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Bus system flush-type plug, Ethernet, 4-pos., M12 SPEEDCON, shielded, D-coded, rear/screw mounting with Pg9 thread, with 2.0 m bus cable,  $2 \times 2 \times 0.2 \text{ mm}^2$ 





### Key Commercial Data

| Packing unit         | 1               |
|----------------------|-----------------|
| GTIN                 | 4 046356 458481 |
| GTIN                 | 4046356458481   |
| Custom tariff number | 85444290        |

## Technical data

#### Dimensions

|  | Length of cable | 2 m |
|--|-----------------|-----|
|--|-----------------|-----|

### Ambient conditions

| Ambient temperature (operation) | -25 °C 85 °C (Plug / socket)                |
|---------------------------------|---|
|                                 | -40 °C 85 °C (without mechanical actuation) |
|                                 | -25 °C 85 °C (Plug / socket)                |
| Degree of protection            | IP67 (When plugged in)                      |
|                                 | IP65 (When plugged in)                      |

#### General

| Raleo current al 40 G | 4 A (Plug/socket in accordance with IEC 61076-2-101, cable technical data is to be observed) |
|-----------------------|--|
| Rated voltage         | 48 V AC  |



## Technical data

#### General

|   | 60 V DC                                  |
|---|--|
| Number of positions                     | 4  |
| Coding                                  | D - data                                 |
| Standards/regulations                   | M12 connector IEC 61076-2-101            |
| Signal type/category                    | Ethernet CAT5 (IEC 11801:2002), 100 Mbps |
|   | Ethernet                                 |
| Overvoltage category                    | Ш  |
| Degree of pollution                     | 3  |
| Transmission characteristics (category) | CAT5                                     |

#### Material

| Flammability rating according to UL 94 | V0                  |
|--|---------------------|
| Contact material                       | CuZn                |
| Contact surface material               | Ni/Au               |
| Contact carrier material               | PA 6.6              |
| Material, knurls                       | Nickel-plated brass |
| Sealing material                       | NBR                 |

#### Standards and Regulations

| Standards/specifications               | M12 connector IEC 61076-2-101   |
|--|---|
| Flammability rating according to UL 94 | V0  |
| Safety note                            | WARNING: The connectors may not be plugged in or disconnected under load. Ignoring the warning or improper use may damage persons and/or property.  |
|  | • WARNING: Commission properly functioning products only. The products must be regularly inspected for damage. Decommission defective products immediately. Replace damaged products. Repairs are not possible.   |
|  | • WARNING: Only electrically qualified personnel may install and operate<br>the product. They must observe the following safety notes. The qualified<br>personnel must be familiar with the basics of electrical engineering. They<br>must be able to recognize and prevent danger. The relevant symbol on the<br>packaging indicates that only personnel familiar with electrical engineering<br>are allowed to install and operate the product. |
|  | • The products are suitable for applications in plant, controller, and electrical device engineering.   |
|  | When operating the connectors in outdoor applications, they must be separately protected against environmental influences.  |
|  | Assembled products may not be manipulated or improperly opened.   |
|  | • Only use mating connectors that are specified in the technical data of the standards listed (e.g. the ones listed in the product accessories online at phoenixcontact.com/products).  |



## Technical data

#### Standards and Regulations

| • When using the product in direct connection with third-party manufacturers, the user is responsible.   |
|--|
| • For operating voltages > 50 V AC, conductive connector housings must be grounded   |
| • Ensure that when laying the cable, the tensile load on the connectors does not exceed the upper limit specified in the standards.  |
| Observe the corresponding technical data. You will find information:     o On the product     o On the packing label     o In the supplied documentation     o Online at phoenixcontact.com/products under the product                 |
| Only use tools recommended by Phoenix Contact  |
| Use a protective cap to protect connectors that are not in use. The suitable accessories are available online in the accessory section of the product at phoenixcontact.com/products   |
| Ensure that the protective or functional ground has been properly connected.   |
| VDE 0100/1.97 § 411.1.3.2 and DIN EN 60 204/11.98 § 14.1.3 are applicable when combining several circuits in a cable and/or connector  |
| • The connector warms up in normal operation. Depending on the ambient conditions, the surface of the connector can continue to warm up. In this case, the user is responsible for posting warnings (e.g. DIN EN ISO 13732-1:2008-12). |

### Cable

| Cable type                         | Ethernet flexible CAT5, 2-pair                     |
|------------------------------------|--|
| Cable type (abbreviation)          | 93E  |
| UL AWM style                       | 20963 (80°C/30 V)                                  |
| Signal type/category               | Ethernet CAT5 (IEC 11801), 100 Mbps                |
| Cable structure                    | 2x2xAWG26/7; SF/UTP                                |
| Conductor cross section            | 2x 2x 0.14 mm²                                     |
| AWG signal line                    | 26   |
| Conductor structure signal line    | 7x 0.16 mm   |
| Core diameter including insulation | 0.98 mm  |
| Wire colors                        | white/orange-orange, white/green-green             |
| Twisted pairs                      | 2 cores to the pair                                |
| Overall twist                      | Two pairs with two fillers to the core             |
| Shielding                          | Aluminum-coated foil, tinned copper braided shield |
| Optical shield covering            | 70 %   |
| External sheath, color             | water blue RAL 5021                                |
| Outer sheath thickness             | 1.2 mm   |



## Technical data

Cable

| External cable diameter D6.4 mm 40.2 mmMinimum bending radius, fixed installation4 x DMinimum bending radius, fixed installation8 x DTansile strength GRP≤ 80 NCable weight42 kg/kmOuter sheath, materialPURMaterial conductor insulationFoamed PEConductor materialBare Cu litz wiresStandards/specificationsElectrical requirements EN 50288-2-2Insulation resistance> 2600 00/kmCable capacityapprox. 45 nF/km (at 1 kHz)Wave impedance100 0 ± 50 (at 100 MHz)Gable capacity65 3 dB (at 100 MHz)Wave impedance65 3 dB (at 100 MHz)Near end crosstalk attenuation (NEXT)65 3 dB (at 100 MHz)Gable capacity42 9 dB (at 31.25 MHz)Manumeter end crosstalk attenuation (PSNEXT)63 3 dB (at 100 MHz)Power-summated near end crosstalk attenuation (PSNEXT)63 3 dB (at 10 MHz)Power-summated near end crosstalk attenuation (PSNEXT)63 3 dB (at 10 MHz)Stad Gat 20 MHz)33 dB (at 26 MHz)Stad Gat 20 MHz)34 dB (at 25 MHz)Cable Capacity39.9 dB (at 31.25 MHz)Cable Capacity39.9 dB (at 31.25 MHz)Cable Capacity32.3 dB (at 10 MHz)Cable Capacity32.3 dB (at 10 MHz)Cable Capacity39.9 dB (at 31.25 MHz)Cable Capacity39.9 dB (at 31.25 MHz)Cable Capacity32.3 dB (at 10 MHz)Cable Capacity32.3 dB (at 10 MHz)Cable Capacity32.3 dB (at 10 MHz)Cable Capacity32   |                                      |
|---|--------------------------------------|
| Minimum bending radius, flexible installation     8 x D       Tensile strength GRP     ≤ 90 N       Cable weight     42 kg/km       Outer sheath, material     PUR       Material conductor insulation     Foamed PE       Conductor material     Bare Cu litz wires       Standards/specifications     Electrical requirements EN 50288-2:2       Insulation resistance     ≤ 900 MQ*km       Loop resistance     < 290.00 Q/km  | 6.4 mm ±0.2 mm                       |
| Tensile strength GRP         ≤ 80 N           Cable weight         42 kg/km           Outer sheath, material         PUR           Material conductor insulation         Foamed PE           Conductor material         Bare Cu litz wires           Standards/specifications         Electrical requirements EN 50288-2-2           Insulation resistance         > 500 MΩ/km           Loop resistance         ≤ 290.00 Ω/km           Cable capacity         ≤ 290.00 Ω/km           Wave impedance         100 Ω ± 5 Ω (at 100 MHz)           Wave impedance         100 Ω ± 5 Ω (at 100 MHz)           Near end crosstalk attenuation (NEXT)         65.3 dB (at 4 MHz)           Gald         42.9 dB (at 31.25 MHz)           Gald         43.4 dB (at 62.5 MHz)           Gald         43.4 dB (at 62.5 MHz)           Gald         43.4 dB (at 10 MHz)           Gald         43.4 dB (at 62.5 MHz) <td>4 x D</td>   | 4 x D                                |
| Cable weight         42 kg/km           Outer sheath, material         PUR           Material conductor insulation         Foamed PE           Conductor material         Bare Cu litz wires           Standards/specifications         Electrical requirements EN 50288-2-2           Insulation resistance         2 500 MΩ <sup>1</sup> km           Loop resistance         2 500 MΩ <sup>1</sup> km           Cable capacity         approx. 45 nF/km (at 1 kHz)           Wave impedance         100 Ω ± 5 Ω (at 100 MHz)           Near end crosstalk attenuation (NEXT)         65.3 dB (at 4 MHz)           66.3 dB (at 20 MHz)         50.3 dB (at 10 MHz)           100 Q ± 5 Ω (at 100 MHz)         45.8 dB (at 20 MHz)           100 Q ± 3 Ω (at 100 MHz)         45.8 dB (at 20 MHz)           100 Q ± 3 Ω (at 100 MHz)         33.4 dB (at 62.5 MHz)           100 Q ± 3 Ω (at 100 MHz)         33.3 dB (at 4 MHz)           100 Q ± 3 Ω (at 100 MHz)         100 Q ± 3 Ω (at 100 MHz)           100 Q ± 3 Ω (at 100 MHz)         100 Q ± 3 Ω (at 100 MHz)           100 Q ± 2 Q ± Q ± Q ± Q ± Q ± Q ± Q ± Q ± Q   | 8 x D                                |
| Outer sheath, material         PUR           Material conductor insulation         Foamed PE           Conductor material         Bare Cu litz wires           Standards/specifications         Electrical requirements EN 50288-2-2           Insulation resistance         > 500 MQ/km           Loop resistance         < 290.00 Q/km  | ≤ 80 N                               |
| Material conductor insulation         Foamed PE           Conductor material         Bare Cu litz wires           Standards/specifications         Electrical requirements EN 50288-2-2           Insulation resistance         ≥ 500 MQ*km           Loop resistance         ≥ 500 MQ*km           Gable capacity         approx. 45 nF/km (at 1 kHz)           Wave impedance         100 Ω ±5 Ω (at 100 MHz)           Near end crosstalk attenuation (NEXT)         65.3 dB (with 1 MHz)           6.3 dB (at 4 MHz)         50.3 dB (at 4 MHz)           10.0 Δ ±5 Ω (at 100 MHz)         45.8 dB (at 20 MHz)           10.0 Δ ±5 Ω (at 100 MHz)         53.3 dB (at 10 MHz)           10.0 Δ ±5 Ω (at 100 MHz)         53.3 dB (at 100 MHz)           10.0 Δ ±5 Ω (at 100 MHz)         35.3 dB (at 100 MHz)           10.0 Δ ±5 Ω (at 100 MHz)         35.3 dB (at 100 MHz)           10.0 Δ ±5 Ω (at 100 MHz)         35.3 dB (at 100 MHz)           10.0 Δ ±5 Ω (at 10 MHz)         39.9 dB (at 20 MHz)           10.0 Δ ±5 Ω (at 10 MHz)         39.9 dB (at 20 MHz)           10.0 Δ ±5 Ω (at 10 MHz)         39.9 dB (at 10 MHz)           10.0 Δ ±5 Ω (at 10 MHz)         39.9 dB (at 20 MHz)           10.0 Δ ±5 Ω (at 10 MHz)         32.3 dB (at 10 MHz)           10.0 Δ ±0 Δ ±3 Ω ±3   | 42 kg/km                             |
| Conductor material         Bare Cu litz wires           Standards/specifications         Electrical requirements EN 50288-2-2           Insulation resistance         < 500 MO*km   | PUR                                  |
| Standards/specificationsElectrical requirements EN 50288-2-2Insulation resistance $\geq 500 \ M\Omega^k m$ Loop resistance $\leq 290.00 \ \Omega/k m$ Cable capacityapprox. 45 nF/km (at 1 kHz)Wave impediance $100 \ \Omega \pm 5 \ \Omega$ (at 100 MHz)Near end crosstalk attenuation (NEXT) $65.3 \ dB$ (at 1 MHz)6 $50.3 \ dB$ (at 10 MHz)6 $50.3 \ dB$ (at 0 MHz)6 $47.2 \ dB$ (at 16 MHz)6 $42.9 \ dB$ (at 31.25 MHz)7 $42.9 \ dB$ (at 31.25 MHz)8 $40 \ dt 25 \ MHz$ 8 $40 \ dt 10 \ MHz$ 9 $53.3 \ dB$ (at 10 MHz)9 $42.9 \ dB$ (at 10 MHz)9 $42.9 \ dB$ (at 10 MHz)9 $42.9 \ dB$ (at 12.5 MHz)9 $33.4 \ dB$ (at 62.5 MHz)9 $33.3 \ dB$ (at 10 MHz)9 $42.3 \ dB$ (at 20 MHz)10 $42.3 \ dB$ (at 20 MHz)11 $42.3 \ dB$ (at 10 MHz)12 $42.3 \ dB$ (at 10 MHz)13 $44.2 \ dB$ (at 10 MHz)14 $42.3 \ dB$ (at 20 MHz)15 $33.3 \ dB$ (at 10 MHz)16 $42.3 \ dB$ (at 20 MHz)17 $42.3 \ dB$ (at 20 MHz)18 $42.3 \ dB$ (at 20 MHz)19 $42.3 \ dB$ (at 20 MHz)19 $42.3 \ dB$ (at 20 MHz)10 $42.3 \ dB$ (at 20 MHz)11 $42.3 \ dB$ (at 100 MHz)12 $42.3 \ dB$ (at 100 MHz)13 $42.3 \ dB$ (at 100 MHz)14 $42.3 \ dB$ (at 100 MHz)15 $43.4 \ dB$ (at 62.5 MHz) </td <td>Foamed PE</td>  | Foamed PE                            |
| Insulation resistance         ≥ 500 MΩ*km           Loop resistance         ≤ 290.00 Ω/km           Cable capacity         approx. 45 nF/km (at 1 kHz)           Wave impedance         100 Ω ± 5 Ω (at 100 MHz)           Near end crosstalk attenuation (NEXT)         65.3 dB (with 1 MHz)           56.3 dB (at 4 MHz)         56.3 dB (at 4 MHz)           100 Ω ± 5 Ω (at 100 MHz)         45.8 dB (at 20 MHz)           47.2 dB (at 16 MHz)         42.9 dB (at 31.25 MHz)           100 Ω ± 5 Ω (at 100 MHz)         35.3 dB (at 100 MHz)           Power-summated near end crosstalk attenuation (PSNEXT)         62.3 dB (at 40 MHz)           100 Ω ± 5 Ω (at 100 MHz)         35.3 dB (at 100 MHz)           Power-summated near end crosstalk attenuation (PSNEXT)         62.3 dB (with 1 MHz)           101 Ω ± 2 Ω  | Bare Cu litz wires                   |
| Loop resistance $\leq$ 290.00 Ω/km           Cable capacity         approx. 45 nF/km (at 1 kHz)           Wave impedance         100 Ω ± 5 Ω (at 100 MHz)           Near end crosstalk attenuation (NEXT)         65.3 dB (at 4 MHz)           66.3 dB (at 4 MHz)         50.3 dB (at 10 MHz)           67.3 dB (at 10 MHz)         65.3 dB (at 20 MHz)           67.3 dB (at 10 MHz)         42.9 dB (at 16 MHz)           67.3 dB (at 20 MHz)         38.4 dB (at 22 MHz)           67.3 dB (at 10 MHz)         35.3 dB (at 100 MHz)           70.4 dB (at 62.5 MHz)         35.3 dB (at 100 MHz)           70.4 dB (at 62.5 MHz)         35.3 dB (at 100 MHz)           70.4 dB (at 61 MHz)         53.3 dB (at 100 MHz)           70.4 dB (at 100 MHz)         53.3 dB (at 100 MHz)           70.4 dB (at 10 MHz)         53.3 dB (at 100 MHz)           70.4 dB (at 10 MHz)         53.3 dB (at 10 MHz)           70.4 dB (at 10 MHz)         53.3 dB (at 10 MHz)           70.4 dB (at 10 MHz)         53.3 dB (at 10 MHz)           70.4 dB (at 62 MHz)         39.9 dB (at 31.25 MHz)           70.4 dB (at 10 MHz)         39.9 dB (at 31.25 MHz)           70.4 dB (at 61 MHz)         32.3 dB (at 100 MHz)           70.4 dB (at 61 MHz)         32.3 dB (at 100 MHz)           70.4 dB (at 61 MHz)         3  | Electrical requirements EN 50288-2-2 |
| Cable capacity         approx. 45 nF/km (at 1 kHz)           Wave impedance         100 Ω ±5 Ω (at 100 MHz)           Near end crosstalk attenuation (NEXT)         65.3 dB (with 1 MHz)           56.3 dB (at 4 MHz)         50.3 dB (at 10 MHz)           47.2 dB (at 16 MHz)         47.2 dB (at 16 MHz)           42.9 dB (at 31.25 MHz)         38.4 dB (at 2.5 MHz)           53.3 dB (at 10 MHz)         38.4 dB (at 62.5 MHz)           64.0 MHz)         53.3 dB (at 10 MHz)           Power-summated near end crosstalk attenuation (PSNEXT)         62.3 dB (with 1 MHz)           53.3 dB (at 10 MHz)         53.3 dB (at 10 MHz)           64.0 MHz)         53.3 dB (at 10 MHz)           Power-summated near end crosstalk attenuation (PSNEXT)         62.3 dB (with 1 MHz)           64.0 MEZ         47.3 dB (at 10 MHz)           64.0 MEZ         42.8 dB (at 20 MHz)           64.0 MEZ         39.9 dB (at 31.25 MHz)           64.0 MEZ         32.3 dB (at 100 MHz)           64.0 MEZ         32.3 dB (at 10 MHz)           64.0 MEZ         64.0 MEZ           64.0 MEZ         64.0 MEZ           65.0 MEZ         5  | $\geq$ 500 M $\Omega$ *km            |
| Wave impedance         100 Ω ± 5 Ω (at 100 MHz)           Near end crosstalk attenuation (NEXT)         65.3 dB (with 1 MHz)           56.3 dB (at 4 MHz)         50.3 dB (at 10 MHz)           47.2 dB (at 16 MHz)         47.2 dB (at 16 MHz)           47.2 dB (at 16 MHz)         45.8 dB (at 20 MHz)           42.9 dB (at 31.25 MHz)         38.4 dB (at 62.5 MHz)           38.4 dB (at 62.5 MHz)         35.3 dB (at 100 MHz)           Power-summated near end crosstalk attenuation (PSNEXT)         62.3 dB (with 1 MHz)           42.9 dB (at 31.25 MHz)         53.3 dB (at 100 MHz)           Power-summated near end crosstalk attenuation (PSNEXT)         62.3 dB (with 1 MHz)           42.9 dB (at 10 MHz)         47.3 dB (at 10 MHz)           42.9 dB (at 210 MHz)         44.2 dB (at 16 MHz)           44.2 dB (at 10 MHz)         42.8 dB (at 20 MHz)           45.4 dB (at 2.5 MHz)         39.9 dB (at 31.25 MHz)           45.4 dB (at 2.0 MHz)         32.3 dB (at 100 MHz)           44.2 dB (at 16 MHz)         32.3 dB (with 1 MHz)           44.1 dB (at 16 MHz)         32.3 dB (at 100 MHz)           44.2 dB (at 10 MHz)         42.8 dB (at 2.0 MHz)           44.2 dB (at 10 MHz)         32.3 dB (with 1 MHz)           44.2 dB (at 10 MHz)         42.8 dB (at 2.0 MHz)           44.2 dB (at 10 MHz)         6 dB (at 4  | ≤ 290.00 Ω/km                        |
| Near end crosstalk attenuation (NEXT)         65.3 dB (with 1 MHz)           56.3 dB (at 4 MHz)         50.3 dB (at 10 MHz)           47.2 dB (at 16 MHz)         47.2 dB (at 16 MHz)           45.8 dB (at 20 MHz)         42.9 dB (at 31.25 MHz)           38.4 dB (at 62.5 MHz)         35.3 dB (at 100 MHz)           Power-summated near end crosstalk attenuation (PSNEXT)         62.3 dB (with 1 MHz)           60.3 dB (at 10 MHz)         53.3 dB (at 100 MHz)           Power-summated near end crosstalk attenuation (PSNEXT)         62.3 dB (with 1 MHz)           61.3 dB (at 20 MHz)         47.3 dB (at 10 MHz)           62.3 dB (with 1 MHz)         47.3 dB (at 10 MHz)           62.3 dB (with 1 MHz)         47.3 dB (at 10 MHz)           63.4 dB (at 2.5 MHz)         39.9 dB (at 31.25 MHz)           63.4 dB (at 2.5 MHz)         35.4 dB (at 2.5 MHz)           63.4 dB (at 2.5 MHz)         35.4 dB (at 2.5 MHz)           63.4 dB (at 2.5 MHz)         32.3 dB (at 100 MHz)           Attenuation         3.2 dB (with 1 MHz)           64.5 dB (at 2.5 MHz)         32.3 dB (at 100 MHz)           Attenuation         3.2 dB (with 1 MHz)           64.5 dB (at 2.0 MHz)         12.1 dB (at 16 MHz)           65.5 dB (at 2.0 MHz)         12.1 dB (at 16 MHz)           65.5 dB (at 2.0 MHz)         13.6 dB (at 2.0 MHz)  | approx. 45 nF/km (at 1 kHz)          |
| 56.3 dB (at 4 MHz)           50.3 dB (at 10 MHz)           47.2 dB (at 16 MHz)           45.8 dB (at 20 MHz)           42.9 dB (at 31.25 MHz)           38.4 dB (at 62.5 MHz)           38.4 dB (at 62.5 MHz)           35.3 dB (at 100 MHz)           Power-summated near end crosstalk attenuation (PSNEXT)           62.3 dB (with 1 MHz)           64.3 dB (at 20 MHz)           47.3 dB (at 100 MHz)           Power-summated near end crosstalk attenuation (PSNEXT)           62.3 dB (with 1 MHz)           64.4 d (at 20 MHz)           47.3 dB (at 100 MHz)           64.3 dB (at 20 MHz)           44.2 dB (at 16 MHz)           44.2 dB (at 16 MHz)           42.8 dB (at 20 MHz)           39.9 dB (at 31.25 MHz)           39.9 dB (at 31.25 MHz)           32.3 dB (at 100 MHz)           44.2 dB (at 16 MHz)           32.3 dB (at 100 MHz)           33.3 dB (at 100 MHz)           34.4 dB (at 62.5 MHz)           35.4 dB (at 62.5 MHz)           32.4 dB (at 10 MHz)           6 dB (at 4 MHz)           9.5 dB (at 100 MHz)           12.1 dB (at 16 MHz)           12.1 dB (at 10 MHz)           13.6 dB (at 20 MHz)           13.6 dB (at 20 MHz)     <  | 100 Ω ±5 Ω (at 100 MHz)              |
| 50.3 dB (at 10 MHz)           47.2 dB (at 16 MHz)           45.8 dB (at 20 MHz)           42.9 dB (at 31.25 MHz)           38.4 dB (at 62.5 MHz)           35.3 dB (at 100 MHz)           Power-summated near end crosstalk attenuation (PSNEXT)           62.3 dB (with 1 MHz)           53.3 dB (at 100 MHz)           9           9           44.2 dB (at 16 MHz)           44.2 dB (at 16 MHz)           44.2 dB (at 16 MHz)           42.8 dB (at 20 MHz)           39.9 dB (at 31.25 MHz)           32.3 dB (at 10 MHz)           42.8 dB (at 20 MHz)           32.3 dB (at 10 MHz)           32.3 dB (at 10 MHz)           44.2 dB (at 62.5 MHz)           32.3 dB (at 100 MHz)           32.4 dB (at 62.5 MHz)           32.3 dB (at 100 MHz)           41.1 dB (at 16 MHz)           9.5 dB (at 10 MHz)           12.1 dB (at 16 MHz)           12.1 dB (at 16 MHz)           13.6 dB (at 20 MHz)           13.6 dB (at 20 MHz)           13.6 dB (at 20 MHz)   | 65.3 dB (with 1 MHz)                 |
| 47.2 dB (at 16 MHz)         45.8 dB (at 20 MHz)         42.9 dB (at 31.25 MHz)         38.4 dB (at 62.5 MHz)         39.4 dB (at 62.5 MHz)         Power-summated near end crosstalk attenuation (PSNEXT)         62.3 dB (with 1 MHz)         62.3 dB (at 10 MHz)         62.3 dB (at 20 MHz)         62.3 dB (at 20 MHz)         7.3 dB (at 10 MHz)         7.3 dB (at 20 MHz)         8.4 dB (at 62.5 MHz)         8.4 dB (at 100 MHz)         Attenuation       3.2 dB (with 1 MHz)         6 dB (at 4 MHz)         9.5 dB (at 100 MHz)         12.1 dB (at 16 MHz)         12.1 dB (at 16 MHz)         13.6 dB (at 20 MHz)  | 56.3 dB (at 4 MHz)                   |
| 45.8 dB (at 20 MHz)         42.9 dB (at 31.25 MHz)         38.4 dB (at 62.5 MHz)         35.3 dB (at 100 MHz)         Power-summated near end crosstalk attenuation (PSNEXT)         62.3 dB (with 1 MHz)         53.3 dB (at 4 MHz)         47.3 dB (at 10 MHz)         62.4 dB (at 62.5 MHz)         39.9 dB (at 31.25 MHz)         62.3 dB (at 10 MHz)         62.3 dB (at 10 MHz)         62.3 dB (at 20 MHz)         62.3 dB (at 20 MHz)         39.9 dB (at 31.25 MHz)         62.3 dB (at 100 MHz)         62.3 dB (at 100 MHz)         64 (at 62.5 MHz)         32.3 dB (at 100 MHz)         64 (at 62.5 MHz)         32.3 dB (at 100 MHz)         64 (at 4 MHz)         64 (at 4 MHz)         65 (at 100 MHz)         65 (at 100 MHz)         64 (at 4 MHz)         65 (at 100 MHz)         65 (at 100 MHz)         65 (at 100 MHz)         65 (at 100 MHz)         65 (at 20 MHz)         65 (at 20 MHz)         66 (at 4 MHz)         67 (at 10 MHz)         67 (at 10 MHz)         68 (at 20 MHz)         69 (at 20 MHz)         61 (at 20 MHz) <td< td=""><td>50.3 dB (at 10 MHz)</td></td<>   | 50.3 dB (at 10 MHz)                  |
| 42.9 dB (at 31.25 MHz)         38.4 dB (at 62.5 MHz)         35.3 dB (at 100 MHz)         Power-summated near end crosstalk attenuation (PSNEXT)         62.3 dB (with 1 MHz)         53.3 dB (at 4 MHz)         47.3 dB (at 10 MHz)         47.3 dB (at 10 MHz)         47.3 dB (at 10 MHz)         42.9 dB (at 31.25 MHz)         42.8 dB (at 20 MHz)         42.9 dB (at 10 MHz)         42.9 dB (at 10 MHz)         42.9 dB (at 10 MHz)         42.9 dB (at 100 MHz)         6 dB (at 4 MHz)         9.5 dB (at 10 MHz)         10.1 dB (at 16 MHz)         11.1 dB (at 16 MHz)         12.1 dB (at 16 MHz)         13.6 dB (at 20 MHz)         14.1 dB (at 13.25 MHz)   | 47.2 dB (at 16 MHz)                  |
| 38.4 dB (at 62.5 MHz)           9ower-summated near end crosstalk attenuation (PSNEXT)         62.3 dB (at 100 MHz)           62.3 dB (at 4 MHz)         53.3 dB (at 4 MHz)           47.3 dB (at 10 MHz)         47.3 dB (at 10 MHz)           44.2 dB (at 16 MHz)         42.8 dB (at 20 MHz)           9.9 dB (at 31.25 MHz)         39.9 dB (at 31.25 MHz)           4tenuation         32.3 dB (at 100 MHz)           Attenuation         32.4 dB (at 62.5 MHz)           6 dB (at 4 MHz)         53.3 dB (at 100 MHz)           10 dB (at 62.5 MHz)         32.3 dB (at 100 MHz)           11 dB (at 62.5 MHz)         32.3 dB (at 100 MHz)           12 dB (at 60.5 MHz)         32.3 dB (at 100 MHz)           13 dB (at 100 MHz)         32.3 dB (at 100 MHz)           14 dB (at 62.5 MHz)         32.3 dB (at 100 MHz)           13 dB (at 100 MHz)         32.3 dB (at 100 MHz)           14 dB (at 60.5 MHz)         32.3 dB (at 100 MHz)           14 dB (at 60.5 MHz)         32.4 dB (at 4 MHz)           14 dB (at 60.5 MHz)         32.4 dB (at 4 MHz)           14 dB (at 60.5 MHz)         32.4 dB (at 100 MHz)           14 dB (at 16 MHz)         32.4 dB (at 16 MHz)           15 dB (at 10 MHz)         35.4 dB (at 20 MHz)           17 dB (at 31.25 MHz)         31.6 dB (at 20 MHz)  | 45.8 dB (at 20 MHz)                  |
| S5.3 dB (at 100 MHz)         Power-summated near end crosstalk attenuation (PSNEXT)       62.3 dB (with 1 MHz)         S3.3 dB (at 4 MHz)       53.3 dB (at 4 MHz)         Image: the state sta | 42.9 dB (at 31.25 MHz)               |
| Power-summated near end crosstalk attenuation (PSNEXT)         62.3 dB (with 1 MHz)           53.3 dB (at 4 MHz)         53.3 dB (at 4 MHz)           47.3 dB (at 10 MHz)         44.2 dB (at 10 MHz)           44.2 dB (at 16 MHz)         42.8 dB (at 20 MHz)           50.00000000000000000000000000000000000  | 38.4 dB (at 62.5 MHz)                |
| 53.3 dB (at 4 MHz)         47.3 dB (at 10 MHz)         47.3 dB (at 10 MHz)         44.2 dB (at 16 MHz)         42.8 dB (at 20 MHz)         39.9 dB (at 31.25 MHz)         35.4 dB (at 62.5 MHz)         32.3 dB (at 100 MHz)         Attenuation         3.2 dB (with 1 MHz)         6 dB (at 4 MHz)         9.5 dB (at 10 MHz)         12.1 dB (at 16 MHz)         13.6 dB (at 20 MHz)         13.6 dB (at 20 MHz)         17.1 dB (at 31.25 MHz)  | 35.3 dB (at 100 MHz)                 |
| 47.3 dB (at 10 MHz)         44.2 dB (at 16 MHz)         42.8 dB (at 20 MHz)         39.9 dB (at 31.25 MHz)         35.4 dB (at 62.5 MHz)         32.3 dB (at 100 MHz)         Attenuation         3.2 dB (with 1 MHz)         6 dB (at 4 MHz)         9.5 dB (at 10 MHz)         12.1 dB (at 16 MHz)         12.1 dB (at 16 MHz)         13.6 dB (at 20 MHz)         17.1 dB (at 31.25 MHz)   | 62.3 dB (with 1 MHz)                 |
| 44.2 dB (at 16 MHz)         42.8 dB (at 20 MHz)         39.9 dB (at 31.25 MHz)         35.4 dB (at 62.5 MHz)         32.3 dB (at 100 MHz)         Attenuation         3.2 dB (with 1 MHz)         6 dB (at 4 MHz)         9.5 dB (at 10 MHz)         12.1 dB (at 10 MHz)         12.1 dB (at 10 MHz)         12.1 dB (at 16 MHz)         13.6 dB (at 20 MHz)         17.1 dB (at 31.25 MHz)   | 53.3 dB (at 4 MHz)                   |
| 42.8 dB (at 20 MHz)         39.9 dB (at 31.25 MHz)         35.4 dB (at 62.5 MHz)         32.3 dB (at 100 MHz)         Attenuation         3.2 dB (with 1 MHz)         6 dB (at 4 MHz)         9.5 dB (at 10 MHz)         12.1 dB (at 16 MHz)         12.1 dB (at 16 MHz)         13.6 dB (at 20 MHz)         13.6 dB (at 20 MHz)         17.1 dB (at 31.25 MHz)   | 47.3 dB (at 10 MHz)                  |
| 39.9 dB (at 31.25 MHz)         35.4 dB (at 62.5 MHz)         32.3 dB (at 100 MHz)         Attenuation         3.2 dB (with 1 MHz)         6 dB (at 4 MHz)         6 dB (at 10 MHz)         12.1 dB (at 10 MHz)         12.1 dB (at 16 MHz)         13.6 dB (at 20 MHz)         17.1 dB (at 31.25 MHz)   | 44.2 dB (at 16 MHz)                  |
| 35.4 dB (at 62.5 MHz)         32.3 dB (at 100 MHz)         Attenuation       3.2 dB (with 1 MHz)         6 dB (at 4 MHz)         9.5 dB (at 10 MHz)         12.1 dB (at 10 MHz)         13.6 dB (at 20 MHz)         17.1 dB (at 31.25 MHz)  | 42.8 dB (at 20 MHz)                  |
| 32.3 dB (at 100 MHz)         Attenuation       3.2 dB (with 1 MHz)         6 dB (at 4 MHz)         9.5 dB (at 10 MHz)         12.1 dB (at 16 MHz)         13.6 dB (at 20 MHz)         17.1 dB (at 31.25 MHz)  | 39.9 dB (at 31.25 MHz)               |
| Attenuation       3.2 dB (with 1 MHz)         6 dB (at 4 MHz)       6 dB (at 4 MHz)         9.5 dB (at 10 MHz)       12.1 dB (at 10 MHz)         12.1 dB (at 16 MHz)       13.6 dB (at 20 MHz)         11.1 dB (at 31.25 MHz)       17.1 dB (at 31.25 MHz)  | 35.4 dB (at 62.5 MHz)                |
| 6 dB (at 4 MHz)         9.5 dB (at 10 MHz)         12.1 dB (at 16 MHz)         13.6 dB (at 20 MHz)         17.1 dB (at 31.25 MHz)   | 32.3 dB (at 100 MHz)                 |
| 9.5 dB (at 10 MHz)         12.1 dB (at 16 MHz)         13.6 dB (at 20 MHz)         17.1 dB (at 31.25 MHz)   | 3.2 dB (with 1 MHz)                  |
| 12.1 dB (at 16 MHz)         13.6 dB (at 20 MHz)         17.1 dB (at 31.25 MHz)  | 6 dB (at 4 MHz)                      |
| 13.6 dB (at 20 MHz)           17.1 dB (at 31.25 MHz)  | 9.5 dB (at 10 MHz)                   |
| 17.1 dB (at 31.25 MHz)  | 12.1 dB (at 16 MHz)                  |
|   | 13.6 dB (at 20 MHz)                  |
|   | 17.1 dB (at 31.25 MHz)               |
| 24.8 dB (at 62.5 MHz)   | 24.8 dB (at 62.5 MHz)                |
|   |                                      |



## Technical data

Cable

|   | 32 dB (at 100 MHz)   |
|---|--|
| Return loss (RL)                        | 23 dB (at 4 MHz)   |
|   | 24.1 dB (at 8 MHz)   |
|   | 25 dB (at 10 MHz)  |
|   | 25 dB (at 16 MHz)  |
|   | 25 dB (at 20 MHz)  |
|   | 23.6 dB (at 31.25 MHz)                                     |
|   | 21.5 dB (at 62.5 MHz)                                      |
|   | 20.1 dB (at 100 MHz)                                       |
| Signal runtime                          | 5.3 ns/m   |
| Coupling resistance                     | $\leq$ 100.00 mΩ/m (at 10 MHz)                             |
| Nominal voltage, cable                  | $\leq$ 100 V (Peak value, not for high-power applications) |
| Test voltage Core/Core                  | 700 V (50 Hz, 1 min.)                                      |
| Test voltage Core/Shield                | 700 V (50 Hz, 1 min.)                                      |
| Current carrying capacity of cable      | 2 A (according to DIN VDE 0891-1)                          |
| Flame resistance                        | according to IEC 60332-1-2                                 |
|   | in acc. to UL VW1  |
| Halogen-free                            | according to IEC 60754-1                                   |
| Resistance to oil                       | according to EN 60811-2-1                                  |
| Ambient temperature (operation)         | -40 °C 80 °C (cable, fixed installation)                   |
|   | -20 °C 80 °C (cable, flexible installation)                |
| Ambient temperature (installation)      | -20 °C 80 °C   |
| Ambient temperature (storage/transport) | -20 °C 80 °C   |
| Shielded                                | yes  |

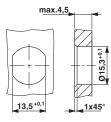
### **Environmental Product Compliance**

| REACh SVHC | Lead 7439-92-1  |
|------------|---|
| China RoHS | Environmentally Friendly Use Period = 50 years  |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

## Drawings



#### **Dimensional drawing**



Schematic diagram



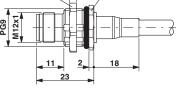
Pin assignment M12 male connector, 4-pos., D-coded, male side

Housing cutout for Pg9 fastening thread, mounting panel with feed-through hole (alternatively with surface as protection against rotation)

#### Cable cross section



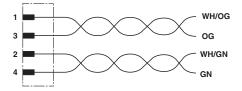
Ethernet flexible CAT5, 2-pair [93E]



**Dimensional drawing** 

M12 panel feed-through

Circuit diagram



Contact assignment of the M12 plug

### Classifications

eCl@ss

| eCl@ss 10.0.1 | 27440102 |
|---------------|----------|
| eCl@ss 11.0   | 27440102 |
| eCl@ss 4.0    | 27140800 |
| eCl@ss 4.1    | 27140800 |

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## Classifications

eCl@ss

| eCl@ss 5.0 | 27143400 |
|------------|----------|
| eCl@ss 5.1 | 27143400 |
| eCl@ss 6.0 | 27279200 |
| eCl@ss 7.0 | 27440103 |
| eCl@ss 9.0 | 27440102 |

### ETIM

| ETIM 3.0 | EC002061 |
|----------|----------|
| ETIM 4.0 | EC002061 |
| ETIM 6.0 | EC002061 |

### UNSPSC

| UNSPSC 6.01   | 31251501 |
|---------------|----------|
| UNSPSC 7.0901 | 31251501 |
| UNSPSC 11     | 31251501 |
| UNSPSC 12.01  | 31251501 |
| UNSPSC 13.2   | 39121413 |
| UNSPSC 18.0   | 39121413 |
| UNSPSC 19.0   | 39121413 |
| UNSPSC 20.0   | 39121413 |
| UNSPSC 21.0   | 39121413 |

## Approvals

Approvals

#### Approvals

UL Recognized / EAC

#### Ex Approvals

Approval details



# Bus system flush-type plug - SACCBP-MSD-4CON-PG9/2,0-931SCO - 1437740

## Approvals

Γ

| UL Recognized      | <i>1</i> , | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm |       | FILE E 118976 |
|--------------------|------------|---|-------|---------------|
|                    |            |   |       |               |
| Nominal voltage UN |            |   | 250 V |               |
| Nominal current IN |            |   | 4 A   |               |
| mm²/AWG/kcmil      |            |   | 22    |               |
|                    |            |   |       |               |
| EAC                | EHC        |   |       | B.01687       |

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