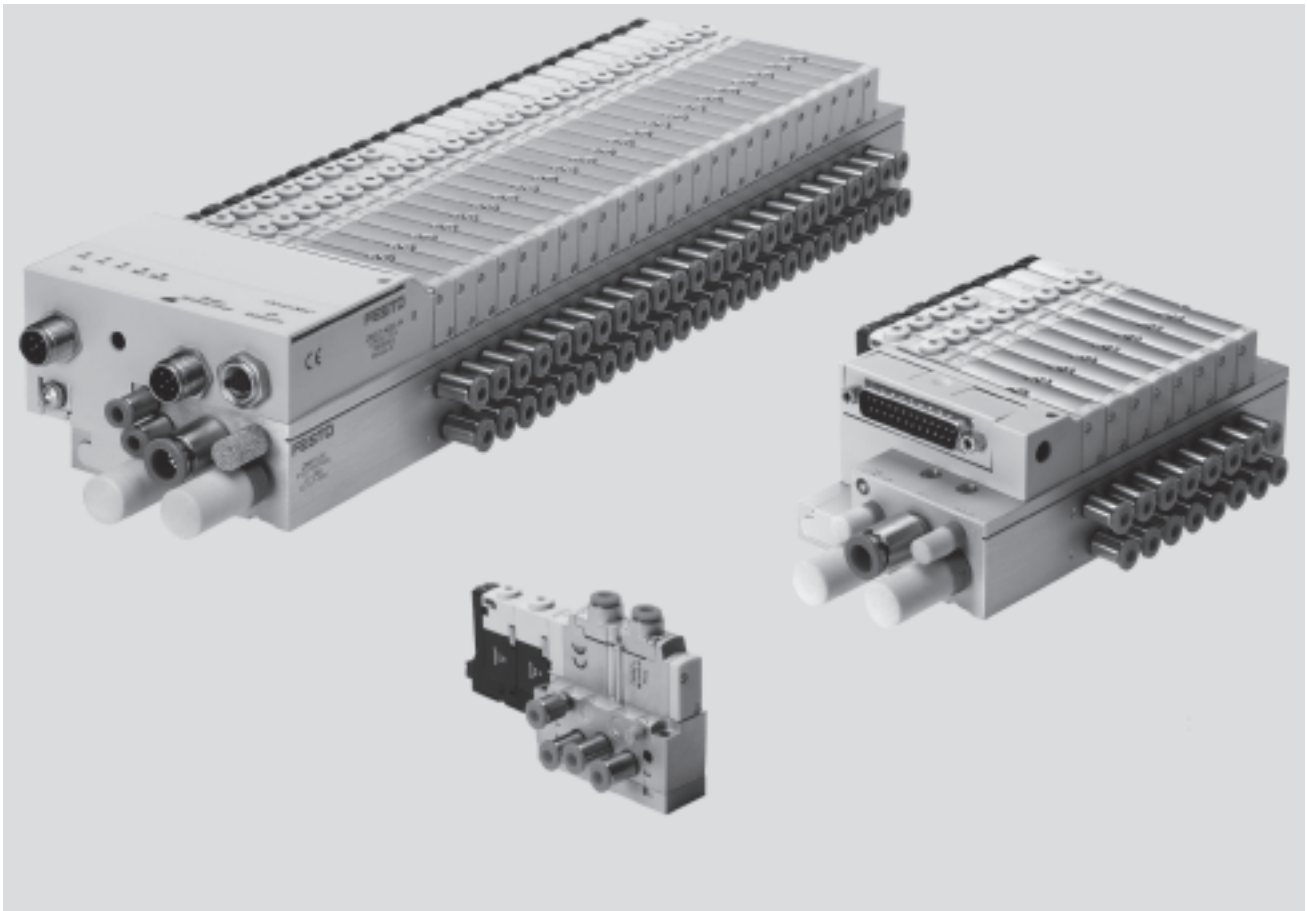


- Modular valve terminal for a wide range of applications
- Space-saving thanks to smaller valve dimensions
- Easy valve replacement
- Manual override and LED operating status display
- Flow rates of up to 150 l/min
- Variety of pneumatic and electrical connection options

Valve terminal type 82 CPA-SC, Smart Cubic

Key features

FESTO



Innovative

- Compact valve terminal for a wide range of pneumatic applications
- Standardised from the individual valve up to multi-pin plug and fieldbus connections
- Highly versatile during the planning and assembly stages as well as in operational use
- Wide range of selectable valve functions, including valve functions for customised pressure supplies or vacuum application solutions
- Comprehensive, optimally harmonised range of accessories for flow rates of up to 180 l/min

Versatile

- Room for expansion with 2 ... 24 valve positions on one terminal
- Use of individual valves in combination with an individual block
- The flexibility of the pneumatic working connections facilitates a practical solution to different requirements
- Tubing lines can be connected horizontally to the valve or vertically on the sub-base
- High pressure range -0.9 ... 10 bar
- Wide range of electrical connections for 24 V DC operating voltage

Reliable

- Manual override facility
- Durable thanks to the use of tried-and-tested piston spool valves
- Sturdy thanks to metal housing and connecting thread
- Fast troubleshooting thanks to LEDs on the valves and diagnosis via fieldbus

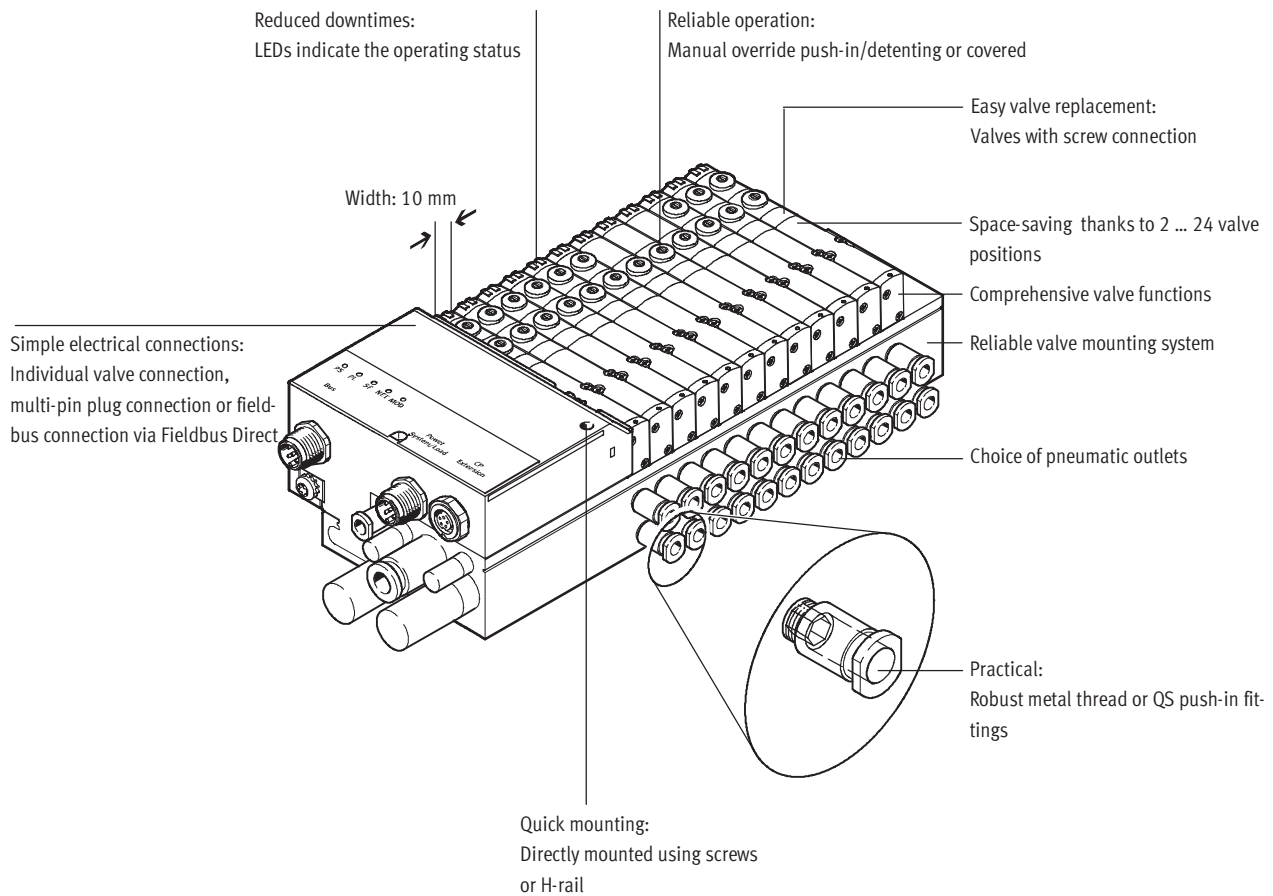
Easy-to-mount

- Ready-to-install unit, already assembled and tested
- Minimised expenditure with regard to ordering, installation and commissioning
- Secure wall mounting or via H-rail

Valve terminal type 82 CPA-SC, Smart Cubic

Key features

FESTO



Equipment options

Valve functions

<ul style="list-style-type: none"> • 5/2-way valve, single solenoid • 5/2-way valve, double solenoid • 2x 3/2-way valve, normally open • 2x 3/2-way valve, normally closed 	<ul style="list-style-type: none"> • 5/3-way valve, mid-position pressurised • 5/3-way valve, mid-position closed • 5/3-way valve, mid-position exhausted 	<ul style="list-style-type: none"> • 1x 3/2-way valve, normally closed, external compressed air supply • 2x 2/2-way valve, normally closed, dual compressed air supply 	<p>All valves have the same compact dimensions with an overall length of 91 mm and a width of 10 mm. Valves with a height of 40 mm are available for applications requiring particularly flat variants.</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Electrical connection options

Individual connection	Individual sub-base valve	Multi-pin	Fieldbus
<ul style="list-style-type: none"> • Plug-in (PI) • Horizontal connection (HC) 	<ul style="list-style-type: none"> • Plug-in (PI) • Horizontal connection (HC) 	<ul style="list-style-type: none"> • Max. 20 valve positions/max. 20 solenoid coils • Sub-D • Flat cable 	<ul style="list-style-type: none"> • Max. 24 valve positions/max. 32 solenoid coils

Valve terminal type 82 CPA-SC, Smart Cubic

Key features

FESTO

Valve terminal configurator

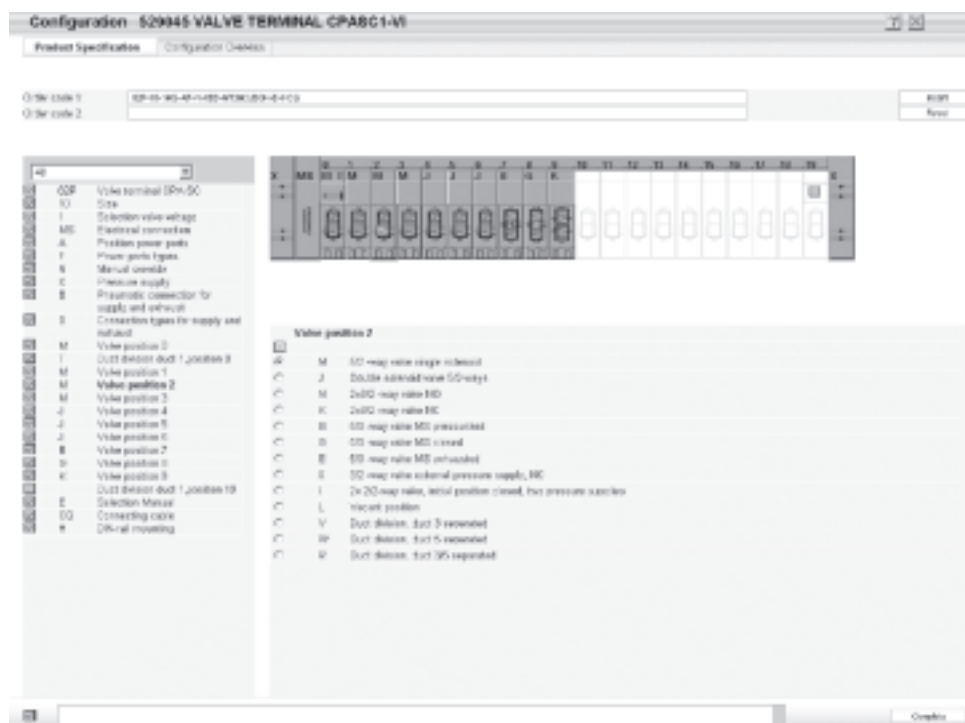
Online via: → www.festo.com/en/engineering

A valve terminal configurator is available to help you select a suitable CPASC valve terminal. This makes it much easier for you to find the right product.

The valve terminals are fully assembled according to your order specifications and individually tested. This reduces the amount of assembly and installation required to a minimum. A type 82 valve terminal is ordered via a modular order code.

Ordering system for type 82

→ 4 / 3.1-72



The illustration above provides an example of a valve terminal configuration. And this is how you arrive at the order code:

Once you have called up the Festo home page, select the online version of the digital product catalogue from the “Products” submenu: this will bring you directly to the home page for the Pneumatic Catalogue. Activate the “Product Search” menu.

Here you can specify a “Part No.” (e.g. 529045), “Type” (e.g. CPA-SC) or “Article designation” (e.g. valve terminal) to find your “Search result”. Click on the blue shopping basket to complete the selected product according to your specifications (this does not initiate an order). You will then be prompted to configure the product.

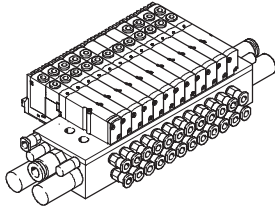
Select “Configurator”. You can then configure the valve terminal step by step (from the top down) according to your requirements. Select the “Finish” menu to continue on with the ordering process.

Valve terminal type 82 CPA-SC, Smart Cubic

Key features

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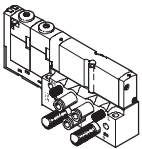
Individual connection



Connection is independent of the control technology used. This ensures correct polarity during installation.

The valve is equipped with an LED which indicates switching status, and an overvoltage protective circuit. It also features a built-in current reduction circuit.

Individual connection permits the selection of 2 to 32 solenoid coils (divided between 2 to 16 valve positions, including in uneven gradations).



Valves can also be used on an individual block for actuators further away from the valve terminal.

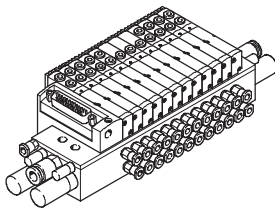
With an individual electrical connection, the plug is connected directly to the valve. Two electrical connection types are available for the valve terminal and for the individual block:

- Horizontal connection (HC) or
- Plug-in (PI)

Version SH:
The electrical connection can be plugged in directly on the valve.

Version SP, SQ:
The connector plug is mounted on an adapter. This adapter is then attached to the manifold block.

Multi-pin plug connection



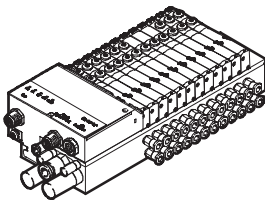
Control signals from the controller to the valve terminal are transmitted via a pre-assembled multi-core cable, which substantially reduces installation time.

These valve terminals can be fitted with 2 to 20 solenoid coils.

Variants

- Sub-D connection
- Flat cable connection

Fieldbus Direct



An integrated fieldbus node manages the communication connection to a higher-order PLC. This enables a space-saving pneumatic and electronic solution.

The fieldbus node is directly integrated in the electrical interface of the valve terminal and therefore takes up only a minimal amount of space.

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

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

Variants

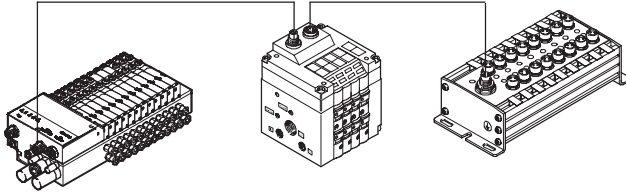
- DeviceNet connection
- 4 to 32 solenoid coils

Valve terminal type 82 CPA-SC, Smart Cubic

Key features

FESTO

CP string extension



The optional string extension allows an additional valve terminal and I/O modules to be connected to Fieldbus Direct. 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 and CPA valve terminals can be connected.

The max. length of the CP string extends to 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
- Logic supply for the output modules
- Load voltage supply for the valve terminals

➔ 4 / 4.7-2

Valve terminal type 82 CPA-SC, Smart Cubic

Peripherals overview

FESTO

Overview – CPA-SC valve terminal

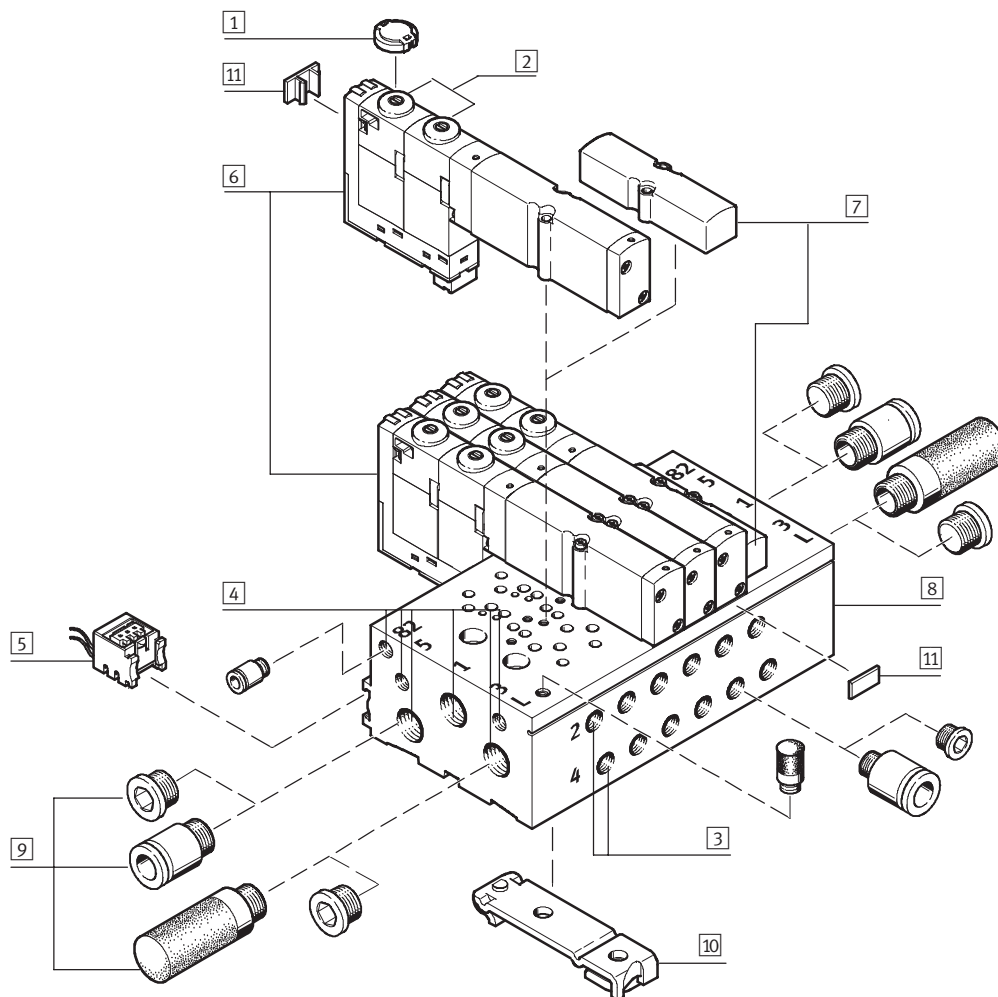
Valve terminal with individual plug-in (PI) electrical connections

Code: IP, IQ

Valve terminals with individual plug-in (PI) electrical connections are available in sizes for 2 to max. 16 valve positions. Each valve position can either be equipped with a valve or a blanking plate.

With an individual PI connection, the connector plug remains on the manifold block. This avoids the valve being connected incorrectly in the event of a recommissioning.

CPA-SC valve terminal with sub-base valves



- | | | | |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------------------------|
| 1 Cover for manual override (optional) | 4 Supply ports (1, 12/14), exhaust ports (3, 5, 82/84) and pressure compensating port (L) on the left-hand and right-hand side of the manifold block | 5 Individual plug-in (PI) connection | 9 Connectors, silencers and blanking plugs |
| 2 Manual override (per solenoid coil, push-in/rotary-detenting) | | 6 Valve | 10 H-rail mounting |
| 3 Working lines (2, 4) on the manifold block (per valve position) | | 7 Cover for vacant position (blanking plate) | 11 Inscription labels |
| | | 8 Manifold block for sub-base valves | |

Valve terminal type 82 CPA-SC, Smart Cubic

Peripherals overview

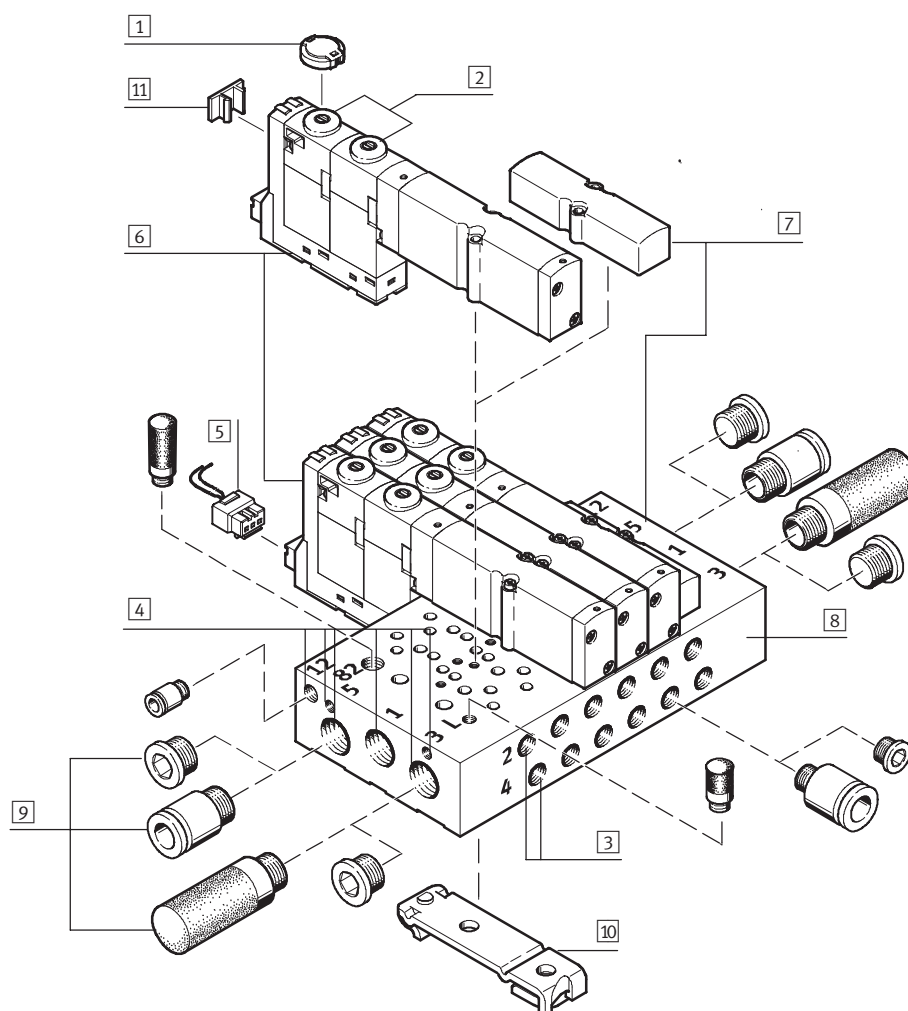
Valve terminal with individual horizontal (HC) electrical connections

Code: IH

Valve terminals with individual horizontal electrical connections (HC) are available in sizes for 2 to max. 16 valve positions. Each valve position can either be equipped with a valve or a blanking plate.

With an individual horizontal connection, the electrical connection for a valve must be removed when the valve is being replaced.

CPA-SC valve terminal with sub-base valves



- 1 Cover for manual override (optional)
- 2 Manual override (per solenoid coil, push-in/rotary-detenting)
- 3 Working lines (2, 4) on the manifold block (per valve position)

- 4 Supply ports (1, 12/14), exhaust ports (3, 5, 82/84) and pressure compensating port (L) on the left-hand and right-hand side of the manifold block

- 5 Individual horizontal connection (HC)
- 6 Valve
- 7 Cover for vacant position (blanking plate)

- 8 Manifold block for sub-base valves
- 9 Connectors, silencers and blanking plugs
- 10 H-rail mounting
- 11 Inscription labels

Valve terminal type 82 CPA-SC, Smart Cubic

Peripherals overview

FESTO

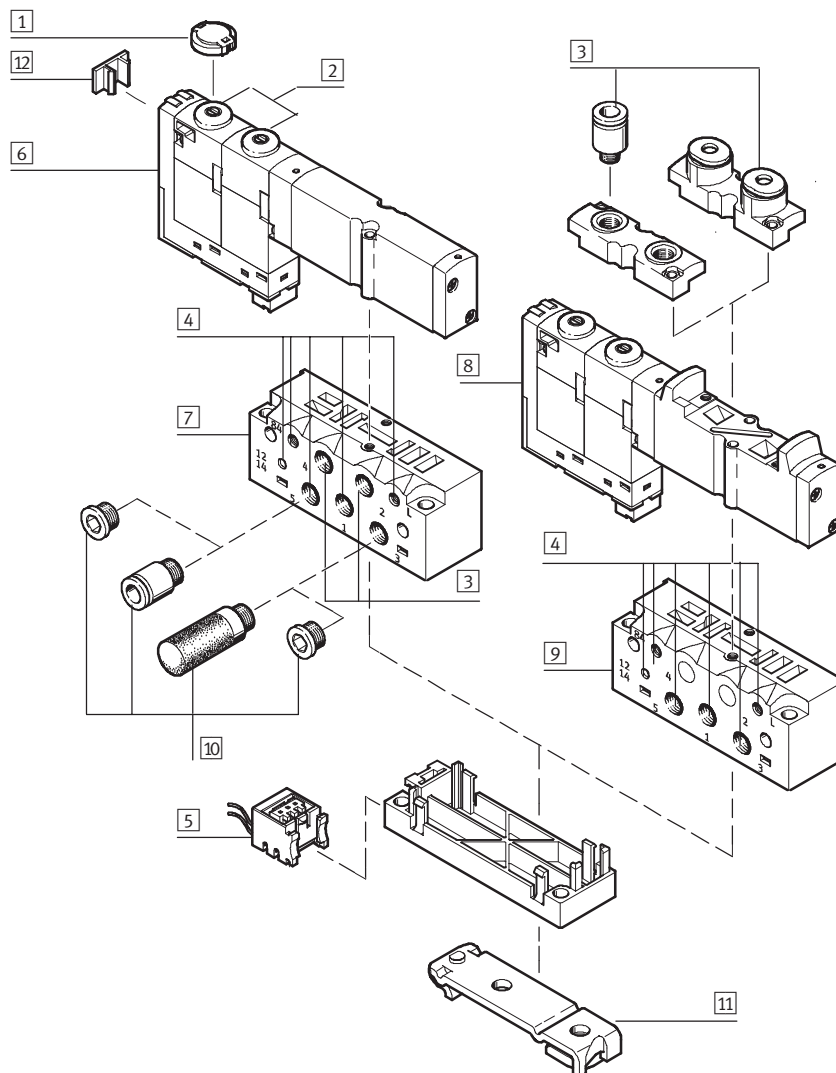
Overview – CPA-SC individual block

Individual block with individual plug-in (PI) electrical connection

Code: SP, SQ

With an individual PI connection, the connector plug remains on the manifold block.

CPA-SC individual block with sub-base valve or semi in-line valve



- | | | | |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------|
| 1 Cover for manual override (optional) | 4 Supply ports (1, 12/14), exhaust ports (3, 5, 82/84) and pressure compensating port (L) on the individual block | 6 Sub-base valve | 10 Connectors, silencers and blanking plugs |
| 2 Manual override (per solenoid coil, push-in/rotary-detenting) | 5 Individual horizontal connection (HC) | 7 Individual block for sub-base valve | 11 H-rail mounting |
| 3 Working lines (2, 4) on the individual block or on the valve (semi in-line version) | | 8 Semi in-line valve | 12 Inscription label |
| | | 9 Individual block for semi in-line valve | |

Valve terminal type 82 CPA-SC, Smart Cubic

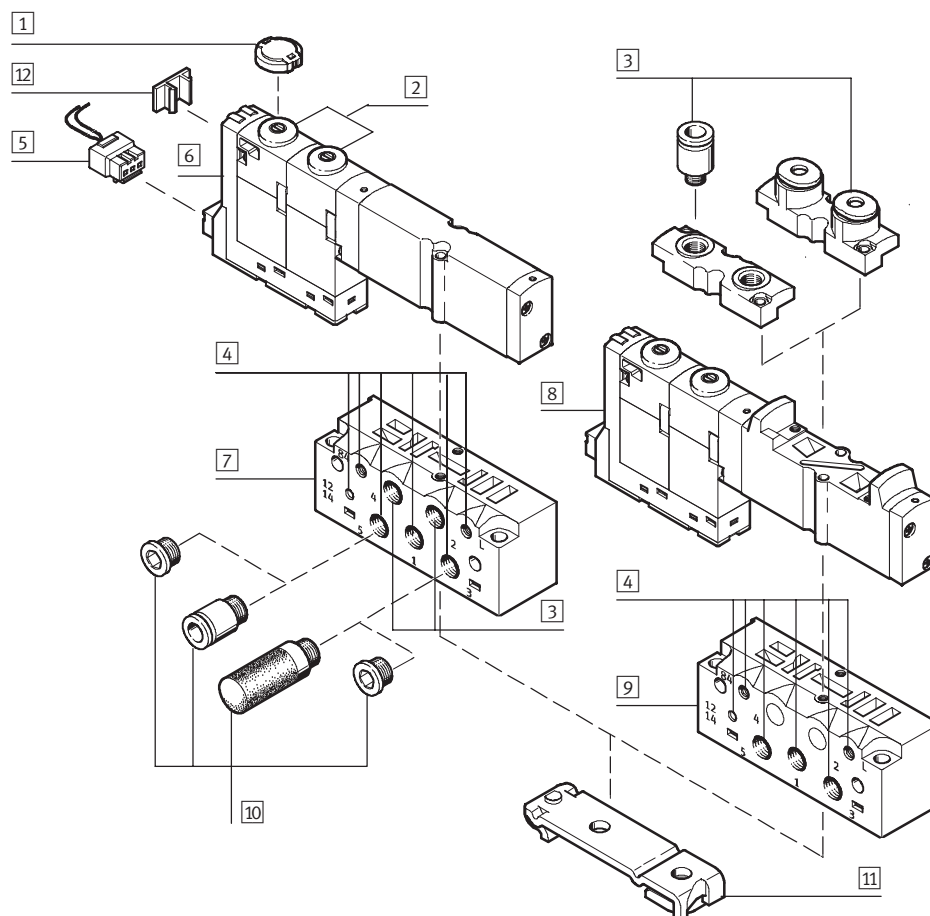
Peripherals overview

Individual block with individual horizontal electrical connection (HC)

Code: SH

With an individual horizontal connection, the electrical connection for a valve must be removed when the valve is being replaced.

CPA-SC individual block with sub-base valve or semi in-line valve



- | | | | |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------|
| 1 Cover for manual override (optional) | 4 Supply ports (1, 12/14), exhaust ports (3, 5, 82/84) and pressure compensating port (L) on the individual block | 6 Sub-base valve | 10 Connectors, silencers and blanking plugs |
| 2 Manual override (per solenoid coil, push-in/rotary-detenting) | 5 Individual horizontal connection | 7 Individual block for sub-base valve | 11 H-rail mounting |
| 3 Working lines (2, 4) on the individual block or on the valve (semi in-line version) | | 8 Semi in-line valve | 12 Inscription label |
| | | 9 Individual block for semi in-line valve | |

Valve terminal type 82 CPA-SC, Smart Cubic

Peripherals overview

FESTO

Overview – CPA-SC valve terminal

Valve terminal with electrical multi-pin plug connection

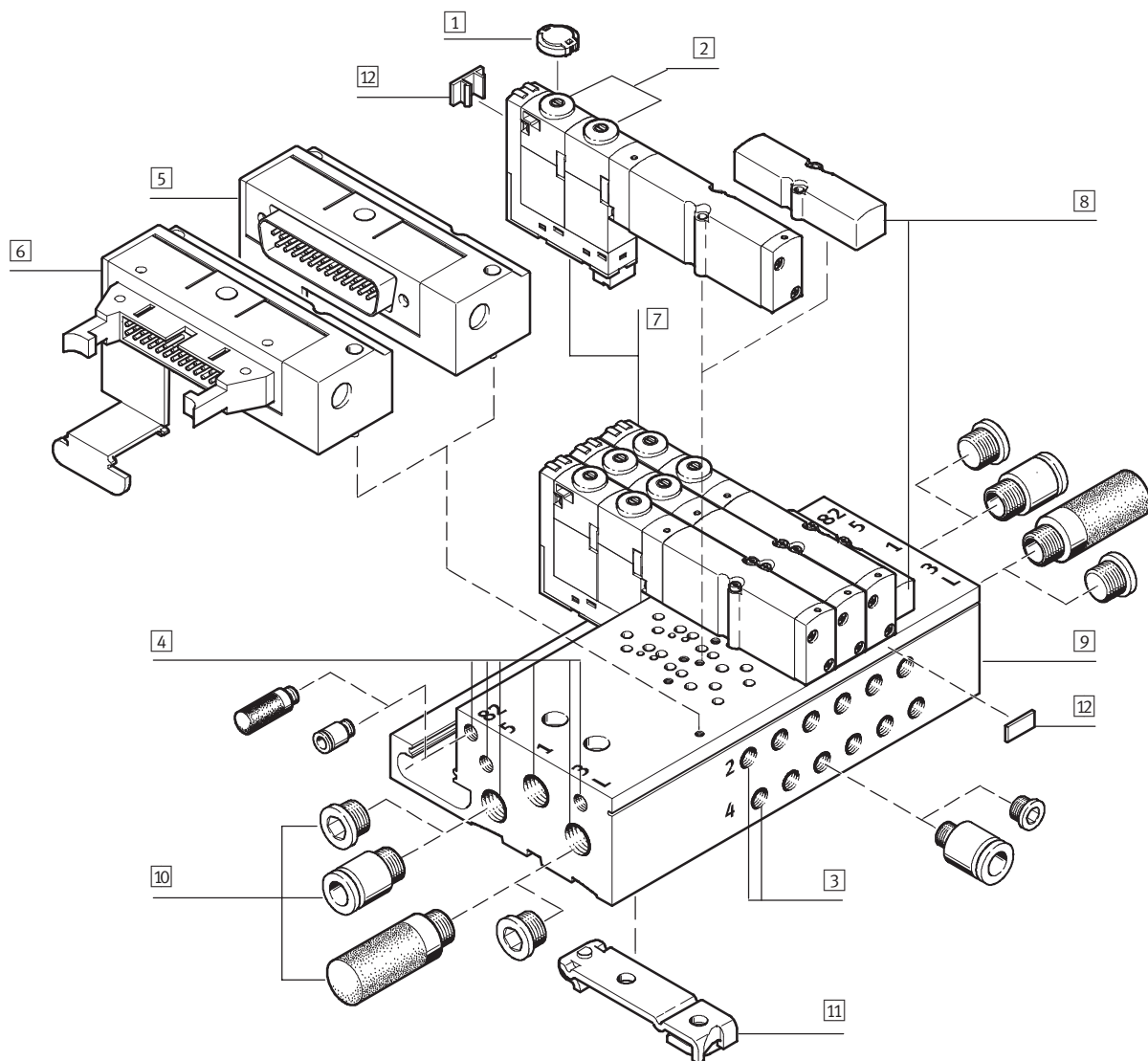
- 25-pin Sub-D multi-pin plug connection
Code: MS
- or
- 26-pin multi-pin plug connection with connector for flat cable
Code: MF

Valve terminals with electrical multi-pin plug connection are available in sizes for 2 to max. 20 valve positions (code: MS) or for 4 to max. 20 valve positions (code: MF). Each valve position can either be equipped with a valve or a blanking plate.

A maximum of 20 valve solenoid coils can be actuated via the electrical multi-pin plug connection.

The electrical connection is located on the left-hand side. It can be rotated by 90°, thereby allowing flush mounting of the system.

CPA-SC valve terminal with sub-base valves



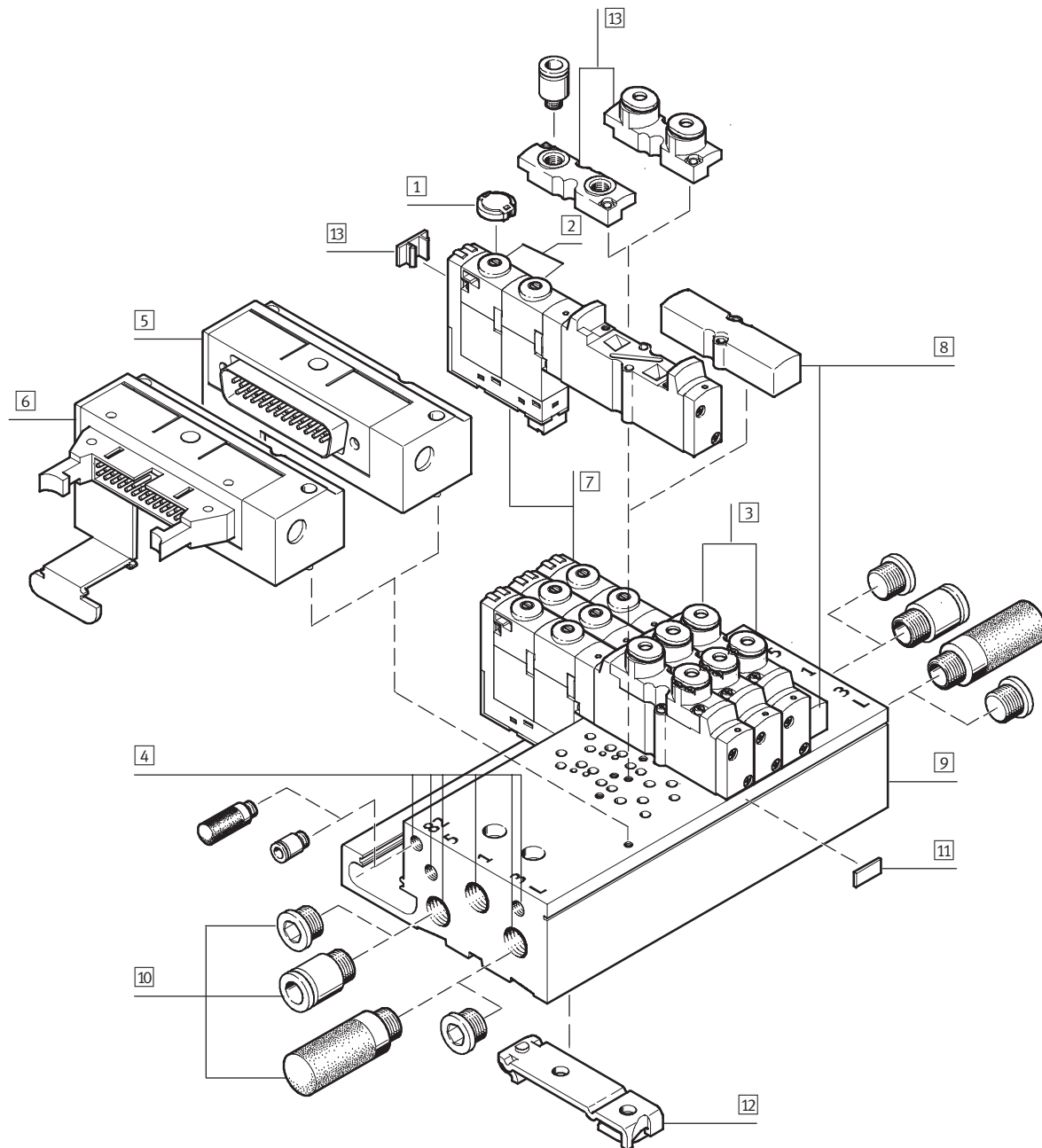
- | | | | |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------|
| 1 Cover for manual override (optional) | 4 Supply ports (1, 12/14), exhaust ports (3, 5, 82/84) and pressure compensating port (L) on the left-hand and right-hand side of the manifold block | 6 Multi-pin plug connection with connector for flat cable | 9 Manifold block for sub-base valves |
| 2 Manual override (per solenoid coil, push-in/rotary-detenting) | 5 Multi-pin plug connection Sub-D | 7 Valve | 10 Connectors, silencers and blanking plugs |
| 3 Working lines (2, 4) on the manifold block (per valve position) | | 8 Cover for vacant position (blanking plate) | 11 H-rail mounting |
| | | | 12 Inscription labels |

Valve terminal type 82 CPA-SC, Smart Cubic

Peripherals overview

FESTO

CPA-SC valve terminal with semi in-line valves



- | | | | |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------|
| 1 Cover for manual override (optional) | 4 Supply ports (1, 12/14), exhaust ports (3, 5, 82/84) and pressure compensating port (L) on the left-hand and right-hand side of the manifold block | 6 Multi-pin plug connection with connector for flat cable | 10 Connectors, silencers and blanking plugs |
| 2 Manual override (per solenoid coil, push-in/rotary-detenting) | 5 Multi-pin plug connection Sub-D | 7 Valve | 11 Inscription labels |
| 3 Working lines (2, 4) on the valve | | 8 Cover for vacant position (blanking plate) | 12 H-rail mounting |
| | | 9 Manifold block for semi in-line valves | 13 Pneumatic connection plates for semi in-line valves |

Valve terminal type 82 CPA-SC, Smart Cubic

Peripherals overview

FESTO

Application-optimised valve terminals
Smart Cubic

3.1

Overview – CPA-SC valve terminal

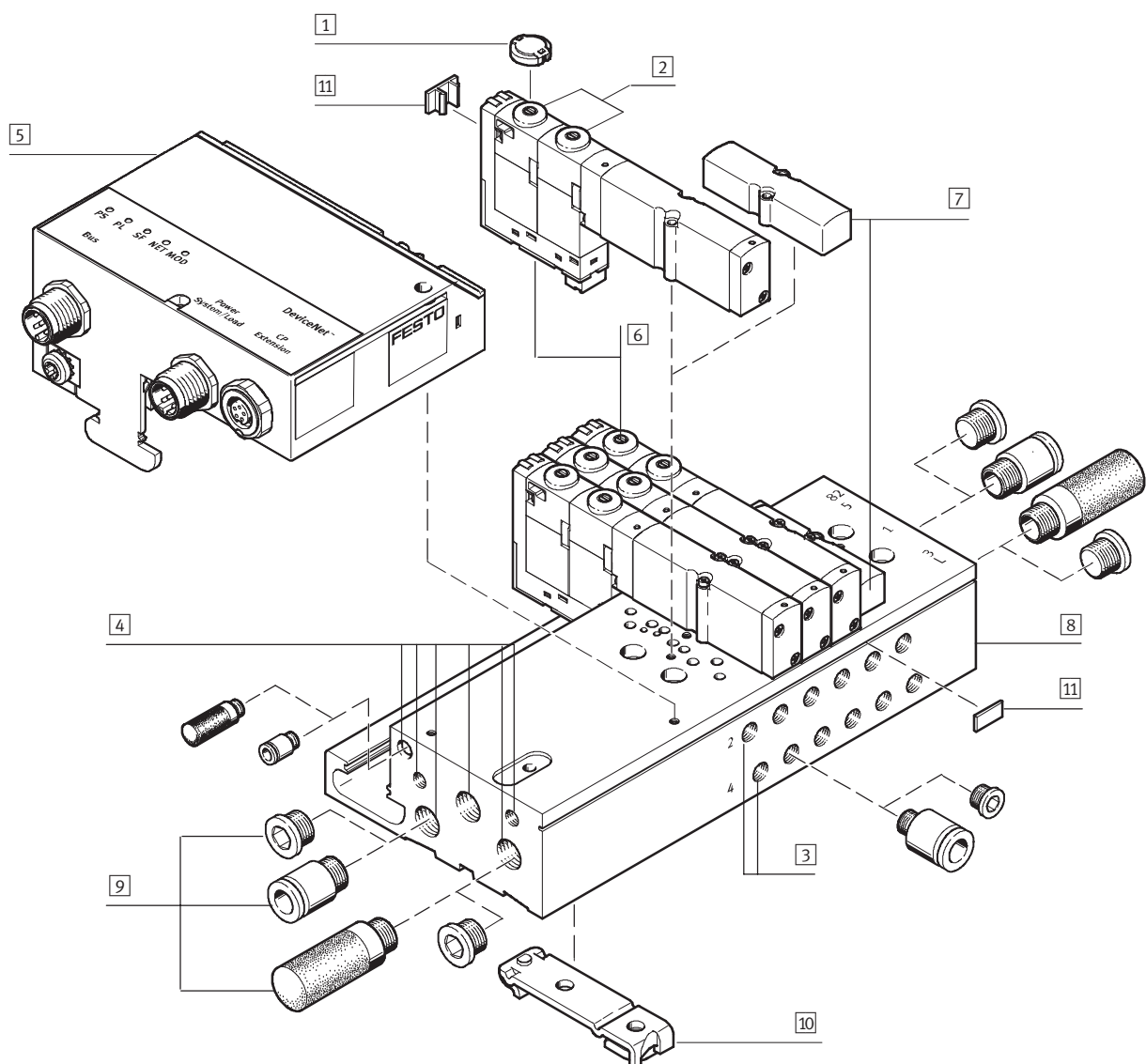
Valve terminal with Fieldbus Direct

Valve terminals with fieldbus connection are available in sizes for 4 to max. 24 valve positions.

Each valve position can either be equipped with a valve or a blanking plate.

A maximum of 32 valve solenoid coils can be actuated via the fieldbus connection.

CPA-SC valve terminal with sub-base valves

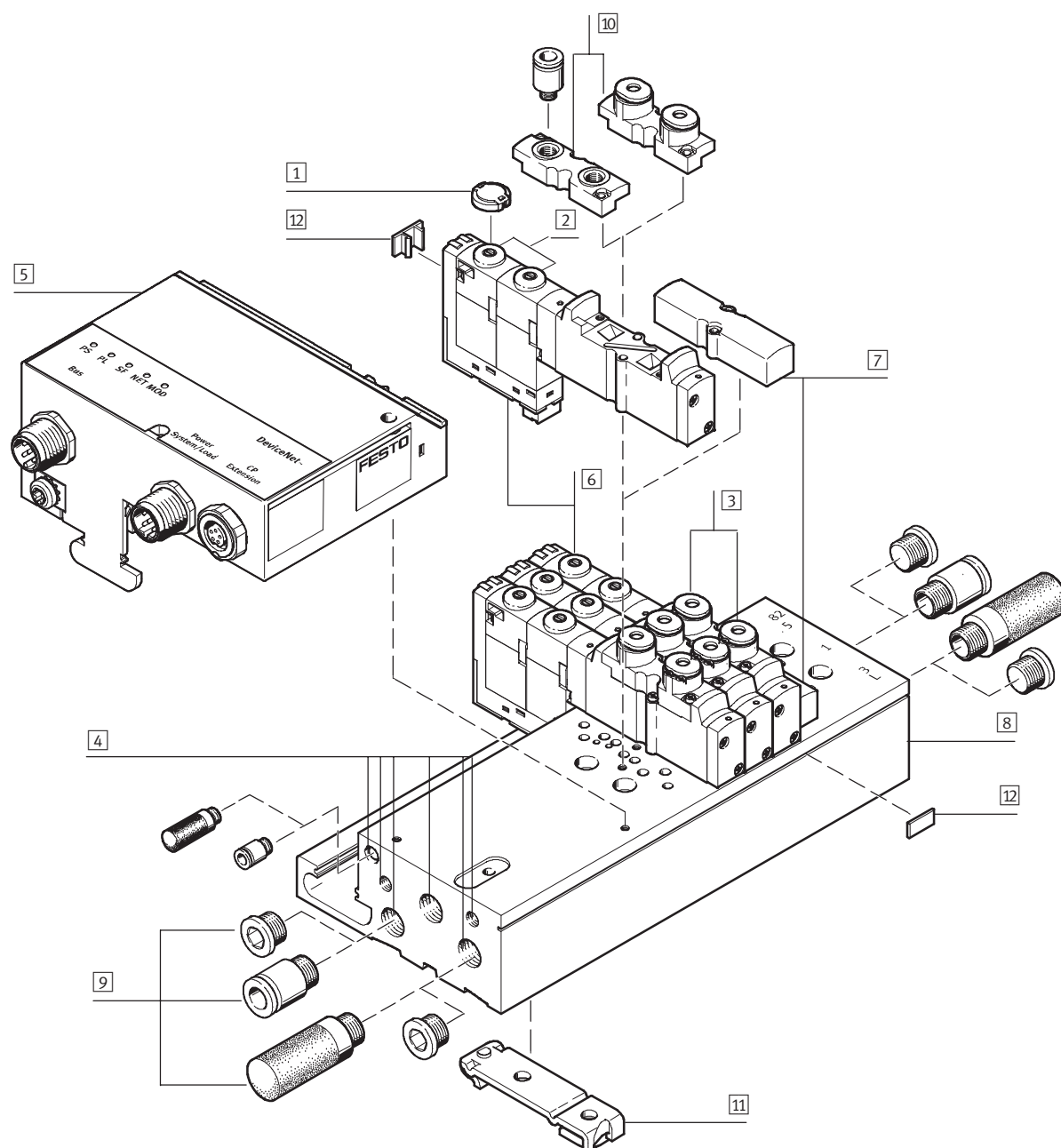


- | | | | |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------------------------|
| 1 Cover for manual override (optional) | 4 Supply ports (1, 12/14), exhaust ports (3, 5, 82/84) and pressure compensating port (L) on the left-hand and right-hand side of the manifold block | 6 Valve | 9 Connectors, silencers and blanking plugs |
| 2 Manual override (per solenoid coil, push-in/rotary-detenting) | 5 Fieldbus Direct | 7 Cover for vacant position (blanking plate) | 10 H-rail mounting |
| 3 Working lines (2, 4) on the manifold block (per valve position) | | 8 Manifold block for sub-base valves | 11 Inscription labels |

Valve terminal type 82 CPA-SC, Smart Cubic

Peripherals overview

CPA-SC valve terminal with semi in-line valves



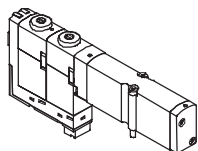
- | | | | |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------------------------------------|
| 1 Cover for manual override (optional) | 4 Supply ports (1, 12/14), exhaust ports (3, 5, 82/84) and pressure compensating port (L) on the left-hand and right-hand side of the manifold block | 6 Valve | 9 Connectors, silencers and blanking plugs |
| 2 Manual override (per solenoid coil, push-in/rotary-detenting) | 5 Fieldbus Direct | 7 Cover for vacant position (blanking plate) | 10 Pneumatic connection plates for semi in-line valves |
| 3 Working lines (2, 4) on the valve | | 8 Manifold block for semi in-line valves | 11 H-rail mounting |
| | | | 12 Inscription labels |

Valve terminal type 82 CPA-SC, Smart Cubic

Key features – Pneumatic components

Valves

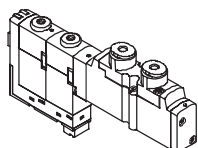
Sub-base valve



Sub-base valves can be quickly replaced since the pipe connection remains on the manifold block.

This design is also particularly flat.

Semi in-line valve (with working ports on the valve)



With semi in-line valves the pneumatic connection are on the top. This means that elbow connectors are not needed.

There are sub-base valves and semi in-line valves with one solenoid coil (single solenoid) or with two solenoid coils (double solenoid) irrespective of the valve function.

Blanking plate

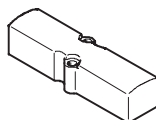


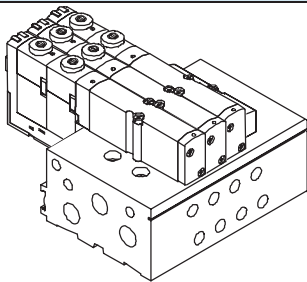
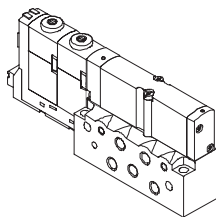
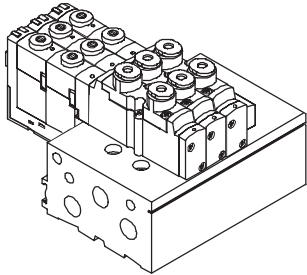
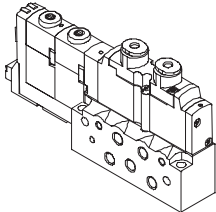
Plate without valve function for reserving valve positions on a valve terminal.

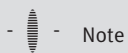
Valve sub-bases and blanking plates are attached to the manifold block using two screws.

Valve terminal type 82 CPA-SC, Smart Cubic

Key features – Pneumatic components

FESTO

Manifold blocks			
Manifold block		Number of valve positions	Manifold block connections
Code A – Working lines (2, 4) on the manifold block			
Manifold block for sub-base valves and blanking plates		2 ... 20	<ul style="list-style-type: none">• With working lines (2, 4), M5 threaded hole• With ports for supply air (1, 12/14) and exhaust air (3, 5, 82/84)• With pressure compensating port (L)
Individual block for sub-base valve		1	
Code P – Working lines (2, 4) on the valve			
Manifold block for semi in-line valves and blanking plates		2 ... 20	<ul style="list-style-type: none">• No working lines• With ports for supply air (1, 12/14) and exhaust air (3, 5, 82/84)• With pressure compensating port (L)
Individual block for semi in-line valve		1	



Note

Semi in-line valves can also be mounted on manifold blocks for sub-base valves. In this case the corresponding working ports on the manifold block must be sealed using blanking plugs.

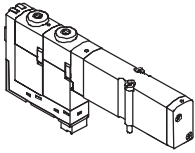
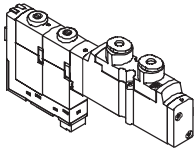
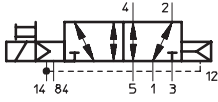
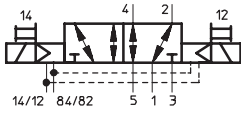
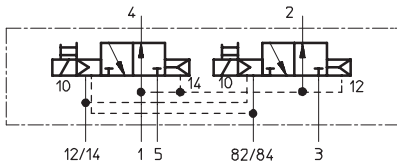
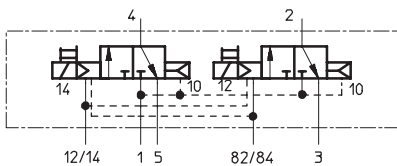
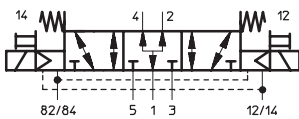
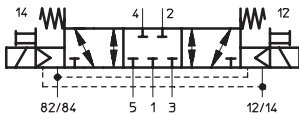
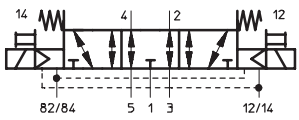
The compressed air supply and exhaust air supply for the valve terminal can either be on the left-hand side or the right-hand side of the valve terminal. Supply at both sides is also possible. Ports that are not required must be sealed with a blanking plug.

An individual block is the ideal solution in cramped space conditions. All available valve types can be used with this block type.

Valve terminal type 82 CPA-SC, Smart Cubic

Key features – Pneumatic components

FESTO

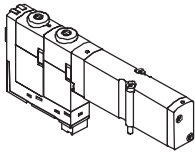
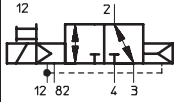
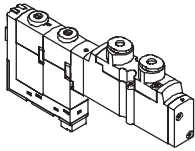
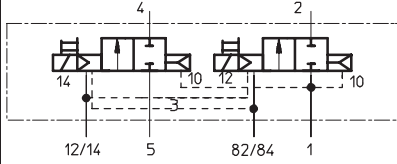
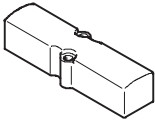
Valves	Code	Circuit symbol	Size 10	Description
 	M		■	5/2-way valve, single solenoid • Pneumatic spring return
	J		■	5/2-way valve, double solenoid
	N		■	2x 3/2-way valve, single solenoid • Normally open • Pneumatic spring return
	K		■	2x 3/2-way valve, single solenoid • Normally closed • Pneumatic spring return
	B		■	5/3-way valve • Mid-position pressurised ¹⁾ • Spring force return The piston rod of a connected cylinder advances when the valve is in the normal position due to the differential piston areas.
	G		■	5/3-way valve • Mid-position closed ¹⁾ • Spring force return The piston rod side of a cylinder remains held under pressure in the normal valve position.
	E		■	5/3-way valve • Mid-position exhausted ¹⁾ • Spring force return The piston rod of a connected cylinder can be moved freely in the normal valve position.

1) If neither of the two solenoid coils is energized, the valve will assume mid-position due to spring pressure.
If both solenoid coils are energized simultaneously, the valve will remain in its switch position.

Valve terminal type 82 CPA-SC, Smart Cubic

Key features – Pneumatic components

FESTO

Valves				
	Code	Circuit symbol	Size 10	Description
	X		■	1x 3/2-way valve <ul style="list-style-type: none"> • Normally closed • external compressed air supply • Pneumatic spring return Compressed air (–0.9 ... +10 bar) supplied at working port 4 can be switched.
	I		■	2x 2/2-way valve <ul style="list-style-type: none"> • Normally closed (operating pressure at 1 or 5) • dual compressed air supply (e.g. for vacuum switching with ejector pulse) • Pneumatic spring return <ul style="list-style-type: none"> – The vacuum is connected at port 5 – Port 14 switches the vacuum – Port 12 switches the ejector pulse – An external T-connection must be established between port 2, 4 and the vacuum generator
	L		■	Blanking plate for vacant position For valve terminal only

Design


Valve replacement

The valves are attached to the metal manifold block using two screws. This means that they can be easily replaced. The mechanical robustness of the manifold block guarantees good long-term sealing tightness.

Extension

Vacant positions can be replaced by valves at a later date. The dimensions, mounting points and existing pneumatic installations remain unchanged by this.

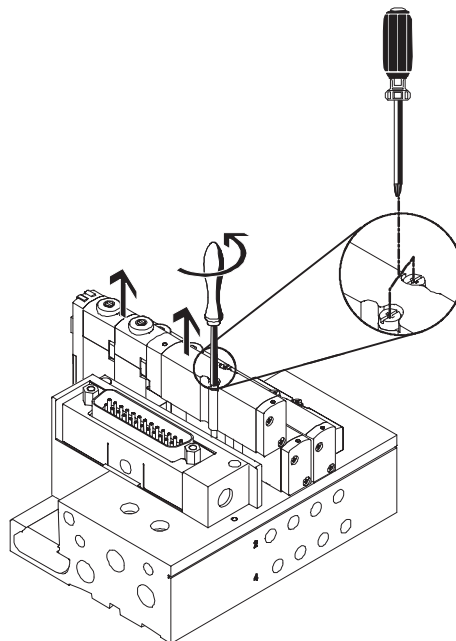
The valve code (M, J, N, K, B, G, E, X, I) is located on the front of the valve beneath the manual override.

–  – Note

Plug-in versions

If a vacant position is replaced by a valve, a plug-in socket must also be ordered and inserted into the slot.

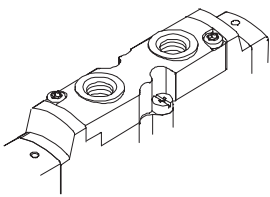
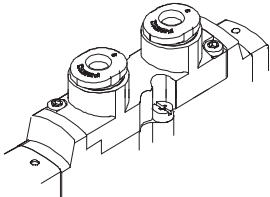
When ordering a HC terminal, you must determine the number and length of connecting cable you need and specify them in the order code.



Valve terminal type 82 CPA-SC, Smart Cubic

Key features – Pneumatic components

FESTO

Working port		
	Code	Description
	B	M5 threaded connection
	E	QS-3 push-in fitting
	F	QS-4 push-in fitting

Pneumatic connection

Supply and exhaust

The valves are supplied with compressed air via various valve terminal manifold blocks or individual blocks.

These contain common lines for compressed air supply, exhausting and pilot exhausts from all valves.

The common lines on a CPA-SC valve terminal can be connected

- at the left (code L)
- at the right (code R) or
- at both ends (code B)

Pilot air

The CPA-SC valve terminal is suitable for internal or external pilot air.
Graphs → 4 / 3.1-59

Internal pilot air

If the supply pressure for your CPA-SC valve terminal is between 3 and 8 bar, it can be operated with internally distributed pilot air. Pilot air is branched at the left-hand end plate of port 1 for this purpose.

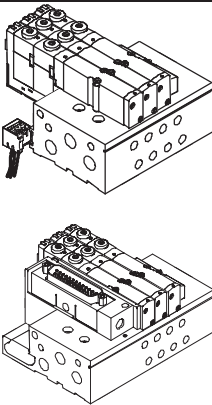
External pilot air

If the supply pressure for your CPA-SC valve terminal is between -0.9 and +10 bar, it must be operated with external pilot air. The pilot air is supplied via port 12/14 in this case.

Valve terminal type 82 CPA-SC, Smart Cubic

Key features – Pneumatic components

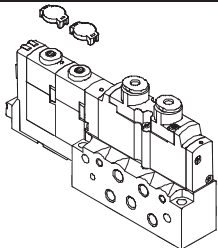
FESTO

Pneumatic supply						
With CPA-SC valve terminal	Code	Connection	Ports for supply and exhaust			
			Designation	Code H QS connection metric, 8 mm Type	Code D Threaded connection G1/8 Type	
	Compressed air supplied by means of internal pilot air, exhausting via silencer					
	S	1	Compressed air/vacuum supply	Push-in fitting	QS-G1/8-8-I	–
		3/5	Exhaust	Silencer	UC-1/8	–
		12/14	Pilot air	–	–	–
		82/84	Exhaust for pilot air	Silencer	UC-M5	–
		L	Pressure compensation	Silencer	UC-M5	–
	Compressed air supplied via external pilot air, exhausting via silencer					
	T	1	Compressed air/vacuum supply	Push-in fitting	QS-G1/8-8-I	–
		3/5	Exhaust	Silencer	UC-1/8	–
		12/14	Pilot air	Push-in fitting	QSM-M5-4-I	–
		82/84	Exhaust for pilot air	Silencer	UC-M5	–
		L	Pressure compensation	Silencer	UC-M5	–
	Compressed air supplied by means of internal pilot air, ducted exhaust					
	V	1	Compressed air/vacuum supply	Push-in fitting	QS-G1/8-8-I	–
		3/5	Exhaust	Push-in fitting	QS-G1/8-8-I	–
		12/14	Pilot air	–	–	–
		82/84	Exhaust for pilot air	Push-in fitting	QSM-M5-4-I	–
		L	Pressure compensation	Silencer	UC-M5	–
	Compressed air supplied via external pilot air, ducted exhaust					
	X	1	Compressed air/vacuum supply	Push-in fitting	QS-G1/8-8-I	–
		3/5	Exhaust	Push-in fitting	QS-G1/8-8-I	–
		12/14	Pilot air	Push-in fitting	QSM-M5-4-I	–
		82/84	Exhaust for pilot air	Push-in fitting	QSM-M5-4-I	–
		L	Pressure compensation	Silencer	UC-M5	–

Valve terminal type 82 CPA-SC, Smart Cubic

Key features – Pneumatic components

FESTO

Pneumatic supply						
With CPA-SC individual block	Code	Connection	Ports for supply and exhaust			
			Designation	Code B Threaded connection M5 Type	Code F Push-in fitting QS4 Type	
	Compressed air supplied by means of internal pilot air, exhausting via silencer					
	S	1	Compressed air/vacuum supply	Push-in fitting	–	QSM-M5-4-I
		3/5	Exhaust	Silencer	–	UC-M5
		12/14	Pilot air	–	–	–
		82/84	Exhaust for pilot air	Silencer	–	U-M3
		L	Pressure compensation	Silencer	–	U-M3
	Compressed air supplied via external pilot air, exhausting via silencer					
	T	1	Compressed air/vacuum supply	Push-in fitting	–	QSM-M5-4-I
		3/5	Exhaust	Silencer	–	UC-M5
		12/14	Pilot air	Push-in fitting	–	QSM-M3-3-I
		82/84	Exhaust for pilot air	Silencer	–	U-M3
		L	Pressure compensation	Silencer	–	U-M3
	Compressed air supplied by means of internal pilot air, ducted exhaust					
	V	1	Compressed air/vacuum supply	Push-in fitting	–	QSM-M5-4-I
		3/5	Exhaust	Push-in fitting	–	QSM-M5-4-I
		12/14	Pilot air	–	–	–
		82/84	Exhaust for pilot air	Push-in fitting	–	QSM-M3-3-I
		L	Pressure compensation	Silencer	–	U-M3
	Compressed air supplied via external pilot air, ducted exhaust					
	X	1	Compressed air/vacuum supply	Push-in fitting	–	QSM-M5-4-I
		3/5	Exhaust	Push-in fitting	–	QSM-M5-4-I
		12/14	Pilot air	Push-in fitting	–	QSM-M3-3-I
		82/84	Exhaust for pilot air	Push-in fitting	–	QSM-M3-3-I
		L	Pressure compensation	Silencer	–	U-M3

Note

The port L compensates the pressure between moving parts inside the valve and the surrounding environment.

A silencer protects against contamination.
The port L must not be sealed by blanking plugs at both ends.

Valve terminal type 82 CPA-SC, Smart Cubic

Key features – Pneumatic components



Using pressure zones

The CPA-SC valve terminal can be operated with a maximum of 2 pressure zones, supplied either from the left or from the right.

Pressure zones are created by means of separator elements that can be used in the following ducts:

- Supply duct 1 (code T) and
- Exhaust duct 3 (code V) or
- Exhaust duct 5 (code W) or
- Exhaust duct 3 and 5 (code R)

Note

The addition of a separator element results in the following valve sub-bases being supplied with less compressed air:

- Valve sub-base at the valve position in which the locating pin is inserted
- Valve sub-bases on the two adjacent valve positions

Duct separation

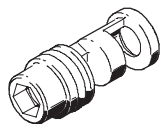
	Code	Description
	T	Duct 1 closed
	V	Duct 3 closed
	W	Duct 5 closed
	R	Duct 3/5 closed

- 1 Pressure zone 1
- 2 Pressure zone 2

Note

The separator element can also be mounted subsequently using an Allen key. An assembly tool for long terminals is available as an accessory.

Separator element CPA-SC-KT



Valve terminal type 82 CPA-SC, Smart Cubic

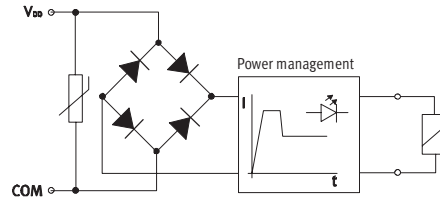
Key features – Electrical components

FESTO

Electrical power as a result of current reduction

Each valve solenoid coil is protected with a spark arresting protective circuit as well as against polarity reversal.

All valve types are additionally equipped with integrated current reduction.



Individual electrical connection

With an individual electrical connection, the plug is connected directly to the valve.

Two individual electrical connection types are available for the valve terminal and for the individual block:

- Horizontal connection (HC) or
- Plug-in (PI)



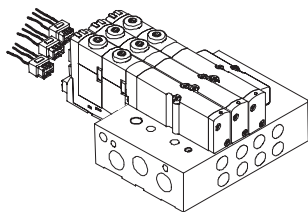
Note

Connecting cables with 2- or 3-wires are available for single solenoid valves with one solenoid coil or double solenoid valves with two solenoid coils.

Individual electrical connection – Horizontal connection (HC)

Valve on valve terminal

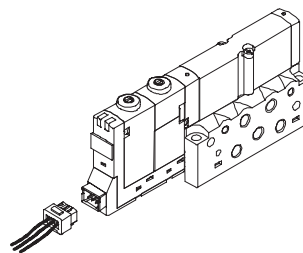
Code IH



The valve terminal can be configured with 2 to max. 16 valve positions. This means that max. 32 valve solenoid coils can be actuated with this type of electrical connection. The horizontal connection (HC) must be removed when replacing the valve.

Valve on individual block

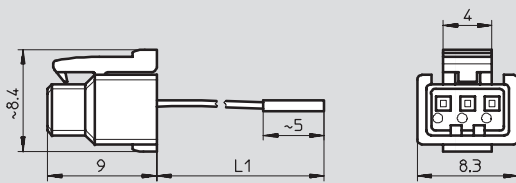
Code SH



With the individual block, the electrical connection can be plugged in directly on the valve.

Dimensions – Horizontal connection (HC)

Download CAD data → www.festo.com/en/engineering



Type	Code	L1 Cable length [m]	Number of valve solenoid coils	Cable colour		
				Pin 1 Common	Pin 2 Solenoid coil 12	Pin 3 Solenoid coil 14
KMH-0,5	CH	0.5	1 coil	black	–	red
KMH-1	CI	1	1 coil	black	–	red
KMH-2,5	CJ	2.5	1 coil	black	–	red
KMH-5	CK	5	1 coil	black	–	red
KMH-D-0,5	CD	0.5	2 coils	black	blue	red
KMH-D-1	CE	1	2 coils	black	blue	red
KMH-D-2,5	CF	2.5	2 coils	black	blue	red
KMH-D-5	CG	5	2 coils	black	blue	red

Valve terminal type 82 CPA-SC, Smart Cubic

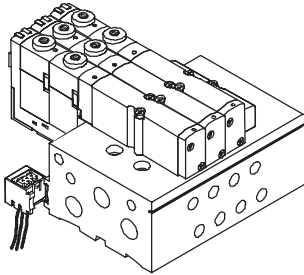
Key features – Electrical components

FESTO

Individual electrical connection – Plug-in (PI)

Valve on valve terminal

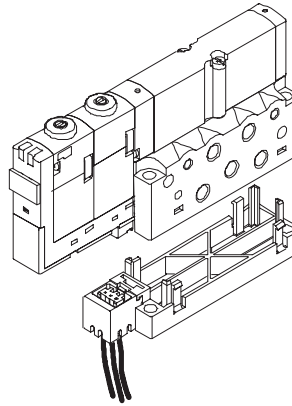
Code IP, IQ



The valve terminal can be configured with 2 to max. 16 valve positions. This means that max. 32 valve solenoid coils can be actuated with this type of electrical connection. The connector plug is inserted into the slot on the manifold block. To replace a valve or extend the terminal (vacant position), all you need do is loosen two screws; the connector plug remains in the slot.

Valve on individual block

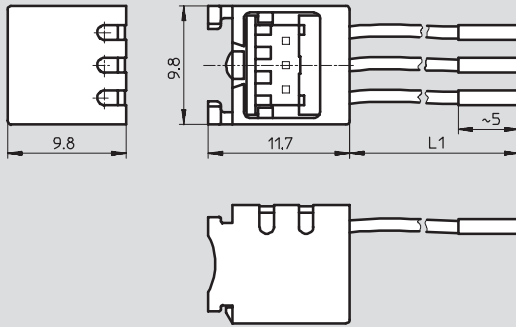
Code SP, SQ



With this electrical connection variant, the connector plug is mounted on an adapter. This adapter is then attached to the individual block.

Dimensions – Plug-in (PI) connection

Download CAD data → www.festo.com/en/engineering



Type	Code	L1 Cabel length [m]	Number of valve solenoid coils	Cable colour		
				Pin 1 Common	Pin 2 Solenoid coil 12	Pin 3 Solenoid coil 14
MHAP-PI	–	0.5	1 coil	black	–	red
MHAP-PI-1	–	1	1 coil	black	–	red
MHAP-PI-D-0,5	–	0.5	2 coils	black	blue	red
MHAP-PI-D-1	–	1	2 coils	black	blue	red

Valve terminal type 82 CPA-SC, Smart Cubic

Key features – Electrical components

FESTO

Electrical multi-pin plug connection

The following multi-pin plug connection types are offered for the valve terminal CPA-SC:

- Sub-D multi-pin plug connection (25-pin) or
- Multi-pin plug connection with connector for flat cable (26-pin)

Pins 1 ... 20 are used for coils 1 ... 20 in order. If there are fewer than 20 coils on the valve terminal, the remaining pins up to 20 are left free. Pins 21 and up are reserved for neutral conductors. Four solenoid coils are always combined on one neutral conductor.

This means that individual valve groups can be switched off separately or a mixture of NPN- and PNP-switching valves achieved.

Each pin on the multi-pin plug can activate just one valve solenoid coil. If the max. configurable number of valve positions is 20, this means that 20 valves each with a single solenoid can be addressed.

With 10 or less valve positions, 2 valve solenoid coils per valve can be addressed. With 12 or more valve positions, the number of available valve positions for valves with two solenoid coils decreases (→ table below).

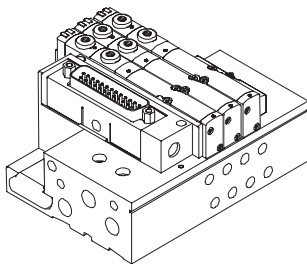
Example:

With 16 valve positions, valves with one or two solenoid coils can be actuated on the first four (0 ... 3) positions. Valves with just one solenoid coil are permissible at positions 4 ... 15.

Address/ solenoid coil	Number of the valve position																			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1				
20	2	2	2	2	2	2	2	2	1	1	1	1								
20	2	2	2	2	2	2	2	2	2	2										
16	2	2	2	2	2	2	2	2												
12	2	2	2	2	2	2														
8	2	2	2	2																

Electrical multi-pin plug connection – Sub-D

Code MS

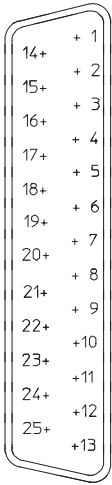


With this electrical connection variant, all valves are centrally actuated via the 25-pin connector plug. The electrical connection is located on the left-hand side and can be rotated by 90°.

Valve terminal type 82 CPA-SC, Smart Cubic

Key features – Electrical components

FESTO

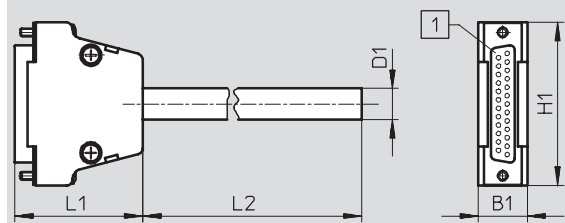
Pin allocation – Connector for Sub-D, 25-pin cable												
	Pin	Address/ solenoid coil	Core colour ²⁾		Valve positions ¹⁾							
			KMP6-25P-12	KMP6-25P-20	2	4	6	8	10	12	16	20
			Valve position no./coil designation									
	1	0	WH	WH	0/14	0/14	0/14	0/14	0/14	0/14	0/14	0/14
	2	1	BN	BN	0/12	0/12	0/12	0/12	0/12	0/12	0/12	1/14
	3	2	GN	GN	1/14	1/14	1/14	1/14	1/14	1/14	1/14	2/14
	4	3	YE	YE	1/12	1/12	1/12	1/12	1/12	1/12	1/12	3/14
	5	4	GY	GY		2/14	2/14	2/14	2/14	2/14	2/14	4/14
	6	5	PK	PK		2/12	2/12	2/12	2/12	2/12	2/12	5/14
	7	6	BU	BU		3/14	3/14	3/14	3/14	3/14	3/14	6/14
	8	7	RD	RD		3/12	3/12	3/12	3/12	3/12	3/12	7/14
	9	8	BK	BK			4/14	4/14	4/14	4/14	4/14	8/14
	10	9	VT	VT			4/12	4/12	4/12	4/12	5/14	9/14
	11	10	GY PK	GY PK			5/14	5/14	5/14	5/14	6/14	10/14
	12	11	RD BU	RD BU			5/12	5/12	5/12	5/12	7/14	11/14
	13	12	–	WH GN				6/14	6/14	6/14	8/14	12/14
	14	13	–	BN GN				6/12	6/12	6/12	9/14	13/14
	15	14	–	WH YE				7/14	7/14	7/14	10/14	14/14
	16	15	–	YE BN				7/12	7/12	7/12	11/14	15/14
	17	16	–	WH GN				8/14	8/14	8/14	12/14	16/14
	18	17	–	BN GN				8/12	9/14	13/14	17/14	17/14
	19	18	–	WH YE				9/14	10/14	14/14	18/14	18/14
	20	19	–	YE BN				9/12	11/14	15/14	19/14	19/14
	21	com	–	WH BU	Coil 16 ... 19							
	22	com	–	BN BU	Coil 12 ... 15							
	23	com	WH GN	WH RD	Coil 8 ... 11							
	24	com	BN DN	BN RD	Coil 4 ... 7							
	25	com	WH YE	WH BK	Coil 0 ... 3							
No. of solenoid coils					4	8	12	16	20	20	20	20

1) Shown against a grey background: Valve positions for actuation of 2 coils

2) As per IEC 757

Dimensions – Sub-D plug with cable

Download CAD data → www.festo.com/en/engineering



1 25-pin plug

Type	Code	B1 [mm]	D1 [mm]	H1 [mm]	L1 [mm]	L2 [m]
KMP6-25P-20-2,5	CP	16	10.3	53.4	37.7	2.5
KMP6-25P-20-5	CQ	16	10.3	53.4	37.7	5
KMP6-25P-20-10	CR	16	10.3	53.4	37.7	10
KMP6-25P-12-2,5	CV	16	8.5	53.4	37.7	2.5
KMP6-25P-12-5	CW	16	8.5	53.4	37.7	5
KMP6-25P-12-10	CX	16	8.5	53.4	37.7	10

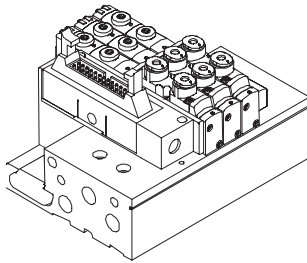
Valve terminal type 82 CPA-SC, Smart Cubic

Key features – Electrical components

FESTO

Electrical multi-pin plug connection – Connector for flat cable

Code MF



With this electrical connection variant, all valves are centrally actuated via the 26-pin connector plug. The electrical connection is located on the left-hand side and can be rotated by 90°.

The connection is intended for flat cables as per EN 60603-13, cross-sectional diameter AWG26.

Pin allocation – Connector for flat cable									
	Pin	Address/ solenoid coil	Valve positions ¹⁾						
			4	6	8	10	12	16	20
			Valve position no./coil designation						
	1	0	0/14	0/14	0/14	0/14	0/14	0/14	0/14
	2	1	0/12	0/12	0/12	0/12	0/12	0/12	1/14
	3	2	1/14	1/14	1/14	1/14	1/14	1/14	2/14
	4	3	1/12	1/12	1/12	1/12	1/12	1/12	3/14
	5	4	2/14	2/14	2/14	2/14	2/14	2/14	4/14
	6	5	2/12	2/12	2/12	2/12	2/12	2/12	5/14
	7	6	3/14	3/14	3/14	3/14	3/14	3/14	6/14
	8	7	3/12	3/12	3/12	3/12	3/12	3/12	7/14
	9	8		4/14	4/14	4/14	4/14	4/14	8/14
	10	9		4/12	4/12	4/12	4/12	5/14	9/14
	11	10		5/14	5/14	5/14	5/14	6/14	10/14
	12	11		5/12	5/12	5/12	5/12	7/14	11/14
	13	12			6/14	6/14	6/14	8/14	12/14
	14	13			6/12	6/12	6/12	9/14	13/14
	15	14			7/14	7/14	7/14	10/14	14/14
	16	15			7/12	7/12	7/12	11/14	15/14
	17	16				8/14	8/14	12/14	16/14
	18	17				8/12	9/14	13/14	17/14
	19	18				9/14	10/14	14/14	18/14
	20	19				9/12	11/14	15/14	19/14
	21 (free)	–	–						
	22	com	Coil 16 ... 19						
	23	com	Coil 12 ... 15						
	24	com	Coil 8 ... 11						
	25	com	Coil 4 ... 7						
	26	com	Coil 0 ... 3						
No. of solenoid coils			8	12	16	20	20	20	20

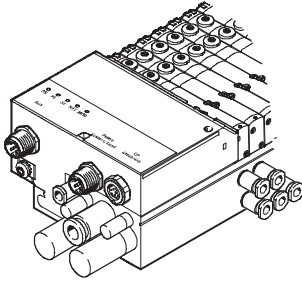
1) Shown against a grey background: Valve positions for actuation of 2 coils

Valve terminal type 82 CPA-SC, Smart Cubic

Key features – Electrical components

FESTO

Fieldbus Direct



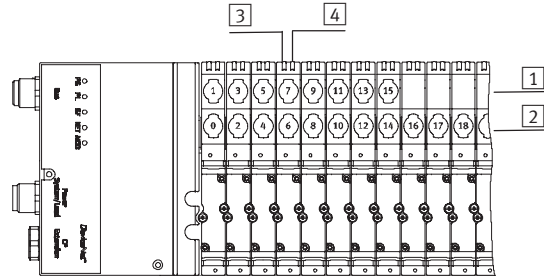
Fieldbus Direct is a system for the compact connection of a valve terminal of various size to different fieldbus standards.

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

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

➔ Info 221 CP installation system

Address allocation – Solenoid coils



- 1 Valve solenoids 12
- 2 Valve solenoids 14
- 3 LED valve solenoid 12
- 4 LED valve solenoid 14

The addresses of the valve solenoids on the CPA-SC-DN are allocated from left to right, while the addresses of the individual valve positions are allocated from front to back.

Example:

Valve terminal where the first 8 valve positions are prepared for 2 solenoids each.

Each valve position can actuate one or two solenoid coils depending on the configuration (number of valve positions and internal wiring). It then occupies one or two addresses. The internal wiring cannot be changed subsequently.

The number of addresses each valve position occupies has nothing to do with what is actually mounted on the valve position (valve, blanking plate).

If a valve position for 2 addresses is actually equipped with two solenoid coils, the following allocation applies:

- Valve solenoid 14 occupies the less significant address
- Valve solenoid 12 occupies the more significant address

If a valve position for 2 addresses is equipped with only one solenoid coil, the more significant address remains unused. The valve position occupies two addresses nonetheless.

Address/ solenoid coil	Number of the valve position																							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
32	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
32	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	–	–	–	–
32	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–
24	2	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–
20	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
16	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
12	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Valve terminal type 82 CPA-SC, Smart Cubic

Key features – Display and operation

FESTO

Display and operation – Multi-pin plug and individual valve connection

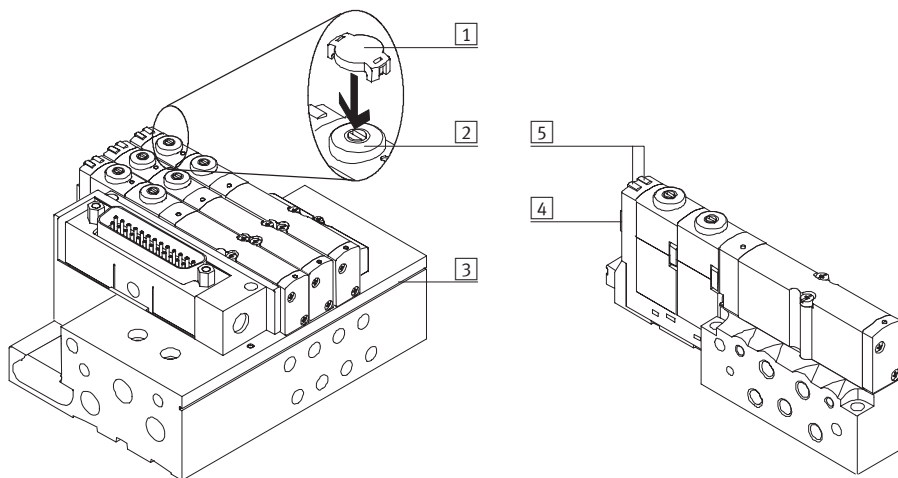
Each valve solenoid coil is allocated an LED which indicates its operating status. Inscription labels (type IBS-6x10) can be applied to each valve for labelling purposes. Alternatively inscription labels (type MH-BZ-80x) can also be affixed to the slot of the manifold block.

The manual override (MO) allows the valve to be switched when in the electrically non-activated or de-energised status. The valve is switched by pushing the manual override. The set switching status can also be secured by rotating the manual override.

A cover can be fitted over the manual override to prevent it from being actuated accidentally (code V).

 Note

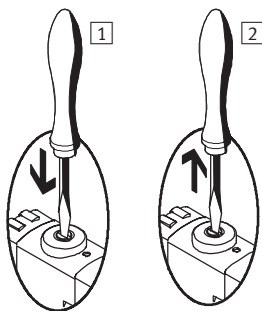
A manually actuated valve (manual override) cannot be reset electrically. Conversely, an electrically actuated valve cannot be reset using the mechanical manual override.



- 1 Cover for manual override (code V or accessory CPA-SC-MO-V)
- 2 Optional manual override (pushing and detenting via turning using a screwdriver)
- 3 Slot for inscription labels type MH-BZ-80x
- 4 Location for valve inscription label type IBS-6x10
- 5 LED signal status display per solenoid coil

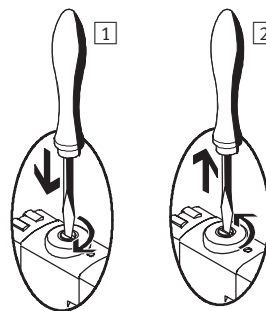
Manual override MO

Manual override with automatic return (push-in)



- 1 Press in the stem of the MO with a pin or screwdriver .
 > Valve is in switching position
- 2 Remove the blade of the screwdriver.
 Spring force pushes the stem of the MO back.
 > Valve returns to initial position (not with double solenoid valve code J).

Manual override with lock (turning with detent)



- 1 Press in the stem of the MO using a screwdriver until the valve switches and then turn the stem clockwise by 90° until the stop is reached.
 > Valve remains in switching position
- 2 Turn the stem anti-clockwise by 90° until the stop is reached and then remove the screwdriver.
 Spring force pushes the stem of the MO back.
 > Valve returns to initial position (not with double solenoid valve code J).

Valve terminal type 82 CPA-SC, Smart Cubic

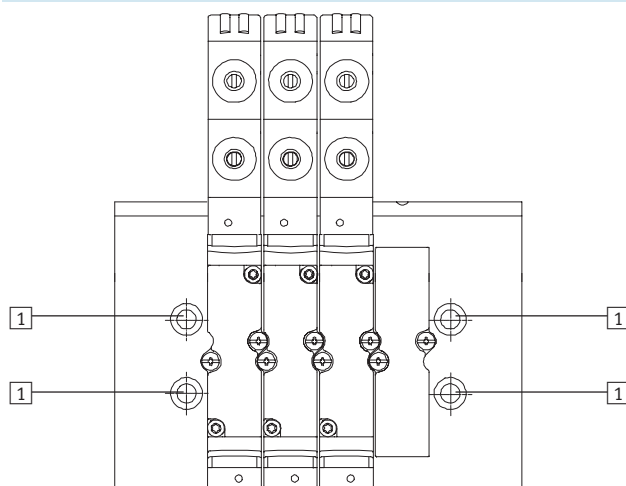
Key features – Mounting types

Mounting – Valve terminal

Sturdy terminal assembly thanks to:

- Four through-holes for wall mounting
- Integrated attachment for H-rail mounting

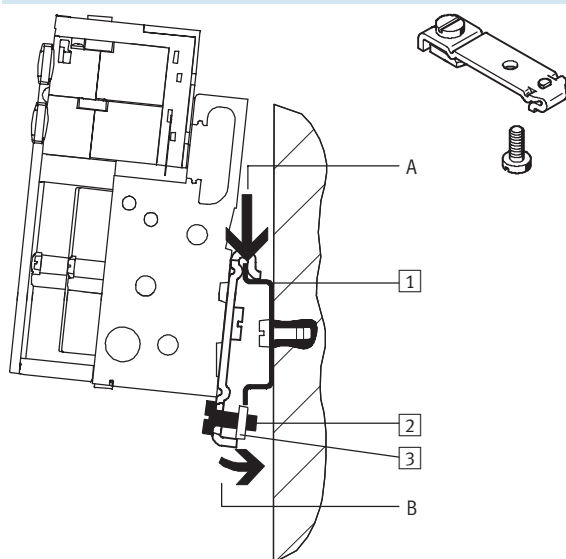
Wall mounting



The CPA-SC valve terminal is screwed onto the mounting surface using four M4 screws.

1 Holes for wall mounting

H-rail mounting



The CPA-SC valve terminal is attached to the H-rail (see arrow A). The CPA-SC valve terminal is then hinged on the H-rail and secured in place with the clamping component (see arrow B).

For H-rail mounting of the CPA valve terminal, you will need the mounting kit CPA-BG-NRH. This permits mounting of the valve terminal on an H-rail to EN 60715.

- 1 H-rail
- 2 Self-tapping M4x10 screw of the H-rail clamping unit
- 3 Clamping component of the H-rail clamping unit

Valve terminal type 82 CPA-SC, Smart Cubic

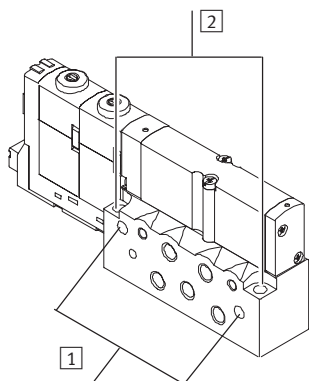
Key features – Mounting types

FESTO

Mounting – Individual block

The individual block for wall mounting is designed for integration into a system or machine.

Wall mounting



Mounting holes

- 1 horizontal mounting
- 2 vertical mounting


Valve terminal type 82 CPA-SC, Smart Cubic

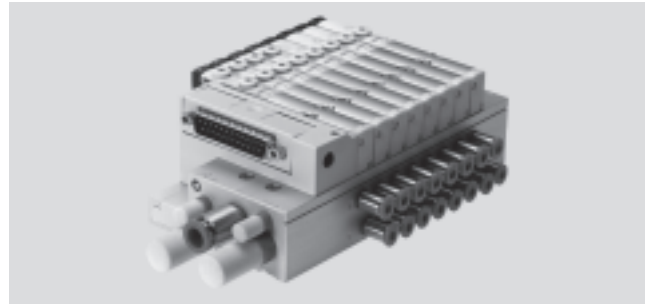
Technical data

FESTO

-  - Flow rate
150 l/min

-  - Width
10 mm

-  - Voltage
24 V DC



General technical data

Valve	5/2-way valve		2x 3/2-way valve		5/3-way valve			1x 3/2-way valve	2x 2/2-way valve
	Single solenoid	Double solenoid	Normally open	closed	Mid-position pressur- ised	closed	exhausted	Normally closed	closed
Valve function ordering code	M	J	N	K	B	G	E	X	I
Design	Electromagnetically actuated piston spool valve								
Width	[mm]	10							
Nominal diameter	[mm]	2.5							
Lubrication	Lubricated for life, PWIS-free (free of paint-wetting impairment substances)								
Type of mounting	Wall mounting								
	On H-rail to EN 60715								
Assembly position	Any								
Manual override	Pushing/detented by turning								
Pneumatic connections									
Pneumatic connection	Via manifold block, PRS manifold or individual connection								
Supply port	1	G1/8 (M5 with individual block)							
Exhaust port	3/5	G1/8 (M5 with individual block)							
Working lines	2/4	Depending on the connection type selected							
		• M5							
		• QS-3							
		• QS-4							
Pilot air port	12/14	M5 (M3 with individual block)							
Pilot exhaust air port	82/84	M5 (M3 with individual block)							
Pressure compensating port	L	M5, M3							

Valve terminal type 82 CPA-SC, Smart Cubic

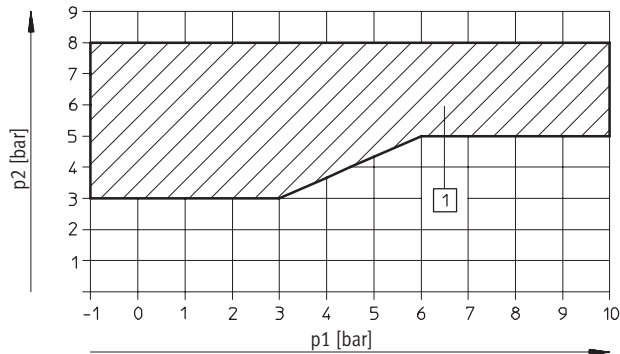
Technical data

FESTO

Operating pressure [bar]									
Valve function ordering code	M	J	N	K	B	G	E	X	I
With internal pilot air supply	+3 ... +8								
With external pilot air supply	-0.9 ... +10		+3 ... +10		-0.9 ... +10			+3 ... +10	

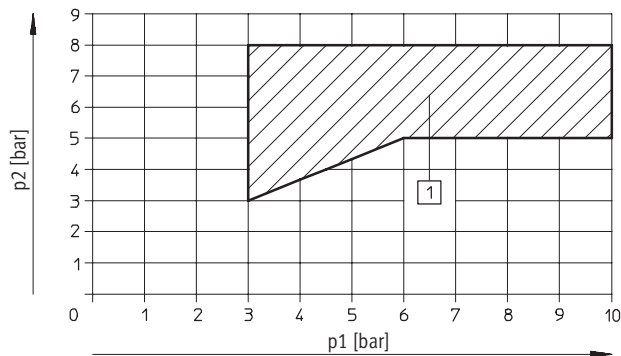
Pilot pressure p2 as a function of working pressure p1 with external pilot air supply

for valve sub-bases with code M, J, B, G, E, X



1 Operating range for valves with external pilot air supply

for valve sub-bases with code N, K, I



1 Operating range for valves with external pilot air supply

Valve response times [ms]									
Valve function ordering code	M	J	N	K	B	G	E	X	I
Response times	on	10	–	10	10	10	10	10	10
	off	20	–	20	20	25	25	20	20
	change-over	–	10	–	–	–	–	–	–

Operating and environmental conditions									
Valve function ordering code	M	J	N	K	B	G	E	X	I
Operating medium	Filtered compressed air, lubricated or unlubricated, inert gases ➔ 4 / 3.1-63								
Grade of filtration [µm]	40								
Ambient temperature [°C]	-5 ... +60		-5 ... +40 ²⁾		-5 ... +60			-5 ... +40 ²⁾	
Ambient temperature in case of DeviceNet connection [°C]	-5 ... +50		-5 ... +40 ²⁾		-5 ... +50			-5 ... +40 ²⁾	
Storage temperature [°C]	-20 ... +40								
Corrosion resistance class CRC ¹⁾	1								

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

2) Restricted ambient temperature in case of two permanently activated solenoid coils per valve location, otherwise same temperature range as ordering code M.
Restricted ambient temperature in case of fieldbus connection, otherwise same temperature range as ordering code M.

Valve terminal type 82 CPA-SC, Smart Cubic

Technical data

FESTO

Electrical data									
Valve function ordering code	M	J	N	K	B	G	E	X	I
Protection against electric shock (protection against direct and indirect contact to EN 60204-1/IEC 204)	By means of PELV power supply unit								
Operating voltage of valves and electronic components									
Nominal operating voltage	[V]	24 DC							
Operating voltage range	[V]	20.4 ... 26.4 DC							
Electrical power consumption									
Electronic components	[mA]	200 and current consumption of sensors							
Valves	[W]	Pull: 1, hold: 0.3							
Residual ripple	[Vss]	4							
Cut-off pause	[ms]	Min. 1							
Switching frequency	[Hz]	Max. 10							
Duty cycle		100%							
Protection class to EN 60529		IP40 (in assembled state and with detenting plug)							
Relative air humidity		90% at 40°C, non-condensing							
Vibration resistance		To DIN/IEC 68/EN 60 068, Parts 2-6, severity level 2							
Continuous shock resistance		To DIN/IEC 68/EN 60 068, Parts 2-27, severity level 2							

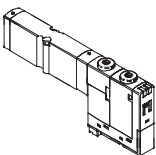
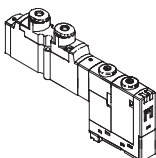
Materials									
Valve function ordering code	M	J	N	K	B	G	E	X	I
Manifold block	Wrought aluminium alloy								
Valve sub-base	Die-cast aluminium								
Seal	Nitrile rubber								

Product weight [g]	Approx. weights								
Valve function ordering code	M	J	N	K	B	G	E	X	I
Basic manifold block weight	125								
Additional manifold block weight per valve position	40								
Individual block	45								
per valve sub-base	40								
Fieldbus connection	150								

Valve terminal type 82 CPA-SC, Smart Cubic

Technical data

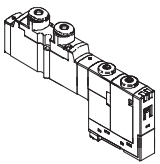
FESTO

Standard nominal flow rate [l/min]						
	Code	Valve function	Valve	Individual block	CPA-SC valve terminal with multi-pin plug connection/individual PI connections	CPA-SC valve terminal with individual horizontal connections
	Sub-base valve					
	M	5/2-way valve, single solenoid	220	170	150	120
	J	5/2-way valve, double solenoid	220	170	150	120
	N	2x 3/2-way valve, normally open	220	170	150	120
	K	2x 3/2-way valve, normally closed	180	150	120	120
	B	5/3-way valve, mid-position pressurised	220	150	120	120
	G	5/3-way valve, mid-position closed	180	150	120	120
	E	5/3-way valve, mid-position exhausted	180	150	120	120
	X	1x 3/2-way valve	120	–	100	85
	I	2x 2/2-way valve	150	140	140	120
	Semi in-line valve with working port M5					
	M	5/2-way valve, single solenoid	200	180	180	180
	J	5/2-way valve, double solenoid	200	180	180	180
	N	2x 3/2-way valve, normally open	200	180	180	180
	K	2x 3/2-way valve, normally closed	150	150	150	150
	B	5/3-way valve, mid-position pressurised	180	180	180	180
	G	5/3-way valve, mid-position closed	150	150	150	150
	E	5/3-way valve, mid-position exhausted	180	170	180	170
	X	1x 3/2-way valve	120	–	120	120
	I	2x 2/2-way valve	150	150	150	150

Valve terminal type 82 CPA-SC, Smart Cubic

Technical data

FESTO

Standard nominal flow rate [l/min]						
	Code	Valve function	Valve	Individual block	CPA-SC valve terminal with multi-pin plug connection/individual PI connections	CPA-SC valve terminal with individual horizontal connections
	Semi in-line valve, working port with QS-3 fitting					
	M	5/2-way valve, single solenoid	140	140	140	140
	J	5/2-way valve, double solenoid	140	140	140	140
	N	2x 3/2-way valve, normally open	140	140	140	140
	K	2x 3/2-way valve, normally closed	130	130	130	130
	B	5/3-way valve, mid-position pressurised	140	140	140	140
	G	5/3-way valve, mid-position closed	130	130	130	130
	E	5/3-way valve, mid-position exhausted	140	140	140	140
	X	1x 3/2-way valve	100	–	100	100
	I	2x 2/2-way valve	130	130	130	130
	Semi in-line valve, working port with QS-4 fitting					
	M	5/2-way valve, single solenoid	180	170	180	180
	J	5/2-way valve, double solenoid	180	170	180	180
	N	2x 3/2-way valve, normally open	180	170	180	180
	K	2x 3/2-way valve, normally closed	150	150	150	150
	B	5/3-way valve, mid-position pressurised	180	170	180	170
	G	5/3-way valve, mid-position closed	150	150	150	150
	E	5/3-way valve, mid-position exhausted	170	170	170	170
	X	1x 3/2-way valve	120	–	120	120
	I	2x 2/2-way valve	150	140	150	150

Valve terminal type 82 CPA-SC, Smart Cubic

Technical data



Pneumatic equipment			
<p>Operate your equipment with unlubricated compressed air if possible. Festo valves and cylinders are designed for operation under normal use without any additional lubrication, yet still have a long service life. The quality of compressed air downstream from the compressor must correspond to that of unlubricated compressed air. If possible, do not operate all of your equipment with lubricated compressed air. The lubricators should, where possible, always be installed directly upstream of the cylinders used.</p>	<p>Incorrect additional oil and too high an oil content in the compressed air reduces the service life of a valve terminal.</p> <p>Use Festo special oil OFSW-32 or the alternatives listed in the Festo catalogue (as specified in DIN 51 524-HLP32; basic oil viscosity 32 CST at 40 °C).</p>	Bio-oils	Mineral oils
		<p>When using bio-oils (oils which are based upon synthetic or native ester, e.g. rapeseed oil methyl ester), the maximum residual oil content of 0.1 mg/m³ must not be exceeded (see ISO 8573-1 Class 2).</p>	<p>When using mineral oils (e.g. HLP oils to DIN 51 524, parts 1 through 3) or similar oils based on poly-alpha-olefins (PAO), the maximum residual oil content of 5 mg/m³ must not be exceeded (see ISO 8573-1 Class 4). A higher residual oil content irrespective of the compressor oil cannot be permitted, as the basic lubricant would be flushed out over time.</p>

Valve terminal type 82 CPA-SC, Smart Cubic

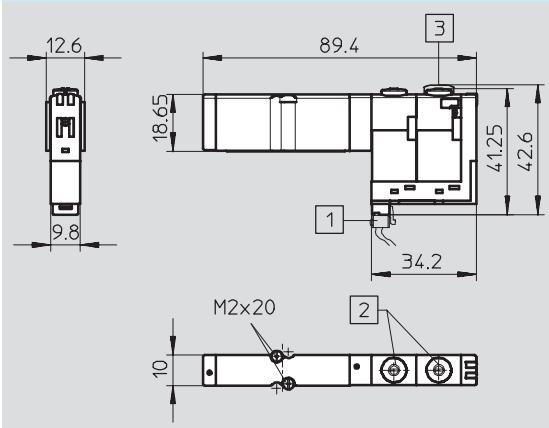
Technical data



Dimensions – Sub-base valve

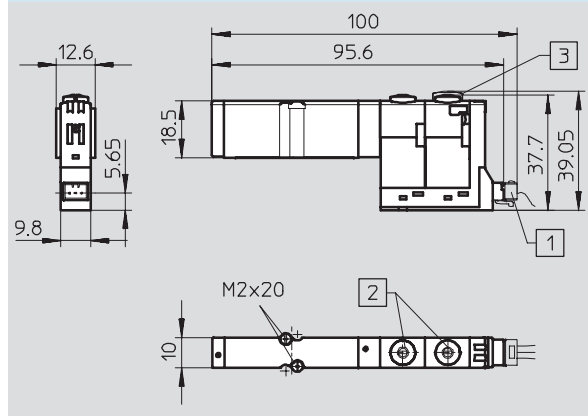
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With individual plug-in (PI) connection



- 1 Individual PI connection
- 2 Manual override (MO)
- 3 Manual override cover

With individual horizontal connection (HC)

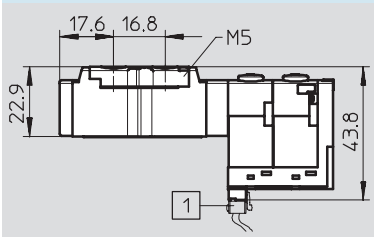


- 1 Individual horizontal connection
- 2 Manual override (MO)
- 3 Manual override cover

Dimensions – Semi in-line valve with working port M5

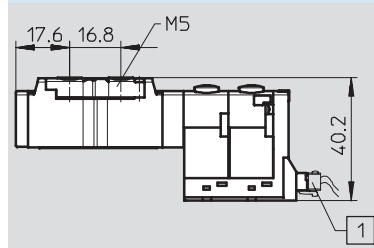
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With individual plug-in (PI) connection



- 1 Individual PI connection

With individual horizontal connection (HC)

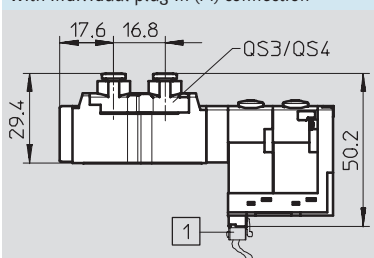


- 1 Individual horizontal connection

Dimensions – Semi in-line valve with working port QS-3/QS-4

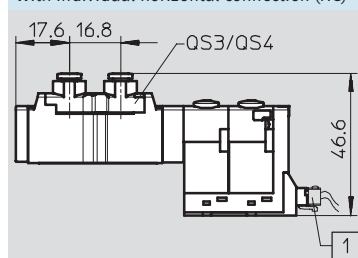
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With individual plug-in (PI) connection



- 1 Individual PI connection

With individual horizontal connection (HC)



- 1 Individual horizontal connection

Valve terminal type 82 CPA-SC, Smart Cubic

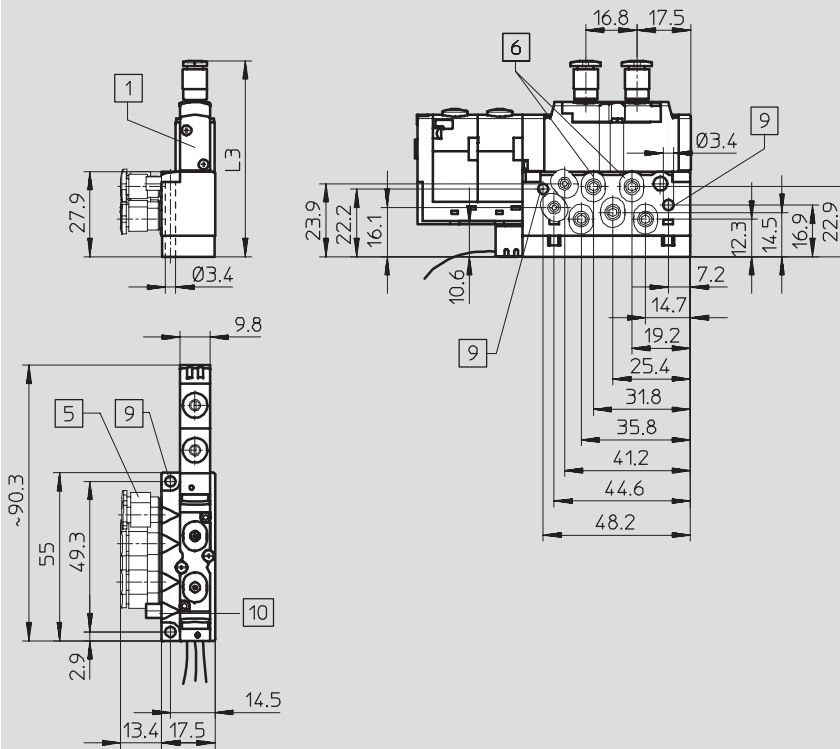
Technical data

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Dimensions – Individual sub-base

Download CAD data → www.festo.com/en/engineering

With individual plug-in (PI) connection



- 1 Semi in-line valve with M5 threaded connections
- 5 Push-in fitting
- 6 Working lines for sub-base valve (not required with semi in-line valves)
- 9 4x mounting holes
- 10 Silencer for exhaust air

Valve type		L3
Semi in-line valve	with working port M5	50.8
	with working port QS-3	57.2
	with working port QS-4	57.2
Sub-base valve		48.3
Blanking plate		37.1

Valve terminal type 82 CPA-SC, Smart Cubic

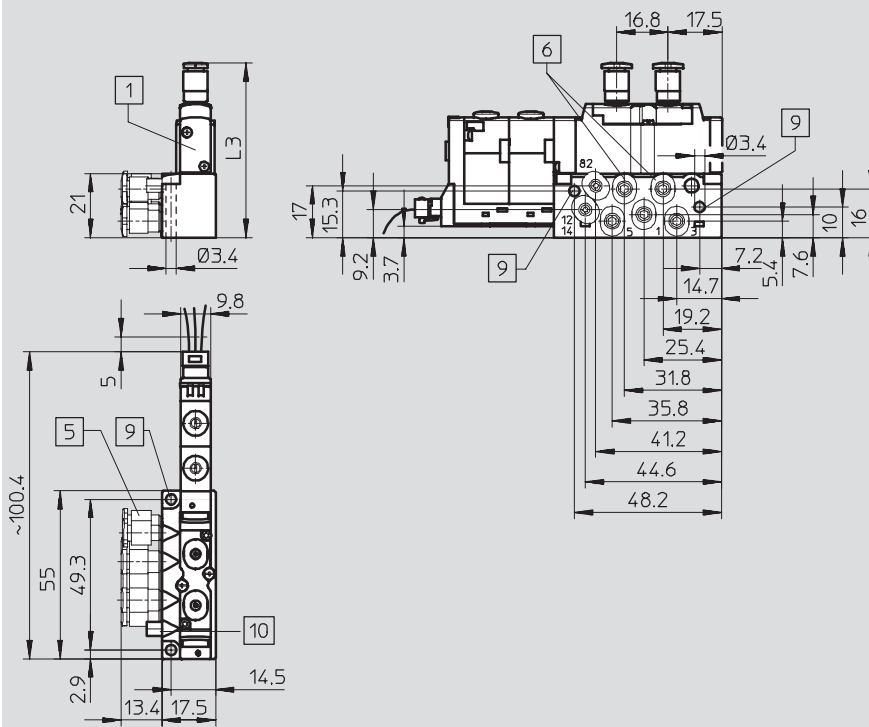
Technical data

FESTO

Dimensions – Individual sub-base

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With individual horizontal connection (HC)



- 1 Semi in-line valve with M5 threaded connection
- 5 Push-in fitting
- 6 Working lines for sub-base valve (not required with semi in-line valves)
- 9 4x mounting holes
- 10 Silencer for exhaust air

Valve type		L3
Semi in-line valve	with working port M5	43.9
	with working port QS-3	50.3
	with working port QS-4	50.3
Sub-base valve		41.4
Blanking plate		30.2

Valve terminal type 82 CPA-SC, Smart Cubic

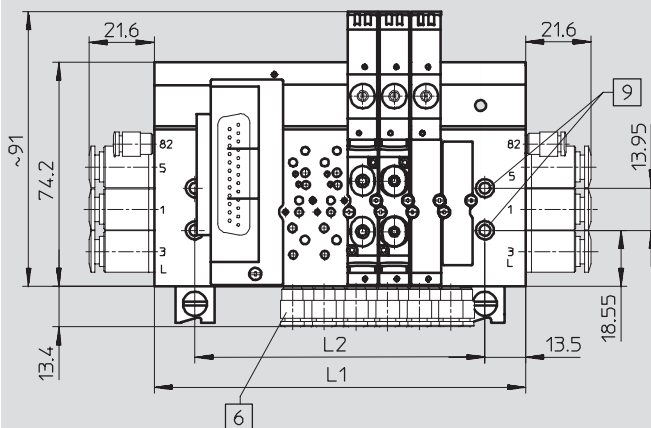
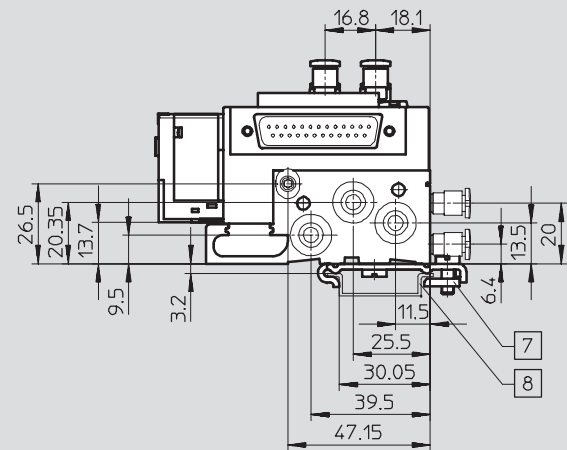
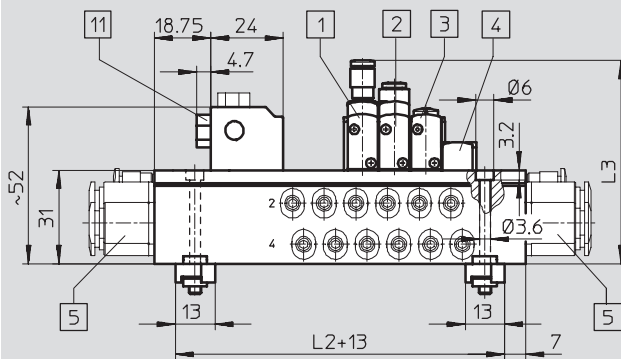
Technical data

FESTO

Dimensions – Valve terminal

Download CAD data → www.festo.com/en/engineering

With Sub-D multi-pin plug connection



- 1 Semi in-line valve with M5 threaded connection
- 2 Semi in-line valve with integrated push-in fitting
- 3 Sub-base valve
- 4 Blanking plate for vacant position
- 5 Push-in fitting
- 6 Working lines for sub-base valves (not required with semi in-line valves)
- 7 Mounting for H-rail TH 35-7.5 EN60 715
- 8 H-rail
- 9 4x mounting holes
- 11 Sub-D multi-pin plug connection, 25-pin, 90° rotatable

Valve positions	L1	L2
2	81	54
4	102	75
6	123	96
8	144	117
10	165	138
12	186	159
16	228	201
20	270	243

Valve type	L3
Semi in-line valve	
with working port M5	53.9
with working port QS-3	60.3
with working port QS-4	60.3
Sub-base valve	51.4
Blanking plate	40.2

Application-optimised valve terminals
Smart Cubic

3.1

Valve terminal type 82 CPA-SC, Smart Cubic

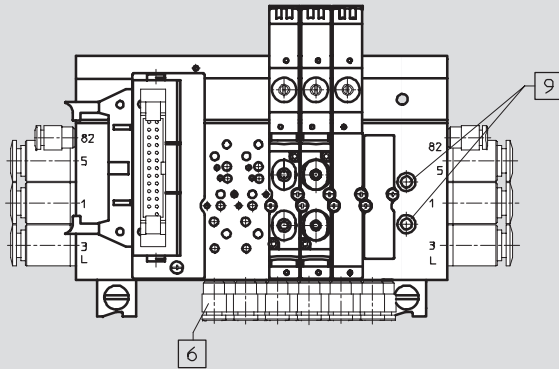
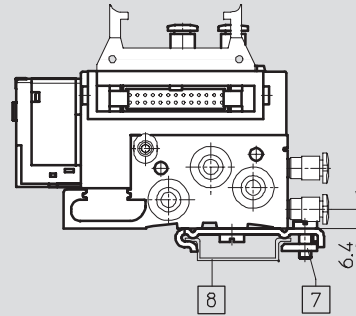
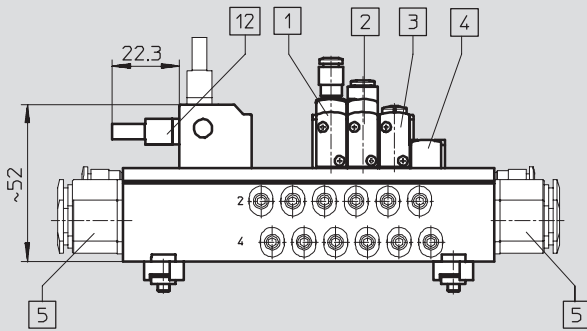
Technical data

FESTO

Dimensions – Valve terminal

Download CAD data → www.festo.com/en/engineering

With multi-pin connector for flat cable



- | | | | |
|------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------|
| 1 Semi in-line valve with M5 threaded connection | 3 Sub-base valve | 6 Working lines for sub-base valves (not required with semi in-line valves) | 7 Mounting for H-rail TH 35-7.5 EN60 715 |
| 2 Semi in-line valve with integrated push-in fitting | 4 Blanking plate for vacant position | | 8 H-rail |
| | 5 Push-in fitting | | 9 4x mounting holes |
| | | | 12 Connector for flat cable, 26-pin, 90° rotatable |

Valve terminal type 82 CPA-SC, Smart Cubic

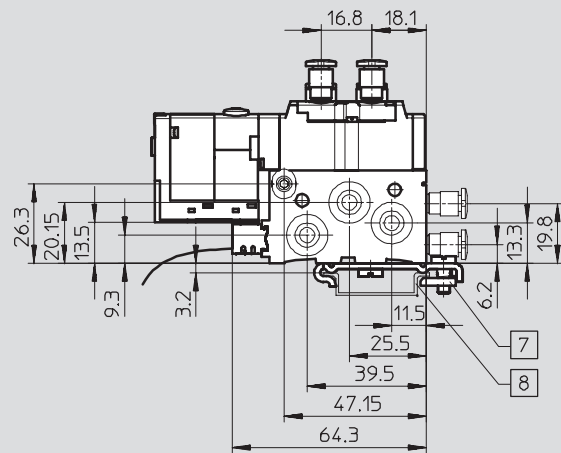
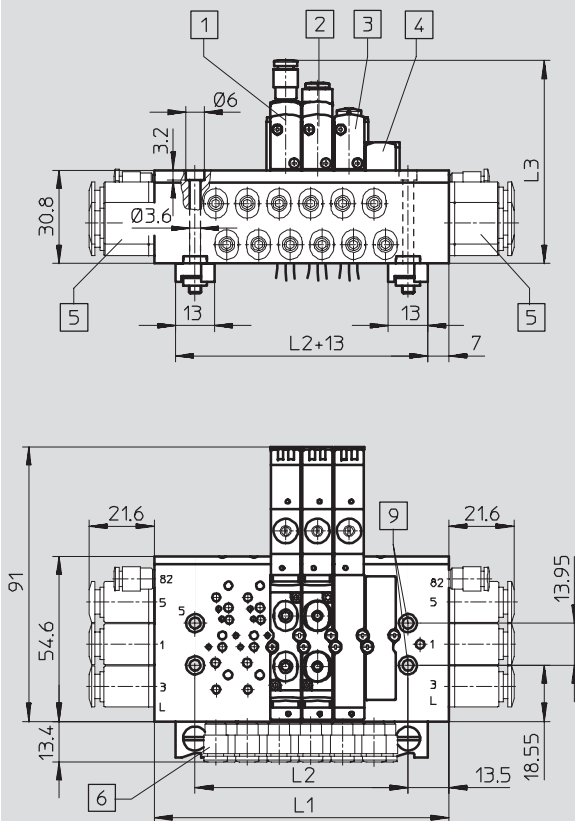
Technical data

FESTO

Dimensions – Valve terminal

Download CAD data → www.festo.com/en/engineering

With individual plug-in (PI) connection



- | | | | |
|------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------|------------------------------------------|
| 1 Semi in-line valve with M5 threaded connection | 3 Sub-base valve | 6 Working lines for sub-base valves (not required with semi in-line valves) | 7 Mounting for H-rail TH 35-7.5 EN60 715 |
| 2 Semi in-line valve with integrated push-in fitting | 4 Blanking plate for vacant position | | 8 H-rail |
| | 5 Push-in fitting | | 9 4x mounting holes |

Valve positions	L1	L2
2	55,5	28.5
4	76.5	49.5
6	97.5	70.5
8	118.5	91.5
10	139.5	112.5
12	160.5	133.5
16	202.5	175.5

Valve type	L3
Semi in-line valve	
with working port M5	53.7
with working port QS-3	60.1
with working port QS-4	60.1
Sub-base valve	51.2
Blanking plate	40

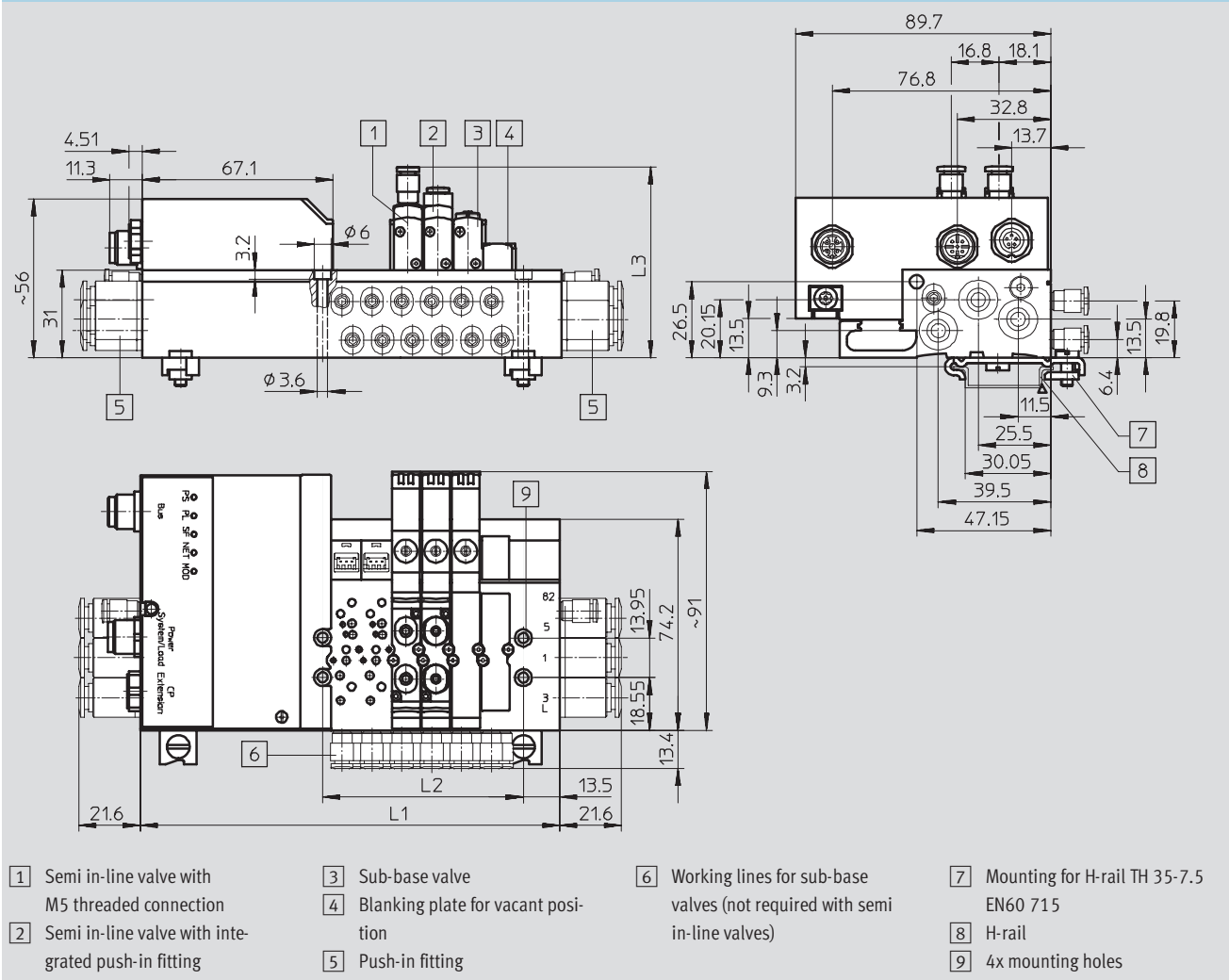
Valve terminal type 82 CPA-SC, Smart Cubic

Technical data

FESTO

Dimensions – Fieldbus

Download CAD data → www.festo.com/en/engineering



Valve positions	L1	L2
4	127.2	49.5
6	148.2	70.5
8	169.2	91.5
10	190.2	112.5
12	211.2	133.5
16	253.2	175.5
20	295.2	217.5
24	337.2	259.5

Valve type	L3
Semi in-line valve	
with working port M5	53.9
with working port QS-3	60.3
with working port QS-4	67.3
Sub-base valve	51.4
Blanking plate	40.2

Valve terminal type 82 CPA-SC, Smart Cubic – Multi-pin

Ordering data – Modular products

FESTO

Mandatory data

Module No.	Valve terminal	Size	Power supply	Electrical connection	Position of working ports	Type of working ports	Manual override	Pneumatic supply	Pneumatic supply connection	Type of connections
529 045	82P	10	1	MS MF	P A	B E F	N V	S T V X	L R B	H D
Ordering example										
529 045	82P	- 10	- 1							
1	2	3	4	5	6	7	8	9	10	11

Ordering table		Size	10	Condi- tions	Code	Enter code
M	1	Module No.	529 045			
	2	Valve terminal	Valve terminal type 82, Smart Cubic, CPA-SC		82P	82P
	3	Size [mm]	10		-10	-10
	4	Power supply [V]	Power supply for valves 24 DC		-1	-1
	5	Electrical connection	Multi-pin plug connection for Sub-D, 25-pin Multi-pin plug connection for flat cable, 26-pin	1 2	MS MF	
	6	Position of working ports	Working ports on valve Working ports on sub-base		-P -A	
	7	Type of working ports	Threaded connection M5 Push-in fitting QS-3 Push-in fitting QS-4		B E F	
	8	Manual override	Manual override, push-in/detenting Manual override blocked		-N -V	
	9	Pneumatic supply	Internal pilot air supply, exhausting via silencer External pilot air supply, exhausting via silencer Internal pilot air supply, ducted exhaust air External pilot air supply, ducted exhaust air		-S -T -V -X	
	10	Pneumatic supply connection	Supply at left Supply at right Supply at both ends		L R B	
	11	Type of connections	Push-in fitting QS-8 Threaded connection G $\frac{1}{8}$		H D	

1 MS At least 2 valve positions must be equipped.

2 MF At least 4 valve positions must be equipped.

Valve terminal type 82 CPA-SC, Smart Cubic – Multi-pin

Ordering data – Modular products

FESTO

M Mandatory data																			O Options	
Equipment at valve position 0 ... 19																			User documentation	Accessories
12 Valves: M, J, N, K, B, G, E, X, I, L, V, W, R																			B, D, E, F, I, S, V	H, ...CP, ...CQ, ...CR, ...CV, ...CW, ...CX
13 Duct separation, duct 1, valve position 0 ... 18: T																				
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
-																			-	+
12 + 13																			14	15

Ordering table										Size	10	Condi- tions	Code	Enter code
M	12	Equipment at valve position 0 ... 19										3	-	-
	Valves	5/2-way valve, single solenoid											M	Enter equip- ment selection for valve positions in order code
		5/2-way valve, double solenoid											J	
		2x 3/2-way valve, normally open											N	
		2x 3/2-way valve, normally closed											K	
		5/3-way valve, mid-position pressurised											B	
		5/3-way valve, mid-position closed											G	
		5/3-way valve, mid-position exhausted											E	
		3/2-way valve, normally closed, external supply air											X	
		2x 2/2-way valve, normally closed, dual compressed air supply											I	
		Vacant position											L	
		Duct separation, duct 3 separate										4	V	
		Duct separation, duct 5 separate										4	W	
		Duct separation, duct 3/5 separate										4	R	
	13	Duct separation, duct 1, valve position 0 ... 18										4	T	
O	14	User documentation											-B	
		Express waiver - no manual to be included (already available)											-D	
		Manuals, German											-E	
		Manuals, English											-F	
		Manuals, French											-I	
		Manuals, Italian											-S	
		Manuals, Spanish											-V	
		Manuals, Swedish												
O	15	Accessories											+	+
		H-rail mounting											H	
		Connecting cable, 2.5 m										5	...CP	
		Sub-D, 25-pin 5 m										5	...CQ	
		(25-strand) 10 m										5	...CR	
		Connecting cable, 2.5 m										5	...CV	
		Sub-D, 25-pin 5 m										5	...CW	
		(12-strand) 10 m										5	...CX	

3 Equipment at valve position 0 ... 19

Max. number of coils: 20

Coil usage of the valves: I, J, K, L, N, B, E, G: 2 coils

M, X: 1 coil

With 4 ... 12 valve positions:

Only with valve M, N, K, X, I, L from position 9

With 4 ... 16 valve positions:

Only with valve M, N, K, X, I, L from position 5

With 4 ... 20 valve positions:

Only with valve M, N, K, X, I, L

4 V, W, R, T

Only with pneumatic supply connection B (pneumatic supply connection at both ends).

Only one duct separation per valve terminal can be selected for the supply and for the exhaust.

Duct separation T only is permissible at the first valve position.

Duct separation is not permissible at the last valve position.

5 CP, CQ, CR, CV, CW, CX

Only in combination with electrical connection MS, whereby CV, CW and CX is only permissible with 2, 4 or 6 valve positions.

Valve terminal type 82 CPA-SC, with individual plug-in connection

Ordering data – Modular products

FESTO

Mandatory data

Module No.	Valve terminal	Size	Power supply	Electrical connection	Position of working ports	Type of working ports	Manual override	Pneumatic supply	Pneumatic supply connection	Type of connections
529 045	82P	10	1	IP IQ	P A	B E F	N V	S T V X	L R B	H D
Ordering example										
529 045	82P	- 10	- 1							
1	2	3	4	5	6	7	8	9	10	11

Ordering table										
Size			10					Condi- tions	Code	Enter code
M	1	Module No.	529 045							
	2	Valve terminal	Valve terminal type 82, Smart Cubic, CPA-SC						82P	82P
	3	Size [mm]	10						-10	-10
	4	Power supply [V]	Power supply for valves 24 DC						-1	-1
	5	Electrical connection	Connecting cable 0.5 m, for individual plug-in connection, 2 coils					1	IP	
			Connecting cable 1 m, for individual plug-in connection, 2 coils					1	IQ	
	6	Position of working ports	Working ports on valve						-P	
			Working ports on sub-base						-A	
	7	Type of working ports	Threaded connection M5						B	
			Push-in fitting QS-3						E	
			Push-in fitting QS-4						F	
	8	Manual override	Manual override, push-in/detenting						-N	
			Manual override blocked						-V	
	9	Pneumatic supply	Internal pilot air supply, exhausting via silencer						-S	
			External pilot air supply, exhausting via silencer						-T	
			Internal pilot air supply, ducted exhaust air						-V	
			External pilot air supply, ducted exhaust air						-X	
	10	Pneumatic supply connection	Supply at left						L	
			Supply at right						R	
			Supply at both ends						B	
	11	Type of connections	Push-in fitting QS-8						H	
			Threaded connection G $\frac{1}{8}$						D	

1 IP, IQ Number of valve positions: 2, 4, 6, 8, 10, 12, 16.

Transfer order code

529 045	82P	- 10	- 1							
1	2	3	4	5	6	7	8	9	10	11

Valve terminal type 82 CPA-SC, with individual plug-in connection

Ordering data – Modular products

FESTO

M Mandatory data																O Options			
Equipment at valve position 0 ... 15																User documentation		Accessories	
12 Valves: M, J, N, K, B, G, E, X, I, L, V, W, R 13 Duct separation, duct 1, valve position 0 ... 14: T																B, D, E, F, I, S, V		H	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15				
- 12 + 13																- 14		+ 15	

Ordering table					
Size		10	Condi- tions	Code	Enter code
↓ M	12	Equipment at valve position 0 ... 15		-	-
	Valves	5/2-way valve, single solenoid		M	Enter equip- ment selection for valve positions in order code
		5/2-way valve, double solenoid		J	
		2x 3/2-way valve, normally open		N	
		2x 3/2-way valve, normally closed		K	
		5/3-way valve, mid-position pressurised		B	
		5/3-way valve, mid-position closed		G	
		5/3-way valve, mid-position exhausted		E	
		3/2-way valve, normally closed, external supply air		X	
		2x 2/2-way valve, normally closed, dual compressed air supply		I	
		Vacant position		L	
		Duct separation, duct 3 separate	2	V	
		Duct separation, duct 5 separate	2	W	
		Duct separation, duct 3/5 separate	2	R	
	13	Duct separation, duct 1, valve position 0 ... 14	Duct 1 separate	2 T	
	14	User documentation	Express waiver - no manual to be included (already available)	-B	
		Manuals, German		-D	
		Manuals, English		-E	
		Manuals, French		-F	
		Manuals, Italian		-I	
		Manuals, Spanish		-S	
		Manuals, Swedish		-V	
O	15	Accessories		+	+
		H-rail mounting	1	H	

- 2 V, W, R, T Only with pneumatic supply connection B (pneumatic supply at both ends).
 Only one duct separation per valve terminal can be selected for the supply and for the exhaust.
 Duct separation T only is permissible at the first valve position.
 Duct separation is not permissible at the last valve position.

Transfer order code

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
- 12 + 13																- 14	+ 15

Valve terminal type 82 CPA-SC, with individual horizontal connection

Ordering data – Modular products

FESTO

Mandatory data

Module No.	Valve terminal	Size	Power supply	Electrical connection	Position of working ports	Type of working ports	Manual override	Pneumatic supply	Pneumatic supply connection	Type of connections
529 045	82P	10	1	IH	P A	B E F	N V	S T V X	L R B	H D
Ordering example										
529 045	82P	10	1	IH						
1	2	3	4	5	6	7	8	9	10	11

Ordering table						
Size			10	Condi- tions	Code	Enter code
M	1	Module No.	529 045			
	2	Valve terminal	Valve terminal type 82, Smart Cubic, CPA-SC		82P	82P
	3	Size [mm]	10		-10	-10
	4	Power supply [V]	Power supply for valves 24 DC		-1	-1
	5	Electrical connection	Individual horizontal electrical connection	1	IH	IH
	6	Position of working ports	Working ports on valve		-P	
			Working ports on sub-base		-A	
	7	Type of working ports	Threaded connection M5		B	
			Push-in fitting QS-3		E	
			Push-in fitting QS-4		F	
	8	Manual override	Manual override, push-in/detenting		-N	
			Manual override blocked		-V	
	9	Pneumatic supply	Internal pilot air supply, exhausting via silencer		-S	
			External pilot air supply, exhausting via silencer		-T	
			Internal pilot air supply, ducted exhaust air		-V	
			External pilot air supply, ducted exhaust air		-X	
	10	Pneumatic supply connection	Supply at left		L	
			Supply at right		R	
			Supply at both ends		B	
	11	Type of connections	Push-in fitting QS-8		H	
			Threaded connection G 1/8		D	

1 IH Number of valve positions: 2, 4, 6, 8, 10, 12, 16.

Transfer order code

529 045	82P	10	1	IH						
1	2	3	4	5	6	7	8	9	10	11

Valve terminal type 82 CPA-SC, with individual horizontal connection

FESTO

Ordering data – Modular products

M Mandatory data																O Options			
Equipment at valve position 0 ... 15																User documentation		Accessories	
12 Valves: M, J, N, K, B, G, E, X, I, L																B, D, E, F, I, S, V		H, ...CD, ...CE, ...CF, ...CG, ...CH, ...CI, ...CJ, ...CK	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15				
-																-		+	
12																13		14	

Ordering table					
Size		10	Condi- tions	Code	Enter code
12	Equipment at valve position 0 ... 15			-	-
	Valves	5/2-way valve, single solenoid		M	Enter equip- ment selection for valve positions in order code
		5/2-way valve, double solenoid		J	
		2x 3/2-way valve, normally open		N	
		2x 3/2-way valve, normally closed		K	
		5/3-way valve, mid-position pressurised		B	
		5/3-way valve, mid-position closed		G	
		5/3-way valve, mid-position exhausted		E	
		3/2-way valve, normally closed, external supply air		X	
		2x 2/2-way valve, normally closed, dual compressed air supply		I	
		Vacant position		L	
	User documentation	Express waiver - no manual to be included (already available)		-B	
		Manuals, German		-D	
		Manuals, English		-E	
		Manuals, French		-F	
		Manuals, Italian		-I	
		Manuals, Spanish		-S	
		Manuals, Swedish		-V	
14	Accessories			+	+
	H-rail mounting	1		H	
	Connecting cable for individual connection, 2 coils	0.5 m	1 ... 99	...CD	
		1 m	1 ... 99	...CE	
		2.5 m	1 ... 99	...CF	
		5 m	1 ... 99	...CG	
	Connecting cable for individual connection, 1 coil	0.5 m	1 ... 99	...CH	
		1 m	1 ... 99	...CI	
		2.5 m	1 ... 99	...CJ	
		5 m	1 ... 99	...CK	

Transfer order code

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
-															
12															
-															
13															
+															
14															

Valve terminal type 82 CPA-SC, with individual sub-base

Ordering data – Modular products

FESTO

Mandatory data

Module No.	Valve terminal	Size	Power supply	Electrical connection	Position of working ports	Type of working ports	Manual override	Pneumatic supply	Pneumatic supply connection	Type of connections
529 045	82P	10	1	SP SQ SH	P A	B E F	N V	S T V X	L	B F
Ordering example										
529 045	82P	- 10	- 1						L	
1	2	3	4	5	6	7	8	9	10	11

Ordering table						
Size			10	Condi- tions	Code	Enter code
<div>M</div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> 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1 SP, SQ, SH No user documentation selectable.

Transfer order code

529 045	82P	- 10	- 1						L	
1	2	3	4	5	6	7	8	9	10	11

Valve terminal type 82 CPA-SC, with individual sub-base

Ordering data – Modular products

FESTO

M Mandatory data		O Options	
Equipment for valve positions		Accessories	
12 Valves: M, J, N, K, B, G, E, I		...CD, ...CE, ...CF, ...CG, ...CH, ...CI, ...CJ, ...CK	
12		13	

Ordering table					
Size		10	Condi- tions	Code	Enter code
↓ M	12	Equipment for valve positions		-	-
	Valves	5/2-way valve, single solenoid		M	Enter equip- ment selec- tion for valve positions in order code
		5/2-way valve, double solenoid		J	
		2x 3/2-way valve, normally open		N	
		2x 3/2-way valve, normally closed		K	
		5/3-way valve, mid-position pressurised		B	
		5/3-way valve, mid-position closed		G	
		5/3-way valve, mid-position exhausted		E	
		2x 2/2-way valve, normally closed, dual compressed air supply		I	
O	13	Accessories		+	+
	Connecting cable for individual connection, 2 coils	0.5 m	1 ... 99	2	...CD
		1 m	1 ... 99	2	...CE
		2.5 m	1 ... 99	2	...CF
		5 m	1 ... 99	2	...CG
	Connecting cable for individual connection, 1 coil	0.5 m	1 ... 99	2	...CH
		1 m	1 ... 99	2	...CI
		2.5 m	1 ... 99	2	...CJ
		5 m	1 ... 99	2	...CK

2 CD, CE, CF, CG, CH, CI, CJ, CK

Only in combination with electrical connection SH.

Transfer order code	
12	13

Valve terminal type 82 CPA-SC, Smart Cubic – DeviceNet

Ordering data – Modular products

FESTO

Mandatory data

Module No.	Valve terminal	Size	Electrical connection	Position of working ports	Type of working ports	Manual override	Pneumatic supply	Pneumatic supply connection	Type of connections
538 509	82P	10	DN	P A	B E F	N V	S T V X	L R B	B F H D
Ordering example									
538 509	82P	10	DN	P	E	N	S	B	D
1	2	3	4	5	6	7	8	9	10

Ordering table									
Size				10	Condi- tions	Code	Enter code		
<div>M</div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> 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Transfer order code

538 509	82P	10	DN						
1	2	3	4	5	6	7	8	9	10

Valve terminal type 82 CPA-SC, Smart Cubic – DeviceNet

Ordering data – Modular products

FESTO

Application-optimised valve terminals
Smart Cubic

3.1

M Mandatory data		O Options	
Equipment at valve position 0 ... 23		User documentation	Accessories
11 Valves: M, J, N, K, B, G, E, X, I, L, V, W, R 12 Duct separation, duct 1, valve position 0 ... 22: T		D, E, F, I, S, V	H, ...D, ...M
Valve position 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 - 11 + 12		- 13	+ 14

Ordering table						
Size		10	Condi- tions	Code	Enter code	
↓ <div>M</div>	11	Equipment at valve position 0 ... 23	<div>1</div>	-	-	
	Valves	5/2-way valve, single solenoid		M	Enter equip- ment selection for valve positions in order code	
		5/2-way valve, double solenoid		J		
		2x 3/2-way valve, normally open		N		
		2x 3/2-way valve, normally closed		K		
		5/3-way valve, mid-position pressurised		B		
		5/3-way valve, mid-position closed		G		
		5/3-way valve, mid-position exhausted		E		
		3/2-way valve, normally closed, external supply air		X		
		2x 2/2-way valve, normally closed, dual compressed air supply		I		
		Vacant position		L		
		Duct separation, duct 3 separate	<div>2</div>	V		
		Duct separation, duct 5 separate	<div>2</div>	W		
		Duct separation, duct 3/5 separate	<div>2</div>	R		
		12	Duct separation, duct 1, valve position 0 ... 22	<div>2</div>		T
	13	User documentation	Manuals, German		-D	
			Manuals, English		-E	
			Manuals, French		-F	
			Manuals, Italian		-I	
			Manuals, Spanish		-S	
			Manuals, Swedish		-V	
	<div>O</div>	14	Accessories		+	+
H-rail mounting		1	H			
Connector plug		straight	1 ... 99	...D		
DeviceNet		B-coded	1 ... 99	...M		

1 Equipment at valve position 0 ... 23

Max. number of coils: 32

Coil usage of the valves: I, J, K, L, N, B, E, G: 2 coils
M, X: 1 coil

2 V, W, R, T

Only with pneumatic supply connection B (pneumatic supply connection at both ends).

Only one duct separation per valve terminal can be selected for the supply and for the exhaust.

Duct separation T only is permissible at the first valve position. Duct separation is not permissible at the last valve position.

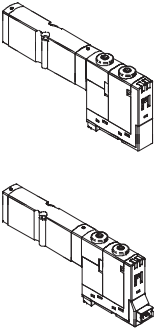
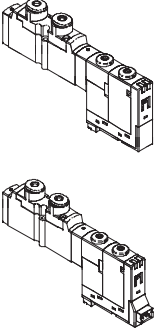
Transfer order code

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23																																										
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Valve terminal type 82 CPA-SC, Smart Cubic

Ordering data

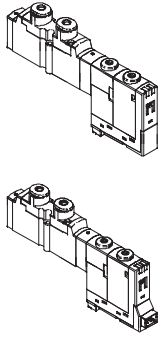
FESTO


Ordering data – Valves						
	Code	Valve function	Electrical plug-in connection		Electrical horizontal connection	
			Type	Part No.	Type	Part No.
	Sub-base valve					
	M	5/2-way valve, single solenoid	CPASC1-M1H-M-P-2,5	526 990	CPASC1-M1H-M-H-2,5	527 008
	J	5/2-way valve, double solenoid	CPASC1-M1H-J-P-2,5	526 992	CPASC1-M1H-J-H-2,5	527 010
	N	2x 3/2-way valve, normally open	CPASC1-M1H-N-P-2,5	526 994	CPASC1-M1H-N-H-2,5	527 012
	K	2x 3/2-way valve, normally closed	CPASC1-M1H-K-P-2,5	526 996	CPASC1-M1H-K-H-2,5	527 014
	B	5/3-way valve, mid-position pressurised	CPASC1-M1H-B-P-2,5	526 998	CPASC1-M1H-B-H-2,5	527 016
	G	5/3-way valve, mid-position closed	CPASC1-M1H-G-P-2,5	527 000	CPASC1-M1H-G-H-2,5	527 018
	E	5/3-way valve, mid-position exhausted	CPASC1-M1H-E-P-2,5	527 002	CPASC1-M1H-E-H-2,5	527 020
	X	1x 3/2-way valve	CPASC1-M1H-X-P-2,5	527 004	CPASC1-M1H-X-H-2,5	527 022
	I	2x 2/2-way valve	CPASC1-M1H-I-P-2,5	527 006	CPASC1-M1H-I-H-2,5	527 024
	Semi in-line valve with M5 working ports					
	M	5/2-way valve, single solenoid	CPPSC1-M1H-M-P-M5	527 294	CPPSC1-M1H-M-H-M5	527 303
	J	5/2-way valve, double solenoid	CPPSC1-M1H-J-P-M5	527 295	CPPSC1-M1H-J-H-M5	527 304
	N	2x 3/2-way valve, normally open	CPPSC1-M1H-N-P-M5	527 296	CPPSC1-M1H-N-H-M5	527 305
	K	2x 3/2-way valve, normally closed	CPPSC1-M1H-K-P-M5	527 297	CPPSC1-M1H-K-H-M5	527 306
	B	5/3-way valve, mid-position pressurised	CPPSC1-M1H-B-P-M5	527 298	CPPSC1-M1H-B-H-M5	527 307
	G	5/3-way valve, mid-position closed	CPPSC1-M1H-G-P-M5	527 299	CPPSC1-M1H-G-H-M5	527 308
	E	5/3-way valve, mid-position exhausted	CPPSC1-M1H-E-P-M5	527 300	CPPSC1-M1H-E-H-M5	527 309
	X	1x 3/2-way valve	CPPSC1-M1H-X-P-M5	527 301	CPPSC1-M1H-X-H-M5	527 310
	I	2x 2/2-way valve	CPPSC1-M1H-I-P-M5	527 302	CPPSC1-M1H-I-H-M5	527 311
	Semi in-line valve with QS-3 working ports					
	M	5/2-way valve, single solenoid	CPPSC1-M1H-M-P-Q3	527 330	CPPSC1-M1H-M-H-Q3	527 339
	J	5/2-way valve, double solenoid	CPPSC1-M1H-J-P-Q3	527 331	CPPSC1-M1H-J-H-Q3	527 340
	N	2x 3/2-way valve, normally open	CPPSC1-M1H-N-P-Q3	527 332	CPPSC1-M1H-N-H-Q3	527 341
	K	2x 3/2-way valve, normally closed	CPPSC1-M1H-K-P-Q3	527 333	CPPSC1-M1H-K-H-Q3	527 342
	B	5/3-way valve, mid-position pressurised	CPPSC1-M1H-B-P-Q3	527 334	CPPSC1-M1H-B-H-Q3	527 343
	G	5/3-way valve, mid-position closed	CPPSC1-M1H-G-P-Q3	527 335	CPPSC1-M1H-G-H-Q3	527 344
	E	5/3-way valve, mid-position exhausted	CPPSC1-M1H-E-P-Q3	527 336	CPPSC1-M1H-E-H-Q3	527 345
X	1x 3/2-way valve	CPPSC1-M1H-X-P-Q3	527 337	CPPSC1-M1H-X-H-Q3	527 346	
I	2x 2/2-way valve	CPPSC1-M1H-I-P-Q3	527 338	CPPSC1-M1H-I-H-Q3	527 347	

Valve terminal type 82 CPA-SC, Smart Cubic

Ordering data

FESTO

Ordering data – Valves						
	Code	Valve function	Electrical plug-in connection		Electrical horizontal connection	
			Type	Part No.	Type	Part No.
	Semi in-line valve with QS-4 working ports					
	M	5/2-way valve, single solenoid	CPPSC1-M1H-M-P-Q4	527 312	CPPSC1-M1H-M-H-Q4	527 321
	J	5/2-way valve, double solenoid	CPPSC1-M1H-J-P-Q4	527 313	CPPSC1-M1H-J-H-Q4	527 322
	N	2x 3/2-way valve, normally open	CPPSC1-M1H-N-P-Q4	527 314	CPPSC1-M1H-N-H-Q4	527 323
	K	2x 3/2-way valve, normally closed	CPPSC1-M1H-K-P-Q4	527 315	CPPSC1-M1H-K-H-Q4	527 324
	B	5/3-way valve, mid-position pressurised	CPPSC1-M1H-B-P-Q4	527 316	CPPSC1-M1H-B-H-Q4	527 325
	G	5/3-way valve, mid-position closed	CPPSC1-M1H-G-P-Q4	527 317	CPPSC1-M1H-G-H-Q4	527 326
	E	5/3-way valve, mid-position exhausted	CPPSC1-M1H-E-P-Q4	527 318	CPPSC1-M1H-E-H-Q4	527 327
	X	1x 3/2-way valve	CPPSC1-M1H-X-P-Q4	527 319	CPPSC1-M1H-X-H-Q4	527 328
	I	2x 2/2-way valve	CPPSC1-M1H-I-P-Q4	527 320	CPPSC1-M1H-I-H-Q4	527 329


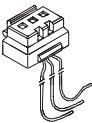
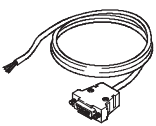
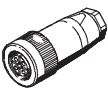




-  - Note

Use valves with electric plug-in connection when equipping reserve locations (valve terminal in multipin or field bus design).

Valve terminal type 82 CPA-SC, Smart Cubic

Ordering data


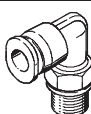

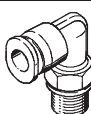
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Ordering data – Accessories				
Designation			Type	Part No.
Plug socket with cable for plug-in connection				
	For 1 coil	0.5 m	MHAP-PI	197 260
		1 m	MHAP-PI-1	532 182
	For 2 coils	0.5 m	MHAP-PI-D-0,5	529 116
		1 m	MHAP-PI-D-1	527 395
Plug socket with cable for horizontal connection				
	For 1 coil, 2-wire	0.5 m	KMH-0,5	197 263
		1 m	KMH-1	197 264
		2.5 m	KMH-2,5	527 400
		5 m	KMH-5	527 401
	For 2 coils, 3-wire	0.5 m	KMH-D-0,5	527 396
		1 m	KMH-D-1	527 397
		2.5 m	KMH-D-2,5	527 398
		5 m	KMH-D-5	527 399
Connecting cable IP40				
	Sub-D, 25-pin, up to 20 coils	2.5 m	KMP6-25P-20-2,5	530 046
		5 m	KMP6-25P-20-5	530 047
		10 m	KMP6-25P-20-10	530 048
	Sub-D, 25-pin, up to 12 coils	2.5 m	KMP6-25P-12-2,5	530 049
		5 m	KMP6-25P-12-5	530 050
		10 m	KMP6-25P-12-10	530 051
Power supply				
	MicroStyle M12, 5-pin socket (B-coded)	for 0.75 mm ²	NTSD-GD-9-M12-5POL-RK	538 999
Fieldbus connection				
	Plug M12, 5-pin, PG9, for DeviceNet connection		FBS-M12-5GS-PG9	175 380
	Fieldbus socket for MicroStyle connection, M12, socket (A-coded)		FBSD-GD-9-5POL	18 324
Valve terminal connection				
	Connecting cable WS-WD, angled plug-angled socket	0.25 m	KVI-CP-3-WS-WD-0,25	540 327
		0.5 m	KVI-CP-3-WS-WD-0,5	540 328
		2 m	KVI-CP-3-WS-WD-2	540 329
		5 m	KVI-CP-3-WS-WD-5	540 330
		8 m	KVI-CP-3-WS-WD-8	540 331
	Connecting cable GS-GD, straight plug-straight socket	2 m	KVI-CP-3-GS-GD-2	540 332
		5 m	KVI-CP-3-GS-GD-5	540 333
		8 m	KVI-CP-3-GS-GD-8	540 334

Valve terminal type 82 CPA-SC, Smart Cubic

Ordering data

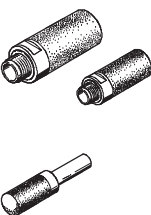



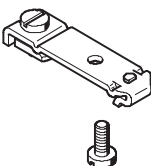
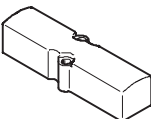

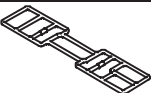

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Ordering data – Accessories					
Designation			Type	Part No.	
Push-in fitting for working ports					
	Connecting thread M5 for tubing O.D.	3 mm	QSM-M5-3	153 302	
		4 mm	QSM-M5-4	153 304	
		3 mm	QSM-M5-3-I	153 313	
		4 mm	QSM-M5-4-I	153 315	
Push-in L-fitting for working ports					
	Connecting thread M5 for tubing O.D.	3 mm	QSML-M5-3	153 331	
		4 mm	QSML-M5-4	153 333	
		6 mm	QSML-M5-6	153 335	
		4 mm	QSMLL-M5-4	153 339	
		6 mm	QSMLL-M5-6	153 341	
Push-in fitting for manifold block					
	Connecting thread M3 for tubing O.D.	3 mm	QSM-M3-3	153 301	
		4 mm	QSM-M3-4	153 303	
		3 mm	QSM-M3-3-I	153 312	
		4 mm	QSM-M3-4-I	153 314	
	Connecting thread M5 for tubing O.D.	3 mm	QSM-M5-3	153 302	
		4 mm	QSM-M5-4	153 304	
		6 mm	QSM-M5-6	153 306	
		3 mm	QSM-M5-3-I	153 313	
		4 mm	QSM-M5-4-I	153 315	
		6 mm	QSM-M5-6-I	153 317	
		Connecting thread G1/8 for tubing O.D.	4 mm	QSM-G1/8-4-I	186 266
			6 mm	QSM-G1/8-6-I	186 267
	8 mm		QS-G1/8-8-I	186 109	
	Connecting thread R1/8 for tubing O.D.	4 mm	QSM-1/8-4	153 305	
		6 mm	QSM-1/8-6	153 307	
		4 mm	QSM-1/8-4-I	153 316	
		6 mm	QSM-1/8-6-I	153 318	
Push-in L-fitting for manifold block					
	Connecting thread M3 for tubing O.D.	3 mm	QSML-M3-3	153 330	
		4 mm	QSML-M3-4	153 332	
		3 mm	QSMLL-M3-3	153 337	
		4 mm	QSMLL-M3-4	153 338	
	Connecting thread M5 for tubing O.D.	3 mm	QSML-M5-3	153 331	
		4 mm	QSML-M5-4	153 333	
		6 mm	QSML-M5-6	153 335	
		4 mm	QSMLL-M5-4	153 339	
		6 mm	QSMLL-M5-6	153 341	
		Connecting thread R1/8 for tubing O.D.	4 mm	QSML-1/8-4	153 334
	6 mm		QSML-1/8-6	153 336	
	4 mm		QSMLL-1/8-4	153 340	
	6 mm		QSMLL-1/8-6	153 342	

Valve terminal type 82 CPA-SC, Smart Cubic

Ordering data

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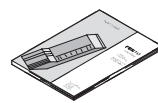
Ordering data – Accessories				
Designation			Type	Part No.
Silencers				
	Connecting thread	M3	U-M3	163 978
		M5	U-M5	4 645
		M5	UC-M5	165 003
		G1/8	UC-1/8	161 419
	Connection type, push-in sleeve	3 mm	UC-QS-3H	165 005
		4 mm	UC-QS-4H	165 006
		6 mm	UC-QS-6H	165 007
		8 mm	UC-QS-8H	175 611
Blanking plugs				
	Thread M5	B-M5	3 843	
	Thread M5	B-M5-B	174 308	
	Thread G1/8	B-1/8	3 568	
Plugs				
	Blanking plug for tubing O.D.	4 mm	QSC-4H	153 267
		6 mm	QSC-6H	153 268
		8 mm	QSC-8H	153 269
		3 mm	QSMC-3H	153 382
Inscription labels				
	6x10 in frames, 64 pieces for valve identification	IBS-6x10	18 576	
	4.5x9 mm, 80 pieces for manifold block identification	MH-BZ-80x	197 259	
Mounting				
	For H-rail	CPASC1-BG-NRH	527 392	
Blanking plate				
	Cover for vacant position ¹⁾	CPASC1-RP	527 062	
	Cover for manual override	CPASC1-MO-V	527 393	
Valve seal				
	For manifold block	CPASC1-SEAL-A	527 394	
Separator element and assembly tool				
	Separator element	CPASC1-KT	536 942	
	Assembly tool for separator element	CPASC1-MWKT	536 943	

1) One self-adhesive label supplied.

Valve terminal type 82 CPA-SC, Smart Cubic

Ordering data

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Ordering data – Accessories				
Designation			Type	Part No.
User documentation				
	User documentation – CPA-SC	German	P.BE-CPASC-DE	530 932
		English	P.BE-CPASC-EN	530 933
		French	P.BE-CPASC-FR	530 934
		Spanish	P.BE-CPASC-ES	530 935
		Italian	P.BE-CPASC-IT	530 936
		Swedish	P.BE-CPASC-SV	530 937
	User documentation – Fieldbus DeviceNet	German	P.BE-CPASC-CPVSC-DN-DE	539 008
		English	P.BE-CPASC-CPVSC-DN-EN	539 009
		French	P.BE-CPASC-CPVSC-DN-FR	539 010
		Spanish	P.BE-CPASC-CPVSC-DN-ES	539 011
		Italian	P.BE-CPASC-CPVSC-DN-IT	539 012
		Swedish	P.BE-CPASC-CPVSC-DN-SV	539 013

Application-optimised valve terminals
Smart Cubic

3.1