

Sensor interface CASM

FESTO



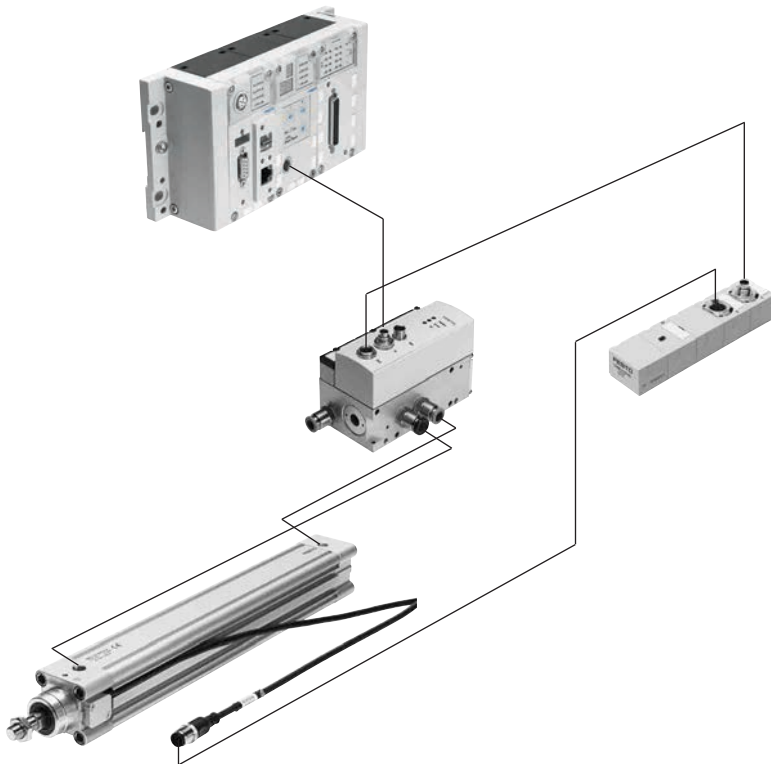
Overview

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 alerts are all possible via TCP/IP
- Modules can be quickly exchanged and expanded without altering the wiring



Key features

Axis controller CPX-CMAX



Free choice:
Position and force control, directly actuated or selected from one of 128 configurable position sets.
If you are looking for something more: The configurable record sequencing function enables simple functional sequences to be realised with the axis controller CPX-CMAX.
Everything is recognisable:
The auto-identification function identifies each participant with its device data on the controller CPX-CMAX.

Also included:
Actuation of a brake or clamping unit via the proportional directional control valve VPWP is also part of the scope of performance of the controller CPX-CMAX.
Up to 8 modules (max. 8 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
- Easy installation and fast commissioning
- Cost-effective
- You program the system in your PLC environment

End-position controller CPX-CMPX

Data sheets → 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 downtime control.
Actuation of a brake or clamping unit via the proportional directional control valve VPWP is an integral part 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
- Easy installation and fast commissioning
- Cost-effective
 - Up to 30% faster cycle rates
 - Significantly reduced system vibration
- Improved working environment thanks to significantly reduced noise level
- The extended diagnostics help to reduce the service time of the machine

Proportional directional control valve VPWP

Data sheets → 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, 8 and 10.
Flow rates of 350, 700, 1400 and 2000 l/min.

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

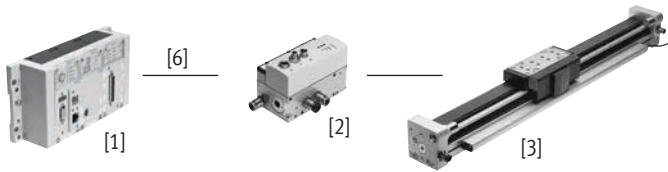
Advantages:

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

Drive options

System with linear drive DDLI, DGCI

Data sheets → Internet: [ddli](#) or [dgc](#)



- [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-...

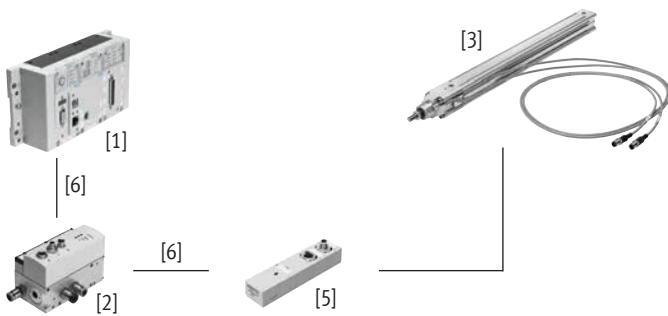
- Pneumatic rodless linear drive with displacement encoder, with or without recirculating ball bearing guide
- Displacement encoder with absolute and contactless measurement
- Diameter:
 - With DGCI: 18 ... 63 mm
 - With DDLI: 25 ... 63 mm
- Stroke: 100 ... 2000 mm in fixed lengths
- Range of applications: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

Advantages:

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

System with standards-based cylinder DNCI, DDPC

Data sheets → Internet: [dnci](#)



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

- Standards-based 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 the corresponding sensor interface CASM-S-D3-R7
- Pre-assembled cables guarantee faultless and fast electrical connection

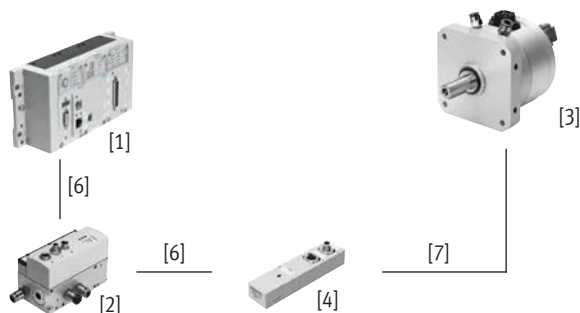
Advantages:

- 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)

Drive options

System with semi-rotary drive DSMI

Data sheets → Internet: dsmi



- [1] Controller module CPX-CMPX or CPX-CMAX
- [2] Proportional directional control valve VPWP
- [3] Semi-rotary drive 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

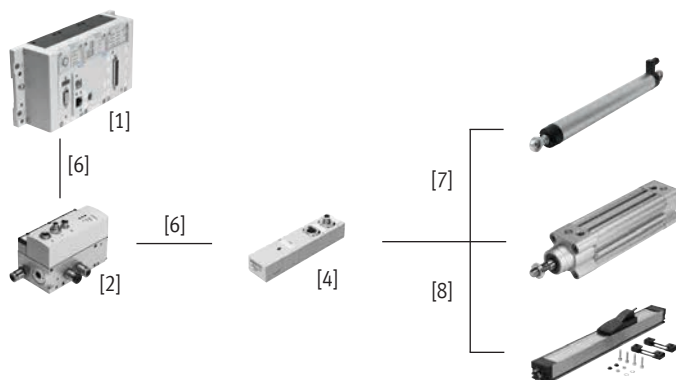
- Semi-rotary drive DSMI with integrated displacement encoder
- Identical design to pneumatic semi-rotary drive DSM
- Absolute displacement encoder based on a potentiometer
- Swivel range from 0 ... 270°
- Size: 25, 40, 63
- Max. torque: 5 ... 40 Nm
- Range of applications: Soft Stop and pneumatic positioning
- Mass moments of inertia of 15 ... 6000 kgcm² and the corresponding sensor interface CASM-S-D2-R3
- Pre-assembled cables guarantee faultless and fast connection to 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

Data sheets → Internet: casm



- [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 diameters of 25 ... 80 mm
- 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

Drive options

| System components for Soft Stop systems with end-position controller CPX-CMPX | | | | | | | |
|---|---|--------------------------|-------------------|----------------------|---------|---------------------|----------|
| [3] | Linear drive | Standards-based cylinder | Semi-rotary drive | Displacement encoder | | → Page/ Internet | |
| | DDL/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 |
| – | Connecting cable NEBP-M16W6-... | – | – | – | – | ■ | 10 |

| System components for pneumatic positioning systems with axis controller CPX-CMAX | | | | | | | |
|---|---|--------------------------|-------------------|----------------------|---------|---------------------|----------|
| [3] | Linear drive | Standards-based cylinder | Semi-rotary drive | Displacement encoder | | → Page/ Internet | |
| | DDL/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 |
| – | Connecting cable NEBP-M16W6-... | – | – | – | – | ■ | 10 |

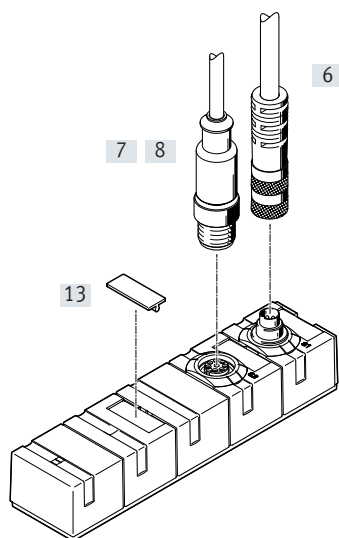
Type codes and peripherals overview

Type codes

| | |
|------|------------------|
| 001 | Series |
| CASM | Sensor interface |
| 002 | Function |
| S | Sensor interface |

| | |
|-----|--------------------------|
| 003 | Displacement encoder |
| D2 | Analogue |
| D3 | Incremental |
| 004 | Electrical connection |
| R3 | Individual connector M12 |
| R7 | Plug M12, 8-pin |


Peripherals overview

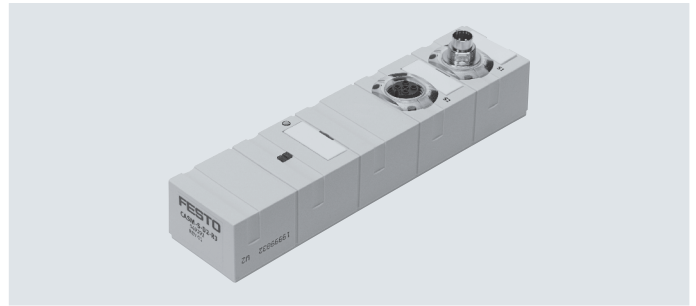


| Accessories | | | → Page/Internet |
|-------------|------------------------------|--|-----------------|
| Type | Description | | |
| [6] | Connecting cable KVI-CP-3 | Connection between proportional directional control valve VPWP and sensor interface CASM | 10 |
| [7]/[8] | Connecting cable NEBC | Connection between sensor interface CASM and displacement encoder | 10 |
| [13] | Inscription label IBS | For labelling the sensor interface | 10 |

Data sheet

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.

| | |
|---|---|
|  | <p>Note</p> <p>The sensor interface CASM-S-D3-R7 is specially designed for the encoder of the standards-based cylinder DNCI.</p> <p>It cannot be used with other encoders.</p> |
|---|---|



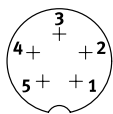
| General technical data | | CASM-S-D2-R3 | CASM-S-D3-R7 |
|--|--------|--|----------------------|
| For displacement encoder | | Analogue, potentiometer | Digital, incremental |
| Input voltage | [V DC] | 0 ... 5 | - |
| Nominal operating voltage | [V DC] | 24 | |
| Residual ripple | [Vss] | 4 | |
| Perm. voltage fluctuations | [%] | ±25 | |
| Current consumption at nominal voltage | [mA] | 40 ... 50 | |
| Power supply requirement | | PELV | |
| Mains buffering | [ms] | 10 | |
| Type of mounting | | With through-hole | |
| Mounting position | | Any | |
| Diagnostics | | | |
| LED displays | Green | Operating status | |
| | Red | Error | |
| Device-specific diagnostics via control interface | | <ul style="list-style-type: none"> • Undervoltage • Wire break • Communication errors | |
| Control interface | | | |
| Data | | CAN bus with Festo protocol | |
| | | Digital | |
| | | Without terminating resistor | |
| Electrical connection | | 5-pin | |
| | | M9 | |
| | | Plugs | |
| Measurement 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 humidity | [%] | 0 ... 95, non-condensing | |
| Degree of protection to EN 60529 | | IP67 | |
| CE marking (see declaration of conformity) | | To EU EMC Directive | |
| | | To EU RoHS Directive | |
| KC marking | | KC EMC | |
| 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 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.

Data sheet

Pin allocation

Plug S1

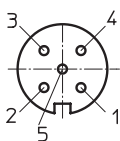


| Pin | Function |
|---------|---------------------------------|
| 1 | +24 V nominal operating voltage |
| 2 | - |
| 3 | 0 V |
| 4 | CAN_H |
| 5 | CAN_L |
| Housing | Cable shielding |

Plug S2

CASM-S-D2-R3

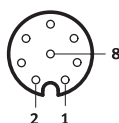
For analogue, absolute displacement encoder



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

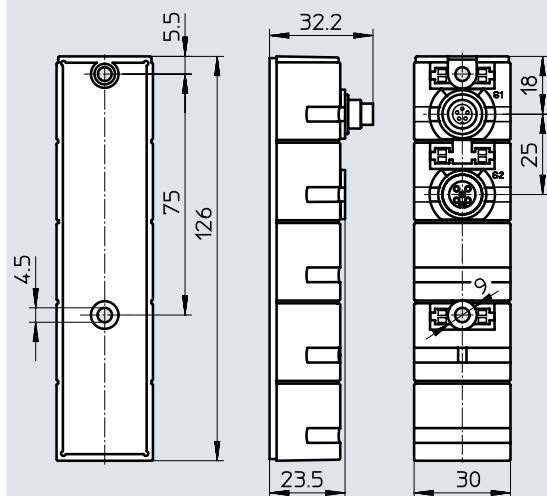
CASM-S-D3-R7

For digital, incremental displacement encoder



| Pin | Function |
|---------|---------------------|
| 1 | + Ub sensor |
| 2 | 0 V |
| 3 | Signal sine + |
| 4 | Signal sine - |
| 5 | Signal cosine - |
| 6 | Signal cosine + |
| 7 | Shielding |
| 8 | - |
| Housing | Earth terminal (FE) |

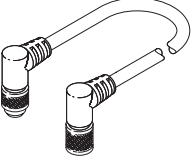

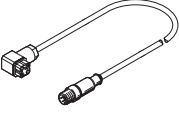
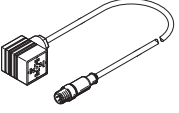
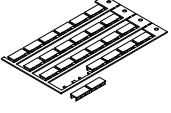
Dimensions

Download CAD data → www.festo.com

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 |

Accessories

| 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 |
| 5 | 540333 | | KVI-CP-3-GS-GD-5 | |
| 8 | 540334 | | KVI-CP-3-GS-GD-8 | |
|  | Connecting component for control cabinet through-feed | – | 543252 | KVI-CP-3-SSD |
| Connection between sensor interface CASM and displacement encoder | | | | |
|  | For semi-rotary drive 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 | No. of | Part no. | Type |
|  | Inscription labels 8x20, in frames | 20 | 539388 | IBS-8X20 |

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