

Motor controller SFC-DC

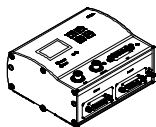


FESTO

Brief overview

SFC-DC-...-IO
SFC-DC-...-PB
SFC-DC-...-CO
SFC-DC-...-DN

– English



8081484
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[8081486]

Translation of the original instructions

Documentation on the product



For all available product documentation

→ www.festo.com/pk

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English 3

1 User instructions

The motor controller type SFC-DC-... serves as a position controller and position servo control for the electric mini-slide type SLTE and the grippers HGPLE, HGPPE (depends on firmware status, see manual).

The higher-order PLC/IPC is connected via the controller interface:

- Type SFC-DC-...-IO: digital I/O modules
- Type SFC-DC-...-PB: PROFIBUS-DP
- Type SFC-DC-...-CO: CANopen
- Type SFC-DC-...-DN: DeviceNet

Commissioning and parameterisation use:

- the FCT software package and the SFC-DC plugin via the RS232 interface or
- for type SFC-DC-...-H2-... optionally with the control panel (display and four operating buttons).



Note

This brief overview is part of the operator package P.BP-SFC-DC. It serves only as initial information and does **not** replace the complete documentation, which is contained as a PDF file on the CD ROM supplied (see table).

- It is essential that you observe the information and the safety instructions in the complete manual for the Single Field Controller.
- Please consult your local Festo Service or write to the following e-mail address if you have any technical problems: service_international@festo.com

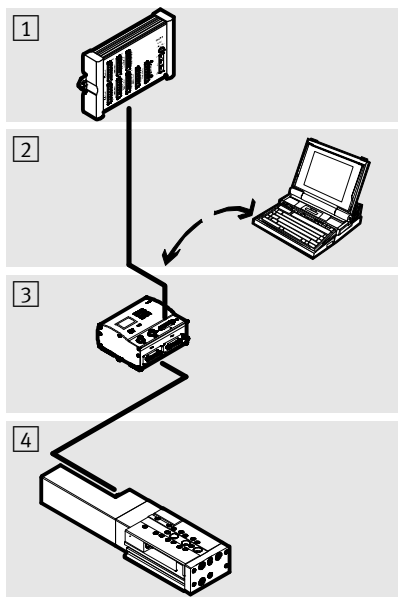
Contents of the CD ROM	Language	File name ¹⁾	
Manuals for the Single Field Controller type SFC-DC-...-IO – Installation and commissioning – Control interface (IO) – etc.	German	540417	d1
	English	540418	g1
	Spanish	540419	e1
	French	540420	f1
	Italian	540421	i1
	Swedish	540422	s1
Manuals for the Single Field Controller type SFC-DC-...-PB – Installation and commissioning – PROFIBUS-DP control interface – etc.	German	540411	d1
	English	540412	g1
	Spanish	540413	e1
	French	540414	f1
	Italian	540415	i1
	Swedish	540416	s1
Manuals for the Single Field Controller type SFC-DC-...-CO – Installation and commissioning – CANopen control interface – etc.	German	540423	d1
	English	540424	g1
	Spanish	540425	e1
	French	540426	f1
	Italian	540427	i1
	Swedish	540428	s1
Manuals for the Single Field Controller type SFC-DC-...-DN – Installation and commissioning – DeviceNet control interface – etc.	German	555879	d1
	English	555880	g1
	Spanish	555881	e1
	French	555882	f1
	Italian	555883	i1
	Swedish	555884	s1
¹⁾ = <part number> + <language code>. Also available in the paper version under this part number.			



Further information can be found:

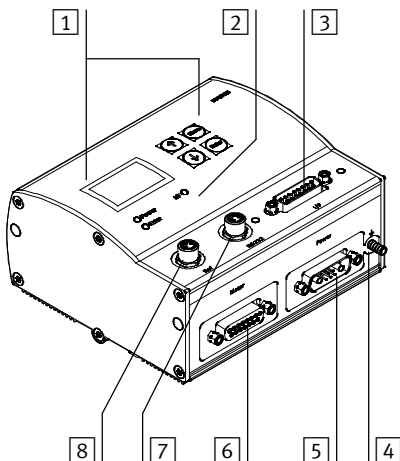
- in the help system of the Festo Configuration Tool (FCT) configuration software
- in the operating instructions supplied with the relevant component.

- 1 Higher-order controller
- 2 Software level: Festo Configuration Tool
- 3 Controller level: SFC-DC
- 4 Motor drive level: SLTE, HGPLE, HGPPE



2 Display and connecting components

- 1 Control panel (only type SFC-DC-...-H2-...)
- 2 Status displays (LEDs)
- 3 Controller interface (e.g. type ...-IO)
- 4 Earth terminal
- 5 Power supply
- 6 SLTE, HGPLE, HGPPE
- 7 RS232 interface
- 8 Reference switch



Control panel buttons (only type SFC-DC-...-H2-...)

Button	Function
	MENU ESC EMERG.STOP
	OK SAVE START/STOP
	← →
	EDIT
	Status display → Main menu Reject entry or return to menu level Abort current positioning procedure
	Confirms the selection or entry Saves parameter settings permanently Starts/stops the Demo Mode
	Previous/next menu command or travel manually (teaching)
	Increases/reduces parameter value



MENU
ESC
EMERG.STOP

Status display → Main menu
Reject entry or return to menu level
Abort current positioning procedure



OK
SAVE
START/STOP

Confirms the selection or entry
Saves parameter settings permanently
Starts/stops the Demo Mode



← →

Previous/next menu command or travel manually (teaching)



EDIT

Increases/reduces parameter value

Connection on the SFC-DC-...		Description	
3	Controller interface	– Sub-D 15-pin – Plugs	SFC-DC-...-IO: I/O interface for connecting to any PLC controller
		– Sub-D 9-pin – Socket	SFC-DC-...-PB: PROFIBUS-DP interface
		– Sub-D 9-pin – Plugs	SFC-DC-...-CO: CANopen interface
		– Sub-D 9-pin – Plugs	SFC-DC-...-DN: DeviceNet interface
4	Earth terminal	– M4 stud bolt	Connection for functional earth (optionally via power supply cable)
5	Power supply	– DSub-7W2 – Plugs	Operating voltage connection with high-current contacts
6	SLTE, HGPLE, HGPPE (motor)	– Sub-D 15-pin – Socket	Controlling the motor with encoder signals
7	Serial interface	– M8, 4-pin – Socket	RS-232 interface for parameterizing, commissioning and diagnosing
8	Reference switch	– M8, 3-pin – Socket	Sensor input for reference switch

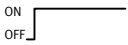

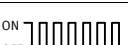
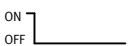

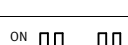
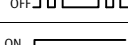
Power LED	Status	
Voltage supply	lights up green	Logic and load voltage applied.
	flashes green	Logic voltage is applied. Logic voltage is not applied.
	off	Logic voltage is not applied.











Error LED	Status	
Error display	lights up red	Error
	flashes red	Warning
	off	No internal error registered or load voltage missing.

The LED I/F depends on the type of the SFC-DC:

I/F LED	Status with type SFC-DC-...-IO	
Positioning status (two-colour LED)	lights up green	Ready for operation, is enabled
	green/red	Ready for operation, is not enabled
	off	Positioning mode or error/warning

I/F LED	Status with type SFC-DC-...-PB	
Green: Positioning status	lights up green	MC (motion complete)
	off	No MC or error/warning
Red: Bus status	off	Data exchange active
	flashes quickly	Address not parameterized
	flashes slowly	Wait for connection

I/F LED	Status with type SFC-DC-...-CO	
Green: State machine	ON OFF 	CAN status "operational" (on)
	ON OFF 	CAN status "stopped" (single flash)
	ON OFF 	CAN status "pre-operational" (blinking)
Red: Bus connection	ON OFF 	Connection error free (off)
	ON OFF 	CAN warning limit reached (single flash)
	ON OFF 	CAN node guarding error (double flash)
	ON OFF 	Bus parameter not parameterised or external CAN supply missing (on)

I/F LED	Status with type SFC-DC-...-DN	
Green: “Network” bus status	ON  OFF 	“Operational” state (on)
	ON  OFF 	“Device Standby” status (blinking)
Red: “Network” bus status	ON  OFF 	No bus connection “No Power/Bus-Off” (off)
	ON  OFF 	Warning “Minor fault” (blinking)
	ON  OFF 	Fault “Unrecoverable fault” (on)

3 Notes on fitting and installation



Warning

Before carrying out assembly, installation and maintenance work, always switch off the voltage supplies.



Warning

If an axis is fitted in a sloping or vertical position, the work load may slide down.

- Check whether external safety measures are necessary (e.g. toothed latches or moveable bolts). You can then avoid the work load sliding down if there is a sudden power failure.

The tolerances for the power supplies must be observed directly at the connection:

Power supply	Value
Load supply ([4] , pins A1, A2) ¹⁾ – Nominal current / peak current – Internal fuse	24 VDC \pm 10% 3 A \pm 30% / 5 A \pm 30% 7 A very quick-acting
Logic supply ([4] , pins 1, 2) ¹⁾ – Nominal current / peak current – Internal fuse	24 VDC \pm 10% 0.1 A \pm 30% / 0.8 A \pm 30% 2 A slow blowing ²⁾
Only with SFC-DC-...-IO: I/O supply ([3] , pins 1, 8) – Nominal current / peak current	24 VDC \pm 10% 0.05 A / 2 A
¹⁾ Connect grounds for equal reference potential! ²⁾ Older versions: 1 A, see brief description provided with the SFC-DC.	



Warning

Use only power units which guarantee reliable electrical isolation of the operating voltage in accordance with IEC/DIN EN 60204-1. Observe also the general requirements for PELV power circuits in accordance with IEC/DIN EN 60204-1.

- Use a regulated power supply.
- Seal unused connections with the protective caps supplied.
- To guarantee correct functioning and protection class:

Line	Accessories type	Length [m]
Voltage supply	KPWR-MC-1-SUB-15HC-...	2,5 / 5 / 10
Motor	KMTR-DC-SUB-15-M12-...	2,5 / 5 / 10
Reference switch	e.g. SMT-10 / KM8-M8-...	
Serial interface	KDI-MC-M8-SUB-9-...	2,5
Control (SFC-DC-...-IO)	KES-MC-1-SUB-15-...	2,5 / 5 / 10

Field bus plug/-adapter	Accessories type	Prot.class
for SFC-DC-...-PB	FBS-SUB-9-GS-DP-B	IP54
	FBA-2-M12-5POL-RK	IP54
	FBS-SUB-9-WS-PB-K	IP20
for SFC-DC-...-CO	FBS-SUB-9-BU-2x5POL-B8	IP54
	FBA-2-M12-5POL	IP54
for SFC-DC-...-DN	FBA-1-SL-5POL	IP20
	FBS-SUB-9-WS-CO-K	IP20

4 Notes on commissioning and operation



Warning

Electric axes can move suddenly with high force and at high speed. Collisions can lead to serious injuries and to damage to components.

- Make sure that nobody can gain access to the operating range of the axes or other connected actuators and that no items lie in the travel range while the system is still connected to energy sources.



Warning

Danger of injury.

Errors in parameterization can cause injuries and damage to property. In the following cases, homing is absolutely essential in order that the reference coordinates and the operating area can be set correctly:

- for initial commissioning
- when the referencing method is changed
- each** time the logic voltage supply is switched on.

Carry out commissioning with the Festo Configuration Tool configuration software (see FCT help system), or optionally with the control panel (only type SFC-DC-...-H2).

During commissioning, the following must be defined for example:

- Select the drive type and, if necessary, adapt the parameterization to the axis.
- Set the parameters for homing.
- Define the axis zero point and the operating area (software end positions).
- Define position records (target position, positioning mode, traversing speed, accelerations).

Carry out the following steps in order to complete commissioning:

1. Carry out homing.
2. Check the positioning behaviour of the axis, reference coordinates and operating area (test run).
3. If necessary, optimize the settings of the position records, reference coordinates and operating area.
4. Test the controller interface (device control with control panel HMI = off).

Each time the operating voltage is switched on you must:

- Carry out reference travel.