M8/M12 Connector

PCA/EX9/EX500 Series

- Communication Cable/Connector

  EtherNet/IP

  PROFINET

  EtherCAT

  ETHERNET POWERLINK

  CC-Link
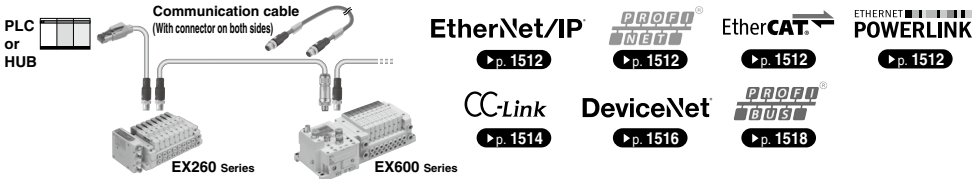
  DeviceNet

  PROFIBUS

- Power Supply Cable/Connector

- Accessory Between the Sensor/Switch and the Input Device

- Other Accessories

- Made to Order

- Specific Product Precautions

Communication Cable/Connector ▶p. 1512 to 1523

● A lineup featuring products applicable to all communication standards

The SMC Fieldbus (SI) Unit can be connected to the PLC (controller) and communication units from other manufacturers with cables with connectors and field-wireable connectors (with shield) applicable to each of the standards.

PLC or HUB

Communication cable (With connector on both sides)

EtherNet/IP ▶p. 1512
PROFINET ▶p. 1512
EtherCAT ▶p. 1512
ETHERNET POWERLINK ▶p. 1512
CC-Link ▶p. 1514
DeviceNet ▶p. 1516
PROFIBUS ▶p. 1518

EX260 Series   EX600 Series

Communication cable

SPEEDCON

Socket (Female)
❹ For CC-Link
❽ For DeviceNet®
⓮ For PROFIBUS DP

SPEEDCON

Plug (Male)
❺ For CC-Link
❾ For DeviceNet®
⓯ For PROFIBUS DP
❷ For EtherNet/IP™, PROFINET, EtherCAT, Ethernet POWERLINK
  ∗ ❷ and ❸ are used in combination with each other.

Plug (Male)
❶ For EtherNet/IP™, PROFINET, EtherCAT, Ethernet POWERLINK

RJ45

Field-wireable communication connector

SPEEDCON   ∗ Excluding ❸

Plug (Male)
❻ For CC-Link   ⓫ For DeviceNet®
⓰ For PROFIBUS DP
❸ For EtherNet/IP™, PROFINET, EtherCAT, Ethernet POWERLINK
  ∗ ❷ and ❸ are used in combination with each other.

SPEEDCON

Socket (Female)
❼ For CC-Link
⓬ For DeviceNet®
⓱ For PROFIBUS DP

Communication cable (With connector on both sides)

● For EtherNet/IP™, PROFINET, EtherCAT, Ethernet POWERLINK
● For CC-Link
● For DeviceNet®
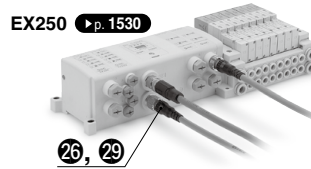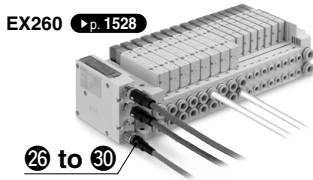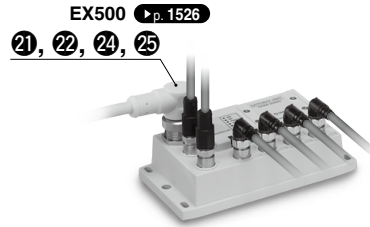
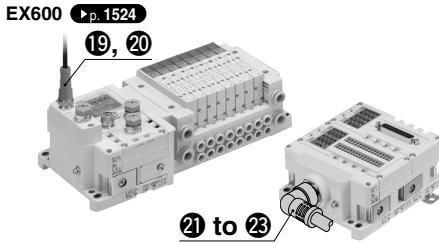SPEEDCON

Terminating resistor

Connects to the communication port of the communication unit connected at the end

⓭   ⓲

For DeviceNet®   **For PROFIBUS DP**
(Plug)   (Plug/B-coded)

● Product Table

Description	Application	No.	SMC part no.	Name
Communication cable (With connector on one side)	For Fieldbus communication	❶	EX9-AC☐EN-PSRJ	Communication cable for EtherNet/IP™, PROFINET, EtherCAT, Ethernet POWERLINK (Plug/D-coded/RJ45)
		❷	PCA-1446566	Communication cable for EtherNet/IP™, PROFINET, EtherCAT, Ethernet POWERLINK (Plug/D-coded)
		❹	PCA-1567720	Communication cable for CC-Link (Socket)
		❺	PCA-1567717	Communication cable for CC-Link (Plug)
		❽	PCA-1557633	Communication cable for DeviceNet® (Socket)
		❾	PCA-1557646	Communication cable for DeviceNet® (Plug)
		⓮	PCA-1557688	Communication cable for PROFIBUS DP (Socket/B-coded)
		⓯	PCA-1557691	Communication cable for PROFIBUS DP (Plug/B-coded)
Communication cable (With connector on both sides)		EX9-AC☐EN-PSPS	Communication cable for EtherNet/IP™, PROFINET, EtherCAT, Ethernet POWERLINK (Straight)
		EX9-AC☐EN-PAPA	Communication cable for EtherNet/IP™, PROFINET, EtherCAT, Ethernet POWERLINK (Angle)
		EX9-AC☐MJ-SSPS	Communication cable for CC-Link (Straight)
		EX9-AC☐MJ-SAPA	Communication cable for CC-Link (Angle)
		EX9-AC☐DN-SSPS	Communication cable for DeviceNet® (Straight)
		EX9-AC☐DN-SAPA	Communication cable for DeviceNet® (Angle)
Field-wireable communication connector	For Fieldbus communication	❸	PCA-1446553	Field-wireable connector for EtherNet/IP™, PROFINET, EtherCAT, Ethernet POWERLINK (Plug/D-coded/Fast connection technology)
		❻	PCA-1075526	Field-wireable connector for CC-Link (Plug/Push-in type)
		❼	PCA-1075527	Field-wireable connector for CC-Link (Socket/Push-in type)
		⓫	PCA-1075528	Field-wireable connector for DeviceNet® (Plug/Push-in type)
		⓬	PCA-1075529	Field-wireable connector for DeviceNet® (Socket/Push-in type)
		⓰	PCA-1075530	Field-wireable connector for PROFIBUS DP (Plug/B-coded/Push-in type)
		⓱	PCA-1075531	Field-wireable connector for PROFIBUS DP (Socket/B-coded/Push-in type)
Terminating resistor	For Fieldbus communication	⓭	PCA-1557675	Terminating resistor for DeviceNet® (M12)
		⓲	PCA-1557727	Terminating resistor for PROFIBUS DP (M12/B-coded)

SMC

Power Supply Cable/Connector ▶p. 1524 to 1531

EX600 ▶p. 1524

❶❾, ❷⓿

❷❶ to ❷❸

EX500 ▶p. 1526

❷❶, ❷❷, ❷❹, ❷❺

EX260 ▶p. 1528

❷❻ to ❸⓿

EX250 ▶p. 1530

❷❻, ❷❾

● Product Table

Series	Protocols		No.	Part no.	Connector type	Cable length
EX600	EtherNet/IP™	End plate EX600-ED2□	❶❾	PCA-15649□	M12, 5 pins, B-coded, Socket, Straight, SPEEDCON	2 m, 6 m
	PROFINET		❷⓿	PCA-15649□	M12, 5 pins, B-coded, Socket, Angle, SPEEDCON	
	EtherCAT	End plate EX600-ED3□	❷❶	PCA-15588□	7/8 inch, 5 pins, Socket, Straight	2 m, 6 m
	PROFIBUS DP		❷❷	PCA-15588□	7/8 inch, 5 pins, Socket, Angle	
	DeviceNet®		❷❸	PCA-1578081	Field-wireable connector, 7/8 inch, 5 pins, Socket, Straight	—
	CC-Link					
EX500	EtherNet/IP™		❷❹	PCA-141□	7/8 inch, 4 pins, Socket, Straight	2 m, 6 m
			❷❺	PCA-141□	7/8 inch, 4 pins, Socket, Angle	
	PROFINET		❷❶	PCA-15588□	7/8 inch, 5 pins, Socket, Straight	2 m, 6 m
			❷❷	PCA-15588□	7/8 inch, 5 pins, Socket, Angle	
EX260	EtherNet/IP™		❷❻	EX500-AP□-S	M12, 5 pins, A-coded, Socket, Straight	1 m, 5 m
	PROFINET		❷❼	EX500-AP□-A	M12, 5 pins, A-coded, Socket, Angle	
	EtherCAT		❷❽	PCA-140180□	M12, 5 pins, A-coded, Socket, Straight, SPEEDCON	1.5 m, 3 m, 5 m
	DeviceNet®					
	PROFIBUS DP					
	CC-Link		❷❾	EX9-AC□-1	M12, 5 pins, B-coded, Socket, Straight	1 m, 3 m, 5 m
			❸⓿	PCA-140180□	M12, 5 pins, B-coded, Socket, Straight, SPEEDCON	1.5 m, 3 m, 5 m
EX250	DeviceNet®		❷❾	EX9-AC□-1	M12, 5 pins, B-coded, Socket, Straight	1 m, 3 m, 5 m
	EtherNet/IP™		❷❻	EX500-AP□-S	M12, 5 pins, A-coded, Socket, Straight	1 m, 5 m

Accessory Between the Sensor/Switch and the Input Device ▶ p. 1532 to 1534

● Connection between connectors and products

Pressure switch	Field-wireable connector ▶ p. 1532	Cable with connector ▶ p. 1533	Input unit

A lineup featuring Field-wireable connectors that do not require any special tools
The lead wires can easily be made into an M8/M12 connector by changing the wire length.

M8 · Piercecon® connection

The wiring can be changed accordingly.

Input unit manifold
● EX500 series
Select the input block of the EX500 series according to the sensor output specification.

M8 · ㉟

㉛

M12 SPEEDCON

M12 SPEEDCON ㉞

㉜

M12
• EX500-DXPB
M8
• EX500-DXPA

"QUICKON-ONE" connection

Auto switch

㉝ · ㉞

Manifold solenoid valve with input/output unit
● EX600 series

Y connector ▶ p. 1534

The input block reads 2 sensor signals with one port.
Wiring can be decreased for auto switches and 1-output type pressure switches by unifying the signal wires using a Y connector.

Auto switch

M12 SPEEDCON x 2 → **M12** SPEEDCON ㊱

M12 SPEEDCON ㉞

M12
• EX600-DX□B, DX□D
M8
• EX600-DX□C, DX□C1

M8/M12 connector
(Field-wireable/Pre-wired)

M8 x 2 → **M12** SPEEDCON ㊲

㉞

Pre-wired type

* Only the M12 type connector is available for the 2-input type input block.

● Product Table

Description	Application		No.	SMC part no.	Name
Cable with connector	For sensor		㉞	PCA-1557769	Cable with M12 connector (4 pins/3 m)
			㉟	PCA-1557772	Cable with M8 connector (3 pins/3 m)
Field-wireable connector	For sensor		㉛	PCA-1557730	Field-wireable connector (M8/3 pins/Plug/Piercecon® connection)
			㉜	PCA-1557743	Field-wireable connector
			㉝	PCA-1557756	(M12/4 pins/Plug/QUICKON-ONE connection/SPEEDCON)
Y connector	For sensor		㊱	PCA-1557785	Y connector (2 x M12 (5 pins)-M12 (5 pins)/SPEEDCON)
			㊲	PCA-1557798	Y connector (2 x M8 (3 pins)-M12 (4 pins)/SPEEDCON)

CONTENTS

Fieldbus Related Accessories

M8/M12 Connector
PCA/EX9/EX500 Series

Communication Cable/Connector

EtherNet/IP®   PROFINET®   EtherCAT®   ETHERNET POWERLINK

Example of Connection

PLC or HUB

Communication cable (With connector on both sides)

❶ IN side   ❷ OUT side

❸ IN side   ❷ OUT side

* For EtherNet/IP™, PROFINET, EtherCAT, and Ethernet POWERLINK a terminating resistor is unnecessary.

EX260 Series   EX600 Series

Specifications

Description		Communication cable (With connector on one side)		Field-wireable connector
Part no. (Cable length)		EX9–AC010EN–PSRJ (1 m) EX9–AC020EN–PSRJ (2 m) EX9–AC030EN–PSRJ (3 m) EX9–AC050EN–PSRJ (5 m) EX9–AC100EN–PSRJ (10 m)	PCA–1446566	PCA–1446553
Product image		❶ Plug-RJ45	❷ SPEEDCON Plug	❸ Plug
Number of functional poles		M12: 4 pins, RJ45: 8 pins	M12: 4 pins	M12: 4 pins
Key type		M12: D coded		
Pin assignment		Plug, D-coded (Viewed from the plug side)	1 (Yellow): TD+ 2 (White): RD+ 3 (Orange): TD− 4 (Blue): RD− (PCA-1446566)	1 (Orange/White): TD+ 2 (Green/White): RD+ 3 (Orange): TD− 4 (Green): RD− (EX9-AC☐EN-PSRJ.PCA-1446553)
Wiring	Fixed cable length	1 m, 2 m, 3 m, 5 m, 10 m	5 m	—
	Cable O.D.	6.4 mm	6.5 mm	Applicable cable*1 4.0 to 8.0 mm
	Conductor nominal cross section	0.14 mm²/AWG26	0.34 mm²/AWG22	0.14 to 0.34 mm²/AWG26 to 22
	Wire O.D.	0.5 mm	1.55 mm	
	Connection type	—		QUICKON connection
Rating/Performance	Rated current	1 A	4 A	1.75 A
	Rated voltage	100 V	48 VAC/60 VDC	60 V
	Contact resistance	10 mΩ or less		
	Insulation resistance	100 MΩ or more		
	Withstand voltage	0.7 kV	1.4 kV	0.8 kV
	Ambient temperature Connector	−25 to +60°C	−40 to +70°C	−40 to +85°C
	Ambient temperature Cable	−40 to +80°C		—
	Min. bending radius (Fixed)	26 mm	19.5 mm	—
	Protection class	M12: IP67 (Only with screw tightened), RJ45: IP20	M12: IP67 (Only with screw tightened)	
	Allowable repeated insertion/withdrawal	100		
Material	Material of knurl	Zinc die-cast (Nickel alloy)	Zinc die-cast (Nickel plating)	Brass (Nickel plating)
	Contact (Surface treatment)	M12: CuZn (Au plating (Ni underplating)) RJ45: CuSn (Au plating (Ni underplating))	CuZn (Au plating (Ni underplating))	CuSn (Au plating (Ni underplating))
	Connector material	TPU (UL94 HB)		PA66 (UL94 V0)
	Material of sheath (Sheath color)	PUR (Blue (RAL 5021 equivalent))	PVC (Green (RAL 6018 equivalent))	—
Weight		1 m: Approx. 70 g 5 m: Approx. 252 g 2 m: Approx. 116 g 10 m: Approx. 479 g 3 m: Approx. 161 g	Approx. 350 g	Approx. 45.6 g

*1 The shaded sections show the specifications for the applicable cable. Adaptation for the connector may vary on account of the conductor construction of the electric wire.

SMC

Specifications

Description	Communication cable (With straight connector on both sides)	Communication cable (With angle connector on both sides)
Part no. (Cable length)	**EX9-AC005EN-PSPS** (0.5 m) **EX9-AC010EN-PSPS** (1 m) **EX9-AC020EN-PSPS** (2 m) **EX9-AC030EN-PSPS** (3 m) **EX9-AC050EN-PSPS** (5 m) **EX9-AC100EN-PSPS** (10 m)	**EX9-AC005EN-PAPA** (0.5 m) **EX9-AC010EN-PAPA** (1 m) **EX9-AC020EN-PAPA** (2 m) **EX9-AC030EN-PAPA** (3 m) **EX9-AC050EN-PAPA** (5 m) **EX9-AC100EN-PAPA** (10 m)
Product image	SPEEDCON **Both straight**	SPEEDCON **Both angle**
Number of functional poles	M12: 4 pins	
Key type	M12: D-coded	
Pin assignment	Plug, D-coded (Viewed from the plug) 1 (Yellow) : TD+ 2 (White)　: RD+ 3 (Orange): TD− 4 (Blue)　 : RD−	

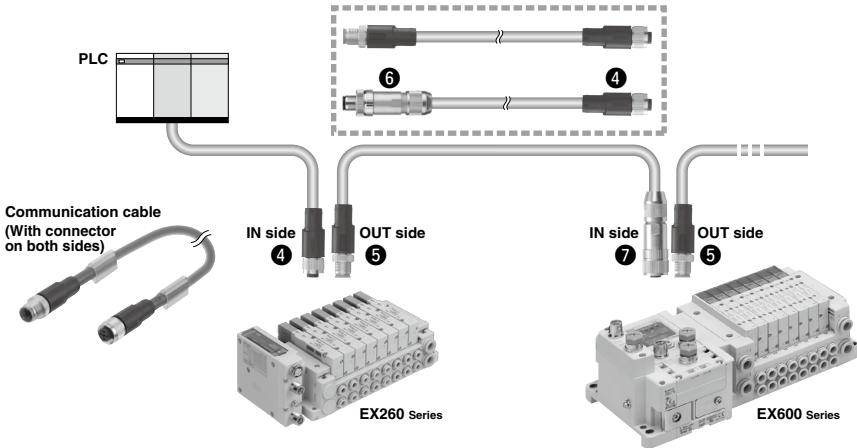|			
Wiring	**Fixed cable length**	0.5 m, 1 m, 2 m, 3 m, 5 m, 10 m	
	Cable O.D.	6.5 mm	
	Conductor nominal cross section	0.34 mm²/AWG22	
	Wire O.D. (Including insulating material)	1.55 mm	
Rating/Performance	**Rated current**	4 A	
	Rated voltage	48 VAC/60 VDC	
	Contact resistance	10 mΩ or less	
	Insulation resistance	100 MΩ or more	
	Withstand voltage	1.4 kV	
	Ambient temperature	−40 to 70°C	
	Min. bending radius (Fixed)	19.5 mm	
	Protection class	M12: IP67 (Only with screw tightened)	
	Allowable repeated insertion/withdrawal	100	
Material	**Material of knurl**	Zinc die-cast (Nickel plating)	
	Contact (Surface treatment)	CuSn (Au plating (Ni underplating))	
	Connector material	TPU（UL94 HB）	
	Material of sheath (Sheath color)	PVC (Green (RAL 6018 equivalent))	
Weight		0.5 m: Approx. 85g 1 m: Approx. 135g 2 m: Approx. 215g 3 m: Approx. 305g 5 m: Approx. 480g 10 m: Approx. 905g	0.5 m: Approx. 85g 1 m: Approx. 135g 2 m: Approx. 215g 3 m: Approx. 305g 5 m: Approx. 480g 10 m: Approx. 905g

Communication Cable/Connector

CC-Link
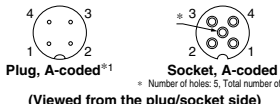
Example of Connection

PLC

❻ ❹

Communication cable
(With connector
on both sides)

IN side ❹   OUT side ❺   IN side ❼   OUT side ❺

EX260 Series   EX600 Series

Specifications

Description	Communication cable (With connector on one side)		Field-wireable connector	
Part no.	PCA-1567720	PCA-1567717	PCA-1075526	PCA-1075527
Product image	❹ SPEEDCON Socket	❺ SPEEDCON Plug	❻ SPEEDCON Plug	❼ SPEEDCON Socket
Number of functional poles	M12: 4 pins			
Key type	A-coded (Normal key)			
Pin assignment	Plug, A-coded*1 Socket, A-coded * Number of holes: 5, Total number of pins: 4 (Viewed from the plug/socket side)		1: SLD (Shield wire) 2: DB (White) 3: DG (Yellow) 4: DA (Blue)	

			Communication cable (one side)		Field-wireable connector	
Wiring	Fixed cable length		5 m		—	
	Cable O.D.		7.7 mm		4.0 to 8.0 mm	
	Conductor nominal cross section	Data pair	0.5 mm²/AWG20		Applicable cable*2	0.14 to 0.75 mm²/AWG26 to 18 (Solid cable/Flexible cable)
		Drain	0.34 mm²/AWG22			0.08 to 0.5 mm²/AWG28 to 20 (With ferrule)
	Wire O.D. (Including insulating material)		2.55 mm			
	Connection type		—		Push-in type	
Rating/Performance	Rated current		4 A			
	Rated voltage		48 VAC/60 VDC			
	Contact resistance		10 mΩ or less		10 mΩ or less	
	Insulation resistance		100 MΩ or more			
	Withstand voltage		1.4 kV			
	Ambient temperature	Connector	−20 to +60°C		−40 to +85°C	
		Cable			—	
	Min. bending radius (Fixed)		77 mm		—	
	Protection class		IP67 (Only with screw tightened)			
	Allowable repeated insertion/withdrawal		100			
Material	Material of knurl		Zinc die-cast (Nickel plating)			
	Contact (Surface treatment)		CuSn (Au plating (Ni underplating))			
	Connector material		TPU (UL94 HB)		PA66 (UL94 V0)	
	Material of sheath (Sheath color)		PVC (Red)		—	
Weight			Approx. 306 g	Approx. 308 g	Approx. 37 g	Approx. 42 g

∗1 Can also be connected to an M12 5-pin socket A-coded connector
∗2 The shaded sections show the specifications for the applicable cable. Adaptation for the connector may vary on account of the conductor construction of the electric wire.

SMC

Specifications

Description	Communication cable (With straight connector on both sides)	Communication cable (With angle connector on both sides)
Part no. (Cable length)	EX9-AC005MJ-SSPS (0.5 m) EX9-AC010MJ-SSPS (1 m) EX9-AC020MJ-SSPS (2 m) EX9-AC030MJ-SSPS (3 m) EX9-AC050MJ-SSPS (5 m) EX9-AC100MJ-SSPS (10 m)	EX9-AC005MJ-SAPA (0.5 m) EX9-AC010MJ-SAPA (1 m) EX9-AC020MJ-SAPA (2 m) EX9-AC030MJ-SAPA (3 m) EX9-AC050MJ-SAPA (5 m) EX9-AC100MJ-SAPA (10 m)
Product image	SPEEDCON	SPEEDCON
Number of functional poles	M12: 5 pins	
Key type	A-coded (Normal key)	
Pin assignment	Plug, A-coded[*1] Socket, A-coded * Number of holes: 5, Total number of pins: 4 **(Viewed from the plug/socket side)**	1: SLD (Shield wire) 2: DB (White) 3: DG (Yellow) 4: DA (Blue)

		Communication cable (With straight connector on both sides)	Communication cable (With angle connector on both sides)
Wiring	Fixed cable length	0.5 m, 1 m, 2 m, 3 m, 5 m, 10 m	
	Cable O.D.	7.7 mm	
	Conductor nominal cross section	0.5 mm²/AWG20	
	Wire O.D. (Including insulating material)	1.4 mm	
Rating/Performance	Rated current	4 A	
	Rated voltage	48 VAC/60 VDC	
	Contact resistance	10 mΩ or less	
	Insulation resistance	100 MΩ or more	
	Withstand voltage	1.4 kV	
	Ambient temperature	−20 to +60°C	
	Min. bending radius (Fixed)	77 mm	
	Protection class	IP67 (Only with screw tightened)	
	Allowable repeated insertion/withdrawal	100	
Material	Material of knurl	Zinc die-cast (Nickel plating)	
	Contact (Surface treatment)	CuSn (Au plating (Ni underplating))	
	Connector material	TPU (UL94 HB)	
	Material of sheath (Sheath color)	PVC (Red)	
Weight		0.5 m: Approx. 80 g 1 m: Approx. 120 g 2 m: Approx. 200 g 3 m: Approx. 280 g 5 m: Approx. 440 g 10 m: Approx. 840 g	0.5 m: Approx. 80 g 1 m: Approx. 120 g 2 m: Approx. 205 g 3 m: Approx. 285 g 5 m: Approx. 450 g 10 m: Approx. 865 g

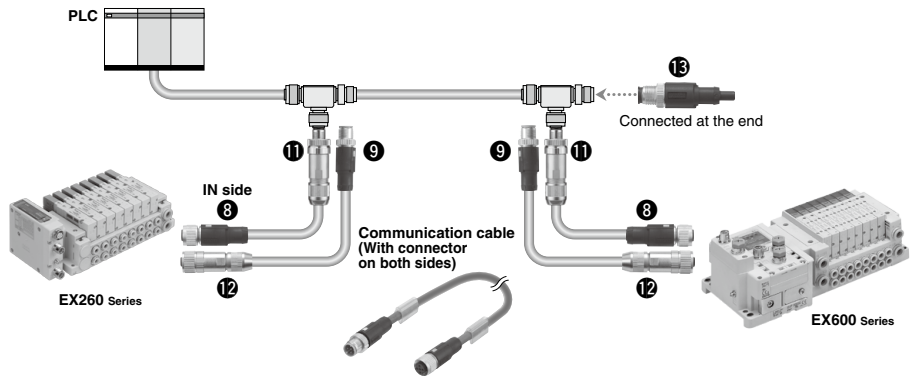*1 Can also be connected to an M12 5-pin socket A-coded connector

Communication Cable/Connector

DeviceNet®

Example of Connection

PLC

⑬ Connected at the end

⑪ ⑨ ⑨ ⑪

IN side

⑧ ⑧

EX260 Series

Communication cable (With connector on both sides)

⑫ ⑫

EX600 Series

Specifications

Description	Communication cable (With connector on one side)		Field-wireable connector		Terminating resistor
Part no. (Cable length)	PCA-1557633	PCA-1557646	PCA-1075528	PCA-1075529	PCA-1557675
Product image	⑧ SPEEDCON — Socket	⑨ SPEEDCON — Plug	⑪ SPEEDCON — Plug	⑫ SPEEDCON — Socket	For DeviceNet® (Plug, A-coded)
Number of functional poles	M12: 5 pins				
Key type	A-coded (Normal key)				
Pin assignment	Plug, A-coded (Viewed from the plug/socket side)	Socket, A-coded	DeviceNet® / CANopen[2] 1: DRAIN 1: — 2: V+ (Red) 2: — 3: V− (Black) 3: CAN GND 4: CAN H (White) 4: CAN H 5: CAN L (Blue) 5: CAN L		1: DRAIN: NC 2: V+: NC 3: V−: NC 4: CAN H 5: CAN L 121 Ω

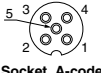|			Communication cable		Field-wireable connector		Terminating resistor
Wiring	Fixed cable length	5 m				—	
	Cable O.D.	6.7 mm		4.0 to 8.0 mm		—	
	Conductor nominal cross section — Power pair	0.34 mm²/AWG22		Applicable cable[1]	0.14 to 0.75 mm²/AWG26 to 18 (Solid cable/Flexible cable) 0.08 to 0.5 mm²/AWG28 to 20 (With ferrule)	—	
	Conductor nominal cross section — Data pair	0.25 mm²/AWG24					
	Wire O.D. (Including insulating material) — Power pair	1.4 mm					
	Wire O.D. (Including insulating material) — Data pair	1.95 mm					
	Connection type	—		Push-in type		—	
Rating/Performance	Rated current	4 A		4 A		—	
	Rated voltage	48 VAC/60 VDC		48 VAC/60 VDC		—	
	Contact resistance	10 mΩ or less		10 mΩ or less		5 mΩ or less	
	Insulation resistance	100 MΩ or more		100 MΩ or more		—	
	Withstand voltage	1.0 kV		1.0 kV		—	
	Ambient temperature — Connector	−20 to +80°C		−40 to +85°C		−25 to +90°C	
	Ambient temperature — Cable			—		—	
	Min. bending radius (Fixed)	67 mm		—			
	Protection class	IP67 (Only with screw tightened)					
	Allowable repeated insertion/withdrawal	100		100		200	
Material	Material of knurl	Zinc die-cast (Nickel plating)					
	Contact (Surface treatment)	CuSn (Au plating (Ni underplating))		CuSn (Au plating (Ni underplating))			
	Connector material	TPU (UL94 HB)		PA66 (UL94 V0)		TPU (UL94 HB)	
	Material of sheath (Sheath color)	PUR (Purple (RAL 4001 equivalent))		—		—	
Weight		Approx. 308 g	Approx. 306 g	Approx. 37 g	Approx. 42 g	Approx. 12 g

∗1 The shaded sections show the specifications for the applicable cable. Adaptation for the connector may vary on account of the conductor construction of the electric wire.
∗2 Can also be used for CANopen communication

1516

SMC

Specifications

Description	Communication cable (With straight connector on both sides)	Communication cable (With angle connector on both sides)
Part no. (Cable length)	**EX9-AC005DN-SSPS** (0.5 m) **EX9-AC010DN-SSPS** (1 m) **EX9-AC020DN-SSPS** (2 m) **EX9-AC030DN-SSPS** (3 m) **EX9-AC050DN-SSPS** (5 m) **EX9-AC100DN-SSPS** (10 m)	**EX9-AC005DN-SAPA** (0.5 m) **EX9-AC010DN-SAPA** (1 m) **EX9-AC020DN-SAPA** (2 m) **EX9-AC030DN-SAPA** (3 m) **EX9-AC050DN-SAPA** (5 m) **EX9-AC100DN-SAPA** (10 m)
Product image	SPEEDCON	SPEEDCON
Number of functional poles	M12: 5 pins	
Key type	A-coded (Normal key)	
Pin assignment	Plug, A-coded / Socket, A-coded (Viewed from the plug/socket side)	DeviceNet® / CANopen 1: DRAIN / 1: — 2: V+ (Red) / 2: — 3: V– (Black) / 3: CAN GND 4: CAN H (White) / 4: CAN H 5: CAN L (Blue) / 5: CAN L

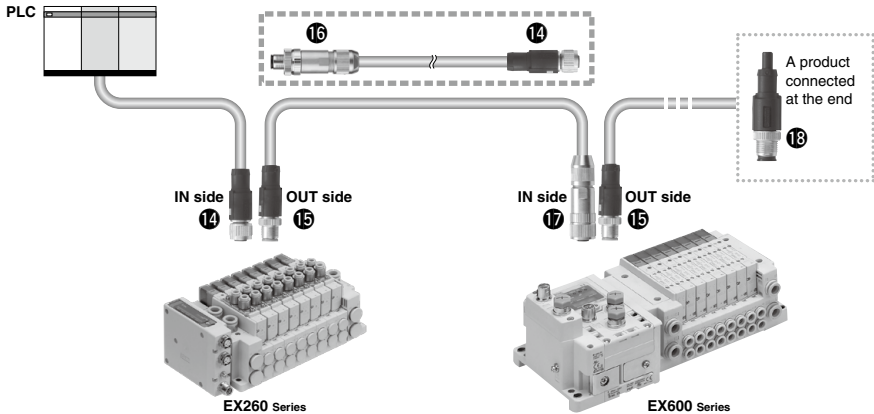|			
Wiring	Fixed cable length		0.5 m, 1 m, 2 m, 3 m, 5 m, 10 m
	Cable O.D.		6.7 mm
	Conductor nominal cross section	Power pair	0.34 mm²/AWG22
		Data pair	0.25 mm²/AWG24
	Wire O.D. (Including insulating material)	Power pair	1.4 mm
		Data pair	1.95 mm
Rating/Performance	Rated current		4 A
	Rated voltage		48 VAC/60 VDC
	Contact resistance		10 mΩ or less
	Insulation resistance		100 MΩ or more
	Withstand voltage		1.0 kV
	Ambient temperature		−20 to +80°C
	Min. bending radius (Fixed)		67 mm
	Protection class		IP67 (Only with screw tightened)
	Allowable repeated insertion/withdrawal		100
Material	Material of knurl		Zinc die-cast (Nickel plating)
	Contact (Surface treatment)		CuSn (Au plating (Ni underplating))
	Connector material		TPU (UL94 HB)
	Material of sheath (Sheath color)		PUR (Purple (RAL 4001 equivalent))
Weight		0.5 m: Approx. 75 g 1 m: Approx. 105 g 2 m: Approx. 165 g 3 m: Approx. 225 g 5 m: Approx. 345 g 10 m: Approx. 645 g	0.5 m: Approx. 75 g 1 m: Approx. 105 g 2 m: Approx. 165 g 3 m: Approx. 225 g 5 m: Approx. 345 g 10 m: Approx. 645 g

Communication Cable/Connector

PROFI BUS®

Example of Connection

PLC

⑯ ⑭

A product connected at the end ⑱

IN side ⑭   OUT side ⑮

IN side ⑰   OUT side ⑮

EX260 Series

EX600 Series

Specifications

Description		Communication cable (With connector on one side)		Field-wireable connector		Terminal resistor
Part no.		**PCA-1557688**	**PCA-1557691**	**PCA-1075530**	**PCA-1075531**	**PCA-1557727**
Product image		⑭ SPEEDCON Socket	⑮ SPEEDCON Plug	⑯ SPEEDCON Plug	⑰ SPEEDCON Socket	⑱ For PROFIBUS DP (Plug, B-coded)
Number of functional poles		M12: 2 pins		M12: 3 pins		M12: 4 pins
Key type		B-coded (Reverse key)				
Pin assignment		Plug, B-coded	Plug, B-coded (Viewed from the plug/socket side)	1: — 2: A Line (Green) 3: — 4: B Line (Red) 5: —		1: VP 4: B Line 2: A Line 3: DGND 390 Ω 220 Ω 390 Ω
Wiring	**Fixed cable length**	5 m		—		
	Cable O.D.	7.8 mm		Applicable cable*1	4.0 to 8.0 mm	—
	Conductor nominal cross section	0.34 mm²/AWG22			0.14 to 0.75 mm²/AWG26 to 18 (Solid cable/Flexible cable) 0.08 to 0.5 mm²/AWG28 to 20 (With ferrule)	—
	Wire O.D. (Including insulating material)	2.55 mm			—	
	Connection type	—		Push-in type		—
Rating/Performance	**Rated current**	4 A				—
	Rated voltage	60 V		48 VAC/60 VAC		60 V
	Contact resistance	5 mΩ or less		10 mΩ or less		5 mΩ or less
	Insulation resistance	100 MΩ or more				—
	Withstand voltage	1.4 kV				—
	Ambient temperature Connector	−25 to +90°C		−40 to +85°C		−25 to +90°C
	Ambient temperature Cable	−40 to +85°C		—		
	Min. bending radius (Fixed)	78 mm		—		
	Protection class	IP67 (Only with screw tightened)				
	Allowable repeated insertion/withdrawal	200				
Material	**Material of knurl**	Zinc die-cast (Nickel plating)				
	Contact (Surface treatment)	CuSn (Au plating (Ni underplating))				
	Connector material	TPU/PA66 (UL94 HB)		PA66 (UL94 V0)		TPU/PA66 (UL94 HB)
	Material of sheath (Sheath color)	PUR (Purple (RAL 4001 equivalent))		—		
Weight		Approx. 343 g	Approx. 356 g	Approx. 37 g	Approx. 42 g	Approx. 12 g

*1 The shaded sections show the specifications for the applicable cable. Adaptation for the connector may vary on account of the conductor construction of the electric wire.

⊕SMC

Communication Cable

| For EtherNet/IP™ | For PROFINET | For EtherCAT | For Ethernet POWERLINK |

❶ EX9-AC 020 EN-PSRJ (Plug/RJ-45 connector)

Cable length (L)

010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm

Plug connector pin arrangement D-coded

Signal name	Terminal no.		Terminal no.	Core wire color
TD+	1		1	White/Orange
RD+	2		2	Orange
TD−	3		3	White/Green
RD−	4		4	
			5	
			6	Green
			7	
			8	

Connections (Straight cable)

❷ PCA-1446566 (Plug)

Plug connector pin arrangement D-coded

M12 SPEEDCON

Core wire color
Yellow: TD+
White: RD+
Orange: TD−
Blue: RD−

Connections
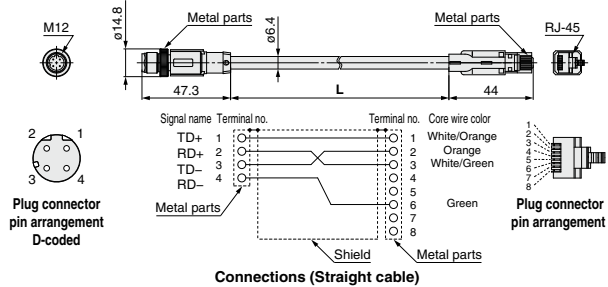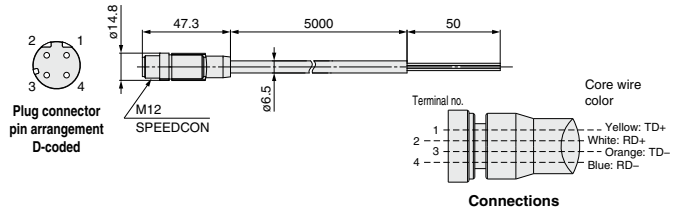
EX9-AC 005 EN-PSPS (With connector on both sides (Plug/Plug))

Cable length (L)

005	500 mm
010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm

Connections (Straight cable)
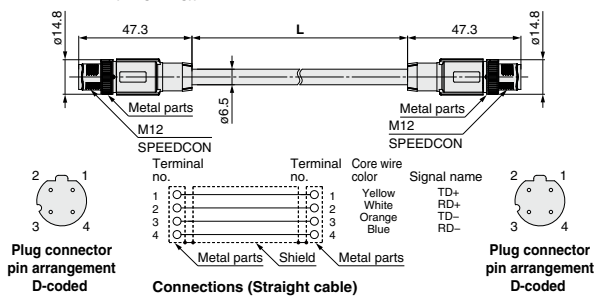
EX9-AC 005 EN-PAPA (With angle connector on both sides (Plug/Plug))

Cable length (L)

005	500 mm
010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm

Connections (Straight cable)

1519

Communication Cable/Connector

Communication Cable

For CC-Link

❹ PCA-1567720
(Socket)

Socket connector
pin arrangement
A-coded (Normal key)
∗ Number of holes: 5,
Total number of pins: 4

Made to Order

Change in the cable length	p. 1538

ø14.8 44.5 5000 50

22.5

M12
SPEEDCON   Marker tag   ø7.7   Marker tag   Shield

❺ PCA-1567717
(Plug)

Plug connector
pin arrangement
A-coded (Normal key)

ø14.8 47.3 5000 50

22.5

M12
SPEEDCON   Marker tag   ø7.7   Marker tag   Shield

Terminal no.   Core wire color

White: DB   : SLD
Blue: DA   Yellow: DG
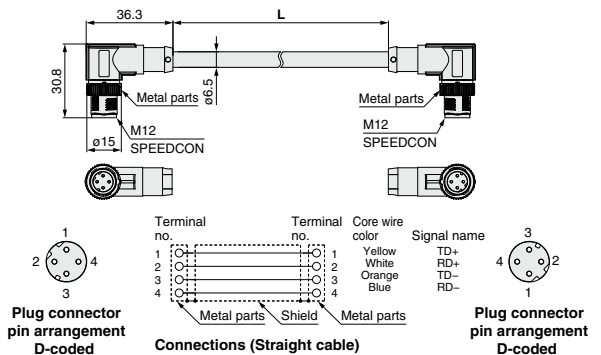
Connections
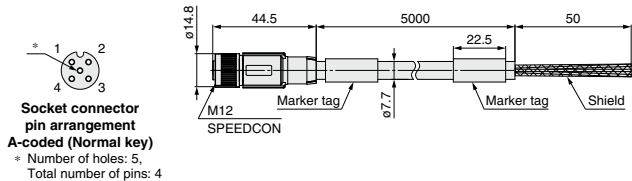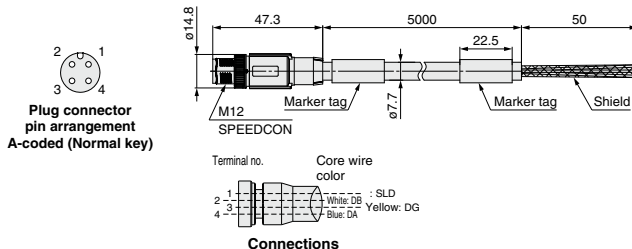
EX9-AC 005 MJ-SSPS (With connector on both sides (Socket/Plug))

● Cable length (L)

005	500 mm
010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm

ø14.8 44.5 L 47.3 ø14.8

22.5

M12
SPEEDCON   Metal parts   Marker tag   ø7.7   Marker tag   Metal parts   M12
SPEEDCON

Socket connector
pin arrangement
A-coded (Normal key)

Terminal no.			Terminal no.	Core wire color	Signal name CC-Link
4			4	Blue	DA
2			2	White	DB
3			3	Yellow	DG
1			1	Shield	SLD

Metal parts   Shield   Metal parts

Connections

Plug connector
pin arrangement
A-coded (Normal key)
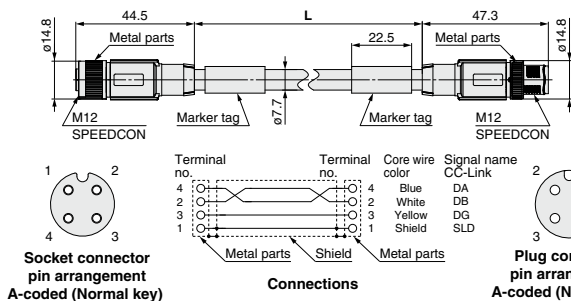
EX9-AC 005 MJ-SAPA (With angle connector on both sides (Socket/Plug))

● Cable length (L)

005	500 mm
010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm

35 L 35
33.1 33.1

22.5

32.5   Marker tag   ø7.7   Marker tag   29.6

ø14.8   Metal parts   Metal parts   ø14.4
M12
SPEEDCON   M12
SPEEDCON

Plug connector
pin arrangement
A-coded (Normal key)

Terminal no.			Terminal no.	Core wire color	Signal name CC-Link
4			4	Blue	DA
2			2	White	DB
3			3	Yellow	DG
1			1	Shield	SLD

Metal parts   Shield   Metal parts

Connections

∗1 Socket connector pin arrangement
A-coded (Normal key)
∗1 Number of holes: 5, Total number of pins: 4

SMC
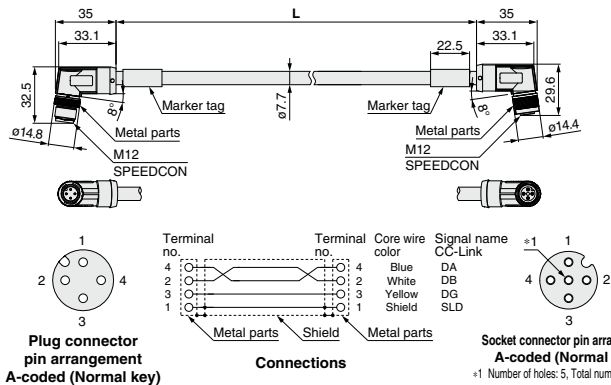
Communication Cable

For DeviceNet®

❽ PCA-1557633
(Socket)

Socket connector pin assignment
A-coded (Normal key)

Made to Order

| Change in the cable length | p. 1538 |
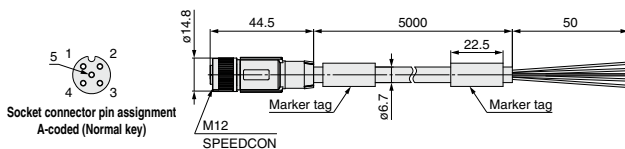
❾ PCA-1557646
(Plug)

Plug connector pin assignment
A-coded (Normal key)
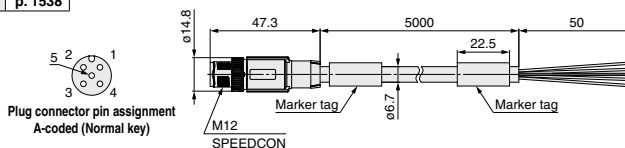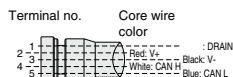
Terminal no. Core wire color
: DRAIN
Red: V+ Black: V−
White: CAN H Blue: CAN L
Connections

EX9-AC 005 DN-SSPS (With connector on both sides (Socket/Plug))

●Cable length (L)

005	500 mm
010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm

Terminal no.	Core wire color	Signal name DeviceNet®	CANopen
1	Shield	DRAIN	−(CAN SHLD)
2	Red	V+	−(CAN V+)
3	Black	V−	CAN GND
4	White	CAN H	CAN H
5	Blue	CAN L	CAN L
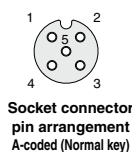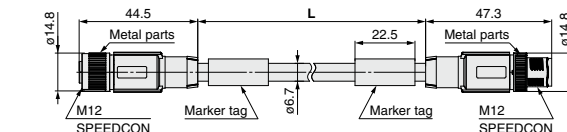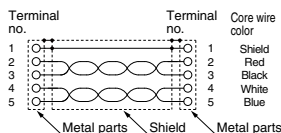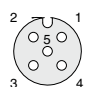
Socket connector pin arrangement A-coded (Normal key)
Connections
Plug connector pin arrangement A-coded (Normal key)

EX9-AC 005 DN-SAPA (With angle connector on both sides (Socket/Plug))

●Cable length (L)

005	500 mm
010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm

Terminal no.	Core wire color	Signal name DeviceNet®
1	Shield	DRAIN
2	Red	V+
3	Black	V−
4	White	CAN H
5	Blue	CAN L
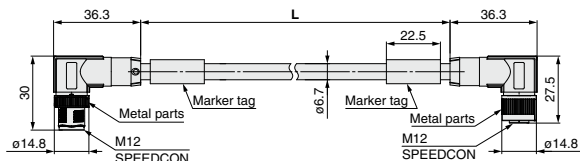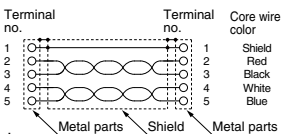
Plug connector pin arrangement A-coded (Normal key)
Connections
Socket connector pin arrangement A-coded (Normal key)

Communication Cable/Connector

Communication Cable

For PROFIBUS DP

⑭ PCA-1557688
(Socket)

Socket connector pin assignment
B-coded (Reverse key)

ø14.8
44.5
5000
50
22.5
M12
SPEEDCON
Marker tag
ø7.8
Marker tag

⑮ PCA-1557691
(Plug)

Plug connector pin assignment
B-coded (Reverse key)

ø14.8
47.3
5000
50
22.5
M12
SPEEDCON
Marker tag
ø7.8
Marker tag

Terminal no.
Core wire color

2
1
3
4
5

Green: A Line
Red: B Line

Shield line is connected to the knurl.
Connections

SMC
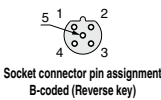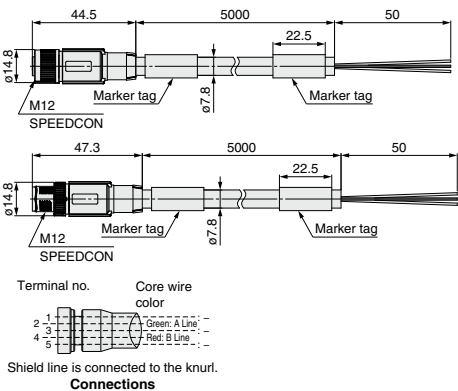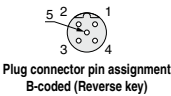
Field-wireable Communication Connector

Plug

For EtherNet/IP™ **For PROFINET** **For EtherCAT**

❸ **PCA-1446553**

D-coded
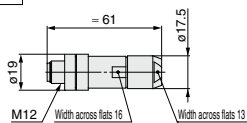
M12 Width across flats 16 Width across flats 13

= 61   ø17.5   ø19

Applicable Cable

Item	Specifications
Cable O.D.	4.0 to 8.0 mm
Wire gauge (Stranded wire cross section)	0.14 to 0.34 mm^2/AWG26 to 22

∗ The table above shows the specifications for the applicable cable. Adaptation for the connector may vary on account of the conductor construction of the electric wire.

For CC-Link **For DeviceNet®**

❻ PCA-1075526 ⓫ PCA-1075528

For PROFIBUS DP

⓰ PCA-1075530

A-coded (Normal key)

M12 SPEEDCON Width across flats 16

= 60   ø17.5   ø19

B-coded (Reverse key)

M12 SPEEDCON Width across flats 16

= 60   ø17.5   ø19

Applicable Cable

Item	Specifications
Cable O.D.	4.0 to 8.0 mm
Wire gauge (Stranded wire cross section)	0.14 to 0.75 mm^2/AWG26 to 18 (Solid cable/Flexible cable) 0.08 to 0.5 mm^2/AWG28 to 20 (With ferrule)

Socket

For CC-Link **For DeviceNet®**

❼ PCA-1075527 ⓬ PCA-1075529

For PROFIBUS DP

⓱ PCA-1075531

A-coded (Normal key)

M12 SPEEDCON Width across flats 16

= 58   ø17.5   ø19

B-coded (Reverse key)

M12 SPEEDCON Width across flats 16

= 58   ø17.5   ø19

Applicable Cable

Item	Specifications
Cable O.D.	4.0 to 8.0 mm
Wire gauge (Stranded wire cross section)	0.14 to 0.75 mm^2/AWG26 to 18 (Solid cable/Flexible cable) 0.08 to 0.5 mm^2/AWG28 to 20 (With ferrule)

Terminating Resistor
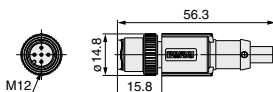
For DeviceNet®

⓭ **PCA-1557675**
Terminating resistor for DeviceNet®

M12 ø14.8 56.3 15.8

For PROFIBUS DP

⓲ **PCA-1557727**
Terminating resistor for PROFIBUS DP

M12 ø14.8 56.3 15.8
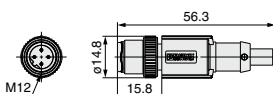
Power Supply Cable/Connector

EX600 Series

Specifications

Description		Power supply cable (With connector on one side)				Field-wireable connector	
Part no. (Cable length)		❶❾ PCA-1564927 (2 m) PCA-1564930 (6 m)	❷⓿ PCA-1564943 (2 m) PCA-1564969 (6 m)	❷❶ PCA-1558810 (2 m) PCA-1558823 (6 m)	❷❷ PCA-1558836 (2 m) PCA-1558849 (6 m)	❷❸ PCA-1578081	
Protocol		EtherNet/IP™, PROFINET, EtherCAT, PROFIBUS DP, DeviceNet®, CC-Link					
Number of functional poles		M12: 5 pins		7/8 inch: 5 pins			
Key type		B-coded		—			
Wiring	Cable O.D.	5.9 mm		12.58 mm		Applicable cable*1	12.0 to 14.0 mm
	Conductor nominal cross section	AWG22		AWG16			0.34 to 1.5 mm²/AWG22 to 16
	Wire O.D. (Including insulating material)	1.27 mm		2.35 mm			—
	Connection type	—				Screw tightening	
Rating/Performance	Rated current	4 A		8 A		9 A	
	Rated voltage	60 V		600 V		250 V	
	Contact resistance	5 mΩ or less					
	Insulation resistance	100 MΩ or more					
	Withstand voltage	1.0 kV		1.4 kV		4 kV	
	Ambient temperature Connector	−25 to +90°C		−25 to +80°C		−25 to +85°C	
	Cable	−25 to +80°C		−10 to +105°C		—	
	Min. bending radius (Fixed)	59 mm		110 mm		—	
	Protection class	IP67 (Only with screw tightened)					
	Allowable repeated insertion/withdrawal	200		100		50	
Material	Material of knurl	Zinc die-cast (Nickel plating)		Brass (Nickel plating)		Zinc die-cast (Nickel plating)	
	Contact (Surface treatment)	CuSn (Au plating (Ni underplating))				CuZn (Au plating (Ni underplating))	
	Connector material	TPU (UL94 HB)		PUR (UL94 HB)		PUR/PA66/PBT (UL94 HB)	
	Material of sheath (Sheath color)	PUR (Black–Gray (RAL 7021 equivalent))		PVC (Yellow (RAL 1021 equivalent))		—	
Weight		2 m: Approx. 113 g 6 m: Approx. 425 g	2 m: Approx. 130 g 6 m: Approx. 475 g	2 m: Approx. 446 g 6 m: Approx. 1270 g	2 m: Approx. 455 g 6 m: Approx. 1300 g	Approx. 47.6 g	

∗1 The shaded sections show the specifications for the applicable cable. Adaptation for the connector may vary on account of the conductor construction of the electric wire.
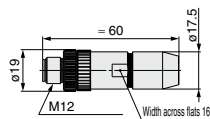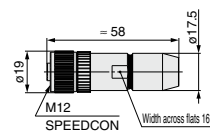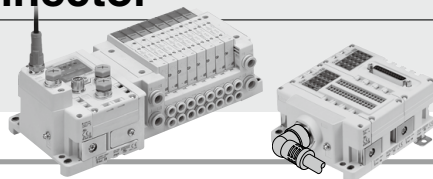
SMC

Power Supply Cable/Connector

⑲⑳ PCA- 1564927

● Socket specification, Cable length (L)

1564927	Straight 2 m
1564930	Straight 6 m
1564943	Angle 2 m
1564969	Angle 6 m

Item	Specifications
Cable O.D.	ø5.9 mm
Conductor nominal cross section	0.34 mm²/AWG22
Wire O.D. (Including insulator)	1.27 mm
Min. bending radius (Fixed)	59 mm

Straight connector type

Socket connector
pin arrangement
B-coded (Reverse key)

M12
SPEEDCON

Marker tag

Terminal no.
Core wire color
Brown: 24 VDC +10%/–5% (For output)
White: 0 V (For output)
Blue: 24 VDC±10% (For control and input)
Black: 0 V (For control and input)
Gray: Not connected

Connections

Angle connector type

Socket connector
pin arrangement
B-coded (Reverse key)

Marker tag

M12
SPEEDCON

Terminal no.
Core wire color
Brown: 24 VDC +10%/–5% (For output)
White: 0 V (For output)
Blue: 24 VDC±10% (For control and input)
Black: 0 V (For control and input)
Gray: Not connected

Connections

㉑㉒ PCA- 1558810

● Socket specification, Cable length (L)

1558810	Straight 2 m
1558823	Straight 6 m
1558836	Angle 2 m
1558849	Angle 6 m

Item	Specifications
Cable O.D.	ø12.58 mm
Conductor nominal cross section	1.5 mm²/AWG16
Wire O.D. (Including insulator)	2.35 mm
Min. bending radius (Fixed)	110 mm

Straight connector type

Socket pin arrangement

Core wire color
Red/White: 0 V (For output)
Red: 0 V (For control and input)
Green: FE
Red/Orange: 24 VDC±10% (For control and input)
Red/Black: 24 VDC +10%/–5% (For output)

Connections

Angle connector type

Socket pin arrangement

Core wire color
Red/White: 0 V (For output)
Red: 0 V (For control and input)
Green: FE
Red/Orange: 24 VDC±10% (For control and input)
Red/Black: 24 VDC +10%/–5% (For output)

Connections

Socket

㉓ PCA-1578081

= 86

Width across flats 24

Socket connector pin assignment 7/8 inch (Mini style)

Power Supply Cable/Connector

EX500 Series

Specifications/Gateway Decentralized System 2 (128 Points)

Description		Power supply cable (With connector on one side)			
Part no. (Cable length)		㉔ PCA-1415999 (2 m) PCA-1415996 (6 m)	㉕ PCA-1416000 (2 m) PCA-1415997 (6 m)	㉑ PCA-1558810 (2 m) PCA-1558823 (6 m)	㉒ PCA-1558836 (2 m) PCA-1558849 (6 m)
Protocol		EtherNet/IP™		PROFINET	
Number of functional poles		7/8 inch: 4 pins		7/8 inch: 5 pins	
Key type		—			
Wiring Cable O.D.		10.7 mm		12.58 mm	
Conductor nominal cross section		1.5 mm²/AWG16		1.5 mm²/AWG16	
Wire O.D. (Including insulating material)		2.35 mm		2.35 mm	
Rating/Performance Rated current		10 A		8 A	
Rated voltage		600 V		600 V	
Contact resistance		5 mΩ or less			
Insulation resistance		100 MΩ or more			
Withstand voltage		1.4 kV			
Ambient temperature	Connector	−25 to 80°C			
	Cable	−30 to +105°C		−10 to +105°C	
Min. bending radius (Fixed)		94 mm		110 mm	
Protection class		IP67 (Only with screw tightened)			
Allowable repeated insertion/withdrawal		100			
Material Material of knurl		Brass (Nickel plating)		Brass (Nickel plating)	
Contact (Surface treatment)		CuSn (Au plating)			
Connector material		PUR (UL94 HB)			
Material of sheath (Sheath color)		PVC (Yellow (RAL 1021 equivalent))			
Weight		2 m: Approx. 385 g 6 m: Approx. 1065 g	2 m: Approx. 395 g 6 m: Approx. 1075 g	2 m: Approx. 446 g 6 m: Approx. 475 g	2 m: Approx. 455 g 6 m: Approx. 1300 g

⊘SMC
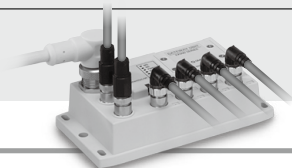
Power Supply Cable/Gateway Decentralized System 2 (128 Points)

For EtherNet/IP™
㉔㉕ PCA- 1416000

● Connector specification, Cable length (L)

1415999	Straight 2 m
1415996	Straight 6 m
1416000	Angle 2 m
1415997	Angle 6 m

49.9 / 36 / L / ø10.7 / 7/8 inch

Socket pin arrangement

53 / L / 40.4 / 26.5 / ø10.7 / 7/8 inch
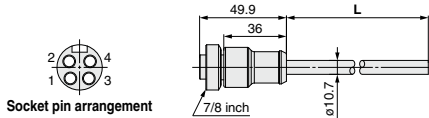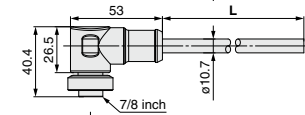
Socket pin arrangement

Core wire color
1 ---- Red: 24 VDC +10%/–5% (For valve)
2 ---- Green: 24 VDC±10% (For control and input)
3 ---- White: 0 V (For control and input)
4 ---- Black: 0 V (For valve)

Connections

Item	Specifications
Cable O.D.	ø10.7 mm
Conductor nominal cross section	1.5 mm²/AWG16
Min. bending radius (Fixed)	94 mm

For PROFINET
㉑㉒ PCA- 1558810

● Connector specification, Cable length (L)

1558810	Straight 2 m
1558823	Straight 6 m
1558836	Angle 2 m
1558849	Angle 6 m

49.9 / 36 / L / ø26 / ø7/8" / ø12.58

Socket pin arrangement

53 / L / 40.4 / 26.5 / ø12.58 / ø26 / ø7/8"
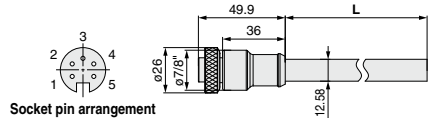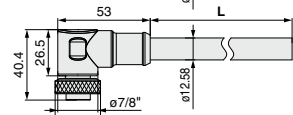
Socket pin arrangement

Core wire color
1 ---- Red/White: 0 V (For valve)
2 ---- Red: 0 V (For control and input)
3 ---- Green: FE
4 ---- Red/Orange: 24 VDC±10% (For control and input)
5 ---- Red/Black: 24 VDC +10%/–5% (For valve)

Connections

Item	Specifications
Cable O.D.	ø12.58 mm
Conductor nominal cross section	1.5 mm²/AWG16
Wire O.D. (Including insulator)	2.35 mm
Min. bending radius (Fixed)	110 mm

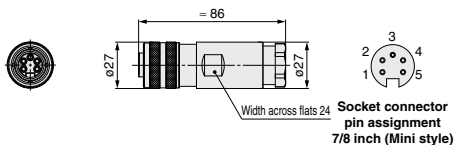# Power Supply Cable/Connector

EX260 Series

Specifications

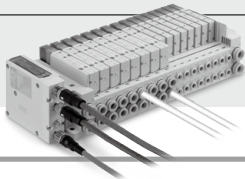| Description		Power supply cable (With connector on one side)				
Part no. (Cable length)		㉖ EX500-AP010-S (1 m) EX500-AP050-S (5 m)	㉗ EX500-AP010-A (1 m) EX500-AP050-A (5 m)	㉘ PCA-1401804 (1.5 m) PCA-1401805 (3 m) PCA-1401806 (5 m)	㉙ EX9-AC010-1 (1 m) EX9-AC030-1 (3 m) EX9-AC050-1 (5 m)	㉚ PCA-1401807 (1.5 m) PCA-1401808 (3 m) PCA-1401809 (5 m)
Protocol		PROFIBUS DP, DeviceNet®, EtherCAT, PROFINET, EtherNet/IP™			CC-Link	
Number of functional poles		M12: 5 pins				
Key type		A-coded			B-coded	
Wiring	Cable O.D.	6 mm		5 mm	6.6 mm	5 mm
Wiring	Conductor nominal cross section	0.3 mm²/AWG22		AWG22	0.3 mm²/AWG22	AWG22
Wiring	Wire O.D. (Including insulating material)	1.5 mm		1.27 mm	1.65 mm	1.27 mm
Rating/Performance	Rated current	3 A		4 A	3.1 A	4 A
Rating/Performance	Rated voltage	125 V		60 V	125 V	60 V
Rating/Performance	Contact resistance	40 mΩ or less		5 mΩ or less	40 mΩ or less	5 mΩ or less
Rating/Performance	Insulation resistance	1000 MΩ or more		100 MΩ or more	1000 MΩ or more	100 MΩ or more
Rating/Performance	Withstand voltage	1.5 kV		1.0 kV	1.5 kV	1.0 kV
Rating/Performance	Ambient temperature Connector	−25 to +60°C		−40 to +80°C	−25 to +60°C	−40 to +80°C
Rating/Performance	Ambient temperature Cable	−25 to +60°C		−40 to +80°C	−25 to +60°C	−40 to +80°C
Rating/Performance	Min. bending radius (Fixed)	40 mm		21.7 mm	40 mm	21.7 mm
Rating/Performance	Protection class	IP67 (Only with screw tightened)				
Rating/Performance	Allowable repeated insertion/withdrawal	200				
Material	Material of knurl	Brass (Nickel plating)		Zinc die-cast (Nickel plating)	Brass (Nickel plating)	Zinc die-cast (Nickel plating)
Material	Contact (Surface treatment)	Phosphor bronze (Au plating)		CuSn (Au plating)	Phosphor bronze (Au plating)	CuSn (Au plating)
Material	Connector material	Soft PBT (UL94 V0)		TPU (UL94 HB)	Soft PBT (UL94 V0)	TPU (UL94 HB)
Material	Material of sheath (Sheath color)	PVC (Light gray)		PUR (Black-Gray (RAL 7021 equiv.))	PVC (Light gray)	PUR (Black-Gray (RAL 7021 equiv.))
Weight		1 m: Approx. 80 g 5 m: Approx. 395 g	1 m: Approx. 85 g 5 m: Approx. 400 g	1.5 m: Approx. 65 g 3 m: Approx. 130 g 5 m: Approx. 195 g	1 m: Approx. 85 g 3 m: Approx. 215 g 5 m: Approx. 345 g	1.5 m: Approx. 65 g 3 m: Approx. 130 g 5 m: Approx. 195 g

Power Supply Cable

For PROFIBUS DP	For DeviceNet®	For EtherCAT	For PROFINET	For EtherNet/IP™

㉖㉗ EX500-AP [050] - [S]

Cable length (L)

010	1000 mm
050	5000 mm

Connector specification

S	Straight
A	Angle

Straight connector type
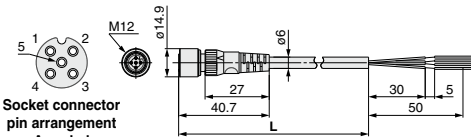
ø14.9 M12 ø6
27 40.7 L 30 5 50

Socket connector pin arrangement A-coded (Normal key)

Item	Specifications
Cable O.D.	ø6 mm
Conductor nominal cross section	0.3 mm²/AWG22
Wire O.D. (Including insulator)	1.5 mm
Min. bending radius (Fixed)	40 mm

Terminal no.
Core wire color
1 — Brown: 24 VDC +10%/−5% (Valve power supply)
2 — White: 0 V (Valve power supply)
3 — Blue: 24 VDC±10% (Power supply for control)
4 — Black: 0 V (Power supply for control)
5 — Gray: Not connected

Connections (PROFIBUS DP/EtherCAT/PROFINET)

Angle connector type

M12 ø14.9 ø6
28.3 25.3 L 30 5 50

Socket connector pin arrangement A-coded (Normal key)

Item	Specifications
Cable O.D.	ø6 mm
Conductor nominal cross section	0.3 mm²/AWG22
Wire O.D. (Including insulator)	1.5 mm
Min. bending radius (Fixed)	40 mm

Terminal no.
Core wire color
1 — Brown: Not connected*1, 24 VDC±10% (Power supply for control)*2
2 — White: 24 VDC +10%/−5% (Valve power supply)
3 — Blue: Not connected*1, 0 V (Power supply for control)*2
4 — Black: 0 V (Valve power supply)
5 — Gray: Not connected

Connections (DeviceNet®, EtherNet/IP™)

*1 For DeviceNet®
*2 For EtherNet/IP™

Made to Order

Cable length	10000 mm	**p. 1539**

1528

Power Supply Cable

| For PROFIBUS DP | For DeviceNet® | For EtherCAT | For PROFINET | For EtherNet/IP™ |

㉘PCA- 1401804

● **Cable length (L)**

1401804	1500 mm
1401805	3000 mm
1401806	5000 mm

Socket connector
pin arrangement
A-coded
(Normal key)
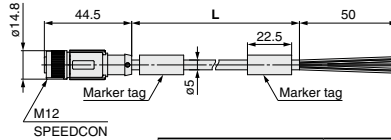
M12
SPEEDCON

Item	Specifications
Cable O.D.	ø5 mm
Conductor nominal cross section	0.34 mm²/AWG22
Wire O.D. (Including insulator)	1.27 mm
Min. bending radius (Fixed)	21.7 mm

Terminal no. / Core wire color
1 — Brown: 24 VDC +10%/−5% (Valve power supply)
2 — White: 0 V (Valve power supply)
3 — Blue: 24 VDC±10% (Power supply for control)
4 — Black: 0 V (Power supply for control)
5 — Green/Yellow: Not connected

Connections (PROFIBUS DP/EtherCAT/PROFINET)

Terminal no. / Core wire color
1 — Brown: Not connected*1, 24 VDC±10% (Power supply for control)*2
2 — White: 24 VDC +10%/−5% (Valve power supply)
3 — Blue: Not connected*1, 0 V (Power supply for control)*2
4 — Black: 0 V (Valve power supply)
5 — Green/Yellow: Not connected
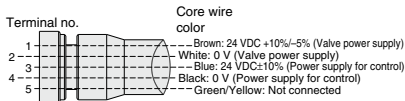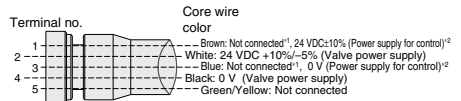
Connections (DeviceNet®, EtherNet/IP™)

∗1 For DeviceNet®
∗2 For EtherNet/IP™

For CC-Link

Straight connector type

㉙EX9-AC 050 -1

● **Cable length (L)**

010	1000 mm
030	3000 mm
050	5000 mm

Socket connector
pin arrangement
B-coded
(Reverse key)

M12

Item	Specifications
Cable O.D.	ø6.6 mm
Conductor nominal cross section	0.3 mm²/AWG22
Wire O.D. (Including insulator)	1.65 mm
Min. bending radius (Fixed)	40 mm

Made to Order

| Cable length | 10000 mm | p. 1539 |

Terminal no. / Core wire color
1 — Brown: 24 VDC +10%/−5% (Valve power supply)
2 — White: 0 V (Valve power supply)
3 — Blue: 24 VDC±10% (Power supply for control)
4 — Black: 0 V (Power supply for control)
5 — Gray: Not connected
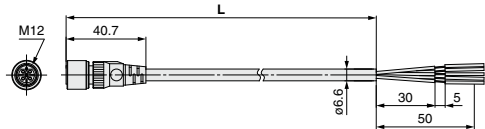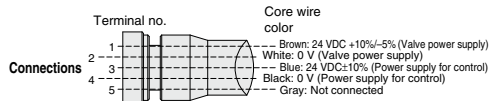
Connections

㉚PCA- 1401807

● **Cable length (L)**

1401807	1500 mm
1401808	3000 mm
1401809	5000 mm

Socket connector
pin arrangement
B-coded
(Reverse key)
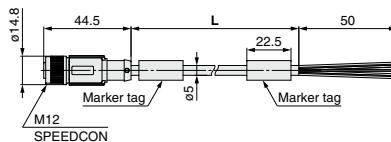
M12
SPEEDCON

Item	Specifications
Cable O.D.	ø5 mm
Conductor nominal cross section	0.34 mm²/AWG22
Wire O.D. (Including insulator)	1.27 mm
Min. bending radius (Fixed)	21.7 mm

Terminal no. / Core wire color
1 — Brown: 24 VDC +10%/−5% (Valve power supply)
2 — White: 0 V (Valve power supply)
3 — Blue: 24 VDC±10% (Power supply for control)
4 — Black: 0 V (Power supply for control)
5 — Green/Yellow: Not connected
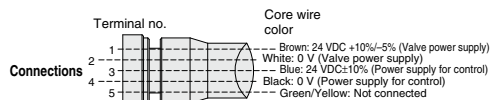
Connections

Power Supply Cable

EX250 Series
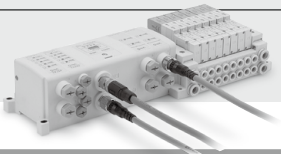
Specifications

Description		Power supply cable (With connector on one side)	
Part no. (Cable length)		**EX9-AC010-1 (1 m)** ㉙ **EX9-AC030-1 (3 m)** **EX9-AC050-1 (5 m)**	㉖ **EX500-AP010-S (1 m)** **EX500-AP050-S (5 m)**
Protocol		DeviceNet®	EtherNet/IP™
Number of functional poles		M12: 5 pins	M12: 5 pins
Key type		B-coded	A-coded
Wiring	**Cable O.D.**	6.6 mm	6 mm
	Conductor nominal cross section	0.3 mm²/AWG22	0.3 mm²/AWG22
	Wire O.D. (Including insulating material)	1.65 mm	1.5 mm
Rating/Performance	**Rated current**	3.1 A	3 A
	Rated voltage	125 V	
	Contact resistance	40 mΩ or less	
	Insulation resistance	1000 MΩ or more	
	Withstand voltage	1.5 kV	
	Ambient temperature — Connector	−25 to +60°C	
	Ambient temperature — Cable	−25 to +60°C	
	Min. bending radius (Fixed)	40 mm	
	Protection class	IP67 (Only with screw tightened)	
	Allowable repeated insertion/withdrawal	200	
Material	**Material of knurl**	Brass (Nickel plating)	
	Contact (Surface treatment)	Phosphor bronze (Au plating)	
	Connector material	Soft PBT (UL94 V0)	
	Material of sheath (Sheath color)	PVC (Light gray)	
Weight		1 m: Approx. 85 g 3 m: Approx. 215 g 5 m: Approx. 345 g	1 m: Approx. 80 g 5 m: Approx. 395 g

Power Supply Cable

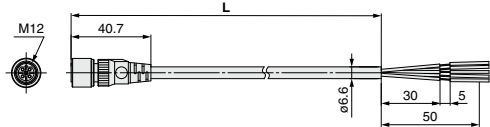### For DeviceNet®

Straight connector type

❷❾ EX9-AC 050 -1

Cable length (L)

010	1000 mm
030	3000 mm
050	5000 mm

Socket connector pin arrangement B-coded (Reverse key)

Made to Order

Cable length	10000 mm	p. 1539

Item	Specifications
Cable O.D.	ø6.6 mm
Conductor nominal cross section	0.3 mm²/AWG22
Wire O.D. (Including insulator)	1.65 mm
Min. bending radius (Fixed)	40 mm

Core wire color
- Brown: 24 VDC +10%/−5% (Valve power supply)
- White: 0 V (Valve power supply)
- Blue: 24 VDC±10% (Power supply for control/input) (Power supply for input)*1
- Black: 0 V (Power supply for control/input) (Power supply for input)*1
- Gray: Ground

Connections

*1 For DeviceNet®

For EtherNet/IP™

Straight connector type

❷❻ EX500-AP 050 - S

Cable length (L)

010	1000 mm
050	5000 mm

Connector specification

S	Straight

Socket connector pin arrangement A-coded (Normal key)
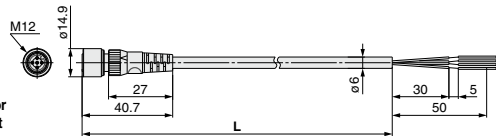
Made to Order

Cable length	10000 mm	p. 1539

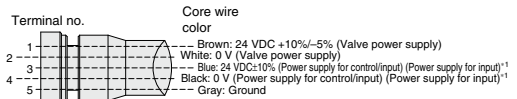| Item	Specifications
Cable O.D.	ø6 mm
Conductor nominal cross section	0.3 mm²/AWG22
Wire O.D. (Including insulator)	1.5 mm
Min. bending radius (Fixed)	40 mm

Core wire color
- Brown: 24 VDC +10%/−5% (Valve power supply)
- White: 0 V (Valve power supply)
- Blue: 24 VDC±10% (Power supply for control)
- Black: 0 V (Power supply for control)
- Gray: Not connected
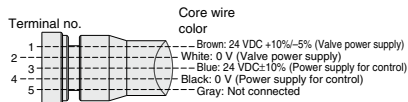
Connections

Accessory Between the Sensor/Switch and the Input Device

Field-wireable Connector

Specifications

Part no.	PCA-1557730	PCA-1557743	PCA-1557756
Product image/Pin assignment	㉛ **M8** — Plug	㉜ **M12** SPEEDCON — Plug	㉝ **M12** SPEEDCON — Plug
Number of functional poles	M8: 3 poles	M12: 4 poles	
Key type	—	A-coded (Normal key)	
Wiring *1 — Applicable cable — Cable O.D.	3.0 to 5.0 mm	3.5 to 6.0 mm	4.0 to 8.0 mm
Wire gauge (Stranded wire cross section)	0.14 to 0.25 mm²/AWG26 to 24 0.25 to 0.34 mm²/AWG24 to 22	0.14 to 0.34 mm²/AWG26 to 22	0.34 to 0.75 mm²/AWG22 to 18
Core wire diameter (Including insulating material)	1.0 to 1.6 mm	0.7 to 1.3 mm	1.3 to 2.5 mm
Connection type	Piercecon® connection	QUICKON-ONE connection	
Rating/Performance — Rated current	4 A		
Rated voltage	60 V	250 V	
Contact resistance	5 mΩ or less		
Insulation resistance	100 MΩ or more		
Withstand voltage	1.0 kV	1.4 kV	
Ambient temperature	−40 to +85°C	−25 to +80°C	
Protection class	IP67 (Only with screw tightened)		
Allowable repeated insertion/withdrawal	100	200	
Allowable number of repeated connection between conductors of the same cross section	10		
Material — Material of knurl	Brass (Nickel plating)	Zinc die-cast (Nickel plating)	
Contact (Surface treatment)	CuZn (Au plating (Ni underplating))		
Connector material	PA66 (UL94 V0)		
Weight	Approx. 14 g	Approx. 13 g	Approx. 15 g

∗1 The shaded sections show the specifications for the applicable cable. Adaptation for the connector may vary on account of the conductor construction of the electric wire.

Field-wireable

㉛ **PCA-1557730**
Field-wireable connector (M8)
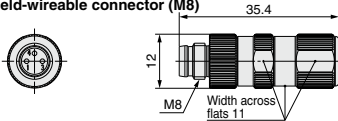
35.4
12
M8
Width across flats 11

3 ○ ○ 1
○
4
Plug connector pin assignment

Terminal no.   Wire color
1 ···Brown
3 ···Blue
4 ···Black
Wiring

㉜ **PCA-1557743**
Field-wireable connector (M12)

= 55
ø14.8
ø16.3
Width across flats 13
M12
SPEEDCON

2 ○ ○ 1
3 ○ ○ 4
Plug connector pin assignment A-coded (Normal key)

Terminal no.   Wire color
1 ···Brown
2 ···White
3 ···Blue
4 ···Black
Wiring
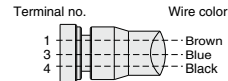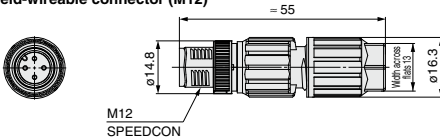
㉝ **PCA-1557756**
Field-wireable connector (M12)

= 55
ø14.8
SW15
ø18.4
Width across flats 15
0.34 – 0.75
▶PA66-FR◀
M12
SPEEDCON

2 ○ ○ 1
3 ○ ○ 4
Plug connector pin assignment A-coded (Normal key)
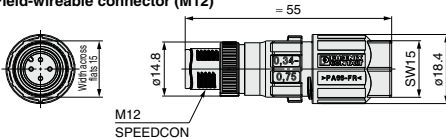
Terminal no.   Wire color
1 ···Brown
2 ···White
3 ···Blue
4 ···Black
Wiring

Accessory Between the Sensor/Switch and the Input Device

Cable with Connector

Specifications

Part no.	PCA-1557769		PCA-1557772
Product image	③④ M12	SPEEDCON	③⑤ M8
Number of functional poles	M12: 4 poles		M8: 3 poles
Key type	A-coded (Normal key)		—
Wiring — **Fixed cable length**	3 m		
Wiring — **Cable O.D.**	4.7 mm		4.4 mm
Wiring — **Conductor nominal cross section**	0.34 mm²/AWG22		0.25 mm²/AWG24
Wiring — **Min. bending radius (Fixed)**	47 mm		44 mm
Rating/Performance — **Rated current**	4 A		
Rating/Performance — **Rated voltage**	250 V		60 V
Rating/Performance — **Contact resistance**	5 mΩ or less		
Rating/Performance — **Insulation resistance**	100 MΩ or more		
Rating/Performance — **Withstand voltage**	1.4 kV		1.0 kV
Rating/Performance — **Ambient temperature** — Connector	−25 to +90°C		
Rating/Performance — **Ambient temperature** — Cable	−40 to +80°C		
Rating/Performance — **Protection class**	IP67 (Only with screw tightened)		
Rating/Performance — **Allowable repeated insertion/withdrawal**	200		
Material — **Material of knurl**	Zinc die-cast (Nickel plating)		
Material — **Contact (Surface treatment)**	CuSn (Au plating (Ni underplating))		
Material — **Connector material**	TPU (UL94 HB)		
Material — **Material of sheath (Sheath color)**	PUR (Black-Gray (RAL 7021 equivalent))		
Weight	Approx. 111 g		Approx. 80 g

Cable with Connector

③④ PCA-1557769
Cable with M12 connector (4 poles)

Socket connector pin assignment
A-coded (Normal key)

Wiring

Plug connector pin assignment
A-coded (Normal key)

③⑤ PCA-1557772
Cable with M8 connector (3 poles)

Socket connector pin assignment

Wiring

Plug connector pin assignment

Accessory Between the Sensor/Switch and the Input Device

Y Connector

Specifications

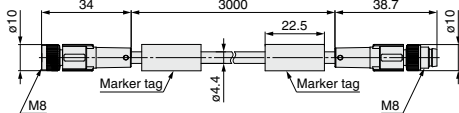| Part no.	PCA-1557785		PCA-1557798	
Product image	㊱ M12 / M12 → M12 SPEEDCON		㊲ M8 / M8 → M12 SPEEDCON	
Number of functional poles	2 x M12: 5 poles – M12: 5 poles		2 x M8: 3 poles – M12: 4 poles	
Key type	A-coded (Normal key)			
Rating/Performance	Rated current	4 A		
	Rated voltage	60 V		
	Contact resistance	5 mΩ or less		
	Insulation resistance	100 MΩ or more		
	Withstand voltage	1.0 kV		
	Ambient temperature	−25 to +90°C		
	Protection class	IP67 (Only with screw tightened)		
	Allowable repeated insertion/withdrawal	200		
Material	Material of knurl	Zinc die-cast (Nickel plating)		
	Contact (Surface treatment)	CuZn (Au plating (Ni underplating))		
	Connector material	TPU (UL94 HB)		
Weight		Approx. 29 g		Approx. 13 g

Y Connector

㊱ PCA-1557785
Y connector
(2 x M12-M12)

ø14.8

M12 SPEEDCON
M12 SPEEDCON

50.1
13 15.8
32.4 18
17
ø4.2
ø15
32.6
ø14.8
M12 SPEEDCON

Socket connector
pin assignment
A-coded (Normal key)

① / ②

Socket connector
pin assignment
A-coded (Normal key)

Wiring

Plug connector
pin assignment
A-coded (Normal key)

㊲ PCA-1557798
Y connector
(2 x M8-M12)

ø9.9

M8
M8

40.7
8.3 15.8
21.8 12
ø13
21.7
ø14.8
M12 SPEEDCON

Socket connector
pin assignment

① / ②

Socket connector
pin assignment

Wiring

Plug connector
pin assignment
A-coded (Normal key)

SMC

Made to Order

Communication Cable

With connector on one side (Socket)
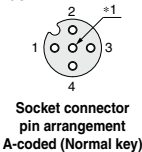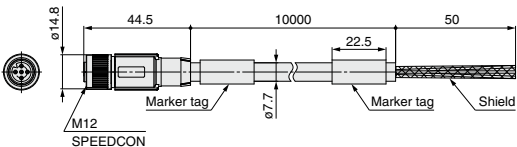**Cable length: 10000 mm**

| For CC-Link | For DeviceNet® |

EX9-AC100 MJ -X12

• **Applicable protocol**

MJ	CC-Link
DN	DeviceNet®

Dimensions

For CC-Link

ø14.8   44.5   10000   50   22.5

ø7.7

Marker tag   Marker tag   Shield

M12
SPEEDCON

2   *1
1   3
4

**Socket connector
pin arrangement
A-coded (Normal key)**

Connections

Terminal no.	Core wire color: Signal name (CC-Link)
1	Shield: SLD
2	White: DB
3	Yellow: DG
4	Blue: DA

*1 Number of holes: 5, Total number of pins: 4

Item		Specifications
Cable O.D.		ø7.7 mm
Conductor nominal cross section	Data pair	0.5 mm²/AWG20
	Drain	0.34 mm²/AWG22
Wire O.D. (Including insulator)		2.55 mm
Min. bending radius (Fixed)		77 mm

For DeviceNet®
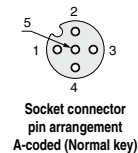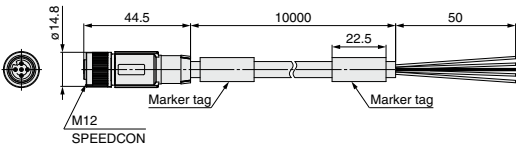
ø14.8   44.5   10000   50   22.5

Marker tag   Marker tag

M12
SPEEDCON

2
5   3
1
4

**Socket connector
pin arrangement
A-coded (Normal key)**

Connections

Terminal no.	Core wire color: Signal name (DeviceNet®)
1	Shield: DRAIN
2	Red: V+
3	Black: V−
4	White: CAN H
5	Blue: CAN L

Item		Specifications
Cable O.D.		ø6.7 mm
Conductor nominal cross section	Power pair	0.34 mm²/AWG22
	Data pair	0.25 mm²/AWG24
Wire O.D. (Including insulator)	Power pair	1.4 mm
	Data pair	2.05 mm
Min. bending radius (Fixed)		67 mm

SMC

Power Supply Cable

① With connector on one side (Socket)
Cable length: 10000 mm

For EX250/EX260/EX500

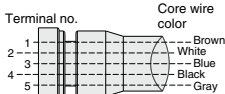EX500-AP100- S -X1

● Connector specification

S	Straight
A	Angle

Socket connector
pin arrangement
A-coded
(Normal key)

Item	Specifications
Cable O.D.	ø6 mm
Conductor nominal cross section	0.3 mm²/AWG22
Wire O.D. (Including insulator)	1.5 mm
Min. bending radius (Fixed)	40 mm

Terminal no.

Core wire color

1 — Brown
2 — White
3 — Blue
4 — Black
5 — Gray

Connections

Angle connector type

Socket connector
pin arrangement
A-coded
(Normal key)

Item	Specifications
Cable O.D.	ø6 mm
Conductor nominal cross section	0.3 mm²/AWG22
Wire O.D. (Including insulator)	1.5 mm
Min. bending radius (Fixed)	40 mm

Terminal no.

Core wire color

1 — Brown
2 — White
3 — Blue
4 — Black
5 — Gray
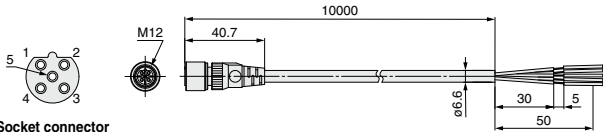
Connections

② With connector on one side (Socket)
Cable length: 10000 mm

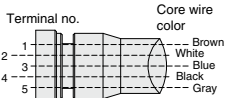**For EX250/EX260/EX9**

Straight connector type

EX9-AC100- 1 -X16

Socket connector
pin arrangement
B-coded
(Reverse key)

Terminal no.

Core wire color

1 — Brown
2 — White
3 — Blue
4 — Black
5 — Gray

Connections

Item	Specifications
Cable O.D.	ø6.6 mm
Conductor nominal cross section	0.3 mm²/AWG22
Wire O.D. (Including insulator)	1.65 mm
Min. bending radius (Fixed)	40 mm

Explanation of Terms

SPEEDCON
There are two types of cable with M12 connector: SPEEDCON compatible and non-compatible. If both plug and socket sides have connectors for SPEEDCON, the cable can be inserted and connected by rotating it 180°, leading to a reduction in labor hours. A non-compatible connector can be connected to a compatible connector as well as an M12.

Marker tag
By inserting the marked insertion label into the tag, the cable can be identified. For details of the insertion label, please make an inquiry to PHOENIX CONTACT.

· Part no.: 1013779 (PABA WH/23)

Example of use of an insertion label

Insertion label

∗ If an insertion label is not to be used, the marker tag can be removed before use.

Wiring

⚠ Caution

1. Do not lay the wires while they are energized. Doing so may give you an electric shock.
2. It should be cabled according to the connection diagram.
3. Check if it can be connected when using a sensor or switch.
4. When the cable sheath is stripped, confirm the stripping direction.
   (For SMC switches with oblong cables)
   The insulator may be split or damaged depending on the direction.
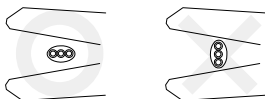
Tightening of Screw

⚠ Caution

1. The enclosure (IP65/67) cannot be maintained and the screws may become loose if they are not tightened sufficiently.
2. Check that they are tightened enough at appropriate intervals during operation.

Connection and Disconnection of Connector

⚠ Caution

1. Be sure to turn the power off when connecting and disconnecting the connectors.
2. Do not touch the engagement surface with wet hands.
3. Do not pull the cable out by holding the cable.
4. Note the key direction.
   Especially for the SPEEDCON specification, match the protrusion of the knurl (bracket) and the mark at the mold for insertion so that the SPEEDCON function can be maintained.
5. When engaging the connectors, insert the connectors until the entire engagement surface is no longer visible and tighten the screws so as not to damage the thread ridges.

Handling of Cable with Connector

⚠ Caution

1. Avoid repeatedly bending or stretching the cable and applying heavy objects or force to it.
2. Set up the cables in a place where they will not be stepped on in order to prevent them from being broken and to prevent damage to the connectors.
   Install a protective cover when deemed necessary.
3. Do not pull the connector or cable unnecessarily. It may damage the connectors or break the cables.
4. Do not bend the cable at the root of the connector when installed.

Handling of Field-wireable Connector

⚠ Caution
Common Precautions

1. Follow the "Assembly Procedure" provided by SMC. If it is not followed correctly, it may not maintain IP65/67.
2. Do not use it for any purpose other than its original purpose.
3. This connector may only be operated when under no load.
4. Working with wet hands may lead to an electric shock.
5. Never attempt to repair the product yourself.

Spring-cage Connection

1. Do not use it for any purpose other than its original purpose.
2. This connector may only be operated when under no load.
3. Working with wet hands may lead to an electric shock.
4. Never attempt to repair the product yourself.

SMC

PCA/EX9/EX500 *Series*
Specific Product Precautions 2

Be sure to read this before handling the products. Refer to page 7 for safety instructions and pages 15 to 17 for fieldbus system precautions.

Handling of Field-wireable Connector

⚠ Caution

QUICKON-ONE Connection

1. **Connection between cables** (with the same material and the same cross section) **is 10 times at max.**
2. **PVC or PE is suitable for sheath material, however fluoro resin is not suitable for sheath material.**
3. **Only for flexible cable, not for solid cable.**
4. **When you remove the cable, pull the cable. However, if you remove the cable gland, cable and the splice ring remain to the body.**
   When you connect the cable again, screw the splice ring approx. two turns into the cable gland before using.
5. **When you connect the cable again, cut and strip the cable.**

Piercecon® Connection

1. **Connection between cables** (with the same material and the same cross section) **is 10 times at max.**
2. **Only for flexible cable, not for solid cable.**
3. **If you connect the cable again, cut and strip the cable.**

Operating Environment

⚠ Caution

1. **Do not use in the atmosphere and environment over the rated specifications.**
2. **Do not use in the environment of corrosive gas or liquid splash.**
3. **Do not use in an environment where oil and chemicals are used.**

Maintenance

⚠ Caution

1. **Perform periodic inspection.**

⊘SMC