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Network cable, Ethernet CAT6_A (10 Gbps), CC-Link IE CAT6_A (10 Gbps), 8-position, PUR, water blue RAL 5021, shielded, Plug straight M12 SPEEDCON / IP67, coding: X, on Plug straight RJ45 / IP20, cable length: 1 m





Key Commercial Data

| Packing unit | 1 STK |
|--------------|-----------------|
| GTIN | 4 046356 776684 |
| GTIN | 4046356776684 |

Technical data

Dimensions

| Length of cable | 1 m |
|-----------------|-----|

Ambient conditions

| Degree of protection | IP65 (M12 connector) |
|---------------------------------|-------------------------------|
| | IP67 (M12 connector) |
| | IP20 (RJ45 connector) |
| Ambient temperature (operation) | -25 °C 90 °C (M12 connector) |
| | -20 °C 70 °C (RJ45 connector) |

General data

| Note | Further products with variable cable type and variable cable length can be found in the accessories section |
|-----------------------|---|
| Rated current at 40°C | 0.5 A |
| Rated voltage | 48 V AC |
| | 60 V DC |
| Number of positions | 8 |
| Signal type/category | Ethernet CAT6 _A , 10 Gbps |
| | CC-Link IE CAT6 _A , 10 Gbps |



Technical data

General data

| Standards/regulations | M12 connector IEC 61076-2-109 |
|--------------------------|-------------------------------|
| Contact material | CuSn |
| Contact carrier material | PP |
| Contact surface material | Ni/Au |
| Housing material | Plastic |

Characteristics head 1

| Head type | Plug straight M12 SPEEDCON / IP67 |
|--|--|
| No. of positions (pin connector pattern) | 8 |
| Coding | X (Data) |
| Color | black |
| Material (component) | CuZn (Contact) |
| | Ni/Au (Contact surface) |
| | PP (Contact carriers) |
| | TPU, hardly inflammable, self-extinguishing (Grip) |
| | Zinc die-cast, nickel-plated (Screw connection) |
| Insulation resistance | \geq 100 M Ω |
| Insertion/withdrawal cycles | ≥ 100 |
| Torque | 0.4 Nm |
| Ambient temperature (operation) | -25 °C 90 °C |

Characteristics head 2

| Head type | Plug straight RJ45 / IP20 |
|--|---------------------------|
| No. of positions (pin connector pattern) | 8 (8) |
| Color | gray |
| | gray / black |
| Material (component) | CuSn (Contact) |
| | Ni/Au (Contact surface) |
| | PC (Contact carriers) |
| | PA (Housing) |
| Insertion/withdrawal cycles | ≥ 750 |
| Ambient temperature (operation) | -25 °C 60 °C |

Standards and Regulations

| Standard designation | M12 connector |
|-----------------------|-----------------|
| Standards/regulations | IEC 61076-2-109 |

Cable

| Cable type | Ethernet 10 Gbit |
|---------------------------|--------------------------------------|
| Cable type (abbreviation) | 94F |
| UL AWM style | 20963 (80°C/30 V) |
| Signal type/category | Ethernet CAT6 _A , 10 Gbps |
| Cable structure | 4x2xAWG26/7; S/FTP |



Technical data

Cable

| Conductor cross section | 4x 2x 0.14 mm² |
|--|--|
| AWG signal line | 26 |
| Conductor structure signal line | 7x 0.16 mm |
| Core diameter including insulation | 1.04 mm |
| Wire colors | white/blue-blue, white/orange-orange, white/green-green, white/brown-brown |
| Twisted pairs | 2 cores to the pair |
| Type of pair shielding | Aluminum-lined foil |
| Overall twist | 4 pairs for core |
| Shielding | Tinned copper braided shield |
| Optical shield covering | 70 % |
| External sheath, color | water blue RAL 5021 |
| Outer sheath thickness | 0.65 mm |
| External cable diameter D | 6.4 mm ±0.2 mm |
| Minimum bending radius, fixed installation | 4 x D |
| Minimum bending radius, flexible installation | 8 x D |
| Tensile strength GRP | ≤ 100 N |
| Cable weight | 42 kg/km |
| Outer sheath, material | PUR |
| Material conductor insulation | Foamed PE |
| Conductor material | Bare Cu litz wires |
| Insulation resistance | ≥ 500 MΩ*km |
| Loop resistance | ≤ 290.00 Ω/km |
| Wave impedance | 100 Ω ±5 Ω (at 100 MHz) |
| 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) |
| | 36.3 dB (at 400 MHz) |
| | 34.8 dB (at 500 MHz) |
| Power-summated near end crosstalk attenuation (PSNEXT) | 72.3 dB (with 1 MHz) |
| | 63.3 dB (at 4 MHz) |



Technical data

Cable

| 57.3 dB (at 10 MHz) 52.2 dB (at 16 MHz) 52.8 dB (at 20 MHz) 51.3 dB (at 25 MHz) 49.9 dB (at 31.25 MHz) 49.9 dB (at 31.25 MHz) 43.3 dB (at 100 MHz) 37.8 dB (at 200 MHz) 38.3 dB (at 300 MHz) 38.3 dB (at 400 MHz) 31.8 dB (at 500 MHz) 31.4 dB (at 500 MHz) 41.2 dB (at 500 MHz) 57.7 dB (at 4 MHz) 57.7 dB (at 4 MHz) 57.7 dB (at 4 MHz) 57.8 dB (at 16 MHz) 11.2 dB (at 16 MHz) 11.2 dB (at 16 MHz) 12.6 dB (at 20 MHz) 41.4 dB (at 20 MHz) 41.4 dB (at 200 MHz) | | 58.8 dB (at 8 MHz) |
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| 52.8 dB (at 20 MHz) 51.3 dB (at 25 MHz) 49.9 dB (at 31.25 MHz) 44.4 dB (at 62.5 MHz) 42.3 dB (at 100 MHz) 37.8 dB (at 200 MHz) 38.6 dB (at 200 MHz) 38.1 dB (at 300 MHz) 38.1 dB (at 300 MHz) 38.3 dB (at 200 MHz) 38.3 dB (at 200 MHz) 38.3 dB (at 400 MHz) 38.3 dB (at 500 MHz) 38.4 dB (at 500 MHz) 38.4 dB (at 500 MHz) 38.4 dB (at 500 MHz) 38.6 dB (at 600 MHz) 48.6 dB | | |
| 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) 38.3 dB (at 400 MHz) 38.3 dB (at 400 MHz) 38.3 dB (at 400 MHz) 38.4 dB (at 500 MHz) 38.5 dB (at 4 MHz) 38.9 dB (at 10 MHz) 38.9 dB (at 10 MHz) 39.9 dB (at 20 MHz) 30.9 dB (at 20 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) 38.1 dB (at 200 MHz) 38.1 dB (at 200 MHz) 38.3 dB (at 250 MHz) 38.3 dB (at 400 MHz) 38.3 dB (at 400 MHz) 38.3 dB (at 500 MHz) 38.4 dB (at 500 MHz) 38.4 dB (at 500 MHz) 48.4 dB (at 8 MHz) 48.5 dB (at 8 MHz) 49.5 dB (at 10 MHz) 41.2 dB (at 16 MHz) 41.2 dB (at 16 MHz) 41.4 dB (at 200 MHz) | | |
| 45.4 dB (at 62.5 MHz) 42.3 dB (at 100 MHz) 37.8 dB (at 200 MHz) 38.3 dB (at 250 MHz) 38.3 dB (at 250 MHz) 38.3 dB (at 250 MHz) 38.3 dB (at 400 MHz) 38.3 dB (at 400 MHz) 38.3 dB (at 400 MHz) 38.4 dB (at 500 MHz) 38.4 dB (at 500 MHz) 38.4 dB (at 500 MHz) 39.4 dB (at 500 MHz) 39.4 dB (at 4 MHz) 49.4 dB (at 8 MHz) 49.4 dB (at 20 MHz) 41.4 dB (at 20 MHz) | | |
| 42.3 dB (at 100 MHz) 37.8 dB (at 200 MHz) 36.3 dB (at 250 MHz) 35.1 dB (at 200 MHz) 35.1 dB (at 300 MHz) 33.3 dB (at 400 MHz) 318 dB (at 500 MHz) 31.8 dB (at 400 MHz) 31.8 dB (at 400 MHz) 31.8 dB (at 400 MHz) 31.8 dB (at 40 MHz) 31.8 dB (at 10 MHz) 31.2 dB (at 16 MHz) 31.3 dB (at 30.3 MHz) 31.4 dB (at 20 MHz) 31.4 dB (at 20 MHz) 31.5 dB (at 31.25 MHz) 31.5 dB (at 30.3 MHz) 31.5 dB (at 40.3 MHz) 31.5 dB (at 50.3 MHz) 31.5 dB (at 60.3 MHz) 31.5 dB | | |
| 37.8 dB (at 200 MHz) 36.3 dB (at 250 MHz) 35.1 dB (at 300 MHz) 31.8 dB (at 400 MHz) 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 10 MHz) 11.2 dB (at 10 MHz) 12.6 dB (at 20 MHz) 11.4 dB (at 25 MHz) 15.8 dB (at 30 MHz) 25.7 dB (at 40 MHz) 26.0 dB (at 250 MHz) 27.9 dB (at 40 MHz) 28.0 dB (at 250 MHz) 29.0 dB (at 40 MHz) 29.0 dB (at 40 MHz) 20.0 dB (at 50 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) Attenuation 31.1 dB (with 1 MHz) 5.7 dB (at 4 MHz) 8 dB (at 500 MHz) 11.2 dB (at 1 MHz) 12.6 dB (at 20 MHz) 12.6 dB (at 20 MHz) 14.1 dB (at 25 MHz) 15.8 dB (at 31.25 MHz) 22.5 dB (at 20 MHz) 41.4 dB (at 250 MHz) 41.4 dB (at 200 MHz) 41.4 dB (at 250 MHz) 41.4 dB (at 250 MHz) 41.4 dB (at 250 MHz) 41.4 dB (at 200 MHz) 41.4 dB (at 200 MHz) 41.4 dB (at 300 MHz) 41.4 dB (at 400 MHz) 41.4 dB | | |
| 35.1 dB (at 300 MHz) 33.3 dB (at 400 MHz) 31.8 dB (at 500 MHz) 31.8 dB (at 80 MHz) 31.8 dB (at 100 MHz) 31.8 dB (at 100 MHz) 31.8 dB (at 100 MHz) 31.8 dB (at 120 MHz) 31.8 dB (at 131.25 MHz) 31.8 dB (at 131.25 MHz) 31.8 dB (at 31.25 MHz) 31.8 dB (at 300 MHz) 31.8 dB (at 300 MHz) 31.8 dB (at 300 MHz) 31.8 dB (at 400 MHz) 31.8 dB (at 300 MHz) 31.8 dB (at 31.25 MHz) | | |
| 33.3 dB (at 400 MHz) 31.8 dB (at 500 MHz) 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 10 MHz) 11.2 dB (at 16 MHz) 12.6 dB (at 20 MHz) 14.1 dB (at 25 MHz) 25.5 dB (at 31.25 MHz) 25.5 dB (at 30.0 MHz) 41.4 dB (at 20.0 MHz) 41.4 dB (at 20.0 MHz) 41.4 dB (at 20.0 MHz) 61.4 dB (at 20.0 MHz) 61.4 dB (at 20.0 MHz) 61.4 dB (at 30.0 MHz) 61.4 dB (at 30.0 MHz) 61.4 dB (at 30.0 MHz) 61.4 dB (at 40.0 MHz) 61.5 dB (at 40.0 MHz) 62.5 dB (at 40.0 MHz) 63.5 dB (at 40.0 MHz) 64.5 dB (at 40.0 MHz) 65.5 dB (at 40.0 MHz) 66.5 dB (at 40.0 MHz) 67.9 dB (at 50.0 MHz) 23.5 dB (at 10 MHz) 24.5 dB (at 8 MHz) 25.5 dB (at 10 MHz) 25.5 dB (at 10 MHz) 26.5 dB (at 8 MHz) 27.5 dB (at 20 MHz) 28.5 dB (at 30 MHz) 29.5 dB (at 30 MHz) 20.5 dB (at 30 MHz) 20.5 dB (at 30 MHz) 21.5 dB (at 30 MHz) 22.5 dB (at 30 MHz) 23.3 dB (at 31.25 MHz) 24.2 dB (at 25 MHz) 25.3 dB (at 31.25 MHz) 27.5 dB (at 30.0 MHz) 28.5 dB (at 30.0 MHz) 29.5 dB (at 30.0 MHz) 20.7 dB (at 62.5 MHz) | | |
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| 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) 23 dB (at 4 MHz) 23 dB (at 4 MHz) 24.5 dB (at 8 MHz) 25 dB (at 10 MHz) 25 dB (at 10 MHz) 25 dB (at 20 MHz) 25 dB (at 20 MHz) 26 dB (at 25 MHz) 27 dB (at 20 MHz) 28 dB (at 20 MHz) 29 dB (at 30 MHz) 20 dB (with 1 MHz) 21 dB (at 30 MHz) 22 dB (at 30 MHz) 23 dB (at 4 MHz) 24.5 dB (at 8 MHz) 25 dB (at 10 MHz) 25 dB (at 10 MHz) 26 dB (at 25 MHz) 27 dB (at 25 MHz) 28 dB (at 31.25 MHz) 29 dB (at 100 MHz) 19 dB (at 100 MHz) 19 dB (at 100 MHz) | | 11.2 dB (at 16 MHz) |
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| 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) Return loss (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 10 MHz) 25 dB (at 10 MHz) 25 dB (at 20 MHz) 24.2 dB (at 25 MHz) 24.2 dB (at 25 MHz) 27.3 dB (at 31.25 MHz) 20.7 dB (at 62.5 MHz) 19 dB (at 100 MHz) 19 dB (at 100 MHz) 16.4 dB (at 200 MHz) | | 15.8 dB (at 31.25 MHz) |
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| 60.1 dB (at 400 MHz) 67.9 dB (at 500 MHz) Return loss (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) | | 46.6 dB (at 250 MHz) |
| 67.9 dB (at 500 MHz) Return loss (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) | | 51.4 dB (at 300 MHz) |
| Return loss (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) | | 60.1 dB (at 400 MHz) |
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| 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) | | 24.5 dB (at 8 MHz) |
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| 20.7 dB (at 62.5 MHz) 19 dB (at 100 MHz) 16.4 dB (at 200 MHz) | | 24.2 dB (at 25 MHz) |
| 19 dB (at 100 MHz) 16.4 dB (at 200 MHz) | | 23.3 dB (at 31.25 MHz) |
| 16.4 dB (at 200 MHz) | | 20.7 dB (at 62.5 MHz) |
| | | 19 dB (at 100 MHz) |
| 15.6 dB (at 250 MHz) | | 16.4 dB (at 200 MHz) |
| | | 15.6 dB (at 250 MHz) |



Technical data

Cable

| | 15.6 dB (at 300 MHz) |
|---|---|
| | 15.6 dB (at 400 MHz) |
| | 15.6 dB (at 500 MHz) |
| Signal runtime | 5.13 ns/m |
| Shield attenuation | ≥ 80 dB (at 30 100 MHz) |
| Nominal voltage, cable | ≤ 100 V |
| Test voltage Core/Core | 700 V (50 Hz, 1 min.) |
| Test voltage Core/Shield | 700 V (50 Hz, 1 min.) |
| Flame resistance | according to IEC 60332-1-2 |
| Halogen-free | according to IEC 60754-1 |
| 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 |
| Ambient temperature (storage/transport) | -20 °C 80 °C |

Environmental Product Compliance

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

Drawings

Schematic diagram



Pin assignment of M12 plug, 8-pos., X-coded, pin side view

Schematic diagram



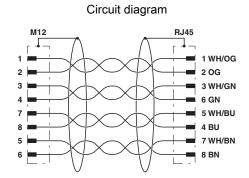
Connector pin assignment plug RJ45



Cable cross section



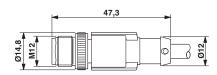
Ethernet 10 Gbit [94F]

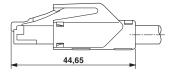


Contact assignment of the M12 and RJ45 plug

Dimensional drawing

Dimensional drawing







RJ45 connector, IP20

Plug, M12 x 1, straight, shielded

Approvals

Approvals

Approvals

UL Listed

Ex Approvals

Approval details

| UL Listed | UL | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | | FILE E 335024 |
|--------------------|----|---|-------|---------------|
| | | | | |
| Nominal voltage UN | | | 30 V | |
| Nominal current IN | | | 0.5 A | |



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PHOENIX CONTACT GmbH & Co. KG Flachsmarktstr. 8 32825 Blomberg Germany Tel. +49 5235 300

Fax +49 5235 3 41200

http://www.phoenixcontact.com