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SUBCON-PLUS.../M12

D-SUB plug with M12 SPEEDCON connection for PROFIBUS or CAN/CANopen®

Data sheet
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1 Description

The fast connection plugs **SUBCON-PLUS.../M12** are designed specifically for use in PROFIBUS- or CAN-based systems. They enable the quick and easy connection of bus lines under field conditions.

The plugs are ideal for use in the series production of machines and whenever an error-free installation is required. Because the M12 connections are easy to handle, you can ship the machines worldwide and have them assembled locally.

The plugs provide a simple and safe connection between the control cabinet (IP20) and the waterproof M12 world (IP65).

Features

- Easy startup, plug and play
- Error-free installation, particularly in series production of machines
- Fast connection thanks to M12 SPEEDCON fast locking system
- Light weight
- Termination with M12 termination resistor
- Versions with programming connection available
- Fully sealed housing for harsh ambient conditions
- Extended temperature range
- Plated-through shielding from M12 connection to D-SUB



This data sheet is valid for all products listed on the following page:

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It can be downloaded at phoenixcontact.net/products.

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3 Ordering data

	90° long		90° compact	
	 <p>With programming connection</p>		 <p>With programming connection</p>	
Area of application	Optimal for the Siemens S7 controller; the controller cover can be fully closed		Low space requirement; for applications with little space above the D-SUB bus connection on the communication module	
PROFIBUS				
Type	SUBCON-PLUS-PROFIB/90X/M12	SUBCON-PLUS-PROFIB/90X/PG/M12	SUBCON-PLUS-PROFIB/90/M12	SUBCON-PLUS-PROFIB/90/PG/M12
Order No.	2902729	2902728	2902318	2902317
CAN/CANopen®				
Type	SUBCON+PLUS+CAN/90X/M12	SUBCON-PLUS-CAN/90X/PG/M12	SUBCON-PLUS-CAN/90/M12	SUBCON-PLUS-CAN/90/PG/M12
Order No.	2902731	2902730	2902323	2902322
	35° universal		180°	
	 <p>With programming connection</p>		 <p>Axial</p>	
Area of application	Angled cable outlet for all classic applications		Access to all interfaces next to the D-SUB, particularly in confined spaces, e.g. for industry PCs	
PROFIBUS				
Type	SUBCON-PLUS-PROFIB/35/M12	SUBCON-PLUS-PROFIB/35/PG/M12	SUBCON-PLUS-PROFIB/AX/M12	
Order No.	2902320	2902319	2902321	
CAN/CANopen®				
Type	SUBCON-PLUS-CAN/35/M12	SUBCON-PLUS-CAN/35/PG/M12	SUBCON-PLUS-CAN/AX/M12	
Order No.	2902325	2902324	2902326	

Accessories for PROFIBUS

Termination resistors	Type	Order No.	Pcs. / Pkt.
PROFIBUS M12 termination resistor, pin	SAC-5P-M12MS PB TR	1507803	5
PROFIBUS M12 termination resistor, socket	SAC-5P-M12FS PB TR	1403911	1
Cables	Type	Order No.	Pcs. / Pkt.
Bus system cable, PROFIBUS (12 Mbps), 2-pos., halogen-free PUR, RAL 4001 (violet), shielded, straight M12 SPEEDCON plug, B-coded, to free cable end, cable length: 5 m	SAC-2P-MSB/ 5,0-910 SCO	1518038	1
Bus system cable, PROFIBUS, 2-pos., halogen-free PUR, RAL 4001 (violet), shielded, free cable end, to straight M12 SPEEDCON socket, B-coded, cable length: 5 m	SAC-2P- 5,0-910/FSB SCO	1518070	1
Bus system cable, PROFIBUS, (12 Mbps) 2-pos., halogen-free PUR, RAL 4001 (violet), shielded, straight M12 SPEEDCON plug, B-coded, to straight M12 SPEEDCON socket, B-coded, cable length: 5 m	SAC-2P-MSB/ 5,0-910/FSB SCO	1518148	1
Bus system cable, PROFIBUS (12 Mbps), 2-pos., halogen-free PUR, RAL 4001 (violet), shielded, angled M12 SPEEDCON plug, B-coded, to angled M12 SPEEDCON socket, B-coded, cable length: open entry option (0.2 ... 40.0 m)	SAC-2P-MRB-FRB SCO/910/...	1433278	1



For more PROFIBUS connecting wires visit phoenixcontact.net/products.

More SUBCON plugs	Type	Order No.	Pcs. / Pkt.
PROFIBUS plug, up to 12 Mbps, integrated termination resistor which can be activated externally, 9-pos. pin, pin assignment 3, 5, 6, 8			
Angled 35°, screw connection	SUBCON-PLUS-PROFIB/SC2	2708232	1
Angled 35°, screw connection with second D-SUB socket	SUBCON-PLUS-PROFIB/Pg/SC2	2708245	1
Angled 90°, screw connection	SUBCON-PLUS-PROFIB/90/SC	2313698	1
Angled 90°, screw connection with second D-SUB socket	SUBCON-PLUS-PROFIB/90/Pg/SC	2313708	1
Angled 90°, insulation displacement connection type (IDC)	SUBCON-PLUS-PROFIB/90/IDC	2313672	1
Angled 90°, insulation displacement connection (IDC) with second D-SUB socket	SUBCON-PLUS-PROFIB/90/Pg/IDC	2313685	1
180° axial cable entry, screw connection	SUBCON-PLUS-PROFIB/AX/SC	2744380	1

Accessories for CAN/CANopen®

Termination resistors	Type	Order No.	Pcs. / Pkt.
Termination resistor CANopen®/DeviceNet M12, pin	SAC-5P-M12MS CAN TR	1507816	5
Termination resistor CANopen®/DeviceNet M12, socket	SAC-5P-M12FS CAN TR	1529344	5

Cables	Type	Order No.	Pcs. / Pkt.
Bus system cable, CANopen®, DeviceNet™, 5-pos., halogen-free PUR, RAL 4001 (violet), shielded, straight M12 SPEEDCON plug, A-coded, to free cable end, cable length: 5 m	SAC-5P-MS/ 5,0-920 SCO	1518180	1
Bus system cable, CANopen®, DeviceNet™, 5-pos., halogen-free PUR, RAL 4001 (violet), shielded, free cable end, to straight M12 SPEEDCON socket, A-coded, cable length: 5 m	SAC-5P- 5,0-920/FS SCO	1518229	1
Bus system cable, CANopen®, DeviceNet™, 5-pos., halogen-free PUR, RAL 4001 (violet), shielded, straight M12 SPEEDCON plug, A-coded, to straight M12 SPEEDCON socket, A-coded, cable length: 5 m	SAC-5P-MS/ 5,0-920/FS SCO	1518290	1
Bus system cable, CANopen®, DeviceNet™, 5-pos., halogen-free PUR, RAL 4001 (violet), shielded, angled M12 SPEEDCON plug, A-coded, to angled M12 SPEEDCON socket, A-coded, cable length: open entry option (0.2 ... 40.0 m)	SAC-5P-MR-FR SCO/920/...	1433320	1



For more CAN/CANopen®-connecting wires visit phoenixcontact.net/products.

More SUBCON plugs	Type	Order No.	Pcs. / Pkt.
CAN, CANopen®, SafetyBus P-Plug, integrated termination resistor that can be activated externally, with screw connection, 9-pos., socket			
Angled 35°	SUBCON-PLUS-CAN/SC2	2708999	1
Angled 35°, with second D-SUB connection	SUBCON-PLUS-CAN/PG	2708119	1
Angled 35°, for variable cable diameters	SUBCON-PLUS-CAN	2744694	1
180° axial cable entry, screw connection	SUBCON-PLUS-CAN/AX	2306566	1

4 Dimensions

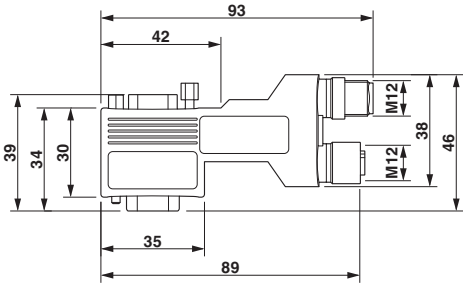


Figure 1 Dimensions, angled 90°, long

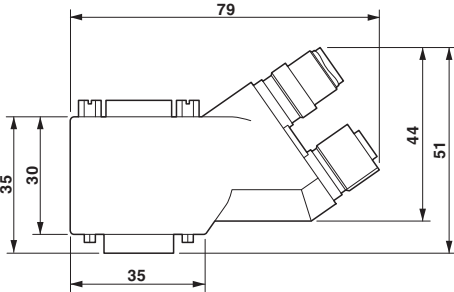


Figure 3 Dimensions, angled 35°

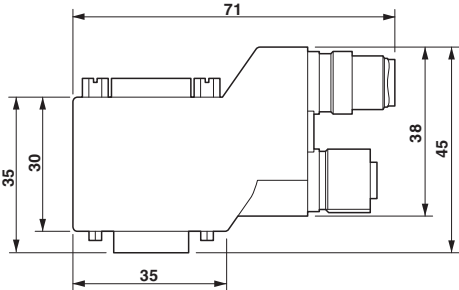


Figure 2 Dimensions, angled 90°, compact

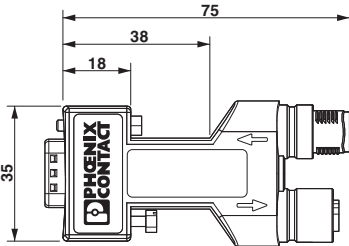


Figure 4 Dimensions, axial

5 Plugs for PROFIBUS

5.1 Technical Data

Plugs for PROFIBUS	
Plug connection	9-pos. D-SUB pin strip
Programming connection	9-pos. D-SUB socket strip
Connection for incoming and outgoing bus	M12 connector, B-coded, 5-pos.
Data interface	PROFIBUS
Bus line	M12 bus lines up to 12 Mbps
D-SUB insertion cycles	>200
Mounting screws	4-40 UNC
Maximum tightening torque	0.4 Nm
Pin assignment	3, 5, 6, 8
Temperature range	
Operation	-30°C ... +80 °C
Storage/transport	-40°C ... +85 °C
Assembly	-20°C ... +80 °C
Relative humidity	10% ... 75 % at 25 °C, non-condensing
Altitude	5000 m (for restrictions see manufacturer's declaration)
Degree of protection	IP40
Housing material	Polyamide

5.2 Circuit diagram

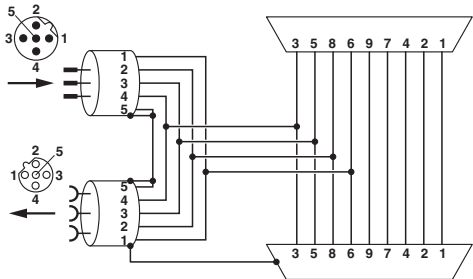


Figure 5 Circuit diagram, versions with programming connection

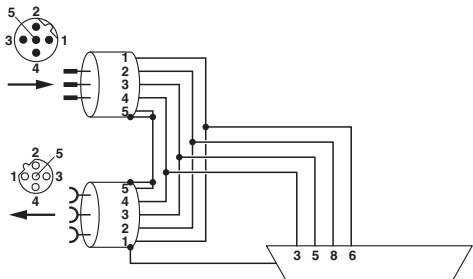


Figure 6 Circuit diagram, versions without programming connection

Pin assignment

M12	D-SUB 9 (pin)	Designation
1	6	VP
2	8	D(A) negative
3	5	GND
4	3	D(B) positive
5	Housing	Shield
Thread	Housing	Shield

5.3 Design

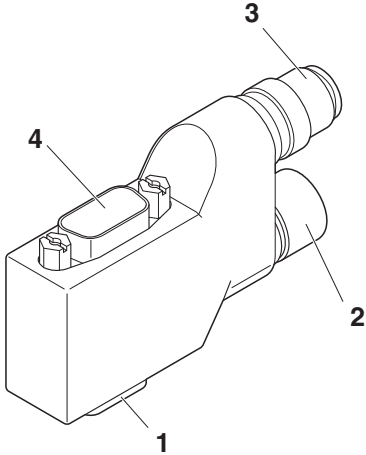


Figure 7 Design

- 1 D-SUB 9 (pin)
- 2 Outgoing M12 connection, B-coded
- 3 Incoming M12 connection, B-coded
- 4 Programming connection (D-SUB-PG connection for a servicing or programming device, only for order no. 2902317, 2902319 and 2902728)

5.4 Connecting

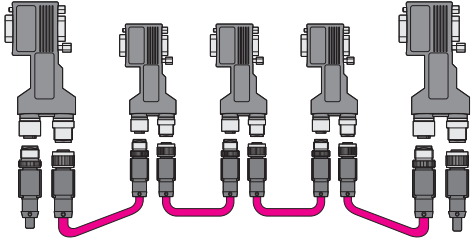


Figure 8 Connecting

M12 SPEEDCON connections can be connected and locked with just half a turn. The termination resistor can be conveniently screwed on in accordance with the M12 standard.

- Connect the termination resistor to the incoming M12 port of the first SUBCON plug with the socket (order no. 1403911).
- Connect all further devices in the line using standard M12 Profibus cables (e.g. order no. 1518148).
- Connect the termination resistor to the outgoing M12 port of the last SUBCON plug with the pin (order no. 1507803).

5.5 Linear Expansion

Speed [kbit/s]	Segment length [m]	Permitted branch lines per segment
9.6 / 19.2 / 45.45 / 93.75	1200	32 x 3 m
187.5	1200	32 x 2 m
500	400	32 x 1 m
1500	200	32 x 0.3 m
3000 / 6000 / 12000	100	Not permitted

6 Plugs for CAN/CANopen®

6.1 Technical Data

Plugs for CAN/CANopen®	
Plug connection	9-pos. D-SUB socket strip
Programming connection	9-pos. D-SUB plug strip
Connection for incoming and outgoing bus	M12 connectors, A-coded, 5-pos.
Data interface	CAN/CANopen®
Bus line	M12 bus line up to 1 Mbps
D-SUB insertion cycles	>200
Mounting screws	4-40 UNC
Maximum tightening torque	0.4 Nm
Pin assignment	2, 3, 5, 7, 9
Temperature range	
Operation	-30°C ... +80 °C
Storage/transport	-40°C ... +85 °C
Assembly	-20°C ... +80 °C
Relative humidity	10% ... 75% at 25 °C, non-condensing
Altitude	5000 m (for restrictions see manufacturer's declaration)
Degree of protection	IP40
Housing material	Polyamide

6.2 Circuit diagram

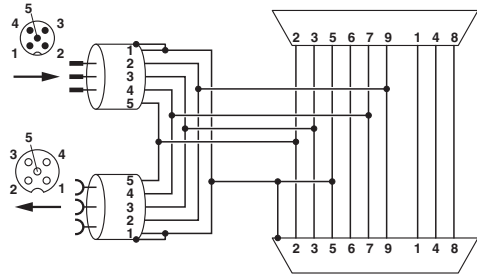


Figure 9 Circuit diagram, versions with programming connection

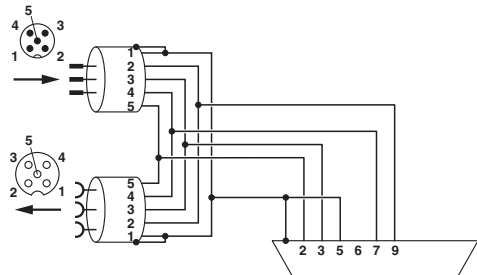


Figure 10 Circuit diagram, versions without programming connection

Pin assignment

M12	D-SUB 9 (socket)	Designation
1	5	Shield
2	9	CAN_V+
3	3	CAN_GND
4	7	CAN_H
5	2	CAN_L
Thread	5	Shield

6.3 Design

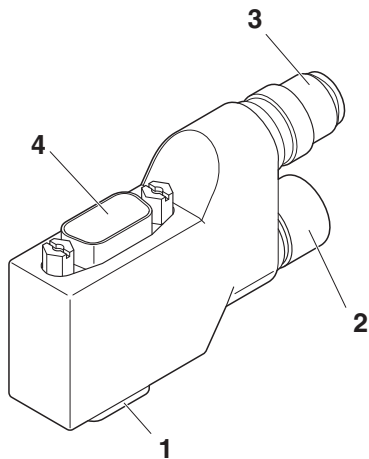


Figure 11 Design

- 1 D-SUB 9 (socket)
- 2 Outgoing M12 connection, A-coded
- 3 Incoming M12 connection, A-coded
- 4 Programming connection (D-SUB-PG connection for a servicing or programming device, only for order no. 2902322, 2902324 and 2902730)

6.4 Connecting

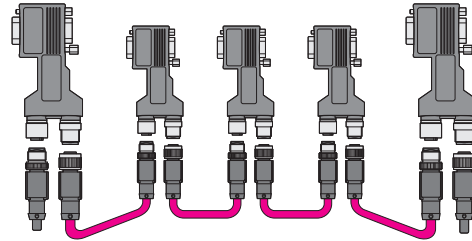


Figure 12 Connecting

M12 SPEEDCON connections can be connected and locked with just half a turn. The termination resistor can be conveniently screwed on in accordance with the M12 standard.

- Connect the termination resistor to the incoming M12 port of the first SUBCON plug with the socket (order no. 1529344).
- Connect all further devices in the line using standard M12 CAN cables (order no. 1518290).
- Connect the termination resistor to the outgoing M12 port of the last SUBCON plug with the pin (order no. 1507816).