Kollmorgen Shaftbus (KSB)

System documentation

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Contents

1 Description

1.1 Scope of Performance

Control type:

- single control
- duplex control system

Bus system:

- 2-wire technique, trailing cable and car wiring with additional shielding, wiring to other modules without additional shielding allowed
- separate bus high (BH) and bus low (BL) connections
- bus length from the first module to the last module in one KSB lane (max. 200 m)
- star wiring is not acceptable
- the factory terminates at the beginning/end of the bus connection

KSB modules:

- module with 4 freely configurable I/O terminals (designated as **KBC**)
- module with 2 freely configurable I/O terminals and 2 freely configurable output terminals 8 output terminals for the display (designated as **KBD**)
- module for a short-circuit and overload-proof KBC design (designated as **SKC**)
- module for a short-circuit and overload-proof KBD design (designated as **SKD**)
- module with 2 freely configurable I/O terminals, 16 x 8 dot matrix for showing the level information or a running text, 8 x 8 dot matrix for showing directions arrows; showing floor dependent texts (only module KBK – 8x16)
  designated as: **KBI - 8x16** (for mounting in the floor),
  designated as: **KBK - 8x16** (for mounting in the car),
- module with 2 freely configurable I/O terminals, 16 x 16 dot matrix for showing the level information, a running text or the directions arrows; showing floor dependent texts (only module KBK – 16x16); horizontal or vertical mounting possible
  designated as: **KBI - 16x16** (for mounting in the floor),
  designated as: **KBK - 16x16** (for mounting in the car)
- module for voice output; designated as: **HSS**

Number of modules and how they are addressed:

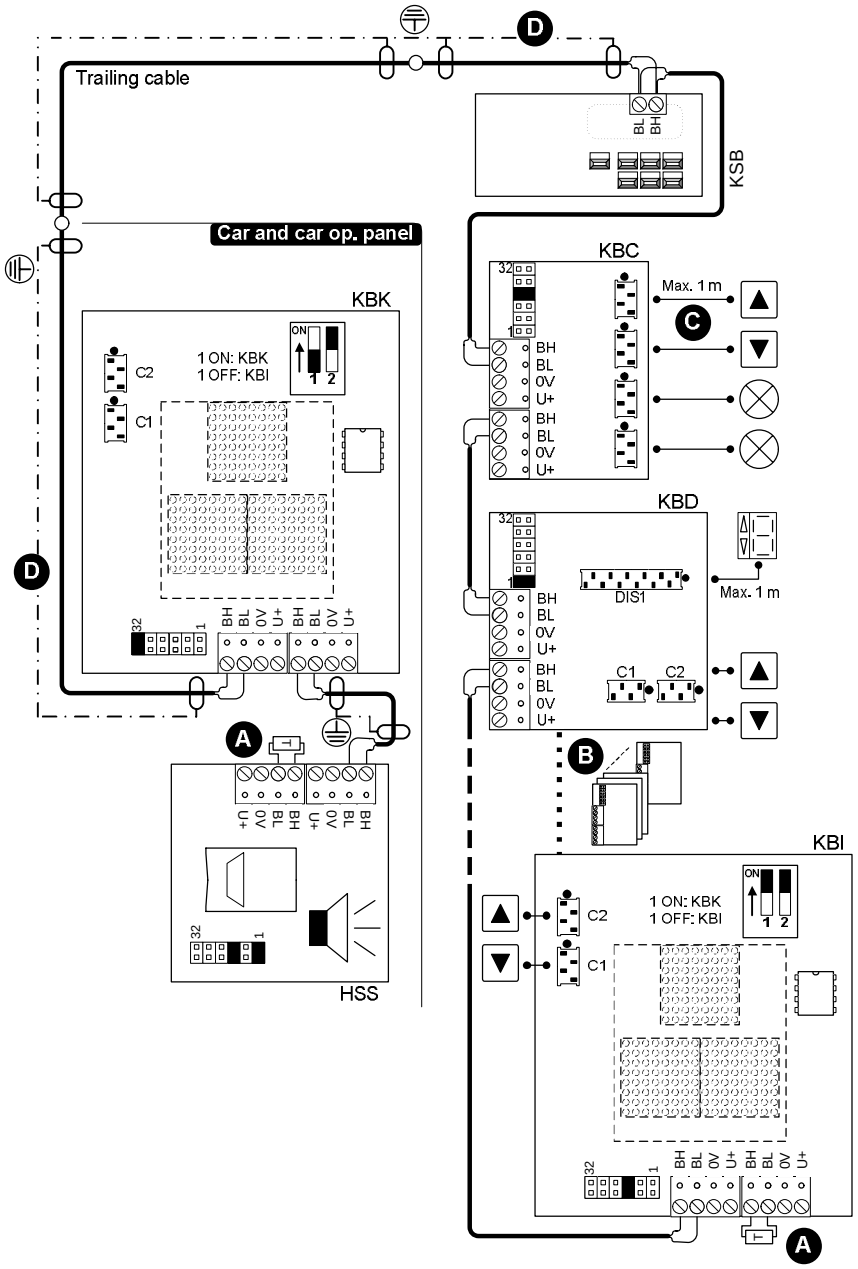
- single control: a maximum of 63 modules
- duplex control system: a maximum of 63 modules per group control
- addressing: binary, more than a maximum of 6 jumpers on the KSB modules

IMPORTANT!

- in the lift group:
  - it is always necessary to also have a GLON connection
  - each group control has to have its own KSB lane
    the two KSB lanes may **not** be connected with one another
  - the KSB modules of the other group subscriber may not be programmed.
- signals may not displayed flashing
- a self-defined code may not shown on the display of module KBD
- one module address may not be assigned several times in one KSB lane
- the KSB modules have to be initialised by RESET on the control after initial installation
- if initialised KSB modules are switched off, the eight outputs of the KBD module **have** to be re-initialised with RESET on the control after power returns to trigger the display. None of the remaining inputs/outputs of the KSB modules have to be re-initialised.
- no initialising or parametering data are permanently stored on the KSB modules

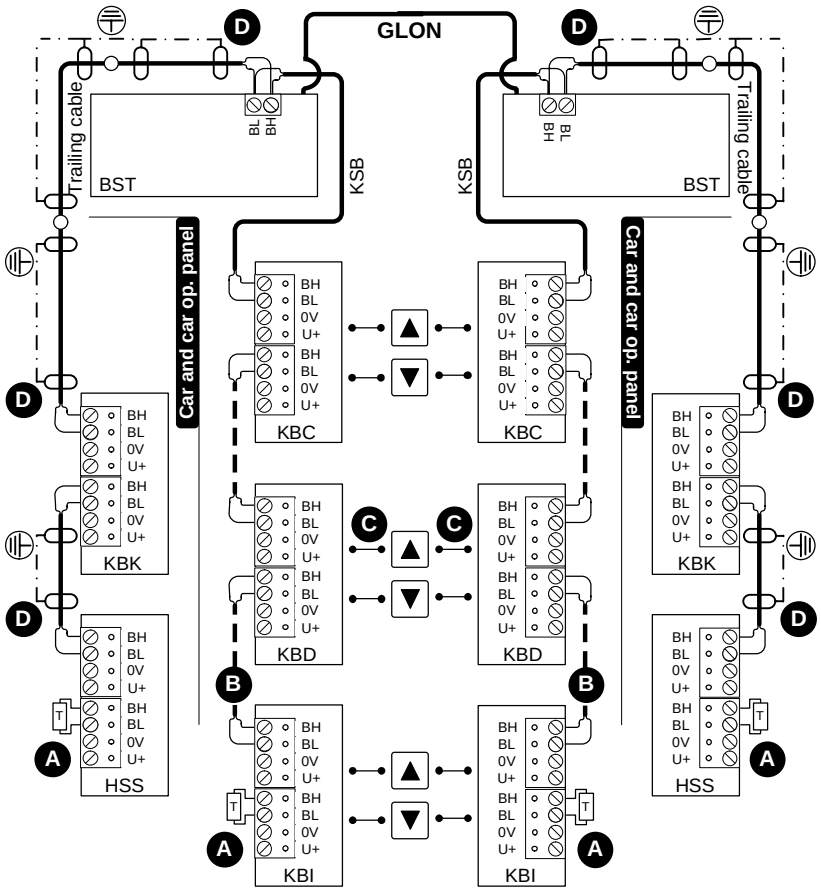
2 Topology

2.1 Single control



- **A** Terminating resistor at the start / the end of the bus system
- **B** Max. 63 modules in the bus system allowed
- **C** Cable to the push button / indicator: max. **1 m**
- **D** Bus cable to the car and car operation panel with additional shielding

2.2 Duplex control system

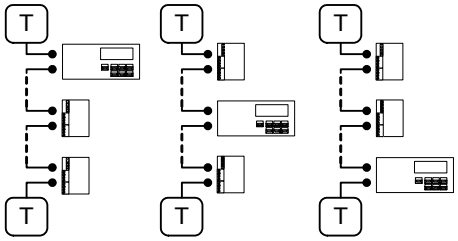


- **A** Terminating resistor at the start / the end of the bus system
- **B** Max. 63 modules in the bus system allowed
- **C** Cable to the push button / indicator: max. **1 m**
- **D** Bus cable to the car and car operation panel with additional shielding

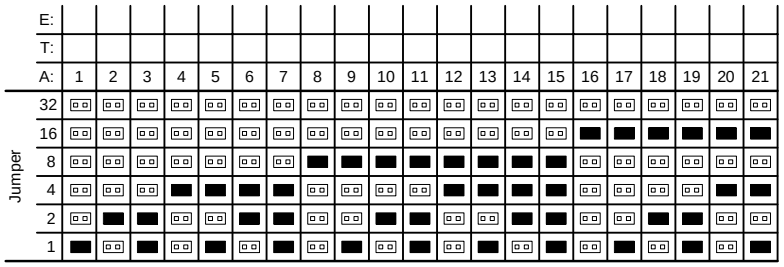
Note!

Use always a terminating resistor (T) at the start / end of the bus system

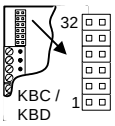
Technical data of terminating resistor:
120 Ohm / 0,25 W



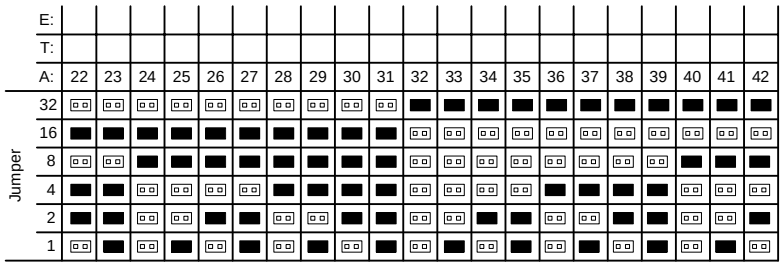
2.3 Jumperpositions of addresses 1 – 63



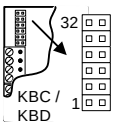
E: floor
T: doorside
A: address



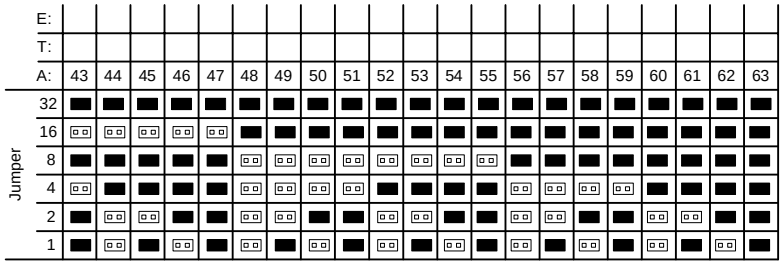
No jumper
Jumper



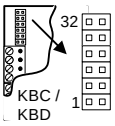
E: floor
T: doorside
A: address



No jumper
Jumper



E: floor
T: doorside
A: address

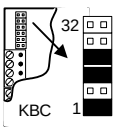


No jumper
Jumper

Note!

The modules display into the menu functions with the decimal address:

Example: KBC-Module with the addr. **13**

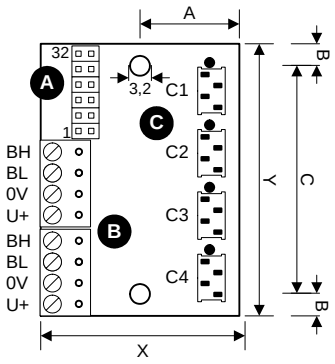


Information
Module list
KBC 1 v 1 sum. 7
KSB 13 active

Net-inputs
Readiness service
KBC 13 IO3 (C)
Fl. 1 Door:1

3 Technical description

3.1 Floor module KBC



- **A** Jumper of the module address (adress range: 1 – 63)
- **B** Bus-connection and power supply
- **C** I/O terminals C1 - C4

Function: 4 free programmable in- / outputs

Term.	KSB interface
BH	Connection network Bus-High
BL	Connection network Bus-Low

Term.	Power supply
0V	Earth
U+	Supply voltage

Term.	free progr. I/O-terminals
C1	Landing call up door 1 floor 1*
C2	Landing call down door 1 floor*

* Default set-up

Term.	free progr. I/O-terminals
C3	Hall lantern up floor 1*
C4	Hall lantern down floor 1*

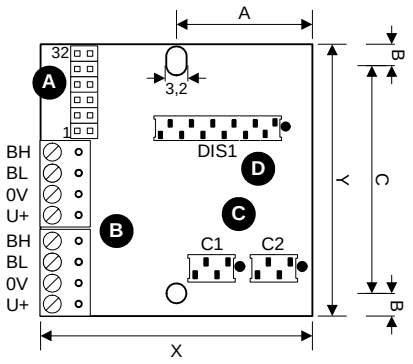
* Default set-up

Dimensions:

A	B	C
17,5 mm	4,5 mm	39 mm

X	Y	Height
35 mm	48 mm	15 mm

3.2 Floor module KBD



- **A** Jumper for the module address of terminals C1 - C2 (range: 1 – 63)
- **B** Bus-connection and power supply
- **C** I/O terminals C1 – C2
- **D** Connection floor indicator DIS1

Function: 8 outputs (fixed set-up) of the floor indicator (DIS1), 2 free programmable outputs (DIS1), 2 free programmable in- / outputs (C1 / C2)

Term.	KSB interface
BH	Connection network Bus-High
BL	Connection network Bus-Low

Term.	Power supply
0V	Earth
U+	Supply voltage

Term.	free progr. I/O-terminals
C1	Landing call up door 1 floor 1*
C2	Landing call down door 1 floor*

* Default set-up

Term.	Output terminals DIS1
D1-D8	Floor indicator (fixed set-up)
D9	Hall lantern up floor 1*
D10	Hall lantern down floor 1*

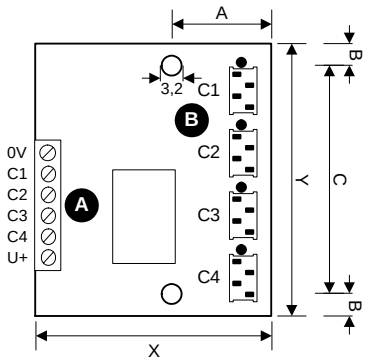
* Default set-up

Dimensions:

A	B	C
24 mm	4,5 mm	39 mm

X	Y	Height
48 mm	48 mm	15 mm

3.3 Short-circuit protection – module SKC



A Output supply voltage and I/O terminals C1 – C4

B Inputterminals for C1 – C4

Function: Shot-circuit protection of the floor module KBC, indicator module KBI / KBK

Term.	Power supply, free progr. I/O-terminals
0V	Earth
C1	Landing call up door 1 floor 1*
C2	Landing call down door 1 floor 1*
C3	Hall lantern up floor 1*
C4	Hall lantern down floor 1*
U+	Output supply voltagefor C1-C4

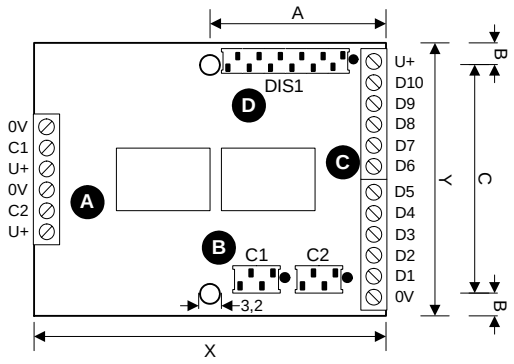
* Default set-up s. module KBC

Dimensions:

A	B	C
15,5 mm	4,5 mm	39 mm

X	Y	Height
41,5 mm	48 mm	13 mm

3.4 Short-circuit protection – module SKD



- **A** Output power supply and I/O Klemmen C1 – C2
- **B** Input-terminals for C1 – C2
- **C** Output power supply and Outputsklemmen D1 – D10
- **D** Input-terminals for D1 – D10

Function: Shot-circuit protection of the floor indicator module KBD

Term.	Power supply, free progr. I/O-terminals
0V	Earth
C1	Landing call up door 1 floor 1*
C2	Landing call down door 1 floor 1*
U+	Output supply voltagefür C1-C2

* Default set-up s. module KBD

Term.	Power supply, floor indicator, outputs
0V	Earth
D1-D8	Output floor indicator (fixed set-up)
D9	Hall lantern up floor 1*
D10	Hall lantern down floor 1*
U+	Output supply voltagefür D1-D10

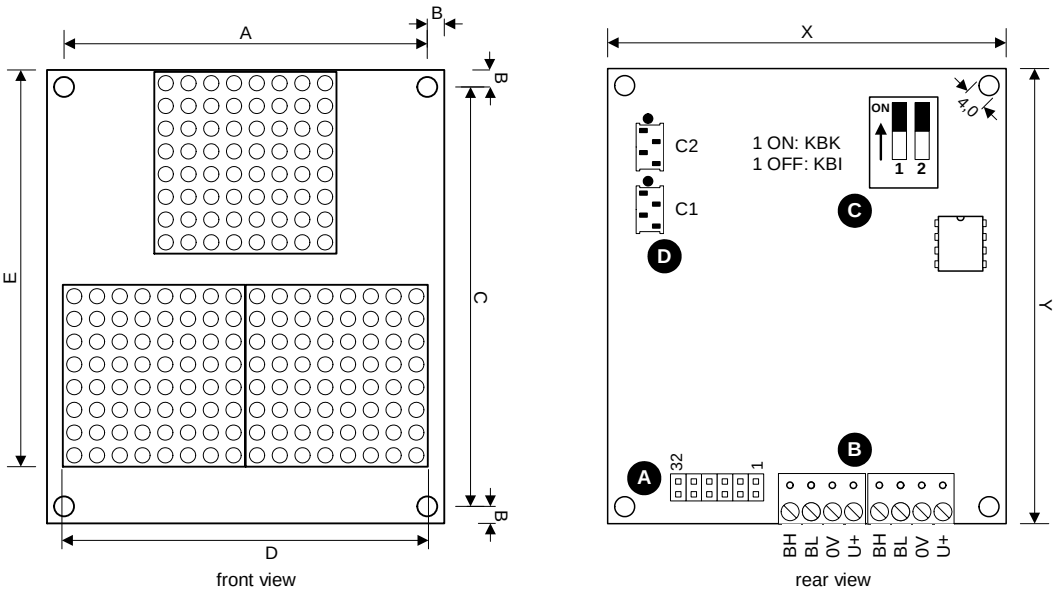
* Default set-up s. module KBD

Dimensions:

A	B	C
31 mm	4,5 mm	39 mm

X	Y	Height
62 mm	48 mm	13 mm

3.5 Floor indicator module KBI / Car indicator module KBK – 8x16



- **A** Jumper of the module address (adress range: 1 – 63)
- **B** Bus-connection and power supply
- **C** DIP-switch for the setting of the module type (KBI: DIP1 = OFF, KBK: DIP1 = ON)
- **D** I/O terminals C1 - C2

Function:

- Showing the level or a running text (16 x 8 dot matrix)
- Showing directional hall lantern or direction arrows (8 x 8 dot matrix, menu setting: D9 = up-direction, D10= down-direction
- 2 free programmable in- / outputs
- Showing floor dependent text (available only by module KBK)

Term.	KSB interface
BH	Connection network Bus-High
BL	Connection network Bus-Low

Term.	Power supply
0V	Earth
U+	Supply voltage

Term.	free progr. I/O-terminals
C1	Landing call up door 1 floor 1*
C2	Landing call down door 1 floor*

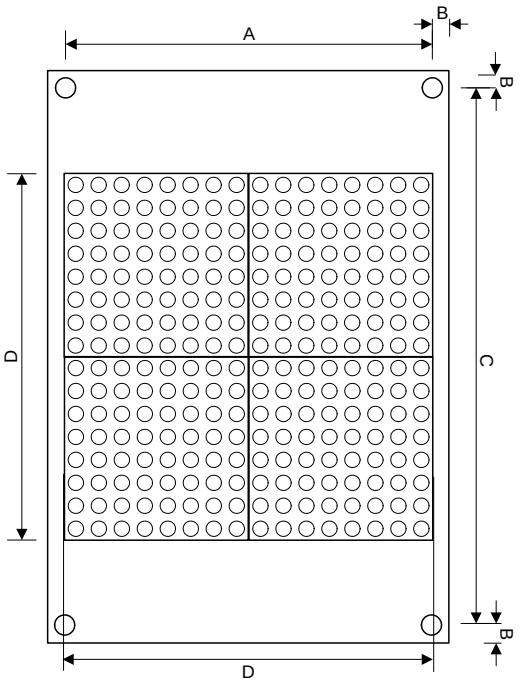
* Default set-up

Dimensions:

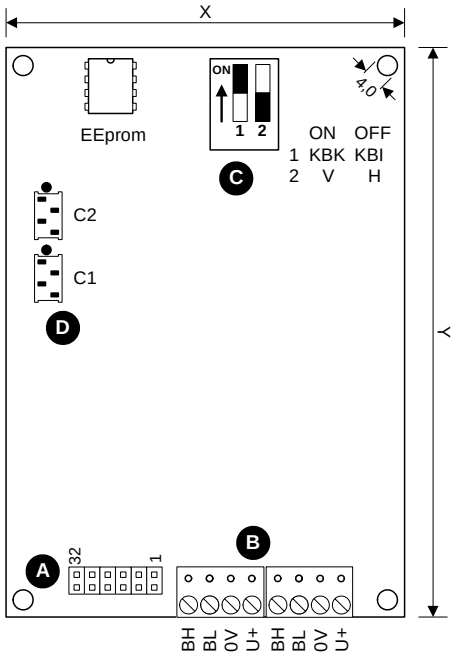
A	B	C	D	E
62 mm	4 mm	72 mm	64 mm	68,3 mm

X	Y	Height
70 mm	80 mm	22 mm

3.6 Floor indicator module KBI / Car indicator module KBK – 16x16



front view (vertical mounting direction)



rear view (vertical mounting direction)

A Jumper of the module address (adress range: 1 – 63)

B Bus-connection and power supply

C DIP-switch for the setting of the module type (KBI: DIP1 = OFF, KBK: DIP1 = ON)
DIP-switch for the mounting direction of the module (horizontal: DIP2 = OFF, vertical: DIP2 = ON)

D I/O terminals C1 - C2

Function:

- Showing the level or a running text (16 x 16 dot matrix)
- Showing directional hall lantern or direction arrows (16 x 16 dot matrix, menu setting: D9 = up-direction, D10= down-direction
- 2 free programmable in- / outputs
- Showing floor dependent text (available only by module KBK)

Term.	KSB interface
BH	Connection network Bus-High
BL	Connection network Bus-Low

Term.	Power supply
0V	Earth
U+	Supply voltage

Term.	free progr. I/O-terminals
C1	Landing call up door 1 floor 1*
C2	Landing call down door 1 floor*

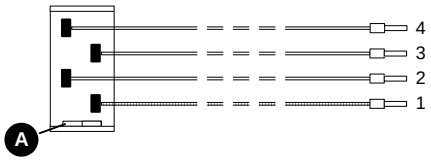
* Default set-up

Dimensions:

A	B	C	D
62 mm	4 mm	92 mm	64 mm

X	Y	Height
70 mm	100 mm	22 mm

3.7 4-Lead Button Connecting Cable

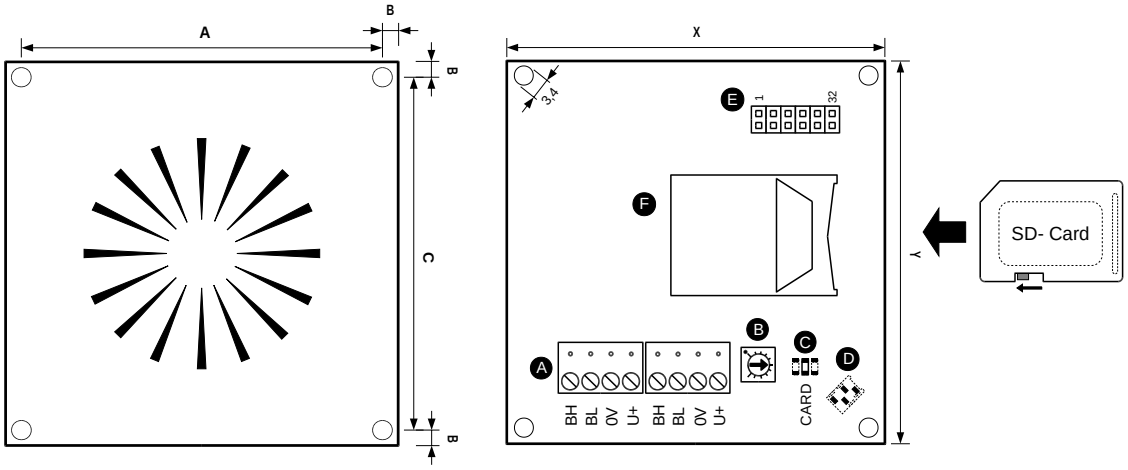


A polarising key

Function: Connecting display and operating elements to KBC and KBD modules with terminal screws. Modules SKC and SKD are no longer used.

Wire	Signal
1 (red)	output, voltage (+)
2	reference voltage level output
3	input, voltage (+)
4	reference voltage level input

3.8 HSS Voice Output Module



front view rear view

- **A** Bus-connection and power supply
- **B** Volume Control
- **C** the LED CARD on: the SD card is inserted incorrectly or not at all
  the LED CARD is flashing: voice output is active
- **D** Speaker terminal
- **E** Jumper of the module address (address range: 1 – 63)
- **F** SD-Card (Note: Always press in the SD card until you can hear it click into the slot)

Function:

- automatic voice announcements for floor, arrival and special texts
- optional software support when copying voice announcements to the SD card (with the aid of the Hakotec Speech Manager)
- adjustable volume for the voice output

Term.	KSB interface
BH	Connection network Bus-High
BL	Connection network Bus-Low

Term.	Power supply
0V	Ground
U+	Supply voltage

Note

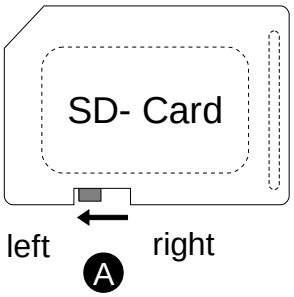
The functions of the voice output are described to the dokumentation <<Hakotec Speech System HSS>>.

Dimensions:

A	B	C
52 mm	3.7 mm	52 mm

X	Y	Höhe
60 mm	60 mm	32 mm

3.8.1 SD-Card



A the slide to the left position: write protect inactive
the slide to the right position: write protect active (Lock)

Function: the storage medium for the HSS voice output module

Note

Write protection is not activated when delivered.

3.9 Technical data

Supply voltage U+:

KBC / KBD / KBI / KBK / HSS [VDC] min. / **typ.** / max.
18 / **24** / 28

Note!

The max. current of the supply power terminals (0V/U+) is 4 A.

Current consumption of the modules:

Type	[mA]
KBC	**40**
SKC	10

Type	[mA]
KBD	50
SKD	10

Typ	[mA]
HSS	**180**

Type	[mA]
KBI / KBK 8x16	70
KBI / KBK 16x16	100

Inputs / outputs:

Type	KBC / KBD KBI / KBK min. / **typ.** / max.	KBC / KBI / KBK with SKC min. / **typ.** / max.	KBD with SKD min. / **typ.** / max.
Input $\mathbf{U_{off}}$ [VDC]	0 / **0** / 2	0 / **0** / 7	0 / **0** / 7
Input $\mathbf{I_{off}}$ [mA]	0 / **0** / 0,1	0 / **0** / 1,6	0 / **0** / 1,6
Input $\mathbf{U_{on}}$ [VDC]	7 / **24** / 28	12 / **24** / 28	12 / **24** / 28
Input $\mathbf{I_{on}}$ [mA]	0,35 / **1,8** / 2,2	2,9 / **7** / 8,2	2,9 / **7** / 8,2
Output **U** [VDC]	17 / **24** / 28	17 / **24** / 28	17 / **24** / 28
Output **I** [mA]	- / - / 100	- / - / 280	- / - / 280

Note!

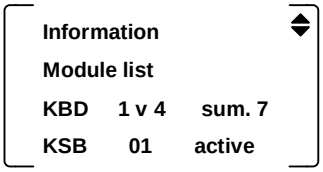
These outputs are only resistant to short-circuits and overload if the SKC and SKD modules are used!

Output supply voltage:

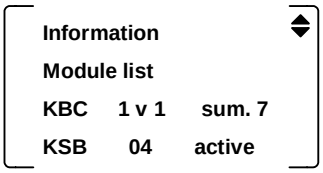
Type	SKC min. / **typ.** / max.	SKD min. / **typ.** / max.
Term. U+ $\mathbf{U_{Output}}$ [VDC]	17 / **24** / 28	17 / **24** / 28
Term. U+ $\mathbf{I_{Output}}$ [mA]	280	280

4 MPK-Menu functions

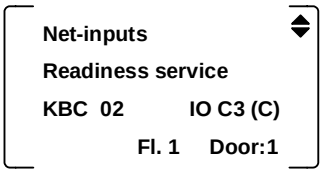
4.1 General



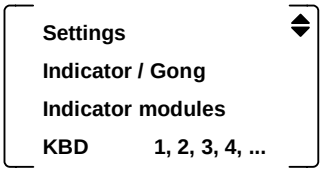
Module type: **KBD**
Net type: **KSB**
Module address: **01**
Status: **active***
* the messages „Error“, „Ready“, „RESET“ are not analysed.



Module type: **KBC**
Net type: **KSB**
Module address: **04**
Status: **active***
* the messages „Error“, „Ready“, „RESET“ are not analysed.



The programming of the net -inputs / -outputs is equal to the programming of the LON-modules.
KBC – module: IO C1 – C4 are displayed with (C) (=call type)
KBD – module: IO C1 – C2 are displayed with (C) (=call type) and
D9 - D10 are displayed with (O) (=Output)



The programming of the net -inputs / -outputs is equal to the programming of the LON-modules.
All KBD-modules display the same code.
This code is available:
Binary, 1 to N, add up, gray code, inv. gray code, 1 2 3 4 5 6 7 ..., 0 1 2 3 4 5 6 ..., E 2 3 4 5 6 ..., U E 1 2 3 4 5 ..., K E 0 1 2 3 4 ..., K E 1 2 3 4 5 ...., U2 U1 E 1 2 3 ..., -1 1 2 3 4 ..., - 1 1 2 3 4 5 ..., -2 -1 0 1 2 3 4 ..., -2 -1 1 2 3 4 5 ..., P 1 2 3 4 5 6 ...

Also available for use with a KBI / KBK display module:
Self defined code*, LG G 1 2 3 …, G 1 2 3 …, LB B 1 2 3 …, B 1 2 3 …, B G 1 2 3 ..., B2 B1 1 2 ..., B1 1 2 3 ...

*you use for the display of self defined code:

- a Lift program from version Lift 4H2.11
- a KBI – display module with a program version from 1.05
- a programmed EEprom from the manufactor with the specification of the self defined characters

4.2 KBI / KBK Display Module

4.2.1 Menu functions

Settings
Indicate/gong
Floor text 1 KBK

You can specify a running text for each level with a maximum of 20 characters.
You have the following characters for the texts for the levels: A-Z, a-z, 0-9, ! “ # $ % & ’ ( ) * + , - . / : ; < = > ? [¥] ^ _ { | } ü ä ö ß
You can set issuing the running text with the <<Floor text active>> function.
The function is only available for the module KBK. (see chapter 0)

Settings
Indicate/gong
Floor text active

This function sets the time for displaying the texts for the levels.
Adjustable values:
<<No>>, <<at levelling>>, <<at standing>>

Settings
Indicate/gong
Special text 1 KBI

You can specify as many as 15 special texts per module type (KBI or KBK) for operating states. The length of the text is limited to a maximum of 20 characters. You have the following characters: A-Z, a-z, 0-9, ! “ # $ % & ’ ( ) * + , - . / : ; < = > ? [¥] ^ _ { | } ü ä ö ß.
These texts appear in the display as soon as the appropriate operating state is active. They are issued as running texts and they overwrite all information in the display on the level. You can set how the special text and operating state are assigned to one another with the <<Special text active>> function.
The priority of the special texts in relation to one another is dictated by the special text number. Special text number 1 has highest priority.
The function is available for the modules KBI / KBK. (see chapter 0)

Settings
Indicate/gong
Special text at

You assign the operating states to the special texts with this function.
Adjustable values:
<<inactive>>, collection of operation states (MPK depend.)
The function is available for the modules KBI / KBK. (see chapter 4.2.3)

Settings
Indicate/gong
Floor indicators scrolling

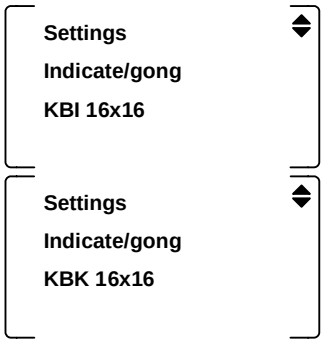
This function scrolls the level display in the <<Yes>> setting.
The scrolling movement starts when the level changes.
Adjustable values:
<<Yes>>, <<No>>

Settings
Indicate/gong
Arrows scrolling

This function scrolls the directional arrows in the <<Yes>> setting.
The rolling movement starts when motion begins.
Adjustable values:
<<Yes>>, <<No>>

NOTE

A free module address has to be set on the KBI / KBK display module for the <<Floor text>> and <<Special text>> functions, directional arrows and scrolling.



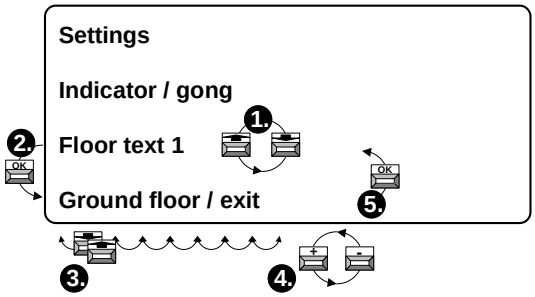
The function defines, which informations display the indicators KBI 16x16 and KBK 16x16.
Adjustable values:
- <<Floor indicator or Arrows>>
- <<Arrows only>>
- <<Floor indicator only>>
- <<Floor indicator and Arrows>>

Note, that this function is available from program versions
Lift 4h 2.29 (control) and KBI 1.16 (Indicator module).

4.2.2 Set Floor and Special Text

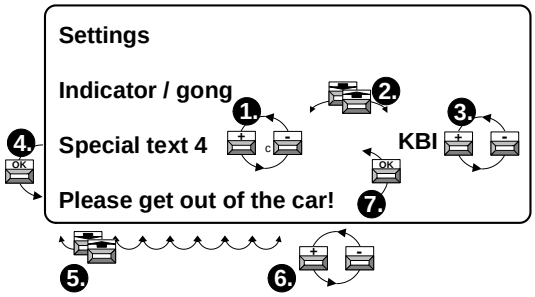
Follow the steps in this routine for setting the texts.

Floor text:



Routine:
1.: select the floor for the text
2.: change into the 4th menu line
3.: select letter position
4.: select letter
Repeat steps 3 and 4 until the text has been set.
5.: store text and go back to 3rd menu line

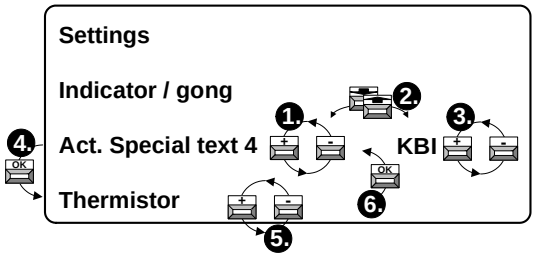
Special text:



Routine:
1.: select special text number (in this case 4)
2.: goto module type selection (if required)
3.: select module KBI or KBK (if required)
4.: change into the 4th menu line
5.: select letter position
6.: select letter
Repeat steps 5 and 6 until the text has been set.
7.: store text and go back to 3rd menu line

4.2.3 Activate Special Text

Follow the steps in this routine for activating the special texts.



Routine:
1.: select special text number (in this case 4)
2.: goto module type selection (if required)
3.: select module KBI or KBK (if required)
4.: change into the 4th menu line
5.: select operation status
6.: store allocation and go back to 3rd menu line