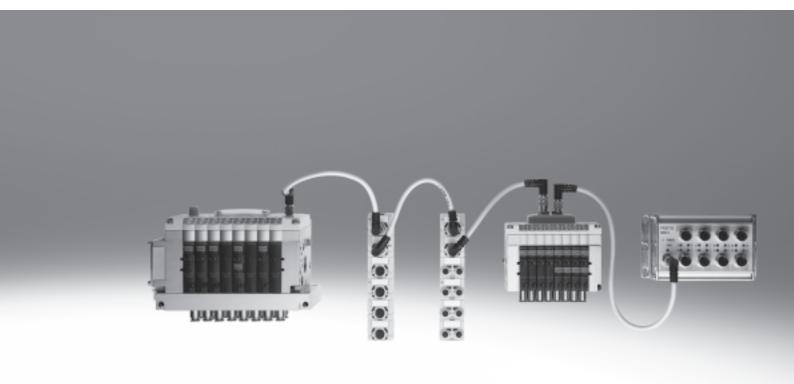
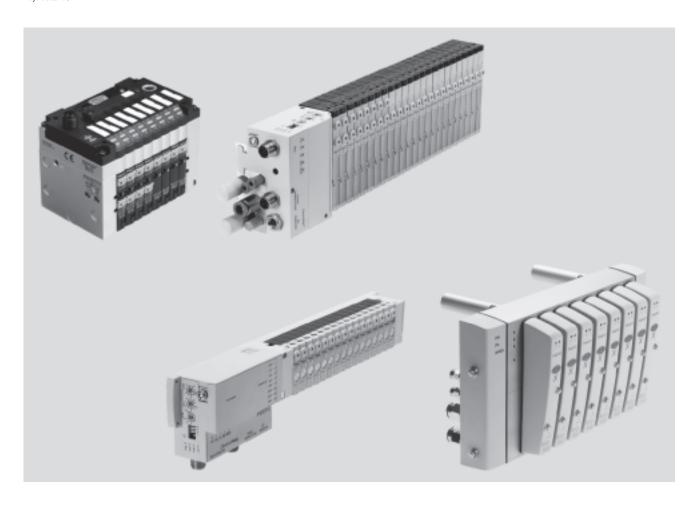
FESTO



Key features



The system

- Extremely compact and spacesaving design
- Low-cost solution for the connection of a small number of valves to a fieldbus
- Extremely safe, protection class up to IP65 depending on the series

The Fieldbus Direct system comprises four valve terminal series:

- CPV
- CPV-SC
- CPA-SC
- CDVI
- MPA-S

The Fieldbus Direct product range is the most compact way of connecting valves to a fieldbus. The fieldbus node is directly integrated in the electrical actuation of the valve terminal and therefore takes up only a minimal amount of space.

Fieldbus Direct is a system for the connection of one valve terminal to nine different fieldbus standards. The most important systems including PROFIBUS, Interbus, DeviceNet and CANopen are supported.

The CP string extension option allows the functions and components of the CPI installation system to be used.

The optional string extension allows additional valve terminals and I/O modules to be connected to the fieldbus node of the Fieldbus Direct system.

The I/O modules and cables for the CP string extension are ordered using the order code for the CPI installation system.

The maximum length of the CP string extension is 10 metres, which means that the extension modules can be mounted directly on-site. All of the required electrical signals are transmitted via the CPI cable, which means that no further installation is needed on the extension module.

Valve terminal configurator

A valve terminal configurator is available online to help you select a suitable Fieldbus Direct valve terminal. Like all valve terminals, Fieldbus Direct is ordered using an ident. code.

This ident. code specifies the valve functions, the number of valves, vacant positions as well as the additional functions and the type of compressed air supply.

As is the case with all Festo products, all Fieldbus Direct valve terminals are supplied:

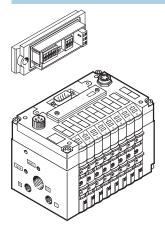
- fully pre-assembled
- fitted with fittings on request

Online via: → www.festo.com

- tested for electrical function
- tested for pneumatic function
- securely packaged
- manuals can be downloaded free of charge



Switch module for CPV Direct



The bus parameters and the device configuration of CPV Direct are set using the removable switch module.

The integrated DIL switches are easy to set and check, even if the mounting position is difficult to access.

In the case of the valve terminals with the CP system according to Specification "B", the DIL switches for parameterisation/configuration are integrated in the basic electrical unit.

CP string extension

The optional string extension allows an additional valve terminal and I/O modules to be connected to the field-bus nodes of the Fieldbus Direct system. A CP string of the CP installation system is integrated in the fieldbus node as an extension. Different input and output modules as well as CPV, CPA, MPA-S and CPV-SC valve terminals can be connected.

The maximum length of the CP string extension is 10 metres, which means that the extension modules can be mounted directly on-site. All of the required electrical signals are transmitted via the CP cable, which in turn means that no further installation is needed on the extension module.

The CP string interface offers:

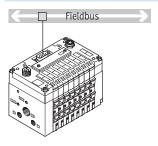
- 16 input signals
- 16 output signals for output modules 24 V DC or solenoid coils
- Logic and sensor supply for the input modules
- Load voltage supply for the valve terminals
- $\bullet \;\; \mbox{Logic supply for the output modules}$

The variant according to Specification "B" supports the connection of

- 32 inputs
- 32 outputs 24 V DC or solenoid coils.

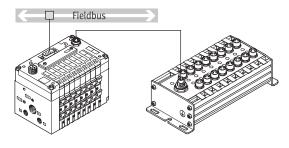
It goes without saying that the CP modules without Specification "B" can also be connected to the CPI string extension of valve terminals.

CPV Direct with fieldbus node



- 8 valve slices
- 16 solenoid coils
- 16 3/2-way valves

CPV Direct with input module 24 V DC for detecting the cylinder end positions



- 8 valve slices with up to 16 solenoid coils
- 16 inputs M8 or M12, each with sensor supply

Variant according to Specification "B"

- 32 input signals
- 32 output signals/solenoid coils

Fieldbus Direct FESTO

Key features - Bus connection

Fieldbus Direct system diagnostics

The fieldbus node together with the modules connected to the CP string offer several diagnostic options.

Diagnostic LEDs on the Fieldbus Direct node

The fieldbus-specific LEDs display the communication status and the fieldbus function.

Further LEDs display the power supply status of all connected modules as a common message.

- Undervoltage
- Short circuit
- Interruption of voltage

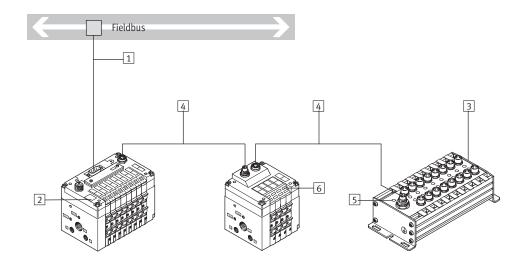
Diagnostic LEDs on the CP extension modules

LEDs on the individual CP/CPI modules display the current status of the switching signals of the inputs or outputs. Additional LEDs display short circuits or overload of the power supply and communication faults on the CP connection.

Diagnostic messages via the fieldbus

All available diagnostic information is transferred to the fieldbus node by means of the CP connection. This means that the diagnostic information for the entire device can be transferred to the fieldbus master.

- Configuration errors
- Short circuit/overload of an output module
- Short circuit/undervoltage of the sensor supply
- Undervoltage/load voltage of the valves
- Interruption of a CP string to one of the CP modules

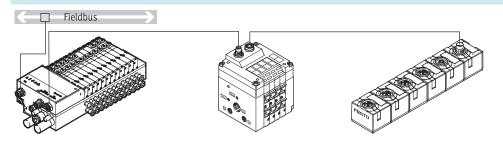


- 1 Diagnostics via fieldbus
- 2 Bus-specific LED
- 3 Diagnostics via LED on the CP/CPI module
- 4 Diagnostics via CP string
- 5 Status display on the CP/CPI module
- 6 Status display on the valve terminal

Fieldbus Direct FESTO

Overview of examples

Connection options CPA-SC

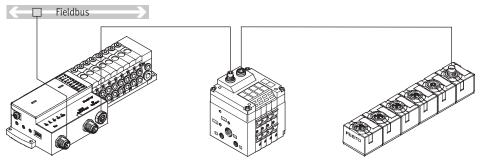


CPASC valve terminals with fieldbus interfaces can be equipped with 4 to 24 valve positions and 4 to 32 solenoid coils.

Designs

- DeviceNet connection
- PROFIBUS connection
- 4 to 32 solenoid coils

CPV-SC

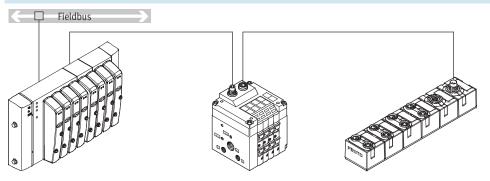


CPVSC1 valve terminals with fieldbus interfaces can be equipped with 4 to 16 valve positions and 4 to 16 solenoid coils.

Designs

- DeviceNet connection
- PROFIBUS connection
- 4 to 16 solenoid coils

CDVI



CDVI-DN valve terminals with fieldbus interfaces can be equipped with 4 to 16 valve positions at maximum 24 solenoid coils.

Designs

- DeviceNet connection
- Maximum 24 solenoid coils

Fieldbus Direct FESTO

Overview of examples

Valve terminals with CP interface

CPV valve terminal



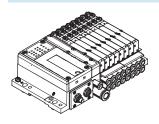
CPV10 CPV14 CPV18

- Max. 16 valves in 8 valve slices
- Highly compact and space-saving
- Width 10, 14, 18 mm
- Nominal flow rate 400/800/1600 l/min
- CPV10, CPV14 and CPV18 with CPI functionality

Further information

→ Internet: cpv

MPA-S valve terminal



MPA1 MPA2

- Max. 32 valves
- Modular and versatile
- Width 10, 20 mm
- Nominal flow rate 360/700 l/min
- CPI functionality

Further information

→ Internet: mpa-s

CPV-SC valve terminal



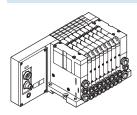
CPV-SC

- Max. 16 valves
- Extremely compact
- Width 10 mm
- Nominal flow rate 170 l/min
- CPI functionality

Further information

→ Internet: cpv-sc

CPA valve terminal



CPA10 CPA14

- Max. 16 valves
- Width 10, 14 mm
- Nominal flow rate 300/600 l/min
- CP functionality

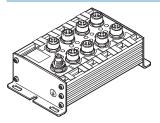
Further information

→ Internet: cpa

Peripherals overview

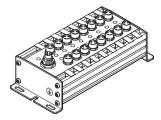


CP/CPI installation system input/output modules



CP-E16-M12x2-5POL CP-E16N-M12x2-5POL

- 16 inputs 24 V DC
- Signal status display via 16 LEDs
- Operating status display
- M12 socket, double allocation
- 1x M9 CP/CPI connection
- PNP/NPN, IP65



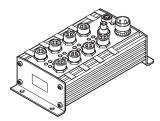
CP-E16-M8 CP-E16N-M8

- 16 inputs 24 V DC
- Signal status display via 16 LEDs
- Operating status display
- M8 socket, single allocation
- 1x M9 CP connection
- PNP/NPN, IP65



CP-E16-M8-Z

- 16 inputs 24 V DC
- Signal status display via 16 LEDs
- Operating status display
- Electrical isolation through additional power supply
- M8 socket, single allocation
- 1x M9 CP connection
- Separate sensor supply
- PNP/NPN, IP65



CP-A08-M12-5POL CP-A08N-M12

- 8 outputs 24 V DC
- Output signal display via 8 LEDs
- Operating status display
- M12 socket, single allocation
- 2x M9 CP connection
- Separate load voltage
- Outputs resistant to overloads and short circuits
- PNP/NPN, IP65

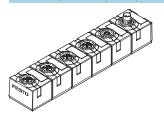
Detailed description of input and output modules

→ Internet: ctec

FESTO

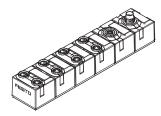
Peripherals overview

CP/CPI Compact Line input/output modules



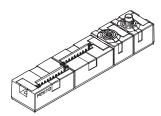
CP-E08-M12x2-CL

- 8 inputs 24 V DC
- Signal status display via 8 LEDs
- Operating status display
- 4x M12 socket, 5-pin, double allocation
- 2x M9 CP connection
- PNP, IP65/67



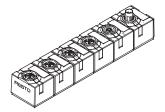
CP-E08-M8-CL

- 8 inputs 24 V DC
- Signal status display via 8 LEDs
- Operating status display
- 8x M8 socket, 3-pin, single allocation
- 2x M9 CP connection
- PNP, IP65/67



CP-E16-KL-CL

- 16 inputs 24 V DC
- Indirect signal status display via LEDs in the connection set of the tension-spring socket
- Operating status display
- Screw terminal or tension-spring sockets
- 2x M9 CP connection
- PNP, IP20



CP-A04-M12x2-CL

- 4 outputs 24 V DC
- Signal status display via 4 LEDs
- Operating status display
- 4x M12 socket, 5-pin, double allocation
- 2x M9 CP connection
- Outputs resistant to overloads and short circuits
- PNP, IP65/67

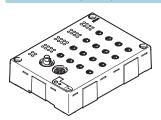
Detailed description of input and output modules

→ Internet: ctec

Peripherals overview

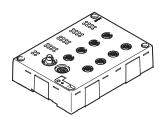


CP/CPI Eco Line input/output modules



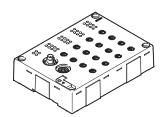
CP-E16-M8-EL

- 16 inputs 24 V DC
- Signal status display via LEDs
- Operating status display
- 16x M8 socket, 3-pin, double allocation
- 2x M9 CP connection
- PNP



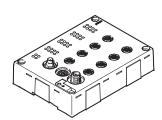
CP-E16-M12-EL

- 16 inputs 24 V DC
- Signal status display via LEDs
- Operating status display
- 8x M8 socket, 5-pin, single allocation
- 2x M9 CP connection
- PNP



CP-E32-M8-EL

- 32 inputs 24 V DC
- Signal status display via LEDs
- Operating status display
- 16x M8 socket, 4-pin
- 2x M9 CP connection
- PNP



CP-A08-M12-EL-Z

- 8 outputs 24 V DC
- Signal status display via LEDs
- Operating status display
- 4x M12 socket, 5-pin, double allocation
- 2x M9 CP connection
- Outputs resistant to overloads and short circuits
- PNP

Detailed description of input and output modules

→ Internet: ctec

CP connecting cable



The CP string is connected using preassembled CP cables, which are supplied in lengths from 0.5 to 8 metres.

FESTO

Peripherals overview

Fieldbus systems for CPV Direct







BECKHOFF









Fieldbus variants

Of the more than 20 different fieldbus systems (protocols) available on the market, some have emerged as the most important variants. Festo supports these by means of various fieldbus nodes (FBxx) on its valve terminals. Fieldbus systems require a powerful, central PLC and a master interface adapted to that particular fieldbus.

Fieldbus systems are generally used when several devices with many inputs/outputs, complex functions or high communication levels must be controlled. In this case, the advantages of simple cabling, easy diagnostics and maintenance outweigh the extra outlay for a fieldbus master interface and the necessary know-how.

Festo fieldbus

A fieldbus developed by Festo with simple prompting, supported by the controllers of the FPC, SF and IPC series (Festo FB5). A maximum of 98 bus stations can be connected to the Festo fieldbus. The bus can operate with 4 different baud rates (31.25, 62.5, 187.75 and 375 kbps).

INTERBUS

An open fieldbus standard, originally developed by Phoenix Contact and now in worldwide use. Important installation accessories such as bus plugs must be obtained from Phoenix or its partners.

PROFIBUS DP

An open fieldbus standard, originally developed by Siemens and in worldwide use. The bus can operate with baud rates from 9.6 kBaud to 12 MBaud.

DeviceNet

An open fieldbus system based on CAN technology originally developed for the automotive sector. DeviceNet was originally developed by Rockwell (Allen Bradley) and is now an open standard.

Moeller SUCONET K

A maximum of 98 bus stations can be connected to the SUCONET K fieldbus. The bus operates with a baud rate of 187.5 or 375 kbps, depending on the design, bus length, etc. The bus interface is based on RS 485 with a master/slave structure.

ABB CS31

The fieldbus from ABB connects a maximum of 63 fieldbus stations to the fieldbus master. The data is transferred at a constant baud rate of 187.5 kbps. The protocol is suitable for use in all areas of automation technology.

CC-Link

Fieldbus from Mitsubishi (Control & Communication-Link). The integrated interface with RS 485 transmission technology is designed for the typical CC-Link 3-wire connection technology (in accordance with CLPA CC-Link Spec. V1.11).

CANopen

Another fieldbus system based on CAN. Standardised by the "CAN in Automation" (CiA) user group.

CANopen is characterised by its multimaster capability and high protocol efficiency. It is used throughout industrial automation.

Beckhoff Fieldbus Box

A fibre optic cable (FOC) fieldbus developed by Beckhoff. This fieldbus is a ring bus. The baud rate is 2000 kbps. A maximum of 124 stations can be connected. The use of fibre optic cables makes it suitable for use in environments where there is a lot of interference.

Fieldbus systems Valve terminal type	Fieldbus protocol	Valve terminal	CP string extension		Plug type,	→ Page/
vatve terminar type	Treadus protocot	Number of solenoid coils	Number of solenoid coils/outputs			Internet
CPVGE-DI01-8	PROFIBUS DP (12 MBaud) Festo ABB CS31 Moeller SUCONET K	16	16 / 8	16	 Sub-D fieldbus plug 2xM12, 5-pin, B-coded 	14
CPVGE-DI02-8	PROFIBUS DP (12 MBaud)	16	32 / 32	32	 Screw terminal strip, 5-pin Sub-D socket, 9-pin Socket and plug, M12x1, 5-pin, B-coded 	18
CPASC1-AE32-DP	PROFIBUS	32	32 / 32	32	Sub-D socket, 9-pin	22
CPVSC1-AE16-DP	PROFIBUS	16	32 / 32	32	Sub-D socket, 9-pin	26
CPVCS02-8	ABB CS31	16	32 / 32	32	Sub-D socket, 9-pin	30
CPVGE-DN2-8	DeviceNet	16	16 / 8	16	2x M12, 5-pinScrew terminal strip, 5-pin	34
CPVDN3-8	DeviceNet	16	32 / 32	32	 Screw terminal strip, 5-pin Sub-D socket, 9-pin Socket and plug, M12x1, 5-pin,A-coded 	38
CPASC1-AE32-DN	DeviceNet	16	16 / 8	16	2x M12, 5-pin	42
CPVSC1-AE16-DN	DeviceNet	16	16 / 8	16	2x M12, 5-pin	46
CDVI-DN	DeviceNet	24	16 / 8	16	2x M12, 5-pin	50
CPVGE-CO2-8	CANopen	16	16 / 8	16	Sub-D2x M12, 5-pinScrew terminal strip, 5-pin	54
CPVC03-8	CANopen	16	32 / 32	32	 Screw terminal strip, 5-pin Sub-D socket, 9-pin Socket and plug, M12x1, 5-pin,A-coded 	58

16/8

INTERBUS

CC-Link

Beckhoff Fieldbus Box

16

16

16

CPV-...-GE-IB-8

CPV-...-GE-IP-8¹⁾

CPV-...-GE-CC-8

16

16

Sub-D fieldbus plug

Sub-D, 9-pinScrew terminal strip

FOC

62

66

70

¹⁾ String extension not possible

Key features – Electrical connection

Operating voltage and load current supply

The operating voltages for the Fieldbus Direct valve terminal and for the extension modules are connected centrally via the 4- or 5-pin M12 plug. It must supply the operating voltages for the electronic unit of the fieldbus node and the modules connected to the CP string.

The load supply for the valves is supplied separately from the supply for the electronic unit.

The valves of the Fieldbus Direct valve terminals and the valves/outputs on the CP string extension are supplied

together via pin 2 of the M12 plug. The power supply for the sensors connected to the input module is normally also supplied by the M12 plug. Up to 500 mA for the sensor supply is made available to the connected input module via the CP string.

A separate, electrically isolated sensor supply is available with the two input modules CP-E16-KL-IP20-Z and CP-E16-M8-Z. In this case, a max. current of 2 A is available for the sensors.

Since the CP string carries the lines for both communication and the entire power supply for the connected modules, it represents a very easily installed extension option.

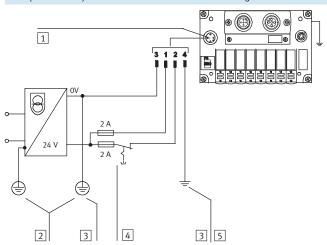
The following functions are supported via the CP string:

- Connection for data exchange
- Power supply for the connected modules
- Sensor voltage supply of up to 500 mA

 Load voltage supply for the connected valves

The electrical modules are protected against overload by electronic fuses. All diagnostic information for the modules is transferred to the fieldbus node via the CP string and from there forwarded to the PLC according to the relevant protocol.

Example of circuitry for CPV Direct – Connection of load voltage



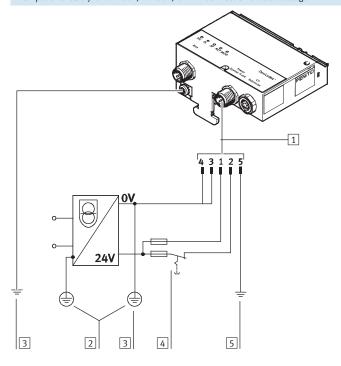
- 1 Connection for power supply on the CPV Direct valve terminal
- 2 Protective earth (PE)
- 3 Equipotential bonding
- 4 Load voltage (can be disconnected separately) and external fuse
- 5 Earth terminal on pin 4, configured for 3 A

Pin allocation – Power supply for CPV Direct					
		Pin	Description	Notes	
Ī	+	1	24 V DC electronics and sensors	The voltage is supplied via a 4-pin M12 plug (A-coded).	
	(3	2	24 V DC valves and outputs		
	1 2+	3	0 V electronics and sensors		
L	+	4	Earth terminal		

Key features – Electrical connection

Operating voltage and load current supply

Example of circuitry for CPASC1, CPVSC1, CDVI – Connection of load voltage



- 1 Connection for power supply
- 2 Protective earth (PE)
- 3 Equipotential bonding
- 4 Load voltage (can be disconnected separately) and external fuse
- 5 Earth terminal at pin 5

Pin allocation - Powe	Pin allocation – Power supply for CPASC1, CPVSC1, CDVI					
	Pin	Description	Notes			
4 Power 3	1	24 V DC electronics and sensors	The voltage is supplied via a 5-pin M12 plug (B-coded).			
	2	24 V DC valves and outputs	In case of extension with 1st generation CP valve terminals (without auxiliary			
	3	0 V electronics and sensors	power supply), a bridge must be placed between pin 3 and pin 4.			
1 2	4	0 V valves and outputs	This cancels the electrical isolation.			
	5	Protective earth (PE)				

Technical data - Fieldbus node CPV-DI01







ABB

FESTO

CPV fieldbus node for communication between a CPV valve terminal and a fieldbus master. The fieldbus node is used for activation of a CPV valve terminal with 8 valve slices and 16 solenoid coils and for displaying the switching status via LED. The CPV-... valves are activated via automatic current reduction, which results in less power consumption and heat emission. 16 digital inputs and 8 digital outputs or 16 valves can be connected via a serial CP string extension.

DI01 supports 4 different fieldbus protocols, which are selected by means of DIL switches:

- PROFIBUS DP
- Moeller SUCOnet K
- ABB CS31
- Festo fieldbus

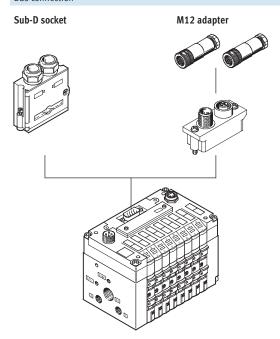
The CPV fieldbus node is available in three sizes, with identical performance characteristics:

- CPV10
- CPV14
- CPV18



Application

Bus connection



Sub-D socket

- 9-pin Sub-D socket
- Installation with IP65 protection

The bus connection is established via a 9-pin Sub-D socket with a typical PROFIBUS allocation (to EN 50 170). The bus connector plug (with protection class IP65 from Festo or IP20 from other manufacturers) facilitates the connection of an incoming and an outgoing bus cable. An active bus terminal can be connected using the integrated DIL switch. The Sub-D interface is designed for the activation of network components via a fibre optic cable connection.

M12 adapter

- Plug connector 2xM12
- Installation with IP65 protection

Alternatively the bus connection can be established via a 2x M12 adapter (B-coded).

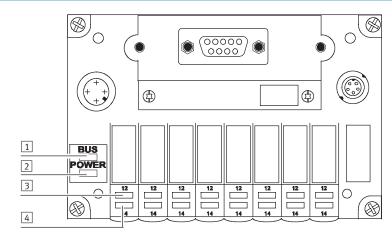
Fieldbus Direct, CPV-DI01 Technical data – Fieldbus node CPV-DI01



General technical data						
Туре			CPV10-GE-DI01-8	CPV14-GE-DI01-8	CPV18-GE-DI01-8	
Fieldbus interface			Either			
			• Sub-D socket, 9-pin			
			Socket and plug, M12:	x1, 5-pin, B-coded		
Electrical isolation of the fieldbus	interface		Via optocoupler			
Baud rates		[kbps]	9.6 12,000; automatic	c detection		
Addressing range	PROFIBUS DP (12 MBaud)		1 125;			
	Festo fieldbus		Set using a switch modul	le		
	ABB CS31					
	Moeller SUCONET K					
CP/CPI string extension			Yes, 16 inputs and 8 out	•		
LED display (bus-specific)	BUS		Communication and con	figuration errors		
LED display	Product-specific		Valve switching status			
	Power		Operating voltage for ele	ctrics and load supply		
Product identification			Product family 4: Valves			
Ident. number			0xC9			
Type of communication		Cyclical communication				
Configuration support		GSD file and bitmaps				
Max. no. of solenoid coils			16			
Max. no. of solenoid coils with stri	ng extension		32			
Max. no. of outputs			8 (1x16 solenoid coils omitted)			
Max. no. of inputs			16			
Device-specific diagnostics			Short circuit/overload of outputs			
			Undervoltage of valves			
			Undervoltage of output			
			Undervoltage of sensor supply			
			Missing module on CP			
			Via device-specific dia			
Operating voltage	Nominal value	[V DC]	24, reverse polarity prote	ected		
	Permissible range	[V]	20.4 26.4			
	Residual ripple	[Vss]	4			
	Power failure bridging	[ms]	10			
Current consumption		[mA]	Max. 100 + sensor supp	ly		
Protection class to EN 60529			IP65			
Materials	Housing		Die-cast aluminium			
	Cover		Reinforced polyamide			
	Seal		Nitrile rubber			
Dimensions			→ Internet: cpv			
Weight						
Technical data on valves						

Operating and environmental conditions				
Ambient temperature	[°C]	-5 +50		
Storage temperature	[°C]	-20 +70		
Fieldbus certification		PNO		
Certification		cULus recognized (OL)		
CE symbol (see declaration of conformity)		In accordance with EU EMC directive		

Connection and display components



- 1 Red LED: Bus status/error (BUS)
- 2 Green LED: Power supply (POWER)
- 3 Yellow LED row: For pilot solenoid coils 12
- 4 Yellow LED row: For pilot solenoid coils 14

in allocation for fieldbus interface (viewed on plug)		Festo Sub-D plug	Manufacturer-specific signal designation				
		(IP65)	Festo fieldbus interface	ABB CS31	PROFIBUS DP	Moeller SUCOI Sub-D 9-pin	DIN (round) 5-pin
	1	-	-	-	n.c.	-	-
	2	-	-	-	n.c.	-	-
6++1	3	В	S+	Bus1	RxD/TxD-P	3 (T _A /R _A)	4 (T _A /R _A)
++	4	-	_	-	CNTR-P	-	-
9++	5	-	-	-	DGND	-	-
	6	-	-	-	VP	-	-
	7	-	-	-	n.c.	-	-
	8	Α	S-	Bus2	RxD/TxD-N	7 (T _B /R _B)	1 (T _B /R _B)
	9	-	-	-	n.c.	-	-
	Hous-	Cable clip	Screened	Screened	Screened	4 (screened)	Housing
	ing						

Pin allocation for M12 adapter				
	Bus In (pin)	Bus Out (socket)	PROFIBUS DP (signal)	Description
1-2	M12 and 5	M12 and 5	Screened	Screened or functional earth
((+' +' +))	4	4	RxD / TxD-P	Data B
+4	-	3	DGND	Reference potential to supply voltage positive (VP)
	-	1	VP (P5V)	Supply voltage positive
	2	2	RxD / TxD-N	Data A

Ordering data					
Designation			Part No.	Туре	
Fieldbus node					
riciabas node	CPV10		165809	CPV10-GE-DI01-8	
	CPV14		165811	CPV14-GE-DI01-8	
	CPV18		165813	CPV18-GE-DI01-8	
			10,01,	110 OL DIVI O	
Power supply					
AN .	Power supply socket, straight, M12, 4-pin		18497	FBSD-GD-7	
			18495	FBSD-GD-9	
	Power supply socket, angled, 4-pin		18524	FBSD-WD-7	
			18525	FBSD-WD-9	
			18525	FBSD-WD-9	
	I				
Fieldbus connection					
Q	Fieldbus socket, Sub-D connection		532216	FBS-SUB-9-GS-DP-B	
		<u> </u>			
Bus connection Micro					
	Bus connection Micro Style, 2xM12		533118	FBA-2-M12-5POL-RK	
	Socket M12x1, 5-pin, straight,		1067905	NECU-M-B12G5-C2-PB	
	for self-assembly of a connecting cable for FBA-2-M12-5	POL-RK			
~	Plug M12x1, 5-pin, straight,		1066354	NECU-M-S-B12G5-C2-PB	
	for self-assembly of a connecting cable for FBA-2-M12-5	POL-RK	1000554	11203 III 3 51203-02-1 5	
	a some some some some some some some some	- ****			
	Fieldbus socket for Micro Style connection, M12, 5-pin,	straight	18324	FBSD-GD-9-5POL	
	Plug for Micro Style connection, M12, 5-pin, straight		175380	FBS-M12-5GS-PG9	
	I		I		
Valve terminal connec	tion				
	Connecting cable, angled plug, angled socket	0.25 m	540327	KVI-CP-3-WS-WD-0,25	
~		0.5 m	540328	KVI-CP-3-WS-WD-0,5	
		2 m	540329	KVI-CP-3-WS-WD-2	
		5 m	540330	KVI-CP-3-WS-WD-5	
		8 m	540331	KVI-CP-3-WS-WD-8	
	Connecting cable, straight plug, straight socket	2 m	540332	KVI-CP-3-GS-GD-2	
		540333	KVI-CP-3-GS-GD-5		
THE REAL PROPERTY.		8 m	540334	KVI-CP-3-GS-GD-8	
User documentation		1-	1		
	User documentation for CPV Direct, CPV fieldbus node	German	165816	P.BE-CP-DI01-DE	
	DI01	English	165817	P.BE-CP-DI01-EN	
		Italian	165818	P.BE-CP-DI01-IT	
Ť		French	165819	P.BE-CP-DI01-FR	
		Spanish	165820	P.BE-CP-DI01-ES	
		Swedish	165821	P.BE-CP-DI01-SV	

Technical data – Fieldbus node CPV-DI02-8



CPV fieldbus node according to the CP system with Specification "B" for communication between a CPV valve terminal and a fieldbus master. The fieldbus node is used for activation of a CPV valve terminal with 8 valve slices and 16 solenoid coils and for displaying the switching status via LED. The CPV-... valves are activated via automatic current reduction, which results in less power consumption and heat emission. 32 digital inputs and outputs or 32 solenoid coils can be connected via a serial CP string extension.

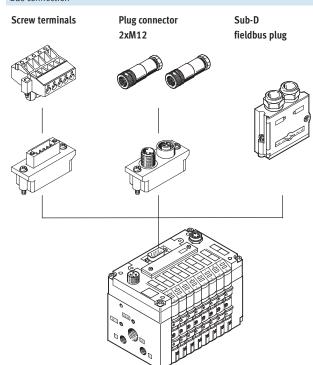
The CPV fieldbus node is available in three sizes, with identical performance characteristics:

- CPV10
- CPV14
- CPV18



Application

Bus connection



Sub-D socket

- 9-pin Sub-D socket
- Installation with IP65 protection

The bus connection is established via a 9 pin Sub-D socket with a typical PROFIBUS allocation (to EN 50170). The bus connector plug (with protection class IP65 from Festo or IP20 from other manufacturers) facilitates the connection of an incoming and an outgoing bus cable. An active bus terminal can be connected using the integrated DIL switch. The Sub-D interface is designed for the activation of network components via a fibre optic cable connection.

M12 adapter

- Plug connector 2xM12
- Installation with IP65 protection

Alternatively the bus connection can be established via a 2x M12 adapter (A-coded).

Screw terminals

• 5-pin screw terminal strip for installation in protected environments (IP20). The bus connection is established via a 5-pin row. If the valve terminal is ordered with this bus connection, the 5-pin screw terminal strip will also be supplied. It is designed with double screw terminals for the incoming and the outgoing bus cable. This connection technology provides a T-distributor function.

Fieldbus Direct, CPV-DI02-8 Technical data – Fieldbus node CPV-DI02-8

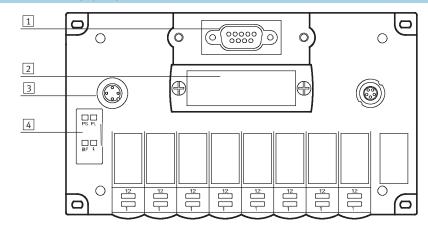




General technical data						
Туре			CPV10-GE-DI02-8	CPV14-GE-DI02-8	CPV18-GE-DI02-8	
Fieldbus interface	Either		Screw terminal strip,	5-pin		
			• Sub-D socket, 9-pin			
			 Socket and plug, M12 	2x1, 5-pin, B-coded		
Electrical isolation of the fieldbus	interface		Via optocoupler			
CP string extension			Yes, 32 inputs and 32 o	utputs		
Baud rates [kbps]			9.6 12,000;			
			Automatic detection			
Addressing range PROFIBUS DP (12 MBaud)			1 125;			
			Set using a switch modu			
LED display	Bus-specific		Communication and cor	nfiguration errors		
	Product-specific		Valve switching status			
	Power		Operating voltage for ele	ectrics and load supply		
Ident. number			0xC9			
Type of communication			Cyclical communication			
Configuration support		GSD file and bitmaps				
Max. no. of solenoid coils			16			
Max. no. of solenoid coils with str	ing extension	48 with string extension				
Max. no. of outputs			16 solenoid coils and 32 outputs			
Max. no. of inputs			32			
LED diagnostic displays	POWER		Operating voltage for electronics and load supply			
	BUS		Communication and configuration errors			
Device-specific diagnostics			Short circuit/overload of outputs			
			Undervoltage of valves			
			Undervoltage of output	uts		
			Undervoltage of sensor	or supply		
			Missing module on CF	P string extension		
			Via device-specific dia	agnostics (DPVO)		
Operating voltage	Nominal value	[V DC]	24, reverse polarity prot	tected		
	Permissible range	[V]	20.4 26.4			
	Residual ripple	[Vss]	4			
	Power failure bridging	[ms]	10			
Current consumption		[mA]	Max. 100 + sensor supp	oly		
Protection class to EN 60529			IP20 with 5-pin screw	v terminal strip		
			• IP65 Sub-D, socket/p	lug M12x1		
Materials	Housing		Die-cast aluminium			
	Cover		Reinforced polyamide			
	Seals		Nitrile rubber, polychloroprene rubber			
Dimensions			→ Internet: cpv			
Weight						
Technical data on valves						

Operating and environmental conditions				
Ambient temperature	[°C]	-5 +50		
Storage temperature	[°C]	-20 +70		
Fieldbus certification		PNO		
Certification		cULus recognized (OL)		
CE symbol (see declaration of conformity)		In accordance with EU EMC directive		
Note on materials		RoHS-compliant		

Connection and display components



- 1 Fieldbus connection (9-pin Sub-D socket)
- 2 Removable switch cover
- 3 Operating/load voltage connection (4-pin M12 plug)
- 4 Power LEDs (PS, PL) and bus status LEDs (BF)

Pin allocation for PROFIBUS DP	interface (vie	wed on plug)	
	Pin	Signal	Description
	1	n.c.	Not connected
	2	n.c.	Not connected
6++1	3	RxD/TxD-P	Received/transmitted data P
++	4	CNTR-P	Repeater control signal
++	5	DGND	Data reference potential (M5V)
$\left \left(\begin{array}{c} ++\\ 9+\\ +5 \end{array} \right) \right $	6	VP	Supply voltage positive (P5V)
	7	n.c.	Not connected
	8	RxD/TxD-N	Received/transmitted data N
	9	n.c.	Not connected
	Hous-	Screened	Connection to functional earth
	ing		

Pin allocation for M12 adapter	Pin allocation for M12 adapter					
	Pin	Signal	Description			
	1	VP	Supply voltage positive (P5V)			
+2	2	RxD/TxD-N	Received/transmitted data N			
((+ + +))	3	DGND	Data reference potential (M5V)			
+*	4	RxD/TxD-P	Received/transmitted data P			
	5	FE	Functional earth			

FESTO

Ordering data	Ordering data						
Designation			Part No.	Туре			
Fieldbus node	Fieldbus node						
400 m	CPV10		546188	CPV10-GEDI02-8			
	CPV14		546190	CPV14-GEDI02-8			
	CPV18	546192	CPV18-GEDI02-8				
			•				
Power supply							
	Power supply socket, straight, M12x1, 4-pin		18497	FBSD-GD-7			
			18495	FBSD-GD-9			
	Power supply socket, angled, M12x1, 4-pin		18524	FBSD-WD-7			
			18525	FBSD-WD-9			
			1				
Fieldbus connection							
rielabas connection	Fieldbus socket, Sub-D connection		532216	FBS-SUB-9-GS-DP-B			
	Trictabus socket, Sub-D conflection		7,72210	103-300-7-03-06-0			
45							
	M12 adapter		525632	FBA-2-M12-5POL			
Bus connection, 5-pin							
S. Lauke 3	Open Style adapter for 5-pin terminal strip		525634	FBA-1-SL-5POL			
W.			<u> </u>				
327	5-pin terminal strip		525635	FBSD-KL-2x5POL			
13538							
April 1			1				
Valve terminal connec	rtion						
valve terminal connec	Connecting cable, angled plug, angled socket	0.25 m	540327	KVI-CP-3-WS-WD-0,25			
	connecting capic, angica plug, angica source	0.5 m	540328	KVI-CP-3-WS-WD-0,5			
		2 m	540329	KVI-CP-3-WS-WD-2			
		5 m	540330	KVI-CP-3-WS-WD-5			
		8 m	540331	KVI-CP-3-WS-WD-8			
	Connecting cable, straight plug, straight socket	2 m	540332	KVI-CP-3-GS-GD-2			
MINISTER STATE OF THE PARTY OF		5 m	540333	KVI-CP-3-GS-GD-5			
TALL.		540334	KVI-CP-3-GS-GD-8				
User documentation							
	User documentation for CPV Direct, CPV fieldbus node	German	548731	P.BE-CPV-DI02-DE			
	DI02-8	English	548732	P.BE-CPV-DI02-EN			
		Spanish	548733	P.BE-CPV-DI02-ES P.BE-CPV-DI02-FR			
		French Italian	548734 548735	P.BE-CPV-DI02-FR P.BE-CPV-DI02-IT			
		Swedish	548736	P.BE-CPV-DI02-11			
	<u> </u>	Swearsii	340/30	L'DF.CLA.DI05.2A			

- Type discontinued Available up until 2015

Fieldbus Direct, CPASC1-AE32-DP

Technical data – Fieldbus node CPASC1-AE32-DP





CPASC fieldbus node for communication between a CPASC valve terminal and a fieldbus master. The fieldbus node is used for activation of a CPASC valve terminal with up to 32 solenoid coils on max. 24 valve positions. The CPA-SC... valves are activated via automatic current reduction, which results in less power consumption and heat emission. 32 digital inputs and outputs can be connected via a serial CP string extension.



Application

Bus connection

The bus connection is established via a 9 pin Sub-D socket with a typical PROFIBUS allocation (to EN 50170). The bus connector plug facilitates the

connection of an incoming and an outgoing bus cable. There is no internal bus terminating resistor.

Condition monitoring

Condition monitoring supports preventative maintenance which is part of the function chain in automation systems.

Each valve is assigned a switching

cycle counter that automatically registers movements of the system components.

Once a maximum number of activa-

tions is reached, a message is sent to the controller via PROFIBUS and maintenance can be started. In the same way condition monitoring supports the determining of service intervals for the function chain.

All movements immediately after installation are registered.

Type discontinued Available up until 2015

Fieldbus Direct, CPASC1-AE32-DP Technical data – Fieldbus node CPASC1-AE32-DP

FESTO

General technical data			
Туре			CPASC1-AE32-DP
Fieldbus interface			Sub-D socket, 9-pin
Electrical isolation of fieldbus inte	rface		Via optocoupler
Baud rate		[kbps]	9.6 12,000; automatic detection
Addressing range			0 125, Set using a rotary switch
CP string extension			Yes, 32 inputs and 32 outputs
LED display (bus-specific)	BF		Bus fault
LED display (product-specific)	PS		Electronics supply, sensor supply
	PL		Power supply for valves
	SF		CP/CPI system fault
Type of communication			DPV0: Cyclical communication
Protocol			PROFIBUS
Configuration support			EDS file and graphics symbol
Max. no. of solenoid coils			32
Device-specific diagnostics			Short circuit/overload of outputs
			Short circuit/overload of inputs
			Undervoltage of valve terminal
			Undervoltage of valve terminal extension
			Undervoltage of output module
			Undervoltage of sensor supply
			Missing module on the CP/CPI string
			Condition monitoring
Parameterisation			Via GSD file
Additional functions			Condition counter
			Tool change function
Operating voltage	Nominal value	[V DC]	24, reverse polarity protected
	Permissible range	[V]	20.4 26.4
	Residual ripple	[Vss]	4
	Power failure bridging	[ms]	20
Current consumption		[mA]	Max. 200 + sensor supply
Protection class to EN 60529			IP40
Materials			Reinforced polyamide
Dimensions (L x W x D)		[mm]	90 x 80 x 54
Weight		[g]	200
Technical data on valves			→ Internet: cpa-sc

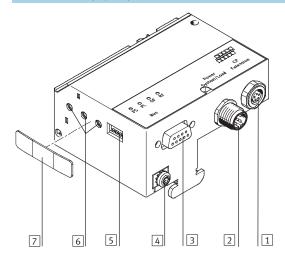
Operating and environmental conditions		
Ambient temperature	[°C]	−5 +50
Storage temperature	[°C]	-20 +50

Type discontinued Available up until 2015

Fieldbus Direct, CPASC1-AE32-DP Technical data – Fieldbus nodeCPASC1-AE32-DP

FESTO

Connection and display components



- 1 Connection for CP extension
- 2 Connection for power supply
- 3 Connection for fieldbus
- 4 Earth terminal
- 5 DIL switch for CP extension
- 6 Rotary switch for station number
- 7 Cover (for IP40 protection)

Pin allocation for PROFIBUS DP inter	Pin allocation for PROFIBUS DP interface				
Pin allocation	Pin	Signal	Description		
Sub-D plug socket on the valve termin	ıal				
	1	n.c.	Not connected		
(0 5)	2	n.c.	Not connected		
9004	3	RxD/TxD-P	Received/transmitted data P		
8003	4	CNTR-P ¹⁾	Repeater control signal		
7 0 0 2	5	DGND	Data reference potential (M5V)		
(6 ° ° 1)	6	VP	Supply voltage (P5V)		
	7	n.c.	Not connected		
	8	RxD/TxD-N	Received/transmitted data N		
	9	n.c.	Not connected		
	Hous-	Screened	Connection to housing		
	ing				

¹⁾ The repeater control signal CNTR-P is realised as a TTL signal.

Type discontinued Available up until 2015

Fieldbus Direct, CPASC1-AE32-DPAccessories – Fieldbus nodeCPASC1-AE32-DP

FESTO

Ordering data				
Designation			Part No.	Туре
Fieldbus node				
	Fielbus node	541918	CPASC1-AE32-DP	
Power supply Micro	Style M12			
	M12, 5-pin, straight socket (A-coded)		18324	FBSD-GD-9-5POL
Valve terminal conn	ection			
	Connecting cable, angled plug, angled socket	0.25 m	540327	KVI-CP-3-WS-WD-0,25
		0.5 m	540328	KVI-CP-3-WS-WD-0,5
		2 m	540329	KVI-CP-3-WS-WD-2
		5 m	540330	KVI-CP-3-WS-WD-5
		8 m	540331	KVI-CP-3-WS-WD-8
	Connecting cable, straight plug, straight socket	2 m	540332	KVI-CP-3-GS-GD-2
		5 m	540333	KVI-CP-3-GS-GD-5
1 Die		8 m	540334	KVI-CP-3-GS-GD-8
			·	<u> </u>
User documentation				
	User documentation for valve terminal CPA-SC-DP and	German	548725	P.BE-CPASC-CPVSC-DP-DE
	CPV-SC-DP		548726	P.BE-CPASC-CPVSC-DP-EN
		French	548728	P.BE-CPASC-CPVSC-DP-FR
		Italian	548729	P.BE-CPASC-CPVSC-DP-IT
		Swedish	548730	P.BE-CPASC-CPVSC-DP-SV
		Spanish	548727	P.BE-CPASC-CPVSC-DP-ES

Fieldbus Direct, CPVSC1-AE16-DP

Technical data – Fieldbus node CPVSC1-AE16-DP





CPV-SC fieldbus node for communication between a CPV-SC valve terminal and a fieldbus master. The fieldbus node is used for activation of a CPV-SC valve terminal with up to 16 solenoid coils on max. 16 valve positions and for displaying the switching status via LED.

The CPV-SC... valves are activated via automatic current reduction, which results in less power consumption and heat emission. 32 digital inputs and outputs can be connected via a serial CP string extension.



Application

Bus connection

The bus connection is established via a 9 pin Sub-D socket with a typical PROFIBUS allocation (to EN 50170). The bus connector plug facilitates the connection of an incoming and an outgoing bus cable. There is no internal bus terminating resistor.

Condition monitoring

Condition monitoring supports preventative maintenance which is part of the function chain in automation systems.

Each valve is assigned a switching

cycle counter that automatically registers movements of the system components.

Once a maximum number of activa-

tions is reached, a message is sent to the controller via PROFIBUS and maintenance can be started. In the same way condition monitoring supports the determining of service intervals for the function chain.

All movements immediately after installation are registered.

Fieldbus Direct, CPVSC1-AE16-DP Technical data – Fieldbus node CPVSC1-AE16-DP



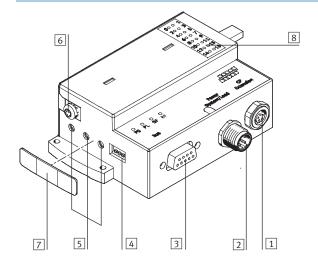
General technical data				
Туре			CPVSC1-AE16-DP	
Fieldbus interface		Sub-D socket, 9-pin		
Electrical isolation of fieldbus into	erface		Via optocoupler	
Baud rate		[kbps]	9.6 12,000; automatic detection	
Addressing range			0 125	
			Set using rotary switch	
CP string extension			Yes, 32 inputs and outputs	
LED display (bus-specific)	BF		Bus fault	
LED display (product-specific)	PS		Common message regarding power supply	
	PL		Power supply for valves	
	SF		CP system fault	
Type of communication			DPV0: Cyclical communication	
Protocol			PROFIBUS	
Max. no. of solenoid coils			16	
Device-specific diagnostics			Short circuit/overload of outputs	
			Short circuit/overload of inputs	
			Undervoltage of valve terminal	
			Undervoltage of valve terminal (extension)	
			Undervoltage of output module	
			Undervoltage of sensor supply	
			Missing module on the CP/CPI string	
			Condition monitoring	
Parameterisation			Via GSD file	
Additional functions			Condition counter	
			Tool change function	
Operating voltage	Nominal value	[V DC]	24, reverse polarity protected	
	Permissible range	[V]	20.4 26.4	
	Residual ripple	[Vss]	4	
	Power failure bridging	[ms]	20	
Current consumption		[mA]	Max. 200 + sensor supply	
Protection class to EN 60529			IP40	
Materials			Polyamide	
Note on materials			RoHS-compliant	
Dimensions (L x W x D)		[mm]	78 x 113 x 40	
Weight		[g]	200	
Technical data on valves			→ Internet: cpv-sc	

Operating and environmental conditions		
Ambient temperature	[°C]	-5 +50
Storage temperature	[°C]	-20 +50

Fieldbus Direct, CPVSC1-AE16-DP Technical data – Fieldbus node CPVSC1-AE16-DP

FESTO

Connection and display components



- 1 Connection for CP extension
- 2 Connection for power supply
- 3 Connection for fieldbus
- 4 DIL switch for CP extension
- 5 Rotary switch for station number
- 6 Earth terminal
- 7 Cover (for IP40 protection)
- 8 Switching status display per valve

Pin allocation for PROFIBUS DP inte	in allocation for PROFIBUS DP interface					
Pin allocation	Pin	Signal	Description			
Sub-D plug socket on the valve termi	nal					
	1	n.c.	Not connected			
(0 5)	2	n.c.	Not connected			
9004	3	RxD/TxD-P	Received/transmitted data P			
8 0 0 3	4	CNTR-P ¹⁾	Repeater control signal			
7 0 0 2	5	DGND	Data reference potential (M5V)			
(6 O O 1)	6	VP	Supply voltage (P5V)			
	7	n.c.	Not connected			
	8	RxD/TxD-N	Received/transmitted data N			
	9	n.c.	Not connected			
	Hous-	Screened	Connection to housing			
	ing					

¹⁾ The repeater control signal CNTR-P is realised as a TTL signal.

Fieldbus Direct, CPVSC1-AE16-DPAccessories – Fieldbus node CPVSC1-AE16-DP



Ordering data				
Designation			Part No.	Туре
Fieldbus node				
	Fieldbus node	541919	CPVSC1-AE16-DP	
Power supply Micro	o Style M12			
	M12, 5-pin, straight socket (A-coded)		18324	FBSD-GD-9-5POL
Valve terminal conr	nection			
	Connecting cable, angled plug, angled socket	0.25 m	540327	KVI-CP-3-WS-WD-0,25
(6)		0.5 m	540328	KVI-CP-3-WS-WD-0,5
		2 m	540329	KVI-CP-3-WS-WD-2
		5 m	540330	KVI-CP-3-WS-WD-5
		8 m	540331	KVI-CP-3-WS-WD-8
	Connecting cable, straight plug, straight socket	2 m	540332	KVI-CP-3-GS-GD-2
		5 m	540333	KVI-CP-3-GS-GD-5
1 TILLER		8 m	540334	KVI-CP-3-GS-GD-8
User documentation	n			
	User documentation for valve terminal CPA-SC-DP and	German	548725	P.BE-CPASC-CPVSC-DP-DE
	CPV-SC-DP	English	548726	P.BE-CPASC-CPVSC-DP-EN
		French	548728	P.BE-CPASC-CPVSC-DP-FR
		Italian	548729	P.BE-CPASC-CPVSC-DP-IT
		Swedish	548730	P.BE-CPASC-CPVSC-DP-SV
		Spanish	548727	P.BE-CPASC-CPVSC-DP-ES

Technical data - Fieldbus node CPV-CS02-8

ABB

CPV fieldbus node according to the CP system with Specification "B" for communication between a CPV valve terminal and a fieldbus master. The fieldbus node is used for activation of a CPV valve terminal with 8 valve slices and 16 solenoid coils and for displaying the switching status via LED. The CPV-... valves are activated via automatic current reduction, which results in less power consumption and heat emission. 32 digital inputs and outputs or 32 solenoid coils can be connected via a serial CP string extension.

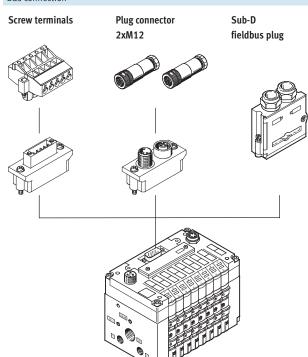
The CPV fieldbus node is available in two sizes, with identical performance characteristics:

- CPV10
- CPV14



Application

Bus connection



Sub-D socket

- 9-pin Sub-D socket
- Installation with IP65 protection

The bus connection is established via a 9-pin Sub-D socket. The bus connector plug (with protection class IP65 from Festo or IP20 from other manufacturers) facilitates the connection of an incoming and an outgoing bus cable. An active bus terminal can be connected using the integrated DIL switch. The Sub-D interface is designed for the activation of network components via a fibre optic cable connection.

M12 adapter

- Plug connector 2xM12
- Installation with IP65 protection

Alternatively the bus connection can be established via a 2x M12 adapter (B-coded).

Screw terminals

5-pin screw terminal strip for installation in protected environments (IP20). The bus connection is established via a 5-pin row. If the valve terminal is ordered with this bus connection, the 5-pin screw terminal strip will also be supplied. It is designed with double screw terminals for the incoming and the outgoing bus cable. This connection technology provides a T-distributor function.

Fieldbus Direct, CPV-CS02-8 Technical data – Fieldbus node CPV-CS02-8

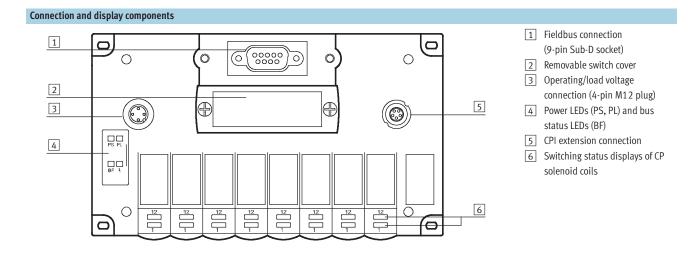


General technical data						
Туре			CPV10-GE-CS02-8	CPV14-GE-CS02-8		
Fieldbus interface			Sub-D socket, 9-pin			
Electrical isolation of the fieldbu	s interface		Via optocoupler			
CP string extension			Yes, 32 inputs and outputs			
Baud rates		[kBaud]	187.5			
			Permanently set	Permanently set		
Addressing range			0 125;			
			set using a switch module			
Type of communication			Cyclical communication			
Configuration support			GSD file and bitmaps			
Max. no. of solenoid coils			16			
Max. no. of solenoid coils with s	tring extension		48			
Max. no. of outputs			16 solenoid coils and 32 outpu	uts		
Max. no. of inputs			32			
LED display	Bus-specific		Communication and configurat	tion errors		
	Product-specific		Valve switching status			
	Power		Operating voltage for electrics and load supply			
Device-specific diagnostics			Short circuit/overload of outputs			
			Undervoltage of valves			
			Undervoltage of outputs			
				Undervoltage of sensor supply		
			Missing module on the CP/C	_		
			Via device-specific diagnosti	ics (DPVO)		
Operating voltage	Nominal value	[V DC]	24, reverse polarity protected			
	Permissible range	[V]	20.4 26.4			
	Residual ripple	[Vss]	4			
	Power failure bridging	[ms]	10			
Current consumption		[mA]	Max. 100 + sensor supply			
Protection class to EN 60529			IP65			
Materials	Housing		Die-cast aluminium			
	Cover		Reinforced polyamide			
	Seal		Nitrile rubber			
Dimensions			→ Internet: cpv			
Weight						
Technical data on valves						

Operating and environmental conditions				
Ambient temperature	[°C]	-5 +50		
Storage temperature	[°C]	-20 +70		
Certification		cULus recognized (OL)		
CE symbol (see declaration of conformity)		In accordance with EU EMC directive		
Note on materials		RoHS-compliant		

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Subject to change - 2013/11



Pin allocation for CS31 interface (vie	Pin allocation for CS31 interface (viewed on plug)					
	Pin	Signal				
	1	-				
	2	_				
6 ₊ +1	3	Bus 1				
++	4	-				
++	5	-				
9++5	6	-				
	7	-				
	8	Bus 2				
	9	-				
	Hous-	Screened				
	ing					

32

Ordering data				
Designation			Part No.	Туре
Fieldbus node				
CPV10				CPV10-GE-CS02-8
	CPV14	546196	CPV14-GE-CS02-8	
Power supply				
	Power supply socket, straight M12x1, 4-pin	18497	FBSD-GD-7	
			18495	FBSD-GD-9
8	Power supply socket, angled M12x1, 4-pin		18524	FBSD-WD-7
			18525	FBSD-WD-9
Fieldbus connection				
	Fieldbus socket, Sub-D connection	532216	FBS-SUB-9-GS-DP-B	
Valve terminal conne	ection			
	Connecting cable, angled plug, angled socket	0.25 m	540327	KVI-CP-3-WS-WD-0,25
		0.5 m	540328	KVI-CP-3-WS-WD-0,5
		2 m	540329	KVI-CP-3-WS-WD-2
		5 m	540330	KVI-CP-3-WS-WD-5
		8 m	540331	KVI-CP-3-WS-WD-8
	Connecting cable, straight plug, straight socket	2 m	540332	KVI-CP-3-GS-GD-2
		5 m	540333	KVI-CP-3-GS-GD-5
TALLES .		8 m	540334	KVI-CP-3-GS-GD-8
		•		
User documentation				
	User documentation for CPV Direct, CPV fieldbus node	German	548731	P.BE-CPV-DI02-DE
	DI02-8	English	548732	P.BE-CPV-DI02-EN
		Spanish	548733	P.BE-CPV-DI02-ES
		French	548734	P.BE-CPV-DI02-FR
		Italian	548735	P.BE-CPV-DI02-IT
		Swedish	548736	P.BE-CPV-DI02-SV

Technical data - Fieldbus node CPV-DN2



CPV fieldbus node for communication between a CPV valve terminal and a fieldbus master. The fieldbus node is used for activation of a CPV valve terminal with 8 valve slices and 16 solenoid coils and for displaying the switching status via LED. The CPV-... valves are activated via automatic current reduction, which results in less power consumption and heat emission. 16 digital inputs and 8 digital outputs or 16 solenoid coils can be connected via a serial CP string extension.

The CPV fieldbus node supports the DeviceNet protocol and conforms to the device profile of the pneumatic valve.

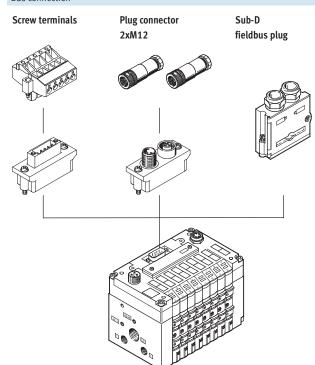
The CPV fieldbus node is available in three sizes, with identical performance characteristics:

- CPV10
- CPV14
- CPV18



Application

Bus connection



Sub-D socket

- 9-pin Sub-D socket
- Installation with IP65 protection

The bus connection is established via a 9 pin Sub-D socket with a typical PROFIBUS allocation (to EN 50170). The bus connector plug (with protection class IP65 from Festo or IP20 from other manufacturers) facilitates the connection of an incoming and an outgoing bus cable. An active bus terminal can be connected using the integrated DIL switch. The Sub-D interface is designed for the activation of network components via a fibre optic cable connection.

M12 adapter

- Plug connector 2xM12
- Installation with IP65 protection

Alternatively the bus connection can be established via a 2x M12 adapter (A-coded).

Screw terminals

• 5-pin screw terminal strip for installation in protected environments (IP20). The bus connection is established via a 5-pin row. If the valve terminal is ordered with this bus connection, the 5-pin screw terminal strip will also be supplied. It is designed with double screw terminals for the incoming and the outgoing bus cable. This connection technology provides a T-distributor function.

Fieldbus Direct, CPV-DN2 Technical data – Fieldbus node CPV-DN2

FESTO

35

Condition monitoring

Condition monitoring supports preventative maintenance which is part of the function chain in automation systems.

Each valve is assigned a switching

cycle counter that automatically $registers \ movements \ of \ the \ system$ components.

Once a maximum number of activa-

tions is reached, a message is sent to the controller via DeviceNet and maintenance can be started. In the same way condition monitoring supports the

determining of service intervals for the function chain.

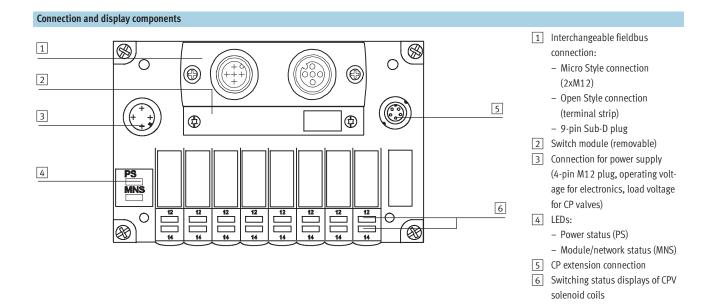
All movements immediately after installation are registered.

General technical data						
Туре			CPV10-GE-DN2-8	CPV14-GE-DN2-8	CPV18-GE-DN2-8	
Fieldbus interface			Either			
		• Sub-D socket, 9-pin				
		Screw terminal strip, 5-pin				
		 Socket and plug, M1 	2x1, 5-pin, A-coded			
Electrical isolation of the fieldbu	s interface		Via optocoupler			
Baud rates		[kbps]	125, 250, 500; set usi	ng a switch module		
Addressing range			0 63; set using a sw	itch module		
CP string extension			Yes, 16 inputs and 8 o	utputs (or 16 valves)		
LED diagnostics displays	PS		Common message rega	ording power supply		
	MNS		DeviceNet status			
Product family			Pneumatic valve (27 d	ec.)		
Ident. number			8942 dec.			
Type of communication			Polling, change of state	e, strobed I/O		
Configuration support			EDS file and graphics s	symbol		
Max. no. of solenoid coils			16			
Max. no. of solenoid coils with st	tring extension		32			
Max. no. of outputs			8 (1x16 solenoid coils	omitted)		
Max. no. of inputs			16			
Device-specific diagnostics			Short circuit/overloa	nd of outputs		
			Short circuit/overloa	nd of inputs		
			Undervoltage of valv	e terminal		
			Undervoltage of valve terminal (extension)			
		Undervoltage of outp	out module			
			Undervoltage of sensor supply			
			Missing module on the CP/CPI string			
			Condition monitorin	g		
Additional functions			Condition counter			
Operating voltage	Nominal value	[V DC]	24, reverse polarity pro	otected		
	Permissible range	[V DC]	20.4 26.4			
	Residual ripple	[Vss]	4			
	Power failure bridging	[ms]	20			
Current consumption		[mA]	Max. 200 + sensor sup	pply		
Protection class to EN 60529		IP20 with 5-pin scre	w terminal strip			
			• IP65 Sub-D, socket/plug M12x1			
Materials	Housing		Die-cast aluminium			
	Cover		Polyamide, glass fibre	(Ultramide)		
	Seal		Nitrile rubber, Neoprer			
Dimensions			→ Internet: cpv			
Weight						
Technical data on valves			1			

Operating and environmental conditions					
Ambient temperature	[°C]	-5 +50			
Storage temperature	[°C]	-20 +70			
Fieldbus certification		ODVA			
Certification		cULus recognized (OL)			
CE symbol (see declaration of conformity)		In accordance with EU EMC directive			
Note on materials		RoHS-compliant			

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Technical data – Fieldbus node CPV-DN2



in allocation for DeviceNet interface (viewed on plug)				
	Pin	Signal	Description	
	1	n.c.	Not connected	
(6,1) ++ ++ ++ ++ ++ 9+5	2	CAN_L	CAN Low	
	3	CAN_GND	0 V CAN interface	
	4	n.c.	Not connected	
	5	Screened	Optional screened connection	
	6	GND	Ground optional	
	7	CAN_H	CAN high	
	8	n.c.	Not connected	
	9	CAN_V+	24 V supply CAN interface	

Pin allocation for M12 adapter				
	Pin	Signal-specific wire colour	Signal	Description
+2	1	blank	Screened	Connection to housing
	2	red	24 V DC bus	24 V supply CAN interface
((+' +' +))	3	black	0 V bus	0 V CAN interface
+4	4	white	CAN_H	Received/transmitted data high
	5	blue	CAN_L	Received/transmitted data low

Pin allocation for Open Style adapter					
	Pin	Signal-specific wire colour	Signal	Description	
(+)	1	black	0 V bus	0 V CAN interface	
S	2	blue	CAN_L	Received/transmitted data low	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3	blank	Screened	Connection to housing	
	4	white	CAN_H	Received/transmitted data high	
<u>+</u>	5	red	24 V DC bus	24 V supply CAN interface	

Ordering data				
Designation			Part No.	Туре
Fieldbus node				
a Silvan	CPV10		525630	CPV10-GE-DN2-8
	CPV14	525878	CPV14-GE-DN2-8	
	CPV18		525880	CPV18-GE-DN2-8
	1			
Power supply				
	Power supply socket, straight M12x1, 4-pin		18497	FBSD-GD-7
			18495	FBSD-GD-9
6	Power supply socket, angled M12x1, 4-pin		18524	FBSD-WD-7
			18525	FBSD-WD-9
			1	
Bus connection Micro	Style M12			
	Bus connection Micro Style, 2xM12		525632	FBA-2-M12-5POL
	, ,			
	Fieldbus socket for Micro Style connection, M12, 5-pin,	straight	18324	FBSD-GD-9-5POL
	Plug for Micro Style connection, M12, 5-pin, straight		175380	FBS-M12-5GS-PG9
Bus connection Open	Style, 5-pin screw terminal strip			
Dus connection open.	Bus connection Open Style for 5-pin terminal strip		525634	FBA-1-SL-5POL
Season S	,			
	Bus connection, 5-pin terminal strip		525635	FBSD-KL-2x5POL
30800				
	I			
Valve terminal connec	tion			
	Connecting cable, angled plug, angled socket	0.25 m	540327	KVI-CP-3-WS-WD-0,25
		0.5 m	540328	KVI-CP-3-WS-WD-0,5
1		2 m	540329	KVI-CP-3-WS-WD-2
-		5 m	540330	KVI-CP-3-WS-WD-5
		8 m	540331	KVI-CP-3-WS-WD-8
OLE S	Connecting cable, straight plug, straight socket	2 m	540332	KVI-CP-3-GS-GD-2
5 m 8 m			540333	KVI-CP-3-GS-GD-5
(A)	<u> </u>	540334	KVI-CP-3-GS-GD-8	
User documentation				
	User documentation for CPV Direct, CPV fieldbus node	German	526016	P.BE-CP-DN2-DE
	DN2	English	526017	P.BE-CP-DN2-EN
		Italian	526018	P.BE-CP-DN2-IT
		French	526019	P.BE-CP-DN2-FR
		Spanish	526020	P.BE-CP-DN2-ES
		Swedish	526021	P.BE-CP-DN2-SV
		1 -	1	

Technical data – Fieldbus node CPV-DN3-8



CPV fieldbus node according to the CP system with Specification "B" for communication between a CPV valve terminal and a fieldbus master. The fieldbus node is used for activation of a CPV valve terminal with 8 valve slices and 16 solenoid coils and for displaying the switching status via LED.

The CPV-... valves are activated via automatic current reduction, which results in less power consumption and heat emission. 32 digital inputs and outputs or 32 solenoid coils can be connected via a serial CPI string extension.

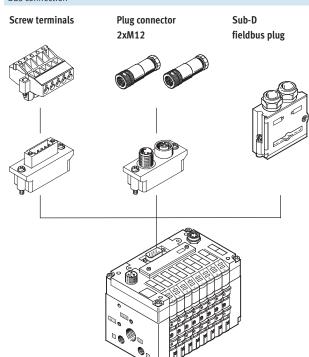
The CPV fieldbus node is available in three sizes, with identical performance characteristics:

- CPV10
- CPV14
- CPV18



Application

Bus connection



Sub-D socket

- 9-pin Sub-D socket
- Installation with IP65 protection

The bus connection is established via a 9-pin Sub-D socket. The bus connector plug (with protection class IP65 from Festo or IP20 from other manufacturers) facilitates the connection of an incoming and an outgoing bus cable. An active bus terminal can be connected using the integrated DIL switch. The Sub-D interface is designed for the activation of network components via a fibre optic cable connection.

M12 adapter

- Plug connector 2xM12
- Installation with IP65 protection

Alternatively the bus connection can be established via a 2x M12 adapter (B-coded).

Screw terminals

5-pin screw terminal strip for installation in protected environments (IP20). The bus connection is established via a 5-pin row. If the valve terminal is ordered with this bus connection, the 5-pin screw terminal strip will also be supplied. It is designed with double screw terminals for the incoming and the outgoing bus cable. This connection technology provides a T-distributor function.

Fieldbus Direct, CPV-DN3-8 Technical data – Fieldbus node CPV-DN3-8

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39

Condition monitoring

Condition monitoring supports preventative maintenance which is part of the function chain in automation sys-

Each valve is assigned a switching

cycle counter that automatically $registers \ movements \ of \ the \ system$ components.

Once a maximum number of activa-

tions is reached, a message is sent to the controller via DeviceNet and maintenance can be started. In the same way condition monitoring supports the

determining of service intervals for the function chain.

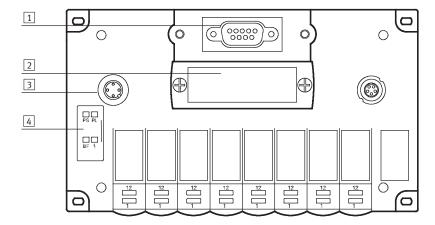
All movements immediately after installation are registered.

Fieldbus interface Either Screw terminal strip, 5-pin Sub-D socket, 9-pin Sub-D socket and plug, M12x1, 5-pin, A-coded Via optocoupler Ves, 32 inputs and 32 outputs Sub-Sub-Sub-Sub-Sub-Sub-Sub-Sub-Sub-Sub-	General technical data							
Sub-D socket, 9-pin	Туре			CPV10-GE-DN3-8	CPV14-GE-DN3-8	CPV18-GE-DN3-8		
Socket and plug, M12x1, 5-pin, A-coded Petritial solation of fieldbus interface	Fieldbus interface	Either		Screw terminal strip	, 5-pin			
Electrical isolation of fieldbus interface (P string extension (P string extension (Ness, 32 inputs and 32 outputs Addressing range (Ness) 22 (puts and 32 outputs (Ness) 25 (puts and 32 outputs (Ness) 26 (puts and 32 outputs (Ness) 27 (puts and 32 outputs (Ness) 27 (puts and 32 outputs (Ness) 28 (puts and 32 outputs (Ness) 28 (puts and 32 outputs (Ness) 29 (puts and 32 outputs (Ness) 29 (puts and 32 outputs (Ness) 29 (puts and 32 outputs (Ness) 26 (puts and 32 outputs (Ness) 29 (puts and 29 (puts and 29 (puts and 32 outputs (Ness) 20 (puts and 32 (put				• Sub-D socket, 9-pin				
Vesting extension Yes, 32 inputs and 32 outputs			 Socket and plug, M1 	12x1, 5-pin, A-coded				
Baud rates [kbps] 125, 250, 500; set using a switch module Addressing range 0 63; set using a switch module Product identification Product type Pneumatic valve (27 dec.) Product identification Product code 894 2 dec. Polling, change of state, strobed I/O Configuration support EDS file and graphics symbol Max. no. of solenoid colis with string extension 48 Max. no. of solenoid colis with string extension 48 Max. no. of inputs 15 solenoid colis and 32 outputs Max. no. of inputs 32 Common message regarding power supply LED display Bus-specific MNS: DeviceNet status LED display Product-specific Valve switching status Power Operating voltage for electrics and load supply Device-specific diagnostics • Short circuit/overload of outputs • Short circuit/overload of inputs • Undervoltage of valve terminal • Undervoltage of surput module • U	Electrical isolation of fieldbus in	terface		Via optocoupler				
Addressing range Product identification Product code Product identification Product code Poling, change of state, strobed I/O Poling, change of subtusts Poling and 32 outputs Poling in an advantage of subtusting status Power of poling in a status Power of poling in a status Power of poling in a status Poling in an advantage of subtusting status Poling in an advantage of subtusting power supply Poling in a status in a st	CP string extension			Yes, 32 inputs and 32	outputs			
Product identification Product type Product identification Product code 8942 dec. Product identification Product code 8942 dec. Power formunication Polling, change of state, strobed I/O Description EDS file and graphics symbol Max. no. of solenoid colls with string extension 48 Max. no. of solenoid colls with string extension 48 Max. no. of inputs 32 LED display Bus-specific MNS: DeviceNet status LED display Product-specific Valve switching status Device-specific diagnostics Power Operating voltage for electrics and load supply Device-specific diagnostics Short circuit/overload of outputs Undervoltage of valve terminal Undervoltage of valve terminal (extension) Undervoltage of sensor supply Missing module on CP string Condition monitoring Condition monitoring Additional functions Condition counter	Baud rates		[kbps]	125, 250, 500; set us	ing a switch module			
Product identification	Addressing range			0 63; set using a sw	itch module			
Types of communication Configuration support EDS file and graphics symbol Max. no. of solenoid coils Max. no. of solenoid coils with string extension Max. no. of poutputs Max. no. of inputs ED diagnostic displays PS Common message regarding power supply LED display Product-specific Miss. DeviceNet status Power Operating voltage for electrics and load supply Device-specific diagnostics Power Operating voltage for electrics and load supply Power Operating voltage of valve terminal (extension) Undervoltage of valve terminal (extension) Undervoltage of sensor supply Missing module on CP string Condition counter Operating voltage Nominal value VDC] Permissible range VI 20.4. "26.4" Residual ripple Residual ripple Vss Power failure bridging ms 10 Current consumption (mA) Max. 200 + sensor supply Protection class to EN 60529 Protection class to EN 60529 Protection class to EN 60529 Materials Housing Die-cast aluminium Materials Seal Nitrile rubber Pollenter: cpy	Product identification	Product type		Pneumatic valve (27 d	ec.)			
Configuration support Max. no. of solenoid coils Max. no. of solenoid coils with string extension Max. no. of solenoid coils with string extension Max. no. of outputs Max. no. of inputs LED display Bus-specific Whis: DeviceNet status Device-specific diagnostics Power Operating voltage for electrics and load supply Device-specific diagnostics Power Operating voltage of valve terminal Undervoltage of valve terminal Condition monitoring Condition monitoring Condition counter Operating voltage Nominal value VDC] Permissible range VJ 20.4. "26.4 Permissible range VSS] 4 Power failure bridging (ms] 10 Current consumption (ms] Max. 200 + sensor supply Max. 200 + sensor supply Protection class to EN 60529 PIP20 with 5-pin screw terminal strip PIP20 with 5-pin screw termina	Product identification	Product code		8942 dec.				
Max. no. of solenoid coils with string extension Ax. no. of solenoid coils with string extension Ax. no. of fuputs LED diagnostic displays PS Common message regarding power supply LED display Bus-specific Power Porduct-specific Power Operating voltage for electrics and load supply Porduct-specific diagnostics Power Operating voltage for electrics and load supply Power Operating voltage for electrics and load supply Power Undervoltage of valve terminal Undervoltage of valve terminal Undervoltage of sensor supply Wissing module on CP string Condition monitoring Additional functions Operating voltage Permissible range VI DCI Permissible range VI DCI Permissible range Residual ripple Vissi Power failure bridging Imal Max. 200 + sensor supply Protection class to EN 60529 Protection class to EN 60529 Weight Pittle rubber	Types of communication			Polling, change of stat	e, strobed I/O			
Max. no. of solenoid coils with string extension Max. no. of outputs Max. no. of inputs ED diagnostic displays Bus-specific Product-specific Power Operating voltage Mominal value Permissible range IV 20.4 26.4 Residual ripple Protection class to EN 60529 Frotection class to EN 60529 Max. no. of outputs 16 solenoid coils and 32 outputs 32 Losenon message regarding power supply Miss. DeviceNet status Valve switching status Operating voltage for electrics and load supply Valve switching status Operating voltage for electrics and load supply Short circuit/overload of outputs Short circuit/overload of inputs Undervoltage of valve terminal Undervoltage of valve terminal Undervoltage of sensor supply Missing module on CP string Condition monitoring Condition monitoring Condition counter Operating voltage Nominal value [V D C] Permissible range [V] 20.4 26.4 Residual ripple [Vss] IV 20.4 26.4 Power failure bridging [ms] IV 20.9 26.4 Power failure bridging [ms] Die-cast aluminium Materials Over Reinforced polyamide Materials Over Reinforced polyamide Mitrile rubber Internet: cpv Internet: cpv	Configuration support			EDS file and graphics s	symbol			
Max. no. of outputs Max. no. of inputs Max. no. of inputs S2 Common message regarding power supply LED display Bus-specific Power Power Power Operating voltage for electrics and load supply Short circuit/overload of inputs Undervoltage of valve terminal Undervoltage of valve terminal Undervoltage of sensor supply Missing module on CP string Condition monitoring Condition monitoring Additional functions Nominal value Permissible range [V] Power failure bridging [ms] Max. 200 + sensor supply Protection class to EN 60529 Max. 200 + sensor supply Pleo Sub-D, socket/plug M12x1 Materials Cover Reinforced polyamide Mitrile rubber Pinternet: cpv Mitrile rubber Pinternet: cpv Imple Weight Power all premets cpv Internet: cpv Internet: cpv Internet: cpv Internet: cpv	Max. no. of solenoid coils			16				
Max. no. of inputs LED diagnostic displays Bus-specific Bus-specific Product-specific Power Operating voltage Additional functions Operating voltage Nominal value Permissible range Residual ripple Power failure bridging Residual ripple Power failure bridging Power failure bridging Residual ripple Power failure bridging Residuals Bus-specific Additional functions Current consumption Frotection class to EN 60529 Materials Housing Materials Adelitionals Cover Reinforced polyamide Materials Seal Nitrile rubber Ambre internet: cpv Missing module on CP string Condition counter Condition monitoring Condition monitoring Ada Max. 200 + sensor supply Protection class to EN 60529 All power failure bridging Max. 200 + sensor supply Protectal suminium Materials Adelitional functions Fine All max. 200 + sensor supply Protectal suminium Materials Adelitional functions Fine All missing Die-cast aluminium Mitrile rubber Pinternet: cpv	Max. no. of solenoid coils with s	tring extension		48				
LED diagnostic displays Bus-specific AMS: DeviceNet status LED display Product-specific Power Operating voltage for electrics and load supply Short circuit/overload of outputs Short circuit/overload of inputs Undervoltage of valve terminal Undervoltage of valve terminal Undervoltage of valve terminal Undervoltage of sensor supply Missing module on CP string Condition monitoring Additional functions Operating voltage Nominal value Permissible range Permissible range Residual ripple Vss] Power failure bridging Ima Max. 200 + sensor supply Protection class to EN 60529 Protection class to EN 60529 New residual ripple Protection class to EN 60529 Power Residual ripple Residual ripple Protection class to EN 60529 Power Residual	Max. no. of outputs			16 solenoid coils and	32 outputs			
LED display Product-specific MNS: DeviceNet status	Max. no. of inputs			32				
LED display Product-specific Power Operating voltage for electrics and load supply Device-specific diagnostics Short circuit/overload of outputs Short circuit/overload of inputs Undervoltage of valve terminal Undervoltage of valve terminal (extension) Undervoltage of output module Undervoltage of sensor supply Missing module on CP string Condition monitoring Additional functions Condition counter Operating voltage Permissible range V DCI 24, reverse polarity protected Permissible range V 20.4 26.4 Residual ripple Vss 4 Power failure bridging Ims 10 Current consumption ImAl Max. 200 + sensor supply Protection class to EN 60529 Protection class to EN 60529 Place at aluminium Materials Housing Die-cast aluminium Materials Seal Nitrile rubber Dimensions Internet: cpv Valve switching status Short circuit/overload of outputs Short circuit/overload of output module Undervoltage of valve terminal Short circuit/overload of inputs Short circuit/overload of output module Undervoltage of valve terminal Short circuit/overload of inputs Short circuit/overload of output module Undervoltage of valve terminal Short circuit/overload of output module Undervoltage of valve terminal Short circuit/overload of output module Undervoltage of valve terminal Short circuit/overload of inputs Short circuit/overload of inputs Short circuit/overload of output module Undervoltage of valve terminal Undervoltage of valve terminal Short circuit/overload of inputs Short circuit/overload of output module Undervoltage of valve terminal Short circuit/overload of output module Undervoltage of valve terminal Short circuit/overload of output module Undervoltage of valve te	LED diagnostic displays	PS		Common message rega	arding power supply			
Power Operating voltage for electrics and load supply - Short circuit/overload of outputs - Short circuit/overload of inputs - Undervoltage of valve terminal - Undervoltage of valve terminal - Undervoltage of sensor supply - Missing module on CP string - Condition monitoring Additional functions Operating voltage Permissible range Volume Volume	LED display	Bus-specific		MNS: DeviceNet status				
Device-specific diagnostics Short circuit/overload of outputs Short circuit/overload of inputs Undervoltage of valve terminal Undervoltage of output module Undervoltage of output module Undervoltage of sensor supply Missing module on CP string Condition counter Condition counter Operating voltage Mominal value VDC VSS Permissible range VI 20.4 26.4 Residual ripple VSS Power failure bridging ImA Max. 200 + sensor supply IP20 with 5-pin screw terminal strip IP65 Sub-D, socket/plug M12x1 Materials Materials Cover Reinforced polyamide Materials Seal Nitrile rubber Internet: cpv Short circuit/overload of outputs Short circuit/overload of inputs Short circuit/overload of inputs Short circuit/overload of outputs Short circuit/overload of outputs Short circuit/overload of inputs Undervoltage of valve terminal Undervoltage of valve terminal Short circuit/overload of inputs Short circuit/overload of inputs Undervoltage of valve terminal Undervoltage of valve terminal Short circuit/overload of inputs Short circuit/overload of inputs Undervoltage of valve terminal Undervoltage of valve terminal Short circuit/overload of inputs Short circuit/overload outputs	LED display	Product-specific		Valve switching status				
Short circuit/overload of inputs Undervoltage of valve terminal (extension) Undervoltage of valve terminal (extension) Undervoltage of output module Undervoltage of sensor supply Missing module on CP string Condition monitoring Additional functions Operating voltage Nominal value VDC Permissible range V 20.4 26.4 Residual ripple Power failure bridging Ima Max. 200 + sensor supply IP20 with 5-pin screw terminal strip IP20 with 5-pin screw terminal strip IP65 Sub-D, socket/plug M12x1 Materials Materials Materials Seal Nitrile rubber Internet: cpv Weight		Power		Operating voltage for electrics and load supply				
Undervoltage of valve terminal Undervoltage of output module Undervoltage of output module Undervoltage of sensor supply Missing module on CP string Condition monitoring Additional functions Operating voltage Nominal value V DC Permissible range V DC Permissible range VSS Acideal ripple Nower failure bridging Imal Max. 200 + sensor supply Protection class to EN 60529 Imal Max. 200 + sensor supply Pleos sub-0, socket/plug M12x1 Materials Housing Die-cast aluminium Materials Cover Reinforced polyamide Materials Seal Nitrile rubber Internet: cpv Weight	Device-specific diagnostics			Short circuit/overloa	ad of outputs			
Undervoltage of valve terminal (extension) Undervoltage of output module Undervoltage of sensor supply Missing module on CP string Condition monitoring Additional functions Operating voltage Nominal value VDC Permissible range VV Permissible range VSS Residual ripple Power failure bridging Imal Max. 200 + sensor supply IP20 with 5-pin screw terminal strip IP20 with 5-pin screw terminal strip IP65 Sub-D, socket/plug M12x1 Materials Housing Materials Cover Reinforced polyamide Materials Seal Nitrile rubber Internet: cpv				Short circuit/overload of inputs				
Undervoltage of output module Undervoltage of sensor supply Missing module on CP string Condition monitoring Additional functions Operating voltage Nominal value Permissible range VI 20.4 26.4 Residual ripple Residual ripple Vss] 4 Power failure bridging Protection class to EN 60529 Protection class to EN 60529 Materials Housing Materials Cover Reinforced polyamide Nitrile rubber Internet: cpv Undervoltage of output module Undervoltage of sensor supply Additional functions Undervoltage of output module Undervoltage of sensor supply Condition counter Condition counter Condition counter 24, reverse polarity protected 24, reverse polarity protected 40 Au 26.4 Residual ripple Vss] 4 Power failure bridging Ims] 10 Current consumption ImAl Max. 200 + sensor supply IP20 with 5-pin screw terminal strip IP65 Sub-D, socket/plug M12x1 Materials Nitrile rubber Internet: cpv				Undervoltage of valv	ve terminal			
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Missing module on CP string				, ,				
Missing module on CP string								
Additional functions Condition counter Condition monitoring Condition counter Condition contended Nat Condition counter Condition contended Nat Condition				117				
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Permissible range [V] 20.4 26.4 Residual ripple [Vss] 4 Power failure bridging [ms] 10 Current consumption [mA] Max. 200 + sensor supply Protection class to EN 60529 • IP20 with 5-pin screw terminal strip • IP65 Sub-D, socket/plug M12x1 Materials Housing Die-cast aluminium Materials Cover Reinforced polyamide Materials Seal Nitrile rubber Dimensions Internet: cpv	Additional functions				0			
Permissible range [V] 20.4 26.4 Residual ripple [Vss] 4 Power failure bridging [ms] 10 Current consumption [mA] Max. 200 + sensor supply Protection class to EN 60529 • IP20 with 5-pin screw terminal strip • IP65 Sub-D, socket/plug M12x1 Materials Housing Die-cast aluminium Materials Cover Reinforced polyamide Materials Seal Nitrile rubber Dimensions Internet: cpv	Operating voltage	Nominal value	[V DC]	24, reverse polarity pr	otected			
Residual ripple [Vss] 4 Power failure bridging [ms] 10 Current consumption [mA] Max. 200 + sensor supply Protection class to EN 60529 • IP20 with 5-pin screw terminal strip • IP65 Sub-D, socket/plug M12x1 Materials Housing Die-cast aluminium Materials Cover Reinforced polyamide Materials Seal Nitrile rubber Dimensions Internet: cpv	, , ,	Permissible range	[V]					
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Current consumption [mA] Max. 200 + sensor supply Protection class to EN 60529 • IP20 with 5-pin screw terminal strip • IP65 Sub-D, socket/plug M12x1 Materials Housing Die-cast aluminium Materials Cover Reinforced polyamide Materials Seal Nitrile rubber Dimensions Internet: cpv								
Protection class to EN 60529 • IP20 with 5-pin screw terminal strip • IP65 Sub-D, socket/plug M12x1 Materials Materials Cover Reinforced polyamide Materials Seal Nitrile rubber Dimensions • IP20 with 5-pin screw terminal strip • IP65 Sub-D, socket/plug M12x1 Die-cast aluminium Reinforced polyamide → Internet: cpv	Current consumption			Max. 200 + sensor sur	oply			
• IP65 Sub-D, socket/plug M12x1 Materials Housing Die-cast aluminium Materials Cover Reinforced polyamide Materials Seal Nitrile rubber Dimensions Internet: cpv	Protection class to EN 60529		į		' '			
Materials Housing Die-cast aluminium Materials Cover Reinforced polyamide Materials Seal Nitrile rubber Dimensions → Internet: cpv					·			
Materials Cover Reinforced polyamide Materials Seal Nitrile rubber Dimensions → Internet: cpv	Materials	Housing			F0			
Materials Seal Nitrile rubber Dimensions → Internet: cpv Weight								
Dimensions → Internet: cpv Weight				' '				
Weight	Dimensions	5541						
<u> </u>				- Internet op				
				\dashv				

Operating and environmental conditions		
Ambient temperature	[°C]	-5 +50
Storage temperature	[°C]	-20 +70
Fieldbus certification		ODVA
Certification		cULus recognized (OL)
CE symbol (see declaration of conformity)		In accordance with EU EMC directive
Note on materials		RoHS-compliant

FESTO

Connection and display components



- 1 Fieldbus connection (9-pin Sub-D socket)
- 2 Removable switch cover
- 3 Operating/load voltage connection (4-pin M12 plug)
- 4 Power LEDs (PS, PL) and bus status LEDs (BF)

Pin allocation for DeviceNet int	n allocation for DeviceNet interface (viewed on plug)					
	Pin	Signal	Description			
	1	n.c.	Not connected			
	2	CAN_L	CAN Low			
6, +1	3	CAN_GND	0 V CAN interface			
	4	n.c.	Not connected			
++	5	Screened	Optional screened connection			
$\left \begin{array}{c} ++\\ 9+\\ 5 \end{array} \right $	6	GND	Ground optional			
	7	CAN_H	CAN high			
	8	n.c.	Not connected			
	9	CAN_V+	24 V supply CAN interface			

Pin allocation for M12 Micro Style adapter						
	Pin	Signal-specific wire colour	Signal	Description		
	1	blank	Screened	Connection to housing		
(+² →)	2	red	24 V DC bus	24 V supply CAN interface		
((+' +' +'))	3	black	0 V bus	0 V CAN interface		
+4	4	white	CAN_H	Received/transmitted data high		
	5	blue	CAN_L	Received/transmitted data low		

Pin allocation for Open Style adapter	Pin allocation for Open Style adapter						
	Pin	Signal-specific wire colour	Signal	Description			
(+)	1	black	0 V bus	0 V CAN interface			
0	2	blue	CAN_L	Received/transmitted data low			
2 3 2	3	blank	Screened	Connection to housing			
•	4	white	CAN_H	Received/transmitted data high			
(+)	5	red	24 V DC bus	24 V DC supply CAN interface			

Ordering data				
Designation			Part No.	Туре
Fieldbus node				
	CPV10		546198	CPV10-GE-DN3-8
	CPV14	546200	CPV14-GE-DN3-8	
	CPV18		546202	CPV18-GE-DN3-8
	1			
Power supply				
	Power supply socket, straight M12x1, 4-pin		18497	FBSD-GD-7
			18495	FBSD-GD-9
60	Power supply socket, angled M12x1, 4-pin		18524	FBSD-WD-7
			18525	FBSD-WD-9
D	St. I. Mag			
Bus connection Micro			1525622	FDA 2 M42 FDOI
	Bus connection Micro Style, 2xM12		525632	FBA-2-M12-5POL
	Fieldbus socket for Micro Style connection, M12, 5-pin,	straight	18324	FBSD-GD-9-5POL
	Plug for Micro Style connection, M12, 5-pin, straight		175380	FBS-M12-5GS-PG9
Bus connection Open	Style, 5-pin screw terminal strip			
Sand Sand	Bus connection Open Style for 5-pin terminal strip		525634	FBA-1-SL-5POL
A SECOND	Bus connection, 5-pin terminal strip		525635	FBSD-KL-2x5POL
V 1				
Valve terminal connec	Connecting cable, angled plug, angled socket	0.25 m	540327	KVI-CP-3-WS-WD-0,25
	Connecting cable, angled plug, angled socker	0.25 m	540327	KVI-CP-3-WS-WD-0,25
		2 m	540329	KVI-CP-3-WS-WD-0,5
		5 m	540330	KVI-CP-3-WS-WD-5
		8 m	540331	KVI-CP-3-WS-WD-8
	Connecting cable, straight plug, straight socket	2 m	540332	KVI-CP-3-GS-GD-2
OLE S	5 m		540333	KVI-CP-3-GS-GD-5
8 m				KVI-CP-3-GS-GD-8
User documentation				
User documentation for CPV Direct, CPV fieldbus node		German	548737	P.BE-CPV-DN3-DE
	DN3	English	548738	P.BE-CPV-DN3-EN
		Italian	548741	P.BE-CPV-DN3-IT
		French	548740	P.BE-CPV-DN3-FR
		Spanish	548739	P.BE-CPV-DN3-ES
		Swedish	548742	P.BE-CPV-DN3-SV

- Type discontinued Available up until 2015

Fieldbus Direct, CPASC-AE32-DN

Technical data - Fieldbus node CPASC-AE32-DN

FESTO



CPA-SC fieldbus node for communication between a CPA-SC valve terminal and a fieldbus master. The fieldbus node is used for activation of a CPA-SC valve terminal with up to 32 solenoid coils on max. 24 valve positions and for displaying the switching status via LED.

The CPA-SC... valves are activated via automatic current reduction, which results in less power consumption and heat emission. 16 digital inputs and 8 digital outputs or 16 solenoid coils can be connected via a serial CP string extension.



Application

Bus connection

The DeviceNet connection is established via a 5-pin M12 plug with pins that corresponds to the specific mini connector. A DeviceNet installation with a higher degree of protection is typically configured using main and branch lines that are connected via T-pieces.

Various manufacturers such as Turck, Lumberg and Rockwell offer finished cables and terminating resistors. The terminating resistors are attached to the two outermost T-pieces. This installation technique keeps the bus closed while a bus station is being removed. In order to prevent confusion when establishing a connection to the fieldbus, a Micro Style M12, 5-pin plug connector with a straight socket (A-coded) is used. A Micro Style M12, 5-pin plug connector with a straight socket (B-coded) is used for the power supply.

Condition monitoring

Condition monitoring supports preventative maintenance which is part of the function chain in automation systems.

Each valve is assigned a switching

cycle counter that automatically registers movements of the system components.

Once a maximum number of activa-

tions is reached, a message is sent to the controller via DeviceNet and maintenance can be started. In the same way condition monitoring supports the

determining of service intervals for the function chain.

All movements immediately after installation are registered.

Type discontinued Available up until 2015

Fieldbus Direct, CPASC-AE32-DN Technical data – Fieldbus node CPASC-AE32-DN

FESTO

Type CPASC1-			
	-AE32-DN		
Fieldbus interface M12x1,	5-pin, A-coded		
Electrical isolation of the fieldbus interface Via optor	Via optocoupler		
Baud rates [kbps] 125, 250	0, 500; set using a DIL switch		
Addressing range 0 63;	set using a switch module		
CP string extension Yes, 16 i	inputs and 8 outputs (or 16 valves)		
LED display (bus-specific) MOD Module s	status		
NET Network	status		
LED display (product-specific) PS Electroni	ics supply, sensor supply		
PL Load sup	pply for valves		
SF CP system	m fault		
Product identification Product type Pneumat	tic valve (27 dec.)		
Product code 5250 de	ec.		
Type of communication Polling,	change of state, strobed I/O, explicit message		
Protocol DeviceNe	et		
Configuration support EDS file a	EDS file and graphics symbol		
Max. no. of solenoid coils 32	- ' '		
Max. no. of outputs 8 (1x16	8 (1x16 solenoid coils omitted)		
Max. no. of inputs 16	16		
Device-specific diagnostics via DeviceNet • Short	Short circuit/overload of outputs		
• Short	circuit/overload of inputs		
• Under	rvoltage of valve terminal		
• Under	Undervoltage of valve terminal (extension)		
• Under	rvoltage of output module		
• Under	rvoltage of sensor supply		
• Missir	ng module on the CP/CPI string		
• Condi	tion monitoring		
Additional functions Conditio	on counter		
Operating voltage Nominal value [V DC] 24, rever	rse polarity protected		
Permissible range [V DC] 20.4 2	26.4		
Residual ripple [Vss] 4			
Power failure bridging [ms] 20			
Current consumption [mA] Max. 200	0 + sensor supply		
Protection class to EN 60529 IP40 (with	th fitted cover)		
Materials Reinforce	ed polyamide		
Dimensions → Interi	net: cpa-sc		
Weight			
Technical data on valves			

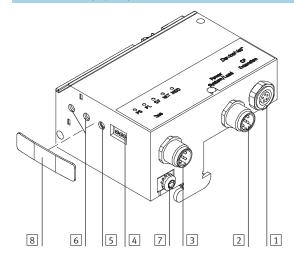
Operating and environmental conditions		
Ambient temperature	[°C]	−5 +50
Storage temperature	[°C]	-20 +50
CE symbol (see declaration of conformity)		In accordance with EU EMC directive

Type discontinued Available up until 2015

Fieldbus Direct, CPASC-AE32-DN Technical data – Fieldbus node CPASC-AE32-DN

FESTO

Connection and display components



- 1 Connection for CP extension
- 2 Connection for power supply
- 3 Connection for fieldbus
- 4 DIL switch for CP extension
- 5 Rotary switch for baud rate
- 6 Rotary switch for station number 7 Earth terminal
- 8 Cover (for IP40 protection)

Pin allocation for fieldbus interface				
	Pin	Signal-specific wire colour	Signal	Description
BUS	1	blank	Screened	Connection to housing
	2	red	24 V DC bus	24 V supply CAN interface
	3	black	0 V bus	0 V CAN interface
1 2	4	white	CAN_H	Received/transmitted data high
	5	blue	CAN_L	Received/transmitted data low

Type discontinued Available up until 2015

Fieldbus Direct, CPASC-AE32-DNAccessories – Fieldbus node CPASC-AE32-DN

FESTO

Ordering data					
Designation			Part No.	Туре	
Fieldbus node					
	Fieldbus node		538652	CPASC1-AE32-DN	-1-
Power supply Micr	ro Style M12				
	Power supply socket, for Micro Style connection, M12	2, 5-pin, straight socket (B-coded)	538999	NTSD-GD-9-M12-5POL-RK	
Bus connection Mi	icro Style M12				
	Fieldbus socket for Micro Style connection, M12, 5-p	oin, straight socket (A-coded)	18324	FBSD-GD-9-5POL	
Valve terminal con	an action				
valve terminal con	Connecting cable, angled plug, angled socket	0.25 m	540327	KVI-CP-3-WS-WD-0,25	
	connecting capie, angled plug, angled socker	0.5 m	540328	KVI-CP-3-WS-WD-0,25	
		2 m	540329	KVI-CP-3-WS-WD-0,5	
		5 m	540330	KVI-CP-3-WS-WD-5	
		8 m	540331	KVI-CP-3-WS-WD-8	
	Connecting cable, straight plug, straight socket	2 m	540332	KVI-CP-3-GS-GD-2	
	connecting capie, straight plug, straight socket	5 m	540333	KVI-CP-3-GS-GD-5	
NATURE OF THE PARTY OF THE PART		8 m	540334	KVI-CP-3-GS-GD-8	
		'	'		
User documentation		Cormon	F20000	P.BE-CPASC-CPVSC-DN-DE	
	User documentation for Fieldbus Direct, CPA-SC fieldbus node DeviceNet	German	539008 539009	P.BE-CPASC-CPVSC-DN-DE P.BE-CPASC-CPVSC-DN-EN	
The state of the s	CPA-5C Heladus node Devicenet	English			
		Italian	539010	P.BE-CPASC-CPVSC-DN-IT	
•		French	539011	P.BE-CPASC-CPVSC-DN-FR	
		Spanish	539012	P.BE-CPASC-CPVSC-DN-ES	
		Swedish	539013	P.BE-CPASC-CPVSC-DN-SV	

Fieldbus Direct, CPVSC1-AE16-DN

Technical data – Fieldbus node CPVSC1-AE16-DN





CPV-SC fieldbus node for communication between a CPV-SC valve terminal and a fieldbus master. The fieldbus node is used for activation of a CPV-SC valve terminal with up to 16 solenoid coils on max. 16 valve positions and for displaying the switching status via LED. The CPV-SC... valves are activated via automatic current reduction, which results in less power consumption and heat emission. 16 digital inputs and 8 digital outputs or 16 solenoid

string extension.



Application

Bus connection

The DeviceNet connection is established via a 5-pin M12 plug with pins that corresponds to the specific mini connector. A DeviceNet installation with a higher degree of protection is typically configured using main and branch lines that are connected via T-pieces.

Various manufacturers such as Turck, Lumberg and Rockwell offer finished cables and terminating resistors. The terminating resistors are attached to the two outermost T-pieces. This installation technique keeps the bus closed while a bus station is being removed.

In order to prevent confusion when establishing a connection to the fieldbus, a Micro Style M12, 5-pin plug connector with a straight socket (A-coded) is used. A Micro Style M12, 5-pin plug connector with a straight socket (B-coded) is used for the power supply.

Condition monitoring

Condition monitoring supports preventative maintenance which is part of the function chain in automation sys-

Each valve is assigned a switching

cycle counter that automatically registers movements of the system components.

Once a maximum number of activa-

tions is reached, a message is sent to the controller via DeviceNet and maintenance can be started. In the same way condition monitoring supports the

determining of service intervals for the function chain.

All movements immediately after installation are registered.

Fieldbus Direct, CPVSC1-AE16-DN Technical data – Fieldbus node CPVSC1-AE16-DN



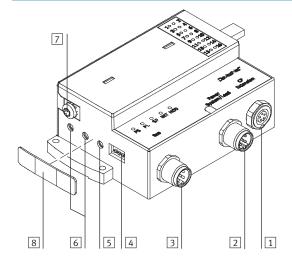
General technical data					
Туре			CPVSC1-AE16-DN		
Fieldbus interface			M12x1, 5-pin, A-coded		
Electrical isolation of the fieldbus	interface		Via optocoupler		
Baud rates		[kbps]	125, 250, 500; set using a switch module		
Addressing range			0 63; set using a switch module		
CP string extension			Yes, 16 inputs and 8 outputs (or 16 valves)		
Ident. number			4736 dec.		
LED display (bus-specific)	MOD		Module status, common message regarding power supply		
	NET		Network status, power supply for valves		
LED display (product-specific)	PL		Load supply		
	PS		Electronics supply, sensor supply		
	SF		System fault		
Type of communication			Polling, change of state, strobed I/O, explicit message		
Protocol			DeviceNet		
Configuration support			EDS file and graphics symbol		
Max. no. of solenoid coils			16		
Max. no. of outputs			8 (1x16 solenoid coils omitted)		
Max. no. of inputs			16		
Device-specific diagnostics via Dev	viceNet		Short circuit/overload of outputs		
			Short circuit/overload of inputs		
			Undervoltage of valve terminal		
			 Undervoltage of valve terminal (extension) 		
			Undervoltage of output module		
			Undervoltage of sensor supply		
			Missing module on the CP/CPI string		
			Condition monitoring		
Additional functions			Condition counter		
Operating voltage	Nominal value	[V DC]	24, reverse polarity protected		
	Permissible range	[V]	20.4 26.4		
	Residual ripple	[Vss]	4		
	Power failure bridging	[ms]	20		
Current consumption		[mA]	Max. 200 + sensor supply		
Protection class to EN 60529			IP40 (with fitted cover)		
CE symbol (see declaration of conformity)			In accordance with EU EMC directive		
Materials			Polymer		
Dimensions			→ Internet: cpv-sc		
Weight					
Technical data on valves			1		

Operating and environmental conditions		
Ambient temperature	[°C]	−5 +50
Storage temperature	[°C]	-20 +50
Certification		cULus recognized (OL)
CE symbol (see declaration of conformity)		In accordance with EU EMC directive

Fieldbus Direct, CPVSC1-AE16-DN Technical data – Fieldbus node CPVSC1-AE16-DN



Connection and display components



- 1 Connection for CP extension
- 2 Connection for power supply
- 3 Connection for fieldbus
- 4 DIL switch for CP extension
- 5 Rotary switch for baud rate
- 6 Rotary switch for station number
- 7 Earth terminal
- 8 Cover (for IP40 protection)

Pin allocation for fieldbus interface				
	Pin	Signal-specific wire colour	Signal	Description
/ BUS	1	blank	Screened	Connection to housing
	2	red	24 V DC bus	24 V supply CAN interface
	3	black	0 V bus	0 V CAN interface
1 2	4	white	CAN_H	Received/transmitted data high
	5	blue	CAN_L	Received/transmitted data low

Fieldbus Direct, CPVSC1-AE16-DNAccessories – Fieldbus node CPVSC1-AE16-DN



Ordering data				
Designation			Part No.	Туре
Fieldbus node				
	Fieldbus node		538654	CPVSC1-AE16-DN
Power supply Micro	Style M12			
	Power supply socket, for Micro Style connection, M12	2, 5-pin, straight socket (B-coded)	538999	NTSD-GD-9-M12-5POL-RK
Bus connection Micr	o Style M12			
	Fieldbus socket for Micro Style connection, M12, 5-p	oin, straight socket (A-coded)	18324	FBSD-GD-9-5POL
Valve terminal conne				
valve terminal conn		0.25 m	540327	KVI-CP-3-WS-WD-0,25
	Connecting cable, angled plug, angled socket	ļ	540328	KVI-CP-3-WS-WD-0,5
		0.5 m	540328	KVI-CP-3-WS-WD-0,5
The state of the s				
		5 m	540330	KVI-CP-3-WS-WD-5
		8 m	540331	KVI-CP-3-WS-WD-8
	Connecting cable, straight plug, straight socket	2 m	540332	KVI-CP-3-GS-GD-2
		5 m	540333	KVI-CP-3-GS-GD-5
100		8 m	540334	KVI-CP-3-GS-GD-8
User documentation				
	User documentation for Fieldbus Direct,	German	539008	P.BE-CPASC-CPVSC-DN-DE
	CPV-SC fieldbus node DeviceNet	English	539009	P.BE-CPASC-CPVSC-DN-EN
		Italian	539010	P.BE-CPASC-CPVSC-DN-IT
~		French	539011	P.BE-CPASC-CPVSC-DN-FR
		Spanish	539012	P.BE-CPASC-CPVSC-DN-ES
		Swedish	539013	P.BE-CPASC-CPVSC-DN-SV

Technical data - Fieldbus node CDVI-DN



CDVI fieldbus node for communication between a CDVI valve terminal and a fieldbus master. The fieldbus node is used for activation of a CDVI valve terminal with up to 24 solenoid coils on max. 12 valve positions and for displaying the switching status via LED.

The CDVI... valves are activated via automatic current reduction, which results in less power consumption and heat emission. 16 digital inputs and 8 digital outputs or 16 solenoid coils can be connected via a serial CP string extension.

The CDVI fieldbus node supports the DeviceNet protocol and conforms to the device profile of the pneumatic valve.



Application

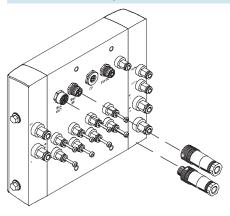
 $Bus\ connection-General\ information$

The DeviceNet connection is established via a 5-pin M12 plug that corresponds to the specified mini connector. A DeviceNet installation with a higher degree of protection is typically configured using main and branch lines that are connected via T-pieces. Various manufacturers such as Turck, Lumberg and Rockwell offer finished cables and terminating resistors. The terminating resistors are attached to the two outermost T-pieces. This installation technique keeps the bus closed while a bus station is being removed.

The DeviceNet plug connector

(Micro Style M12, 5-pin, straight socket (A-coded)) and the power supply plug connector (Micro Style M12, 5-pin, straight socket (A-coded)) are identical.

Bus connection - Micro Style



- Plug connector 2x M12
- Installation with IP65, IP66, IP67 and NEMA4 protection

Micro Style is prepared for connection via the bus cable to an M12 plug for the incoming cable and a socket for the outgoing bus cable.

The bus connection fulfils the requirement of a T-distributor, which means that the CDVI valve terminal can be disconnected from the DeviceNet without interrupting the bus. This method of direct connection eliminates the need for the branch line length in the DeviceNet configuration.

Fieldbus Direct, CDVI-DN Technical data – Fieldbus node CDVI-DN

FESTO

Condition monitoring

Condition monitoring supports preventative maintenance which is part of the function chain in automation sys-

Each valve is assigned a switching

cycle counter that automatically $registers \ movements \ of \ the \ system$ components.

Once a maximum number of activa-

tions is reached, a message is sent to the controller via DeviceNet and maintenance can be started. In the same way condition monitoring supports the

determining of service intervals for the function chain.

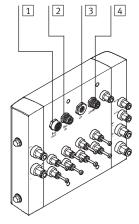
All movements immediately after installation are registered.

General technical data			
Туре			CDVI-DN
CP string extension			Yes, 16 inputs and 8 outputs (or 16 valves)
Baud rates		[kbps]	125, 250, 500;
			set using a switch module
Addressing range			0 63; set using a switch module
LED diagnostic displays	PS		Common message regarding power supply
	PL		Power supply for valves
	MNS		DeviceNet module/network status
	CP/CPI		CP/CPI extension modules
Ident. number			5141 dec.
Type of communication			Polling, change of state
Configuration support			EDS file and graphics symbol
Max. no. of solenoid coils			24+16
Max. no. of outputs			8 (1x16 solenoid coils omitted)
Max. no. of inputs			16
Device-specific diagnostics via D	eviceNet		Short circuit/overload of outputs
			Short circuit/overload of inputs
			Undervoltage of valve terminal
			Undervoltage of valve terminal (extension)
			Undervoltage of output module
			Undervoltage of sensor supply
			Missing module on the CP/CPI string
			Condition monitoring
Nominal operating voltage		[V DC]	24, reverse polarity protected
Operating voltage	Permissible range	[V DC]	20.4 26.4
	Residual ripple	[Vss]	4
	Power failure bridging	[ms]	20
Current consumption		[mA]	Max. 100 + sensor supply
Protection class to EN 60529			IP65, IP66, IP67, NEMA 4
Materials			→ Internet: cdvi
Dimensions (LxWxD)			
Weight			

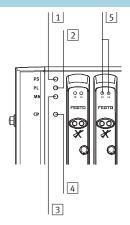
Operating and environmental conditions					
Ambient temperature	[°C]	−5 +50			
Storage temperature	[°C]	-20 +40			
CE symbol (see declaration of conformity)		In accordance with EU EMC directive			

FESTO

Connection and display components



- 1 Fieldbus output (socket, M12)
- 2 Fieldbus input (plug, M12)
- 3 CP extension (M9) with Clean Design cover
- 4 Power supply (plug, M12)



- 1 Green PS LED
 - "Power System" Operating voltage of electronics
- 2 Green PL LED "Power Load" Load voltage of valves
- 3 Green/red MNS LED
 - "Module/Network Status"
- 4 Green/red CP LED "Compact Performance" CP extension modules
- 5 Yellow LEDs (one per solenoid

Pin allocation for fieldbus interfac	in allocation for fieldbus interface (M12 socket)						
	Pin	Signal-specific wire colour	Signal	Description			
BUS IN	1	blank	Screened	Connection to housing			
2 1	2	red	24 V DC bus	24 V supply CAN interface			
	3	black	0 V bus	0 V CAN interface			
3 + + 4	4	white	CAN_H	Received/transmitted data high			
5	5	blue	CAN_L	Received/transmitted data low			

Pin allocation for fieldbus interface (n allocation for fieldbus interface (M12 plug)						
	Pin	Signal-specific wire colour	Signal	Description			
BUS OUT	1	blank	Screened	Connection to housing			
1 1 2	2	red	24 V DC bus	24 V supply CAN interface			
0,0	3	black	0 V bus	0 V CAN interface			
	4	white	CAN_H	Received/transmitted data high			
5	5	blue	CAN_L	Received/transmitted data low			

Ordering data				
Designation			Part No.	Туре
Basic block with fie	eldbus node			
	with 4 valve positions		535840	CDVI5.0-GB4-DN
RITHITIAN TO SERVICE STATE OF THE PARTY OF T	with 8 valve positions		535839	CDVI5.0-GB8-DN
Power supply Micro) Style M12			
	Power supply socket, for Micro Style connection, M12	2, 5-pin, straight socket (A-coded)	18324	FBSD-GD-9-5POL
Bus connection Mic	cro Style M12			
	Micro Style connection, M12, 5-pin, straight socket (A-coded)	18324	FBSD-GD-9-5POL
	Micro Style connection, M12, 5-pin, straight plug (A-	coded)	17538	FBS-M12-5GS-PG9
Valve terminal conr	nection		<u>'</u>	
	Connecting cable, angled plug, angled socket	0.25 m	540327	KVI-CP-3-WS-WD-0,25
%)		0.5 m	540328	KVI-CP-3-WS-WD-0,5
		2 m	540329	KVI-CP-3-WS-WD-2
		5 m	540330	KVI-CP-3-WS-WD-5
		8 m	540331	KVI-CP-3-WS-WD-8
	Connecting cable, straight plug, straight socket	2 m	540332	KVI-CP-3-GS-GD-2
		5 m	540333	KVI-CP-3-GS-GD-5
THE REAL PROPERTY.		8 m	540334	KVI-CP-3-GS-GD-8
User documentatio		To.		DD5 601/1 D1/1 D5
	User documentation for CDVI-DN	German	539044	P.BE-CDVI-DN-DE
Harman		English	539045	P.BE-CDVI-DN-EN
		Italian	539048	P.BE-CDVI-DN-IT
*		French	539047	P.BE-CDVI-DN-FR
		Spanish	539046	P.BE-CDVI-DN-ES
		Swedish	539049	P.BE-CDVI-DN-SV

Technical data – Fieldbus node CPV-CO2



CPV fieldbus node for communication between a CPV valve terminal and a fieldbus master. The fieldbus node is used for activation of a CPV valve terminal with 8 valve slices and 16 solenoid coils and for displaying the switching status via LED. The CPV-... valves are activated via automatic current reduction, which results in less power consumption and heat emission. 16 digital inputs and 8 digital outputs or 16 solenoid coils can be connected via a serial CP string extension.

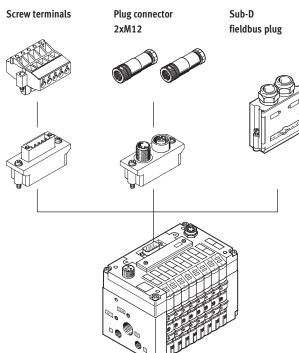
The CPV fieldbus node is available in three sizes, with identical performance characteristics:

- CPV10
- CPV14
- CPV18



Application

Bus connection



The branch line length does not apply to any type of connection used.

Screw terminals

- 5-pin screw terminal strip
- For installations in protected environments (IP20)

The bus connection is established via a 5-pin row.

If the valve terminal is ordered with this bus connection, the 5-pin screw terminal strip will also be supplied. It is designed with double screw terminals for the incoming and the outgoing bus cable. This connection technology provides a T-distributor function.

Plug connector 2xM12

- Plug connector 2xM12
- Installation with IP65 protection

The bus connection is established via an M12 plug and socket.

The bus connection fulfils the requirement of a T-distributor, this means that the CPV valve terminal can be disconnected from the bus without interrupting the bus.

Sub-D fieldbus plug

- 9-pin Sub-D plug
- Installation with IP65 protection

 The bus connection is established with the bus connection i

The bus connection is established via a 9-pin Sub-D plug as per the CAN in Automation (CiA) specification DS102 with additional 24 V CAN transceiver supply (option as per DS102). The bus connector plug facilitates the connection of an incoming and an outgoing bus cable. There are spring-loaded terminals for the four wires (CAN_L, CAN_H, 24 V, 0 V) of the incoming and outgoing bus cable.

Fieldbus Direct, CPV-CO2 Technical data – Fieldbus node CPV-CO2

FESTO

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Condition monitoring

Condition monitoring supports preventative maintenance which is part of the function chain in automation sys-

Each valve is assigned a switching

cycle counter that automatically $registers \ movements \ of \ the \ system$ components.

Once a maximum number of activa-

tions is reached, a message is sent to the controller via CANopen and maintenance can be started. In the same way condition monitoring supports the determining of service intervals for the function chain.

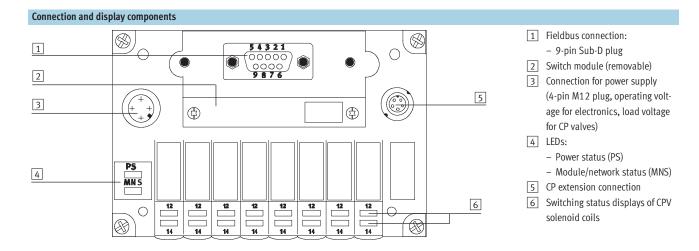
All movements immediately after installation are registered.

General technical data							
Туре			CPV10-GE-CO2-8	CPV14-GE-CO2-8	CPV18-GE-CO2-8		
Fieldbus interface	Either		• Sub-D socket, 9-pin				
			 Socket and plug, M1 	2x1, 5-pin, A-coded			
			Screw terminal strip	, 5-pin			
Baud rates		[kbps]	125, 250, 500, 1000;	set using a switch module			
CP string extension			Yes, 16 inputs and 8 o	utputs (or 16 valves)			
Addressing range			Node ID 1 127; set u	ising a switch element			
LED display (bus-specific)	MNS		CANopen status				
LED display (product-specific)	PS		Electronics supply and	load voltage supply			
			Valve switching status				
Type of communication			To DS401				
Product identification			Product family: Digital	I/O DS 401, vendor code: (OxD		
Number of PDOs			1 Tx/Rx				
Number of SDOs			1 server SDO				
Configuration support			EDS file and bitmaps				
Max. no. of solenoid coils			16				
Max. no. of solenoid coils with st	tring extension		32				
Max. no. of outputs			8 (1x16 solenoid coils	omitted)			
Max. no. of inputs			16	<u> </u>			
Device-specific diagnostics			Missing module on t	he CP string			
, ,			Short circuit/overloa	•			
			Short circuit/overloa	nd of inputs			
			Undervoltage of outp				
			Undervoltage of sensor supply				
			Undervoltage of valve terminal				
			Via emergency message and object 1001/1002/1003				
			Condition monitoring				
Parameterisation			Via SDO	J			
Additional functions			Condition counter				
Operating voltage	Nominal value	[V DC]	24, reverse polarity pro	otected			
operating rottage	Permissible range	[V]	20.4 26.4				
	Residual ripple	[Vss]	4				
	Power failure bridging	[ms]	10				
Current consumption	1 over lattare bridging	[mA]	Max. 200 + sensor sup	nnly			
Protection class to EN 60529		[m/s]	IP20 with 5-pin scre	, ,			
			• IP65 Sub-D, socket/	·			
Materials	Housing		Die-cast aluminium	hing 11117VI			
materials	Cover		Reinforced polyamide				
	Seal		Nitrile rubber				
Dimensions	Jeal		→ Internet: cpv				
Weight			- Internet. cpv				
Technical data on valves			-				
recinital data off Valves							

Operating and environmental conditions		
Ambient temperature	[°C]	-5 +50
Storage temperature	[°C]	-20 +70
Fieldbus certification		CiA
Certification		cULus recognized (OL)
CE symbol (see declaration of conformity)		In accordance with EU EMC directive
Note on materials		RoHS-compliant

Fieldbus Direct, CPV-CO2 Technical data – Fieldbus node CPV-CO2

FESTO



Pin allocation for CANopen interface	allocation for CANopen interface (viewed on plug)				
	Pin Signal		Description		
	1	n.c.	Not connected		
	2	CAN_L	Received/transmitted data low		
6++1	3	CAN_GND	0 V CAN interface		
	4	n.c.	Not connected		
++	5	CAN_Shld	Optional screened connection		
9++	6	GND	Ground		
	7	CAN_H	Received/transmitted data high		
	8	n.c.	Not connected		
	9	CAN_V+	24 V supply CAN interface		
	Hous-	Screened	Connection to FE		
	ing				

Pin allocation for M12 adapter							
	Pin	Signal	Description				
	1	Screened	Connection to housing				
(+² ◆)	2	CAN_V+	24 V supply CAN interface				
((+' +' +'))	3	CAN_GND	0 V CAN interface				
+4	4	CAN_H	Received/transmitted data high				
	5	CAN_L	Received/transmitted data low				

in allocation for Open Style adapter					
	Pin	Signal	Description		
(+)	1	CAN_GND	0 V CAN interface		
₩	2	CAN_L	Received/transmitted data low		
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	3	Screened	Connection to housing		
•	4	CAN_H	Received/transmitted data high		
(+)	5	CAN_V+	24 V supply CAN interface		

FESTO

Ordering data				
Designation			Part No.	Туре
Fieldbus node				
500	CPV10		525876	CPV10-GE-CO2-8
	CPV14		525882	CPV14-GE-CO2-8
	CPV18	525884	CPV18-GE-CO2-8	
Power supply				
	Power supply socket, straight M12x1, 4-pin		18497	FBSD-GD-7
			18495	FBSD-GD-9
	Power supply socket, angled M12x1, 4-pin		18524	FBSD-WD-7
	Tower supply socket, angled M12x1, 4 pm		10324	1030-W0-7
			18525	FBSD-WD-9
Bus connection				
	Sub-D plug for CANopen		532219	FBS-SUB-9-BU-2x5POL-B
Bus connection 2xM1	2			
	M12 adapter		525632	FBA-2-M12-5POL
	Fieldbus socket, M12, 5-pin, straight		18324	FBSD-GD-9-5POL
	Plug, M12, 5-pin, straight		175380	FBS-M12-5GS-PG9
Bus connection, 5-pin	screw terminal strin			
Dus connection, 5 pm	Open Style adapter for 5-pin terminal strip		525634	FBA-1-SL-5POL
Sauce St. S				
Am	5-pin terminal strip		525635	FBSD-KL-2x5POL
	3-pin terminat strip		323033	TB3b-RE-2X3FGE
88888				
A D>T				
Valve terminal connec	tion			
accounted conflict	Connecting cable, angled plug, angled socket	0.25 m	540327	KVI-CP-3-WS-WD-0,25
	and a series and a series and a series	0.5 m	540328	KVI-CP-3-WS-WD-0,5
		2 m	540329	KVI-CP-3-WS-WD-2
•		5 m	540330	KVI-CP-3-WS-WD-5
		8 m	540331	KVI-CP-3-WS-WD-8
	Connecting cable, straight plug, straight socket	2 m	540332	KVI-CP-3-GS-GD-2
	5 m			KVI-CP-3-GS-GD-5
THE STATE OF THE S		540334	KVI-CP-3-GS-GD-8	
		<u> </u>		
User documentation				
	User documentation for CPV Direct, CPV fieldbus node	German	526009	P.BE-CP-CO2-DE
	CO2	English	526010	P.BE-CP-CO2-EN
		Spanish	526011	P.BE-CP-CO2-ES
		French	526012	P.BE-CP-CO2-FR
		Italian	526013	P.BE-CP-CO2-IT
		Swedish	526014	P.BE-CP-CO2-SV

Technical data - Fieldbus node CPV-CO3-8



CPV fieldbus node according to the CP system with Specification "B" (enhanced functionality) for communication between a CPV valve terminal and a fieldbus master. The fieldbus node is used for activation of a CPV valve terminal with 8 valve slices and 16 solenoid coils and for displaying the switching status via LED. The CPV-... valves are activated via automatic current reduction, which results in less power consumption and heat emission. 32 digital inputs and outputs or 32 solenoid coils can be connected via a serial CPI string extension.

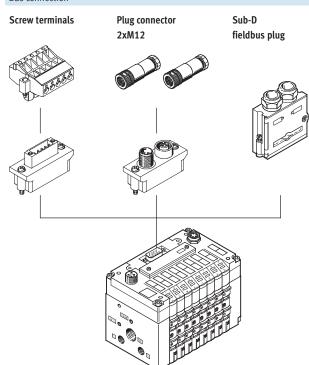
The CPV fieldbus node is available in three sizes, with identical performance characteristics:

- CPV10
- CPV14
- CPV18



Application

Bus connection



The branch line length does not apply to any type of connection used.

Screw terminals

- 5-pin screw terminal strip
- For installation in protected environments (IP20)

The bus connection is established via a 5-pin row.

If the valve terminal is ordered with this bus connection, the 5-pin screw terminal strip will also be supplied. It is designed with double screw terminals for the incoming and the outgoing bus cable. This connection technology provides a T-distributor function.

Plug connector 2xM12

- Plug connector 2xM12
- Installation with IP65 protection

The bus connection is established via an M12 plug and socket.

The bus connection fulfils the requirement of a T-distributor, which means that the CPV valve terminal can be disconnected from the bus without interrupting the bus.

Sub-D fieldbus plug

- 9-pin Sub-D plug
- Installation with IP65 protection

The bus connection is established via a 9-pin Sub-D plug as per the CAN in Automation (CiA) specification DS102 with additional 24 V CAN transceiver supply (option as per DS102). The bus connector plug facilitates the connection of an incoming and an outgoing bus cable. There are spring-loaded terminals for the four wires (CAN_L, CAN_H, 24 V, 0 V) of the incoming and outgoing bus cable.

Fieldbus Direct, CPV-CO3-8 Technical data – Fieldbus node CPV-CO3-8

FESTO

Condition monitoring

Condition monitoring supports preventative maintenance which is part of the function chain in automation sys-

Each valve is assigned a switching

cycle counter that automatically $registers \ movements \ of \ the \ system$ components.

Once a maximum number of activa-

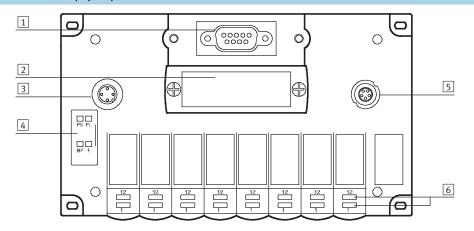
tions is reached, a message is sent to the controller via CANopen and maintenance can be started. In the same way condition monitoring supports the determining of service intervals for the function chain.

All movements immediately after installation are registered.

General technical data						
Туре			CPV10-GE-CO3-8	CPV14-GE-CO3-8	CPV18-GE-CO3-8	
Fieldbus interface	Either		Screw terminal strip	o, 5-pin		
		• Sub-D socket, 9-pin				
		 Socket and plug, M12x1, 5-pin, A-coded 				
Electrical isolation of the fieldbus in	iterface		Via optocoupler			
Note on the fieldbus interface			• 24 VDC version CAN	l interface via bus		
			Interface to CiA DS1	02		
CP string extension			Yes, 32 inputs and 32	outputs		
Baud rates		[kbps]	125, 250, 500 and 10	000; set using DIL switch		
Addressing range			Node ID 1 127; set	using DIL switch		
Product identification			Product family: Digital	I I/O DS401, vendor code: 0)xD	
Number of PDOs			1 Tx/Rx			
Number of SDOs			1 server SDO			
Configuration support			EDS file and bitmaps			
Max. address capacity, inputs		[Byte]	8			
Max. address capacity, outputs		[Byte]	8			
Max. no. of solenoid coils			16			
Max. no. of solenoid coils with string	g extension		48			
Max. no. of outputs	<u> </u>		16 solenoid coils and	32 outputs		
Max. no. of inputs			32	·		
LED displays (bus-specific)	MNS		Bus status (module/ne	etwork status)		
LED displays (product-specific)			Valve switching status			
	PS		Operating voltage for electronics and load supply			
Device-specific diagnostics			Short circuit/overlo			
			Condition monitoring	•		
			Short circuit/overlo	-		
			Undervoltage of val	•		
			Undervoltage of val			
			Undervoltage of out			
			Undervoltage of val			
			Undervoltage of sen			
			Missing module on the CP/CPI string			
			_	sage and object 1001, 100	2 and 1003	
Parameterisation			Via SDO	5450 4.14 02/000 1001, 100	2 4.14 1009	
Additional functions			Condition counter			
Operating voltage	Nominal value	[V DC]	24, reverse polarity pr	ntected		
operating rottage	Permissible range	[V]	20.4 26.4	Jisticu		
	Residual ripple	[Vss]	4			
	Power failure bridging	[ms]	10			
Current consumption	i ower landre bridging	[mA]	Max. 200 + sensor su	nnly		
Protection class to EN 60529		[III/I]	IP20 with 5-pin screen	' ' '		
T TOTALLITOTI CLASS TO EN 00323			• IP65 Sub-D, socket	,		
Materials	Housing		Die-cast aluminium	hing MITTVI		
materials	Cover					
	Seals		Reinforced polyamide Nitrile rubber, polychloroprene rubber			
Dimensions	25912			orohrene ranner		
Dimensions Weight			→ Internet: cpv			
Weight			4			
Technical data on valves						

Operating and environmental conditions					
Ambient temperature	[°C]	-5 +50			
Storage temperature	[°C]	-20 +70			
Fieldbus certification		CiA			
Certification		cULus recognized (OL)			
		CE, CiA certification			
CE symbol (see declaration of conformity)		In accordance with EU EMC directive			
Note on materials		RoHS-compliant			

Connection and display components



- 1 Fieldbus connection (9-pin Sub-D socket)
- 2 Removable switch cover
- 3 Operating/load voltage connection (4-pin M12 plug)
- 4 Power LEDs (PS, PL) and bus status LEDs (BF)
- 5 CPI extension connection
- 6 Switching status displays of CP solenoid coils

Pin allocation for CANopen inte	allocation for CANopen interface (viewed on plug)					
	Pin Signal		Description			
	1	n.c.	Not connected			
	2	CAN_L	Received/transmitted data low			
6+1	3	CAN_GND	0 V CAN interface			
	4	n.c.	Not connected			
	5	CAN_Shld	Optional screened connection			
++	6	GND	Ground			
	7	CAN_H	Received/transmitted data high			
	8	n.c.	Not connected			
	9	CAN_V+	24 V supply CAN interface			
	Hous-	Screened	Connection to FE			
	ing					

Pin allocation for M12 adapter						
	Pin	Signal	Description			
	1	Screened	Connection to housing			
+ ²	2	CAN_V+	24 V supply CAN interface			
	3	CAN_GND	0 V CAN interface			
+4	4	CAN_H	Received/transmitted data high			
	5	CAN_L	Received/transmitted data low			

Pin allocation for Open Style adapter	n allocation for Open Style adapter					
	Pin Signal		Description			
(+)	1	CAN_GND	0 V CAN interface			
	2	CAN_L	Received/transmitted data low			
0 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	3	Screened	Connection to housing			
	4	CAN_H	Received/transmitted data high			
<u>+</u>	5	CAN_V+	24 V supply CAN interface			

Ordering data				
Designation			Part No.	Туре
Fieldbus node			<u> </u>	
()	CPV10		546204	CPV10-GE-CO3-8
	CPV14		546206	CPV14-GE-CO3-8
A STATE OF THE STA	CPV18	546208	CPV18-GE-CO3-8	
	CCV10		340200	CF V10-GE-CO3-6
Power supply				
1 Ower supply	Power supply socket, straight, M12x1, 4 pin		18497	FBSD-GD-7
	Tower supply society straight, m12x1, 4 pm		10177	
			18495	FBSD-GD-9
	Power supply socket, angled, M12x1, 4 pin		18524	FBSD-WD-7
	, , ,			
			18525	FBSD-WD-9
Bus connection				
	Sub-D plug for CANopen		532219	FBS-SUB-9-BU-2x5POL-B
	•		1	
Bus connection 2xM1	2			
	M12 adapter		525632	FBA-2-M12-5POL
	Fieldbus socket, M12, 5-pin, straight		18324	FBSD-GD-9-5POL
	Plug, M12, 5-pin, straight		175380	FBS-M12-5GS-PG9
Bus connection, 5-pir	a account to remined at vise			
bus connection, 5-pii	Open Style adapter for 5-pin terminal strip		525634	FBA-1-SL-5POL
Search 3	Open Style adapter for 5-pin terminal strip		323034	FBA-1-3L-3FOL
A			505/05	FDCD I// a FDQI
	5-pin terminal strip		525635	FBSD-KL-2x5POL
3500				
A Page				
Valve terminal connec		To as	E (0 - 0 -	IAU CD 2 MC MD 2 27
	Connecting cable, angled plug, angled socket	0.25 m	540327	KVI-CP-3-WS-WD-0,25
		0.5 m	540328	KVI-CP-3-WS-WD-0,5
1		2 m	540329	KVI-CP-3-WS-WD-2
		5 m	540330	KVI-CP-3-WS-WD-5
	Connecting cable straight plug straight socket	8 m	540331	KVI-CP-3-WS-WD-8
OLIVE DE LA CONTRACTION DE LA	Connecting cable, straight plug, straight socket	2 m	540332 540333	KVI-CP-3-GS-GD-2 KVI-CP-3-GS-GD-5
SALES C		540334	KVI-CP-3-GS-GD-8	
CEL		8 m	J4UJJ4	VAI-CL-3-03-0
User documentation				
oser documentation	User documentation for CPV Direct, CPV fieldbus node	German	548743	P.BE-CPV-CO3-DE
	CO3	English	548744	P.BE-CPV-CO3-EN
		Spanish	548745	P.BE-CPV-CO3-ES
		French	548746	P.BE-CPV-CO3-FR
		Italian	548747	P.BE-CPV-CO3-IT
		Swedish	548748	P.BE-CPV-CO3-SV
			1	

Technical data – Fieldbus node CPV-IB



CPV fieldbus node for communication between a CPV valve terminal and an INTERBUS master. The fieldbus node is used for activation of a CPV valve terminal with 8 valve slices and 16 solenoid coils and for displaying the switching status via LED. The CPV-... valves are activated via automatic current reduction, which results in less power consumption and heat emission. 16 digital inputs and 8 digital outputs or 16 solenoid coils can be connected via a serial CP string extension.

The CPV fieldbus node IB supports the INTERBUS fieldbus protocol and represents a remote bus station.

The CPV fieldbus node is available in three sizes, with identical performance characteristics:

- CPV10
- CPV14
- CPV18

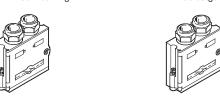


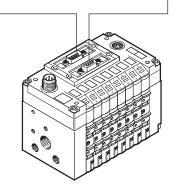
Application

Bus connection

Sub-D socketINTERBUS incoming







The bus connection is established via a 9-pin Sub-D socket and a 9-pin Sub-D plug with a typical INTERBUS pin allocation.

The bus connector plugs (with protection class IP65 from Festo or IP20 from other manufacturers) facilitate the connection of the incoming and the outgoing bus cable. The outgoing bus plug contains the typical INTER-BUS RBST bridge for identification of the outgoing bus connection.

The Sub-D interfaces are designed for the control of network components using a fibre optic cable connection.

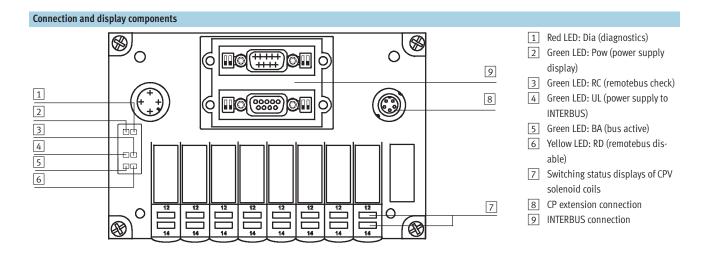
Fieldbus Direct, CPV-IB Technical data – Fieldbus node CPV-IB

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General technical data						
Туре			CPV10-GE-IB-8	CPV14-GE-IB-8	CPV18-GE-IB-8	
Fieldbus interface		Sub-D, 9-pin, socket and pin				
Electrical isolation of the fieldbus	interface	Via optocoupler				
Baud rates		500, 2000; set using a DIL switch				
CP/CPI string extension			Yes, 16 inputs and 8 of	outputs (or 16 valves)		
Bus type			Remote bus			
Profile			12 (digital I/O devices)		
PCP channel			No			
Configuration support			Icons for CMD softwar	e		
Max. no. of solenoid coils			16			
Max. no. of solenoid coils with stri	ng extension		32			
Max. no. of outputs			8 (16 solenoid coils o	mitted)		
Max. no. of inputs			16			
Max. no. of process data bits	Inputs		32			
	Outputs		32			
LED displays (bus-specific)	BA		Bus active			
	RC		Remotebus check			
	RD		Remotebus disable			
	UL		Operating voltage of II	NTERBUS interface		
LED display (product-specific)			Valve switching status			
	Diagnostics		Short circuit, load supply, sensor supply, configuration error			
	Pow		Operating voltage and			
Device-specific diagnostics			Short circuit/overlo	•		
			Short circuit/overlo	•		
			Undervoltage of val			
			-	ve terminal (extension)		
			 Undervoltage of out 	•		
			Undervoltage of sensor supply			
			Missing module on			
			Via peripherals erro	rs		
Parameterisation			No			
Additional functions			Diagnostics using stat			
Operating voltage	Nominal value	[V DC]	24, reverse polarity pr	otected		
	Permissible range	[V]	20.4 26.4			
	Residual ripple	[Vss]	4			
	Power failure bridging	[ms]	10			
Current consumption		[mA]	Max. 200 + sensor su	pply		
Protection class to EN 60529			IP65			
Materials	Housing		Die-cast aluminium			
	Cover		Reinforced polyamide			
	Seals		Nitrile rubber, polychloroprene rubber			
Dimensions			→ Internet: cpv			
Weight						
Technical data on valves						

Operating and environmental conditions				
Ambient temperature	[°C]	-5 +50		
Storage temperature	[°C]	-20 +70		
Fieldbus certification		INTERBUS club		
Certification		cULus recognized (OL)		
CE symbol (see declaration of conformity)		In accordance with EU EMC directive		

Technical data – Fieldbus node CPV-IB



Pin allocation for INTERBUS inte	allocation for INTERBUS interface, incoming (viewed on plug)					
	Pin	Signal	Description			
	1	DO1	Data out			
	2	/DI1	Data in			
$\left \overbrace{ \left(\frac{6}{+} \right)^{1}} \right $	3	GND	Reference conductor/ground			
	4	n.c.	Not connected			
++	5	n.c.	Not connected			
9 +5	6	/D01	Data out inverse			
	7	/DI1	Data in inverse			
	8	n.c.	Not connected			
	9	n.c.	Not connected			
	Hous-	Screened	Connection to functional earth via R/C combination			
	ing					

Pin allocation for INTERBUS interfa	in allocation for INTERBUS interface, outgoing (viewed on socket)					
	Pin	Signal	Description			
	1	DO2	Data out			
	2	/DI2	Data in			
9005	3	GND	Reference conductor/ground			
1	4	n.c.	Not connected			
	5	+5 V	Station detection ¹⁾			
600	6	/DO2	Data out inverse			
	7	/DI2	Data in inverse			
	8	n.c.	Not connected			
	9	RBST	Station detection ¹⁾			
	Hous-	Screened	Connection to functional earth via R/C combination			
	ing					

¹⁾ The incoming interface is electrically isolated from the CPX peripherals. The plug housing is connected to the FE of the CPX terminal via an R/C combination.

The CPX terminal contains the protocol chip SUPI 3 OPC. This ensures automatic detection of additional connected INTERBUS stations. There is therefore no need for a bridge between pin 5 and pin 9.

Ordering data				
Designation			Part No.	Туре
Fieldbus node				
	CPV10		197177	CPV10-GE-IB-8
	CPV14		197179	CPV14-GE-IB-8
	CPV18		197181	CPV18-GE-IB-8
	·		•	
Power supply				
	Power supply socket, straight M12x1, 4-pin		18497	FBSD-GD-7
			18495	FBSD-GD-9
	Power supply socket, angled M12x1, 4-pin		18524	FBSD-WD-7
			18525	FBSD-WD-9
Bus connection	TELLI L. C. L. D		1	EDG GUD A DU ID D
8	Fieldbus plug, Sub-D connection for INTERBUS incoming	5	532218	FBS-SUB-9-BU-IB-B
	Fieldbus plug, Sub-D connection for INTERBUS outgoing		532217	FBS-SUB-9-GS-IB-B
Valve terminal con	a cation			
valve terminal com	Connecting cable, angled plug, angled socket	0.25 m	540327	KVI-CP-3-WS-WD-0,25
	Connecting cable, angled plug, angled socker	0.25 III	540328	KVI-CP-3-WS-WD-0,5
		2 m	540329	KVI-CP-3-WS-WD-0,5
The same of the sa		5 m	540330	KVI-CP-3-WS-WD-5
		8 m	540331	KVI-CP-3-WS-WD-8
	Connecting cable, straight plug, straight socket	8 m	540331	KVI-CP-3-W5-WD-8 KVI-CP-3-GS-GD-2
NI DE	Connecting capie, Straight plug, Straight Socket	2 III	540332	KVI-CP-3-GS-GD-2 KVI-CP-3-GS-GD-5
		8 m	540334	KVI-CP-3-GS-GD-8
(B)		0 111	540534	0-עט-כט-נייט-ווא
User documentatio	n			
osci uocumentatio	User documentation for CPV Direct, CPV fieldbus node	German	527515	P.BE-CP-IB-DE
	B	English	527516	P.BE-CP-IB-EN
		Spanish	527517	P.BE-CP-IB-ES
		French	527518	P.BE-CP-IB-ES
		Italian	527518	P.BE-CP-IB-IT
		Swedish	527519	P.BE-CP-IB-SV
		Swedish	52/520	r.bc-Cr-IB-3V

Technical data – Fieldbus node CPV-IP

BECKHOFF

CPV fieldbus node for communication between a CPV valve terminal and an IP-Link coupler box. The fieldbus node is used for activation of a CPV valve terminal with 8 valve slices and 16 solenoid coils and for displaying the switching status via LED. The CPV-... valves are activated via automatic current reduction, which results in less power consumption and heat emission.

The CPV fieldbus node supports the fieldbus protocol IP-Link.

The CPV fieldbus node is available in two sizes, with identical performance characteristics:

- CPV10
- CPV14



Application

Bus connection

The bus connection is established using two IP-Link fibre optic cable connectors.

The bus connector plugs (with protection class IP65) facilitate the connection of the incoming and outgoing fibre optic cable (FOC).

Power supply

The power is supplied via a 4-pin M8 connection (socket). The supply to the internal logic is fully electrically isolated from the supply to the solenoid coils.

The second M8 connection (pin) enables power to be supplied to additional CPV IP-Link valve terminals and other IP-Link modules.

Fieldbus Direct, CPV-IP Technical data – Fieldbus node CPV-IP





Type CPV10-GE-IP-8 CPV14-GE-IP-8 Fieldbus interface IP-Link Incoming, outgoing	General technical data					
Incoming, outgoing	Туре			CPV10-GE-IP-8	CPV14-GE-IP-8	
Electrical isolation of the fieldbus interface	Fieldbus interface		IP-Link			
Destring extension No Raud rates [kbps] 2000				Incoming, outgoing		
Baud rates	Electrical isolation of the fieldbu	is interface		FOC		
Data model Compact 16 outputs Configuration support PROFIBUS GSD file INTERBUS Not necessary CANopen EDS file DeviceNet EDS file Max. no. of solenoid coils LED displays (bus-specific) LED displays (bus-specific) ERR Operating voltage of internal logic UP Operating voltage of valves RUN Bus active ERR Data transmission error Product identification Product family 4: Valves Device-specific diagnostics Parameterisation Via register communication: watchdog setting for coils 1 16 Operating voltage Nominal value VDC 24, reverse polarity protected Permissible range VJ 20.4 28.8 Power failure bridging [ms] 10 Residual ripple Vss] 4 Current consumption Logic [mA] Max. 100 Valves Depending on valve type Protection class to EN 60529 Materials Housing Die-cast aluminium Cover Reinforced polyamide Seals Nitrile rubber, polychloroprene rubber PInternet: cpv	CP string extension			No		
Configuration support PROFIBUS INTERBUS Not necessary	Baud rates		[kbps]	2000		
INTERBUS Not necessary		•		'		
CANopen EDS file	Configuration support					
DeviceNet EDS file		INTERBUS		Not necessary		
Max. no. of solenoid coils		CANopen		EDS file		
LED displays (bus-specific) US		DeviceNet		EDS file		
UP Operating voltage of valves	Max. no. of solenoid coils			16		
RUN Bus active	LED displays (bus-specific)	US		Operating voltage of internal	l logic	
Product identification		UP		Operating voltage of valves		
Product identification Device-specific diagnostics Prameterisation Product family 4: Valves E4404		RUN		Bus active		
Device-specific diagnostics Parameterisation Via register communication: watchdog setting for coils 1 16 Operating voltage Nominal value Permissible range Power failure bridging Residual ripple Vss] Current consumption Logic Valves Depending on valve type Protection class to EN 60529 Materials Housing Cover Seals Dimensions E4404 Via register communication: watchdog setting for coils 1 16 Via Permissible range Vy DC 24, reverse polarity protected V DC		ERR		Data transmission error		
Parameterisation Via register communication: watchdog setting for coils 1 16 Operating voltage Nominal value Permissible range [V] 20.4 28.8 Power failure bridging Residual ripple [Vss] 4 Current consumption Logic [mA] Max. 100 Valves Depending on valve type Protection class to EN 60529 Materials Housing Cover Reinforced polyamide Seals Nitrile rubber, polychloroprene rubber Dimensions Via register communication: watchdog setting for coils 1 16 24, reverse polarity protected 24, reverse polarity protected Permissible range [V] 20.4 28.8 Power failure bridging [ms] 10 Residual ripple [Vss] 4 Depending on valve type Die-cast aluminium Nitrile rubber, polychloroprene rubber Internet: cpv	Product identification			Product family 4: Valves		
watchdog setting for coils 1 16 Operating voltage Nominal value Permissible range V DC 24, reverse polarity protected Permissible range V DC 24, reverse polarity protected Permissible range V DC 20.4 28.8 Power failure bridging [ms] 10 Residual ripple Vss] 4 Current consumption Logic [mA] Max. 100 Valves Depending on valve type Protection class to EN 60529 Materials Housing Cover Reinforced polyamide Seals Nitrile rubber, polychloroprene rubber Pinternet: cpv	Device-specific diagnostics			IE4404		
Operating voltage Nominal value [V DC] 24, reverse polarity protected Permissible range [V] 20.4 28.8 Power failure bridging [ms] 10 Residual ripple [Vss] 4 Current consumption Logic [mA] Max. 100 Valves Depending on valve type Protection class to EN 60529 IP65 Materials Housing Die-cast aluminium Cover Reinforced polyamide Seals Nitrile rubber, polychloroprene rubber Dimensions Internet: cpv	Parameterisation			Via register communication:		
Permissible range [V] 20.4 28.8 Power failure bridging [ms] 10 Residual ripple [Vss] 4 Current consumption Logic [mA] Max. 100 Valves Depending on valve type Protection class to EN 60529 IP65 Materials Housing Die-cast aluminium Cover Reinforced polyamide Seals Nitrile rubber, polychloroprene rubber Dimensions Internet: cpv				watchdog setting for coils 1.	16	
Power failure bridging [ms] 10 Residual ripple [Vss] 4 Current consumption Logic [mA] Max. 100 Valves Depending on valve type Protection class to EN 60529 IP65 Materials Housing Die-cast aluminium Cover Reinforced polyamide Seals Nitrile rubber, polychloroprene rubber Dimensions → Internet: cpv	Operating voltage	Nominal value	[V DC]	24, reverse polarity protecte	d	
Residual ripple [Vss] 4 Current consumption		Permissible range	[V]	20.4 28.8		
Current consumption Logic [mA] Max. 100 Protection class to EN 60529 IP65 Materials Housing Die-cast aluminium Cover Reinforced polyamide Seals Nitrile rubber, polychloroprene rubber Dimensions → Internet: cpv		Power failure bridging	[ms]	10		
Valves Depending on valve type Protection class to EN 60529 IP65 Materials Housing Die-cast aluminium Cover Reinforced polyamide Seals Nitrile rubber, polychloroprene rubber Dimensions → Internet: cpv		Residual ripple	[Vss]	4		
Protection class to EN 60529 Materials Housing Cover Reinforced polyamide Seals Nitrile rubber, polychloroprene rubber Dimensions Weight Protection class to EN 60529 IP65 Reinforced polyamide Nitrile rubber, polychloroprene rubber Internet: cpv	Current consumption	Logic	[mA]	Max. 100		
Materials Housing Cover Die-cast aluminium Eals Reinforced polyamide Dimensions → Internet: cpv		Valves		Depending on valve type		
Cover Reinforced polyamide Seals Nitrile rubber, polychloroprene rubber Dimensions → Internet: cpv	Protection class to EN 60529			IP65		
Seals Nitrile rubber, polychloroprene rubber Dimensions → Internet: cpv Weight	Materials	Housing		Die-cast aluminium		
Dimensions → Internet: cpv Weight		Cover		Reinforced polyamide		
Weight		Seals		Nitrile rubber, polychloroprene rubber		
	Dimensions			→ Internet: cpv		
Technical data on valves	Weight					
	Technical data on valves					

Operating and environmental conditions						
Ambient temperature	[°C]	−5 +50				
Storage temperature	[°C]	-20 +70				
Certification		cULus recognized (OL)				
CE symbol (see declaration of conformity)		In accordance with EU EMC directive				
Note on materials		RoHS-compliant				

Technical data – Fieldbus node CPV-IP

Connection and display components 3 4 5 2 3 LEDs: (green) 6 socket) socket)

1	Connection for	power	supply,
	incoming (M8,	4-pin,	plug)

- 2 Connection for power supply, outgoing (M8, 4-pin, socket)
 - US: Operating voltage for electronics (green)
 - UP: Load voltage for valves
 - RUN: Bus active (green)
 - ERR: Error (red)
- 4 Fieldbus connection, incoming (IP-Link fibre optic cable IP65
- 5 Fieldbus connection, outgoing (IP-Link fibre optic cable IP65
- 6 LEDs (yellow) for switching status display of CPV solenoid coils

Power supply, incoming		
	Pin	Signal
1	1	24 V DC operating voltage for electronics (US)
2	2	24 V DC load voltage for valves (UP)
4	3	0 V electronics (US)
3	4	0 V valves (UP)

Power supply, outgoing	Power supply, outgoing					
	Pin	Signal				
3	1	24 V DC operating voltage for electronics (US)				
4	2	24 V DC load voltage for valves (UP)				
2	3	0 V electronics (US)				
1	4	0 V valves (UP)				

Fieldbus Direct, CPV-IP

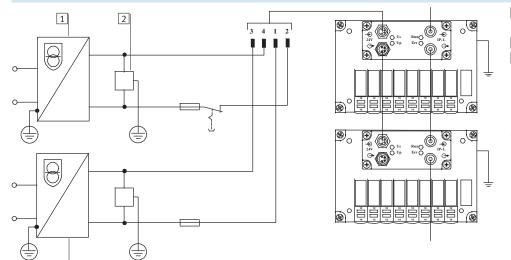
Technical data – Fieldbus node CPV-IP



Equipotential bonding

3

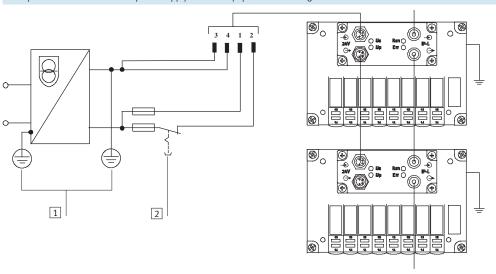
Example of connection with electrical isolation of operating and load voltage with 2 PELV power supply units



- 1 Power supply unit for load voltage
 - Device for isolation monitoring
- 3 Power supply unit for operating voltage

CPV Direct is prepared for the connection with electrical isolation of operating and load voltage.

Example of connection with PELV power supply unit and equipotential bonding



- 1 PE and equipotential bonding
- 2 Load voltage (can be disconnected separately) plus external fuses

The CPV valve terminal has an earth terminal for equipotential bonding on the end plate.

Ordering data				
Designation			Part No.	Туре
Fieldbus node				
	CPV10	534509	CPV10-GE-IP-8	
	CPV14		534507	CPV14-GE-IP-8
User documentation				
	User documentation for CPV Direct, CPV fieldbus node IP	German	534516	P.BE-CPV-DI-IP-DE
		English	534517	P.BE-CPV-DI-IP-EN

Technical data - Fieldbus node CPV-CC-8

CC-Link

CPV fieldbus node for communication between a CPV valve terminal and a higher-order master for Control & Communication-Link (CC-Link) from Mitsubishi. The fieldbus node is used for activation of a CPV valve terminal with 8 valve slices and 16 solenoid coils and for displaying the switching status via LED.

The CPV-... valves are activated via automatic current reduction, which results in less power consumption and heat emission. A CP input module with 16 digital inputs can be connected via a serial CP string extension.

The CPV fieldbus node is available in three sizes, with identical performance characteristics:

- CPV10
- CPV14
- CPV18



Application

Bus connection

The bus connection can be selected when ordering and is established by means of:

- a terminal strip with IP20 protection
- a Sub-D plug with IP65 protection

from Festo

 a Sub-D plug with IP20 protection from other manufacturers

All connection types have an integrated T-distributor function and thus support the connection of an incoming

and outgoing bus cable.

The integrated interface with RS 485 transmission technology is designed for the typical CC-Link 3-wire connection technology (in accordance with CLPA CC-Link Spec. V1.11).

CC-Link implementation

The CPV fieldbus node supports one station per slave.

Cyclical data transmission for the sole-

noid coils, digital inputs and status information is conducted using the bit and word ranges (Rx/Ry/RWr/RWw).

Fieldbus Direct, CPV-CC-8Technical data – Fieldbus node CPV-CC-8



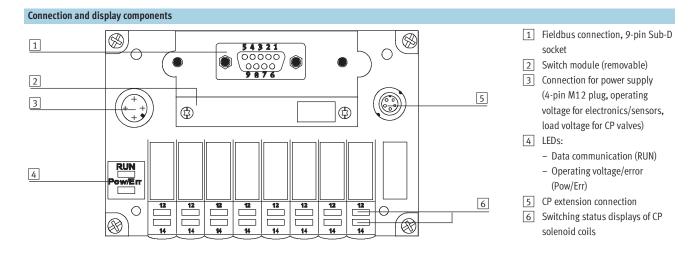


General technical data							
Туре			CPV10-GE-CC-8	CPV14-GE-CC-8	CPV18-GE-CC-8		
Fieldbus interface		Either					
			• 9-pin Sub-D socket				
		 Screw terminal strip, 	5-pin				
CP string extension			Yes				
			16 inputs (connection o	f an additional CP valve term	inal or CP output module		
			not possible)				
Baud rates		[kbps]	156 10,000; set usin	g DIL switch			
Addressing range			1 64; set using DIL sw	itch			
No. of stations per slave			1 station, Permanent se	tting			
Vendor code			0x0177				
Product identification			Machine type 0x3C				
LED displays (bus-specific)	RUN		Communication OK				
LED displays (bus-specific)	Pow/Err		Operating voltage/CRC e	rror or communication error			
LED displays (product-specific)			Valve switching status				
Type of communication			Cyclical communication				
Max. no. of solenoid coils			16				
Max. no. of outputs			0				
Max. no. of inputs			16				
Device-specific diagnostics			Short circuit/overload	•			
			 Undervoltage of valve 	terminal			
			Undervoltage of sensor	117			
			Missing module on the CP string				
			Remote ready				
			Via status byte				
Parameterisation			Hold/clear via DIL switch				
Additional functions			8-bit system status in th				
Operating voltage	Nominal value	[V DC]	24, reverse polarity prot	ected			
	Permissible range	[V]	20.4 26.4				
	Power failure bridging	[ms]	20				
Current consumption		[mA]	Max. 200 + sensor supp	ly			
Protection class to EN 60529			IP20, IP65 (Sub-D)				
Materials	Housing		Die-cast aluminium				
	Cover		Reinforced polyamide				
	Seals		Nitrile rubber, polychlor	oprene rubber			
Dimensions			→ Internet: cpv				
Weight							
Technical data on valves							

Operating and environmental conditions						
Ambient temperature	[°C]	-5 +50				
Storage temperature	[°C]	-20 +50				
Certification		cULus recognized (OL)				
CE symbol (see declaration of conformity)		In accordance with EU EMC directive				
Note on materials		RoHS-compliant				

Fieldbus Direct, CPV-CC-8 Technical data – Fieldbus node CPV-CC-8

FESTO



Pin allocation for Sub-D interfa	ce (socket viev	v)	
	Pin	Signal	Description
	1	n.c.	Not connected
	2	DA	Data A
9005	3	DG	Data reference potential
	4	n.c.	Not connected
	5	n.c.	FE via R/C combination (not used with CC-Link: connection via R/C combination to FE (1
600			Mohm/220 nF))
	6	n.c.	Not connected
	7	CAN_H	Data B
	8	n.c.	Not connected
	9	n.c.	Not connected
	Hous-	SLD	Screened
	ing		

Pin allocation for terminal strip	Pin allocation for terminal strip							
	Pin	Signal	Description					
0	1	FG	Functional earth/housing					
4 2 2 2	2	SLD	Screened					
⊕ ¥	3	DG	Data reference potential					
1. KLSP01.	4	DB	Data B					
4	5	DA	Data A					

Ordering data				
Designation			Part No.	Туре
Fieldbus node			<u> </u>	
<u> </u>	CPV10		197959	CPV10-GE-CC-8
	CPV14		197967	CPV14-GE-CC-8
	CPV18		197969	CPV18-GE-CC-8
			I	
ower supply				
	Power supply socket, straight, M12x1, 4-pin		18497	FBSD-GD-7
			18495	FBSD-GD-9
	Power supply socket, angled, M12x1, 4-pin		18524	FBSD-WD-7
	Power Supply Socket, angled, M12x1, 4-pm		18524	LP2N-MN-1
			18525	FBSD-WD-9
Bus connection Ope	en Style, 5-pin screw terminal strip			
^	Bus connection, 5-pin terminal strip for CC-Link		197962	FBA-1-KL-5POL
0				
	Fieldbus plug, Sub-D connection		532220	FBS-SUB-9-GS-2x4POL-B
			I	
alve terminal conr	nection			
	Connecting cable, angled plug, angled socket	0.25 m	540327	KVI-CP-3-WS-WD-0,25
‰))		0.5 m	540328	KVI-CP-3-WS-WD-0,5
		2 m	540329	KVI-CP-3-WS-WD-2
		5 m	540330	KVI-CP-3-WS-WD-5
		8 m	540331	KVI-CP-3-WS-WD-8
	Connecting cable, straight plug, straight socket	2 m	540332	KVI-CP-3-GS-GD-2
(·	5 m	540333	KVI-CP-3-GS-GD-5
THE REAL PROPERTY.		8 m	540334	KVI-CP-3-GS-GD-8
		1	l .	
Jser documentatio	n			
	User documentation for CPV Direct, CPV fieldbus node	German	197963	P.BE-CP-CC-DE
	. CC	English	197964	P.BE-CP-CC-EN
		Japanese	197965	P.BE-CP-CC-J
		учринезе	17/703	