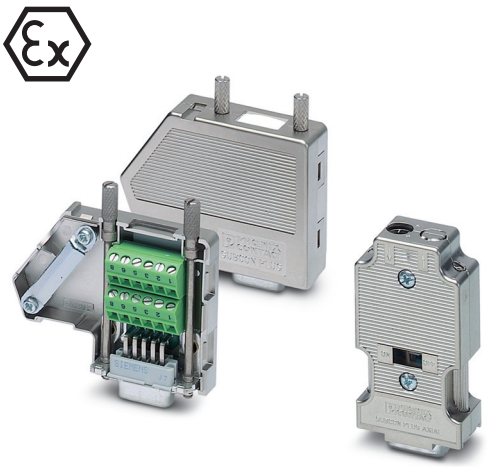
SUBCON-PLUS/...

Fast connector with screw terminal block connection for fieldbus systems



Data sheet
100287_en_04

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1 Description

The **SUBCON-PLUS/...** D-SUB series is specifically designed for use in RS-485 fieldbus systems. Under field conditions, it enables quick and easy connection of the incoming and outgoing bus line.

The product range includes ten fast connectors:

Bus system	Pin assignment	Design	D-SUB	Cable entry	Type	Item No.
Modbus, MODBUS-PLUS, BITBUS, ARCNET, MULTI/MININET (B&R), SYSTEM 2003 (B&R), P-NET	1, 2, 3, 5, 6, 8	On two screw terminal blocks each	Pin	Angled 35°	SUBCON-PLUS M1	2761826
			Female		SUBCON-PLUS F1	2744267
SUCONET K1, K2 (EATON/Moeller), S-BUS (SAIA), J-BUS (Merlin Gerin)	2, 3, 4, 5, 7, 9		Pin		SUBCON-PLUS M2	2761839
			Female		SUBCON-PLUS F2	2799490
CANopen®, FIP	2, 3, 6, 7, 8, 9				SUBCON-PLUS F3	2761871
CAN, KEBA	2, 3, 4, 5, 6, 7				SUBCON-PLUS F4	2744089
Universal type	1, 2, 3, 4, 5, 6, 7, 8, 9	All connections 1:1 on screw terminal block	Pin		SUBCON-PLUS 9/M	2744018
			Female		SUBCON-PLUS 9/F	2744241
			Pin	Axial	SUBCON-PLUS-M/AX9	2904467
			Female		SUBCON-PLUS-F/AX9	2311797

Observe these notes

WARNING: Explosion hazard when used in potentially explosive areas
Follow the instructions provided here during installation. Always observe the safety notes.

Make sure you always use the latest documentation.
It can be downloaded at phoenixcontact.com/products.

Features

- Assembly under field conditions
- Separate terminal blocks for each cable
- High transmission speed
- For the angled connectors: cable entry is flexibly selectable
- Easy mounting due to knurled screws

Versions

- Bus-specific types with matching partial assignment
- Universal type with full assignment
- Short mounting screw as an accessory when space is limited

2 Table of contents

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3 Ordering data

SUBCON-PLUS/...	Type	Item No.	Pcs./Pkt.
D-SUB connector, with two cable entries for Modbus, MODBUS-PLUS, BITBUS, ARCNET, MULTI/MININET (B&R), SYSTEM 2003 (B&R), P-NET, pin assignment 1, 2, 3, 5, 6, 8			
Angled 35°, 9-pos., pin	SUBCON-PLUS M1	2761826	1
Angled 35°, 9-pos., female	SUBCON-PLUS F1	2744267	1
D-SUB connector, with two cable entries for SUCONET K1, K2 (EATON/Moeller), S-BUS (Saia), J-BUS (Merlin Gerin), pin assignment 2, 3, 4, 5, 7, 9			
Angled 35°, 9-pos., pin	SUBCON-PLUS M2	2761839	1
Angled 35°, 9-pos., female	SUBCON-PLUS F2	2799490	1
D-SUB connector, with two cable entries for CANopen®, FIP, pin assignment 2, 3, 6, 7, 8, 9			
Angled 35°, 9-pos., female	SUBCON-PLUS F3	2761871	1
D-SUB connector, with two cable entries for CAN, KEBA, pin assignment 2, 3, 4, 5, 6, 7			
Angled 35°, 9-pos., female	SUBCON-PLUS F4	2744089	1
D-SUB connector, with two cable entries, universal type, pin assignment 1,2,3,4,5,6,7,8,9 on every screw terminal block			
Angled 35°, 9-pos., pin	SUBCON-PLUS 9/M	2744018	1
Angled 35°, 9-pos., female	SUBCON-PLUS 9/F	2744241	1
Axial, 9-pos., pin	SUBCON-PLUS-M/AX9	2904467	1
Axial, 9-pos., female	SUBCON-PLUS-F/AX9	2311797	1

Accessories	Type	Item No.	Pcs./Pkt.
Stripping pliers for PVC-insulated cables, stripping range: 0.08 mm² to 6 mm², can cut wires up to 6 mm² (flexible) and 4 mm² (rigid)	QUICK WIREFOX 6	1204384	1
Optional mounting screw, without knurl for narrow installation conditions, slotted head, length: 40 mm, UNC 4-40 thread. Scope of supply: 1 bag of 20 screws	SUBCON-SHORT-SCREW	2799694	1
Screwdriver, slotted, VDE-insulated, size: 0.4 mm x 2.5 mm x 80 mm, 2-component handle, with non-slip grip	SZS 0,4X2,5 VDE	1205037	10

4 Safety regulations and installation notes

WARNING:
Observe the following safety notes when using the connector.

- The category 3 product is designed for installation in zone 2 potentially explosive areas. It meets the requirements of the following standards:
  - EN 60079-0, EN 60079-7
  - You will find detailed information in the EU declaration of conformity, which is enclosed and is also available on our website in the latest version.
- Installation, operation, and maintenance may only be carried out by qualified electricians. Follow the installation instructions as described.
- When installing and operating the device, the applicable regulations and safety regulations (including national safety regulations) as well as general technical regulations must be observed. The safety-relevant data is listed in this document.
- Observe the specified conditions for use in potentially explosive areas. Also observe the requirements of EN 60079-14.
- Modifying the product is prohibited. Do not repair the product yourself. Instead, replace it with an equivalent product. Repairs may only be carried out by the manufacturer. Follow the specifications in the operating instructions precisely when opening and closing the product. The manufacturer is not liable for damage resulting from non-compliance.
- Do not subject the product to any mechanical and/or thermal stress that exceeds the specified limits.
- The product must be stopped and immediately removed from the potentially explosive area if it is damaged, was subjected to an impermissible load, stored incorrectly, or if it malfunctions.

4.1 Installation in potentially explosive areas

WARNING: Explosion hazard when used in potentially explosive areas
Please make sure that the following notes and instructions are observed.

WARNING: Explosion hazard when used in potentially explosive areas
D-SUB interfaces may only be connected or disconnected when the power is disconnected.
- Tighten the D-SUB mounting screws on all connectors.

- Use in potentially explosive areas is not permitted in China.
- The device should be installed so that a degree of protection of at least IP54 is achieved in accordance with EN 60529. To this end, a suitable, approved housing that meets the requirements of EN 60079-0 should be used.
- Only devices suitable for operation in Ex zone 2 and the conditions at the installation location may be connected to the circuits in zone 2.
- In potentially explosive areas, only open the product and connect and disconnect cables and plug-in connections (e.g., connector, SD card, DIN rail connector) when the power is disconnected.
- For safe operation, lockable plug-in connections (e.g., connector, SD card, DIN rail connector) must be fully inserted and have a functional interlock (e.g., locking clip, screw connection).
- Insert the locking mechanism. Repair any damaged plug-in connections immediately.
- Only connect one cable to each terminal point.
- Use the device in an environment that does not exceed pollution degree 2 in accordance with EN 60664-1.
- Use transient protection so that any short-term surge voltage does not exceed 119 V.
- The product is not designed for use in potentially dust-explosive atmospheres.

5 35° angled connector

5.1 Technical data

SUBCON-PLUS M...	
SUBCON-PLUS F...	
SUBCON-PLUS 9/...	
Connection	
Connector connection	9-pos. D-SUB pin strip or D-SUB female strip
Interface connection	Screw connection
Cable entry	35°, either left or right
Connection cross-section of screw terminal blocks	
Rigid	0.14 mm^2 ... 1.5 mm^2 (AWG 26-16)
Flexible	0.14 mm^2 ... 1 mm^2 (AWG 26-18)
Insertion cycles	>200
Cable diameter	6 mm ... 10 mm
Mounting screws	4-40 UNC
Maximum tightening torque	0.4 Nm
General data	
Degree of protection	IP20
Housing material	ABS, metal-plated
Nominal current I_N	100 mA
Maximum operating voltage	50 V DC
Ambient conditions	
Temperature range	
Operation	-20°C ... +75°C
Storage/transport	-25°C ... +80°C
Altitude	5000 m (for restrictions see manufacturer's declaration)
Approvals	
ATEX Please follow the special installation instructions in the documentation.	Ⓔx II 3 G Ex ec IIC T4 Gc

SUBCON-PLUS 9/M, SUBCON-PLUS 9/F

Ⓔx II 3 G Ex ec IIC T4 Gc (PxCIF15ATEX2744241X)
-20 °C ≤ T_{amb} ≤ +75 °C

SUBCON-PLUS M1/2, SUBCON-PLUS F1/2/3/4

Ⓔx II 3 G Ex ec IIC T4 Gc (PxCIF14ATEX2744267X)
-20 °C ≤ T_{amb} ≤ +75 °C

5.2 Product description

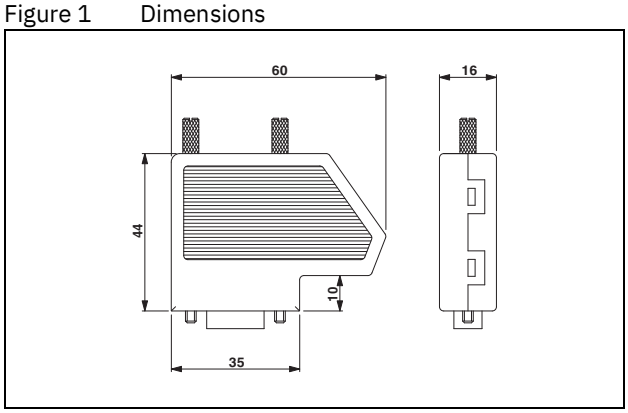
D-SUB bus connector

Field bus connector with screw connection and two cable entries.

The product can be plugged onto 9-pos. D-SUB connectors in accordance with IEC 807-2.

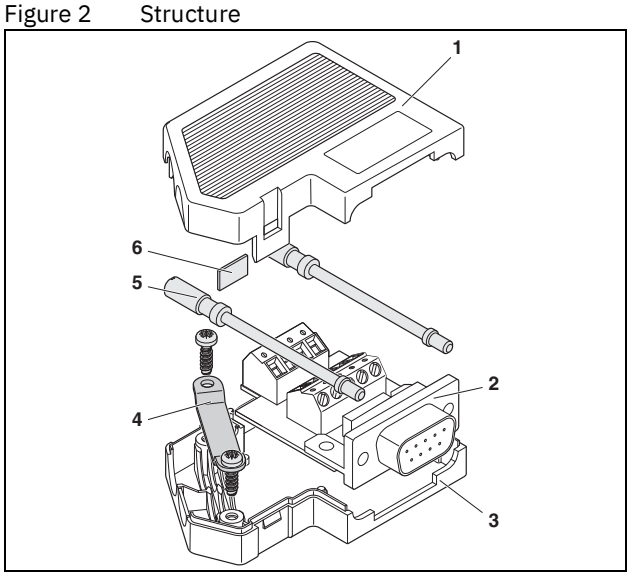
5.3 Dimensions

Figure 1 Dimensions



5.4 Structure

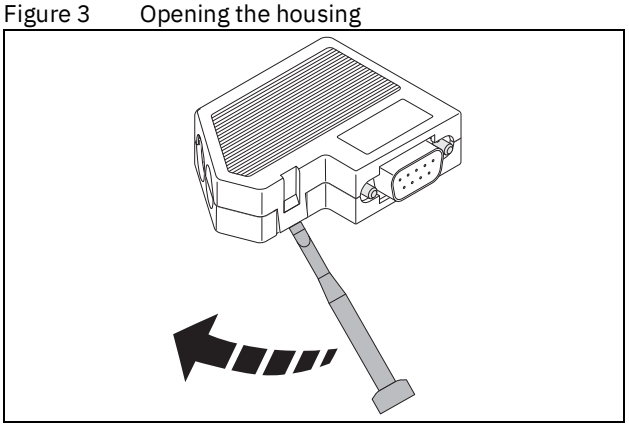
Figure 2 Structure



1	Upper housing shell
2	D-SUB connection
3	Lower housing shell
4	Strain relief
5	D-SUB mounting screws
6	Label

5.5 Opening the housing

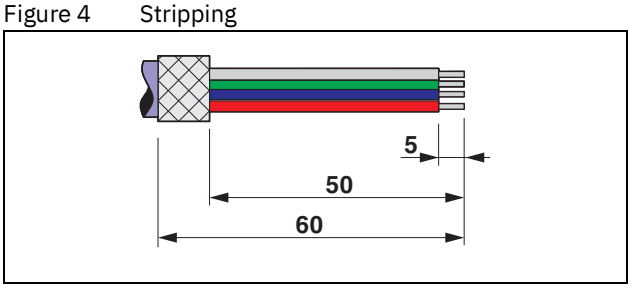
Figure 3 Opening the housing



- Release the upper housing shell using a screwdriver.
- Fold the housing up to open it.

5.6 Stripping

Figure 4 Stripping



The following stripping tool is recommended:

– QUICK WIREFOX 6, item no. 1204384

NOTE: Malfunction
Observe the specified stripping lengths.

- Strip the cable in accordance with the specified stripping lengths.
- Fold back 10 mm of the braided shield over the outer sheath.
- Remove the aluminum foil.

5.7 Connection

WARNING: Explosion hazard when used in potentially explosive areas

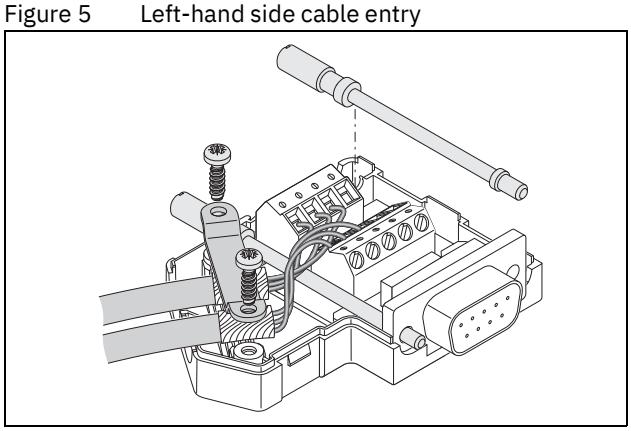
D-SUB interfaces may only be connected or disconnected when the power is disconnected.

- Tighten the D-SUB mounting screws on all connectors.

Cable entry can be from the right or left side. In the delivery state, the connector is pre-assembled for left-hand entry.

Left-hand side cable entry

Figure 5 Left-hand side cable entry

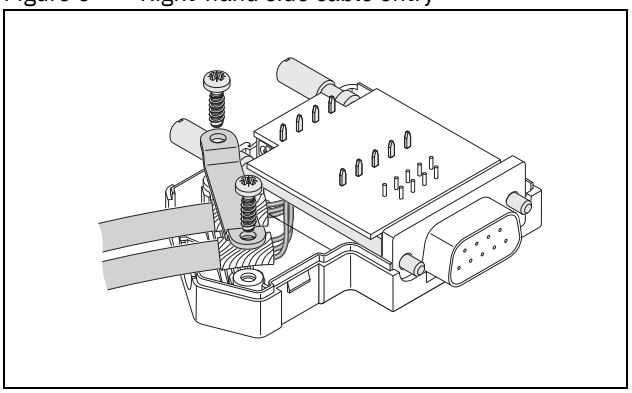


- Screw the stripped conductors into the corresponding connection block contacts:

D-SUB contact 1	=	Screw connection 1
D-SUB contact 2	=	Screw connection 2
...	=	...

Right-hand side cable entry

Figure 6 Right-hand side cable entry

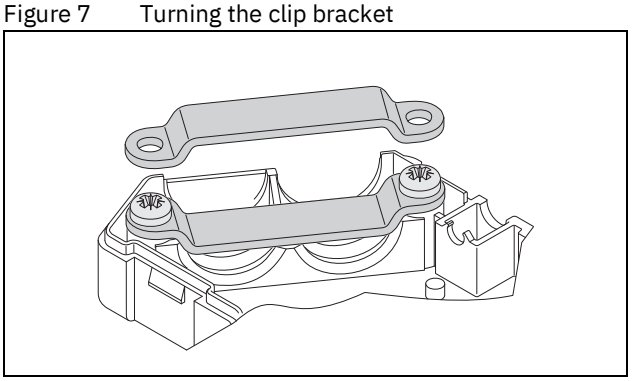


- Lift the PCB out of the lower housing shell using a screwdriver.
- Insert the PCB in the upper housing shell.
- Screw the stripped conductors into the corresponding connection block contacts:

D-SUB contact 1	=	Screw connection 1
D-SUB contact 2	=	Screw connection 2
...	=	...

5.8 Strain relief

Figure 7 Turning the clip bracket



- For cable type A in accordance with EN 50170: turn the clip bracket.
- Place the shielding under the clip bracket of the strain relief. Tighten it.
- Close the housing and attach the label.

6 Axial connectors

6.1 Technical data

SUBCON-PLUS-M/AX9	**2904467**
SUBCON-PLUS-F/AX9	**2311797**
Connection	
Connector connection	9-pos. D-SUB pin strip or D-SUB female strip
Interface connection	Screw connection
Cable entry	Axial
Connection cross-section of screw terminal blocks	
Rigid	0.14 mm^2 ... 0.5 mm^2 (AWG 26-20)
Flexible	0.14 mm^2 ... 0.5 mm^2 (AWG 26-20)
Insertion cycles	>200
Cable diameter	7.6 mm ... 8.4 mm
Mounting screws	4-40 UNC
Maximum tightening torque	0.4 Nm
Stripping length	4.5 mm
General data	
Degree of protection	IP20
Housing material	ABS, metal-plated
Nominal current I_N	100 mA
Maximum operating voltage	50 V DC
Ambient conditions	
Temperature range	
Operation	-20°C ... +75°C
Storage/transport	-25°C ... +80°C
Altitude	5000 m (for restrictions see manufacturer‘s declaration)
Approvals	
ATEX Please follow the special installation instructions in the documentation.	Ⓔx II 3 G Ex ec IIC T4 Gc

SUBCON-PLUS-M/AX9, SUBCON-PLUS-F/AX9

Ⓔx II 3 G Ex ec IIC T4 Gc (PxCIF15ATEX2744241X)
-20 °C ≤ T_{amb} ≤ +75 °C

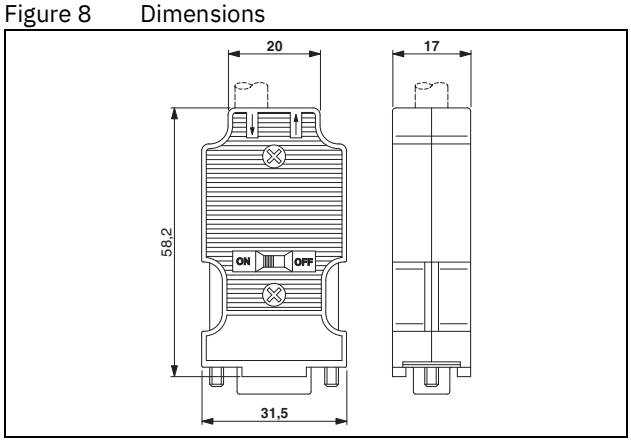
6.2 Product description

D-SUB bus connector

The product can be plugged onto 9-pos. D-SUB connectors in accordance with IEC 807-2.

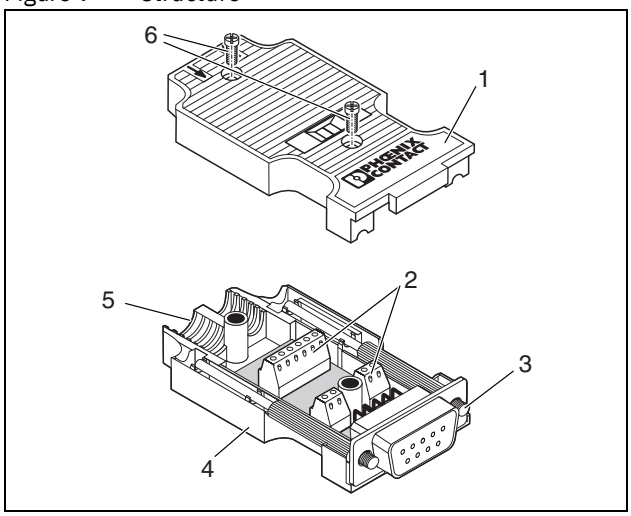
6.3 Dimensions

Figure 8 Dimensions



6.4 Structure

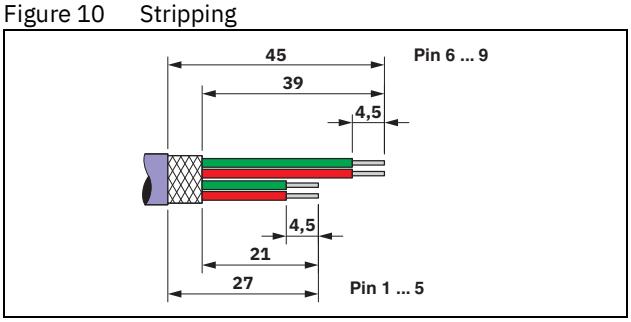
Figure 9 Structure



1	Upper housing shell
2	Connection block
3	D-SUB mounting screws
4	Lower housing shell
5	Strain relief
6	Housing screws

6.5 Stripping

Figure 10 Stripping



The following stripping tool is recommended:

– QUICK WIREFOX 6, item no. 1204384

- Strip off the conductors. Stripping length: 4.5 mm

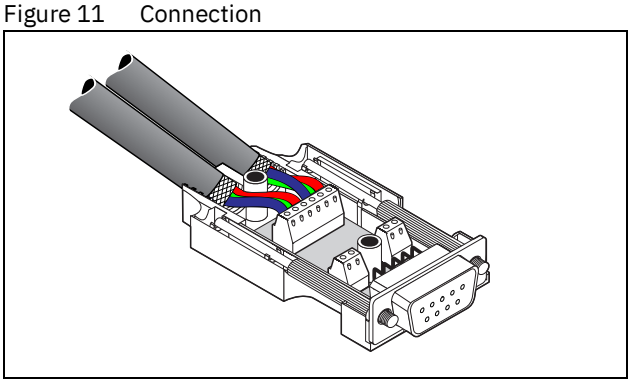
6.6 Connection

WARNING: Explosion hazard when used in potentially explosive areas

D-SUB interfaces may only be connected or disconnected when the power is disconnected.

- Tighten the D-SUB mounting screws on all connectors.

Figure 11 Connection



- Loosen the housing screw. Lift off the upper housing shell.
- Insert the cable into the housing.
- Screw the stripped conductors into the corresponding connection block contacts.

D-SUB contact 1	=	Screw connection 1
D-SUB contact 2	=	Screw connection 2
...	=	...

- Finally, close and tighten the housing half-shells. This creates the shield connection and strain relief for the bus line.