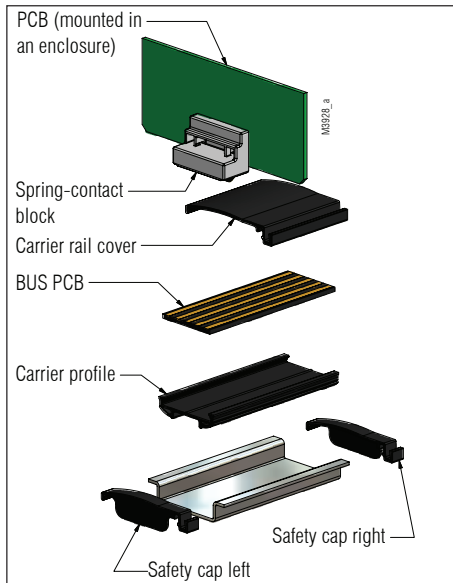


# In-Rail-Bus

## Bus system in DIN-rail



### Approval and Markings



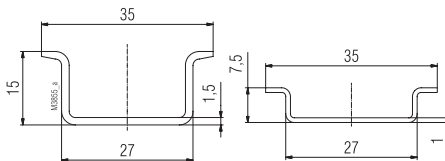
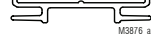
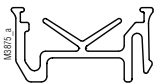
#### Your Advantages

- Reliable and consistent supply, connection and distribution of energy, signals and data

#### Features

- Universal use with various enclosure types
- High current (5 A per pcb-rail)
- Quick and easy mounting in the DIN-rail
- Contour and layout of the bus pcb can be adapted according to customers' requirements e.g. defined by the customer
- Designed for standard DIN-rail dimensions
- Optional coding of the bus system to prevent incorrect assembly
- Large stand-off to DIN-rail floor allows the mounting of SMD components on the bus pcb underside
- The carrier profile is securely fixed by safety caps (left and right) on the DIN-rail

Carrier profile 15      Carrier profile 7.5



- Pcb rail "breaks" are possible, e.g. for operation of bus signals inside instruments

### Technical Data

#### Order reference

<b>Carrier profile 15*):</b>		
250 mm:	KO 4303-257-5.4;	Art.-No.: 0063838
500 mm:	KO 4303-257-5.2;	Art.-No.: 0061802
750 mm:	KO 4303-257-5.7;	Art.-No.: 0063866
1000 mm:	KO 4303-257-1;	Art.-No.: 0060632
<b>Carrier profile 7.5*):</b>		
250 mm:	KO 4303-257-6.4;	Art.-No.: 0063839
500 mm:	KO 4303-257-6.2;	Art.-No.: 0063864
750 mm:	KO 4303-257-6.7;	Art.-No.: 0063865
1000 mm:	KO 4303-257-2;	Art.-No.: 0060719
<b>Bus pcb</b>		
<b>for spring contact block, 5-poles*):</b>		
250 mm:	KO 4303-256-1.6;	Art.-No.: 0063837
500 mm:	KO 4303-256-1.2;	Art.-No.: 0061804
750 mm:	KO 4303-256-1.7;	Art.-No.: 0063861
1000 mm:	KO 4303-256-1;	Art.-No.: 0060631
<b>Bus pcb</b>		
<b>for spring contact block, 8-poles:</b>		
250 mm:	KO 4303-356-3.3;	Art.-No.: 0068919
500 mm:	KO 4303-356-3.2;	Art.-No.: 0068918
750 mm:	KO 4303-356-3.1;	Art.-No.: 0068917
<b>Carrier rail cover*):</b>		
250 mm:	KO 4303-158-2.4;	Art.-No.: 0063836
500 mm:	KO 4303-158-2.2;	Art.-No.: 0061806
750 mm:	KO 4303-158-2.7;	Art.-No.: 0063862
1000 mm:	KO 4303-158-2.1;	Art.-No.: 0060630
<b>Safety cap, Right*):</b>	KO 4303-158-3;	Art.-No.: 0060722
<b>Safety cap, Left*):</b>	KO 4303-158-4;	Art.-No.: 0060723
<b>Spring contact block without coding*):</b>	KO 4303-153.2;	Art.-No.: 0060720 (with Au-contacts)
<b>Spring contact block with coding*):</b>	KO 4303-153.4;	Art.-No.: 0060721 (with Au-contacts)

#### Plastics

Carrier profile:	Polyamide (PA66)	(1)
Carrier-rail cover	Polyamide (PA6)	(2)
Spring contact block:	Polyamide (PA6) and Polyamide (PA46)	(3) (4)
Safety cap (right/left):	Polycarbonate (PC)	(5)

#### Temperature withstand:

	PA66 (1)	PA6 (2)	PA6 (3)	PA46 (4)	PC (5)
complying with Vicat			205°C (B50)		144°C (B50)
compl. with EN 75-1/-2 (1.8 MPa):	250 °C	80 °C	100 °C	> 290°C	138 °C
compl. with EN 75-1/-2 (0.45 MPa):	250 °C	190 °C	200 °C	> 290°C	143 °C

#### Flame retardancy

complying with UL 94:

V-0

#### Bus rails:

5; 8; variants, on request

#### Spring contact material:

copper, tinned gold plated

#### Bus pcbs

Pcb thickness:

1.5 mm

Cu-coating thickness:

min. 70 µm

Contact surface:

for 5-poles version\*):

Au 0.5 - 0.8 µm (others on request)

for 8-poles version:

Au 0.2 - 0.3 µm (others on request)

#### Max. contact resistance

Spring contact block - bus element: ≤ 20 mΩ

#### Max. current carrying capacity:

5 A (per bus rail)

25 A (max. total current)

#### Max. voltage

Bus rail to bus rail:

AC 63 V      DIN EN 60 664

Bus rail to DIN-rail:

AC 63 V      DIN EN 60 664

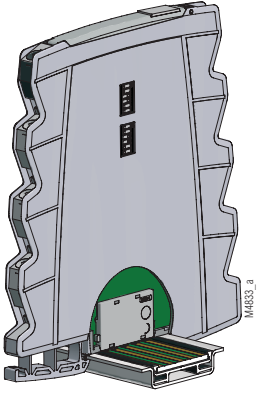
Bus rail to bus rail:

AC 30 V      UL 840, C22.2 No 14.5

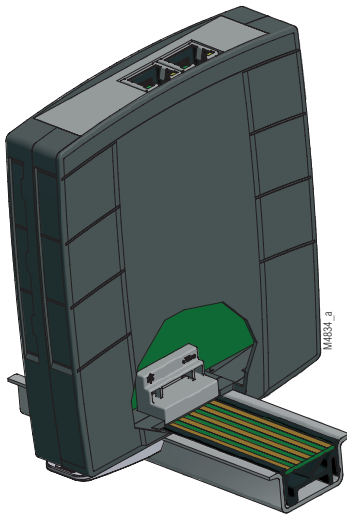
Bus rail to DIN-rail:

AC 30 V      UL 840, C22.2 No 14.5

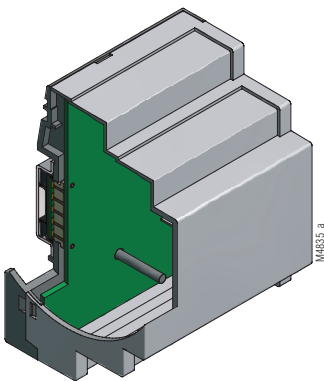
Enclosure KS 4460  
in use with bus-system



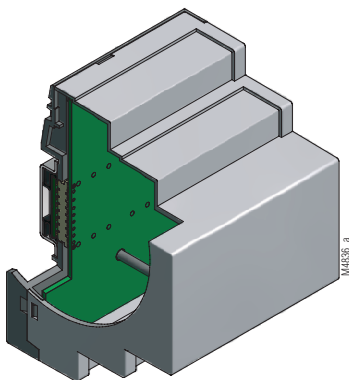
Enclosure series KS 4400  
in use with bus-system



Enclosure series KU 4500  
in use with bus-system



Enclosure series KU 4100  
in use with bus-system



## Technical Data

### Contact pressure

Spring contact to bus rail: 100 cN (double contact)

Spring contact block fixing: **The use of temperature stable materials allows soldering without the need for shielding cover**

### Creepage current resistance

Carrier profile,

Carrier rail cover

PA6: CTI 600  $\hat{=}$  insulating material I DIN EN 60664-1

Spring contact block

PA6: CTI 375  $\hat{=}$  insulating material III a DIN EN 60664-1

PA4.6: CTI < 400  $\hat{=}$  insulating material III a

Safety caps

PC6: CTI 175  $\hat{=}$  insulating material III a DIN EN 60664-1

Carrier profile

PA66: CTI 500  $\hat{=}$  insulating material II DIN EN 60664-1

Air gap and creepage distance:  $\geq 2$  mm

Voltage  $U_{eff}$ : 63 V

Overvoltage category: II

Rated shock voltage  $U_{bem}$ : 0,8 kV

Contamination class: 3

### DIN-rail:

DIN EN 60 715 TH35-7.5 or optionally

DIN-rail 35 x 15 x 1,5 mm

Shock stability: Amplitude 0.35 mm; 10 ... 55 Hz DIN EN 60068-2-6

Swing test: 2 h

Swing direction: 3 axle

### Net weight

Spring contact block: approx. 2.5 g / piece

Carrier profile: approx. 115 g / m

Bus cover: approx. 60 g / m

Safety caps (right/left): approx. 0.6 g / piece

### Accessories:

- Carrier rail cover
- Customized lengths of bus pcb available on request
- Safety cap

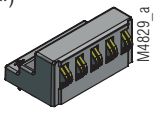
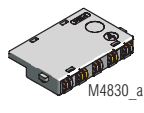
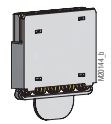
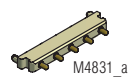
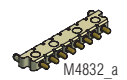

### Further features:

- The complete possibilities of the bus pcb allows:
  - \* the input of the bus signal via pcb terminals
  - \* coupling of two bus pcs via terminal strip
  - \* Pcb crossovers with multi-coated pcs
  - \* Coding via a coding pin to the spring-contact block via a specific code hole in the bus pcb

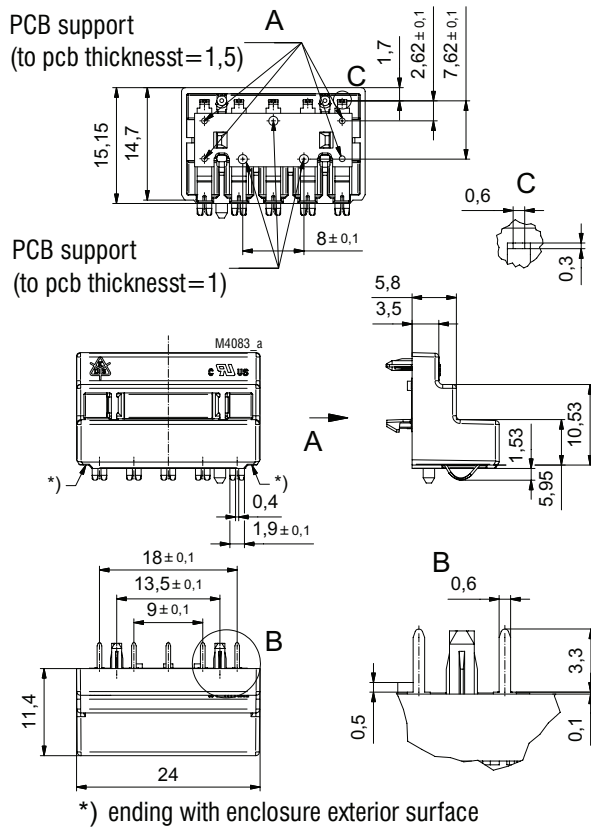
### Technical Notes:

- The complete track system shall only be supplied by one isolated power supply or control transformer rated max. 10,000VA or equivalent
- The rail system is intended for the use with spring contact block assemblies and mounting means as designed by the manufacturers mechanical specifications or equivalent
- The spring block assembly must be mechanically secured and soldered to the printed wiring board according to the manufacturers instructions and mechanical design or equivalent

## Ovverview

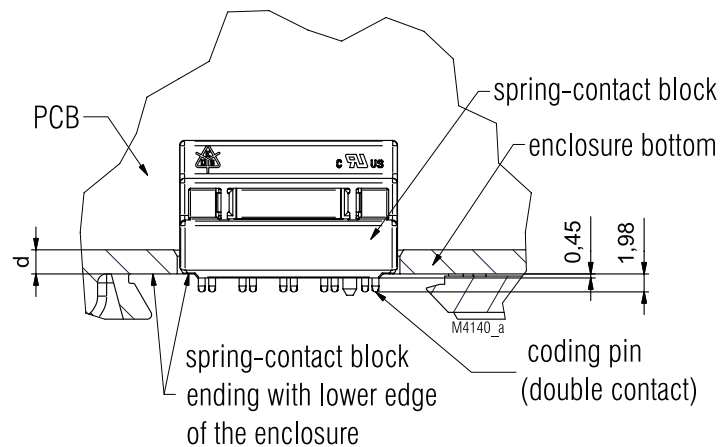
Overview spring contact block for In-Rail-Bus						
<b>Designation</b>	KO4303-153 <sup>*)</sup>	KS4460-12	KS4460-15	KO4303-400	KO4303-401	KO4303-402
<b>Pole</b>	5	5	5	5	8	8
<b>Picture</b>	*) 					
<b>Pcb configuration</b>	Vertical	Vertical	Vertical	Horizontal	Horizontal	Vertical
<b>Fixing</b>	Machine soldering	Machine soldering	Pluggable	Reflow solder method	Reflow solder method	Reflow solder method
<b>Standard Dimensions (B x H x T)</b>	24 x 11.4 x 15,15	24 x 4 x 16.15	22,5 x 4 x 24	24 x 2.54 x 8.1	24 x 2.54 x 8.1	23.7 x 2.27 x 10.4
<b>Further Information</b>		See datasheet spring contact block KS 4460-12	See datasheet spring contact block KS 4460-15	See datasheet spring contact block 5-poles	See datasheet spring contact block 8-poles	See datasheet spring contact block 8-poles

## Dimension Spring contact block

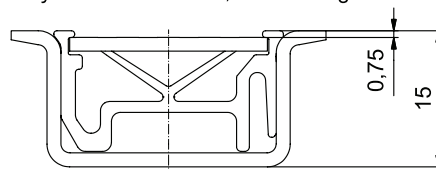


## Configuration of spring contact block

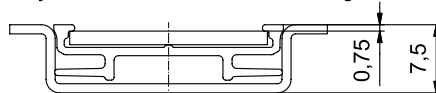
Configuration of  
spring contact block  
on pcb seen from  
lower egde of the enclosure



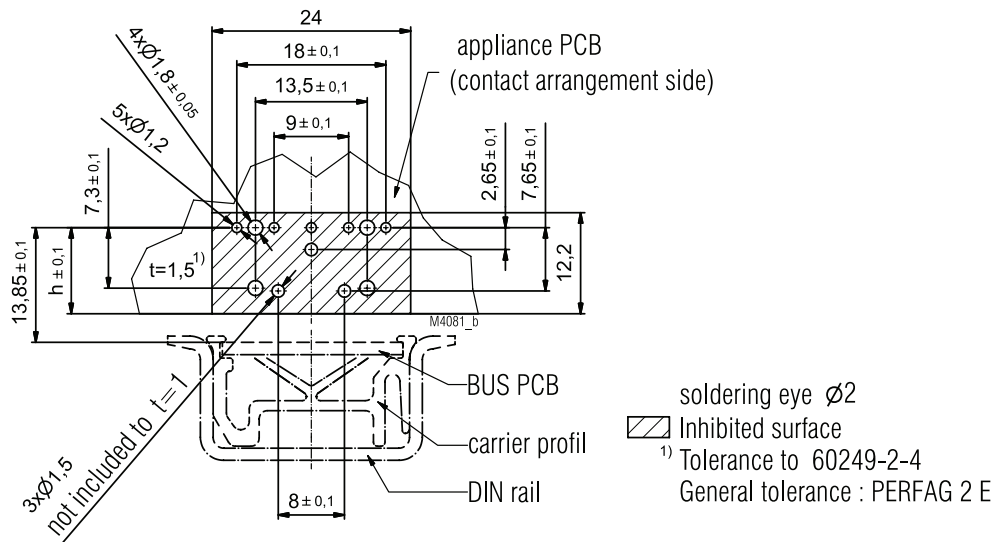
BUS system in DIN-rail, 15mm high



BUS system in DIN-rail, 7,5mm high



## Drilling plan for appliance pcb



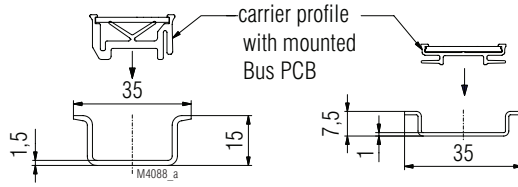
distance h in relation to lower edge of the pcb for different enclosure series  
(dimension h changes with thickness of enclosure bottom)

enclosure series	enclosure bottom thickness d	distance h±0,1
KO4300	2,65	10,4
KU4000	2	11,05
KU4100	2,15	10,9
KO4730-KO4737	2,5	10,55

# Mounting instruction

## step 1

put in the pre-mounted carrier profile  
in to the DIN rail



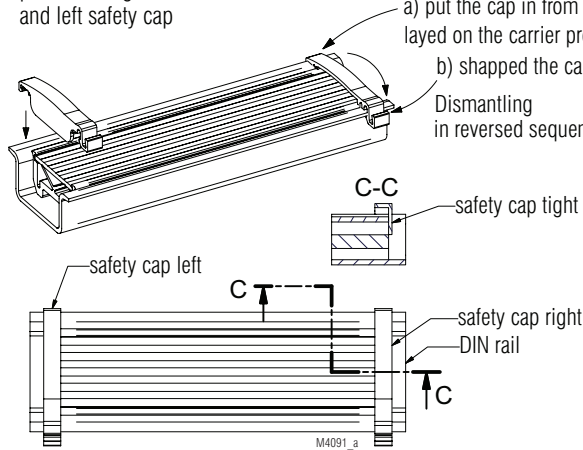
## step 2

put on the right  
and left safety cap

Pay attention to the sequence :

- put the cap in from above  
laid on the carrier profile
- shaped the cap on below

Dismantling  
in reversed sequence



## step 3

snap on the appliance  
on the In-Rail-Bus

efficient power to the Bus  
 $F \geq 5N$   
(Per appliance snapped on  
with contact spring block)

safety cap on both  
sides tight to the carrier profile  
The safety cap fixes the carrier profile  
in the DIN rail and protects the ends of the Bus

