

## Network cable - VS-MSD-IP20-93E/0,5 - 1403497

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Network cable, Ethernet CAT5 (100 Mbps), 4-position, PUR, water blue RAL 5021, shielded, Plug straight M12 / IP67, coding: D, on Plug straight RJ45 / IP20, cable length: 0.5 m



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 pc  |
| GTIN                                 | <br>4 046356 656177 |
| GTIN                                 | 4046356656177   |
| Weight per Piece (excluding packing) | 50.400 g  |
| Custom tariff number                 | 85444210  |
| Country of origin                    | Poland  |

### Technical data

#### Dimensions

|                 |       |
|-----------------|-------|
| Length of cable | 0.5 m |
|-----------------|-------|

#### Ambient conditions

|                      |                       |
|----------------------|-----------------------|
| Degree of protection | IP20 (RJ45 connector) |
|                      | IP67 (M12 connector)  |

#### General data

|                      |                                     |
|----------------------|-------------------------------------|
| Rated voltage        | 48 V AC                             |
|                      | 60 V DC                             |
| Number of positions  | 4                                   |
| Signal type/category | Ethernet CAT5 (IEC 11801), 100 Mbps |
| Overvoltage category | I                                   |
| Degree of pollution  | 3                                   |
| Housing material     | TPU/PA                              |

#### Characteristics head 1

# Network cable - VS-MSD-IP20-93E/0,5 - 1403497

## Technical data

### Characteristics head 1

|  |  |
|--|--|
| Head type                                | Plug straight M12 / IP67                           |
| No. of positions (pin connector pattern) | 4  |
| Coding                                   | D (Data)   |
| Color                                    | black  |
| Material (component)                     | CuZn (Contact)                                     |
|  | Ni/Au (Contact surface)                            |
|  | TPU GF (Contact carriers)                          |
|  | TPU, hardly inflammable, self-extinguishing (Grip) |
|  | Zinc die-cast, nickel-plated (Screw connection)    |
| Shielded                                 | yes  |
| 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) | 4 (8)                     |
| Color                                    | gray                      |
|  | gray / black              |
| Material (component)                     | CuSn (Contact)            |
|  | Ni/Au (Contact surface)   |
|  | PC (Contact carriers)     |
|  | PA (Housing)              |
| Shielded                                 | yes                       |
| Insertion/withdrawal cycles              | ≥ 750                     |
| Ambient temperature (operation)          | -40 °C ... 60 °C          |

### Standards and Regulations

|  |    |
|--|----|
| Flammability rating according to UL 94 | V2 |
|--|----|

### Cable

|                                    |  |
|------------------------------------|--|
| Cable type                         | PUR ETHERNET 2x2 FLEX                  |
| 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 mm <sup>2</sup>             |
| 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                    |

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## Technical data

### Cable

|  |  |
|--|--|
| 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   |
| 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                                   | ≤ 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   | 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)                                |
|  | 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)                                |
|  | 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)                                |
|  | 17.1 dB (at 31.25 MHz)                             |

# Network cable - VS-MSD-IP20-93E/0,5 - 1403497

## Technical data

### Cable

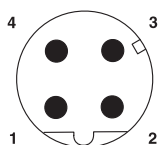
|   |   |
|---|---|
|   | 24.8 dB (at 62.5 MHz)                                 |
|   | 32 dB (at 100 MHz)                                    |
| Return loss (RL)                        | 23 dB (at 4 MHz)                                      |
|   | 24.1 dB (at 8 MHz)                                    |
|   | 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                     | ≤ 100.00 mΩ/m (at 10 MHz)                             |
| Nominal voltage, cable                  | ≤ 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                                      |

### 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 M12 male connector, 4-pos., D-coded, male side

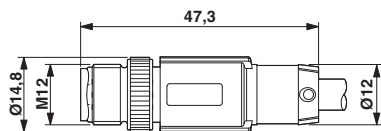
Cable cross section



PUR ETHERNET 2x2 FLEX [93E]

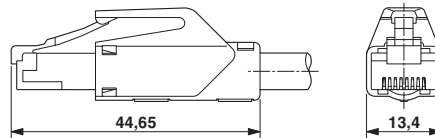
# Network cable - VS-MSD-IP20-93E/0,5 - 1403497

Dimensional drawing



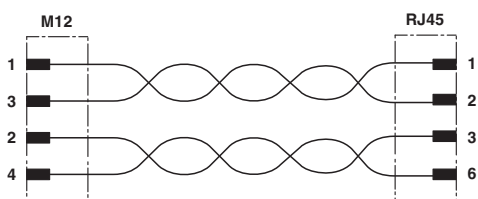
Plug, M12 x 1, straight, shielded

Dimensional drawing

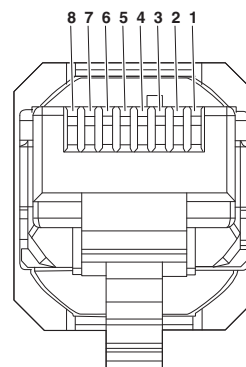


RJ45 connector, IP20

Circuit diagram



Schematic diagram



Connector pin assignment plug RJ45

## Classifications

### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27060306 |
| eCl@ss 4.1 | 27060306 |
| eCl@ss 5.0 | 27061801 |
| eCl@ss 5.1 | 19030300 |
| eCl@ss 6.0 | 27061800 |
| eCl@ss 7.0 | 27061801 |
| eCl@ss 8.0 | 27061801 |
| eCl@ss 9.0 | 27060308 |

### ETIM

|          |          |
|----------|----------|
| ETIM 4.0 | EC000830 |
| ETIM 5.0 | EC002599 |
| ETIM 6.0 | EC000830 |

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 26121609 |
| UNSPSC 7.0901 | 26121609 |

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### Classifications

#### UNSPSC

|              |          |
|--------------|----------|
| UNSPSC 11    | 26121609 |
| UNSPSC 12.01 | 26121609 |
| UNSPSC 13.2  | 26121604 |

### Approvals

#### Approvals

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#### Approvals

EAC

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#### Ex Approvals

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### Approval details

|     |   |               |
|-----|---|---------------|
| EAC |  | EAC-Zulassung |
|-----|---|---------------|

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