

VS-FSBPXS-OE-94F/5,0 - Device connector rear mounting

1424164

<https://www.phoenixcontact.com/pc/products/1424164>

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Device connector rear mounting, Ethernet CAT6_A (10 Gbps) CAT6_A, 8-position, PUR, water blue RAL 5021, shielded, Socket, straight, M12-SPEEDCON, coding: X, on free cable end, Rear mounting, M16 x 1.5, Bus line, cable length: 5 m, Ethernet 10 Gbit, Alternative product in accordance with RoHS II without Exemption 6c (Pb < 0.1 %) item no.: 1239449

Your advantages

- Preassembled with cables in various standard lengths for immediate use
- Customer-specific assemblies and cable lengths can be supplied
- Sealed on the cable side for optimum tightness of seal
- Cable designs for all common networks and fieldbuses
- For high transmission safety: shield connection to the housing with optional EMC nut

Commercial data

| | |
|--------------------------------------|---------------------|
| Item number | 1424164 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Product key | ABQDGI |
| Catalog page | Page 403 (C-2-2019) |
| GTIN | 4046356692649 |
| Weight per piece (including packing) | 270.5 g |
| Weight per piece (excluding packing) | 249.1 g |
| Customs tariff number | 85444290 |
| Country of origin | DE |

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Technical data

Notes

| | |
|---------|--|
| General | The electrical and mechanical data specified assume that the connector pair is correctly locked and mounted. If the connector is unlocked and if there is a danger of contamination, the connector must be sealed using a protective cap > IP54. Influences arising from litz wires, cables or PCB assembly must also be taken into consideration. |
| General | Contact connection method: Crimp connection |

Safety note

| | |
|-------------|---|
| Safety note | <p>WARNING: The connectors may not be plugged in or disconnected under load. Ignoring the warning or improper use may damage persons and/or property.</p> <ul style="list-style-type: none">• 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 the product. They must observe the following safety notes. The qualified personnel must be familiar with the basics of electrical engineering. They must be able to recognize and prevent danger. The relevant symbol on the packaging indicates that only personnel familiar with electrical engineering 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).• 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:<ul style="list-style-type: none">o On the producto On the packing labelo In the supplied documentationo 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 |
|-------------|---|

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| | |
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| | 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). |

Product properties

| | |
|----------------------|-------------------------|
| Product type | Data cable preassembled |
| Application | Railway applications |
| Sensor type | Ethernet |
| Number of positions | 8 |
| No. of cable outlets | 1 |
| Shielded | yes |
| Coding | X |
| Thread type | M12 |

Insulation characteristics

| | |
|----------------------|-----|
| Overvoltage category | III |
| Degree of pollution | 3 |

Interfaces

| | |
|----------------------|--------------------------------------|
| Bus system | Ethernet |
| Signal type/category | Ethernet CAT6 _A , 10 Gbps |

Electrical properties

| | |
|---|--|
| Rated surge voltage | 0.8 kV |
| Contact resistance | ≤ 3 mΩ |
| Insulation resistance | ≥ 100 MΩ |
| Nominal voltage U _N | 50 V AC 60 V DC |
| Nominal current I _N | 0.5 A (Plug/socket in accordance with IEC 61076-2-101, cable technical data is to be observed) |
| Transmission medium | Copper |
| Transmission characteristics (category) | CAT6 _A |

Mechanical properties

Mechanical data

| | |
|-----------------------------|-------|
| Insertion/withdrawal cycles | ≥ 100 |
|-----------------------------|-------|

Material specifications

| | |
|--|------|
| Flammability rating according to UL 94 | V0 |
| Seal material | FKM |
| Contact material | CuZn |

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| | |
|-------------------------------|------------------------------|
| Contact surface material | Au |
| Contact carrier material | PPA |
| Material for screw connection | Zinc die-cast, nickel-plated |
| Outer sheath, material | PUR |

Connection data

Connection technology

| | |
|-------------------|----------|
| Connection method | Bus line |
|-------------------|----------|

Conductor connection

| | |
|-------------------------|-----------------------------------|
| Contact connection type | Socket |
| Connection method | Bus line |
| Tightening torque | 2 Nm ... 3 Nm (Installation-side) |

Connector

Connection 1

| | |
|-------------------|----------|
| Head design | Socket |
| Head cable outlet | straight |
| Head thread type | M12 |
| Head locking type | SPEEDCON |
| Coding | X |

Connection 2

| | |
|-------------|----------------|
| Head design | free cable end |
|-------------|----------------|

Cable/line

| | |
|--------------|-----|
| Cable length | 5 m |
|--------------|-----|

Ethernet 10 Gbit [94F]

| | |
|---------------------|--|
| Dimensional drawing |  |
| Cable weight | 42 kg/km |
| UL AWM Style | 20963 (80°C/30 V) |
| Number of positions | 8 |
| Shielded | yes |
| Cable type | Ethernet 10 Gbit [94F] |
| Conductor structure | 4x2xAWG26/7; S/FTP |
| Signal runtime | 5.13 ns/m |

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| | |
|---|--|
| Conductor structure signal line | 7x 0.16 mm |
| AWG signal line | 26 |
| Conductor cross section | 4x 2x 0.14 mm ² |
| Wire diameter incl. insulation | 1.04 mm |
| External cable diameter | 6.40 mm ±0.2 mm |
| Outer sheath, material | PUR |
| External sheath, color | water blue RAL 5021 |
| Conductor material | Bare Cu litz wires |
| Material wire insulation | Foamed PE |
| Single wire, color | white/blue-blue, white/orange-orange, white/green-green, white/brown-brown |
| Thickness, outer sheath | 0.65 mm |
| Twisted pairs | 2 cores to the pair |
| Type of pair shielding | Aluminum-lined foil |
| Overall twist | 4 pairs for core |
| Optical shield covering | 70 % |
| Insulation resistance | ≥ 500 MΩ*km |
| Loop resistance | ≤ 290.00 Ω/km |
| Wave impedance | 100 Ω ±5 Ω (at 100 MHz) |
| Cable capacity | 47 nF/km |
| Nominal voltage, cable | ≤ 100 V |
| Test voltage Core/Core | 700 V (50 Hz, 1 min.) |
| Test voltage Core/Shield | 700.00 V (50 Hz, 1 min.) |
| Minimum bending radius, fixed installation | 4 x D |
| Minimum bending radius, flexible installation | 8 x D |
| Smallest bending radius, fixed installation | 26 mm |
| Smallest bending radius, movable installation | 52 mm |
| Tensile strength | ≤ 100 N |
| Near end crosstalk attenuation (NEXT) | 75.3 dB (with 1 MHz) |
| | 66.3 dB (at 4 MHz) |
| | 61.8 dB (at 8 MHz) |
| | 60.3 dB (at 10 MHz) |
| | 57.2 dB (at 16 MHz) |
| | 55.8 dB (at 20 MHz) |
| | 54.3 dB (at 25 MHz) |
| | 52.8 dB (at 31.25 MHz) |
| | 48.4 dB (at 62.5 MHz) |
| | 45.3 dB (at 100 MHz) |
| | 40.8 dB (at 200 MHz) |
| | 39.3 dB (at 250 MHz) |
| | 38.1 dB (at 300 MHz) |
| | 38.1 dB (at 400 MHz) |
| | 38.1 dB (at 500 MHz) |
| | 72.3 dB (with 1 MHz) |

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| Power-summated near end crosstalk attenuation (PSNEXT) | 63.3 dB (at 4 MHz) |
| | 58.8 dB (at 8 MHz) |
| | 57.3 dB (at 10 MHz) |
| | 54.2 dB (at 16 MHz) |
| | 52.8 dB (at 20 MHz) |
| | 51.3 dB (at 25 MHz) |
| | 49.9 dB (at 31.25 MHz) |
| | 45.4 dB (at 62.5 MHz) |
| | 42.3 dB (at 100 MHz) |
| | 37.8 dB (at 200 MHz) |
| | 36.3 dB (at 250 MHz) |
| | 35.1 dB (at 300 MHz) |
| | 33.3 dB (at 400 MHz) |
| 31.8 dB (at 500 MHz) | |
| Return attenuation (RL) | 20 dB (with 1 MHz) |
| | 23 dB (at 4 MHz) |
| | 24.5 dB (at 8 MHz) |
| | 25 dB (at 10 MHz) |
| | 25 dB (at 16 MHz) |
| | 25 dB (at 20 MHz) |
| | 24.2 dB (at 25 MHz) |
| | 23.3 dB (at 31.25 MHz) |
| | 20.7 dB (at 62.5 MHz) |
| | 19 dB (at 100 MHz) |
| | 16.4 dB (at 200 MHz) |
| | 15.6 dB (at 250 MHz) |
| | 15.6 dB (at 300 MHz) |
| 15.6 dB (at 400 MHz) | |
| 15.6 dB (at 500 MHz) | |
| Shield attenuation | 3.1 dB (with 1 MHz) |
| | 5.7 dB (at 4 MHz) |
| | 8 dB (at 8 MHz) |
| | 8.9 dB (at 10 MHz) |
| | 11.2 dB (at 16 MHz) |
| | 12.6 dB (at 20 MHz) |
| | 14.1 dB (at 25 MHz) |
| | 15.8 dB (at 31.25 MHz) |
| | 22.5 dB (at 62.5 MHz) |
| | 28.7 dB (at 100 MHz) |
| | 41.4 dB (at 200 MHz) |
| | 46.6 dB (at 250 MHz) |
| | 51.4 dB (at 300 MHz) |
| 60.1 dB (at 400 MHz) | |
| 67.9 dB (at 500 MHz) | |

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|------------------------------------|---|
| | ≥ 80.00 dB (at 30 ... 100 MHz) |
| Halogen-free | according to IEC 60754-1 |
| Flame resistance | according to IEC 60332-1-2 |
| Resistance to oil | in accordance with DIN 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 |

Environmental and real-life conditions

Ambient conditions

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

Standards and regulations

M12

| | |
|--------------------------|------------------|
| Standard designation | M12 connector |
| Standards/specifications | IEC 61076-2-109 |
| Standard designation | Shock, vibration |
| Standards/specifications | EN 50155 |

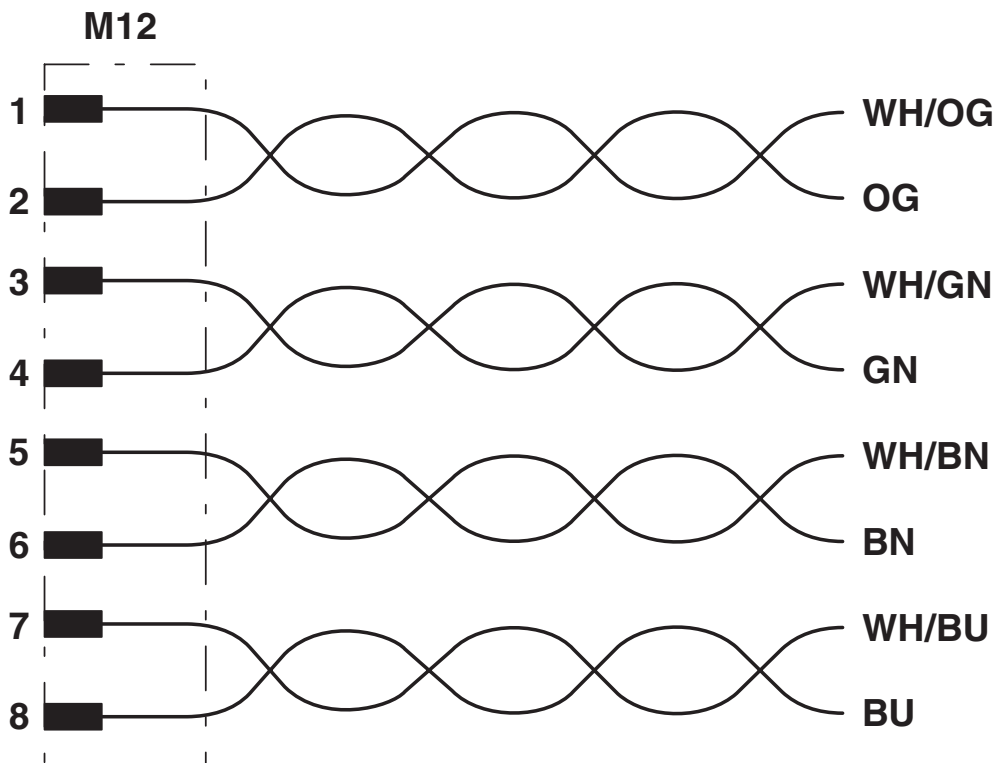
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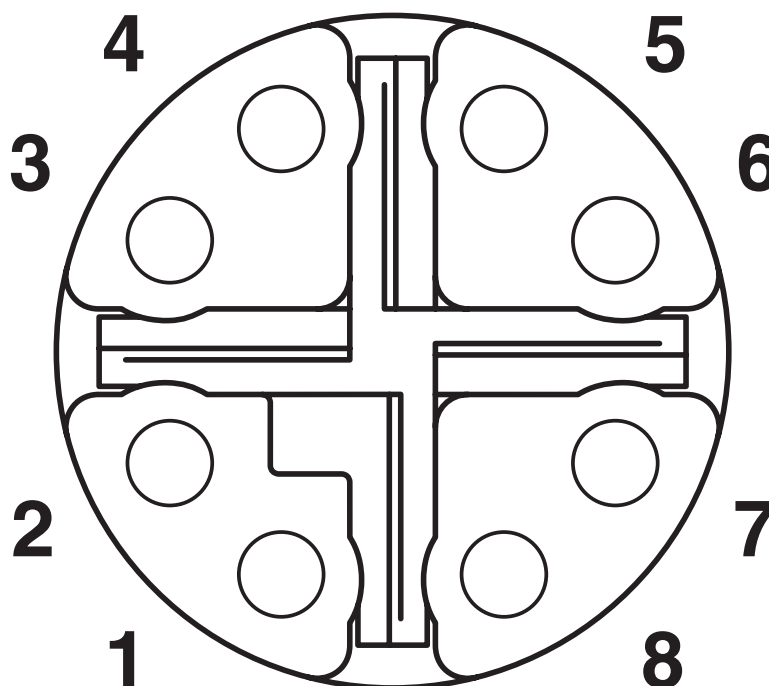
<https://www.phoenixcontact.com/pc/products/1424164>

Drawings

Circuit diagram



Schematic diagram



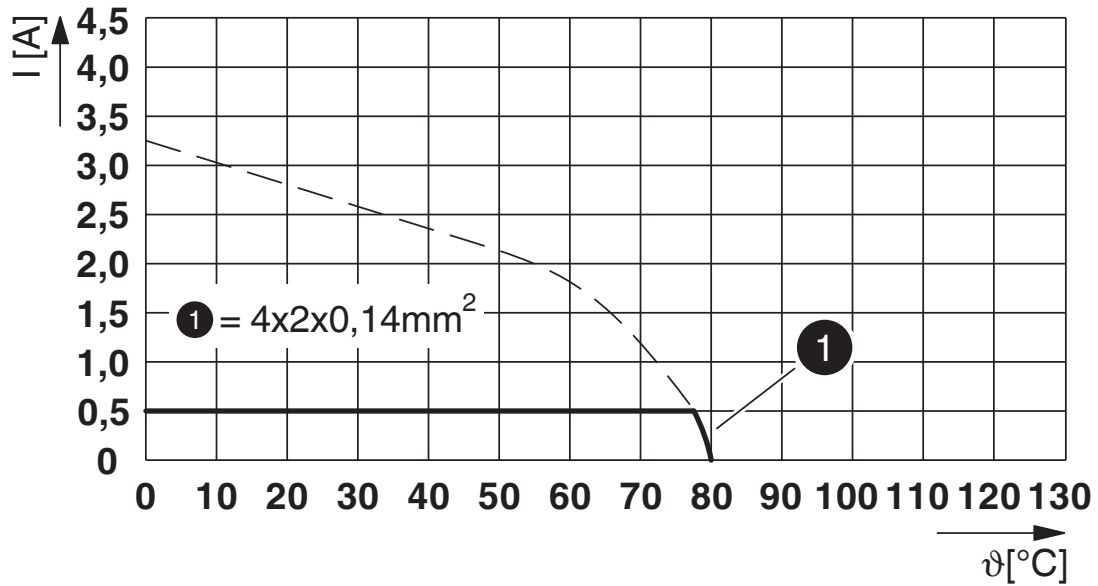
M12 socket pin assignment, 8-pos, view of socket side

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Diagram



I = current strength, T = ambient temperature

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/pc/products/1424164>

|  cUL Recognized Approval ID: E335024-20120308 | | | | |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| | 60 V | 0.5 A | - | - |

|  UL Recognized Approval ID: E335024-20120308 | | | | |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| | 60 V | 0.5 A | - | - |

|  EAC Approval ID: 19060508 | |
|--|--|
|--|--|

| cULus Recognized | |
|-------------------------|--|
|-------------------------|--|

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-11.0 | 27440103 |
| ECLASS-12.0 | 27440103 |
| ECLASS-13.0 | 27440103 |

ETIM

| | |
|----------|----------|
| ETIM 9.0 | EC003570 |
|----------|----------|

UNSPSC

| | |
|-------------|----------|
| UNSPSC 21.0 | 39121400 |
|-------------|----------|

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Environmental product compliance

EU RoHS

| | |
|---|------|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 6(c) |

China RoHS

| | |
|--|---|
| Environment friendly use period (EFUP) | EFUP-50 |
| | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

EU REACH SVHC

| | |
|-------------------------------------|--------------------------------------|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1) |
| SCIP | 73df6054-0ece-446c-afb6-0ea914931fcb |

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