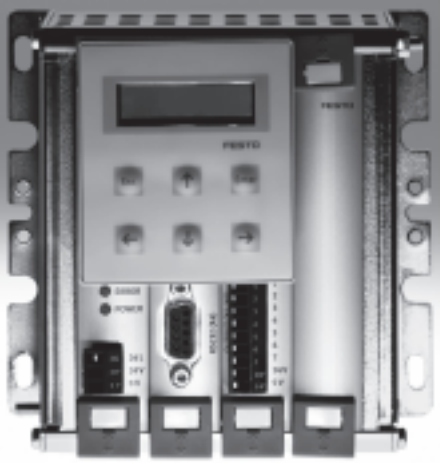
Axis controllers SPC200

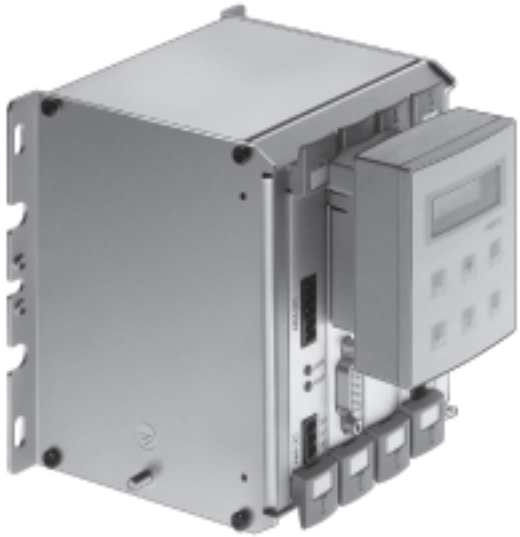
FESTO



Axis controllers SPC200

Key features

At a glance



SPC200 – the most unique positioning controller in the world for pneumatic and electrical positioning technology

Strength in variety
- 1 to 4 positioning axes
- 3 different pneumatic drive families
- Stepper motor axes
- Technology mix

Strength in modularity
- Two housing sizes
- 9 different plug-in cards
- Combinable as required

Multi-purpose
- Set selection for simple applications
- Start/stop operation for demanding automation tasks
- Up to 100 programs
- Subprogram technology
- Register operations and much more

Strength in flexibility
- Digital inputs/outputs
- Analogue inputs
- Profibus, DeviceNet, Interbus
- CPV valve terminals for pneumatic switching functions

Strength in installation
- One axis string controls
- 2 pneumatic axes
- CPV valve terminals can be connected directly to the axis string
- Pre-assembled cables
- Plugs fit only in the correct sockets

Software WINPISA
- Project archiving
- Simple commissioning
- User-friendly programming
- Comprehensive diagnostics with graphics functions

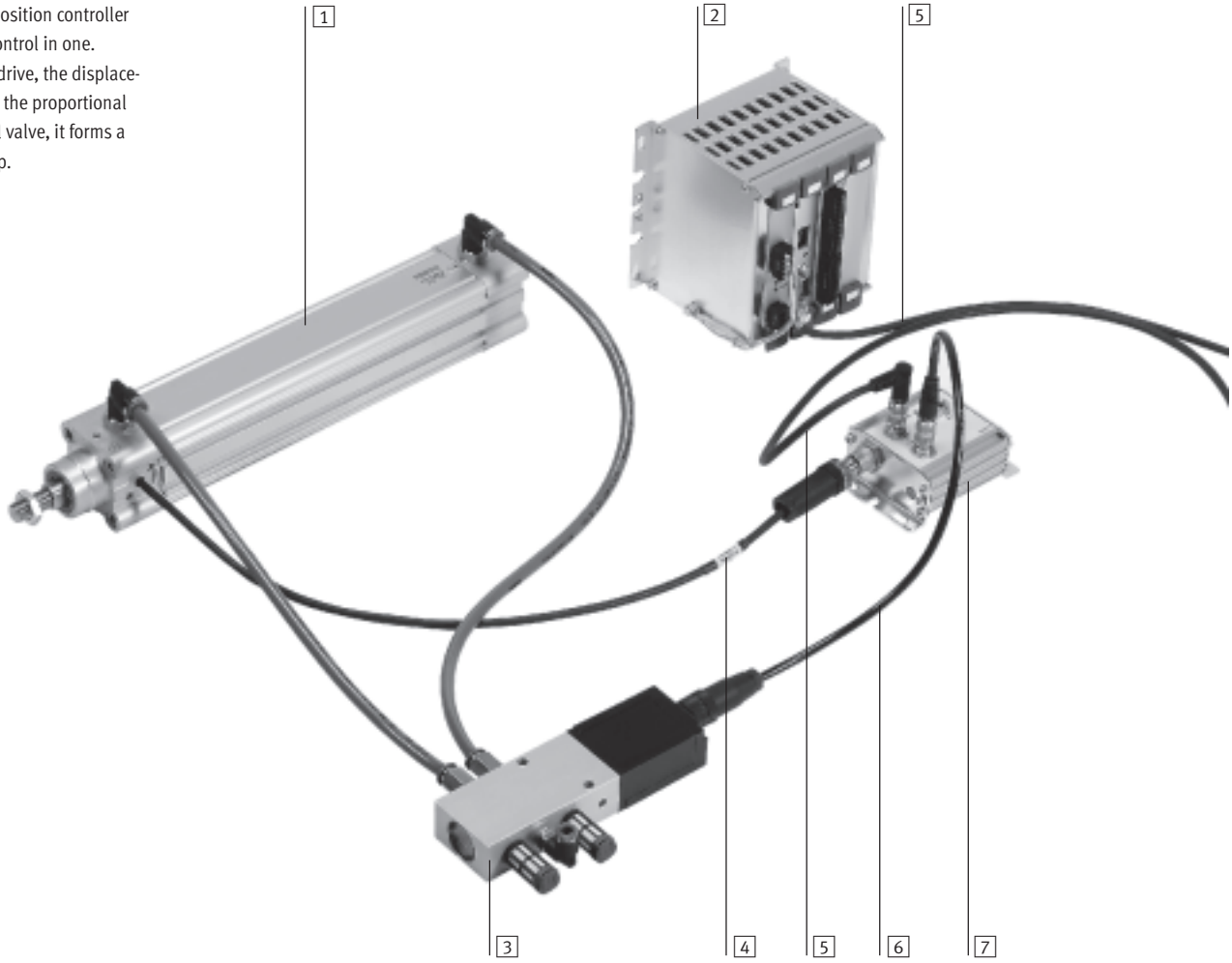
PROFIBUS®, DeviceNet®, INTERBUS® is a registered trademark of its respective trademark holder in certain countries.

Axis controllers SPC200

Key features

In combination with the drive DNCI

The SPC200 is a position controller and positioning control in one. Together with the drive, the displacement encoder and the proportional directional control valve, it forms a closed control loop.



Individual components	
Type	Brief description
1 DNCI-...	The pneumatic drive, in this case DNCI with integrated displacement encoder, generates the movement. It is controlled by the SPC200.
2 SPC200-...	The axis controller with operating unit, in this case designed for a pneumatic drive, is an open and closed loop controller in one.
3 MPYE-...	The proportional directional control valve is the final control element in the control loop and controls the movement of the drive in accordance with the specification of the closed loop controller in the SPC200.
4 –	Connecting cable that connects the displacement encoder with the axis interface. The cable is permanently attached to the drive.
5 KSPC-AIF-...	Connecting cable that connects the controller SPC200 with the axis interface.
6 KMPYE-AIF-...	Connecting cable that connects the proportional directional control valve with the axis interface.
7 SPC-AIF-...	The axis interface forwards the measured values from the displacement encoder to the closed loop controller in the SPC200 and the control signal from the closed loop controller to the proportional directional control valve.

- 1 - Type discontinued SPC200-COM-IBS Available up until 2011

Axis controllers SPC200

Product range overview

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Individual components for SPC200			
	Type	Brief description	➔ Page/Internet
Basic units			
	SPC200-CPU-4	Basic unit with 4 card locations	6
	SPC200-CPU-6	Basic unit with 6 card locations	6
Plug-in cards			
	SPC200-BP	Blanking plate	7
	SPC200-PWR-AIF	Power supply unit and axis interface connection	10
	SPC200-MMI-DIAG	Diagnostics and control unit connection	11
	SPC200-DIO	Digital inputs/outputs (10I/8O)	12
	SPC200-2AI-U	Analogue setpoint specification, 2 channels, 0 ... 10 V	14
	SPC200-SCU-AIF	Sub-controller for 3rd and 4th pneumatic axes	15
	SPC200-COM-PDP	Profibus-DP interface	16
	SPC200-COM-DN2	DeviceNet interface	18
	SPC200-COM-IBS	Interbus interface	20
Control unit			
	SPC200-MMI-1	Control unit for commissioning, programming and diagnostics. Not all functions of the axis controller SPC200 are supported. Please use WinPISA for commissioning.	21

Connector modules for SPC200			
	Type	Brief description	➔ Page/Internet
Axis interface			
	SPC-AIF-POT SPC-AIF-POT-LWG	For analogue displacement encoder (potentiometer)	22
	SPC-AIF-MTS	– For digital displacement encoder Temposonics/AIF – For linear drive DGPI...-...-AIF	22
	SPC-AIF-INC	For standard cylinder DNCI	24
	SPC-AIF-MTS-2	For linear drive DGCI	26
Power supply module			
	SPC-AIF-SUP-24V	Additional power supply for the load voltage at the axis interface for cable lengths over 16 m	28

Axis controllers SPC200

Product range overview

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Basic configuration of controller packages											
Version	Brief description	Basic configuration								→ Page/Internet	
		SPC200-MMI-1	SPC200-PWR-AIF	SPC200-MMI-DIAG	SPC200-DIO	SPC200-2AI-U	SPC200-SCU-AIF	SPC200-COM-PDP	SPC200-COM-IBS		
SPC200/P01	For 1 or 2 pneumatic axes with control unit	■	■	■	■	–	–	–	–	9	
SPC200/P02	For 1 or 2 pneumatic axes with control unit and 2 analogue inputs for positioning specifications	■	■	■	■	■	–	–	–	9	
SPC200/P04	With Profibus-DP interface for 1 or 2 pneumatic axes	–	■	■	–	–	–	■	–	9	
SPC200/P05	With Profibus-DP interface for up to 4 pneumatic axes	–	■	■	–	–	■	■	–	9	
SPC200/P07	With Interbus interface for up to 4 pneumatic axes	–	■	■	–	–	■	–	■	9	

Expansion options for controller packages									
Version	Brief description	Expandable using …							
		SPC200-MMI-1	SPC200-DIO	SPC200-2AI-U	SPC200-SCU-AIF	SPC200-COM-PDP	SPC200-COM-IBS	SPC200-COM-DN2	
SPC200/P01	For 1 or 2 pneumatic axes with control unit	–	1)	1)	1)	1)	1)	1)	
SPC200/P02	For 1 or 2 pneumatic axes with control unit and 2 analogue inputs for positioning specifications	–	–	–	–	–	–	–	
SPC200/P04	With Profibus-DP interface for 1 or 2 pneumatic axes	2)	1)	1)	–	–	–	–	
SPC200/P05	With Profibus-DP interface for up to 4 pneumatic axes	2)	–	–	–	–	–	–	
SPC200/P07	With Interbus interface for up to 4 pneumatic axes	2)	–	–	–	–	–	–	

1) One free card location, therefore expandable with max. one card. This must be ordered separately.
Other configurations can be produced from the individual components

2) Optional

Axis controllers SPC200

Technical data

Axis controller basic unit
SPC200-CPU-4
SPC200-CPU-6

Function
Basic unit for 4 or 6 function cards, contains closed loop position controller for 2 pneumatic axes and universal positioning control for 4 axes

General technical data				
				SPC200
Power supply				➔10 (SPC200-PWR-AIF)
Current consumption		SPC200-CPU-4/6 incl. SPC200-PWR-AIF	[mA]	Typically 100
Processor type				Digital signal processor
Operating system				Festo OS 4.6x[1]
Controller sampling time			[ms]	Typically 1.5
Control cycle			[ms]	Typically 2
Memory		Available for programs and data	[KB]	20
Data backup				Flash memory
		Backup cycles		> 100 000
No. of positioning axes		Total		4
		Pneumatic		Max. 4
		Stepper motor		Max. 3
No. of inputs/outputs		Local		Max. 40 inputs, 32 outputs[2]
		Per AIF string		Max. 16 inputs and 16 outputs[3]
		Via fieldbus		Max. 64 inputs and 64 outputs
No. of start programs				2[4]
No. of position registers				100 per axis
Operating modes	Set selection	No. of motion sets		Max. 32 via local I/O per start program Max. 1,000 via fieldbus interface per start program
		Control signals		ENABLE, READY, STOP, RESET, RECBIT1..5, CLK_A/B, RC_A/B, ACK_A/B
	Start/stop	No. of programs		Max. 100
		Control signals		ENABLE, READY, START/RESET, STOP, MC_A/B, SYNC_IA/B,SYNC_OA/B
		Programming		NC programming to DIN 66025
		Instruction classes		Positioning instructions I/O instructions Register instructions Sequence instructions
		No. of NC sets		Max. 2,000
		No. of NC sets per program		Max. 1,000
		Nesting depth for subprograms		Max. 4

1) Status: April 2003
2) Less the used control signals of the first card
3) Either as 1 input device and 1 output device of the CP fieldbus modules or 1 input/output module SPC-FIO ...
4) At least 1 start program must be active

Axis controllers SPC200

Technical data

General technical data			
			SPC200
CE marking symbol (see conformity declaration)			As per EU EMC directive
Vibrations/shock	Vibrations		Tested to DIN/IEC 68, parts 2-6, severity level 1
	Shock		Tested to DIN/IEC 68, parts 2-27, severity level 2
Ambient conditions	Temperature range	[°C]	–5 ... +50
	Protection class		IP20[5)]
	Relative air humidity		95% non-condensing
Weight	SPC200-CPU-4	[kg]	0.675
	SPC200-CPU-6	[kg]	0.85

5) With fully equipped basic unit

New

Communication modules for connecting to a fieldbus, like Profibus or DeviceNet, facilitate reading and writing all registers of the axis controller SPC200.

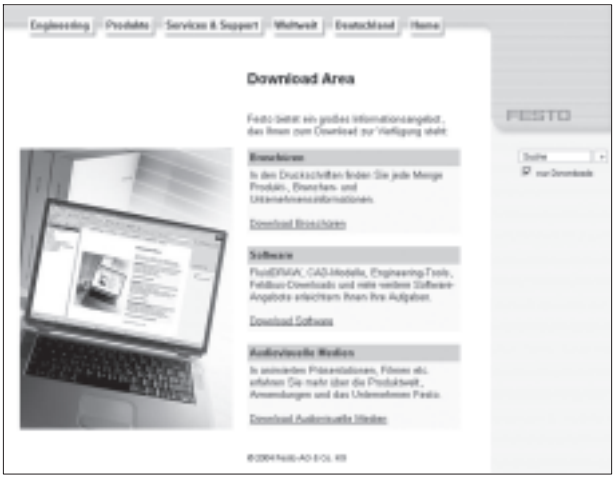
Reading the actual position and writing a digital position setpoint.

Ordering data			
		Part No.	Type
Axis controller basic unit	With 4 mounting locations	**170 173**	**SPC200-CPU-4**
	With 6 mounting locations	**170 174**	**SPC200-CPU-6**
Accessories	Blanking plate (plug-in card)	**170 229**	**SPC200-BP**
	Clip for H-rail assembly for SPC200	**170 169**	**CP-TS-HS-35**
User documentation	For axis controller basic unit, German	**170 245**	**P.BE-SPC200-DE**
	For axis controller basic unit, English	**170 246**	**P.BE-SPC200-EN**

Function modules

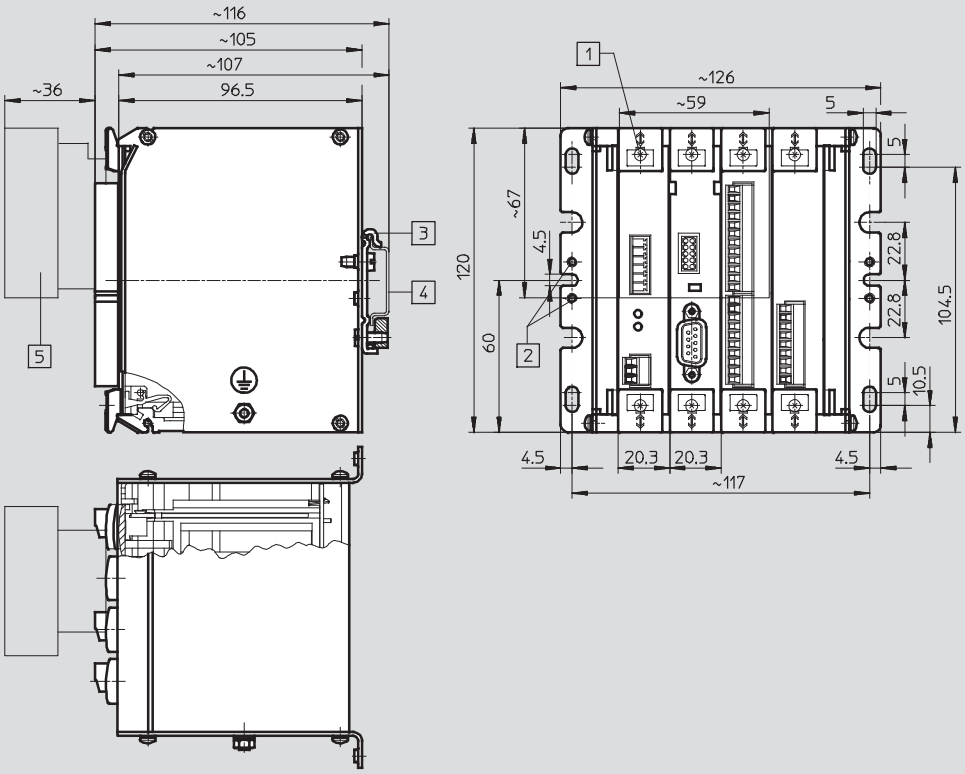
➔ www.festo.com

Function modules that support communication between third-party controllers and the Profibus card of the axis controller SPC200 can be downloaded from the Download Area of the Festo website.



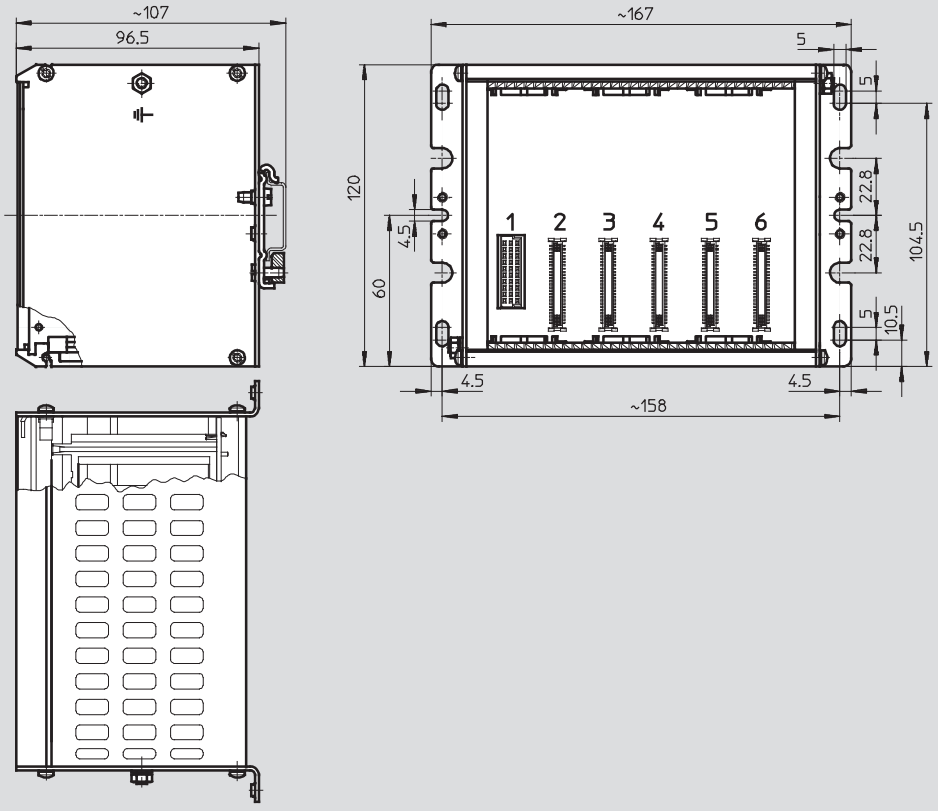
Dimensions Download CAD data ➔ **www.festo.com**

SPC200-CPU-4 (rack for 4 mounting locations) using as an example: SPC200/P02



1 Installation option for inscription label LBS 6x10
2 Mounting option for clip
3 Clip for rail mounting
4 Mounting rail
5 Control unit SPC200-MMI-1

SPC200-CPU-6 (rack for 6 mounting locations)



Note

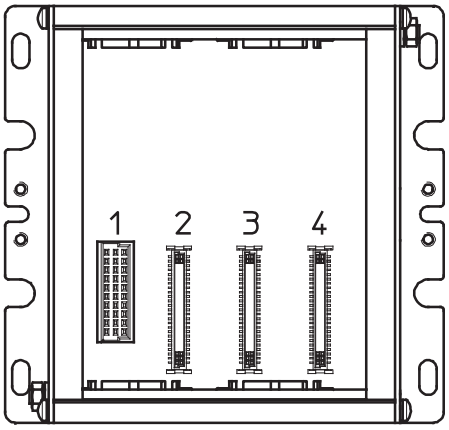
The numbers 1 ... 6 represent the order of the mounting locations.

Axis controllers SPC200

Technical data

FESTO

Order of the mounting locations



Configured controller packages

Controller packages	Mounting location 1	2	3	4	Control unit SPC200-MMI-1[1]	Part No.	Type
P01	1	2	4	9	■	**170 521**	**SPC200/P01**
P02	1	2	4	5	■	**170 522**	**SPC200/P02**
P04	1	2	9	7	–	**187 812**	**SPC200/P04**
P05	1	2	3	7	–	**187 813**	**SPC200/P05**
P07	1	2	3	8	–	**187 815**	**SPC200/P07**

1) Included in the scope of delivery

Legend

	Type	Description	➔ Page/Internet
1	SPC200-PWR-AIF	Power supply	10
2	SPC200-MMI-DIAG	Serial interface	11
3	SPC200-SCU-AIF	Sub-controller	15
4	SPC200-DIO	Digital I/O	12
5	SPC200-2AI-U	Setpoint module	14
7	SPC200-COM-PDP	Profibus-DP interface	16
8	SPC200-COM-IBS	Interbus interface	20
9	SPC200-PB	Blanking plate	7

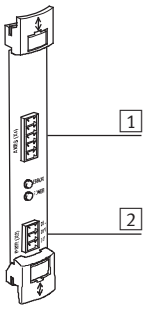
Power supply
SPC200-PWR-AIF

Function
Power supply and connection of the first axis string

General technical data				
				SPC200-PWR-AIF
Current consumption	Plug-in card		[mA]	See basic unit
Power supply unit (PWR)	Supply		[V DC]	24 –5/+25%
	Residual ripple		[%]	2
	Power failure buffering for logic supply (pin 2)		[ms]	10
	Current consumption	Load, pin 1	[A]	Max. 5.0
		Logic, pin 2	[A]	Max. 4.0
Feature	–			2 pneumatic axes
Axis connection	Digital inputs		[max]	16 function inputs[1)]
	Digital outputs		[max]	16 function outputs[1)]
Electrical connections	Power supply unit			3-pin terminal strip
	Axis connection			5-pin terminal strip
CE marking symbol (see conformity declaration)				As per EU EMC directive
Weight			[g]	82
Mounting location ➔ 9				1

1) Either as 1 input module and 1 output module of the CP modules or 1 input/output module SPC-FIO-...

Pin allocation



[1] Terminal strip on cable type KSPC-AIF-WD-... pre-assembled
[2] 3-pin terminal strip included in the scope of delivery. Connection cross section max. 1.5 mm²

Connecting cable ➔ 30, no. [1]

Note

The valves at the axis interfaces and the outputs of the CP modules are supplied via the 24 V load supply. They can therefore be switched off independently of the logic supply in an emergency stop situation.

[1] AXES (X1)	
Pin	Function
1	CAN-LOW (brown)
2	CAN-HIGH (white)
3	24 V (yellow)
4	0 V (green)
5	24 V load supply (grey)

[2] PWR (X2)	
Pin	Function
1	24 V load supply (switchable)
2	24 V supply logic
3	0 V

Ordering data			
		Part No.	Type
Plug-in card	Power supply unit and axis interface connection	**170 175**	**SPC200-PWR-AIF**

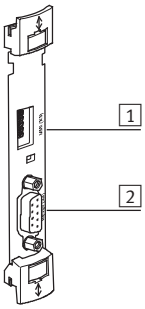
Serial interface
SPC200-MMI-DIAG

Function
Serial interface for diagnostics and programming, connection of the control unit MMI-1

General technical data			
			SPC200-MMI-DIAG
Current consumption	Plug-in card	[mA]	Typically 50[1]
Serial interface	Version		RS 232 C
	Electrical isolation		Yes
	Baud rate	[baud]	9,600; 19,200; 38,400; 57,600; 115,200[2]
	Data	[bit]	8
	Stop bit	[bit]	1
	Parity		Even parity
	Protocol		No handshake
MMI interface	Version		Similar to RS 232 C
	Electrical isolation		No
Electrical connections	Serial interface		9-pin SUB-D, female
	MMI-1		5 double-pin row
CE marking symbol (see conformity declaration)			As per EU EMC directive
Weight		[g]	68
Mounting location ➔ 9			2

1) With control unit SPC200-MMI-1
2) The baud rate is 9,600 baud after each POWER ON

Pin allocation



1 Interface for control unit SPC200-MMI-1
2 Serial interface

Connecting cable ➔ 30, no. 7

2 RS232 (X4)	
Pin	Function
2	Received Data (RxD)
3	Transmitted Data (TxD)
5	Signal Ground (SNGD)

Ordering data			
		Part No.	Type
Plug-in card	Diagnostics and control unit connection	**170 176**	**SPC200-MMI-DIAG**

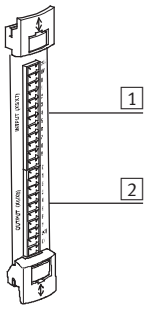
Digital I/O module
SPC200-DIO

Function
Digital input/output card (local I/O)

General technical data			
			SPC200-DIO
Current consumption	Plug-in card	[mA]	Typically 50
Digital inputs	Number		10
	Sensor supply	[A]	0.5[1]
	Current consumption	[mA]	8 (at 24 V DC/"logic 1")
	Fuse protection for sensor supply		Electronic short-circuit protection
	Delay	[ms]	5
Digital outputs	Number		8
	Supply	[V DC]	24 ±25%[2]
	Max. current-carrying capacity per output	[mA]	250
	Fuse protection for outputs		Electronic, all outputs
	Max. tripping current	[A]	2
	Response time	[ms]	1.5
Version	Inputs/outputs		To IEC 61131-2, positive logic (PNP)
Electrical isolation	Inputs/outputs		No/yes
Electrical connections	Inputs		12-pin terminal strip
	Outputs		10-pin terminal strip
Weight		[g]	62
Mounting location ➔ 9			From 3 upwards

1) Via internal 24 V supply (pin 2 to PWR to plug-in card SPC200-PWR-AIF)
2) Supplied separately, note load data

Pin allocation



1 12-pin terminal strip included in the scope of delivery. Connection cross section max. 1.5 mm²

2 10-pin terminal strip included in the scope of delivery. Connection cross section max. 1.5 mm²

Note

Inputs and outputs on the first card are reserved for necessary functions such as start, stop, etc. Up to 7 inputs and 5 outputs are freely programmable.

On the other cards, all 10 inputs and 8 outputs are freely programmable. Up to 4 I/O cards can be inserted (in 6x rack).

1 Input (X5/X7)

Pin	Function	Start/stop operation	Set selection
1	24 V	Supply (for switch/sensor)	
2	0 V		
3	I0.0	Freely programmable	RECBIT1
4	I0.1	Freely programmable	RECBIT2
5	I0.2	Freely programmable	RECBIT3
6	I0.3	Freely programmable	RECBIT4
7	I0.4	Freely programmable	RECBIT5
8	I0.5	(SYNC_IN/B)[1]	CLK_B
9	I0.6	(SYNC_IN/B)[1]	CLK_A
10	I0.7	STOP	STOP
11	I0.8	START/RESET[2]	RESET[2]
12	I0.9	ENABLE	ENABLE

2 Output (X2)

Pin	Function	Start/stop operation	Set selection
1	Q0.0	Freely programmable	–
2	Q0.1	Freely programmable	–
3	Q0.2	Freely programmable	–
4	Q0.3	MC_B	RC_B
5	Q0.4	MC_A	RC_A
6	Q0.5	(SYNC_OUT/B)[1]	ACK_B
7	Q0.6	(SYNC_OUT/A)[1]	ACK_A
8	Q0.7	READY	READY
9	24 V	Supply (load supply for outputs)	
10	0 V		

1) Freely programmable, if not used
2) Reset (program reset) only in combination with 0 signal at stop input

Ordering data

		Part No.	Type
Plug-in card	Digital inputs/outputs (10I/8O)	**170 179**	**SPC200-DIO**

Axis controllers SPC200

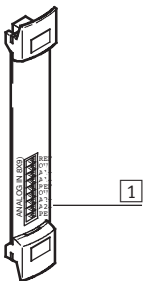
Technical data

Setpoint module
SPC200-2AI-U

Function
Analogue input card

General technical data			
			SPC200-2AI-U
Current consumption	Plug-in card	[mA]	Typically 10
Analogue inputs	Number		2
	Input voltage	[V DC]	0 ... 10
	Input filter, low pass	[Hz]	16
	Resolution	[bit]	12
	Non-linearity		3 LSB
	Max. amplification error	[%]	0.2
	Max. offset error	[mV]	1.5
	Absolute accuracy	[%]	< 0.3
	Input resistance	[kΩ]	> 200
Reference voltage		[V DC]	10
	Absolute accuracy	[%]	0.4
	Max. current	[mA]	8
Electrical connection			9-pin terminal strip
Weight		[g]	55
Mounting location ➔ 9			From 3 upwards

Pin allocation



1 9-pin terminal strip included in the scope of delivery.
Connection cross section max. 1.5 mm²

Note

Max. 2 plug-in cards can be used for position specifications for up to 4 axes.
The allocation of the channel to an axis is programmable.

Only one axis can be allocated to each channel.
Offset and scaling of the setpoint specifications are also separately programmable for each channel.

1 Analogue IN (X9)	
Pin	Function
1	Reference voltage 10 V_{REF}
2	0 V
3	A1+; signal (+) for channel 1
4	A1–; signal (–) for channel 1
5	Reference voltage 10 V_{REF}
6	0 V
7	A2+; signal (+) for channel 2
8	A2–; signal (–) for channel 2
9	PE

Ordering data			
		Part No.	Type
Plug-in card	Analogue setpoint specification, 2 channels, 0 ... 10 V	**170 177**	**SPC200-2AI-U**

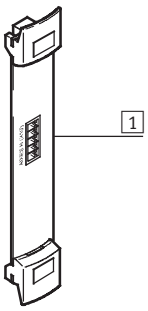
Sub-controller
SPC200-SCU-AIF

Function
Contains the position controllers for 2 further pneumatic axes and connection for the second axis string

General technical data			
			SPC200-SCU-AIF
Current consumption	Plug-in card	[mA]	Typically 100
Axis connection	2nd string		3rd and 4th pneumatic axes
	Digital inputs	[max]	16 function I/O[1)]
	Digital outputs	[max]	16 function I/O[1)]
Electrical connection	Axis connection		5-pin terminal strip
CE marking symbol (see conformity declaration)			As per EU EMC directive
Weight		[g]	80
Mounting location ➔ 9			From 3 upwards

1) Either as 1 input module and 1 output module of the CP modules or 1 input/output module SPC-FIO-...

Pin allocation



[1] Terminal strip on cable type KSPC-AIF-1-WD-... pre-assembled

Connecting cable ➔ 30, no. [1]

[1] AXES B (X10)	
Pin	Function
1	CAN-LOW (brown)
2	CAN-HIGH (white)
3	24 V (yellow)
4	0 V (green)
5	24 V load supply (grey)

Ordering data			
		Part No.	Type
Plug-in card	Sub-controller for 3rd and 4th pneumatic axes	**178 311**	**SPC200-SCU-AIF**

Axis controllers SPC200

Technical data

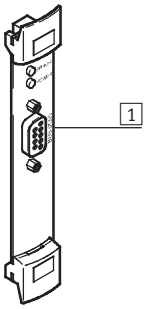
Profibus-DP interface
SPC200-COM-PDP

Function
Profibus interface of the SPC200 as slave to a Profibus network

General technical data				
				SPC200-COM-PDP
Current consumption	Plug-in card		[mA]	Typically 50
Profibus	Version			RS 485
	Electrical isolation			Yes
	Type of transmission			Serial asynchronous, half-duplex
	Protocols			Profibus-DP (standard slave), to DIN 19245, 1 – 4, EN 50170 Vol. 2
	Addressing range of the fieldbus interface			0 ... 125
	Max. address volume	Outputs	[Byte]	32
		Inputs	[Byte]	32
	Baud rate		[kBit/s]	9.6 – 12,000[1]
	Line length		[km]	23.8[2]
	Max. load capacity		[mA]	100[3]
Configuration support for the fieldbus interface				GSD file
Electrical connection	Profibus			9-pin SUB-D, female
CE marking symbol (see conformity declaration)				As per EU EMC directive
Weight			[g]	80
Mounting location ➔ 9				From 3 upwards[4]

1) Automatic baud rate detection
2) Line length dependent on baud rate and type of cable
3) Supply voltage positive (PV5), pin 6
4) When using the control unit MMI-1 as of location 4

Pin allocation



1 9-pin plug usable acc. to Profibus standard, type FBS-SUB-9-WS-PB-K
➔ Table below

New
Position data can be read and written directly via Profibus (as of firmware release 2.0)

1 Bus (X20)

Pin	Function
1	PE
2	Unused
3	RxD/TxD-P
4	CNTR-P
5	DGND
6	UP
7	Unused
8	RxD/TxD-N
9	Unused

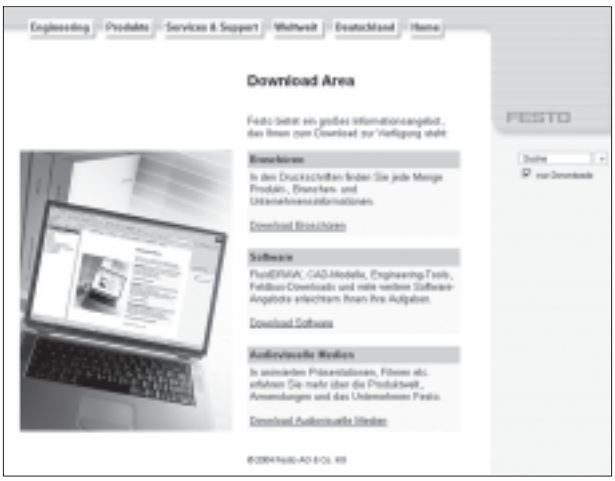
Ordering data

		Part No.	Type
Plug-in card	Profibus-DP interface	**170 224**	**SPC200-COM-PDP**
Accessories	Connector plug	**533 780**	**FBS-SUB-9-WS-PB-K**
User documentation	For Profibus-DP interface, German	**188 892**	**P.BE-SPC200-COM-PDP-DE**
	For Profibus-DP interface, English	**188 893**	**P.BE-SPC200-COM-PDP-EN**
Software and manual	For Simatic S7 controller, German	**540 188**	**P.SW-SPC200-S7-PC-DE**
	For Simatic S7 controller, English	**540 189**	**P.SW-SPC200-S7-PC-EN**

Function modules

➔ www.festo.com

Function modules that support communication between third-party controllers and the Profibus card of the axis controller SPC200 can be downloaded from the Download Area of the Festo website.

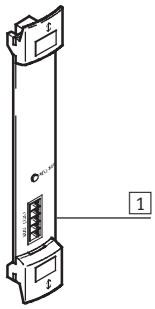


DeviceNet interface
SPC200-COM-DN2

Function
DeviceNet interface of the SPC200 as slave to a DeviceNet network.

General technical data			
			SPC200-COM-DN2
Current consumption	Plug-in card	[mA]	Typically 50
Power supply	Fieldbus	[V DC]	11 ... 30
DeviceNet bus	Version		– Physical layer (layer 1) to ISO/DIS 11898 – Standard highspeed to 1Mbit – Data Link layer (layer 2) to CAN specifications V2.0 – DeviceNet, Release 2.0
	Electrical isolation		Yes
	Protocols		– DeviceNet-IO – DeviceNet-Profil
	Addressing range of the fieldbus interface		0 ... 63
	Baud rate	[kBit/s]	125, 250, 500
Number of outputs	Set selection	[Byte]	2
	Start/Stop	[Byte]	2 ... 8
Number of inputs	Set selection	[Byte]	4
	Start/Stop	[Byte]	2 ... 8
Operation characteristic			Reading an writing inputs and outputs
			Reading and writing all program registers of the SPC200
			Read out the actual position
			Digital setpoint specification
LED display			Module and network status
Device-specific diagnosis			Via status bit
			Via WinPISA status display
Configuration support for the fieldbus interface			EDS file
Electrical connection	Open Style		5-pin terminal strip
CE marking symbol (see conformity declaration)			As per EU EMC directive
Weight		[g]	80
Mounting location ➔ 9			From 3 upwards

Pin allocation



1 5-pin terminal strip included in the scope of delivery.
Connection cross section max. 1.5 mm^2

New

The card SPC200-COM-DN2 facilitates the connection of the SPC200 to DeviceNet.
Position data can be read and written directly via Profibus (as of firmware release 4.9).

1 Bus (X20)

Pin	Function
1	0 V bus interface/logic (CAN_GND)
2	Data – (CAN_L)
3	Screen (CAN_SHLD)
4	Data + (CAN_H)
5	24 V DC bus interface/logic (CAN_V+)

Ordering data

		Part No.	Type
Plug-in card	DeviceNet interface	**540 305**	**SPC200-COM-DN2**
User documentation	For DeviceNet interface, German	**196 607**	**P.BE-SPC200-COM-CANDN-DE**
	For DeviceNet interface, English	**196 608**	**P.BE-SPC200-COM-CANDN-EN**
	For DeviceNet interface, French	**196 611**	**P.BE-SPC200-COM-CANDN-FR**
	For DeviceNet interface, Italian	**196 610**	**P.BE-SPC200-COM-CANDN-IT**

Axis controllers SPC200

Technical data

FESTO

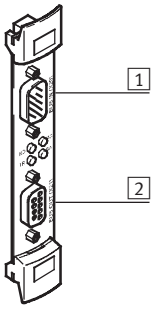
Interbus interface
SPC200-COM-IBS

Function
Interbus interface of the SPC200 to an Interbus network

General technical data				
				SPC200-COM-IBS
Current consumption	Plug-in card		[mA]	Typically 70
Interbus	Version			RS 422
	Electrical isolation			Yes
	Type of transmission			Serial asynchronous, full-duplex
	Protocols			Remote bus
	Max. no. of process data bits	Outputs		64
		Inputs		64
	Baud rate		[kBit/s]	500
	Line length, overall system		[km]	12.8
	Between 2 remote bus stations		[m]	400
Configuration support for the fieldbus interface				Icons for CMD software
Electrical connection	Input			9-pin SUB-D, male
	Output			9-pin SUB-D, female
CE marking symbol (see conformity declaration)				As per EU EMC directive
Weight			[g]	80
Mounting location ➔ 9				From 3 upwards[1)]

1) When using the control unit MMI-1 as of location 4

Pin allocation



1 + 2 Cable with plug acc. to Interbus standard

- Note

The card SPC200-COM-IBS facilitates the connection of the SPC200 to Interbus.
The operating modes that are available via I/Os are emulated.

1 IN (X20)	
Pin	Function
–	Housing/screen
1	D0
2	DI
3	Load
4	Unused
5	Unused
6	/D0
7	/DI
8	Unused
9	Unused

2 OUT (X21)	
Pin	Function
–	Housing/screen
1	D0
2	DI
3	Load
4	Unused
5	VCC
6	/D0
7	/DI
8	Unused
9	RBST

Ordering data			
		Part No.	Type
Plug-in card	Interbus interface	**170 225**	**SPC200-COM-IBS**
User documentation	For Interbus interface, German	**188 890**	**P.BE-SPC200-COM-IBS-DE**
	For Interbus interface, English	**188 891**	**P.BE-SPC200-COM-IBS-EN**

Axis controllers SPC200

Technical data

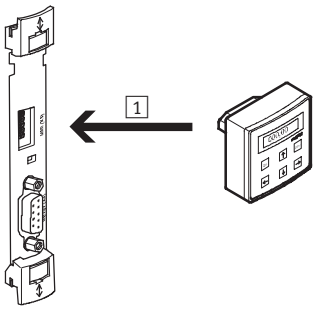
Control unit
SPC200-MMI-1

Not all functions of the axis controller SPC200 are supported. Please use WinPISA for commissioning.

General technical data			
			SPC200-MMI-1
Display			LCD display, 2 x 16 characters
Operation			Touch-sensitive keypad with 6 keys
Power supply		[V DC]	5[1]
Current consumption		[mA]	30[2]
Interface			[3]
Electrical isolation			No
Electrical connections	Interface		10-pin row
	Power supply		10-pin row
CE marking symbol (see conformity declaration)			As per EU EMC directive
Ambient conditions	Temperature range	[°C]	–5 ... +50
	Protection class to IEC 60529		IP20
Weight		[g]	90

1) Is supplied directly via the plug-in card SPC200-MMI-DIAG
2) Referred to 24 V supply of the SPC200-PVR card
3) Similar to RS 232

Pin allocation



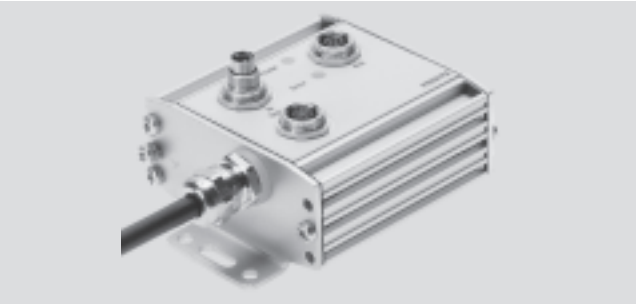
1 Plug-in direct

Ordering data			
		Part No.	Type
Control unit	For commissioning, programming and diagnostics	**170 226**	**SPC200-MMI-1**

Axis controllers SPC200

Technical data

Axis interface
SPC-AIF-POT
SPC-AIF-POT-LWG
SPC-AIF-MTS



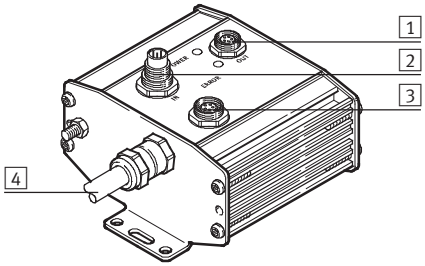
Function

Connection of the proportional valve and the displacement encoder of a pneumatic axis to the SPC200.

Routing of the axis connection to the second axis interface or to a CP module

General technical data					
			SPC-AIF-POT	SPC-AIF-POT-LWG	SPC-AIF-MTS
Current consumption	Axis interface	[mA]	100	100	200
	Prop. directional control valve, max.	[A]	1.1		
Electrical connections	AIF IN		5-pin M9, male		
	AIF OUT		5-pin M9, female		
	Prop. directional control valve		7-pin M9, male		
	Displ. encoder cable length	[m]	0.3		
	Plug		Type A DIN 43650	4-pin square plug	6-pin round connector DIN 45322
CE marking symbol (see conformity declaration)			As per EU EMC directive		
Ambient conditions	Temperature range	[°C]	0 ... +50		
	Protection class to IEC 60529		IP65		
Weight		[g]	300		

Pin allocation



Connecting cable ➔ 30,
no. 2/no. 3/no. 5

1 AIF OUT	
Pin	Function
1	24 V (yellow)
2	24 V load supply (grey)
3	0 V (green)
4	CAN-HIGH (white)
5	CAN-LOW (brown)
PE	Screen

2 AIF IN	
Pin	Function
1	24 V (yellow)
2	24 V load supply (grey)
3	0 V (green)
4	CAN-HIGH (white)
5	CAN-LOW (brown)
PE	Screen

3 Proportional directional control valve	
Pin	Function
1	+24 V
2	0 V
3	0 V
4	Setpoint value
5	GND
6	Unused
7	+24 V
PE	Screen

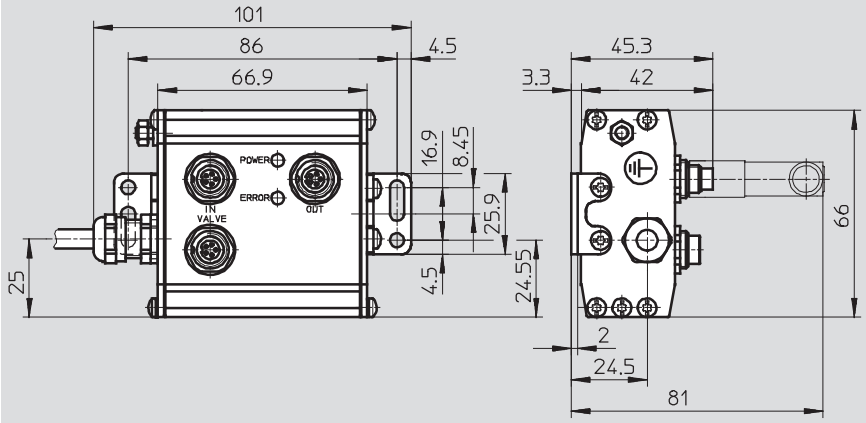
4 Displacement encoder POT	
Pin	Function
1	+10 V (green)
2	Signal (white)
3	GND (brown)
PE	PE (yellow)

4 Displacement encoder LWG	
Pin	Function
1	+10 V (green)
2	Signal (white)
3	GND (brown)
PE	PE (yellow)

4 Displacement encoder MTS	
Pin	Function
1	Can LOW (white)
2	Can HIGH (yellow)
3	Unused
4	Unused
5	+24 V (green)
6	0 V (brown)
PE	Screen

Dimensions Download CAD data ➔ **www.festo.com**

SPC-AIF-POT/-LWG/-MTS



1 Mounting set
2 Connecting cable

Ordering data

		Part No.	Type
Axis interface	For analogue displacement encoder	**170 228**	**SPC-AIF-POT**
		527 496	**SPC-AIF-POT-LWG**
	For digital displacement encoder	**170 231**	**SPC-AIF-MTS**
Accessories	Terminating resistor for AIF string	**175 403**	**KABS-M9-R100**[1)]
	Mounting set for vertical fitting	**540 309**	**SPC-HBW-SET**

1) One contained in SPC200/POX

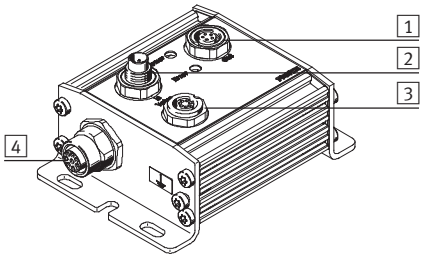
Axis interface
SPC-AIF-INC

Function
Connection of the proportional valve and the displacement encoder of a pneumatic axis to the SPC200.

Routing of the axis connection to the second axis interface or to a CP module.

General technical data			
			SPC-AIF-INC
Current consumption	Axis interface	[mA]	60
	Prop. directional control valve, max.	[A]	1.1
Electrical connections	AIF IN		5-pin M9, male
	AIF OUT		5-pin M9, female
	Prop. directional control valve		7-pin M9, male
	Displacement encoder		8-pin M12, female
CE marking symbol (see conformity declaration)			As per EU EMC directive
Ambient conditions	Temperature range	[°C]	0 ... +50
	Protection class to IEC 60529		IP65
Weight		[g]	240

Pin allocation



Connecting cable ➔ 30,
no. 2/no. 3/no. 5

1 AIF OUT	
Pin	Function
1	24 V (yellow)
2	24 V load supply (grey)
3	0 V (green)
4	CAN-HIGH (white)
5	CAN-LOW (brown)
PE	Screen

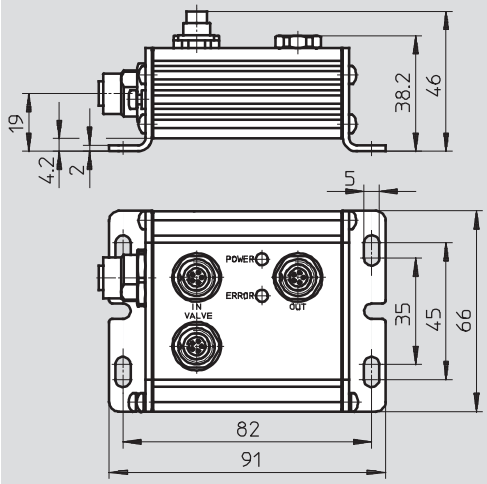
2 AIF IN	
Pin	Function
1	24 V (yellow)
2	24 V load supply (grey)
3	0 V (green)
4	CAN-HIGH (white)
5	CAN-LOW (brown)
PE	Screen

3 Proportional directional control valve	
Pin	Function
1	+24 V
2	0 V
3	0 V
4	Setpoint value
5	GND
6	Unused
7	+24 V
PE	Screen

4 Displacement encoder INC	
Pin	Function
1	5 V
2	GND
3	sin+
4	sin–
5	cos–
6	cos+
7	Screen
8	–

Dimensions Download CAD data ➔ **www.festo.com**

SPC-AIF-INC



Ordering data

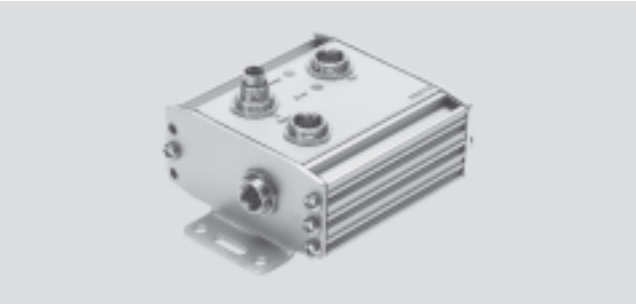
		Part No.	Type
Axis interface	For digital displacement encoder	**537 320**	**SPC-AIF-INC**
Accessories	Terminating resistor for AIF string	**175 403**	**KABS-M9-R100**[1)]

1) One contained in SPC200/POX

Axis controllers SPC200

Technical data

Axis interface
SPC-AIF-MTS-2



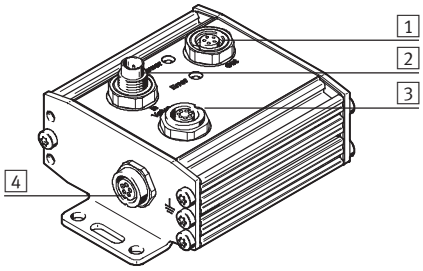
Function

Connection of the proportional valve and the displacement encoder of a pneumatic axis to the SPC200.

Routing of the axis connection to the second axis interface or to a CP module.

General technical data			
			SPC-AIF-MTS-2
Current consumption	Axis interface	[mA]	200
	Prop. directional control valve, max.	[A]	1.1
Electrical connections	AIF IN		5-pin M9, male
	AIF OUT		5-pin M9, female
	Prop. directional control valve		7-pin M9, male
	Displacement encoder		5-pin M9, female
CE marking symbol (see conformity declaration)			As per EU EMC directive
Ambient conditions	Temperature range	[°C]	0 ... +50
	Protection class to IEC 60529		IP65
Weight		[g]	300

Pin allocation



Connecting cable ➔ 30,
no. 2/no. 3/no. 5

1 AIF OUT	
Pin	Function
1	24 V (yellow)
2	24 V load supply (grey)
3	0 V (green)
4	CAN-HIGH (white)
5	CAN-LOW (brown)
PE	Screen

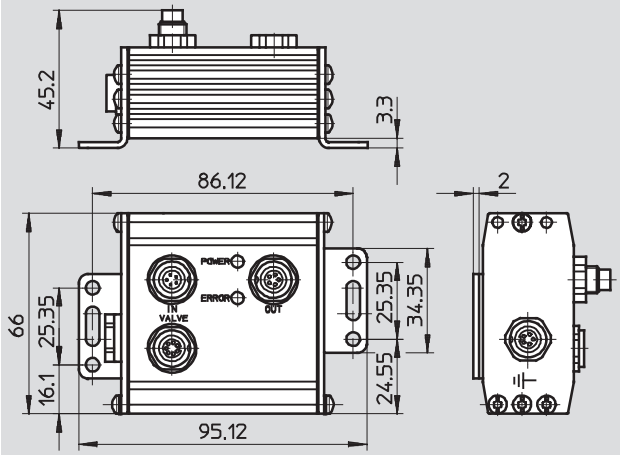
2 AIF IN	
Pin	Function
1	24 V (yellow)
2	24 V load supply (grey)
3	0 V (green)
4	CAN-HIGH (white)
5	CAN-LOW (brown)
PE	Screen

3 Proportional directional control valve	
Pin	Function
1	+24 V
2	0 V
3	0 V
4	Setpoint value
5	GND
6	Unused
7	+24 V
PE	Screen

4 Displacement encoder DGCI	
Pin	Function
1	+24 V
2	Unused
3	0 V
4	CAN-HIGH
5	CAN-LOW
PE	Screen

Dimensions Download CAD data ➔ **www.festo.com**

SPC-AIF-MTS-2



Ordering data

		Part No.	Type
Axis interface	For digital displacement encoder	**548 128**	**SPC-AIF-MTS-2**
Accessories	Terminating resistor for AIF string	**175 403**	**KABS-M9-R100**[1)]

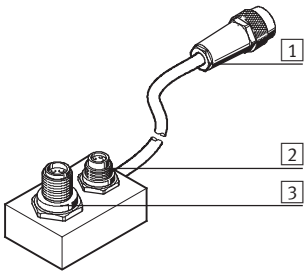
1) One contained in SPC200/POX

Power supply module
SPC-AIF-SUP-24V

Function
Additional power supply for the load voltage at the axis interface string, for cable lengths over 16 m.

General technical data			
			SPC-AIF-SUP-24V
Electrical connections	AIF IN		5-pin M9, male
	AIF OUT		5-pin M9, female
	Cable length	[m]	0.2
	For load voltage		5-pin M12, male
	Voltage	[V DC]	24 –5/+25%
	Current	[A]	3
Protection against polarity reversal			No
CE marking symbol (see conformity declaration)			As per EU EMC directive
Ambient conditions	Temperature range	[°C]	0 ... +50
	Protection class to DIN 60529		IP65
Weight		[g]	150

Pin allocation



Connecting cable ➔ 30,
no. 3/no. 4

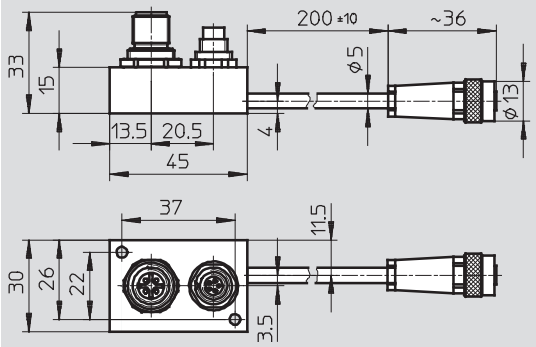
1 AIF OUT	
Pin	Function
1	24 V (yellow)
2	24 V load supply of 3
3	0 V (green)
4	CAN-HIGH (white)
5	CAN-LOW (brown)
PE	Screen

2 AIF IN	
Pin	Function
1	24 V (yellow)
2	Unused
3	0 V (green)
4	CAN-HIGH (white)
5	CAN-LOW (brown)
PE	Screen

3 Load supply	
Pin	Function
1	Unused
2	24 V load
3	0 V
4	Unused

Dimensions Download CAD data ➔ **www.festo.com**

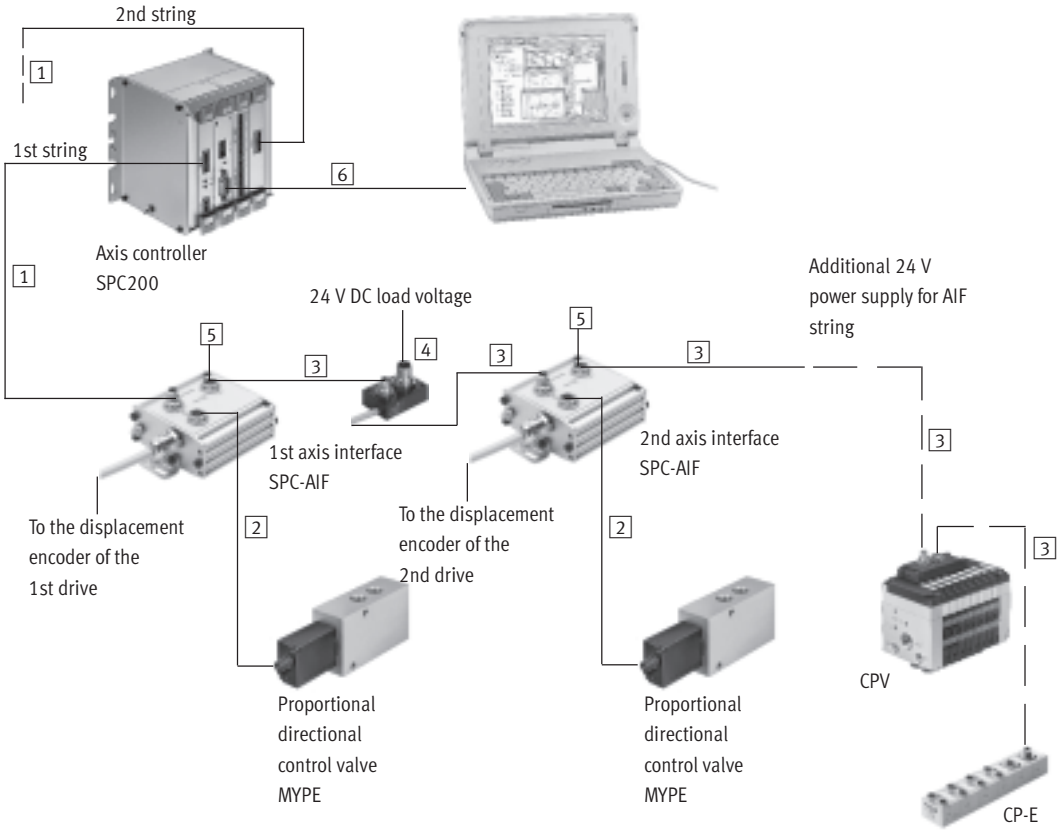
SPC-FIO-2E/2A-M8



Ordering data

		Part No.	Type
Power supply module	Additional power supply for the load voltage	**171 182**	**SPC-AIF-SUP-24V**

Cables – Pneumatic drives



No.	Brief description	Length [m]	Connection	Suitable for chain link trunking	Part No.	Type
1	Connecting cable for axis controller/interface[1)]	5	angled	–	**170 236**	**KSPC-AIF-1-WD-5**
1	Connecting cable for axis controller/interface[1)]	8	angled	–	**170 237**	**KSPC-AIF-1-WD-8**
2	Connecting cable for axis interface/valve	0.3	straight	–	**170 239**	**KMPYE-AIF-1-GS-GD-0,3**
2	Connecting cable for axis interface/valve	2	straight	–	**170 238**	**KMPYE-AIF-1-GS-GD-2**
3	Connecting cable for axis interface/function I/O[1)]	0,25	angled	■	**540 327**	**KVI-CP-3-WS-WD-0,25**
3	Connecting cable for axis interface/function I/O[1)]	0,5	angled	■	**540 328**	**KVI-CP-3-WS-WD-0,5**
3	Connecting cable for axis interface/function I/O[1)]	2	angled	■	**540 329**	**KVI-CP-3-WS-WD-2**
3	Connecting cable for axis interface/function I/O[1)]	5	angled	■	**540 330**	**KVI-CP-3-WS-WD-5**
3	Connecting cable for axis interface/function I/O[1)]	8	angled	■	**540 331**	**KVI-CP-3-WS-WD-8**
3	Connecting cable for axis interface/function I/O[1)]	2	straight	■	**540 332**	**KVI-CP-3-GS-GD-2**
3	Connecting cable for axis interface/function I/O[1)]	5	straight	■	**540 333**	**KVI-CP-3-GS-GD-5**
3	Connecting cable for axis interface/function I/O[1)]	8	straight	■	**540 334**	**KVI-CP-3-GS-GD-8**
4	Additional 24 V power supply for AIF string[2)]	–	straight	–	**171 182**	**SPC-AIF-SUP-24 V**
5	Terminating resistor for AIF string[3)]	–	straight	–	**175 403**	**KABS-M9-R100**
6	Programming cable	3	straight	–	**151 915**	**KDI-PPA-3-BU9**

1) The total length of the lines must not exceed 30 m
2) Recommended where the total length of connecting cable is over 16 m
3) Must be connected at the last axis interface in the chain
(Contained in the controller package SPC200/P0X)