

# VS-MSDBPS-OE-93G-LI/2,0 - Device connector rear mounting



1419140

<https://www.phoenixcontact.com/us/products/1419140>

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Device connector rear mounting, EtherCAT® CAT5 (IEC 11801:2002) (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, PVC halogen-free, green RAL 6018, shielded, Pin, straight, M12-SPEEDCON, D-coding, on free cable end, Cable connection, cable length: 2 m, PROFINET PVC stranded CAT5, this item is expected to be lead-free from Q1 2027 in accordance with RoHS II without exception 6c (Pb < 0.1%), a lead-free alternative is possible on request in advance

## 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                          | 1419140       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | AB25          |
| Product key                          | ABQDGC        |
| GTIN                                 | 4046356540643 |
| Weight per piece (including packing) | 165.4 g       |
| Weight per piece (excluding packing) | 148.301 g     |
| Customs tariff number                | 85444290      |
| Country of origin                    | DE            |

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## Technical data

### Notes

|                    |                                                                                                                                                                                                                                                                                                                                                    |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Notes on operation | 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"><li>• 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.</li><li>• 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.</li><li>• The products are suitable for applications in plant, controller, and electrical device engineering.</li><li>• When operating the connectors in outdoor applications, they must be separately protected against environmental influences.</li><li>• Assembled products may not be manipulated or improperly opened.</li><li>• 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 <a href="https://www.phoenixcontact.com/products">phoenixcontact.com/products</a>).</li><li>• When using the product in direct connection with third-party manufacturers, the user is responsible.</li><li>• For operating voltages &gt; 50 V AC, conductive connector housings must be grounded</li><li>• Ensure that when laying the cable, the tensile load on the connectors does not exceed the upper limit specified in the standards.</li><li>• Observe the corresponding technical data. You will find information:<ul style="list-style-type: none"><li>o On the product</li><li>o On the packing label</li><li>o In the supplied documentation</li><li>o Online at <a href="https://www.phoenixcontact.com/products">phoenixcontact.com/products</a> under the product</li></ul></li><li>• Only use tools recommended by Phoenix Contact</li><li>• 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 <a href="https://www.phoenixcontact.com/products">phoenixcontact.com/products</a></li><li>• Ensure that the protective or functional ground has been</li></ul> |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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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          | Data                    |
| Sensor type          | EtherCAT®               |
| Number of positions  | 4                       |
| No. of cable outlets | 1                       |
| Shielded             | yes                     |
| Coding               | D                       |
| Thread type          | M12                     |

## Insulation characteristics

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

## Interfaces

|                      |                                                                                   |
|----------------------|-----------------------------------------------------------------------------------|
| Bus system           | EtherCAT®                                                                         |
| Signal type/category | EtherCAT® CAT5 (IEC 11801:2002), 100 Mbps<br>EtherCAT® CAT5 (IEC 11801), 100 Mbps |

## Electrical properties

|                                         |                                                                                              |
|-----------------------------------------|----------------------------------------------------------------------------------------------|
| Rated surge voltage                     | 2.5 kV                                                                                       |
| Contact resistance                      | ≤ 3 mΩ                                                                                       |
| Insulation resistance                   | ≥ 100 MΩ                                                                                     |
| Nominal voltage $U_N$                   | 250 V                                                                                        |
| Nominal current $I_N$                   | 4 A (Plug/socket in accordance with IEC 61076-2-101, cable technical data is to be observed) |
| Transmission medium                     | Copper                                                                                       |
| Transmission speed                      | 100 Mbps                                                                                     |
| Transmission characteristics (category) | CAT5 (IEC 11801:2002)                                                                        |

## Mechanical properties

### Mechanical data

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

## Material specifications

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

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|                               |                      |
|-------------------------------|----------------------|
| Contact material              | CuZn                 |
| Contact surface material      | Ni/Au                |
| Contact carrier material      | PA 6.6               |
| Material for screw connection | Brass, nickel-plated |
| Outer sheath, material        | PVC                  |

## Connection data

|                       |                  |
|-----------------------|------------------|
| Connection technology |                  |
| Connection method     | Cable connection |

|                         |                                   |
|-------------------------|-----------------------------------|
| Conductor connection    |                                   |
| Contact connection type | Pin                               |
| Connection method       | Cable connection                  |
| Tightening torque       | 2 Nm ... 3 Nm (Installation-side) |

## Connector

|                   |          |
|-------------------|----------|
| Connection 1      |          |
| Head design       | Pin      |
| Head cable outlet | straight |
| Head thread type  | M12      |
| Head locking type | SPEEDCON |
| Coding            | D        |

|              |                |
|--------------|----------------|
| Connection 2 |                |
| Head design  | free cable end |

## Cable/line

|              |     |
|--------------|-----|
| Cable length | 2 m |
|--------------|-----|

### PROFINET PVC stranded CAT5 [93B]

|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| UL AWM Style        | 21695 (80 °C / 600 V)                                                                |
| Number of positions | 4                                                                                    |
| Shielded            | yes                                                                                  |
| Cable type          | PROFINET PVC stranded CAT5 [93B]                                                     |
| Conductor structure | 1x4xAWG22/7, SF/TQ                                                                   |
| AWG signal line     | 22                                                                                   |

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|                                               |                                                          |
|-----------------------------------------------|----------------------------------------------------------|
| Conductor cross section                       | 4x 0.34 mm <sup>2</sup>                                  |
| Wire diameter incl. insulation                | 1.5 mm ±0.1 mm                                           |
| External cable diameter                       | 6.50 mm ±0.2 mm                                          |
| Outer sheath, material                        | PVC                                                      |
| External sheath, color                        | green RAL 6018                                           |
| Conductor material                            | Tin-plated Cu litz wires                                 |
| Material wire insulation                      | PE                                                       |
| Single wire, color                            | white, yellow, blue, orange                              |
| Overall twist                                 | Star quad                                                |
| Optical shield covering                       | 85 %                                                     |
| Insulation resistance                         | ≥ 5 GΩ*km                                                |
| Loop resistance                               | ≤ 120.00 Ω/km                                            |
| Wave impedance                                | 100 Ω ±5 Ω (at 100 MHz)                                  |
| Nominal voltage, cable                        | ≤ 600 V                                                  |
| Test voltage Core/Core                        | 2000 V ((50 Hz/1 min))                                   |
| Test voltage Core/Shield                      | 2000.00 V ((50 Hz/1 min))                                |
| Minimum bending radius, fixed installation    | 4 x D                                                    |
| Minimum bending radius, flexible installation | 8 x D                                                    |
| Flame resistance                              | UL 1581, Section 1060 and UL 2556, Section 9.3 (FT1)     |
|                                               | UL 1685 (CSA FT 4)                                       |
|                                               | UL 1581, Section 1100 and UL 2556, Section 9.1 (HFT/FT2) |
| Resistance to oil                             | OIL RES I according to UL 2256                           |
| Other resistance                              | UV resistant (according to UL 1581, Section 1200)        |
| Ambient temperature (operation)               | -40 °C ... 80 °C (cable, fixed installation)             |
|                                               | -10 °C ... 70 °C (Cable, flexible installation)          |

## Environmental and real-life conditions

### Ambient conditions

|                                                                   |                                                 |
|-------------------------------------------------------------------|-------------------------------------------------|
| Degree of protection                                              | IP67 (When plugged in)                          |
|                                                                   | IP65 (When plugged in)                          |
|                                                                   | IP65/IP67                                       |
| Ambient temperature (operation) (male connector/female connector) | -25 °C ... 85 °C (Plug / socket)                |
|                                                                   | -40 °C ... 85 °C (without mechanical actuation) |
| UL Type Rating                                                    | Type 4 (indoor use only)                        |

## Standards and regulations

|                          |                              |
|--------------------------|------------------------------|
| Standard designation     | M12 circular connector       |
| Standards/specifications | according to IEC 61076-2-101 |

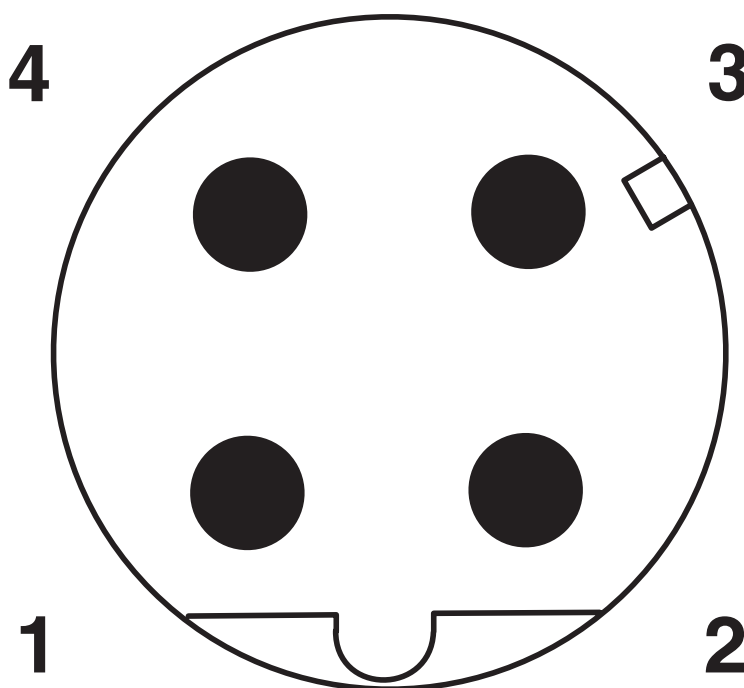
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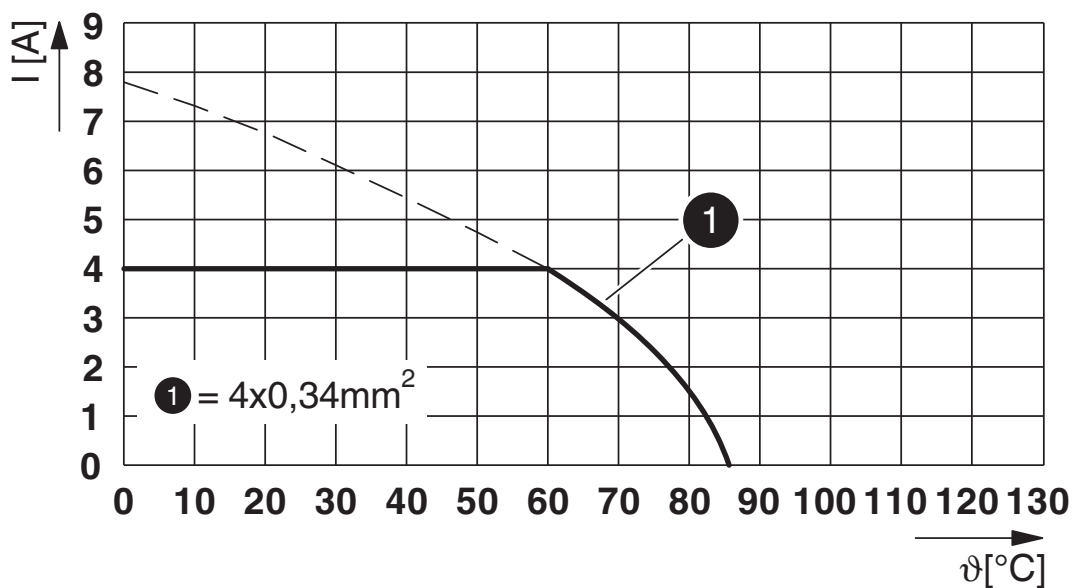
## Drawings

Schematic diagram



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

Diagram



$I$  = current strength,  $T$  = ambient temperature

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## Approvals

🔗 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1419140>



**EAC**

Approval ID: 19060508

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27440103 |
| ECLASS-15.0 | 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                                | 7c55a6f0-3730-4354-aa6a-5107450821ff |

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