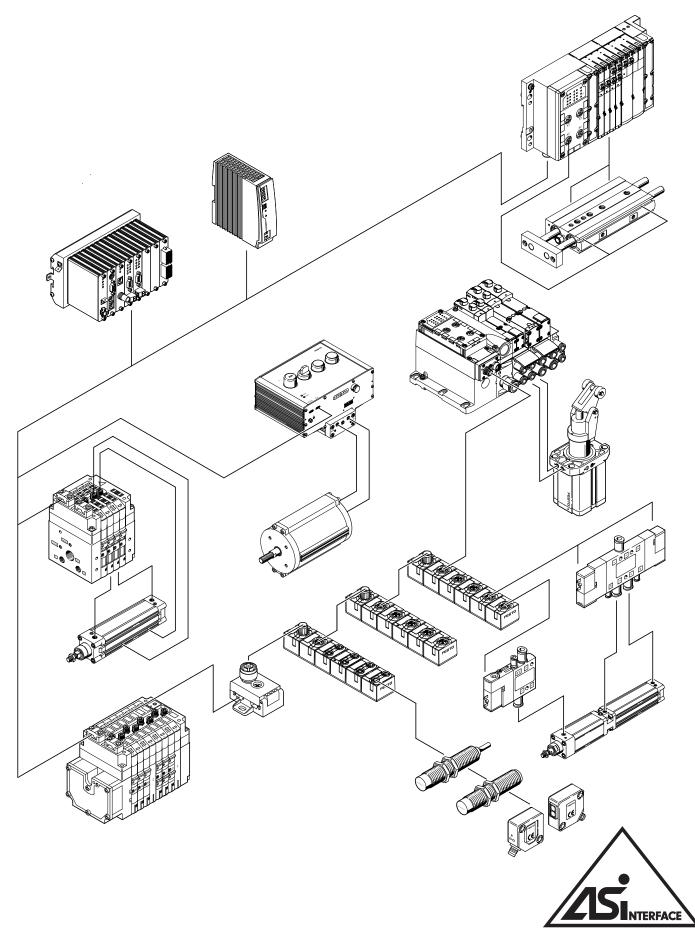




Overview of AS-Interface



Overview of AS-Interface

Basic principles and characteristics of the bus system Introduction

AS-Interface is a manufacturer-independent, open installation system which is widely and increasingly used at the lowermost level of decentralised manufacturing and process automation.

Туре

The AS-Interface system makes it possible to transfer data and energy using just one cable.

This specific technology, with which stations are connected to the yellow cable, and the low connection costs mean that even stations with a small number of inputs and outputs (max. 8 I and 8 0 per valve terminal with two chips) can be networked.

This can save 26-40% on installation, depending on the type of system. This allows in particular individual or small groups of actuators, valves and sensors, to be connected to a higherorder controller in a cost-efficient way. Manufacturer independence and openness of the system are guaranteed by European standard EN 50295 and global standard IEC 62026-2. Certified products bear the logo of the AS-International Association.

The AS-International Association and affiliated organisations represent the interests of all manufacturers involved with the AS-Interface.

New developments in line with Spec 2.1, introduced in early 2000, such as the parameterisable profile 7.4 or AS-Interface Safety at Work, opened up new areas of implementation and created opportunities for significantly more efficient installation and networking concepts in many applications.

Spec 3.0, released in 2005, enabled new quantum leaps in what was possible, such as convenient control of analogue I/Os, more complex slaves, or serial transfer of text and data.

- Slaves in line with Spec 2.0 and 2.1 are also executable with Spec 3.0: the system is completely backwards compatible. Benefits of AS-Interface specification 3.0:
- All the benefits of the straightforward installation system since Spec.
 2.0 are retained
- Up to 400% more I/O per master
- Improved diagnostics of faults in peripherals
- More functions within Spec. 2.1 and 3.0: e.g. simple integration of more complex 16-bit slaves, fast analogue modules, DTM integration, asynchronous serial protocol, Safety slaves
- Slave profiles for specific functions, as well as interchangeability. Mix between different manufacturers and products, e.g. for parameters or communications services.

AS-Interface with A/B mode gives you 100% more.

In A/B mode, each slave address is used twice. An output bit is used for A/B differentiation (case differentiation, see table). The cycle time is generally more than sufficient for pneumatic chains.

Version	Inputs	Outputs	Bus cycle	No. of slaves		Sum of inputs/outputs	
			[ms]	Digital	Analogue		
2.0	4/4	4	5	31	31	248	
2.1	4	3	10	62	31	434	
3.0	4/8	4/8	20	62	62	992	

CPX-AB-8-M8-3POL with connection socket M8, 3-pin

- Manufacturer independenceNo restrictions in terms of cable
- layout and/or topologyData and energy on one two-wire
- cable
- Interference-free

Specification

- Medium: Unscreened cable 2x 1.5 mm²
- Max. 4 inputs and 4 outputs per slave, with 31 slaves
- Data and power supply for up to 8 outputs per AS-Interface string

- Max. 4 inputs and 3 outputs per slave, with 62 slaves (A/B mode in line with Spec V2.1)
- Modules for control cabinets (IP20) and harsh industrial environments (IP65, IP67)
- 4 analogue inputs or outputs per slave, with 31 slaves
- Profile 7.3 Analogue values (16 bit) per slave (in line with Spec. V2.1)
- Profile 7.4 Parameterisable communications profile e.g. 16x 16 bit per slave (in line with Spec. V2.1)
- Profile 7.A.7 allows 4 bits each for digital inputs and outputs on an A/B slave. The 4 outputs are each transferred in two A/B bus cycles of 2 bits each. This extends the cycle time to 20 ms (worst case).
- Insulation displacement technology
- Cable length 100 m, can be extend-
- ed to up to 200 m with an extension plug and to up to 500 m through the use of repeaters and other measures
- Highly effective error protection
- Easy commissioning
- Electronic address setting via the bus connection

- Note

A master to Spec. 3.0 is essential for the use of slaves to Spec. 3.0.

Overview of AS-Interface

Basic features

- Simple connection technology
- One cable for energy and data
 Cable geometry prevents reverse polarity
- No shielding due to error protection
- Insulation displacement connection technology guarantees Festo plug and work
- Alternative bus connection technology M12, 4-pin (standardised)

Cycle rate optimisation

Decentralised solutions at the AS-Interface permit optimised electropneumatic control chains: perfectly matched valve switching time, cylinder diameter and stroke saves up to

Ideal for pneumatic applications

Local control of small groups or decentralised, widely spread individual actuators means:

- Short tubing lengths
- High cycle rates
- Low air consumption. Installation and communication are provided by components of the AS-Interface.

A powerful system component

The AS-Interface is positioned clearly beneath the fieldbuses in use and is thus not in competition with the fieldbuses but is a technically necessary and economically worthwhile addition.

Everything from a single source

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

- A single contact person
- Competent solutions from the market leader
- Convenient ordering system
- Complete delivery service
- Co-ordinated solutions for motion and control
- Worldwide service round the clock

components d • 30% cycle time with faster switching

valves

• 20% cycle time with standard

- 40% installation costs
- 50% air consumption/flow rate

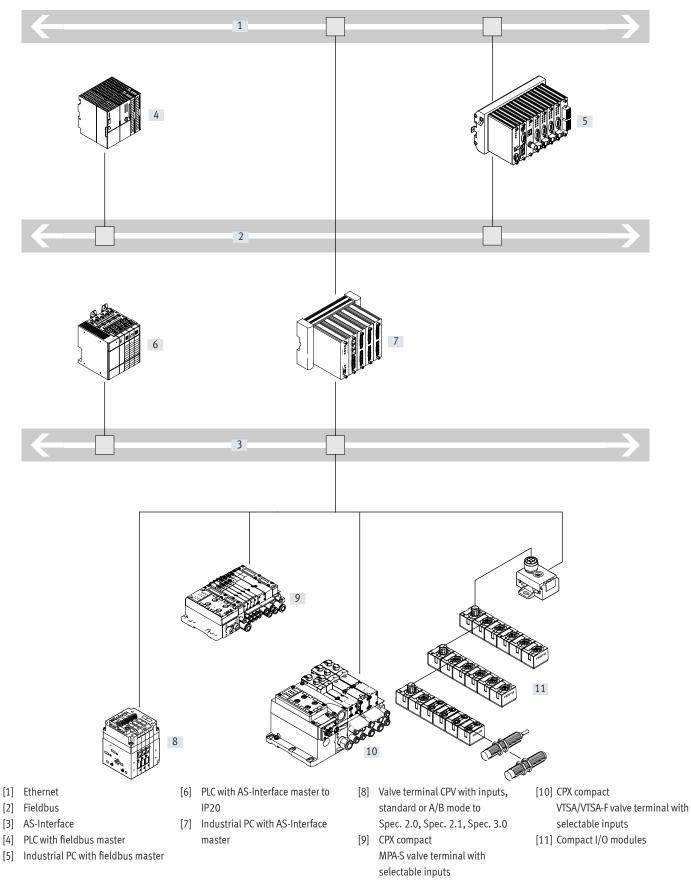
Program summary

Valves

- Integrated inputs on valve terminals, e.g. CPV, MPA-S and VTSA/VTSA-F
- More inputs thanks to 4-way and 8-way input modules
- On request:
 - Application-specific valves and integration solutions

System overview

Components



System overview

Application examples

Sorting

Valve terminals MPA-S, VTSA/VTSA-F, and CPV: Compact performance is synonymous with high performance and low weight. Mounting close to the drives simplifies installation, saves air and increases cycle rates.







Conveyor technology

Decentralised, widely distributed individual drives and sensors are commonly used in conveyor technology. The AS-Interface is particularly suitable in this environment.

Compact I/O modules connect one or two valves of any size and up to 4 sensors directly to the AS-Interface.

Packaging

With more complex machines, decentralised installation concepts are often required in a system for efficient design of the electrical installation. Complex modules and upstream functions such as packaging are controlled by the AS-Interface in this case.

Assembly

Assembling, moving, handling: these often mean fast processes, compact installation conditions and reduced weight.

In such cases, compact I/O modules, valve terminals and perfectly matched drives are valuable features.

Process technology

Water treatment

Here too, automation and decentralised intelligence are innovative companions on more modern systems.

A compact I/O module is suitable for all valves with NAMUR interface. The valve terminal VTSA/VTSA-F opens up new opportunities for flow processes in

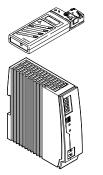
24-hour non-stop operation. Vertical pressure shut-off plates enable valve changes under pressure (hot swap), thereby avoiding downtimes.

System overview

Slaves Valves

- Simple solution incorporating compact EA modules
- Integrated inputs on valve terminals, e.g. CPV, MPA-S and VTSA/VTSA-F
- More inputs thanks to 4-way and 8-way input modules
- On request:
 Application-specific valves and integration solutions

Accessories



- Addressing device with convenient operating and diagnostics functions for the entire AS-Interface, e.g. on the fully installed network:
- Change addresses
- Set outputs
- Read inputs
- and much more

- Power supply unit for AS-Interface
- Primary switched-mode, modular power supply.
- Compact, modular and energy-saving power supply system for AS-Interface – with integrated earth-fault monitoring.
 Load: 5 or 10 A
- Installation accessories for laying the flat cables

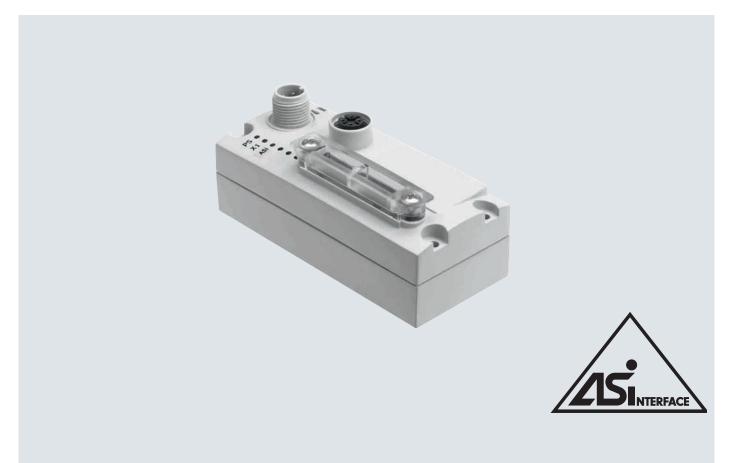
System overview

Valve interface variants Bus node CTEU			
	Incorporation of a range of valve terminals with I-Port interface in the AS-Interface: • VTUG • CPV	 VTUB-12 VTOC MPA-L Universal connection technology M12 	 Optional decentralised installation of the bus node with E-box CAPC Basic diagnostics: undervoltage, short circuit
Compact valve terminal CPV			
	 Maximum performance of 400 1,600 l/min with minimal space requirement Valve combinations for 2, 4 or 8 valve slices Vacuum generation, relay and more in one modular assembly 	 Ingenious 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 AS-i Spec. 2.0, 2.1 or 3.0
Modular, multi-functional valve termi	nal MPA-S		
	 Valves on a sub-base: Easy to swap individually MPA-S: robust and modular from 360 700 l/min Flexible valve combinations for 2 8 solenoid coils Valve terminals can be expanded at a later date 	 MPA1, MPA14 and MPA2 valves can be mixed on one valve terminal for optimised flow rates and control chains All valve functions, plus regulator and pressure gauge for variable pressure setting at each valve position. 	 4 or 8 inputs with selectable connection technology Selectable connection technology on the bus. Flat cable with 4I/40 on M12 round cable with 4I/40 and 8I/80
Modular, multi-functional valve termi	nal VTSA/VTSA-F		
	 Standard valves 18, 26, 42 and 52 mm to ISO 17504-2 and 5599-2 on a sub-base: easy to swap individually VTSA/VTSA-F: compact and modular from 550 1500 l/min Flexible valve combinations for 1 8 solenoid coils Valve terminals can be expanded at a later date 	 3 valve sizes can be mixed on one valve terminal for optimised flow rates and control chains All valve functions, multiple pressure zones, with regulator and pressure gauge for precision pressure at each valve position. Flow control valves, pressure shut-off plates for valve changes under pressure (hot swap) and further components for vertical stacking. 	 4 or 8 inputs with selectable connection technology Selectable connection technology on the bus. Flat cable with 4I/40 or M12 round cable with 4I/40 and 8I/80
Compact I/O modules			
	Highly compact modulesRobust, encapsulated electricsBus and auxiliary power supply 2x	Inputs 200 mAOutputs 1 A	8 inputs M84 inputs and 3 outputs M12

→ Internet: www.festo.com/catalogue/...

M12 looped through

Data sheet - Bus node CTEU-AS



Interface module CTEU-AS

The bus node handles communication between the valve terminal and a higher-order AS-Interface[®] master.

General

The module has a system and load supply, a bus connection and a connection to the valve terminal with serial I-Port interface.

Versions

The module has basic diagnostic functions. It has 3 integrated LEDs for on-site display.

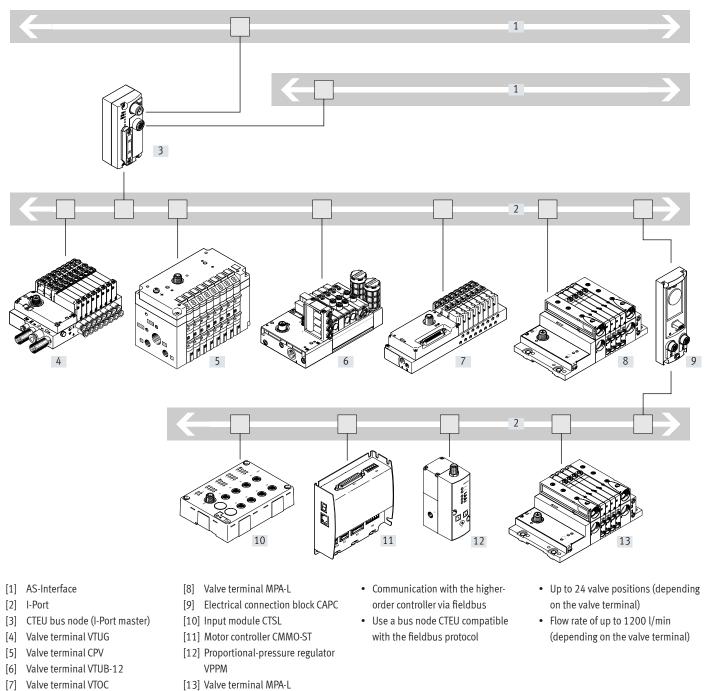
A maximum of 2 byte inputs and 2 byte outputs are transmitted in the cyclic process image.

Application

- Activation of up to 16 solenoid coils per valve terminal
- Automatic addressing
- Automatic detection of the number of connected valves

Data sheet - Bus node CTEU-AS

System overview



Connection of valve terminals to a higher-order I-Port master

- Up to 24 valve positions • Flow rate of up to 1200 l/min
- Up to 8 valve positions
- Flow rate of up to 1200 l/min

VTUG CPV

• Up to 35 valve positions

VTUB-12

• Flow rate of up to 400 l/min

VTOC

- Up to 24 valve positions
- Flow rate of up to 10 l/min

MPA-L

- Up to 32 valve positions
- Flow rate of up to 870 l/min

Data sheet – Bus node CTEU-AS



The bus node handles communication between the valve terminal and a higher-order AS-Interface[®] master.

- Activation of up to 16 solenoid coils per valve terminal
- Automatic addressing
- Automatic detection of the number of connected valves



General technical data

Fieldbus interface 1		
Protocol		AS-Interface
Function		Incoming bus connection
		Power supply
Туре		AS-Interface
Connection type		Plug
Connection technology		M12x1, A-coded to EN 61076-2-101
Number of pins/wires		4
Internal cycle time	[ms]	10
Fieldbus interface 2		
Function		Bus connection outgoing
		Power supply
Connection type		Socket
Connection technology		M12x1, A-coded to EN 61076-2-101
Number of pins/wires		4
Inputs/outputs		
Max. address capacity inputs	[byte]	2
Max. address volume for outputs	[byte]	2

Data sheet - Bus node CTEU-AS

General data

General data				
Device-specific diagnostics		System diagnostics		
		Undervoltage		
		Communication error		
Parameterisation		Watchdog enable		
		Watchdog disable		
Additional functions		Emergency message		
		Acyclic data access via SDO		
Configuration support		None		
Control elements		DIL switch		
LED display	Product-specific	PS: Operating voltage for electronics and load supply		
		X1: System status of module at I-Port 1		
	Fieldbus-specific	AS-i: AS-Interface mode		

Technical data – Electrics

Nominal operating voltage	[V DC]	30
Operating voltage range	[V DC]	20 31.6
Intrinsic current consumption at nominal operating voltage	[mA]	Typically 50
Max. power supply	[A]	4

Technical data – Mechanical components

Type of mounting		On electrical connection block
		On electrical interface
Product weight	[g]	90 (without AS-i plug and without interlinking module)
Grid dimension	[mm]	40
Dimensions W x L x H	[mm]	40 x 91 x 50

Materials

Housing	PA
Note on materials	RoHS-compliant
	Contains paint-wetting impairment substances

Operating and environmental conditions

Operating and environmental conditions		
Ambient temperature	[°C]	-5 +50
Storage temperature	[°C]	-20 +70
Corrosion resistance class CRC ¹⁾		2
CE marking (see declaration of conformity) ³⁾		To EU EMC Directive ²⁾
Certification		c UL us listed (OL)
Degree of protection		IP65/IP67
Note on degree of protection		In assembled state
		Unused connections sealed

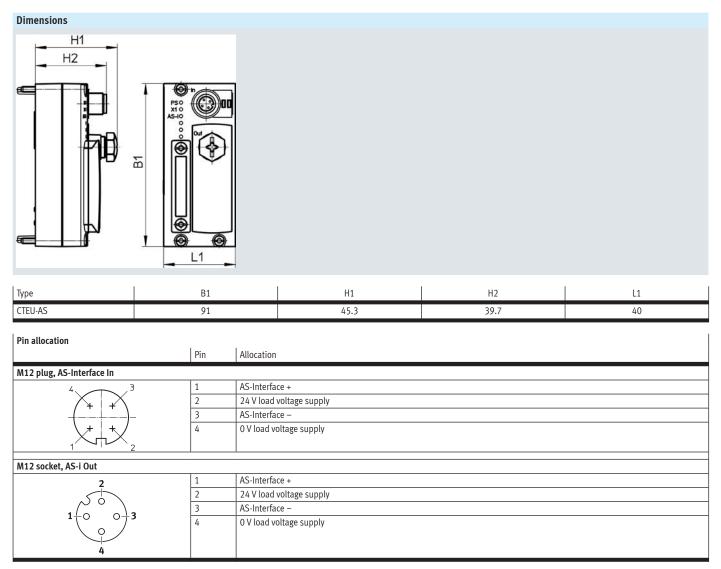
1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment. 2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp \rightarrow Certificates.

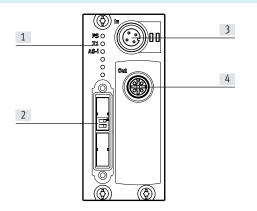
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

3) Additional information is available at www.festo.com/catalogue/... \rightarrow Support/Downloads. I

Data sheet - Bus node CTEU-AS



Connection and display components



- [1] Status LED (operating status/ diagnostics)
- [2] DIL switch
- [3] M12 plug, AS-Interface bus and auxiliary power supply (AS-i In)
- [4] M12 socket, AS-Interface bus and auxiliary power supply (AS-i Out)

Data sheet – Bus node CTEU-AS

Ordering data						
				Part no.	Туре	
Bus node						
	AS-Interface bus node					
Cable socket with load ve	hltage sunnly					
	Flat cable	4-pin socket, M12x1, A-coded	-	572226	NEFU-X24F-M12G4	
	Flat cable	4-pin socket, M12x1, A-coded	1 m	572227	NEFU-X24F-1-M12G4	
Cable socket without loa	d voltage supply					
	Flat cable	4-pin socket, M12x1, A-coded		572225	NEFU-X22F-M12G4	
	Flat cable, screw terminal	4-pin straight socket, M12x1, A-coded		18789	ASI-SD-PG-M12	
Flat cable						
	AS-Interface flat cable		Yellow	18940	KASI-1.5-Y-100	
	AS-Interface flat cable Yellow Black			18941	KASI-1.5-Z-100	
		Cable sleeve for insulating and sealing the flat cable			ASI-KT-FK	
	Cable cap for insulating and sealing the flat cat	ole		18787	ASI-KK-FK	

Valve terminals CPV





Valve terminals CPV with AS-Interface - Valve configuration options

Valve terminals CPV 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

Versions

- 2, 4 or 8 valve slices
- Optionally with 4 or 8 inputs - Standard mode (SPEC V2.0)
 - A/B mode (SPEC V2.1)
 - A/B mode (SPEC V3.0, profile 7.A.7)

- Optionally with floating relay outputs
- · Valves with integrated separation of ducts 1 and 11
- · Separator plates for creating 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
- · Comprehensive range of valve functions
- Decentralised machine and system structures, for example
- in handling technology
- in conveyor technology
- in the packaging industry
- in sorting systems
- in upstream machine functions

Note

Please follow the link below for more details on the various pneumatic functions.

→ Internet: cpv

Valve terminals CPV

Types of valve terminal with AS-Interface

Code	Туре	Valve slices	Solenoid coils	Solenoid coils Inputs		ower supply	Size		
				(M8 connection)	With	None	CPV10	CPV14	CPV18
AZ	CPV1x-GE-ASI-2-Z	2	4	-		-	•	•	•
AZ	CPV18-GE-ASI-4-Z	4	4	-		-	-	-	
AE/AO	CPV1x-GE-ASI-4E4A (-Z)	4	4	4		•	•		-
AE	CPV1x-GE-ASI-8E8A-Z	8	8	8		-		•	-
BE	CPV1x-GE-ASI-4E3A (-Z)	4	3	4		-	•	•	-
BE	CPV1x-GE-ASI-8E6A-Z	8	6	8		-		•	-
CE	CPV1x-GE-ASI-4E4A-Z-M8-CE	4	4	4	•	-	•	•	-
CE	CPV1x-GE-ASI-8E8A-Z-M8-CE	8	8	8	•	-	•	•	-

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

Permissible combinations for valve po								
Туре	Slave n	1	2	3	Slave n+1	5	6	7
			2	2	4	2	0	/
CPV1x-GE-ASI-2-Z	М	M	_					
	J	М						
	M	J						
	J	J						
CPV18-GE-ASI-4-Z	М	М	М	М				
CPV1x-GE-ASI-4E4A (-Z)	M	M	M	M				
CPV10-GE-ASI-4A (-Z)	1	Vacant	м	M				
CPV14-GE-ASI-4A (-Z)		position						
	M	M	J	Vacant				
				position				
	J	Vacant	J	Vacant				
		position		position				
CPV1x-GE-ASI-4E3A -Z ¹⁾	M	M	M	Vacant				
CPV1X-GE-ASI-4E3A -2-7	101	141	101	position				
		Vacant	M	Vacant	_			
	J	position	141	position				
		1.		1.				
CPV1x-GE-ASI-8E8A-Z ¹⁾	Μ	М	М	Μ	М	M	М	M
CPV1x-GE-ASI-8E8A-Z-CE ¹⁾	J	Vacant	М	м	M	M	М	M
		position						
	M	м	J	Vacant	М	M	М	М
				position				
	J	Vacant	J	Vacant	Μ	М	М	М
		position		position				
	М	M	М	M	М	М	М	М
	М	M	М	M	J	Vacant position	М	М
	М	М	М	Μ	M	M	J	Vacant position
	М	М	М	Μ	J	Vacant position	J	Vacant position
CPV1x-GE-ASI-8E6A-Z ¹⁾	M	M	M	Vacant	М	M	М	Vacant position
				position				
	M	M	M	Vacant	1	Vacant position	м	Vacant positior
				position				
	J	Vacant	M	Vacant	M	M	M	Vacant position
		position		position				
	J	Vacant	M	Vacant	J	Vacant position	м	Vacant position
		position		position	- E			

1) - Valve slices with 2 outputs must be configured at positions 0, 2, 4, 6 (positions 0, 4 only with A/B mode).

- Valve slices with 2 outputs are always followed by a vacant position.

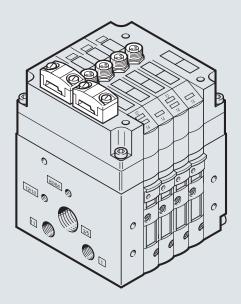
- Slaves n and n+1 can be configured independently of one another. This gives a total of 16 different configuration options.

M Valve slice with single solenoid valve or alternatively a different valve slice with one output

J Valve slice with double solenoid valve or alternatively a different valve slice with two outputs

T

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





Valve terminals CPV 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.
- Floating relay outputs (optional)
- Connection for auxiliary power supply for emergency off conditions
- Degree of protection IP65

LED displays for:

- Status indication for inputsSwitching status indications for
- valves

 PWR LED (power)
- FAULT LED (fault)
- Versions
- 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, e.g.
 - 2x 3/2-way valve
- 5/2-way valve, single solenoid
- 5/2-way valve, double solenoid
- 5/3-way valve
- 2x 2/2-way valve
- Valves with integrated separation of ducts 1 and 11
- 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, to Spec.
 2.0, 31 slaves, bus cycle max. 5 ms.
 Executable on all masters from Spec. 2.0 or later.

- Note

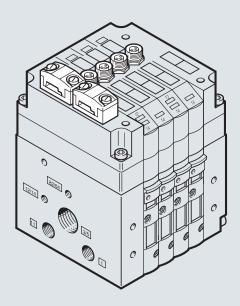
Please follow the link below for more details on the various pneumatic functions. → Internet: cpv

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

Technical data			CPV4E4A-Z-M8	CPV4E4A-M8	CPV8E8A-Z-M8			
Туре					CPV0E0A-2-1010			
Part no.			Order via ident. code/val	, , , , , , , , , , , , , , , , , , ,	1			
Code			AE	AO	AE			
/alves	Number of valve slices/coils		4	4	8			
	Valve width	[mm]	10/14					
	Setting of the valve configuration		Integrated DIL switches					
	External voltage supply 24 V DC		Yes	No	Yes			
	Digital inputs		4	4	8			
	Connection technology		M8, 3-pin					
	Sensor supply via		Short-circuit and overload	d protected				
	AS-Interface							
	Sensor connection		2-wire and 3-wire sensor	S				
	Design		IEC 1131-2, type 2					
	Input circuit		PNP (positive switching)					
AS-Interface connection	Connection technology		AS-Interface flat cable plu	ug (included in the scope of deliver	y)			
	Voltage range	[V DC]	26.5 31.6, reverse pol	arity protected				
	Residual ripple	[mVss]	20					
	Current consumption, inputs	[mA]		CPV10/14				
	In 0 status		7	61/95	40			
	In 1 status (no current consumption b	oy sensors)	35	89/123	96			
	In 1 status (max. current consumption	n by sensors)	240	191/225	278			
	Max. per input		200	200	200			
	Max. per valve							
	 When switching on 			25/38.75				
	 Following current reduction 			8.75/12.5				
Load voltage connection	Connection technology		AS-Interface flat cable plug (version turned 180° must be ordered separa		dered separately)			
-	Nominal voltage	[V DC]	24 ±10%					
	Residual ripple	[Vss]	4					
	Current consumption, valves		CPV10/14	No load voltage connection	CPV10/14			
	When switching on	[mA]	108/176		200/310			
	Following current reduction	[mA]	42/72		70/100			
LED displays	ASI LED		Power/green	·	-			
	AUX-PWR LED		Auxiliary power supply/	None	Auxiliary power supply/			
			green		green			
	FAULT LED		Fault LED/red					
ED displays	Inputs		Green					
	Valves		Yellow					
General information	Degree of protection (to EN 60529)		IP65 (fully assembled)					
	Electromagnetic compatibility		1					
	Emitted interference		 Tested to EN 55011, limit value class B					
	Immunity to interference		Tested to DIN EN 61000-4	4-2, DIN EN 61000-4-4 and EN V 50	0140			
	CE marking		Yes, to EU Directive 89/3	36/EEC				
	Certification		c UL us Recognized (OL)					
	Temperature range	[°C]		orage/transport: –20 +70				
	Materials			ium; Cover: Reinforced PA; Seal: NE	BR, CR			
	Note on materials		RoHS-compliant					
	Dimensions		\rightarrow 31					
	Weight		→ 31					
	Pneumatic data							
	i neumatic uata		→ Internet: cpv					
AS Interface data	Ident codo			$F_{H} (ID = F_{H}; ID1 = F_{H}; ID2 = F_{H})$				
AS-Interface data	ldent. code IO code		F_{H} (ID = F_{H} ; ID1 = F_{H} ; ID2 = 7_{H}	= F _H)				

Valve terminals CPV with integrated inputs, for A/B mode, to SPEC V2.1





Valve terminals CPV with integrated inputs, for A/B mode, to specification V2.1¹⁾

General

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

- Floating relay outputs (optional)
- Connection for auxiliary power supply for emergency off conditions
- Degree of protection IP65

LED displays for:

- Status indication for inputs
- Switching status indications for valves
- PWR LED (power)
- FAULT-LED (fault)²⁾

Versions

• 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, e.g.
 - 2x 3/2-way valve
 - 5/2-way valve, single solenoid
 - 5/2-way valve, double solenoid
 - 5/3-way valve
 - 2x 2/2-way valve
 - Valves with integrated separation of ducts 1 and 11
 - 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 mode to SPEC 2.1 and SPEC 3.0, 62 slaves, bus cycle 10 ms
- Flexible and cost-effective connection of 3 or 6 valve slices and up to 8 sensors to the M8 inputs

The second secon

Please follow the link below for more details on the various pneumatic functions. → Internet: cpv

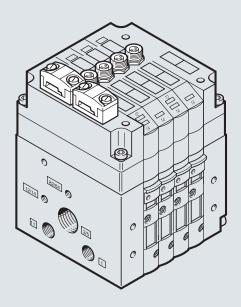
1) Slave compatible with SPEC 3.0

2) Peripherals faults to SPEC V2.1 not yet implemented

Valve terminals CPV with integrated inputs, for A/B mode, to SPEC V2.1

Technical data						
Туре			CPV4E3A-Z-M8	CPV8E6A-Z-M8		
Part no.			Order via ident. code/valve termi	inal configurator		
Code			BE	BE		
Valves	Number of valve slices/coils		3	6		
	Valve width	[mm]	10/14			
	Setting of the valve configuration		Integrated DIL switches			
	External voltage supply 24 V DC		Yes			
	Digital inputs		4	8		
	Connection technology		M8, 3-pin			
	Sensor supply via AS-Interface		Short-circuit and overload protec	ted		
	Sensor connection		2-wire and 3-wire sensors			
	Design		IEC 1131-2, type 2			
	Input circuit		PNP (positive switching)			
AS-Interface connection	Connection technology		AS-Interface flat cable plug (inclu	uded in the scope of delivery)		
	Voltage range	[V DC]	26.5 31.6, reverse polarity pro	otected		
	Residual ripple	[mVss]	20			
	Current consumption, inputs	[mA]				
	In 0 status		7	40		
	In 1 status (no current consumption	by sensors)	35	96		
	In 1 status (max. current consumption	on by sensors)	137	278		
	• Max. per input		200	200		
Load voltage connection	Connection technology		AS-Interface flat cable plug (vers	ion turned 180° must be ordered separately)		
	Nominal voltage	[V DC]	24 ±10%			
	Residual ripple	[Vss]	4			
	Current consumption, valves		CPV10/14	CPV10/14		
	 When switching on 	[mA]	81/132	150/233		
	Following current reduction	[mA]	32/54	53/75		
LED displays	ASI LED		Power/green			
	AUX-PWR LED		Auxiliary power supply/green			
	FAULT LED		Fault LED/red			
	Inputs		Green			
	Valves		Yellow			
General information	Degree of protection (to EN 60529)		IP65 (fully assembled)			
	Electromagnetic compatibility					
	Emitted interference		Tested to EN 55011, limit value of			
	Immunity to interference		Tested to DIN EN 61000-4-2, DIN	I EN 61000-4-4 and EN V 50140		
	CE marking		Yes, to EU Directive 89/336/EEC			
	Temperature range	[°C]	Operation: -5 +50; storage/tr	ansport: -20 +70		
	PWIS criterion		Free of paint-wetting impairment			
	Materials		Housing: Die-cast aluminium; Co	ver: Reinforced PA; Seal: NBR, CR		
	Note on materials		RoHS-compliant			
	Dimensions		→ 31			
	Weight		→ 31			
	Pneumatic data		→ Internet: cpv			
AS-Interface data	ldent. code		$ID = A_{H;} ID1 = 7_{H;} ID2 = E_{H}$			
	IO code		7 _H			
	Profile		S-7.A.E			

Valve terminals CPV with integrated inputs, for A/B mode, to SPEC V3.0





Valve terminals CPV with integrated inputs, for A/B mode, to specification V3.0, profile 7.A.7

General

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

- Floating relay outputs, optional
- Connection for auxiliary power supply for emergency off conditions
- Degree of protection IP65

LED displays for:

- Status indication for inputs
- Switching status indications for valves
- PWR LED (power)
- FAULT LED (fault)

Versions

- 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, e.g.
 - 2x 3/2-way valve
 - 5/2-way valve, single solenoid
 - 5/2-way valve, double solenoid
 - 5/3-way valve
 - 2x 2/2-way valve
 - Valves with integrated separation of ducts 1 and 11
 - Separator plate
 - Vacant position

- 🚪 - Note

Slaves to Spec. 3.0 need an AS-i master to Spec. 3.0; these automatically detect the new slave profiles. • Additional function (screwed onto valve slice)

- One-way flow control valve
- Various mounting options

Application

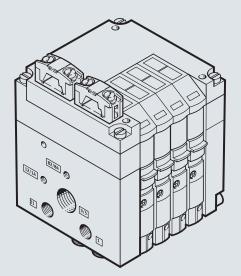
- AS-i networks with A/B mode to SPEC 3.0, profile 7.A.7, 62 slaves, bus cycle max. 20 ms
- Flexible and cost-effective connection of 4 or 8 valve slices and up to 8 sensors to the M8 inputs.

Please follow the link below for more details on the various pneumatic functions.

Valve terminals CPV with integrated inputs, for A/B mode, to SPEC V3.0

Technical data Type			CPV4E4A-Z M8-CE	CPV8E8A-Z M8-CE			
Part no.			Order via ident. code/valve termina				
Code							
	Number of value cliess / soils		CE				
Valves	Number of valve slices/coils	r 1	4	8			
	Valve width	[mm]	10/14				
	Setting of the valve configuration	[UDC]	Integrated DIL switches				
	External power supply	[V DC]	24				
	Digital inputs		4	8			
	Connection technology		M8, 3-pin				
	Device-specific diagnostics		Short circuit/overload of inputs				
	Sensor connection		2-wire and 3-wire sensors				
	Input characteristics		IEC 1131-2, type 2				
	Input switching logic		PNP (positive switching)				
AS-Interface connection	Connection technology		AS-Interface flat cable plug (includ				
	Number of slaves per device		1	2			
	Voltage range [V DC]		26.5 31.6, reverse polarity prote	ected			
	Residual ripple	[mVss]	20				
	Debounce time at inputs (for 24 V)	[ms]	Typically 3				
	Set using AS-Interface addressing device		1A 31A (0)				
			1B 31B				
	Switching level	[V]					
	Signal 0		≤ 5				
	Signal 1		≥ 11				
	Current consumption, inputs	[mA]					
	In 0 status		20	40			
	In 1 status (no current consumption by se	ensors)	Max. 48	Max. 96			
	Max. per input		200	200			
Load voltage connection	Connection technology		AS-Interface flat cable plug (version turned 180° must be ordered separately)				
	Nominal voltage	[V DC]	24 ±10%				
	Residual ripple	[Vss]	4				
	Current consumption of valves (type-depend	lent)	CPV10/14	CPV10/14			
	When switching on	[mA]	Max. 115/175	Max. 240/460			
	 Following current reduction 	[mA]	Max. 55/75	Max. 95/120			
LED displays	ASI LED		Power/green				
	AUX-PWR LED		Auxiliary power supply/green				
	FAULT LED		Fault LED/red				
	Inputs		Green				
	Valves		Yellow				
General information	Degree of protection (to EN 60529)		IP65 (fully assembled)				
	Relative humidity	[%]	0 95 (non-condensing)				
	Temperature range	[°C]	Operation: -5 +50; storage/trar	nsport: -20 +70			
	Materials		Housing: Die-cast aluminium; Cove	er: Reinforced PA; Seal: NBR, CR			
	Dimensions		→ 31				
	Weight		→ 31				
	Pneumatic data		→ Internet: cpv				
AS-Interface data	Ident. code		$ID = A_{H_1} ID1 = 7_{H_2} ID2 = 7_{H_1}$				
	IO code						
	Profile		7 _H S-7.A.7				

Valve terminals CPV without inputs, to SPEC 2.1





Valve terminals CPV without inputs, to specification 2.1¹⁾

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
- Floating relay outputs (optional)
- Connection for auxiliary power supply for emergency off conditions
- Degree of protection IP65

LED displays for:

- Switching status indications for valves
- PWR LED (power)
- FAULT-LED (fault)²⁾
- Valve diagnostics: short circuit or wire break at valve solenoid coil, valve not switching (no movement of the plunger)

Versions

- 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, e.g.
 - 2x 3/2-way valve
 - 5/2-way valve, single solenoid
 - 5/2-way valve, double solenoid
 - 5/3-way valve
 - 2x 2/2-way valve

- Valves with integrated separation of ducts 1 and 11
- or ducts 1 and 1
- 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, 31 slaves, bus cycle max. 5 ms
- 📲 Note

Please follow the link below for more details on the various pneumatic functions. → Internet: cpv

1) Slave compatible with SPEC 3.0

2) Valve terminal with 4 valve positions: peripherals fault to SPEC 2.1 implemented valve terminal with 2 valve positions: peripherals fault not implemented

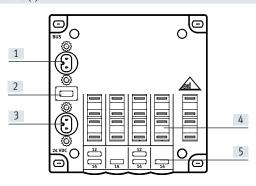
Valve terminals CPV without inputs, to SPEC V2.1

Technical data							
Туре			CPV2-Z	CPV4-Z ¹⁾			
Part no.			Order via ident. code/valve terminal o	configurator			
Code			AZ	AS/AZ			
Valves	Number of valve slices/coils		2/4	4/4			
	Valve width	10 mm					
		14 mm					
		14 mm					
	Setting of the valve configuration	10 1111	None (permanently assigned)	CPV10/14 integrated DIL switch, CPV 18 ³⁾			
	External voltage supply 24 V DC		Yes	Yes ²⁾			
	External voltage supply 24 v DC			Can be set using DIL switch			
AS-Interface connection	Connection technology		AS-Interface flat cable plug (must be				
AS-IIIteriate connection	Voltage range	[V DC]	26.5 31.6, reverse polarity protect				
	Residual ripple	[v DC] [mVss]	20.5 51.0, reverse polarity protect	eu			
	Current consumption of all valves		CPV10/14/18	CPV10/14/18			
	Without current reduction	[mA]	25/25/25	25/25/25			
	Without current reduction [mA] With current reduction [mA]		25/25/25	25/25/25			
Load voltage connection	Connection technology	נוווא	AS-Interface flat cable plug (must be				
Loud voltage connection	connection technology		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			
	Before current reduction	[mA]	108/176/320	110/165/246			
	Following 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 diagnostics: short circuit or wire break			
				at valve solenoid coil, valve not switching			
				(no movement of the plunger)			
	Valves		Yellow				
General information	Degree of protection (to EN 60529)		IP65 (fully assembled)				
	Electromagnetic compatibility						
	Emitted interference		Tested to EN 55011, limit value class B				
	Immunity to interference		Tested to DIN EN 61000-4-2, DIN EN	61000-4-4 and EN V 50140			
	CE marking		Yes, to EU Directive 89/336/EEC				
	Temperature range	[°C]	Operation: -5 +50; storage/transp				
	Materials		Housing: Die-cast aluminium; Cover:	Reinforced PA; Seal: NBR, CR			
	Dimensions		→ 31				
	Weight		→ 31				
	Pneumatic data		→ Internet: cpv				
AS-Interface data	ldent. code		F _H				
	IO code		8 _H				
	ID2 code		F _H	E _H (F _H for CPV18)			
	Profile		S-8.F	S-8.F.E			
	Parameter P3			1 = enable			
	CPV valve diagnostic function			2 = disable			
	Default		1 for CPV with valve diagnostics				

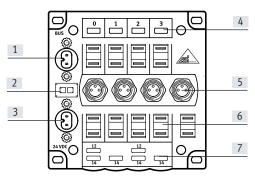
New as of HW version 0105: single or double solenoid valves can be configured using a DL switch
 With or without 24 V DC auxiliary power supply for solenoid coils (EMERGENCY-STOP circuitry). The auxiliary power supply is always integrated and can be switched on/off using the DL switch.
 None (permanently assigned)

Data sheet - Valve terminals CPV

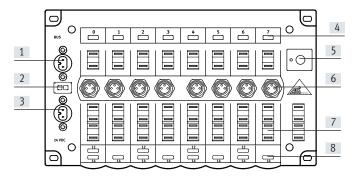
Overview of connections/displays – CPV with AS-Interface CPV-...-2-Z /ASI-4-(Z)



CPV-...-4E4A(-Z) / 4E/3A-...- / 4E/4A-...-CE



CPV-...-8E8A-Z / 8E/6A /8E/8A-...-CE



- [1] AS-Interface bus connection
- [2] PWR LED (power, green) FAULT LED (fault, red)
- [3] Auxiliary power supply for valves (optional)
- [4] Inscription labels
- [5] LED display for valves
- [1] AS-Interface bus connection
- [2] PWR LED (power, green) FAULT LED (fault, red)
- [3] Auxiliary power supply for valves (optional)
- [4] LED display for inputs (green)
- [5] Sensor connections
- [6] Inscription labels
- [7] LED display for valves (yellow)
- [1] AS-Interface bus connection
- [2] PWR LED (power, green) FAULT LED (fault, red)
- [3] Auxiliary power supply for valves
- [4] LED display for inputs (green)
- [5] Address selector button with LED
- [6] Sensor connections
- [7] Inscription labels
- [8] LED display for valves (yellow)

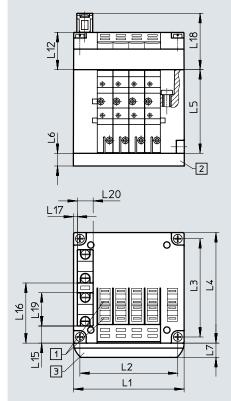
Data sheet - Valve terminals CPV

Weights [g] – Valve terminal CPV with AS-Interface									
Туре	CPV10	CPV14	CPV18						
Electrical connection block 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, pack of 2	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 sub-base/vacuum generator	65	110	260						
Function element: one-way flow control valve	25	54	125						

[1]

Dimensions - CPV with AS-Interface

Without integrated inputs



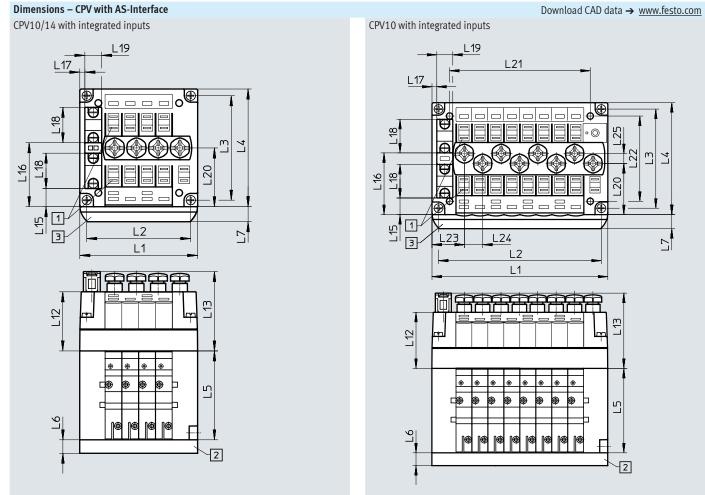
Slote	for	inscriptio	nInhold	
JUUS	101	IIISCIIDIIO		

- [2] Pneumatic multiple connector plate
- [3] Holder for inscription labels

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

Download CAD data \rightarrow <u>www.festo.com</u>

Data sheet - Valve terminals CPV



- [1] Slots for inscription labels
- [2] Pneumatic multiple connector plate

[3] Holder for inscription labels (CPV10/14-VI-BZ-T-... or

CPV10/14-VI-ST-T-...)

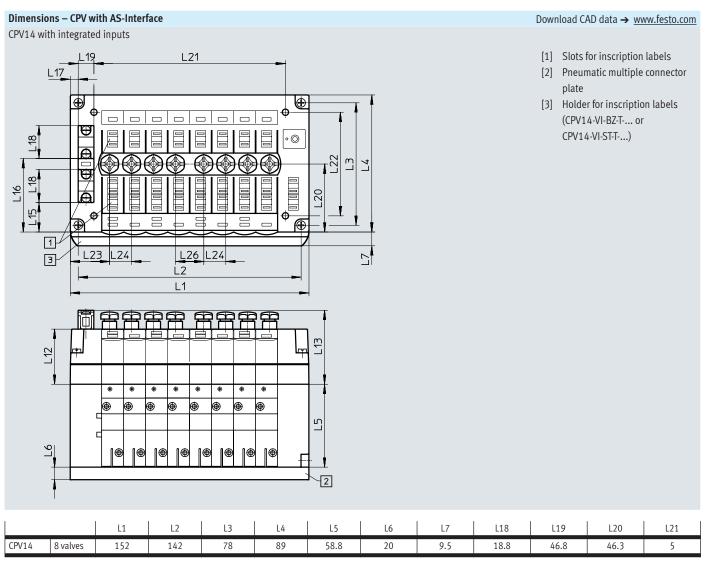
[1] Slots for inscription labels

[2] Pneumatic multiple connector plate

[3] Holder for inscription labels (CPV10-VI-BZ-T-... or CPV10-VI-ST-T-...)

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

Data sheet – Valve terminals CPV



Data sheet – Valve terminals CPV

Ordering data			I.	1
	Designation		Part no.	Туре
Bus connection				
	Electrical interface CPV10	4 valve positions	552559	CPV10-GE-ASI-4E4A-Z-M8-CE
		8 valve positions	552560	CPV10-GE-ASI-8E8A-Z-M8-CE
	Electrical interface CPV14	4 valve positions	552561	CPV14-GE-ASI-4E4A-Z-M8-CE
		8 valve positions	552562	CPV14-GE-ASI-8E8A-Z-M8-CE
Bus connection				
/ //	AS-Interface flat cable 100 mm	Yellow	18940	KASI-1.5-Y-100
		Black	18941	KASI-1.5-Z-100
	Flat cable socket		18785	ASI-SD-FK
	Flat cable socket	Turned 180°	196089	ASI-SD-FK180
	Flat cable dummy plug		196090	ASI-SD-FK-BL
CALLY A	AS-Interface flat cable distributor	Rotatable cable	18786	ASI-KVT-FK
	AS-Interface flat cable distributor	Symmetrical cable	18797	ASI-KVT-FK-S
	Cable cap for flat cable (pack of 50)		18787	ASI-KK-FK
And the second s				
	Cable sleeve (pack of 20)		165593	ASI-KT-FK
ensor plug				
	Straight plug, M8, 3-pin	Screw-in	192009	SEA-3GS-M8-S
		Solderable	18696	SEA-GS-M8
J.	Cover cap (pack of 10)	M8	177672	ISK-M8
onnecting cable	1			
A THE SE	Modular system for a choice of connecting cables → Internet: nebu		-	NEBU
Star III	Straight plug M8, 3-pin, straight socket M8, 3-pin	0.5 m	541346	NEBU-M8G3-K-0.5-M8G3
		1.0 m	541347	NEBU-M8G3-K-1-M8G3
		2.5 m	541348	NEBU-M8G3-K-2.5-M8G3
		5.0 m	541349	NEBU-M8G3-K-5-M8G3

Data sheet – Valve terminals CPV

Ordering data					
	Designation		Part no.	Туре	
ther					
	24 V DC power supply	5 A	8149580	CACN-3A-1-5-G2	
		10 A	8149581	CACN-3A-1-10-G2	
	Addressing device (power supply plug included in the scope of delive	ry)	18959	ASI-PRG-ADR	
ANT CO	Addressing cable				
	AS-Interface input module for 8 inputs M8	Interface input module for 8 inputs M8			
	AS-Interface input/output module for 4 inputs/3 outputs M12	542125	ASI-4DI3DO-M12X2-5POL-Z		
· Size	Inscription labels	6x10 mm (pack of 64)	18576	IBS-6x10	
		9x20 mm (pack of 20)	18182	IBS-9x20	
	H-rail to EN 60715	1	35430	NRH-35-2000	
	Mounting for H-rail		162556 163291	CPV10/14-VI-BG-NRH-35 CPV18-VI-BG-NRH-35	
ser documentation	• 	-			
	CPV pneumatics manual	German	165100	P.BE-CPV-DE	
$\langle n \rangle$		English	165100	P.BE-CPV-EN	
		French	165200	P.BE-CPV-FR	
\checkmark		Italian	165160	P.BE-CPV-IT	
×		Spanish	165230	P.BE-CPV-ES	
			-07270		

MPA-S valve terminal





MPA-S valve terminals with AS-Interface - Valve configuration options

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

- 🗍 - Note

Please follow the link below for more details on the various pneumatic functions.

→ Internet: mpa-s

General

- Solutions with integrated inputs
- Width 10 mm, 14 mm or 20 mmWith or without 24 V DC auxiliary
- power supply for solenoid coils (EMERGENCY-STOP circuitry) in the case of the 41/40 version. The auxiliary power supply is always integrated in the version with 8 inputs and cannot be subsequently switched off using the DIL switch.
- Selectable bus connection technology
 - Flat cable for AS-Interface with 4I/40 version
 - 4-pin M12 round plug¹) with 4I/4O and 8I/8O version
- Selectable addressing
 - Via bus connection (M12 or flat cable)

Versions

- 2 to 8 valves, freely configurable
- With 4 or 8 inputs
- M12, M8, quick connection, spring-loaded terminal or Sub-D connection technology
- Separating seals for creating 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 valves (max. 8 solenoid coils) with input feedback.
- Decentralised machine and system structures, e.g.
 - in handling technology
- in conveyor technology
- in the packaging industry
- in sorting systems
- suitable for energy chains thanks to connection via round cables

MPA-S valve terminal – Connection technology and addressing

| Types of valve terminal with AS-Interface

Туре	Valves	Solenoid coils	Inputs	Corresponds to Spec	Extended addressing range	Auxiliary po can be swit	ower supply ched off	Width		
						Yes	No	10 mm	14 mm	20 mm
VMPA-ASI-EPL-E-4E4A-Z	4	4	4	2.1	-		-		•	
VMPA-ASI-EPL-G-4E4A-Z	4	4	4	2.1	-		-			
VMPA-ASI-EPL-EU-4E4A-Z	4	4	4	2.1	-		-			
VMPA-ASI-EPL-GU-4E4A-Z	4	4	4	2.1	-		-			
VMPA-ASI-EPL-E-8E8A-Z	8	8	8	2.1	-	-				
VMPA-ASI-EPL-G-8E8A-Z	8	8	8	2.1	-	-				
VMPA-ASI-EPL-EU-8E8A-Z	8	8	8	2.1	-	-			-	
VMPA-ASI-EPL-GU-8E8A-Z	8	8	8	2.1	-	-				
VMPA-ASI-EPL-E-8E8A-CE	8	8	8	3.0		-				
VMPA-ASI-EPL-G-8E8A-CE	8	8	8	3.0		-				
/MPA-ASI-EPL-EU-8E8A-CE	8	8	8	3.0		-			-	•
VMPA-ASI-EPL-GU-8E8A-CE	8	8	8	3.0		-				

Permissible combinations for valve position allocation

Туре	Slave n			
	0	1	2	3
4I/40 MPA1 and MPA14 – M only (up to 4 valves per sub-base)	М	Μ	Μ	М
(up to 4 valves per sub-base)	Μ	М	Μ	L
	Μ	Μ	L	L
	М	L	L	L
4I/40 MPA2 (2 valves per sub-base)	Μ	Μ	Μ	M
]	M	-	-
	М	J	-	-
	J	J	-	-

1) All valve slices are freely configurable, limited by the number of solenoid coils supported (4 or 8).

A cover plate can be used instead of a valve slice, a cover plate can be used as reserve position for one or two solenoid coils.

М Valve slice with single solenoid valve or alternatively a different valve slice with one output

Valve slice with double solenoid valve or alternatively a different valve slice with two outputs J

Vacant position L

MPA-S valve terminal – Connection technology and addressing

Permissible combinations for valve position allocation								
Туре	Slave n plus slave n+1							
	0	1	2	3	4	5	6	7
8I/80 MPA1 and MPA14 (up to 4 valves per sub-base)	M	Μ	М	М	Μ	М	М	М
	Μ	M	M	L	Μ	M	M	L
	J	J	J	J	-	-	-	-
	J	J	J	J	-	-	-	-
	J	J	J	м	-	-	-	-
	J	J	Μ	М	-	-	-	-
	J	J	L	L	-	-	-	-
8I/80 MPA2 (2 valves per sub-base)	M	M	Μ	M	М	M	М	м
	М	Μ	М	L	Μ	М	M	L
	J	J	J	J	-	-	-	-
	J	J	J	М	-	-	-	-
	J	J	Μ	М	-	-	-	-
	J	J	М	М	Μ	М	-	-
	J	J	М	М	Μ	L	-	-
	м	М	М	М	J	J	-	-

1) All valve slices are freely configurable, limited by the number of solenoid coils supported (4 or 8).

A cover plate can be used instead of a valve slice, a cover plate can be used as reserve position for one or two solenoid coils. Valve slice with single solenoid valve or alternatively a different valve slice with one output

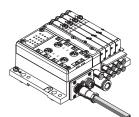
M Valve slice with single solenoid valve or alternatively a different valve slice with one output V Valve slice with double solenoid valve or alternatively a different valve slice with two outputs

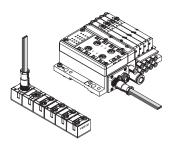
L Vacant position

MPA-S valve terminal - Connection technology and addressing

Installation: Selectable connection technology for AS-Interface

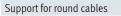
Support for flat cables

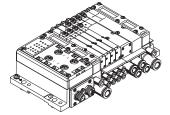


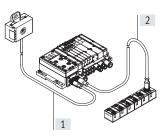


- Straightforward installation with flat cable in the more protected area
 Set is at listing to be able to be
- Fast installation technology with standard AS-Interface cables
- Standard installation at the AS-Interface using yellow flat cable possible with MPA-S version 41/40

Standard installation at the AS-Interface flat cable







Local round cable wiring for areas with permanently higher loads:

- Consistently high humidity
- Need for flexible installation with one cable
- Use in energy chains with highly flexible lines
- Pre-assembled M12 round cable, 1 m, polyurethane
- [2] Optional cable for additional slave, e.g. highly flexible cable for energy chains or PVC cable for applications requiring resistance to cleaning agents

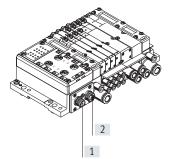
Addressing Addressing device



Using the addressing device according to SPEC V2.1, it is possible to scan the AS-Interface from any chosen point in the network. At all connected stations:

- Slave addresses can be read/ changed
- ID and IO codes can be read out
- Parameters can be read/changed
- Input/output data can be read and written (setting outputs)
- Error messages can be read out and quickly recognised.

AS-Interface connections



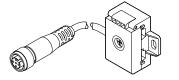
- [1] M12 plug for AS-Interface and incoming auxiliary supply
- [2] M12 socket for AS-Interface and outgoing auxiliary supply

Extended addressing range

The extended addressing range enables a total of 62 slaves to be operated on an AS-Interface master. The master as well as the slaves must be designed for the extended addressing range in order to be able to exploit the full number of slaves. With the extended addressing range, two slaves share one address. Standard slaves do not have this capability. They can be connected to a master with an extended addressing range, but also occupy a full address. In other words, up to 62 slaves with an extended addressing range can be connected to a master with an extended addressing range, but only 31 standard slaves. Slaves with an extended addressing range, like standard slaves, can be connected to a standard master, but must be configured as "A" slaves.

MPA-S valve terminal - Connection technology and addressing

AS-Interface flat cable distributor to round cable



Alternative connection concepts

- Connection technology for AS-Interface for yellow and optionally for black flat cable
- Passive conversion of signals on M12 socket and round cable with M12 socket
 Pre-assembled round cable 1 m,
- Pre-assembled round cable 1 m, PUR
- Optional PVC extension cable, or other suitable cable of any length, via additional M12 socket

Selecting the cable

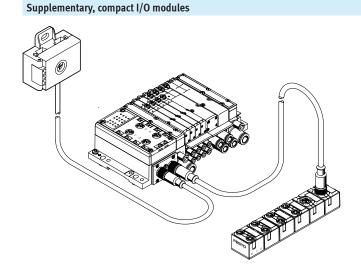
It is easy to implement optimised connection technologies at the AS-Interface by choosing the appropriate cable:

- Flat cables for all standard applications with insulation displacement technology to reduce installation effort
- Round cables for applications with different requirements, e.g.:
 - Energy chains with a small radius and increased requirement for highly flexible cables

- Applications with consistently high humidity
- Applications in which a lot of cleaning takes place and in which cables that are resistant to cleaning agents are required (PUR, PVC or other cables)
- Cabling with standards (M12) preferred

Easy to assemble

Direct assembly on the wall or machine frame.



The compact I/O modules can be used to supplement the valve terminal MPA-S. The following are available:

- 8 inputs M8
- 4 inputs/3 outputs M12

Key features - Display and operation

Display and operation

Each solenoid coil is allocated an LED that indicates its signal status.

- Indicator 12 shows the switching status of the coil for output 2
- Indicator 14 shows the switching status of the coil for output 4

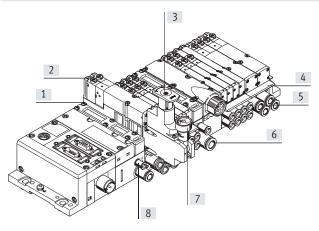
Manual override

The manual override (MO) enables the valve to be switched when not electrically activated or energised. The valve is switched by pushing the manual override. The set switching status can also be locked by rotating the manual override (code R or as accessory).

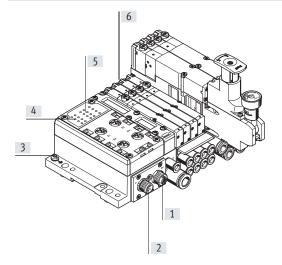
Alternatives:

- A covering (code N or as an accessory) prevents the manual override from being locked. The manual override can then only be activated by pushing it.
- A covering (code V) can be fitted over the manual override to prevent it from being accidentally activated.

Pneumatic connection and control elements



Electrical connection and display components on the AS-Interface



- Flat plate silencer for exhaust port 3/5
- [2] Manual override (for each pilot solenoid coil, non-detenting or non-detenting/detenting)
- [3] Adjusting knob for optional pressure regulator plate
- [4] Inscription label holder for sub-base
- [5] Working ports 2 and 4, per valve position
- [6] Supply port 1
- [7] Pressure gauge (optional)
- [8] Ports 12 and 14 for supplying the external pilot air
- M12 socket for AS-Interface bus and auxiliary power supply (AS-i Out)
- [2] M12 plug for AS-Interface bus and auxiliary power supply (AS-i In)
- [3] Earth terminal
- [4] Status LEDs for inputs
- [5] Status LEDs for AS-Interface
- [6] Diagnostic LEDs for valves

- Note

A manually operated valve (manual override) cannot be reset electrically. Conversely, an electrically actuated valve cannot be reset using the mechanical manual override.

Туре			VMPA4E4A-Z		VMPA8E8A-Z	VMPA8E8A-CE		
Part no.			Order via ident. code/valve terminal configurator					
Valves	Number of solenoid coils		Urder via ident. code/valve terminal configurator 4 8					
Valves	Valve width	[mm]	10, 14, 20		0			
	External voltage supply 24 V DC	liiiii	Set using DIL switch		Yes			
Inputs	Number of digital inputs		4		8			
inputs	Connection technology			n, Harax, CageClamp, Su				
	Sensor supply via AS-Interface		Short-circuit and over		U-U			
	Sensor connection		2-wire and 3-wire se					
	Design		IEC 1131-2, type 02					
	Input circuit		PNP (positive switch					
AS-Interface connection	Connection technology		M12 connection ²⁾					
AS-Interface connection	Voltage range	[V DC]	-	e polarity protected				
	Residual ripple	[W DC] [mVss]	20.5 51.0, revers					
	Current consumption, inputs	[mA]	Without auxiliary	With auxiliary power	With auxiliary power	cupply		
	current consumption, inputs	[IIIA]	power supply	supply	with auxiliary power	suppry		
	Basic electronic load	Pacis electronic load		≤25	≤25			
	Total input current		≤25 350	350	350			
	Total output current	[mA]	MPA1: 270	MPA1: 540	MPA1: 540			
	(valves incl. LED)	liiiAj	MPA1: 270 MPA14: -	MPA1: 540 MPA14: -	MPA1: 540 MPA14: -			
	(valves filet. LLD)		MPA14	MPA14. – MPA2: 1065	MPA14. – MPA2: 1065			
Load voltage connection	Connection technology	M12 connection ²⁾						
Load voltage connection	Voltage range	21.6 26.4						
	Residual ripple	[V DC] [Vss]	4					
Current consumption of valves per		[v33] [mA]	4 MPA1:≤80					
solenoid coil	max. Starting current (at 24 V)	[iin d]	MPA14:-					
			MPA2: ≤100					
	Following current reduction (approx. 25 ms)	[mA]	MPA1:≤25					
		[MPA1: -					
			MPA2: ≤20					
LED displays	ASI LED		Green					
	AUX-PWR LED		Green					
	FAULT LED		Red					
	Inputs		Green					
	Valves		Yellow					
General information	Materials		Die-cast aluminium, PA					
	Note on materials		RoHS-compliant					
	Dimensions		→ 41					
	Weight	[g]	360					
AS-Interface data	Ident. code		$ID = F_{H}; ID1 = F_{H}^{(1)}; IC$	D2 = E _H	$ID = F_{H}; ID1 = F_{H}^{(1)};$ $ID2 = E_{H}$	$ID = A_{H}; ID1 = F_{H}^{(1)};$ $ID2 = E_{H}$		
	IO code		7 _H		7 _H	7 _H		
	Profile		S-7.F.E		S-7.F.E	S-7.A.E		
	Addressing range		1 31		1 31	1A 31A, 1B 31E		

 $\begin{array}{ll} 1) & \mbox{Factory setting, is set by some programming devices (Spec. 2.1) when addressing slaves to 0_H \\ 2) & \mbox{Matching cable distributor for flat cable to M12 \Rightarrow 42 \\ \end{array}$

Operating and environmental conditions

Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Note on the operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Operating pressure	[bar]	-0.9 +10
Ambient temperature	[°C]	-5 +50
Temperature of medium	[°C]	-5+50
Storage temperature	[°C]	-20 +40
Corrosion resistance class CRC ¹⁾		0
Relative humidity		Max. 90% at 40°C
CE marking (see declaration of conformity)		To EU EMC Directive ²⁾
		To EU Explosion Protection Directive (ATEX)
KC mark		KC EMC
Certification		c UL us - Recognized (OL)
		RCM trademark
Degree of protection		IP67

1) Corrosion resistance class CRC 0 to Festo standard FN 940070

No corrosion stress. Applies to small, visually unimportant standards-based parts such as threaded pins, circlips and clamping sleeves which are usually only available on the market in a phosphated or burnished version (and possibly oiled) as well as to ball bearings (for components < CRC 3) and plain bearings.

2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... -> Support/Downloads.

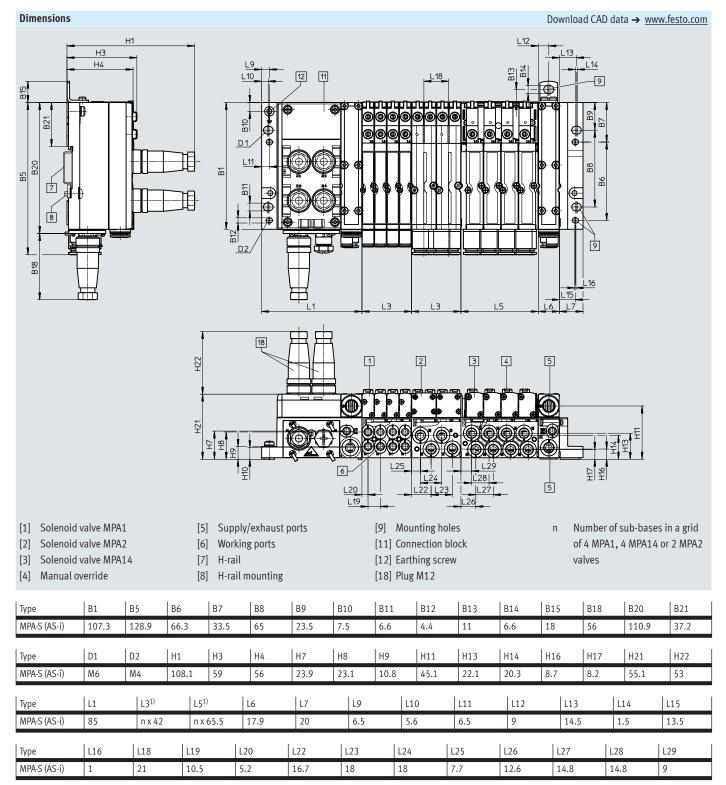
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

ATEX	
Туре	MPA-ASI-VI
ATEX category for gas	3 G
Type of ignition protection for gas	Ex nA IIC T4 X Gc
Explosion-proof ambient temperature [°C]	-5 ≤ Ta ≤ +50
CE marking (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)

1

Connection blocks	Part no.	VMPA8E8A	VMPA	VMPA4E4A				
PX-AB-4-M12X2-5POL	195704							
PX-AB-8-M8-3POL	195706	•						
CPX-AB-8-KL-4POL	195708	•						
CPX-AB-1-SUB-BU-25POL	525676							
CPX-AB-4-HAR-4POL	525636			•				
Pin allocation								
connection block inputs		VMPA8E8/		VMPA4E4A				
PX-AB-4-M12X2-5P								
	$ \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\$	$ \begin{array}{c} x_{1} \\ x_{2} \\ x_{3} \\ x_{4} \\ x_{5} \\ x_{4} \\ x_{5} \\ x_{4} \\ x_{5} \\ x_{4} \\ x_{5} \\ x_{4} \\ x_{2} \\ x_{5} \\ x_{5} \\ x_{4} \\ x_{2} \\ x_{5} $	XX+1 X3.2: Input x+5 N X3.3: 0 V _{SEN} XX X3.4: Input x+4 X3.5: FE X4.1: 24 V _{SEN} X4.2: Input x+7 X4.3: 0 V _{SEN}	X1.1: 24 V _{SEN} X1.2: Input x+1 X1.3: 0 V _{SEN} X1.4: Input x X1.5: FE X2.1: 24 V _{SEN} X2.2: n.c. X2.3: 0 V _{SEN} X2.4: Input x+1 X2.5: FE	X3.1: 24 V _{SEN} X3.2: Input x+3 X3.3: 0 V _{SEN} X3.4: Input x+2 X3.5: FE X4.1: 24 V _{SEN} X4.2: n.c. X4.3: 0 V _{SEN} X4.4: Input x+3 X4.5: FE			
PX-AB-8-M8-3P								
	4 X1 3 X2 4 X2 3 X3 4 X3 4 X3 3 X4 1 3 X4 1 3 X1 1 3 X2 1 3 X3 1 3 X3 1 3 X3 1 3 X3 1 3 X4 1 3 X3 1 3 X3 1 3 X4 1 3 X3 1 3 X3 1 3 X3 1 3 X3 1 3 X4 1 3 X3 1 3 X5 1 1 1 1 1 1 1 1 1 1 1 1 1	X5 X1.1: 24 V. X5 X1.3: 0 V _{SE} X6 X1.4: Inpu X2.1: 24 V. X2.3: 0 V _{SE} X7 X2.4: Inpu X3 X3.1: 24 V. X8 X3.3: 0 V _{SE} X3.4: Inpu X3.4: Inpu X4.1: 24 V. X3.4: 0 V _{SE}	X5.3: 0 V _{SEN} X5.4: Input x+4 X6.1: 24 V _{SEN} X6.3: 0 V _{SEN} X6.4: Input x+4 X6.4: Input x+5 X7.1: 24 V _{SEN} X7.3: 0 V _{SEN} X7.4: Input x+5 X7.4: Input x+6 X8.1: 24 V _{SEN}	X1.1: 24 V _{SEN} X1.3: 0 V _{SEN} X1.4: Input x X2.1: 24 V _{SEN} X2.3: 0 V _{SEN} X2.4: Input x+1 X3.1: 24 V _{SEN} X3.3: 0 V _{SEN} X3.4: Input x+1 X4.1: 24 V _{SEN} X3.4: 0 V _{SEN} X4.3: 0 V _{SEN}	X5.1: 24 V _{SEN} X5.3: 0 V _{SEN} X5.4: Input x+2 X6.1: 24 V _{SEN} X6.3: 0 V _{SEN} X6.4: Input x+3 X7.1: 24 V _{SEN} X7.3: 0 V _{SEN} X7.4: Input x+3 X8.1: 24 V _{SEN} X8.3: 0 V _{SEN}			

(FXAB-6-HG.4P X 0	Pin allocation Connection block inputs		VMPA	8E8A			VMPA	4E4A		
X1 0 0 0 X1 0 Vgan X5.1: 0 Vgan X5.1: 0 Vgan X5.2: Input x4 X1.2: Input x4 X5.2: Input x4 X5.2: Input x4 X5.2: Input x4 X5.2: Input x4 X1.2: Input x4 X5.2: Input	CPX-AB-8-KL-4P									
xxx x		X2 .2 .2 .2 .2 .2 .2 .2 .2 .2	X1.1: X1.2: X1.3: X2.0:	0 V _{SEN} Input x FE 24 V _{SEN}	X5.1: X5.2: X5.3:	0 V _{SEN} Input x+4 FE	X1.1: X1.2: X1.3:	0 V _{SEN} Input x FE	X5.1: X5.2: X5.3: X6.0:	0 V _{SEN} Input x+2 FE 24 V _{SEN}
X3.2: Input X+2 X7.3: FE X3.3: FE X7.3: FE X8.0: 24 VgpN X8.0: 20 vgpN 25: 10put x+2 15: Input x+2 15: Input x+2 15: Input x+2 15: Input x+4 15: Input x+3 18: 24 VgpN 19: 24 VgpN 19: 24 VgpN 19: 24 VgpN 18:		X3 .1 .1 .1 .2 .2 .2 X7 .3 .3 .3	X2.2: X2.3: X3.0: X3.1:	Input x+1 FE 24 V _{SEN} 0 V _{SEN}	X6.2: X6.3: X7.0: X7.1:	Input x+5 FE 24 V _{SEN} 0 V _{SEN}	X2.2: X2.3: X3.0: X3.1:	Input x+1 FE 24 V _{SEN} 0 V _{SEN}	X6.2: X6.3: X7.0: X7.1:	Input x+3 FE 24 V _{SEN} 0 V _{SEN}
X4.1: 0 VSEN X4.2: Input x+3 X4.3: FE X4.1: 0 VSEN X4.2: Input x+7 X4.3: FE X4.1: 0 VSEN X4.2: Input x+7 X4.3: FE X4.1: 0 VSEN X4.3: FE X4.3: FE X4.3: FE X8.2: Input x+7 X4.3: FE X8.2: Input x+1 X4.3: FE X8.3: FE			X3.3:	FE	X7.3:	FE	X3.3:	FE	X7.3:	FE
13 000000000000000000000000000000000000			X4.1: X4.2:	0 V _{SEN} Input x+3	X8.1: X8.2:	0 V _{SEN} Input x+7	X4.1: X4.2:	0 V _{SEN} n.c.	X8.1: X8.2:	0 V _{SEN} n.c.
13 000000000000000000000000000000000000	CPY_AR_1_SUR_RII_25P									
25 000000000000000000000000000000000000	CPX-AB-1-SUB-BU-25P	130000000000000000000000000000000000000				•				
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 20: 24 V_SEN 9: 24 V_SEN 22: 0 V_SEN 9: 24 V_SEN 22: 0 V_SEN 22: 0 V_SEN 22: 0 V_SEN 23: 0 V_SEN 24: 0 V_SEN 25: FE 13: FE Socket: FE 13: FE Socket: FE 50: Input x+1 X3:1: 24 V_SEN 25: FE 13: FE Socket: FE 13: TE Socket: FE 13: X3:1: 24 V_SEN X3:1: 24 V_SEN X3:1: 24 V_SEN <th></th> <th>25 000000000000000000000000000000000000</th> <th>3:</th> <th>Input x+2</th> <th>16:</th> <th>Input x+6</th> <th>3:</th> <th>Input x+1</th> <th>16:</th> <th>Input x+3</th>		25 000000000000000000000000000000000000	3:	Input x+2	16:	Input x+6	3:	Input x+1	16:	Input x+3
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$			6:	0 V _{SEN}	19:	24 V _{SEN}	6:	0 V _{SEN}	19:	24 V _{SEN}
Image: Sum of the second se			8:	0 V _{SEN}	21:	24 V _{SEN}	8:	0 V _{SEN}	21:	$24V_{SEN}$
12: 0 V _{SEN} 25: FE 12: 0 V _{SEN} 25: FE 5000000000000000000000000000000000000			10:	24 V _{SEN}	23:	0 V _{SEN}	10:	24 V _{SEN}	23:	0 V _{SEN}
CPX-AB-4-HAR-4P Image: Amount of the system of th	•		12:	0 V _{SEN}	25:	FE	12:	0 V _{SEN}	25:	FE
4 1 4 1 4 1 4 1 4 1 3 1 24 V _{SEN} X3.1: 24 V _{SEN} X3.1: 24 V _{SEN} X3.1: 24 V _{SEN} X3.1: 24 V _{SEN} X3.2: Input x+5 X1.1: 24 V _{SEN} X3.2: Input x+1 X3.2: Input x+1 X3.2: Input x+1 X3.2: Input x+3 3 x1 2 3 x3 2 X1.1: 24 V _{SEN} X1.2: Input x+4 X1.3: 0 V _{SEN} X3.3: 0 V _{SEN} X3.4: Input x+2 X1.4: Input x X3.4: Input x+4 X1.4: Input x X3.4: Input x+2 X3.4: Input x+2 X3.4: Input x+2 X3.4: Input x+2 X2.1: 24 V _{SEN} X4.1: 24 V _{SEN} X2.2: Input x+3 X4.2: Input x+3 X4.2: Input x+7 X2.2: n.c. X4.2: n.c. X4.2: n.c. X2.3: 0 V _{SEN} X2.3: 0 V _{SEN} X4.3: 0 V _{SEN} X4.3: 0 V _{SEN} X4.3: 0 V _{SEN}		I								
X1.3: 0 V _{SEN} X3.3: 0 V _{SEN} X1.3: 0 V _{SEN} X3.3: 0 V _{SEN} X1.1: 2 3 X3 2 X1.3: 0 V _{SEN} X3.4: Input x+4 X1.4: Input x X3.4: Input x+2 X2.1: 24 V _{SEN} X4.1: 24 V _{SEN} X4.1: 24 V _{SEN} X4.2: Input x+3 X4.2: Input x+7 X2.2: n.c. X4.2: n.c. X2.3: 0 V _{SEN} X2.3: 0 V _{SEN} X2.3: 0 V _{SEN} X4.3: 0 V _{SEN} X4.3: 0 V _{SEN}	СРХ-АВ-4-НАК-4Р	4 - 1 4 - 1								
X2 X4 X4 X2 X4 X4 X2 X4 X4 X2 X4 X4 <td< th=""><th></th><th></th><th>X1.3:</th><th>0 V_{SEN}</th><th>X3.3:</th><th>0 V_{SEN}</th><th>X1.3:</th><th>0 V_{SEN}</th><th>X3.3:</th><th>0 V_{SEN}</th></td<>			X1.3:	0 V _{SEN}	X3.3:	0 V _{SEN}	X1.3:	0 V _{SEN}	X3.3:	0 V _{SEN}
X2 X4 X2.3: 0 V _{SEN} X4.3: 0 V _{SEN} X2.3: 0 V _{SEN} X4.3: 0 V _{SEN} X4.3: 0 V _{SEN}		X1 X3 -	X2.1:	$24V_{SEN}$	X4.1:	$24V_{SEN}$	X2.1:	$24V_{SEN}$	X4.1:	$24 V_{SEN}$
		4 X2 1 4 X4 1	X2.3:	0 V _{SEN}	X4.3:	0 V _{SEN}	X2.3:	$0 V_{SEN}$	X4.3:	0 V _{SEN}



1) n = number of sub-bases (with MPA1, width 10 mm and MPA14, width 14 mm, max. 4 valve positions on sub-base; with MPA2, width 20 mm, max. 2 valve positions on sub-base)

AS-Interface[®] components

Ordering data				1
	Designation		Part no.	Туре
Bus connection		l se u		
	AS-Interface flat cable 100 mm	Yellow	18940	KASI-1.5-Y-100 KASI-1.5-Z-100
		Black	18941	KASI-1.5-2-100
<u></u>	Flat cable dummy plug		196090	ASI-SD-FK-BL
	AS-Interface flat cable distributor	Rotatable cable	18786	ASI-KVT-FK
	AS-Interface flat cable distributor	Symmetrical cable	18797	ASI-KVT-FK-S
	Cable cap for flat cable (pack of 50)		18787	ASI-KK-FK
	Cable sleeve (pack of 20)		165593	ASI-KT-FK
	M12 socket, 4-pin	For AS-Interface flat cable	18789	ASI-SD-PG-M12
	M12 socket, 5-pin	For round cable	18324	FBSD-GD-9-5POL
able distributor				
	AS-Interface data to socket M12, 4-pin		572225	NEFU-X22F-M12G4
	AS-Interface data and load voltage supply to socke	et M12, 4-pin	572226	NEFU-X24F-M12G4
	AS-Interface data and load voltage supply to socke	rt M12, 4-pin, cable length 1 m	572227	NEFU-X24F-1-M12G4
OUO plug				
	Plug M12 for 2 connecting cables	4-pin	18779	SEA-GS-11-DUO
		5-pin	192010	SEA-5GS-11-DUO

Ordering data	Designation		Part no.	Туре
	Designation		Part no.	Туре
Sensor plug			402000	654 265 M2 6
- P	Straight plug, M8, 3-pin	Screw-in	192009	SEA-3GS-M8-S
		Solderable	18696	SEA-GS-M8
	Straight plug, M12	4-pin, PG7	18666	SEA-GS-7
		4-pin, PG9	18778	SEA-GS-9
		4 pin, for 2.5 mm cable Ø	192008	SEA-4GS-7-2.5
		5-pin, PG7	175487	SEA-M12-5GS-PG7
	Sub-D plug	25-pin	527522	SD-SUB-D-ST25
<u> </u>	Cover cap (pack of 10)	M8	177672	ISK-M8
		M12	165592	ISK-M12
Connecting cable				
	Modular system for a choice of connecting cables → Internet: nebu		-	NEBU
	Straight plug M8, 3-pin, straight socket M8, 3-pin	0.5 m	541346	NEBU-M8G3-K-0.5-M8G3
a de la		1.0 m	541347	NEBU-M8G3-K-1-M8G3
		2.5 m	541348	NEBU-M8G3-K-2.5-M8G3
		5.0 m	541349	NEBU-M8G3-K-5-M8G3
	Straight plug M12, 4-pin, straight socket M12, 5-pin	0.5 m	8000208	NEBU-M12G5-K-0.5-M12G4
Push-in T-connector				
	Plug M12, A-coded, 4-pin	2x socket M12, A-coded, 5-pin	8005310	NEDY-L2R1-V1-M12G5-N-M12G4
	·	2x socket M8, A-coded, 3-pin	8005311	NEDY-L2R1-V1-M8G3-N-M12G4
STATE STATE	Modular system for all types of sensor/actuator distributor → Internet: nedy	1	-	NEDY

AS-Interface[®] components

Ordering data	Designation		Part no.	Ture
Other	Designation		Fait IIU.	Туре
Other	24 V DC power supply	5 A	8149580	CACN-3A-1-5-G2
		10 A	8149581	CACN-3A-1-10-62
	Addressing device (power supply plug included in the scope of deliver	y)	18959	ASI-PRG-ADR
and the	Addressing cable		18960	KASI-ADR
	AS-Interface input module for 8 inputs M8, compact	542124	ASI-8DI-M8-3POL	
	AS-Interface input/output module for 4 inputs/3 outputs M12, compa	542125	ASI-4DI3DO-M12X2-5POL-Z	
C BIRE	For foil Inscription label holder for sub-base, transparent, for paper foil label	VMPA2	533362	VMPA1-ST-1-4
		Can be used for VMPA14	8085996	VMPA14-ST-1-4
	For IBS Inscription label holder for sub-base, 4-part, for IBS 6x10	Can be used for VMPA1 VMPA2	544384	VMPA1-ST-2-4
•		Can be used for VMPA14	8085997	VMPA14-ST-2-4
	Inscription labels 6x10 mm in frames (pack of 64)		18576	IBS 6x10
	H-rail to EN 60715		35430	NRH-35-2000
	H-rail mounting		526032	CPX-CPA-BG-NRH
00	Mounting bracket		534416	VMPA-BG-RW
User documentation		I		
	Manual for MPA-S pneumatics	German	534240	P.BE-MPA-DE
	>	English	534241	P.BE-MPA-EN
		French	534243	P.BE-MPA-FR
		Italian Spanish	534244	P.BE-MPA-IT
		Spanish	534242	P.BE-MPA-ES

VTSA/VTSA-F valve terminal





VTSA/VTSA-F valve terminals with AS-Interface - Valve configuration options

VTSA/VTSA-F valve terminals with AS-Interface can be flexibly configured with a wide range of valves. The system supports a maximum of 8 outputs (solenoid coils) and 8 inputs per valve terminal. This gives the following basic valve configuration options (see tables on following page)

- 🚪 - Note

Please follow the link below for more details on the various pneumatic functions.

- → Internet: vtsa
- → Internet: vtsa-f

General

- Solutions with integrated inputs
- Width 18, 26, 42 and 52 mmWith or without 24 V DC auxiliary
- power supply for solenoid coils (EMERGENCY-STOP circuitry) with version 41/40. The auxiliary power supply is always integrated in the version with 8 inputs and cannot be subsequently switched off using the DIL switch.
- Selectable bus connection technology
 - Flat cable for AS-Interface with 4I/40 version
 - 4-pin M12 round plug¹ with 4I/40 and 8I/80 version
- Selectable addressing
 Via bus connection (M12 or flat
 - cable)

Versions

• 1 to 8 valves, freely configurable

- Soft-start valve for slow and safe pressure build-up
 - High degree of safety
 - Safe pressurisation with sensor function
- With 4 or 8 inputs
- M8, M12, quick connection, spring-loaded terminal or Sub-D connection technology
- Separating seals for creating pressure zones
- Suitable for vacuum
- Subsequent extensions either
 via vacant positions
 - by converting the valve terminal

Application

- Flexible and cost-effective connection of 1 or 8 valves (max. 8 solenoid coils) with input feedback.
- Decentralised machine and system structures, e.g.
 - in handling technology
 - in conveyor technology
 - in the packaging industry
 - in sorting systems
 - suitable for energy chains thanks to connection via round cables

1) Matching cable distributor for flat cable to M12 \rightarrow 54

VTSA/VTSA-F valve terminal – Connection technology and addressing

Types of valve terminal with AS-Interface														
Туре	Valves	Solenoid coils	Inputs	Auxiliary power suppl	Width (mm)									
		switched off							switched off					
				Yes	No	18	26	42 ¹⁾	52 ¹⁾					
VTSA/VTSA-F-ASI-4E4A-Z	4	4	4	•	-	•			•					
VTSA/VTSA-F-ASI-8E8A-Z	8	8	8	-					•					

1) Width 42 and 52 mm not with VTSA-F – with width 52 mm, the auxiliary power supply is required.

Permissible combinations in valve position allocation (examples)

Туре	Slave n								
	0	1	2	3					
4I/40 VTSA/VTSA-F - 18 and 26 mm (2 valves	Μ	М	M	M					
per sub-base)	M	M	M	L					
	M	M	-	-					
	Μ	L	-	-					
	J	Μ	-	-					
	M	J	-	-					
	J	J	-	-					
Special case	M	M	J	L					
4I/40 VTSA – 42 and 52 mm (1 valve per sub-	М	M	M	M					
base)	M	M	M	L					
	M	M	-	-					
	M	-	-	-					
	J	M	-	-					
	J	M	Μ	-					
	Μ	J	М	-					
	J	J	-	-					

Permissible combinations in valve position allocation (examples)

Permissible combinations in valve position allocation (examples)										
Туре	Slave n plus slave n+1									
	0	1	2	3	4	5	6	7		
8I/80 VTSA/VTSA-F	Μ	Μ	Μ	Μ	Μ	М	Μ	М		
	Μ	М	М	L	М	М	М	L		
	J	J	J	J	-	-	-	-		
	J	J	J	Μ	-	-	-	-		
	J	J	М	М	-	-	-	-		
	J	J	М	м	м	М	-	-		

1) All valve slices are freely configurable, limited by the number of solenoid coils supported (4 or 8).

A cover plate can be used instead of a valve slice, a cover plate can be used as reserve position for one or two solenoid coils.

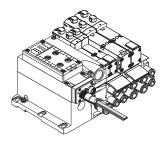
Valve slice with single solenoid valve or alternatively a different valve slice with one output М Valve slice with double solenoid valve or alternatively a different valve slice with two outputs J

L Vacant position

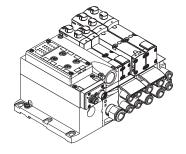
VTSA/VTSA-F valve terminal – Connection technology and addressing

Installation: Selectable connection technology for AS-Interface

Support for flat cables



- Straightforward installation with flat cable in the more protected area
 Fast installation technology with
- standard AS-Interface cables
- Standard installation at the AS-Interface using yellow flat cable possible with VTSA/VTSA-F version 41/40

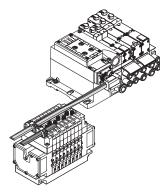


2

Support for round cables

Local round cable wiring for areas with permanently higher loads:

- Consistently high humidity
- Need for flexible installation with one cable
- Use in energy chains with highly flexible lines
- Pre-assembled M12 round cable, 1 m, polyurethane
- [2] Optional cable for additional slave, e.g. highly flexible cable for energy chains or PVC cable for applications requiring resistance to cleaning agents



Addressing Addressing device



Using the addressing device according

to SPEC V2.1, it is possible to scan the

AS-Interface from any chosen point in

the network. At all connected stations:

• Slave addresses can be read/

ID and IO codes can be read outParameters can be read/changedInput/output data can be read and

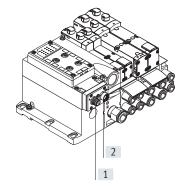
written (setting outputs)Error messages can be read out and

quickly recognised.

changed

AS-Interface connections

1

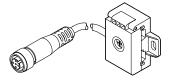


- [1] M12 plug for AS-Interface and incoming auxiliary supply
- [2] M12 socket for AS-Interface and outgoing auxiliary supply

2022/10 - Subject to change

VTSA/VTSA-F valve terminal – Connection technology and addressing

AS-Interface flat cable distributor to round cable



Alternative connection concepts

- Connection technology for AS-Interface for yellow and optionally for black flat cable
 Passive conversion of signals on
- M12 socket and round cable with M12 socket • Pre-assembled round cable 1 m,
- PUR
 Optional PVC extension cable, or
- Optional PVC extension cable, or other suitable cable of any length, via additional M12 socket

Selecting the cable

It is easy to implement optimised connection technologies at the AS-Interface by choosing the appropriate cable:

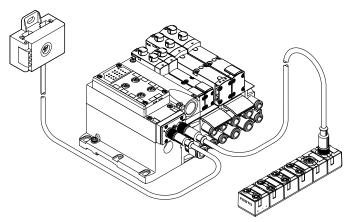
- Flat cables for all standard applications with insulation displacement technology to reduce installation effort
- Round cables for applications with different requirements, e.g.:
 - Energy chains with a small radius and increased requirement for highly flexible cables
 - Applications with consistently high humidity

- Applications in which a lot of cleaning takes place and in which cables that are resistant to cleaning agents are required (PUR, PVC or other cables)
- Cabling with standards (M12) preferred

Easy to assemble

Direct assembly on the wall or machine frame.

Supplementary, compact I/O modules



The compact I/O modules can be used to supplement the valve terminals VTSA/VTSA-F. The following are available:

- 8 inputs M8
- 4 inputs/3 outputs M12

Key features – Display and operation

Display and operation

Each solenoid coil is allocated an LED which indicates its switching status.

- Indicator 12 shows the switching status of the pilot control for output 2
- Indicator 14 shows the switching status of the pilot control for output 4

Pneumatic connection and control elements

Manual override

The manual override enables the valve to be switched when not electrically actuated or energised.

The valve is switched by pushing the manual override. The set switching status can also be locked by rotating the manual override.

Alternatives:

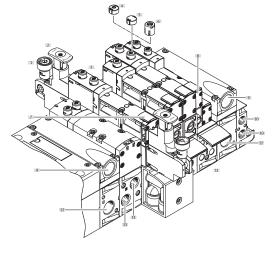
- A cover cap (accessory code N) can be fitted over the manual override to prevent it from being rotated. The valve can then only be actuated by pressing it.
- A cover cap (code V) can be fitted over the manual override to prevent it from being accidentally actuated.

- [1] Pressure gauge (optional)
- [2] Adjusting knob for optional pressure regulator plate
- [3] Manual override (for each pilot solenoid coil, non-detenting or non-detenting/detenting)
- [4] Cover cap for manual override, non-detenting
- [5] Cover cap for manual override, concealed
- [6] Heavy-duty cover cap for manual override, non-detenting heavy duty, detenting via accessory
- [7] Inscription label holder for valve
- [8] Adjusting screw of optional throttle plate
- [9] Exhaust ports "Valves" (3/5)

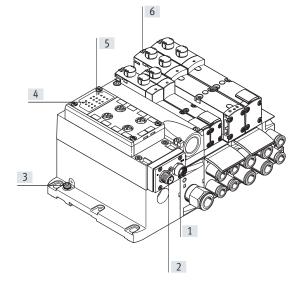
- [10] Pilot ports 12 and 14 for supplying the external pilot air
- [11] Inscription label holder for subbase
- [12] Supply port 1 (operating pressure
- [13] Working ports 2 and 4, per valve position

- 🖡 - Note

A manually operated valve (manual override) cannot be reset electrically. Conversely, an electrically actuated valve cannot be reset using the mechanical manual override.



Electrical connection and display elements



- [1] M12 socket, AS-Interface bus and auxiliary power supply (AS-i Out)
- [2] M12 plug for AS-Interface bus and auxiliary power supply (AS-i In)
- [3] Earth terminal
- [4] Status LEDs for inputs
- [5] Status LEDs for AS-Interface
- [6] Diagnostic LEDs for valves

Type			VTSA/VTSA-F-ASI-4E4	4A-7	VTSA/VTSA-F-ASI-8E8A-Z
Part no.			Order via ident. code/valve terminal configurator		
		Any 4		8	
Digital inputs	Number of inputs				-
	Connection technology		1 1 1	<u> </u>	ng-loaded terminal, Sub-D
	Sensor supply via AS-Interface		Short-circuit and ove		
	Sensor connection		2-wire and 3-wire se		
	Design		IEC 1131-2, type 02		
	Input circuit		PNP (positive switch	iing)	1
Valves	Number of solenoid coils		4		8
	Valve width	[mm]		n 42 and 52 mm only with	
	Power supply (auxiliary supply) 24 V DC		Set using DIL switch		Yes
Max. current consumption of v	valves per solenoid coil	[mA]	90		
AS-Interface connection	Connection technology		Plug M12x1, 4-pin;	socket M12x1, 4-pin ²⁾	
	Voltage range	[V DC]	26.5 31.6, reverse polarity protected		
	Residual ripple	[mVss]	20		
	Electrical isolation of the fieldbus interface		Optocoupler		
	Current consumption, inputs	[mA]	Without auxiliary	With auxiliary power	With auxiliary power supply
			power supply	supply	
	Basic electronic load		≤25	≤25	≤25
	Total input current		350	350	350
	Total current consumption		Max. 500	Max. 700	Max. 700
Load voltage connection	Connection technology		M12 connection ²⁾		
	Voltage range	[V DC]	21.6 26.4		
	Residual ripple	[Vss]	4		
LED displays	ASI LED		Green		
	AUX-PWR LED		Green		
	FAULT LED		Red		
	Inputs		Green		
	Valves		Yellow		
AS-Interface data	AS-Interface specification		AS-Interface complete Spec 3.0		
	Addressing range, slave		131		
	Ident. code		$ID = F_{H}; ID1 = F_{H}^{(1)}; ID$	$D2 = E_H$	
	IO code		7 _H		
	Profile		S-7.F.E		

 $\begin{array}{ll} 1) & \mbox{Factory setting, is set by some programming devices (Spec. 2.1) when addressing slaves to 0_H \\ 2) & \mbox{Matching cable distributor for flat cable to M12 $\Rightarrow 54 \\ \end{array}$

Operating and environmental conditions

Operating and environmental conditions				
Degree of protection (to	DEN 60529)		IP65, NEMA 4 (in assembled state)	
Electromagnetic compa	atibility		Tested to EN 50295	
CE marking (see declar	ation of conformity)		To EU EMC Directive ¹⁾	
			To EU Low Voltage Directive	
Certification	Certification		c UL us - Recognized (OL)	
			C-Tick	
Ambient temperature		[°C]	-5 +50	
Storage temperature		[°C]	-20+40	
Materials	Housing		Die-cast aluminium, PA	
	Seals		NBR, PUR	
Note on materials			RoHS-compliant	
Weight	AS-Interface connection	[g]	300	
	Multi-pin node	[g]	850	

1) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

T

- 🖡 - Note

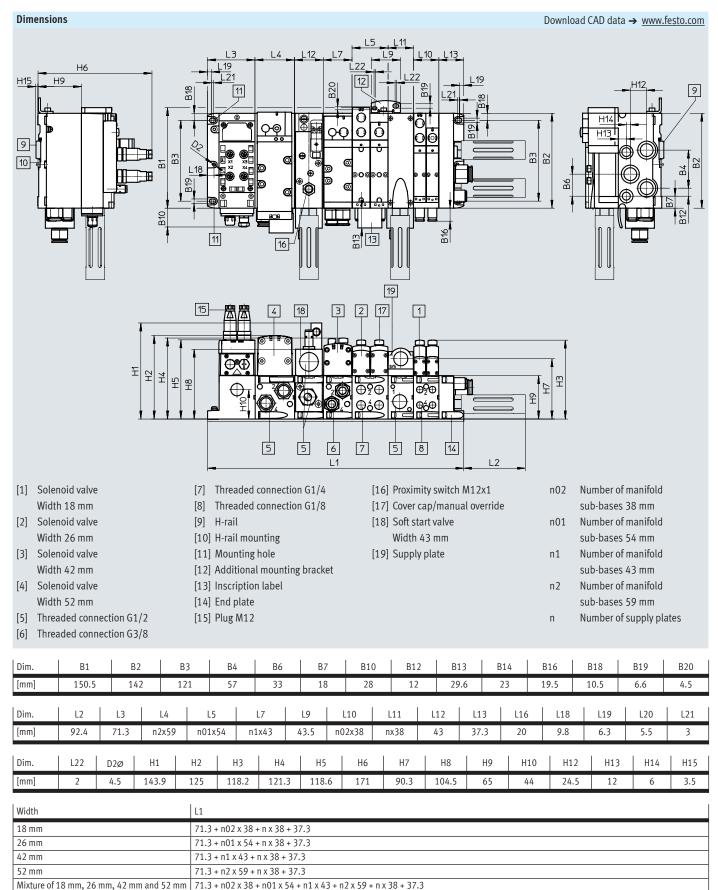
The valve terminal with AS-Interface connection is based on the same electrical links as the valve terminal with multi-pin plug connection. This means it is possible to convert a valve terminal with multi-pin plug connection using an AS-Interface module. The technical specifications of the AS-Interface system must be observed in this case.

Combinations of connection blocks and electronics modules for inputs

Compinations of connection plocks and election	combinations of connection blocks and electronics induces for inputs				
Connection blocks	Part no.	VTSA/VTSA-F-ASI-8E8A-Z	VTSA/VTSA-F-ASI-4E4A-Z		
CPX-AB-4-M12x2-5POL	195704		•		
CPX-AB-4-M12x2-5POL-R	541254				
CPX-AB-8-KL-4POL	195708	•			
CPX-AB-1-Sub-BU-25POL	525676				
CPX-AB-4-HAR-4POL	525636				
CPX-AB-8-M8-3POL	195706		•		

Pin allocation Connection block inputs		VTSA/VTSA-F-ASI-8E8A-	-Z	VTSA/VTSA-F-ASI-4E4/	A-Z
CPX-AB-4-M12X2-5POL					
	$= \underbrace{\begin{pmatrix} 3 \\ 2 \\ 2 \\ 2 \\ 2 \\ 1 \\ 1 \\ 1 \\ 2 \\ 2 \\ 2$	X1.1: 24 V _{SEN} X1.2: Input x+1 X1.3: 0 V _{SEN} X1.4: Input x X1.5: FE	X3.1: 24 V _{SEN} X3.2: Input x+5 X3.3: 0 V _{SEN} X3.4: Input x+4 X3.5: FE	X1.1: 24 V _{SEN} X1.2: Input x+1 X1.3: 0 V _{SEN} X1.4: Input x X1.5: FE	X3.1: 24 V _{SEN} X3.2: Input x+3 X3.3: 0 V _{SEN} X3.4: Input x+2 X3.5: FE
	$\begin{array}{ccc} X & 2 & X \\ \end{array}$	X2.1: 24 V _{SEN} X2.2: Input x+3 X2.3: 0 V _{SEN} X2.4: Input x+2 X2.5: FE	X4.1: 24 V _{SEN} X4.2: Input x+7 X4.3: 0 V _{SEN} X4.4: Input x+6 X4.5: FE	X2.1: 24 V _{SEN} X2.2: n.c. X2.3: 0 V _{SEN} X2.4: Input x+1 X2.5: FE	X4.1: 24 V _{SEN} X4.2: n.c. X4.3: 0 V _{SEN} X4.4: Input x+3 X4.5: FE
PX-AB-8-M8-3POL					
	$\begin{array}{c} 4 \mathbf{X1} & 4 \mathbf{X5} \\ 3 \mathbf{X2} & 3 \mathbf{X6} \\ 4 \mathbf{X2} & 4 \mathbf{X6} \\ 3 \mathbf{X3} & 3 \mathbf{X7} \\ 4 \mathbf{X3} & 4 \mathbf{X7} \\ 4 \mathbf{X3} & 4 \mathbf{X7} \\ \end{array}$	X1.1: 24 V _{SEN} X1.3: 0 V _{SEN} X1.4: Input x X2.1: 24 V _{SEN} X2.3: 0 V _{SEN} X2.4: Input x+1	X5.1: 24 V _{SEN} X5.3: 0 V _{SEN} X5.4: Input x+4 X6.1: 24 V _{SEN} X6.3: 0 V _{SEN} X6.4: Input x+5	X1.1: 24 V _{SEN} X1.3: 0 V _{SEN} X1.4: Input x X2.1: 24 V _{SEN} X2.3: 0 V _{SEN} X2.4: Input x+1	X5.1: 24 V _{SEN} X5.3: 0 V _{SEN} X5.4: Input x+2 X6.1: 24 V _{SEN} X6.3: 0 V _{SEN} X6.4: Input x+3
	30 ⁻ 30 ⁻ 4 X4 1 4 X8 1 3 ⁻ 3 ⁻ 3 ⁻	X3.1: 24 V _{SEN} X3.3: 0 V _{SEN} X3.4: Input x+2 X4.1: 24 V _{SEN} X4.3: 0 V _{SEN}	X7.1: 24 V _{SEN} X7.3: 0 V _{SEN} X7.4: Input x+6 X8.1: 24 V _{SEN} X8.3: 0 V _{SEN}	X3.1: 24 V _{SEN} X3.3: 0 V _{SEN} X3.4: Input x+1 X4.1: 24 V _{SEN} X4.3: 0 V _{SEN}	X7.1: 24 V _{SEN} X7.3: 0 V _{SEN} X7.4: Input x+3 X8.1: 24 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.

Pin allocation Connection block inputs		VTSA/VTSA-F-ASI-8E8A-Z	VTSA/VTSA-F-ASI-4E4A-Z
	X1 .1 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
CPX-AB-1-SUB-BU-25POL	13000000000000000000000000000000000000	1: Input x 14: Input x+4 2: Input x+1 15: Input x+5 3: Input x+2 16: Input x+6 4: Input x+3 17: Input x+7 5: 24 V _{SEN} 18: 24 V _{SEN} 6: 0 V _{SEN} 19: 24 V _{SEN} 7: 24 V _{SEN} 20: 24 V _{SEN} 8: 0 V _{SEN} 21: 24 V _{SEN} 9: 24 V _{SEN} 22: 0 V _{SEN} 10: 24 V _{SEN} 23: 0 V _{SEN} 11: 0 V _{SEN} 24: 0 V _{SEN} 12: 0 V _{SEN} 25: FE 13: FE Socket: FE	1: Input x 14: Input x+2 2: Input x+1 15: Input x+3 3: Input x+1 16: Input x+3 4: n.c. 17: n.c. 5: 24 V _{SEN} 18: 24 V _{SEN} 6: 0 V _{SEN} 19: 24 V _{SEN} 7: 24 V _{SEN} 20: 24 V _{SEN} 8: 0 V _{SEN} 21: 24 V _{SEN} 9: 24 V _{SEN} 23: 0 V _{SEN} 10: 24 V _{SEN} 23: 0 V _{SEN} 11: 0 V _{SEN} 25: FE 13: FE Socket: FE
CPX-AB-4-HAR-4POL	4 3 x_1 4 x_2 x_3 x_4 x_5 x_4 x_5 x_5 x_6	X1.1: 24 V _{SEN} X3.1: 24 V _{SEN} X1.2: Input x+1 X3.2: Input x+5 X1.3: 0 V _{SEN} X3.3: 0 V _{SEN} X1.4: Input x X3.4: Input x+4 X2.1: 24 V _{SEN} X4.1: 24 V _{SEN} X2.2: Input x+3 X4.1: 24 V _{SEN} X2.2: Input x+3 X4.2: Input x+7 X2.3: 0 V _{SEN} X4.3: 0 V _{SEN} X2.4: Input x+2 X4.4: Input x+6	X1.1: 24 V _{SEN} X3.1: 24 V _{SEN} X1.2: Input x+1 X3.2: Input x+3 X1.3: 0 V _{SEN} X3.3: 0 V _{SEN} X1.4: Input x X3.4: Input x+2 X2.1: 24 V _{SEN} X4.1: 24 V _{SEN} X2.2: n.c. X4.2: n.c. X2.3: 0 V _{SEN} X4.3: 0 V _{SEN} X2.4: Input x+1 X4.4: Input x+3



Ordering data				
	Designation		Part no.	Туре
Bus connection		1		
////	AS-Interface flat cable 100 mm	Yellow	18940	KASI-1.5-Y-100
		Black	18941	KASI-1.5-Z-100
	Flat cable dummy plug		196090	ASI-SD-FK-BL
	AS-Interface flat cable distributor	Rotatable cable	18786	ASI-KVT-FK
RANK A	AS-Interface flat cable distributor	Symmetrical cable	18797	ASI-KVT-FK-S
A Company and the second secon	Cable cap for flat cable (pack of 50)		18787	ASI-KK-FK
	Cable sleeve (pack of 20)		165593	ASI-KT-FK
	M12 socket, 4-pin	For AS-Interface flat cable	18789	ASI-SD-PG-M12
	M12 socket, 5-pin	For round cable	18324	FBSD-GD-9-5POL
able distributor		·	,	·
	AS-Interface data to socket M12, 4-pin		572225	NEFU-X22F-M12G4
	AS-Interface data and load voltage supply to socke	et M12, 4-pin	572226	NEFU-X24F-M12G4
	AS-Interface data and load voltage supply to socket M12, 4-pin, cable length 1 m			NEFU-X24F-1-M12G4
)UO plug				
	Plug M12 for 2 connecting cables	4-pin	18779	SEA-GS-11-DUO
		5-pin	192010	SEA-5GS-11-DUO

Designation		Part no.	Туре
Straight plug, M8, 3-pin	Screw-in	192009	SEA-3GS-M8-S
	Solderable	18696	SEA-GS-M8
Straight plug, M12	4-pin, PG7	18666	SEA-GS-7
	4-pin, PG9	18778	SEA-GS-9
	4 pin, for 2.5 mm cable Ø	192008	SEA-4GS-7-2.5
	5-pin, PG7	175487	SEA-M12-5GS-PG7
Sub-D plug	25-pin	527522	SD-SUB-D-ST25
Cover cap (pack of 10)	M8	177672	ISK-M8
	M12	165592	ISK-M12
Modular system for a choice of connecting cables		-	NEBU
→ Internet: nebu			
Straight plug M8, 3-pin, straight socket M8, 3-pin	0.5 m	541346	NEBU-M8G3-K-0.5-M8G3
	1.0 m	541347	NEBU-M8G3-K-1-M8G3
	2.5 m	541348	NEBU-M8G3-K-2.5-M8G3
	5.0 m	541349	NEBU-M8G3-K-5-M8G3
Straight plug M12, 4-pin, straight socket M12, 5-pin	0.5 m	8000208	NEBU-M12G5-K-0.5-M12G4
Plug M12, A-coded, 4-pin	2x socket M12, A-coded. 5-pin	8005310	NEDY-L2R1-V1-M12G5-N-M12G4
	2x socket M8, A-coded, 3-pin	8005311	NEDY-L2R1-V1-M8G3-N-M12G4
Modular system for all types of sensor/actuator distributor		-	NEDY
→ Internet: nedy			
	Straight plug, M8, 3-pin Straight plug, M12 Straight plug, M12 Sub-D plug Cover cap (pack of 10) Modular system for a choice of connecting cables → Internet: nebu Straight plug M8, 3-pin, straight socket M8, 3-pin Straight plug M12, 4-pin, straight socket M12, 5-pin Plug M12, A-coded, 4-pin Modular system for all types of sensor/actuator distributor	Straight plug, M8, 3-pin Screw-in Solderable Straight plug, M12 4-pin, PG7 4 pin, for 2.5 mm cable Ø 5-pin, PG9 4 pin, for 2.5 mm cable Ø 5-pin, PG7 Sub-D plug Cover cap (pack of 10) M8 M12 Modular system for a choice of connecting cables > Internet: nebu Straight plug M8, 3-pin, straight socket M8, 3-pin 1.0 m 2.5 m 5.0 m Straight plug M12, 4-pin, straight socket M12, 5-pin O.5 m Plug M12, A-coded, 4-pin Plug M12, A-coded, 4-pin Modular system for all types of sensor/actuator distributor	Straight plug, M8, 3-pin Screw-in 192009 Straight plug, M12 4-pin, PG7 18666 4-pin, PG9 18778 4 pin, for 2.5 mm cable Ø 192008 5-pin, PG7 175487 Sub-D plug 25-pin 527522 Cover cap (pack of 10) M8 177672 Modular system for a choice of connecting cables - > Internet: nebu 541346 Straight plug M12, 4-pin, straight socket M8, 3-pin 0.5 m 541346 1.0 m 541347 2.5 m 541348 5.0 m 541349 5.0 m 541349 Straight plug M12, 4-pin, straight socket M12, 5-pin 0.5 m 8000208 Plug M12, A-coded, 4-pin 2x socket M12, A-coded, 5-pin 8005310 2x socket M8, A-coded, 3-pin 8005311 9005311 Modular system for all types of sensor/actuator distributor - -

AS-Interface[®] components

Ordering data					
	Designation		Part no.	Туре	
Other					
	24 V DC power supply	5 A	8149580	CACN-3A-1-5-G2	
		10 A	8149581	CACN-3A-1-10-G2	
	Addressing device (power supply plug included in the scope of deliver	y)	18959	ASI-PRG-ADR	
and the	Addressing cable	ressing cable			
	AS-Interface input module for 8 inputs M8	542124	ASI-8DI-M8-3POL		
	AS-Interface input/output module for 4 inputs/3 outputs M12	542125	ASI-4DI3DO-M12X2-5POL-Z		
\bigcirc	Clip-on inscription label holder for valve cap (pack of 5)		540888	ASCF-T-S6	
	Inscription label holder for manifold blocks (pack of 5)		540889	ASCF-M-S6	
	H-rail to EN 60715			NRH-35-2000	
	H-rail mounting			CPX-CPA-BG-NRH	
User documentation					
	Manual – Valve terminal VTSA and VTSA-F	German	538922	P.BE-VTSA-44-DE	
		English	538923	P.BE-VTSA-44-EN	
		French	538925	P.BE-VTSA-44-FR	
		Italian	538926	P.BE-VTSA-44-IT	
		Spanish	538924	P.BE-VTSA-44-ES	
	French Italian		538926	P.BE-VTSA-44-IT	

Compact I/O modules to Spec. 2.1



Compact I/O modules to Spec. 2.1 General description

- Highly compact modules
- Encapsulated, sturdy electronics
- Inputs/outputs to IEC 1131, PNP
- Short circuit proof, overload proof
- Inputs suitable for proximity switches, inductive, capacitive or optical sensors and light barriers
- Ideal for use in decentralised handling and assembly as well as universal applications with more demanding requirements
- AS-Interface Spec. 2.11
- A/B mode
- Bus and auxiliary power supply looped through via 2x M12
- Quick installation
- Diagnostics per module

Module with 8 inputs

- Two slaves in one housing
- 8 inputs M8, 3-pin, 200 mA per input
- Peripherals fault per slave, two fault LEDs
- Status indication per input
- Supply exclusively from "yellow" AS-Interface cable, pins for auxiliary supply are looped through only
- This makes it possible to cascade the input/output modules

Module with 4 inputs/3 outputs

- Individual slave
- 4 inputs M12, 5-pin, double allocation, 200 mA per input
- 3 outputs M12, 5-pin, double allocation, 1 A per output
- Peripherals fault, fault LED
- Status indication for each input and output
- Supply of inputs exclusively from "yellow" AS-Interface cable
- Supply of outputs exclusively from "black" AS-Interface cable

Applications



The M12 bus connection standardised in the AS-Interface specification offers a range of benefits:

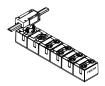
- Use of standardised, pre-assembled M12 connecting cables
- One cable instead of two
- Quick M12 screw-type lock saves installation effort
- Flexible selection and optimisation of required cable qualities in areas with consistently high load, e.g. for
 - Energy chainsRobot arms (torsion)
 - Environments with high humidity
 - Aggressive media

This connection technology makes the compact modules ideally suited for use both in demanding and in very compact environments. Decentralised machine and system structures, for example

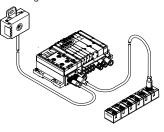
- Handling technology
- Conveyor technology
- Packaging industry
- Sorting systems
- Upstream functions via energy chains and robot arms

Application tips

• Supplements valve terminals to optimise the number of inputs



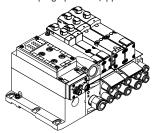
• Suitable for valve terminals with M12 bus connection to loop the bus through via M12



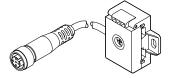
• Universal applications for all current sensors and light barriers up to 200 mA per channel



• Universal outputs of 1 A can be connected, with parallel switching in DUO plug up to 2 A (approx. 50 W)



AS-Interface flat cable distributor to round cable



Alternative connection concepts

- Connection technology for AS-Interface for yellow and optionally for black flat cable
- Passive conversion of signals on M12 socket and round cable with M12 socket
 Pre-assembled round cable 1 m,
- PUR
- Optional PVC extension cable, or other suitable cable of any length, via additional M12 socket

Selecting the cable

It is easy to implement optimised connection technologies at the AS-Interface by choosing the appropriate cable:

- Flat cables for all standard applications with insulation displacement technology to reduce installation effort
- Round cables for applications with different requirements, e.g.:
 - Energy chains with a small radius and increased requirement for highly flexible cables

- Applications with consistently high humidity
- Applications in which a lot of cleaning takes place and in which cables that are resistant to cleaning agents are required (PUR, PVC or other cables)
- Cabling with standards (M12) preferred

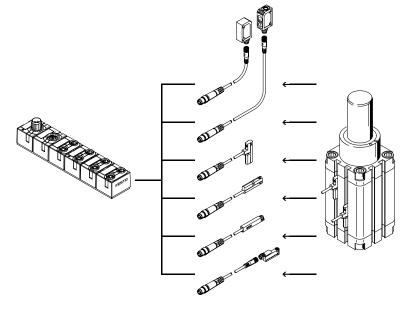
Easy to assemble

Direct assembly on the wall or machine frame.

Tips for application and installation (inputs/outputs) Input module 8DI-M8

Connection technologies using M8 take account of increasing miniaturisation.

Sensors with pre-assembled connecting cables M8 or with M8 plugs can be connected directly in a 1:1 connection. This simplifies allocation and troubleshooting. Individual sensors or cables can be easily and quickly replaced in the event of faults.



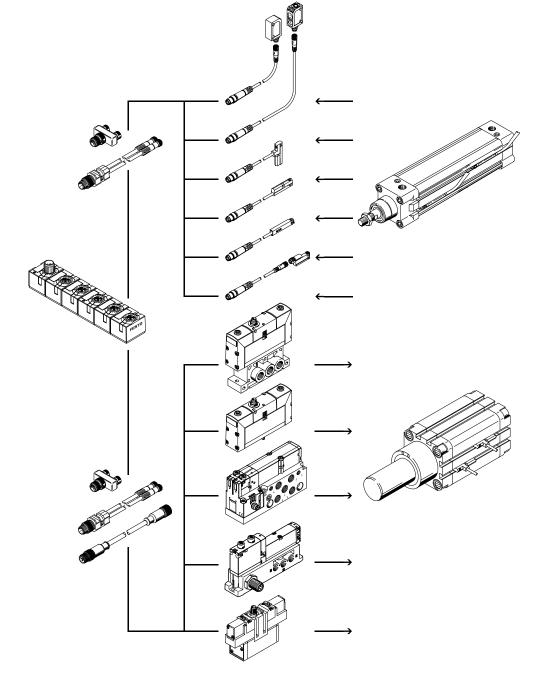
Tips for application and installation (inputs/outputs)

Input/output module 4DI3DO-M12

Robust connection technology using M12 is a widely accepted standard for inputs and outputs. Direction connection for sensors with M12 connection. M12 interfaces with double allocation can be split using a DUO plug, DUO cable or T adapter as 2xM12 or 2xM8. The standard for valves with central plug EN 60947-5-2 and ISO 20401 defines M12 and M8 with double allocation. This allows both a double solenoid valve and a single solenoid valve to be connected directly with a 1:1 connection to a compact AS-Interface module. This simplifies allocation and troubleshooting. Individual valves or cables can be easily and quickly replaced in the event of faults.

📲 - Note

In the Festo modular system for connecting cables (NEBU...), adapter cables can be configured for M8 4-pin to M12 5-pin, so that even small valve plugs as in the case of MPA-S can be connected directly via pre-assembled cables.



Tips for application and installation (AS-Interface)

The compact I/O modules have 4-pin M12 connections for bus In and bus Out.

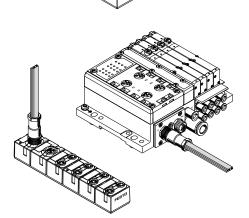
Input module 8DI-M8

In line with the specification of the AS-Interface, both signal cables for the bus and optional auxiliary supply 24 V DC are incorporated in this one connection. All 4 connections are looped through, allowing multiple modules and even downstream valve terminals to be cascaded.

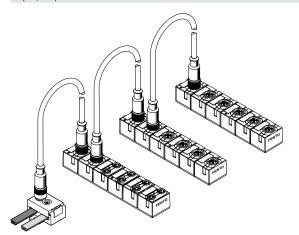
On this module, the supply of inputs is exclusively from the "yellow" AS-Interface cable, i.e. the pins for the auxiliary supply remain unused. This means the following alternative connection technologies can be implemented in addition to connections via M12 round plugs:

If an input module is at the end of a strand, the flat cable can also be guided by a specially sealed fitting.

- Cable distributor NEFU-X2, mounted directly.
- Several directly adjacent modules can thus be connected to one another quickly and economically.
- A transition to valve terminals such as CPV is possible directly without converter.
- Connection socket ASI-SD-PG-M12 mounted directly.
- Use on valve terminals with M12 is also possible, provided the auxiliary power supply is not required.



Input/output module 4DI3DO-M12



On this module, the supply of inputs is exclusively from the "yellow" AS-Interface cable, and the supply of outputs exclusively from the "black" AS-Interface cable. Supply takes place either completely via an M12 installation or via suitable converters, e.g. the flat cable distributor NEFU-X24F-M12G4.

🛔 - Note

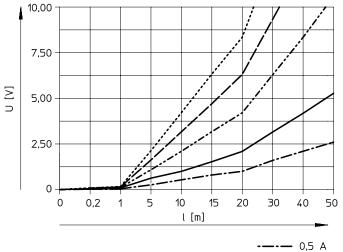
The contact load of an M12 pin is limited to 4 A. With cascaded modules, make sure that the maximum current load of the first M12 connection in a series is not exceeded, even in the worst case.

Voltage drop on cables with M12 connection

Please 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 designed according to the permissible voltage tolerances of the AS-Interface signal and the outputs for consuming devices with additional load voltage.

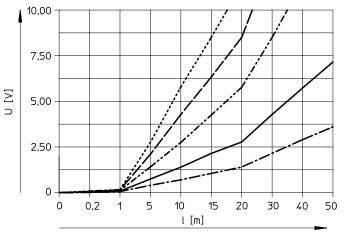
The graphs below give an initial impression (non-linear scaling of the cable length):







Voltage drop U for cable cross-section 0.25 $\rm mm^2$ with M12



 0,5	A
 1	А



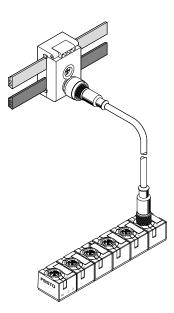
——- ЗА ----- 4 А

Installation

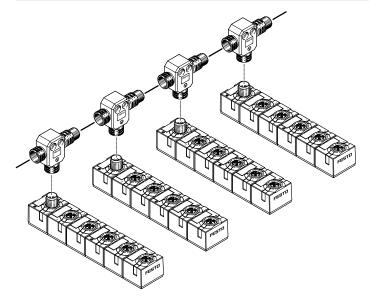
Installation for consuming devices with higher current consumption

If several amperes are to be drawn per module, an appropriate supply must be provided over several distributors; see following example. This allows the max. 3 A per module to be connected simultaneously.

In this case, also note that the voltage drop in the flat cables (2x 1.5 mm²) increases with large currents.



Alternative installation M12 with spurs



For a pure M12 installation, as an alternative to the looped-through AS-i bus, it is also possible to select an installation with spurs. The T adapter FB-TA-M12-5POL is suitable for this purpose (bus In: socket, bus Out: plug).

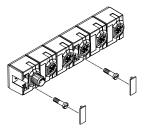
Mounting the compact AS-Interface modules Wall mounting

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

📲 - Note

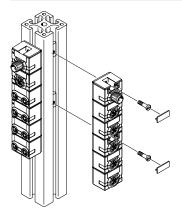
The modules are protected against short circuit with a temperature fuse. In the event of a prolonged short circuit, the housing may reach temperatures of above 100°C. The modules should therefore be mounted on a surface and in an environment that is designed for this temperature and where this will not trigger a risk of fire due to ignition (ATEX category T4 – up to 135°).

Wall mounting – Compact I/O modules



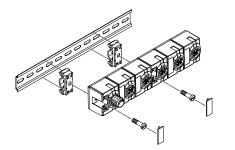
With the compact I/O modules, the mounting holes are covered by inscription labels.

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. On the compact CP modules, the mounting holes are covered by inscription labels. The following mounting kit is needed for H-rail mounting: • CP-TS-HS35

This enables mounting on H-rails to EN 60715.

Data sheet – Digital input module

Function

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

Area of application

- Input module for 24 V DC sensor signals
- Two slaves in one housing
- M8 plug, single allocation
- Indication of the input statuses for each input signal via LED
- 24 V DC supply for all connected sensors from the ("yellow") AS-Interface cable
- Peripherals fault LED for short circuit/undervoltage for each AS-Interface slave
- Modules support A/B mode to Spec. 2.11
- Bus connection 2x M12 for bus In and bus Out
- Bus and auxiliary supply looped through for cascading with output modules



Technical data – Digital inputs
Type

Type			ASI-8DI-M8-3POL	
Number of inputs			8	
Power supply 24 V DC			From the AS-Interface ("yellow" cable)	
Intrinsic current consumpt	ion of electronics	[mA]	Typically 35 (inputs not connected)	
Input current at 24 V DC (f	rom sensor)	[mA]	Typically 6	
Fuse protection for sensor	s and electronics modules		Internal thermal short circuit protection	
Max. current consumption	per sensor	[A]	0.24	
Max. current consumption	of the sensor supply, total current per slave	[A]	0.24	
Nominal operating voltage	for sensors	[V]	24	
Operating voltage range fo	r sensors	[V DC]	18 30	
Reverse polarity protectior	1		For logic and sensor supply and AS-Interface	
Galvanic 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			To IEC 1131-2	

Data sheet – Digital input module

General technical data			
Туре			ASI-8DI-M8-3POL
General	Degree of protection to EN 60529		IP65/IP67 (when fully plugged in or fitted with protective cap)
	Material		PBT
	Dimensions (LxWxD)	[mm]	151 x 30 x 30
	Weight	[g]	165
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	Connection to the AS-Interface		Via M12 connecting cables, 4-wire
voltage connection	Watchdog function		Active after 50 ms
	Peripherals fault/diagnostics		Short circuit/overload (temperature fuse per channel) to specification c.S.2.1, two red fault
			LEDs
			Automatic voltage return
	AS-Interface bus voltage	[V]	26.5 31.6
	Total current consumption of AS-Interface	[mA]	Max. 350
	Current-carrying capacity of M12 pins (AS-i,	[A]	Max. 4
	AUX)		
	AS-Interface IO code		0 _h
	AS-Interface ID code 1		A _h
	AS-Interface ID code 2		E _h
	AS-Interface 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

Operating and environmental conditions					
Туре	ASI-8DI-M8-3POL				
Degree of protection to EN 60529	IP65/IP67 (when fully plugged in or fitted with protective cap)				
Ambient temperature [°C]	-5 +50				
Storage temperature [°C]	-20+70				
Corrosion resistance class CRC ¹⁾	1				
CE marking (see declaration of conformity)	To EU EMC Directive ²⁾				
	To EU RoHS Directive				
	To EU Explosion Protection Directive (ATEX)				
KC marking	KC-EMV				
Certification	c UL us listed (OL)				

1) Corrosion resistance class CRC 1 to Festo standard FN 940070 $\,$

Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... -> Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

ATEX certifications

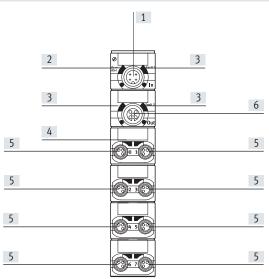
ATEX category for gas		II 3G
Type of ignition protection for gas		Ex nA IIC T4 X Gc
ATEX category for dust		II 3D
Type of ignition protection for dust		Ex tc IIIC T115°C X Dc IP67
ATEX ambient temperature	[°C]	$-5 \le Ta \le +50$

-- Note

When operating device combinations in potentially explosive areas, the lowest common zone, temperature class and ambient temperature of the individual devices determine the possible use of the entire module.

Data sheet – Digital input module





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

Pin allocation for sensor connections ASI-8DI-M8-3POL

Pin allocation for sensor connections ASI-8DI-M8-3POL						
	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	lx*	Sensor signal	4	lx+1*	

* Ix = Input x

Data sheet - Digital input/output module

Function

Combined digital input and output modules permit the connection of proximity switches 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.

Optimum actuation for valves with M12 central plug.

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

Area of application

- Input/output module for 24 V DC sensor signals and actuators, PNP
 Single slave
- M12 plug, 5-pin, double allocation
- Peripherals fault LED for short circuit/undervoltage of sensors or actuators
 - Modules support A/B mode to Spec. 2.11
 - Bus connection 2x M12 for bus In and bus Out
 - Bus and auxiliary supply looped through for cascading with further output modules
 - Indication of the input statuses for each input signal via LED
 - 24 V DC supply for sensors from the ("yellow") AS-Interface cable
 - Indication of the output statuses for each output signal via LED
- 24 V DC supply for actuators from the ("black") AS-Interface cable



Technical data – Digital inpu	ts					
Туре			ASI-4DI3DO-M12x2-5POL-Z			
Number of inputs			4			
Power supply 24 V DC			From the AS-Interface ("yellow" cable)			
Intrinsic current consumption	of electronics	[mA]	Typically 35 (inputs not connected)			
Input current at 24 V DC (from	sensor)	[mA]	Typically 6			
Fuse protection for sensors			is in the AS-Interface ("yellow" cable) iypically 35 (inputs not connected) iypically 6 internal thermal short circuit protection 0.24 0.25 24 8 30 ior logic and sensor supply and AS-Interface Ione			
Max. current consumption per	r sensor	[A]	0.24			
Max. current consumption of t	the sensor supply, total current per slave	[A]	0.25			
Nominal operating voltage for	sensors	[V]	24			
Operating voltage range for se	ensors	[V DC]	18 30			
Reverse polarity protection			For logic and sensor supply and AS-Interface			
Galvanic isolation	between the channels		For logic and sensor supply and AS-Interface None			
	to the AS-Interface system		Yes			
Logic level	Signal 0	[V]	≤5			
Signal 1 [V]		225 24 28 30 For logic and sensor supply and AS-Interface None 4/es 5/ 2 - 11 Typically 3 PNP				
Input delay		[ms]	Typically 3			
Switching logic			PNP			
Input characteristic			To IEC 1131-2			

Data sheet - Digital input/output module

Technical data – Digital outputs

Technical data – Digital outpu	uts				
Туре			ASI-4DI3DO-M12x2-5POL-Z		
Number of outputs			3		
Allocation of outputs			Socket 3 with double allocation, socket 4 with single allocation		
Design of 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]		[V DC]	24 ±25%		
Fuse protection for power outp	ut		Internal thermal short circuit protection for each output		
Reverse polarity protection			For actuator supply 24 V/0 V		
Switching logic			PNP		
Output characteristic			To ICE 1131-2		
Galvanic isolation	between the channels		None		
	to the AS-Interface system		Yes		
Voltage drop across the output	t	[V]	1.5		
Limitation of inductive switch-	off voltage	[V]	-1045		

General technical data

Туре			ASI-4DI3DO-M12x2-5POL-Z			
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	Degree of protection to EN 60529		IP65/IP67 (when fully plugged in or fitted with protective cap)			
	Material		PBT			
	Dimensions (LxWxD)	[mm]	151 x 30 x 30			
	Weight	[g]	165			
AS-Interface connection/load	Connection to the AS-Interface		Via M12 connecting cables, 4-wire			
voltage connection	Watchdog function		Active after 50 ms			
	Peripherals fault/diagnostics		Short circuit/overload (temperature fuse per channel) to specification C.S.2.1, two red fault			
			LEDs			
			Automatic voltage return			
	AS-Interface bus voltage	[V]	26.5 31.6			
	Total current consumption of AS-Interface	[mA]	Max. 250			
	Current-carrying capacity of M12 pins	[A]	Max. 4			
	(AS-Interface, AUX)					
	AS-Interface IO code		7 _h			
	AS-Interface ID code 1		A _h			
	AS-Interface ID code 2		2 _h			
	AS-Interface profile		S-7.A.2			
	AS-Interface address (factory setting)		#0A			
	AS-Interface specification		2.11 (compatible with 3.0)			

Data sheet - Digital input/output module

Operating and environmental conditions

Operating and environmental conditions					
Туре	ASI-4DI3DO-M12x2-5POL-Z				
Degree of protection to EN 60529	IP65/IP67 (when fully plugged in or fitted with protective cap)				
Ambient temperature [°C]	-5 +50				
Storage temperature [°C]	-20 +70				
Corrosion resistance class CRC ¹⁾	1				
CE marking (see declaration of conformity)	To EU EMC Directive ²⁾				
	To EU RoHS Directive				
	To EU Explosion Protection Directive (ATEX)				
KC marking	KC-EMV				
Certification	c UL us listed (OL)				

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... -> Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

ATEX certifications

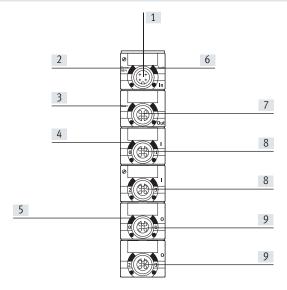
ATEX category for gas	II 3G
Type of ignition protection for gas	Ex nA IIC T4 X Gc
ATEX category for dust	II 3D
Type of ignition protection for dust	Ex tc IIIC T115°C X Dc IP67
ATEX ambient temperature [°C]	$-5 \le Ta \le +50$

_ - Note

When operating device combinations in potentially explosive areas, the lowest common zone, temperature class and ambient temperature of the individual devices determine the possible use of the entire module.

Connection and display components

ASI-4DI3DO-M12x2-5POL-Z



- [1] AS-interface connection, incoming
- [2] Status LED (green)
- Green LED for load voltage [3] indication
- [4] Green LED for status indication (one LED per input)
- [5] Yellow LED for status indication (one LED per input)
- [6] Red LED for short circuit/overload display
- [7] AS-interface connection, outgoing
- Sensor connections [8]
- [9] Outputs

Data sheet – Digital input/output module

Pin allocation for sensor connections ASI-4DI3DO-M12X2-5POL-Z

Pin allocation for sensor connections ASI-401300-M12X2-5POL-2				
Terminal allocation	Pin	Signal	Designation	
	1	24 V DC	Operating voltage 24 V DC	
Preserve and the second s	2	lx*+1	Sensor signal	
	3	0 V	Operating voltage 0 V	
	4	lx*	Sensor signal	
	5	Ground	Earth terminal	

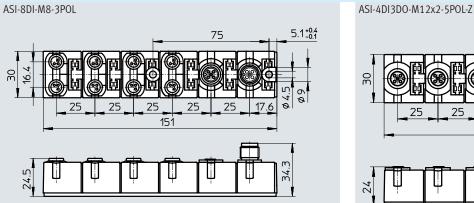
* Ix = Input x

Pin allocation for outputs ASI-4DI3DO-M12X2-5POL-Z

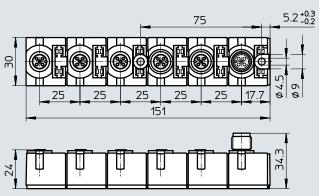
Terminal allocation	Output 1 and 2		Output 3			
	Pin	Signal	Designation	Pin	Signal	Designation
	1	n.c.	Not connected	1	n.c.	Not connected
Protection of the second secon	2	0x*+1	Output	2	n.c.	Not connected
	3	0 V	Operating voltage 0 V	3	0 V	Operating voltage 0 V
	4	Ox*	Output	4	0x*+2	Output
	5	Ground	Earth terminal	5	Ground	Earth terminal

* Ox = Output

Dimensions



Download CAD data → <u>www.festo.com</u>



AS-Interface[®] components

Data sheet – Compact I/O modules

Ordering data				
	Designation		Part no.	Туре
Bus connection				
	AS-Interface flat cable, yellow	100 m	18940	KASI-1.5-Y-100
	AS-Interface flat cable, black	100 m	18941	KASI-1.5-Z-100
	Cable cap for flat cable (pack of 50)		18787	ASI-KK-FK
6	Cable sleeve (pack of 20)		165593	ASI-KT-FK
	M12 socket, 4-pin	For AS-Interface flat cable	18789	ASI-SD-PG-M12
Cable distributor				
	AS-Interface data to socket M12, 4-pin	572225	NEFU-X22F-M12G4	
	AS-Interface data and load voltage supply to so	572226	NEFU-X24F-M12G4	
	AS-Interface data and load voltage supply to socket M12, 4-pin, cable length 1 m			NEFU-X24F-1-M12G4
Push-in T-connector				
	T adapter for DH-485, M12 5-pin		171175	FB-TA-M12-5POL
	Plug M12, A-coded, 4-pin	2x socket M12, A-coded, 5-pin	8005310	NEDY-L2R1-V1-M12G5-N-M12G4
		2x socket M8, A-coded, 3-pin	8005311	NEDY-L2R1-V1-M8G3-N-M12G4
STREET STREET	 Modular system for all types of sensor/actuato Internet: nedy 	r distributor	-	NEDY

Data sheet – Compact I/O modules

Ordering data				
-	Designation		Part no.	Туре
Connecting cable				
38	Modular system for a choice of connecting cables → Internet: nebu			NEBU
OF LAND THE	Straight plug M8, 3-pin, straight socket M8, 3-pin	0.5 m	541346	NEBU-M8G3-K-0.5-M8G3
		1.0 m	541347	NEBU-M8G3-K-1-M8G3
		2.5 m	541348	NEBU-M8G3-K-2.5-M8G3
		5.0 m	541349	NEBU-M8G3-K-5-M8G3
	Straight plug M12, 4-pin, straight socket M12, 5-pin	0.5 m	8000208	NEBU-M12G5-K-0.5-M12G4
DUO plug				
	Plug M12 for 2 connecting cables	4-pin, PG11	18779	SEA-GS-11-DUO
		5-pin, PG11	192010	SEA-5GS-11-DUO
Sensor plug	-			1
	Straight plug, M12	4-pin, PG7	18666	SEA-GS-7
		4-pin, PG9	18778	SEA-GS-9
		4 pin, for 2.5 mm cable Ø	192008	SEA-4GS-7-2.5
		5-pin, PG7	175487	SEA-M12-5GS-PG7
- A	Straight plug, M8, 3-pin	Screw-in	192009	SEA-3GS-M8-S
and the second s		Solderable	18696	SEA-GS-M8
	Cover cap (pack of 10)	M8	177672	ISK-M8
E.		M12	165592	ISK-M12
Other				
	24 V DC power supply	5 A	8149580	CACN-3A-1-5-G2
		10 A	8149581	CACN-3A-1-10-G2
	Addressing device (power supply plug included in the scope of	delivery)	18959	ASI-PRG-ADR
and the second	Addressing cable		18960	KASI-ADR

Data sheet – Compact I/O modules

Ordering data			
	Designation	Part no.	Туре
Input/output modules			
	AS-Interface input module for 8 inputs M8, compact	542124	ASI-8DI-M8-3POL
	AS-Interface input/output module for 4 inputs/3 outputs M12, compact	542125	ASI-4DI3DO-M12X2-5POL-Z
Mounting			
	H-rail to EN 60715	35430	NRH-35-2000
	Mounting for H-rail	170169	CP-TS-HS35
Inscription labels			
	Inscription labels 8x20 mm, in frame (pack of 20)	539388	IBS-8x20

Data sheet - Addressing device

Addressing device ASI-PRG-ADR

- Parameterisation of AS-Interface components
- Display and editing of addresses, input and output signals
- Corresponds to AS-Interface SPEC 3.0



Description

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

General technical data

- Can be addressed on-site
- Supports AS-Interface specification S 7.7.A.7 (SPEC 3.0), S 0.B and S 7.B (AS-Interface Safety at Work)

Using the addressing device according to SPEC 3.0, it is possible to scan the AS-Interface from any chosen point in the network. At all connected stations:

- Slave addresses can be read/ changed
- ID and IO codes can be read out
- Parameters can be read/changed
- Input/output data can be read and written (setting outputs)
- Error messages can be read out and quickly recognised

Independent of power sources

Battery 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. Additional addressing cable for slaves with M12 round plug or flat cable socket optionally available.

Display		LCD display
Control elements		Membrane keypad
		5 buttons
No. of function keys		5
Dimensions W x L x H	[mm]	34 x 210 x 80
Product weight	[g]	610

Technical data – Electrics

Nominal operating voltage	[V DC]	28
Permissible load current	[mA]	100
Power supply		Lithium battery
Short circuit current rating		Yes
Overload protection		Provided

Technical data – Fieldbus interface

Protocol	AS-Interface SPEC 3.0
Connection type	Socket
Connection technology	M12x1, A-coded
Number of pins/wires	5
Based on standard	To EN 61076-2-101

Data sheet - Addressing device

Materials

Materials	
Housing	PA-reinforced
Note on materials	RoHS-compliant

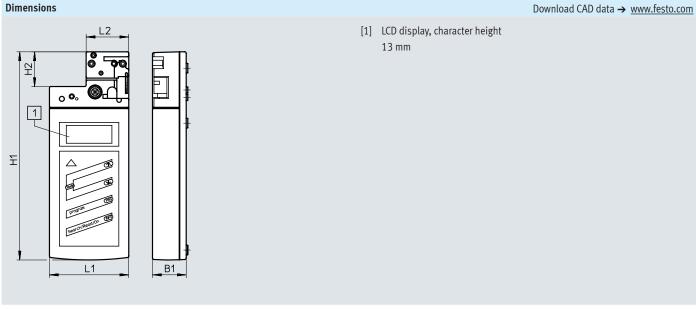
Operating and environmental conditions				
Ambient temperature	[°C]	0+40		
Degree of protection		IP20		
CE marking (see declaration of conformity) ²⁾		To EU EMC Directive ¹⁾		

1) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... \rightarrow Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

2) Additional information is available at www.festo.com/catalogue/... \rightarrow Support/Downloads.

Dimensions



	B1	H1	H2	L1	L2
ASI-PRG-ADR	34	210	35	80	43

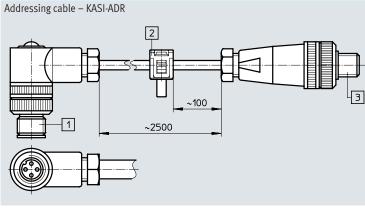
Ordering data			
	Designation	Part no.	Туре
	Addressing device	18959	ASI-PRG-ADR
and the	Addressing cable	18960	KASI-ADR

Accessories

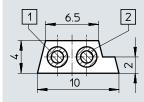
Overview of cables Addressing cable – KASI-ADR			
	With the addressing cable ASI-ADR, available as accessory, any number of slaves can be addressed, either direct- ly via the flat cable connection (FK) or the M12 connection (M12):	 Individual valve interface (FK) Compact I/O modules (M12) CPV valve terminals (FK) SPC11 Soft Stop (FK) 	
Flat cable – KASI-1.5100			
	The flat cable is designed with two wires. The coding strip prevents reverse polarity.	Stations on the AS-Interface network are connected to the flat cable by con- tact pins using insulation displace- ment technology – without stripping the cable and wire casing.	The yellow cable is preferably used for the AS-Interface network and the black for the auxiliary supply.
Connecting cable NEBU-M12M12			
A LAND A CAMPANY	The round cables are designed with 4 wires and protected against reverse polarity. Standardised connection technology replaces the yellow/black AS-Interface with a common cable.	 Fixed lengths: 0.2 m, 1 m, 2.5 m and 5 m ex-stock NEBU modular system for connect- ing cables 	 Define your own connecting cable. Select M8 (3- or 4-pin) or M12 (4- or 5-pin) at each end as required and specify the desired cable length and quality – Festo delivers to your specifications. → www.festo.com
Flat cable sleeve – ASI-KT-FK			
	For insulating and sealing the AS-Inter- face cable at the end of the string	 Degree of protection IP65 Shrinks with the application of heat (hot-air gun or similar) 	
Cable cap – ASI-KK-FK			
	For insulating and sealing the AS-Inter- face cable at the end of the string • Degree of protection IP65		

Accessories

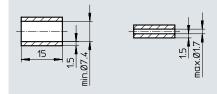
Dimensions



Flat cable – KASI-1.5-...-100



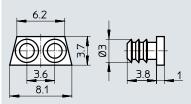
Flat cable sleeve – ASI-KT-FK



[2] Brown (+)

[1] Blue (-)

Cable cap – ASI-KK-FK



Download CAD data \rightarrow <u>www.festo.com</u>

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

Accessories

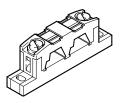
Overview of connection components Flat cable socket

Flat cable socket for connecting stations on the AS-Interface network to the flat cable.





Flat cable distributor



The connection is detachable. The cable socket is protected against reverse polarity.

ASI-SD-FK Flat cable socket for valve terminals CPV



ASI-SD-FK-BL Blanking plug for sealing unused connections for flat cable sockets.



Overhead leadthrough for flat cable version FK180.

ASI-SD-PG-M12

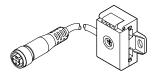
ASI-SD-FK180

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

ASI-KVT-FK-S

Symmetrical flat cable distributor: this distributor can be used to rotate the profile lug by 180° when changing from one cable to another. This prevents laying the cables in a loop. Three cable caps are included in the scope of delivery to cap the cable ends.

Cable distributor



NEFU-X2

ASI-KVT-FK

Flat cable socket with M12 connection as leadthrough for the flat cable. Can be plugged into 4-pin and 5-pin interfaces.

Rotatable flat cable distributor, for

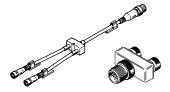
point on the flat cable.

branching the flat cable to stations on

the AS-Interface network at any desired

Accessories

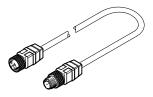
Overview of distributors Push-in T-connector NEDY



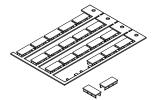
DUO plug – SEA-5GS11-DUO



Overview of other connecting cables Extension cable – NEBU



Overview of other accessories Inscription labels IBS-...



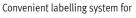
The sensor/actuator distributors NEDY each combine two sensor signals on a 4-pin plug. These are routed on a 4- or 5-pin input socket of a valve terminal or the compact I/O module. Any version and cable length can be configured: → Internet: nedy

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

The connecting cables can be used for length compensation between a distributor and the inputs of a valve terminal or a compact I/O module. They can also be used as AS-Interface bus cables for M12 connection technology. Any version and cable length can be configured:

→ Internet: nebu

H-r



- Flat cable sockets
- Flat cable distributor
- Individual valve interfaces
- Compact I/O modules
- Valve terminals CPV

H-rail NRH-35-2000



- For compact I/O modules
- Valve terminals CPV
- For individual valve interfaces
- AS-Interface power supply units

Accessories

Ordering data				
	Designation		Part no.	Туре
Bus connection				
	AS-Interface flat cable, yellow	100 m	18940	KASI-1.5-Y-100
	AS-Interface flat cable, black	100 m	18941	KASI-1.5-Z-100
	Flat cable socket	18785	ASI-SD-FK	
	Flat cable socket	Turned 180°	196089	ASI-SD-FK180
	Flat cable dummy plug		196090	ASI-SD-FK-BL
A A A A A A A A A A A A A A A A A A A	AS-Interface flat cable distributor	Rotatable cable	18786	ASI-KVT-FK
	AS-Interface flat cable distributor	Symmetrical cable	18797	ASI-KVT-FK-S
	Cable cap for flat cable (pack of 50)		18787	ASI-KK-FK
	Cable sleeve (pack of 20)		165593	ASI-KT-FK
<u> </u>	M12 socket, 4-pin	For AS-Interface flat cable	18789	ASI-SD-PG-M12
	M12 socket, 5-pin	For round cable	18324	FBSD-GD-9-5POL
Cable distributor				
	AS-Interface data to socket M12, 4-pin	572225	NEFU-X22F-M12G4	
	AS-Interface data and load voltage supply to socket	572226	NEFU-X24F-M12G4	
	AS-Interface data and load voltage supply to socket	M12, 4-pin, cable length 1 m	572227	NEFU-X24F-1-M12G4

Accessories

rdering data	Designation		Part no.	Туре
ensor plug				
	Straight plug, M8, 3-pin	Screw-in	192009	SEA-3GS-M8-S
		Solderable	18696	SEA-GS-M8
A D	Straight plug, M12	4-pin, PG7	18666	SEA-GS-7
		4-pin, PG9	18778	SEA-GS-9
		4 pin, for 2.5 mm cable Ø	192008	SEA-4GS-7-2.5
		5-pin, PG7	175487	SEA-M12-5GS-PG7
	Angled sensor plug	M12, 4-pin	12956	SIE-WD-TR
	Sub-D plug	25-pin	527522	SD-SUB-D-ST25
$\overline{\mathbf{P}}$	Cover cap (pack of 10)	M12 M8	165592 177672	ISK-M12 ISK-M8
JO plug		1		
	Plug M12 for 2 connecting cables	4-pin	18779	SEA-GS-11-DUO
		5-pin	192010	SEA-5GS-11-DUO
ush-in T-connecto	ir			
	T adapter for DH-485, M12 5-pin		171175	FB-TA-M12-5POL
	Plug M12, A-coded, 4-pin	2x socket M12, A-coded, 5-pin	8005310	NEDY-L2R1-V1-M12G5-N-M12G4
		2x socket M8, A-coded, 3-pin	8005311	NEDY-L2R1-V1-M8G3-N-M12G4
Real Providence	 Modular system for all types of sensor/actuator dis → Internet: nedy 	stributor	-	NEDY

Accessories

Ordering data				
	Designation		Part no.	Туре
Connecting cable				
30	Modular system for a choice of connecting cables → Internet: nebu		-	NEBU
	Straight plug M8, 3-pin, straight socket M8, 3-pin	0.5 m	541346	NEBU-M8G3-K-0.5-M8G3
		1.0 m	541347	NEBU-M8G3-K-1-M8G3
		2.5 m	541348	NEBU-M8G3-K-2.5-M8G3
		5.0 m	541349	NEBU-M8G3-K-5-M8G3
	Straight plug M12, 4-pin, straight socket M12, 5-pin	0.5 m	8000208	NEBU-M12G5-K-0.5-M12G4
	Connecting cable, straight plug, straight socket	M12, 8-pin, 2.0 m	525617	KM12-8GD8GS-2-PU
Other				
	24 V DC power supply	5 A	8149580	CACN-3A-1-5-G2
		10 A	8149581	CACN-3A-1-10-G2
	Addressing device		18959	ASI-PRG-ADR
aut the	Addressing cable		18960	KASI-ADR
Inscription labels				
JAK .	Inscription labels in frame	8x20 mm (pack of 20)	539388	IBS-8x20
LIII -		6x10 mm (pack of 64)	18576	IBS 6x10
		9x20 mm (pack of 20)	18182	IBS 9x20
C BIRE	For foil Inscription label holder for sub-base, transparent, for paper foil label	Can be used for VMPA1 VMPA2	533362	VMPA1-ST-1-4
		Can be used for	8085996	VMPA14-ST-1-4
	For IBS Inscription label holder for sub-base, 4-part, for IBS 6x10	VMPA14 Can be used for VMPA1 VMPA2	544384	VMPA1-ST-2-4
		Can be used for VMPA14	8085997	VMPA14-ST-2-4
Mounting material	•			
Realized B	Mounting for H-rail		170169	CP-TS-HS35
	Mounting for H-rail		526032	CPX-CPA-BG-NRH
	H-rail to EN 60715		35430	NRH-35-2000
0	Mounting bracket		534416	VMPA-BG-RW

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1 Festo Inc.

5300 Explorer Drive Mississauga, ON L4W 5G4 Canada

Festo Customer Interaction Center Tel: 1 877 463 3786 Fax: 18773933786 Email: customer.service.ca@festo.com ventas.mexico@festo.com



2 Festo Pneumatic

Av. Ceylán 3, Col. Tequesquináhuac 54020 Tlalnepantla, Estado de México

Multinational Contact Center 01 800 337 8669



3 Festo Corporation 1377 Motor Parkway Suite 310 Islandia, NY 11749



4 **Regional Service Center** 7777 Columbia Road Mason, OH 45040

Festo Customer Interaction Center 1 800 993 3786 1 800 963 3786 customer.service.us@festo.com

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