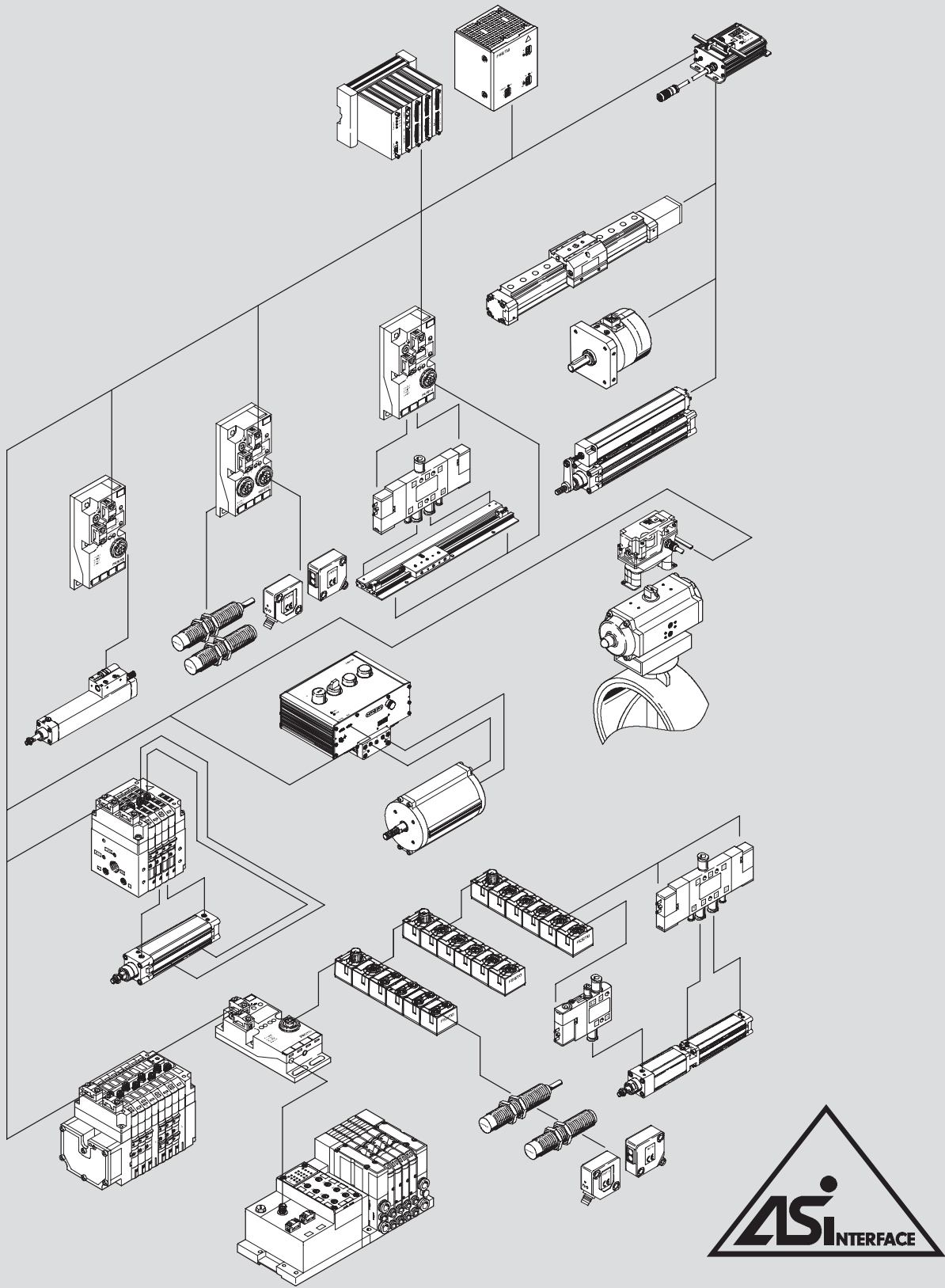# AS-interface® components

- 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

Fieldbus systems/electrical peripherals
AS-interface components

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AS-interface® components

Overview of AS-interface

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 50295 and the international standard IEC 62026-2. 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 as per Specification V2.1 published at the start of 2000 such as the parameterisable profile 7.4 or the AS-interface Safety at Work concept opened the way for new areas of application and facilitated considerably more efficient installation and networking concepts in many instances.

Specification V3.0 published in 2005 represents another giant leap forward, facilitating convenient activation of analogue I/O, complex slaves or serial text and data transfer, for example. Slaves as per Specifications V2.0 and V2.1 will also run under V3.0 – the system is fully upwards compatible.

Master-slave principle

- Non-proprietary
- No restrictions in terms of cable layout and/or topology
- Data and power via a single two-wire cable
- Immune to interference
- Medium: unscreened cable 2x 1.5 mm^2
- With 31 slaves, max. 4 inputs and 4 outputs per slave

- Data and power supply for up to 8 outputs per AS-interface string
- With 62 slaves, max. 4 inputs and 3 outputs per slave (A/B operation as per Specification V2.1)
- Modules for control cabinets (IP20) and harsh industrial environments (IP65, IP67)
- 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)
- Insulation displacement technology

- Cable length 100 m, can be extended to up to 200 m through the use of an extension plug and to up to 500 m through the use of repeaters, etc.
- Highly effective error control
- Simple commissioning
- Electronic address selection via the bus connection

AS-interface® components

Overview of AS-interface

Basic features

Simple connection technology	Ideal for pneumatic applications	A powerful system component	Everything from a single source
• 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™ • Alternative bus connection technology M12, 4-pin (standardised)	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.	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.	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

Optimised cycle rates

Decentralised solutions at the AS-interface permit optimised control loop systems: valve response times and optimum pairings of cylinder diameter and stroke save up to

- 20% cycle time with standard components
- 30% cycle time with electronic end-position cushioning
- 40% installation costs
- 50% air consumption/flow rate

Overview of range

Drives

Intelligent drives DNCV with integrated valve, sensor and diagnostic module	Drives for the process industry Quarter turn valve actuators DRD (Copar) and linear valve actuators DLP (Copac)	Local controllers for process valve actuators and outdoor use

Valves

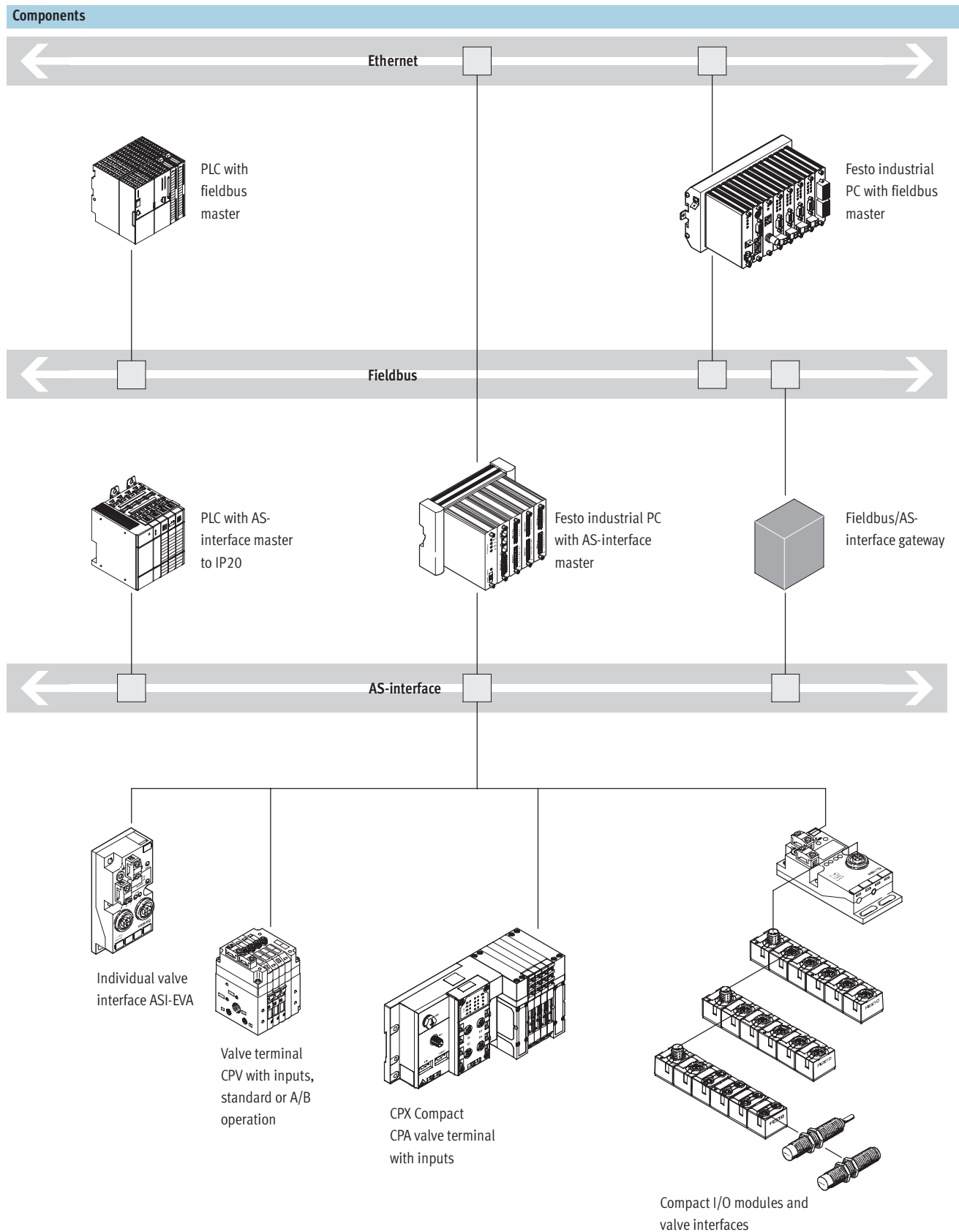|			
• A universal solution from the individual valve interface up to the compact solution with 8 valves	• Integrated inputs on individual valve interfaces and valve terminals CPV/CPA	• More inputs thanks to 4-fold input modules	• On request: Application-specific valves and integration solutions

AS-interface® components

System overview

Components

Ethernet

PLC with
fieldbus
master

Festo industrial
PC with fieldbus
master

Fieldbus

PLC with AS-
interface master
to IP20

Festo industrial PC
with AS-interface
master

Fieldbus/AS-
interface gateway

AS-interface

Individual valve
interface ASI-EVA

Valve terminal
CPV with inputs,
standard or A/B
operation

CPX Compact
CPA valve terminal
with inputs

Compact I/O modules and
valve interfaces

Fieldbus systems/electrical peripherals
AS-interface components

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AS-interface® components

System overview

FESTO

Typical applications
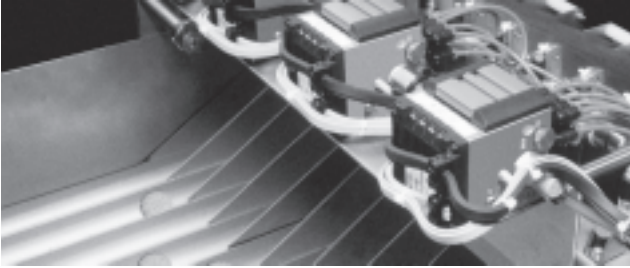
Sorting

Valve terminals CPV and CPA: 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.

Individual valve interfaces ASI-EVA or compact I/O modules support the direct connection of one or two valves of any size and up to 4 sensors to the AS-interface.
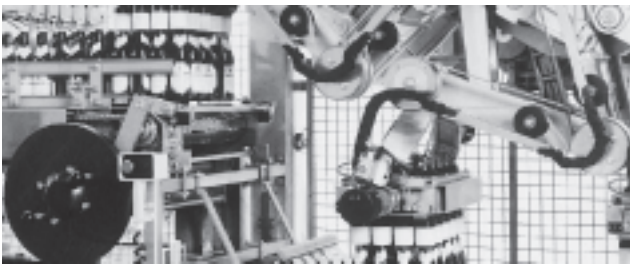
Packaging

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.
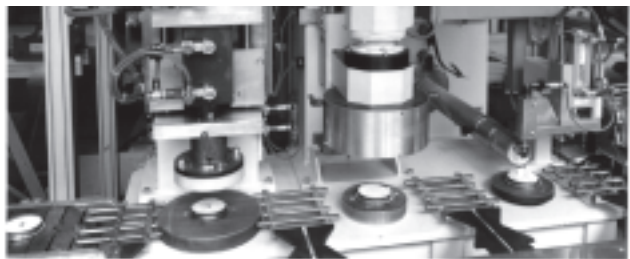
Assembly

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

Compact I/O modules, valve terminals and matching drives provide the optimum solution here.

Water treatment

Automation and decentralised intelligence are innovative features of newer systems. Festo's drives for the process industry are controlled via the AS-interface in the temperature range from -25 … +85 °C using the local

valve actuator DLP and the sensor box DAPZ.
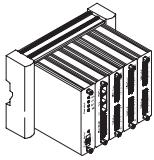The ASI-EVA or a compact I/O module is suitable for all valves with Namur interface.

Fieldbus systems/electrical peripherals
AS-interface components

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4 / 4.9-282   Products 2008 – Subject to change – 2007/10

AS-interface® components

System overview

Masters and accessories
### Master to IP20

- PS1 industrial PC from Festo to IP20 with up to 4 AS-interface masters CP92, can be mounted on an H-rail
- Standard or A/B operation according to Specification V2.1

- 486 CPU for up to 576 digital inputs/outputs
- Ethernet interface
- Profibus interface
- and many more

Minimum order volume:
- Busboard PS1-BP50-12,5W-5SLOT
  Part No. 160 817
- AS-interface master PS1-CP92-ASI
  Part No. 537 231
- Processor PS1-HC20-40-FST
  Part No. 193 120

Accessories
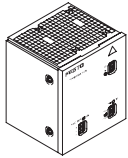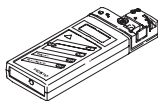
- Addressing device with user-friendly operating and diagnostic functions for the entire AS-inter-face, for example to perform the following tasks in the fully installed network:
  - change addresses
  - set outputs
  - read inputs
  - and much more

- Combi power pack for the AS-interface: AS-interface power and auxiliary power supply
- Installation accessories for installing the flat cable

Slaves
Drives

Intelligent drives DNCV:
- Integrated solution with diagnostic module

Drives for the process industry
Quarter turn valve actuators DRD (Copar)
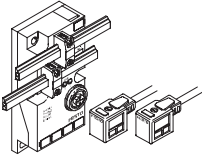Linear valve actuators DLP (Copar)
- Local controllers for drives in exterior applications in the range −5... +50 °C
- Individual valve interface ASI-EVA for Namur valves
- Sensor box with visual position detection DAPZ

Valves

- A universal solution from the individual valve interface up to the compact solution with 8 valves

- Integrated inputs on individual valve interfaces and valve terminals CPV/CPA

- More inputs thanks to 4-fold and 8-fold input modules

- On request:
  Application-specific valves and integration solutions

Fieldbus systems/electrical peripherals
AS-interface components

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AS-interface® components

System overview

## Valve interface variants

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
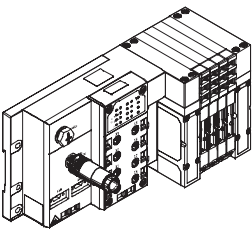
Compact valve terminal
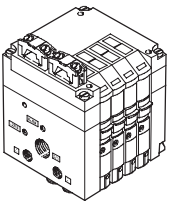
Maximum performance of 400 ... 1,600 l/min with minimal space requirement
• Valve combinations for 2, 4 or 8 valve slices
• Vacuum generation, relays and more in one unit

• Smart tubing system via pneumatic multiple connector plate:
  – Rapid replacement of valve terminals
  – With control cabinet installation: no internal tubing required

• Inputs M8 included for each valve position
• Ex Zone 2, 22

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

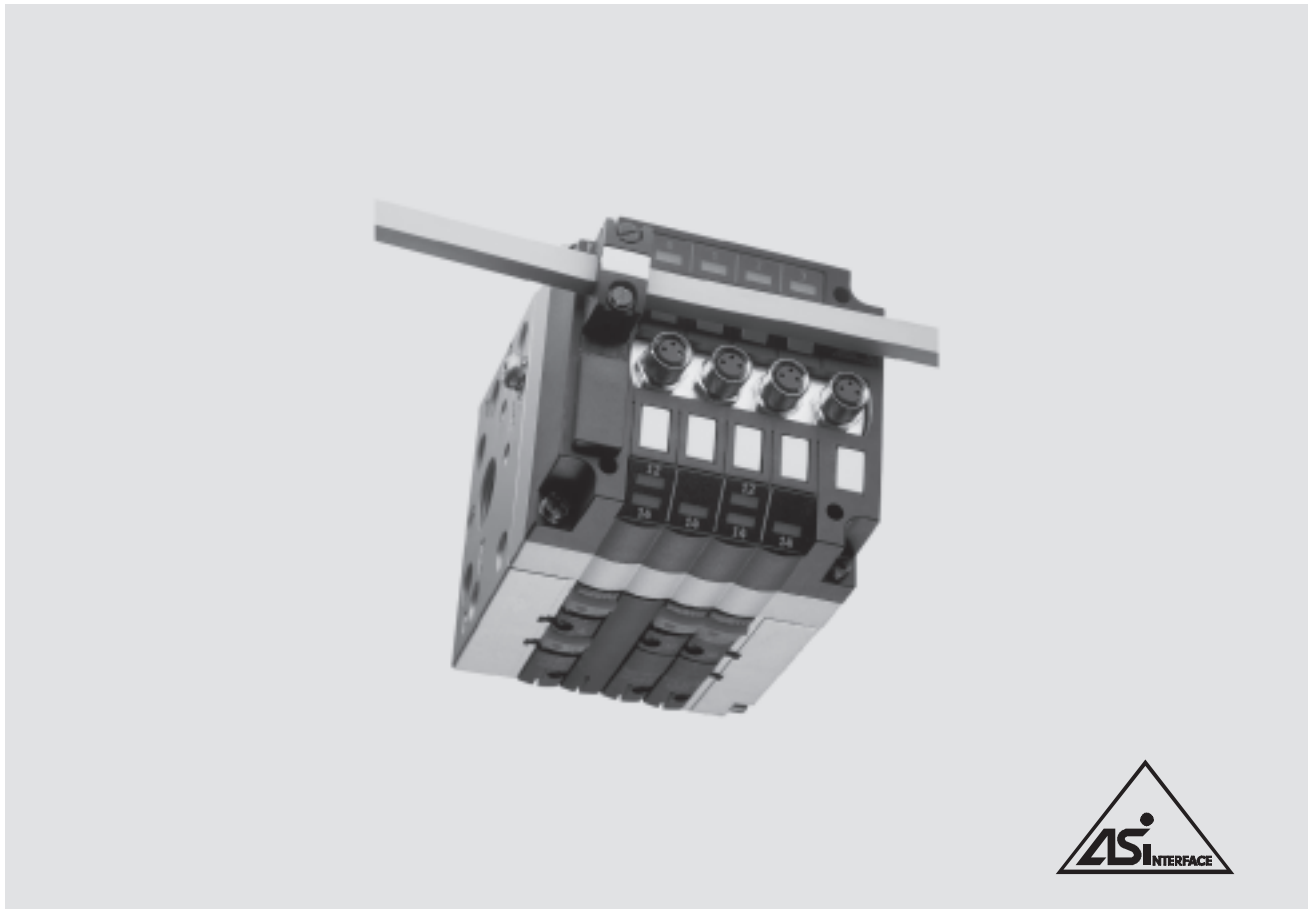• Selectable connection technology on the bus: flat cable or M12 round cable
• Addressing socket

Compact I/O modules, valve interfaces
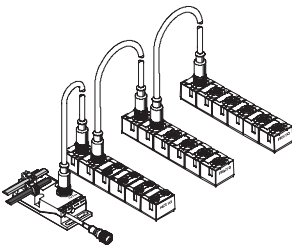
• Highly compact modules
• Sturdy, encapsulated electrics
• Bus and auxiliary power supply 2x M12 looped through

• Inputs 200 mA
• Outputs 1 A
• 8 inputs M8
• 4 inputs and 3 outputs M12

• 4 inputs and 2 outputs with solenoid coil plug

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.

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.

General

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

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 potential-free relay outputs
- Separator plates for the formation of pressure zones
- Suitable for vacuum
- Vacant positions for subsequent extension
- Optionally with pneumatic multiple 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

Fieldbus systems/electrical peripherals
AS-interface components

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- ☐ - 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)[1]	4	4	–	■	■	■	■	–
CPV18-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	■	–	■	■	–

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

Permissible combinations in valve position allocation								
	Slave n				Slave n+1			
Type	0	1	2	3	4	5	6	7
CPV1x-GE-ASI-2-Z	M	M						
	J	M						
	M	J						
	J	J						
CPV18-GE-ASI-4-Z	M	M	M	M				
CPV1x-GE-ASI-4E4A (-Z)	M	M	M	M				
CPV10-GE-ASI-4A (-Z)	J	Vacant position	M	M				
CPV14-GE-ASI-4A (-Z)	M	M	J	Vacant position				
	J	Vacant position	J	Vacant position				
CPV1x-GE-ASI-4E3A -Z[1]	M	M	M	Vacant position				
	J	Vacant position	M	Vacant position				
CPV1x-GE-ASI-8E8A-Z[1]	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
	M	M	M	M	J	Vacant position	J	Vacant position
CPV1x-GE-ASI-8E6A-Z[1]	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.
   - Slaves 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
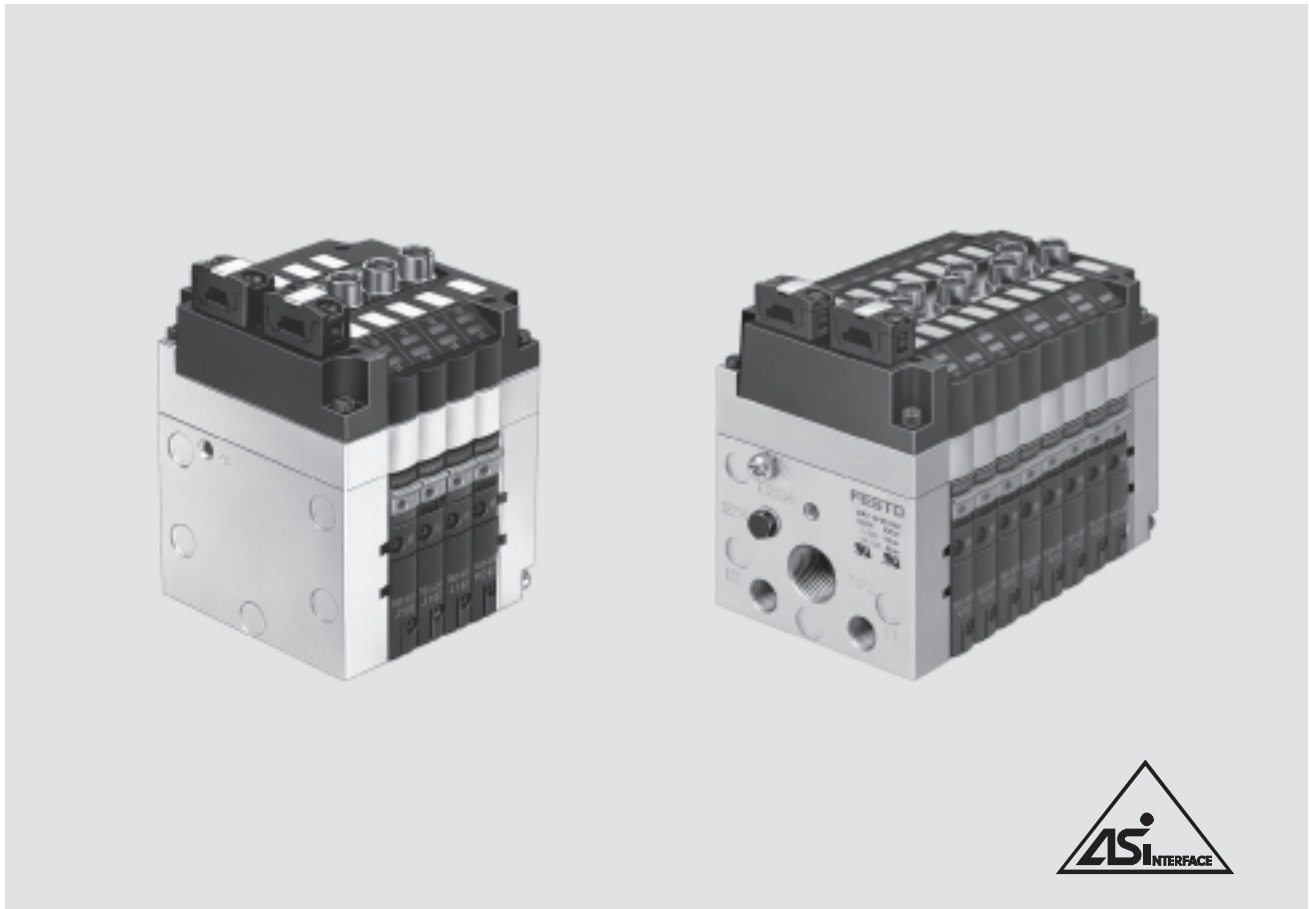
CPV valve terminals with integrated inputs, to Specification V2.0

General
- 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
- Potential-free 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

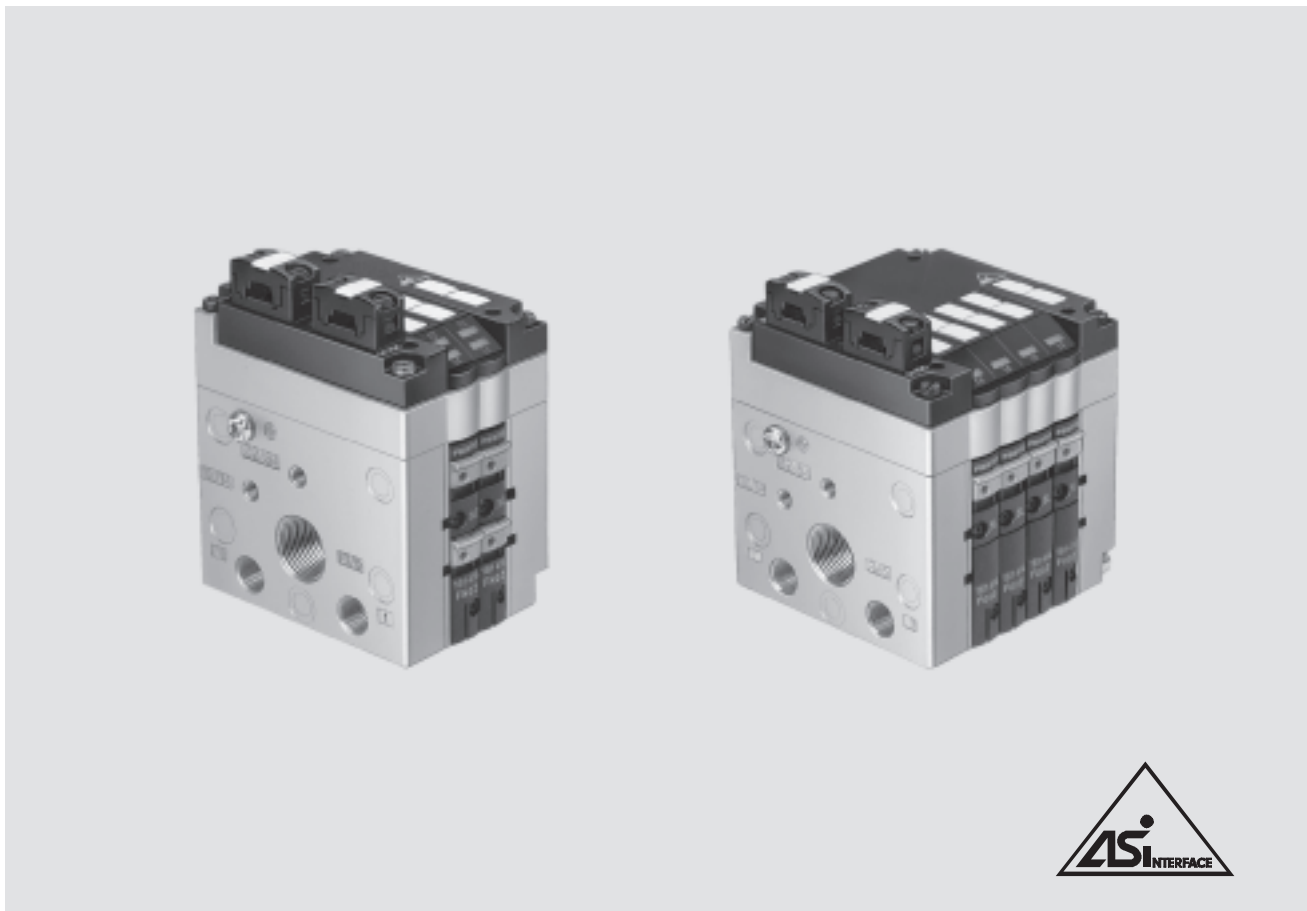CPV valve terminals with integrated inputs, to SPEC V2.0

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 delivery)		
	Voltage range	[V DC]	26.5 ... 31.6, reverse polarity protected		
	Residual ripple	[mVss]	20		
	Current consumption of inputs	[mA]		CPV10/14	
	• In 0 status		7	61/95	40
	• In 1 status (no current consumption by sensors)		35	89/123	96
	• In 1 status (max. current consumption by sensors)		240	191/225	278
	• Max. per input		200	200	200
	• Max. per valve				
	– when switching on			25/38.75	
	– following a current reduction			8.75/12.5	
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		CPV10/14	No load voltage connection	CPV10/14
	• when switching on	[mA]	108/176		200/310
	• following a current reduction	[mA]	42/72		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				
	• Interference emission		Tested to EN 55011, limit value class B		
	• Interference immunity		Tested to DIN EN 61000-4-2, DIN EN 61000-4-4 and EN V 50140		
	CE symbol		Yes, in accordance with EU Directive 89/336/EEC		
	Temperature range	[°C]	Operation: -5 ... +50; storage/transport: -20 ... +70		
	Materials		Housing: aluminium; cover: polyamide (PA6-GF25); seal: nitrile rubber (NBR), polychloroprene rubber (CR); PWIS-free		
	Dimensions		➜ 4 / 4.9-295		
	Weight		➜ 4 / 4.9-294		
	Pneumatic data		➜ 4 / 2.1-2		
AS-interface data	ID code		F_H (ID = F_H; ID1 = F_H; ID2 = F_H)		
	I/O code		7_H		
	Profile		S-7.F		

AS-interface® components

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

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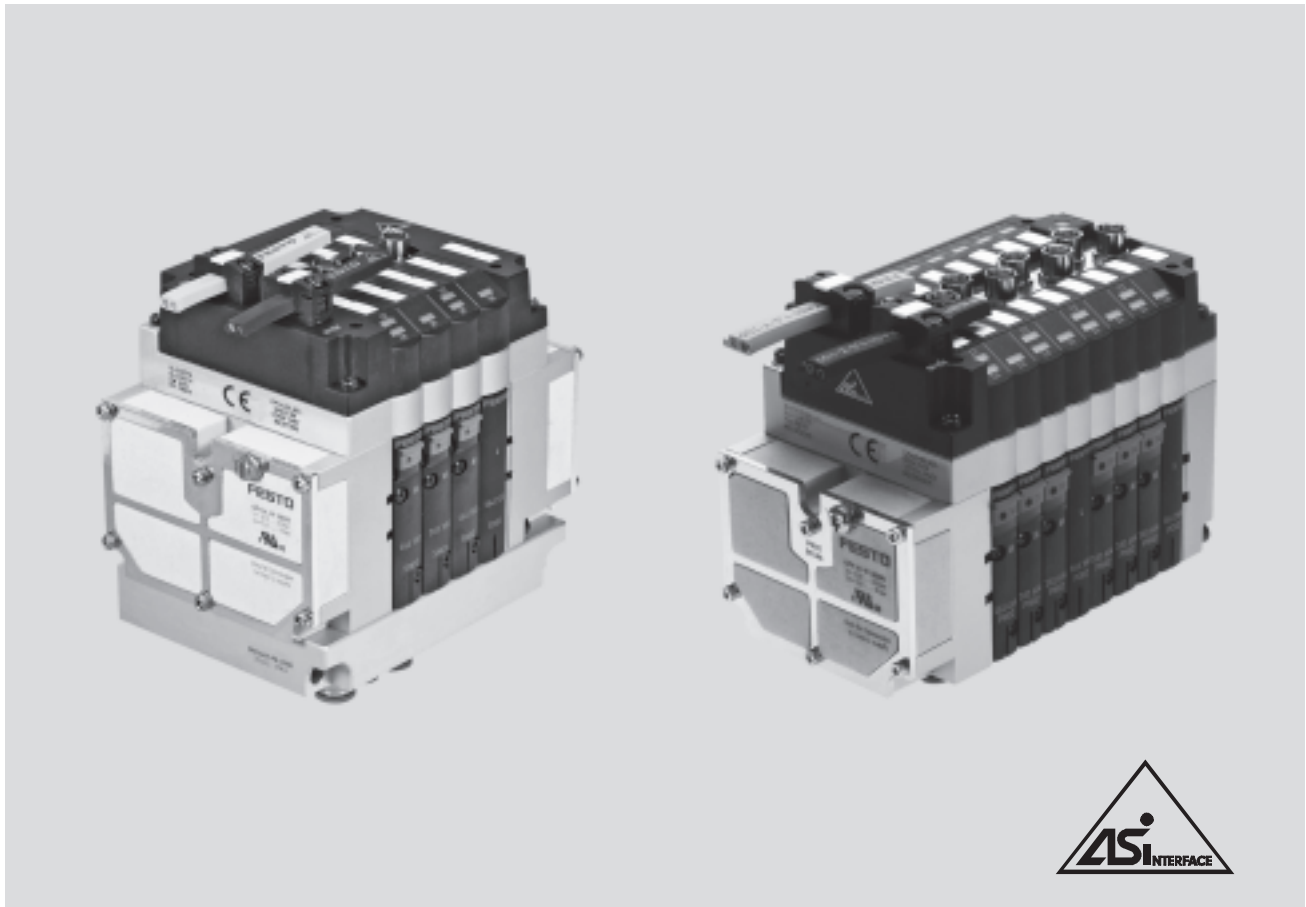
CPV valve terminals with integrated inputs, for A/B operation to Specification V2.1[1]

General

- 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
- Potential-free 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)[2]

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 and SPEC V3.0
- Flexible and cost-effective connection of 3 or 6 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

Fieldbus systems/electrical peripherals
AS-interface components

4.9

- ⣿ - Note

Please refer to the various pneumatic functions for more information.

➔ 4 / 2.1-2

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1) Slave compatible with SPEC V3.0
2) Peripherals 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 delivery)	
	Voltage range	[V DC]	26.5 … 31.6, reverse polarity protected	
	Residual ripple	[mVss]	20	
	Current consumption of inputs	[mA]		
	• In 0 status		7	40
	• In 1 status (no current consumption by sensors)		35	96
	• In 1 status (max. current consumption by sensors)		240	278
	• Max. per input		200	200
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		CPV10/14	CPV10/14
	• when switching on	[mA]	108/176	200/310
	• following a current reduction	[mA]	42/72	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			
	• Interference emission		Tested to EN 55011, limit value class B	
	• Interference immunity		Tested to DIN EN 61000-4-2, DIN EN 61000-4-4 and EN V 50140	
	CE symbol		Yes, in accordance with EU Directive 89/336/EEC	
	Temperature range	[°C]	Operation: -5 … +50; storage/transport: -20 … +70	
	Materials		Housing: aluminium; cover: polyamide (PA6-GF25); seal: nitrile rubber (NBR), polychloroprene rubber (CR); PWIS-free	
	Dimensions		→ 4 / 4.9-295	
	Weight		→ 4 / 4.9-294	
	Pneumatic data		→ 4 / 2.1-2	
AS-interface data	ID code		ID = A_H; ID1 = 7_H; ID2 = E_H	
	I/O code		7_H	
	Profile		S-7.A.E	

AS-interface® components

CPV valve terminals without inputs, to SPEC V2.1

CPV valve terminals without inputs, to Specification V2.1[1]

General
- 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
- Potential-free 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)[2]
- Valve diagnosis: short circuit or wire break at valve solenoid coil, valve does not respond (no movement of the plunger)

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

- With or without 24 V DC auxiliary power supply for solenoid coils (EMERGENCY-STOP circuitry)
- The auxiliary power supply is always integrated and can be subsequently switched off using the DIL switch
- 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

1) Slave compatible with SPEC V3.0
2) Valve terminal with 4 valve positions: peripherals faults to SPEC V2.1 implemented
   Valve terminal with 2 valve positions: peripherals faults not implemented

Fieldbus systems/electrical peripherals
AS-interface components

4.9

Technical data						
Type			CPV-...-GE-ASI-2-Z	CPV-...-GE-ASI-4-Z[1]	CPV-...-GE-ASI-4[1]	
Part No.			**Order via order code/valve terminal configurator**			
Valves	No. of solenoid coils		2	4	4	
	Valve width	10 mm	■	■	■	
		14 mm	■	■	■	
		18 mm	■	■	–	
	Setting of the valve configuration		None (permanently assigned)	Integrated DIL switch		
	External power supply		Yes	Yes[2]	No[2]	
	24 V DC			Set using DIL switch		
AS-interface connection	Connection technology		AS-interface flat cable plug (must be ordered separately)			
	Voltage range	[V DC]	26.5 ... 31.6, reverse polarity protected			
	Residual ripple	[mVss]	20			
	Current consumption of all valves		CPV10/14/18	CPV10/14/18	CPV10/14/18	
	• without current reduction	[mA]	25/25/25	25/25/25	150/200/235	
	• with current reduction	[mA]	25/25/25	25/25/25	60/70/150	
Load voltage connection	Connection technology		AS-interface flat cable plug (must be ordered separately)			
				Blanking plug for sealing the unused connection enclosed		
	Nominal voltage	[V DC]	24 ±10%			
	Residual ripple	[Vss]	4			
	Max. starting current		CPV10/14/18	CPV10/14/18	No load voltage connection	
	• before current reduction	[mA]	108/176/320	110/165/246		
	• following a current reduction	[mA]	48/72/120	35/40/100		
LED displays	PWR-LED		Power/green			
	FAULT-LED		Fault LED/red	Peripherals fault LED/red Valve diagnosis: short circuit or wire break at valve solenoid coil, valve does not respond (no movement of the plunger)		
	Valves		Yellow			
General data	Protection class (to EN 60 529)		IP65 (fully assembled)			
	Electromagnetic compatibility					
	• Interference emission		Tested to EN 55011, limit value class B			
	• Interference immunity		Tested to DIN EN 61000-4-2, DIN EN 61000-4-4 and EN V 50140			
	CE symbol		Yes, in accordance with EU Directive 89/336/EEC			
	Temperature range	[°C]	Operation: -5 ... +50; storage/transport: -20 ... +70			
	Materials		Housing: aluminium; cover: polyamide (PA6-GF25); seal: nitrile rubber (NBR), polychloroprene rubber (CR); PWIS-free			
	Dimensions		→ 4 / 4.9-294			
	Weight		→ 4 / 4.9-294			
	Pneumatic data		→ 4 / 2.1-2			
AS-interface data	ID code		F_H			
	I/O code		8_H			
	ID2 code		F_H	E_H (F_H with CPV18)	–	
	Profile		S-8.F	S-8.F.E		
	Parameter P3 CPV valve diagnostic function			1 = enable 2 = disable		
	Default		1 for CPV with valve diagnosis			

1) New as of hardware status 0105: single or double solenoid valves can be configured by means of a DIL switch.
2) With or without 24 V DC auxiliary power supply for solenoid coils (EMERGENCY-STOP circuitry). The auxiliary power supply is always integrated and can be switched on/off using the DIL switch.

Overview of connections/displays – CPV with AS-interface
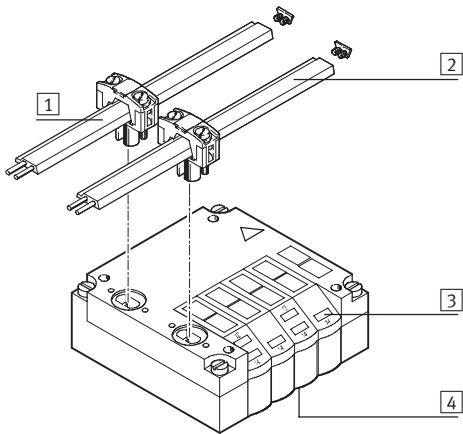
1 AS-interface bus connection
2 Auxiliary power supply for valves
(optional)
3 LED display for valves
4 Connection of the valves and DIL
switch for valve configuration as
well as DIL switch for switching
on/off the auxiliary power supply

CPV1x-GE-ASI-4E4A(-Z)
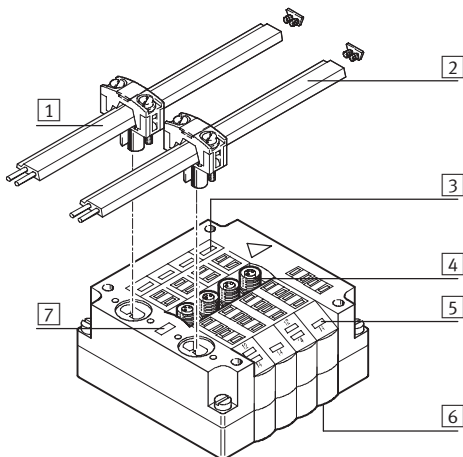
1 AS-interface bus connection
2 Auxiliary power supply for valves
(optional)
3 LED display for inputs
4 Sensor connection
5 LED display for valves
6 Connection of the valves and DIL
switch for valve configuration
7 ASI LED, fault LED

CPV1x-GE-ASI-8E8A-Z
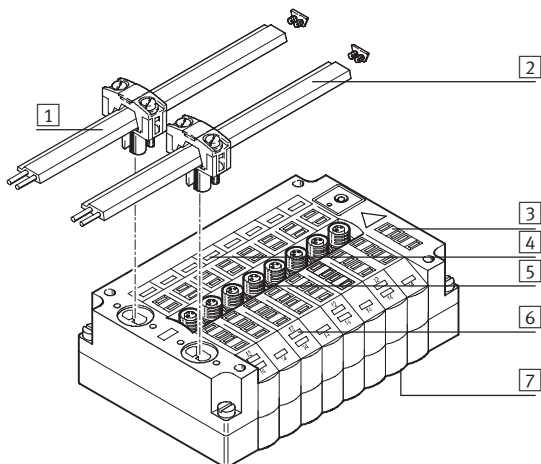
1 AS-interface bus connection
2 Auxiliary power supply for valves
3 Address selection key with LED
4 LED display for inputs
5 Sensor connection
6 LED display for valves
7 Connection of the valves and DIL
switch for valve configuration

Pin allocation		
Inputs CPV	Pin	Allocation
	1	+24 V
	3	0 V
	4	Input

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 multiple 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
Flat plate silencer		147	234	–
Relay plate		35	55	–
Blanking plate		25	45	90
Separator plate		25	45	90
Valve slice		65	110	260
Functional module: oneway flow control valves		25	54	125

Dimensions – CPV with AS-interface

Without integrated inputs
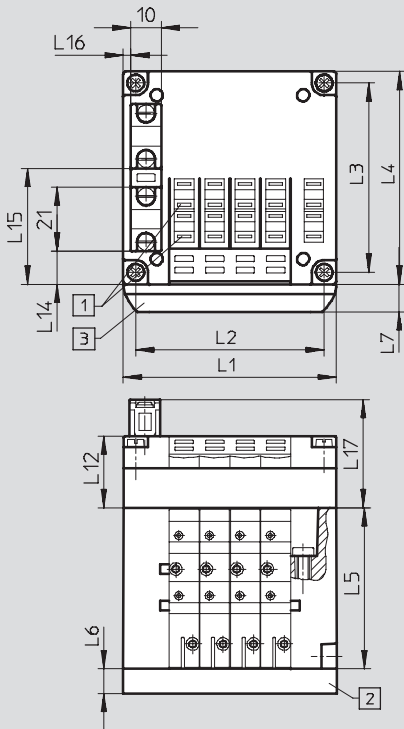
1. Slots for inscription labels
2. Pneumatic multiple connector plate
3. Inscription label holder

		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**

CPV10/14 with integrated inputs
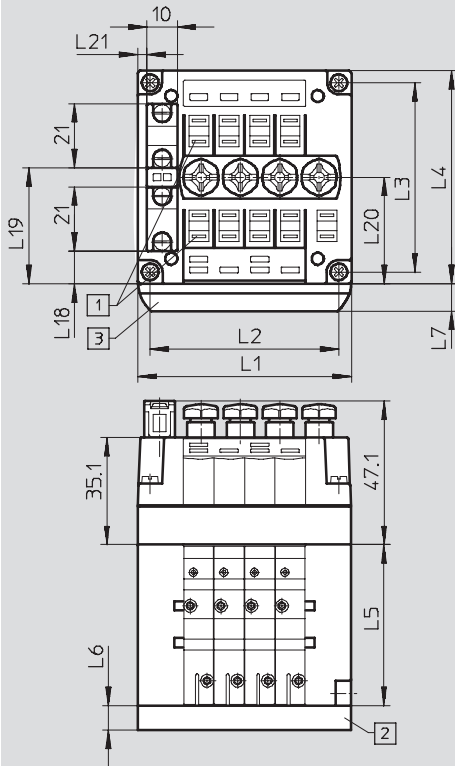
CPV10 with integrated inputs

1	Slots for inscription labels
2	Pneumatic multiple connector plate

3	Inscription label holder (CPV10/14/18-VI-BZ-T-… or CPV10/14/18-VI-ST-T-…)
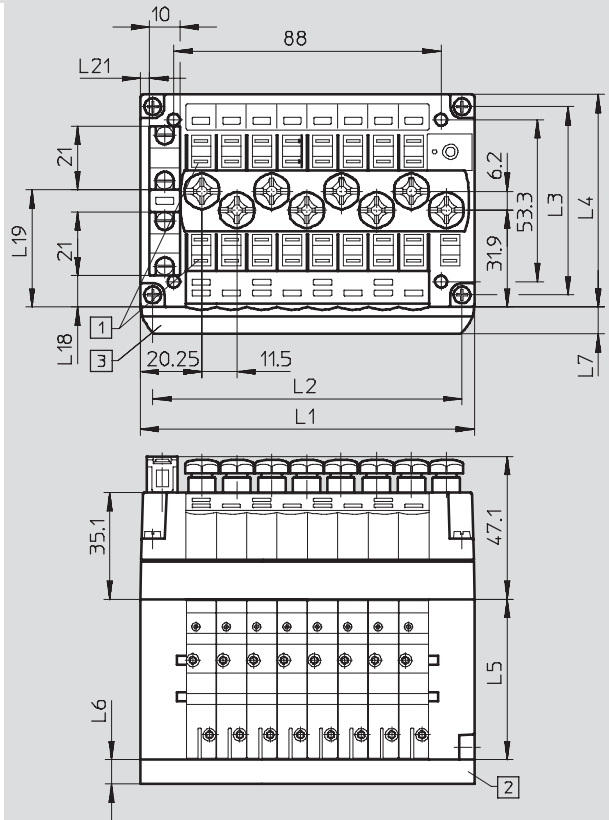
1	Slots for inscription labels
2	Pneumatic multiple connector plate

3	Inscription label holder (CPV10/14/18-VI-BZ-T-… or CPV10/14/18-VI-ST-T-…)

		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						10.4	38.6	31.9	
CPV14	4-fold	96	86	78	89	58.8	20	9.5	18.8	46.8	43.3	5

AS-interface® components

CPV valve terminals – Dimensions

Dimensions – CPV with AS-interface   Download CAD data ➔ **www.festo.com/en/engineering**

CPV14 with integrated inputs
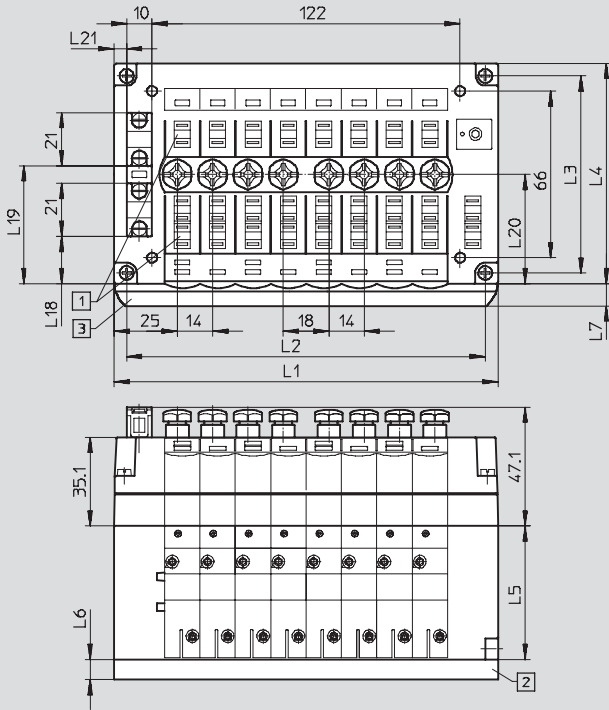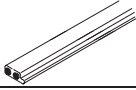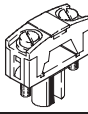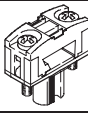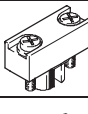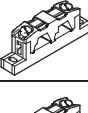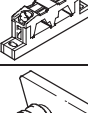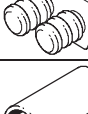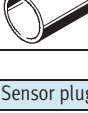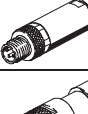
1	Slots for inscription labels
2	Pneumatic multiple connector plate
3	Inscription label holder

(CPV10/14/18-VI-BZ-T-... or
CPV10/14/18-VI-ST-T-...)

		L1	L2	L3	L4	L5	L6	L7	L18	L19	L20	L21
CPV14	8-fold	152	142	78	89	58.8	20	9.5	18.8	46.8	46.3	5

AS-interface® components

FESTO

Ordering data				
	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[1]		**ASI-SD-FK**	**18 785**
	Flat cable socket[1]	Turned through 180°	**ASI-SD-FK180**	**196 089**
	Flat cable blanking plug		**ASI-SD-FK-BL**	**196 090**
	AS-interface flat cable distributor	Parallel cable	**ASI-KVT-FK**	**18 786**
	AS-interface flat cable distributor	Symmetrical cable	**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**
Sensor plug				
	Straight sensor plug	M8, screw-in	**SEA-3GS-M8-S**	**192 009**
	Straight sensor plug	M8, solderable	**SEA-GS-M8**	**18 696**

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

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

CPV valve terminals – Accessories

Ordering data			
	Designation	Type	Part No.
Other accessories			
	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 compact input module for 8 inputs M8	**ASI-8DI-M8-3POL**	**542 124**
	AS-interface compact input/output module for 4 inputs/3 outputs M12	**ASI-4DI3DO-M12X2-5POL-Z**	**542 125**
	Inscription labels 6x10 in frames (64 pieces)	**IBS 6x10**	**18 576**
	Inscription labels 9x20 in frames (20 pieces)	**IBS 9x20**	**18 182**
User documentation			
	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**

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

CPA valve terminal – Overview
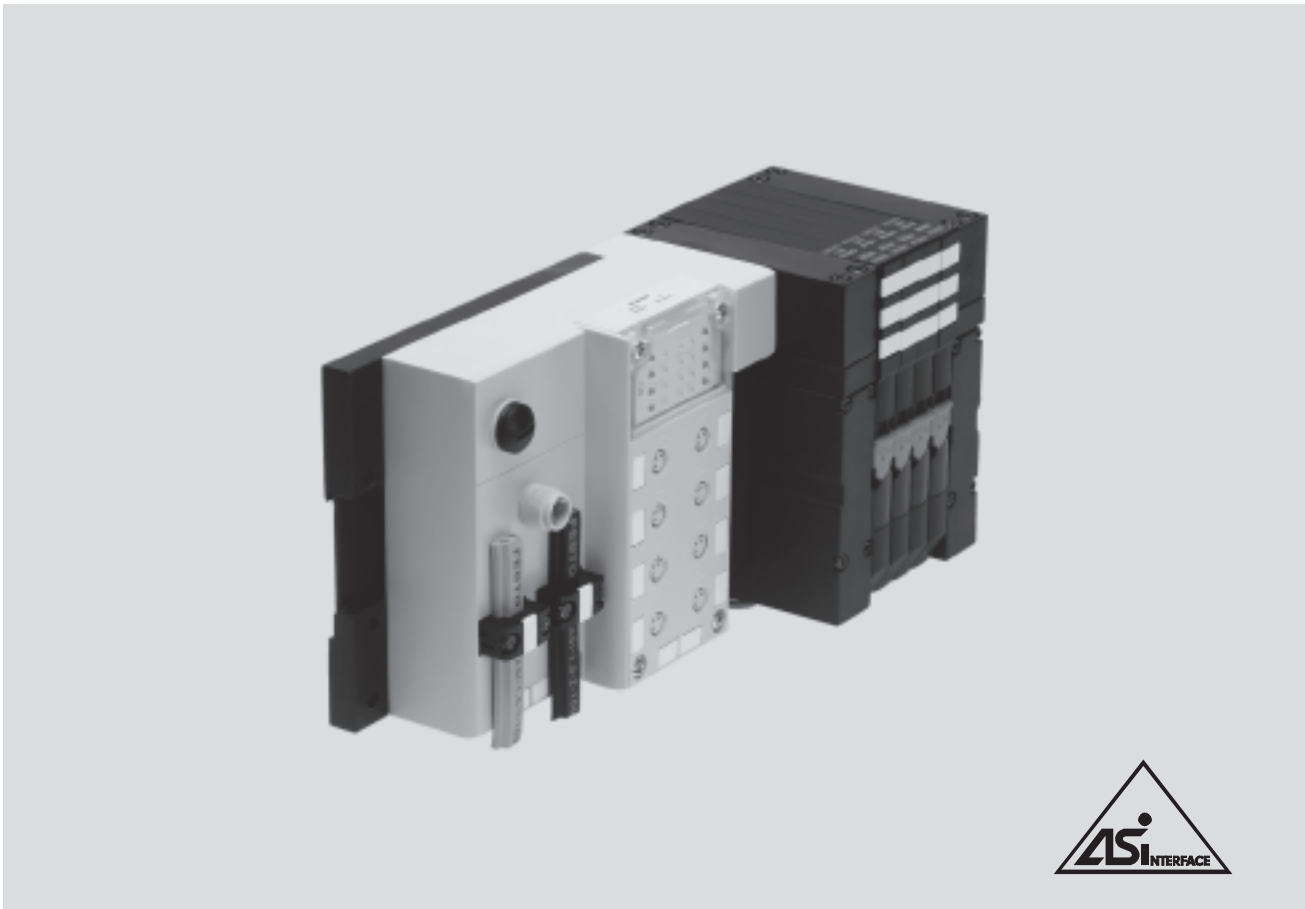
CPA valve terminals with AS-interface – Valve configuration options

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
- 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[1]
- 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

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

Fieldbus systems/electrical peripherals
AS-interface components

4.9

-▯- Note

Please refer to the various pneumatic functions for more information.
➔ 4 / 2.1-90

AS-interface® components

CPA valve terminal – Overview

Types of valve terminal with AS-interface

Type[1]	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

	Slave n			
Type	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

	Slave n plus slave n+1							
Type[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.

AS-interface® components

CPA valve terminal – Connection technology and addressing

Installation: Selectable connection technology for AS-interface

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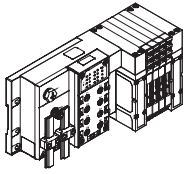
- Straightforward cabling with flat cables in protected areas
- Fast system of installation with standard AS-interface cables

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 elevated humidity
- Requirement for flexible cabling using one cable
- For use in chain link trunking with highly flexible cables
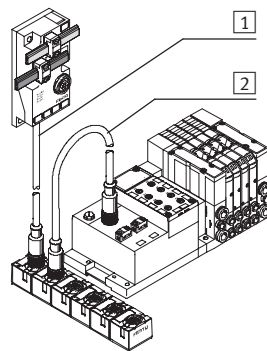
[1] Pre-assembled M12 round cable, 1 m, polyurethane
[2] Selectable cable for additional slave, for example highly flexible cable for chain link trunking or PVC cable for applications requiring resistance to detergents

Selectable connection technology for addressing

Addressing device
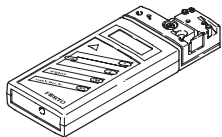
The addressing device to SPEC V2.1 can be used to scan the AS-interface from any point in the network. At all connected stations
- slave addresses can be read/changed
- ID and I/O codes can be read out
- parameters can be read/changed
- input/output data can be read and written (setting outputs)
- error messages can be read out and quickly recognised

[1] Addressing socket
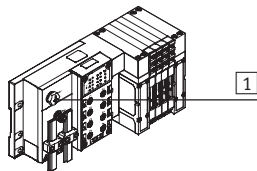
Only the connected chip is visible and addressable here.

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

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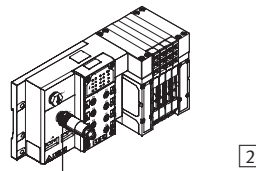
If the AS-interface is also connected to the flat cable plug, the entire network can be scanned without having to remove the slave from the bus.

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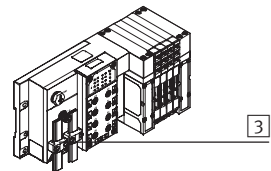
If the AS-interface is also connected to the M12 round cable, the entire network can be scanned without having to remove the slave from the bus.

- Note

If the valve terminal is connected using the external flat cable distributor and the M12 round plug, the network can also be scanned and the valve terminal addressed via this connection.

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

AS-interface flat cable distributor to round cable 2x M12
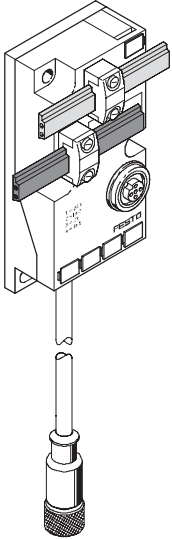
Alternative connection concepts

- 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 mount

- 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

Supplementary compact I/O modules
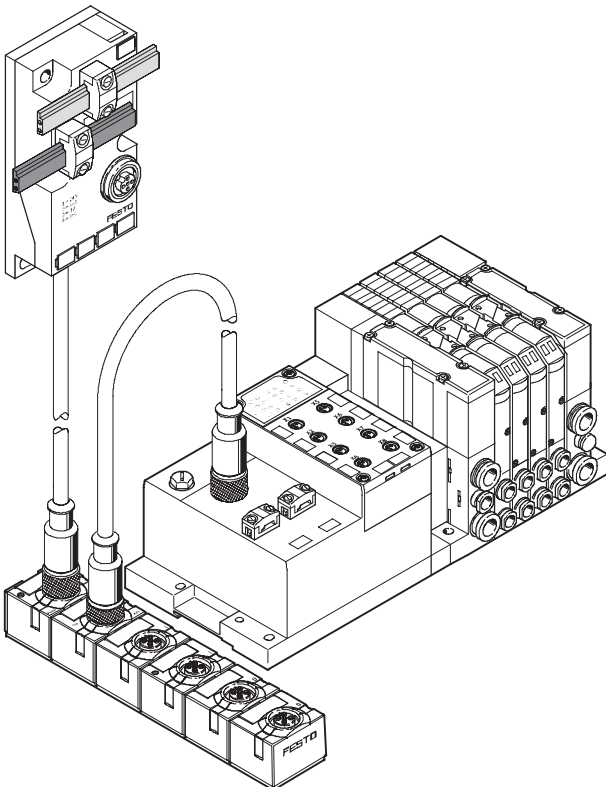
Valve terminals CPA can be supplemented with compact I/O modules and connected entirely using M12 round plugs. The following are available:

- 8 inputs M8
- 4 inputs/3 outputs M12
- 4 inputs/2 valve plugs

AS-interface® components

CPA valve terminal with inputs, to SPEC V2.1
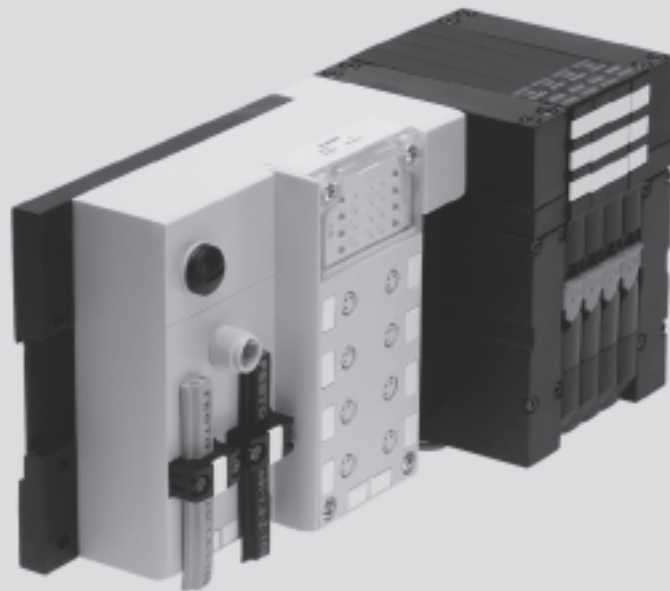
CPA valve terminal with inputs, to Specification V2.1[1]

General

- 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[2]
- 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[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 / 2.1-90

1) Slave compatible with SPEC V3.0
2) Suitable cable distributor from flat cable to M12: ASI-KVT-FKx2-M12

Fieldbus systems/electrical peripherals
AS-interface components

4.9

Technical data				
Type		CPA-...-GE-ASI-4E4A-Z		CPA-...-GE-ASI-8E8A-Z
Part No.		**Order via order code/valve terminal configurator**		
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, CageClamp, 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	• AS-interface flat cable plug • M12 connection[2]		
	Voltage range [V DC]	26.5 ... 31.6, reverse polarity protected		
	Residual ripple [mVss]	20		
	Current consumption of inputs	Without auxiliary power supply	With auxiliary power supply	With auxiliary 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		
	• Top right pin	Slave 1		Slave 1
	• Bottom left pin	Unused		Slave 2
Load voltage connection	Connection technology	• AS-interface flat cable plug • M12 connection[2]		
	Voltage range [V DC]	20.4 ... 26.4		
	Residual ripple [Vss]	4		
	Current consumption of valves	CPA10/14	CPA10/14	CPA10/14
	• max. starting current (at 24 V)	No load voltage connection	≤140	≤280
	• starting current for 4 valves following current reduction (approx. 25 ms)		≤65	≤130
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 55295: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 / 4.9-308		
	Weight [g]	240 + valves		
AS-interface data	ID code	ID = F_H; ID1 = F_H[1]; ID2 = E_H		
	I/O code	7_H		
	Profile	S-7.F.E		

1) Factory setting, set to 0_H by some programming devices (Spec. V2.1) when addressing the slave
2) Suitable cable distributor from flat cable to M12 → 4 / 4.9-384
   Pin allocation as for NEBU-M12G5-F-0,2-M12G4 → 4 / 4.9-305

AS-interface® components

CPA valve terminal – Connection blocks

Dimensions

Download CAD data ➔ **www.festo.com/en/engineering**

NEBU-M12G5-F-0,2-M12G4

① ⌀15 ① 38 ⌀5,2 ② 150 ② 41 M12×1 ⌀15
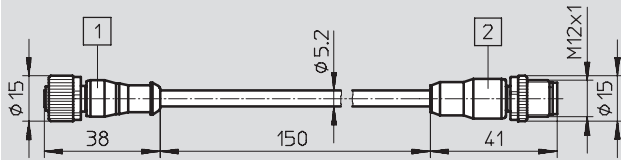
①	Straight socket M12
②	Straight plug M12

Wiring allocation (socket/plug view)

NEBU-M12G5-F-0,2-M12G4

Plug	Pin	Core colour/wiring allocation	Pin	
	1	Brown/ASI +	1	
	2	White/0 V load	2	
	3	Blue/ASI –	3	
	4	Black/24 V load	4	

Connection block/digital input module combinations

Connection blocks	Part No.	Digital input modules	
		CPX-8DE	CPX-4DE
CPX-AB-4-M12x2-5POL	**195 704**	■	■
CPX-AB-8-M8-3POL	**195 706**	■	■
CPX-AB-8-KL-4POL	**195 708**	■	■
CPX-AB-1-Sub-BU-25POL	**525 676**	■	■
CPX-AB-4-HARx2-4POL	**525 636**	■	■
CPX-AB-4-M12-8POL	**525 178**	–	–

AS-interface® components

CPA valve terminal – Connection blocks

FESTO

Pin allocation			
Connection block inputs		CPX-8DE	CPX-4DE

CPX-AB-4-M12X2-5POL

	CPX-8DE		CPX-4DE	
	X1.1: 24 V_{SEN}	X3.1: 24 V_{SEN}	X1.1: 24 V_{SEN}	X3.1: 24 V_{SEN}
	X1.2: Input x+1	X3.2: Input x+5	X1.2: Input x+1	X3.2: Input x+3
	X1.3: 0 V_{SEN}	X3.3: 0 V_{SEN}	X1.3: 0 V_{SEN}	X3.3: 0 V_{SEN}
	X1.4: Input x	X3.4: Input x+4	X1.4: Input x	X3.4: Input x+2
	X1.5: FE (earth)	X3.5: FE (earth)	X1.5: FE (earth)	X3.5: FE (earth)
	X2.1: 24 V_{SEN}	X4.1: 24 V_{SEN}	X2.1: 24 V_{SEN}	X4.1: 24 V_{SEN}
	X2.2: Input x+3	X4.2: Input x+7	X2.2: n.c.	X4.2: n.c.
	X2.3: 0 V_{SEN}	X4.3: 0 V_{SEN}	X2.3: 0 V_{SEN}	X4.3: 0 V_{SEN}
	X2.4: Input x+2	X4.4: Input x+6	X2.4: Input x+1	X4.4: Input x+3
	X2.5: FE (earth)	X4.5: FE (earth)	X2.5: FE (earth)	X4.5: FE (earth)

CPX-AB-8-M8-3POL

	CPX-8DE		CPX-4DE	
	X1.1: 24 V_{SEN}	X5.1: 24 V_{SEN}	X1.1: 24 V_{SEN}	X5.1: 24 V_{SEN}
	X1.3: 0 V_{SEN}	X5.3: 0 V_{SEN}	X1.3: 0 V_{SEN}	X5.3: 0 V_{SEN}
	X1.4: Input x	X5.4: Input x+4	X1.4: Input x	X5.4: Input x+2
	X2.1: 24 V_{SEN}	X6.1: 24 V_{SEN}	X2.1: 24 V_{SEN}	X6.1: 24 V_{SEN}
	X2.3: 0 V_{SEN}	X6.3: 0 V_{SEN}	X2.3: 0 V_{SEN}	X6.3: 0 V_{SEN}
	X2.4: Input x+1	X6.4: Input x+5	X2.4: Input x+1	X6.4: Input x+3
	X3.1: 24 V_{SEN}	X7.1: 24 V_{SEN}	X3.1: 24 V_{SEN}	X7.1: 24 V_{SEN}
	X3.3: 0 V_{SEN}	X7.3: 0 V_{SEN}	X3.3: 0 V_{SEN}	X7.3: 0 V_{SEN}
	X3.4: Input x+2	X7.4: Input x+6	X3.4: Input x+1	X7.4: Input x+3
	X4.1: 24 V_{SEN}	X8.1: 24 V_{SEN}	X4.1: 24 V_{SEN}	X8.1: 24 V_{SEN}
	X4.3: 0 V_{SEN}	X8.3: 0 V_{SEN}	X4.3: 0 V_{SEN}	X8.3: 0 V_{SEN}
	X4.4: Input x+3	X8.4: Input x+7	X4.4: n.c.	X8.4: n.c.

CPX-AB-8-KL-4POL

	CPX-8DE		CPX-4DE	
	X1.0: 24 V_{SEN}	X5.0: 24 V_{SEN}	X1.0: 24 V_{SEN}	X5.0: 24 V_{SEN}
	X1.1: 0 V_{SEN}	X5.1: 0 V_{SEN}	X1.1: 0 V_{SEN}	X5.1: 0 V_{SEN}
	X1.2: Input x	X5.2: Input x+4	X1.2: Input x	X5.2: Input x+2
	X1.3: FE (earth)	X5.3: FE (earth)	X1.3: FE (earth)	X5.3: FE (earth)
	X2.0: 24 V_{SEN}	X6.0: 24 V_{SEN}	X2.0: 24 V_{SEN}	X6.0: 24 V_{SEN}
	X2.1: 0 V_{SEN}	X6.1: 0 V_{SEN}	X2.1: 0 V_{SEN}	X6.1: 0 V_{SEN}
	X2.2: Input x+1	X6.2: Input x+5	X2.2: Input x+1	X6.2: Input x+3
	X2.3: FE (earth)	X6.3: FE (earth)	X2.3: FE (earth)	X6.3: FE (earth)
	X3.0: 24 V_{SEN}	X7.0: 24 V_{SEN}	X3.0: 24 V_{SEN}	X7.0: 24 V_{SEN}
	X3.1: 0 V_{SEN}	X7.1: 0 V_{SEN}	X3.1: 0 V_{SEN}	X7.1: 0 V_{SEN}
	X3.2: Input x+2	X7.2: Input x+6	X3.2: Input x+1	X7.2: Input x+3
	X3.3: FE (earth)	X7.3: FE (earth)	X3.3: FE (earth)	X7.3: FE (earth)
	X4.0: 24 V_{SEN}	X8.0: 24 V_{SEN}	X4.0: 24 V_{SEN}	X8.0: 24 V_{SEN}
	X4.1: 0 V_{SEN}	X8.1: 0 V_{SEN}	X4.1: 0 V_{SEN}	X8.1: 0 V_{SEN}
	X4.2: Input x+3	X8.2: Input x+7	X4.2: n.c.	X8.2: n.c.
	X4.3: FE (earth)	X8.3: FE (earth)	X4.3: FE (earth)	X8.3: FE (earth)

sidebar
Fieldbus systems/electrical peripherals
AS-interface components

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AS-interface® components

CPA valve terminal – Connection blocks

Pin allocation

Connection block inputs		CPX-8DE			CPX-4DE	
CPX-AB-1-SUB-BU-25POL						
		1: Input x	14: Input x+4		1: Input x	14: Input x+2
		2: Input x+1	15: Input x+5		2: Input x+1	15: Input x+3
		3: Input x+2	16: Input x+6		3: Input x+1	16: Input x+3
		4: Input x+3	17: Input x+7		4: n.c.	17: n.c.
		5: 24 V_{SEN}	18: 24 V_{SEN}		5: 24 V_{SEN}	18: 24 V_{SEN}
		6: 0 V_{SEN}	19: 24 V_{SEN}		6: 0 V_{SEN}	19: 24 V_{SEN}
		7: 24 V_{SEN}	20: 24 V_{SEN}		7: 24 V_{SEN}	20: 24 V_{SEN}
		8: 0 V_{SEN}	21: 24 V_{SEN}		8: 0 V_{SEN}	21: 24 V_{SEN}
		9: 24 V_{SEN}	22: 0 V_{SEN}		9: 24 V_{SEN}	22: 0 V_{SEN}
		10: 24 V_{SEN}	23: 0 V_{SEN}		10: 24 V_{SEN}	23: 0 V_{SEN}
		11: 0 V_{SEN}	24: 0 V_{SEN}		11: 0 V_{SEN}	24: 0 V_{SEN}
		12: 0 V_{SEN}	25: FE (earth)		12: 0 V_{SEN}	25: FE (earth)
		13: FE (earth)	Socket: FE (earth)		13: FE (earth)	Socket: FE (earth)
CPX-AB-4-HAR-4POL						
		X1.1: 24 V_{SEN}	X3.1: 24 V_{SEN}		X1.1: 24 V_{SEN}	X3.1: 24 V_{SEN}
		X1.2: Input x+1	X3.2: Input x+5		X1.2: Input x+1	X3.2: Input x+3
		X1.3: 0 V_{SEN}	X3.3: 0 V_{SEN}		X1.3: 0 V_{SEN}	X3.3: 0 V_{SEN}
		X1.4: Input x	X3.4: Input x+4		X1.4: Input x	X3.4: Input x+2
		X2.1: 24 V_{SEN}	X4.1: 24 V_{SEN}		X2.1: 24 V_{SEN}	X4.1: 24 V_{SEN}
		X2.2: Input x+3	X4.2: Input x+7		X2.2: n.c.	X4.2: n.c.
		X2.3: 0 V_{SEN}	X4.3: 0 V_{SEN}		X2.3: 0 V_{SEN}	X4.3: 0 V_{SEN}
		X2.4: Input x+2	X4.4: Input x+6		X2.4: Input x+1	X4.4: Input x+3

AS-interface® components

CPA valve terminal – Dimensions

Dimensions – CPA with AS-interface   Download CAD data ➔ **www.festo.com/en/engineering**

CPA-...-GE

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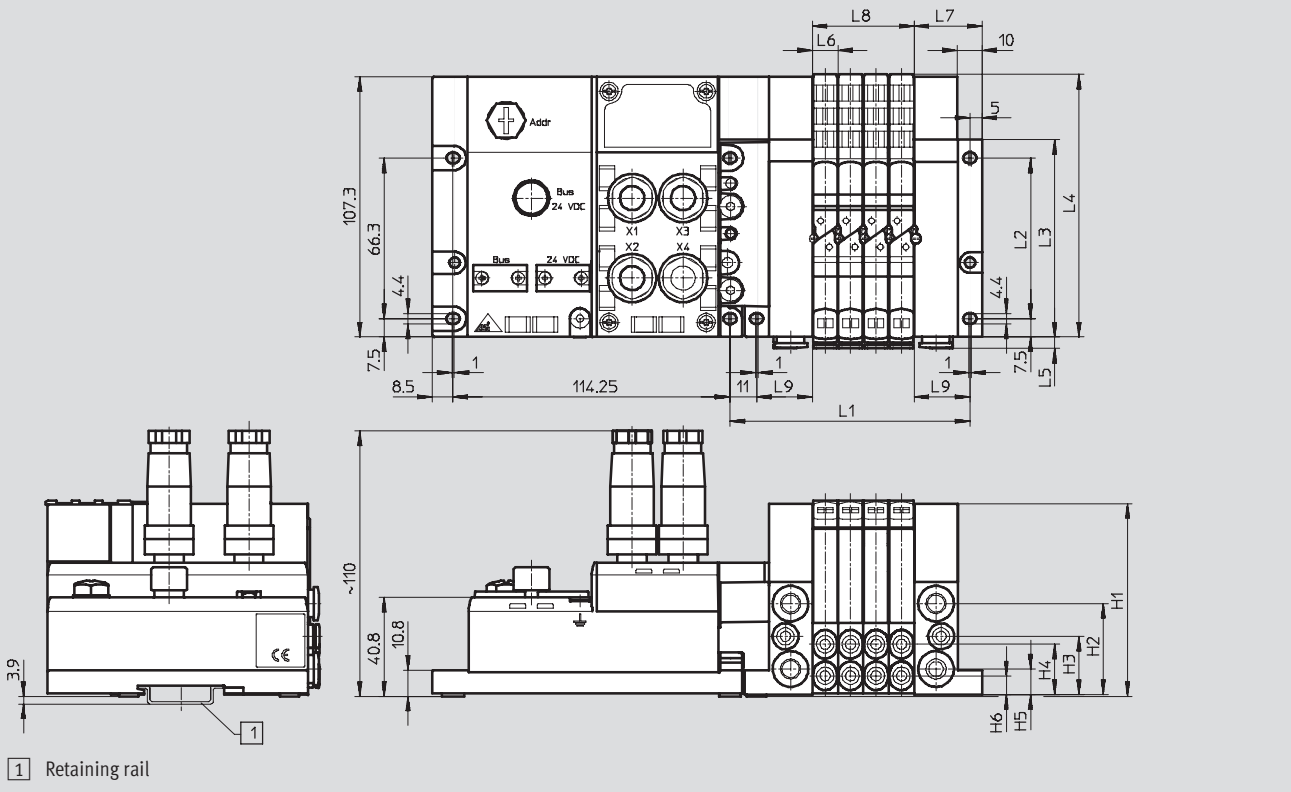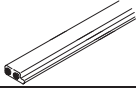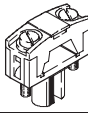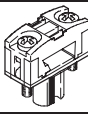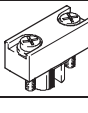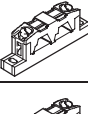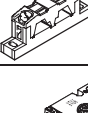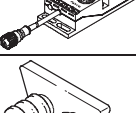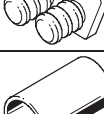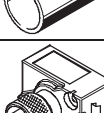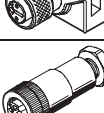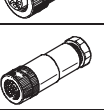
Type	L1[1]	L2	L3	L4	L5	L6	L7	L8[1]	L9	H1	H2	H3	H4	H5	H6
CPA10	46 + 11 + (n x 10.6)	66.3	81.3	108.3	5.5	10.6	28	n x 10.6	23	79.5	37.5	24	20.7	10.5	7.7
CPA14	52 + 11 + (n x 14.6)	76.1	91.1	118.1	6.5	14.6	31	n x 14.6	26	92	43	27.5	26.5	12	9.5

1) n = number of valves

AS-interface® components

FESTO

Ordering data				
	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[1]		**ASI-SD-FK**	**18 785**
	Flat cable socket[1]	Turned through 180°	**ASI-SD-FK180**	**196 089**
	Flat cable blanking plug		**ASI-SD-FK-BL**	**196 090**
	AS-interface flat cable distributor	Parallel cable	**ASI-KVT-FK**	**18 786**
	AS-interface flat cable distributor	Symmetrical cable	**ASI-KVT-FK-S**	**18 797**
	Cable distributor (yellow and black)	To 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**
	M12 socket for round cable	with PG9, 5-pin	**FBSD-GD-9-5POL**	**18 324**

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

CPA valve terminal – Accessories

FESTO

Ordering data				
	Designation		Type	Part No.
Sensor plug				
	Straight sensor plug	M12, 4-pin, PG7	**SEA-GS-7**	**18 666**
	Straight sensor plug	M12, 5-pin, PG7	**SEA-M12-5GS-PG7**	**175 487**
	Straight sensor plug	M12, PG9	**SEA-GS-9**	**18 778**
	Straight sensor plug for cable ∅ 2.5 mm	M12, 4-pin	**SEA-4GS-7-2,5**	**192 008**
	Straight sensor plug	M8, screw-in	**SEA-3GS-M8-S**	**192 009**
	Straight sensor plug	M8, solderable	**SEA-GS-M8**	**18 696**
	Harax sensor plug	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**
DUO plug				
	Plug M12 for 2 sensor cables	4-pin, PG11	**SEA-GS-11-DUO**	**18 779**
		5-pin, PG11	**SEA-5GS-11-DUO**	**192 010**
T-adapter				
	Push-in T-connector		**NEDU-M8D3-M12T4**	**541 597**
			NEDU-M12D5-M12T4	**541 596**
DUO cable M12 to 2x M8				
	DUO cable M12-2xM8, 4-pin/2x3-pin	2x straight socket	**KM12-DUO-M8-GDGD**	**18 685**
		2x straight/angled socket	**KM12-DUO-M8-GDWD**	**18 688**
		2x angled socket	**KM12-DUO-M8-WDWD**	**18 687**
Connecting cable				
	Connecting cable, straight plug, straight socket	M12, 4-pin/5-pin, 0.2 m	**NEBU-M12G5-F-0.2-M12G4**	**542 129**
		M12, 4-pin, 2.5 m	**KM12-M12-GSGD-2,5**	**18 684**
		M12, 4-pin, 5.0 m	**KM12-M12-GSGD-5**	**18 686**
	Connecting cable, straight plug, angled socket	M12, 4-pin, 1.0 m	**KM12 M12-GSWD-1-4**	**185 499**

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

CPA valve terminal – Accessories

Ordering data			
	Designation	Type	Part No.
Other accessories			
	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 input module for 8 inputs M8, compact	**ASI-8DI-M8-3POL**	**542 124**
	AS-interface input/output module for 4 inputs/3 outputs M12, compact	**ASI-4DI3DO-M12X2-5POL-Z**	**542 125**
	Inscription labels 6x10 in frames (64 pieces)	**IBS 6x10**	**18 576**
	Inscription labels 9x20 in frames (20 pieces)	**IBS 9x20**	**18 182**
	H-rail mounting	**CPA-BG-NRH**	**173 498**
User documentation			
	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

Compact I/O modules and valve interfaces
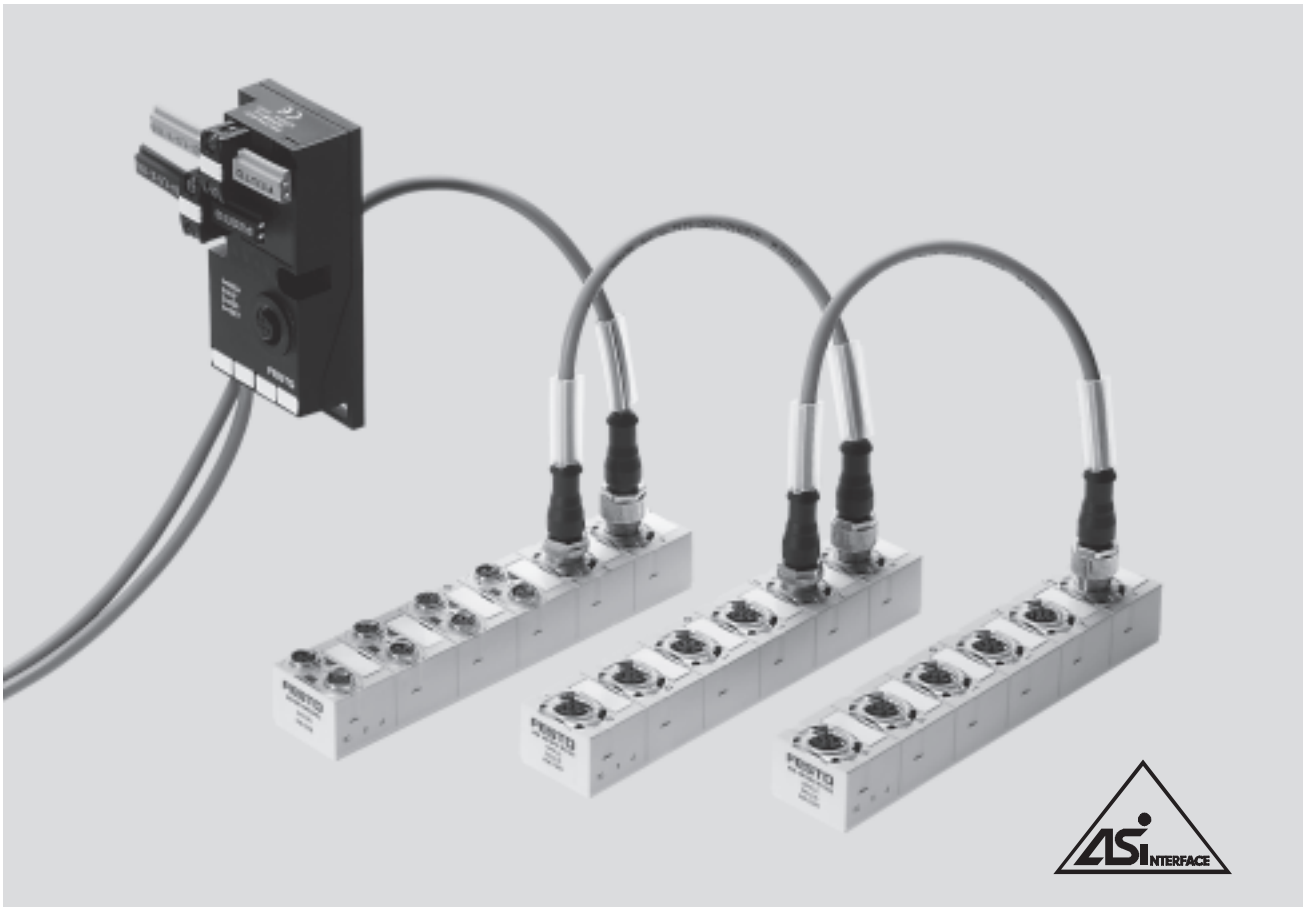
Compact I/O modules

General description

- Highly compact modules
- Encapsulated, sturdy electronics
- Inputs/outputs to IEC1131, PNP
- Short circuit proof, overload proof
- Inputs suitable for proximity sensors, inductive, capacitive or optical sensors and light barriers
- Ideal for use in decentralised handling and assembly as well as universal applications with increased requirements
- AS-interface Specification V2.11
- A/B operation
- Bus and auxiliary power supply looped through via 2x M12
- Quick installation
- Diagnosis of each module

Module with 8 inputs

- Two slaves in one housing
- 8 inputs M8, 3-pin, 200 mA per input
- Peripherals faults per slave, two fault LEDs
- Status display per input
- Supply exclusively from "yellow" AS-interface cable, the pins for the auxiliary power supply are simply looped through
- This permits cascading of the input/output modules

Module with 4 inputs/3 outputs

- Individual slave
- 4 inputs M12, 5-pin, with double allocation, 200 mA per input
- 3 outputs M12, 5-pin, with double allocation, 1 A per output
- Peripherals fault, fault LED
- Status display for each input and output
- Inputs are supplied exclusively from the "yellow" AS-interface cable
- Outputs are supplied exclusively from the "black" AS-interface cable

Module with 4 inputs/2 valve plugs

- Individual slave
- 4 inputs M12, 5-pin, with double allocation, 200 mA per input
- 2 outputs with pre-assembled plug socket with 0.5 m cable for valves, 1 A per output
- Festo plug and work™ for the following valves:
  - Tiger2000, Tiger Classic
  - CPE18/24, MIDI
  - CPE10/14
  - ISO, VDMA and Namur
  - VB series
  - On-off valves
- Other technical features such as slave with 3 outputs

Individual valve interfaces ASI-EVA, 2I2O and 2I1O

AS-interface® components

Compact I/O modules and valve interfaces

FESTO

Applications

The M12 bus connection standardised in the AS-interface specification offers various advantages:

• Use of standardised, pre-assembled M12 connecting cables
• One cable instead of two
• Installation-saving, quick M12 screw-type lock
• Flexible selection and optimisation of the necessary cable qualities in areas with permanently high loads,

for example for
– chain link trunking
– robot arms (torsion)
– environments with increased moisture
– aggressive media

This connection technology makes compact modules ideal for use both in demanding and highly compact environments.

Decentralised machine and system structures, for example
• Handling technology
• Conveyor technology
• Packaging industry
• Sorting systems
• Upstream functions via chain link trunking and robot arms

Tips on use

• In addition to valve terminals for optimising the number of inputs.

• Suitable for valve terminals with M12 bus connection for looping through the bus via M12.

• Universal applications for all commonly used sensors and light barriers up to 200 mA per channel.

• Universal outputs 1 A, up to 2 A (approx. 50 W) can be connected by means of parallel connection in the DUO plug.

Fieldbus systems/electrical peripherals
AS-interface components

4.9

2007/10 – Subject to change – Products 2008

4 / 4.9-313
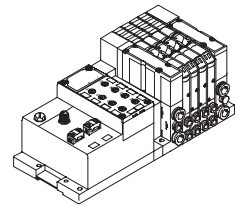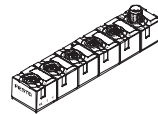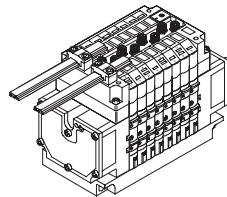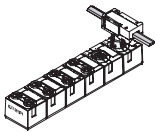
AS-interface® components

Compact I/O modules and valve interfaces

AS-interface flat cable distributor to round cable 2x M12
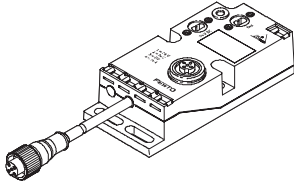
Alternative connection concepts
- AS-interface connection technology for yellow and optionally for black flat cables
- Passive conversion of the signals to M12 socket and round cable with M12 socket
- Pre-assembled round cable, 1 m, PUR
- Alternatively PVC extension cable, or another suitable cable of any length, 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 mount
- 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

Tips on use and installation (inputs/outputs)

Input module 8DI-M8

Connection technologies based on M8 take account of the increasing trend towards miniaturisation. Sensors with pre-assembled M8 connecting cables or with M8 plugs can be directly connected in a 1:1 relationship. This simplifies clear allocation and troubleshooting. Individual sensors or cables can be easily and quickly replaced in the event of faults.
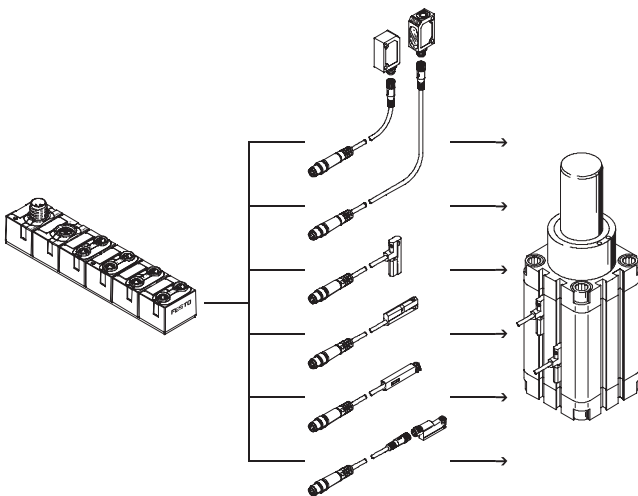
Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Compact I/O modules and valve interfaces

Tips on use and installation (inputs/outputs)

Input/output module 4DI3DO-M12

Sturdy M12 connection technology is still an accepted standard for inputs and outputs. Direct connection for sensors with M12 connection. The M12 interfaces with double allocation can be split into 2xM12 or 2xM8 via DUO plugs, DUO cables or T-adapters.

The standard for valves with central plug (EN 60947-5-2 and ISO 20401) defines double allocation for M12 or M8. This means that a double solenoid valve and a single solenoid valve can be directly connected to a compact AS-interface module using a 1:1 connection. The simplifies clear

allocation and troubleshooting. Individual valves or cables can be easily and quickly replaced in the event of faults.

- ⬇ - Note

M8 4-pin adapter cables can be configured to M12 5-pin in Festo's modular system for connecting cables (NEBU...) so that even compact valve plugs as in MPA can be directly connected via pre-assembled cables.
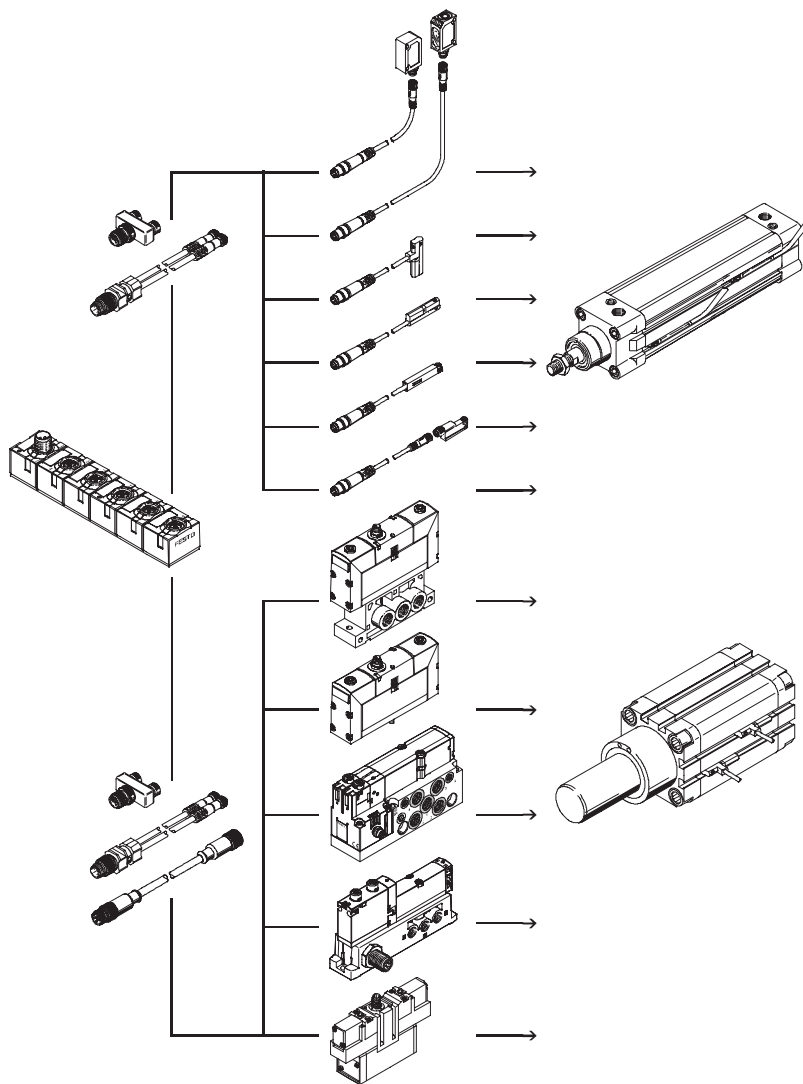
Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Compact I/O modules and valve interfaces

Tips on use and installation (inputs/outputs)

Individual valve interfaces 4DI2DO-M12

These modules with 4 inputs and 2 outputs are ideal for two single solenoid valves or one double solenoid valve. If two drives are activated, all 4 proximity sensors can be traced. The cables are connected ready for installation and 100% tested ex-works – ideal for Festo plug and work™.

- ┊ - Note

The electrical outputs correspond to those of the 4DI3DO module, the third output could therefore also be used. Unused valve plugs can be disconnected and the connections sealed with a protective cap.

Version 4DI2DO-2xMF-Z

Suitable for F coils to DIN EN 175301 industrial standard, for example all valves from Festo with the type code "MFH" such as Tiger2000, Tiger Classic, valves to the ISO and Namur standards as well as on-off valves.
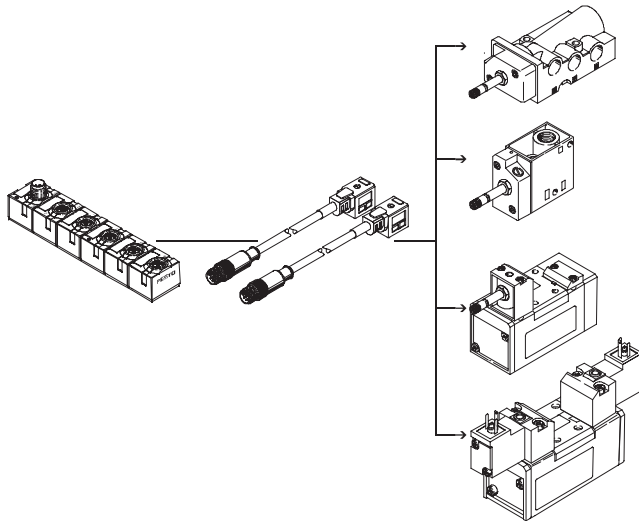
Version 4DI2DO-2xMEB-Z

Suitable for EB coils to DIN EN 175301 type C, for example all valves from Festo with the type code "MEBH" such as the Midi and VB series, CPE18/24 as well as valves to the ISO and Namur standards.
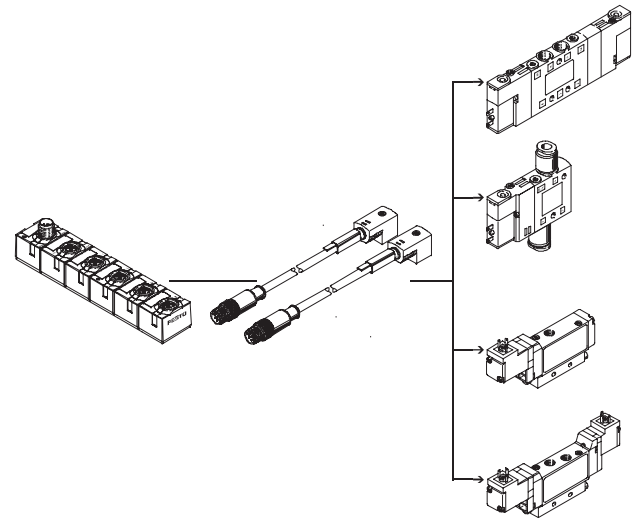
Version 4DI2DO-2xMZB9-Z

Suitable for compact Festo ZC coils with holding current reduction, for example valves CPE10/14-M1BH.
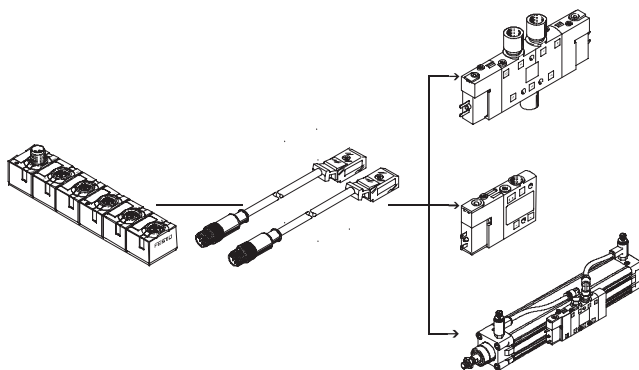
AS-interface® components

Compact I/O modules and valve interfaces

Tips on use and installation (AS-interface)

The compact I/O modules feature 4-pin M12 connections for bus IN and bus OUT. As per the AS-interface specification, the two signal cables for the bus and the optional 24 V DC auxiliary power supply are accommo- dated on this one connection. All 4 connections are looped through so that a number of modules and even subsequent valve terminals can be cascaded.

Input module 8DI-M8

Supply to the inputs is provided exclusively from the "yellow" AS-inter- face cable at this module, i.e. the pins for the auxiliary power supply are not used. This means that the following connection technologies can be re- alised in addition to the connections via M12 round plug connectors:
• Flat cable sockets ASI-SD-FK-M12, directly assembled.

If there is an input module at the end of a string, the flat cable can also be routed through a specially sealed connector.
• Connection socket ASI-SD-PG-M12, directly assembled.

• This permits cost-effective and quick connection of a number of directly adjacent modules.
• A transition to valve terminals such as CPV is possible directly and without converters.
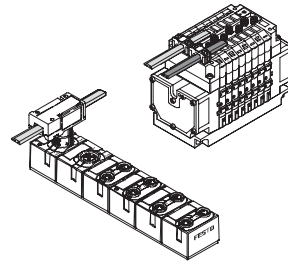
• Use at valve terminals with M12 is also possible, provided the auxili- ary power supply is not required.
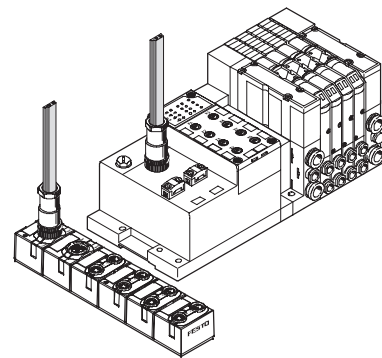
Input/output modules 4DI3DO-M12 and 4DI2DO valves

Supply to the inputs is provided exclusively from the "yellow" AS-inter- face cable and supply to the outputs is provided exclusively from the "black" AS-interface cable at these modules. Supply is provided either completely by an M12 installation or by means of a suitable converter such as the flat cable distributor ASI-KVT-FKx2-M12.

- ☰ -   Note

The contact load capacity of an M12 pin is limited to 4 A. With cascaded modules, ensure that the maximum current load of the first M12 connection in a series will not be exceeded even in a worst case scenario.
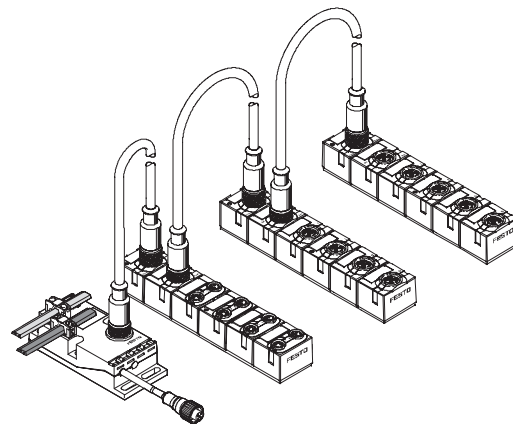
Total ≤ 4 A   0 A   2 A   2 A

Load current per module

Voltage drop on cables with M12

Note that the voltage drop on an M12 cable is higher than on the AS-interface flat cable due to the smaller cable cross sections. The cable lengths must be sized in accordance with the permissible voltage tolerances for the AS-interface signal and the outputs for consuming devices with additional load voltage. The following graphs provide an initial orientation (non-linear scaling of the cable length):
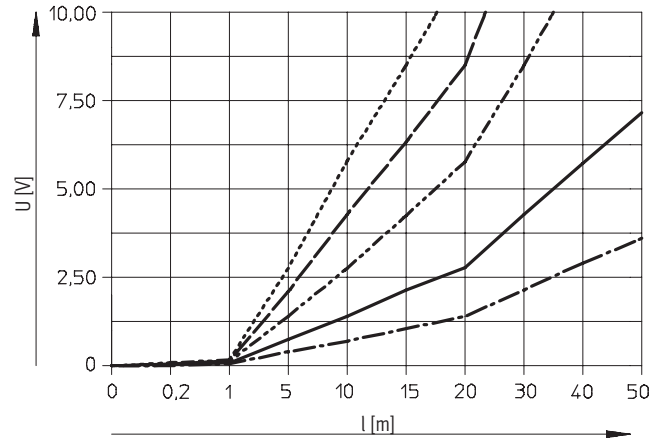
Voltage drop U for cable cross section 0.34 mm^2 with M12
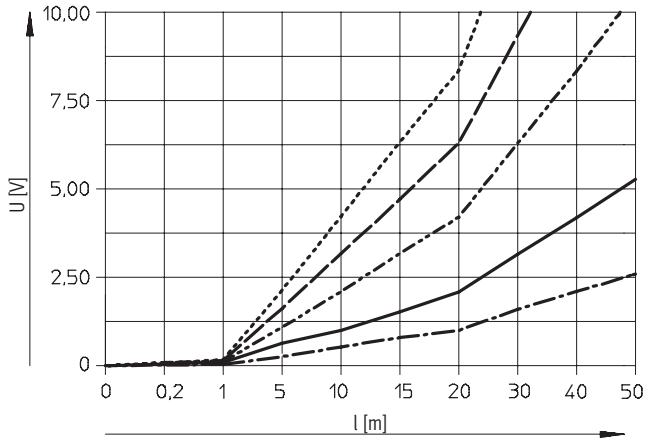
—·—·—	0.5 A
———	1 A
—··—··—	2 A
— — —	3 A
··········	4 A

Voltage drop U for cable cross section 0.25 mm^2 with M12

—·—·—	0.5 A
———	1 A
—··—··—	2 A
— — —	3 A
··········	4 A

AS-interface® components

Compact I/O modules and valve interfaces

Installation

Installation for consuming devices with high current consumption

If a number of amperes are to be tapped per module, a suitable supply must be ensured via a number of dis-tributors (see the following example). This means that the max. 3 A per module can be simultaneously switched. Note also that the voltage drop increases with large currents in the flat cables (2 x 1.5 mm^2).
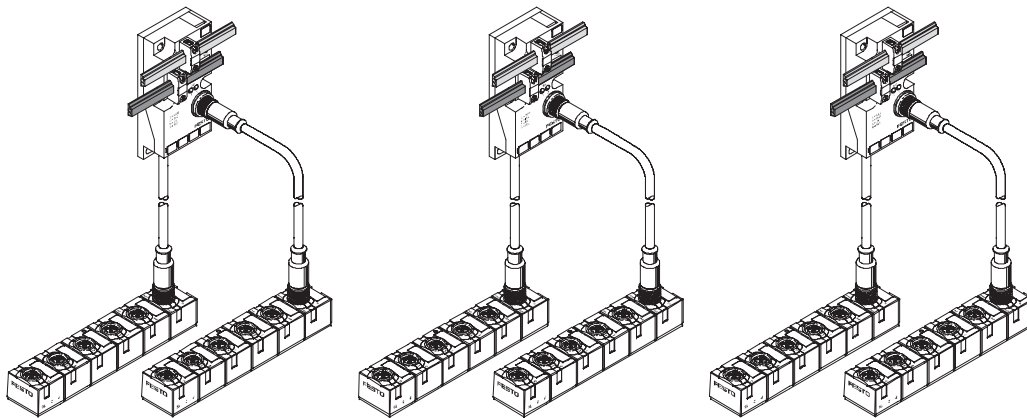
Alternative M12 installation with branch lines

Installation via branch lines can also be selected for straight M12 installa-tion as an alternative to the looped-through AS-i bus. The T-adapter FB-TA-M12-5POL is ideal for this (bus IN: socket, bus OUT: plug).
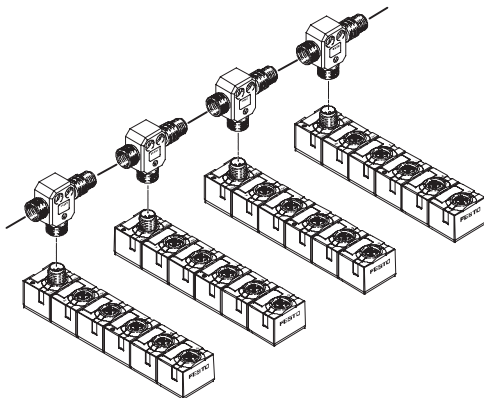
AS-interface® components

Compact I/O modules and valve interfaces

Assembly of the compact AS-interface modules

Wall mounting

The AS-interface modules can be mounted on flat surfaces in almost any position using the existing mounting holes and two M4 screws.

- ☰ - Note

The modules are protected against short circuit using a thermal fuse. This can result in the housing heating up to over 100 °C with short circuits of long duration.
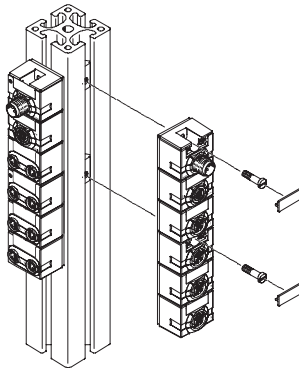For this reason you should install the modules on a base and in an environment designed for this temperature and from which there is no risk of fire through ignition (ATEX category T4 – up to 135°).

Wall mounting – Compact I/O modules
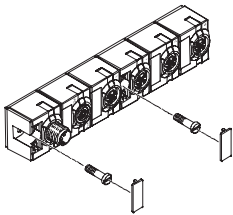
With the compact I/O modules, the mounting holes are covered by inscription labels.

Mounting on profiles (ITEM, etc.)

With slot nuts for M4, otherwise see wall mounting.

H-rail mounting
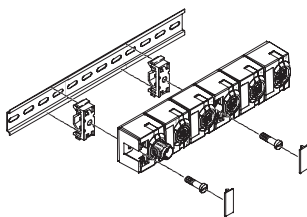
A mounting kit is available that can be used on an H-rail. With the compact CP modules, the mounting holes are covered by inscription labels.

The following mounting kit is required for H-rail mounting:
• CP-TS-HS35
This permits mounting on H-rails to EN 60715.

AS-interface® components

Compact I/O modules and valve interfaces

Function

Digital input modules facilitate the connection of proximity sensors or other digital 24 V DC sensors (inductive, capacitive, light barriers, etc.), PNP.

Application

- Input module for 24 V DC sensor signals
- Double slave, two slaves in one housing
- M8 plug connection technology, single allocation
- The input statuses are indicated for each input signal on an assigned green LED.
- 24 V DC supply for all connected sensors provided via the ("yellow") AS-interface cable
- Peripherals fault LED for short circuit/undervoltage of sensor supply for each AS-interface slave
- Modules support A/B operation in accordance with Spec. V2.11
- Bus connection 2x M12 for bus in and bus out
- Bus and auxiliary power supply looped through for cascading with output modules

General technical data			
Type			ASI-8DI-M8-3POL
Part No.			542 124
Digital inputs	No. of inputs		8
	Power supply 24 V DC		From the AS-interface ("yellow" cable)
	Intrinsic current consumption, electronics	[mA]	Typically 35 (inputs not connected)
	Input current at 24 V DC (from sensor)	[mA]	Typically 6
	Fuse protection for sensors and electronic module		Internal thermal short circuit protection
	Max. current consumption per sensor	[A]	0.24
	Max. current consumption of sensor supply, residual current per slave	[A]	0.24
	Nominal operating voltage for sensors	[V]	24
	Operating voltage range for sensors	[V DC]	18 ... 30
	Protection against polarity reversal		For logic and sensor supply and AS-interface
	Electrical isolation		
	• between the channels		None
	• to the AS-interface system		None
	Logic level		
	• Signal 0	[V]	≤5
	• Signal 1	[V]	≥−11
	Input delay	[ms]	Typically 3
	Switching logic		PNP
	Input characteristic curve		To IEC 1131-2

AS-interface® components

Compact I/O modules and valve interfaces

General technical data			
Type			**ASI-8DI-M8-3POL**
Part No.			**542 124**
General	Protection class to EN 60529		IP65/IP67 (when fully plugged-in or fitted with protective cap)
	Material		Polybutene terephthalate
	Dimensions (LxWxD)	[mm]	151 x 30 x 30
	Weight	[g]	190
LED displays	Inputs		8 green
	AS-interface LED		Power/green
	FAULT-LED (fault 1, fault 2)		Fault LED/red per slave
AS interface connection/load voltage connection	Connection with the AS-interface		Via M12 connecting cables, 4-wire
	Watchdog function		Active after 50 ms
	Peripherals fault/diagnosis		Short circuit/overload (thermal fuse on each channel) in accordance with specification c.S.2.1, two red fault LEDs Automatic voltage return
	AS-interface bus voltage	[V]	26.5 ... 31.6
	AS-interface total current consumption	[mA]	Max. 350
	Current-carrying capacity of M12 pins (AS-i, AUX)	[A]	Max. 4
	AS-interface data		
	• I/O code		0_h
	• ID code 1		A_h
	• ID code 2		E_h
	• Profile		S-0.A.E
	AS-interface address (factory setting)		#1A, #2A
	AS-interface specification		2.11 (compatible with 3.0)

Operating and environmental conditions		
Type		**ASI-8DI-M8-3POL**
Ambient temperature	[°C]	−5 ... +50
Storage temperature	[°C]	−20 ... +70
Corrosion resistance CRC[1]		1
CE marking		In accordance with EU Low Voltage Directive
ATEX symbol		II 3D Ex tD A22 IP67 T115°C X
		II 3G Ex nA II T4 X
ATEX ambient temperature	[°C]	−5 ≤ Ta ≤ +50
Certification		c UL us - Listed (OL)

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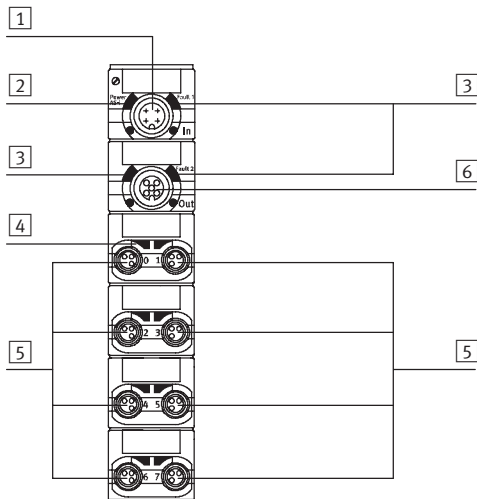
- 📖 - Note

If device combinations are operated in potentially explosive areas, the lowest common zone, the temperature class as well as the ambient temperature of the individual devices determine the possible use of the complete module.

AS-interface® components

Compact I/O modules and valve interfaces

Connection and display components

ASI-8DI-M8-3POL

1 AS-interface connection, incoming
2 Status LED (green)
3 Red LED for short circuit/overload indication
4 Green LED for status display (one LED per input)
5 Sensor connections
6 AS-interface connection, outgoing

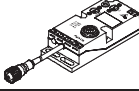### Pin allocation for sensor connections ASI-8DI-M8-3POL
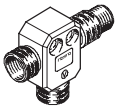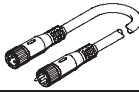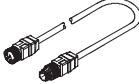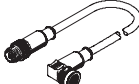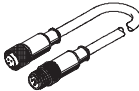
Terminal allocation	Pin	Signal	Designation	Pin	Signal
	1	24 V DC	Operating voltage 24 V DC	1	24 V
	3	0 V	Operating voltage 0 V	3	0 V
	4	Ix*	Sensor signal	4	Ix+1*

* Ix = Input x

AS-interface® components
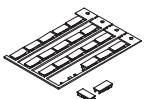
Compact I/O modules and valve interfaces

Ordering data				
	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**
	AS-interface flat cable distributor	Parallel cable	**ASI-KVT-FK**	**18 786**
	AS-interface flat cable distributor	Symmetrical cable	**ASI-KVT-FK-S**	**18 797**
	Cable distributor (yellow and black)	To 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**
	T-adapter for DH-485		**FB-TA-M12-5POL**	**171 175**
Connecting cable				
	Modular system for connecting cables		**NEBU-…** → 6 / 5.1-68	–
	Connecting cable, straight plug, straight socket	M12, 4-pin/5-pin, 0.2 m	**NEBU-M12G5-F-0.2-M12G4**	**542 129**
		M12, 4 pin, 2.5 m	**KM12-M12-GSGD-2,5**	**18 684**
		M12, 4 pin, 5.0 m	**KM12-M12-GSGD-5**	**18 686**
	Connecting cable, straight plug, angled socket	M12, 4 pin, 1.0 m	**KM12 M12-GSWD-1-4**	**185 499**
	Connecting cable, straight plug, straight socket	M8, 0.5 m	**KM8-M8-GSGD-0,5**	**175 488**
		M8, 1.0 m	**KM8-M8-GSGD-1**	**175 489**
		M8, 2.5 m	**KM8-M8-GSGD-2,5**	**165 610**
		M8, 5.0 m	**KM8-M8-GSGD-5**	**165 611**

AS-interface® components

Compact I/O modules and valve interfaces

Ordering data				
	Designation		Type	Part No.
Sensor plug				
	Straight sensor plug	M8, screw-in	**SEA-3GS-M8-S**	**192 009**
	Straight sensor plug	M8, solderable	**SEA-GS-M8**	**18 696**
	Protective cap	M12	**ISK-M12**	**165 592**
	Protective cap	M8	**ISK-M8**	**177 672**
Other accessories				
	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**
Mounting				
	Mounting for H-rail		**CP-TS-HS35**	**170 169**
Inscription labels				
	Inscription labels 8x20 mm in frames (20 pieces)		**IBS-8x20**	**539 388**

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Compact I/O modules and valve interfaces

Function

Combined digital input and output modules permit the connection of proximity sensors or other 24 V DC sensors (inductive, capacitive, etc.) as well as up to 3 consuming devices 24 V DC/1 A. The electrical outputs activate actuators such as individual valves, lamps, signal equipment and many more.

- ⌇ - Note

Optimum actuation for valves with M12 central plug.

Plugs with double allocation are separated using a T-adapter, DUO plug or DUO cable.

Application

- Input/output module for 24 V DC sensor signals and actuators, PNP
- An individual slave, contains an AS-interface chip
- M12 plug connection technology, 5-pin, double allocation
- Peripherals fault LED for short circuit/undervoltage of sensors or actuators

- Modules support A/B operation in accordance with Spec. V2.11
- Bus connection 2x M12 for bus in and bus out
- Bus and auxiliary power supply looped through for cascading with further output modules
- Inputs:
  – The input statuses are indicated for each input signal on an assigned green LED
  – 24 V DC supply for all connected sensors provided via the ("yellow") AS-interface cable
- Outputs:
  – The output statuses are indicated for each output signal on an assigned yellow LED
  – 24 V DC supply for all connected actuators is provided via the ("black") AS-interface cable

General technical data			
Type			ASI-4DI3DO-M12x2-5POL-Z
Part No.			542 125
Digital inputs	No. of inputs		4
	Power supply 24 V DC		From the AS-interface ("yellow" cable)
	Intrinsic current consumption, electronics	[mA]	Typically 35 (inputs not connected)
	Input current at 24 V DC (from sensor)	[mA]	Typically 6
	Fuse protection for sensors		Internal thermal short circuit protection
	Max. current consumption per sensor	[A]	0.24
	Max. current consumption of sensor supply, residual current per slave	[A]	0.25
	Nominal operating voltage for sensors	[V]	24
	Operating voltage range for sensors	[V DC]	18 ... 30
	Protection against polarity reversal		For logic and sensor supply and AS-interface
	Electrical isolation		
	• between the channels		None
	• to the AS-interface system		Yes
	Logic level		
	• Signal 0	[V]	≤5
	• Signal 1	[V]	≥−11
	Input delay	[ms]	Typically 3
	Switching logic		PNP
	Input characteristic curve		To IEC 1131-2

AS-interface® components

Compact I/O modules and valve interfaces

General technical data			
Type			**ASI-4DI3DO-M12x2-5POL-Z**
Part No.			**542 125**
Digital outputs	No. of outputs		3
	Allocation of outputs		Socket 3 with double allocation, socket 4 with single allocation
	Version of the actuator connection		4x M12, 5-pin
	Power supply 24 V DC		From the auxiliary power supply, "black" AS-interface cable
	Max. output current per channel	[A]	1.0, 2 outputs can be switched together
	Operating voltage	[V DC]	24 ±25%
	Fuse protection for power output		Internal thermal short circuit protection per output
	Protection against polarity reversal		For actuator supply 24 V/0 V
	Switching logic		PNP
	Output characteristic curve		To ICE 1131-2
	Electrical isolation		
	• between the channels		None
	• to the AS-interface system		Yes
	Voltage drop across the output	[V]	<1.5
	Limitation of inductive switch-off voltage	[V]	−10 … −45
	LED displays		
	• Inputs		4 green
	• Outputs		3 yellow
	• AS-interface LED		Power/green
	• AUX-PWR-LED		Auxiliary power supply/green
	• FAULT-LED		Fault LED/red
General	Protection class to EN 60 529		IP65/IP67 (when fully plugged-in or fitted with protective cap)
	Material		Polybutene terephthalate
	Dimensions (LxWxD)	[mm]	151 x 30 x 30
	Weight	[g]	165
AS interface connection/load voltage connection	Connection with the AS-interface		Via M12 connecting cables, 4-wire
	Watchdog function		Active after 50 ms
	Peripherals fault/diagnosis		Short circuit/overload (thermal fuse on each channel) in accordance with specification C.S.2.1, two red fault LEDs Automatic voltage return
	AS-interface bus voltage	[V]	26.5 … 31.6
	AS-interface total current consumption	[mA]	Max. 250
	Current-carrying capacity of M12 pins (AS-interface, AUX)	[A]	Max. 4
	AS-interface data		
	• I/O code		7_h
	• ID code 1		A_h
	• ID code 2		2_h
	• Profile		S-7.A.2
	AS-interface address (factory setting)		#0A
	AS-interface specification		2.11 (compatible with 3.0)

AS-interface® components

Compact I/O modules and valve interfaces

Operating and environmental conditions		
Type		**ASI-4DI3DO-M12x2-5POL-Z**
Ambient temperature	[°C]	−5 ... +50
Storage temperature	[°C]	−20 ... +70
Corrosion resistance CRC[1]		1
CE marking		In accordance with EU Low Voltage Directive
ATEX symbol		II 3D Ex tD A22 IP67 T115°C X
		II 3G Ex nA II T4 X
ATEX ambient temperature	[°C]	−5 ≤ Ta ≤ +50
Certification		c UL us - Listed (OL)

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

- ⬛ - Note

If device combinations are operated in potentially explosive areas, the lowest common zone, the temperature class as well as the ambient temperature of the individual devices determine the possible use of the complete module.

Connection and display components
ASI-4DI3DO-M12x2-5POL-Z
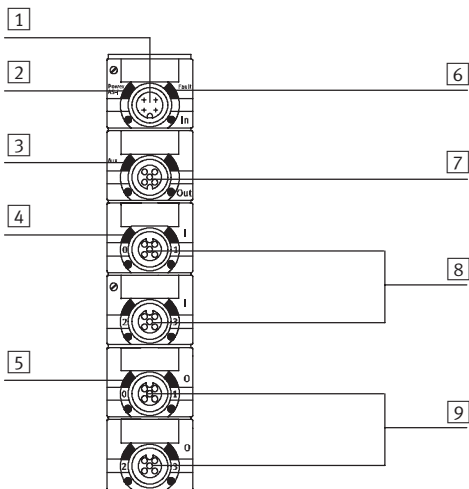
1 AS-interface connection, incoming
2 Status LED (green)
3 Green LED for overload indication
4 Green LED for status display (one LED per input)
5 Yellow LED for status display (one LED per output)
6 Red LED for short circuit/overload indication
7 AS-interface connection, outgoing
8 Sensor connections
9 Outputs

AS-interface® components

Compact I/O modules and valve interfaces

Pin allocation for sensor connections ASI-4DI3DO-M12X2-5POL-Z			
Terminal allocation	Pin	Signal	Designation
	1	24 V DC	Operating voltage 24 V DC
	2	Ix*+1	Sensor signal
	3	0 V	Operating voltage 0 V
	4	Ix*	Sensor signal
	5	Earth	Earth terminal

* Ix = Input x
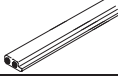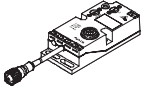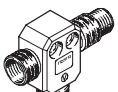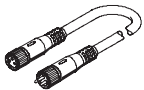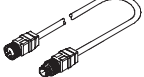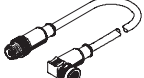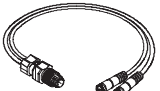
Pin allocation for outputs ASI-4DI3DO-M12X2-5POL-Z						
Terminal allocation	Outputs 1 and 2			Output 3		
	Pin	Signal	Designation	Pin	Signal	Designation
	1	n.c.	Not connected	1	n.c.	Not connected
	2	Ox*+1	Output	2	n.c.	Not connected
	3	0 V	Operating voltage 0 V	3	0 V	Operating voltage 0 V
	4	Ox*	Output	4	Ox*+2	Output
	5	Earth	Earth terminal	5	Earth	Earth terminal

* Ox = Output
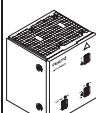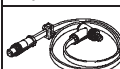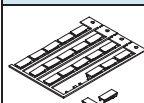
Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Compact I/O modules and valve interfaces

Ordering data				
	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**
	AS-interface flat cable distributor	Parallel cable	**ASI-KVT-FK**	**18 786**
	AS-interface flat cable distributor	Symmetrical cable	**ASI-KVT-FK-S**	**18 797**
	Cable distributor (yellow and black)	To 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**
	T-adapter for DH-485		**FB-TA-M12-5POL**	**171 175**
Connecting cable				
	Modular system for connecting cables		**NEBU-…** ➔ **6 / 5.1-68**	**–**
	Connecting cable, straight plug, straight socket	M12, 4-pin/5-pin, 0.2 m	**NEBU-M12G5-F-0.2-M12G4**	**542 129**
		M12, 4 pin, 2.5 m	**KM12-M12-GSGD-2,5**	**18 684**
		M12, 4 pin, 5.0 m	**KM12-M12-GSGD-5**	**18 686**
	Connecting cable, straight plug, angled socket	M12, 4 pin, 1.0 m	**KM12 M12-GSWD-1-4**	**185 499**
DUO plug				
	Plug M12 for 2 sensor cables	4-pin, PG11	**SEA-GS-11-DUO**	**18 779**
		5-pin, PG11	**SEA-5GS-11-DUO**	**192 010**
DUO cable M12 to 2x M8				
	DUO cable M12-2xM8, 4-pin/2x3-pin	2x straight socket	**KM12-DUO-M8-GDGD**	**18 685**
		2x straight/angled socket	**KM12-DUO-M8-GDWD**	**18 688**
		2x angled socket	**KM12-DUO-M8-WDWD**	**18 687**

AS-interface® components

Compact I/O modules and valve interfaces

Ordering data				
	Designation		Type	Part No.
Sensor plug				
	Straight sensor plug	M12, 5-pin, PG7	**SEA-M12-5GS-PG7**	**175 487**
	Straight sensor plug	M12, 4-pin, PG7	**SEA-GS-7**	**18 666**
	Straight sensor plug	M12, PG9	**SEA-GS-9**	**18 778**
	Straight sensor plug for cable ⌀ 2.5 mm	M12, 4-pin	**SEA-4GS-7-2,5**	**192 008**
	Push-in T-connector		**NEDU-M8D3-M12T4**	**541 597**
			NEDU-M12D5-M12T4	**541 596**
	Protective cap	M12	**ISK-M12**	**165 592**
Other accessories				
	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**
Mounting				
	Mounting for H-rail		**CP-TS-HS35**	**170 169**
Inscription labels				
	Inscription labels 8x20 mm in frames (20 pieces)		**IBS-8x20**	**539 388**

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Compact I/O modules and valve interfaces

Function

Valve interfaces as combined digital input and output modules permit the connection of proximity sensors or other 24 V DC sensors (inductive, capacitive, etc.) as well as up to 2 consuming devices 24 V DC/1 A. The electrical outputs can be connected via pre-fitted, pre-assembled and tested connecting cables.
Input sockets with double allocation are separated using a T-adapter, DUO plug or DUO cable.

Application

- Input/output module for 24 V DC sensor signals and valves, PNP
- An individual slave, contains an AS-interface chip
- M12 plug connection technology, 5-pin, double allocation
- Pre-assembled cables for valves
- Peripherals fault LED for short circuit/undervoltage of sensors or actuators

- Modules support A/B operation in accordance with Spec. V2.11
- Bus connection 2x M12 for bus in and bus out
- Bus and auxiliary power supply looped through for cascading with further output modules
- Inputs:
  - The input statuses are indicated for each input signal on an assigned green LED
  - 24 V DC supply for all connected sensors provided via the ("yellow") AS-interface cable
- Outputs:
  - The output statuses are indicated for each output signal on an assigned yellow LED on the module and the valve plug.
  - 24 V DC supply for all connected actuators/valves is provided via the ("black") AS-interface cable
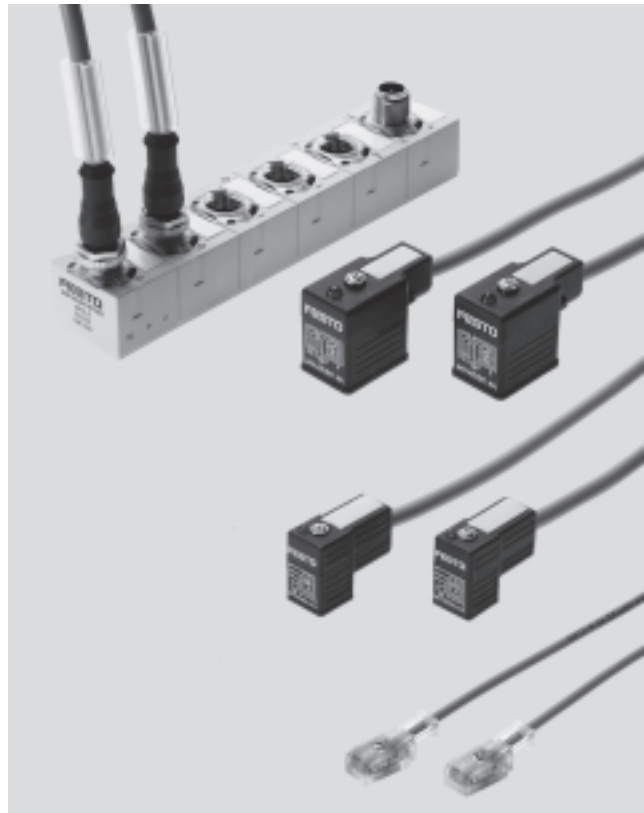
General technical data			ASI-4DI2DO-2xMF-Z	ASI-4DI2DO-2xMEB-Z	ASI-4DI2DO-2xMZB9-Z
Type			**ASI-4DI2DO-2xMF-Z**	**ASI-4DI2DO-2xMEB-Z**	**ASI-4DI2DO-2xMZB9-Z**
Part No.			**542 126**	**542 127**	**542 128**
Digital inputs	No. of inputs		4		
	Power supply 24 V DC		From the AS-interface ("yellow" cable)		
	Intrinsic current consumption, electronics	[mA]	Typically 35 (inputs not connected)		
	Input current at 24 V DC (from sensor)	[mA]	Typically 6		
	Fuse protection for sensors		Internal thermal short circuit protection		
	Max. current consumption per sensor	[A]	0.24		
	Max. current consumption of sensor supply, residual current per slave	[A]	0.25		
	Nominal operating voltage for sensors	[V]	24		
	Operating voltage range for sensors	[V DC]	18 … 30		
	Protection against polarity reversal		For logic and sensor supply and AS-interface		
	Electrical isolation				
	• between the channels		None		
	• to the AS-interface system		Yes		
	Logic level				
	• Signal 0	[V]	≤5		
	• Signal 1	[V]	≥−11		
	Input delay	[ms]	Typically 3		
	Switching logic		PNP		
	Input characteristic curve		To IEC 1131-2		

AS-interface® components

Compact I/O modules and valve interfaces

General technical data					
	Type		ASI-4DI2DO-2xMF-Z	ASI-4DI2DO-2xMEB-Z	ASI-4DI2DO-2xMZB9-Z
	Part No.		542 126	542 127	542 128
Digital inputs	Power supply 24 V DC		From the auxiliary power supply, "black" AS-interface cable		
	Max. output current per channel	[A]	1.0, 2 outputs can be switched together		
	Operating voltage	[V DC]	24 ±25%		
	Switching logic		PNP		
	Output characteristic curve		To ICE 1131-2		
	Electrical isolation				
	• between the channels		None		
	• to the AS-interface system		Yes		
	LED displays				
	• Inputs		4 green		
	• Outputs		3 yellow		
	• AS-interface LED		Power/green		
	• AUX-PWR-LED		Auxiliary power supply/green		
	• FAULT-LED		Fault LED/red		
Solenoid coils	No. of connectable solenoid coils		2		
	Valve connection		F coils, DIN 175301, type B industrial standard, with LED	EB coils, DIN 175301, type C, with LED	ZC coils, for example Festo CPE10/14-M1BH, with LED
	Cable length	[m]	0.5 m pre-assembled cable per connection		
	Cable type		Round cable 3x 0.75, polyvinyl chloride, colour grey		Round cable 2x 0.25, polyurethane, colour grey
	Valve control design		Short circuit and overload proof, voltage peaks limited		
General	Protection class to EN 60529		IP65/IP67 (when fully plugged-in or fitted with protective cap)		
	Material				
	• Module		Polybutene terephthalate		
	• M12 plug		Elastollan/black		
	• Valve plug		Pocan black		Polyvinyl chloride
	Dimensions (LxWxD)	[mm]	151 x 30 x 30		
	Weight	[g]	395	374	304
AS interface connection/load voltage connection	Connection with the AS-interface		Via M12 connecting cables, 4-wire		
	Watchdog function		Active after 50 ms		
	Peripherals fault/diagnosis		Short circuit/overload (thermal fuse on each channel) in accordance with specification C.S.2.1, two red fault LEDs Automatic voltage return		
	AS-interface bus voltage	[V]	26.5 … 31.6		
	AS-interface total current consumption	[mA]	Max. 250		
	Current-carrying capacity of M12 pins (AS-interface, AUX)	[A]	Max. 4		
	AS-interface data				
	• I/O code		7_h		
	• ID code 1		A_h		
	• ID code 2		2_h		
	• Profile		S-7.A.2		
	AS-interface address (factory setting)		#0A		
	AS-interface specification		2.11 (compatible with 3.0)		

| Operating and environmental conditions				
Type		ASI-4DI2DO-2xMF-Z	ASI-4DI2DO-2xMEB-Z	ASI-4DI2DO-2xMZB9-Z
Ambient temperature	[°C]	−5 … +50		
Storage temperature	[°C]	−20 … +70		
Corrosion resistance CRC[1]		1		
CE marking		In accordance with EU Low Voltage Directive		
ATEX symbol		II 3D Ex tD A22 IP67 T115°C X		
		II 3G Ex nA II T4 X		
ATEX ambient temperature	[°C]	−5 ≤ Ta ≤ +50		
Certification		c UL us - Listed (OL)		

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

- 🔋 - Note

If device combinations are operated in potentially explosive areas, the lowest common zone, the temperature class as well as the ambient temperature of the individual devices determine the possible use of the complete module.

Connection and display components
ASI-4DI2DO-2x...-Z
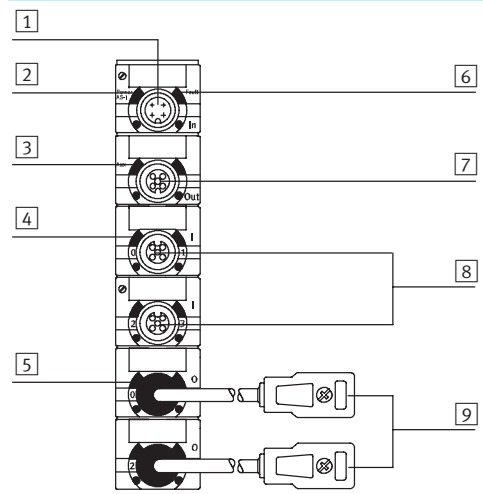
1 AS-interface connection, incoming
2 Status LED (green)
3 Green LED for overload indication
4 Green LED for status display (one LED per input)
5 Yellow LED for status display (one LED per output)
6 Red LED for short circuit/overload indication
7 AS-interface connection, outgoing
8 Sensor connections
9 Outputs

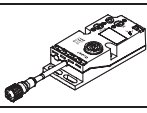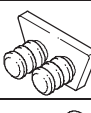# AS-interface® components

Compact I/O modules and valve interfaces
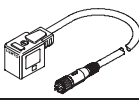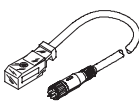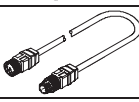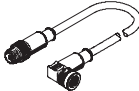
Pin allocation for sensor connections ASI-4DI2DO-2x...-Z			
Terminal allocation	Pin	Signal	Designation
	1	24 V DC	Operating voltage 24 V DC
	2	Ix*+1	Sensor signal
	3	0 V	Operating voltage 0 V
	4	Ix*	Sensor signal
	5	Earth	Earth terminal

* Ix = Input x

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Compact I/O modules and valve interfaces

| Ordering data				
	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**
	AS-interface flat cable distributor	Parallel cable	**ASI-KVT-FK**	**18 786**
	AS-interface flat cable distributor	Symmetrical cable	**ASI-KVT-FK-S**	**18 797**
	Cable distributor (yellow and black)	To 2x M12, 4-pin	**ASI-KVT-FKx2-M12**	**527 474**
	T-adapter for DH-485		**FB-TA-M12-5POL**	**171 175**
	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**
Connecting cable				
	Modular system for connecting cables		**NEBU-...** ➜ 6 / 5.1-68	**–**
	Connecting cable, straight plug, angled socket type B for F coil	M12, straight, 5-pin, 0.5 m	**NEBV-B2W3P-F-0,5-M12G5**	**542 130**
		M12, straight, 5-pin, 2.5 m	**NEBV-B2W3P-F-2,5-M12G5**	**542 133**
	Connecting cable, straight plug, angled socket type C for EB coil	M12, straight, 5-pin, 0.5 m	**NEBV-C1W3P-F-0,5-M12G5**	**542 131**
		M12, straight, 5-pin, 2.5 m	**NEBV-C1W3P-F-2,5-M12G5**	**542 134**
	Connecting cable, straight plug, angled socket type KMYZ-9 for ZC coil	M12, straight, 5-pin, 0.5 m	**NEBV-Z2W2P-0,5-M12G5**	**542 132**
		M12, straight, 5-pin, 2.5 m	**NEBV-Z2W2P-2,5-M12G5**	**542 135**
	Connecting cable, straight plug, straight socket	M12, 4-pin/5-pin, 0.2 m	**NEBU-M12G5-F-0.2-M12G4**	**542 129**
		M12, 4 pin, 2.5 m	**KM12-M12-GSGD-2,5**	**18 684**
		M12, 4 pin, 5.0 m	**KM12-M12-GSGD-5**	**18 686**
	Connecting cable, straight plug, angled socket	M12, 4 pin, 1.0 m	**KM12 M12-GSWD-1-4**	**185 499**

AS-interface® components

Compact I/O modules and valve interfaces

Ordering data				
	Designation		Type	Part No.
Sensor plug				
	Straight sensor plug	M12, 5-pin, PG7	**SEA-M12-5GS-PG7**	**175 487**
	Straight sensor plug	M12, 4-pin, PG7	**SEA-GS-7**	**18 666**
	Straight sensor plug	M12, PG9	**SEA-GS-9**	**18 778**
	Straight sensor plug for cable ⌀ 2.5 mm	M12, 4-pin	**SEA-4GS-7-2,5**	**192 008**
	Push-in T-connector		**NEDU-M8D3-M12T4**	**541 597**
			NEDU-M12D5-M12T4	**541 596**
	Protective cap	M12	**ISK-M12**	**165 592**
DUO plug				
	Plug M12 for 2 sensor cables	4-pin, PG11	**SEA-GS-11-DUO**	**18 779**
		5-pin, PG11	**SEA-5GS-11-DUO**	**192 010**
DUO cable M12 to 2x M8				
	DUO cable M12-2xM8, 4-pin/2x3-pin	2x straight socket	**KM12-DUO-M8-GDGD**	**18 685**
		2x straight/angled socket	**KM12-DUO-M8-GDWD**	**18 688**
		2x angled socket	**KM12-DUO-M8-WDWD**	**18 687**
Other accessories				
	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**
Mounting				
	Mounting for H-rail		**CP-TS-HS35**	**170 169**
Inscription labels				
	Inscription labels 8x20 mm in frames (20 pieces)		**IBS-8x20**	**539 388**

AS-interface® components

Compact I/O modules and valve interfaces

Dimensions

ASI-8DI-M8-3POL

ASI-4DI3DO-M12x2-5POL-Z
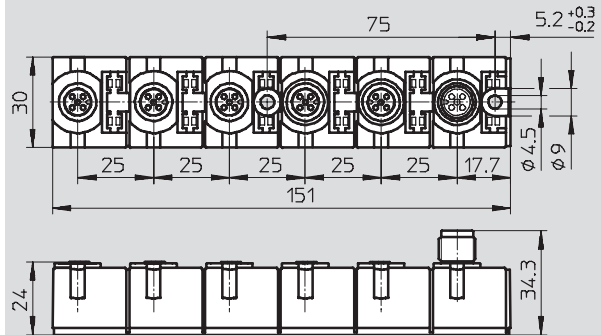
ASI-4DI2DO-2xMF-Z

ASI-4DI2DO-2xMEB-Z
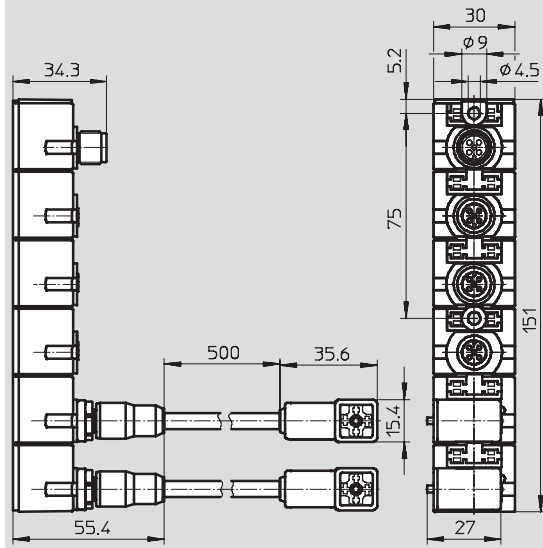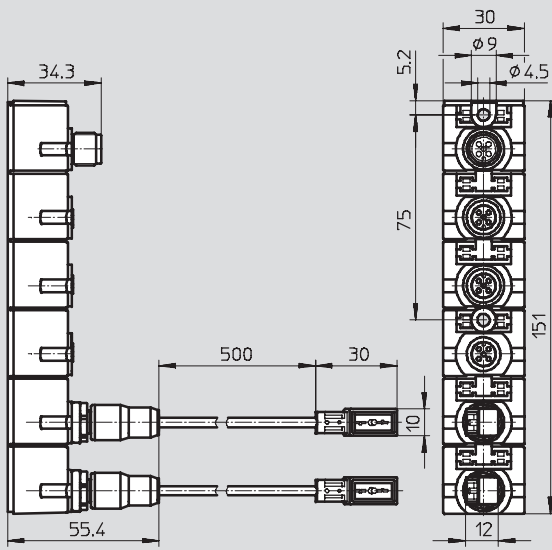
ASI-4DI2DO-2xMZB9-Z

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Compact I/O modules and valve interfaces

| **Dimensions** | Download CAD data ➜ **www.festo.com/en/engineering** |

NEBV-B2W3P-F-…-M12G5
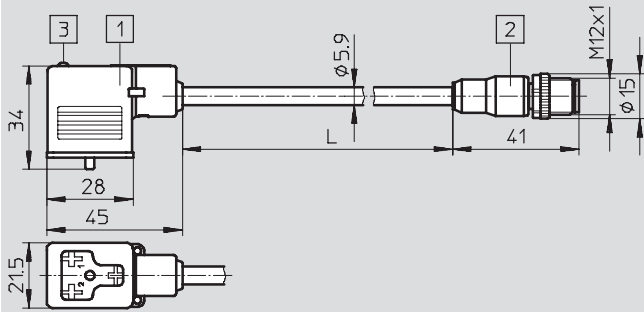

```
[1] Socket type BI
[2] Straight plug M12
[3] LED illuminated area
```

	L [m]
NEBV-B2W3P-F-0,5-M12G5	0.5
NEBV-B2W3P-F-2,5-M12G5	2.5

NEBV-C1W3P-F-…-M12G5
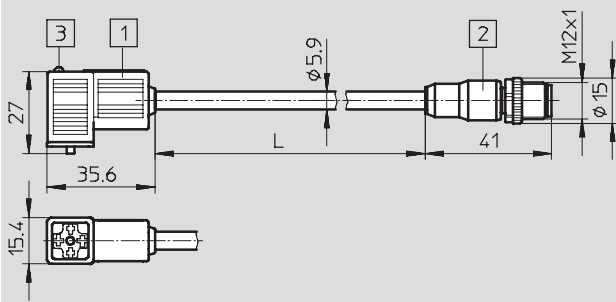

```
[1] Socket type C
[2] Straight plug M12
[3] LED illuminated area
```

	L [m]
NEBV-C1W3P-F-0,5-M12G5	0.5
NEBV-C1W3P-F-2,5-M12G5	2.5

NEBV-Z2W2P-…-M12G5
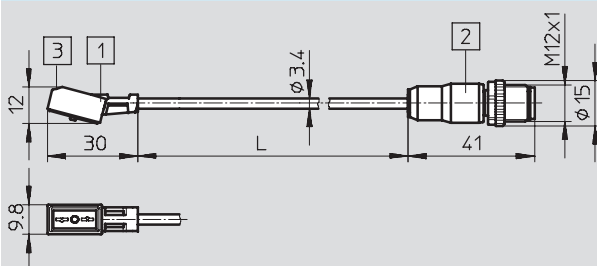

```
[1] Socket KMYZ-9
[2] Straight plug M12
[3] LED illuminated area
```

	L [m]
NEBV-Z2W2P-F-0,5-M12G5	0.5
NEBV-Z2W2P-F-2,5-M12G5	2.5

AS-interface® components

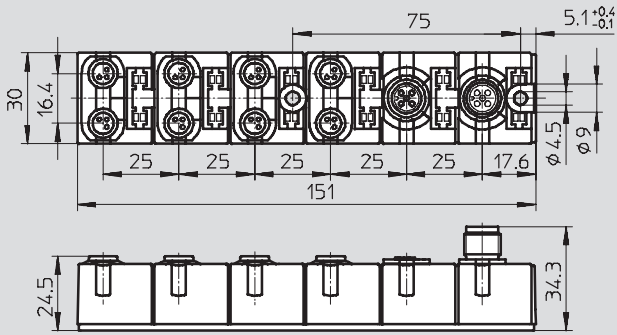Compact I/O modules and valve interfaces

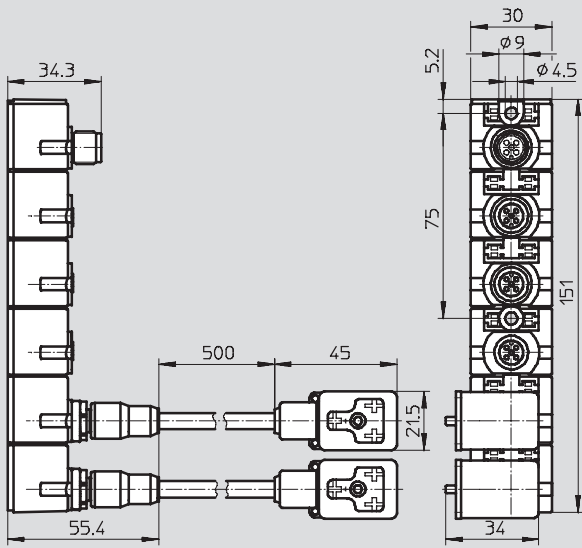| **Dimensions**	Download CAD data ➔ **www.festo.com/en/engineering**

NEDU-M8D3-M12T4
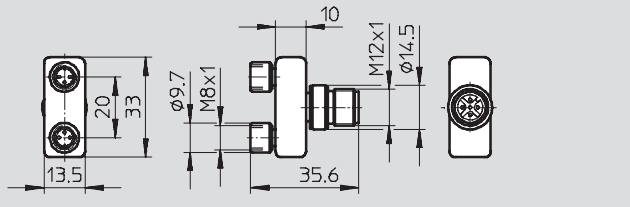
NEDU-M12D5-M12T5
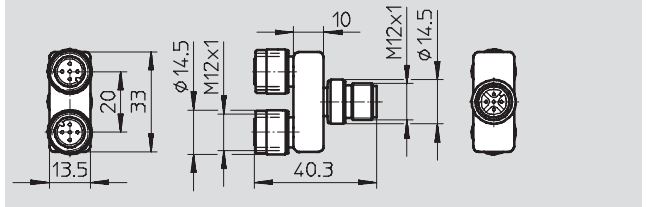
NEBU-M12G5-F-0,2-M12G4
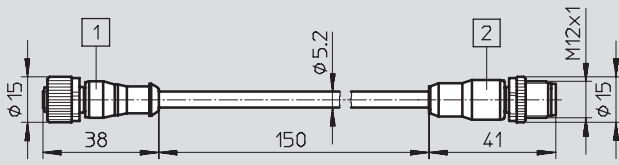
1 Straight socket M12
2 Straight plug M12
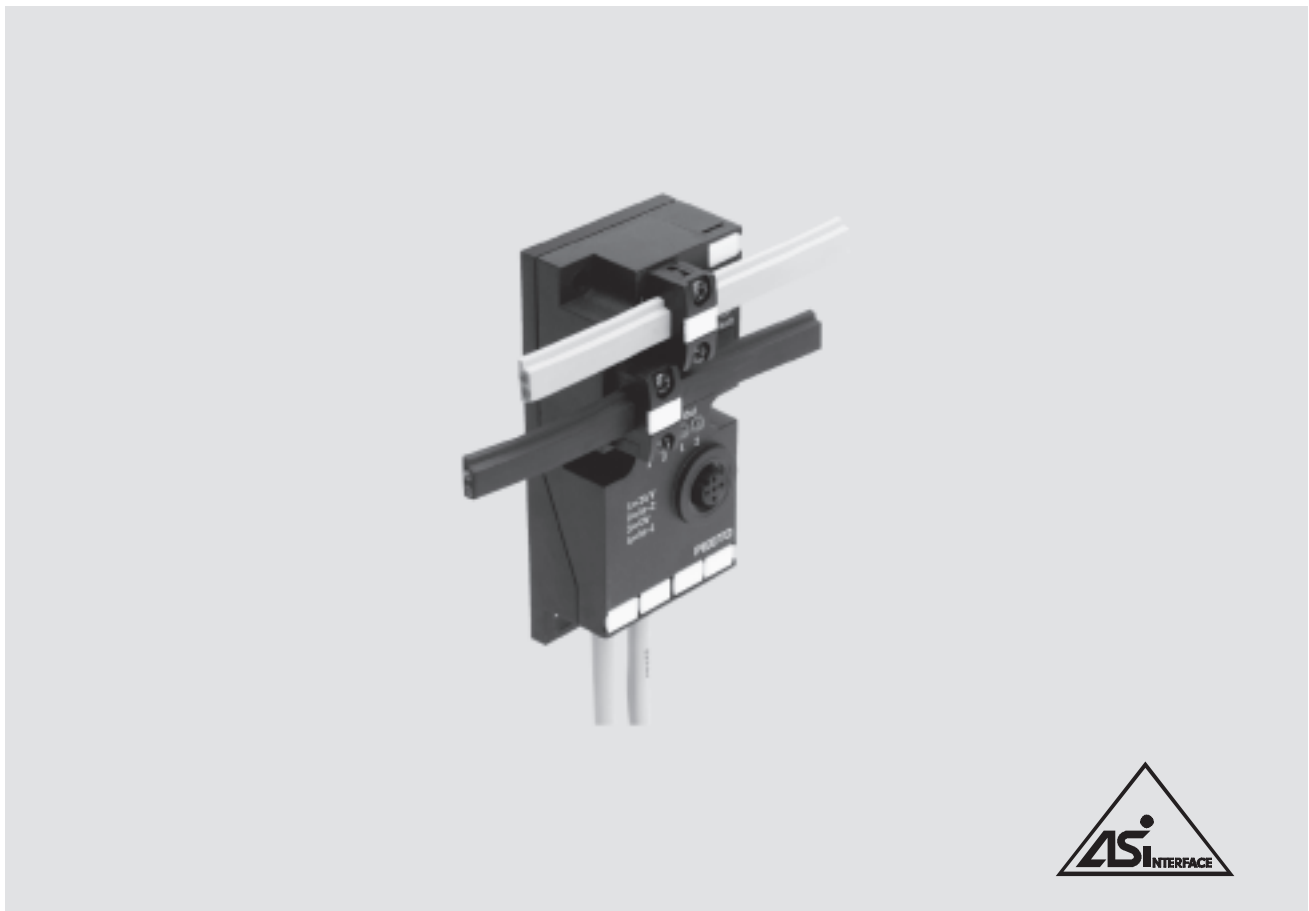
General description and overview of variants

- 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™.

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 assembly
- A broad range of accessories
- Optimal pneumatic sizing

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Individual valve interface ASI-EVA – Pre-assembled connection sockets
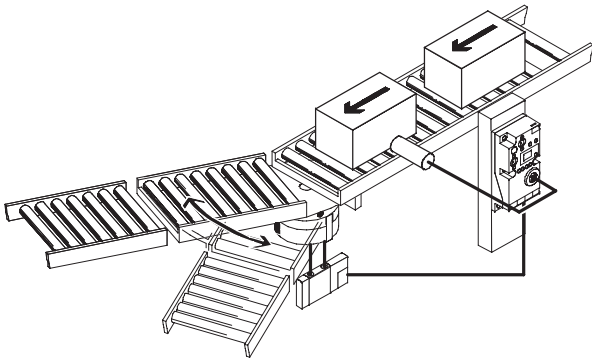
New and easy installation concepts are possible for the AS-interface thanks to the long cable outlets of the individual valve interface ASI-EVA. The electronics are installed at the front of the machine. This ensures that the LEDs and control elements are easy to read and operate. Installation and mounting is very straightforward.

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.

Assembly

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 spacing 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
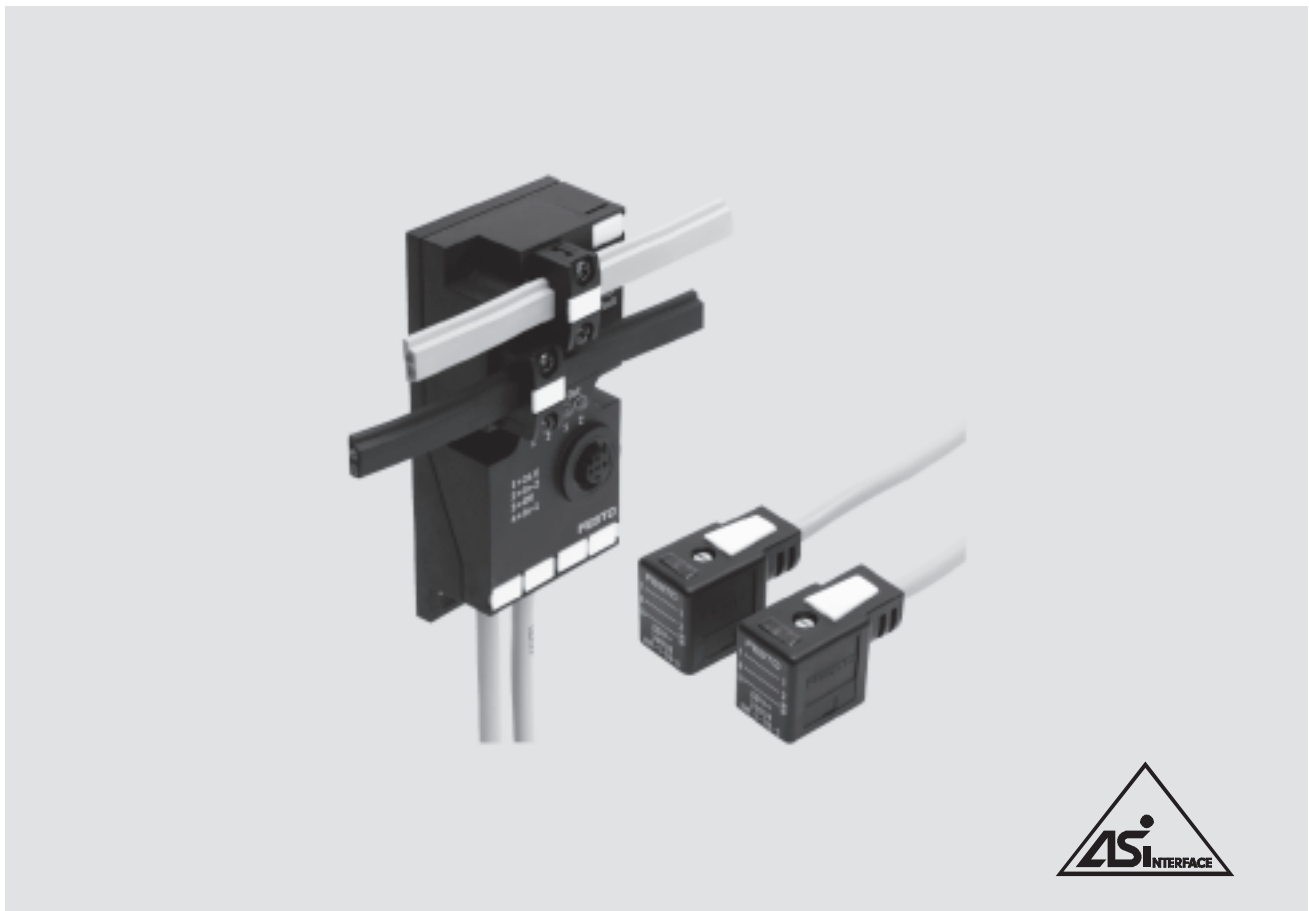
FESTO

Individual valve interface to Specification V2.1[1] – With pre-assembled valve plug sockets

General description
- Ideal for Festo plug and work™. Supports the connection of almost all Festo valves
- The load voltage (auxiliary power supply via the black cable) can be connected/disconnected separately
- All individual valve interfaces have two inputs for recording input signals via cylinder proximity sensors, inductive, capacitive or optical sensors

Variants
- Cable length 0.5 m
- Valve connection sockets for Festo MF, MEB and ZC coils
- Modules equipped with one or two outputs can be supplied for optimum configuration of valves with one or two solenoid 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 inputs on one M12 socket
- Suitable for Festo M12 DUO plugs, for the DUO cables M12/2x M8 and the push-in T-connectors M12-2x M12 or M12-2x M8
- Status LEDs for each input
- Fault LED and enhanced diagnosis as per C.S.2.1[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

1) Slave compatible with SPEC V3.0

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Individual valve interface ASI-EVA – Pre-assembled connection sockets

FESTO

Technical data								
Type			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.			196 081	196 082	196 085	196 086	196 083	196 084
Solenoid coils	No. of connectable solenoid coils		1	2	1	2	1	2
	Cable length	[m]	Pre-assembled cable, 0.5 m per connecting cable					
	Cable type		Round cable 3x 0.5 mm^2; cable $\varnothing$ 5.8 mm; polyurethane; colour: grey				Round cable 2x 0.25 mm^2; polyvinyl chloride; colour: grey	
	Valve connection		F coils, DIN EN 175301, type B (industrial standard)		EB coils, DIN EN 175301, type C		ZC coils, e.g. Festo CPE10/14-M1BH	
	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 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	[ms]	Typ. 3 (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	[mA]	Of the electronics (basic load): max. 12 • 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					
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	Protection class (to EN 60529)		IP65 (fully assembled)					
	CE symbol		Yes, in accordance with EU Directive 89/336/EEC					
	U$_L$ certification		Yes					
	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$_H$; ID1 = F$_H$[1]; ID2 = E$_H$					
	I/O code		B$_H$					
	Profile		S-B.F.E					

[1] Factory setting, set to 0$_H$ by some programming devices (Spec. V2.1) when addressing the slave

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Individual valve interface ASI-EVA – With open cable ends

Individual valve interface to Specification V2.1[1] – With open cable ends

General

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 connection 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 inputs on one M12 socket
- Suitable for Festo M12 DUO plugs, for the DUO cables M12/2x M8 and the push-in T-connectors M12-2x M12 or M12-2x M8
- Status LEDs for each input
- Fault LED and enhanced diagnosis as per C.S.2.1[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

1)   Slave compatible with SPEC V3.0

AS-interface® components

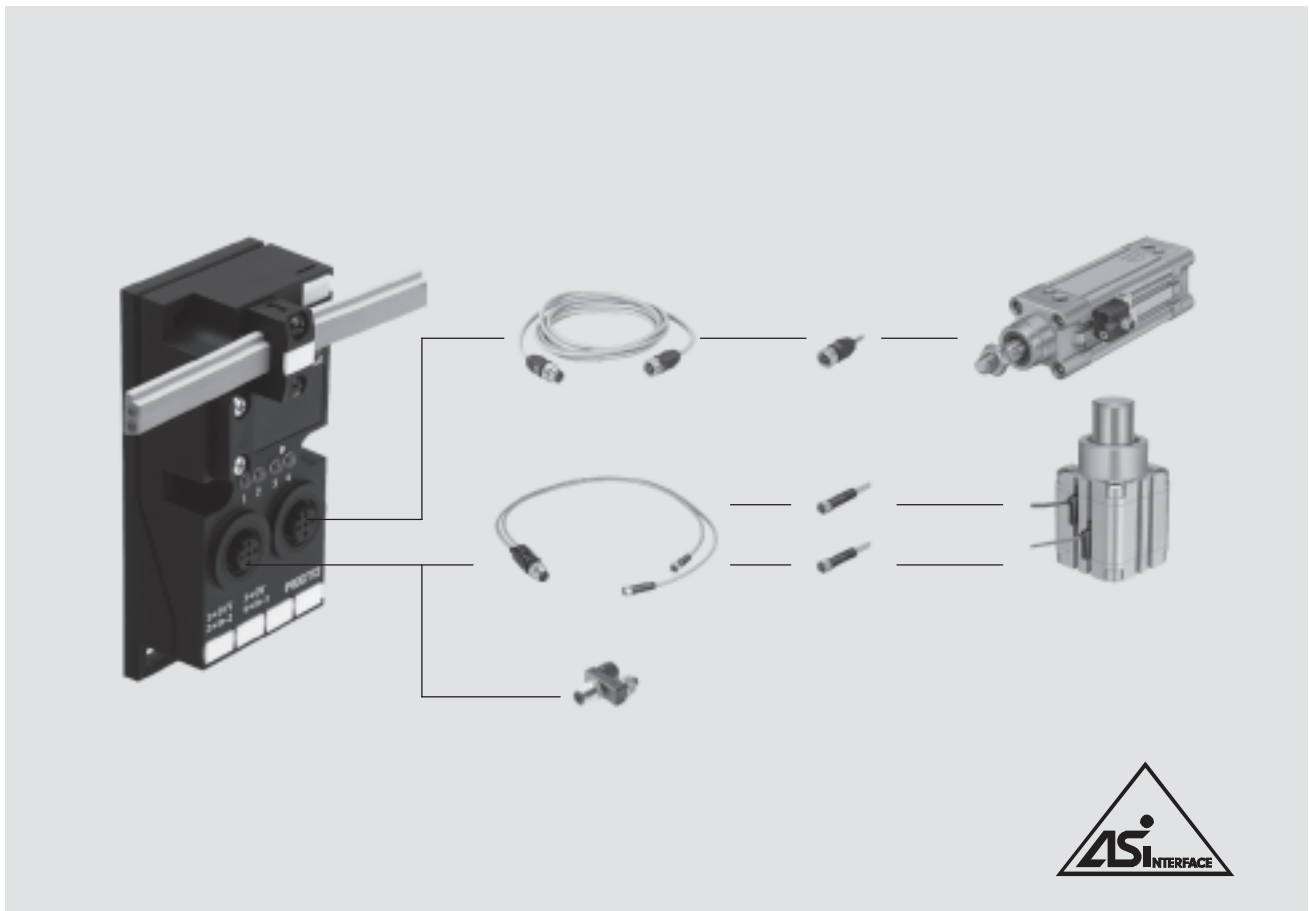Individual valve interface ASI-EVA – With open cable ends

Technical data				
Type			**ASI-EVA-K1-2E1A-Z**	**ASI-EVA-K1-2E2A-Z**
Part No.			**196 087**	**196 088**
Outputs/valves	No. of outputs/valves		1	2
	Cable length	[m]	1 m	
	Cable type		Round cable 3x 0.5 mm^2; cable $\varnothing$ 5.8 mm; polyurethane; colour: grey	
	Output/valve connection		Open cable end, 3-wire	Open cable end, 3-wire
			BL1 = 24 V, BL2 = 0 V, gr/ye = n.c.	BL1 = 24 V, BL2 = 0 V, gr/ye = n.c.
	Valve control design		Short circuit and overload proof	
	External voltage supply		Can be selected using the DIL switch	
	24 V DC			
	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	[ms]	Typ. 3 (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, reverse polarity protected	
	Residual ripple	[mVss]	20	
	Current consumption	[mA]	Of the electronics (basic load): max. 12	
			• 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	
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	Protection class (to EN 60529)		IP65 (fully assembled)	
	CE symbol		Yes, in accordance with EU Directive 89/336/EEC	
	U_L certification		Yes	
	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_H; ID1 = F_H[1]; ID2 = E_H	
	I/O code		B_H	
	Profile		S-B.F.E	
	AS-interface certificate		Yes, certificate no. 43301	

1) Factory setting, set to 0_H by some programming devices (Spec. V2.1) when addressing the slave

AS-interface® components

FESTO

Individual valve interface to Specification V2.1[1] – Input module with 4 inputs

General

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
- 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.

Version

- 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, for the DUO cables M12/2x M8 and the push-in T-connectors M12-2x M12 or M12-2x M8
- Status LEDs for each input
- Fault LED and enhanced diagnosis as per C.S.2.1[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

1) Slave compatible with SPEC V3.0

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Individual valve interface ASI-EVA – Input module with 4 inputs

Technical data			
Type			**ASI-EVA-4E-M12-5POL**
Part No.			**197 069**
Digital inputs	No. 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	[V DC]	24, 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	[ms]	Typ. 3 (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, reverse polarity protected
	Residual ripple	[mVss]	20
	Current consumption	[mA]	Of the electronics (basic load): max. 12
			• plus the current consumption of the digital inputs
			Total current consumption of the ASI-EVA: max. 240
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 60529)		IP65 (fully assembled)
	Electromagnetic compatibility		Tested to EN 50295 (low voltage switchgear)
	CE symbol		Yes, in accordance with EU Directive 89/336/EEC
	U_L certification		Yes
	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_H
	I/O code		0_H
	Profile		S-0.1
	AS-interface certificate		Yes, certificate no. 43302

AS-interface® components

Individual valve interface ASI-EVA – Interface for DNCV
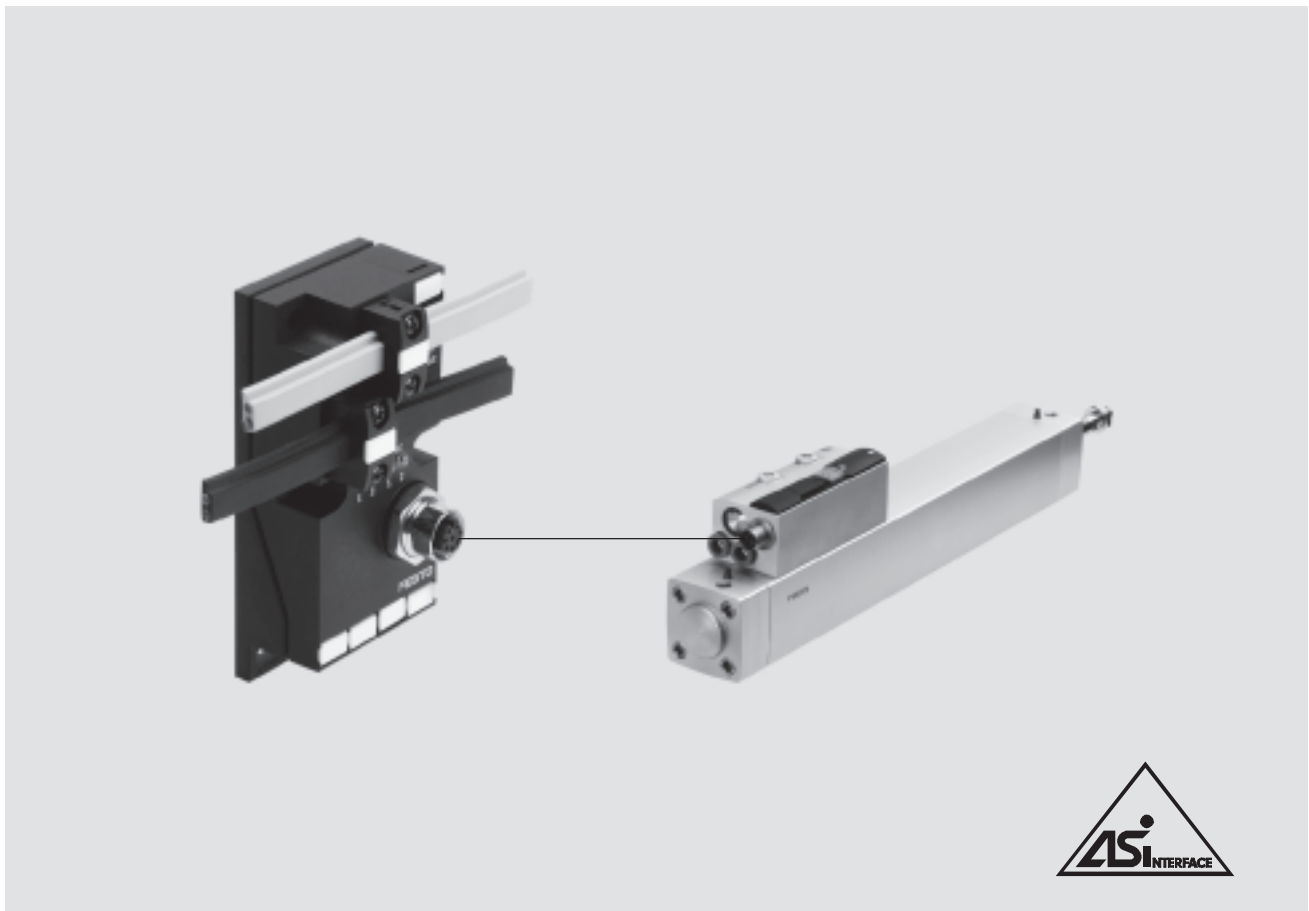
Individual valve interface to Specification V2.1[1] – Interface for DNCV

General

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.

Version

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
- Status LEDs for each input
- Fault LED and enhanced diagnosis as per C.S.2.1[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

1) Slave compatible with SPEC V3.0

AS-interface® components

Individual valve interface ASI-EVA – Interface for DNCV

Technical data			
Type			**ASI-EVA-2E2A-M12-8POL-Z**
Part No.			**197 070**
Outputs/valves	No. of outputs/valves		2
	Version		Designed for DNCV (cylinder/valve combination)
	Cable length	[m]	2
	Cable type		Round cable 8x 0.25 mm²; cable ⌀ 5.8 mm; polyurethane; colour: grey
	Valve connection		M12 plug, 8-pin, pins 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[1]	[A]	2x 0.25
	Watchdog function		Active after 50 ms
Digital inputs	Number		2
	Connection technology		M12 plug, 8-pin; sensors: pins 2, 3 and 4; diagnosis: pins 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	[V DC]	24, 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, reverse polarity protected
	Residual ripple	[mVss]	20
	Current consumption	[mA]	Of the electronics (basic load): max. 12 • DNCV inputs • DNCV valves Total current consumption of the ASI-EVA: max. 240
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	Protection class (to EN 60529)		IP65 (fully assembled)
	Electromagnetic compatibility		Tested to EN 50295 (low voltage directive)
	CE symbol		Yes, in accordance with EU Directive 89/336/EEC
	U_L certification		Yes
	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_H; ID1 = F_H[3]; ID2 = E_H
	I/O code		B_H
	Profile		S-B.F.E
	AS-interface certificate		Yes, certificate no. 43303
Parameter P3	DNCV diagnostic function		1: enable; 0: disable
	Default		1 for DNCV with diagnostic module[2]

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_H by some programming devices (Spec. V2.1) when addressing the slave

Diagnosis and parameterisation

The AS-i individual valve 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 pin7) 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[1] 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[1] 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

Fieldbus systems/electrical peripherals
AS-interface components

4.9
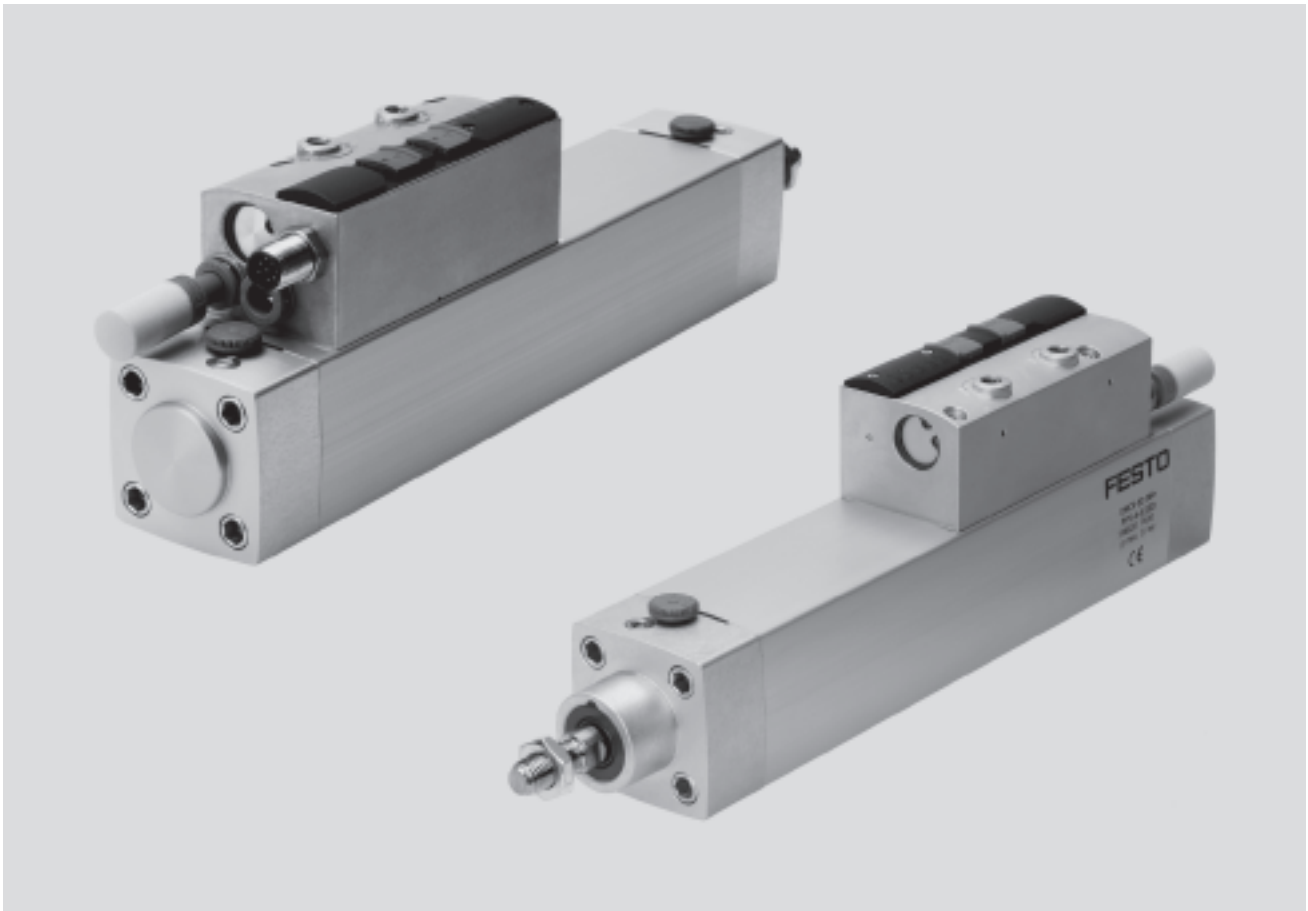
Cylinder/valve combination DNCV

Easy to mount
- Fully assembled and tested drive unit
- Minimised expenditure with regard to 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)
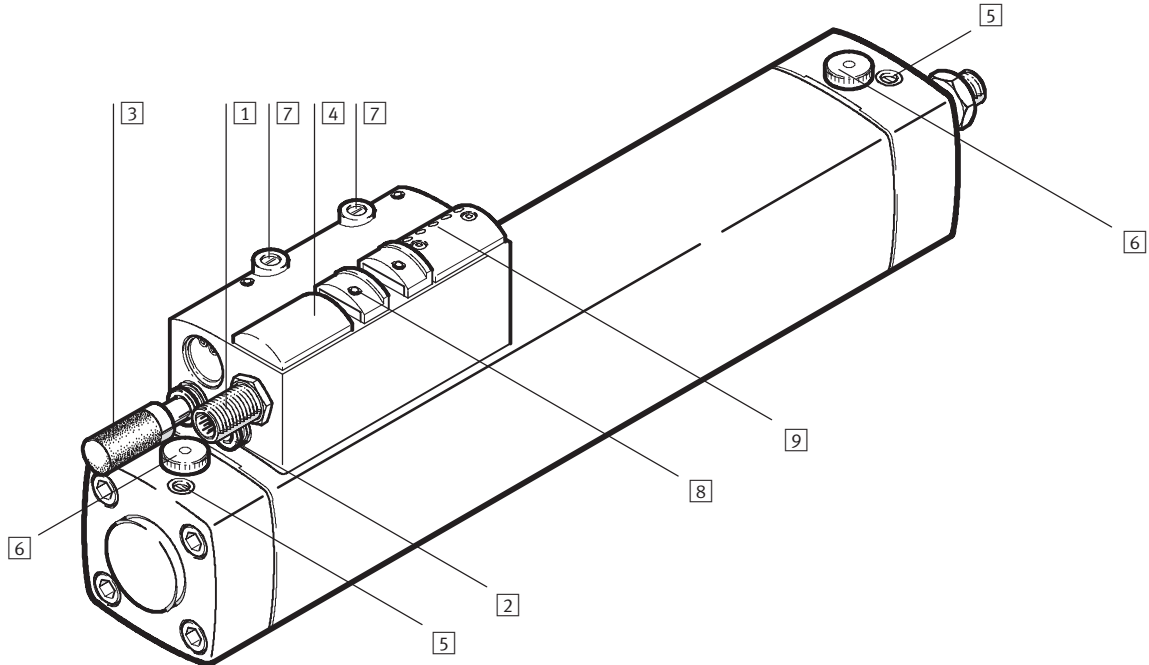- Dimensions largely compliant with DIN ISO 6431 and VDMA 24 562

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

AS-interface® components

Overview of DNCV

High functionality

☐1	Multi-pin connection, M12 plug, 8-pin	☐5	Regulating screw for pneumatic end-position cushioning PPV	☐7	Regulating screws for stroke speed, separated for forward and return stroke	☐9	Diagnostic module (optional) with LEDs for displaying the piston position, valve switching status and for diagnosis of stroke duration and number of strokes

☐1 Multi-pin connection, M12 plug, 8-pin

☐2 Compressed air connection (QS push-in fitting)

☐3 Silencer (QS push-in fitting for exhaust air)

☐4 Valve

☐5 Regulating screw for pneumatic end-position cushioning PPV

☐6 Adjusting knob for fine adjustment of the position of the integrated proximity sensors (removable to prevent inadvertent resetting)

☐7 Regulating screws for stroke speed, separated for forward and return stroke

☐8 Manual override, non-detenting or detenting

☐9 Diagnostic module (optional) with LEDs for displaying the piston position, valve switching status and for diagnosis of stroke duration and number of strokes

---

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)

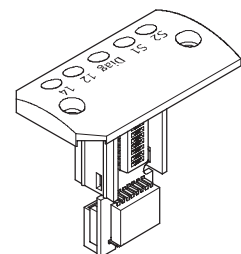| Proximity switch monitoring	Monitoring of stroke duration	Monitoring of number of strokes	Diagnostic module
In the event of a malfunction or double signalling, apart from the diagnostic LED lighting up, the signal level at the diagnostic output also changes from 24 V to 0 V.	The motion duration for 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.	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

| Circuit symbol	Description	Circuit symbol	Description
5/2L		**5/2LA**	
	5/2-way valve, single solenoid with spring return: The valve is normally closed, the piston rod retracts.		5/2-way valve, single solenoid with spring return: The valve is normally open, the piston rod advances.
5/2J		**5/3B**	
	5/2-way valve, double solenoid (bistable valve): The valve does not have a defined normal position; instead it requires the electrical actuation or manual override for a defined switching status. The piston rod therefore retracts or advances in accordance with the current valve position.		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.
5/3E		**5/3G**	
	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.		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.

Manual override

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

AS-interface® components

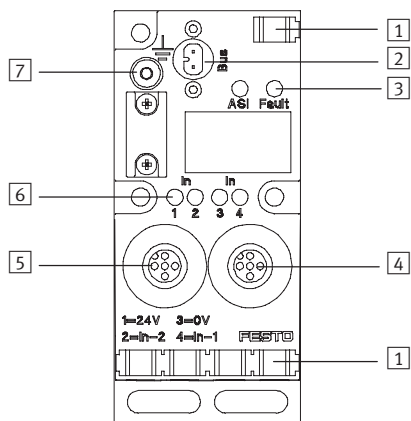Individual valve interface ASI-EVA – Connections/displays

FESTO

Overview of connections/displays – ASI-EVA
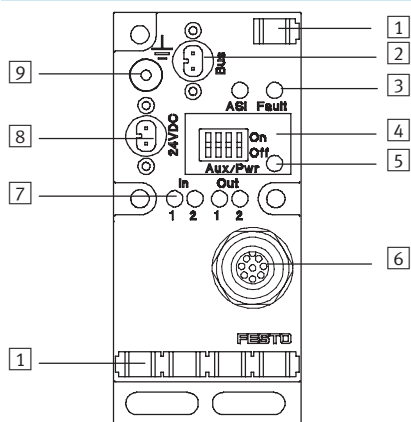
Individual valve interface – 2I2O, 2I1O
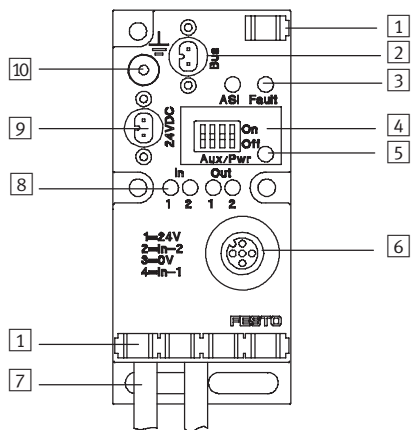
1	Inscription labels
2	AS-interface bus connection
3	ASI-LED (power/green), FAULT-LED (fault/red)
4	DIL switch for load voltage connection
5	AUX-PWR-LED
6	Sensor connection
7	1 or 2 connecting cables for outputs (valves)
8	LED display for – outputs – inputs
9	Auxiliary power supply for outputs/valves
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	Auxiliary power supply for valve
9	Functional earthing connection

Fieldbus systems/electrical peripherals
AS-interface components

4.9

Overview of connections/displays – ASI-EVA

AS-interface® components

Individual valve interface ASI-EVA – Connections

FESTO

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

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 connection	

	1 AS-interface bus
	    1: + (light blue)
	    2: – (brown) 2 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.

AS-interface® components

Individual valve interface ASI-EVA – Dimensions
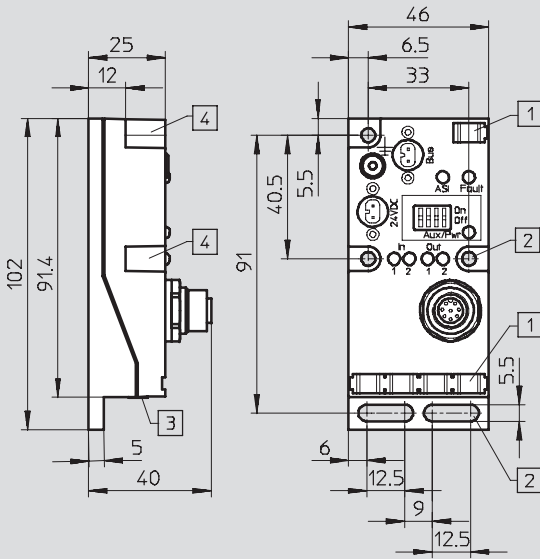
Dimensions – ASI-EVA   Download CAD data ➔ **www.festo.com/en/engineering**
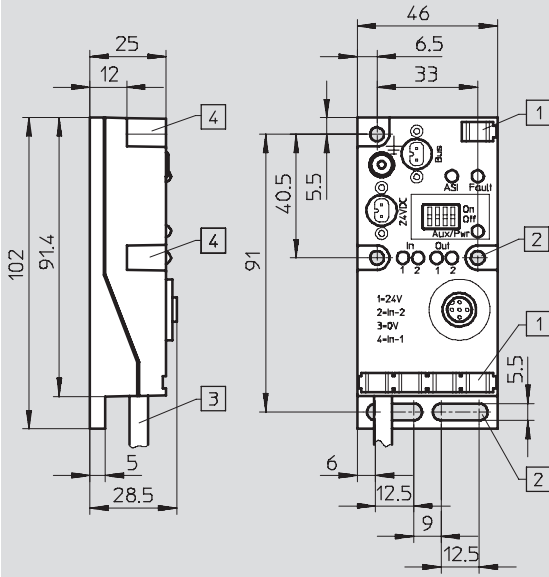
	Description
1	Inscription label mounting options
2	Mounting hole for surface mounting
3	Cable module
4	Mounting hole for ITEM profile (40 mm spacing) or other mounting option

Input module with 4 inputs
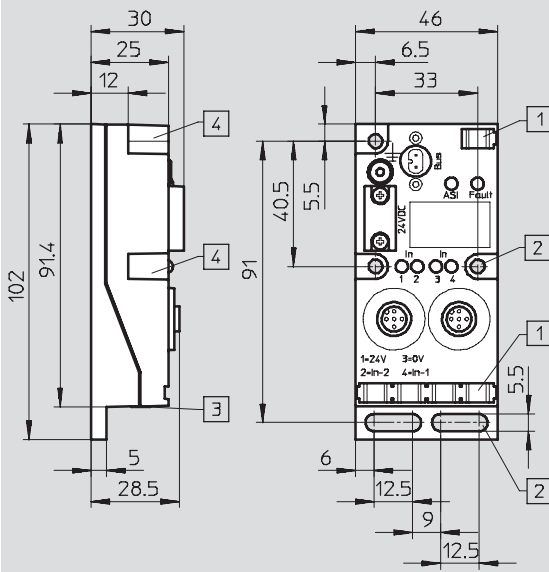
	Description
1	Inscription label mounting options
2	Mounting hole for surface mounting
3	Ring seal
4	Mounting hole for ITEM profile (40 mm spacing) or other mounting option

AS-interface® components

Individual valve interface ASI-EVA – Dimensions

Dimensions – ASI-EVA	Download CAD data ➔ **www.festo.com/en/engineering**

Interface for DNCV

1. Inscription label mounting options
2. Mounting hole for surface mounting
3. Ring seal
4. Mounting hole for ITEM profile (40 mm spacing) or other mounting option

Example: H-rail mounting
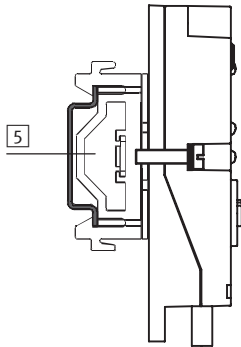
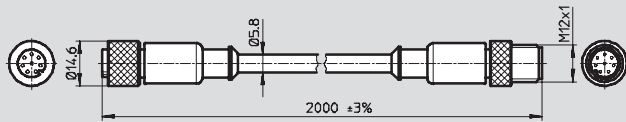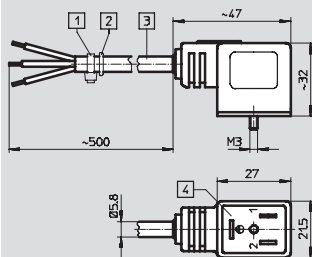5. H-rail attachment on mounting rail EN 60715 35 x 15 using adapter kit CP-TS-HS32

AS-interface® components

Individual valve interface ASI-EVA – Dimensions

Dimensions – Connecting cable	Download CAD data ➔ **www.festo.com/en/engineering**

KM12-8GD8GS-2-PU

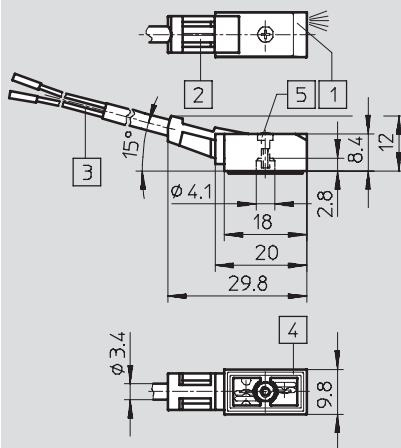| Dimensions – Pin allocation for solenoid coils	Download CAD data ➔ **www.festo.com/en/engineering**

ASI-EVA-MF-2E-…-A-Z

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

ASI-EVA-MEB-2A-…-A-Z
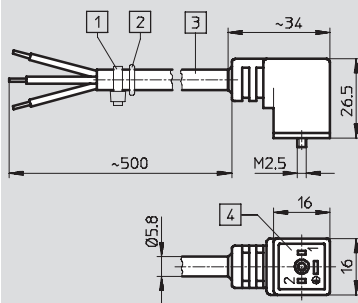
1 Cable binder
2 O-ring 5x 1.5
3 3-wire cable 0.5 m (3x 0.5 mm^2)
4 Connections for plug to
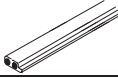 EN 175 301-803
 type B

ASI-EVA-MZB9-2E-…-A-Z

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

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Individual valve interface ASI-EVA – Accessories

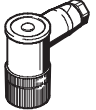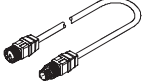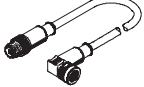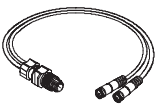| Ordering data				
	Designation		Type	Part No.
Bus connection				
	AS-interface flat cable, yellow	100 m	**KASI-1,5-Y-100**	**18 940**
	AS-interface flat cable, black	100 m	**KASI-1,5-Z-100**	**18 941**
	Flat cable socket[1]		**ASI-SD-FK**	**18 785**
	Flat cable socket[1]	Turned through 180°	**ASI-SD-FK180**	**196 089**
	Flat cable blanking plug		**ASI-SD-FK-BL**	**196 090**
	AS-interface flat cable distributor	Parallel cable	**ASI-KVT-FK**	**18 786**
	AS-interface flat cable distributor	Symmetrical cable	**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**
Sensor plug				
	Straight sensor plug	M12, 5-pin, PG7	**SEA-M12-5GS-PG7**	**175 487**
	Straight sensor plug	M12, 4-pin, PG7	**SEA-GS-7**	**18 666**
	Angled sensor plug	M12, 4-pin	**SEA-M12-4WD-PG7**	**185 498**
	Protective cap	M12	**ISK-M12**	**165 592**
Sensor cable				
	Connecting cable, straight plug, straight socket	M12, 4 pin, 2.5 m	**KM12-M12-GSGD-2,5**	**18 684**
		M12, 4 pin, 5.0 m	**KM12-M12-GSGD-5**	**18 686**
	Connecting cable, straight plug, angled socket	M12, 4 pin, 1.0 m	**KM12 M12-GSWD-1-4**	**185 499**

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

AS-interface® components

Individual valve interface ASI-EVA – Accessories

Ordering data				
	Designation		Type	Part No.
DUO plug				
	Plug M12 for 2 sensor cables	4-pin, PG11	**SEA-GS-11-DUO**	**18 779**
		5-pin, PG11	**SEA-5GS-11-DUO**	**192 010**
DUO cable M12 to 2x M8				
	DUO cable M12-2xM8, 4-pin/2x3-pin	2x straight socket	**KM12-DUO-M8-GDGD**	**18 685**
		2x straight/angled socket	**KM12-DUO-M8-GDWD**	**18 688**
		2x angled socket	**KM12-DUO-M8-WDWD**	**18 687**
Push-in T-connector				
	Push-in T-connector		**NEDU-M8D3-M12T4**	**541 597**
			NEDU-M12D5-M12T4	**541 596**
Connecting cable for DNCV				
	Connecting cable	M12, 8-pin	**KM12-8GD8GS-2-PU**	**525 617**
Other accessories				
	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**
Mounting				
	Mounting for H-rail		**CP-TS-HS35**	**170 169**
Inscription labels				
	Inscription labels 6x20 mm in frames (64 pieces)		**IBS-6x10**	**18 576**

AS-interface® components
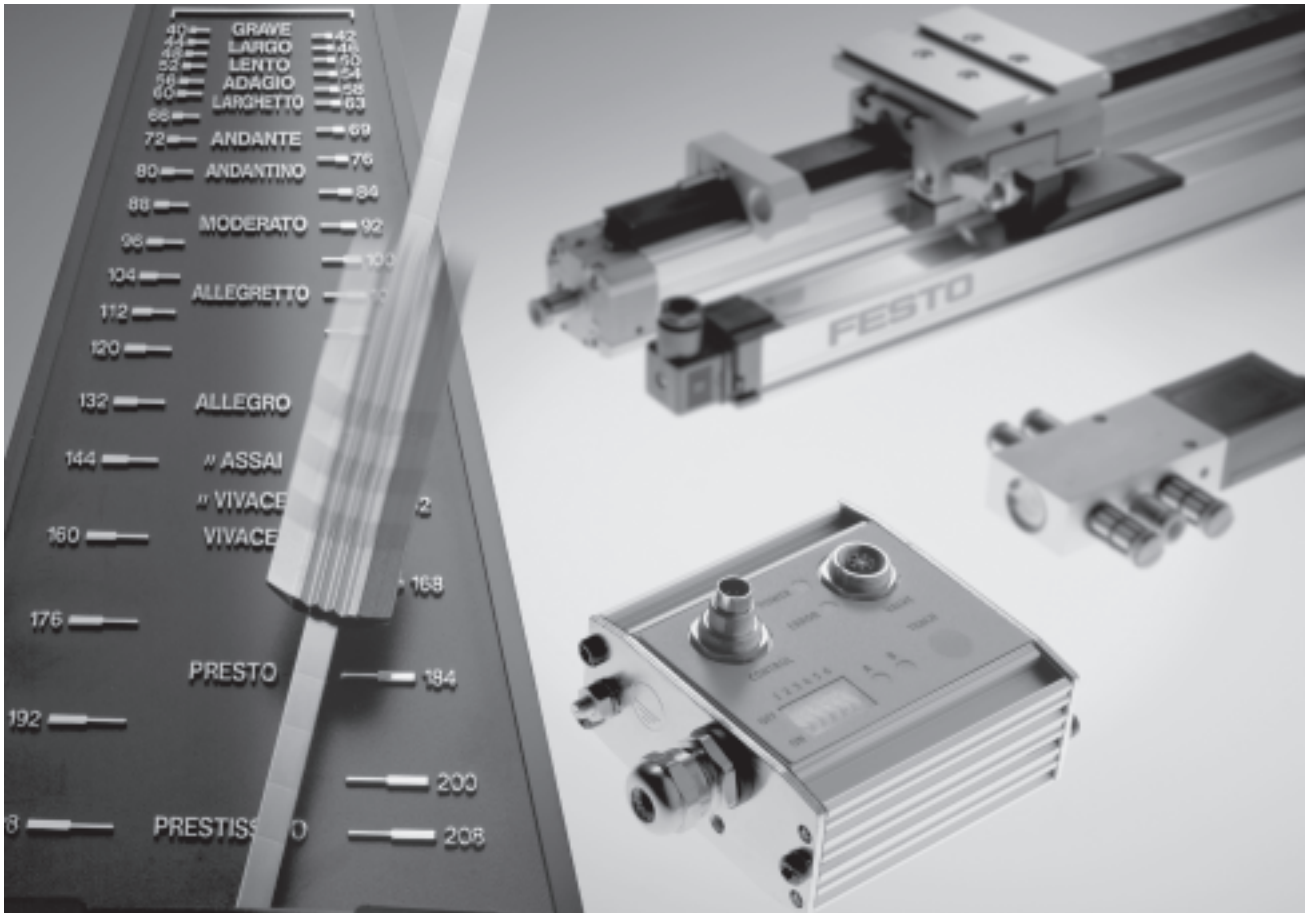
Applications

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

- Drives on the AS-interface
- Intelligent valve/cylinder combinations DNCV with integrated diagnosis
- Pneumatic linear axes, rotary drives and standard cylinders DNC with electronic end-position cushioning by means of Soft Stop SPC11-ASI
- Process 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 / 4.9-352

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 mech-

anical end positions from pneumatic actuators into electrical signals and also provides connections 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
- Positioning data can be freely adjusted during operation, thereby permitting the construction of a simple positioning system.
- Comprehensive diagnosis

- ⊟ -   Note

Detailed description
→   Volume 7

AS-interface® components

FESTO
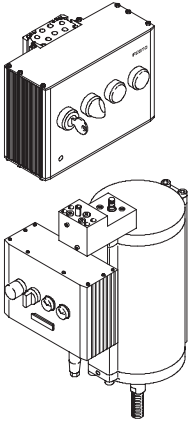
General
- Integrated 5/3-way valve, normally closed, pressure range 2 ... 8 bar
- Integrated LED displays (open/closed)
- Key actuator for selecting the operation mode:
  - Remote control via AS-interface
  - On-site operation
  - Switched off
- The local controller VSE has been optimised for DLP/Copac but can also be used for DRD/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 −5 ... +50 °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™
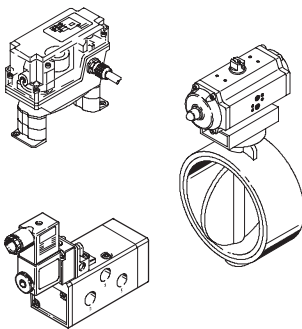
- Standard valve with Namur interface
- Sensor box with integrated valve actuator (solenoid coil plug) and limit switches for converting mechanical end-position signals into electrical signals
- Connect to the AS-interface using the yellow cable

- 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
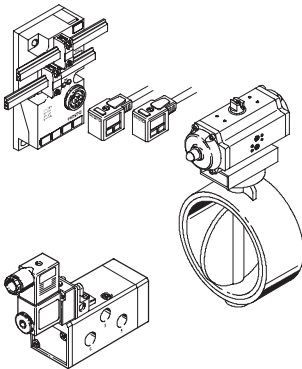
- Standard valve with Namur interface
- Individual valve interface ASI-EVA
- Copac/Copar process drive
- Discrete sensor configuration

Fieldbus systems/electrical peripherals
AS-interface components

4.9

Local controllers DLP-VSE – Technical data

This local controller is a convenient manual control unit for actuating process drives. Using a local controller, a pneumatic drive can assume the functionality of an electrical drive.

- Can be mounted directly on the drive or on a wall
- Emergency compressed air connection
- Safe thanks to its key-operated switch with removable key
- Large, long-life fluorescent display for the open/closed position of the process valve
- Operated on site or remote-controlled

General technical data

Operating pressure	[bar]	3 ... 8
Voltage supply without AS-interface	[V DC]	24 −15/+20%
Residual ripple	[Vmss]	4
Current consumption (at 24 V)	[mA]	140
Voltage supply with AS-interface	[V DC]	26.5 ... 31.6
Residual ripple	[Vmss]	≤20
Auxiliary voltage supply with AS-interface	[V DC]	24 −15/+20%
AS-interface profile		ID code = F_H; I/O code = 7_H S-7.F
Operating voltage at the valve	[V DC]	24 −15/+20%
Duty cycle of solenoid coils	[%]	100
Protection class		IP65
		Plug connector when fully plugged-in or fitted with protective cap
Vibration (to IEC68, DIN/EN 60068)	Transport	3.5 mm travel at 2 ... 9 Hz
		1 g acceleration at 9 ... 200 Hz
	Operation	0.35 mm travel at 10 ... 60 Hz
		5 g acceleration at 60 ... 150 Hz
Protection against electric shock (protection against direct and indirect contact to EN 60204-1/ ICE 204)		Via connection to a PELV (Protected Extra-Low Voltage) power supply unit
Electromagnetic compatibility		
Interference emission	– Tested to EN 55011-2	Limit value class A
	– Tested to DIN EN 61000-6-4	
Interference immunity	– Tested to EN 61000-4-2...6	
	– Tested to DIN EN 61000-6-2	Passed

Ambient conditions

Ambient temperature	[°C]	−5 ... +50
		based on EN 60654-1 class C1 (use in weather-protected areas)
Optional ambient temperature	[°C]	−25 ... +55
		to EN 60654-1 class C2 (use in weather-protected areas)
Storage temperature	[°C]	−40 ... +80
Relative air humidity	[%]	5 ... 100 condensing
Corrosion resistance class CRC[1]		3

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

FESTO

| Ordering data			
	Brief description	Type	Part No.
Local controller DLP-VSE			
	Integrated 5/3-way valve, normally closed, fieldbus connection for AS-interface	**DLP-VSE-3-5/3-G-ASI**	**188 473**
Assembly			
	Mounting kit for wall mounting in conjunction with the sub-base DLP-VSE-OBEN	**DLP-VSE-BP**	**192 062**
	Sub-base in conjunction with mounting kit DLP-VSE-BP for tubing connection in the direction of the drive	**DLP-VSE-OBEN**	**192 061**
	Sub-base for mounting on the linear valve actuator DLP	**DLP-VSE-OBEN-NAMUR**	**192 060**
Fieldbus connection			
	Cable socket for AS-interface	**ASI-SD-FK**	**18 785**
	Cable socket for AS-interface, profile turned 180°	**ASI-SD-FK180**	**196 089**
Fittings			
	Push-in fitting, male thread with internal hexagon	**QS-⅛-8-I**	**153 015**
	Barbed fitting, high-alloy stainless steel with sealing ring	**CRCN-M5-PK-3**	**13 967**
	Barbed fitting, high-alloy stainless steel with sealing ring	**CRCN-⅛-PK-4**	**13 970**
	Quick connector, aluminium design with sealing ring for plastic tubing PL, PP, PU (scope of delivery 10 pieces)	**CK-M5-PK-3**	**3 561**
	Quick connector, Plastic design with moulded-on sealing ring for plastic tubing PL, PP, PU (scope of delivery 10 pieces)	**CK-⅛-PK-6**	**2 028**
Silencer			
	Sintered bronze (scope of delivery 10 pieces)	**U-M5**	**4 645**
	Polymer	**U-⅛**	**2 307**

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Applications

Local controllers DLP-VSE – Display and operation
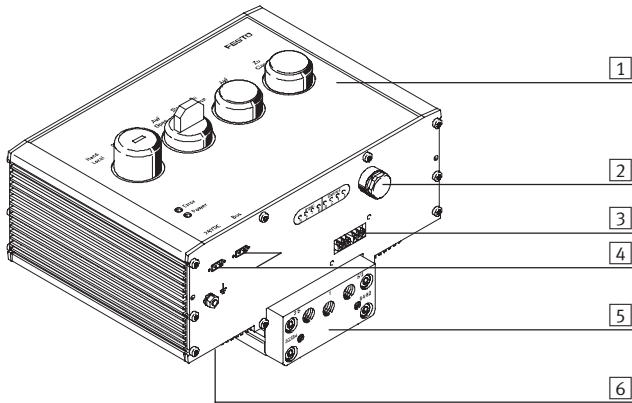
1	Display and control panel
2	Pressure equalisation component
3	Electrical connection
4	AS-interface connection
5	Housing block with integrated air duct
6	Integrated pneumatic valve (not shown)

Electrical connections and bus interface
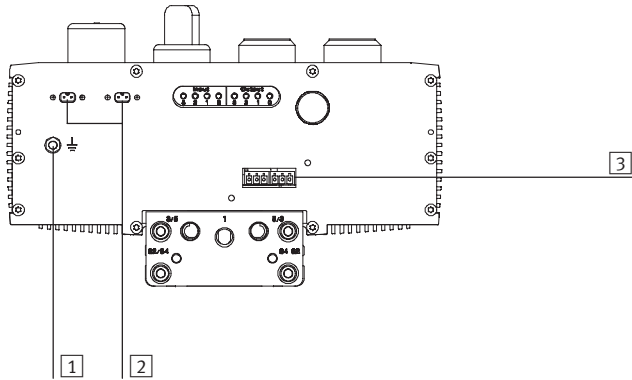
1	Earth terminal
2	AS-interface connection
3	Limit switch inputs

Recommendation

Use the Festo addressing device ASI-PRG-ADR, Part No. 18 959, with addressing cable KASI-ADR, Part No. 18 960 (or Siemens PSG).

Before connecting AS-interface slaves to the bus:
Allocate each AS-interface slave a free AS-interface address. Set the address

you require using the AS-interface addressing device. Permissible operating range: 1 ... 31.

Remarks

– ID code = F_H
  I/O code = 7_H (see rating plate)
– Parameterisation of the AS-interface slave is not necessary.

Connect limit switches (PNP inputs)

The inputs are short circuit proof. The slave is switched off if a short circuit occurs. The AS-interface master then regards this slave as absent. The slave

reports back as functioning once the short circuit has been eliminated.
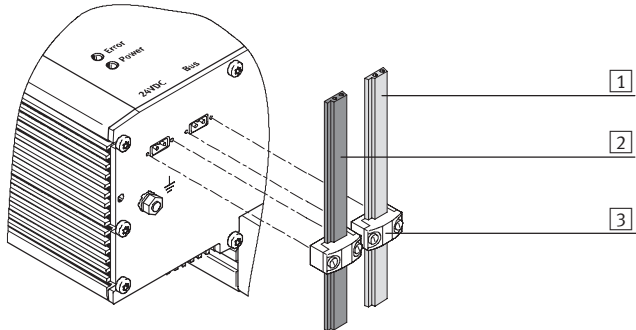
- 🔔 - Note

Use the Festo cable sockets ASI-SD-FK, Part No. 18 785, or ASI-SD-FK180, Part No. 196 089

for connection of the local controller, enabling you to achieve IP65 protection.

AS-interface® components

Applications

Local controllers DLP-VSE – Installation of the AS-interface

1	Flat cable, yellow
2	Flat cable, black
3	Cable socket

- ░ - Note

The power for the inputs is supplied via the AS-interface bus.
The local controller must always be separately supplied with 24 V via the load voltage connection (black flat cable).
The AS-interface features an integrated watchdog function which resets the outputs if communication with the bus fails.

Commissioning at the AS-interface – Allocation of the data bits

Bit allocation for AS-interface inputs			Bit allocation for AS-interface outputs		
Data bit	Input	Meaning	Data bit	Output	Meaning
D0	Input 0	Key actuator set to HAND/LOCAL	D0	Output 0	Open process valve
D1	Input 1	Key actuator set to AUTO/REMOTE	D1	Output 1	Close process valve
D2	Input 2	Limit switch signal "open"	D2	Output 2	Signal lamp "OPEN"
D3	Input 3	Limit switch signal "closed"	D3	Output 3	Signal lamp "CLOSE"

Diagnosis with AS-interface

The user interface has two LEDs (POWER and BUS) from which you can read diagnostic messages for the local controller.

POWER-LED (green)	ERROR-LED (red)	Meaning
on	off	AS-interface voltage present, no fault
off	off	No AS-interface voltage present at the bus
flashing	on	AS-interface address not set (= 0)
on	flashing	Short circuit/overload at the inputs
on	on	Bus communication failure (watchdog expired)

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Sensor box as intelligent signal generator – Overview

Innovative

- Integrated AS-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 valve actuators
- LED displays for on-the-spot diagnosis
- AS-interface as secure transmission protocol

Easy to mount

- Can be mounted directly on the quarter turn valve 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
- Profile coded flat cable ensures polarity-safe connection to the AS-interface
- Easy adjustment of switching points
- Particularly economical thanks to simplified assembly and commissioning

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 flat 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 I/O code D_H. Structure of the I/O code D_H

D3	D2	D1	D0
I	I	I	O

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.

Fieldbus systems/electrical peripherals
AS-interface components

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AS-interface® components

Sensor box as intelligent signal generator – Overview

Technical data			
Type			**DAPZ-SB-I-30DC-DSAM-RO**
Part No.			**534 473**
Signal generator	Version		Double initiator with normally-closed function to NAMUR (DIN 19234)
	Manufacturer		Pepperl & Fuchs
	Type		NCN3-25F-N4
	Switching accuracy		Less than 0.5°
	Service life		Minimum service life of switch: 2×10^5 cycles
	Short circuit proof		Yes
Interface to the drive			NAMUR standard VDI/VDE 3845
Output	Connection technology		Solenoid plug
	Nominal voltage	[V DC]	24
	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		$3\times 0.5\ mm^2$
	Valve connection		F coil to DIN 43650, type: industrial standard
	Watchdog function		None
Supply voltage			Electronics, sensors and output are supplied via the yellow flat cable at the AS-interface connection
AS-interface connection	Connection technology		AS-interface flat cable plug (included in scope of delivery)
	Voltage range	[V DC]	26.5 … 31.6, reverse polarity protected
	Residual ripple	[mVss]	20
	Current consumption	[mA]	Max. 12, electronics
			• plus 2-wire sensor 4
			• plus connected output (dependent on solenoid valve, max. 120)
LED displays	Output		None, illuminating seal possible on solenoid coil (on request)
	Inputs		2x yellow
	ASI-LED		Green
General data	Protection class (to EN 60529)		Sensor IP67, housing IP65
	Electromagnetic compatibility		AS-interface electronics and initiator: EN 60947-5-2; 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
	Corrosion resistance class CRC[1]		3
	Dimensions	[mm]	approx. 146 x 64 x 74 (without console)
	Weight	[g]	450
AS-interface data	ID code		F_H
	I/O code		D_H
	Profile		S-D.F

AS-interface® components

Sensor box as intelligent signal generator – Overview

Dimensions   Download CAD data ➜ **www.festo.com/en/engineering**

145
64
80
H1
L1
B1
300

2
3
1
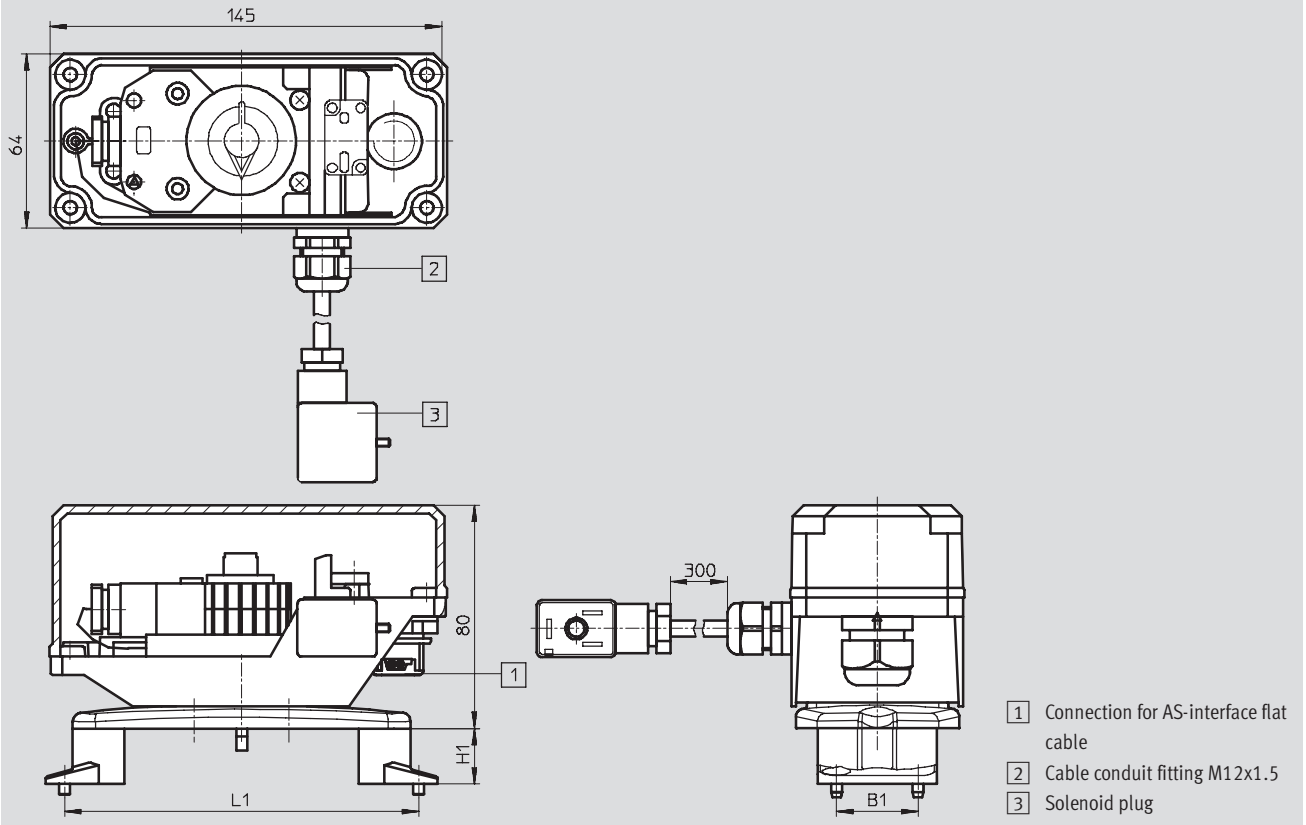
1 Connection for AS-interface flat cable
**2** Cable conduit fitting M12x1.5
3 Solenoid plug
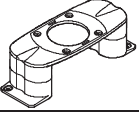
Feet mounted inwards			
	B1	L1	H1
Foot 20	30	80	20
Foot 30	30	80	30

Feet mounted outwards			
	B1	L1	H1
Foot 20	30	130	20
Foot 30	30	130	30

Fieldbus systems/electrical peripherals
AS-interface components

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AS-interface® components

FESTO

Ordering data				
	Designation		Type	Part No.
DAPZ-… mounting				
	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**
Bus connection				
	AS-interface flat cable, yellow	100 m	**KASI-1,5-Y-100**	**18 940**
	AS-interface flat cable distributor	Parallel cable	**ASI-KVT-FK**	**18 786**
	AS-interface flat cable distributor	Symmetrical cable	**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**
Other accessories				
	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

Accessories

AS-interface – Product range overview						
Designation	Type	CPV-ASI	CPA-ASI	ASI-EVA	ASI-EA	→ Page
Bus connection						
AS-interface flat cable, yellow, 100 m	**KASI-1,5-Y-100**	■	■	■	■	4 / 4.9-379
AS-interface flat cable, black, 100 m	**KASI-1,5-Z-100**	■	■	■	■	4 / 4.9-379
Flat cable socket[1]	**ASI-SD-FK**	■	■	■	–	4 / 4.9-382
Flat cable socket, turned through 180°[1]	**ASI-SD-FK180**	■	■	■	–	4 / 4.9-382
Flat cable blanking plug[1]	**ASI-SD-FK-BL**	■	■	■	–	4 / 4.9-382
AS-interface flat cable distributor, parallel cable	**ASI-KVT-FK**	■	■	■	–	4 / 4.9-382
AS-interface flat cable distributor, symmetrical cable	**ASI-KVT-FK-S**	■	■	■	–	4 / 4.9-382
Cable distributor (yellow and black) to 2x M12, 4-pin	**ASI-KVT-FKx2-M12**	–	■	–	■	4 / 4.9-384
Cable cap for flat cable (scope of delivery 50 pieces)	**ASI-KK-FK**	■	■	■	■	4 / 4.9-379
Cable sleeve (scope of delivery 20 pieces)	**ASI-KT-FK**	■	■	■	■	4 / 4.9-379
M12 socket for flat cable	**ASI-SD-FK-M12**	–	■	–	■	4 / 4.9-382
M12 socket for flat cable, with PG13.5	**ASI-SD-PG-M12**	–	■	–	■	4 / 4.9-382
Sensor plug						
Straight sensor plug, M12, 5-pin, PG7	**SEA-M12-5GS-PG7**	–	■	■	■	4 / 5.1-166
Straight sensor plug, M12, 4-pin, PG7	**SEA-GS-7**	–	■	■	■	4 / 5.1-162
Straight sensor plug, M12, PG9	**SEA-GS-9**	–	■	■	■	4 / 5.1-162
Angled sensor plug, M12, 4-pin	**SEA-M12-4WD-PG7**	–	–	■	■	4 / 5.1-166
Sensor plug, 4-pin, M12 for 2.5 mm cable $\varnothing$	**SEA-4GS-7-2,5**	–	■	■	■	4 / 5.1-164
Straight sensor plug, M8, screw-in	**SEA-3GS-M8-S**	■	■	–	■	4 / 5.1-160
Straight sensor plug, M8, solderable	**SEA-GS-M8**	■	■	–	■	4 / 5.1-160
Harax sensor plug, 4-pin	**SEA-GS-HAR-4POL**	–	■	–	–	4 / 5.1-168
Sub-D plug, 25-pin	**SD-SUB-D-ST25**	–	■	–	–	4 / 5.1-158
Protective cap M12	**ISK-M12**	–	■	■	■	4 / 5.2-6
Protective cap M8	**ISK-M8**	■	■	–	■	4 / 5.2-6
DUO plug						
DUO plug M12, for 2 cables, 5-pin	**SEA-5GS-11-DUO**	–	■	■	■	4 / 4.9-386
DUO plug M12, for 2 cables, 4-pin	**SEA-GS-11-DUO**	–	■	■	■	4 / 4.9-386
DUO cable M12 to 2x M8						
DUO cable, 2x straight socket	**KM12-DUO-M8-GDGD**	–	■	■	■	4 / 4.9-386
DUO cable, 2x straight/angled socket	**KM12-DUO-M8-GDWD**	–	■	■	■	4 / 4.9-386
DUO cable, 2x angled socket	**KM12-DUO-M8-WDWD**	–	■	■	■	4 / 4.9-386

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

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface – Product range overview						
Designation	Type	CPV-ASI	CPA-ASI	ASI-EVA	ASI-EA	➜ Page
Connecting cable						
For AS-interface, 5-pin M12 to 4-pin M12	**NEBU-M12G5-F-0.2-M12G4**	–	■	■	■	4 / 4.9-386
For AS-interface and sensors	**NEBU-…**	■	■	■	■	6 / 5.1-68
Push-in T-connector						
M12, 5-pin	**NEDU-M12D5-M12T4**	–	■	■	■	4 / 4.9-386
M8, 3-pin/M12, 4-pin	**NEDU-M8D3-M12T4**	–	■	■	■	4 / 4.9-386
Extension cable						
Extension cable, 4-pin, 1 m	**KM12-M12-GSWD-1-4**	–	■	■	■	4 / 4.9-388
Extension cable, 4-pin, 2.5 m	**KM12-M12-GSGD-2,5**	–	■	■	■	4 / 4.9-388
Extension cable, 4-pin, 5 m	**KM12-M12-GSGD-5**	–	■	■	■	4 / 4.9-388
Connecting cable for DNCV						
Connecting cable M12, 8-pin	**KM12-8GD8GS-2-PU**	–	–	■	–	4 / 5.1-152
Other accessories						
Combi power pack for AS-interface	**ASI-CNT-115/230 VAC-B**	■	■	■	■	4 / 4.9-375
Addressing device	**ASI-PRG-ADR**	■	■	■	■	4 / 4.9-377
Addressing cable	**KASI-ADR**	■	■	■	■	4 / 4.9-379
Inscription labels 6x10 in frames (64 pieces)	**IBS 6x10**	■	■	■	–	4 / 4.9-388
Inscription labels 10x17 in frames (30 pieces)	**IBS-10x17**	–	–	–	–	4 / 4.9-388
Inscription labels 9x20 in frames (20 pieces)	**IBS 9x20**	■	■	–	–	4 / 4.9-388
Inscription labels 8x20 in frames (20 pieces)	**IBS 8x20**	–	–	–	■	4 / 4.9-388
H-rail mounting kit	**CP-TS-HS35**	–	–	■	■	4 / 5.4-1
H-rail mounting	**CPA-BG-NRH**	–	■	–	–	4 / 5.4-1
H-rail to EN 60715	**NRH-35-2000**	■	■	■	■	4 / 4.9-388
Mounting bracket	**VMPA-BG-RW**	–	–	–	–	

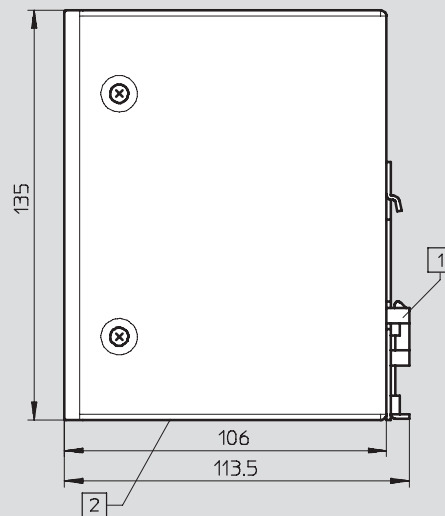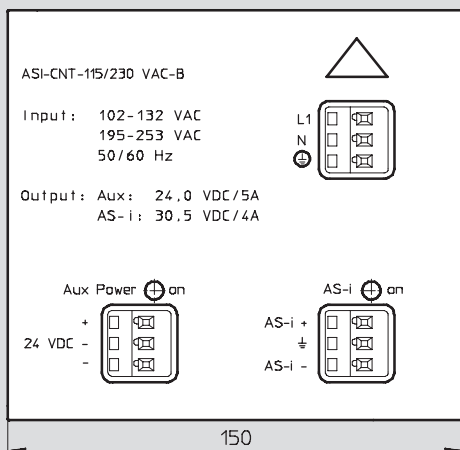## Combi power pack – ASI-CNT-115/230 V AC-B

Combi power pack with integrated data disconnection. The pack supplies the operating voltage to AS-i 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.

AS-interface® components

Accessories

Technical data			
Type		**ASI-CNT-115/230 V AC-B**	
Part No.		**191 082**	
		Output section 1 (AS-interface supply)	Output section 2 (load current supply)
Input voltage	[V AC]	230 (195 … 253)	
Primary voltage switchable to		115 (102 … 132)	
Ambient temperature	[°C]	−45 … +55	
Perm. storage temperature	[°C]	−45 … +80	
Protection class		IP20	
Electrical protection class		Protected to EN 60950/IEC 950	
Climate proofing		For installation in rooms subject to temperature extremes to DIN 50010	
Humidity rating			
• Average 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 55011	
Load compensation		≤ 1%	
Efficiency		≥ 80% to EN 60950, EN 50178, EN 60742	
Low voltage directive		RL73/23/EEC	
EMC directive		RL89/336/EEC	
Interference emission		DIN EN 61000-6-3 (residential areas)	
Interference sensibility		DIN EN 61000-6-2 (industrial areas)	
Electrical connections		Cage clamps	
Secondary voltage	[V DC]	30 (29.5 … 31.6)	DC 24 ±2%
Power	[W]	120	
Residual ripple	[mVss]	≤ 50	≤ 50
Output current	[A]	4	5
Sustained short circuit and open circuit proof			
Overload proof (regarding thermal overload)			
Function LED			

Dimensions	Download CAD data ➜ **www.festo.com/en/engineering**

ASI-CNT-115/230 VAC-B

Input: 102-132 VAC
       195-253 VAC
       50/60 Hz

Output: Aux: 24,0 VDC/5A
        AS-i: 30,5 VDC/4A

Aux Power ⊕ on   AS-i ⊕ on
+   AS-i +
24 VDC −   ⏚
−   AS-i −

150

135

106

113.5

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

Fieldbus systems/electrical peripherals
AS-interface components

4.9

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 I/O 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

Reliable
• 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 plug or flat cable socket.

AS-interface® components

Accessories

Technical data		
Type		**ASI-PRG-ADR**
Part No.		**18 959**
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	Download CAD data ➔ **www.festo.com/en/engineering**
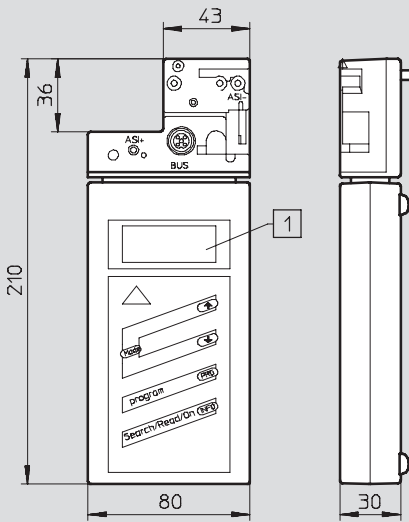
1 LCD display, character height
   13 mm

- ̄ Note

Information on the addressing cable
➔ 4 / 4.9-379

AS-interface® components

Accessories

Overview of cables

Addressing cable – KASI-ADR
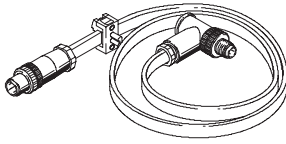
The addressing cable ASI-ADR, available as an accessory, can be used to address any desired slaves either directly via the flat cable connection (FK)

or via the M12 connection (M12):
- Individual valve interface (FK)
- Compact I/O modules (M12)
- CPV valve terminals (FK)

- CPA valve terminals (FK or M12)
- SPC11 Soft Stop (FK)
- DLP-VSE local controller (KF)
- DAPZ sensor box (cable)

Flat cable – KASI-1,5-…-100
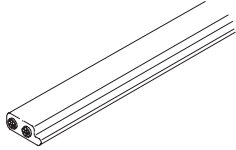
KASI-1,5-Y-100 (yellow)
KASI-1,5-Z-100 (black)

The flat cable is of 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.

Connecting cable NEBU-M12…-M12…
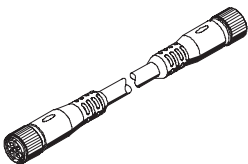
The round cables are of a 4-wire design and are protected against polarity reversal. Standardised connection technology replaces the yellow/black AS-interface cable with a common cable.

- Fixed lengths: 0.2 m, 1 m, 2.5 m and 5 m ex-stock
- NEBU modular system for connecting cables

- Note

Define your connecting cable yourself. Select M8 (3-pin or 4-pin) or M12 (4-pin or 5-pin) on each side as required and specify the required cable length and quality – Festo will then supply the exact cable you require.
➔ www.festo.com/en/engineering

Flat cable sleeve – ASI-KT-FK

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

- Protection class IP65
- Shrinks upon application of heat (hair drier, etc.)

Cable cap – ASI-KK-FK
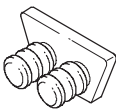
For insulating and sealing the AS-interface cable at the end of the string
- Protection class IP65

Fieldbus systems/electrical peripherals
AS-interface components

4.9

Technical data – Flat cable			
Type		KASI-1,5-Y-100	KASI-1,5-Z-100
Part No.		18 940	18 941
Cable length	[m]	100	
Colour		Yellow	Black
Cable dimensions		See dimensional drawings	
Cable composition	[mm²]	2x 1.5	
Wire ends		Open end	
Operating voltage range	[V AC]	0 … 60	
	[V DC]	0 … 75	
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[1]		3	
Product weight	[g/m]	71	
Materials		Sheath: EM3 rubber compound; cable: 3Gl3 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.

Technical data – Connecting cable		
Type		NEBU-M12G5-F-0,2-M12G4
Part No.		542 129
Cable length	[m]	0.15
Cable sheath colour		Grey
Housing colour		Black
Cable dimensions		See dimensional drawings
Cable composition	[mm²]	4x 0.34
Type of mounting		Via threaded connector, via union nut
Tightening torque	[Nm]	Max. 0.6 at M12x1
Electrical connection		5-pin/4-pin; A-coded/A-coded Straight socket/straight plug, M12x1/M12x1
Nominal operating voltage	[V DC]	24 … 250
Current-carrying capacity	[A]	Max. 4 per contact
Protection class	[°C]	IP65/67
Ambient temperature		
• Fixed cable installation		−5 … +70
• Flexible cable installation		−5 … +70
Suitable for chain link trunking		No
Min. cable bending radius	[mm]	52
Product weight	[g]	26
Materials	Cable sheath	Polyvinyl chloride
	Union nut, screws	Die-cast zinc
	Plug contacts	Copper alloy, gold plated
	Housing	Polyurethane
	Seals	Fluoro rubber

AS-interface® components

Accessories

FESTO

## Dimensions

Addressing cable – KASI-ADR

~100

~2500
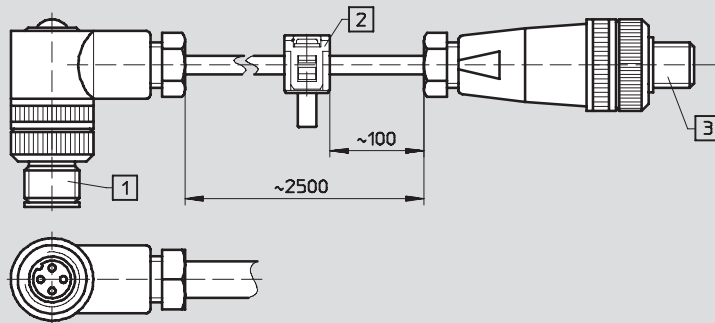
1. Round plug connector for connection to addressing device
2. Flat cable socket for connecting stations in the AS-interface network with plug-in connection
3. Flat cable socket with M12 connection plug for stations in the AS-interface network with M12 interface
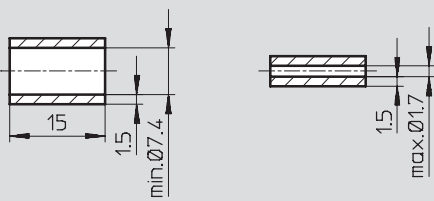
Flat cable – KASI-1,5-...-100

6.5
4
2
10
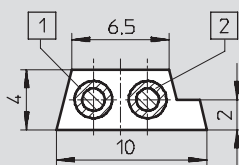
1. blue (-)
2. brown (+)

Connecting cable – NEBU-M12G5-F-0.2-M12G4

$\emptyset 15$ $\emptyset 5.2$ M12×1 $\emptyset 15$
38 150 41
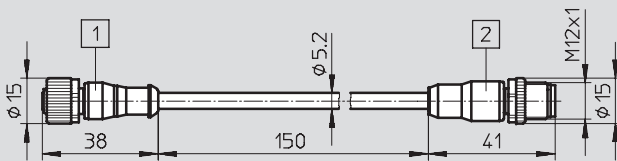
1. Straight socket M12
2. Straight plug M12

Flat cable sleeve – ASI-KT-FK

15 1.5 min. $\emptyset 7.4$ 1.5 max. $\emptyset 1.7$

Cable cap – ASI-KK-FK

6.2 3.7 3.6 8.1 $\emptyset 3$ 3.8 1

Fieldbus systems/electrical peripherals

AS-interface components

4.9
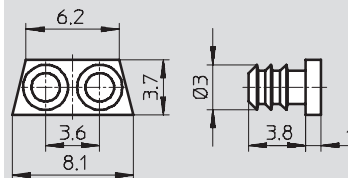
AS-interface® components

Accessories

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.
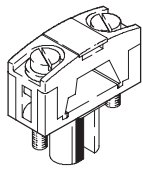
ASI-SD-FK

Flat cable socket for CPV/CPA valve terminals, ASI-EVA.
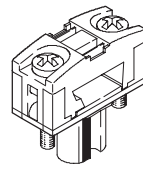
ASI-SD-FK180

Version FK180 turned 180°.
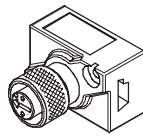
ASI-SD-FK-M12

Flat cable socket with M12 connection for looping through the flat cable. Outlet direction can be turned through 90°. Can be plugged into 4-pin and 5-pin interfaces. Pins 1 and 3 are connected (yellow AS-interface cable). For CPA valve terminal and compact input module (ASI-8DI-M8-3POL).
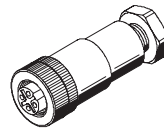
ASI-SD-PG-M12

Flat cable socket with M12 connection and special seal for the flat cable in a PG connector. For CPA valve terminal and compact input module (ASI-8DI-M8-3POL).
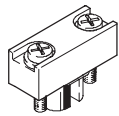
ASI-SD-FK-BL

Blanking plug for sealing unused connections for flat cable sockets.

Flat cable distributor
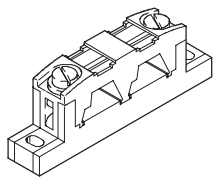
ASI-KVT-FK

Parallel flat cable distributor, allows the flat cable to be branched at any desired point to the AS-interface network stations.
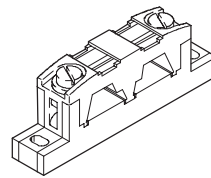
ASI-KVT-FK-S

Symmetrical flat cable distributor: 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 caps are provided in the scope of delivery to seal the cable ends.
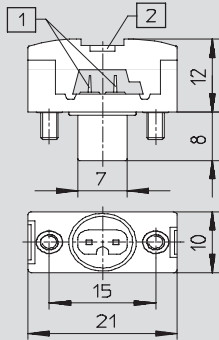
Technical data								
Type		ASI-SD-FK	ASI-SD-FK-180	ASI-SD-FK-M12	ASI-SD-PG-M12	ASI-SD-FK-BL	ASI-KVT-FK	ASI-KVT-FK-S
Part No.		18 785	169 089	18 788	18 789	196 090	18 786	18 797
Version		–					Parallel cable	Symmetrical cable
Protection class		IP65		IP65/IP67	IP65			
Operating voltage range	[V AC]	0 … 60		0 … 40	0 … 60			
	[V DC]	0 … 75		–	0 … 75			
Current-carrying capacity	[A]	Max. 3		Max. 2	Max. 3			
Temperature range	[°C]	−5 … +50						
Housing material		Polyamide		Polyamide	Polyamide			
Product weight	[g]	6.2	6.2	16.8	27.6	1	11.7	11.7

AS-interface® components

Accessories

Dimensions   Download CAD data ➔ **www.festo.com/en/engineering**

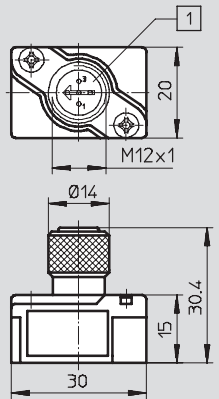| Flat cable socket ASI-SD-FK | Flat cable socket ASI-SD-FK-180 |

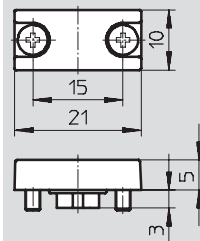1 Contact pins for flat cable contacting
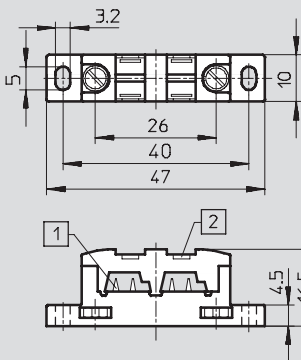
2 Inscription label mounting option

1 Contact pins for flat cable contacting

2 Inscription label mounting option

| Flat cable socket ASI-SD-FK-M12 | Blanking plug ASI-SD-FK-BL |

1 Coding lug can be turned through 90°

The socket contains a seal for installation at the end of the string

| Flat cable distributor ASI-KVT-FK | Flat cable distributor ASI-KVT-FK-S |

1 Contact pins for flat cable contacting

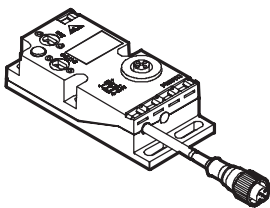2 Inscription label mounting option

1 Contact pins for flat cable contacting

2 Inscription label mounting option

AS-interface® components

Accessories
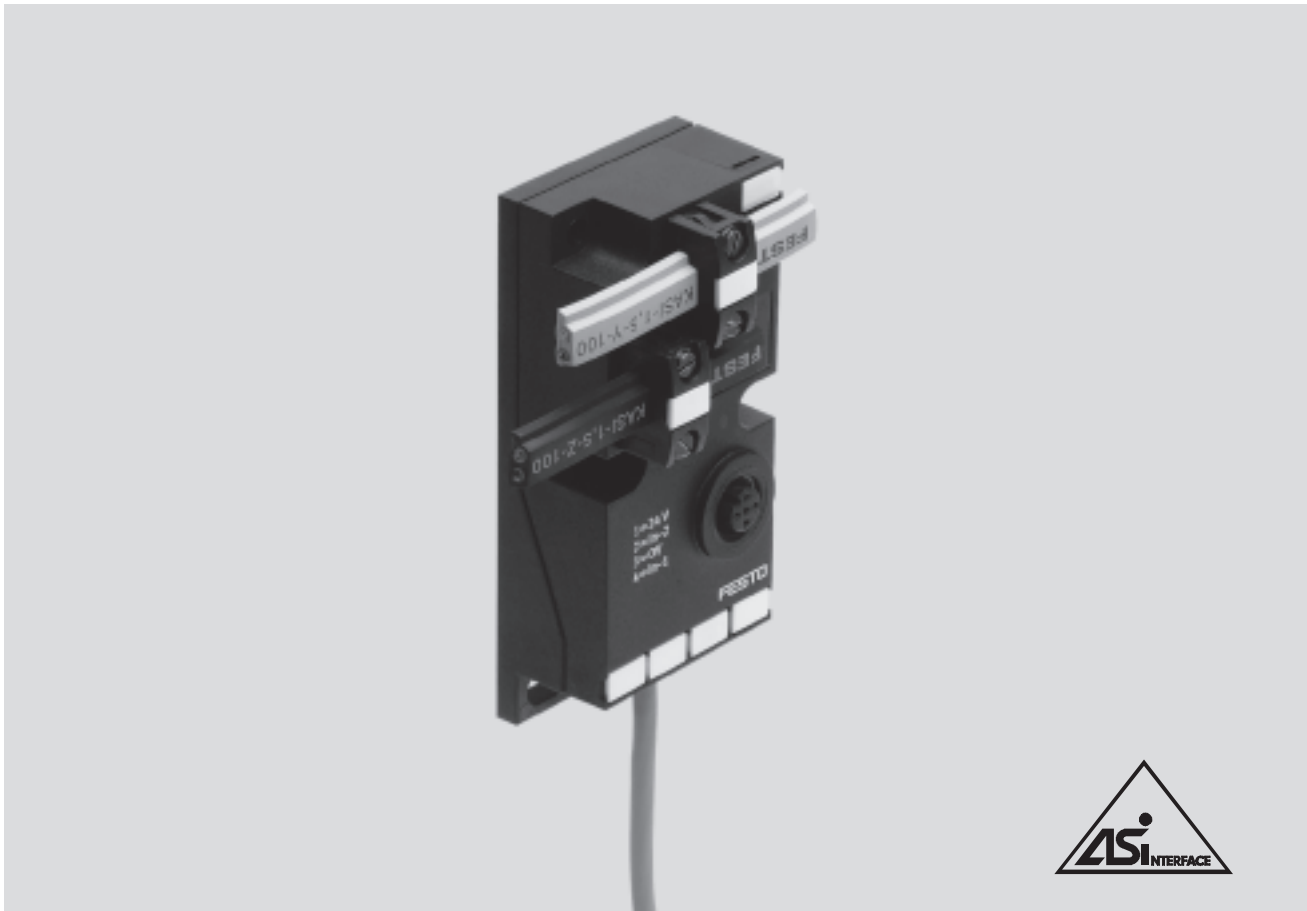
Flat cable distributor, yellow/black to 2xM12

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 will be introduced as an accessory for the CPA valve terminal and the compact I/O modules, but is also compatible with other slaves offered on the market with standardised M12 interface.
An approx. 1 m polyurethane cable with M12 socket is permanently attached to the housing. Alternatively an extension cable
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.
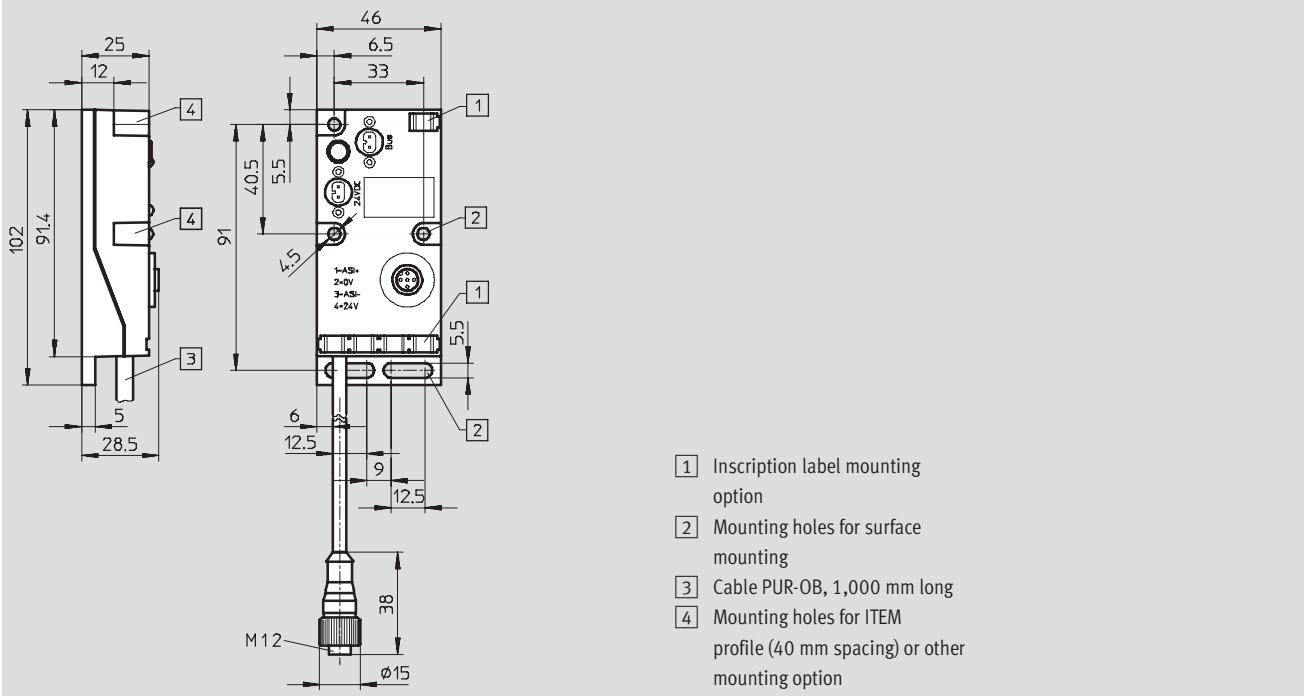
Pin allocation	
AS-interface and auxiliary power supply	5-pin M12-socket and socket at the cable

1 AS-interface bus
1: + (light blue)
2: − (brown)
2 Auxiliary power supply
1: 0 V
2: + 24 V DC

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

AS-interface® components

Accessories

Dimensions

Download CAD data ➔ **www.festo.com/en/engineering**

1 Inscription label mounting
   option
2 Mounting holes for surface
   mounting
3 Cable PUR-OB, 1,000 mm long
4 Mounting holes for ITEM
   profile (40 mm spacing) or other
   mounting option

Technical data		
Type		**ASI-KVT-FKx2-M12**
Part No.		**527 474**
AS-interface connection	Connection technology	AS-interface flat cable plug (must be ordered separately)
	Nominal voltage [V DC]	26.5 ... 31.6, reverse polarity protected
	Residual ripple [mVss]	20
24 V DC connection	Connection technology	AS-interface flat cable plug (must be ordered separately)
	Nominal voltage [V DC]	24 (tolerance depends on the connected consuming devices)
	Residual ripple [mVss]	4
General data	Protection class (to EN 60529)	IP65 (fully assembled)
	Cable length [mm]	1000
	Cable cross-sectional area	4x 0.34 mm^2
	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)
	Corrosion resistance class CRC[1]	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, 1,000 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	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 normal industrial environment or media such as coolants or lubricating agents.

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Accessories

Overview of DUO components

DUO cable – KM12-DUO-M8-...
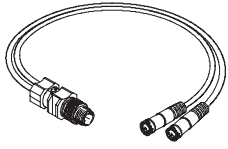
The DUO cables each combine two sensor signals (2x 3-pin cable) on one 4-pin plug.
This is routed to the 4-pin or 5-pin input socket of a valve terminal, the ASI-EVA or the compact I/O module.
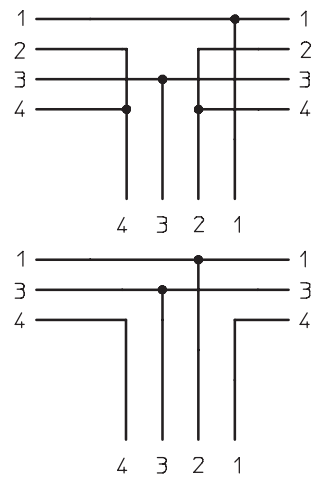3 variants

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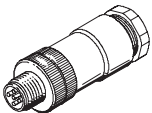- 1 straight plug, 2 angled sockets (WDWD)

Push-in T-connector NEDU-...-M12T4
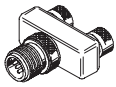
The plug connectors each combine two sensor/actuator signals on one 5-pin plug.

Variants:
- M12 plug, 2x socket M12, 5-pin

- M12 plug, 2x socket M8, 3-pin

DUO plug – SEA-5GS11-DUO

The DUO plug combines two sensor or actuator signals/cables in one housing.

Technical data – DUO cable

Type Part No.			KM12-DUO-M8-GDGD 18 685	KM12-DUO-M8-GDWD 18 688	KM12-DUO-M8-WDWD 18 687
Cable length		[m]	0.5		
Cable composition		[mm²]	3x 0.25		
Operating voltage range		[V AC]	0 ... 60		
		[V DC]	0 ... 75		
Current-carrying capacity		[A]	Max. 2.8		
Protection class (plugged and screwed in)			IP67		
Ambient temperature	Fixed cable installation	[°C]	−30 ... +70		
	Flexible cable installation	[°C]	−5 ... +70		
Connection			M12 → 2x M8		

AS-interface® components

Accessories

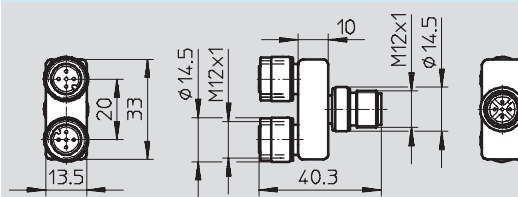| Dimensions | Download CAD data ➜ **www.festo.com/en/engineering** |

SEA-5GS11-DUO

1 Pg11 Ø20 63 M12×1
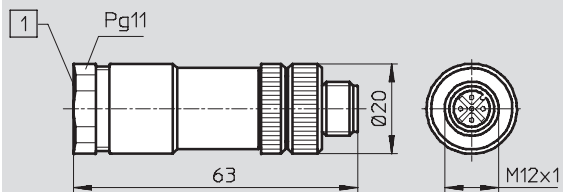
1 Included in the scope of
delivery:
1x seal insert for 2 cables with
⌀ 2.5 ... 2.9 mm
1x seal insert for 2 cables with
⌀ 5 mm
1x cable binder

NEDU-M8D3-M12T4
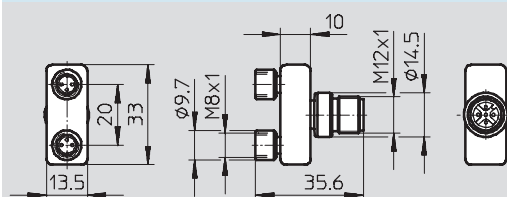
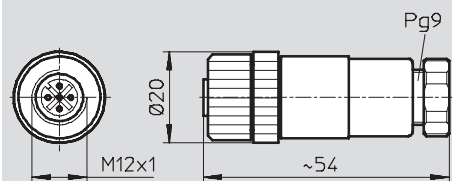20 33 13.5 Ø9.7 M8×1 10 M12×1 Ø14.5 35.6

NEDU-M12D5-M12T4

20 33 13.5 Ø14.5 M12×1 10 M12×1 Ø14.5 40.3

FBSD-GD-9-5POL

Ø20 Pg9 M12×1 ~54

AS-interface® components

Accessories
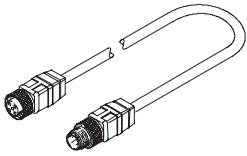
The connecting cables are installed as length compensators between a DUO cable and the inputs of a valve terminal, ASI-EVA or compact I/O module. They can also be used as AS-interface bus cables for M12 connection technology.
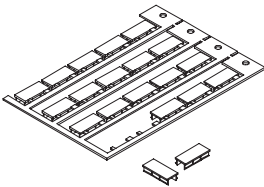
4 variants
• Length 0.15 m, diameter 0.34 mm^2
• Length 1 m, diameter 0.34 mm^2
• Length 2.5 m, diameter 0.25 mm^2
• Length 5 m, diameter 0.25 mm^2

| Technical data – Extension cable					
Type Part No.		KM12-M12-GSGD-2,5 18 684	KM12-M12-GSGD-5 18 686	KM12-M12-GSWD-1-4 185 499	NEBU-M12G5-F-0,2-M12G4 542 129
Cable length	[m]	2.5	5	1	0.15
Cable composition	[mm^2]	4x 0.25		4x 0.34	4x 0.34
Operating voltage range	[V AC]	0 ... 60		0 ... 60	–
	[V DC]	0 ... 75		0 ... 75	24
Current-carrying capacity	[A]	Max. 3.8			
Protection class (plugged and screwed in)		IP67			
Ambient temperature	[°C]				
• Fixed cable installation		−30 ... +70			−5 ... +70
• Flexible cable installation		−5 ... +70			−5 ... +70
Connection		M12 → M12			

Convenient labelling system for
• flat cable sockets
• flat cable distributors
• individual valve interfaces
• compact I/O modules
• CPV/CPA valve terminals
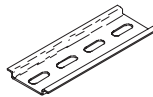
• For compact I/O modules
• CPV/CPA valve terminals
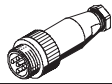• For individual valve interfaces
• AS-interface power supply units

AS-interface® components
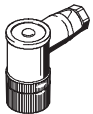
Accessories

Ordering data				
	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[1]		**ASI-SD-FK**	**18 785**
	Flat cable socket[1]	Turned through 180°	**ASI-SD-FK180**	**196 089**
	Flat cable blanking plug		**ASI-SD-FK-BL**	**196 090**
	AS-interface flat cable distributor	Parallel cable	**ASI-KVT-FK**	**18 786**
	AS-interface flat cable distributor	Symmetrical cable	**ASI-KVT-FK-S**	**18 797**
	Cable distributor (yellow and black)	To 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**
	M12 socket for round cable	With PG9, 5-pin	**FBSD-GD-9-5POL**	**18 324**
	T-adapter for DH-485		**FB-TA-M12-5POL**	**171 175**
	Push-in T-connector		**NEDU-M8D3-M12T4**	**541 597**
			NEDU-M12D5-M12T4	**541 596**

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

Fieldbus systems/electrical peripherals
AS-interface components

4.9

AS-interface® components

Accessories

Ordering data				
	Designation		Type	Part No.
Sensor plug				
	Straight sensor plug	M12, 5-pin, PG7	**SEA-M12-5GS-PG7**	**175 487**
	Straight sensor plug	M12, 4-pin, PG7	**SEA-GS-7**	**18 666**
	Straight sensor plug	M12, PG9	**SEA-GS-9**	**18 778**
	Angled sensor plug	M12, 4-pin	**SEA-M12-4WD-PG7**	**185 498**
	Straight sensor plug for cable ∅ 2.5 mm	M12, 4-pin	**SEA-4GS-7-2,5**	**192 008**
	Straight sensor plug	M8, screw-in	**SEA-3GS-M8-S**	**192 009**
	Straight sensor plug	M8, solderable	**SEA-GS-M8**	**18 696**
	Harax sensor plug	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**
Connecting cable				
	Modular system for connecting cables		**NEBU-…** **➔ 6 / 5.1-68**	**–**
	Connecting cable, straight plug, angled socket type B for F coil	M12, straight, 5-pin, 0.5 m	**NEBV-B2W3P-F-0,5-M12G5**	**542 130**
		M12, straight, 5-pin, 2.5 m	**NEBV-B2W3P-F-2,5-M12G5**	**542 133**
	Connecting cable, straight plug, angled socket type C for EB coil	M12, straight, 5-pin, 0.5 m	**NEBV-C1W3P-F-0,5-M12G5**	**542 131**
		M12, straight, 5-pin, 2.5 m	**NEBV-C1W3P-F-2,5-M12G5**	**542 134**
	Connecting cable, straight plug, angled socket type KMYZ-9 for ZC coil	M12, straight, 5-pin, 0.5 m	**NEBV-Z2W2P-0,5-M12G5**	**542 132**
		M12, straight, 5-pin, 2.5 m	**NEBV-Z2W2P-2,5-M12G5**	**542 135**
	Connecting cable, straight plug, straight socket	M12, 4-pin/5-pin, 0.2 m	**NEBU-M12G5-F-0.2-M12G4**	**542 129**
		M12, 4 pin, 2.5 m	**KM12-M12-GSGD-2,5**	**18 684**
		M12, 4 pin, 5.0 m	**KM12-M12-GSGD-5**	**18 686**
	Connecting cable, straight plug, straight socket	M8, 0.5 m	**KM8-M8-GSGD-0,5**	**175 488**
		M8, 1.0 m	**KM8-M8-GSGD-1**	**175 489**
		M8, 2.5 m	**KM8-M8-GSGD-2,5**	**165 610**
		M8, 5.0 m	**KM8-M8-GSGD-5**	**165 611**

AS-interface® components

Accessories

Ordering data				
	Designation		Type	Part No.
Connecting cable for DNCV				
	Connecting cable	M12, 8-pin	**KM12-8GD8GS-2-PU**	**525 617**
DUO plug				
	Plug M12 for 2 sensor cables	4-pin, PG11	**SEA-GS-11-DUO**	**18 779**
		5-pin, PG11	**SEA-5GS-11-DUO**	**192 010**
DUO cable M12 to 2x M8				
	DUO cable M12-2xM8, 4-pin/2x3-pin	2x straight socket	**KM12-DUO-M8-GDGD**	**18 685**
		2x straight/angled socket	**KM12-DUO-M8-GDWD**	**18 688**
		2x angled socket	**KM12-DUO-M8-WDWD**	**18 687**
Other accessories				
	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**
Mounting				
	Mounting for H-rail		**CP-TS-HS35**	**170 169**
Inscription labels				
	Inscription labels 8x20 mm in frames (20 pieces)		**IBS-8x20**	**539 388**
	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**
Mounting				
	H-rail mounting		**CPA-BG-NRH**	**173 498**
	H-rail to EN 60715		**NRH-35-2000**	**35 430**
	Mounting bracket		**VMPA-BG-RW**	**534 416**

Fieldbus systems/electrical peripherals
AS-interface components

4.9