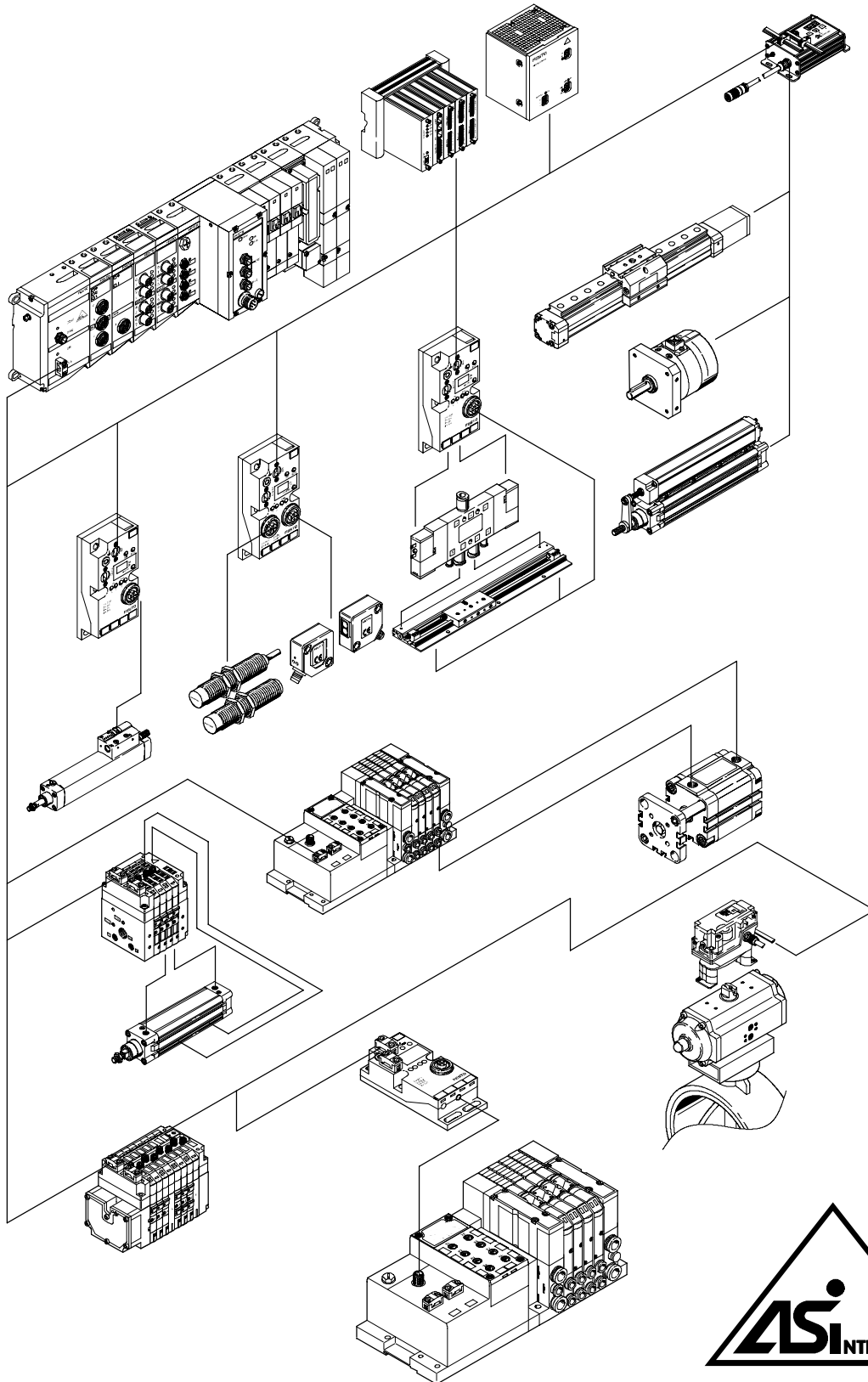


- One cable for power and data
- Polarity-safe connection technology
- Plug and work™ on the AS-interface
- Diagnosis via LEDs and AS-interface
- Connection of 1 to 8 valves
- Flexible individual valve interface
- Valve terminals with integrated inputs
- Twice the number of slaves through A/B operation

# AS-interface® components

Overview of AS-interface

FESTO



Fieldbus systems/electrical peripherals  
AS-interface components

4.9



## Basic principles and features of the bus system

### Introduction

AS-interface is a non-proprietary, open installation system with a large and growing share of the market at the lowest level of the decentralised production and process automation hierarchy. The non-proprietary and open characteristics of the system are guaranteed by the European standard EN 50 295 and the international standard IEC 62 026-2. Certificated products bear the logo of the AS-International Association.

The AS-International Association and its affiliated organisations represent the interests of all manufacturers with an interest in the AS-interface.

### Design

The AS-interface system permits the transfer of power and data using a single cable. The advanced technology used to connect stations to the yellow cable and the low connection costs mean that even stations with a small number of inputs and outputs (max. 8 inputs and 8 outputs per valve terminal with two chips) can be networked.

Reductions in installation costs of 26 – 40% have been demonstrated depending on the system type. This solution is an ideal low-cost option for connecting individual or small groups of actuators, valves and sensors to a master controller. New developments such as the parameterisable profile 7.4 or the AS-interface Safety at Work concept open the way for new areas of application.

### Basic features

Master-slave principle

- Non-proprietary
- No restrictions in terms of pipe layout and/or topology
- Data and power via a single two-wire cable
- Immune to interference
- Medium: Unscreened cable 2x 1.5 mm<sup>2</sup>
- Data and power supply for up to 8 outputs per AS-interface string
- With 31 slaves, max. 4 inputs and 4 outputs per slave
- With 62 slaves, max. 4 inputs and 3 outputs per slave (A/B operation as per specification V2.1)
- With 31 slaves, 4 analogue inputs or outputs per slave
- Profile 7.3: Analogue values (16 bits) per slave (as per specification V2.1)
- Profile 7.4: Parameterisable communication profile, e.g. 16x 16 bits per slave (as per specification V2.1)
- Modules for control cabinets (IP20) and harsh industrial environments (IP65, IP67)
- Insulation displacement technology
- 100 m cable length, can be extended to up to 500 m through the use of repeaters
- Highly effective error control
- Simple commissioning
- Electronic address selection via the bus connection

### Simple connection technology

- One cable for power and data
- Cable profile prevents polarity reversal
- Error control means there is no need for screening
- Insulation displacement connection technology guarantees Festo plug and work™

### Ideal for pneumatic applications

Local control of small groups of actuators or individual distributed actuators covering an extensive area with

- short tubing lengths
- high cycle rates
- low air consumption

AS-interface components handle installation and communication.

### A powerful system component

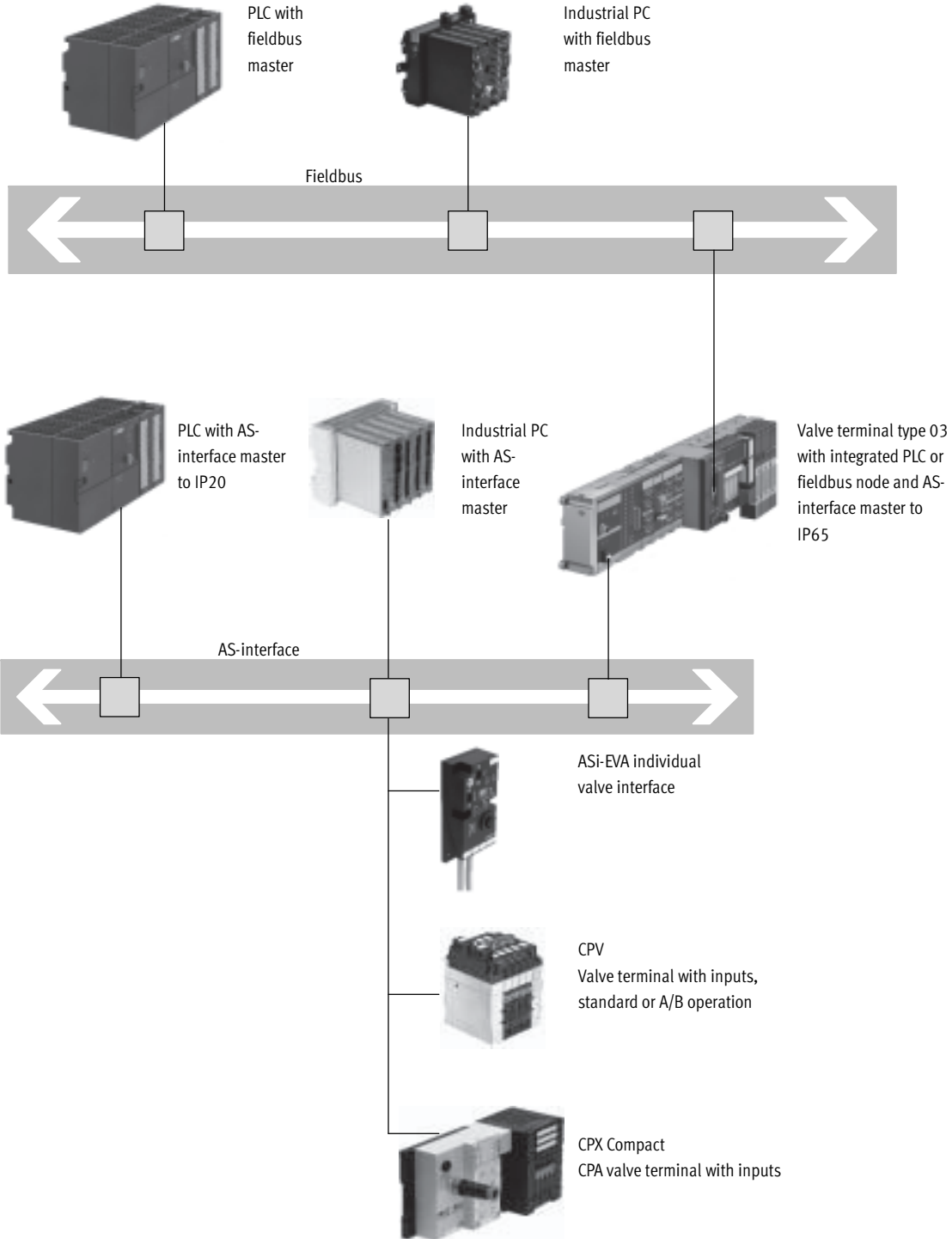
AS-interface is clearly subordinate to the fieldbuses already in use and is therefore less a competing product and more a technically necessary and economically advisable add-on.

# AS-interface® components

System overview

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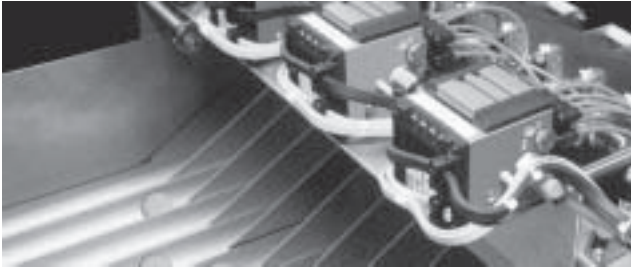
## Components



Fieldbus systems/electrical peripherals  
AS-interface components

4.9

## Typical applications



### Sorting

CPV and CPA valve terminals: Compact Performance is synonymous with high performance and low weight. Mounting close to the drives simplifies installation, saves

compressed air and increases the cycle rates.



### Conveyor technology

Individually distributed drives and sensors covering an extensive area are common features of conveyor systems. The AS-interface is particularly suited to systems of this type.

ASi-EVA individual valve interfaces support the direct connection of one or two valves and sensors of any size to the AS-interface.



### Packaging

More complex machines frequently require decentralised installation concepts within the system in order to achieve an efficient electrical installation.

The AS-interface controls complex modules and upstream functions such as packaging in this instance.



### Assembly

Assembly, moving, handling: this often means rapid-fire sequences, tight installation spaces and the need for reduced weight.

Compact valve terminals and matching drives provide the optimum solution here.



### Water treatment

Automation and decentralised intelligence are innovative features of newer systems. Here too, Festo's drives for the process industry are controlled via the AS-interface in the

temperature range from  $-25 \dots +50 \text{ }^{\circ}\text{C}$  using the on-site valve actuator DLP. The ASi-EVA is suitable for all valves with Namur interface.

# AS-interface® components

System overview

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## Masters and accessories

### Single sourcing – everything from one source

Festo is your single source for the AS-interface. This means:

- One contact person
- Solution competence from the market leader
- Convenient ordering system
- Complete delivery service
- Co-ordinated solutions for motion and control
- Worldwide service round the clock

### AS-interface master to IP65



Master interface for type 03 – to IP65  
■ For stand-alone local control using the programmable valve terminals

■ As a gateway in distributed networking with Profibus, Interbus, DeviceNet

### Other masters to IP20



■ PS1 industrial PC from Festo/Beck to IP20 with up to 4 AS-interface masters CP96; can be mounted on an H-rail  
■ Standard or A/B operation  
■ 486 CPU for up to 576 digital inputs/outputs

■ Ethernet interface  
■ and much more

### Accessories



■ Combi power pack for the AS-interface: AS-interface power and auxiliary power supply  
■ Addressing device with user-friendly operating and diagnostic functions for the entire AS-interface, e.g. to perform the following tasks in the

fully installed network:  
– change addresses  
– set outputs  
– read inputs  
– and much more  
■ Installation accessories for installing the flat cable

# AS-interface® components

System overview

FESTO

## Slaves

AS-interface – Motion and control

### Valves

- A universal solution from the individual valve interface up to the compact solution with 8 valves
- Integrated inputs on individual valve interfaces and CPV/CPA valve terminals
- More inputs thanks to 4-fold input modules
- On request:  
Application-specific valves and integration solutions

### Drives:

- Intelligent drives DNCV:  
Integrated solution with diagnostic module
- Highly dynamic drives with Soft Stop SPC11:
  - Full speed – gentle braking
  - Pneumatic linear drives DGP and DGPL
  - Rotary drives DSMI
  - Standard cylinders DNC/DNCM
  - Comprehensive diagnosis
- Drives for the process industry
  - Quarter-turn valve actuators DRD (Copar) linear valve actuators DLP (Copac)
  - Local controllers for drives in exterior applications in the range –5 ... +50 °C
  - Individual valve interface ASi-EVA for Namur valves
  - Sensor box with visual position indication

## Individual valve interface



The perfect solution for 1 or 2 distributed valves and sensors

- Optimum pneumatic configuration within the range 10 ... 30,000 l/min
- Find the appropriate individual valve
- Then connect it to the AS-interface using Festo plug and work™
- This solution offers the maximum in mechanical, pneumatic and electrical flexibility

## Compact valve terminal



Maximum performance of 400 ... 1600 l/min from minimal space

- Valve combinations for 2, 4 or 8 valve slices
- Vacuum generation, relays and more in one unit
- Smart tubing system via pneumatic multi-connector plate
  - Rapid replacement of valve terminals
  - With control cabinet installation:  
No internal tubing required
- Inputs M8 included for each valve position

## Modular valve terminal



- Valves on a sub-base:  
Individual valves can be easily replaced
- Flexible valve combinations for 2 ... 8 solenoid coils
- Valve terminals can be expanded at a later date
- CPA: compact and modular from 300 ... 650 l/min
- 4 or 8 inputs with selectable connection technology
- Selectable connection technology on the bus: flat cable or M12 round cable
- Addressing socket

- I - Type discontinued  
Available up until 06/2006

## AS-interface® components

AS-interface master

FESTO



### AS-interface master for valve terminal type 03

This module, in conjunction with a fieldbus node or control block for valve terminal type 03, controls an AS-interface network. The slave stations connected to the module are organised by the AS-interface master, their inputs and outputs are either transferred to the higher-order controller via the connected fieldbus or forwarded directly to the control block. The AS-interface is configured using the AS-interface software tool

provided or the configuration plug. In order to install the AS-interface, the master together with the required slaves are connected to the AS-interface data cable (yellow cable). Each station is first assigned a unique address. The AS-interface combi power pack also supplies the power supply for all stations via the yellow data cable (note the total current of all connected devices).

Once the connections have been established and unique addresses have been selected without any overlapping, the current configuration can be read in and saved by means of the configuration plug. Bus station inputs and outputs are then cyclically updated and exchanged with the higher-order fieldbus node or control block. Each station as well as the AS-interface diagnostic data are assigned a fixed address field for their I/Os.

### Applications

The following fieldbus nodes and control blocks support the AS-interface master:

- FB6 Interbus
- FB13 Profibus
- SF3 machine controller from Festo
- SB60 SLC 500 controller from Allen Bradley
- SF60 SLC 500 controller from Allen Bradley with DeviceNet



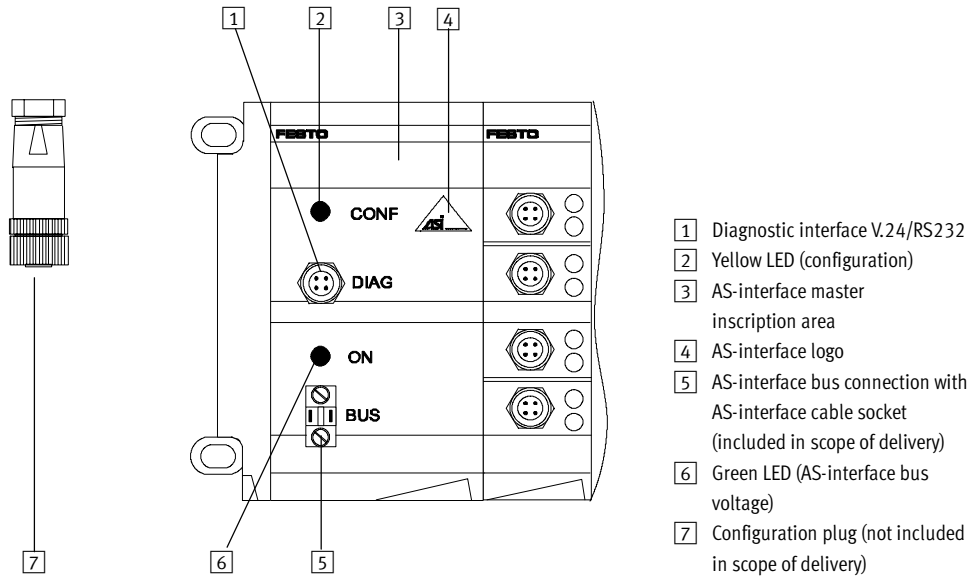
- 1 - Type discontinued  
Available up until 12/2007

## AS-interface® components

AS-interface master

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### Overview of connections/displays – AS-interface master



Technical data	
Type	VIASI-03-M
Part No.	18 721
Max. no. of slave stations that can be connected	31
No. of outputs	124
No. of inputs	124
No. of occupied module positions	1
Diagnostic interface type	RS232, floating, M12, 5-pin
AS-interface connection plug type	Flat cable socket
Specification	Standard master
Cycle time	[ms] 5 (at full expansion)
Current consumption via fieldbus node supply	[mA] 165
Current consumption from AS-interface power pack	[mA] 65
Input delay	[ms] 3
Protection class	IP65
Temperature range	Operation [°C] +5 ... +50
	Storage [°C] -20 ... +70
Material	Die-cast aluminium
Protection class to EN 60 529	IP65 (when fully plugged-in or fitted with protective cover)
Dimensions	[mm] 42x70x132
Grid dimension	[mm] 72
Weight	[g] 700

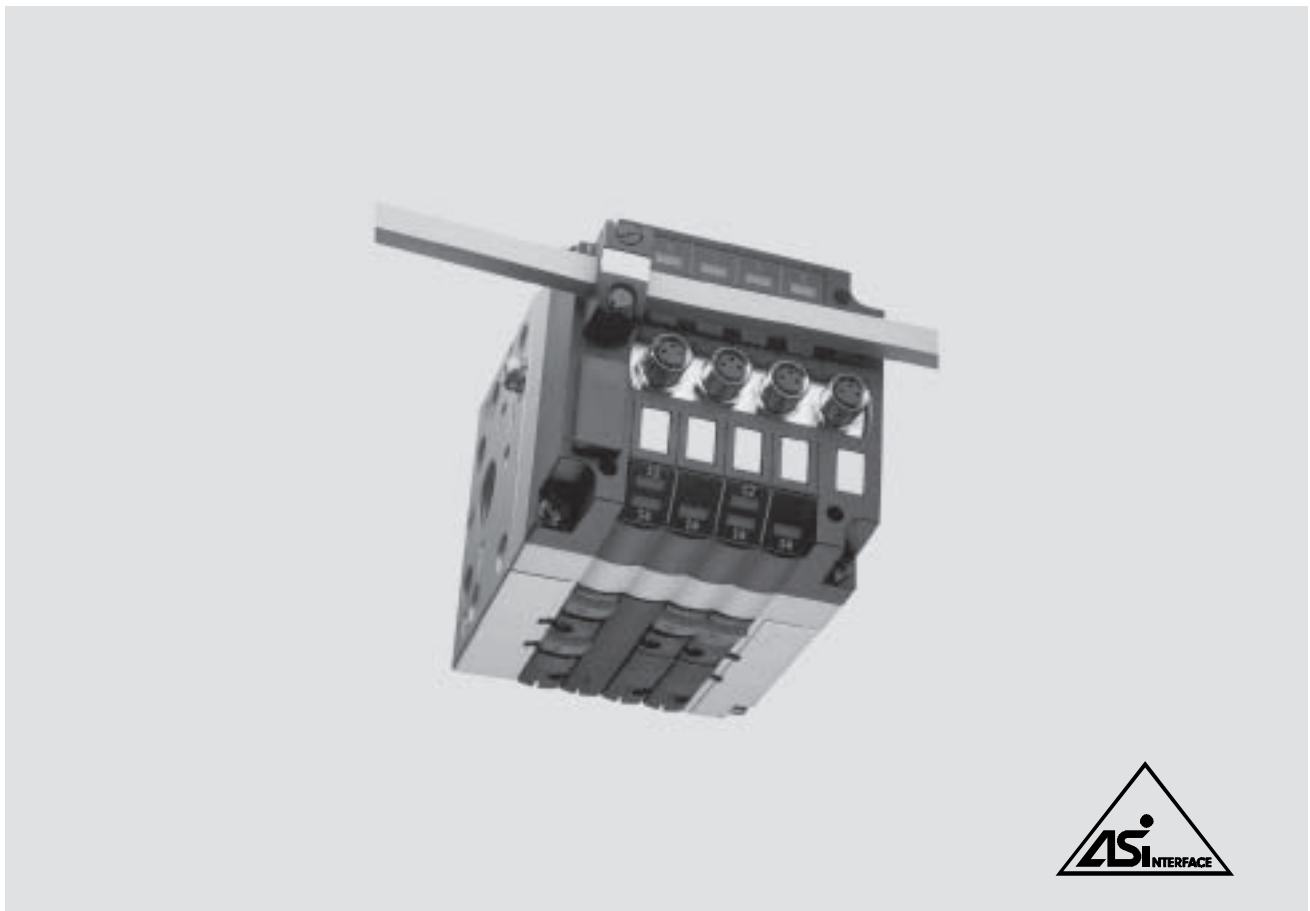
 Type discontinued  
Available up until 12/2007

## AS-interface® components

AS-interface master

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AS-interface master		
Designation	Type	Part No.
Bus connection		
AS-interface flat cable, yellow, 100 m	KASI-1,5-Y-100	18 940
AS-interface flat cable, black, 100 m	KASI-1,5-Z-100	18 941
Flat cable socket	ASI-SD-FK	18 785
AS-interface flat cable distributor, cable parallel	ASI-KVT-FK	18 786
AS-interface flat cable distributor, cable symmetrical	ASI-KVT-FK-S	18 797
M12 socket for flat cable	ASI-SD-FK-M12	18 788
Miscellaneous		
Combi power pack for AS-interface	ASI-CNT-115/230-VAC-B	191 082
AS-interface configuration plug	ASI-SS-CONFIG	18 961
Serial data cable for AS-interface software tool	KDI-SB202-BU9	150 268



## CPV valve terminals with AS-interface – Valve configuration options

CPV valve terminals with AS-interface can be configured with a wide range of valve slices. The system supports a maximum of 8 outputs and 8 inputs per AS-interface slave.

### General information

- With or without 24 V DC auxiliary power supply for solenoid coils (EMERGENCY-STOP circuitry)
- Solutions with and without integrated inputs
- Width 10, 14 or 18 mm

This gives the following basic valve slice configuration options (see tables on following page). Vacant positions can be configured instead of valve slices at any position.

### Variants

- 2, 4 or 8 valve slices
- With 4 or 8 inputs, either
  - standard operation (SPEC V2.0)
  - A/B operation (SPEC V2.1)
- Optionally with floating relay outputs
- Separator plates for the formation of pressure zones
- Suitable for vacuum
- Vacant positions for subsequent extension
- Optionally with pneumatic multi-connector plate

### Application

- Cost-effective connection of 2, 4 or 8 valve slices to the AS-interface
- Decentralised machine and system structures, for example
  - in handling technology
  - in conveyor technology
  - in the packaging industry
  - in sorting systems
  - in upstream machine functions



- Note

Please refer to the various pneumatic functions for more information.

➔ 4 / 2.1-2

# AS-interface® components

CPV valve terminals – Overview



Types of valve terminal with AS-interface								
Type	Valve slices	Solenoid coils	Inputs (M8 connection)	Auxiliary power supply		Size		
				With	Without	CPV10	CPV14	CPV18
CPV1x-GE-ASI-2 (-Z)	2	4	–	■	■	■	■	■
CPV1x-GE-ASI-4 (-Z)	4	4	–	■	■	■	■	■
CPV1x-GE-ASI-4E4A (-Z)	4	4	4	■	■	■	■	
CPV1x-GE-ASI-8E8A-Z	8	8	8	■		■	■	
CPV1x-GE-ASI-4E3A (-Z)	4	3	4	■		■	■	
CPV1x-GE-ASI-8E6A-Z	8	6	8	■		■	■	

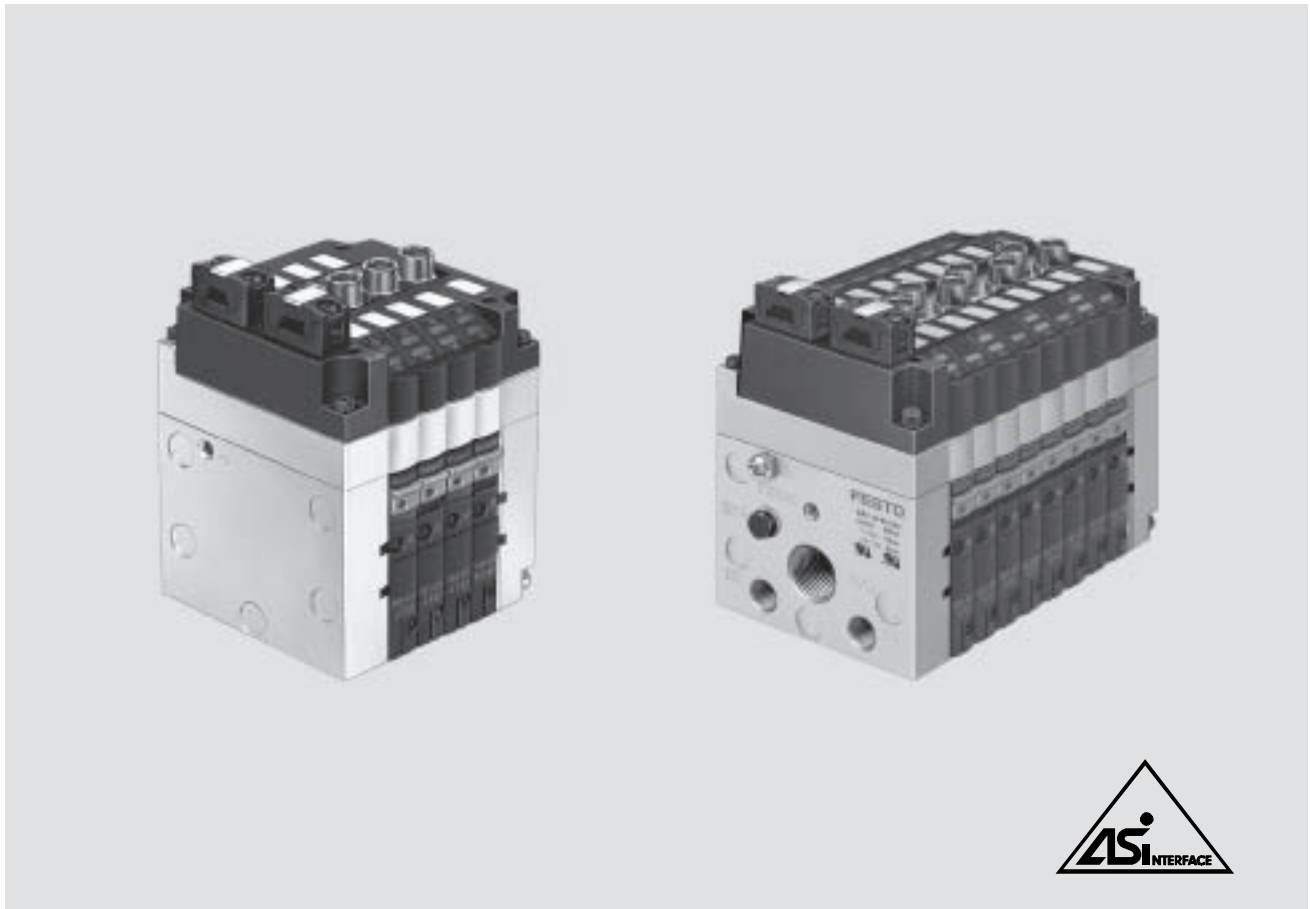
Permissible combinations in valve position allocation								
Type	Slave n				Slave n+1			
	0	1	2	3	4	5	6	7
CPV1x-GE-ASI-2 (-Z)	M	M						
	J	M						
	M	J						
	J	J						
CPV1x-GE-ASI-4 (-Z)	M	M	M	M				
CPV1x-GE-ASI-4E4A (-Z)	M	M	M	M				
	J	Vacant position	M	M				
	M	M	J	Vacant position				
	J	Vacant position	J	Vacant position				
CPV1x-GE-ASI-4E3A -Z <sup>1)</sup>	M	M	M	Vacant position				
	J	Vacant position	M	Vacant position				
CPV1x-GE-ASI-8E8A-Z <sup>1)</sup>	M	M	M	M	M	M	M	M
	J	Vacant position	M	M	M	M	M	M
	M	M	J	Vacant position	M	M	M	M
	J	Vacant position	J	Vacant position	M	M	M	M
	...	...	...	...	...	...	...	...
	M	M	M	M	M	M	M	M
	M	M	M	M	J	Vacant position	M	M
	M	M	M	M	M	M	J	Vacant position
CPV1x-GE-ASI-8E6A-Z <sup>1)</sup>	M	M	M	Vacant position	M	M	M	Vacant position
	M	M	M	Vacant position	J	Vacant position	M	Vacant position
	J	Vacant position	M	Vacant position	M	M	M	Vacant position
	J	Vacant position	M	Vacant position	J	Vacant position	M	Vacant position

- 1) - Valve slices with 2 outputs must be configured at positions 0, 2, 4, 6 (or positions 0, 4 with A/B operation).  
 - Valve slices with 2 outputs always have a vacant position.  
 - Slave n and n+1 can be configured independently of one another. This gives a total of 16 different configuration options.
- M Valve slice with single solenoid valve or a different valve slice with an output.  
 J Valve slice with double solenoid valve or a different valve slice with two outputs.

# AS-interface® components

CPV valve terminals with integrated inputs, to SPEC V2.0

FESTO



## CPV valve terminals with integrated inputs, to specification V2.0

### General information

- Cubic design for exceptional performance and low weight
- Highly flexible thanks to various pneumatic functions (valve variants), different pressure ranges, vacuum switches and the option of integrated vacuum generation
- Floating relay outputs, optional
- Connection for auxiliary power supply for EMERGENCY-STOP conditions
- Protection class IP65

### LED displays for:

- Status display for inputs
- Switching status displays for valves
- PWR-LED (power)
- FAULT-LED (fault)

### Variants

- Width 10 and 14 mm
- 4 or 8 inputs
- 4 or 8 valve positions
- Up to four pressure zones
- Suitable for vacuum
- Vacuum generation

- Various valve functions on one valve terminal, for example
  - 2x 3/2-way valve
  - 5/2-way single solenoid valve
  - 5/2-way double solenoid valve
  - 5/3-way valve
  - 2x 2/2-way valve
  - Separator plate
  - Vacant position
- Additional function (screwed onto valve slice)
  - One-way flow control valve
- Various mounting options

### Application

- Flexible and cost-effective connection of 4 or 8 valve slices and up to 8 sensors to the M8 inputs
- Decentralised machine and system structures, for example
  - in handling technology
  - in conveyor technology
  - in the packaging industry
  - in sorting systems



Note

Please refer to the various pneumatic functions for more information.

➔ 4 / 2.1-2

# AS-interface® components

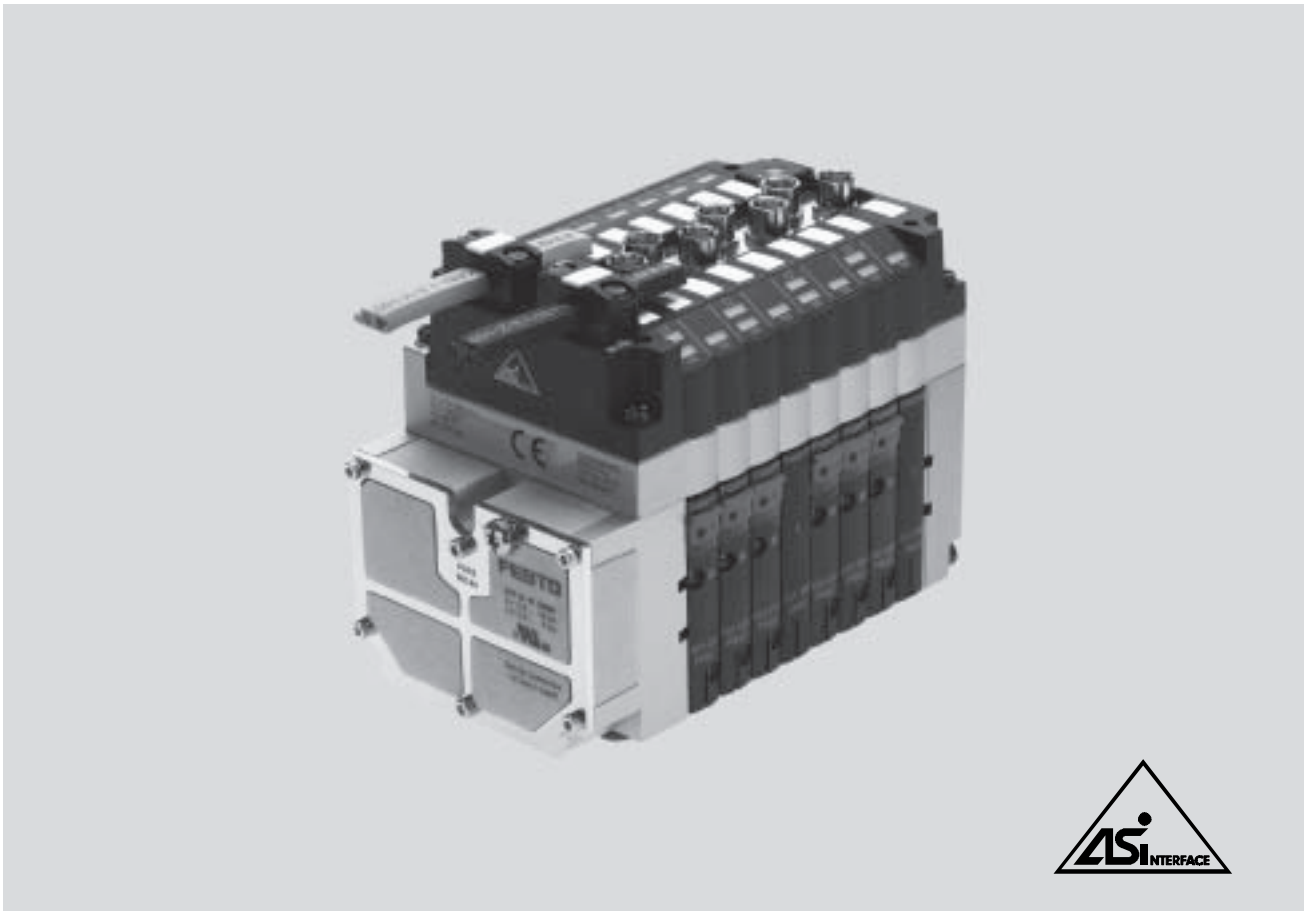
CPV valve terminals with integrated inputs, to SPEC V2.0

FESTO

Technical data				
Type	CPV-...-GE-ASI-4E4A-Z M8		CPV-...-GE-ASI-4E4A M8	CPV-...-GE-ASI-8E8A-Z M8
Part No.	Order via order code/valve terminal configurator			
Valves	No. of solenoid coils	4	4	8
	Valve width [mm]	10/14		
	Setting of the valve configuration	Integrated DIL switch		
	External power supply 24 V DC	Yes	No	Yes
	Digital inputs	4	4	8
	Connection technology	M8, 3-pin		
	Sensor supply via AS-interface	Short circuit and overload proof		
	Sensor connection	2-wire and 3-wire sensors		
	Version	IEC 1131-2, type 2		
	Input circuitry	PNP (positive-switching)		
AS-interface connection	Connection technology	AS-interface flat cable plug (included in scope of supply)		
	Voltage range	DC 26.5 ... 31.6 V, polarity-safe		
	Residual ripple [mVss]	20		
	Current consumption of inputs		Width 10/14 mm without auxiliary power supply	
	<ul style="list-style-type: none"> <li>■ in 0 status</li> <li>■ in 1 status (no current consumption by sensors)</li> <li>■ in 1 status (max. current consumption by sensors)</li> </ul>	7 35 137	61/95 89/123 191/225	40 96 278
Load voltage connection	Connection technology	AS-interface flat cable plug (version turned through 180° must be ordered separately)		
	Nominal voltage [V]	DC 24 ±10%		
	Residual ripple [Vss]	4		
	Current consumption of valves	10/14 mm	No load voltage connection	10/14 mm
	<ul style="list-style-type: none"> <li>■ when switching on</li> <li>■ following a current reduction</li> </ul>	108/176 42/72		200/310 70/100
LED displays	ASi-LED	Power/green		
	AUX-PWR-LED	Auxiliary power supply/green	None	Auxiliary power supply/green
	FAULT-LED	Fault LED/red		
	Inputs	Green		
	Valves	Yellow		
General data	Protection class (to EN 60 529)	IP65 (fully assembled)		
	Electromagnetic compatibility	<ul style="list-style-type: none"> <li>■ Interference emission</li> <li>■ Interference immunity</li> </ul>		
	CE symbol	Yes, in accordance with EU Directive 89/336/EEC		
	Temperature range [°C]	Operation: -5 ... +50; storage/transport: -20 ... +70		
	Materials	Housing: Al; cover: polyamide (PA6-GF25); seal: nitrile rubber (NBR), polychloroprene rubber (CR); PWIS-free		
	Dimensions	➔ 4 / 4.9-21		
	Weight	➔ 4 / 4.9-20		
	Pneumatic data	➔ 4 / 2.1-2		
AS-interface data	ID code	F <sub>H</sub> (ID = F <sub>H</sub> ; ID1 = F <sub>H</sub> ; ID2 = F <sub>H</sub> )		
	IO code	7 <sub>H</sub>		
	Profile	S-7.F		

# AS-interface® components

CPV valve terminals with integrated inputs, for A/B operation to SPEC V2.1



## CPV valve terminals with integrated inputs, for A/B operation to specification V2.1

### General information

- A/B operation increases the performance of each master
  - 100% more inputs (248 instead of 124)
  - 50% more outputs (186 instead of 124)
- Cubic design for exceptional performance and low weight
- Highly flexible thanks to various pneumatic functions (valve variants), different pressure ranges, vacuum switches and the option of integrated vacuum generation
- Floating relay outputs, optional

- Connection for auxiliary power supply for EMERGENCY-STOP conditions
- Protection class IP65

### LED displays for:

- Status display for inputs
- Switching status displays for valves
- PWR-LED (power)
- FAULT-LED (fault)<sup>1)</sup>

### Variants

- Width 10 and 14 mm
- 4 or 8 inputs
- 3 or 6 valve positions
- Up to four pressure zones

- Suitable for vacuum
- Vacuum generation
- Various valve functions on one valve terminal, for example
  - 2x 3/2-way valve
  - 5/2-way single solenoid valve
  - 5/2-way double solenoid valve
  - 5/3-way valve
  - 2x 2/2-way valve
  - Separator plate
  - Vacant position
- Additional function (screwed onto valve slice)
  - One-way flow control valve
- Various mounting options

### Application

- AS-i networks with A/B operation as per SPEC V2.1
- Flexible and cost-effective connection of 4 or 8 valve slices and up to 8 sensors to the M8 inputs
- Decentralised machine and system structures, for example
  - in handling technology
  - in conveyor technology
  - in the packaging industry
  - in sorting systems



Note

Please refer to the various pneumatic functions for more information.

➔ 4 / 2.1-2

1) Peripheral faults to SPEC V2.1 not yet implemented

## AS-interface® components

CPV valve terminals with integrated inputs, for A/B operation to SPEC V2.1



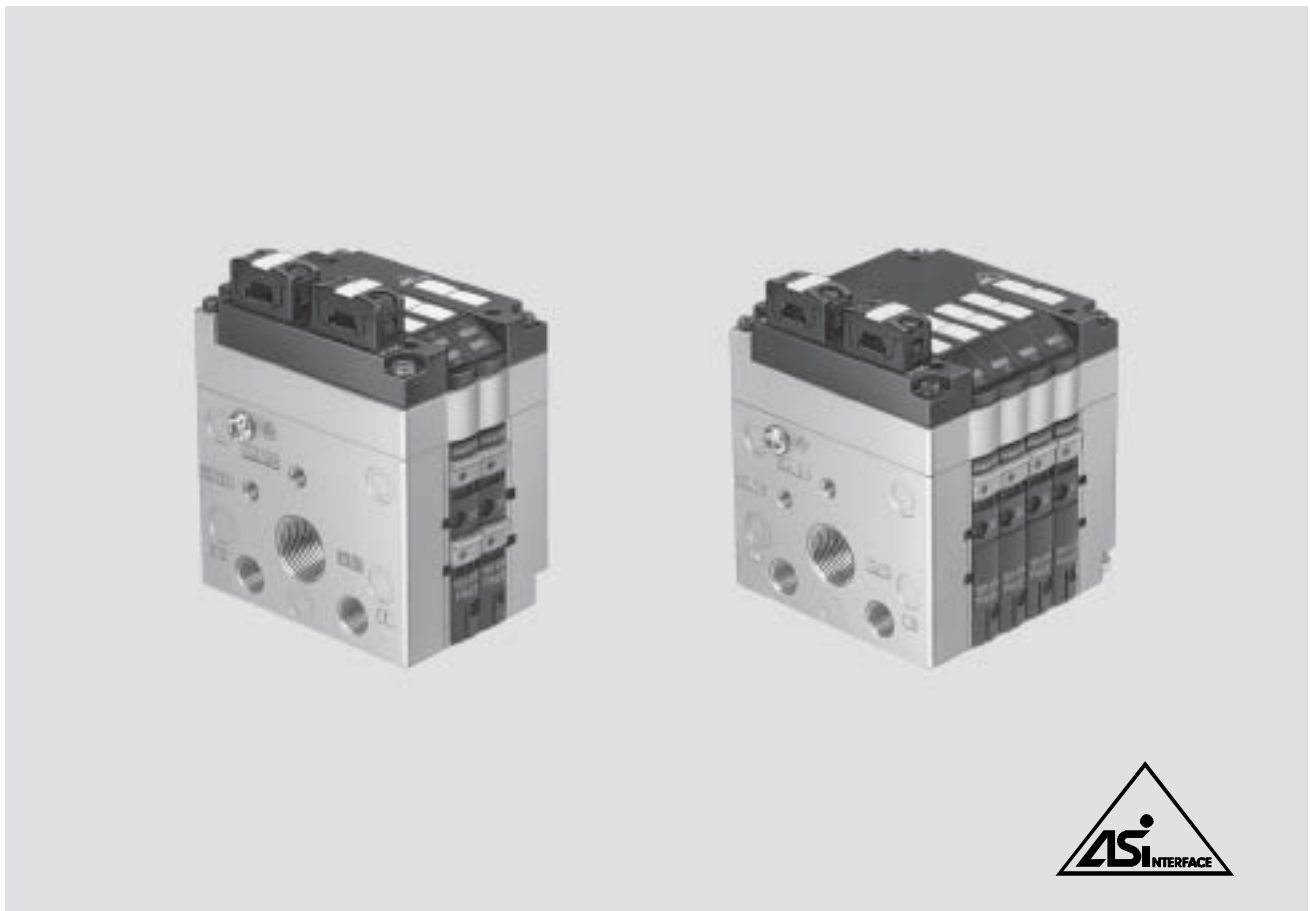
Technical data			
Type	CPV-...-GE-ASI-4E3A-Z M8		CPV-...-GE-ASI-8E6A-Z M8
Part No.	Order via order code/valve terminal configurator		
Valves	No. of solenoid coils	3	6
	Valve width [mm]	10/14	
	Setting of the valve configuration	Integrated DIL switch	
	External power supply 24 V DC	Yes	
	Digital inputs	4	8
	Connection technology	M8, 3-pin	
	Sensor supply via AS-interface	Short circuit and overload proof	
	Sensor connection	2-wire and 3-wire sensors	
	Version	IEC 1131-2, type 2	
	Input circuitry	PNP (positive-switching)	
AS-interface connection	Connection technology	AS-interface flat cable plug (included in scope of supply)	
	Voltage range [V]	DC 26.5 ... 31.6, polarity-safe	
	Residual ripple [mVss]	20	
	Current consumption of inputs		
	<ul style="list-style-type: none"> <li>■ in 0 status</li> <li>■ in 1 status (no current consumption by sensors)</li> <li>■ in 1 status (max. current consumption by sensors)</li> </ul>	7 35 137	40 96 278
Load voltage connection	Connection technology	AS-interface flat cable plug (version turned through 180° must be ordered separately)	
	Nominal voltage [V]	DC 24 ±10%	
	Residual ripple [Vss]	4	
	Current consumption of valves	10/14 mm	10/14 mm
	<ul style="list-style-type: none"> <li>■ when switching on</li> <li>■ following a current reduction</li> </ul>	108/176 42/72	200/310 70/100
LED displays	ASi-LED	Power/green	
	AUX-PWR-LED	Auxiliary power supply/green	
	FAULT-LED	Fault LED/red	
	Inputs	Green	
	Valves	Yellow	
General data	Protection class (to EN 60 529)	IP65 (fully assembled)	
	Electromagnetic compatibility		
	<ul style="list-style-type: none"> <li>■ Interference emission</li> <li>■ Interference immunity</li> </ul>	Tested to EN 55 011, limit value class B Tested to EN 50 082-2	
	CE symbol	Yes, in accordance with EU Directive 89/336/EEC	
	Temperature range [°C]	Operation: -5 ... +50; storage/transport: -20 ... +70	
	Materials	Housing: Al; cover: polyamide (PA6-GF25); seal: nitrile rubber (NBR), polychloroprene rubber (CR); PWIS-free	
	Dimensions	➔ 4 / 4.9-21	
	Weight	➔ 4 / 4.9-20	
Pneumatic data	➔ 4 / 2.1-2		
AS-interface data	ID code	ID = A <sub>H</sub> ; ID1 = 7 <sub>H</sub> ; ID2 = E <sub>H</sub>	
	IO code	7 <sub>H</sub>	
	Profile	S-7.A.E	



# AS-interface® components

CPV valve terminals without inputs, to SPEC V2.0

FESTO



## CPV valve terminals without inputs, to specification V2.0

### General information

- Cubic design for exceptional performance and low weight
- Highly flexible thanks to various pneumatic functions (valve variants), different pressure ranges, vacuum switches and the option of integrated vacuum generation
- Floating relay outputs, optional
- Connection for auxiliary power supply for EMERGENCY-STOP conditions
- Protection class IP65

### LED displays for:

- Switching status displays for valves
- PWR-LED (power)
- FAULT-LED (fault)

### Variants

- Width 10, 14 and 18 mm
- 2 or 4 valve positions
- Up to two pressure zones
- Suitable for vacuum
- Vacuum generation

- Various valve functions on one valve terminal, for example
  - 2x 3/2-way valve
  - 5/2-way single solenoid valve
  - 5/2-way double solenoid valve
  - 5/3-way valve
  - 2x 2/2-way valve
  - Separator plate
  - Vacant position
- Additional function (screwed onto valve slice)
  - One-way flow control valve
- Extensive mounting options

### Application

- Flexible and cost-effective connection of 2 or 4 valve slices
- Decentralised machine and system structures, for example
  - in handling technology
  - in conveyor technology
  - in the packaging industry
  - in sorting systems



- Note

Please refer to the various pneumatic functions for more information.

→ 4 / 2.1-2

# AS-interface® components

CPV valve terminals without inputs, to SPEC V2.0

FESTO

Technical data		CPV-...-GE-ASI-2-Z	CPV-...-GE-ASI-2	CPV-...-GE-ASI-4-Z <sup>1)</sup>	CPV-...-GE-ASI-4 <sup>1)</sup>
Type					
Part No.	Order via order code/valve terminal configurator				
Valves	No. of solenoid coils	2	2	4	4
	Valve width	10 mm	■ <sup>2)</sup>	■ <sup>2)</sup>	■ <sup>2)</sup>
		14 mm	■ <sup>2)</sup>	■ <sup>2)</sup>	■ <sup>2)</sup>
		18 mm	■ <sup>2)</sup>	■	■ <sup>2)</sup>
	Setting of the valve configuration	None (permanently assigned)			
	External power supply 24 V DC	Yes	No	Yes	No
AS-interface connection	Connection technology	AS-interface flat cable plug (must be ordered separately)			
	Voltage range [V]	DC 26.5 ... 31.6, polarity-safe			
	Residual ripple [mVss]	20			
	Width [mm]	10/14/18			
	Current consumption of all valves [mA]				
	■ without current reduction		140/208/352		140/208/352
	■ with current reduction		73/97/145		73/97/145
	■ with CPV-...-GE-ASI-...-Z	25		25	
Load voltage connection	Connection technology	AS-interface flat cable plug (must be ordered separately)			
	Nominal voltage [V]	DC 24 ±10%			
	Residual ripple [Vss]	4			
	Width [mm]	10/14/18			
	Max. starting current [mA]	108/176/320	No load voltage connection	108/176/320	No load voltage connection
	■ following a current reduction	48/72/120		48/72/120	
LED displays	PWR-LED	Power/green			
	FAULT-LED	Fault LED/red			
	Valves	Yellow			
General data	Protection class (to EN 60 529)	IP65 (fully assembled)			
	Electromagnetic compatibility				
	■ Interference emission	Tested to EN 55 011, limit value class B			
	■ Interference immunity	Tested to EN 50 082-2			
	CE symbol	Yes, in accordance with EU Directive 89/336/EEC			
	Temperature range [°C]	Operation: -5 ... +50; storage/transport: -20 ... +70			
	Materials	Housing: Al; cover: polyamide (PA6-GF25); seal: nitrile rubber (NBR), polychloroprene rubber (CR); PWIS-free			
	Dimensions	➔ 4 / 4.9-20			
	Weight	➔ 4 / 4.9-20			
	Pneumatic data	➔ 4 / 2.1-2			
AS-interface data	ID code	F <sub>H</sub>			
	IO code	8 <sub>H</sub>			
	Profile	S-8.F			

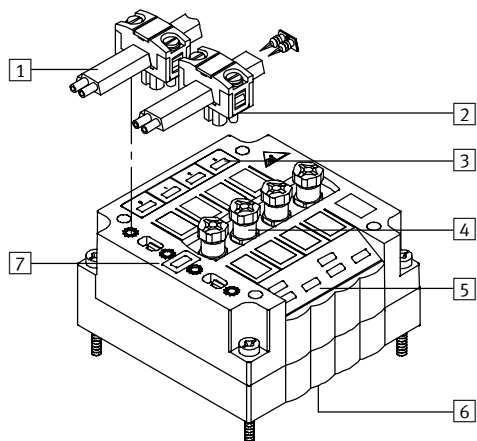
- 1) Single solenoid valves  
 2) Do not use for new designs!  
 -L To be discontinued

# AS-interface® components

CPV valve terminals – Connections/displays

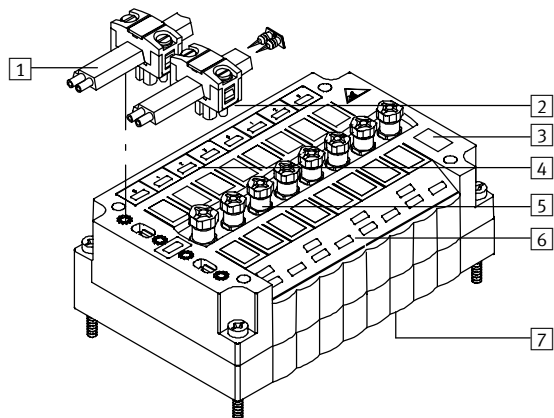
## Overview of connections/displays – CPV with AS-interface

CPV1x-GE-ASI-4E4A(-Z)



- 1 AS-interface bus connection
- 2 Auxiliary power supply for valves (optional)
- 3 LED display for inputs
- 4 Sensor connection
- 5 LED display for valves
- 6 Connection of the valves and DIL switch for valve configuration
- 7 ASi LED, fault LED

CPV1x-GE-ASI-8E8A(-Z)



- 1 AS-interface bus connection
- 2 Auxiliary power supply for valves (optional)
- 3 Address selection key with LED
- 4 LED display for inputs
- 5 Sensor connection
- 6 LED display for valves
- 7 Connection of the valves and DIL switch for valve configuration

### Pin allocation

Inputs CPV

	<p>4</p> <p>1</p> <p>3</p>	<p>1 +24 V</p> <p>3 0 V</p> <p>4 Input</p>
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# AS-interface® components

CPV valve terminals – Weights/dimensions

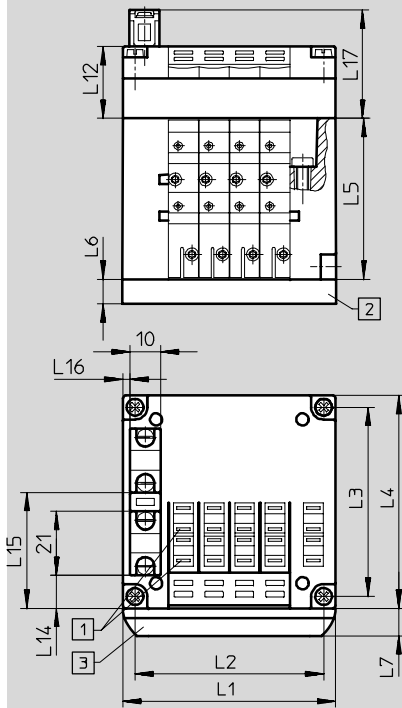


Weights [g] – Valve terminal type 10 with AS-interface			
Type	CPV10	CPV14	CPV18
Electrical connection plate with AS-interface connection			
■ with 2 valve positions	85	130	275
■ with 4(3) valve positions	110	175	355
■ with 8(6) valve positions	200	300	
End plate	160	280	740
Pneumatic multi-connector plate			
■ on CP valve terminal with 2 valve positions	120	270	520
■ on CP valve terminal with 4 valve positions	165	390	750
■ on CP valve terminal with 6 valve positions	225	510	870
■ on CP valve terminal with 8 valve positions	270	630	1300
Relay plate	35	55	–
Blanking plate	25	45	90
Separator plate	25	45	90
Valve plate	65	110	260

## Dimensions – CPV with AS-interface

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Without integrated inputs



- 1 Slots for inscription labels
- 2 Pneumatic multi-connector plate
- 3 Inscription label holder

		L1	L2	L3	L4	L5	L6	L7	L12	L14	L15	L16	L17
CPV10	2-fold	50	41.8	62	71	52.8	15	9.5	–	10.9	38.1	2.5	35.5
	4-fold	70	61.8	62	71	52.8	15	9.5	23.5	10.9	38.1	2.5	35.5
CPV14	2-fold	68	58	78	89	58.8	20	9.5	–	14	52	5	35.5
	4-fold	96	86	78	89	58.8	20	9.5	23.5	14	52	5	35.5
CPV18	2-fold	96	85.5	106.5	118	73	20	9.5	–	27.4	68.2	10.4	40
	4-fold	132	121.5	106.5	118	73	20	9.5	28	27.4	68.2	10.4	40

# AS-interface® components

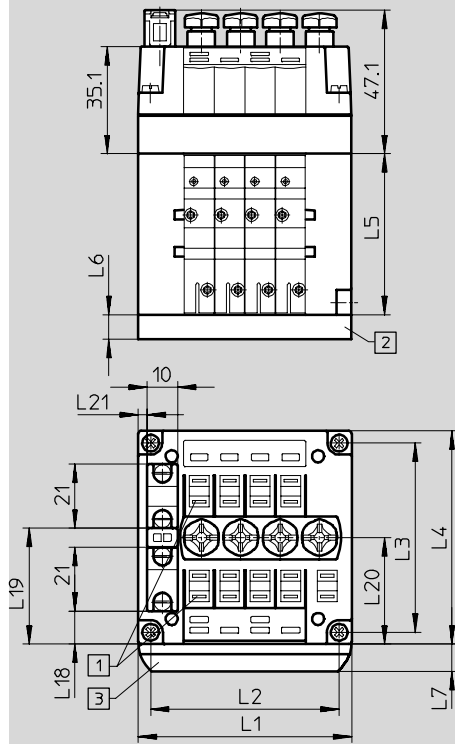
CPV valve terminals – Dimensions



## Dimensions – CPV with AS-interface

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

With integrated inputs



- 1 Slots for inscription labels
- 2 Pneumatic multi-connector plate
- 3 Inscription label holder

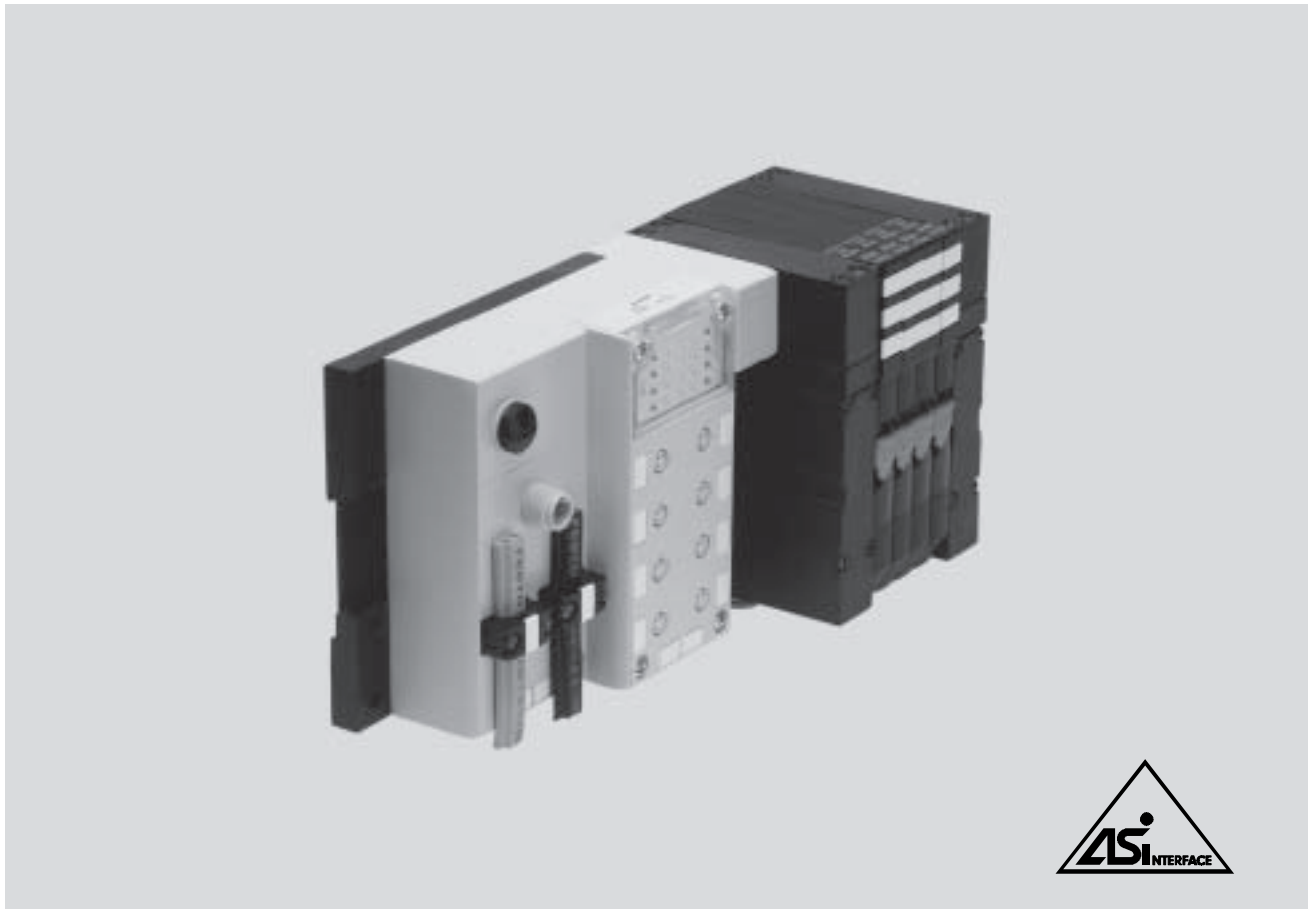
		L1	L2	L3	L4	L5	L6	L7	L18	L19	L20	L21
CPV10	4-fold	70	61.8	62	71	52.8	15	9.5	10.9	38.1	35	3
	8-fold	110	101.8	62	71	52.8	15	9.5	10.4	38.6	31.9	3
CPV14	4-fold	96	86	78	89	58.8	20	9.5	18.8	46.8	43.3	5
	8-fold	152	142	78	89	58.8	20	9.5	18.8	46.8	46.3	5

# AS-interface® components

CPV valve terminals – Accessories

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CPV with AS-interface			
Designation	Type	Part No.	
<b>Bus connection</b>			
AS-interface flat cable, yellow, 100 m	KASI-1,5-Y-100	18 940	
AS-interface flat cable, black, 100 m	KASI-1,5-Z-100	18 941	
Flat cable socket	ASI-SD-FK	18 785	
Flat cable socket, turned through 180°	ASI-SD-FK180	196 089	
Flat cable blanking plug	ASI-SD-FK-BL	196 090	
AS-interface flat cable distributor, cable parallel	ASI-KVT-FK	18 786	
AS-interface flat cable distributor, cable symmetrical	ASI-KVT-FK-S	18 797	
Cable cap for flat cable (scope of delivery 50 pieces)	ASI-KK-FK	18 787	
Cable sleeve (scope of delivery 20 pieces)	ASI-KT-FK	165 593	
<b>Sensor plug</b>			
Sensor plug, straight, M12, M8, screw-in	SEA-3GS-M8-S	192 009	
Sensor plug, straight, M8, solderable	SEA-GS-M8	18 696	
<b>Miscellaneous</b>			
Combi power pack for AS-interface	ASI-CNT-115/230-VAC-B	191 082	
Addressing device	ASI-PRG-ADR	18 959	
Addressing cable	KASI-ADR	18 960	
Inscription labels 6x10 in frames (64 pieces)	IBS 6x10	18 576	
Inscription labels 9x20 in frames (20 pieces)	IBS 9x20	18 182	
<b>User documentation</b>			
Manual for CPV Pneumatics	German	P.BE-CPV-DE	165 100
	English	P.BE-CPV-EN	165 200
	French	P.BE-CPV-FR	165 130
	Italian	P.BE-CPV-IT	165 160
	Spanish	P.BE-CPV-ES	165 230
	Swedish	P.BE-CPV-SV	165 260



## CPA valve terminals with AS-interface – Valve configuration options

CPA valve terminals with AS-interface can be flexibly configured with a wide range of valve slices. The system supports a maximum of 8 outputs and 8 inputs per valve terminal. This gives the following basic valve configuration options (see tables on following page).

### General information

- Solutions with and without integrated inputs
- Width 10 or 14 mm

- With or without 24 V DC auxiliary power supply for solenoid coils (EMERGENCY-STOP circuitry). The auxiliary power supply is always integrated in the version with inputs and can be subsequently switched off using the DIL switch.
- Selectable bus connection technology
  - Flat cable for AS-interface and auxiliary power supply
  - M12 round plug, 4-pin<sup>1)</sup>
- Selectable addressing
  - Via bus connection (M12 or flat cable)
  - Via addressing socket

### Variants

- 2 to 8 valve slices, freely configurable
- With 4 or 8 inputs
- M12, M8, Harax, CageClamp or Sub-D connection technology
- Separator plates for the formation of pressure zones
- Suitable for vacuum
- Subsequent extensions either
  - via unused valve positions
  - by converting the valve terminal

### Application

- Flexible and cost-effective connection of 2 or 8 valve slices with input feedback
- Decentralised machine and system structures, for example
  - in handling technology
  - in conveyor technology
  - in the packaging industry
  - in sorting systems
  - suitable for chain link trunking thanks to connection via round cables

-  - Note

Please refer to the various pneumatic functions for more information.

➔ 4 / 2.1-80

1) Suitable cable distributor from flat cable to M12: ASI-KVT-FKx2-M12

# AS-interface® components

CPA valve terminal – Overview



Types of valve terminal with AS-interface							
Type <sup>1)</sup>	Valve slices	Solenoid coils	Inputs	Auxiliary power supply		Size	
				With	Without	CPA10	CPA14
CPA1x-GE-ASI-4 (-Z)	4	4	–	■	■	■	■
CPA1x-GE-ASI-4E4A-Z	4	4	4	■	■	■	■
CPA1x-GE-ASI-8E8A-Z	8	8	8	■		■	■

Permissible combinations in valve position allocation				
Type	Slave n			
	0	1	2	3
CPA1x-GE-ASI-4 (-Z)	M	M	M	M
	J	M	M	–
	M	J	M	–
	M	M	J	–
	J	M	Vacant position	–
	J	M	–	–
	M	J	–	–
	M	M	–	–
CPA1x-GE-ASI-4E4A (-Z)	M	M	M	M
	J	M	M	–
	M	J	M	–
	M	M	J	–
	J	M	Vacant position	–
	J	M	–	–
	M	J	–	–
	M	M	–	–

Permissible combinations in valve position allocation								
Type <sup>1)</sup>	Slave n plus slave n+1							
	0	1	2	3	4	5	6	7
CPA1x-GE-ASI-8E8A-Z	M	M	M	M	M	M	M	M
	J	M	M	M	M	M	M	–
	J	J	M	M	M	M	–	–
	...	...	...	...	...	...	...	...
	M	M	J	M	M	J	–	–
	...	...	...	...	...	...	...	...
	M	M	M	M	J	–	–	–
	M	M	M	M	Vacant position	–	–	–
	...	...	...	...	...	...	...	...
	J	J	J	J	–	–	–	–
	...	...	...	...	...	...	...	...
	J	M	–	–	–	–	–	–
	M	J	–	–	–	–	–	–
	M	M	–	–	–	–	–	–

- 1) - All valve slices can be freely configured (up to the maximum number of valve solenoids supported (4 or 8)).  
 - A blanking plate can be used instead of the valve slice as a vacant position for one or two solenoid coils.  
 M Valve slice with single solenoid valve or a different valve slice with an output.  
 J Valve slice with double solenoid valve or a different valve slice with two outputs.

Fieldbus systems/electrical peripherals  
AS-interface components



# AS-interface® components

CPA valve terminal – Connection technology and addressing

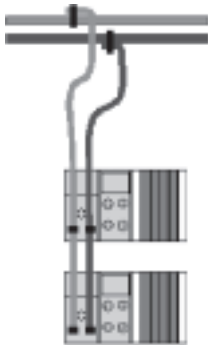


## Installation: Selectable connection technology for AS-interface

### Support for flat cables



- Straightforward cabling with flat cables in protected areas
- Fast system of installation with standard AS-interface cables

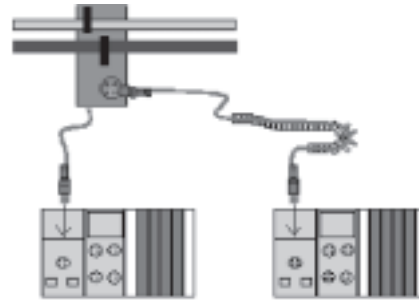


Standard installation at the AS-interface using flat cables

### Support for round cables



- Local round cable wiring system for areas subjected to consistently high loads
- Permanently high humidity
- Requirement for flexible cabling using one cable
- For use in chain link trunking with highly flexible cables



Pre-assembled M12 round cable, 1 m, PUR

Selectable cable for additional slave, for example highly flexible cable for chain link trunking or PVC cable for applications requiring resistance to detergents

## Selectable connection technology for addressing

### Addressing device



The addressing device to SPEC V2.1 can be used to scan the AS-interface from any point in the network. At all connected stations

- slave addresses can be read/changed
- ID and IO codes can be read out
- parameters can be read/changed
- input/output data can be read and written (setting outputs)
- error messages can be read out and quickly recognised

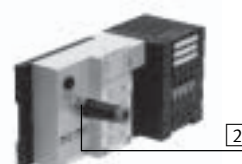
### 1 Addressing socket



Only the connected chip is visible and addressable here.

2 pins for chip 1 and 2, top right pin for chip 1.

### 2 M12 round plug



If the AS-interface is also connected to the flat cable plug, the entire network can be scanned without having to remove the slave from the bus.

### 3 Flat cable plug



If the AS-interface is also connected to the M12 round cable, the entire network can be scanned without having to remove the slave from the bus.

### Note

If the valve terminal is connected using the external flat cable distributor and the M12 round plug, the net-

work can also be scanned and the valve terminal addressed via this connection.

## AS-interface® components

CPA valve terminal – Connection technology and addressing

**FESTO**

### AS-interface flat cable distributor on round cable 2x M12



#### Alternative connection concepts

- AS-interface connection technology for yellow and optionally for black flat cables
- Passive conversion of the signals to M12 socket and round cable with M12 socket
- Pre-assembled round cable 1 m, PUR
- Alternatively PVC extension cable 2.5 and 5 m via additional M12 socket

#### Selecting the cable

Optimised connection technologies at the AS-interface can be easily realised by selecting the right cable.

- Flat cables for all standard applications with installation-saving insulation displacement technology
- Round cables for applications with differing requirements, for example:
  - Chain link trunking with small radii and increased requirements for highly flexible cables
  - Applications with consistently high humidity

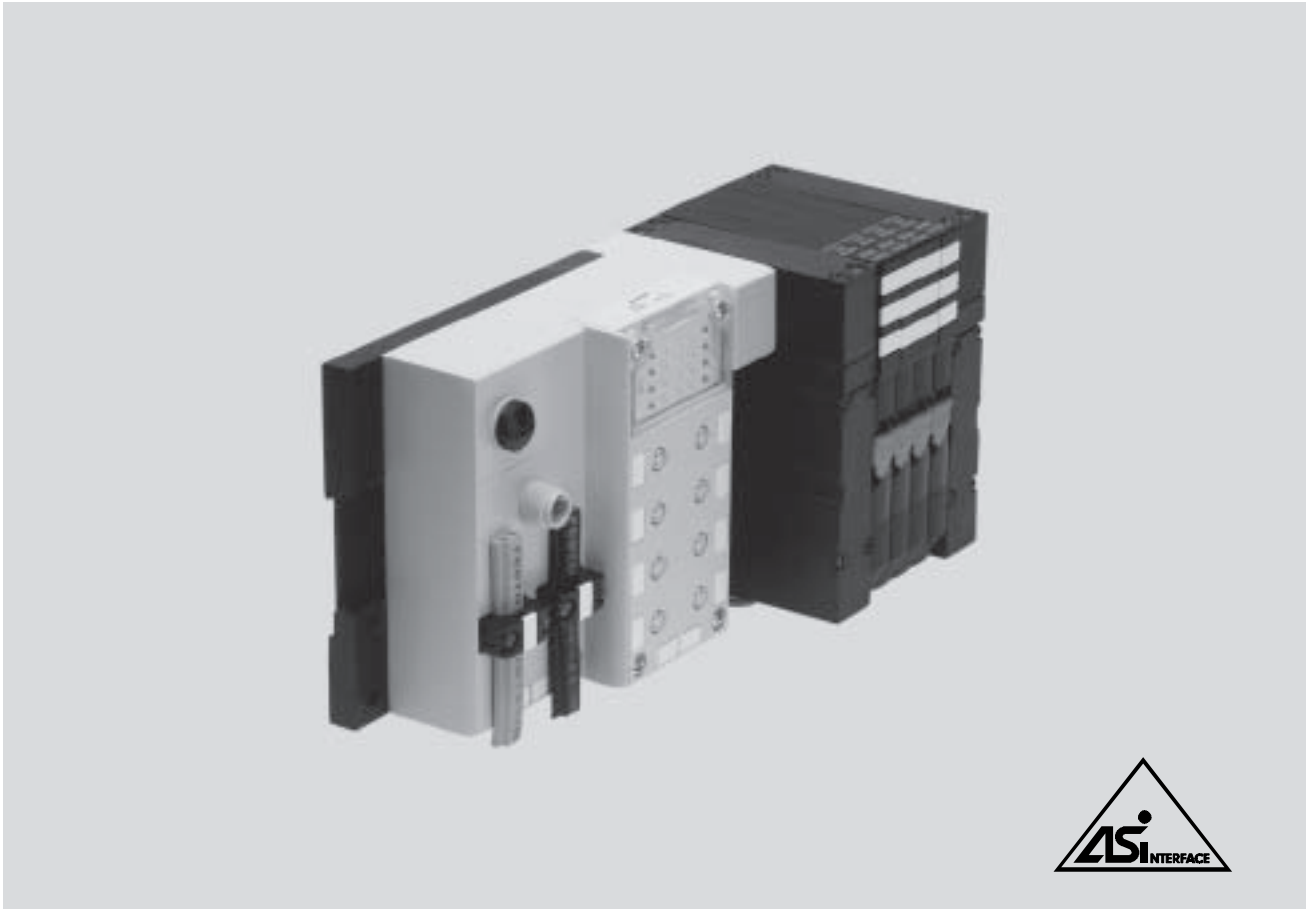
- Applications involving frequent cleaning and requiring cables resistant to detergents (PUR, PVC or other cables)
- Cabling systems using standard components (M12) preferred

#### Easy to assemble

- Direct mounting on the wall or machine frame
- Direct mounting on the 40 mm ITEM profile
- Mounting on H-rail using adapter CP-TS-HS35

# AS-interface® components

CPA valve terminal with inputs, to SPEC V2.1



## CPA valve terminal with inputs, to specification V2.1

### General information

- Modular design with exceptional performance and low weight
- Highly flexible thanks to various pneumatic functions (valve variants)
- Different pressure ranges
- Vacuum/low pressure operation
- Connection for auxiliary power supply for EMERGENCY-STOP conditions. The auxiliary power supply is always integrated in the version with inputs and can be subsequently switched off using the DIL switch.
- Protection class IP65

- Selectable bus connection technology
  - Flat cable for AS-interface and auxiliary power supply
  - M12 round plug, 4-pin<sup>1)</sup>
- Selectable addressing
  - Via bus connection (M12 or flat cable)
  - Via addressing socket

LED displays for:

- Switching status displays of valves and inputs
- 24 V DC (AUX power)
- BUS
- FAULT-LED and enhanced diagnosis to SPEC V2.1

### Variants

- Width 10 and 14 mm
- 2 to 8 valve positions
- 4 or 8 inputs
- M12, M8, Harax, CageClamp or Sub-D connection technology
- Up to three pressure zones
- Suitable for vacuum/low pressure
- Various valve functions on one valve terminal, for example
  - 2x 3/2-way valve
  - 5/2-way single solenoid valve
  - 5/2-way double solenoid valve
  - 5/3-way valve
  - Separator plate
  - Vacant position

- Extensive mounting options, easy to extend/convert at a later date

### Application

- Flexible and cost-effective connection of 2 to 8 valve positions
- Decentralised machine and system structures, for example
  - in handling technology
  - in conveyor technology
  - in the packaging industry
  - in sorting systems
- suitable for chain link trunking thanks to connection via round cables

 Note

Please refer to the various pneumatic functions for more information.

➔ 4 / 2.1-80

1) Suitable cable distributor from flat cable to M12: ASI-KVT-FKx2-M12

# AS-interface® components

CPA valve terminal with inputs, to SPEC V2.1















Technical data				
Type	CPA-...-GE-ASI-4E4A-Z		CPA-...-GE-ASI-8E8A-Z	
Part No.	<b>Order via order code/valve terminal configurator</b>			
Valves	No. of solenoid coils	4		8
	Valve width [mm]	10/14		
	External power supply 24 V DC	Set using DIL switch		Yes
Inputs	No. of digital inputs	4		8
	Connection technology	5-pin M12, 3-pin M8, Harax, CageClamps, Sub-D		
	Sensor supply via AS-interface	Short circuit and overload proof		
	Sensor connection	2-wire and 3-wire sensors		
	Version	IEC 1131-2, type 02		
	Input circuitry	PNP (positive-switching)		
AS-interface connection	Connection technology	<ul style="list-style-type: none"> <li>■ AS-interface flat cable plug</li> <li>■ M12 connection<sup>2)</sup></li> </ul>		
	Voltage range [V]	DC 26.5 ... 31.6, polarity-safe		
	Residual ripple	20 mVss		
	Current consumption of inputs [mA]	Without additional power supply	With additional power supply	With additional power supply
	Basic load of electronics	<20	<20	<20
	Total current of inputs	200	200	200
	Total current of valves	≤140 (≤65)	–	–
	Total current consumption	max. 260	max. 220	max. 220
Addressing socket	Connection technology	Industrial standard		
	<ul style="list-style-type: none"> <li>■ Top right pin</li> <li>■ Bottom left pin</li> </ul>	Slave 1 Unused	Slave 1 Slave 2	
	Connection technology	<ul style="list-style-type: none"> <li>■ AS-interface flat cable plug</li> <li>■ M12 connection<sup>2)</sup></li> </ul>		
Load voltage connection	Voltage range [V]	DC 20.4 ... 26.4		
	Residual ripple [Vss]	4		
	Current consumption of valves [mA]	10/14 mm	10/14 mm	10/14 mm
	<ul style="list-style-type: none"> <li>■ max. starting current (at 24 V)</li> <li>■ starting current for 4 valves following current reduction (approx. 25 ms)</li> </ul>	No load voltage connection	≤140 ≤65	≤280 ≤130
	Connection technology	<ul style="list-style-type: none"> <li>■ AS-interface flat cable plug</li> <li>■ M12 connection<sup>2)</sup></li> </ul>		
LED displays	ASI-LED	Green		
	AUX-PWR-LED	Green		
	FAULT-LED	Red		
	Inputs	Green		
	Valves	Yellow		
General data	Protection class (to EN 60 529)	IP65 (fully assembled)		
	Electromagnetic compatibility	Tested to EN 55 295:Oct. 1999, low voltage devices		
	CE symbol	Yes, in accordance with EU Directive 89/336/EEC		
	Temperature range [°C]	Operation: -5 ... +50; storage/transport: -20 ... +70		
	Materials	Housing, adapter: polyamide (PA6-GF30); base plate, end plate: polyamide (PA6-GF50)		
	Dimensions	➔ 4 / 4.9-33		
	Weight [g]	240 + valves		
AS-interface data	ID code	ID = F <sub>H</sub> ; ID1 = F <sub>H</sub> <sup>1)</sup> ; ID2 = E <sub>H</sub>		
	IO code	7 <sub>H</sub>		
	Profile	S-7.FE		

1) Factory setting, set to 0<sub>H</sub> by some programming devices (Spec.2.1) when addressing the slave  
 2) Suitable cable distributor from flat cable to M12 ➔ 4 / 4.9-80

# AS-interface® components

CPA valve terminal – Connection blocks


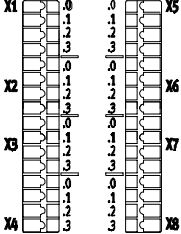

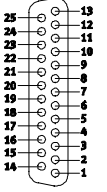

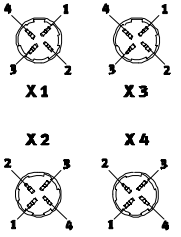
Connection block/digital input module combinations			
Connection blocks	Part No.	Digital input modules	
		CPX-8DE	CPX-4DE
CPX-AB-4-M12x2-5POL	<b>195 704</b>	■	■
CPX-AB-8-M8-3POL	<b>195 706</b>	■	■
CPX-AB-8-KL-4POL	<b>195 708</b>	■	■
CPX-AB-1-Sub-BU-25POL	<b>525 676</b>	■	■
CPX-AB-4-HARx2-4POL	<b>525 636</b>	■	■
CPX-AB-4-M12-8POL	<b>525 178</b>	-	-

Pin allocation						
Inputs, connection block		CPX-8DE		CPX-4DE		
<b>CPX-AB-4-M12X2-5POL</b>						
	 <b>X1</b>	 <b>X3</b>	X1.1: 24 V <sub>SEN</sub> X1.2: Input x+1 X1.3: 0 V <sub>SEN</sub> X1.4: Input x X1.5: FE	X3.1: 24 V <sub>SEN</sub> X3.2: Input x+5 X3.3: 0 V <sub>SEN</sub> X3.4: Input x+4 X3.5: FE	X1.1: 24 V <sub>SEN</sub> X1.2: Input x+1 X1.3: 0 V <sub>SEN</sub> X1.4: Input x X1.5: FE	X3.1: 24 V <sub>SEN</sub> X3.2: Input x+3 X3.3: 0 V <sub>SEN</sub> X3.4: Input x+2 X3.5: FE
	 <b>X2</b>	 <b>X4</b>	X2.1: 24 V <sub>SEN</sub> X2.2: Input x+3 X2.3: 0 V <sub>SEN</sub> X2.4: Input x+2 X2.5: FE	X4.1: 24 V <sub>SEN</sub> X4.2: Input x+7 X4.3: 0 V <sub>SEN</sub> X4.4: Input x+6 X4.5: FE	X2.1: 24 V <sub>SEN</sub> X2.2: n.c. X2.3: 0 V <sub>SEN</sub> X2.4: Input x+1 X2.5: FE	X4.1: 24 V <sub>SEN</sub> X4.2: n.c. X4.3: 0 V <sub>SEN</sub> X4.4: Input x+3 X4.5: FE
<b>CPX-AB-8-M8-3POL</b>						
	 <b>X1</b>	 <b>X5</b>	X1.1: 24 V <sub>SEN</sub> X1.3: 0 V <sub>SEN</sub> X1.4: Input x	X5.1: 24 V <sub>SEN</sub> X5.3: 0 V <sub>SEN</sub> X5.4: Input x+4	X1.1: 24 V <sub>SEN</sub> X1.3: 0 V <sub>SEN</sub> X1.4: Input x	X5.1: 24 V <sub>SEN</sub> X5.3: 0 V <sub>SEN</sub> X5.4: Input x+2
	 <b>X2</b>	 <b>X6</b>	X2.1: 24 V <sub>SEN</sub> X2.3: 0 V <sub>SEN</sub> X2.4: Input x+1	X6.1: 24 V <sub>SEN</sub> X6.3: 0 V <sub>SEN</sub> X6.4: Input x+5	X2.1: 24 V <sub>SEN</sub> X2.3: 0 V <sub>SEN</sub> X2.4: Input x+1	X6.1: 24 V <sub>SEN</sub> X6.3: 0 V <sub>SEN</sub> X6.4: Input x+3
 <b>X3</b>	 <b>X7</b>	X3.1: 24 V <sub>SEN</sub> X3.3: 0 V <sub>SEN</sub> X3.4: Input x+2	X7.1: 24 V <sub>SEN</sub> X7.3: 0 V <sub>SEN</sub> X7.4: Input x+6	X3.1: 24 V <sub>SEN</sub> X3.3: 0 V <sub>SEN</sub> X3.4: Input x+1	X7.1: 24 V <sub>SEN</sub> X7.3: 0 V <sub>SEN</sub> X7.4: Input x+3	
 <b>X4</b>	 <b>X8</b>	X4.1: 24 V <sub>SEN</sub> X4.3: 0 V <sub>SEN</sub> X4.4: Input x+3	X8.1: 24 V <sub>SEN</sub> X8.3: 0 V <sub>SEN</sub> X8.4: Input x+7	X4.1: 24 V <sub>SEN</sub> X4.3: 0 V <sub>SEN</sub> X4.4: n.c.	X8.1: 24 V <sub>SEN</sub> X8.3: 0 V <sub>SEN</sub> X8.4: n.c.	

# AS-interface® components

CPA valve terminal – Connection blocks



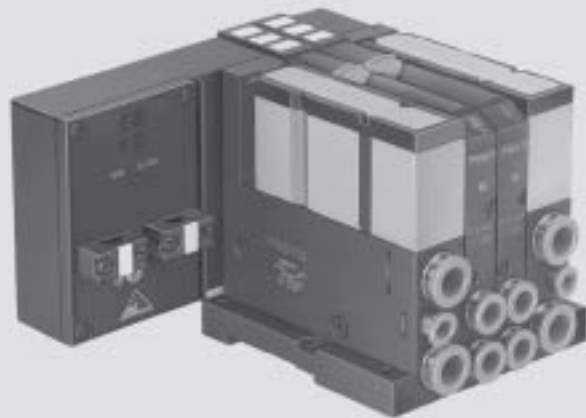
Pin allocation		CPX-8DE		CPX-4DE	
Inputs, connection block					
<b>CPX-AB-8-KL-4POL</b>					
		X1.0: 24 V <sub>SEN</sub> X1.1: 0 V <sub>SEN</sub> X1.2: Input x X1.3: FE  X2.0: 24 V <sub>SEN</sub> X2.1: 0 V <sub>SEN</sub> X2.2: Input x+1 X2.3: FE  X3.0: 24 V <sub>SEN</sub> X3.1: 0 V <sub>SEN</sub> X3.2: Input x+2 X3.3: FE  X4.0: 24 V <sub>SEN</sub> X4.1: 0 V <sub>SEN</sub> X4.2: Input x+3 X4.3: FE	X5.0: 24 V <sub>SEN</sub> X5.1: 0 V <sub>SEN</sub> X5.2: Input x+4 X5.3: FE  X6.0: 24 V <sub>SEN</sub> X6.1: 0 V <sub>SEN</sub> X6.2: Input x+5 X6.3: FE  X7.0: 24 V <sub>SEN</sub> X7.1: 0 V <sub>SEN</sub> X7.2: Input x+6 X7.3: FE  X8.0: 24 V <sub>SEN</sub> X8.1: 0 V <sub>SEN</sub> X8.2: Input x+7 X8.3: FE	X1.0: 24 V <sub>SEN</sub> X1.1: 0 V <sub>SEN</sub> X1.2: Input x X1.3: FE  X2.0: 24 V <sub>SEN</sub> X2.1: 0 V <sub>SEN</sub> X2.2: Input x+1 X2.3: FE  X3.0: 24 V <sub>SEN</sub> X3.1: 0 V <sub>SEN</sub> X3.2: Input x+1 X3.3: FE  X4.0: 24 V <sub>SEN</sub> X4.1: 0 V <sub>SEN</sub> X4.2: n.c. X4.3: FE	X5.0: 24 V <sub>SEN</sub> X5.1: 0 V <sub>SEN</sub> X5.2: Input x+2 X5.3: FE  X6.0: 24 V <sub>SEN</sub> X6.1: 0 V <sub>SEN</sub> X6.2: Input x+3 X6.3: FE  X7.0: 24 V <sub>SEN</sub> X7.1: 0 V <sub>SEN</sub> X7.2: Input x+3 X7.3: FE  X8.0: 24 V <sub>SEN</sub> X8.1: 0 V <sub>SEN</sub> X8.2: n.c. X8.3: FE
<b>CPX-AB-1-SUB-BU-25POL</b>					
		1: Input x 2: Input x+1 3: Input x+2 4: Input x+3 5: 24 V <sub>SEN</sub> 6: 0 V <sub>SEN</sub> 7: 24 V <sub>SEN</sub> 8: 0 V <sub>SEN</sub> 9: 24 V <sub>SEN</sub> 10: 24 V <sub>SEN</sub> 11: 0 V <sub>SEN</sub> 12: 0 V <sub>SEN</sub> 13: FE	14: Input x+4 15: Input x+5 16: Input x+6 17: Input x+7 18: 24 V <sub>SEN</sub> 19: 24 V <sub>SEN</sub> 20: 24 V <sub>SEN</sub> 21: 24 V <sub>SEN</sub> 22: 0 V <sub>SEN</sub> 23: 0 V <sub>SEN</sub> 24: 0 V <sub>SEN</sub> 25: FE Socket: FE	1: Input x 2: Input x+1 3: Input x+1 4: n.c. 5: 24 V <sub>SEN</sub> 6: 0 V <sub>SEN</sub> 7: 24 V <sub>SEN</sub> 8: 0 V <sub>SEN</sub> 9: 24 V <sub>SEN</sub> 10: 24 V <sub>SEN</sub> 11: 0 V <sub>SEN</sub> 12: 0 V <sub>SEN</sub> 13: FE	14: Input x+2 15: Input x+3 16: Input x+3 17: n.c. 18: 24 V <sub>SEN</sub> 19: 24 V <sub>SEN</sub> 20: 24 V <sub>SEN</sub> 21: 24 V <sub>SEN</sub> 22: 0 V <sub>SEN</sub> 23: 0 V <sub>SEN</sub> 24: 0 V <sub>SEN</sub> 25: FE Socket: FE
<b>CPX-AB-4-HAR-4POL</b>					
		X1.1: 24 V <sub>SEN</sub> X1.2: Input x+1 X1.3: 0 V <sub>SEN</sub> X1.4: Input x  X2.1: 24 V <sub>SEN</sub> X2.2: Input x+3 X2.3: 0 V <sub>SEN</sub> X2.4: Input x+2	X3.1: 24 V <sub>SEN</sub> X3.2: Input x+5 X3.3: 0 V <sub>SEN</sub> X3.4: Input x+4  X4.1: 24 V <sub>SEN</sub> X4.2: Input x+7 X4.3: 0 V <sub>SEN</sub> X4.4: Input x+6	X1.1: 24 V <sub>SEN</sub> X1.2: Input x+1 X1.3: 0 V <sub>SEN</sub> X1.4: Input x  X2.1: 24 V <sub>SEN</sub> X2.2: n.c. X2.3: 0 V <sub>SEN</sub> X2.4: Input x+1	X3.1: 24 V <sub>SEN</sub> X3.2: Input x+3 X3.3: 0 V <sub>SEN</sub> X3.4: Input x+2  X4.1: 24 V <sub>SEN</sub> X4.2: n.c. X4.3: 0 V <sub>SEN</sub> X4.4: Input x+3

Fieldbus systems/electrical peripherals  
AS-interface components

# AS-interface® components

CPA valve terminal without inputs, to SPEC V2.0

FESTO



## CPA valve terminals without inputs, to specification V2.0

### General information

- Modular design with exceptional performance and low weight
- Highly flexible thanks to various pneumatic functions (valve variants)
- Different pressure ranges
- Vacuum/low pressure operation
- Connection for auxiliary power supply for EMERGENCY-STOP conditions
- Protection class IP65

### LED displays for:

- Switching status displays for valves
- 24 V DC (power)
- BUS

### Variants

- Width 10 and 14 mm
- 2, 3 or 4 valve positions
- Up to three pressure zones
- Suitable for vacuum/low pressure

### Various valve functions on one valve terminal, for example

- 2x 3/2-way valve
- 5/2-way single solenoid valve
- 5/2-way double solenoid valve
- 5/3-way valve
- Separator plate
- Vacant position

Extensive mounting options, easy to extend/convert at a later date

### Application

- Flexible and cost-effective connection of 2, 3 or 4 valve positions
- Decentralised machine and system structures, for example
  - in handling technology
  - in conveyor technology
  - in the packaging industry
  - in sorting systems



Note

Please refer to the various pneumatic functions for more information.

➔ 4 / 2.1-80

# AS-interface® components

CPA valve terminal without inputs, to SPEC V2.0

FESTO

Technical data			
Type	CPA-...-GE-ASI-4A-Z	CPA-...-GE-ASI-4A	
Part No.	<b>Order via order code/valve terminal configurator</b>		
Valves	No. of solenoid coils	max. 4	
	Valve width [mm]	10/14	
	Setting of the valve configuration	None (permanently assigned)	
	External power supply 24 V DC	Yes	No
AS-interface connection	Connection technology	AS-interface flat cable plug (included in scope of supply)	
	Voltage range [V]	DC 26.5 ... 31.6, polarity-safe	
	Residual ripple [mVss]	20	
	Current consumption of all valves ■ in high-current phase (approx. 30 ms) ■ following a current reduction	Width 10/14 mm 25/25	Width 10/14 mm 135/205 120/165
Load voltage connection	Connection technology	AS-interface flat cable plug (included in scope of supply)	
	Nominal voltage [V]	DC 24 ±10%	
	Residual ripple [Vss]	4	
	Current consumption of valves ■ max. starting current (at 24 V) ■ starting current for 4 valves following current reduction	Width 10/14 mm 110/180 95/140	Width 10/14 mm 110/180 95/140
LED displays	ASI-LED	Green	
	24 V DC	Green	
	Solenoid coils	Yellow	
General data	Protection class (to EN 60 529)	IP65 (fully assembled)	
	Electromagnetic compatibility ■ Interference emission ■ Interference immunity	Tested to EN 55 011, limit value class B Tested to EN 50 082-2	
	CE symbol	Yes, in accordance with EU Directive 89/336/EEC	
	Temperature range [°C]	Operation: -5 ... +50; storage/transport: -20 ... +70	
	Materials	Plates, cover: polyphenylene sulphide (PPS), polyamide (PA6T/X-GF40); valve plate: AL-DD, polyphenylene sulphide (PPS), ST, AL; seal: nitrile rubber (NBR)	
	Dimensions	➔ 4 / 4.9-33	
	Grid dimension [mm]	10/14	10/14
Weight	➔ 4 / 2.1-104		
AS-interface data	ID code	F <sub>H</sub>	
	IO code	8 <sub>H</sub>	
	Profile	S-8.F	



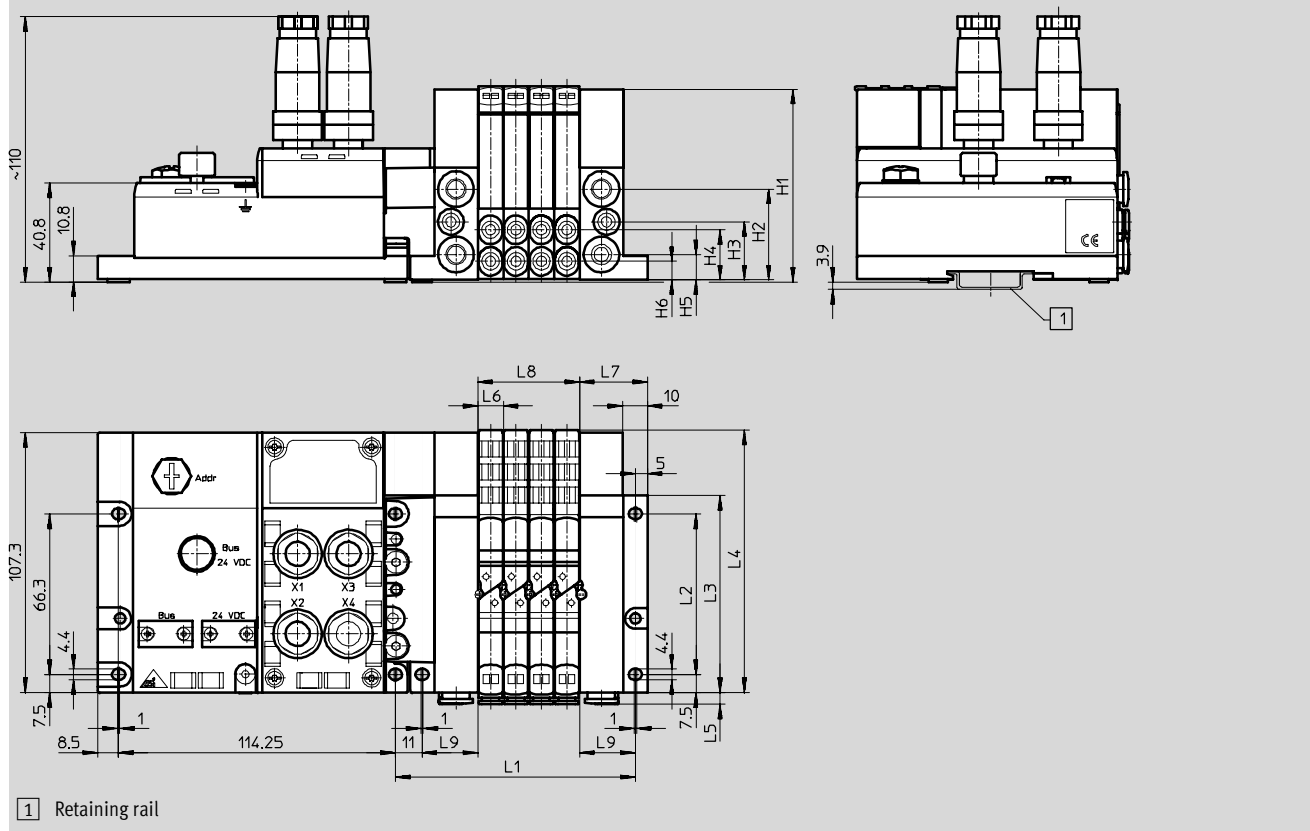
# AS-interface<sup>®</sup> components

CPA valve terminal – Dimensions

**Dimensions – CPA with AS-interface**

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

CPA-...-GE



Type	L1 <sup>1)</sup>	L2	L3	L4	L5	L6	L7	L8 <sup>1)</sup>	L9	H1	H2	H3	H4	H5	H6
CPA10	46 + 11 + (n x 10.6)	66.3	81.3	108.3	5.5	10.6	28	n x 10.6	23	79.5	37.5	24	20.7	10.5	7.7
CPA14	52 + 11 + (n x 14.6)	76.1	91.1	118.1	6.5	14.6	31	n x 14.6	26	92	43	27.5	26.5	12	9.5

1) n = Number of valves

# AS-interface® components

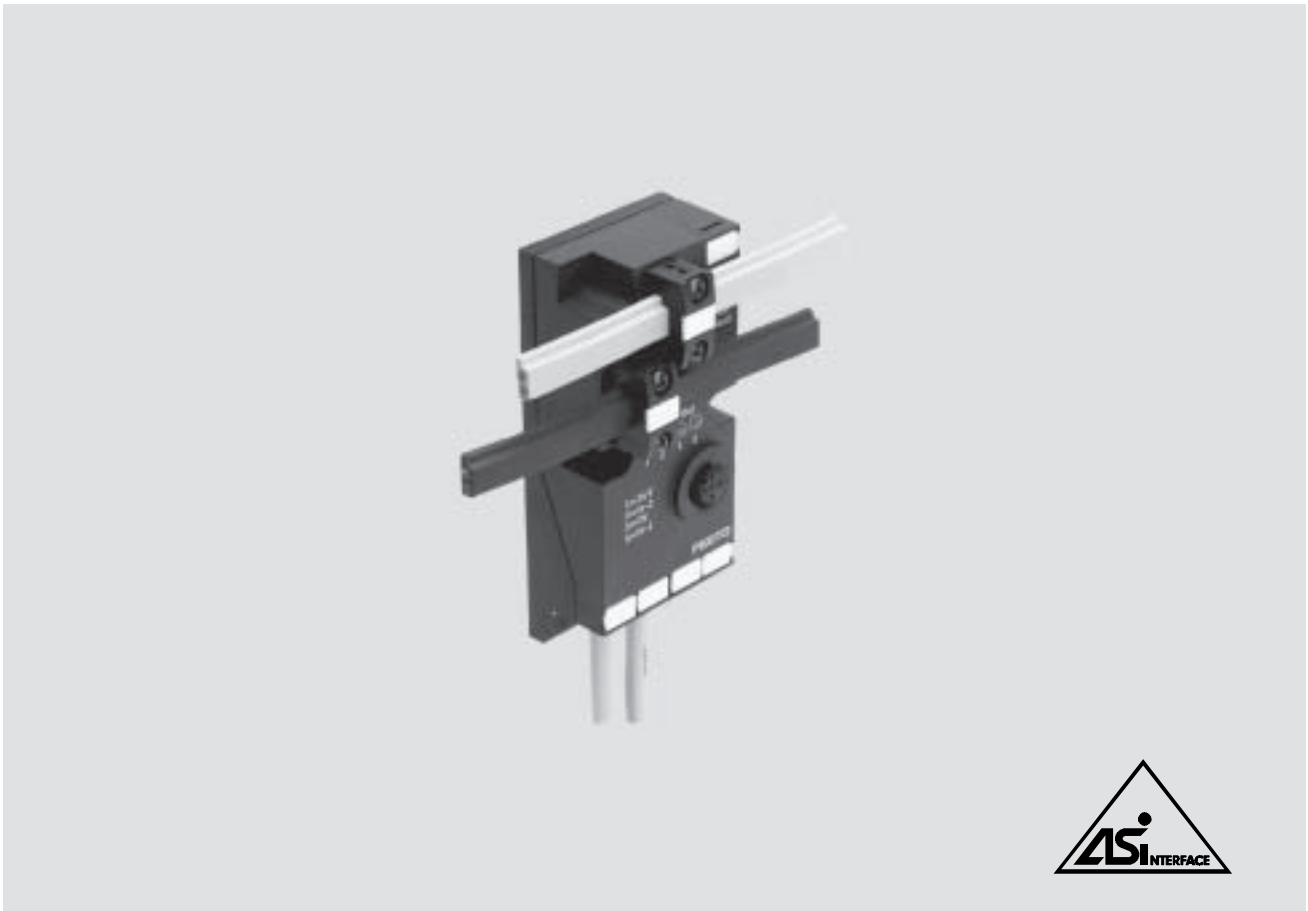
CPA valve terminal – Accessories

FESTO

CPA with AS-interface			
Designation	Type	Part No.	
<b>Bus connection</b>			
AS-interface flat cable, yellow, 100 m	KASI-1,5-Y-100	18 940	
AS-interface flat cable, black, 100 m	KASI-1,5-Z-100	18 941	
Flat cable socket	ASI-SD-FK	18 785	
Flat cable socket, turned through 180°	ASI-SD-FK180	196 089	
Flat cable blanking plug	ASI-SD-FK-BL	196 090	
AS-interface flat cable distributor, cable parallel	ASI-KVT-FK	18 786	
AS-interface flat cable distributor, cable symmetrical	ASI-KVT-FK-S	18 797	
Cable distributor (yellow and black) on 2x M12, 4-pin	ASI-KVT-FKx2-M12	527 474	
Cable cap for flat cable (scope of delivery 50 pieces)	ASI-KK-FK	18 787	
Cable sleeve (scope of delivery 20 pieces)	ASI-KT-FK	165 593	
M12 socket for flat cable	ASI-SD-FK-M12	18 788	
M12 socket for flat cable, with PG13.5	ASI-SD-PG-M12	18 789	
<b>Sensor plug</b>			
Sensor plug straight, M12, 5-pin, PG7	SEA-M12-GS-PG7	175 487	
Sensor plug straight, M12, 4-pin, PG7	SEA-GS-7	18 666	
Sensor plug straight, M12, PG9	SEA-GS-9	18 778	
Sensor plug, 4-pin, M12 for 2.5 mm cable Ø	SEA-4GS-7-2,5	192 008	
Sensor plug, straight, M8, screw-in	SEA-3GS-M8-S	192 009	
Sensor plug, straight, M8, solderable	SEA-GS-M8	18 696	
Sensor plug, Harax, 4-pin	SEA-GS-HAR-4POL	525 928	
Sub-D plug, 25-pin	SD-SUB-D-ST25	527 522	
Protective cap M12	ISK-M12	165 592	
Protective cap M8	ISK-M8	177 672	
<b>DUO plug</b>			
M12 DUO plug for 2 cables, 5-pin	SEA-5GS-11-DUO	192 010	
M12 DUO plug for 2 cables, 4-pin	SEA-GS-11-DUO	18 779	
<b>DUO cable M12 on 2x M8</b>			
DUO cable, 2x straight socket	KM12-DUO-M8-GDGD	18 685	
DUO cable, 2x straight/angled socket	KM12-DUO-M8-GDWD	18 688	
DUO cable, 2x angled socket	KM12-DUO-M8-WDWD	18 687	
<b>Extension cable</b>			
Extension cable, 4-pin, 2.5 m	KM12-M12-GSGD-2,5	18 684	
Extension cable, 4-pin, 5 m	KM12-M12-GSGD-5	18 686	
<b>Miscellaneous</b>			
Combi power pack for AS-interface	ASI-CNT-115/230-VAC-B	191 082	
Addressing device	ASI-PRG-ADR	18 959	
Addressing cable	KASI-ADR	18 960	
Inscription labels 6x10 in frames (64 pieces)	IBS 6x10	18 576	
Inscription labels 9x20 in frames (20 pieces)	IBS 9x20	18 182	
Attachment for H-rail mounting	CPA-BG-NRH	173 498	
<b>User documentation</b>			
Manual for CPA Pneumatics	German	P.BE-CPA-DE	173 514
	English	P.BE-CPA-EN	173 515
	French	P.BE-CPA-FR	173 516
	Italian	P.BE-CPA-IT	173 518
	Spanish	P.BE-CPA-ES	173 517
	Swedish	P.BE-CPA-SV	173 519

# AS-interface® components

Individual valve interface – Overview



## Individual valve interface

### General description and overview of variants

- With pre-assembled valve connector socket
- With open cable end
- As an input module
- For DNCV actuation (cylinder/valve combination)

Quick connection of valves to the AS-interface by means of Festo plug and work™.

- Tiger 2000, Tiger Classic
- MIDI
- CPE10, 14, 18, 24 and CPE-SC
- VDMA
- ISO size 1 ... 4
- Namur valves
- Directly actuated series
- On-off valve MFHE

All individual valve interfaces have two inputs for recording input signals via cylinder proximity sensors, inductive, capacitive or optical sensors.

### Flexible installation:

Install ASi-EVA at the front of the machine for easy servicing – the valves must be close to the actuator in the machine.

The load voltage (auxiliary power supply via the black cable) can be connected/disconnected separately.

### Optimal cost-effectiveness:

The ASi-EVA is a cost-effective way of connecting two valves or solenoid coils to the AS-interface:

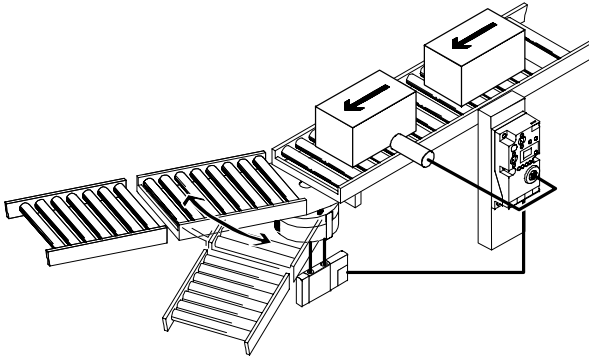
- One electronic unit for all
- Reduced logistics
- Quick installation
- Flexible mounting
- A broad range of accessories
- Optimal pneumatic sizing

# AS-interface® components

Individual valve interface – Overview

## Mounting options

### Installation



New and easy installation concepts are possible for the AS-interface thanks to the long cable outlets of the ASi-EVA individual valve interface. The electronics are installed at the front of the machine. This ensures that the LEDs and control elements are easy to read and operate. Installation and mounting is very straight-forward. The valve can be mounted close to the

cylinder and is easily connected via the pre-fitted cable outlet (0.5 or 1 m). This allows for shorter tubing lengths, quick motion sequences and a reduction in the amount of compressed air used.

## Mounting

### On an H-rail

You will need an adapter kit type CP-TS-HS35 in order to mount the individual valve interface on an H-rail (DIN mounting rail). This is available as an accessory.

### On an ITEM profile

The individual valve interface can be mounted directly on an ITEM profile with a gap of 40 mm using the two mounting holes on the left-hand side of the ASi-EVA housing.

### On a cylinder

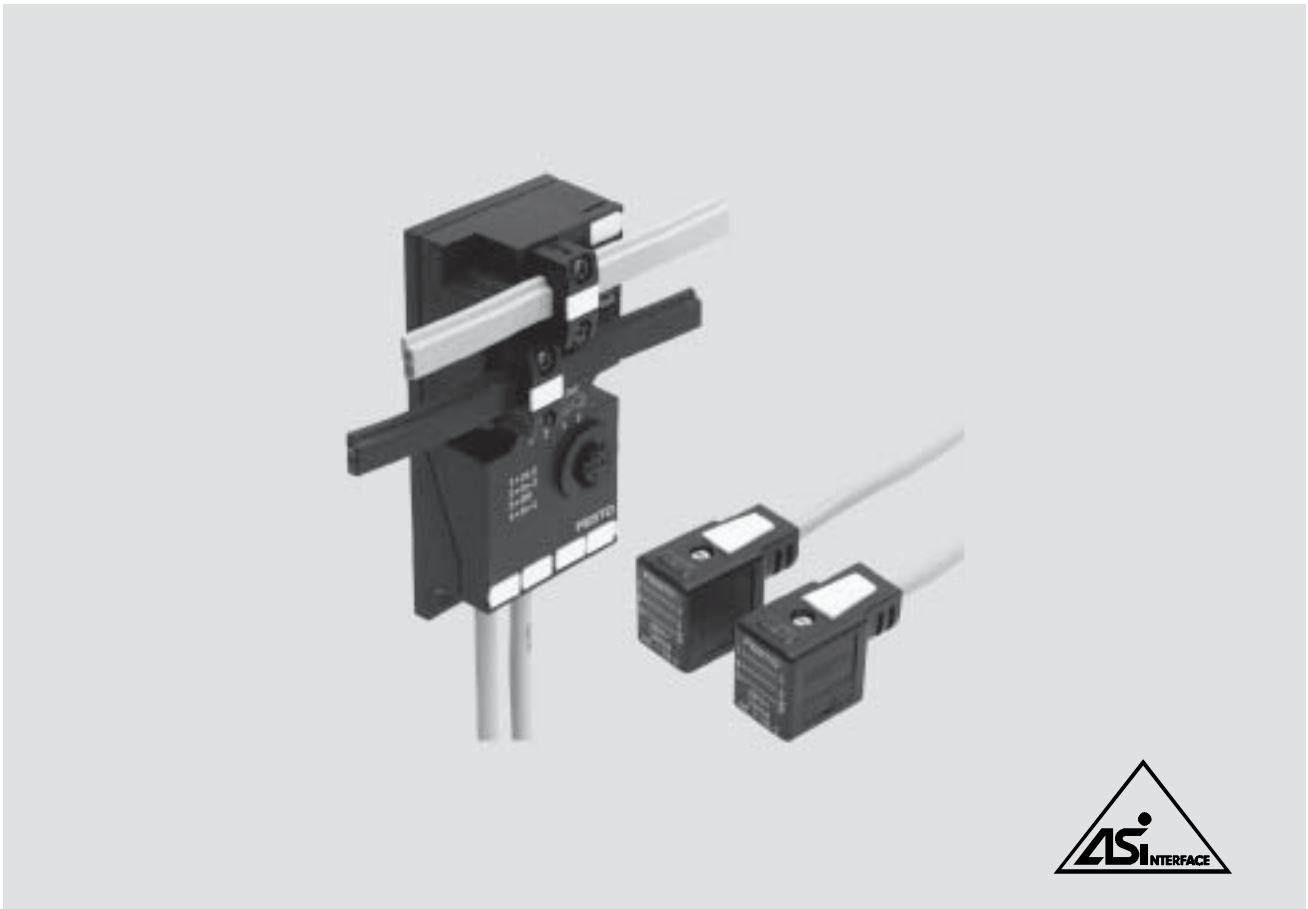
Mounting on a cylinder or stopper cylinder is easily accomplished using slot nuts, for example. The different widths of the cylinders are either compensated using the two elongated

holes on the ASi-EVA or else the ASi-EVA can be mounted laterally via the two holes on the left-hand side of the housing.

## AS-interface® components

Individual valve interface – Pre-assembled connection sockets

**FESTO**



### Individual valve interface – Pre-assembled valve plug sockets

#### General description

Ideal for Festo plug and work™  
Supports the connection of almost all Festo valves:

- Tiger 2000, Tiger Classic
- MIDI
- CPE10, 14, 18, 24 and CPE-SC
- VDMA size 1 or 2
- ISO size 1 ... 4
- Namur valves
- Directly actuated series MFH
- On-off valve MFHE

All individual valve interfaces have two inputs for recording input signals via cylinder proximity sensors, inductive, capacitive or optical sensors.

The load voltage (auxiliary power supply via the black cable) can be connected/disconnected separately.

#### Variants

- Cable length 0.5 m
- Modules equipped with one or two outputs can be supplied with matching valves with one or two solenoid coils
- Valve plug sockets for Festo MF, MEB and ZC coils
- Valves with a rating of up to 6 watts (12 watts if only one output is switched in parallel) can be connected
- Inputs based on IEC 1131-2, DC 24 V, PNP
- Up to 200 mA per input
- Two M12 sockets
- Two inputs on each M12 socket
- Suitable for Festo M12 DUO plugs and the DUO cables M12/2x M8
- Status LEDs for each input
- Fault LED and enhanced diagnosis as per C.S.2.1
- The auxiliary power supply is always integrated and can be subsequently switched off using the DIL switch
- Flat cable sockets are available (turned through 180° or standard) and must be ordered separately

#### Application

Cost-effective connection of two valves to the AS-interface. Fast installation thanks to the Festo plug and work™ design.

Decentralised machine and system structures, for example

- in conveyor technology
- in sorting systems
- in upstream machine functions
- for individual drives or stopper cylinders
- for service units and on-off valves
- for quarter-turn valve actuators and linear valve actuators in process engineering or water treatment

## AS-interface® components

Individual valve interface – Pre-assembled connection sockets



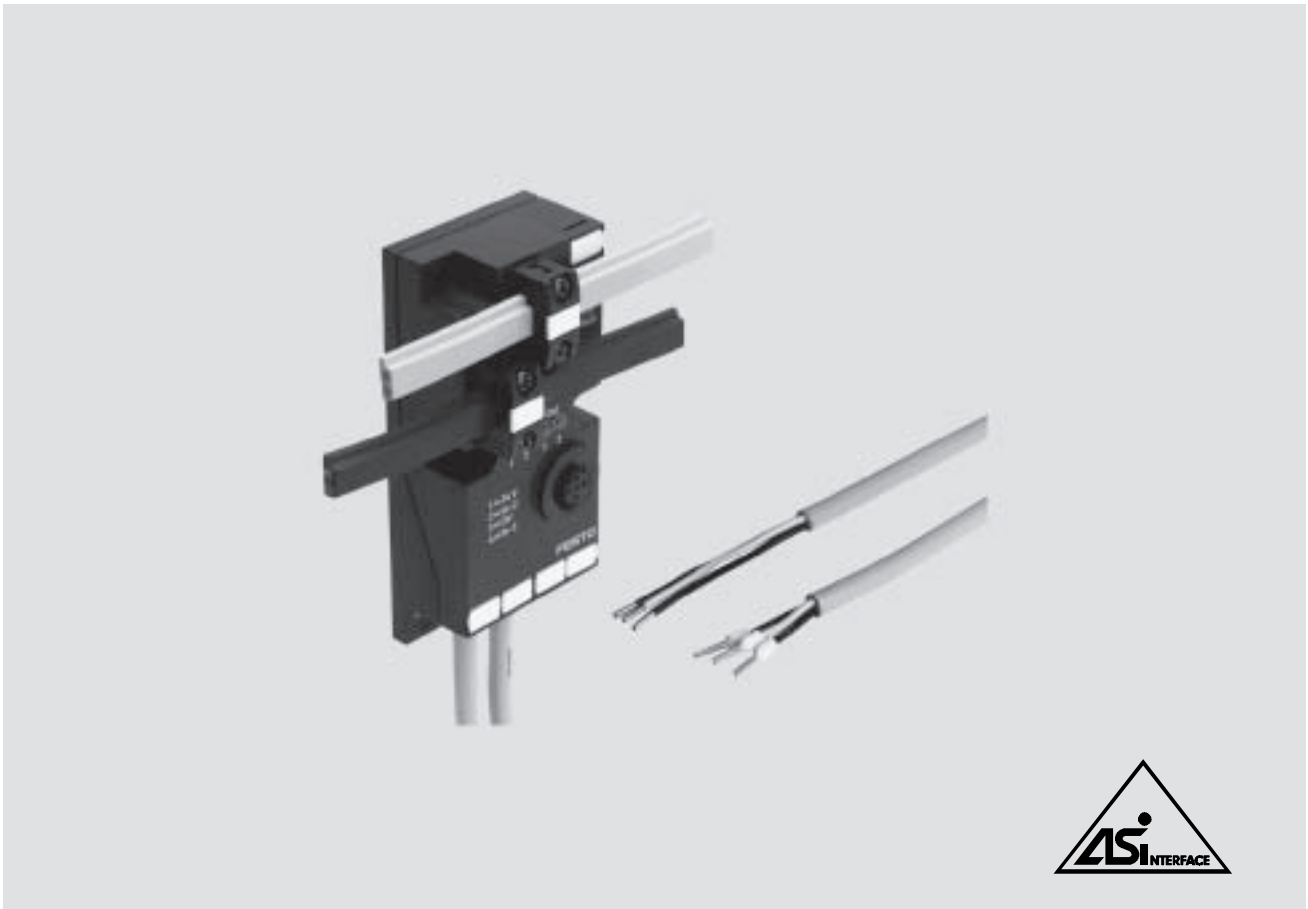
Technical data		ASi-EVA-MF-2E1A-Z	ASi-EVA-MF-2E2A-Z	ASi-EVA-MEB-2E1A-Z	ASi-EVA-MEB-2E2A-Z	ASi-EVA-MZB9-2E1A-Z	ASi-EVA-MZB9-2E2A-Z
Part No.		<b>196 081</b>	<b>196 082</b>	<b>196 085</b>	<b>196 086</b>	<b>196 083</b>	<b>196 084</b>
Solenoid coils	No. of connectable solenoid coils	1	2	1	2	1	2
	Cable length	Pre-assembled cable, 0.5 m per connecting cable					
	Cable type	Round cable 3x 0.5 mm <sup>2</sup> ; cable Ø 5.8 mm, PVC-JZ; colour: grey					
	Valve connection	F coils, DIN 43 650, type B (industrial standard)		EB coils, DIN 43 650, type C		ZC coils, e.g. Festo CPE10/14-M1BH and CPE-SC	
	Valve control design	Short circuit and overload proof					
	External power supply 24 V DC	Can be selected using the DIL switch					
	Current-carrying capacity [A]	0.5	2x 0.25	0.5	2x 0.25	0.5	2x 0.25
	Watchdog function	Active after 50 ms					
Digital inputs	Number	2					
	Connection technology	M12, 5-pin socket with double allocation					
	Sensor supply via AS-interface	Short circuit and overload proof					
	Sensor connection	2-wire and 3-wire sensors, light barriers, etc.					
	Version	IEC 11 31-2, type 02					
	Input circuitry	PNP (positive-switching)					
	Current-carrying capacity [mA]	Max. 200 per input, max. 200 all inputs					
	Logic level [V]	On: 11 ... 30; off: -30 ... 5					
	Reference potential	0 V					
Delay time	Typically 3 ms (at 24 V DC)						
AS-interface connection	Connection technology	AS-interface flat cable plug (must be ordered separately)					
	Voltage range [V]	DC 26.5 ... 31.6, polarity-safe					
	Residual ripple [mVss]	20					
	Current consumption	Current consumption of the electronics (basic load): max. 12 mA ■ plus the current consumption of the digital inputs ■ plus the current consumption of the outputs if there is no auxiliary power supply Total current consumption of the ASi-EVA: max. 240 mA					
Load voltage connection	Connection technology	AS-interface flat cable plug (must be ordered separately)					
	Nominal voltage [V]	DC 24 ±10%					
	Residual ripple [Vss]	4					
	Current consumption [A]	Max. 0.5 (at 24 V)					
	Output voltage [V]	Approx. 1.4 V less than the load or AS-interface voltage					
LED displays	Outputs/inputs	Two each (yellow/green)					
	ASI-LED	Power/green					
	AUX-PWR-LED	Auxiliary power supply/green					
	FAULT-LED	Fault LED/red					
Diagnosis	Peripherals fault	To specification C.S.2.1, red FAULT-LED					
General data	Protection class (to EN 60 529)	IP65 (fully assembled)					
	CE symbol	Yes, in accordance with EU Directive 89/336/EEC					
	Temperature range [°C]	Operation: -5 ... +50; storage/transport: -20 ... +70					
	Materials	Polyamide (PA6-GF25), Aterul					
	Dimensions [mm]	Approx. 102 x 46 x 28.5					
	Weight [g]	200					
AS-interface data	ID code	ID = F <sub>H</sub> ; ID1 = F <sub>H</sub> <sup>1</sup> ; ID2 = E <sub>H</sub>					
	IO code	B <sub>H</sub>					
	Profile	S-B.FE					

1) Factory setting, set to 0<sub>H</sub> by some programming devices (Spec.2.1) when addressing the slave

## AS-interface® components

Individual valve interface – With open cable ends

FESTO



### Individual valve interface – With open cable ends

#### General data

Ideal for the flexible connection of almost all valves and other consuming devices:

- Longer cable outlet of up to 1 m
- Pneumatic valves with special connector sockets
- Hydraulic valves
- Other consuming devices

All individual valve interfaces have two inputs for recording input signals via cylinder proximity sensors, inductive, capacitive or optical sensors.

The load voltage (auxiliary power supply via the black cable) can be connected/disconnected separately.

#### Variants

- Cable length 1 m
- Can be supplied with one or two outputs
- Ideal for the quick connection of valve plug sockets using insulation displacement technology or conventional connection technology
- Valves and consuming devices with a rating of up to 6 watts (12 watts if only one output is switched in parallel) can be connected
- Inputs based on IEC 1131-2, DC 24 V, PNP
- Up to 200 mA per input
- Two M12 sockets
- Two inputs on each M12 socket
- Suitable for Festo M12 DUO plugs and the DUO cables M12/2x M8
- Status LEDs for each input
- Fault LED and enhanced diagnosis as per C.S.2.1
- The auxiliary power supply is always integrated and can be subsequently switched off using the DIL switch
- Flat cable sockets are available (turned through 180° or standard) and must be ordered separately

#### Application

Flexible and cost-effective connection of one or two valves or other consuming devices to the AS-interface.

Decentralised machine and system structures, for example

- in conveyor technology
- in sorting systems
- in upstream machine functions
- for individual drives or stopper cylinders
- for service units and on-off valves
- for quarter-turn valve actuators and linear valve actuators in process engineering or water treatment
- for applications outside of conventional pneumatics

## AS-interface® components

Individual valve interface – With open cable ends

**FESTO**

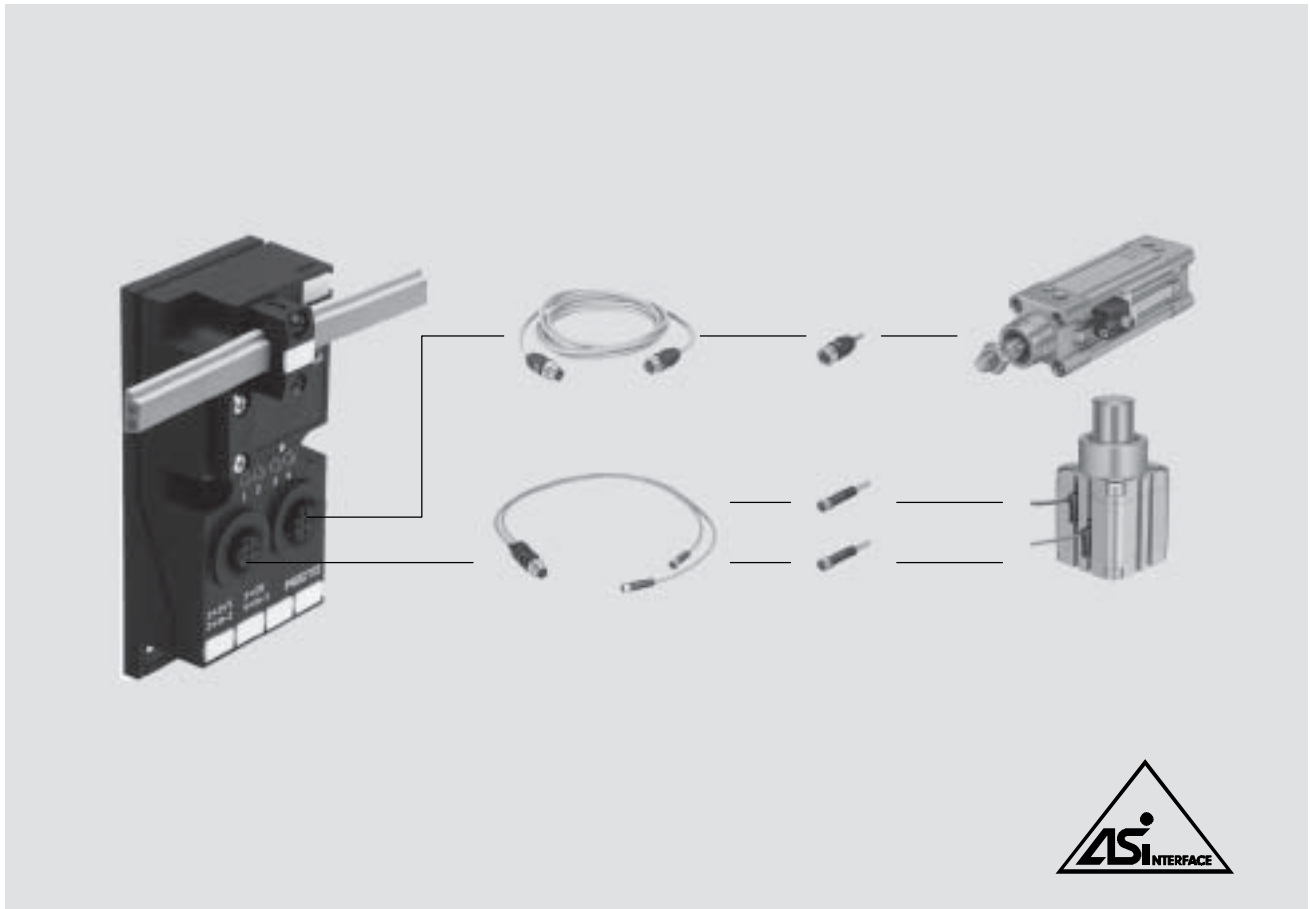
Technical data			
Type	ASI-EVA-K1-2E1A-Z	ASI-EVA-K1-2E2A-Z	
Part No.	<b>196 087</b>	<b>196 088</b>	
Outputs/valves	Number of outputs/valves	1	2
	Cable length [m]	1 m	
	Cable type	Round cable 3x 0.5 mm <sup>2</sup> ; cable Ø 5.8 mm, PVC-JZ; colour: grey	
	Output/valve connection	Open cable end, 3-core BL1 = 24 V, BL2 = 0 V, gr/ye = n.c.	Open cable end, 3-core BL1 = 24 V, BL2 = 0 V, gr/ye = n.c.
	Valve control design	Short circuit and overload proof	
	External power supply 24 V DC	Can be selected using the DIL switch	
	Current-carrying capacity [A]	0.5	2x 0.25
	Watchdog function	Active after 50 ms	
	Digital inputs	Number	2
Connection technology		M12, 5-pin socket with double allocation	
Sensor supply via AS-interface		Short circuit and overload proof	
Sensor connection		2-wire and 3-wire sensors, light barriers, etc.	
Version		IEC 1131-2, type 02	
Input circuitry		PNP (positive-switching)	
Current-carrying capacity [mA]		Max. 200 per input, max. 200 all inputs	
Logic level [V]		On: 11 ... 30; off: -30 ... 5	
Reference potential		0 V	
Delay time		Typically 3 ms (at 24 V DC)	
AS-interface connection	Connection technology	AS-interface flat cable plug (must be ordered separately)	
	Voltage range [V]	DC 26.5 ... 31.6, polarity-safe	
	Residual ripple [mVss]	20	
	Current consumption	Current consumption of the electronics (basic load): max. 12 mA ■ plus the current consumption of the digital inputs ■ plus the current consumption of the outputs if there is no auxiliary power supply Total current consumption of the ASI-EVA: max. 240 mA	
Load voltage connection	Connection technology	AS-interface flat cable plug (must be ordered separately)	
	Nominal voltage [V]	DC 24 ±10%	
	Residual ripple [Vss]	4	
	Current consumption [A]	Max. 0.5 (at 24 V)	
	Output voltage [V]	Approx. 1.4 V less than the load or AS-interface voltage	
LED displays	Outputs/inputs	Two each (yellow/green)	
	ASI-LED	Power/green	
	AUX-PWR-LED	Auxiliary power supply/green	
	FAULT-LED	Fault LED/red	
Diagnosis	Peripherals fault	To specification C.S.2.1, red FAULT-LED	
General data	Protection class (to EN 60 529)	IP65 (fully assembled)	
	CE symbol	Yes, in accordance with EU Directive 89/336/EEC	
	Temperature range	Operation: -5 ... +50 °C; storage/transport: -20 ... +70 °C	
	Materials	Polyamide (PA6-GF25), Aterul	
	Dimensions [mm]	Approx. 102 x 46 x 28.5	
	Weight [g]	200	
AS-interface data	ID code	ID = F <sub>H</sub> ; ID1 = F <sub>H</sub> <sup>1</sup> ; ID2 = E <sub>H</sub>	
	IO code	B <sub>H</sub>	
	Profile	S-B.FE	

1) Factory setting, set to 0<sub>H</sub> by some programming devices (Spec.2.1) when addressing the slave



## AS-interface® components

Individual valve interface – Input module with 4 inputs



### Individual valve interface – Input module with 4 inputs

#### General data

- 4-fold input module ideal for the connection of additional
- proximity sensors for cylinders
  - sensors
  - light barriers
  - other digital input signals

Suitable for use with the valve terminals

- MIDI/MAXI
- CPA
- CPV
- or as an input module for any desired inputs

The inputs are short circuit proof and easy to install on the AS-interface. Simply connect to the yellow cable and you're ready to go.

#### Variant

- Inputs based on IEC 1131-2, DC 24 V, PNP
- Up to 200 mA per input
- Two M12 sockets
- Two inputs on each M12 socket
- Suitable for Festo M12 DUO plugs and the DUO cables M12/2x M8
- Status LEDs for each input
- Fault LED and enhanced diagnosis as per C.S.2.1
- Ready-to-connect cable for Festo plug and work™ installation
- Flat cable sockets are available (turned through 180° or standard) and must be ordered separately

#### Application

- Flexible and cost-effective connection of one to four sensors to the AS-interface. Decentralised machine and system structures, for example
- in conveyor technology
  - in sorting systems
  - in upstream machine functions
  - for all types of inputs

## AS-interface® components

Individual valve interface – Input module with 4 inputs

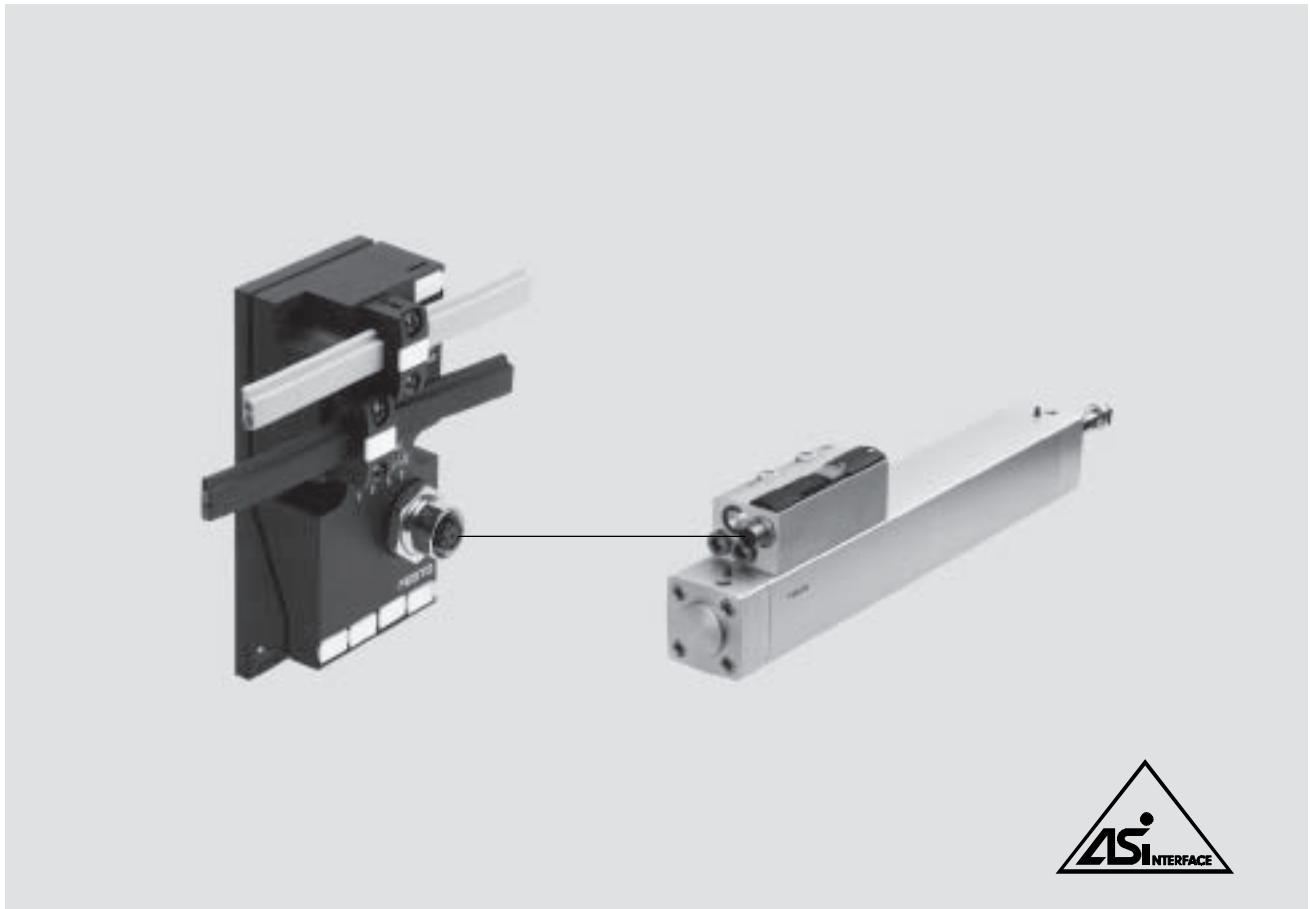


Technical data		
Type	ASI-EVA-4E-M12-5POL	
Part No.	<b>196 087</b>	
Digital inputs	Number of digital inputs	4
	Connection technology	M12, 5-pin socket with double allocation
	Sensor supply via AS-interface	Short circuit and overload proof
	Sensor connection	2-wire and 3-wire sensors, light barriers, etc.
	Version	IEC 1131-2, type 02
	Input circuitry	DC 24 V, PNP (positive-switching)
	Current-carrying capacity [mA]	Max. 200 per input, max. 200 all inputs
	Logic level [V]	On: 11 ... 30; off: -30 ... 5
	Reference potential [V]	0
	Delay time	Typically 3 ms (at 24 V DC)
AS-interface connection	Connection technology	AS-interface flat cable plug (must be ordered separately)
	Voltage range [V]	DC 26.5 ... 31.6, polarity-safe
	Residual ripple [mVss]	20
	Current consumption	Current consumption of the electronics (basic load): max. 12 mA ■ plus the current consumption of the digital inputs Total current consumption of the ASI-EVA: max. 240 mA
LED displays	Inputs	In/green
	ASI-LED	Power/green
	FAULT-LED	Fault LED/red
Diagnosis	Peripherals fault	As per specification C.S.2.1, additionally red LED
	Protection class (to EN 60 529)	IP65 (fully assembled)
	Electromagnetic compatibility	Tested to EN 50 295 (low voltage switchgear)
	CE symbol	Yes, in accordance with EU Directive 89/336/EEC
	Temperature range [°C]	Operation: -5 ... +50; storage/transport: -20 ... +70
	Materials	Polyamide (PA6-GF25), Aterul
	Dimensions [mm]	Approx. 102 x 46 x 28.5
	Weight [g]	200
AS-interface data	ID code	1 <sub>H</sub>
	IO code	0 <sub>H</sub>
	Profile	S-0.1

## AS-interface® components

Individual valve interface – Interface for DNCV

**FESTO**



### Individual valve interface – Interface for DNCV

#### General data

Special interface module for DNCV. Designed for an integrated cylinder/valve combination with integrated diagnostic module.

The pneumatic drive conforms as near as possible to the international standard DIN/ISO 6431 as well as the further standards VDMA 24 562, NFE 49 003 and UNI 10 290.

#### Variant

Interface for DNCV

- Two inputs and two outputs as well as a diagnostic input on one 8-pin M12 socket
- Inputs based on IEC 1131-2, DC 24 V, PNP
- Up to 200 mA per input
- Two M12 sockets
- Two inputs on each M12 socket
- Suitable for Festo M12 DUO plugs and the DUO cables M12/2x M8

- Status LEDs for each input
- Fault LED and enhanced diagnosis as per C.S.2.1
- Optimised design for Festo DNCV with integrated diagnostic module
- Ready-to-connect cable for Festo plug and work™ installation: KM12-8GD8GS-2-PU
- Flat cable sockets are available (turned through 180° or standard) and must be ordered separately

#### Application

Easy and flexible connection of special cylinders in upstream applications to the AS-interface.

- Valve and cylinder integrated
- Flow control valves integrated
- Limit switch integrated and adjustable
- Single supply of data and power via a flat cable
- Easy diagnosis and servicing thanks to the separation of the drive and interface

# AS-interface® components

Individual valve interface – Interface for DNCV

Technical data		
Type	ASI-EVA-2E2A-M12-8POL-Z	
Part No.	<b>197 070</b>	
Outputs/valves	Number of outputs/valves	2
	Version	Designed for DNCV (cylinder/valve combination)
	Cable length [m]	2
	Cable type	Round cable 8x 0.25 mm <sup>2</sup> ; cable Ø 5.8 mm; insulation: PVC; sheath: PUR; colour: grey
	Valve connection	M12 plug, 8-pin, pin 5, 6 and 8
	Valve control design	Short circuit and overload proof
	External power supply 24 V DC	Can be selected using the DIL switch
	Current-carrying capacity <sup>1)</sup> [A]	2x 0.25
	Watchdog function	Active after 50 ms
Digital inputs	Number	2
	Connection technology	M12 plug, 8-pin; sensors: pin 2, 3 and 4; diagnosis: pin 1 and 7
	Sensor supply via AS-interface	Short circuit and overload proof
	Sensor connection	Designed for DNCV (with integrated limit switches)
	Version	IEC 1131-2, type 02
	Input circuitry	DC 24 V, PNP (positive-switching)
	Current-carrying capacity [mA]	Max. 200 per input, max. 200 all inputs
AS-interface connection	Connection technology	AS-interface flat cable plug (must be ordered separately)
	Voltage range [V]	DC 26.5 ... 31.6, polarity-safe
	Residual ripple [mVss]	20
	Current consumption	Current consumption of the electronics (basic load): max. 12 mA <ul style="list-style-type: none"> <li>■ DNCV inputs</li> <li>■ DNCV valves</li> </ul> Total current consumption of the ASI-EVA: max. 240 mA
Load voltage connection	Connection technology	AS-interface flat cable plug (must be ordered separately)
	Nominal voltage [V]	DC 24 ±10%
	Residual ripple [Vss]	4
	Current consumption [A]	Max. 0.5 (at 24 V)
	Output voltage [V]	Approx. 1.4 V less than the load or AS-interface voltage
LED displays	Outputs/inputs	Two each (yellow/green)
	ASI-LED	Power/green
	AUX-PWR-LED	Auxiliary power supply/green
	FAULT-LED	Fault LED/red, also for DNCV diagnosis
Diagnosis	Peripherals fault	To specification C.S.2.1, red FAULT-LED
General data	Protection class (to EN 60 529)	IP65 (fully assembled)
	Electromagnetic compatibility	Tested to EN 50 295 (low voltage directive)
	CE symbol	Yes, in accordance with EU Directive 89/336/EEC
	Temperature range [°C]	Operation: -5 ... +50; storage/transport: -20 ... +70
	Materials	Polyamide (PA6-GF25), Aterul
	Dimensions [mm]	Approx. 102 x 46 x 28.5
AS-interface data	Weight [g]	200
	ID code	ID = F <sub>H</sub> ; ID1 = F <sub>H</sub> <sup>3)</sup> ; ID2 = E <sub>H</sub>
	IO code	B <sub>H</sub>
Parameter P3	Profile	S-B.F.E
	DNCV diagnostic function	1: enable; 0: disable
	Default	1 for DNCV with diagnostic module <sup>2)</sup>

1) With an external voltage supply, otherwise the total current consumption is max. 240 mA  
 2) The diagnostic input must be defined for DNCV without a diagnostic module  
 3) Factory setting, set to 0<sub>H</sub> by some programming devices (Spec.2.1) when addressing the slave

# AS-interface® components

Individual valve interface – Interface for DNCV

## Diagnosis and parameterisation

The AS-i individual interface type ASI-EVA-2E2A-M12-8POL-Z supports the evaluation of a diagnostic output from drive/valve combinations, for example cylinder/valve combination DNCV.

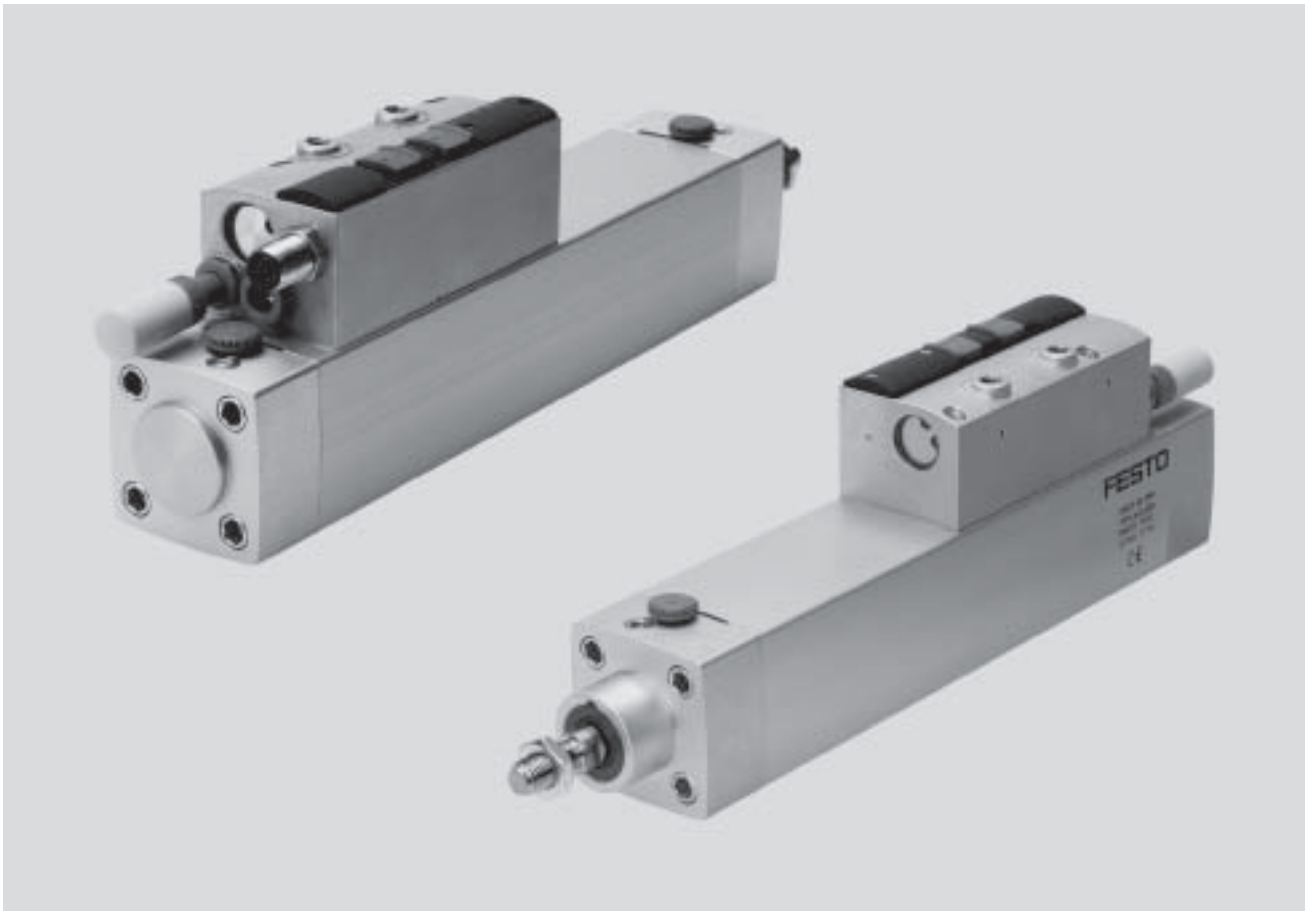
Any faults or malfunctions that occur within a drive/valve combination (0 signal at pin 7) are indicated as peripherals faults of the slave at the AS-interface master.

Diagnosis of the individual valve interface can be deactivated via the AS-interface parameter port P3.

## Parameter port settings

Parameter port P3	Description
P3 = 1 (diagnosis active, factory setting)	Faults in the slave as well as a 0 signal <sup>1)</sup> at the diagnostic input (pin 7) will be indicated as peripherals faults.
P3 = 0 (diagnosis inactive)	Faults in the slave as well as a 0 signal <sup>1)</sup> at the diagnostic input (pin 7) will not be indicated as peripherals faults.

1) 0 signal = Error message from the drive/valve combination or wire break



## Cylinder/valve combination DNCV

### Easy to assemble

- Fully assembled and tested drive unit
- Minimised expenditure in the area of ordering, installation and commissioning
- Direct mounting
- Integrated proximity sensors for position sensing
- Integrated exhaust air flow control

### Compatible

- Comprehensive range of accessories from the standard cylinder modular system
- Multi-pin connection as interface to PLC, AS-i module ASi-EVA or CPX terminal (various bus protocols)
- Dimensions largely compliant with DIN ISO 6431 and VDMA 24 562

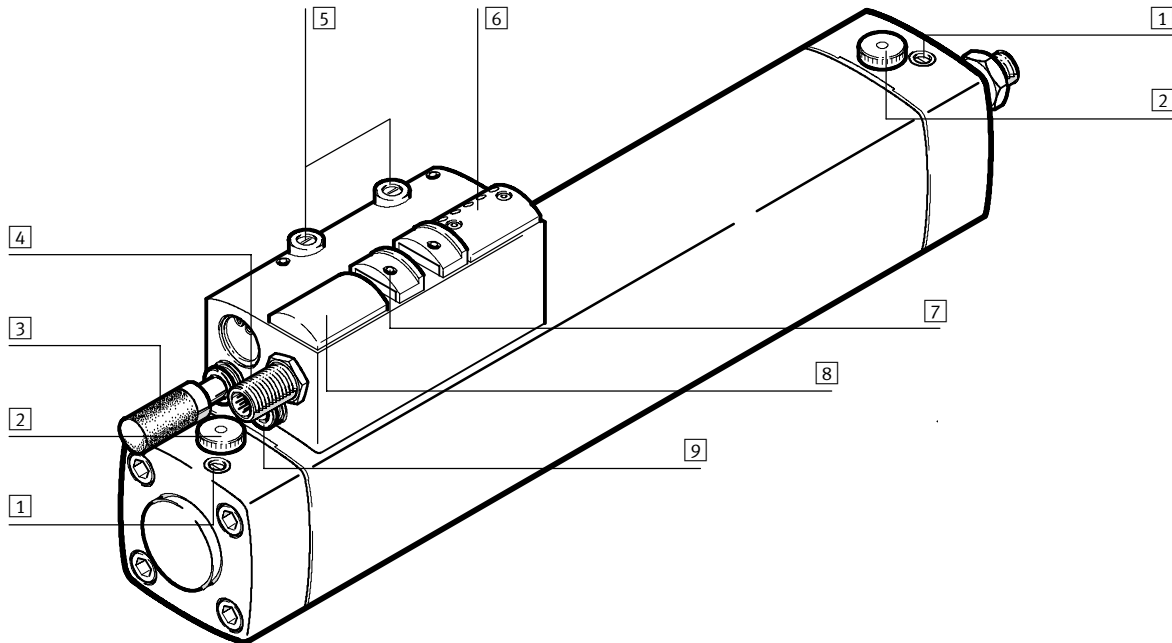
### Flexible

- Integrated 5/2-way or 5/3-way valves
- Optional diagnostic module for monitoring of stroke duration and number of strokes

### Reliable

- Status displays for piston position and valve actuation
- Rapid response times through direct connection of the valve and drive
- Adjustable pneumatic end-position cushioning
- Manual override

## High functionality



- |  |  |  |  |
|--|--|--|--|
| <p>1 Regulating screw for pneumatic end-position cushioning PPV</p> <p>2 Adjusting knob for fine adjustment of the position of the integrated proximity sensors (removable to prevent inadvertent resetting)</p> | <p>3 Silencer (QS push-in connector for exhaust air)</p> <p>4 Multi-pin connection, M12 plug, 8-pin for ASI-EVA-2E2A-M12-8POL-Z</p> <p>5 Regulating screws for stroke speed, separated for forward and return stroke</p> | <p>6 Diagnostic module (optional) with LEDs for displaying the piston position, valve switching status and for diagnosis of stroke duration and number of strokes</p> <p>7 Manual override, non-detenting or detenting</p> | <p>8 Valve</p> <p>9 Supply port (QS push-in connector)</p> |
|--|--|--|--|

## Basic diagnosis

### Proximity switch monitoring:

Display of the piston position (retracted or advanced end position).

The diagnostic LED lights up in the case of double signalling. The error signal is not output to the controller.

### Diagnostic module DNCV-...-D (optional, expandable)

#### Proximity switch monitoring:

In the event of a malfunction or double signalling, apart from the diagnostic LED lighting up, the signal level at the diagnostic output also changes from 24 V to 0 V.

#### Monitoring of stroke duration:

The motion duration for the forward and return stroke is compared with a limit value that is pre-selected using DIP switches. This limit value can be adjusted in increments from 0.1 s to max. 6.3 s. If the limit value is exceeded, the diagnostic LED lights up and the signal level at the diagnostic output changes from 24 V to 0 V.

#### Monitoring of number of strokes:

The number of strokes is compared with a limit value that is pre-selected using DIP switches. This limit value can be adjusted in increments from 10,000 strokes to max. 630,000 strokes. If this limit value is exceeded, the diagnostic LED flashes and the signal level at the diagnostic output changes from 24 V to 0 V. This change in signal level can also be deactivated.



Valve		Valve	
Circuit symbol	Description	Circuit symbol	Description
<b>5/2L</b> 	<p>5/2-way valve, single solenoid with spring return: The valve is normally closed, the piston rod retracts.</p>	<b>5/2J</b> 	<p>5/2-way valve, double solenoid (bistable valve): The valve does not have a defined normal position; instead, it requires the electrical actuator or manual override for a defined switching status. The piston rod therefore retracts or advances in accordance with the current valve position.</p>
<b>5/3B</b> 	<p>5/3-way valve, pressurised in mid-position: The piston rod advances when the valve is in the normal position due to the differential piston areas.</p>	<b>5/3E</b> 	<p>5/3-way valve, exhausted in mid-position: In the normal valve position, the piston rod is not subjected to any pressure forces; the piston rod can therefore be moved freely.</p>
<b>5/3G</b> 	<p>5/3-way valve, closed in mid-position: The piston rod is subjected to pressure when the valve is in the normal position and therefore remains in the current position. The piston rod may, however, drift when external forces are present; it is particularly important to be aware of this in the case of vertical cylinder configurations.</p>		

Manual override		Manual override	
Function diagram	Description	Function diagram	Description
	<p>Non-detenting actuation: The manual override is activated using a pointed object.</p>		<p>Detenting actuation: The manual override is actuated by moving the slide.</p>

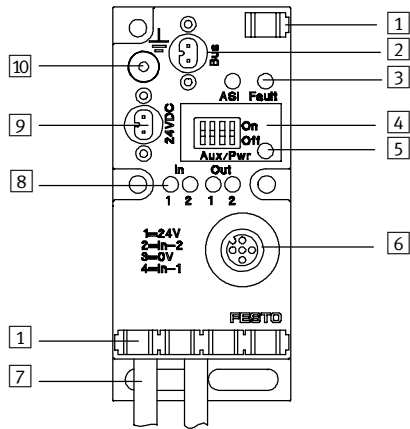


# AS-interface® components

Individual valve interface – Connections/displays

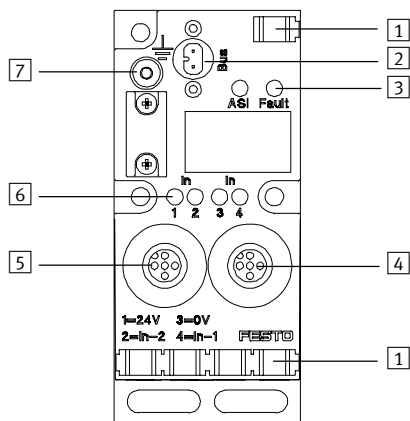
## Overview of connections/displays – ASI-EVA

Individual valve interface – 2I20, 2I10



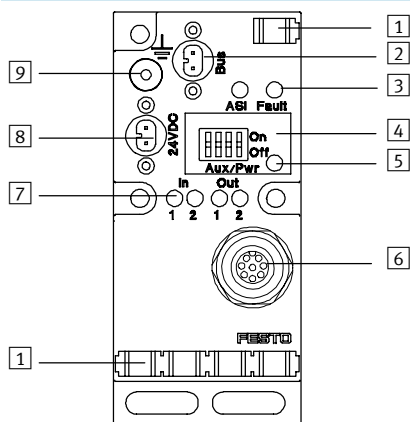
- 1 Inscription labels
- 2 AS-interface bus connection
- 3 ASi-LED (power/green), FAULT-LED (fault/red)
- 4 DIL switch for load voltage connection
- 5 AUX-PWR-LED
- 6 Sensor connection
- 7 1 or 2 connecting cables for outputs (valves)
- 8 LED display for  
– outputs  
– inputs
- 9 Auxiliary power supply, outputs/valves
- 10 Functional earthing connection

## Input module with 4 inputs



- 1 Inscription labels
- 2 AS-interface bus connection
- 3 ASi-LED (power/green), FAULT-LED (fault/red)
- 4 Sensor connection 2 (inputs 3 and 4)
- 5 Sensor connection 1 (inputs 1 and 2)
- 6 LED status display for inputs (In, green)
- 7 Functional earthing connection

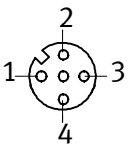
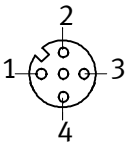
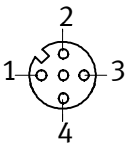
## Interface for DNCV

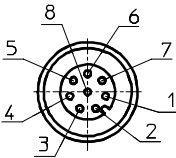


- 1 Inscription labels
- 2 AS-interface bus connection
- 3 ASi-LED (power/green), FAULT-LED (fault/red)
- 4 DIL switch for load voltage connection
- 5 AUX-PWR-LED
- 6 DNCV sensor/valve connection
- 7 LED display for  
– valve  
– sensors
- 8 Additional power supply for valve
- 9 Functional earthing connection

# AS-interface® components

Individual valve interface – Connections

Pin allocation			
Inputs	X1	X2	LED
ASI-EVA-...-2E-...-A-Z			
	1: 24 V DC	-	IN-2
	2: Input IN-2		IN-1
	3: 0 V		
	4: Input IN-1		
	5: n.c.		
ASI-EVA-...-4E-M12-5POL			
	1: 24 V DC	-	IN-2
	2: Input IN-2		IN-1
	3: 0 V		
	4: Input IN-1		
	5: n.c.		
	-	1: 24 V DC	IN-4
		2: Input IN-4	IN-3
		3: 0 V	
		4: Input IN-3	
		5: n.c.	

Pin allocation			
Inputs/outputs	X1		LED
ASI-EVA-2E2A-M12-8POL-Z			
	1: 24 V DC		
	2: Sensor IN-2		IN-2
	3: Sensor IN-1		IN-1
	4: 0 V sensors		
	5: Coil 14 OUT-2		OUT-2
	6: Coil 12 OUT-1		OUT-1
	7: Diagnosis		
	8: 0 V sensors		

Pin allocation		
AS-i interface		
	<b>1</b> AS-interface bus 1: + (light blue) 2: - (brown)	<b>2</b> Auxiliary power supply 1: 0 V 2: + 24 V DC

Open cable allocation	
for any inputs/outputs	
black 1/2	24 V DC/0 V
green/yellow	n.c.

Fieldbus systems/electrical peripherals  
AS-interface components

4.9

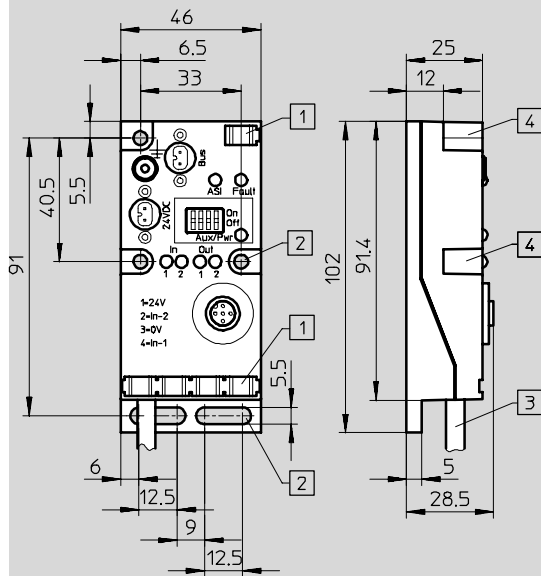
# AS-interface® components

Individual valve interface – Dimensions

## Dimensions – ASI-EVA

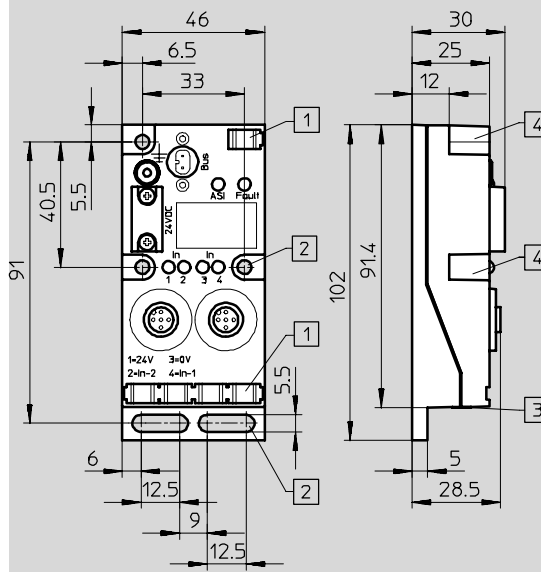
Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

### Individual valve interface



- 1 Inscription label mounting
- 2 Mounting hole for surface mounting
- 3 Cable module
- 4 Mounting hole for ITEM profile  
40 mm or other mounting option

### Input module with 4 inputs



- 1 Inscription label mounting
- 2 Mounting hole for surface mounting
- 3 Ring seal
- 4 Mounting hole for ITEM profile  
40 mm or other mounting option

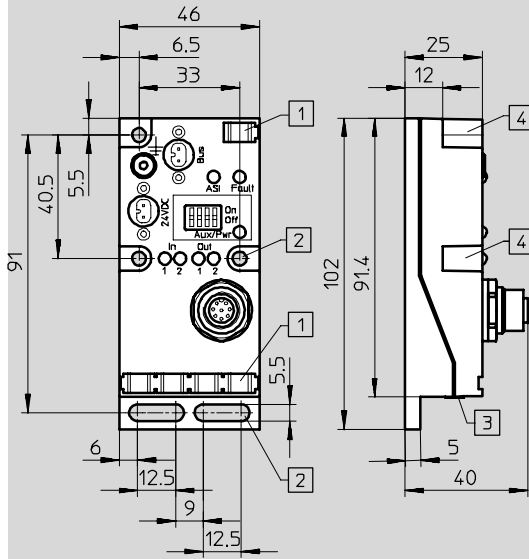
# AS-interface® components

Individual valve interface – Dimensions

## Dimensions – ASI-EVA

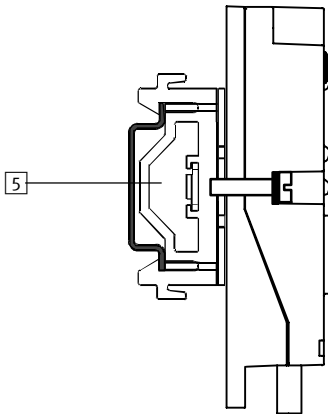
Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

Interface for DNCV



- 1 Inscription label mounting
- 2 Mounting hole for surface mounting
- 3 Ring seal
- 4 Mounting hole for ITEM profile  
40 mm or other mounting option

## Example of H-rail mounting



- 5 H-rail mounting on mounting rail EN 50 022 35 x 15 using adapter kit CP-TS-HS32

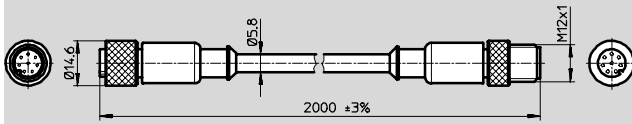
# AS-interface® components

Individual valve interface – Dimensions

## Dimensions – Connecting cable

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

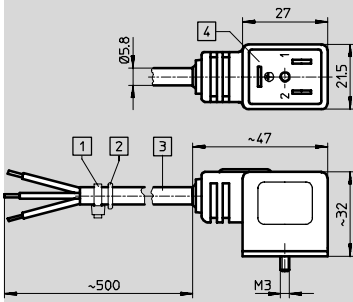
KM12-8GD8GS-2-PU



## Dimensions – Pin allocation for solenoid coils

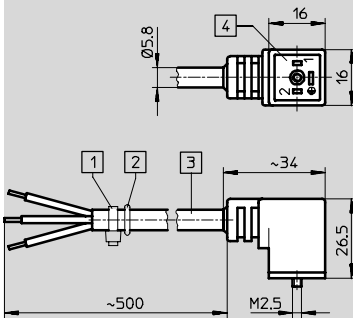
Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

ASI-EVA-MF-2E...-A-Z



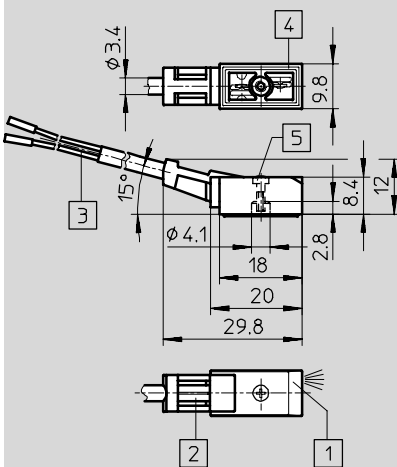
- 1 Cable binder
- 2 O-ring 5x 1.5
- 3 3-core cable 0.5 m (3x 0.25 mm<sup>2</sup>)
- 4 Connections for plug to EN 175 301-803 type C

ASI-EVA-MEB-2A...-A-Z



- 1 Cable binder
- 2 O-ring 5x 1.5
- 3 3-core cable 0.5 m (3x 0.5 mm<sup>2</sup>)
- 4 Connections for plug to EN 175 301-803 type B

ASI-EVA-MZB9-2E...-A-Z



- 1 LED display
- 2 Holder for inscription label
- 3 2-core cable 0.5 m (2x 0.25 mm<sup>2</sup>)
- 4 Connections for MZC
- 5 Mounting screw M2 x 8, max. tightening torque 0.35 Nm

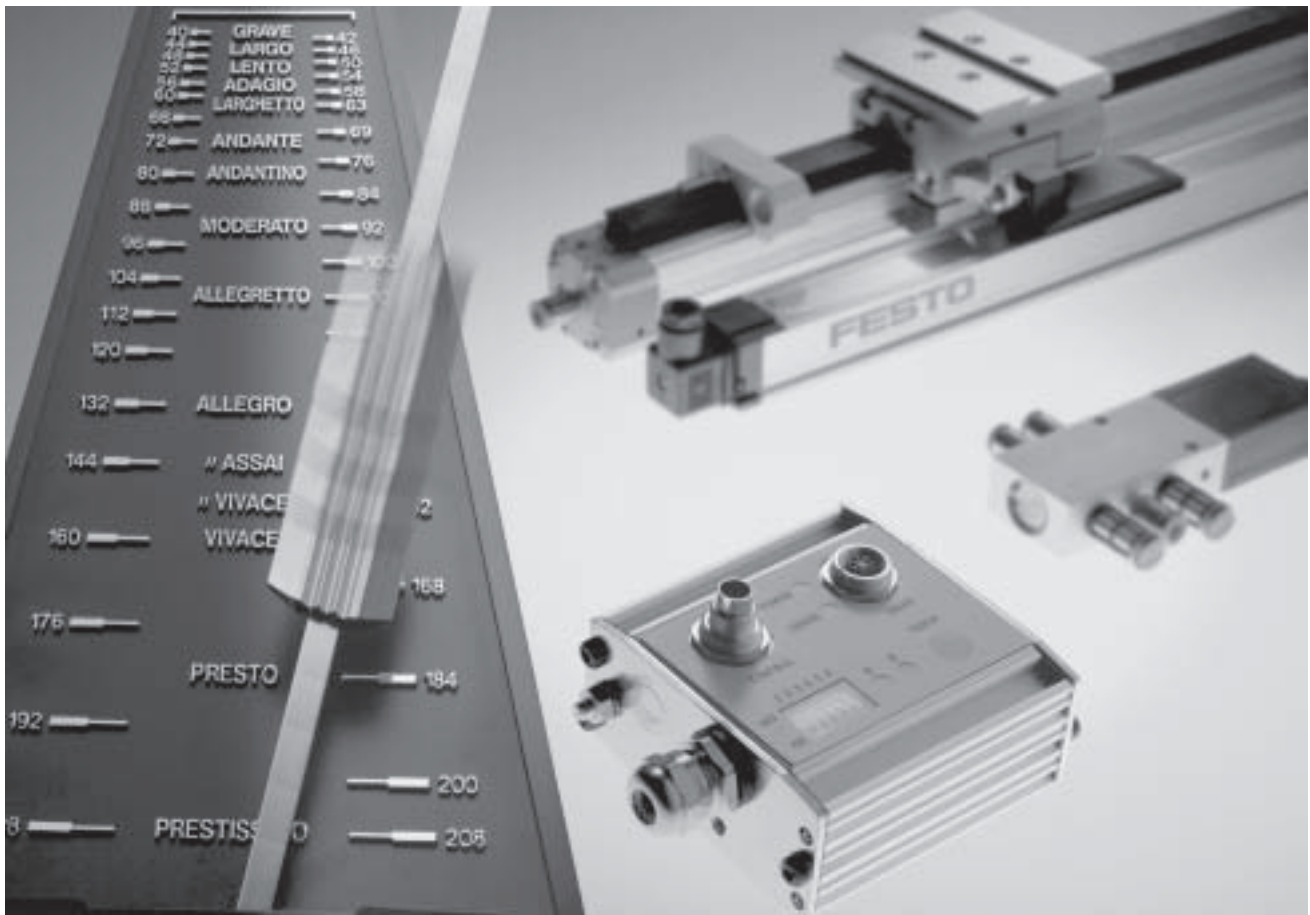
# AS-interface® components

Individual valve interface – Accessories

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ASI-EVA		
Designation	Type	Part No.
<b>Bus connection</b>		
AS-interface flat cable, yellow, 100 m	KASI-1,5-Y-100	18 940
AS-interface flat cable, black, 100 m	KASI-1,5-Z-100	18 941
Flat cable socket <sup>1)</sup>	ASI-SD-FK	18 785
Flat cable socket, turned through 180° <sup>1)</sup>	ASI-SD-FK180	196 089
Flat cable blanking plug for ASI-EVA <sup>1)</sup>	ASI-SD-FK-BL	196 090
AS-interface flat cable distributor, cable parallel	ASI-KVT-FK	18 786
AS-interface flat cable distributor, cable symmetrical	ASI-KVT-FK-S	18 797
Cable cap for flat cable (scope of delivery 50 pieces)	ASI-KK-FK	18 787
Cable sleeve (scope of delivery 20 pieces)	ASI-KT-FK	165 593
<b>Sensor plug</b>		
Sensor plug straight, M12, 5-pin, PG7	SEA-M12-5GS-PG7	175 487
Sensor plug straight, M12, 4-pin, PG7	SEA-GS-7	18 666
Sensor plug angled, M12, 4-pin	SEA-M12-4WD-PG7	185 498
Protective cap M12	ISK-M12	165 592
<b>DUO plug</b>		
DUO plug M12, for 2 cables, 5-pin	SEA-5GS-11-DUO	192 010
DUO plug M12, for 2 cables, 4-pin	SEA-GS-11-DUO	18 779
<b>DUO cable M12 on 2x M8</b>		
DUO cable, 2x straight socket	KM12-DUO-M8-GDGD	18 685
DUO cable, 2x straight/angled socket	KM12-DUO-M8-GDWD	18 688
DUO cable, 2x angled socket	KM12-DUO-M8-WDWD	18 687
<b>Extension cable</b>		
Extension cable, 4-pin, 2.5 m	KM12-M12-GSGD-2,5	18 684
Extension cable, 4-pin, 5 m	KM12-M12-GSGD-5	18 686
<b>Connecting cable for DNCV</b>		
Connecting cable M12, 8-pin	KM12-8GD8GS-2-PU	525 617
<b>Miscellaneous</b>		
Combi power pack for AS-interface	ASI-CNT-115/230 VAC-B	191 082
Addressing device	ASI-PRG-ADR	18 959
Addressing cable	KASI-ADR	18 960
Inscription labels 6x10 in frames (64 pieces)	IBS 6x10	18 576
H-rail mounting (mounting set)	CP-TS-HS35	170 169

1) Two flat cable connections per ASI-EVA must be connected or covered



## Applications – Innovative, high-performance and precision-pulsed drive packages

- Drives for the AS-interface
- Intelligent valve/cylinder combinations with integrated diagnostics DNCV
- Pneumatic linear axes, rotary drives and standard cylinders DNC with electronic end-position cushioning by means of Soft Stop SPC11-ASI
- Drives such as linear valve actuators and quarter-turn valve actuators with robust local controller or sensor box on the AS-interface

### DNCV

Intelligent drives combine numerous functions in one unit:

- Standard cylinder DNC with a smooth and easy to clean housing surface
- Integrated 5/2-way or 5/3-way valve
- Two integrated flow control valves with speed control
- Integrated proximity sensors
- Integrated diagnostic module for preventative maintenance (optional) → 4 / 4.9-46

### DLP and DAPZ for Copac/Copar

Simple, fast installation is preferred in decentralised applications in the process industry and in water treatment systems.

The local controller DLP connects linear valve actuators and quarter-turn valve actuators to the AS-interface.

The sensor box DAPZ converts mechanical end positions from pneumatic actuators into electrical signals and also provides ports for the solenoid valve.

Advantages:

- Namur interface (DIN 19 234)
- Simple and quick assembly and connection
- Integrated solenoid valve actuation
- Fully assembled and tested unit for the AS-interface

### Soft Stop SPC11-...-ASI

The Festo innovation: Electronic end-position cushioning for pneumatic drives on the AS-interface with the following advantages:

- Full speed – gentle braking
- Closed system with control circuit
- Up to 30% shorter cycle times
- Less wear thanks to minimal vibration
- Simple commissioning
- Parameterisable SPC11-...-ASI as per profile 7.4
- Comprehensive diagnosis

- - Note

Detailed description

→ Volume 7

# AS-interface® components

Applications



## Automatic local controller – DLP-VSE-...-ASI



### General data

- Integrated 5/3-way valve, normally closed, pressure range 2 ... 8 bar
- Integrated LED displays (open/closed)
- Key actuator for selecting the operation mode:
  - Remote control via AS-interface
  - On-site operation
  - Switched off
- The local controller VSE was optimised for Copac but can also be used for Copar

### Application

- The unit made up of DLP/Copac and the local controller VSE offers the following advantages:
- Clear structure
  - Process reliability
  - Suitable for exterior use, temperature range –25 ... +55 °C
  - Remote control or on-site operation
  - Remote diagnosis and LED displays on-site
  - No need for control cabinet on-site
  - No further assembly

Select the suitable pneumatic drive for your application:

- For linear valve actuators: DLP/Copac
- For quarter-turn valve actuators: DRD/Copar

Order the drive ready for installation:

- With local controller DLP-VSE-ASI
- Connect these units with AS-interface – Festo plug and work™

## Control by sensor box – DAPZ



- Standard valve with Namur interface
- Sensor box with integrated valve actuator (solenoid coil plug) and limit switches for converting mechanical into electrical signals
- Connect to the AS-interface using the yellow cable

- Pre-assembled and tested unit
- Quick and easy installation
- Festo plug and work™ on the AS-interface
- Suitable for exterior use. Temperature range: –25 ... +85 °C

## Alternative ways of connecting drives to the AS-interface



- Standard valve with Namur interface
- ASi-EVA individual valve interface
- Copac/Copar drive for the process industry
- Discrete sensor configuration



## AS-interface® components

Sensor box as intelligent signal generator – Overview

FESTO



### Innovative

- Integrated AS-i interface
- Integrated solenoid valve actuator
- Integrated sensor for mechanical end positions
- Quick and easy connection technology
- “Open” and “Closed” display can be individually set via trip cam
- Trip cam gearing prevents position drift

### Reliable

- Pre-assembled and tested unit
- High temperature range  
–25 ... + 85 °C
- Robust materials made from impact resistant Vestamid
- Standardised interfaces to the quarter turn actuators
- LED displays for on-the-spot diagnosis
- AS-interface as secure transmission protocol

### Easy to assemble

- Can be mounted directly on the quarter turn actuators (Copar DRD, Sypar DAPS)
- Fully assembled and tested unit
- Lower costs for selection, ordering, assembly and commissioning
- Can be integrated into existing AS-interface networks at any time
- Geometrically coded flat cable ensures polarity-safe connection to the AS-interface
- Easy adjustment of switching points
- Particularly economical thanks to simplified assembly and commissioning

# AS-interface® components

Sensor box as intelligent signal generator – Overview

## General function

■ **Integrated inputs:**

The sensor box converts the mechanical end position signals from pneumatic actuators into electrical signals and provides them as input signals for the AS-interface.

■ **Solenoid valve actuation:**

A solenoid valve can be actuated using one output (24 V DC, 2.6 watts). The output is fitted with a pre-assembled cable for the plug pattern MF (industrial standard to DIN 43 650) – another example of Festo plug and work™.

■ **Networking concepts:**

Modern systems and processes communicate using networks. Data from the actuator/sensor level is recorded, compressed and transmitted via the AS-interface flexibly and cost-effectively, and can even be forwarded to higher-order fieldbus systems.

■ **Proven components:**

Inside the sensor box are components from leading manufacturers. The advantages lie in the tailored combination and the holistic solution.

## Connection to the AS-interface

The yellow cable of the AS-interface carries the supply for the electronics, the sensors and the output. The flat cable connection is coded to protect against incorrect polarity.

The sensor box is uniquely described by the ID code  $F_H$  and the IO code  $D_H$ . Structure of the IO code  $D_H$

D3	D2	D1	D0
I	I	I	0

Sensor 1 “Open” is fed back to data bit D2, sensor 2 “Closed” to data bit D3 (example for drives with clockwise rotation). D1 is not used. Data bit D0 sets the output and switches the connected solenoid valve.

# AS-interface® components

Sensor box as intelligent signal generator – Overview

Technical data			
Type	DAPZ-SB-I-30DC-DSAM-RO		
Part No.	<b>534 473</b>		
Signal generator	Version	Double initiator with normally-closed function to NAMUR (DIN 19 234)	
	Manufacturer	Pepperl & Fuchs	
	Type	NCN3-25F-N4	
	Switching accuracy	Less than 0.5°	
	Service life	Minimum service life of switch: 2x 10 <sup>5</sup> cycles	
	Short circuit proof	Yes	
Interface to the drive	NAMUR standard VDI/VDE 3845		
Output	Connection technology	Solenoid plug	
	Nominal voltage [V]	24 DC	
	Tolerance	+10/-15 %	
	Residual ripple	As per AS-interface specification, dependent on power pack	
	Current consumption [mA]	max. 120	
	Short circuit proof	Protected by current limiting	
	Connecting cable	PVC cable, solenoid plug already connected	
	Cable length [cm]	30	
	Cable type	3x 0.5 mm <sup>2</sup>	
	Valve connection	F coil, DIN 43 650, type: industrial standard	
	Watchdog function	None	
	Supply voltage	Electronics, sensors and output are supplied via the yellow cable at the AS-interface connection	
AS-interface connection	Connection technology	AS-interface flat cable plug (included in scope of supply)	
	Voltage range [V]	DC 26.5 ... 31.6, polarity-safe	
	Residual ripple [mVss]	20	
	Current consumption	Max. 12 mA, electronics <ul style="list-style-type: none"> <li>■ plus 2-wire sensor 4 mA</li> <li>■ plus connected output (dependent on solenoid valve, max. 120 mA)</li> </ul>	
LED displays	Output	None, illuminating seal possible on solenoid coil (on request)	
	Inputs	2x yellow	
	ASi-LED	Green	
General data	Protection class (to EN 60 529)	Sensor IP67, housing IP65	
	Electromagnetic compatibility	AS-interface electronics and initiator: EN 60 947-5-2; NE21	
	CE symbol	Yes	
	Temperature range [°C]	Operation: -25 ... +85	
	Materials	■ Seal	EPDM
		■ Housing socket	Black Vestamid
		■ Housing cover	Transparent Makrolon (black Vestamid or nickel-plated aluminium on request)
		■ Control shaft	Polyacetate (Delrin)
		■ Universal console	Vestamid
	PWIS	Surfaces free of paint-wetting impairment substances	
	Corrosion resistance class CRC <sup>1)</sup>	3	
	Dimensions [mm]	approx. 146 x 64 x 74 (without console)	
Weight [g]	450		
AS-interface data	ID code	F <sub>H</sub>	
	IO code	D <sub>H</sub>	
	Profile	S-D.F	

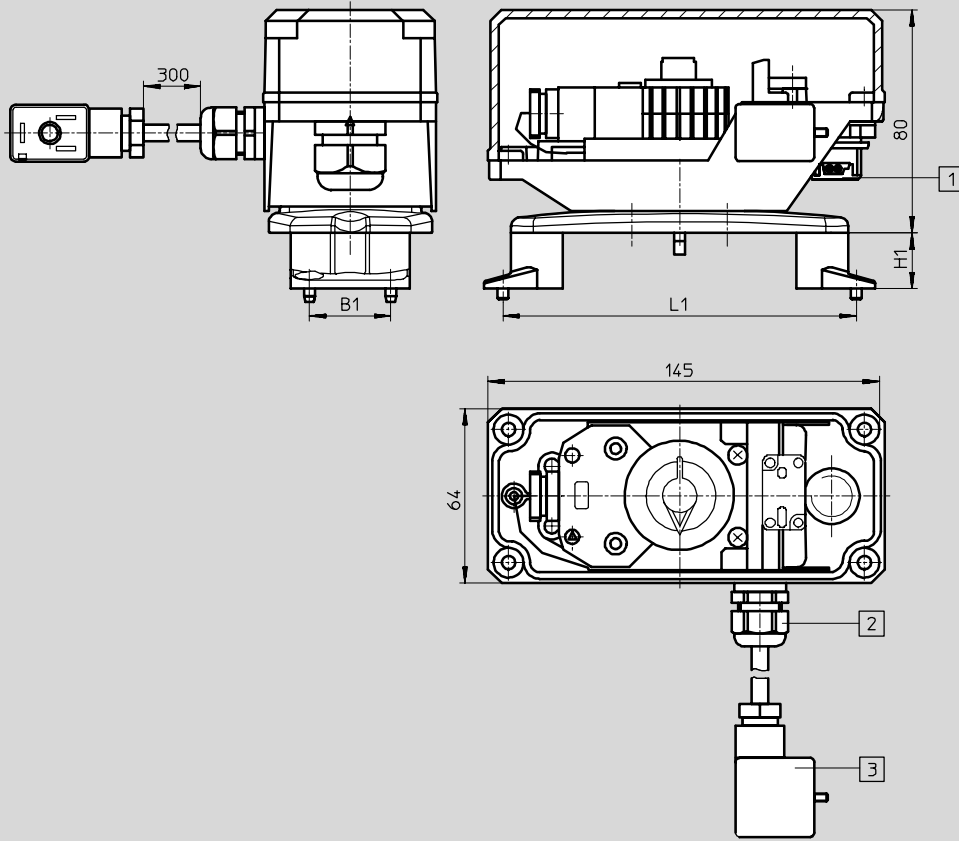
1) Corrosion resistance class 3 according to Festo standard 940 070  
 Components requiring higher corrosion resistance. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

# AS-interface® components

Sensor box as intelligent signal generator – Overview

**Dimensions**

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



- 1 Connection for AS-interface flat cable
- 2 Cable conduit fitting M12x1.5
- 3 Solenoid plug

	B1	L1	H1
<b>Feet mounted inwards</b>			
Foot 20	30	80	20
Foot 30	30	80	30
<b>Feet mounted outwards</b>			
Foot 20	30	130	20
Foot 30	30	130	30

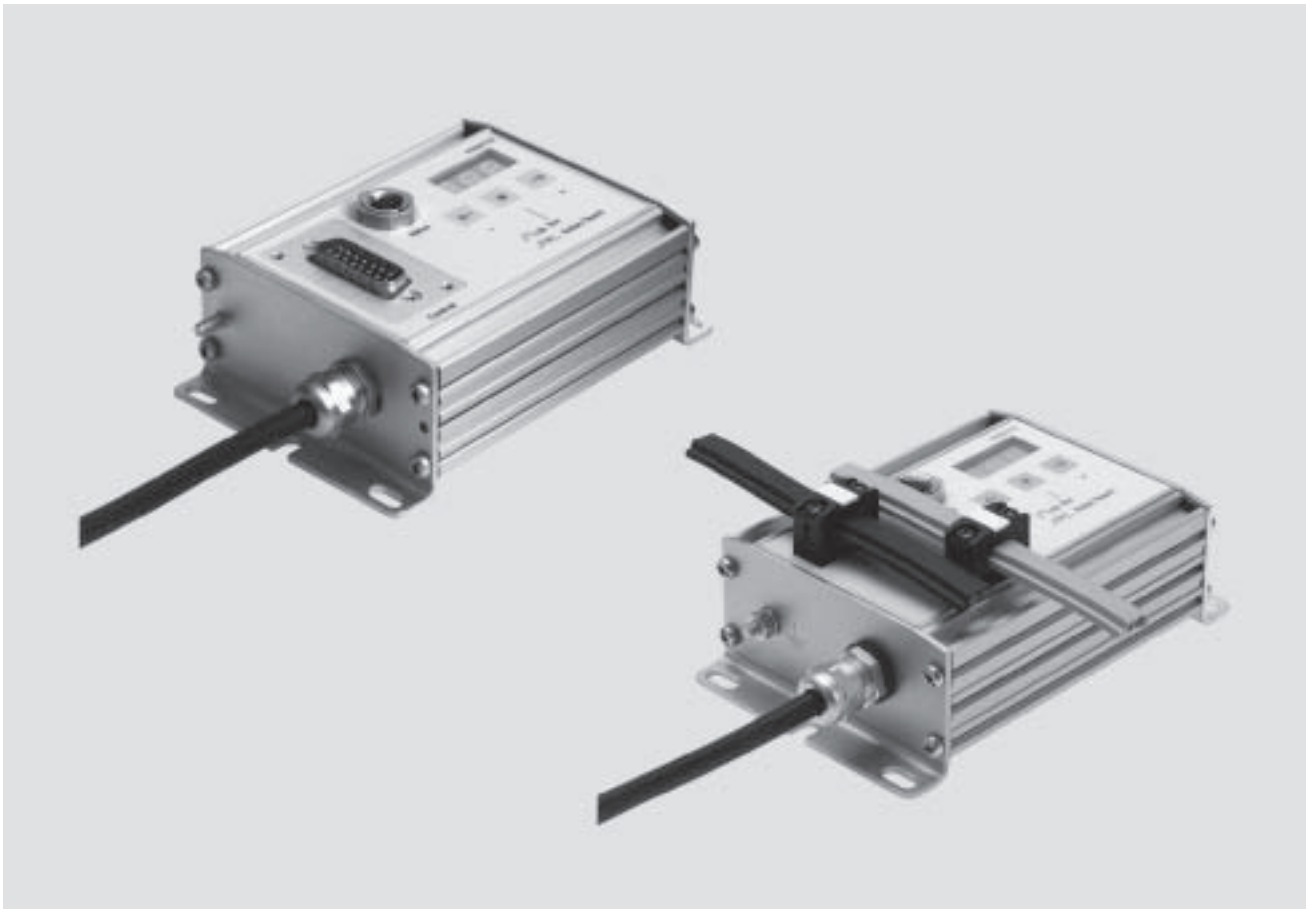
**DAPZ-... with AS-interface, accessories**

Designation	Type	Part No.
<b>DAPZ-... mounting</b>		
Mounting console	50x25 / WH 20 mm	DAPZ-SBZ-F50-RO 534 477
	130x30 / WH 30 mm	DAPZ-SBZ-K0-RO 534 478
	130x30 / WH 30 mm	DAPZ-SBZ-K3-RO 534 479
<b>Bus connection</b>		
AS-interface flat cable, yellow, 100 m	KASI-1,5-Y-100	18 940
AS-interface flat cable distributor, cable parallel	ASI-KVT-FK	18 786
AS-interface flat cable distributor, cable symmetrical	ASI-KVT-FK-S	18 797
Cable cap for flat cable (scope of delivery 50 pieces)	ASI-KK-FK	18 787
Cable sleeve (scope of delivery 20 pieces)	ASI-KT-FK	165 593
<b>Miscellaneous</b>		
Combi power pack for AS-interface	ASI-CNT-115/230-VAC-B	191 082
Addressing device	ASI-PRG-ADR	18 959
Addressing cable	KASI-ADR	18 960

## AS-interface® components

Electronic end position controller SPC11 – Overview

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### Electronic end position controller SPC11

#### SPC11

Fast travel between two fixed stops with electronically controlled end-position cushioning and up to two freely selectable intermediate positions

End position controller SPC11 with AS-i interface

Recommended for the drives:

- DGP, DGPL
- DGPI, DGPIIL
- DNC, DNCM
- DSMI

Diameter  
25 ... 80 mm

Stroke length  
up to 2000 mm

Swivel angle  
up to 270°

#### Pneumatic drives with electronic end position controller (Soft Stop system)

- Up to 30% faster cycle rate.
- Significantly reduced system vibration.
- Optimum operating behaviour is maintained even with weight/load fluctuations of up to 30% of the total moving mass.
- Simple conversion of existing systems.
- Reduced noise level.
- Fast problem-free commissioning, no specialists required.
- Less expensive than electromechanical drives.



Note

Technical data SPC11-ASI with AS-i interface  
→ Volume 5 End position controller SPC11



Selection and ordering aid for Soft Stop and ProDrive  
[www.festo.com/en/engineering](http://www.festo.com/en/engineering)

# AS-interface® components

Electronic end position controller SPC11 – Overview



## SPC11-...-ASI

Overview



### General data

- Highly dynamic drives that travel at maximum speed
  - Smooth and automatic braking in the end positions thanks to the electronic control system
  - Up to 30% higher cycle rates
  - Fewer vibrations in the machine
  - Reduced noise level
  - More cost-effective in comparison with electromechanical drives
- Two intermediate positions can be set without programming

### Integrated functions in the SPC11-...-ASI:

- Calculation of the system characteristic values of the connected components
- Storage of the desired intermediate and end positions
- Status control: comparison of setpoint and actual position, and position control by appropriate activation of the proportional 5/3-way valve
- Internal or external teach-in function

### Two operation modes for the AS-interface:

- Simple I/O control
- Slave profile 7.4 with
  - online diagnosis
  - reading out of the actual position of the drive
  - startup per PLC
  - selection of intermediate positions via PLC

## Available systems SPC11-...-ASI



- SPC11-POT-LWG-ASI
- SPC11-POT-TLF-ASI
- SPC11-MTS-AIF-ASI

The displacement encoders are either integrated or connected externally. The drive units are delivered pre-assembled and fully tested.

## Available drives for the Soft Stop system SPC11-...-ASI



- DGP/DGPL
- DGPI/DGPIL
  - Piston  $\varnothing$  25 ... 63 mm
  - Stroke lengths 225 ... 2000 mm
- DNC/DNCM
  - Piston  $\varnothing$  32 ... 80 mm
  - Stroke lengths 80 ... 650 mm
- DSMI
  - Piston  $\varnothing$  25, 40 mm
  - Rotation angle 270°

 Note

Detailed description

- ➔ Volume 1 DNCV
- ➔ Volume 5 End position controller SPC11

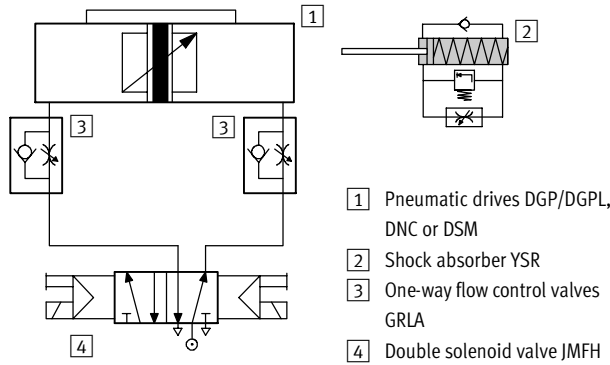
# AS-interface® components

Electronic end position controller SPC11 – Overview

## Conventional solution

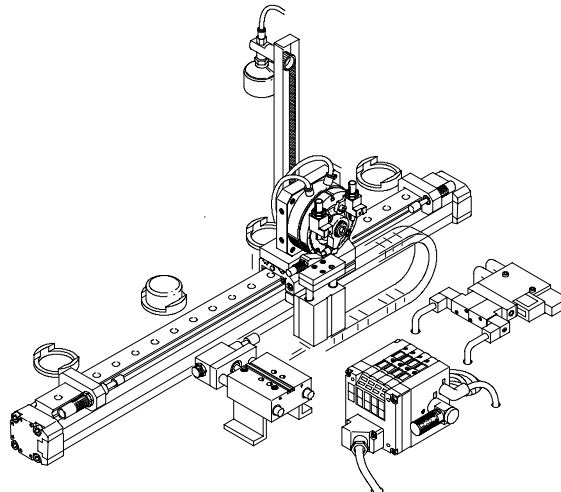
Previously you needed to

- Harmonise individual components.
- Install additional shock absorbers and possibly replace/exchange existing shock absorbers.
- Fit proximity sensors for position detection.
- Adjust the compressed air supply by means of flow control valves in order to optimise the system.



Until now, to create intermediate positions you had to

- Construct a complex mechanical solution using stopper cylinders, for example.
- Harmonise a large number of individual components.
- Perform extensive programming.



## Solution with electronic end position controller SPC11

Fast travel between two fixed stops with up to two freely selectable intermediate positions

The Soft Stop system with end position controller SPC11 allows travel between two fixed mechanical stops as well as travel to up to two freely selectable intermediate positions. The level of accuracy of the intermediate positions is  $\pm 0.25\%$  of

the displacement encoder length, and no less than  $\pm 2$  mm. The level of accuracy of the intermediate positions is  $\pm 2^\circ$  for swivel module DSM1. Typical applications for the intermediate positions are rest or ejector positions, where a low cost solution is more

important than achieving high levels of accuracy. The intermediate positions also have sensor functionality. This means that when the relevant intermediate position is passed, a 1 signal is produced at the corresponding output for 50 ms.

# AS-interface® components

Electronic end position controller SPC11 – Overview

## The Festo package solution

### Soft Stop with end position controller SPC11

In an application with up to two intermediate positions you can now:

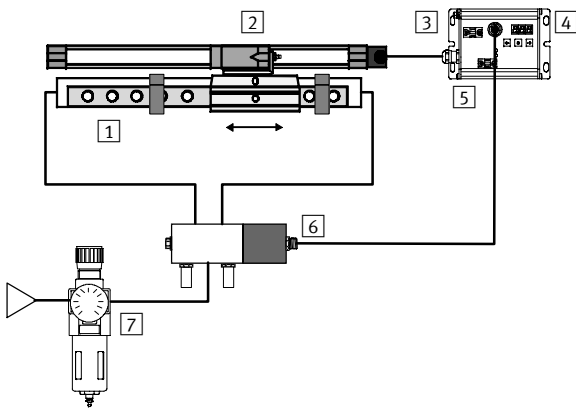
- Use the Festo package solution with a small number of harmonised components.
- Dispense with complex constructions with stopper cylinders.
- Approach the intermediate positions from both sides.

- Let optimisation be carried out by the learning system itself.

The Soft Stop system with SPC11 has a remote input, which allows all three pushbuttons to be allocated to a master controller:

- All system parameters can be defined and changed externally.

- A 1 signal at the remote input locks all pushbuttons on the end position controller SPC11.



- 1 Pneumatic drives  
DGP/DGPL, DGPI/DGPIL, DNC, DNCM or DSMI
- 2 Displacement encoder  
Digital:  
– MME-MTS-...-AIF  
– integrated in case of DGPI/DGPIL  
Analogue:  
– MLO-POT-...-TLF  
– MLO-POT-...-LWG
- 3 Load voltage  
(black cable)
- 4 End position controller  
SPC11-POT-TLF-ASI,  
SPC11-POT-LWG-ASI or  
SPC11-MTS-AIF-ASI
- 5 Logic voltage  
(yellow cable)
- 6 Proportional 5/3-way valve  
MPYE-5-...-010B
- 7 Service unit (without lubricator,  
with 5 µm filter); supply pressure  
5 to 7 bar



# AS-interface® components

Electronic end position controller SPC11 – Overview

## The advantages of the package solution

- Up to 30% faster cycle rate.
- Significantly reduced system vibration.
- Optimum operating behaviour is maintained even with weight/load fluctuations of up to 30% of the total moving mass.
- Simple conversion of existing systems.
- Considerably reduced noise level.
- Fast problem-free commissioning, no specialists required.
- Less expensive than electro-mechanical drives.

## Example

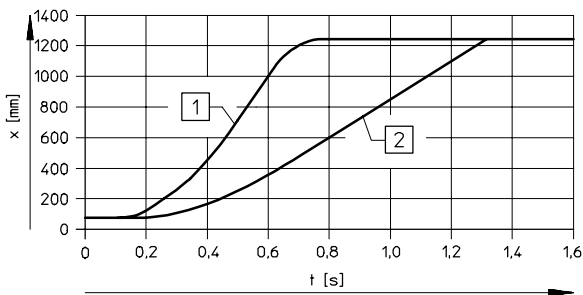
The graphs apply to the following example:

- DGPL-25-1250-PPV-A-KF-B-GK...-D2,
- Moving mass 12 kg
- Horizontal mounting position

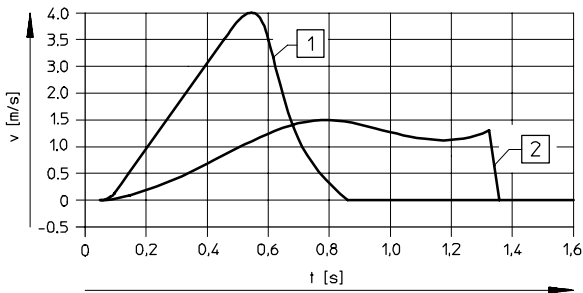


Note

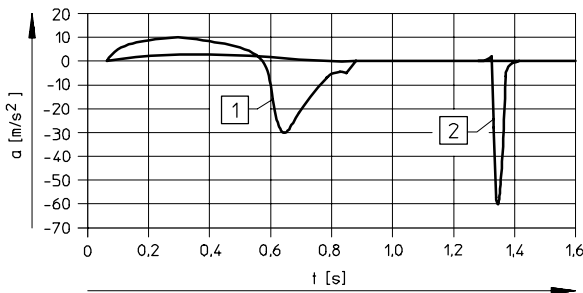
The shape of the curve is identical for the pneumatic drives DNC, DNCM, DSMI and DGPIL.



- 1 Drive with electronic end position controller SPC11
- 2 Drive with shock absorber
- x Travel distance
- t Time



- 1 Drive with electronic end position controller SPC11
- 2 Drive with shock absorber
- v Velocity
- t Time



- 1 Drive with electronic end position controller SPC11
- 2 Drive with shock absorber
- a Acceleration
- t Time

# AS-interface® components

Electronic end position controller SPC11 – Overview

## Soft Stop with end position controller SPC11-ASI

SPC11 with AS-i interface offers the same drive functionality as the end position controller SPC11 with digital I/O interface.

The AS-i interface can be used in two operating modes. These are as follows:

### 4-bit standard I/O mode:

- The order to advance to the four positions is given by the ASI master via the four data bits.
- The SPC11-ASI is started up via pushbuttons on the end position controller. Connecting the ASI cable locks these pushbuttons; the positions can then be approached via ASI.

### Slave 7.4 to

#### ASI specification 2.1:

- All startup activities take place via the AS-interface.
- Error numbers are read out and errors are acknowledged via the AS-interface.
- Absolute values are transferred for the intermediate positions.
- The Soft Stop axis can be moved manually via pushbuttons on the console.

SPC11-ASI – Controlling		
Functions supported via ASI	Standard slave with 4-bit I/O data	Slave profile 7.4
Operational functions		
■ Advance to the four taught positions	■	■
■ Acknowledge when the taught position is reached	■	■
■ Load a new mid-position	–	■
■ Read out the actual position	–	■
Diagnostic function		
■ Read out the error and firmware version number	–	■
■ Read out the taught position	–	■
■ Read out ID string	–	■
■ Check status (parameter OK, position taught)	–	■
■ Acknowledge error	–	■
Commissioning function		
■ Load and read out parameters	–	■
■ Start teaching process	–	■
■ Move drive manually (move left/right)	–	■
■ Adopt actual position as mid-position	–	■

## SPC11-ASI – Diagnosis

The SPC11 reacts as follows if an error occurs:

- LEDs on the SPC11 indicate the cause of the error
- Error number on the SPC11 indicates the operating status

■ Diagnosis is performed via the AS-interface bus (depending on the slave profile used)

When the operating voltage supply is switched off, the SPC11 goes into a reset state (AS-interface communication reset). The SPC11 does not then

participate in AS-interface communication until the operating voltage supply is switched back on.

Error diagnosis		
Slave profile	Diagnosis via the AS-interface bus	LED
Standard slave with 4-bit I/O data	<ul style="list-style-type: none"> <li>■ If an error occurs on the SPC11, the SPC11 ceases to participate in bus communication and is thus recognised by the master as defective (AS-interface communication reset)</li> <li>■ Errors can be reset by switching the operating voltage supply back on</li> </ul>	ASI-LED: on FAULT-LED: flashing
Slave profile 7.4	<ul style="list-style-type: none"> <li>■ Errors are reported via a peripherals fault on the master<sup>1)</sup></li> <li>■ The error numbers can be read out via the diagnostic string</li> <li>■ Errors can be reset using the “Quit Error” bit in the order byte. If the error is not rectified, the SPC11 goes back into error status.</li> </ul>	ASI-LED: flashing FAULT-LED: flashing

1) The SPC11 must be able to detect that a master that supports the slave profile 7.4 is connected. Before an error is reported via the peripherals fault input on the master, at least one command must be sent as per the slave profile 7.4 (read ID string, read diagnostic string, read/write parameter).

# AS-interface® components

Electronic end position controller SPC11 – Overview

## SPC11-ASI – Slave profile 7.4

If you would like to use the slave profile 7.4, you will need an AS-interface master which supports slave profile 7.4 (e.g. Siemens AS-interface master type CP 343-2).

Slave profile 7.4 allows complete commissioning of the SPC11 via the AS-interface bus. In addition to the functions as a standard slave with 4-bit I/O data, the commands to slave

profile 7.4 listed in the table below are also available:

### Commands to slave profile 7.4

Command	Description
Write parameter string	One order byte, three parameters (amplification level, cushioning level and system parameter) and position values for the mid-position can be sent to the SPC11.
Read parameter string	Three parameters (amplification level, cushioning level and system parameter), all position values (P0.1 ... P0.4) and the current position (actual position) can be read out from the SPC11.
Read diagnostic string	Various pieces of status information, the current error number and the firmware version number can be read out.
Read ID string	An identification string can be read out

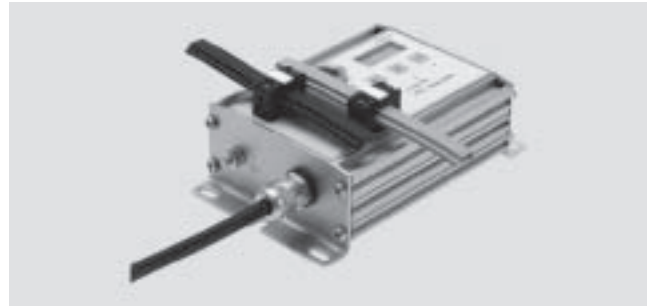
## AS-interface® components

Electronic end position controller SPC11 – Technical data

### Teach-in function

SPC11-POT-TLF-ASI  
 SPC11-POT-LWG-ASI  
 SPC11-MTS-AIF-ASI

The teach-in travel to determine the system data and end positions can be started by means of a button on the end position controller SPC11 or via the AS-i interface.



Technical data				
Type		SPC11-POT-TLF-ASI	SPC11-POT-LWG-ASI	SPC11-MTS-AIF-ASI
Part No.		<b>526 907</b>	<b>526 908</b>	<b>526 909</b>
Operating voltage	[V]	24 DC (–25 ... +25%)		
Current consumption	with valve	[A]	1.2	1.3
	without valve	[mA]	70	170
Residual ripple		max. 6%		
AS-interface	Operating voltage	[V]	26.5 ... 31.6 DC	
	Input current	[mA]	40	
	Residual ripple	[mVss]	≤ 20	
Input, displacement encoder	Operating voltage	[V]	+10 DC	–
	Input voltage	[V]	0 ... +10 DC	–
Input, MTS Temposonic	Operating voltage	[V]	–	24 DC
	Communication		–	CAN fieldbus (1 Mbaud)
Valve output	Operating voltage	[V]	24 DC	
	Output voltage	[V]	0 ... +10 DC	
Electromagnetic compatibility	Interference emission		Tested to EN 61 000-6-4, limit value class B	
	Interference immunity		Tested to EN 61 000-6-2	
Vibration resistance		Tested to DIN/IEC 68/EN 60 068, Parts 2-6 (10-58 Hz: 0.15 mm; 58-150 Hz: a=2 g; severity level 1)		
Shock resistance		Tested to DIN/IEC 68/EN 60 068, Parts 2-27 (+/-30 g at 11 ms, 15 cycles; severity level 2)		
Relative air humidity		95% (non-condensing)		
Temperature range	Operation	[°C]	0 ... +50	
	Storage/transport	[°C]	–20 ... +70	
Protection class to DIN 40 050		IP65		
Protection against electric shock (protection against direct and indirect contact to EN 60204-1/IEC 204)		By means of PELV power supply unit (Protected Extra-Low Voltage)		
CE symbol		To EMC Directive 89/336/EEC		
Weight	[g]	approx. 400		
AS-interface data	ID code		4	
	IO code		7H	

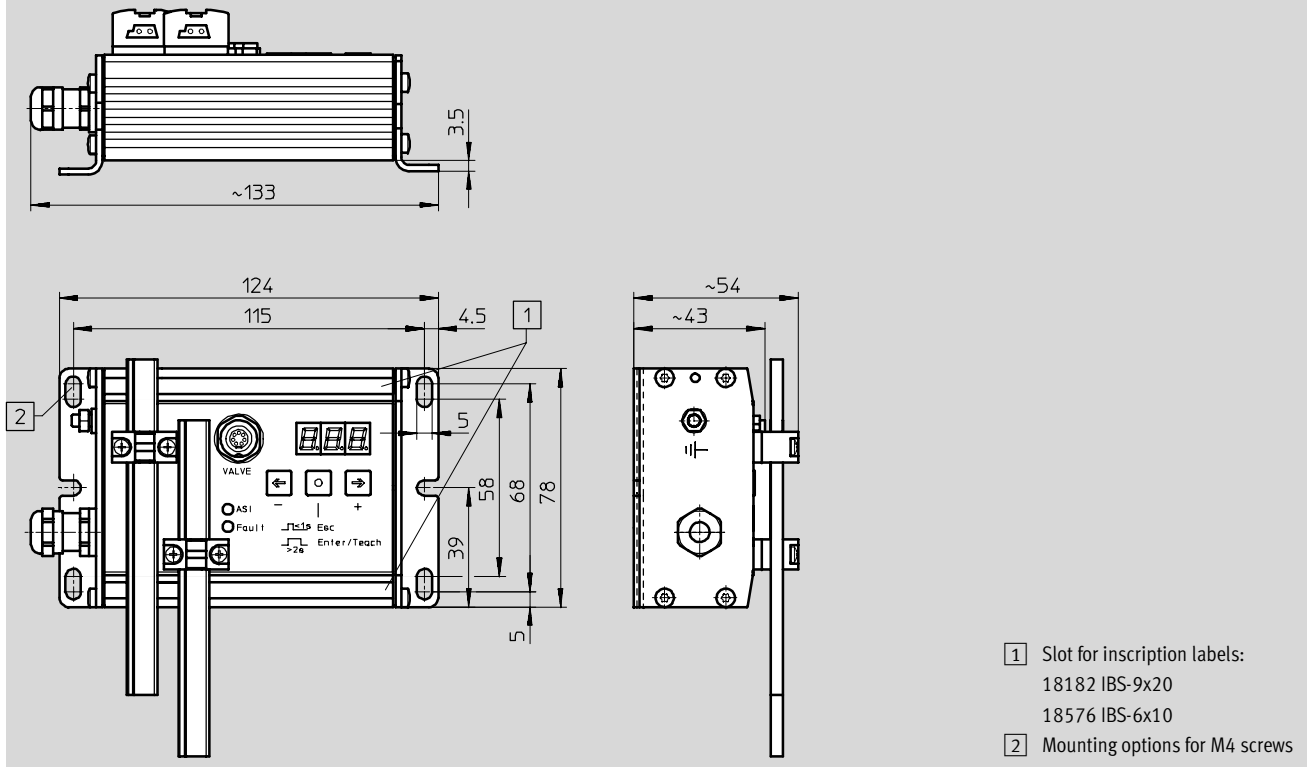
# AS-interface® components

Electronic end position controller SPC11 – Technical data

**Dimensions**

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

SPC11-...-...-ASI



## AS-interface® components

Electronic end position controller SPC11 – Accessories

<b>SPC11 with AS-interface</b>			
Designation	Type	Part No.	
<b>Bus connection</b>			
AS-interface flat cable, yellow, 100 m	<b>KASI-1,5-Y-100</b>	<b>18 940</b>	
AS-interface flat cable, black, 100 m	<b>KASI-1,5-Z-100</b>	<b>18 941</b>	
Flat cable socket	<b>ASI-SD-FK</b>	<b>18 785</b>	
Flat cable socket, turned through 180°	<b>ASI-SD-FK180</b>	<b>196 089</b>	
<b>Miscellaneous</b>			
Inscription labels 6x10 in frames (64 pieces)	<b>IBS 6x10</b>	<b>18 576</b>	
<b>User documentation</b>			
Manual – System Description SPC11-...-ASI	German	<b>P.BE-SPC11-SYS-ASI-DE</b>	<b>529 064</b>
	English	<b>P.BE-SPC11-SYS-ASI-EN</b>	<b>529 065</b>
	French	<b>P.BE-SPC11-SYS-ASI-FR</b>	<b>529 068</b>
	Italian	<b>P.BE-SPC11-SYS-ASI-IT</b>	<b>529 067</b>
	Spanish	<b>P.BE-SPC11-SYS-ASI-ES</b>	<b>529 066</b>
	Swedish	<b>P.BE-SPC11-SYS-ASI-SV</b>	<b>529 069</b>

AS-interface – Product range overview						
Designation	Type	Master	CPV-ASI	CPA-ASI	ASI-EVA	→ Page
<b>Bus connection</b>						
AS-interface flat cable, yellow, 100 m	KASI-1,5-Y-100	■	■	■	■	4 / 4.9-76
AS-interface flat cable, black, 100 m	KASI-1,5-Z-100	■	■	■	■	4 / 4.9-76
Flat cable socket <sup>1)</sup>	ASI-SD-FK	■	■	■	■	4 / 4.9-78
Flat cable socket, turned through 180° <sup>1)</sup>	ASI-SD-FK180	-	■	■	■	4 / 4.9-78
Flat cable blanking plug <sup>1)</sup>	ASI-SD-FK-BL	-	■	■	■	4 / 4.9-78
AS-interface flat cable distributor, cable parallel	ASI-KVT-FK	■	■	■	■	4 / 4.9-78
AS-interface flat cable distributor, cable symmetrical	ASI-KVT-FK-S	■	■	■	■	4 / 4.9-78
Cable distributor (yellow and black) on 2x M12, 4-pin	ASI-KVT-FKX2-M12	-	-	■	-	4 / 4.9-80
Cable cap for flat cable (scope of delivery 50 pieces)	ASI-KK-FK	-	■	■	■	4 / 4.9-76
Cable sleeve (scope of delivery 20 pieces)	ASI-KT-FK	-	■	■	■	4 / 4.9-76
M12 socket for flat cable	ASI-SD-FK-M12	■	-	■	-	4 / 4.9-78
M12 socket for flat cable, with PG13.5	ASI-SD-PG-M12	-	-	■	-	4 / 4.9-78
<b>Sensor plug</b>						
Sensor plug straight, M12, 5-pin, PG7	SEA-M12-5GS-PG7	-	-	■	■	
Sensor plug straight, M12, 4-pin, PG7	SEA-GS-7	-	-	■	■	
Sensor plug straight, M12, PG9	SEA-GS-9	-	-	■	-	
Sensor plug angled, M12, 4-pin	SEA-M12-4WD-PG7	-	-	-	■	
Sensor plug, 4-pin, M12 for 2.5 mm cable Ø	SEA-4GS-7-2,5	-	-	■	-	
Sensor plug, straight, M8, screw-in	SEA-3GS-M8-S	-	■	■	-	
Sensor plug, straight, M8, solderable	SEA-GS-M8	-	■	■	-	
Sensor plug, Harax, 4-pin	SEA-GS-HAR-4POL	-	-	■	-	
Sub-D plug, 25-pin	SD-SUB-D-ST25	-	-	■	-	
Protective cap M12	ISK-M12	-	-	■	■	
Protective cap M8	ISK-M8	-	-	■	-	
<b>DUO plug</b>						
DUO plug M12, for 2 cables, 5-pin	SEA-5GS-11-DUO	-	-	■	■	4 / 4.9-83
DUO plug M12, for 2 cables, 4-pin	SEA-GS-11-DUO	-	-	■	■	
<b>DUO cable M12 on 2x M8</b>						
DUO cable, 2x straight socket	KM12-DUO-M8-GDGD	-	-	■	■	4 / 4.9-83
DUO cable, 2x straight/angled socket	KM12-DUO-M8-GDWD	-	-	■	■	4 / 4.9-83
DUO cable, 2x angled socket	KM12-DUO-M8-WDWD	-	-	■	■	4 / 4.9-83
<b>Extension cable</b>						
Extension cable, 4-pin, 2.5 m	KM12-M12-GSGD-2,5	-	-	■	■	4 / 4.9-84
Extension cable, 4-pin, 5 m	KM12-M12-GSGD-5	-	-	■	■	4 / 4.9-84
<b>Connecting cable for DNCV</b>						
Connecting cable M12, 8-pin	KM12-8GD8GS-2-PU	-	-	-	■	
<b>Miscellaneous</b>						
Combi power pack for AS-interface	ASI-CNT-115/230 VAC-B	■	■	■	■	4 / 4.9-72
Addressing device	ASI-PRG-ADR	-	■	■	■	4 / 4.9-74
Addressing cable	KASI-ADR	-	■	■	■	4 / 4.9-76
AS-interface configuration plug	ASI-SS-CONFIG	■	-	-	-	4 / 4.9-82
Serial data cable for AS-interface software tool	KDI-SB202-BU9	■	-	-	-	
Inscription labels 6x10 in frames (64 pieces)	IBS 6x10	-	■	■	■	4 / 4.9-84
Inscription labels 10x17 in frames (30 pieces)	IBS-10x17	-	-	-	-	4 / 4.9-84
Inscription labels 9x20 in frames (20 pieces)	IBS 9x20	-	■	■	-	4 / 4.9-84
H-rail mounting (mounting set)	CP-TS-HS35	-	-	-	■	
Attachment for H-rail mounting	CPA-BG-NRH	-	-	■	-	
H-rail to EN 50 0022	NRH-35-2000	■	■	■	■	4 / 4.9-84

1) Two flat cable connections per ASI-EVA must be connected or covered



#### Combi power pack – ASI-CNT-115/230 V AC-B

Combi power pack with integrated data disconnection. The pack supplies the operating voltage to ASi systems. The device creates two direct voltages of 30 V DC and 24 V DC with a high constancy and low residual ripple. The supply outputs are resistant to sustained short circuits.

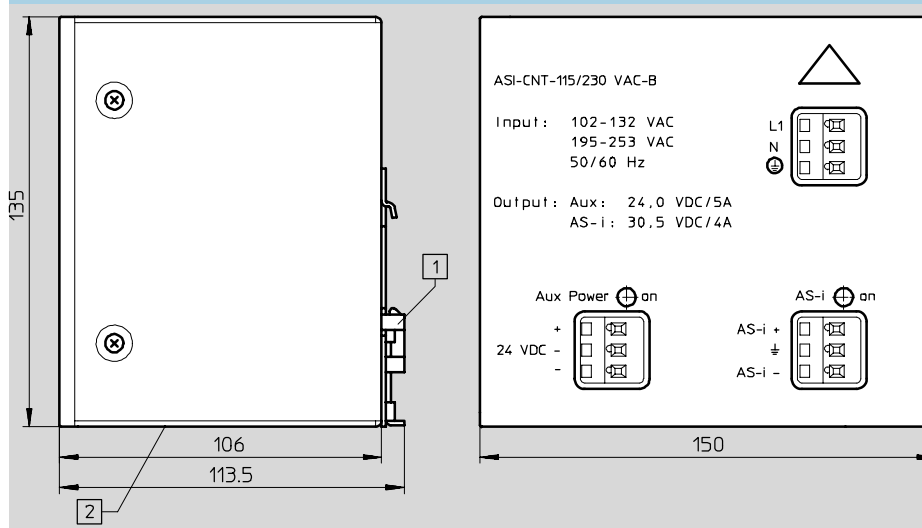
The device can be set to 230 V AC or 115 V AC mains voltage using a selector switch. The power pack is suitable both for installation in encapsulated control systems and electronic cabinets as well as for wall mounting. Connection is made via cage clamps. The connections are protected against direct contact in conformance with DIN VDE Part 100.



Technical data		
Type	ASI-CNT-115/230 V AC-B	
	Output section 1 (AS-interface supply)	Output section 2 (load current supply)
Part No.	<b>191 082</b>	
Input voltage	[V]	AC 230 (195 ... 253)
Primary voltage switchable to		AC 115 (102 ... 132)
Ambient temperature	[°C]	-45 ... +55
Perm. storage temperature	[°C]	-45 ... +80
Protection class	IP20	
Protection class	Protection class to EN 60 950/IEC 950	
Climate proofing	For installation in rooms subject to temperature extremes to DIN 50 010	
Humidity rating		
■ Average up to	80% relative humidity	
■ Maximum value for 30 days per year	95% relative humidity	
Installation height	Up to 1000 m above sea level	
Interference suppression	Class B to EN 55 011	
Load compensation	≤ 1%	
Efficiency	≥ 80% to EN 60 950, EN 50 178, EN 60 742	
Low voltage directive	RL73/23/EEC	
EMC directive	RL89/336/EEC	
Interference emission	EN 55 081-1 (residential areas)	
Interference sensibility	EN 55 082-2 (industrial areas)	
Electrical connections	Cage clamps	
Secondary voltage	[V]	DC 30 (29.5 ... 31.6)
Output	[W]	120
Residual ripple	[mVss]	≤ 50
Output current	[A]	4
		5
Sustained short circuit and open circuit proof		
Overload proof (regarding thermal overload)		
Function LED		

## Dimensions – Combi power pack

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



- 1 Snap-locking mechanism for mounting rail DIN TS35
- 2 Housing lid with vents top and bottom for air circulation



**Addressing device – ASI-PRG-ADR**

Before an AS-interface network is commissioned, addresses must be assigned to the connected slaves. These addresses are stored in an EEPROM chip on each slave. Each slave is connected to the addressing device for the allocation of an address. Addressing is simple and is carried out using 5 keys.

The main advantages are:

- Compact design
- Can be addressed on-site

- Supports AS-interface specification C.S.2.1

The addressing device to SPEC V2.1 can be used to scan the AS-interface from any point in the network. At all connected stations

- slave addresses can be read/changed
- ID and IO codes can be read out
- parameters can be read/changed
- input/output data can be read and written (setting outputs)
- error messages can be read out and quickly recognised

Independent of voltage supplies

- Accumulator operation

Simple reading of error codes

- LCD display

Secure

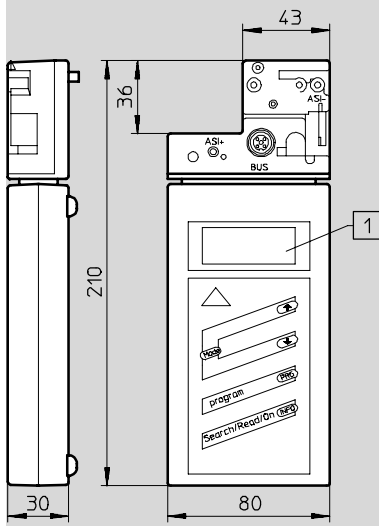
- Short-circuit proof
- Overload proof

Universal adapter connection suitable for a large number of AS-interface slaves. Optionally available, additional addressing cable for slaves with M12 round socket or flat cable socket.

Technical data	
Type	ASI-PRG-ADR
Part No.	<b>18 959</b>
Display	LCD display
Keyboard	Touch-sensitive keypad with 5 keys
Power supply	Via battery (charge time 14 hours approx.)
Charging device	[V] 230 AC
Service life	> 250 read/write processes or 8 hours
Operating temperature	[°C] 0 ... +50
Storage temperature	[°C] -20 ... +55
Protection class	IP20
Dimensions	[mm] 80 x 210 x 30
Weight	[g] 275

## Dimensions – Addressing device

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1 LCD display, character height 13 mm

- - Note  
Information on the addressing cable  
→ 4 / 4.9-76

# AS-interface® components

Accessories

FESTO

## Overview of cables

### Addressing cable – KASI-ADR



The addressing cable ASI-ADR, included in the accessories, can be used to address any desired slaves:

- Individual valve interface

- Midi/maxi valve terminals with AS-i interface
- CP valve terminals

### Flat cable – KASI-1,5-...-100

KASI-1,5-Y-100

KASI-1,5-Z-100



The flat cable is a 2-wire design. The coding profile prevents polarity reversal of the cable.

AS-interface network users are connected to the flat cable by means of insulation displacement technology which utilises contact pins, thus

eliminating the need to strip cable and wire insulation.

The yellow cable is normally used for the AS-interface network and the black cable for the auxiliary power supply.

### Flat cable sleeve – ASI-KT-FK



For insulating and sealing the AS-interface cable

- Protection class IP65

### Cable cap – ASI-KK-FK



For insulating and sealing the AS-interface cable at the end of the string

- Protection class IP65

### Technical data – Flat cable

Type	KASI-1,5-Y-100	KASI-1,5-Z-100
Part No.	<b>18 940</b>	<b>18 941</b>
Cable length	[m] 100	
Colour	Yellow	Black
Cable dimensions	See dimensional drawings	
Cable composition	[mm <sup>2</sup> ] 2x 1.5	
Cable ends	Open end	
Operating voltage V <sub>max</sub>	[V] 60 AC/75 DC	
Current-carrying capacity	[A] 3	
Protection class	IP65 with sealed wire ends	
Ambient temperature	[°C]	
■ Fixed cable installation	-40 ... +85	
■ Flexible cable installation	-25 ... +85	
Suitable for chain link trunking	No	
Air humidity	95% non-condensing	
Combustibility	Flame resistant UL 94 HB	
Corrosion protection class CRC <sup>1)</sup>	3	
Product weight	[g/m] 71	
Materials	Sheath: EM3 rubber compound; cable: 3GI3 rubber compound; conductor: tin-coated copper, finely stranded	

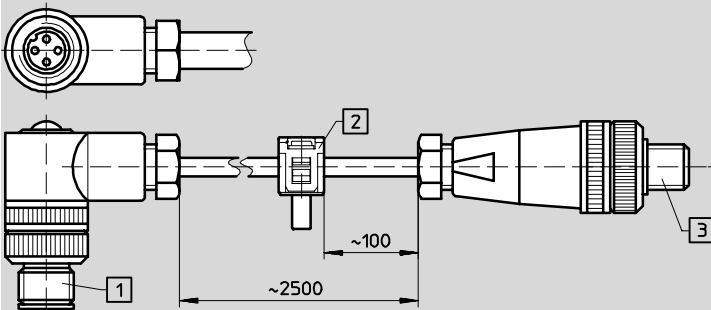
1) Corrosion resistance class 3 according to Festo standard 940 070

Components requiring higher corrosion resistance. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

## Dimensions – Cable

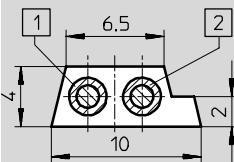
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### Addressing cable – KASI-ADR



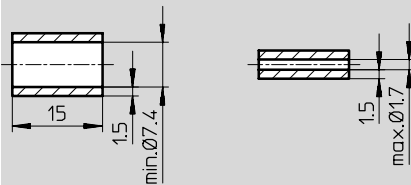
- 1 Round plug connector for connection to addressing device
- 2 Flat cable socket for connecting stations in the AS-interface network with plug-in connection
- 3 Flat cable socket with M12 connection plug for stations in the AS-interface network with M12 interface

### Flat cable – KASI-1,5-...-100

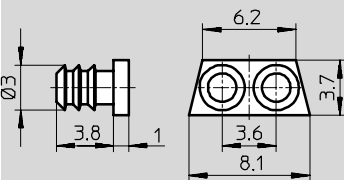


- 1 blue (-)
- 2 brown (+)

### Flat cable sleeve – ASI-KT-FK



### Cable cap – ASI-KK-FK



## Overview of connection components

### Flat cable socket

Flat cable socket for connecting AS-interface network stations to the flat cable. The connection is

detachable. The cable socket is designed to prevent connection with incorrect polarity.



#### ASI-SD-FK

Flat cable socket for AS-interface master, CP valve terminals, combi socket, ASI-EVA



#### ASI-SD-FK180

Version FK180 on top



#### ASI-SD-FK-M12

Flat cable socket with M12 threaded connector for midi/maxi valve terminals with AS-interface connection



#### ASI-SD-PG-M12

Flat cable socket with M12 connection and PG thread



#### ASI-SD-FK-BL

Blanking plugs for sealing unused connections

### Flat cable distributor



#### ASI-KVT-FK

Parallel flat cable distributor, allows flat cable to be branched at any desired point to the AS-interface network users.



#### ASI-KVT-FK-S

Symmetrical type: These enable the coding profile of the flat cable to be reversed in order to avoid loops. This removes the necessity of installing a loop. Three cable covers are provided in the scope of delivery to seal the cable ends.

### Technical data

Type	ASI-SD-FK	ASI-SD-FK-180	ASI-SD-FK-M12	ASI-SD-PG-M12	ASI-SD-FK-BL	ASI-KVT-FK	ASI-KVT-FK-S
Part No.	<b>18 785</b>	<b>169 089</b>	<b>18 788</b>	<b>18 789</b>	<b>196 090</b>	<b>18 786</b>	<b>18 797</b>
Version	-					Cable parallel	Cable symmetrical
Protection class	IP65		IP67	IP65			
Voltage [V]	max. 60 AC/75 DC		40	max. 60 AC/75 DC			
Current [A]	max. 3		max. 2	max. 3			
Temperature range [°C]	-5 ... +50						
Material	Housing: Polyamide (PA 6-GF30)		Polyamide (PA 66-GF25)	Housing: Polyamide (PA 6-GF30)			
Product weight [g]	6.2	6.2	16.8	27.6	1	11.7	11.7

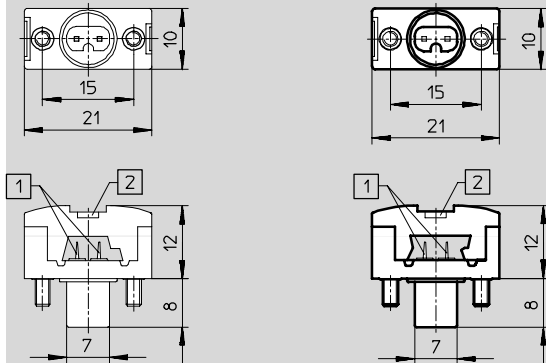
## Dimensions – Connection components

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### Flat cable socket

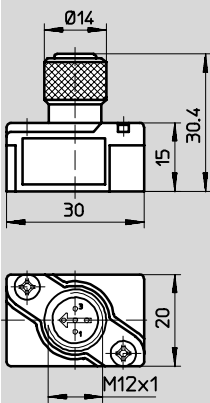
ASI-SD-FK

ASI-SD-FK-180

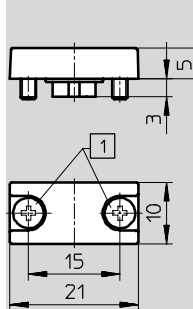


- 1 Contact blades for flat cable contacting
- 2 Inscription label mounting options

### Flat cable socket ASI-SD-FK-M12



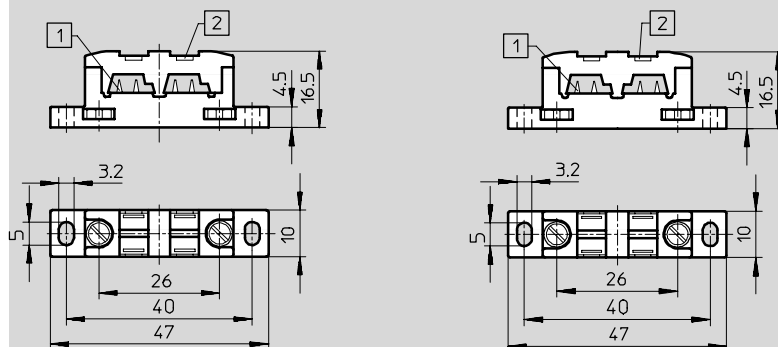
### Blanking plug ASI-SD-FK-BL



### Flat cable distributor

ASI-KVT-FK

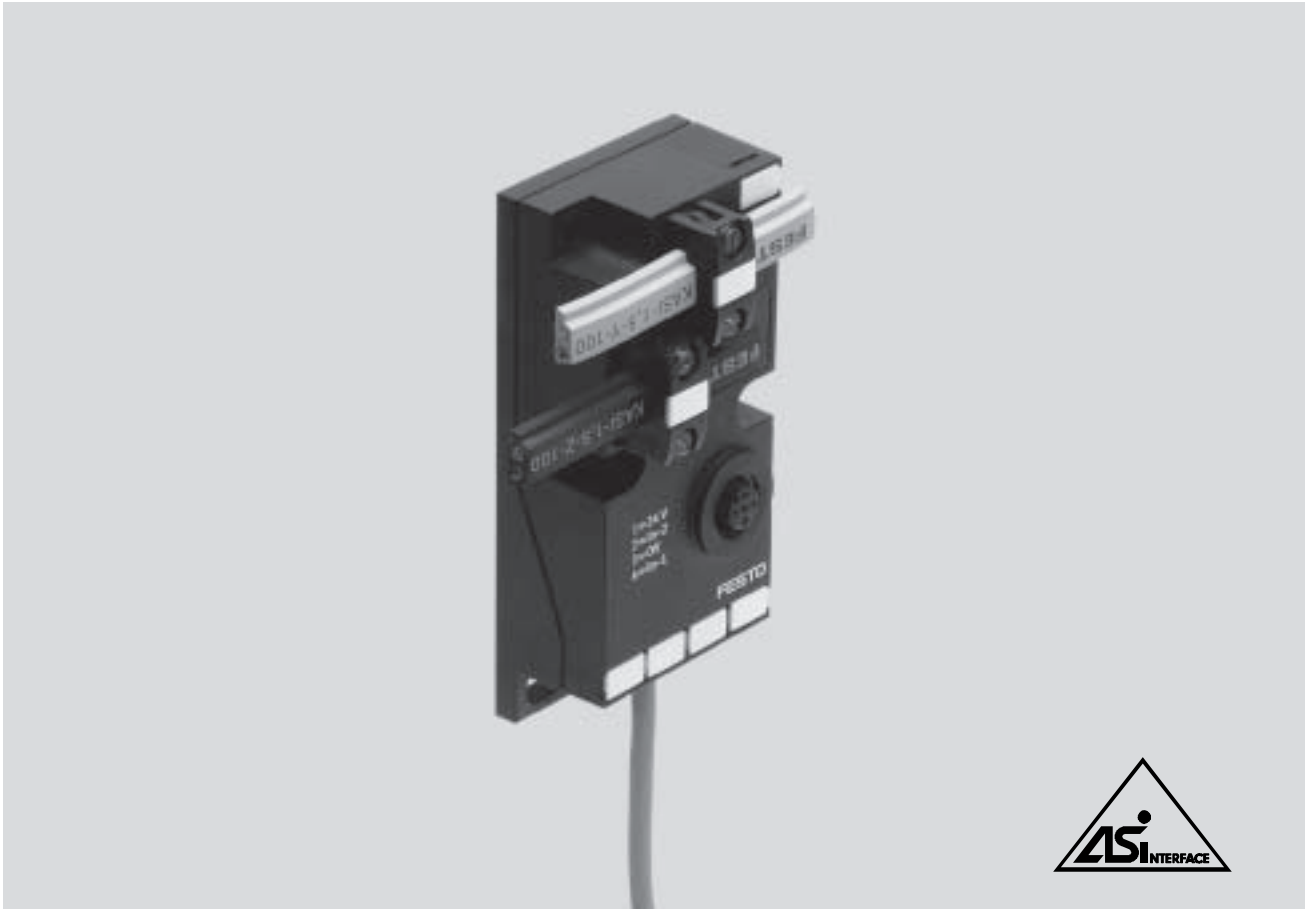
ASI-KVT-FK-S



- 1 Contact blades for flat cable contacting
- 2 Inscription label mounting

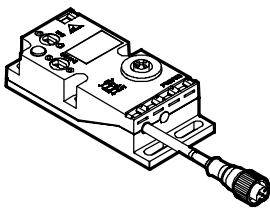
# AS-interface® components

Accessories



## Flat cable distributor, yellow/black to 2xM12

ASI-KVT-FKx2-M12



The flat cable distributor is a passive component which recouples flat cables from the AS-interface (yellow and optionally black) to M12 4-pin plug connectors. The flat cable distributor is introduced as an accessory for the electrical interface CPA10/14-GE-ASI-4/8E4/8A-Z, but is

also compatible with other slaves offered on the market with standardised M12 interface. An approx. 1 m PUR cable with M12 socket is permanently attached to the housing. Alternatively an extension cable (e.g. PVC) can be connected via

an M12 socket integrated in the housing. The flat cable distributor thus permits new connection technologies on the AS-interface, mainly via round cables in chain link trunking or environments with higher requirements for easy cleaning.

### Pin allocation

AS-interface and additional power supply

5-pin M12-socket and socket at the cable

	<p>1 AS-interface bus 1: + (light blue) 2: - (brown)</p> <p>2 Auxiliary power supply 1: 0 V 2: + 24 V DC</p>		<p>Pin 1: AS-interface + Pin 2: 0 V (auxiliary power supply) Pin 3: AS-interface - Pin 4: +24 V (auxiliary power supply) Pin 5: Unused</p>
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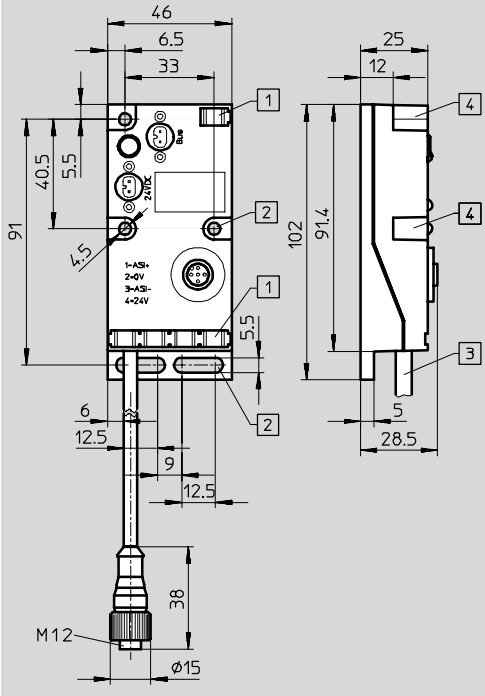


# AS-interface® components

Accessories

**Dimensions**

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- 1 Inscription label mounting
- 2 Mounting holes for surface mounting
- 3 Cable PUR-OB, 1 m long
- 4 Mounting holes for ITEM profile 40 mm or other mounting option

Technical data		ASI-KVT-FKx2-M12	
Type	ASI-KVT-FKx2-M12		
Part No.	<b>527 474</b>		
AS-interface connection	Connection technology	AS-interface flat cable plug (must be ordered separately)	
	Nominal voltage [V]	DC 26.5 ... 31.6, polarity-safe	
	Residual ripple [mVss]	20	
24 V DC connection	Connection technology	AS-interface flat cable plug (must be ordered separately)	
	Nominal voltage [V]	DC 24 +/-10%	
	Residual ripple [mVss]	4	
General data	Protection class (to EN 60 529)	IP65 (fully assembled)	
	Cable length [mm]	1000	
	Cable cross-sectional area	4x 0.34 mm <sup>2</sup>	
	CE symbol	Yes	
	Temperature range [°C]	Operation: -25 ... +85 Storage: -20 ... +70	
	Relative air humidity (non-condensing)	5 ... 90%	
	Materials		
	■ Housing	Polyamide (PA6-GF25/sw-P)	
	■ Cable	Polyurethane (PUR-OB/grey)	
	PWIS	Surfaces free of paint-wetting impairment substances	
	Corrosion resistance class CRC <sup>1)</sup>	2	
	Shock test	To DIN IEC 68; +/-30 g at 11 ms, 15 cycles	
	Continuous shock test	To DIN IEC 68; +/-15 g at 6 ms, 1000 cycles	
	Vibration test	To DIN IEC 68; 0.35 mm at 10 ... 60 Hz, 5 g at 60 ... 150 Hz	
Protection against direct and indirect contact	By means of PELV (Protected Extra-Low Voltage)		
Dimensions [mm]	approx. 102 x 46 x 28.5		
Weight [g]	approx. 180		

1) Corrosion resistance class 2 according to Festo standard 940 070  
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

# AS-interface® components

Accessories

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## Configuration plug – ASI-SS-CONF



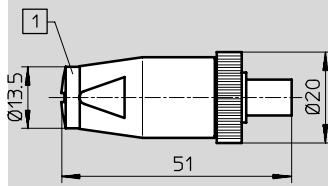
A plug is required for configuration of the master. To start configuration, the plug must be connected to the master before the operating voltage is switched on.

If the plug is removed during operation of the master, the master configuration is stored in non-volatile memory.

## Dimensions – Configuration plug

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

ASI-SS-CONFIG



1 Protective cover

## Technical data – Configuration plug

Type	ASI-SS-CONFIG
Part No.	<b>18 961</b>
Number of pins	2
Contact surface	Ni-Sn alloy
Contact material	CuSnZn
Operating temperature	[°C] -40 ... +85
Nominal current per contact	[A] 3
Combustibility	UL 94 HB V-2
Product weight	[g] 10.7
Materials	Housing: PBTP GV

## Overview of DUO components

### DUO cable – KM12-DUO-M8-...



The DUO cables each combine two sensor signals (2x 3-pin cable) on one 4-pin plug. This is transferred to a 4-pin input socket of a valve terminal or to the ASI-EVA.

3 variants

- 1 straight plug, 2 straight sockets (GDGD)
- 1 straight plug, 1 straight socket, 1 angled socket (GDWD)
- 1 straight plug, 2 angled sockets (WDWD)

### DUO plug – SEA-5GS11-DUO



The DUO plug combines two sensor signals/cables in one casing.

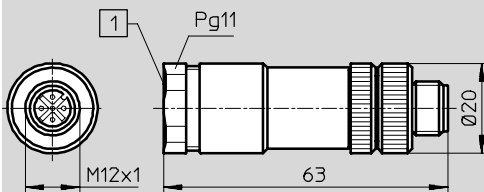
## Technical data – DUO cable

Type	KM12-DUO-M8-GDGD	KM12-DUO-M8-GDWD	KM12-DUO-M8-WDWD
Part No.	<b>18 685</b>	<b>18 688</b>	<b>18 687</b>
Cable length [m]	0.5		
Core cross-section [mm <sup>2</sup> ]	3x 0.25		
Operating voltage V <sub>max</sub> [V]	max. 60 AC/75 DC		
Current-carrying capacity [A]	max. 2.8		
Degree of protection (plugged and screwed in)	IP67		
Ambient temperature [°C]	<ul style="list-style-type: none"> <li>■ Fixed cable installation: -30 ... +70</li> <li>■ Flexible cable installation: -5 ... +70</li> </ul>		
Connection	M12 → 2x M8		

## Dimensions – DUO plug

Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)

### SEA-5GS11-DUO



- 1 Included in the scope of delivery:
- 1x seal insert for 2 cables with  $\varnothing 2.5 \dots 2.9$  mm
  - 1x seal insert for 2 cables with  $\varnothing 5$  mm
  - 1x cable binder

## Overview – Other accessories

### Extension cable – KM-12-M12-GSGD-...



The connecting cables are installed as length compensators between a DUO cable and the ASI-EVA valve terminal inputs.

- 2 variants
- 2.5 m long
  - 5 m long

### Inscription labels IBS-...



Conveniently cut for

- flat cable sockets
- flat cable distributors
- midi valves
- maxi valves
- individual valve interfaces

### H-rail NRH-35-2000



- For input/output modules
- CP and type O3 valve terminals
- For individual valve interfaces






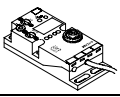


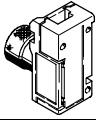

## Technical data – Extension cable

Type	KM12-M12-GSGD-2,5	KM12-M12-GSGD-5
Part No.	<b>18 684</b>	<b>18 686</b>
Cable length [m]	2.5	5
Core cross-section [mm <sup>2</sup> ]	4x 0.25	
Operating voltage V <sub>max</sub> [V]	max. 60 AC/75 DC	
Current-carrying capacity [A]	max. 3.8	
Degree of protection (plugged and screwed in)	IP67	
Ambient temperature [°C]		
■ Fixed cable installation	-30 ... +70	
■ Flexible cable installation	-5 ... +70	
Connection	M12 → M12	

# AS-interface® components

Accessories

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
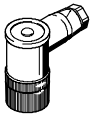



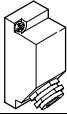


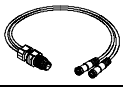
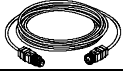
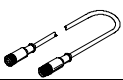
AS-interface – Ordering data			
	Designation	Type	Part No.
<b>Bus connection</b>			
	AS-interface flat cable, yellow, 100 m	KASI-1,5-Y-100	18 940
	AS-interface flat cable, black, 100 m	KASI-1,5-Z-100	18 941
	Flat cable socket <sup>1)</sup>	ASI-SD-FK	18 785
	Flat cable socket, turned through 180° <sup>1)</sup>	ASI-SD-FK180	196 089
	Flat cable blanking plug <sup>1)</sup>	ASI-SD-FK-BL	196 090
	AS-interface flat cable distributor, cable parallel	ASI-KVT-FK	18 786
	AS-interface flat cable distributor, cable symmetrical	ASI-KVT-FK-S	18 797
	Cable distributor (yellow and black) on 2x M12, 4-pin	ASI-KVT-FKX2-M12	527 474
	Cable cap for flat cable (scope of delivery 50 pieces)	ASI-KK-FK	18 787
	Cable sleeve (scope of delivery 20 pieces)	ASI-KT-FK	165 593
	M12 socket for flat cable	ASI-SD-FK-M12	18 788
	M12 socket for flat cable, with PG13.5	ASI-SD-PG-M12	18 789

1) Two flat cable connections per ASI-EVA must be connected or covered

# AS-interface® components

Accessories

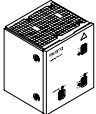






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AS-interface – Ordering data			
	Designation	Type	Part No.
<b>Sensor plug</b>			
	Sensor plug straight, M12, 5-pin, PG7	SEA-M12-5GS-PG7	175 487
	Sensor plug straight, M12, 4-pin, PG7	SEA-GS-7	18 666
	Sensor plug straight, M12, PG9	SEA-GS-9	18 778
	Sensor plug angled, M12, 4-pin	SEA-M12-4WD-PG7	185 498
	Sensor plug, 4-pin, M12 for 2.5 mm cable Ø	SEA-4GS-7-2,5	192 008
	Sensor plug, straight, M8, screw-in	SEA-3GS-M8-S	192 009
	Sensor plug, straight, M8, solderable	SEA-GS-M8	18 696
	Sensor plug, Harax, 4-pin	SEA-GS-HAR-4POL	525 928
	Sub-D plug, 25-pin	SD-SUB-D-ST25	527 522
	Protective cap M12	ISK-M12	165 592
	Protective cap M8	ISK-M8	177 672
<b>DUO plug</b>			
	DUO plug M12, for 2 cables, 5-pin	SEA-5GS-11-DUO	192 010
	DUO plug M12, for 2 cables, 4-pin	SEA-GS-11-DUO	18 779
<b>DUO cable M12 on 2x M8</b>			
	DUO cable, 2x straight socket	KM12-DUO-M8-GDGD	18 685
	DUO cable, straight/angled socket	KM12-DUO-M8-GDWD	18 688
	DUO cable, 2x angled socket	KM12-DUO-M8-WDWD	18 687
<b>Extension cable</b>			
	Extension cable, 4-pin, 2.5 m	KM12-M12-GSGD-2,5	18 684
	Extension cable, 4-pin, 5 m	KM12-M12-GSGD-5	18 686
<b>Connecting cable for DNCV</b>			
	Connecting cable M12, 8-pin	KM12-8GD8GS-2-PU	525 617

# AS-interface® components

Accessories

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AS-interface – Ordering data			
	Designation	Type	Part No.
<b>Miscellaneous</b>			
	Combi power pack for AS-interface	ASI-CNT-115/230 VAC-B	191 082
	Addressing device	ASI-PRG-ADR	18 959
	Addressing cable	KASI-ADR	18 960
	AS-interface configuration plug	ASI-SS-CONFIG	18 961
	Serial data cable for AS-interface software tool	KDI-SB202-BU9	150 268
	Inscription labels 6x10 in frames (64 pieces)	IBS 6x10	18 576
	Inscription labels 10x17 in frames (30 pieces)	IBS-10x17	160 238
	Inscription labels 9x20 in frames (20 pieces)	IBS 9x20	18 182
	H-rail mounting (mounting set)	CP-TS-HS35	170 169
	Attachment for H-rail mounting	CPA-BG-NRH	173 498
	H-rail to EN 50 0022	NRH-35-2000	35 430