Sensor interface CASM

Sensor interface CASM

Overview

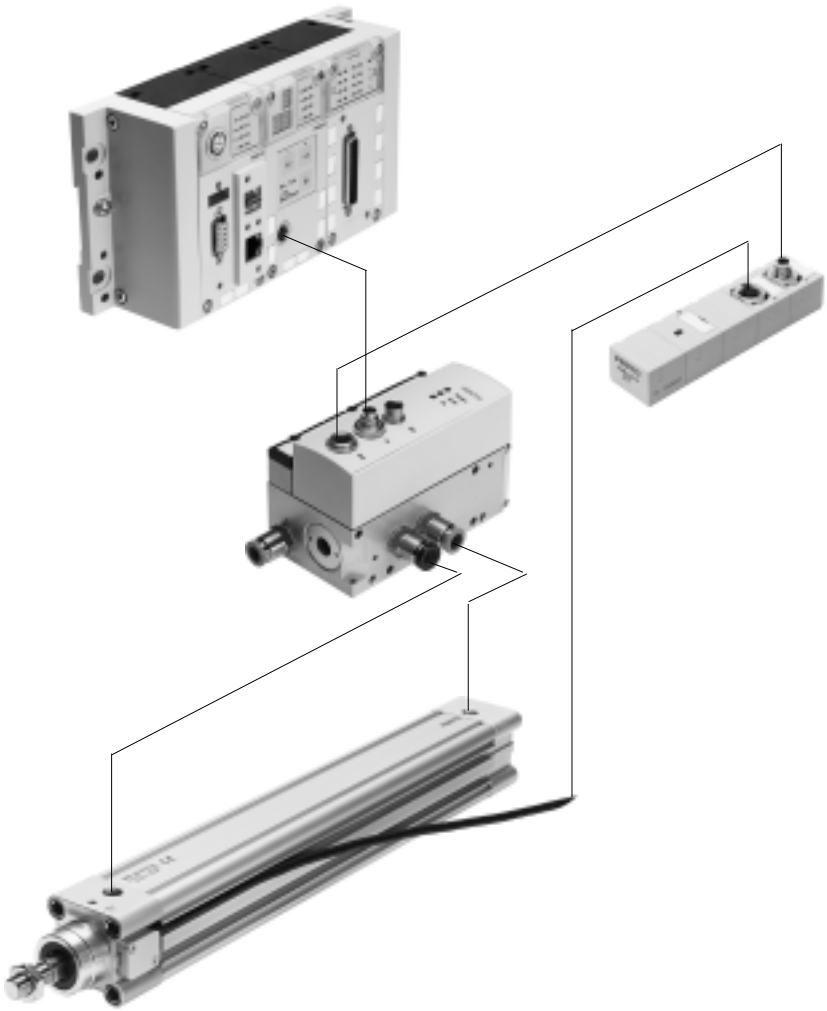
Servo-pneumatic drive technology

Positioning and Soft Stop applications as an integral component of the valve terminal CPX – the modular peripheral system for decentralised automation tasks.

The modular design means that valves, digital inputs and outputs, positioning modules and end-position controllers, as appropriate to the application, can be combined in almost any way on the CPX terminal.

Advantages:

- Pneumatics and electrics – control and positioning on one platform
- Innovative positioning technology – piston rod drives, rodless drives, rotary drives
- Actuation via fieldbus
- Remote maintenance, remote diagnostics, web server, SMS and e-mail alert are all possible via TCP/IP
- Modules can be quickly exchanged and expanded without altering the wiring



Sensor interface CASM

Key features

Axis controllers CPX-CMAX

Technical data ➔ Internet: cpx-cmax

Free choice:
Position and force control, directly actuated or selected from one of 64 configurable position sets.
If you are looking for something more:
the configurable function for switching to the next set enables simple functional sequences to be realised in the axis controller CPX-CMAX.
Everything is recognisable:
the auto-identification function identifies each station with its device data on the controller CPX-CMAX.

Also included:
The functional scope of the controller CPX-CMAX includes actuation of a brake or clamping unit via the proportional directional control valve VPWP.
Up to 7 modules (max. 7 axes) can be operated in parallel and independently of each other.
Commissioning via FCT (Festo configuration software) or via fieldbus: no programming, only configuration.

Advantages:
- Greater flexibility
- OEM friendly – commissioning also via fieldbus
- Clear installation and fast commissioning
- Cost-effective
- You program the system in your PLC environment

End-position controllers CPX-CMPX

Technical data ➔ Internet: cpx-cmpx

Fast travel between the mechanical end stops of the cylinder, stopping gently and without impact in the end position.
Fast commissioning via control panel, fieldbus or handheld unit.
Improved control of downtime.
Actuation of a brake or clamping unit via the proportional directional control valve VPWP is an integral component of the controller CMPX.

Depending on the fieldbus chosen, up to 9 end-position controllers can be actuated on the CPX terminal.
All system data can be read and written via the fieldbus, including, for example the mid positions.

Advantages:
- Greater flexibility
- OEM friendly – commissioning also via fieldbus
- Clear installation and fast commissioning
- Cost-effective
  - Up to 30% faster cycle rates
  - Significantly reduced system vibration
- Improved work ergonomics thanks to significantly reduced noise level
- The extended diagnostics help to reduce the service time of the machine

Proportional directional control valve VPWP

Technical data ➔ Internet: vpwp

The 5/3-way proportional directional control valve for applications with Soft Stop and pneumatic positioning.
Fully digitalised – with integrated pressure sensors, with new diagnostic functions.
In sizes 4, 6 and 8.
Flow rate of 350, 700 and 1,400 l/min.

With switching output for actuating a brake.
Coloured supply ports.
Pre-assembled cables guarantee faultless and fast connection with the controllers CPX-CMPX and CPX-CMAX.

Advantages:
- Clear installation and fast commissioning
- Reduction of system downtimes thanks to the new diagnostic options
- With switching output for actuating a brake/clamping unit

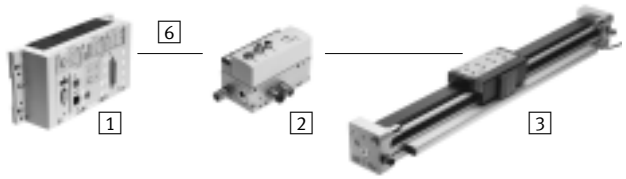
Sensor interface CASM

Drive options

FESTO

System with linear drive DDLI, DGCI

Technical data ➔ Internet: ddli or dgci



1 Controller module CPX-CMPX or CPX-CMAX
2 Proportional directional control valve VPWP
3 Linear drive DDLI, DGCI with displacement encoder
6 Connecting cable KVI-CP-3-...

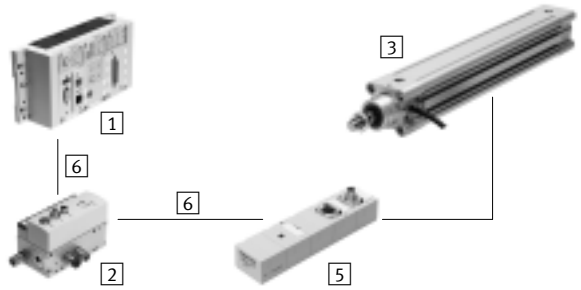
- Pneumatic rodless linear drive with displacement encoder, with or without recirculating ball bearing guide
- Displacement encoder with absolute and contactless measurement
- Diameters:
  - DGCI: 18 ... 63 mm
  - DDLI: 25 ... 63 mm
- Stroke: 100 ... 2000 mm in fixed lengths
- Range of applications: Soft Stop and pneumatic positioning
- Loads from 1 ... 180 kg
- No sensor interface required

Advantages:

- Complete drive unit
- DDLI for easy connection to customer's guide system
- Excellent running characteristics
- For fast and accurate positioning down to ±0.2 mm (only with axis controller CPX-CMAX)

System with standard cylinder DNCI, DDPC

Technical data ➔ Internet: dnci



1 Controller module CPX-CMPX or CPX-CMAX
2 Proportional directional control valve VPWP
3 Standard cylinder DNCI, DDPC with displacement encoder
5 Sensor interface CASM-S-D3-R7
6 Connecting cable KVI-CP-3-...

- Standard cylinder with integrated displacement encoder, conforms to DIN ISO 6432, VDMA 24 562, NF E 49 003.1 and Uni 10 290
- Displacement encoder with contactless and incremental measuring
- Diameter: 32 ... 100 mm
- Stroke: 100 ... 750 mm
- Range of applications: Soft Stop and pneumatic positioning
- Loads from 3 ... 450 kg and a matching sensor interface CASM-S-D3-R7
- Pre-assembled cables guarantee faultless and fast electrical connection

Advantages:

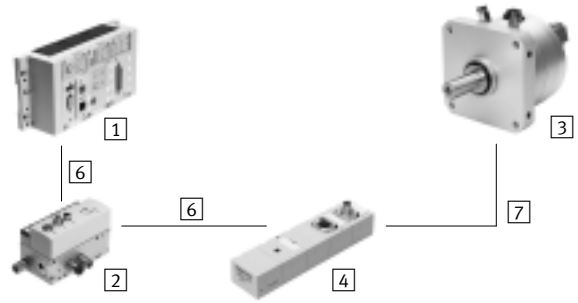
- Compact drive unit
- Can be used universally
- Also with guide unit
- For fast and accurate positioning up to ±0.5 mm (only with axis controller CPX-CMAX)

Sensor interface CASM

Drive options

System with swivel module DSMI

Technical data ➔ Internet: dsmi



1 Controller module CPX-CMPX or CPX-CMAX
2 Proportional directional control valve VPWP
3 Swivel module DSMI with displacement encoder
4 Sensor interface CASM-S-D2-R3
6 Connecting cable KVI-CP-3-...
7 Connecting cable NEBC-P1W4-K-0,3-N-M12G5

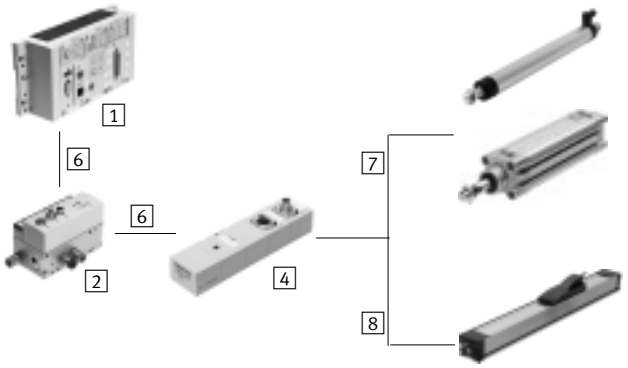
- Swivel module DSMI with integrated displacement encoder
- Identical construction as pneumatic swivel module DSM
- Absolute displacement encoder on basis of potentiometer
- Swivel range from 0 ... 270°
- Size: 25, 40, 63
- Max. torque: 5 ... 40 Nm
- Range of application of Soft Stop and pneumatic positioning: mass moments of inertia from 15 ... 6,000 kgcm^2 and the matching sensor interface CASM-S-D2-R3
- Pre-assembled cables guarantee faultless and fast connection with the proportional directional control valve VPWP

Advantages:

- Complete drive unit, compact, can be used immediately
- High angular acceleration
- With adjustable fixed stops
- For fast and accurate positioning down to ±0.2° (only with axis controller CPX-CMAX)

System with potentiometer

Technical data ➔ 7



1 Controller module CPX-CMPX or CPX-CMAX
2 Proportional directional control valve VPWP
4 Sensor interface CASM-S-D2-R3
6 Connecting cable KVI-CP-3-...
7 Connecting cable NEBC-P1W4-K-0,3-N-M12G5
8 Connecting cable NEBC-A1W3-K-0,4-N-M12G5

- Attachable potentiometers with absolute measurement, with high degree of protection
- With connecting rod or moment compensator
- Measuring range: Connecting rod: 100 ... 750 mm Moment compensator: 225 ... 2000 mm
- Pre-assembled cables guarantee faultless and fast connection with the sensor interface CASM
- Range of applications: Soft Stop and pneumatic positioning with cylinder ∅ 25 ... 80 mm, e.g. DNC or DSBC
- Loads from 1 ... 300 kg

Advantages:

- Easy installation and fast commissioning
- Cost-effective
- Can also be used in harsh ambient conditions
- Variety of drives: CPX-CMPX and CPX-CMAX also support cylinders with external displacement encoder

Sensor interface CASM

Drive options

System components for Soft Stop systems with end-position controller CPX-CMPX

3		Linear drive	Standard cylinder	Swivel module	Displacement encoder		➔ Page/ Internet
		DDLI/DGCI	DNCI/DDPC	DSMI	MLO-LWG/-TLF	MME-MTS	
1	End-position controller CPX-CMPX	■	■	■	■	■	cpx-cmpx
2	Proportional directional control valve VPWP	■	■	■	■	■	vpwp
4	Sensor interface CASM-S-D2-R3	–	–	■	■	–	7
5	Sensor interface CASM-S-D3-R7	–	■	–	–	–	7
6	Connecting cable KVI-CP-3-...	■	■	■	■	■	10
7	Connecting cable NEBC-P1W4-...	–	–	■	■ / –	–	10
8	Connecting cable NEBC-A1W3-...	–	–	–	– / ■	–	10
9	Connecting cable NEBP-M16W6-...	–	–	–	–	■	nebp

System components for pneumatic positioning systems with axis controller CPX-CMAX

3		Linear drive	Standard cylinder	Swivel module	Displacement encoder		➔ Page/ Internet
		DDLI/DGCI	DNCI/DDPC	DSMI	MLO-LWG/-TLF	MME-MTS	
1	Axis controller CPX-CMAX	■	■	■	■	■	cpx-cmax
2	Proportional directional control valve VPWP	■	■	■	■	■	vpwp
4	Sensor interface CASM-S-D2-R3	–	–	■	■	–	7
5	Sensor interface CASM-S-D3-R7	–	■	–	–	–	7
6	Connecting cable KVI-CP-3-...	■	■	■	■	■	10
7	Connecting cable NEBC-P1W4-...	–	–	■	■ / –	–	10
8	Connecting cable NEBC-A1W3-...	–	–	–	– / ■	–	10
9	Connecting cable NEBP-M16W6-...	–	–	–	–	■	nebp

Sensor interface CASM

Type codes and peripherals overview

Type codes

CASM – S – D2 – R3

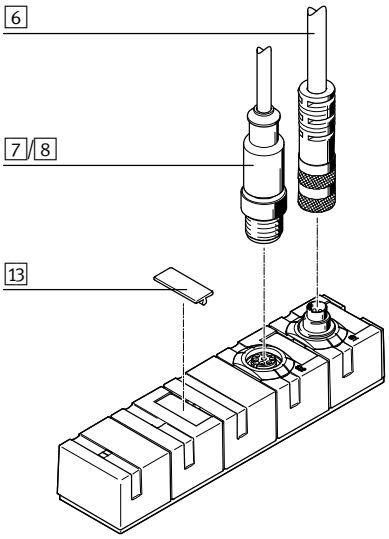
Type	
CASM	Sensor interface

Function	
S	Sensor interface

Displacement encoder	
D2	Analogue
D3	Incremental

Electrical connection	
R3	Individual plug M12
R7	Round plug M12, 8-pin

Peripherals overview



Accessories

	Type	Brief description	➔ Page/Internet
6	Connecting cable KVI-CP-3	Connection between proportional directional control valve VPWP and sensor interface CASM	10
7/8	Connecting cable NEBC	Connection between sensor interface CASM and displacement encoder	10
13	Inscription label IBS	For labelling the sensor interface	10

Sensor interface CASM

Technical data

The sensor interface CASM is used to actuate pneumatic drives with analogue/incremental displacement encoder at a position controller CPX-CMAX or CPX-CMPX.
It establishes the connection between the displacement encoder and the proportional directional control valve VPWP.

Note

The sensor interface CASM-S-D3-R7 is specially tailored to the encoder of the standard cylinder DNCI. It cannot be used with other encoders.

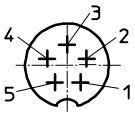
General technical data			
		CASM-S-D2-R3	CASM-S-D3-R7
For displacement encoder		Analogue, potentiometer	Digital, incremental
Input voltage	[V DC]	0 ... 5	–
Nominal operating voltage	[V DC]	24	
Residual ripple	[Vss]	4	
Perm. voltage fluctuations	[%]	±25	
Current consumption at nominal voltage	[mA]	40 ... 50	
Power supply requirement		PELV (Protected Extra-Low Voltage)	
Power failure bridging	[ms]	10	
Type of mounting		Via through-hole	
Mounting position		Any	
Diagnostics			
LED indicators	Green	Ready status	
	Red	Error	
Device-specific diagnostics via control interface		– Undervoltage – Wire break – Communications errors	
Control interface			
Data		CAN bus with Festo protocol	
		Digital	
		Without terminating resistor	
Electrical connection		5-pin	
		M9	
		Plug	
Measuring system			
Electrical connection		5-pin	8-pin
		Socket	
		M12	
Materials			
Housing		Reinforced polybutylene terephthalate	
Product weight	[g]	128	

Operating and environmental conditions		
Ambient temperature	[°C]	0 ... 55
Storage temperature	[°C]	–20 ... +70
Relative air humidity	[%]	0 ... 95, non-condensing
Protection class to EN 60529		IP67
CE mark (see declaration of conformity)		To EU EMC Directive
Corrosion resistance class CRC[1)]		1
Vibration resistance to DIN/IEC 68, Part 2-6		Tested to severity level 2
Continuous shock resistance to DIN/IEC 68, Part 2-27		Tested to severity level 2

1) Corrosion resistance class 1 according to Festo standard 940 070
Components subject to low corrosion stress. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Pin allocation

Plug S1

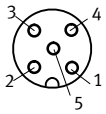


Pin	Function
1	+24 V nominal operating voltage
2	–
3	0 V
4	CAN_H
5	CAN_L
Housing	Cable screening

Plug S2

CASM-S-D2-R3

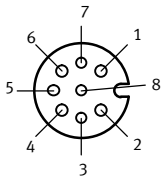
For analogue, absolute displacement encoder



Pin	Function
1	Measuring system housing
2	–
3	Analogue GND
4	Reference voltage
5	Analogue input
Housing	Earth terminal (FE)

CASM-S-D3-R7

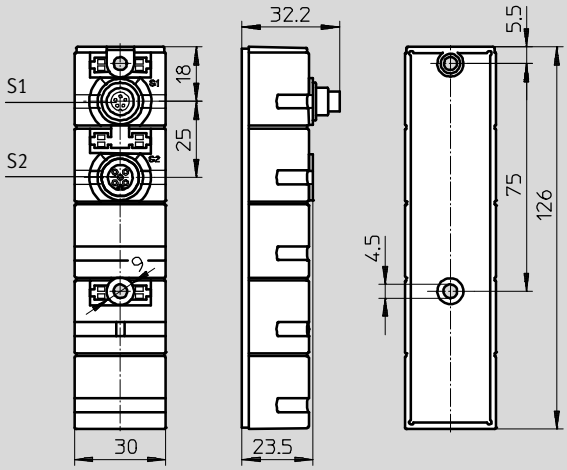
For digital, incremental displacement encoder



Pin	Function
1	+ Vb sensor
2	0 V
3	Signal sine +
4	Signal sine –
5	Signal cosine –
6	Signal cosine +
7	Screen
8	–
Housing	Earth terminal (FE)

Dimensions

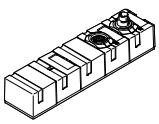
Download CAD data ➔ **www.festo.com**

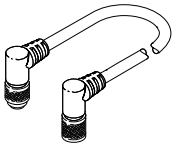
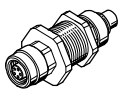
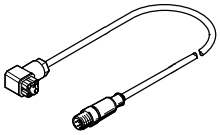
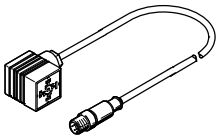


S1 Green LED for ready status

S2 Red LED for fault

Ordering data

	Brief description	Part No.	Type
	For analogue, absolute displacement encoder	**549292**	**CASM-S-D2-R3**
	For digital, incremental displacement encoder	**558387**	**CASM-S-D3-R7**

Ordering data – Connecting cables				
	Brief description	Cable length [m]	Part No.	Type
Connection between proportional directional control valve VPWP and sensor interface CASM				
	Angled plug and angled socket	0.25	**540327**	**KVI-CP-3-WS-WD-0,25**
		0.5	**540328**	**KVI-CP-3-WS-WD-0,5**
		2	**540329**	**KVI-CP-3-WS-WD-2**
		5	**540330**	**KVI-CP-3-WS-WD-5**
		8	**540331**	**KVI-CP-3-WS-WD-8**
	Straight plug and straight socket	2	**540332**	**KVI-CP-3-GS-GD-2**
		5	**540333**	**KVI-CP-3-GS-GD-5**
		8	**540334**	**KVI-CP-3-GS-GD-8**
	Connector for control cabinet through-feed	–	**543252**	**KVI-CP-3-SSD**
Connection between sensor interface CASM and displacement encoder				
	For swivel module DSMI and potentiometer LWG	0.3	**549293**	**NEBC-P1W4-K-0.3-N-M12G5**
	Potentiometer TLF	0.3	**549294**	**NEBC-A1W3-K-0.3-N-M12G5**

Ordering data – Inscription labels				
	Brief description	Quantity	Part No.	Type
	Inscription labels 8x20, in frames	20	**539388**	**IBS-8X20**