# TECHNICAL MANUAL INTERLOCK CONTROL SYSTEM SP FOR FLUSH FITTED SWITCH BOXES 

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## 1. Safety notice

The installation and operation of electrical interlock door control systems are subject to the relevant regulations for the installation and operation of electrical equipment. Maintenance and, if necessary, monitoring checks must be carried out by a qualified person instructed by the manufacturer.

Before opening panels or dismantling components of the interlock control system, they must always be disconnected from the mains first, i.e. the power supply units must be disconnected from the mains!
The power supply must also be disconnected, i.e. the power supply unit(s) must be switched off, before any adjustment or connection work is carried out on the system components.
If components are provided by the customer and integrated into the interlock system (e.g. access control systems, interlocks, large surface pushbuttons, etc.), it is essential to clarify with DICTATOR in advance whether these devices meet the corresponding requirements.
Before commissioning, all screw and plug connections must be checked for firm attachment.

## 2. Establishing the programming matrix

Registration of the process-related door dependencies:
Numbering the doors of the interlock system.
The following table records which other door(s) of the interlock system must be locked when the respective door is open for each of the doors of the interlock system.
Example: If door 1 is open, then doors 3 and 5 must remain locked. The other doors of the interlock system are free, i.e. they could be opened. For door 1, therefore, only the numbers 3 and 5 are entered in the "Doors locked" column.

| Open door (base door) | Doors, which must subsequently be locked |
| :--- | :--- |
| Door 1 |  |
| Door 2 |  |
| Door 3 |  |
| Door 4 |  |
| Door 5 |  |
| Door 6 |  |
| Door 7 |  |
| Door 8 |  |

Enter the dependencies from the above table into the matrix below. The abbreviations to be entered (see legend) are also the positions in which the DIP switches on the control boards (in the central control EX) are set, which are assigned to the respective "base door". For the above example, the programming of the DIP switches on the control board to door 1 would look as follows:

|  | $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ | $\mathbf{5}$ | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| DIP switches door 1 | + | 0 | - | 0 | - | 0 | 0 | 0 |

## Legend:

+ defines the door for which the dependencies are set (base door).
- door is locked when the "base door" is open.
$\mathbf{0}$ door can be opened even if the "base door" is open.

| Door number <br> Base door number | Permissible state of the other doors of the interlock in relation to the open base door |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | + |  |  |  |  |  |  |  |
| 2 |  | + |  |  |  |  |  |  |
| 3 |  |  | + |  |  |  |  |  |
| 4 |  |  |  | + |  |  |  |  |
| 5 |  |  |  |  | + |  |  |  |
| 6 |  |  |  |  |  | + |  |  |
| 7 |  |  |  |  |  |  | + |  |
| 8 |  |  |  |  |  |  |  | + |

## 3. Setting the values from the matrix

## CAUTION

Before carrying out any work on the SK central control unit, switch off the mains voltage to the system.

On delivery, all 8 DIP switches (see marked area in the drawing below) are in the center position 0 .
First, a door number is assigned to each control board and this number is entered above the board in the sticker attached there.
Then the DIP switches are placed in the positions determined for these door numbers.
Example: This is the control board in the SK central control, which is assigned to door 1 . In total, the interlock system comprises 5 doors. If door 1 is open, then door 3 and 5 must be locked, doors 2 and 4 have no significance for door 1 .

|  | Permissible state of the other doors of the interlock in relation to the open base door |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | + | 0 | - | 0 | - | 0 | 0 | 0 |

DIP switch 1 is therefore set upwards to position +, DIP switches 3 and 5 downwards to position - and DIP switches 2 and 4 remain in position 0 . The free DIP switches $6-8$, which are not assigned to any door, also remain in position 0 .
IMPORTANT: In order for the settings to be accepted, the system must always be switched off and then on again. This also applies to changes.


## 4. Basic connection diagram central control SK

The SK central control unit is supplied with the number of circuit boards appropriate to the number of doors (max. 5). The following example shows the connection of the components for an interlock with 2 doors.
The connection diagram applies to the so-called local EMERGENCY STOP, i.e. when the EMERGENCY STOP button is pressed, only the door on which the EMERGENCY STOP button is located is unlocked.

Details on the individual elements of the operator terminal can be found on the following pages.
The connection of the second operating terminal per door on the opposite side is shown on page 9 .

Door 1
Door 2


### 4.1 BASIC CONNECTION DIAGRAM CENTRAL CONTROL SK - DETAILS

Below, the components of the control element are shown again in detail to facilitate the connection work.


EMERGENCY open button (1)-Assembly:


Insert the red element with the circuit board into the black plug-in element so that the groove faces side with 14 and 22.


Then insert the complete black plug-in element into the yellow receptacle of the pushbutton so that the red marking on the plug-in element is positioned between the two red marks in the yellow receptacle.

| Connection EMERGENCY STOP button | Function | Connection in the central control SK |
| :--- | :--- | :--- |
| 21 | NC contact EMERGENCY STOP pushbutton | KL $11(12,13,14,15)^{\star} / 5$ |
| 22 | NC contact EMERGENCY STOP pushbutton | KL $11(12,13,14,15)^{\star} / 1$ |
| LED - | Lighting EMERGENCY STOP pushbutton - | KL 16/- |
| LED + | Lighting EMERGENCY STOP pushbutton + | KL $16 /+$ |

* Which terminal block KL is to be selected depends on the door of the interlock system. For example, KL 6 for door 1, KL 7 for door 2, KL 8 for door 3, etc.

If the switch element does not have an EMERGENCY STOP button, the corresponding terminals in the central control SK must be bridged.

Light indicator (2) assignment of the connection pins


| Connection pins | A1 | A2 | A3 |
| :--- | :--- | :--- | :--- |
|  | $G_{+}$ | $R_{+}$ | - |

The respective connection pins can be easily determined by their position. The middle pin (-) must always be positioned above the other two pins.

| Connection indicator light | Function | Connection in the central control SK |
| :--- | :--- | :--- |
| G+ | Indicator light green | $\mathrm{KL} 6(7,8,9,10)^{*} / 2$ |
| $\mathrm{R}_{+}$ | Indicator light red | $\mathrm{KL} 6(7,8,9,10)^{*} / 1$ |
| - | Common | $\mathrm{KL} 6(7,8,9,10)^{*} / 3$ |

Pushbutton (3)

| Connection pushbutton | Function | Connection in the central control SK |
| :--- | :--- | :--- |
|  | Closing contact | $\mathrm{KL} 6(7,8,9,10)^{*} / 4$ |
|  | Closing contact | $\mathrm{KL} 6(7,8,9,10)^{*} / 5$ |

[^0]
### 4.2 BASIC CONNECTION DIAGRAM CENTRAL CONTROL SK - CONNECTION OPERATOR TERMINAL

If operator terminals are installed on both the front and the rear sides of a door, the wires of the connection cables are each connected in the same terminals of the associated terminal strips.
Exception: Connection of the EMERGENCY STOP button (local EMERGENCY STOP) according to the connection diagram below.

| Connection EMERGENCY STOP button (local) | Connection in the central control SK |
| :--- | :--- |
| 21 terminal door side a | $\mathrm{KL} 11(12,13,14,15)^{*} / 5$ |
| 21 terminal door side b | $\mathrm{KL} 11(12,13,14,15)^{*} / 5$ |
| 22 terminal door side a | $\mathrm{KL} 11(12,13,14,15)^{*} / 1$ |
| 22 terminal door side $b$ | $\mathrm{KL} 11(12,13,14,15)^{*} / 4$ |
| LED - (both terminals) | $\mathrm{KL} 16 /-$ |
| LED + (both terminals) | $\mathrm{KL} 16 /+$ |



### 4.3 BASIC CONNECTION DIAGRAM: 2 CENTRAL CONTROLS SK OR 1 CENTRAL CONTROL SK \& RJ

Another SK or RJ central control unit can be connected to a central control unit with 5 doors. This makes it possible to expand the interlock system up to 8 doors and, if required, to mix doors with operating elements of the switch system as well as normal operating elements of the interlock control system.
Maximum number of doors in the interlock: 8
It is possible to have either both central control systems with 4 boards each, or one with 5 boards and the other with 3 boards. When deciding, the distances between the doors and the SK central control system should be taken into account (max. cable length 15 m ).


The two SK central controls are simply connected with two pluggable cables:

- Ribbon cable with RJ 45 plug, red marking: plug into socket X 11 (red marking)
- Power supply cable b-core: Plug into connector strip KLL 6



### 4.4 BASIC CONNECTION DIAGRAM - 1 CENTRAL CONTROL SK WITH 1 ADDITIONAL CONTROL TERMINAL ST3 (PERIPHERAL SYSTEM)

An additional door with components of the peripheral interlock control system can be connected to an SK central control system with up to 5 doors. The system can thus be expanded to 6 doors, at any time, even retroactively.


The ST3 control terminal is easily connected to the SK central control unit using two pluggable cables:

- Ribbon cable with RJ 45 plug, red marking: Plug into socket X1 1 (red marking).
- Power supply line 6-core: Plug into connector strip KL1 6


Connecting cable central control SK / control
terminal ST3 - red marking

Power supply cable central control SK / control terminal ST3, 6-core

### 4.5 BASIC CONNECTION DIAGRAM - 1 CENTRAL CONTROL SK WITH ADDITIONAL DISTRIBUTION BOX (PERIPHERAL SYSTEM)

A distribution box of the decentralized system can also be connected to a central control SK.
This allows to expand the interlock system to 8 doors and, if necessary, to mix doors with control elements of the switch system as well as normal control elements of the interlock control system.

Maximum number of doors in the interlock: 8


The VK3 distribution box of the peripheral interlock system is simply connected to the SK central control unit with two pluggable cables:

- Ribbon cable with RJ 45 plug, red marking: Plug into socket X1 1 (red marking)
- 6-core power supply cable: Plug into connector strip KLL 16


Power supply cable central control SK / control
terminal ST3, 6-core

## 5. General remarks: central control SK

### 5.1 INSTALLATION SITE

The following points must be observed when selecting the installation site for the SK central control|ss):

- Installation only in dry rooms (protection class IP 20).
- Distance to the components to be attached: max. 15 m . For larger distances, please submit an inquiry.


If a second SK central control is connected, it must also be installed no more than 15 m (cable length) away. To connect two central controls, the red connecting cable (control line) is required (lengths 3,5,10 m). If a control cable with a length of 15 m is necessary, simply connect a control cable with a length of 10 m and a control cable with a length of 5 m using a connector (part no.: 710943).

Furthermore, a power supply line ( 6 -core) is required for this, which is available in lengths of $3,5,10$ and 15 m .

### 5.2 NUMBER OF DOORS TO BE CONNECTED

A total of up to 5 doors can be connected to an SK central control unit. The SK central control unit is already supplied with as many control boards as the number of doors in the system (min. 2, max. 5).
With the aid of a second SK central control unit, a further 3 doors can be connected, i.e. the total number of doors then increases to a maximum of 8 . It is irrelevant whether 4 or 5 and 3 doors are controlled per SK central controller.

### 5.3 CABLE ENTRIES

After removing the cover (fastened on one side with 2 screws and clipped in on the other side), the cables to be connected are simply laid on the lateral "flatbeds". To ensure tension relief, the cables are then fastened to the holes in the "flatbeds" with cable ties. Once the connection work is complete, the lid is put back in place. The foam blocks on the cover protect the inside of the SK central control unit against dust intrusion.

### 5.4 TERMINAL STRIPS \& SLOTS



Before the connecting cables are attached, each control board in the SK central control unit must be assigned to a specific door. For this purpose, the number of the door should be noted above the board for clarity. Which door is assigned to which board is completely up to you.

Terminal strips KL 1, 2, 3, 4, 5 (4-pole): Connection of locking elements
Terminal strips KL 6, 7, 8, 9, 10 (5-pole): Connection of pushbutton and indicator light of operator terminals
Terminal strips KL 11, 12, 13, 14, 15 (6-pole): Connection of the EMERGENCY STOP button of operator terminal

Slots KL16 and X11: these are available for connecting a second central control, a
 control terminal or distribution box of the peripheral version. The 6 -core power supply cable is plugged into Slot KL16, the ribbon cable with RJ45 connector into Slot X11 (red marking)
The KL16 slot can also be used to forward messages.
Slot KL18: this is for the pluggable connection cable of the power supply.
ATTENTION: it is essential to place the 6 -pole plug in such a way that the plug is only inserted with the areas marked " + " and "-"!

Klemmleiste KLI7: this terminal strip is intended for implementing special functions. These include, for example, the discretion circuit, connection of the time module Isee pages ZMO 1 /O2), connection of on-site measurement and control technology (locking until the desired air quality or room pressure is reached) etc.

Below each circuit board there are 2 jumpers (black and blue). With these, certain signal functions can be achieved via the contacts c and d of the terminal strip KL16 (see following page).

### 5.5 LAN MODULE

As an interface to the building control center, the SK central control unit can be equipped with a LAN module before leaving the factory. For further information please contact our technical department.

### 5.6 JUMPERS

Below each control circuit board there are 2 jumpers (black and blue). With these, certain signal functions can be carried out via the contacts c and d of the terminal strip KL16 (see following page).

## CAUTION

Use precision mechanic's flat-nose pliers to remove or reconnect the jumpers!


## Functions of the jumpers:

Jumper JP1: Jumper JP1 is always plugged in at the factory and must remain plugged in.
Jumper J6 - J10 (black):
Jumpers J6-J10 are always assigned to the respective control board directly above the jumper.
If jumper J6-J10 is plugged in, the message of the respective door set via jumper JA is forwarded to terminal KL16 (message output c).

To determine which door status is signaled, jumper JA is plugged in as described on the following pages.

## Jumper J11-J15 (blue):

Jumpers J 11 -J15 are always assigned to the respective control circuit board directly above the jumper.
If jumper J1 $1-\mathrm{J} 15$ is plugged in, the message of the respective door set via jumper JB is forwarded to the terminal KL16 (message output d).
To determine which door status is signaled, jumper JB is plugged in as described on the following pages.
The signal outputs " $c$ " and/or " $d$ " are queried
via KL1 6
at terminals
" $c$ " and/or " $d$ " in connection with " + ".

### 5.7 JUMPERS JA AND JB - FEASIBLE FUNCTIONS

## Position 1 (JA) - 1 (JB)

## Message output c:

Door open (active: 24 V applied)

## Message output d:

active when pressing operating button
(active: 24 V applied briefly)
This allows other doors to lock before this door is unlocked.


## Position 4 (JA) - 1 bis 5 (JB)

## Message output c:

Door open (active: 24 V applied)

## Message output d:

active for different time periods
(active: 24 V for the respective duration)
This jumper configuration can be used to implement a time-based locking of doors.
Positions 1-5 of the JB jumper determine the duration of the locking.

For more information, see also pages 18/19.

## R1 <br> JA JB <br> …

JB in position 1: 60 sec


JB in position 2: 120 sec


JB in position 3: 180 sec


JB in position 4: 240 sec


JB in position 5: 300 sec

## Position 5 (JA) - 5 (JB)

## Message output c:

Door enabled (active: 24 V decreasing)
This door is enabled and the hold-open time has not yet elapsed.

## Message output d:


active when pressing button
(active: 24 V applied briefly)
This allows other doors to be locked before this door is unlocked.

## Position 2 (JA) - 1 (JB)

## Message output c:

Hold-open time exceeded
(active: 24 V applied)
This message is used, e.g., to control the maximum time available for door opening, e.g.

## R1

JA JB in case of special air quality, with the help of the release time.

## Message output d:

not active

## Position 3 (JA) - 1 (JB)

## Message output c:

Door locked
(active: 24 V applied)
There is one door of the interlock open, which is in dependence to this door.


## Message output d:

not active

### 5.8 TIME LOCKING OF DOORS (SETTING VIA JUMPERS JA AND JB)

## Function:

When opening the door ("Door l") for whose control board the time lock has been set via the jumpers (see previous pages), the time lock is activated. The set time period starts to run the moment the door is closed.

During this time period, the signal contact $d$ is activated.
Important: In the case of time locking, the door ("Door 1") for whose control board the time locking was set via the jumpers is also locked for the corresponding time. Therefore, only one door can be locked for a certain time without dependence on another door.

## Connection:

The signal output " d " of the door, on whose control circuit board the time blocking has been set, must be further connected in the central control SK from the terminal strip KL1 6 to the corresponding terminal of the terminal strip KL 17. A bridge must then be set from this terminal to the terminals of the other doors to be blocked.
Temporary locking is visually signaled by the red indicator light on the terminal.
Note: If only the door for whose control board the locking has been set is to be temporally locked, the connection to terminal strip KL17 is not absolutely necessary for the function. However, there is no visual signaling of the temporal lock by a red indicator light.

## Example of connection diagram (see following page):

A time lock of 60 seconds is set for the control circuit board of door 1 via the JA/JB jumpers.
In addition, when door 1 is opened, doors 2 and 4 must also be locked for a certain time.

## Connection in the central control SK:

Signal contact dof terminal strip KL 16 is connected to terminal 1 on terminal strip KL 17 and then a jumper is set from terminal 1 to terminal 2 (for door 2 ) and 4 (for door 4 ) (see connection diagram on the following page).

## Connection diagram:



### 5.9 POTENTIOMETER FOR SETTING HOLD-OPEN TIME

After pressing the pushbutton on the terminal, the door is released for an adjustable time. This time period is set at the potentiometer on the respective control circuit board in the SK central control. This determines the time span within which the door can be opened after pressing the operating button. After the set time has elapsed, the door is locked again. It has no influence on whether the door was actually opened or not. The time period to be set depends, among other things, on whether people or materials locks are involved or whether a monitoring function should also be linked to this time period (see positioning of jumper YES on page 16/17).
Adjustable time: 1-32 seconds.


### 5.10 SAVING CHANGES OF SETTINGS ON THE CONTROL BOARDS

After each change of settings on the control circuit boards in the SK central control unit, the system must be switched off briefly and then switched on again, otherwise the changed values will not be accepted. This applies to the change of the release time described above as well as to changes of the door assignments by means of the DIP switches.

## 6. General remarks: Power supply unit

## Installation of the power supply unit

When selecting the installation location of the power supply unit, the following points must be observed:

- Mounting only in dry rooms (protection class IP 30)
- At ambient temperatures (permissible $-10^{\circ} \mathrm{C}$ to $+50^{\circ} \mathrm{C}$ ) below $0^{\circ} \mathrm{C}$, make sure that the power supply unit does not freeze up.
- The lateral ventilation slots must be free and the air must be able to circulate without impediment.
- The power supply unit is supplied completely ready to plug in and does not have to be opened for installation.

The length of the pre-assembled, ready-to-plug-in connection cables is important for the selection of the installation location:
Distance to a 230VAC socket max. 1.5 m
Distance to the central control of the system: max. 2.0 m
The power supply unit is attached with M5 screws to the two side lugs.

## IMPORTANT:

For the connection of the plug-in cable in the SK central control unit, it is essential to ensure that the six-pole plug with the side with " + " and " - " is plugged into the two-pole plug in the SK central control unit.
If two central controls are used in the system, the power supply unit is connected to any one of the two central controls.


## CAUTION

If the power supply unit has to be opened, this may only be done by a qualified electrician!

## 7. General remarks: Operating terminals

## Models

Two different operating terminals are available as terminals on the respective doors of the interlock system. They are used for both the front and the back of the door.
The operating terminals are made up of individual components:

- Frame of the Jung LS 990 switch system
- At least 2 components are required per terminal Illuminated display with cover as well as insert pushbutton DOOR OPEN

Commercially available flush-mounted boxes must be installed on site for the components used.
The components of the operating terminal can be installed on site together with other switch elements, e.g. for lighting, in a frame.

## Illuminated display on the operating terminal

The door status display (open or locked) is made by means of an indicator light on the operating terminal, which lights up either green or red. The lights have the following meaning:
"Green" light: The door is properly locked. It can be unlocked, and thus opened, by pressing the operating button.
"Red" light: The door is properly locked. It cannot be opened at this point because it is locked by another open door. The color light does not change back to "green" until the other door is closed.
No light: This is always the case if there is no feedback from the separate feedback contact to the control board. Proper function: The door is released or opened.

## Error conditions:

- The door is open, although it is not released.
- The EMERGENCY STOP is pressed.
- The system is out of operation.
- The feedback contact does not switch (e.g. the actuating magnet is not positioned correctly, too far away or similar).


## EMERGENCY OPEN button

In a hazardous situation, the door can be unlocked by pressing the EMERGENCY STOP button despite being locked. The button remains locked in the pressed position after it has been pressed.
To put the interlock system back into operation, the EMERGENCY STOP pushbutton must be released again by turning it. After a short pause, the interlock system is then fully functional again.

The EMERGENCY STOP only unlocks the respective door (local EMERGENCY STOP).

## Forwarding the message of the actuation of the EMERGENCY STOP button

The actuation of an EMERGENCY STOP button on a door of the interlock system can be relayed according to the following circuit diagram, but without direct reference to the door on which the EMERGENCY STOP button was pressed.


## 8. Technical data of components

## Central control SK

| Supply voltage | $\mathbf{2 4 ~ V D C}+/-\mathbf{1 5 \%}$ |
| :--- | :--- |
| Current consumption basic equipment 2 doors | 100 mA |
| Current consumption per additional door | 50 mA |
| Current consumption LAN module | 100 mA |
| Protection class | IP 20 |
| Ambient temperature | $-10^{\circ} \mathrm{C}-+40^{\circ} \mathrm{C}$ |
| Max. cable length to terminals | 15 m |

## Power supply unit

| Supply voltage | 100-240 VAC / 46-63 Hz |
| :---: | :---: |
| Max. current consumption | 0,9 A (version 2,7 A) 1,0 A (version 5 A ) |
| Output voltage | 24 VDC (+/-10\%) |
| Output current | 2,7 A (65 W) or $5 \mathrm{~A}(120 \mathrm{~W})$ |
| Protection class | IP 30 (for dry rooms only) |
| Ambient temperature | $-10^{\circ} \mathrm{C}-+50^{\circ} \mathrm{C}$ |

## Components operating terminal

| Illuminated display | LLED 22, bicolor green/red |
| :--- | :--- |
| Power consumption indicator light | $24 \mathrm{VDC}+15 \%, 13 \mathrm{~mA}$ (green), 17 mA (red) |
| Electrical connection Indicator light | $3 \times$ flat plug $2.8 \times 0.5 \mathrm{~mm}$ |
| Operating button | Pushbutton 22 |
| EMERGENCY STOP button | Latching mushroom pushbutton |
| EMERGENCY-AUF contact set LNA | 1 NC contact, 1 NO contact (3 A at 24 VDC) |
| Ambient temperature | $-20^{\circ} \mathrm{C}-+55^{\circ} \mathrm{C}$ |



## EU-Konformitätserklärung - EU Declaration of Conformity

| Hersteller | DICTATOR Technik GmbH |
| :--- | :--- |
| manufacturer | Gutenbergstraße 9 |
|  | 86356 Neusäß, Germany |

Produktbezeichnung - product description
Netzteil 710762 - Netzteil 24 VDC 2,7A 65 W, 710763 - Netzteil 24 VDC 5A
Power supply $\quad 120$ W, 710780 - Stromversorgungsgerät 24VDC/1,1A, 710781 Netzteil 12 VDC 5.2 A 62 W, 710782- Netzteil NT3 24 VDC 2.7A 65W, 710783 - Netzteil NT3 24 VDC 5A 120 W

Der Bereitsteller erklärt hiermit, dass die genannten Netzteile den Bestimmungen der aufgeführten EU-Richtlinien und den einschlägigen Harmonisierungsrechtsvorschriften der Union - einschließlich deren zum Zeitpunkt der Erklärung geltenden Änderungen entsprechen.
A) EU Richtlinien

- 2014/35/EU Niederspannungsrichtlinie
- 2014/30/EU EMV Richtlinie
- 2011/65/EU RoHS-Richtlinie
B) Folgende harmonisierte Europäische Normen wurden angewandt:
- EN60950-1:2006+A11+A1+A12: Einrichtungen der Informationstechnik - Sicherheit - Teil 1: Allgemeine Anforderungen
- EN 61000-6-2:2005/AC:2005: Elektromagnetische Verträglichkeit (EMV) - Teil 6-2: Fachgrundnormen - Störfestigkeit für Industriebereiche (IEC 61000-6-2:2005)
- EN 61000-6-4:2007 +A1:2011: Elektromagnetische Verträglichkeit (EMV) - Teil 6-4: Fachgrundnormen - Störaussendung für Industriebereiche (IEC 61000-6-4:2006 + A1:2010)
C) Folgende sonstige Normen und Vorschriften wurden angewandt:
- VDE 0701: Instandsetzung, Änderung und Prüfung elektrischer Geräte

Unterlagenbevollmächtigte Person:
Stephan Lang, Gutenbergstraße 9, 86356 Neusäß
Neusäß, den 1. Juni 2015

Sitz Neusäß - HRB Augsburg 10279
Geschăftsführer: Dipl.-Kfm. Karen Stech
Markus Kalchgruber
Sele $1 / 1$


## 9. Error messages



## CAUTION

Before opening panels or disassembling components of the interlock control system, they must always be disconnected from the mains, i.e. the power supply unit(s) must be switched off!
Likewise, the power supply must be disconnected before all adjustment and connection work on the components of the system, i.e. the power supply unit(s) must be switched off.

### 9.1 NO FUNCTION, ALL DOORS ARE UNLOCKED

Operator terminals without EMERGENCY STOP button

- Check power supply on terminal KL18. There must be 24 V here.
- Check power supply on terminal KL16. There must be 24 V between + and -.
- Check whether a bridge is set between terminals 1 and 5 on terminals KL1 1 - 15
- Check whether all jumpers JP1 on the control circuit boards are plugged in.
- Check whether there are 24 V on terminals KL1-5 between terminals 3 and 4 . If there are 24 V here, the interlock is incorrectly connected or defective.

Operator terminals with EMERGENCY STOP button (local EMERGENCY STOP)

- Check power supply on terminal KL1 8 . There must be 24 V here.
- Check power supply on terminal KL16. There must be 24 V between + and
- Check whether all jumpers JP1 on the control boards are plugged in.
- Check connection on terminals KL1 1-15. See connection diagrams on pages BEX07/09/011.
- Check whether there are 24 V on terminals KLI - 5 between terminals 3 and 4 . If there are 24 V here, the interlock is incorrectly connected or defective.


### 9.2 NO RED/GREEN DISPLAY, DOOR IS LOCKED

- Check the connection of the feedback contact. It must be connected as a normally open contact on KL1-5 terminals 1 and 2 . Its function can be easily checked with a permanent magnet.
- Check the assembly of the feedback contact and the permanent magnet. The feedback contact must be switched by the actuating magnet when the door is closed (observe switching distance!).


### 9.3 INDICATOR LIGHT SIGNALS GREEN, BUT DOOR DOES NOT UNLOCK WHEN THE BUTTON IS PRESSED

- Check the connection of the pushbutton to the terminals KL6-10. Connection is made to terminals 4 and 5 (as a normally open contact).


### 9.4 INDICATOR LIGHT SIGNALS RED, BUT DOOR UNLOCKS WHEN THE BUTTON IS PRESSED

- Check the connection of the indicator light on terminals KL6-10. Brown and black are incorrectly connected on terminals 1 and 2 and must be replaced.


### 9.5 THE DOOR DOES NOT UNLOCK WHEN THE EMERGENCY STOP BUTTON IS PRESSED

- If terminals with EMERGENCY STOP pushbuttons are installed on both sides of a door, both EMERGENCY STOP pushbuttons may be connected in parallel. Make the connection on terminals KL1 1-16 according to the instructions in the manual on page BEXO1 1 or GNAEXO3.


[^0]:    * Which terminal block KL to select depends on the door of the interlock system. E.g. KL 6 for door 1, KL 7 for door 2, KL 8 for door 3 etc.

