In-Rail-Bus
Bus system in DIN-rail

Overview

Overview spring contact block for In-Rail-Bus

<table>
<thead>
<tr>
<th>Designation</th>
<th>KO4303-153</th>
<th>KS4460-12</th>
<th>KO4303-400</th>
<th>KO4303-401</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pole</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Picture</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Pcb configuration</td>
<td>vertical</td>
<td>vertical</td>
<td>horizontal</td>
<td>horizontal</td>
</tr>
<tr>
<td>Fixing</td>
<td>machine soldering</td>
<td>machine soldering</td>
<td>reflow solder method</td>
<td>reflow solder method</td>
</tr>
<tr>
<td>Standard Dimensions</td>
<td>24 x 11,4 x 15,15</td>
<td>24 x 4 x 16,15</td>
<td>24 x 2,54 x 8,1</td>
<td>24 x 2,54 x 8,1</td>
</tr>
<tr>
<td>Availability</td>
<td>available</td>
<td>available</td>
<td>on request</td>
<td>on request</td>
</tr>
<tr>
<td>Further Information</td>
<td>see datasheet KS 4460-12</td>
<td>see datasheet spring contact block, 5-poles</td>
<td>see datasheet spring contact block, 8-poles</td>
<td></td>
</tr>
</tbody>
</table>

Technical Data

Order reference
Carrier profile 15:
- 250 mm: KO 4303-257-5.4; Art.-Nr.: 0063838
- 500 mm: KO 4303-257-5.2; Art.-Nr.: 0061802
- 750 mm: KO 4303-257-5.7; Art.-Nr.: 0063866
- 1000 mm: KO 4303-257-1; Art.-Nr.: 0060632
Carrier profile 7.5:
- 250 mm: KO 4303-257-6.4; Art.-Nr.: 0063839
- 500 mm: KO 4303-257-6.2; Art.-Nr.: 0063864
- 750 mm: KO 4303-257-6.7; Art.-Nr.: 0063865
- 1000 mm: KO 4303-257-2; Art.-Nr.: 0060719
Bus pcb for spring contact block, 5-poles:
- 250 mm: KO 4303-256-1.6; Art.-Nr.: 0063837
- 500 mm: KO 4303-256-1.2; Art.-Nr.: 0061804
- 750 mm: KO 4303-256-1.7; Art.-Nr.: 0063861
- 1000 mm: KO 4303-256-1; Art.-Nr.: 0060631
Carrier rail cover:
- 250 mm: KO 4303-158-2.4; Art.-Nr.: 0063836
- 500 mm: KO 4303-158-2.2; Art.-Nr.: 0061806
- 750 mm: KO 4303-158-2.7; Art.-Nr.: 0063862
- 1000 mm: KO 4303-158-2.1; Art.-Nr.: 0060630
Safety cap, Right:
- KO 4303-158-3; Art.-Nr.: 0060722
Safety cap, Left:
- KO 4303-158-4; Art.-Nr.: 0060723
Spring contact block without coding:
- KO 4303-153.2; Art.-Nr.: 0060720 (with Au-contacts)
Spring contact block with coding:
- KO 4303-153.4; Art.-Nr.: 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)
Safety cap (right/left): Polycarbonate (PC) (5)

Temperature withstand:
- PA66: 205°C (B50) (1)
- PA6: 144°C (B50) (2)
- PA6: 100°C (3)
- PA6: > 290°C (4)
- PC: 138°C (5)
- compl. with EN 75-1/-2 (1,8 MPa): 250°C 80°C (6)
- compl. with EN 75-1/-2 (0,45 MPa): 250°C 190°C (7)

All specifications correspond to the technology used at time of publication.
We reserve the right to make improvements and changes of a technical nature at any time.
Technical Data

**Flame retardancy**
complying with UL 94: V-0

**Bus rails:**
5; 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: HAL/Sn100 or Au 0.6 - 0.8 µm

**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

**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 = insulating material I DIN EN 60 664-1
PA6: CTI 375 = insulating material III a DIN EN 60 664-1
PA4.6: CTI < 400 = insulating material III a
Safety caps
PC6: CTI 175 = insulating material III a DIN EN 60 664-1
Carrier profile
PA66: CTI 500 = insulating material II DIN EN 60 664-1

**Air gap and creepage distance:**
Air gap: ≥ 0,8 mm
Creepage distance: ≥ 2 mm
Voltage Uₜ: 63 V
Ovenvoltage category: II
Rated shock voltage Uₑₗ: 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 60 068-2-6
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 for protection of not usable mounting area
- Bus pcbs to customer lengths to max. 1 m with tinned or gold plated pcb rails
- Safety caps for bus ends

**Further features:**
- The complete possibilities of the bus pcb allows:
  * the input of the bus signal via pcb terminals
  * coupling of two bus pcbs via terminal strip
  * Pcb crossovers with multi-coated pcbs
  * 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
**Dimension Spring contact block**

![Diagram of spring contact block dimensions](image)

*) ending with enclosure exterior surface

**Configuration of spring contact block**

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

![Diagram of spring contact block configuration](image)

spring-contact block ending with lower edge of the enclosure

spring-contact block

enclosure bottom

coding pin

(double contact)

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)

<table>
<thead>
<tr>
<th>enclosure series</th>
<th>enclosure bottom thickness d</th>
<th>distance h = 0.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>KO4300</td>
<td>2.65</td>
<td>10.4</td>
</tr>
<tr>
<td>KU4000</td>
<td>2</td>
<td>11.05</td>
</tr>
<tr>
<td>KU4100</td>
<td>2.15</td>
<td>10.9</td>
</tr>
<tr>
<td>KO4730-KO4737</td>
<td>2.5</td>
<td>10.55</td>
</tr>
</tbody>
</table>

soldering eye Ø2

Inhibited surface

1) Tolerance to 60249-2-4
General tolerance: PERFAG 2 E
Mounting instruction

step 1
put in the pre-mounted carrier profile in to the DIN rail

![Diagram of carrier profile with mounted Bus PCB]

step 2
put on the right and left safety cap

Pay attention to the sequence:
- a) put the caps in from above laid on the carrier profile
- b) snapped the cap on below

Dismantling in reversed sequence

![Diagram of safety caps]

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)

![Diagram of appliance on In-Rail-Bus]

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