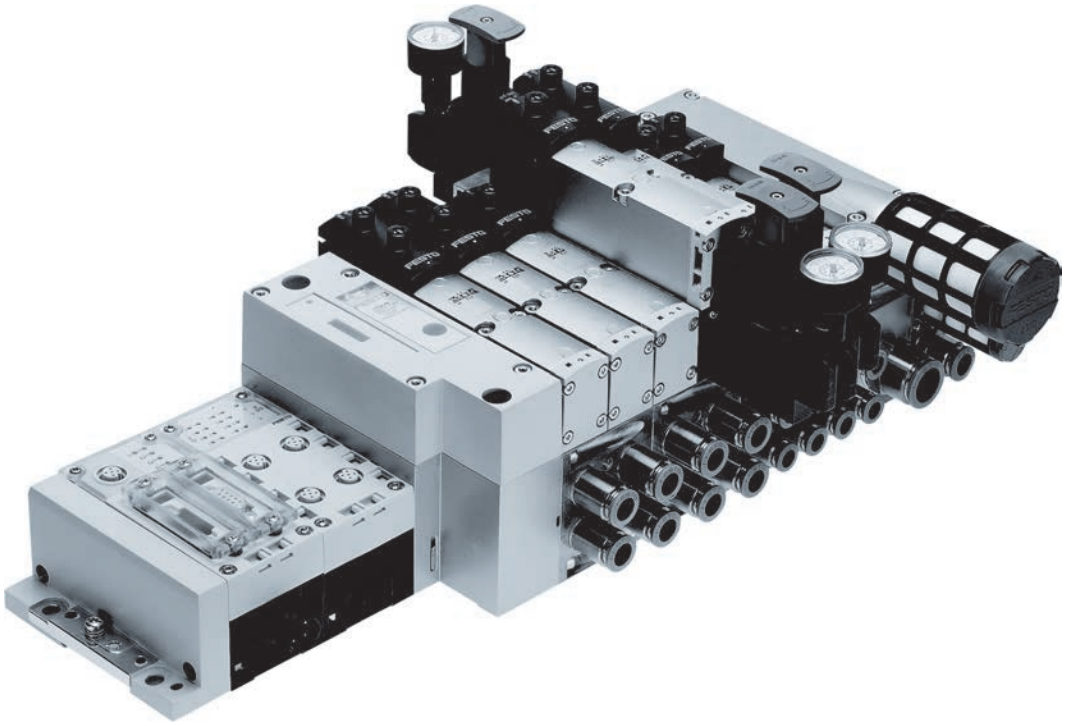
9 Valve terminals



+ Standard valve terminals: valve modules to ISO 15407-1, 15407-2 and ISO 5599-2 for standard valves with versatile valve functions and as plug-in or individual connection
+ Universal valve terminals: sturdy and modular valve modules as a compact or modular sub-base for all standard tasks
+ Application-specific valve terminals: space-saving and compact valve modules for special requirements
+ Electrical peripherals: electric components for valve terminals and the AS-Interface components
+ Accessories

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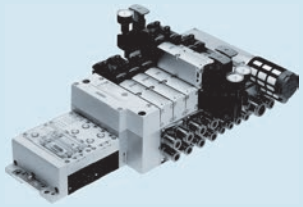
Highlights



VTSA

Standard valve terminal to ISO 15407-2

+ Multi-pin plug or fieldbus connection via CPX system
+ Five valve sizes can be combined on one valve terminal

Page 786

CPX

Terminal

+ Automation platform
+ Open to all common fieldbus protocols and Ethernet

Page 1184

Table of contents

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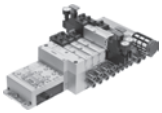
Software tool

Product finder for valve terminals		Find the right valve terminal quickly with the help of the product finder. Start the product finder via the blue icons in the product tree. Select your technical features on the left-hand side step-by-step; the selection of suitable products on the right-hand side is automatically updated to reflect the chosen technical features.	The use of logic checks ensures that only correct configurations are available for selection. The product finder for valve terminals is part of the electronic catalogue and is not available as a separate software program.

Standard valve terminals

Type	 **Valve terminal, ISO 15407-1** **VTIA**	 **Valve terminal, ISO 15407-2/ISO 5599-2** **VTSA**
Width	18 mm, 26 mm	18 mm, 26 mm, 42 mm, 52 mm
Standard nominal flow rate	400 ... 1400 l/min	400 ... 4000 l/min
Max. no of valve positions	16	32
Electrical actuation	Individual connection	Ethernet, fieldbus, multi-pin plug, electrical terminal CPX, integrated controller, individual connection, AS-Interface connection
Valve terminal design	Modular, valve sizes can be mixed	Modular, valve sizes can be mixed
Description	• Conforms to ISO 15407-1 • Wide range of individual electrical connections • Two valve sizes can be combined • Max. 16 valves	• Conforms to ISO 15407-2/ ISO 5599-2 • Multi-pin plug or fieldbus connection via CPX system • Five valve sizes can be combined on one valve terminal • Integrated safety functions • Max. 32 valves
➔ Page/online	vtia	786

Universal valve terminals

Type	 **Valve manifold** **VTUS**	 **Valve terminal with individual electrical connection** **VTUG**	 **Valve terminal with multi-pin plug or fieldbus connection** **VTUG**	 **Valve terminal** **VTUB**
Width	20 mm, 25 mm	10 mm, 14 mm	10 mm, 14 mm	12 mm, 24 mm
Standard nominal flow rate	600... 1300 l/min	80... 780 l/min	120 ... 630 l/min	200 ... 1000 l/min
Max. no of valve positions	16	16	24	16, 35
Electrical actuation	Individual connection	Individual connection	Multi-pin plug, I-Port interface, IO-Link, fieldbus	Individual connection, fieldbus, multi-pin plug
Valve terminal design	Fixed grid	Fixed grid	Fixed grid	Fixed grid
Description	• Robust VUVS valves with long service life • Individual electrical connection • Pilot air supply in the manifold rail • Comprehensive range of accessories	• Compact with small VUVG valves • Connection technology easy to change via the E-box • Wide range of valve functions • Also with semi-inline valves	• Low-cost fixed grid • Extremely easy assembly • Exchangeable electrical actuation • IO-Link capable • Valves VUVG with individual electrical connection can be integrated • Also available with pneumatic multiple connector plate • Max. 24 valves	• Low-cost fixed grid • Extremely easy assembly • Valves in polymer technology • Max. 16 valves • Electrical multi-pin plug connection
➔ Page/online	802	695	824	vtub

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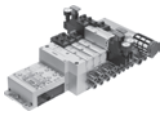
Universal valve terminals

Type	 Valve terminal MPA-L	 Valve terminal MPA-S	 Valve terminal VTSA-F	 Valve terminal, Compact Performance CPV
Width	10 mm, 14 mm, 20 mm	10 mm, 20 mm	18 mm, 26 mm	10 mm, 14 mm, 18 mm
Standard nominal flow rate	160 ... 870 l/min	360 ... 700 l/min	700 ... 1400 l/min	400 ... 1600 l/min
Max. no of valve positions	64	64	32	8
Electrical actuation	Fieldbus, multi-pin plug, control block, electrical terminal CPX, IO-Link, I-Port	Fieldbus, multi-pin plug, control block, electrical terminal CPX, AS-Interface, CP installation system, individual connection	Ethernet, fieldbus, multi-pin plug, electrical terminal CPX, integrated controller, individual connection, AS-Interface connection	AS-Interface, CP installation system, individual connection, fieldbus, multi-pin plug, IO-Link, I-Port
Valve terminal design	Modular, valve sizes can be mixed	Modular, valve sizes can be mixed	Modular, valve sizes can be mixed	Modular
Description	• Maximum modularity • Single granular • Polymer sub-base • 3 valve sizes • Max. 32 valves • Fieldbus connection via CPX • IO-Link capable	• Valve terminals for universal applications • High-performance valves in a sturdy metal housing • Metal linking • Two valve sizes can be combined • Excellent communication due to serial linking • Fieldbus connection via CPX • Max. 128 valves	• Flow rate-optimised VTSA valve terminal • Linking with increased flow rates • Functions as per VTSA	• Maximum performance in the minimum of space • Three sizes • Wide range of connection and mounting options • Multi-pin or fieldbus control • IO-Link capable
➔ Page/online	**845**	**mpa-s**	**vtsa**	**cpv**

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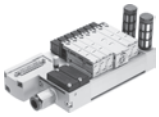
Universal valve terminals

Type	 Valve terminal, Smart Cubic CPV-SC	 Valve manifold, Compact Performance CPV10-EX-VI	 Valve terminal VTUB12
Width	10 mm	10 mm	12 mm
Standard nominal flow rate	170 l/min	0 ... 400 l/min	230 ... 400 l/min
Max. no of valve positions	16	8	35
Electrical actuation	CP installation system, individual connection, fieldbus, multi-pin plug	Individual connection	Multi-pin plug, I-Port interface, IO-Link, fieldbus
Valve terminal design	Modular		Fixed grid
Description	• Small and compact • High flow rate even with compact design • Suitable for vacuum • Multi-pin or fieldbus control • Max. 16 valves	• Intrinsically safe valve manifold design to ATEX Category 2 (Zone 1) • Optimised for control cabinet assembly • Optimal for pilot control of process valves	• Compact dimensions • Poppet valves in polymer technology • Multi-pin or fieldbus control • IO-Link capable
➔ Page/online	**cpv-sc**	**cpv10-ex**	**vtub-12**

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Application-specific valve terminals

Type	 Valve terminal MPA-C	 Valve terminal VTOC	 Valve terminal MH1
Width	14 mm	10 mm	10 mm
Standard nominal flow rate	0 ... 780 l/min	10 l/min	10 ... 14 l/min
Max. no of valve positions	64	24	24
Electrical actuation	Multi-pin, IO-Link, I-Port	Multi-pin plug, I-Port interface, IO-Link, fieldbus	Individual connection, multi-pin plug
Valve terminal design	Modular, valve sizes can be mixed	Fixed grid	Fixed grid
Description	• Valve terminals in Clean Design • Excellent corrosion resistance • Degree of protection IP69K • FDA-compliant materials • Redundant sealing system • Easy to clean • Max. 32 valves	• Compact pilot valves • Compact assembly • Greater safety by interlock function • Multi-pin or fieldbus control • IO-Link capable	• Miniaturised poppet valves • Multi-pin or electrical individual connection • Flow rate up to 14 l/min
➔ Page/online	mpa-c	vtoc	mh1

Electrical peripherals

Type	 Fieldbus module CTEU	 CPI installation system CTEC	 Terminal CPX	 Terminal CPX-P
Protocol	AS-Interface, CANopen, CC-Link, DeviceNet, EtherCAT, PROFINET, PROFIBUS DP	INTERBUS, DeviceNet, PROFIBUS, CANopen, CC-Link, Ether-Net/IP, PROFINET, EtherCAT, ModbusTCP	INTERBUS, DeviceNet, PROFIBUS, CANopen, CC-Link, Ether-Net/IP, PROFINET, EtherCAT, ModbusTCP	DeviceNet, PROFIBUS, EtherNet/IP, PROFINET, ModbusTCP
Maximum address volume for inputs	2 ... 64 byte	16 byte	64 byte	64 byte
Maximum address volume for outputs	2 ... 64 byte	16 byte	64 byte	64 byte
Parameterisation	Activate diagnostics, diagnostic behaviour, failsafe and idle response, failsafe response, watchdog disable, watchdog enable		Diagnostic behaviour, failsafe response, forcing of channels, signal setup	Diagnostic behaviour, failsafe response, forcing of channels, signal setup
Degree of protection	IP65, IP67	IP65, IP67	IP65, IP67	IP20, IP65
Nominal DC operating voltage	24 ... 30 V	24 V	24 V	24 V
Operating voltage range DC	18 ... 31.6 V	18 ... 30 V	18 ... 30 V	18 ... 30 V
Description	• For valve terminals VTUB-12, VTUG, MPA-L, CPV, VTOC • Can be expanded into installation systems CTEL • Fieldbus-typical LEDs, interfaces and switching elements available • Isolated power supply for electronics and valves	• CPX Master module for four CPI strings • Combination of centralised and decentralised installation possible • Decentralised pneumatic components and sensors for fast processes • Can be connected to valve terminal CPV, MPA-S, CPV-SC	• Automation platform • Choice of polymer or metal housing with individual linking • Open to all common fieldbus protocols and Ethernet • Integrated diagnostic and maintenance functions • Applicable as stand-alone as remote I/O or with valve terminals MPA-S, MPA-L, VTSA/VTSA-F	• Use of harmonised remote I/O and valve terminals in a control cabinet • Unique modular structure • Comprehensive integrated diagnostic and maintenance functions • Combination with modules of the electrical terminal CPX, which enables use for hybrid applications
➔ Page/online	cteu	ctec	1184	cpx-p

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Electrical peripherals

	
Type	**AS-Interface components** **ASI-4DI3DO, ASI-8DI, ASI-EVA, ASI-PRG, CACC, CESA**
Description	• AS-i master gateway • Duplicate address recognition • Direct operation by pushbuttons • Graphic display • Comprehensive diagnostics via LED and display • Specification 3.0
➔ **Page/online**	asi

Customised components – for your specific requirements

Valve terminals with customised designs
Can't find the valve terminal you need in our catalogue? We can offer you customised components that are tailored to your specific requirements – from minor product modifications to complete new product developments.

Common product modifications:
- Coatings for special ambient conditions
- Customised cables: length, pin allocation, pre-assembled with plug
- Modified actuating elements
- Modified connecting thread
- Modified valve sub-bases

Many additional variants are possible. Ask your Festo sales engineer, who will be happy to help. Further information on customised components can be found on your local website at www.festo.-com

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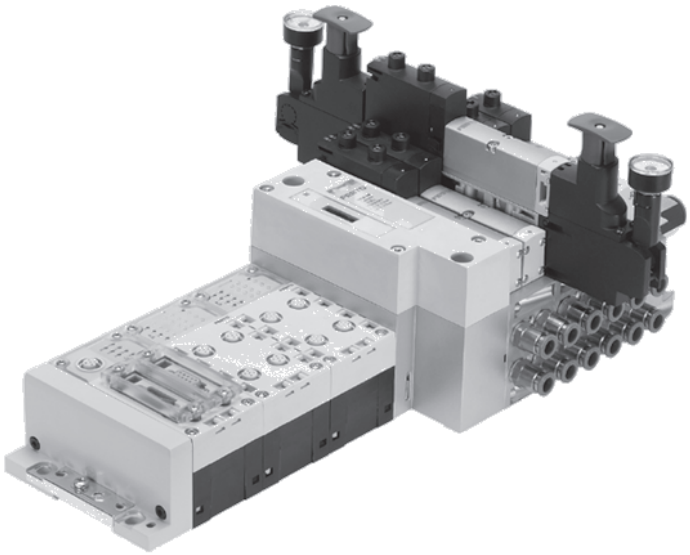
Overview/Configuration/Ordering
➔ **www.festo.com/catalogue/vtsa**

Additional information/Support/User documentation
➔ **www.festo.com/sp/vtsa**

ISO valve terminals

Valve terminals to ISO 15407-2/ISO 5599-2

VTSA



+ Sturdy and flexible valve terminal
+ Valve widths 18 mm, 26 mm, 42 mm and 52 mm can be combined on a single valve terminal without an adapter
+ Integrated safety functions

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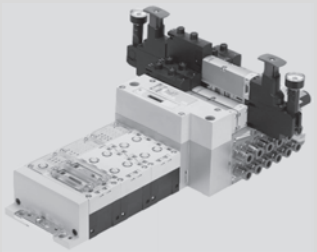

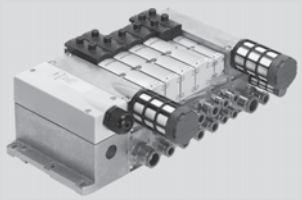

- Standard valve width 18/26/42/52/65 mm, flow rates up to 4000 l/min
- Combination of valve sizes possible
- Modular valve terminal for up to 32 valves
- Complete and standardised valve range
- Wide range of stacked valve assemblies: pressure regulator plate, flow control plate, vertical pressure shut-off plate, etc.
- Sturdy metal design
- Repair service
- Channel-oriented diagnostics down to the individual valve

➔ **www.festo.com/catalogue/vtsa**

Product range overview

Function	Version	Code	Size					➔ Page/ online
			18 mm (ISO 02)	26 mm (ISO 01)	42 mm (ISO 1)	52 mm (ISO 2)	65 mm (ISO 3)	
Position function 1-32	5/2-way valve, single solenoid, pneumatic spring return	M	■	■	■	■	■	792
	5/2-way valve, single solenoid with spring return	O	■	■	■	■	■	792
	5/2-way valve, double solenoid	J	■	■	■	■	■	792
	5/2-way valve, double solenoid, dominant	D	■	■	■	■	■	792
	2x3/2-way valve, normally open	N	■	■	■	■	–	792
	2x3/2-way valve, normally closed	K	■	■	■	■	–	792
	2x3/2-way valve, 1x normally closed, 1x normally open	H	■	■	■	■	–	792
	5/3-way valve, mid-position pressurised	B	■	■	■	■	■	792
	5/3-way valve, mid-position closed	G	■	■	■	■	■	792
	5/3-way valve, mid-position exhausted	E	■	■	■	■	■	792
	2x3/2-way valve, normally open, reverse operation	P	■	■	■	■	–	792
	2x3/2-way valve, normally closed, reverse operation	Q	■	■	■	■	–	792
	2x3/2-way valve, 1x normally closed, 1x normally open, reverse operation	R	■	■	■	■	–	792
	2x2/2-way valve, normally closed	VC	■	■	■	■	–	792
	2x2/2-way valve, normally closed, vacuum operation	VV	■	■	■	–	–	792
	5/2-way control block with plug type C individual connection and switching position sensing via PNP sensor, plug M8	SP	–	■	–	–	–	792
	5/2-way control block with plug type C individual connection and switching position sensing via NPN sensor, plug M8	SN	–	■	–	–	–	792

Note
Valve terminals can be ordered quickly and easily online.
The convenient product configurator can be found at:

➔ **www.festo.com/catalogue/vtsa**

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Product range overview

Function	Version	Code	Size					→ Page/ online
			18 mm (ISO 02)	26 mm (ISO 01)	42 mm (ISO 1)	52 mm (ISO 2)	65 mm (ISO 3)	
Position function 1-32	5/3-way valve, mid-position flow from 1 to 2, closed in 4	VG	–	–	■	■	–	vtsa
	5/3-way valve, mid-position exhausted, switching position 14 detenting, 12 mechanical spring	SA	–	■	–	–	–	vtsa
	5/3-way valve, mid-position port 2 pressurised, port 4 exhausted, switching position 14 detenting, 12 mechanical spring	SB	–	■	–	–	–	vtsa
	5/3-way valve, mid-position port 4 pressurised, port 2 exhausted, switching position 14 detenting, 12 mechanical spring	SD	■	–	–	–	–	vtsa
	5/3-way valve, mid-position exhausted, switching position 12 detenting, 14 mechanical spring	SE	–	■	–	–	–	vtsa
	5/2-way valve, single solenoid, with spring return and switching position sensing via PNP sensor, M8 plug	SO	■	■	–	–	–	vtsa
	5/2-way valve, single solenoid, with spring return and switching position sensing via NPN sensor, M8 plug	SQ	■	■	–	–	–	vtsa
	5/2-way valve, single solenoid, with spring return and switching position sensing via PNP sensor, 0.5 m cable and M8 plug	SS	■	■	–	–	–	vtsa
	Vacuum block with ejector pulse and adjustable air saving function (plate for 2 valve positions, sensor SDE3 with display and M12 connection)	VB	–	■	–	–	–	vtsa
	Vacant position	L	■	■	■	■	■	vtsa

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Note
Valve terminals can be ordered quickly and easily online.
The convenient product configurator can be found at:

→ **www.festo.com/catalogue/vtsa**

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Features

Innovative

- High-performance valves in a sturdy metal housing
- Five valve sizes on one valve terminal (width 65 mm with adapter)
- Standardised from the multi-pin plug to the fieldbus connection and control block
- Dream team: fieldbus valve terminal suitable for electrical peripherals CPX. This means:
  - Forward-looking internal communication system for controlling the valves and CPX modules
  - Four valve sizes on one valve terminal without adapters
- Valve functions for integration in control architectures of higher categories to EN ISO 13849-1

Versatile

- Modular system offering a range of configuration options
- Expandable with up to 32 solenoid coils
- Conversions and extensions are possible at any time
- Manifold sub-bases can be extended using four screws, sturdy duct separation on metal support
- Integration of innovative function modules possible
- Supply plates enable a flexible air supply and variable pressure zones
- Reverse operation
- High pressure range –0.9 ... 10 bar, flow range 550 ... 4000 l/min
- Wide range of valve functions
- Valve supply 24 V DC or 110 V AC

Reliable

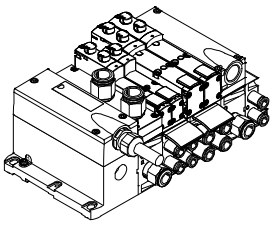
- Sturdy and durable metal components
  - Valves
  - Manifold sub-bases
  - Seals
- Fast troubleshooting thanks to LEDs on the valves and diagnostics via fieldbus
- Reliable servicing thanks to valves that can be replaced quickly and easily
- Manual override, either non-detenting, non-detenting/detenting or covered
- Durable thanks to tried-and-tested piston spool valves
- Large and durable labelling system
- 100% duty cycle

Easy to install

- Ready-to-install and tested unit
- Reduced outlay on selection, ordering, installation and commissioning
- Secure mounting on wall or H-rail

Electrical connection options

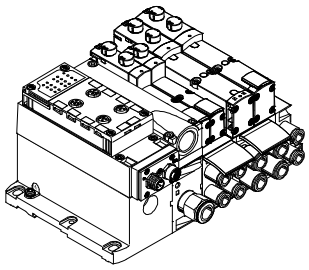
Multi-pin plug connection



Control signals from the controller to the valve terminal are transmitted via a pre-assembled multi-wire connecting cable or a self-assembled multi-pin plug connection, which substantially reduces installation time.
The valve terminal can be equipped with max. 32 solenoid coils.

Versions
- Multi-pin plug connection with terminal strip (spring-loaded terminal)
- Connecting cable for multi-pin plug connections, fully assembled (D-Sub)
- Sub-D plug connector for assembly by the user, 37-pin
- Round plug connector M23, 19-pin

AS-Interface connection



A special feature of the AS-Interface is the simultaneous transmission of data and supply power via a two-wire cable. The encoded cable profile prevents connection with incorrect polarity.
The valve terminal with AS-Interface is available in the following versions:

- With one to eight modular valve positions (max. 8 solenoid coils). This corresponds to 1 to 8 VTSA valves.
- With all available valve functions.

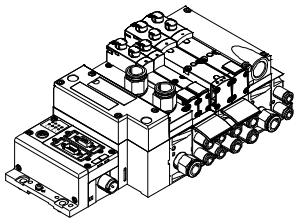
The connection technology used for the inputs can be selected as with CPX: M8, M12, quick connector, Sub-D, spring-loaded terminal (terminals to IP20).

9

Features

Electrical connection options

Fieldbus connection via the CPX system

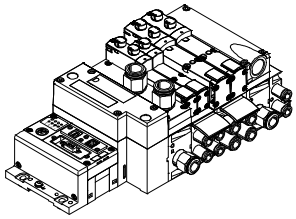


An integrated fieldbus node manages the communication connection with a higher-order PLC. This enables a space-saving pneumatic and electronic solution.

Valve terminals with fieldbus interfaces can be configured with up to 16 manifold sub-bases. With 2 solenoid coils per connection, up to 32 solenoid coils can thus be actuated.

Versions:
- PROFIBUS
- INTERBUS
- DeviceNet
- CANopen
- CC-LINK
- EtherNet/IP
- EtherCAT
- Modbus TCP
- PROFINET
- POWERLINK
- Sercos III

Control block connection via the CPX system



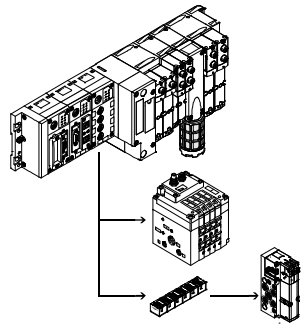
A controller integrated in the Festo valve terminal enables the construction of stand-alone control units with protection to IP65 without a control cabinet thanks to two different operating modes.

In the slave operating mode, these valve terminals can be used for intelligent preprocessing and are therefore ideal modules for designs using decentralised intelligence.

In the master operating mode, terminal groups can be designed with many options and functions that can autonomously control a medium-sized machine/system.

9

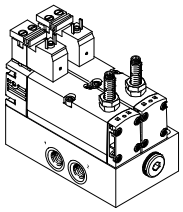
CP string extension



The optional CP string extension enables additional valve terminals and I/O modules to be connected to the fieldbus node of the CPX terminal on up to 4 CP strings. Different input and output modules as well as CPV-SC, CPV and CPA valve terminals can be connected.
The maximum length of the CP string extension is 10 metres, which means that the extension modules can be mounted directly on-site. All the required electrical signals are transmitted via the CP cable, which in turn means that no further installation is needed on the extension module.

One CP string offers:
- 32 input signals
- 32 output signals for output modules 24 V DC or solenoid coils
- Logic and sensor supply for the input modules
- Load voltage supply for the valve terminals
- Logic supply for the output module

Control block with safety function, width 26 mm



These valves are used for special applications, for example for:
- Protecting against unexpected start-up
- Safe reversing
- Drives in manually loaded devices

This control block is suitable for use as a press safety valve to EN 962.

This valve is a safety device in accordance with the Machinery Directive 2006/42/EC.

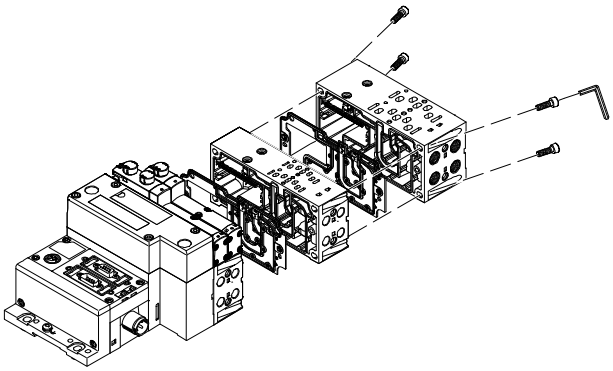
Features

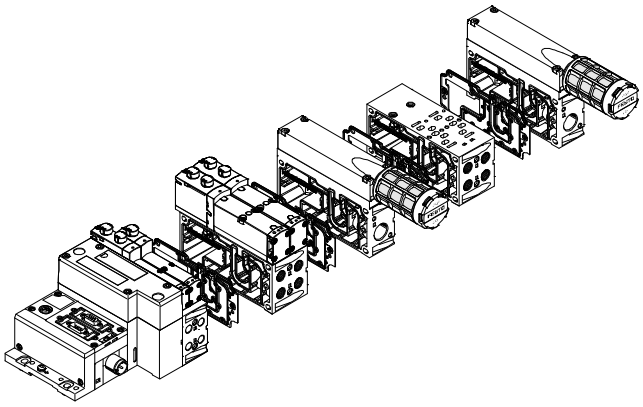
Modular pneumatic components

The modular design of the VTSA/VTSA-F enables maximum flexibility right from the planning stage and offers maximum ease of service in operation.
The system consists of manifold sub-bases and valves.

The manifold sub-bases are screwed together and thus form the support system for the valves.
Inside the manifold sub-bases are the connection ducts for supplying compressed air to and exhausting from the valves on the terminal as well as the working ports for the pneumatic cylinders for each valve.
Each manifold sub-base is connected to the next using four screws.

Individual valve terminal sections can be isolated and further manifold blocks inserted by loosening these screws. This ensures that the valve terminal can be rapidly and reliably extended.





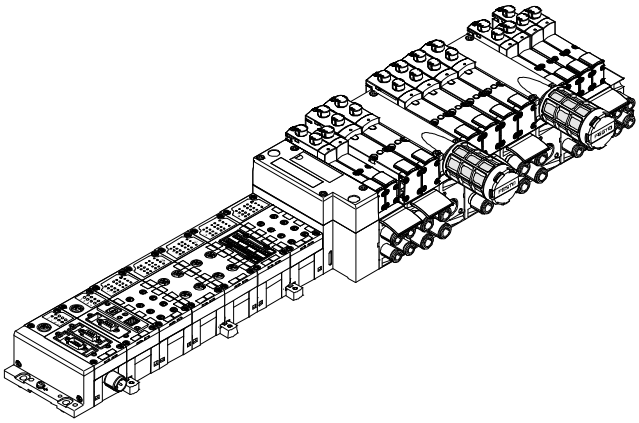
Modular electrical peripherals

The manner in which the valves are actuated differs according to whether you are using a multi-pin terminal or fieldbus terminal.

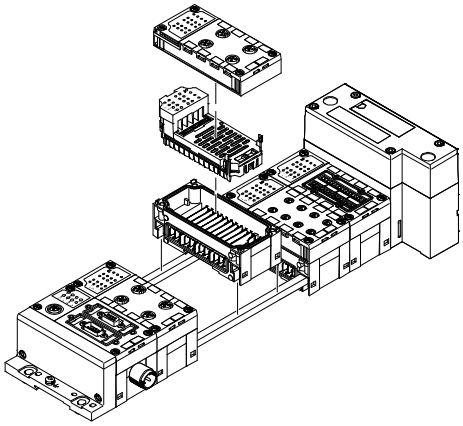
The VTSA/VTSA-F with CPX interface is based on the internal bus system of the CPX terminal and uses this communication system for all solenoid coils and a range of electrical input and output functions.

Parallel linking enables the following:
- Transmission of switching information
- Compact design
- Position-based diagnostics
- Separate voltage supply for valves
- Flexible conversion without address shifting
- Transmission of status, parameter and diagnostic data

VTSA with electrical peripherals CPX



Modularity with electrical peripherals CPX



Valve terminals VTSA, ISO 15407-2, ISO 5599-2

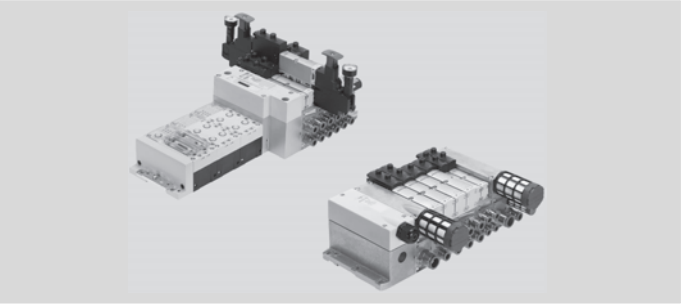
FESTO

Data sheet

- Flow rate
  Up to 2900 l/min

- Operating voltage
  24 V DC
  110 V AC

- Valve width
  18 mm
  26 mm
  42 mm
  52 mm



Technical data Download CAD data ➔ **www.festo.com**

Design			Piston spool valve
Width		[mm]	18/26/42/52
Lubrication			Life-time lubrication
Type of mounting			Wall mounting
			On H-rail to EN 60715
Manual override			Detenting, non-detenting, covered
Pneumatic connection			Via manifold sub-base
Supply port		1	G½, QS-G½-12, QS-G½-16
Exhaust port		3.5	G½, QS-G½-12, QS-G½-16
Working ports (dependent on the connection type)	Width 18 mm (ISO 02)	2.4	G⅛
	Width 26 mm (ISO 01)	2.4	G¼
	Width 42 mm (ISO 1)	2.4	G⅜
	Width 52 mm (ISO 2)	2.4	G½
External pilot air port		12, 14	G¼

Technical data Download CAD data ➔ **www.festo.com**

Valve function/order code		N	K	H	P	Q	R	M	O	J	D	B	G	E	VC	VV
Valve switching times [ms]																
Width 18 mm (ISO 02), nominal operating voltage 24 V DC/110 V AC	On	12	12	12	25	25	25	22	12	–	–	15	15	15	12	12
	Off	30	30	30	12	12	12	28	38	–	–	44	44	44	30	30
	Change-over	–	–	–	–	–	–	–	–	11	13	–	–	–	–	–
Width 26 mm (ISO 01) nominal operating voltage 24 V DC/110 V AC	On	20	20	20	32	32	32	25	20	–	–	22	22	22	20	20
	Off	38	38	38	30	30	30	45	65	–	–	65	65	65	38	38
	Change-over	–	–	–	–	–	–	–	–	18	21	–	–	–	–	–
Width 42 mm (ISO 1) nominal operating voltage 24 V DC	On	20	20	20	34	34	34	27	22	–	–	22	22	22	20	20
	Off	38	38	38	28	28	28	45	60	–	–	65	65	65	38	38
	Change-over	–	–	–	–	–	–	–	–	16	19	38	38	38	–	–
Width 42 mm (ISO 1) nominal operating voltage 110 V AC	On	22	22	22	34	34	34	20	20	–	–	22	22	22	22	22
	Off	46	46	46	38	38	38	55	55	–	–	68	68	68	46	46
	Change-over	–	–	–	–	–	–	–	–	16	19	41	41	41	–	–
Width 52 mm (ISO 2) nominal operating voltage 24 V DC	On	20	20	20	20	20	20	40	20	–	–	23	23	23	14	–
	Off	35	35	35	35	35	35	45	60	–	–	60	60	60	35	–
	Change-over	–	–	–	–	–	–	–	–	18	18	38	38	38	–	–
Width 52 mm (ISO 2) nominal operating voltage 110 V AC	On	35	35	35	50	50	50	70	25	–	–	30	30	30	35	–
	Off	70	70	70	65	65	65	90	110	–	–	100	100	100	70	–
	Change-over	–	–	–	–	–	–	–	–	35	42	60	60	60	–	–
Standard nominal flow rate on valve terminal [l/min]																
Width 18 mm (ISO 02)		400						550				450			500	
Width 26 mm (ISO 01)		900						1100				1000			1000	
Width 42 mm (ISO 1)		1200						1300				1200			1400	
Width 52 mm (ISO 2)		2400						2900				2800			2800	

FESTO

Data sheet

Operating conditions																
Valve function/order code			N	K	H	P	Q	R	M	O	J	D	B	G	E	VC	VV
Operating medium			Compressed air to ISO 8573-1:2010 [7:4:4]														
Pilot medium			Compressed air to ISO 8573-1:2010 [7:4:4]														
Note on operating/pilot medium			Lubricated operation possible (in which case lubricated operation will always be required)														
Ambient temperature		[°C]	–5 ... +50														
Temperature of medium		[°C]	–5 ... +50														
Operating pressure		[bar]	3 ... 10			–0.9 ... +10										3 ... 10	–0.9 ... +10
Operating pressure for valve terminal with internal pilot air supply		[bar]	3 ... 10														
Pilot pressure		[bar]	3 ... 10														

Electrical data – VTSA with CPX terminal																
Valve function/order code			N	K	H	P	Q	R	M	O	J	D	B	G	E	VC	VV
Power supply for electronics ($U_{EL/SEN}$)																	
Operating voltage		[V DC]	24 ±10%														
Max. intrinsic current consumption at 24 V DC		[mA]	20														
Duty cycle ED			100%														
Load voltage supply for valves (U_{val})																	
Operating voltage		[V DC]	24 ±10%														
Degree of protection to EN 60529			IP65, NEMA 4 (for all types of signal transmission in mounted state)														
Power consumption	Width 18 mm	[W]	1.3						1.6		1.3		1.6		1.3		
	Width 26 mm	[W]	1.3						1.6		1.3		1.6		1.3		
	Width 42 mm	[W]	1.3						1.6		1.3		1.6		1.3		
	Width 52 mm	[W]	4.6						4.6		4.6		4.6		4.6		

Pneumatic connection sizes		
Right-hand end plate (duct 12, 14)	Code V, X	G¼
	Code V1, V3, X1, X3	G¼
Right-hand end plate (duct 1, 3, 5)	Code V, X	G½
	Code V1, V3, X1, X3	G¾
Left-hand supply plate (duct 1, 3, 5)		G½
Manifold sub-base (duct 2, 4)	Width 18 mm	G⅛
	Width 26 mm	G¼
	Width 42 mm	G⅜
	Width 52 mm	G½

Materials	
Manifold sub-base	Die-cast aluminium
Valve	Die-cast aluminium, PA
Seals	FPM, NBR, HNBR
Supply plate	Die-cast aluminium
Right-hand end plate	Die-cast aluminium
Pneumatic interface for CPX	Die-cast aluminium
Flow control plate	Die-cast aluminium
Pressure regulator plate	Die-cast aluminium, PA
Multi-pin manifold block	Die-cast aluminium
Cover for the pneumatic interface and multi-pin plug connection	PA
Note on materials	RoHS-compliant

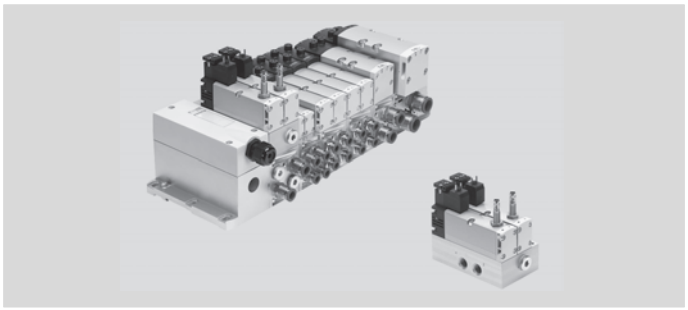
FESTO

Data sheet – Control block, VOFA

Flow rate
Up to 950 l/min

Operating voltage
24 V DC

Operating pressure
3 ... 10 bar



Description

The control block is designed for two-channel actuation of pneumatic drive components such as double-acting linear cylinders, for example, and can be used to realise the following protective measures:
- Protection against unexpected start-up (EN 1037)
- Reversing hazardous movements, provided the reversing motion will not result in further hazards

The control attributes of the control block enable Performance Level e to be achieved for the protective measures. The control block has been developed and manufactured in accordance with the basic and proven safety principles of EN ISO 13849-1 and EN ISO 13849-2.

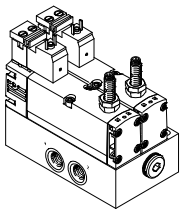
The requirements of EN ISO 13849-1 and EN ISO 13849-2 (e.g. CCF, DC) must be taken into consideration for implementation and operation of the component and for use in higher categories (2 to 4). When using this product in machines or systems subject to specific C standards, the requirements specified in these standards must be observed.

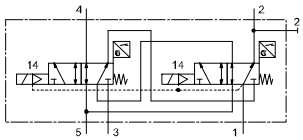
The control block with safety function is designed for installation in machines and automation systems and must only be used in industrial applications (high-demand mode).
The control block with safety function is suitable for use as a press safety valve to EN 962.

More information and technical data
➔ Internet: User documentation

9

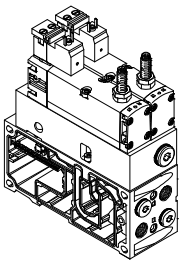
Decentralised individual connection variant

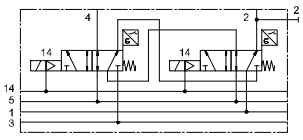




Two solenoid valves on manifold subbase with square plugs to EN 175301-803, type C and integrated piston position sensing.

Version for valve terminal VTSA/VTSA-F





Two solenoid valves on manifold subbase for valve terminal VTSA/VTSA-F with square plugs and integrated piston position sensing.
Electrical actuation takes place independently of the valve terminal (individual, multi-pin plug or fieldbus/control block connection) via a standardised square plug to EN 175301-803, type C.

Function – Pneumatic/electrical interlinking

The safety function is achieved through two-channel pneumatic linking of two 5/2-way single-solenoid valves within the control block: port 4 is only pressurised if both solenoid valves are switched to switching position (14).
Port 2 is always pressurised if at least one of the two solenoid valves is in normal position. The valve is reset via a mechanical spring.

The switching operation of the solenoid valves can be monitored by sensing via the proximity sensors at the solenoid valves (switching position sensing). This is done by linking the control signal and signal change of the proximity sensor so that it is possible to check whether the piston spools of the solenoid valves are reaching or leaving the normal position (expectations).

The piston spools of the solenoid valves are designed so that pneumatic short circuits between ports 2 and 4 are prevented (non-overlapping).

The two solenoid valves must be actuated via two separate ducts to achieve the desired category 4 (Performance Level e, to EN ISO 13849-1).

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Data sheet – Control block, VOFA

Technical data			Download CAD data ➔ **www.festo.com**
Type		VOFA-L26-T52-M-G14-1C1 (individual sub-base)	VOFA-B26-T52-M-1C1 (on valve terminal)
Design		Piston spool valve	
Sealing principle		Soft	
Actuation type		Electrical	
Type of pilot control		Piloted	
Pilot air supply		Internal	Internal/external via valve terminal
Type of mounting		Via through-hole, on manifold sub-base	
Mounting position		Any	
Manual override		None	
Valve switching status display		Via accessories	
Standard nominal flow rate	[l/min]	950	830
Performance Level (PL)		Protection against manipulation, prevention of unexpected start-up/up to category 4, Performance Level e	
		Reversing a movement/to category 4, Performance Level e	
Switching times [ms]			
Valve switching time	On	22	22
	Off	56	59
Valve sensor switching time[1)]	On	60	60
	Off	11	11

1) Valve sensor switching time off: period of time from coil being energised to sensor being switched off when using a PNP sensor.
Valve sensor switching time on: period of time from coil being de-energised to 0-L edge at the sensor when using a PNP sensor.

Operating conditions			
Type		VOFA-L26-T52-M-G14-1C1 (individual sub-base)	VOFA-B26-T52-M-1C1 (on valve terminal)
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)	
Ambient temperature	[°C]	–5 ... +50	
Temperature of medium	[°C]	–5 ... +50	
Operating pressure	[bar]	3 ... 10	0 ... 10
Pilot pressure	[bar]	3 ... 10	
Max. positive test pulse with logic 0	[µs]	1000	
Max. negative test pulse with logic 1	[µs]	800	

FESTO

Data sheet – Control block, VOFA

Electrical data – Control block		
Electrical connection		Plug to EN 175301-803, type C, without protective conductor
Nominal operating voltage	[V DC]	24
Power consumption	[W]	1.8
Max. magnetic interference field	[mT]	60
Switching position sensing		Normal position via sensor
Duty cycle ED	[%]	100
Degree of protection to EN 60529		IP65, NEMA 4 (for all types of signal transmission in mounted state)

Electrical data – Sensor		
Electrical connection		Cable, 3-wire
		Plug M8x1, 3-pin
Cable length	[m]	2.5
Switching output		PNP or NPN
Switching element function		N/C contact
Signal status display		Yellow LED
Operating voltage range	[V DC]	10 ... 30
Sensor idle current	[mA]	Max. 10
Max. output current	[mA]	200
Voltage drop	[V]	Max. 2
Max. switching frequency	[Hz]	5000
Measuring principle		Inductive

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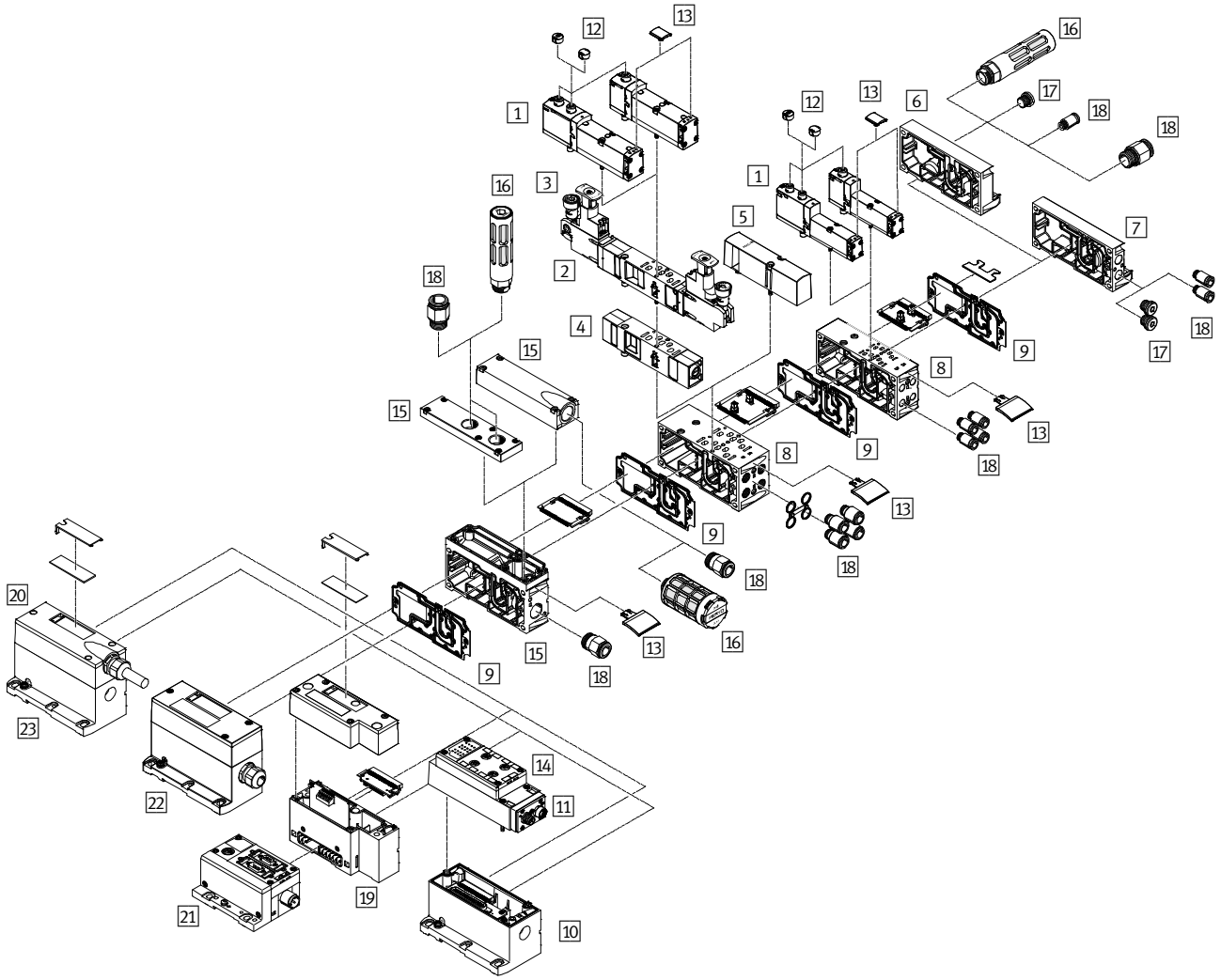
Connection sizes of the pneumatic connections			
Type		VOFA-L26-T52-M-G14-1C1 (individual sub-base)	VOFA-B26-T52-M-1C1 (on valve terminal)
Supply port	1	G¼	Via the manifold sub-base of the valve terminal
Exhaust port	3/5, 33	G¼	
Working ports	2/4	G¼	
Pilot air supply	14	–	
Pressure gauge		G¼	G¼

Materials	
Sub-base/manifold sub-base	Wrought aluminium alloy
Valve	Die-cast aluminium, PA
Seals	FPM, NBR, HNBR
Screws	Galvanised steel
Sensor housing	High-alloy stainless steel
Sensor cable sheath	PUR
Note on materials	RoHS-compliant

FESTO

Accessories



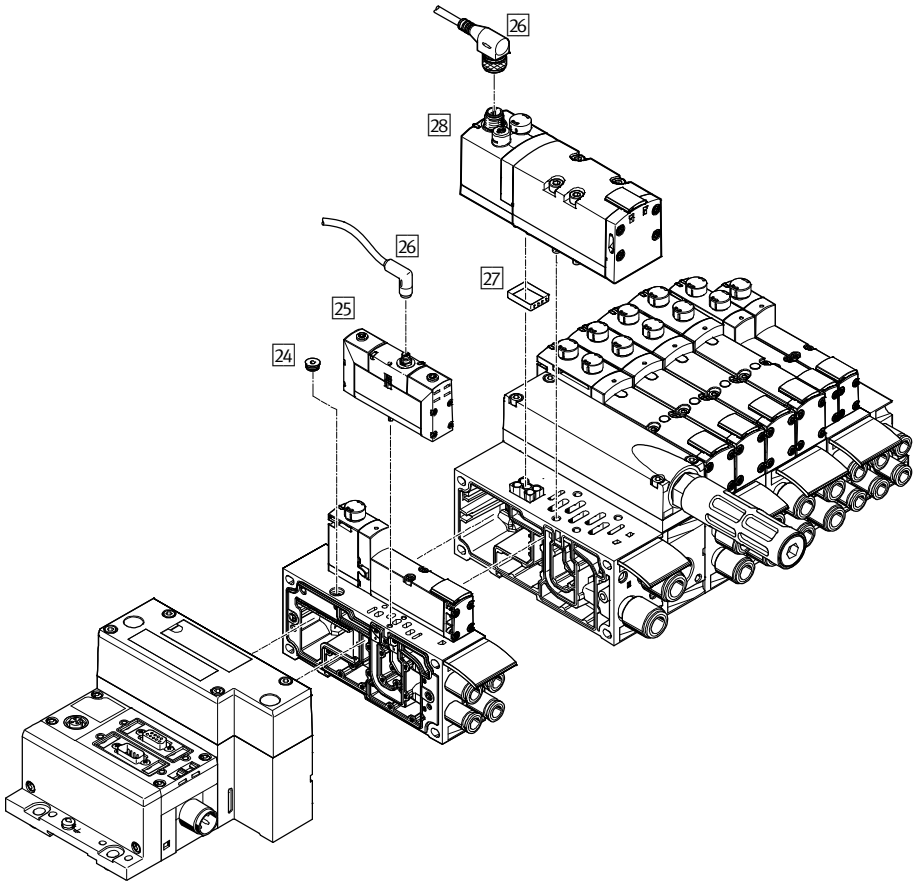
Accessories		➔ Page/online
1	Solenoid valve VSVA	792
2	Regulator plate VABF	vtsa
3	Accessories for regulator plate (pressure gauge PAGN, cartridge fitting QSP)	800
4	Additional stacked valve assemblies (flow control plate, vertical supply plate or vertical pressure shut-off plate) VABF	vtsa
5	Blanking plate VABB for vacant position	vtsa
6	Right-hand end plate VABE with ports for supply air/exhaust air	vtsa
7	Right-hand end plate VABE with pilot air selector	vtsa
8	Manifold sub-base VABV	vtsa
9	Duct separator VABD	vtsa
10	Electrical interface VABE for AS-Interface (delivery unit with AS-Interface module VAEM)	vtsa-asi
11	AS-Interface module VAEM	vtsa-asi
12	Cover cap VAMC for non-detenting/covered manual override	800
13	Inscription label ASCF	800

Accessories		➔ Page/online
14	Manifold block CPX-AB for AS-Interface	vtsa-asi
15	Supply plate VABF with ducted exhaust air, ports 3 and 5 separated or combined	vtsa
16	Silencer U	800
17	Blanking plug B	800
18	Push-in fitting QS	800
19	Pneumatic interface VABA	1217
20	Multi-pin plug connection NEBV/NECV with connecting cable or cover for self-assembly	vtsa
21	Fieldbus interface CPX-FB	1185
22	Multi-pin plug connection VABE with terminal strip (spring-loaded terminal)	vtsa
23	Multi-pin plug connection VABE with connecting cable for multi-pin plug connections	vtsa
–	Control block VOFA	801
–	Wall mounting VAME	801
–	90° connection plate VABF	801
–	User documentation P.BE-VTSA	801

FESTO

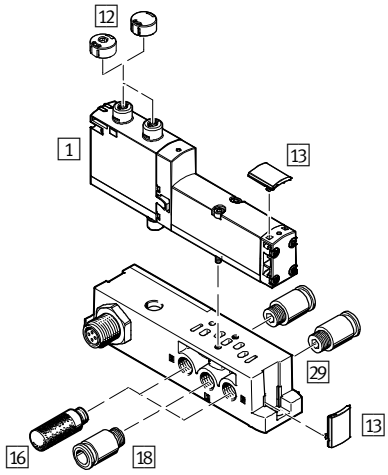
Accessories for valve with individual connection

In applications with specific emergency off conditions, it may be necessary to switch one or more valves separately from the valve terminal controller. Standard valves (VSVA) with individual electrical connection (round or square plug) are mounted on the valve terminal to this end.
In order for protection class IP65 to be achieved, the functionless opening in the sub-base for the electrical connection must be sealed.
A sealing cap is available for the 18 mm and 26 mm widths. With manifold or individual sub-bases, valves with width 42 mm and 52 mm must be used with a seal to comply with the IP degree of protection.
For central control of the valve terminal via a multi-pin plug or fieldbus connection, the valve position occupied in this way acts like a vacant position, i.e. the assigned address in the fieldbus node or the corresponding connection in the multi-pin plug connection is occupied.



Accessories		→ Page/online
24	Sealing cap VABD	vtsa
25	Solenoid valve to ISO15407-1 VSVA	659
26	Connecting cable NEBU	vsva
27	Seal VABD-S2	vtsa
28	Solenoid valve to ISO5599-1 VSVA	676
–	Control block VOFA	801
–	Wall mounting VAME	801
–	90° connection plate VABF	801
–	User documentation P.BE-VTSA	801

Accessories for valve on individual sub-base

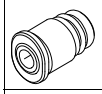
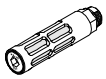


Accessories		➔ Page/online
1	Solenoid valve VSVA	792
12	Cover cap VAMC for manual override	800
13	Inscription label ASCF	800
16	Silencer U	800
18	Push-in fitting QS	800
29	Individual sub-base VABS	vtsa
–	Control block VOFA	801
–	Wall mounting VAME	801
–	90° connection plate VABF	801
–	User documentation P.BE-VTSA	801

9

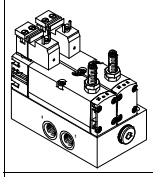
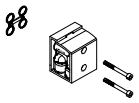
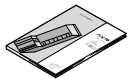
FESTO

Accessories – Ordering data

	Code[1]	Description				Part no.	Type
3 **Accessories for regulator plate, pressure gauge for widths 18 mm and 26 mm**							**Technical data** online: → pagn
	U	6 bar, for regulator plate code ZF, ZG, ZH, ZI, ZJ, ZM, ZN	Widths 18 mm and 26 mm			**543488**	**PAGN-26-10-P10**
			Widths 42 mm and 52 mm			**548009**	**PAGN-40-10-P10**
	T	10 bar, for regulator plate code ZA, ZB, ZC, ZD, ZE, ZK, ZL	Widths 18 mm and 26 mm			**543487**	**PAGN-26-16-P10**
			Widths 42 mm and 52 mm			**548010**	**PAGN-40-16-P10**
Cartridge fitting							**Technical data** online: → qsp
	–	Adapter for pressure gauge (allows products with threaded connection G⅛ to be attached to the cartridge fitting connection)				**565811**	**QSP10-G⅛**
	–	For tubing O.D. 4 mm				**172972**	**QSP10-4**
12 **Cover cap for manual override**							
	N	Non-detenting		10 pieces		**541010**	**VAMC-S6-CH**
	V	Covered		10 pieces		**541011**	**VAMC-S6-CS**
13 **Inscription label**							
	B	Clip-on for valve cap		5 pieces		**540888**	**ASCF-T-S6**
	T	For manifold blocks		5 pieces		**540889**	**ASCF-M-S6**
16 **Silencer**							**Technical data → 1237**
	–	For thread G⅛			★	**6841**	**U-⅛-B**
	–	For thread G¼			★	**2316**	**U-¼**
	–	For thread G½			★	**6844**	**U-½-B**
17 **Blanking plug**							**Technical data** online: → b-1
	–	For thread G⅛		10 pieces		**3568**	**B-⅛**
	–	For thread G¼		10 pieces		**3569**	**B-¼**
18 **Push-in fitting**							**Technical data → 1098**
	–	Connecting thread G⅛	For tubing O.D. 6 mm	10 pieces	★	**186096**	**QS-G⅛-6**
	–		For tubing O.D. 8 mm	10 pieces	★	**186098**	**QS-G⅛-8**
	–	Connecting thread G¼	For tubing O.D. 8 mm	10 pieces	★	**186099**	**QS-G¼-8**
	–		For tubing O.D. 10 mm	10 pieces	★	**186101**	**QS-G¼-10**
	–	Connecting thread G⅜	For tubing O.D. 10 mm	10 pieces	★	**186102**	**QS-G⅜-10**
	–		For tubing O.D. 12 mm	10 pieces	★	**186114**	**QS-G⅜-12-I**
	–	Connecting thread G½	For tubing O.D. 12 mm	1 piece	★	**186104**	**QS-G½-12**
	–		For tubing O.D. 16 mm	1 piece	★	**186105**	**QS-G½-16**

1) Code letter within the order code for a valve terminal configuration

Accessories – Ordering data

	Code[1]	Description	Part no.	Type
Control block, individual connection variant				**Technical data** online: → vofa
	–	PNP output	**569819**	**VOFA-L26-T52-M-G14-1C1-APP**
	–	NPN output	**569820**	**VOFA-L26-T52-M-G14-1C1-ANP**
Wall mounting				
	U	Mounting bracket, with a mounting hole for M5 screw, 5 pieces	**539214**	**VAME-S6-10-W**
	–	Mounting bracket, with a mounting hole for M4 screw and a mounting hole for M6 screw, 1 piece	**567038**	**VAME-S6-W-M46**
90° connection plate				
	P	Width 18 mm, connecting thread G1⁄8	**539719**	**VABF-S4-2-A2G2-G18**
		Width 26 mm, connecting thread G1⁄4	**539721**	**VABF-S4-1-A2G2-G14**
		Width 42 mm, connecting thread G3⁄8	**546097**	**VABF-S2-1-A1G2-G38**
		Width 52 mm, connecting thread G1⁄2	**555702**	**VABF-S2-2-A1G2-G12**
User documentation				
	D	German	**538922**	**P.BE-VTSA-44-DE**
	E	English	**538923**	**P.BE-VTSA-44-EN**
	S	Spanish	**538924**	**P.BE-VTSA-44-ES**
	F	French	**538925**	**P.BE-VTSA-44-FR**
	I	Italian	**538926**	**P.BE-VTSA-44-IT**

1) Code letter within the order code for a valve terminal configuration

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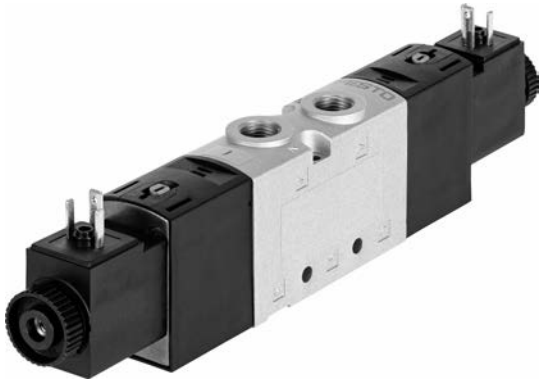
Overview/Configuration/Ordering
➔ **www.festo.com/catalogue/vuvs**

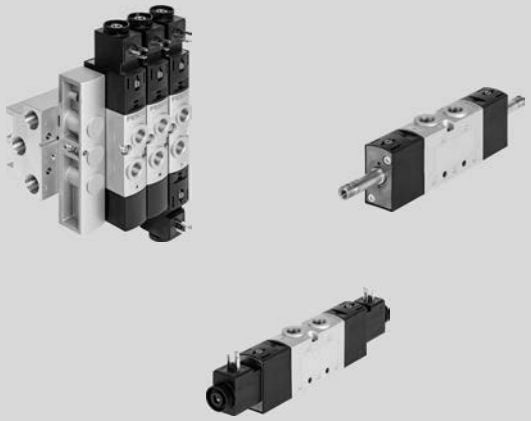
Additional information/Support/User documentation
➔ **www.festo.com/sp/vuvs**

Universal directional control valves
Solenoid valve

VUVS



+ Cost-effective
+ Easy to assemble and service thanks to the external pilot air supply via manifold rail
+ Easy to mount: available as ready-to-install individual valves with silencers, fittings and coils, or as pre-assembled units on a manifold rail VTUS
+ Operating voltage can be easily adjusted using the rotatable coil, thus allowing the unit to fit in tight installation spaces
+ Ideal for use in vacuum and the low-pressure range



- A reliable, robust valve with a long service life
- Pre-assembled unit on manifold rails according to customer configuration
- Individual valves assembled ready for installation according to customer configuration
- Variable pressure zones
- Supply manifold for mounting on one/both sides

➔ www.festo.com/catalogue/vuvs

Product range overview

Version	Code	Size			➔ Page/ online
		20	25	30	
3/2-way valve, normally closed, pneumatic spring	M32C	■	■	■	807, 809, 811
3/2-way valve, normally closed, mechanical spring	M32C	■	■	■	
3/2-way valve, normally open, pneumatic spring	M32U	■	■	■	
3/2-way valve, normally open, mechanical spring	M32U	■	■	■	
5/2-way valve, single solenoid, pneumatic spring	M52	■	■	■	
5/2-way valve, single solenoid, mechanical spring	M52	■	■	■	
5/2-way valve, double solenoid	B52	■	■	■	
5/3-way valve, mechanical spring, closed	P53C	■	■	■	
5/3-way valve, mechanical spring, pressurised	P53U	■	■	■	
5/3-way valve, mechanical spring, exhausted	P53E	■	■	■	

Version	Code	Size			➔ Page/ online
		20	25	30	
Manifold block for 3/2-way valves, standard	–	■	■	■	814
Manifold block extension module for 3/2-way valves, standard	–	■	■	■	
Manifold block for 5/2- and 5/3-way valves, standard	–	■	■	■	
Manifold block extension module for 5/2- and 5/3-way valves, standard	–	■	■	■	
Manifold block for 3/2-way valves, compact	–	■	■	■	
Manifold block for 5/2- and 5/3-way valves, compact	–	■	■	■	
Supply manifold, for mounting on both sides	–	■	■	■	
Supply manifold, for mounting on one side	–	■	■	■	

Solenoid valves VUVS/valve manifold VTUS

New

FESTO

Feature

Innovative

- A reliable, robust valve with a long service life
- Flow rate up to 1300 l/min
- Low-cost universal valve with no performance limitations
- Wide range of valve functions

Versatile

- Operating voltage can be easily altered by changing the solenoid coil
- In-line valves can be used as individual valves or manifold valves
- Variable pressure zones
- Wide range of mounting options

Reliable

- Durable thanks to tried and tested piston spools
- Reliable servicing thanks to valves that can be replaced quickly and easily

Easy to install

- Pre-assembled units on rails
- Individual valves assembled ready for installation
- Supply manifolds for mounting on one or both sides
- Secure mounting on wall or H-rail

Valve functions

3/2-way valve, normal position open, single solenoid:
- Internal/external pilot air supply
- Reset via pneumatic/mechanical spring
- Direction of flow can be reversed in the case of external pilot air supply

3/2-way valve, normal position closed, single solenoid:
- Internal/external pilot air supply
- Reset via pneumatic/mechanical spring
- Direction of flow can be reversed in the case of external pilot air supply

5/2-way valve, single solenoid:
- Internal/external pilot air supply
- Reset via pneumatic/mechanical spring
- Direction of flow can be reversed in the case of external pilot air supply

5/2-way valve, double solenoid:
- Internal/external pilot air supply
- Direction of flow can be reversed in the case of external pilot air supply

5/3-way valve, mid-position exhausted, pressurised or closed:
- Internal/external pilot air supply
- Reset via mechanical spring
- Direction of flow can be reversed in the case of external pilot air supply

Features

- A maximum of 16 valve positions can be configured in the standard version
- A maximum of 12 valve positions can be configured in the compact version

- Valve positions 2 ... 10 can be configured in increments of 1, valve positions 10 ... 16 in increments of 2

- Manifold block with a maximum of 10 valve positions
- Extension module with 2 valve positions
- Supply manifold with a maximum of 10 valve positions

- Creation of pressure zones (maximum 9 pressure zones in the case of a valve manifold with 16 valve positions)

Design

Each valve is attached to the manifold block using two screws. The appropriate seal is mounted on the valve.

This means that the valves can be easily replaced.

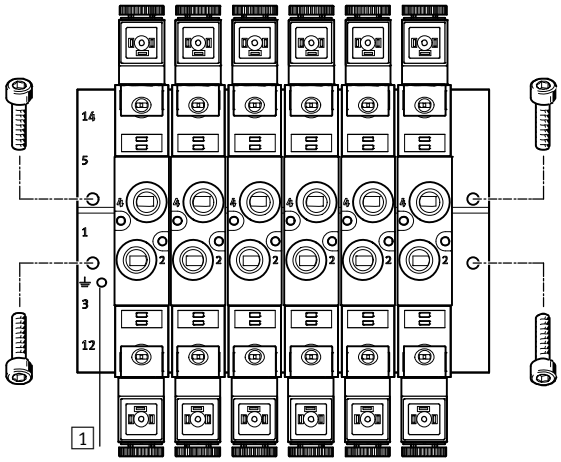
Valve positions covered with blanking plates can be replaced with valves at a later date. The dimensions, mounting points and existing pneumatic installation remain unchanged.

For the standard manifold block, extension modules with two valve positions are available.

Feature

Mounting valve manifold VTUS

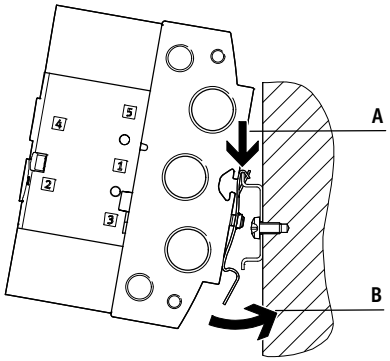
Wall mounting



Sturdy wall mounting of the manifold block using four through-holes.

1 Earth terminal

H-rail mounting



The H-rail mounting VAME-T-M consists of two mounting clips. These are bolted to the manifold block on the left and right.

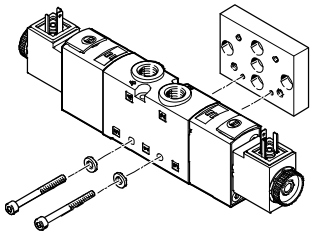
The valve manifold VTUS is then lowered onto the H-rail from above (arrow A) and clipped into the H-rail at the bottom (arrow B).

Note

- Note the max. tightening torque of the screws for H-rail mounting.
- Only horizontal H-rail mounting is permissible.
- Mounting possible on H-rail according to EN 60715.
- Vibration/shock loads are not permissible with H-rail mounting.

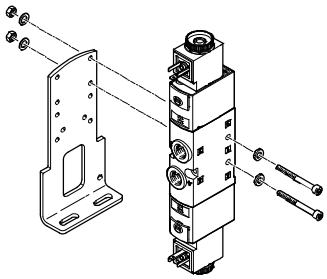
Mounting individual valve VUVS

Wall mounting



For mounting individual valves on a flat surface, e.g. aluminium profile systems. The solenoid valves are provided with two through-holes for attaching to the wall mounting VAME-B10-20-W.

The relevant screw set is included when the wall mounting VAME-B10-20-W is ordered.



For mounting individual valves on a flat surface, e.g. aluminium profile systems.
The solenoid valves are provided with two through-holes for attaching to the foot mounting VAME-B10-...-A.

The relevant screw set is included when the foot mounting VAME-B10-...-A is ordered.

FESTO

Data sheet

- Flow rate
  Size 20:
  up to 700 l/min
  Size 25:
  up to 1300 l/min
  Size 30:
  up to 2300 l/min

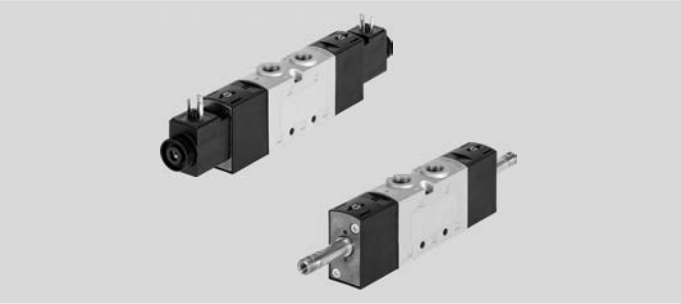
Technical data Download CAD data ➔ **www.festo.com**

Valve manifold configuration		Fixed grid
Size 20 Valve width	[mm]	 21
Size 25 Valve width	[mm]	 26.5
Size 30 Valve width	[mm]	 31
Valve design		Piston spool valve
Electrical control		Individual connection
Reset method for valves		Pneumatic or mechanical spring
Pilot air supply		Internal or external
Direction of flow		Reversible with restrictions
Suitability for vacuum		Yes
Max. no. of valve positions		16 (a maximum of 18 valve positions with extension for standard manifold block)
Max. number of pressure zones		9
Nominal operating voltage	[V DC]	12, 24
	[V AC]	24, 110, 120, 230, 240
Degree of protection		IP65/IP67 with plug socket
		To IEC 60529
Permissible voltage fluctuations	[%]	± 10
Information on materials for seals		HNBR, NBR

9

Data sheet – Solenoid valve size 20

- Flow rate
  up to 700 l/min
- Valve width
  21mm
- Operating voltage
  12, 24 V DC,
  24, 110, 120, 230, 240 V AC



Technical data		Download CAD data ➔ www.festo.com
Valve width	[mm]	21
Manual override		Non-detenting, detenting
Sealing principle		Soft
Type of mounting		Optionally via through-hole or on manifold rail
Pneumatic port 1, 2, 4, 3, 5		G⅛
Pilot air port 12		M5
Pilot exhaust air port 82		M5

Technical data – 3/2-way valves

Order code for valves		M32C		M32U	
Valve function		3/2-way valve			
Normal position		Closed		Open	
Stable positions		Monostable		Monostable	
Reset method		Pneumatic spring	Mechanical spring	Pneumatic spring	Mechanical spring
Switching times	On	14	14	14	15
	Off	21	32	21	28
	Change-over	–	–	–	–

Technical data – 5/2-way valves

Order code for valves		M52		B52
Valve function		5/2-way valve		
Normal position		–		–
Stable positions		Monostable		Bistable
Reset method		Pneumatic spring	Mechanical spring	–
Switching times	On	20	12	–
	Off	29	44	–
	Change-over	–	–	10

Technical data – 5/3-way valves

Order code for valves		P53C	P53U	P53E
Valve function		5/3-way valve		
Normal position/mid-position		Closed	Pressurised	Exhausted
Stable positions		Monostable		
Reset method		Mechanical spring		
Switching times	On	13	13	13
	Off	42	42	44
	Change-over	24	21	24

FESTO

Data sheet – Solenoid valve size 20

Operating conditions					
Order code for valves		M32	M52	B52	P53
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]			
Pilot medium		Compressed air to ISO 8573-1:2010 [7:4:4]			
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)			
Operating pressure with internal pilot air supply	[bar]	2.5 ... 10		1.5 ... 10	2.5 ... 10
Operating pressure with external pilot air supply	[bar]	–0.9 ... +10			
Pilot pressure	[bar]	2.5 ... 10		1.5 ... 10	2.5 ... 10
Ambient temperature	[°C]	–10 ... +60			
Temperature of medium	[°C]	–10 ... +60			

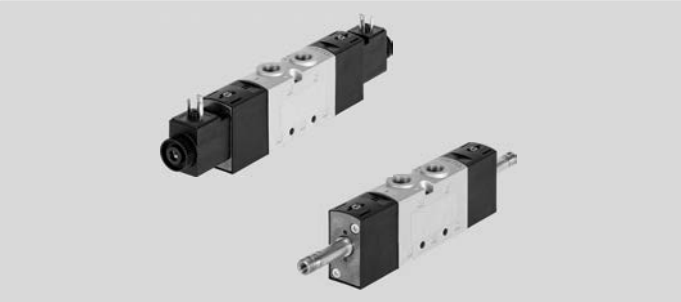
Electrical data			
		With solenoid coil	Without solenoid coil
Electrical connection		Plug type C	Via solenoid coil
Operating voltage	[V DC]	24	➔ page 823
Permissible voltage fluctuations	[%]	±10	
Performance	[W]	2.5	
Duty cycle ED	[%]	100	
Degree of protection to EN 60529		IP65 with plug socket	

Information on materials	
Housing	Die-cast aluminium
Seals	HNBR, NBR
Piston spool	Wrought aluminium alloy

FESTO

Data sheet – Solenoid valve size 25

- Flow rate
  Up to 1300 l/min
- Valve width
  26.5 mm
- Operating voltage
  12, 24 V DC,
  24, 110, 120, 230, 240 V AC



Technical data Download CAD data ➔ **www.festo.com**

Valve width	[mm]	26.5
Manual override		Non-detenting, detenting
Sealing principle		Soft
Type of mounting		Optionally via through-hole or on manifold rail
Pneumatic port 1, 2, 4, 3, 5		G¼
Pilot air port 12		M5
Pilot exhaust port 82		M5

Technical data – 3/2-way valves

Order code for valves		M32C		M32U	
Valve function		3/2-way valve			
Normal position		Closed		Open	
Stable positions		Monostable		Monostable	
Reset method		Pneumatic spring	Mechanical spring	Pneumatic spring	Mechanical spring
Switching times	On	13	11	12	11
	Off	26	40	26	39
	Change-over	–	–	–	–

Technical data – 5/2-way valves

Order code for valves		M52		B52
Valve function		5/2-way valve		
Stable positions		Monostable		Bistable
Reset method		Pneumatic spring	Mechanical spring	–
Switching times	On	19	12	–
	Off	35	47	–
	Change-over	–	–	11

Technical data – 5/3-way valves

Order code for valves		P53C	P53U	P53E
Valve function		5/3-way valve		
Normal position/mid-position		Closed	Pressurised	Exhausted
Stable positions		Monostable		
Reset method		Mechanical spring		
Switching times	On	13	14	14
	Off	42	48	48
	Change-over	26	25	25

FESTO

Data sheet – Solenoid valve size 25

Operating conditions

Order code for valves		M32	M52	B52	P53
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]			
Pilot medium		Compressed air to ISO 8573-1:2010 [7:4:4]			
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)			
Operating pressure with internal pilot air supply	[bar]	2.5 ... 10		1.5 ... 10	2.5 ... 10
Operating pressure with external pilot air supply	[bar]	–0.9 ... +10			
Pilot pressure	[bar]	2.5 ... 10		1.5 ... 10	2.5 ... 10
Ambient temperature	[°C]	–10 ... +60			
Temperature of medium	[°C]	–10 ... +60			

Electrical data

		With solenoid coil	Without solenoid coil
Electrical connection		Plug type C, plug type B	Via solenoid coil
Operating voltage	[V DC]	24	➔ S. 823
Permissible voltage fluctuations	[%]	10	
Performance	[W]	3.3	
Duty cycle ED	[%]	100	
Degree of protection to EN 60529		IP65 with plug socket	

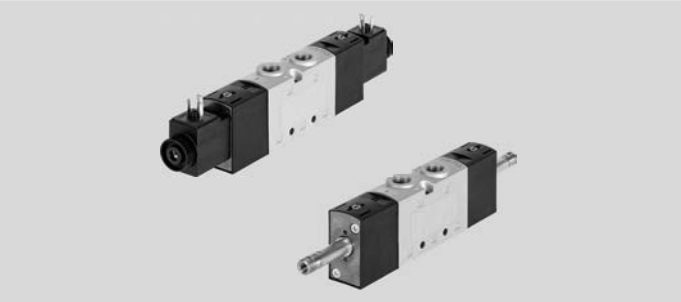
Information on materials

Housing	Die-cast aluminium
Seals	HNBR, NBR
Piston spool	Wrought aluminium alloy

FESTO

Data sheet – Solenoid valve size 30

- Flow rate
  up to 2300 l/min
- Valve width
  31 mm
- Operating voltage
  12, 24 V DC,
  24, 110, 120, 230, 240 V AC



Technical data			Download CAD data ➔ **www.festo.com**
Valve width	[mm]	31	
Manual override		Non-detenting, detenting	
Non-overlapping		Yes	
Type of mounting		Optionally via through-hole or on manifold rail	
Exhaust air function		With flow control	
Pneumatic port 1, 2, 4, 3, 5		G⅜	
Pilot air port 12		G⅛	
Pilot exhaust air port 82		M5	

Technical data – 3/2-way valves

Order code for valves		M32C		M32U	
Valve function		3/2-way valve			
Normal position		Closed		Open	
Stable positions		Monostable		Monostable	
Reset method		Pneumatic spring	Mechanical spring	Pneumatic spring	Mechanical spring
Switching times	On	19	16	19	15
	Off	36	58	37	57
	Change-over	–	–	–	–

Technical data – 5/2-way valves

Order code for valves		M52		B52
Valve function		5/2-way valve		
Stable positions		Monostable		Bistable
Reset method		Pneumatic spring	Mechanical spring	–
Switching times	On	24	17	–
	Off	49	62	–
	Change-over	–	–	13

Technical data – 5/3-way valves

Order code for valves		P53C	P53U	P53E
Valve function		5/3-way valve		
Normal position/mid-position		Closed	Pressurised	Exhausted
Stable positions		Monostable		
Reset method		Mechanical spring		
Switching times	On	17	18	20
	Off	76	75	74
	Change-over	39	31	36

New

FESTO

Data sheet – Solenoid valve size 30

Operating conditions

Order code for valves		M32	M52	B52	P53
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]			
Pilot medium		Compressed air to ISO 8573-1:2010 [7:4:4]			
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)			
Operating pressure with internal pilot air supply	[bar]	2.5 ... 10		1.5 ... 10	2.5 ... 10
Operating pressure with external pilot air supply	[bar]	–0.9 ... +10			
Pilot pressure	[bar]	2.5 ... 10		1.5 ... 10	2.5 ... 10
Ambient temperature	[°C]	–10 ... +60			
Temperature of medium	[°C]	–10 ... +60			

Electrical data

		With solenoid coil	Without solenoid coil
Electrical connection		Plug type C, plug type B	Via solenoid coil ➔S. 823
Operating voltage	[V DC]	24	
Permissible voltage fluctuations	[%]	10	
Performance	[W]	3.3	
Duty cycle ED	[%]	100	
Degree of protection to EN 60529		IP65 with plug socket	

Information on materials

Housing	Die-cast aluminium
Seals	HNBR, NBR
Piston spool	Wrought aluminium alloy

Order code – solenoid valve

VUVS	–	L		–		–				–		–		–		–	

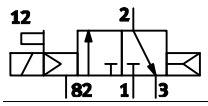
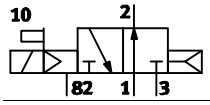
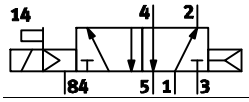
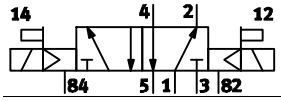
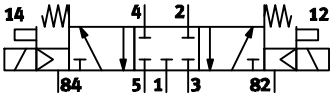
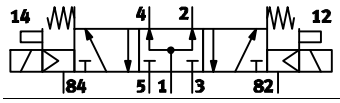
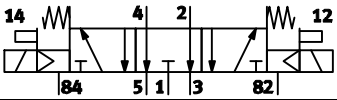
Valve design

In-line valve	**L**

Size

21 mm	**20**
26.5 mm	**25**
31 mm	**30**

Valve functions

	**M32C**
	**M32U**
	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**

Pilot air supply port

–	Internal
Z	External

Reset method

A	Pneumatic spring for M52 and M32
M	Mechanical spring for M52 and M32
–	For B52 and P53

Manual override

D	Non-detenting, detenting without accessories
S	Covered
H	Non-detenting

Pneumatic port

Q8	Push-in connector 8 mm

Exhaust

–	Without fitting
QN	With fitting

Valve pilot control interface

F7	With 8 mm armature tube, short, only with size 20
F8	With 8 mm armature tube, standard, only with size 25 and 30

Nominal operating voltage

–	None
1	24 V DC
1A	24 V AC
3W	230/240 V AC
5	12 V DC
16B	113/120 V AC

Electrical connection

–	Without
C1	Port pattern type C, to EN 175301

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Order example:

VUVS-L20-M32C-AD-Q8-F7-1C1

Universal solenoid valve VUVS in-line valve, width 20 (width 21 mm) - 3/2-way valve, single solenoid, normally closed - pneumatic spring reset method, internal pilot air supply, non-detenting/detenting manual override without accessories - pneumatic connection push-in connector 8 mm - without fitting - with armature tube 8 mm, short - nominal operating voltage 24 V DC, port pattern type C, to EN 175301

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
➔ **www.festo.com/catalogue/...**

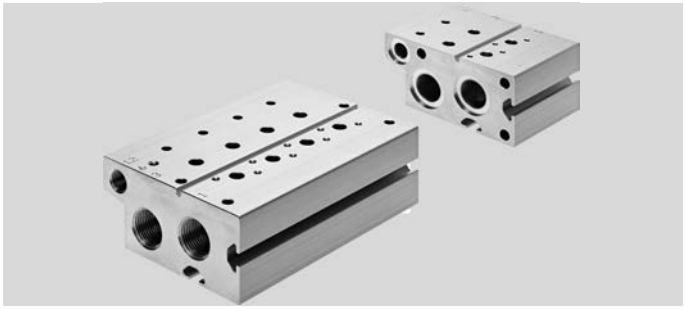
Enter the type code in the search field.

New

FESTO

Data sheet – Manifold block

- Flow rate
  up to 2300 l/min



Technical data size 20

		Manifold block Standard		Extension module for standard manifold block		Manifold block Compact		Supply manifold on both sides	at one end
For valve function		3/2	5/2, 5/3	3/2	5/2, 5/3	3/2	5/2, 5/3	3/2, 5/2, 5/3	
Grid dimension	[mm]	22							
Type of mounting		With through-hole						With mounting bracket	
Max. number of valve positions		10	10	2	2	10		10	4
Port 1		G3/8	G3/8	G3/8	G3/8	G1/4	G1/4	G3/8	G3/8
Port 3		G3/8	G3/8	G3/8	G3/8	G1/4	G1/4	–	–
Port 5		–	G3/8	–	G3/8	–	G1/4	–	–
Port 12		G1/8	G1/8	G1/8	G1/8	–	–	–	–
Port 14		–	G1/8	–	G1/8	–	–	–	–

Technical data size 25

		Manifold block Standard		Extension module for standard manifold block		Manifold block Compact		Supply manifold on both sides	at one end
For valve function		3/2	5/2, 5/3	3/2	5/2, 5/3	3/2	5/2, 5/3	3/2, 5/2, 5/3	
Grid dimension	[mm]	27.5							
Type of mounting		With through-hole						With mounting bracket	
Max. number of valve positions		10	10	2	2	10		10	4
Port 1		G1/2	G1/2	G1/2	G1/2	G3/8	G3/8	G1/2	G1/2
Port 3		G1/2	G1/2	G1/2	G1/2	G3/8	G3/8	–	–
Port 5		–	G1/2	–	G1/2	–	G3/8	–	–
Port 12		G1/8	G1/8	G1/8	G1/8	–	–	–	–
Port 14		–	G1/8	–	G1/8	–	–	–	–

Technical data size 30

		Manifold block Standard		Extension module for standard manifold block		Manifold block Compact		Supply manifold on both sides	at one end
For valve function		3/2	5/2, 5/3	3/2	5/2, 5/3	3/2	5/2, 5/3	3/2, 5/2, 5/3	
Grid dimension	[mm]	32							
Type of mounting		With through-hole						With mounting bracket	
Max. number of valve positions		10	10	2	2	10		10	4
Port 1		G3/4	G3/4	G3/4	G3/4	G1/2	G1/2	G3/4	G3/4
Port 3		G3/4	G3/4	G3/4	G3/4	G1/2	G1/2	–	–
Port 5		–	G3/4	–	G3/4	–	G1/2	–	–
Port 12		G1/8	G1/8	G1/8	G1/8	–	–	–	–
Port 14		–	G1/8	–	G1/8	–	–	–	–

Information on materials

Manifold block	Wrought aluminium alloy

Order code – Manifold block

VABM	–	B10	–			–		–		–		–	

Valve manifold parts

Connection block	**VABM**

Valve series

VUVS	**B10**

Valve width

21 mm	**20**
26.5 mm	**25**
31 mm	**30**

Version

Supply manifold	**–**
Compact manifold block	**S**
Standard manifold block	**E**
Extension module for standard manifold block	**EEE**

Pneumatic connections 1, 3, 5

G38	G3/8 thread
G14	G1/4 thread
G12	G1/2 thread
G34	G3/4 thread

Number of valve positions

2 ... 10	2 to 10

Port for valve function

–	Manifold block for 5/2- and 5/3-way valves
P3	Manifold block for 3/2-way valves
P53	Supply manifold

Connection

E	Supply manifold for mounting at one end
–	Standard mounting

Order example:

VABM-B10-20E-G38-10

Manifold block for VUVS manifold assembly - valve width 21 mm, standard manifold block - thread G3/8 - 10 valve positions - manifold block for 5/2- and 5/3-way valves - standard mounting

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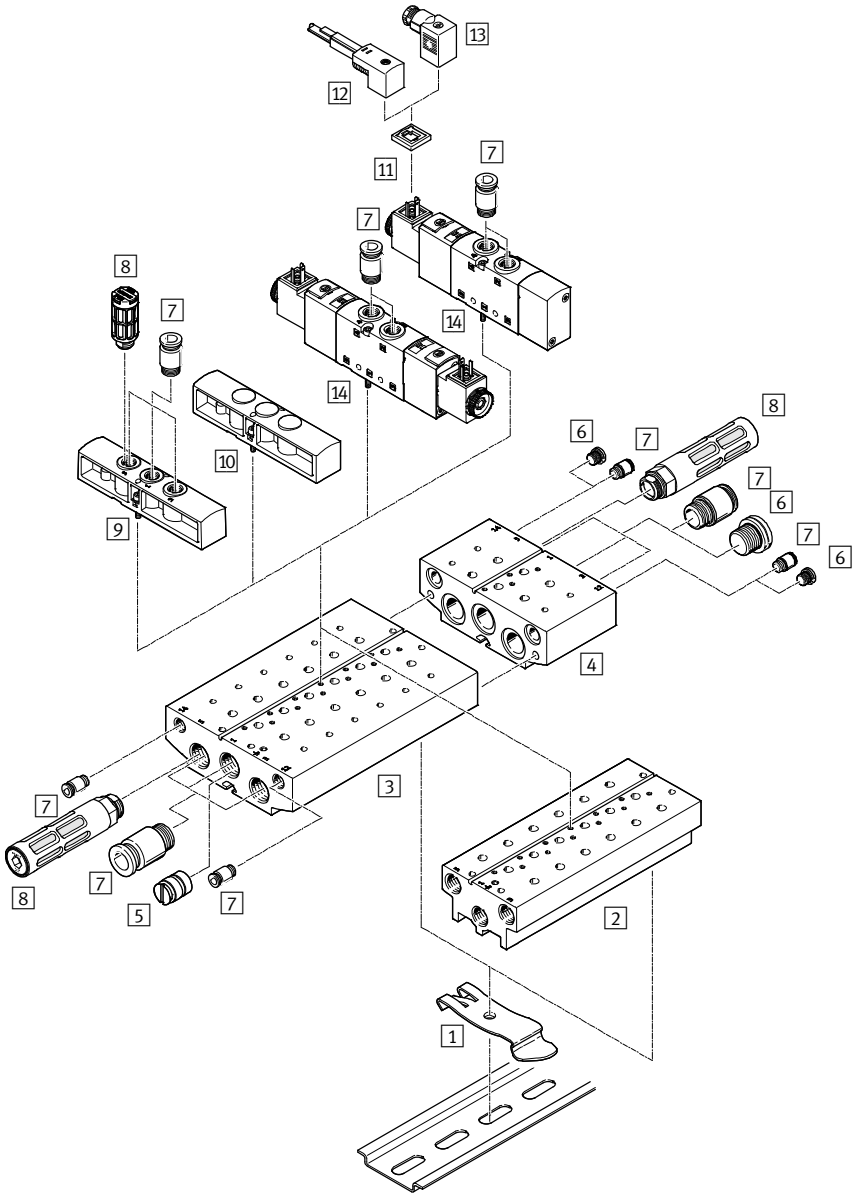
FESTO

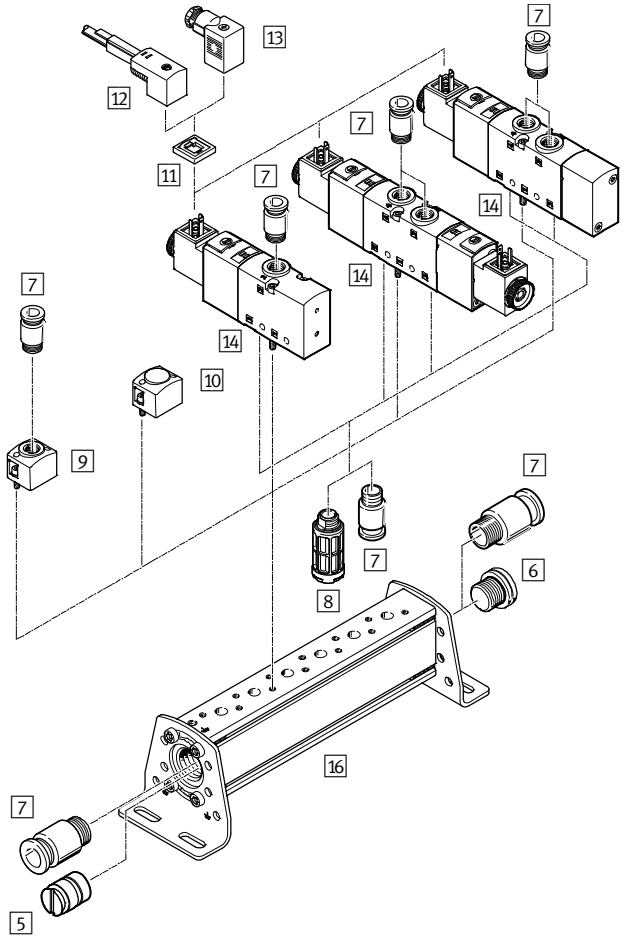
Accessories – Manifold assembly solenoid valve on manifold block



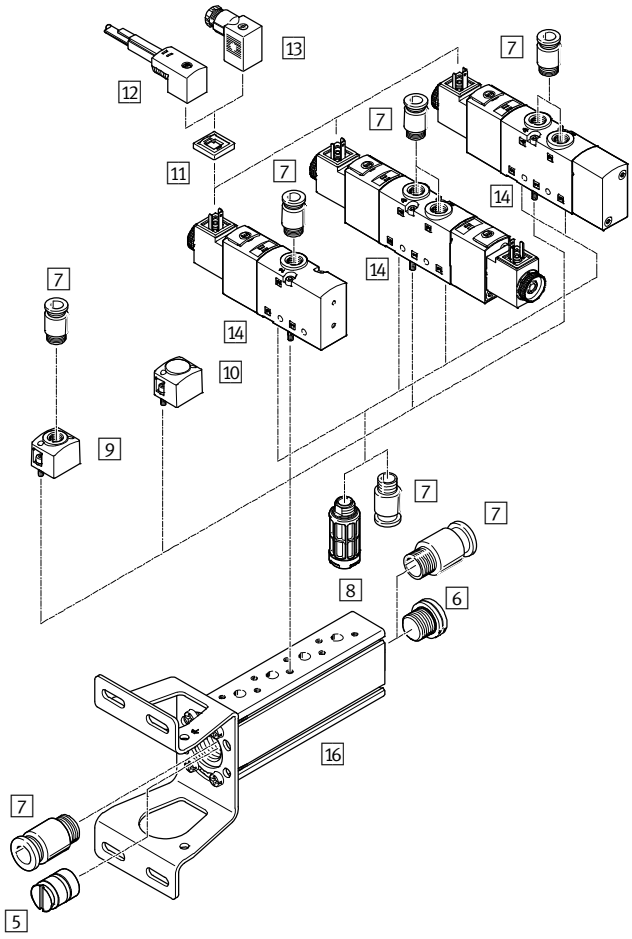
Description		Brief description	→ Page/online
1	H-rail mounting	For H-rail mounting	818
2	Compact manifold block	For 5/2- and 5/3-way valves, no port for external pilot air supply	818, 819, 820
3	Standard connection block	For 5/2- and 5/3-way valves, with ports 12 and 14 for external pilot air supply	818, 819, 820
4	Extension module	For standard manifold block, with ports 12 and 14 for external pilot air supply	818, 819, 820
5	Separator	For creating pressure zones	821
6	Blanking plug	–	821
7	Push-in fitting	For connecting compressed air tubing with standard outside diameters	821
8	Silencer	For mounting in exhaust ports	821
9	Supply plate	For additional air supply and exhaust via a valve position	821
10	Cover plate	For covering unused valve positions	822
11	Illuminating seal	For indicating the switching status	822
12	Plug socket with cable	For solenoid valves VUVS	822
13	Plug socket	For solenoid valves VUVS	822
14	Solenoid valve	5/2-way valve, with solenoid coil	807
15	H-rail	–	–
–	Solenoid coil	For solenoid valves VUVS	823

Accessories – Manifold assembly solenoid valve on supply manifold

Supply manifold for mounting on both sides

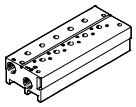
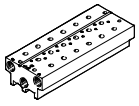
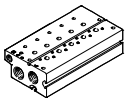
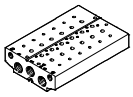
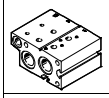
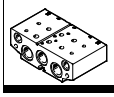


Supply manifold for mounting on one side



Description	Brief description	➔ Page/online
5 Separator	For creating pressure zones	821
6 Blanking plug	–	821
7 Push-in fitting	For connecting compressed air tubing with standard outside diameters	821
8 Silencer	For mounting in exhaust ports	821
9 Supply plate	For additional air supply via a valve position	821
10 Cover plate	For covering unused valve positions	822
11 Illuminating seal	For indicating the switching status	822
12 Plug socket with cable	For solenoid valves VUVS	822
13 Plug socket	For solenoid valves VUVS	822
14 Solenoid valve	With solenoid coil	807
16 Supply manifold	–	823
– Solenoid coil	For solenoid valves VUVS	823

Accessories – Ordering data

	Description		Part no.	Type
1 H-rail mounting				
	For mounting the valve manifold on standard H-rail TH 35-7,5 or TH 35-15, to EN 60715	For size 20	**569998**	**VAME-T-M4**
		For size 25	**2636436**	**VAME-T-M5**
		For size 30	**3488412**	**VAME-T-M6**
2 Manifold block compact, size 20, for 3/2-way valves				
	Incl. seals and screws for valve assembly	2 valve positions	**576465**	**VABM-B10-20S-G14-2-P3**
		3 valve positions	**576466**	**VABM-B10-20S-G14-3-P3**
		4 valve positions	**576467**	**VABM-B10-20S-G14-4-P3**
		6 valve positions	**576469**	**VABM-B10-20S-G14-6-P3**
		8 valve positions	**576471**	**VABM-B10-20S-G14-8-P3**
		10 valve positions	**576473**	**VABM-B10-20S-G14-10-P3**
For 5/2- and 5/3-way valves				
	Incl. seals and screws for valve assembly	2 valve positions	**576417**	**VABM-B10-20S-G14-2**
		3 valve positions	**576418**	**VABM-B10-20S-G14-3**
		4 valve positions	**576419**	**VABM-B10-20S-G14-4**
		6 valve positions	**576421**	**VABM-B10-20S-G14-6**
		8 valve positions	**576423**	**VABM-B10-20S-G14-8**
		10 valve positions	**576425**	**VABM-B10-20S-G14-10**
3 Manifold block standard, size 20, for 3/2-way valves				
	Incl. seals and screws for valve assembly	2 valve positions	**576441**	**VABM-B10-20E-G38-2-P3**
		3 valve positions	**576442**	**VABM-B10-20E-G38-3-P3**
		4 valve positions	**576443**	**VABM-B10-20E-G38-4-P3**
		6 valve positions	**576445**	**VABM-B10-20E-G38-6-P3**
		8 valve positions	**576447**	**VABM-B10-20E-G38-8-P3**
		10 valve positions	**576449**	**VABM-B10-20E-G38-10-P3**
For 5/2- and 5/3-way valves				
	Incl. seals and screws for valve assembly	2 valve positions	**576339**	**VABM-B10-20E-G38-2**
		3 valve positions	**576340**	**VABM-B10-20E-G38-3**
		4 valve positions	**576341**	**VABM-B10-20E-G38-4**
		6 valve positions	**576343**	**VABM-B10-20E-G38-6**
		8 valve positions	**576345**	**VABM-B10-20E-G38-8**
		10 valve positions	**576347**	**VABM-B10-20E-G38-10**
4 Manifold block, extension module for standard manifold block, size 20				
	For 3/2-way valves, incl. seals and screws for valve assembly	2 valve positions	**576490**	**VABM-B10-20EEE-G38-2-P3**
	For 5/2 and 5/3-way valves, incl. seals and screws for valve assembly	2 valve positions	**576489**	**VABM-B10-20EEE-G38-2**

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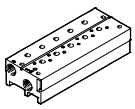
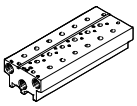
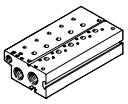
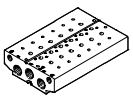
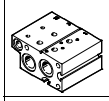
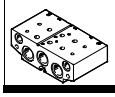
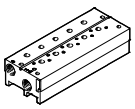
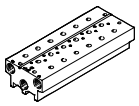
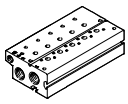
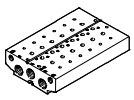
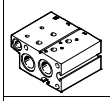
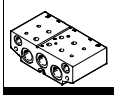
Accessories – Ordering data

	Description		Part no.	Type
2 Manifold block compact, size 25, for 3/2-way valves				
	Incl. seals and screws for valve assembly	2 valve positions	**8026297**	**VABM-B10-25S-G38-2-P3**
		3 valve positions	**8026298**	**VABM-B10-25S-G38-3-P3**
		4 valve positions	**8026299**	**VABM-B10-25S-G38-4-P3**
		6 valve positions	**8026301**	**VABM-B10-25S-G38-6-P3**
		8 valve positions	**8026303**	**VABM-B10-25S-G38-8-P3**
		10 valve positions	**8026305**	**VABM-B10-25S-G38-10-P3**
For 5/2- and 5/3-way valves				
	Incl. seals and screws for valve assembly	2 valve positions	**8026261**	**VABM-B10-25S-G38-2**
		3 valve positions	**8026262**	**VABM-B10-25S-G38-3**
		4 valve positions	**8026263**	**VABM-B10-25S-G38-4**
		6 valve positions	**8026265**	**VABM-B10-25S-G38-6**
		8 valve positions	**8026267**	**VABM-B10-25S-G38-8**
		10 valve positions	**8026269**	**VABM-B10-25S-G38-10**
3 Manifold block standard, size 25, for 3/2-way valves				
	Incl. seals and screws for valve assembly	2 valve positions	**8026279**	**VABM-B10-25E-G12-2-P3**
		3 valve positions	**8026280**	**VABM-B10-25E-G12-3-P3**
		4 valve positions	**8026281**	**VABM-B10-25E-G12-4-P3**
		6 valve positions	**8026283**	**VABM-B10-25E-G12-6-P3**
		8 valve positions	**8026285**	**VABM-B10-25E-G12-8-P3**
		10 valve positions	**8026287**	**VABM-B10-25E-G12-10-P3**
For 5/2- and 5/3-way valves				
	Incl. seals and screws for valve assembly	2 valve positions	**8026243**	**VABM-B10-25E-G12-2**
		3 valve positions	**8026244**	**VABM-B10-25E-G12-3**
		4 valve positions	**8026245**	**VABM-B10-25E-G12-4**
		6 valve positions	**8026247**	**VABM-B10-25E-G12-6**
		8 valve positions	**8026249**	**VABM-B10-25E-G12-8**
		10 valve positions	**8026251**	**VABM-B10-25E-G12-10**
4 Extension module for standard manifold block, size 25				
	For 3/2-way valves, incl. seals and screws for valve assembly	2 valve positions	**8026316**	**VABM-B10-25EEE-G12-2-P3**
	For 5/2 and 5/3-way valves, incl. seals and screws for valve assembly	2 valve positions	**8026315**	**VABM-B10-25EEE-G12-2**

Accessories – Ordering data

	Description		Part no.	Type
2 Manifold block compact, size 30, for 3/2-way valves				
	Incl. seals and screws for valve assembly	2 valve positions	**8026413**	**VABM-B10-30S-G12-2-P3**
		3 valve positions	**8026414**	**VABM-B10-30S-G12-3-P3**
		4 valve positions	**8026415**	**VABM-B10-30S-G12-4-P3**
		6 valve positions	**8026417**	**VABM-B10-30S-G12-6-P3**
		8 valve positions	**8026419**	**VABM-B10-30S-G12-8-P3**
		10 valve positions	**8026421**	**VABM-B10-30S-G12-10-P3**
For 5/2- and 5/3-way valves				
	Incl. seals and screws for valve assembly	2 valve positions	**8026377**	**VABM-B10-30S-G12-2**
		3 valve positions	**8026378**	**VABM-B10-30S-G12-3**
		4 valve positions	**8026379**	**VABM-B10-30S-G12-4**
		6 valve positions	**8026381**	**VABM-B10-30S-G12-6**
		8 valve positions	**8026383**	**VABM-B10-30S-G12-8**
		10 valve positions	**8026385**	**VABM-B10-30S-G12-10**
3 Manifold block standard, size 30, for 3/2-way valves				
	Incl. seals and screws for valve assembly	2 valve positions	**8026395**	**VABM-B10-30E-G34-2-P3**
		3 valve positions	**8026396**	**VABM-B10-30E-G34-3-P3**
		4 valve positions	**8026397**	**VABM-B10-30E-G34-4-P3**
		6 valve positions	**8026399**	**VABM-B10-30E-G34-6-P3**
		8 valve positions	**8026401**	**VABM-B10-30E-G34-8-P3**
		10 valve positions	**8026403**	**VABM-B10-30E-G34-10-P3**
For 5/2- and 5/3-way valves				
	Incl. seals and screws for valve assembly	2 valve positions	**8026359**	**VABM-B10-30E-G34-2**
		3 valve positions	**8026360**	**VABM-B10-30E-G34-3**
		4 valve positions	**8026361**	**VABM-B10-30E-G34-4**
		6 valve positions	**8026363**	**VABM-B10-30E-G34-6**
		8 valve positions	**8026365**	**VABM-B10-30E-G34-8**
		10 valve positions	**8026367**	**VABM-B10-30E-G34-10**
4 Extension module for standard manifold block, size 30				
	For 3/2-way valves, incl. seals and screws for valve assembly	2 valve positions	**8026432**	**VABM-B10-30EEE-G34-2-P3**
	For 5/2 and 5/3-way valves, incl. seals and screws for valve assembly	2 valve positions	**8026431**	**VABM-B10-30EEE-G34-2**

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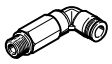
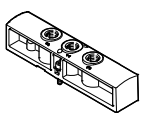
Accessories – Ordering data

	Description			Part no.	Type
5	**Separator**				
	For creating pressure zones, for threaded connections	G1/8		**569995**	**VABD-8-B**
		G1/4		**569996**	**VABD-10-B**
		G3/8		**574483**	**VABD-14-B**
		G1/2		**8022483**	**VABD-17.5-B**
6	**Blanking plug**				
	With connecting thread G	G1/8		**3568**	**B-1/8**
		G1/4		**3569**	**B-1/4**
		G3/8		**3570**	**B-3/8**
		G1/2		**3571**	**B-1/2**
7	**Push-in fitting, with internal hex**				
	Connecting thread M5 for tubing O.D.	4 mm	★	**153315**	**QSM-M5-4-I**
	Connecting thread G1⁄8 for tubing O.D.	4 mm	★	**186106**	**QS-G1/8-4-I**
		6 mm	★	**186107**	**QS-G1/8-6-I**
		8 mm	★	**186109**	**QS-G1/8-8-I**
	Connecting thread G1⁄4 for tubing O.D.	8 mm	★	**186110**	**QS-G1/4-8-I**
		10 mm	★	**186112**	**QS-G1/4-10-I**
	Connecting thread G3⁄8 for tubing O.D.	8 mm	★	**186111**	**QS-G3/8-8-I**
		10 mm	★	**186113**	**QS-G3/8-10-I**
		12 mm	★	**186114**	**QS-G3/8-12-I**
Angled with external hex					
	Connecting thread G1⁄8 for tubing O.D.	4 mm	★	**186116**	**QSL-G1/8-4**
		6 mm	★	**186117**	**QSL-G1/8-6**
		8 mm	★	**186119**	**QSL-G1/8-8**
	Connecting thread G1⁄4 for tubing O.D.	8 mm	★	**186120**	**QSL-G1/4-8**
		10 mm	★	**186122**	**QSL-G1/4-10**
		12 mm	★	**186351**	**QSL-G1/4-12**
	Connecting thread G3⁄8 for tubing O.D.	8 mm	★	**186121**	**QSL-G3/8-8**
		10 mm	★	**186123**	**QSL-G3/8-10**
		12 mm	★	**186124**	**QSL-G3/8-12**
		16 mm	★	**186348**	**QSL-G3/8-16**
Angled, long, with external hex					
	Connecting thread G1⁄8 for tubing O.D.	4 mm	★	**186127**	**QSLL-G1/8-4**
		6 mm	★	**186128**	**QSLL-G1/8-6**
		8 mm	★	**186130**	**QSLL-G1/8-8**
		10 mm	★	**186134**	**QSLL-G3/8-10**
8	**Silencer**				
	With connecting thread G	G1/8	★	**2307**	**U-1/8**
		G1/4	★	**2316**	**U-1/4**
		G3/8	★	**6843**	**U-3/8-B**
		G1/2	★	**6844**	**U-1/2-B**
9	**Supply plate**				
	**For size 20**				
	For valve position on manifold block for 3/2-way valves			**576493**	**VABF-B10-20-P1A4-G18-P3**
	For valve position on manifold block for 5/2-, 5/3-way valves			**576492**	**VABF-B10-20-P1A4-G18**
	For size 25				
	For valve position on manifold block for 3/2-way valves			**8026319**	**VABF-B10-25-P1A4-G14-P3**
	For valve position on manifold block for 5/2-, 5/3-way valves			**8026318**	**VABF-B10-25-P1A4-G14**
	For size 30				
	For valve position on manifold block for 3/2-way valves			**8026435**	**VABF-B10-30-P1A4-G38-P3**
	For valve position on manifold block for 5/2-, 5/3-way valves			**8026434**	**VABF-B10-30-P1A4-G38**

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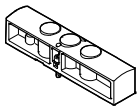
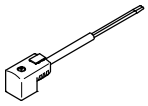
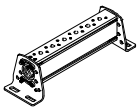
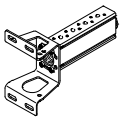
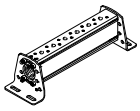
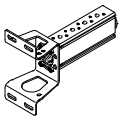
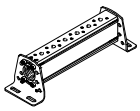
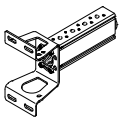
Accessories – Ordering data

	Description		Part no.	Type
10	**Blanking plate,**			
	**For size 20**			
	For valve position on manifold block for 3/2-way valves		**576411**	**VABB-B10-20-E-P3**
	For valve position on manifold block for 5/2-, 5/3-way valves		**576410**	**VABB-B10-20-E**
	For valve position on supply manifold		**576409**	**VABB-B10-20-A**
	For size 25			
	For valve position on manifold block for 3/2-way valves		**8026210**	**VABB-B10-25-E-P3**
	For valve position on manifold block for 5/2-, 5/3-way valves		**8026209**	**VABB-B10-25-E**
	For valve position on supply manifold		**8026208**	**VABB-B10-25-A**
	For size 30			
	For valve position on manifold block for 3/2-way valves		**8026336**	**VABB-B10-30-E-P3**
	For valve position on manifold block for 5/2-, 5/3-way valves		**8026335**	**VABB-B10-30-E**
	For valve position on supply manifold		**8026334**	**VABB-B10-30-A**
11	**Illuminating seal**			
	Type C, to DIN EN 175301-803	24 V DC	**151717**	**MEB-LD-12-24DC**
		230 V AC	**151718**	**MEB-LD-230AC**
12	**Plug socket with cable**			
	**Port pattern type C, to DIN EN175301-803**			
	Angled socket, 3-pin Cable, open end, 3-wire, 24 V DC, LED	2.5 m	**151688**	**KMEB-1-24-2,5-LED**
		5 m	**151689**	**KMEB-1-24-5-LED**
		10 m	**193457**	**KMEB-1-24-10-LED**
	Angled socket, 3-pin Cable, open end, 3-wire, 0 ... 230 V AC	2.5 m	**151690**	**KMEB-1-230AC-2,5**
		5 m	**151691**	**KMEB-1-230AC-5**
	Port pattern type B, to EN 175301-803			
	Angled socket, 3-pin Cable, open end, 3-wire, 24 V DC, LED	2.5 m	**30935**	**KMF-1-24DC-2,5-LED**
		5 m	**30937**	**KMF-1-24DC-5-LED**
		10 m	**193458**	**KMF-1-24-10-LED**
	Angled socket, 3-pin Cable, open end, 3-wire, 0 ... 230 V AC	2.5 m	**30936**	**KMF-1-230AC-2.5**
		5 m	**30938**	**KMF-1-230AC-5**
13	**Plug socket**			
	**Port pattern type C, to DIN EN175301-803**			
	Angled socket, 3-pin, IP65	0 ... 230 V AC/DC	**539712**	**MSSD-EB-M12**
	Angled socket, 4-pin, IP67	0 ... 230 V AC/DC	**192745**	**MSSD-EB-S-M14**
	Angled socket, 3-pin, straight plug connector, M12, 2-pin, IP 65	12 ... 24 V AC/DC	**188024**	**MSSD-EB-M12-MONO**
	Port pattern type B, to EN 175301-803			
	Angled socket, 3-pin	0 ... 230 V AC/DC	**539710**	**MSSD-F-M16**
	Angled socket, 4-pin	0 ... 230 V AC/DC	**192746**	**MSSD-F-S-M16**

Accessories – Ordering data

	Description		Part no.	Type
16 Supply manifold, size 20				
	For mounting on both sides, incl. seals and screws for mounting valves	2 valve positions	**576363**	**VABM-B10-20-G38-2-P53**
		3 valve positions	**576364**	**VABM-B10-20-G38-3-P53**
		4 valve positions	**576365**	**VABM-B10-20-G38-4-P53**
		6 valve positions	**576367**	**VABM-B10-20-G38-6-P53**
		8 valve positions	**576369**	**VABM-B10-20-G38-8-P53**
		10 valve positions	**576371**	**VABM-B10-20-G38-10-P53**
	For mounting on one side, incl. seals and screws for valve assembly	2 valve positions	**576414**	**VABM-B10-20-G38-2-P53-E**
		3 valve positions	**576415**	**VABM-B10-20-G38-3-P53-E**
		4 valve positions	**576416**	**VABM-B10-20-G38-4-P53-E**
Size 25				
	For mounting on both sides, incl. seals and screws for mounting valves	2 valve positions	**8026219**	**VABM-B10-25-G12-2-P53**
		3 valve positions	**8026220**	**VABM-B10-25-G12-3-P53**
		4 valve positions	**8026221**	**VABM-B10-25-G12-4-P53**
		6 valve positions	**8026223**	**VABM-B10-25-G12-6-P53**
		8 valve positions	**8026225**	**VABM-B10-25-G12-8-P53**
		10 valve positions	**8026227**	**VABM-B10-25-G12-10-P53**
	For mounting on one side, incl. seals and screws for valve assembly	2 valve positions	**8026237**	**VABM-B10-25-G12-2-P53-E**
		3 valve positions	**8026238**	**VABM-B10-25-G12-3-P53-E**
		4 valve positions	**8026239**	**VABM-B10-25-G12-4-P53-E**
Size 30				
	For mounting on both sides, incl. seals and screws for mounting valves	2 valve positions	**8026338**	**VABM-B10-30-G34-2-P53**
		3 valve positions	**8026339**	**VABM-B10-30-G34-3-P53**
		4 valve positions	**8026340**	**VABM-B10-30-G34-4-P53**
		6 valve positions	**8026342**	**VABM-B10-30-G34-6-P53**
		8 valve positions	**8026344**	**VABM-B10-30-G34-8-P53**
		10 valve positions	**8026346**	**VABM-B10-30-G34-10-P53**
	For mounting on one side, incl. seals and screws for valve assembly	2 valve positions	**8026356**	**VABM-B10-30-G34-2-P53-E**
		3 valve positions	**8026357**	**VABM-B10-30-G34-3-P53-E**
		4 valve positions	**8026358**	**VABM-B10-30-G34-4-P53-E**
Solenoid coil for valves				
	**For size 20**			
	Port pattern type C, to DIN EN 175301-803	12 V DC	**8025331**	**VACS-C-C1-5**
		24 V DC	**8025330**	**VACS-C-C1-1**
		48 V DC	**8025336**	**VACS-C-C1-7**
		24 V AC	**8025335**	**VACS-C-C1-1A**
		48 V AC	**8025337**	**VACS-C-C1-7A**
		110/120 V AC	**8025334**	**VACS-C-C1-16B**
		230/240 V AC	**8025338**	**VACS-C-C1-3W**
	For size 25 and size 30			
	Plug pattern type B, industry standard	12 V DC	**8030801**	**VACF-B-B2-5**
		24 V DC	**8030802**	**VACF-B-B2-1**
		48 V DC	**8030803**	**VACF-B-B2-7**
		24 V AC	**8030804**	**VACF-B-B2-1A**
		48 V AC	**8030805**	**VACF-B-B2-7A**
		110/120 V AC	**8030806**	**VACF-B-B2-16B**
		230/240 V AC	**8030808**	**VACF-B-B2-3W**
	Port pattern type C, to EN 175301	12 V DC	**8030810**	**VACF-B-C1-5**
		24 V DC	**8030811**	**VACF-B-C1-1**
		48 V DC	**8030812**	**VACF-B-C1-7**
		24 V AC	**8030813**	**VACF-B-C1-1A**
		48 V AC	**8030814**	**VACF-B-C1-7A**
		110/120 V AC	**8030815**	**VACF-B-B2-16B**
		230/240 V AC	**8030817**	**VACF-B-C1-3W**

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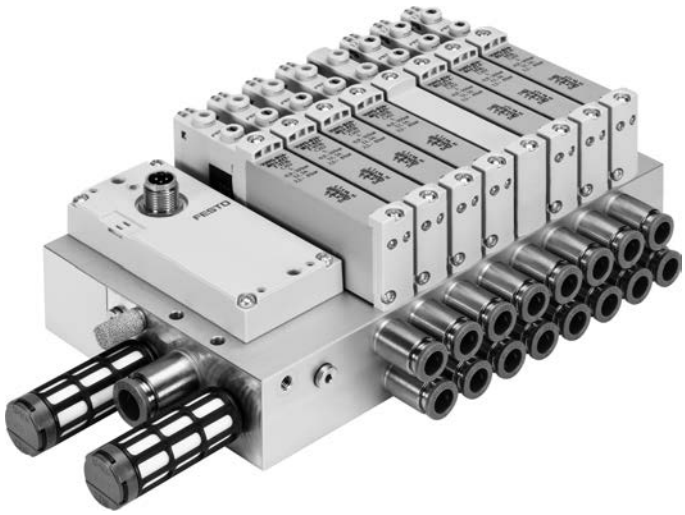
Overview/Configuration/Ordering
➔ **www.festo.com/catalogue/vtug**

Additional information/Support/User documentation
➔ **www.festo.com/sp/vtug**

Universal valve terminals

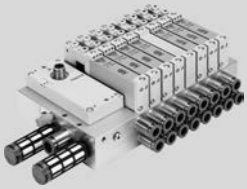
Valve terminals multi-pin/fieldbus connection

VTUG



+ Sturdy and durable metal components
+ Excellent price/performance ratio
+ Connection M5, M7, G1/8
+ Push-in connector 3, 4, 6, 8 mm
+ Degree of protection IP40/IP67

Valve terminals VTUG with multi-pin plug and fieldbus connection



- Variable multi-pin plug connection using Sub-D or flat cable
- I-Port interface for bus nodes (CTEU)
- IO-Link mode for direct connection to a higher-level IO-Link master
- Valve size 10 mm, 14 mm and 18 mm
- Sub-D variant and fieldbus connection rated to IP67
- Piston spool valves, up to 24 valve positions

★ Quick ordering of basic designs ➔ 831, 833, 835, 837

➔ **www.festo.com/catalogue/vtug**

Product range overview

Function	Version	Code	Valve size			➔ Page/ online
			10 mm	14 mm	18 mm	
Position function 1-23	5/2-way valve, single solenoid, mechanical spring	A	■	■	■	829
	5/2-way valve, single solenoid, pneumatic/mechanical spring	P	■	–	–	829
	5/3-way valve, mid-position pressurised	B	■	■	■	829
	5/3-way valve, mid-position exhausted	E	■	■	■	829
	5/3-way valve, mid-position closed	G	■	■	■	829
	2x3/2-way valve, 1x normally closed, 1x normally open, pneumatic spring	H	■	■	■	829
	5/2-way bistable valve	J	■	■	■	829
	2x3/2-way valve, normally closed, pneumatic spring	C	■	■	■	829
	5/2-way valve, single solenoid, pneumatic spring	M	–	■	■	829
	2x3/2-way valve, normally open, pneumatic spring	N	■	■	■	829
	2x3/2-way valve, 1x normally closed, 1x normally open, mechanical spring	VH	■	■	■	829
	2x3/2-way valve, normally closed, mechanical spring	VK	■	■	■	829
	2x3/2-way valve, normally open, mechanical spring	VN	■	■	■	829
	3/2-way valve, normally closed, external compressed air supply	VX	■	■	■	vtug
	3/2-way valve, normally open, external compressed air supply	VW	■	■	■	vtug
	Additional power supply	S	■	■	■	829
	Vacant position	L	■	■	■	829

Note
Valve terminals can be ordered quickly and easily online.
The convenient product configurator can be found at:

➔ **www.festo.com/catalogue/vtug**

Valve terminals VTUG with multi-pin plug and fieldbus connection

Features

Innovative

- Festo-specific I-Port interface for bus nodes (CTEU)
- IO-Link mode for direct connection to a higher-level IO-Link master
- Festo-specific I-Port interface with interlock
- Variable multi-pin plug connection using Sub-D or flat cable
- Reversible piston spool valves, up to 24 valve positions
- Reduced power consumption
- Excellent price/performance ratio

Versatile

- Choice of quick plug connectors
- Multiple pressure zones possible
- Sub-D variant and fieldbus connection rated to IP67
- Internal or external pilot air with the same manifold rail possible through the use of blanking plugs
- Sub-base valves with working ports underneath for installation in control cabinets

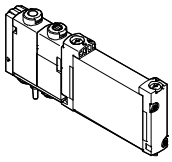
Reliable

- Sturdy and durable metal components
  - Valves
  - Manifold rails
- Fast troubleshooting thanks to LED display
- Choice of manual override: non-detenting, detenting or covered

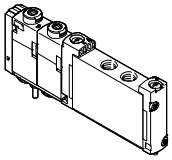
Easy to mount

- Easy mounting thanks to captive screws and seal
- Connection technology easy to change
- Inscription label holder for labelling

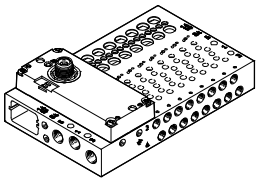
Sub-base and semi in-line valves



Sub-base valve
VUVG-B...1T1



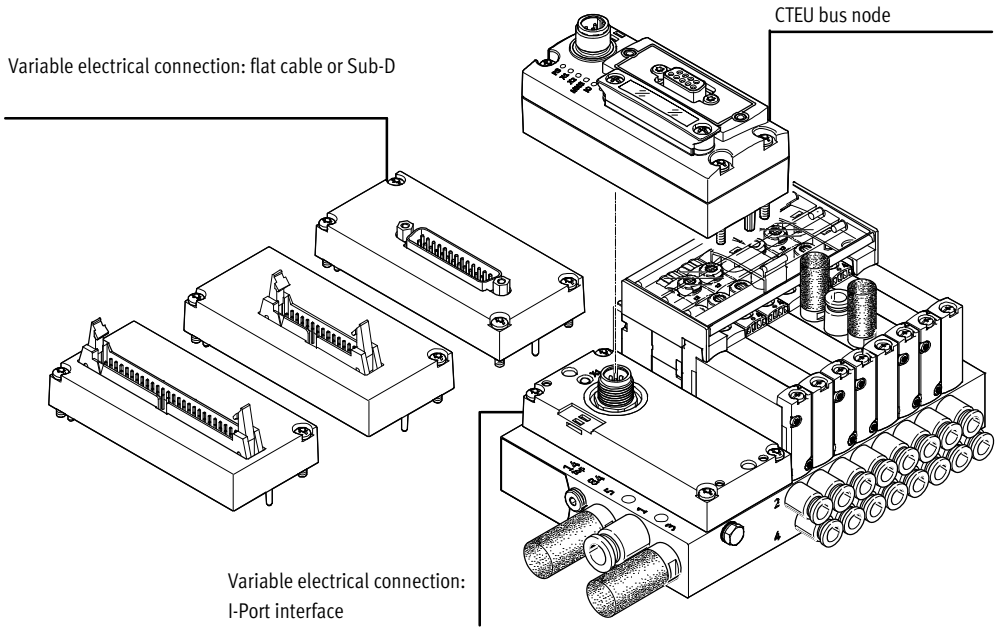
VUVG-S...1T1
Semi in-line valve



Valve terminal VTUG with variable electrical connection

9

Overview



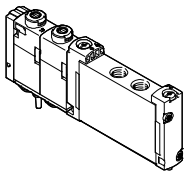
Equipment options

Valve functions

- 2x3/2-way, 5/2-way, 5/3-way valves
- Reversible piston spool valves, up to 24 valve positions
- IO-Link mode for direct connection to a higher-level IO-Link master
- Festo-specific I-Port interface for bus nodes (CTEU)
- Variable multi-pin plug connection using Sub-D or flat cable
- Festo-specific I-Port interface with interlock (for valves of valve size 10 mm)

Features

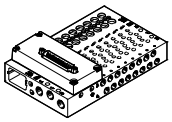
Basic valves VUVG



- Valve size 10 mm and 14 mm
- Semi in-line valves
- Sub-base valves
- 2x3/2-way, 5/2-way and 5/3-way valves

Electrical connection

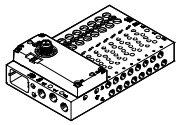
Multi-pin plug connection



The signals are transmitted from the controller to the valve terminal via a pre-assembled or self-assembled multi-wire cable to the multi-pin plug connection, which substantially reduces installation time. The valve terminal can be equipped with max. 48 solenoid coils.

Versions:
- Sub-D connection
- Flat cable

I-Port interface



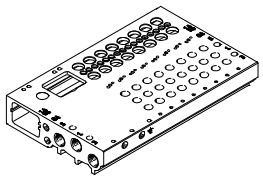
Festo-specific interface as a basis for bus nodes (CTEU) or in IO-Link mode for direct connection to a higher-level IO-Link master.

Communication and power supply take place via a common M12 interface on the terminal.

Connection options:
- As I-Port interface for bus nodes (CTEU)
- In IO-Link mode for direct connection to an IO-Link master

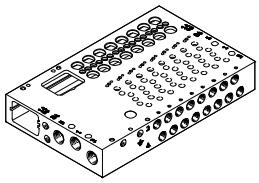
Manifold rails

For semi in-line valves



- For semi in-line valves, M5, M7, valve width 10 mm and G1/8, valve width 14 mm
- For 2x3/2-way, 5/2-way and 5/3-way valves
- 4 to 24 valve positions with electrical interlinking
- The semi in-line valves are always supplied with external pilot air. The pilot air is set via the manifold rail. A short and a long blanking plug are included with the manifold rail for this purpose.

For sub-base valves



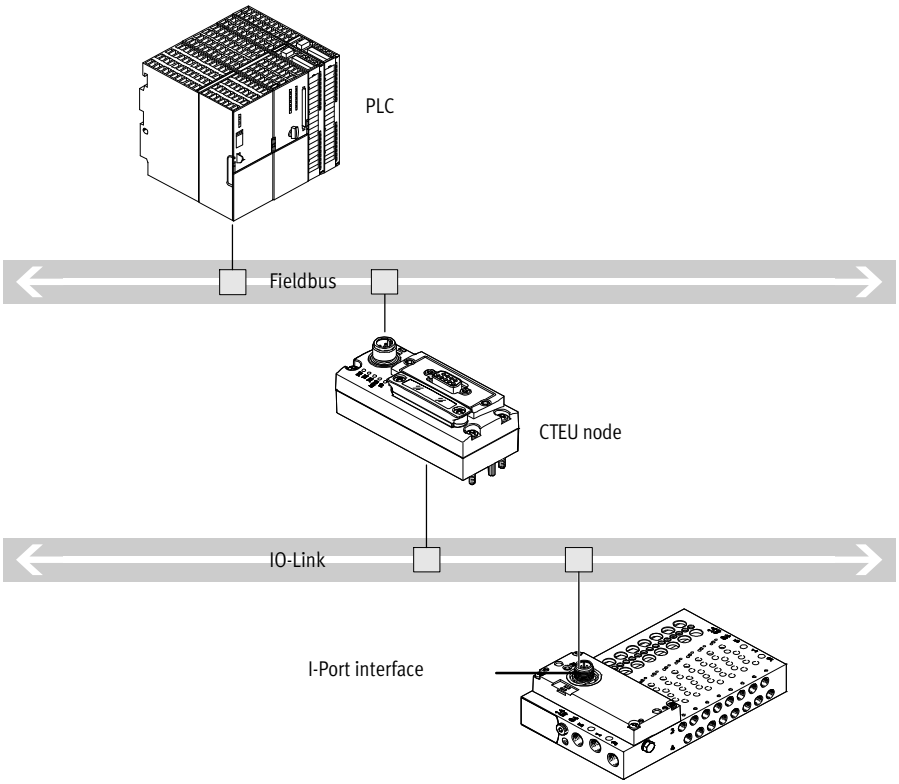
- For sub-base valves M5/M7, valve width 10 mm and G1/8, valve width 14 mm
- For 2x3/2-way, 5/2-way and 5/3-way valves
- 4 to 24 valve positions with electrical interlinking
- The sub-base valves are always supplied with external pilot air. The pilot air is set via the manifold rail. A short and a long blanking plug are included with the manifold rail for this purpose.

Valve terminals VTUG with multi-pin plug and fieldbus connection

Features

- Communication with the higher-order controller via fieldbus
- Use a bus node CTEU compatible with the fieldbus protocol
- Up to 64 inputs/outputs (solenoid coils), depending on the valve terminal
- No preprocessing

System overview – IO-Link



FESTO

Data sheet – Semi in-line valve M5/M7

- Valve size 10 mm
- Flow rate
  130 ... 330 l/min
- Operating voltage
  24 V DC

Technical data Download CAD data ➔ **www.festo.com**

Valve function			T32-A			T32-M			M52-R	B52	M52-M	P53		
Normal position			C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	–	–	–	C[1]	U[2]	E[3]
Pneumatic spring reset method			Yes			No			Yes[5]	–	No	–		
Mechanical spring reset method			No			Yes			Yes[5]	–	Yes	–		
Stable positions			Monostable							Bistable	Monostable			
Port 1, 3, 5			On manifold rail											
Port 2, 4	VUVG-S10-...-M5		M5											
Port 2, 4	VUVG-S10-...-M7		M7											
Port 12, 14			On manifold rail											
Flow rate on manifold rail M5		[l/min]	150			130			230	230	230	210		
Flow rate on manifold rail M7		[l/min]	160			140			330	330	290	280		
Vacuum operation at port 1			No			With external pilot air supply								
Design			Piston spool valve											
Type of mounting			On manifold rail											
Electrical connection			Via sub-base											
Manual override			Choice of non-detenting, covered, non-detenting/detenting or detenting											

1) C=Normally closed.
2) U=Normally open/mid-position pressurised.
3) E=Normally exhausted.
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.
5) Combined reset method.

Operating conditions

Valve function			T32-A[6]	T32-M[7]	M52-R[8]	B52	M52-M[7]	P53
Operating medium			Compressed air to ISO 8573-1:2010 [7:4:4]					
Operating pressure	Internal pilot air supply	[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External pilot air supply	[bar]	1.5 ... 10	–0.9 ... 10	–0.9 ... 10	–0.9 ... 10	–0.9 ... 8	–0.9 ... 10
Pilot pressure[9]			1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature		[°C]	–5 ... +60					
Temperature of medium		[°C]	–5 ... +60					

6) Pneumatic spring.
7) Mechanical spring.
8) Pneumatic/mechanical spring.
9) Minimum pilot pressure 50% of operating pressure.

Materials

Housing	Wrought aluminium alloy
Seals	HNBR, NBR

Valve terminals VTUG with multi-pin plug and fieldbus connection

Order code – Semi in-line valve M5M7

VUVG	–	S	10	–		–		Z		–		–	1	T1	L

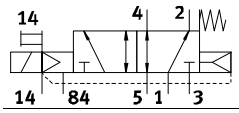
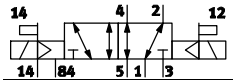
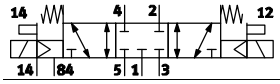
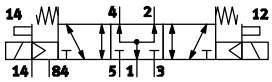
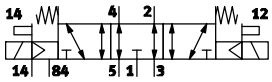
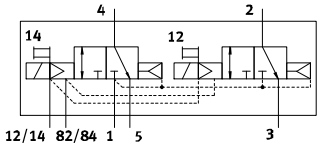
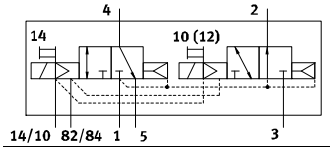
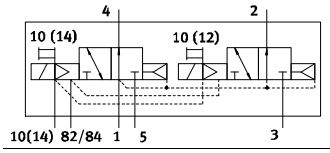
Valve design

Semi in-line valve	**S**

Valve size

10 mm	**10**

Valve function

	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**
	**T32C**
	**T32H**
	**T32U**

Pneumatic port

M5	M5
M7	M7
Q3	Push-in connector 3 mm
Q4	Push-in connector 4 mm
Q4H	Push-in connector 4 mm/M7
Q6	Push-in connector 6 mm
Q6H	Push-in connector 6 mm/M7
T14	Push-in connector 1/4"
T14H	Push-in connector 1/4", M7
T18	Push-in connector 1/8"
T316	Push-in connector 3/16"
T316H	Push-in connector 3/16", M7
T532	Push-in connector 5/3"

Manual override

H	Non-detenting
S	Covered
T	Non-detenting, detenting
Y	Detenting, without accessories

Pilot air

Z	External

Reset method

A	Pneumatic spring with T32
M	Mechanical spring with T32 and M52
R	Pneumatic/mechanical spring with M52
–	With B52 and P53

Nominal operating voltage

1	24 V DC

Electrical connection

T1	Plug-in

Display

L	LED

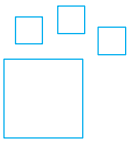
Order example:

VUVG-S10-T32C-MZT-M5-1T1L

Universal solenoid valve VUVG - semi in-line valve, valve size 10 mm - 2x3/2-way valve, normally closed - mechanical spring reset method, external pilot air supply, non-detenting/detenting manual override - pneumatic connection M5 - nominal operating voltage 24 V DC, plug-in electrical connection, LED display

FESTO

Ordering – Product options



Configurable product

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The configurator can be found under Products on the DVD or
➔ **www.festo.com/catalogue/...**

Enter the type code in the search field.

★ Quick ordering[1)]

	Part no.	Type
2x3/2-way valve	**573386**	**VUVG-S10-T32C-AZT-M5-1T1L**
5/2 way valve, single solenoid	**573392**	**VUVG-S10-M52-RZT-M5-1T1L**
5/2-way valve, double solenoid	**573394**	**VUVG-S10-B52-ZT-M5-1T1L**
5/3-way valve	**573395**	**VUVG-S10-P53C-ZT-M5-1T1L**

	Part no.	Type
2x3/2-way valve	**573398**	**VUVG-S10-T32C-AZT-M7-1T1L**
5/2 way valve, single solenoid	**573404**	**VUVG-S10-M52-RZT-M7-1T1L**
5/2-way valve, double solenoid	**573406**	**VUVG-S10-B52-ZT-M7-1T1L**
5/3-way valve	**573407**	**VUVG-S10-P53C-ZT-M7-1T1L**

1) All products in this table are easy to select and quick to order.

Valve terminals VTUG with multi-pin plug and fieldbus connection

FESTO

Data sheet – Semi in-line valve G1⁄8

- Valve size 14 mm
- Flow rate
  520 ... 630 l/min
- Operating voltage
  24 V DC

Technical data Download CAD data ➔ **www.festo.com**

Valve function			T32-A			T32-M			M52-A	B52	M52-M	P53		
Normal position			C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	–	–	–	C[1]	U[2]	E[3]
Pneumatic spring reset method			Yes			No			Yes	–	No	–		
Mechanical spring reset method			No			Yes			No	–	Yes	–		
Stable positions			Monostable							Bistable	Monostable			
Port 1, 3, 5			On manifold rail											
Port 2, 4			G1⁄8											
Port 12, 14			On manifold rail											
Flow rate on manifold rail G1⁄8		[l/min]	610			520			620	630	620	590		
Vacuum operation at port 1			No			Only with external pilot air supply								
Design			Piston spool valve											
Type of mounting			On manifold rail											
Electrical connection			Via sub-base											
Manual override			Choice of non-detenting, covered, non-detenting/detenting or detenting											

1) C=Normally closed.
2) U=Normally open/mid-position pressurised.
3) E=Normally exhausted.
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.

Operating conditions

Valve function			T32-A[5]	T32-M[6]	M52-A[5]	B52	M52-M[6]	P53
Operating medium			Compressed air to ISO 8573-1:2010 [7:4:4]					
Operating pressure	Internal pilot air supply	[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External pilot air supply	[bar]	1.5 ... 10	–0.9 ... 10	–0.9 ... 10	–0.9 ... 10	–0.9 ... 8	–0.9 ... 10
Pilot pressure[7]			1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature		[°C]	–5 ... +60					
Temperature of medium		[°C]	–5 ... +60					

5) Pneumatic spring.
6) Mechanical spring.
7) Minimum pilot pressure 50% of operating pressure.

Materials

Housing	Wrought aluminium alloy
Seals	HNBR, NBR

FESTO

Order code – Semi in-line valve G1⁄8

VUVG	–	S	14	–		–		Z		–		–	1	T1	L

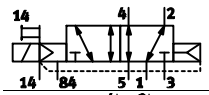
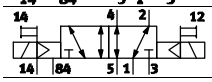
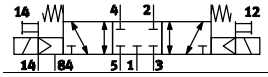
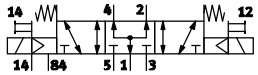
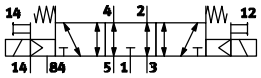
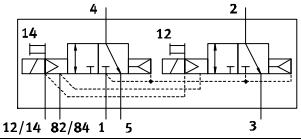
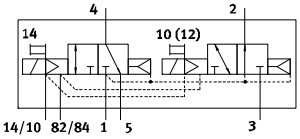
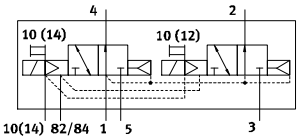
Valve design

Semi in-line valve	**S**

Valve size

14 mm	**14**

Valve function

	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**
	**T32C**
	**T32H**
	**T32U**

Pilot air

Z	External

Reset method

A	Pneumatic spring with M53 and T32
M	Mechanical spring with M53 and T32
–	With B52 and P53

Manual override

H	Non-detenting
S	Covered
T	Non-detenting, detenting
Y	Detenting, without accessories

Pneumatic port

G18	G1/8
T14	Push-in connector 1/4"
T516	Push-in connector 5/16"
Q4	Push-in connector 4 mm
Q6	Push-in connector 6 mm
Q8	Push-in connector 8 mm

Nominal operating voltage

1	24 V DC

Electrical connection

T1	Plug-in

Display

L	LED

9

Order example:

VUVG-S14-T32U-AZT-G18-1T1L

Universal solenoid valve VUVG - semi in-line valve, valve size 14 mm - 2x3/2-way valve, normally open - pneumatic spring reset method, external pilot air supply, non-detenting/detenting manual override - pneumatic connection G1/8 - nominal operating voltage 24 V DC, plug-in electrical connection, LED display

Ordering – Product options

Configurable product

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	Part no.	Type
2x3/2-way valve	**573464**	**VUVG-S14-T32C-AZT-G18-1T1L**
5/2 way valve, single solenoid	**573470**	**VUVG-S14-M52-AZT-G18-1T1L**
5/2-way valve, double solenoid	**573472**	**VUVG-S14-B52-ZT-G18-1T1L**
5/3-way valve	**573473**	**VUVG-S14-P53C-ZT-G18-1T1L**

1) All products in this table are easy to select and quick to order.

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Data sheet – Sub-base valve M5/M7

- Valve size 10 mm
- Flow rate
  130 ... 300 l/min
- Operating voltage
  24 V DC

Technical Data Download CAD data ➔ **www.festo.com**

Valve function		T32-A			T32-M			M52-R	B52	M52-M	P53		
Normal position		C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	–	–	–	C[1]	U[2]	E[3]
Pneumatic spring reset method		Yes			No			Yes[5]	–	No	–		
Mechanical spring reset method		No			Yes			Yes[5]	–	Yes	–		
Stable positions		Monostable							Bistable	Monostable			
Port 1, 3, 5		On manifold rail											
Port 2, 4		On manifold rail											
Port 12, 14		On manifold rail											
Standard nominal flow rate M5/M7	[l/min]	160			140			300	300	260	260		
Flow rate on manifold rail M5, front	[l/min]	150			130			220	220	220	200		
Flow rate on manifold rail M7, front	[l/min]	160			140			270	270	240	250		
Flow rate on manifold rail M7, underneath	[l/min]	160			140			300	300	260	260		
Vacuum operation at port 1		No			Only with external pilot air supply								
Design		Piston spool valve											
Type of mounting		On manifold rail											
Electrical connection		Via sub-base											
Manual override		Choice of non-detenting, covered, non-detenting/detenting or detenting											

1) C=Normally closed.
2) U=Normally open/mid-position pressurised.
3) E=Normally exhausted.
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.
5) Combined reset method.

Operating conditions

Valve function			T32-A[6]	T32-M[7]	M52-R[8]	B52	M52-M[7]	P53
Operating medium			Compressed air to ISO 8573-1:2010 [7:4:4]					
Operating pressure	Internal pilot air supply	[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External pilot air supply	[bar]	1.5 ... 10	–0.9 ... 10	–0.9 ... 10	–0.9 ... 10	–0.9 ... 8	–0.9 ... 10
Pilot pressure[9]			1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature		[°C]	–5 ... +60					
Temperature of medium		[°C]	–5 ... +60					

6) Pneumatic spring.
7) Mechanical spring.
8) Pneumatic/mechanical spring.
9) Minimum pilot pressure 50% of operating pressure.

Materials

Housing	Wrought aluminium alloy
Seals	HNBR, NBR

FESTO

Order code – Sub-base valve M5/M7

VUVG	–	B	10	–		–		Z		–	F	–	1	T1	L

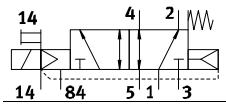
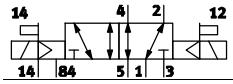
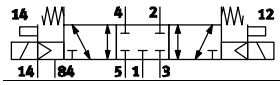
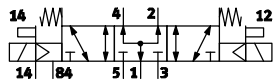
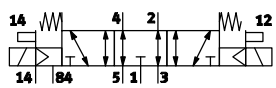
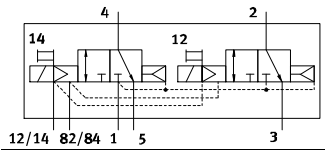
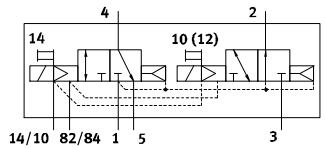
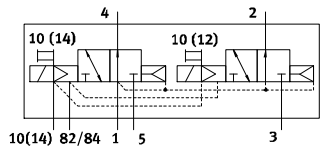
Valve design

Sub-base valve	**B**

Valve width

10 mm	**10**

Valve function

	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**
	**T32C**
	**T32H**
	**T32U**

Pilot air

Z	External

Reset method

A	Pneumatic spring with T32
M	Mechanical spring with M52 and T32
R	Pneumatic/mechanical spring with M52
–	With B52 and P53

Manual override

H	Non-detenting
S	Covered
T	Non-detenting, detenting
Y	Detenting, without accessories

Pneumatic port

F	Flange/sub-base

Nominal operating voltage

1	24 V DC

Electrical connection

T1	Plug-in

Display

L	LED

Order example:

VUVG-B10-T32U-MZT-F-1T1L

Universal solenoid valve VUVG - sub-base valve, valve width 10 mm - 2x3/2-way valve, normally open - mechanical spring reset method, external pilot air supply, non-detenting/detenting manual override - flange/sub-base pneumatic connection - nominal operating voltage 24 V DC, plug-in electrical connection, LED display

Ordering – Product options

Configurable product

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Enter the type code in the search field.

★ Quick ordering[1)]

	Part no.	Type
2x3/2-way valve	**573410**	**VUVG-B10-T32C-AZT-F-1T1L**
5/2-way valve, single solenoid	**573416**	**VUVG-B10-M52-RZT-F-1T1L**
5/2-way valve, double solenoid	**573418**	**VUVG-B10-B52-ZT-F-1T1L**
5/3-way valve	**573419**	**VUVG-B10-P53C-ZT-F-1T1L**

1) All products in this table are easy to select and quick to order.

Valve terminals VTUG with multi-pin plug and fieldbus connection

FESTO

Data sheet – Sub-base valve G⅛

- Valve size 14 mm
- Flow rate
  440 ... 560 l/min
- Operating voltage
  24 V DC

Technical data

Download CAD data ➔ **www.festo.com**

Valve function			T32-A			T32-M			M52-A	B52	M52-M	P53		
Normal position			C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	–	–	–	C[1]	U[2]	E[3]
Pneumatic spring reset method			Yes			No			Yes	–	No	–		
Mechanical spring reset method			No			Yes			No	–	Yes	–		
Stable positions			Monostable							Bistable	Monostable			
Port 1, 3, 5			On manifold rail											
Port 2, 4			On manifold rail											
Port 12, 14			On manifold rail											
Standard nominal flow rate G18		[l/min]	530			470			550	560	550	510		
Flow rate on manifold rail G18, front		[l/min]	490			440			500	510	500	470		
Flow rate on manifold rail G18, underneath		[l/min]	530			470			550	560	550	510		
Vacuum operation at port 1			No			Only with external pilot air supply								
Design			Piston spool valve											
Type of mounting			On manifold rail											
Electrical connection			Via sub-base											
Manual override			Choice of non-detenting, covered, non-detenting/detenting or detenting											

1) C=Normally closed.
2) U=Normally open/mid-position pressurised.
3) E=Normally exhausted.
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.

Operating conditions

Valve function			T32-A[5]	T32-M[6]	M52-A[5]	B52	M52-M[6]	P53
Operating medium			Compressed air to ISO 8573-1:2010 [7:4:4]					
Operating pressure	Internal pilot air supply	[bar]	1.5 ... 8	3.5 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External pilot air supply	[bar]	1.5 ... 10	–0.9 ... 10	–0.9 ... 10	–0.9 ... 10	–0.9 ... 8	–0.9 ... 10
Pilot pressure[7]			1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature		[°C]	–5 ... +60					
Temperature of medium		[°C]	–5 ... +60					

5) Pneumatic spring.
6) Mechanical spring.
7) Minimum pilot pressure 50% of operating pressure.

Materials

Housing	Wrought aluminium alloy
Seals	HNBR, NBR

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Order code – Sub-base valve G⅛

VUVG	–	B	14	–		–		Z		–	F	–	1	T1	L

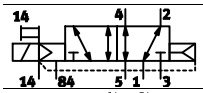
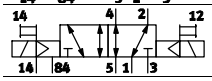
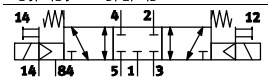
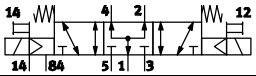
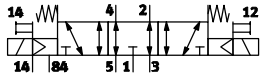
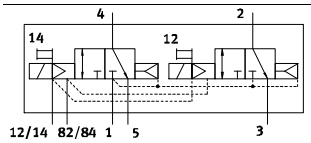
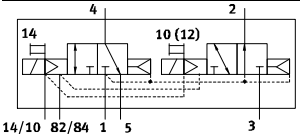
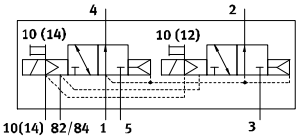
Valve design

Sub-base valve	**B**

Valve size

14 mm	**14**

Valve function

	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**
	**T32C**
	**T32H**
	**T32U**

Pilot air

Z	External

Manual override

H	Non-detenting
S	Covered
T	Non-detenting, detenting
Y	Detenting, without accessories

Pneumatic port

F	Flange/sub-base

Nominal operating voltage

1	24 V DC

Electrical connection

T1	Plug-in

Display

L	LED

Reset method

A	Pneumatic spring with M52 and T32
M	Mechanical spring with M52 and T32
–	With B52 and P53

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Order example:

VUVG-B14-M52-AZT-F-1T1L

Universal solenoid valve VUVG - sub-base valve, valve size 14 mm - 5/2-way valve, single solenoid - pneumatic spring reset method, external pilot air supply, non-detenting/detenting manual override - flange/sub-base pneumatic connection - nominal operating voltage 24 V DC, plug-in electrical connection, LED display

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
➔ **www.festo.com/catalogue/...**

Enter the type code in the search field.

★ Quick ordering[1)]

	Part no.	Type
2x3/2-way valve	**573476**	**VUVG-B14-T32C-AZT-F-1T1L**
5/2 way valve, single solenoid	**573482**	**VUVG-B14-M52-AZT-F-1T1L**
5/2-way valve, double solenoid	**573484**	**VUVG-B14-B52-ZT-F-1T1L**
5/3-way valve	**573485**	**VUVG-B14-P53C-ZT-F-1T1L**

1) All products in this table are easy to select and quick to order.

Valve terminals VTUG with multi-pin plug and fieldbus connection

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Data sheet – Manifold rail VABM

Technical data Download CAD data ➔ **www.festo.com**

Type		VABM-L1-10	VABM-L1-14
Connection type		Semi in-line/sub-base	
Connection	12/14	M5	
	82/84	M5	
	2, 4	M5/M7	G1⁄8
	1, 3, 5	G1⁄8	G1⁄4
Max. number of valve positions		24	

Information on materials Download CAD data ➔ **www.festo.com**

Housing	Wrought aluminium alloy

Data sheet – Multi-pin plug connection VAEM

The following multi-pin plug connections are available for the valve terminal VTUG:

- Sub-D (25-pin)
- Sub-D (44-pin)
- Flat cable (26-pin)
- Flat cable (50-pin)

Technical data Download CAD data ➔ **www.festo.com**

Type	VAEM-L1-S-M1-25	VAEM-L1-S-M1-44	VAEM-L1-S-M3-26	VAEM-L1-S-M3-50
Number of pins	25-pin	44-pin	26-pin	50-pin
Electrical connection	Sub-D plug		Flat cable plug	
Max. number of valve positions	24		24	

Data sheet – I-Port interface/IO-Link

Festo-specific, standardised interface for direct connection to the fieldbus by mounting the bus node CTEU or to an IO-Link master via a cable (in IO-Link mode).

The following protocols are supported in combination with the associated CTEU node:
- CANopen
- DeviceNet
- PROFIBUS
- CC-LINK
- EtherCAT

Technical data Download CAD data ➔ **www.festo.com**

Communication types			IO-Link
Electrical connection			• M12 plug, 5-pin • A-coded • Metal thread for screening
Baud rate	COM3	[kbps]	230.4
	COM2	[kbps]	38.4
Max. number of solenoid coils	VAEM-L1-S-8-PT		16
	VAEM-L1-S-16-PT		32
	VAEM-L1-S-24-PT		48
Max. number of valve positions	VAEM-L1-S-8-PT		8
	VAEM-L1-S-16-PT		16
	VAEM-L1-S-24-PT		24
Ambient temperature		[°C]	–5 ... +50

Data sheet – Electrical connecting block CAPC

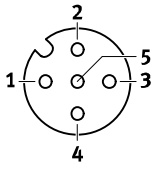
Area of application
- M12 connection technology (two interfaces)
- Enables the installation of valve terminals or other devices over a distance of 20 metres
- Accessory CAFM enables the electrical connecting block to be installed on an H-rail

Function
The electrical connecting block CAPC enables decentralised installation of bus nodes CTEU on a valve terminal or input modules with I-Port interface.

Technical data

Type		CAPC-F1-E-M12
Dimensions W x L x H	[mm]	50 x 148 x 28
Fieldbus interface		2x socket M12, 5-pin, A-coded
Operating voltage range	[V DC]	18 ... 30
Max. power supply	[A]	2
Nominal operating voltage	[V DC]	24
Cable length	[m]	20

Pin allocation – Power supply/IO-Link interfaces



Pin	Designation	Function
1	$24V_{EL/SEN}$	Operating voltage supply (electronics, sensors/inputs)
2	$24V_{VAL/OUT}$	Load voltage supply (valves/outputs)
3	$0V_{EL/SEN}$	Operating voltage supply (electronics, sensors/inputs)
4	C/Q	Data communication
5	$0V_{VAL/OUT}$	Load voltage supply (valves/outputs)
	Housing, FE	Functional earth

Valve terminals VTUG with multi-pin plug and fieldbus connection

Order code – Manifold rail VABM

VABM	–	L1	–				–		–	G	R

Allocation

Manifold rail	**L1**

Size

For valves, valve size 10 mm	**10**
For valves, valve size 14 mm	**14**

Version

Standard	**–**
High flow rate	**H**

Connection type

Semi in-line	**G**
Sub-base	**W**

Connection direction

Side	**–**
Underneath	**B**

Pneumatic port 1, 3, 5

G1/8 thread	**G18**
G1/4 thread	**G14**

Valve positions

4	4 valve positions
5	5 valve positions
6	6 valve positions
7	7 valve positions
8	8 valve positions
9	9 valve positions
10	10 valve positions
12	12 valve positions
16	16 valve positions
20	20 valve positions
24	24 valve positions

Connection for valve function

–	All valve positions can be fitted with 2 valve coils
M	Not all valve positions can be fitted with 2 valve coils

Electrical connection

G	Preparation for electrical connection

Circuitry

R	Holding current reduction with protective circuit

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Order example:

VABM-L1-10G-G18-4-GR

Manifold rail VABM - manifold rail - valve size 10 mm, standard version, semi in-line connection type, connection direction to the side - pneumatic connection G1/8 - 4 valve positions - 5/2-way connection for valve function - preparation for electrical connection, holding current reduction with protective circuit

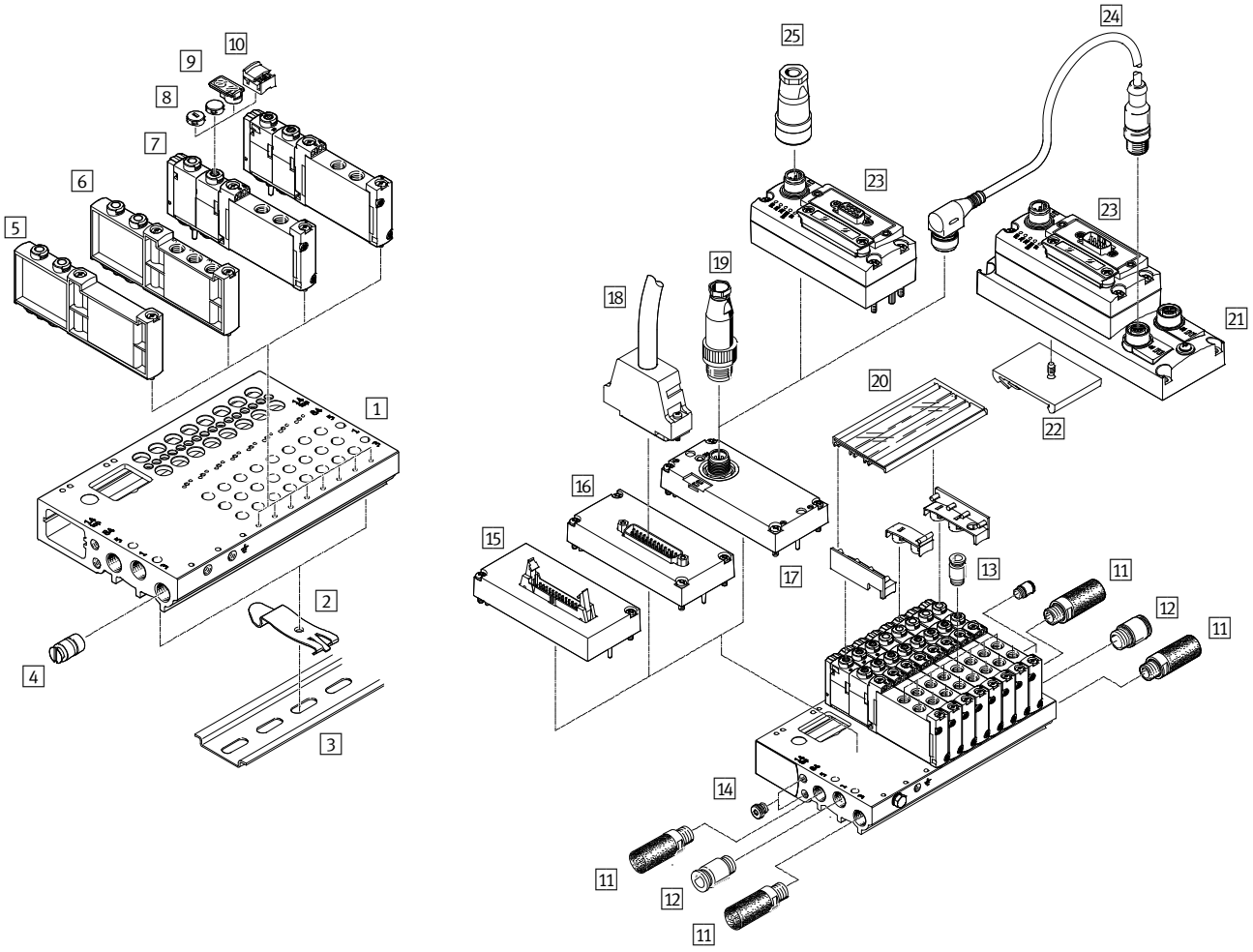
★ Quick ordering[1)]

Part no.	Type
Manifold rail M5/M7 for in-line valves	
573423	**VABM-L1-10G-G18-4-GR**
573427	**VABM-L1-10G-G18-8-GR**
573431	**VABM-L1-10G-G18-16-GR**
Manifold rail G1/4 for in-line valves	
573489	**VABM-L1-14G-G14-4-GR**
573493	**VABM-L1-14G-G14-8-GR**
573497	**VABM-L1-14G-G14-16-GR**

Part no.	Type
Manifold rail M7 for sub-base valves	
573434	**VABM-L1-10HW-G18-4-GR**
573438	**VABM-L1-10HW-G18-8-GR**
573442	**VABM-L1-10HW-G18-16-GR**
Manifold rail G1/4 for sub-base valves	
573500	**VABM-L1-14W-G14-4-GR**
573504	**VABM-L1-14W-G14-8-GR**
573508	**VABM-L1-14W-G14-16-GR**

1) All products in this table are easy to select and quick to order.

Accessories



Accessories		➔ Page/online
1	Manifold rail VABM-L1, for 4 to 10, 12, 14, 16, 20 and 24 valve positions	840
2	H-rail mounting VAME-T-M4, 2 pieces for mounting the valve terminal on an H-rail	842
3	H-rail NRH-35-2000, for mounting the valve terminal	842
4	Separator VABD, for creating pressure zones	842
5	Blanking plate VABB-L1, for covering a vacant position	842
6	Supply plate VABF-L1, for air supply port 1 and outlet port 3 and 5	842
7	Solenoid valve VUVG, semi in-line valve, 5/2-way valve, single solenoid	829
8	Cover cap VMPA-HB, cover cap for manual override	842
9	Inscription label holder ASLR-D-L1, for inscription label and covering the mounting screw/manual override	842
10	Cover, VAMC-..., for manual override	842
11	Silencer UC, for outlet port 3 and 5	842
12	Push-in fitting QS, push-in fitting for air supply port 1	842
13	Push-in fitting QS, for port 2/4	842
14	Blanking plug B, for internal/external pilot air	842
15	Electrical interface VAEM-L1-S-M3, flat cable	842
16	Electrical interface VAEM-L1-S-M1, Sub-D	842
17	I-Port interface VAEM-L1-S	842
18	Connecting cable NEBV, Sub-D plug	843
19	Plug SEA-M12-5GS-PG7, straight plug for I-Port interface/IO-Link	843
20	Inscription label holder ASCF-H-L1	843
21	Electrical connecting block CAPC-F1-E-M12, for connecting a second device with I-Port interface	844
22	H-rail mounting CAFM-F1-H, for electrical connecting block CAPC	844
23	Bus node CTEU	844
24	Connecting cable NEBU	844
25	Power supply socket NTSD, power supply for bus node CTEU	cteu

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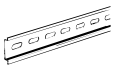
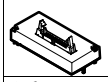
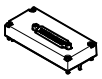
Accessories – Ordering data

			Part no.	Type
2	**H-rail mounting**			
	–	★	**569998**	**VAME-T-M4**
3	**H-rail**			
	–		**35430**	**NRH-35-2000**
4	**Separator**			
	10 mm		**569994**	**VABD-6-B**
	10 mm		**569995**	**VABD-8-B**
	14 mm		**569996**	**VABD-10-B**
5	**Cover plate**			
	10 mm	★	**573422**	**VABB-L1-10-T**
	14 mm	★	**573488**	**VABB-L1-14-T**
6	**Supply plate**			
	10 mm		**573924**	**VABF-L1-10-P3A4-M7-T1**
	14 mm		**573925**	**VABF-L1-14-P3A4-G18-T1**
8	**Cover cap for manual override**			
	Covered		**540898**	**VMPA-HBV-B**
	Non-de-tenting		**540897**	**VMPA-HBT-B**
	Detenting (without accessor-ies)		**8002234**	**VAMC-L1-CD**
9	**Inscription label holder**			
	10 pieces		**570818**	**ASLR-D-L1**
11	**Silencer**			**Technical data ➔ 1237**
	M5		**165003**	**UC-M5**
	M7		**161418**	**UC-M7**
	G1/8		**161419**	**UC-1/8**
	G1/4		**165004**	**UC-1/4**
12/13	**Push-in fitting, straight**			**Technical data ➔1098**
	**M5 thread**			
	3 mm	★	**153313**	**QSM-M5-3-I**
	4 mm	★	**153315**	**QSM-M5-4-I**
	M7 thread			
	4 mm	★	**153319**	**QSM-M7-4-I**
	G1/8 thread			
	4 mm	★	**186106**	**QS-G1/8-4-I**
	6 mm	★	**186107**	**QS-G1/8-6-I**
	8 mm	★	**186109**	**QS-G1/8-8-I**

			Part no.	Type
12/13	**Push-in fitting, angled**			**Technical data ➔ 1098**
	**M5 thread**			
	Ø 3 mm	★	**153331**	**QSML-M5-3**
	Ø 4 mm	★	**153333**	**QSML-M5-4**
	M7 thread			
	Ø 4 mm	★	**186352**	**QSML-M7-4**
	G1/8 thread			
	Ø 6 mm	★	**186117**	**QSL-G1/8-6**
	Ø 8 mm	★	**186119**	**QSL-G1/8-8**
Angled, long				
	**M5 thread**			
	Ø 3 mm	★	**130838**	**QSMLL-M5-3**
	Ø 4 mm	★	**153339**	**QSMLL-M5-4**
	M7 thread			
	Ø 4 mm	★	**186354**	**QSMLL-M7-4**
	G1/8 thread			
	Ø 6 mm	★	**186128**	**QSLL-G1/8-6**
	Ø 8 mm	★	**186130**	**QSLL-G1/8-8**
14	**Blanking plug**			**Technical data ➔ b-1**
	M5		**174308**	**B-M5-B**
	M7		**174309**	**B-M7**
	G1/8		**3568**	**B-1/8**
	G1/4		**3569**	**B-1/4**
15/16/17	**Electrical interface**			
Flat cable plug				
	26-pin		**573452**	**VAEM-L1-S-M3-26**
	50-pin		**573451**	**VAEM-L1-S-M3-50**
Sub-D				
	25-pin	★	**573445**	**VAEM-L1-S-M1-25**
			573447	**VAEM-L1-S-M1-25V1**
			573448	**VAEM-L1-S-M1-25V2**
			573449	**VAEM-L1-S-M1-25V3**
			573450	**VAEM-L1-S-M1-25V4**
	44-pin	★	**573446**	**VAEM-L1-S-M1-44**
I-Port interface, outlet on top				
	8 VP[1]	★	**573384**	**VAEM-L1-S-8-PT**
	16 VP[2]	★	**573939**	**VAEM-L1-S-16-PT**
	24 VP[3]		**573940**	**VAEM-L1-S-24-PT**
I-Port interface, outlet on side				
	8 VP[1]		**574207**	**VAEM-L1-S-8-PTL**
	16 VP[2]		**574208**	**VAEM-L1-S-16-PTL**
	24 VP[3]		**574209**	**VAEM-L1-S-24-PTL**

1) Actuation of up to 8 bistable valve positions.
2) Actuation of up to 16 bistable valve positions.
3) Actuation of up to 24 bistable valve positions.

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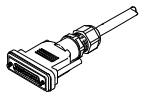
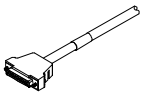
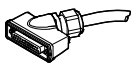
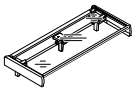
Accessories – Ordering data

			Part no.	Type
18	**Connecting cable for multi-pin plug connection,**			
	25-pin, IP40			**Technical data** online: → **nebv**
	2.5 m	★	**575417**	**NEBV-S1G25-K-2.5-N-LE25-S6**
	5 m	★	**575418**	**NEBV-S1G25-K-5-N-LE25-S6**
	44-pin, IP40			**Technical data** online: → **nebv**
	2.5 m	★	**575113**	**NEBV-S1G44-K-2.5-N-LE44-S6**
	5 m	★	**575114**	**NEBV-S1G44-K-5-N-LE44-S6**
	10 m		**575115**	**NEBV-S1G44-K-10-N-LE44-S6**
	25-pin, IP65, angled			**Technical data** online: → **nebv**
	2.5 m	★	**575423**	**NEBV-S1WA25-K-2.5-N-LE25-S9**
	5 m	★	**575424**	**NEBV-S1WA25-K-5-N-LE25-S9**
	2.5 m	★	**575420**	**NEBV-S1WA44-K-2.5-N-LE44-S9**
	5 m	★	**575421**	**NEBV-S1WA44-K-5-N-LE44-S9**
19	**Straight plug, for I-Port/IO-Link, 5-pin**			**Technical data** online: → **sea**
	M12		**175487**	**SEA-M12-5GS-PG7**
20	**Inscription label holder for valve terminal**			
	**For valves, valve width 10 mm**			
	4 VP[1)]		**573453**	**ASCF-H-L1-10-4V**
	5 VP[1)]		**573454**	**ASCF-H-L1-10-5V**
	6 VP[1)]		**573455**	**ASCF-H-L1-10-6V**
	7 VP[1)]		**573456**	**ASCF-H-L1-10-7V**
	8 VP[1)]		**573457**	**ASCF-H-L1-10-8V**
	9 VP[1)]		**573458**	**ASCF-H-L1-10-9V**
	10 VP[1)]		**573459**	**ASCF-H-L1-10-10V**
	12 VP[1)]		**573460**	**ASCF-H-L1-10-12V**
	16 VP[1)]		**573461**	**ASCF-H-L1-10-16V**
	20 VP[1)]		**573462**	**ASCF-H-L1-10-20V**
	24 VP[1)]		**573463**	**ASCF-H-L1-10-24V**
	For valves, valve width 14 mm			
	4 VP[1)]		**573511**	**ASCF-H-L1-14-4V**
	5 VP[1)]		**573512**	**ASCF-H-L1-14-5V**
	6 VP[1)]		**573513**	**ASCF-H-L1-14-6V**
	7 VP[1)]		**573514**	**ASCF-H-L1-14-7V**
	8 VP[1)]		**573515**	**ASCF-H-L1-14-8V**
	9 VP[1)]		**573516**	**ASCF-H-L1-14-9V**
	10 VP[1)]		**573518**	**ASCF-H-L1-14-10V**
	12 VP[1)]		**573519**	**ASCF-H-L1-14-12V**
	16 VP[1)]		**573520**	**ASCF-H-L1-14-16V**
	20 VP[1)]		**573521**	**ASCF-H-L1-14-20V**
	24 VP[1)]		**573522**	**ASCF-H-L1-14-24V**

1) VP = Valve positions.

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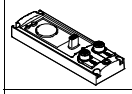
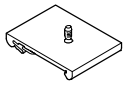
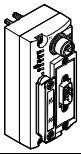
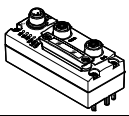
Accessories – Ordering data

			Part no.	Type
21	**Electrical connecting block**			**Technical data ➔ 839**
	–		**570042**	**CAPC-F1-E-M12**
22	**H-rail mounting**			
	For electrical connecting block CAPC		**570043**	**CAFM-F1-H**
23	**Bus node**			**Technical data** online: ➔ cteu
	CANopen		**570038**	**CTEU-CO**
	CC-Link		**1544198**	**CTEU-CC**
	PROFIBUS		**570040**	**CTEU-PB**
	DeviceNet		**570039**	**CTEU-DN**
	EtherCAT		**572556**	**CTEU-EC**
24	**Connecting cable for I-Port interface/IO-Link**			**Technical data ➔ 1161**
	5 m	★	**574321**	**NEBU-M12G5-E-5-Q8N-M12G5**
	7.5 m	★	**574322**	**NEBU-M12G5-E-7.5-Q8N-M12G5**
	10 m	★	**574323**	**NEBU-M12G5-E-10-Q8N-M12G5**

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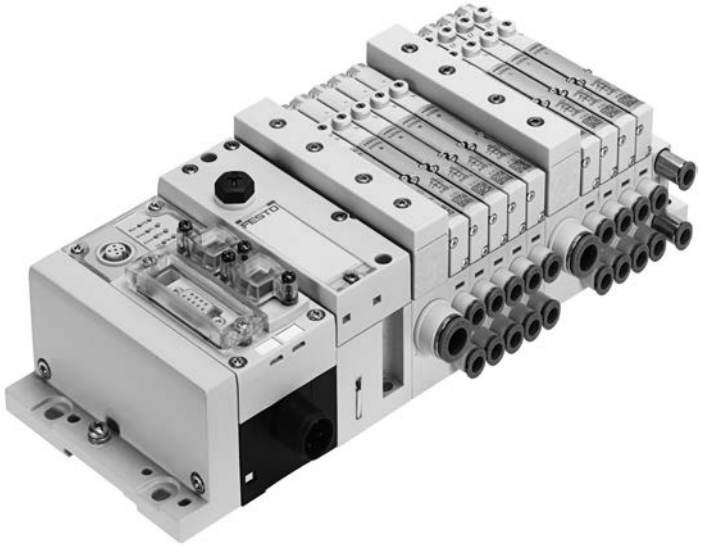
Overview/Configuration/Ordering
➔ **www.festo.com/catalogue/**mpa-l

Additional information/Support/User documentation
➔ **www.festo.com/sp/**mpa-l

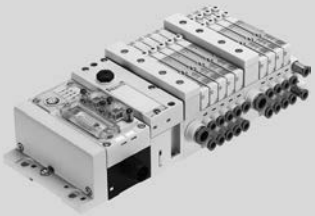
Universal valve terminals
Valve terminals

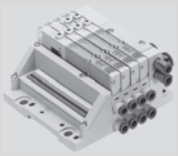
MPA-L



+ Highly modular and versatile
+ Easily expandable in single steps
+ Polymer sub-bases
+ Degree of protection IP65

Valve terminals MPA-L





- Universal valve terminal for numerous industries
- Individual modularity for each valve position, valves can be easily combined or expanded later
- Subsequent conversions possible quickly and easily at any time
- Sub-bases made of polymer – especially light and corrosion-resistant
- End plates made of coated aluminium – high resistance and long service life

➔ www.festo.com/catalogue/ mpal

Product range overview

Function	Version	Code	Size			➔ Page/ online
			10 mm (MPA1)	14 mm (MPA14)	20 mm (MPA2)	
Position function 1-32	5/2-way valve, single solenoid	M	■	■	■	849
	5/2-way valve, double solenoid	J	■	■	■	849
	2x3/2-way valve, normally open	N	■	■	■	849
	2x3/2-way valve, normally closed	K	■	■	■	849
	2x3/2-way valve, 1x normally closed, 1x normally open	H	■	■	■	849
	5/3-way valve, mid-position pressurised	B	■	■	■	849
	5/3-way valve, mid-position closed	G	■	■	■	849
	5/3-way valve, mid-position exhausted	E	■	■	■	849
	2x2/2-way valve, normally closed	D	■	■	■	849
	3/2-way valve, normally closed, external supply air	X	■	■	■	849
	3/2-way valve, normally open, external supply air	W	■	■	■	849
	2x2/2-way valve, 1x normally closed and 1x normally closed, reversible	I	■	■	■	849
	5/2-way valve, single-solenoid, with spring return	MS	■	–	■	mpal
	2x3/2-way valve, normally open, with spring return	NS	■	■	■	849
	2x3/2-way valve, normally closed, with spring return	KS	■	■	■	849
	2x3/2-way valve, 1x normally closed, 1x normally open, with spring return	HS	■	■	■	849
	2x2/2-way valve, compatible with low pressure	DS	■	■	■	849
	5/2-way valve, single-solenoid, polymer poppet valve	MU	■	–	–	849
	2x3/2-way valve, normally open, polymer poppet valve	NU	■	–	–	849
	2x3/2-way valve, normally closed, polymer poppet valve	KU	■	–	–	849
	2x3/2-way valve, 1x normally closed, 1x normally open, polymer poppet valve	HU	■	–	–	849
	Vacant position	L	■	■	■	mpal

Note
Valve terminals can be ordered quickly and easily online.
The convenient product configurator can be found at:

➔ www.festo.com/catalogue/mpal

FESTO

Features

Innovative

- Compact high-performance valves in sturdy metal housing
- Flow rates up to 870 l/min
- Wide range of electrical connection options for multi-pin plug: Sub-D, flat cable or terminal strip
- Connection to the electrical peripherals CPX with a wide range of communication options
- I-Port/IO-Link interface
- Freely configurable push-in connectors

Versatile

- Modular system offering a range of configuration options
- Freely extendable system with individual sub-bases and modular tie rods
- Up to 32 solenoid coils
- Conversions and extensions possible at a later date
- Air supply can be extended via additional pressure zones with supply modules
- Wide range of pressures –0.9 ... 10 bar
- Wide range of valve functions

Reliable

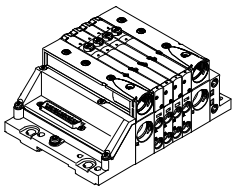
- High output reserves thanks to large pneumatic cross sections and venting with high flow rates
- Lightweight and low-cost polymer components
- Fast troubleshooting thanks to LEDs on the valves
- Easy to service thanks to replaceable valves and electrical modules
- Manual override either non-detenting, detenting or secured against unauthorised activation (covered)
- Durable thanks to tried-and-tested piston spool valves

Easy to mount

- Fast and reliable in-house assembly using individual components or delivered as a ready-to-install and tested unit
- Reduced outlay on selection, ordering, installation and commissioning
- Secure mounting on wall or H-rail

Electrical connection options

Multi-pin plug connection

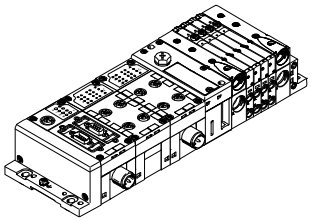


The signal flow from the controller to the valve terminal takes place via a pre-assembled or self-assembled multi-wire cable to the multi-pin plug connection, which substantially reduces installation time.

The valve terminal can be equipped with max. 32 solenoid coils. This corresponds to 2 to 32 valves.

Versions
- Sub-D connection
  - Pre-assembled multi-pin cable
  - Multi-pin cable for self-assembly
- Flat cable connection
- Terminal strip connection

Fieldbus connection via the CPX system

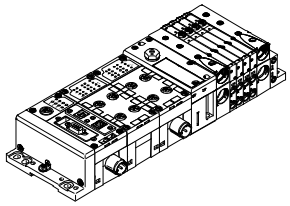


An integrated fieldbus node manages communication with a higher-order PLC. This enables a space-saving pneumatic and electronic solution.
Valve terminals with fieldbus interfaces can be configured with up to 32 valve positions.

The CPX terminal also enables the integration of digital and analogue electrical inputs and outputs, pressure sensors and controllers for pneumatic or electric positioning axes.
A detailed description of the extensive functionality can be found in the documentation for the CPX terminal
➔ 1185

Fieldbus protocols/CPX variants:
- PROFIBUS DP
- PROFINET
- INTERBUS
- DeviceNet
- CANopen
- CC-LINK
- EtherNet/IP
- Front End Controller Remote I/O
- Modbus/TCP
- EtherCAT
- POWERLINK
- Sercos III

Control block connection via the CPX system



Controllers integrated in the Festo valve terminals enable the construction of stand-alone control units to IP65, without control cabinets.

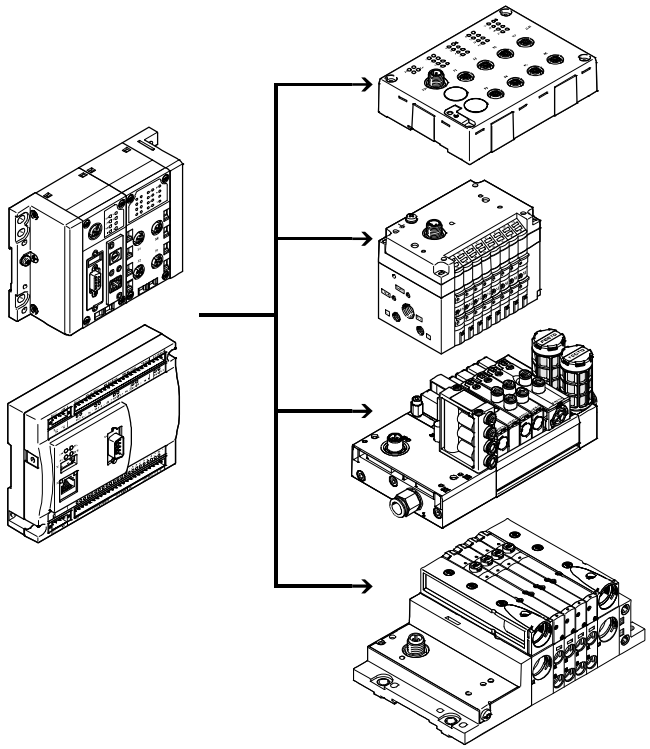
In the slave operating mode, these valve terminals can be used for intelligent preprocessing and are therefore ideal modules for designing decentralised intelligence.

In the master operating mode, terminal groups can be designed with many options and functions that can autonomously control a medium-sized machine/system.

Features

Electrical connection options

I-Port interface/IO-Link, CTEL installation system

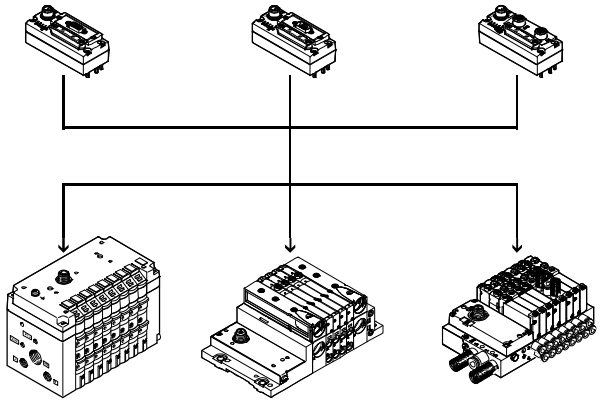


A CTEL system consists of the CTEL master and the devices with I-Port interface, which are connected together using special connecting cables. This permits a decentralised layout of the devices. This means that the valve terminals and I/O modules with I-Port interface (devices) can be mounted very close to the cylinders to be controlled. This reduces the length of the air supply lines used, which minimises flow losses and pressurisation and venting times.
The I-Port interface from Festo is based on IO-Link and is compatible with IO-Link in certain areas.
The connection type corresponds to a star topology. In other words, only one module or valve terminal can be connected to each I-Port.

As well as communication, the I-Port interfaces also handle the power supply for the connected devices.
The maximum length of a string is 20 m.
The restrictions compared to IO-Link include:

- Permanently set baud rate of 230.4 kbps
- SIO mode is not supported
- Max. 32 bytes of input data and 32 bytes of output data
- Only one dump of the master commands is used
- Festo plug and work, configuration via IODD is not supported.

Fieldbus connection via the CTEU system



CTEU is a system for the compact connection of a valve terminal to different fieldbus standards such as PROFIBUS and DeviceNet.
The fieldbus node is mounted directly on the I-Port interface of the valve terminal.
This makes it easy to switch between the fieldbus protocols; however, there is no way of connecting I/O modules to the fieldbus nodes.

The following fieldbus protocols are supported:

- DeviceNet
- PROFIBUS DP
- CANopen
- CC-LINK
- EtherCAT

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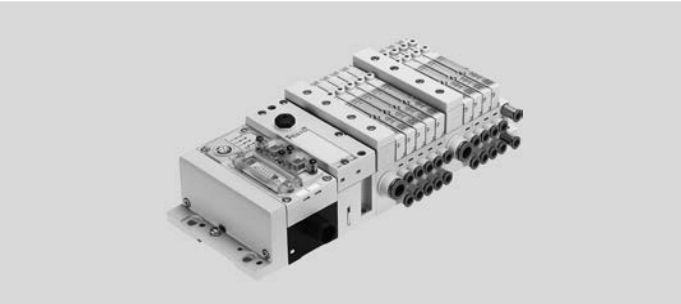
Data sheet

Valve terminal with multi-pin plug or fieldbus connection

- Flow rate
  Up to 870 l/min
- Operating voltage
  24 V DC
- Valve width
  10 mm
  14 mm
  20 mm



Technical data		Download CAD data ➔ **www.festo.com**
Max. number of valve positions		32
Max. number of pressure zones		9
Lubrication		Life-time lubrication, PWIS-free (free of paint-wetting impairment substances)
Type of mounting		Wall mounting
		On H-rail to EN 60715
Manual override		Non-detenting, detenting
Nominal voltage	[V DC]	24

Operating conditions		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Operating pressure	[bar]	–0.9 ... +10
Pilot pressure	[bar]	3 ... 8
Ambient temperature	[°C]	–5 ... +50

Current consumption per solenoid coil at nominal voltage				
		Width		
		10 mm	14 mm	20 mm
Nominal pick-up current	[mA]	50	50	110
Nominal current with current reduction	[mA]	10	10	23
Time until current reduction	[ms]	20	20	20

Electrical data – MPA-L with electrical interface for CPX terminal		
Intrinsic current consumption of valve terminal (internal electronics, without valves)		
At 24 V $U_{EL/SEN}$ [1]	[mA]	Typically 13
At 24 V Uval [2]	[mA]	Typically 35
Diagnostic message		
Undervoltage U_{OFF} [3]	[V]	17.7 ... 17.8

1) Power supply for electronics and sensors.
2) Load voltage supply for valves.
3) Load voltage outside of function range.

Electrical data – MPA-L with I-Port interface/IO-Link		
Intrinsic current consumption of valve terminal (internal electronics, without valves)		
From operating voltage supply connection	[mA]	30
From load voltage supply connection	[mA]	30

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Data sheet

Technical data – Valve width 10 mm

Code for position function 1-32			M	J	N	K	H	B	G	E	X	W	D	I
Switching times	On	[ms]	10	10	10	10	10	10	10	10	10	10	10	8
	Off	[ms]	20	–	20	20	20	35	35	35	20	20	20	20
	Change-over	[ms]	–	15	–	–	–	15	15	15	–	–	–	–
Operating pressure		[bar]	–0.9 ... +10		3 ... 10			–0.9 ... +10					3 ... 10	
Standard nominal flow rate		[l/min]	360	360	300	230	300	300	320	240	255	255	230	260
Design			Piston spool valve											
Materials			Die-cast aluminium											

Technical data – Valve width 10 mm

Code for position function 1-32			NS	KS	HS	DS	MU	NU	KU	HU
Switching times	On	[ms]	14	14	14	14	10	8	8	8
	Off	[ms]	16	16	16	16	12	8	10	10
	Change-over	[ms]	–	–	–	–	–	–	–	–
Operating pressure		[bar]	–0.9 ... +8				–0.9 ... +10			
Standard nominal flow rate		[l/min]	300	230	300	230	190	190	160	190
Design			Piston spool valve				Poppet valve with spring return			
Materials			Die-cast aluminium				Reinforced PPA			

Technical data – Valve width 14 mm

Code for position function 1-32			M	J	N	K	H	B	G	E	X	W	D	I	NS	KS	HS	DS
Switching times	On	[ms]	13	9	12	12	12	16	13	13	12	12	12	10	12	12	12	10
	Off	[ms]	30	–	38	38	38	50	52	50	20	20	30	28	23	23	23	25
	Change-over	[ms]	–	24	–	–	–	26	26	26	–	–	–	–	–	–	–	–
Operating pressure		[bar]	–0.9 ... +10		3 ... 10			–0.9 ... +10					3 ... 10		–0.9 ... +10			
Standard nominal flow rate		[l/min]	670	670	650	600	650	630	610	480	400	400	650	670	520	560	520	570
Design			Piston spool valve															
Materials			Die-cast aluminium															

Technical data – Valve width 20 mm

Code for position function 1-32			M	J	N	K	H	B	G	E	X	W	D	I	NS	KS	HS	DS
Switching times	On	[ms]	15	9	8	8	8	11	10	11	13	13	7	7	12	12	12	12
	Off	[ms]	28	–	28	28	28	46	40	47	22	22	25	23	25	25	25	25
	Change-over	[ms]	–	22	–	–	–	23	21	23	–	–	–	–	–	–	–	–
Operating pressure		[bar]	–0.9 ... +10		3 ... 10			–0.9 ... +10					3 ... 10		–0.9 ... +8			
Standard nominal flow rate		[l/min]	700	860	610	550	550	550	750	700	480	480	840	680	620	500	550	820
Design			Piston spool valve															
Materials			Die-cast aluminium															

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Data sheet

Pneumatic ports		
Right-hand end plate		
Supply	1	Thread G1/4 (QS-G1/4, straight, for tubing O.D. 8 mm, 10 mm, 12 mm, 5/16", 3/8", 1/2")
Exhaust port	3	
	5	
Pilot air supply	12/14	Thread M7 (QSM-M7, straight or angled, for tubing O.D. 4 mm, 6 mm, 1/4")
Pilot exhaust air	82/84	
Supply module		
Supply	1	Cartridge fitting 20 mm (QSPKG20, straight, for tubing O.D. 8 mm, 10 mm, 12 mm, 5/16", 3/8", 1/2", adapter to thread G1/4), flat plate silencer
Exhaust port	3/5	
Sub-base width 10 mm		
Working ports	2	Cartridge fitting 10 mm (QSPKG10, straight or angled, for tubing O.D. 4 mm, 6 mm, 5/32", 1/4", adapter to thread M7)
	4	
Sub-base width 14 mm		
Working ports	2	Cartridge fitting 14 mm (QSPKG14, straight or angled, for tubing O.D. 6 mm, 8 mm, 1/4", 5/16", adapter to thread G1/8)
	4	
Sub-base width 20 mm		
Working ports	2	Cartridge fitting 18 mm (QSPKG18, straight or angled, for tubing O.D. 8 mm, 10 mm, 5/16", 3/8", adapter to thread G1/4)
	4	

Materials	
Sub-base	PA
Supply module	PPA
End plate	Die-cast aluminium, PA, PBT
Seals	Nitrile rubber
Exhaust plate	PA
Flat plate silencer	PE
Electrical interlinking module	PBT, PA, copper alloy

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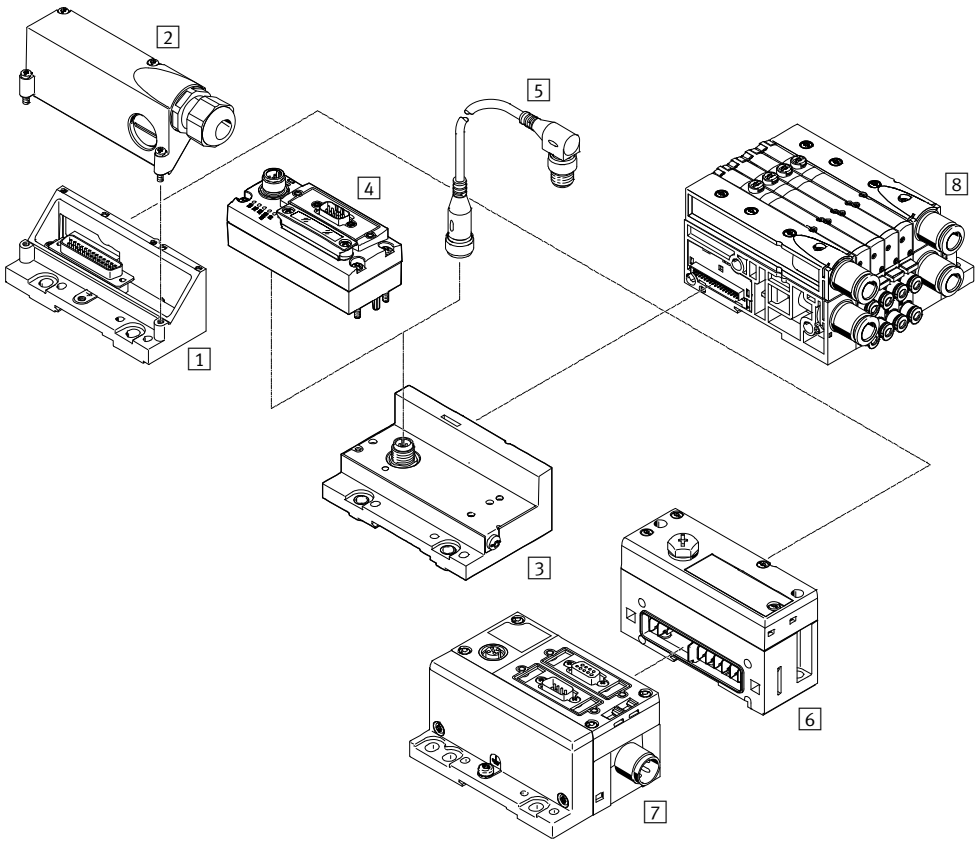
Accessories



Accessories		➔ Page/online
1	End plate VMPAL-EPL with multi-pin plug connection	849
2	Connecting cable VMPAL-KM for multi-pin plug connection	849
3	End plate with I-Port interface/IO-Link VMPAL-EPL-IPO32	849
4	Fieldbus node CTEU	cteu
5	Connecting cable for I-Port interface/IO-Link NEBU-M12G5	854
6	End plate VMPAL-EPL-CPX with pneumatic interface for CPX terminal	849
7	Module CPX for CPX terminal	1185
8	Valve terminal, pneumatic part	849

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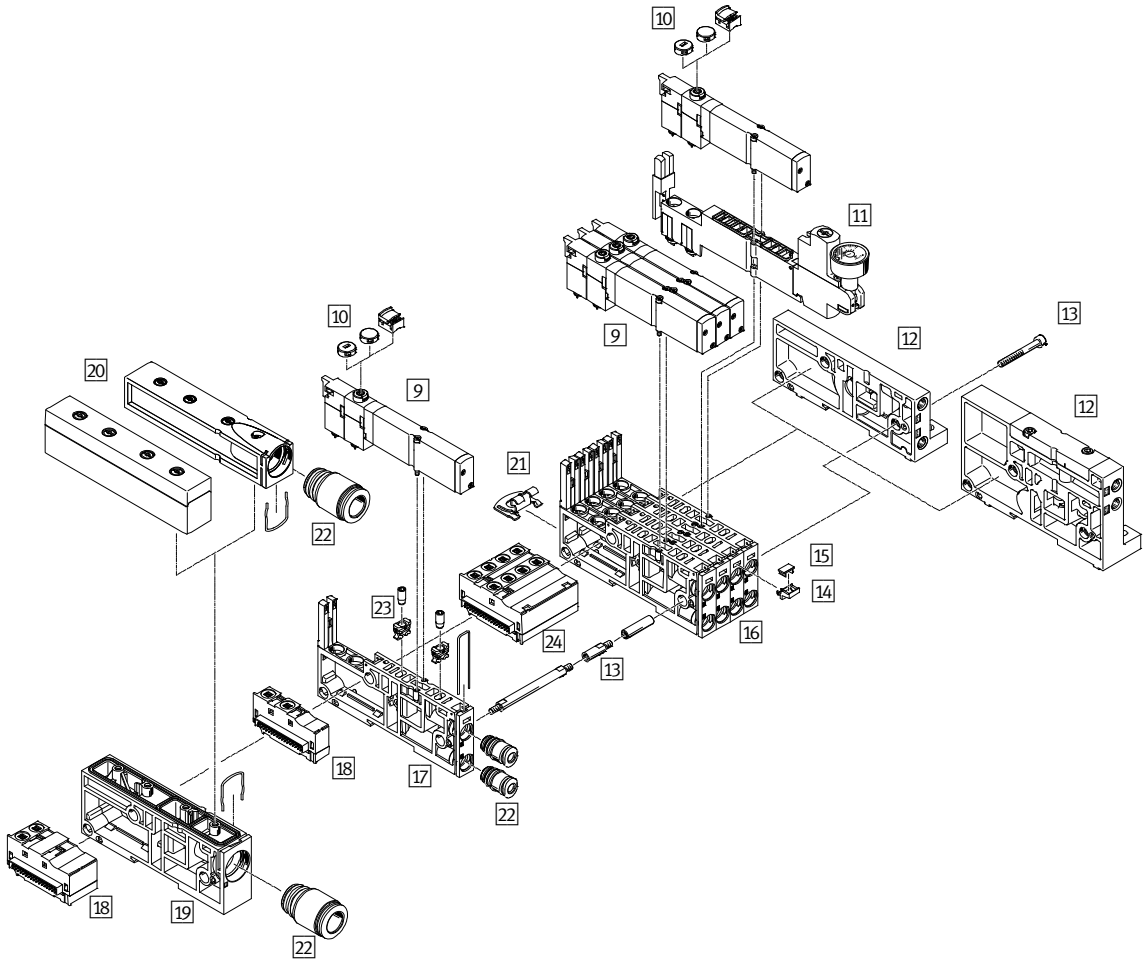
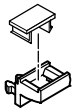
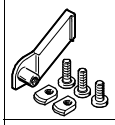
Accessories



Accessories		➔ Page/online
9	Solenoid valve VMPA	849
10	Cover VMPA-HB for manual override	mpal
11	Vertical stacking modules VMPA1-B8/VMPA2-B8	mpal
12	Right-hand end plate VMPAL-EPR, with pilot air selector for choosing the pilot air supply (internal or external)	mpal
13	Tie rod VMPAL-ZA	mpal
14	Inscription label holder VMPAL-ST-AP	854
15	Inscription label IBS-6x10	854
16	Sub-base **VMPAL-AP-4X, 4 pieces combined**	mpal
17	Sub-base VMPAL-AP	mpal
18	Electrical interlinking module VMPAL-EVAP	mpal
19	Supply module VMPAL-SP	mpal
20	Exhaust plate VMPA2-B8	mpal
21	Mounting VMPAL-BD	854
22	Cartridge fitting QSPKG	854
23	Fixed restrictor VMPA1-FT	mpal
24	Electrical interlinking module VMPAL-EVAP-4 for four sub-bases	mpal

FESTO

Accessories – Ordering data

	Code[1]	Description			Part no.	Type
5 Connecting cable for I-Port interface/IO-Link						
	–	Connecting cable	5 m	★	**574321**	**NEBU-M12G5-E-5-Q8N-M12G5**
			7.5 m	★	**574322**	**NEBU-M12G5-E-7.5-Q8N-M12G5**
			10 m	★	**574323**	**NEBU-M12G5-E-10-Q8N-M12G5**
14 Inscription label holder						
	TM	For sub-base, 10 pieces	Width 10 mm		**561109**	**VMPAL-ST-AP-10**
			Width 14 mm		**561112**	**VMPAL-ST-AP-14**
			Width 20 mm		**561115**	**VMPAL-ST-AP-20**
15 Inscription label						
	–	6 mm x 10 mm, 64 pieces in frame			**18576**	**IBS-6x10**
21 Mounting						
	–	Mounting bracket (should be installed max. every 13 cm), 10 pieces			**560949**	**VMPAL-BD**
	H	H-rail mounting for MPA-L with multi-pin plug connection, 3 pieces			**526032**	**CPX-CPA-BG-NRH**
	H	H-rail mounting for MPA-L with fieldbus connection, 2 pieces			**560798**	**VMPAF-FB-BG-NRH**
22 Cartridge fitting						**Technical data** online: → qsp
	–	10 mm cartridge fitting, plastic, for working ports, 10 pieces, connection for tubing O.D.	4 mm		**132622**	**QSPKG10-4**
			6 mm		**132623**	**QSPKG10-6**
			3/16"		**132625**	**QSPKG10-3/16-U**
			1/4"		**132626**	**QSPKG10-1/4-U**
		14 mm cartridge fitting, plastic, for supply ports, 10 pieces, connection for tubing O.D.	6 mm		**132930**	**QSPKG14-6**
			8 mm		**132931**	**QSPKG14-8**
			1/4"		**132932**	**QSPKG14-1/4-U**
			5/16"		**132933**	**QSPKG14-5/16-U**
		18 mm cartridge fitting, plastic, for supply ports, 10 pieces, connection for tubing O.D.	8 mm		**132649**	**QSPKG18-8**
			10 mm		**132650**	**QSPKG18-10**
			5/16"		**132651**	**QSPKG18-5/16-U**
			3/8"		**132652**	**QSPKG18-3/8-U**
		20 mm cartridge fitting, plastic, for supply ports, 10 pieces, connection for tubing O.D.	10 mm		**132634**	**QSPKG20-10**
			12 mm		**132635**	**QSPKG20-12**
			3/8"		**132637**	**QSPKG20-3/8-U**
			1/2"		**132638**	**QSPKG20-1/2-U**
	AGG	Adapter for 10 mm cartridge connection to thread M7, 10 pieces			**572380**	**VMPAL-F10-M7**
	BGG	Adapter for 14 mm cartridge connection to thread G1/8, 10 pieces			**574084**	**VMPAL-F14-G1/8**
	CGG	Adapter for 18 mm cartridge connection to thread G1/4, 10 pieces			**573914**	**VMPAL-F20-G1/4**
	–	Adapter for 20 mm cartridge connection to thread G1/4, 10 pieces			**572381**	**VMPAL-FSP-G1/4**

1) Code letter within the order code for a valve terminal configuration