sensoplex® Ex/sensoplex® 2 Ex

Coaxial cable

- Coaxial cable for data and power supply
- Versions with rigid or flexible inner conductor
- Pre-assembled or field-wireable cable (in meters) available
- Temperature and chemicals resistant TPE-cable jacket
- 75 Ω impedance

Pre-assembled coaxial cables as well as coaxial cables by the meter are available and are used to provide data transfer and power supply to the connected sensoplex® 2 components. Because bus systems are used at the field level of an automated process, the coaxial cable has to meet special requirements with regards to its mechanical and electrical characteristics.

The coaxial cables KOAX-75/B-FLEX and KOAX-WS-... B-FLEX-WS are equipped with a highly resistant and flexible copper alloy inner conductor which withstands high levels of mechanical stress. The inner conductor of the coaxial cable KOAX-75/B is inflexible and made of a solid copper alloy allowing for longer cable lengths due to reduced attenuation.

The coaxial cable jacket is made of TPE (Thermoplastic Elastomer) and is resistant to heat, contact with hot objects and chemicals. In accordance with its installation in hazardous areas, the cable jacket of the coaxial cable is blue.

Cable installation

The installed coaxial cable should not be exposed to extreme bending or deformation. The min. bending radius of 70 mm must be observed. A strongly deformed cable changes the wave impedance and can cause reflections and standing waves. Standing waves will disturb bus communication and lead to faulty messages within the sensoplex® system.

Earth-free operation of the system must be ensured with regards to the outer conductor of the coaxial cable. The outer conductor is connected to system ground and must not be damaged to avoid ground loops, i.e. the outer conductor plaid should not come into contact with grounded objects.

For connection of the field-wireable coaxial cable to sensoplex® 2 components (e.g. substation ES80-Ex or AS 80-Ex), the field wireable coaxial plug-in connector KOAX-12/67 (Ident-No. 68 822 00) should be used. Please note: the outer conductor of the coaxial cable is connected to the connector housing and must not come into contact with any earthed object.

Pre-assembled coaxial cable KOAX-WS-... BFLEX-WS

Pre-assembled flexible coaxial cables are also available in several lengths. Both ends of the flexible coaxial cables are equipped with moulded right-angle connectors coated with Polyurethane. The preassembled coaxial cables can be ordered in the following lengths:

- 0.3 m KOAX-WS-0.3BFLEX-WS Ident-No. 68 825 21
- 0.6 m KOAX-WS-0.6BFLEX-WS Ident-No. 68 825 22
- 1.0 m KOAX-WS-1.0BFLEX-WS Ident-No. 68 825 23
- 1.5 m KOAX-WS-1.5BFLEX-WS Ident-No. 68 825 24
- 2.0 m KOAX-WS-2.0BFLEX-WS Ident-No. 68 825 25
- 3.0 m KOAX-WS-3.0BFLEX-WS Ident-No. 68 825 29
- 5.0 m KOAX-WS-5.0BFLEX-WS Ident-No. 68 825 28
<table>
<thead>
<tr>
<th>Specification</th>
<th>KOAX-75/B-FLEX</th>
<th>KOAX-75/B</th>
<th>KOAX-WS-...BFLEX-WS</th>
</tr>
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<tbody>
<tr>
<td>Bus</td>
<td>sensoplex®</td>
<td>sensoplex®</td>
<td>sensoplex®</td>
</tr>
<tr>
<td>Cable</td>
<td>by the meter</td>
<td>by the meter</td>
<td>0.3 - 5.0 m</td>
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<tr>
<td>Length</td>
<td>special high resistance</td>
<td>solid copper</td>
<td>special high resistance</td>
</tr>
<tr>
<td>Inner conductor material</td>
<td>flexible copper alloy</td>
<td>flexible copper alloy</td>
<td></td>
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<tr>
<td>Outer conductor material</td>
<td>Al-PP-Al-foil, 100 % cover</td>
<td>Al-PP-Al-foil, 100 % cover</td>
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<tr>
<td>Outer diameter</td>
<td>TPE (Thermoplastic, blue)</td>
<td>TPE (Thermoplastic, blue)</td>
<td></td>
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<tr>
<td>Jacket material</td>
<td>7 mm ± 0.2 mm</td>
<td>7 mm ± 0.2 mm</td>
<td></td>
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<tr>
<td>Conductor insulation material</td>
<td>Cell-PE, white</td>
<td>Cell-PE, white</td>
<td></td>
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<tr>
<td>Number of strands</td>
<td>1 / 1</td>
<td>1 / 1</td>
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<tr>
<td>Cross section</td>
<td>19 x 0.22 mm</td>
<td>1.1 mm</td>
<td>19 x 0.22 mm</td>
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<tr>
<td>Minimum bending radius</td>
<td>70 mm</td>
<td>70 mm</td>
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<tr>
<td>Impedance</td>
<td>75 Ω</td>
<td>75 Ω</td>
<td>75 Ω</td>
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<tr>
<td>Signal attenuation</td>
<td>2.7 dB (8/12 MHz)</td>
<td>1.9 dB (8/12 MHz)</td>
<td>2.7 dB (8/12 MHz)</td>
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<tr>
<td>Ohmic resistance</td>
<td>43 m Ω/m</td>
<td>43 m Ω/m</td>
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<tr>
<td>Inductances</td>
<td>450 nH/m</td>
<td>450 nH/m</td>
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<tr>
<td>Capacitance</td>
<td>55 pF/m</td>
<td>55 pF/m</td>
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<tr>
<td>Pulse shortening factor</td>
<td>0.78</td>
<td>0.78</td>
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</tr>
<tr>
<td>Degree of shielding</td>
<td>75 db</td>
<td>75 db</td>
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<tr>
<td>Ambient temperature range</td>
<td>-25...+80 °C</td>
<td>-25...+80 °C</td>
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<tr>
<td>Heat resistance (VDE 0472)</td>
<td>110 °C</td>
<td>110 °C</td>
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<tr>
<td>Short term rating (when in contact with hot objects &gt; 140 °C)</td>
<td>up to 250 °C no distortion, no melting, no short-circuit</td>
<td>up to 250 °C no distortion, no melting, no short-circuit</td>
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<tr>
<td>Short-circuit resistance (VDE 0298)</td>
<td>test temperature 250 °C</td>
<td>test temperature 250 °C</td>
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<tr>
<td>Chemical resistance</td>
<td>resistant to solvents and oils, no swelling</td>
<td>resistant to solvents and oils, no swelling</td>
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<tr>
<td>Weight</td>
<td>50 g/m</td>
<td>50 g/m</td>
<td>50 g/m</td>
</tr>
</tbody>
</table>

Right-angle plug-in connectors:
- Contact carrier material: copper alloy, silver-plated
- Cable sleeve/grip material: Polyurethane
- Contact material/plating: copper alloy, silver-plated
- Coupling nut material/plating: copper alloy, nickel-plated
- Gaskets: Polyurethane