Diagnosetestintervall: Bei jeder Zustandsänderung, längstens jedoch jährlich.
Diagnostic-Test-Interval: At the next operating sequence, but not later than one year.

2.30 Manueller Wiederanlauf / *Manual restart:*

Nach dem Auslösen einer Sicherheitsfunktion muss der sichere Zustand aufrechterhalten bleiben, bis der sichere Zustand für einen Wiederanlauf gegeben ist und die manuelle Rückstelleinrichtung (Quitierfunktion) betätigt wurde.

Anmerkung: Der manuelle Wiederanlauf war nicht Gegenstand dieser Baumusterprüfung.

After the triggering of a safety function, the system must remain in a secure status preventing further movement, until a manual reset is performed (Reset function).

Note: The manual restart was not subject of this type examination certificate.

2.31 Der gemeinsame Leiter des Sicherheitskreises ist so zu legen, dass der gemeinsame Leiter für die Schütze und Hilfsschütze nach 5.11.2.4 bei seiner Unterbrechung unterbrochen wird (X2.1/X2.8).

The common of the connections to the safety chain shall be traced on the printed circuit board in such way, that the common to the contactors or relay-contactors as mentioned in 5.11.2.4 will switch off at interruption of the common (X2.1/X2.8).

2.32 Die entsprechenden Einzelkomponentengrenzwerte und deren Installationsrichtlinien sind einzuhalten.
The corresponding individual components limits and their installation guidelines must be followed.

2.33 Systematischer Ausfall / *Systematic failure:*

Grundlegende und bewährte Sicherheitsprinzipien, bewährte Bauteile, Maßnahmen zur Beherrschung systematischer Ausfälle, Maßnahmen zur Vermeidung systematischer Ausfälle (Organisation, Management und Technik) und Maßnahmen zur Vermeidung systematischer Ausfälle während der Integration (Organisation, Management und Technik) sind anzuwenden.

Basic and proven safety principles, proven components, measures to control systematic failures, measures to avoid systematic failures (organization, management and technology) and measures to avoid systematic failures during the integration (organization, management and technology) are applied.

2.34 Die Baumusterprüfbescheinigung, die Konformitätserklärung und die Betriebsanleitung ist der Anlagendokumentation beizulegen. Diese Dokumente dienen zur Prüfung vor der Inbetriebnahme, zur wiederkehrenden Prüfung, Prüfung nach wesentlichen Änderungen und nach einem Unfall.

The certificate of type examination and the declaration of conformity and the document operating instructions is the system documentation enclosed. These documents are used for examinations and tests before putting into service, for periodical examinations and tests, examinations and tests after an important modification or after an accident.

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3. Anmerkungen und Hinweise / *Remarks and advices*

3.1 Folgende sicherheitsbezogene Anwendungen wurden analysiert und realisiert. Anhand von Gefahrenanalysen und anschließender Gefahrenbewertungen wurden die notwendigen Schutzniveaus ermittelt und durch die entsprechenden Spezifikationen erreicht.

The following safety-related applications have been analyzed and implemented. The required safety protection levels have been identified from risk analysis and subsequent risk assessments based on the appropriate specifications.

- Erkennung einer unbeabsichtigten Bewegung des Fahrkorbs bei geöffneten Türen von der Haltestelle weg und Auslösung des Bremselementes* gemäß 5.6.7 für die Aufwärts- und Abwärtsfahrt beim Verlassen der Entriegelungszone.

  Anmerkung: Türarten abhängig von der Ausführung der Steuerungssoftware*.

  * ... Die Selbstüberwachung der Bremselemente und die Steuerungssoftware sind nicht Gegenstand dieser Baumusterprüfbescheinigung

  Detection of unintended car movement away from the landing with open doors and the activation of the stopping element) according to 5.6.7 in the upwards and downwards direction when the car leaves the unlocking zone.*

  Note: Doortype depends of the execution of the control software.*

  ** ... self monitoring of stopping element(s) and the control software are not subject of this type examination certificate*

- Überwachung des Bewegens des Fahrkorbs bei nicht geschlossenen und nicht verriegelten Schacht- und Fahrkorbtüren zum Einfahren, Nachstellen und für vorbereitende Maßnahmen beschränkt auf die Entriegelungszone.

  Monitoring of the movement of the car with landing and car doors not closed and not locked for levelling, re-levelling and preliminary operation limited to the unlocking zone.

3.2 Am Bauteil muss ein Schild mit folgenden Angaben zur Identifikation angebracht sein:
For identification, a label must be placed on the device, indicating the following:

- Herstellerangaben / *Manufacturers data* (*)
- Typenbezeichnung / *Type*
- Baumusterprüfkennzeichen / *Type examination certificate number*

(*) Herstellerangaben entsprechend Europäische Richtlinie für Aufzüge 2014/33/EU, Artikel 8 (6)
Manufacturers data according European Directive for Lifts 2014/33/EU, Article 8 (6).

3.3 Diese Bescheinigung darf nur im Ganzen und mit den Unterlagen nach Punkt 4 dieses Anhangs 1 zur Bescheinigung verbreitet werden.

This type examination certificate must be spread just together with all documents according clause 4 of this annex 1 to the type examination certificate.

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TÜV AUSTRIA

3.4 Änderungen der Einrichtung sind der Prüfstelle schriftlich mitzuteilen. Die Prüfstelle entscheidet, ob und in welchem Umfang Ergänzungsprüfungen des geänderten Prüfgegenstands erforderlich werden.

Modification of the device must be reported to the testing body in written. It is in the testing bodies decision, if and in which scope any modification makes additional tests necessary.

3.5 Die vergebene Bescheinigungsnummer darf nicht für andere Produkte verwendet werden, die nicht mit dem geprüften Produkt übereinstimmen.

This type examination number must not be used for any other products, which are not fully in compliance with the tested product.

3.6 Diese Bescheinigung beruht auf dem Stand der Technik, der durch die zurzeit gültigen harmonisierten Normen dokumentiert wird. Bei Änderungen bzw. Ergänzungen dieser Normen bzw. bei Weiterentwicklung des Stands der Technik kann eine Überarbeitung dieser Bescheinigung notwendig werden.

This certificate is based on the technical state of the art, represented by the harmonized standards available and presently in force. Modification(s) and/or amendment(s) of these standards respectively future development of the technical state of the art may make a revision of this certificate necessary.

3.7 Voraussetzung des Einsatzes dieser Einrichtung ist unter anderem, dass diese im Rahmen ihres Inverkehrbringens als Sicherheitsbauteil nach Europäischer Richtlinie für Aufzüge 2014/33/EU die für das Inverkehrbringen von Sicherheitsbauteilen geltenden Bedingungen der Richtlinie 2014/33/EU, Artikel 15 (Überwachung der Produktion) eingehalten werden. Dies, um sicherzustellen, dass die inverkehrgebrachten Einrichtungen mit dem geprüften Muster bzw. den geprüften Mustern übereinstimmen.

Die möglichen Verfahren zur Überwachung der Produktion der Einrichtung sind:

- Stichprobenartige Überwachung der Produktion (Europäische Richtlinie für Aufzüge 2014/33/EU, Anhang IX, Modul C 2).
- Qualitätssicherungssystem zur Produktionsüberwachung (Europäische Richtlinie für Aufzüge 2014/33/EU, Anhang VI, Modul E).

Precondition for application of this device is, beside others, that the requirements for placing the product on the market according European Directive for Lifts 2014/33/EU are kept for the device according European Directive for Lifts 2014/33/EU, Article 15 (surveillance of production). This is to assure, that the products, placed on the market are in compliance with the tested sample/(s).

The possible procedures for surveillance of production of the device are:

- *Conformity to type with random checking (European Directive for Lifts 2014/33/EU, Annex IX, Module C 2).*
- *Product quality assurance (European Directive for Lifts 2014/33/EU, Annex VI, Module E).*

4. Bilder, Diagramme, Skizzen, Zeichnungen / *Pictures, diagrams, sketches, drawings*

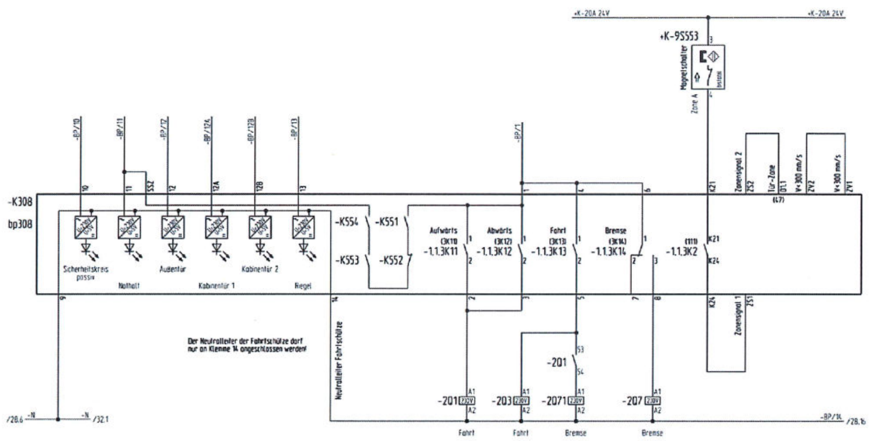


Figure :2
System module bp308 - Part of the printed circuit board BPL-03
Registration No. AT-1-16-0468-EUES-1 from 2020-02-05

4 Standards

NOTES ON OTHER REGULATIONS AND RISKS

- The procedural instructions and circuit diagrams shown in all documentation are to be understood accordingly. The transferability to the respective application must be checked; Böhnke + Partner GmbH assumes no liability for suitability.
- To ensure that the entire control system functions properly, you must always observe the documentation supplied by other manufacturers (e.g. the operating instructions for the inverter).
- The bp308 control system may only be used for information processing in elevator control systems.
- Control units, assemblies , modules or other devices that have been damaged during transport to you must not be used or put into operation.
- The modules contain electrostatically sensitive components. Before touching an electronic module, your own body must be discharged. This can be done by touching a conductive earthed object immediately beforehand (e.g. bare metal switch cabinet parts).

4.1 EMC Directive

All industrial, electronically controlled machines (PCs, microprocessors, computers, PLCs) can be affected by interference pulses if no countermeasures are taken. These interference pulses can also be generated by external systems, e.g. by voltage changes in the supply line or by control pulses from the power units of the inverters. Böhnke + Partner GmbH takes all the usual measures into account when manufacturing the control unit. The components used are only slightly sensitive to interference pulses from the environment.

ATTENTION!

- Always observe the EMC instructions of the frequency inverter manufacturer!
- If you have any questions about the EMC Directive, our service team will be happy to help.

4.2 EN 81

Specifications of EN 81 -20/-50:
As a precautionary measure, we would like to point out that Böhnke + Partner GmbH cannot be held liable for any damage that may occur due to compliance with the EN 81-20/-50 requirements!
Example: Readjustment for hydraulically operated elevators despite the mentioned runtime monitoring due to failure of a phase.

5 Safety Module

5.1 Requirements for the certified protective device

In accordance with the requirements of EN 81-20/-50, elevators must be equipped with a certified safety device that prevents unintentional movement when the door is open on the floor, but in any case brings the car to a stop in a defined area.

5.2 General information on the UCM function

5.2.1 Notes on Installation

a) The UCM components must be used as intended and in accordance with the requirements. acquisition by the elevator installing company) must be available.

b) The certificate containing the correct combination of the subsystems used with the elevator system must be provided to satisfy UCM requirements.

c) The elevator installing company must present the documentation on the installed UCM components.

d) The test instruction for the specialist must be provided with the elevator system.

5.2.2 Notes on function

a) Zone monitoring (max. +/- 350 mm = zone area for shaft and cabin door jointly power operated, otherwise +/ 200 mm = zone area) controlled by a sensor, which detects unintended movements of the cabin out of the door zone area with the door opened.

b) If the speed in the zone area is exceeded by >0,3 m/s the safety circuit will switch off.

c) The Safety Module detects this condition and switches off the drive unit safely. The brake certified in accordance with UCM, the valve, the rope brake or a suitable safety gear then arrest the cabin in a secure location.

d) The Safety Module on the BPL-03 is used for UCM control. A magnetic switch is sufficient for channel 1 and a position signal from the elevator controller for channel 2.

e) The reaction times of all components must be described.

f) The required UCM distances (Fig. 1+2) must be maintained as described in standards EN 81-20 (5.6.7) in the event of an unintended movement with an open cabin/shaft door in the zone area.

g) If the braking system cannot bring the cabin to a stop within the required UCM distances, then the door zone may be reduced in size. The maximum acceleration for releveling must be considered.

h) The elevator controller monitors the level position of the cabin.

5.2.3 Notes on test

a) The specialist must check the installed safety components for their conformity with UCM.
b) The "UCM" test instruction must be supplied with the elevator system (see UCM testing program).
c) The specialist's test requirements, Safety Module BPL-03 must be clearly described and comprehensible for new and recurring inspections and acceptance testing of the system.
d) The specialist must follow the instructions described step by step.
e) A testing program is integrated with the bp308 system module for support purposes.
f) The specialists check the provided acceptable limit values of EN 81-20/50 (e.g. distances) on the elevator system by measuring.
g) The specialist must confirm the measured values in his testing protocol.

5.3 bp308 Testing Program

The tests for the following variants are described herein:

a) Gearless drive unit with UCM braking system on the traction sheave.

b) Drive unit with gear (without UCM braking system on the traction sheave) and with UCM speed limiter and UCM safety gear.

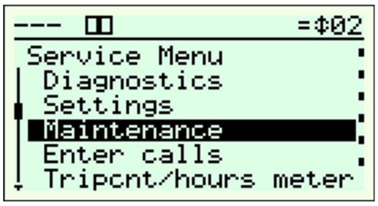
c) Hydraulic elevator (UCM valve).

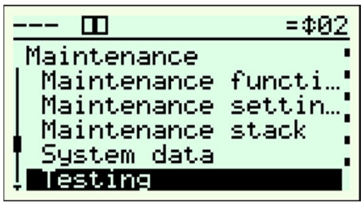
The testing sequence must be observed.

5.3.1 General Testing Sequence

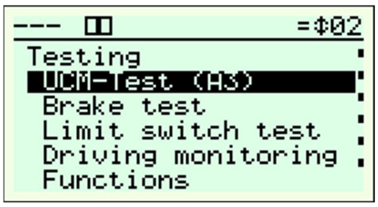
5.3.1.1 Step 1

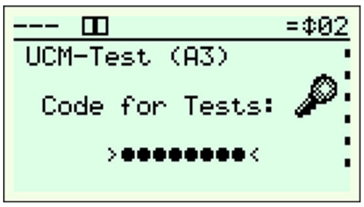
In order to check this function prior to commissioning, the bp408 system module contains a test program The test program is activated by a password in the maintenance menu.



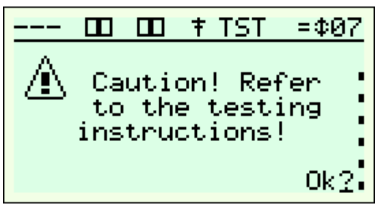


The password can be assigned in the setup menu with a maximum of 8 digits. The code on delivery is 8103.



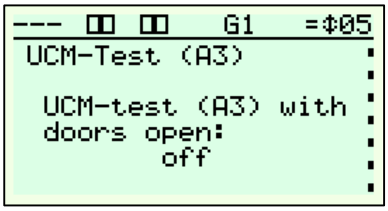


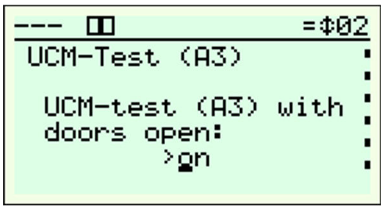
WARNING!
After entering the test code, a warning message appears on the control unit display.



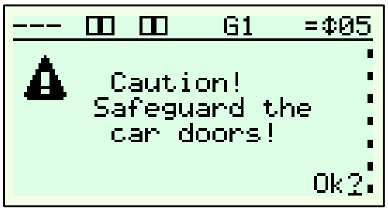
The hazard warning "Caution! Refer to the testing instructions!" appears in the display of the control system after activating the testing mode.

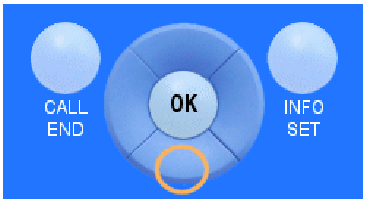
In order to perform the UCM test (A3) with the door opened or closed, this can be configured using the following parameter.





If the setting for open doors is selected, the following note appears:





After confirming with "OK", the user can then navigate to the next point by pressing the directional key in the downward direction. This is described in the following chapter.

.

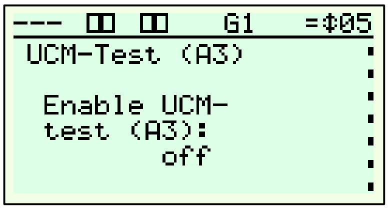
NOTE!
If a testing sequence with closed doors is selected, it is checked whether the safety circuit has been interrupted prior to starting the test movement. If not, the testing sequence is not started, and a corresponding note is displayed.

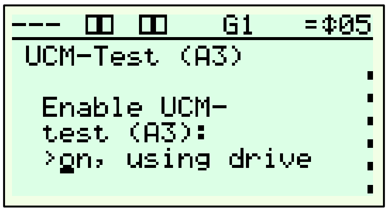
To manually open the safety circuit, the control system may contain a switch designated "UCM Test I – 0" (2S300) if ordered by the customer. Alternatively, terminal 12B on the processor must be disconnected.

5.3.1.2 Step 2

Two test variants may be selected:

UCM test with drive support

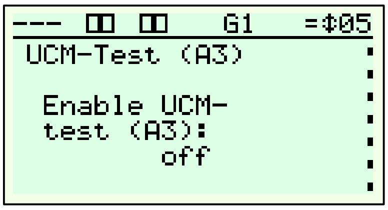


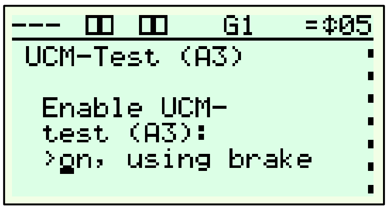


Here, the elevator moves out of the zone at high speed with the door open and the safety circuit activated until the safety circuit triggers and terminates the process.

UCM Test with open brake

ATTENTION!
Here, several manipulations are required on the frequency inverter to directly switch applicable short circuit contactors and internal brake contactors using the control system. A corresponding description pertaining to each inverter is provided on request.





When the door is open and the safety module is active, the brake and the trip contactors Here, the brake and trip contactors are energized until the safety module is triggered and terminates the process.

5.3.1.3 Step 3

Testing sequence – Determination of distance

The elevator is leveled at a certain floor with the door closed.

This access must be secured (closed off) so that no third party may enter the elevator during the test.

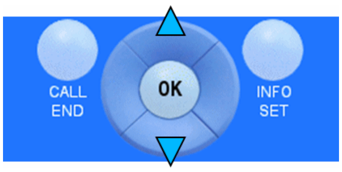
The doors are opened when the test is executed with the "with doors opened" option.

The light barrier input as well as the "Open door" pushbutton and the shaft are monitored.

Should one of these signals be registered, the test will not be started.

NOTE!
If the "with closed door" parameter is enabled, the above paragraph is omitted, and the doors remain closed.

In this case, the safety circuit can be opened manually using an integrated switch (UCM Test, 2S300), which is provided with the control system if ordered by the customer. Alternatively, terminal 12B on the processor must be disconnected.



The test is started by selecting the directional key in the upward or downward position.

The safety circuit for bypassing the door lock switch is activated.

The elevator will now move with the maximum rated speed or only by opening the brake.

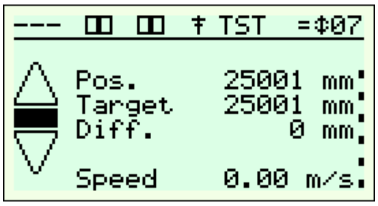
A braking system tested in accordance with UCM engages and brings the cabin to a stop.

The traveled distance is shown on the control system display.

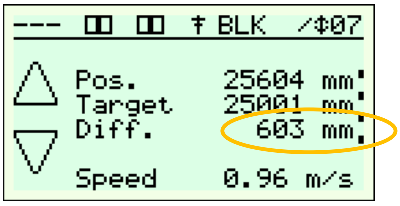
The control system detects incorrect movement and locks the system to prevent further use.

This lock remains active even after a power failure and when the power supply is restored and can only be reset directly on the control system. The error is stored in a fault stack with the date and time.

Display of the starting point before the test begins:

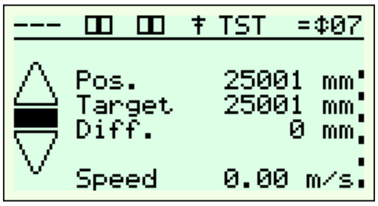


After the test, the traveled distance can be read off using the display.



If this distance is outside of the permissible range, the zone area must be reduced accordingly, and the test be repeated until a permissible distance is reached.

By acknowledging the "OK" button, the elevator moves back to the initial position (after closing the doors).



Another test in the opposite direction can now be performed.

If testing is not successful and the travelled distance is outside the acceptable area, the zones must be adapted accordingly.

For absolute encoder systems, the zone range Up and Down must be adjusted in the absolute position measurement menu. Furthermore, the zone magnets on the floors must be set to the tested value.

NOTE!
If the testing program is terminated, the control system automatically switches to blocked mode.

NOTE!
The landing control is automatically deactivated when the test begins. It must be activated again manually using the menu after completion of the work in order to put the elevator back in operation.

NOTE!
If the test is not executed within 5 minutes after activation and/or no button is

pressed, the testing program is automatically terminated and the control system is blocked.

5.3.2 Extra requirements for UCM testing of traction elevators with gears

For traction elevators with gears and without a UCM-certified brake on the traction sheave, suitable UCM braking or restraint systems are prescribed to fulfil EN 81-20.

A suitable "UCM overspeed governor" with solenoid coil and locking bolt and a suitable "UCM safety gear" are usually sufficient for this purpose.

If the cabin starts to slide because it is overloaded or because of other reasons, such as shaft or gear rupturing, the pull bar of the magnet of the speed limiter keeps the arresting pendulum in the trigger position. The cam wheel is blocked, and the governor rope immediately engages the "safety gear". The power supply of the safety circuit is interrupted directly by the switch on the movement interruption system (governor).

Contingent on the respective position of the safety cog to the arresting pendulum the triggering distance can be between 10 cm and 20 cm.

The Safety Module on the "BPL-03", which is part of the control system, controls the movement within the zone. The control system recognises a faulty signal sequence during normal operation and goes into lockout with the corresponding error message.

5.3.3 Extra requirements for UCM testing hydraulic elevators

Special valves are used in hydraulic elevators to fulfil EN 81-20. These can only be checked for proper function with the "with drive unit" setting in the testing program.

The valves used are monitored during normal operation. Depending on the manufacturer, there are one or two outputs that are monitored by the control unit. To check that these are functioning correctly, the inputs on the control unit must be disconnected or connected to a continuous signal (+24 V). In normal operation, the system module recognises a faulty signal sequence and blocks the system with the corresponding error message.

5.3.4 Entries in the batch memory

After each test, there are two entries in the maintenance stack: "UCM test (A3) starts" and "UCM test (A3) terminated", so that both processes are documented. The release of the blocking is documented in the message stack. A distinction is made as to whether the lock was released via terminal (an I/O terminal is parameterised with this function for this) or menu.

6 Circuit board BPL-03

6.1 Layout

The marked area on the circuit board contains an electronic monitoring unit and precontrol for the contactors. The Safety Module is also on the circuit board.

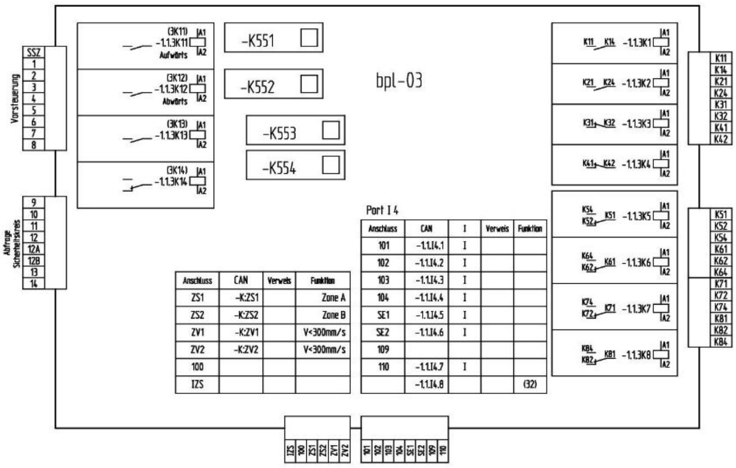


Figure 3:
View of the assembly side of the BPL-03 printed circuit

6.2 Installation instructions

The bp308 system module (with the BPL-03 circuit board) may only be installed in control cabinets that fulfil at least protection class IP43. The protective conductor connection of the bp308 must be connected to the protective conductor connection of the main rail in the switch cabinet.

Basic electrical protection against direct contact is provided in accordance with DIN IEC 60364-4-41.

6.3 Technical data

	BPL-03
Technical features	
Regulations	EN 81-1 / -2; EN 81-20 / -50
Mechanical data	
Dimensions (H x W x D)	160 x 220 x 30 mm
Connection design	Screw and plug-in terminals
Installation position	To be mounted horizontally on a vertically installed mounting plate in the switch cabinet
Protection class	min. IP43
Storage/transport temperature	-20 °C to 70 °C
Operating temperature	0 °C to 60 °C
Relative humidity	max. 90 % (non-condensing)
Operating height	max. 2,000 m at max. 230 VAC max. 4,000 m with max. 48 V
Directive	Lifts Directive (2014/33/EU) RoHS (2011/65/EU) EMV (2014/30/EU)
Electrical data	
Supply voltage	24 V DC +/-20 % The power supply unit must be connected to the PE of the BPN and to the main earthing busbar of the control cabinet.
Control circuit	max. 230 V AC, typ. 4 mA per channel max. 48 V DC, typ. 4 mA per channel
Safety circuit bypass	max. 230 V AC, max. 2 A (AC-15) max. 48 V DC, max. 2 A (DC-13)
Safety circuit protection	max. 2 A
Delay time zone relay	max. 10 ms

6.4 Query Circuit on the bp308

6.4.1 Area of application

The query unit controls the passive safety circuit, the emergency stop switch, the shaft door contact, the cabin door contacts and the door lock contact in control systems for hydraulic and traction elevators. A sequence control system processes these signals further.

The clearances and creepage distances in the area of terminals 9, 10, 11, 12, 12A, 12B, 13, 14 correspond to DIN EN 60664 and/or DIN EN 60950.

The safety circuit with the query unit on the bp308 is secured up to a maximum of 2 A.

The connection of neutral conductor, mains potential "NN", is made using terminal 9 of the bp308 module. The joint connection of trip contactors, potential "NF", may only be made using terminal 14 of the bp308 system module.

6.4.2 Testing of wiring for query circuit

ATTENTION!

DANGEROUS VOLTAGES!
The following tests are performed on live conductors and terminals.

The wiring around the trip contactors and the BPL-03 should be checked for correct wiring diagram regarding the neutral conductor mains, neutral conductor trip contactors and the pre-control.

- Start up the elevator by calling it to the next stop. The pre-control relays of the trip contactors are actuated.
- The safety circuit is closed (terminal K11/K12_COM and, using K13, also K13_COM and, using K14, the K14_COM of the BPL-03 has safety circuit potential) and the travel contactors are actuated.
- Disconnect the NN line of the BPL-03 so that the sequential circuit is not operated and the current circuit of the trip contactors is interrupted.
- The trip contactors are disengaged and disconnect the power supply of the drive unit
- Then reconnect the NN cable.
- Repeat the test procedure by also disconnecting the NF line of the BPL-03 and repeat the previous process.
- Then reconnect the wire of the NF line.
- If the trip contactors were disengaged during every testing process, the wiring was made correctly, and no changes must be implemented.
- The elevator is operational again.

6.4.3 Safety circuit status bar on display

On the right-hand side of the display is the status bar of the safety circuit, which is shown in all menus. The following information is shown in the status bar:

Position	Meaning	Clamp
1	Passive Safety Module	Terminal 10
2	Emergency stop	Terminal 11
3	Shaft door	Terminal 12
4	Cabin door A	Terminal 12A
5	Cabin door B	Terminal 12B
6	Door Lock	Terminal 13

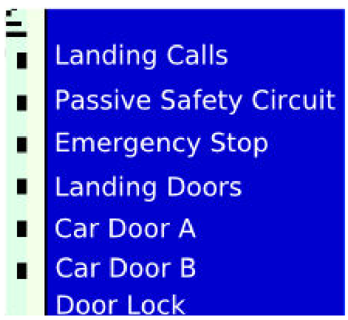


Figure 4:
The safety circuit status bar is displayed in all menus.

6.5 Safety module on the bp308

6.5.1 Functional description of the Safety Module

The dual-channel Safety Module monitors two signals for switching in the same direction. One signal must be external (magnetic switch) and the second can be either an external or internal signal. The door and door lock elements of the safety circuit can be bypassed by closing the output circuit. If an input signal (ZS1 or ZS2) is cancelled, the corresponding relay (K553 or K554) will drop out and thus open the output circuit.

The output circuit of the circuit remains open if a fault occurs or if switching does not occur in the same direction. The Safety Module can only be switched on again once the initial switching state has been reached.

6.5.2 Error analysis of the Safety Module

A defective encoder element on channel 1 with a continuous signal on terminal X3.3 or the anchor of relay K553 that no longer disengage means that relay K552 always remains disengaged. As a result, relay K554 can no longer be engaged and the output circuit remains permanently open. During approach and readjusting with the car door open, the door and interlock contacts are not bypassed in the event of a fault. This means that cabin moving in the unlocking zone is only possible with the door closed and the locking contact activated. If the Safety Module is used as a replacement for safety switches, e.g. for door or locking switches, the safety circuit remains open in the event of a fault, the control unit recognises the fault and prevents further travel.

6.5.3 Testing

1. Start the elevator by calling it to the next stop. All relays of the Safety Module are de-energised after leaving the zone. The status of the relays can be read on the display.

2. Disconnect the wire at terminal X3.3, which causes the encoder element to no longer be active as the signal encoder (channel 1).

3. The control unit activates the safety circuit (42) and the relay K552 engages.

4. If the zone (47) is reached, relay K553 engages, but relay K554 cannot engage due to the circuit.

5. The circuit is now not working properly and the bypass path "Terminal X1.1 ("SSZ") and pre-control X1.2 ("K11/K12_COM"), X1.5 ("K13_COM") and X1.7 ("K14_COM")" didn't switch.

6. The elevator stops and detects that no bridging has taken place. A fault is issued, and the elevator is blocked for further travels.

7. Now reconnect the wire to terminal X3.3 and unlock the control unit using the menu. The elevator is ready for operation again.

6.5.4 Connecting the bp308

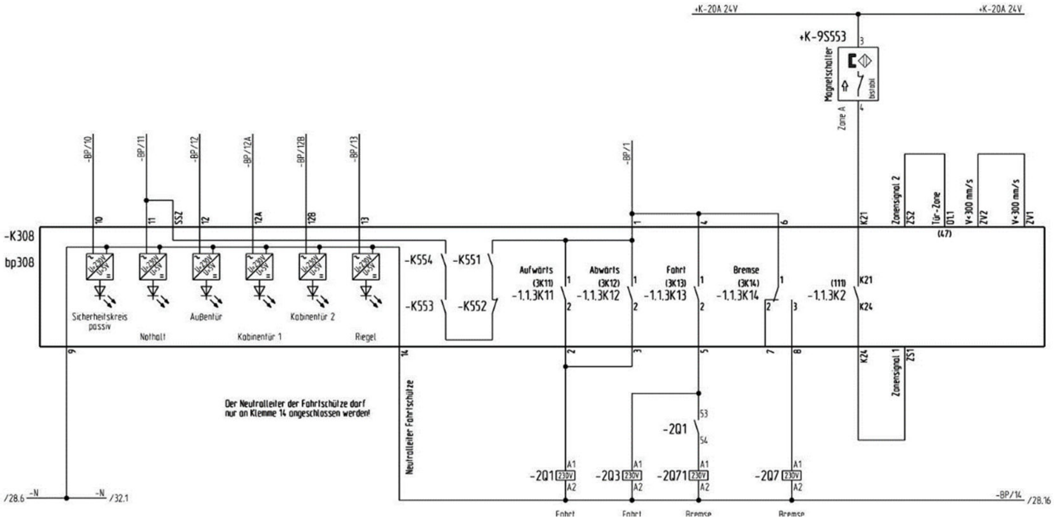
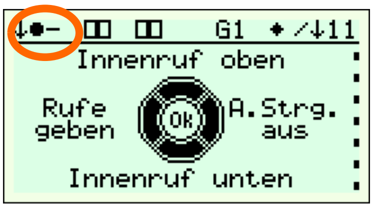


Figure 5:
Connection diagram of the safety circuit on the bp308

6.5.5 Signalling of zone monitoring on the display of the bp308



The dots indicate the status of the relays and terminals

Dot means: Signal is present, relay is engaged.

Horizontal bar means: no signal is present; relay is not engaged.