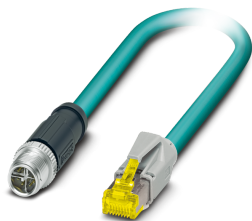


# Network cable - VS-M12MSS-IP20-94F/20,0/10G - 1440656


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Network cable, Ethernet CAT6<sub>A</sub> (10 Gbps), 8-position, Plug straight M12 SPEEDCON / IP65, coding: X, on Plug straight RJ45 / IP20, cable length: 20 m



## Key Commercial Data

|              |                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------|
| Packing unit | 1 pc                                                                                                    |
| GTIN         | <br>4 046356 504577 |
| GTIN         | 4046356504577                                                                                           |

## Technical data

### Dimensions

|                 |      |
|-----------------|------|
| Length of cable | 20 m |
|-----------------|------|

### Ambient conditions

|                                 |                       |
|---------------------------------|-----------------------|
| Degree of protection            | IP65 (M12 connector)  |
|                                 | IP67 (M12 connector)  |
|                                 | IP20 (RJ45 connector) |
| Ambient temperature (operation) | -20 °C ... 60 °C      |

### General data

|                                       |                                      |
|---------------------------------------|--------------------------------------|
| 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 <sub>A</sub> , 10 Gbps |
| Overvoltage category                  | I                                    |
| Degree of pollution                   | 1                                    |
| Alternative short product description | Ethernet cable                       |
| Insertion/withdrawal cycles           | ≥ 100                                |

# Network cable - VS-M12MSS-IP20-94F/20,0/10G - 1440656

## Technical data

### General data

|                                         |                   |
|-----------------------------------------|-------------------|
| Number of slots                         | 1                 |
| Transmission characteristics (category) | CAT6 <sub>A</sub> |
| Transmission speed                      | 10 Gbps           |

### Characteristics head 1

|                                          |                                   |
|------------------------------------------|-----------------------------------|
| Head type                                | Plug straight M12 SPEEDCON / IP65 |
| No. of positions (pin connector pattern) | 8 (8)                             |
| Coding                                   | X (Data)                          |
| Color                                    | black                             |
| Shielded                                 | yes                               |

### Characteristics head 2

|                                          |                           |
|------------------------------------------|---------------------------|
| Head type                                | Plug straight RJ45 / IP20 |
| No. of positions (pin connector pattern) | 8 (8)                     |
| Color                                    | gray                      |
| Shielded                                 | yes                       |

### Cable

|                                               |                                                                            |
|-----------------------------------------------|----------------------------------------------------------------------------|
| Cable type                                    | Ethernet 10 Gbit                                                           |
| Cable type (abbreviation)                     | 94F                                                                        |
| UL AWM style                                  | 20963 (80°C/30 V)                                                          |
| Signal type/category                          | Ethernet CAT6 <sub>A</sub> , 10 Gbps                                       |
| Cable structure                               | 4x2xAWG26/7; S/FTP                                                         |
| Conductor cross section                       | 4x 2x 0.14 mm <sup>2</sup>                                                 |
| 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                                                                  |

# Network cable - VS-M12MSS-IP20-94F/20,0/10G - 1440656

## Technical data

### Cable

|                                                        |                         |
|--------------------------------------------------------|-------------------------|
| Conductor material                                     | Bare Cu litz wires      |
| Insulation resistance                                  | ≥ 500 MΩ*km             |
| Loop resistance                                        | ≤ 290.00 Ω/km           |
| Cable capacity                                         | 47 nF/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)    |
| Power-summated near end crosstalk attenuation (PSNEXT) | 72.3 dB (with 1 MHz)    |
|                                                        | 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)    |
| 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)     |

# Network cable - VS-M12MSS-IP20-94F/20,0/10G - 1440656

## Technical data

### Cable

|                                         |                                                 |
|-----------------------------------------|-------------------------------------------------|
|                                         | 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)                            |
| 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)                            |
|                                         | 15.6 dB (at 250 MHz)                            |
|                                         | 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                                |
| Shielded                                | yes                                             |

### Environmental Product Compliance

|            |                |
|------------|----------------|
| REACH SVHC | Lead 7439-92-1 |
|------------|----------------|

# Network cable - VS-M12MSS-IP20-94F/20,0/10G - 1440656

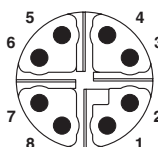
## Technical data

### Environmental Product Compliance

|            |                                                                                                              |
|------------|--------------------------------------------------------------------------------------------------------------|
| China RoHS | Environmentally Friendly Use Period = 50 years                                                               |
|            | For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads" |

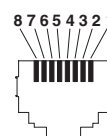
## Drawings

Schematic diagram



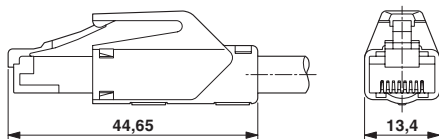
M12 Cat6A, 8-pos. plug pin assignment, pin side view

Schematic diagram



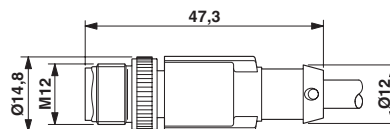
Connector pin assignment plug RJ45

Dimensional drawing



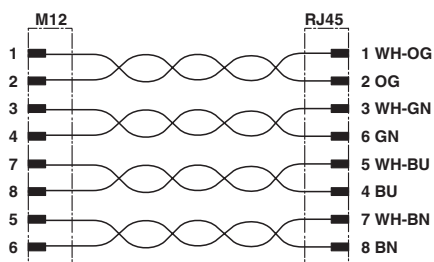
RJ45 connector dimensional drawing

Dimensional drawing



M12 connector dimensional drawing

Circuit diagram



# Network cable - VS-M12MSS-IP20-94F/20,0/10G - 1440656

Cable cross section



Ethernet 10 Gbit [94F]

## Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27060308 |
| eCl@ss 11.0   | 27060307 |
| eCl@ss 4.0    | 24010400 |
| eCl@ss 4.1    | 24010400 |
| eCl@ss 5.0    | 19030300 |
| eCl@ss 5.1    | 19030300 |
| eCl@ss 6.0    | 27061800 |
| eCl@ss 7.0    | 27061801 |
| eCl@ss 9.0    | 27060308 |

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## Classifications

### ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC000830 |
| ETIM 3.0 | EC000830 |
| ETIM 4.0 | EC002599 |
| ETIM 6.0 | EC001262 |
| ETIM 7.0 | EC001855 |

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 26121609 |
| UNSPSC 7.0901 | 26121609 |
| UNSPSC 11     | 26121609 |
| UNSPSC 12.01  | 26121609 |
| UNSPSC 13.2   | 26121604 |
| UNSPSC 18.0   | 26121604 |
| UNSPSC 19.0   | 26121604 |
| UNSPSC 20.0   | 26121604 |
| UNSPSC 21.0   | 26121600 |

## Approvals


### Approvals


#### Approvals

UL Listed / cUL Listed / EAC-RoHS / cULus Listed

#### Ex Approvals

### Approval details

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


|                    |                                                                                     |                                                                                                                                                       |               |
|--------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| cUL Listed         |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 335024 |
| Nominal voltage UN |                                                                                     | 30 V                                                                                                                                                  |               |

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## Approvals

|                                |       |
|--------------------------------|-------|
| Nominal current I <sub>N</sub> | 0.5 A |
|--------------------------------|-------|

|          |                                                                                   |                          |
|----------|-----------------------------------------------------------------------------------|--------------------------|
| EAC-RoHS |  | RU D-<br>DE.HB35.B.00385 |
|----------|-----------------------------------------------------------------------------------|--------------------------|

|              |                                                                                   |
|--------------|-----------------------------------------------------------------------------------|
| cULus Listed |  |
|--------------|-----------------------------------------------------------------------------------|

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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>



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