

# VS-M12FSBP-OE-93E-LI/0,5 - Device connector, rear mounting



1413936

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Device connector, rear mounting, Ethernet CAT5 (100 Mbps), Ethernet CAT5 (100 Mbps), 4-position, water blue RAL 5021, Flush-type female connector, straight, M12-SPEEDCON, coding: D , on free cable end, Rear mounting, M16 x 1.5, Bus line, 0.14 mm<sup>2</sup>, Alternative product in accordance with RoHS II without Exemption 6c (Pb <0.1%) item no.: 1239048

## 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	1413936
Packing unit	1 pc
Minimum order quantity	50 pc
Sales key	AB25
Product key	ABQDGI
GTIN	4055626013411
Weight per piece (including packing)	45 g
Weight per piece (excluding packing)	27.84 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.
Safety note	<p data-bbox="849 819 1452 902">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 data-bbox="849 916 1469 2087" style="list-style-type: none"><li data-bbox="849 916 1469 1025">• 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 data-bbox="849 1039 1469 1234">• 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 data-bbox="849 1247 1469 1308">• The products are suitable for applications in plant, controller, and electrical device engineering.</li><li data-bbox="849 1321 1469 1382">• When operating the connectors in outdoor applications, they must be separately protected against environmental influences.</li><li data-bbox="849 1395 1469 1456">• Assembled products may not be manipulated or improperly opened.</li><li data-bbox="849 1469 1469 1552">• 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 data-bbox="849 1565 1469 1626">• When using the product in direct connection with third-party manufacturers, the user is responsible.</li><li data-bbox="849 1639 1469 1700">• For operating voltages &gt; 50 V AC, conductive connector housings must be grounded</li><li data-bbox="849 1713 1469 1774">• Ensure that when laying the cable, the tensile load on the connectors does not exceed the upper limit specified in the standards.</li><li data-bbox="849 1787 1469 1957">• Observe the corresponding technical data. You will find information:<ul data-bbox="849 1848 1469 1957" style="list-style-type: none"><li data-bbox="849 1848 1469 1877">o On the product</li><li data-bbox="849 1879 1469 1908">o On the packing label</li><li data-bbox="849 1910 1469 1939">o In the supplied documentation</li><li data-bbox="849 1942 1469 1957">o Online at <a href="https://www.phoenixcontact.com/products">phoenixcontact.com/products</a> under the product</li></ul></li><li data-bbox="849 1971 1469 2000">• Only use tools recommended by Phoenix Contact</li><li data-bbox="849 2013 1469 2087">• 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></ul>

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	<ul style="list-style-type: none"><li>• Ensure that the protective or functional ground has been properly connected.</li></ul>
	<ul style="list-style-type: none"><li>• 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</li></ul>
	<ul style="list-style-type: none"><li>• 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).</li></ul>

## Product properties

Product type	Data cable preassembled
Sensor type	Ethernet
Number of positions	4
No. of cable outlets	1
Coding	D
Thread type	M12

## Insulation characteristics

Overvoltage category	II
Degree of pollution	3

## Interfaces

Bus system	Ethernet
Signal type/category	Ethernet CAT5 (IEC 11801:2002), 100 Mbps Ethernet CAT5 (IEC 11801), 100 Mbps

## Electrical properties

Rated surge voltage	2.5 kV AC
Contact resistance	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ
Nominal voltage $U_N$	48 V AC 60 V DC
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 characteristics (category)	CAT5 (IEC 11801:2002)

## Mechanical properties

### Mechanical data

Insertion/withdrawal cycles	≥ 100
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## 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	Zinc die-cast, nickel-plated

## Connection data

### Connection technology

Connection method	Bus line
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### Conductor connection

Contact connection type	Crimp contacts
Connection method	Bus line

## Connector

### Connection 1

Head design	Flush-type female connector
Head cable outlet	straight
Head thread type	M12
Head locking type	SPEEDCON
Coding	D

### Connection 2

Head design	free cable end
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## Cable/line

Cable length	0.5
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### Ethernet flexible CAT5, 2-pair [93E]

Dimensional drawing	
Cable weight	42 kg/km
UL AWM Style	20963 (80°C/30 V)
Wiring standards/regulations	Electrical requirements EN 50288-2-2
Number of positions	4
Shielded	yes
Cable type	Ethernet flexible CAT5, 2-pair [93E]
Conductor structure	2x2xAWG26/7, SF/UTP

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Signal runtime	5.3 ns/m
Conductor structure signal line	7x 0.16 mm
AWG signal line	26
Conductor cross section	2x 2x 0.14 mm <sup>2</sup>
Wire diameter incl. insulation	0.98 mm
External cable diameter	6.4 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/orange-orange, white/green-green
Thickness, outer sheath	1.2 mm
Twisted pairs	2 cores to the pair
Overall twist	Two pairs with two fillers to the core
Optical shield covering	70 %
Insulation resistance	≥ 500 MΩ*km
Coupling resistance	≤ 100.00 mΩ/m (at 10 MHz)
Loop resistance	≤ 290.00 Ω/km
Wave impedance	100 Ω ±5 Ω (at 100 MHz)
Cable capacity	approx. 45 nF/km (at 1 kHz)
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)
Minimum bending radius, fixed installation	4 x D
Minimum bending radius, flexible installation	8 x D
Tensile strength	≤ 80 N
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)
Power-summated near end crosstalk attenuation (PSNEXT)	35.3 dB (at 100 MHz)
	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)	

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	32.3 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)
	Shield attenuation
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)	
24.8 dB (at 62.5 MHz)	
32 dB (at 100 MHz)	
Halogen-free	according to IEC 60754-1
Flame resistance	according to IEC 60332-1-2
	in acc. to UL VW1
	in accordance with UN ECE-R 118.03
Resistance to oil	in accordance with 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 (When plugged in)
	IP65 (When plugged in)
	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 61076-2-101

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1413936>



**EAC**

Approval ID: B.01687

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## Classifications

### ECLASS

ECLASS-11.0	27440102
ECLASS-12.0	27440116
ECLASS-13.0	27440116

### ETIM

ETIM 8.0	EC002635
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### UNSPSC

UNSPSC 21.0	39121400
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## Environmental product compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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