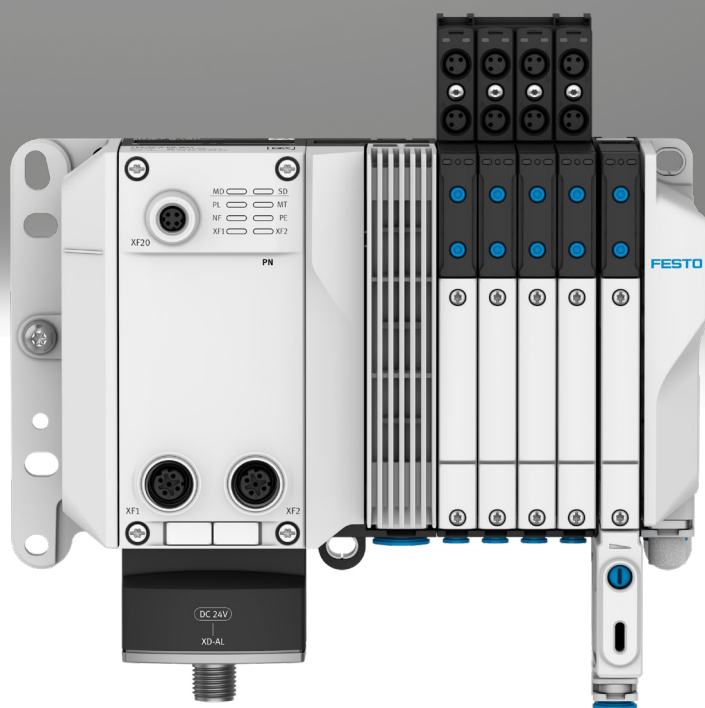
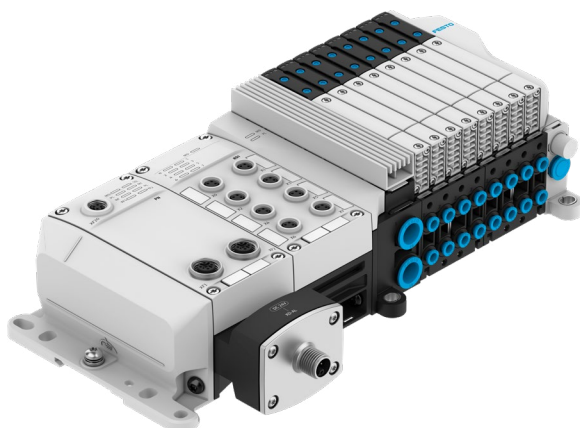


Valve terminal VTUX

FESTO



Key features



Innovative

- Compact design with low overall height and width
- Manifold sub-bases with different widths for different flow rate with the same valves
- Vacuum generator integrated in the manifold sub-base with pressure sensor and ejector pulse
- Flow rate up to 1650 l/min
- Flexibly configurable push-in fittings as a cartridge, easy to exchange in just a few simple steps
- Connection to the remote I/O system CPX-AP-I
- Connection to the remote I/O system CPX-AP-A
- IO-Link® interface
- Internal serial communication as infrastructure for highly integrated technology modules

Versatile

- Modular system offering a range of configuration options
- Manifold sub-bases for 4 valves or an individual valve, can be combined as required
- System can be extended as needed with individual manifold sub-bases and modular tie rods
- Up to 64 valve positions
- Can be converted and extended at a later date
- Air supply can be extended via additional pressure zones using supply modules
- Can be assembled using individually ordered components
- Wide range of electrical connection types for multi-pin: Sub-D, ribbon cable or spring-loaded terminal

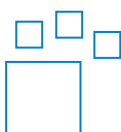
Reliable

- High output reserves thanks to large pneumatic cross sections and exhausting with high flow rates
- Resilient thanks to high mechanical rigidity
- Lightweight polymer components
- Fast troubleshooting with LEDs on the valves
- Easy to service with replaceable valves and manifold sub-bases
- Manual override either non-detenting, detenting or protected against unauthorised activation (concealed)

Easy to install

- Fast and reliable delivery as a ready-to-install and tested unit or for self-assembly from individual components
- Reduced selection, ordering, installation and commissioning costs
- Solid wall mounting or DIN rail mounting

Ordering data – Product options

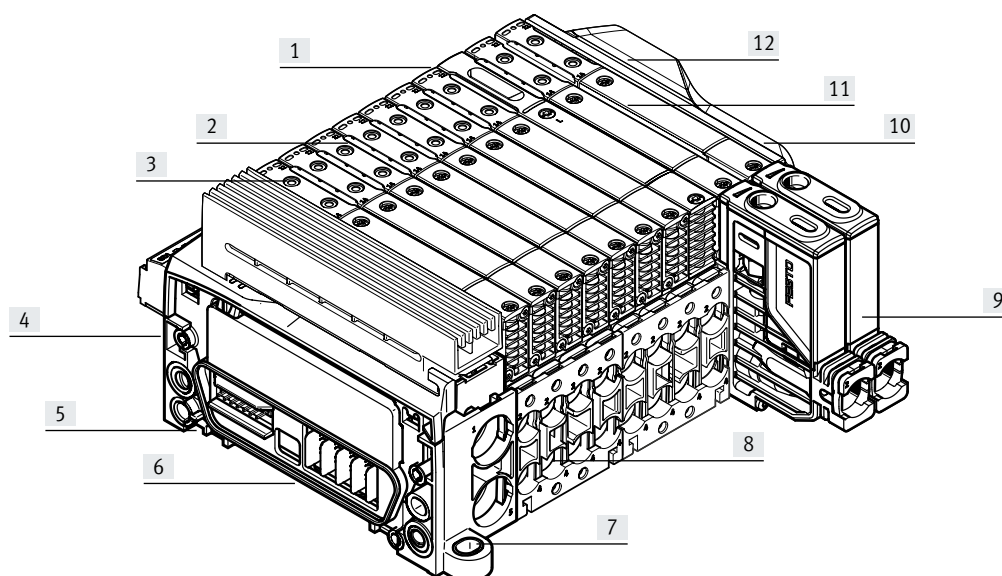


Configurable product
This product and all its product options can be ordered using the configurator.

The configurator can be found at
→ www.festo.com/catalogue/...
Enter the part number or the type.

Part no.	Type
8000800	VTUX-A-P
8000805	VTUX-A-S
8000810	VTUX-A-P-APA
8000815	VTUX-A-S-APA
8000850	VUVX
8000870	VABX

Key features



- | | | | |
|---|---|--|--|
| <p>[1] Valves in width 10 mm and 15 mm and manifold sub-bases in widths in 10 mm, 12 mm and 16 mm</p> <p>[2] Reduced downtime: LED signal status indicator</p> <p>[3] Safe operation: Manual override, non-detenting/detenting or concealed</p> <p>[4] Internal communication in parallel or series</p> | <p>[5] Simple electrical connection
– Multi-pin plug connection
– Fieldbus connection CPX-AP-A
– Interface CPX-AP-I
– IO-Link®</p> <p>[6] Safe: operating voltage connection, can be switched off separately for valves</p> <p>[7] Quick to mount: Directly using screws or on a DIN rail</p> | <p>[8] Practical: Pre-assembled cartridges can be exchanged in just a few steps</p> <p>[9] Vacuum generation integrated directly into the valve terminal</p> <p>[10] Adaptable: The pilot air supply (internal or external) is selected using a separator in the end plate</p> | <p>[11] Variable: 32 valve positions/32 solenoid coils with parallel communication and 64 valve positions with serial communication</p> <p>[12] Space-saving and modular: valves with a flat design and flat plate silencers; pressure zone creation, additional exhaust and supply air possible via power supply module</p> |
|---|---|--|--|

Equipment options

Valve functions

- | | | | |
|--|---|--|---|
| <ul style="list-style-type: none"> • 5/2-way valve, single solenoid • 5/2-way valve, double solenoid | <ul style="list-style-type: none"> • 2x 3/2-way valve, normally open • 2x 3/2-way valve, normally closed • 2x 3/2-way valve, 1x normally open, 1x closed | <ul style="list-style-type: none"> • 5/3-way valve, mid-position closed • 5/3-way valve with holding function, for vacuum switching unit | <ul style="list-style-type: none"> • 5/4-way valve, exhausted • 5/4-way valve with holding function, for vacuum generator |
|--|---|--|---|

Special features

- | | | | |
|---|---|---|--|
| <ul style="list-style-type: none"> • Max. 32 valve positions/max. 32 solenoid coils with parallel communication • Max. 64 valve positions with serial communication | <ul style="list-style-type: none"> • Any compressed air supply • Pressure zones can be created • Vacuum generation possible in the manifold sub-base • Sensor connections/input modules directly on the valve | <ul style="list-style-type: none"> • Modular, individually extendable tie rods • Single valves or combinations of four valves | <ul style="list-style-type: none"> • Freely selectable tubing size at each port |
|---|---|---|--|

Key features

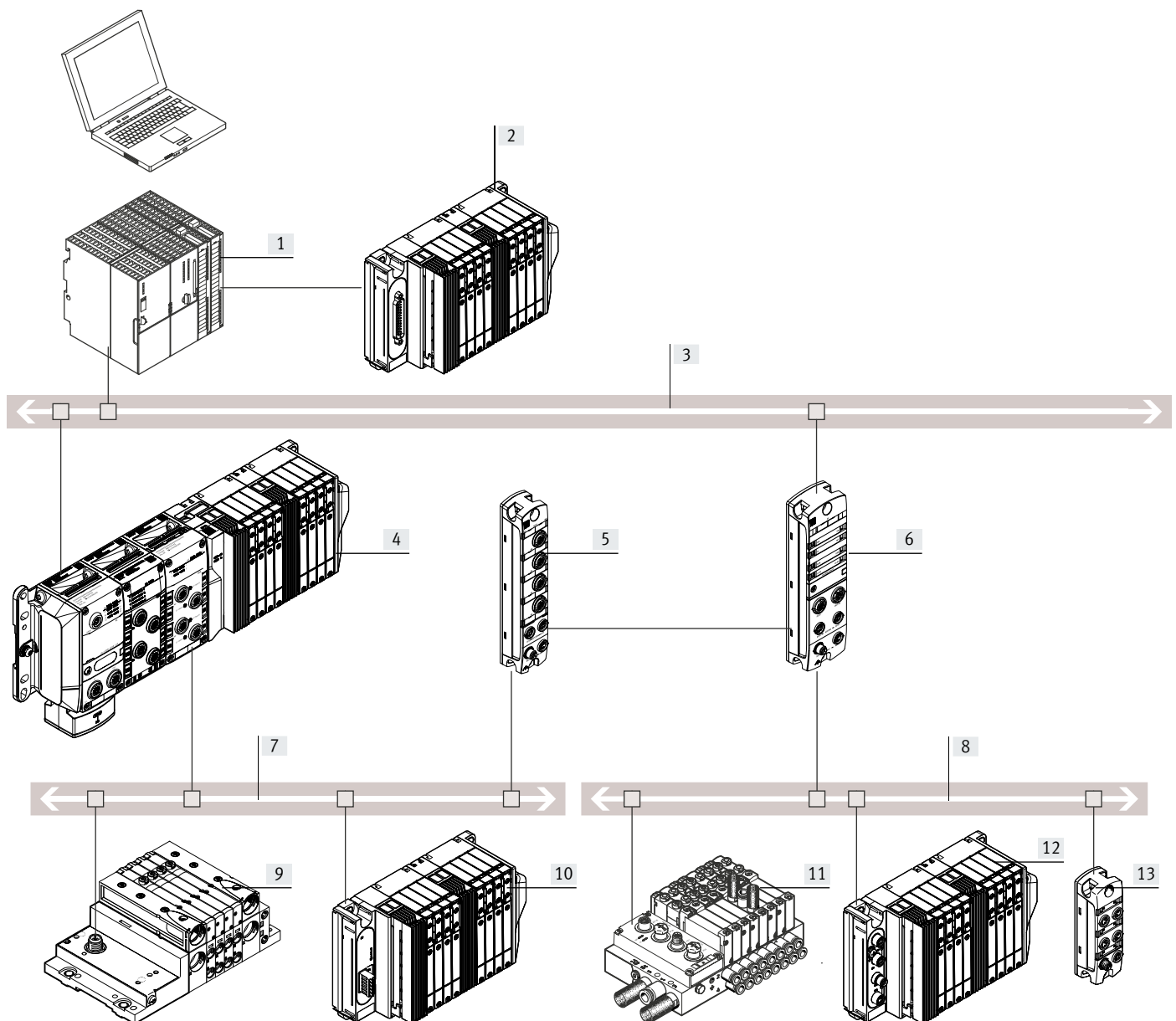
Control variants of the valve terminal VTUX

The VTUX can be integrated in control systems in a variety of ways. There are a range of designs available for actuation via electrical multi-pin connection. Likewise, valve terminals can be connected via IO-Link® using round plugs with a high degree of protection or using terminal connections.

The valve terminals are particularly versatile and high-performing thanks to the perfect integration into the Festo AP Automation Platform. In combination with the remote I/O system CPX AP-A, it is possible to complete valve terminals by configuring and combining them with a range of peripheral modules.

Integration into the remote I/O system CPX-AP-I offers the option of decentralised solutions in particular. It is thus possible to have particularly space-saving solutions close to the pneumatic drives, enabling rapid movements and short cycle times.

A unique feature is the ability to combine the remote I/O system CPX-AP-A and the remote I/O system CPX-AP-I for a combination of centralised and decentralised machine functions. This modularity makes the VTUX perfectly adaptable to any application.



- [1] Higher-order controller (PLC)
- [2] VTUX with multi-pin plug connection
- [3] Fieldbus
- [4] VTUX with remote I/O system CPX-AP-A with fieldbus connection

- [5] IO-Link master of the remote I/O system CPX-AP-I
- [6] Bus node of the remote I/O system CPX-AP-I
- [7] IO-Link®
- [8] AP bus

- [9] Festo components with an IO-Link® interface (e.g. valve terminal MPA-L)
- [10] VTUX with IO-Link® node
- [11] Festo components having an AP bus interface (e.g. valve terminal VTUG)

- [12] VTUX with pneumatic interface for remote I/O system CPX-AP-I
- [13] Input/output module with AP bus

Key features

Valve terminal selection

Valve terminal configurator

The appropriate valve terminal VTUX can be selected quickly and easily using the online catalogue. This includes a convenient valve terminal configurator, making it much easier to order the right product.

The valve terminals are assembled according to your order specification and are individually checked. This reduces assembly and installation time to a minimum.

Order a valve terminal VTUX using the order code.

Ordering system for VTUX

→ Internet: vtux

Ordering system for CPX-AP-I

→ Internet: cpx-ap-i

Online via: → www.festo.com
2D/3D CAD data

You can request the CAD data for a valve terminal you have configured. To do this, start the product search as described above. Click on the CAD/EPLAN symbol. On the next page, you can generate a 3D preview or request a data format of your choice via e-mail.

Multi-pin plug connection



The signals are transmitted from the controller to the valve terminal via a pre-assembled or self-assembled multi-core cable to the multi-pin plug connection. This substantially reduces installation time.
Internal signal flow via parallel communication.

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
 - Connection on top or at the side
- Ribbon cable connection
- Terminal strip connection

IO-Link®



IO-Link® consists of a central master and the IO-Link® devices connected via special connecting cables. This permits a decentralised layout of the devices.

The connection type corresponds to a star topology.

As well as transmitting the communication data, the IO-Link® interfaces also handle the power supply for the connected devices.

The maximum length of a string is 20 m.

Internal signal flow via parallel communication.

Key features

Fieldbus connection from the remote I/O system CPX-AP-I



CPX-AP-I is a flexible, decentralised, compact and lightweight remote I/O system with a high protection rating IP65/IP67.

A remote I/O system CPX-AP-I comprises a bus interface and at least one other module. System communication between the modules takes place via connecting cables.

The process data is exchanged cyclically. The following module types are available:

- Bus interface
- Input modules
- Input/output modules
- Interface for valve terminal

Fieldbus protocols that can be combined with VTUX:

- PROFINET
- EtherNet/IP
- EtherCAT®

The internal signal flow can be realised via serial or parallel communication.

Fieldbus connection from the remote I/O system CPX-AP-A



CPX-AP-A is a flexible, central, compact and lightweight remote I/O system with a high degree of protection to IP65/IP67.

A bus node directly mounted on the valve terminal VTUX manages communication with a higher-order PLC.

A compact unit, combining pneumatics, sensors and a bus interface, can be designed using directly linked input and output modules.

The internal signal flow can be realised via serial or parallel communication.

Fieldbus protocols:

- PROFINET
- EtherNet/IP
- EtherCAT®

Fieldbus connection via the left end plate



With the multiprotocol end plates the valve terminal VTUX can be connected directly to a fieldbus. Each of the end plates has an outgoing and an incoming bus interface for its own connection technology, but can be adapted to any of the fieldbus protocols.

The internal signal flow can only be realised via serial communication.

Connection technology:

- M8x1, D-coded
- M12x1, D-coded
- RJ45

Fieldbus protocols:

- CC-Link IE Field Basic
- EtherCAT®
- PROFINET
- EtherNet/IP
- Modbus TCP

Peripherals overview

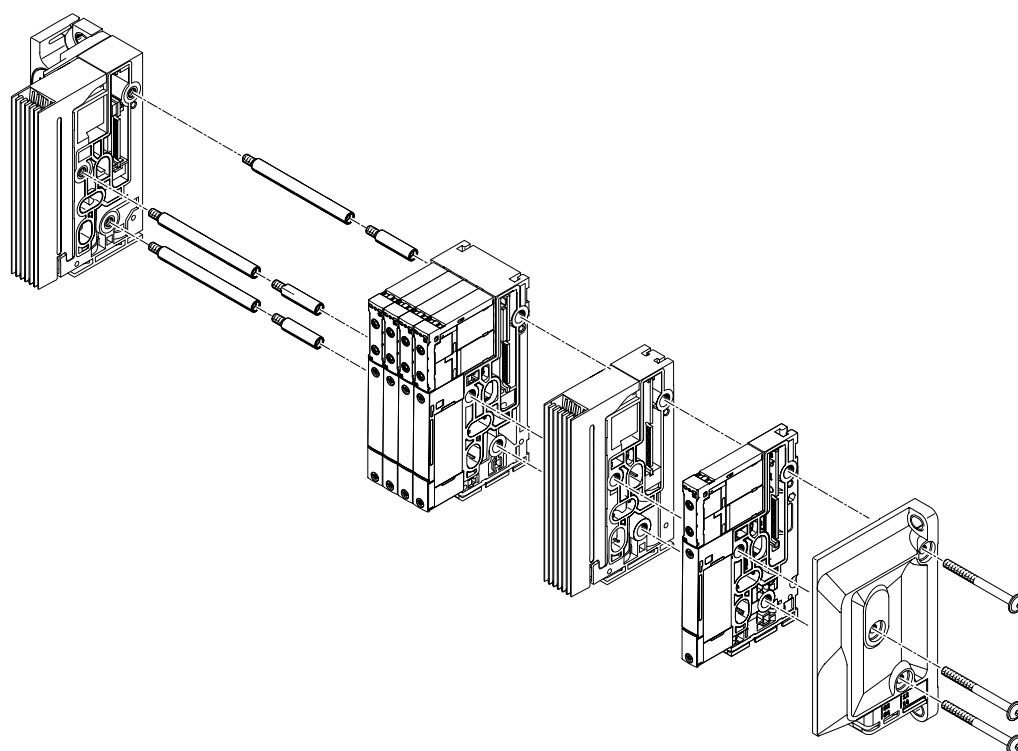
Modular pneumatic components

The modular design of the valve terminal VTUX enables outstanding 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 form the support system for the valves. They contain the electrical connections, the ducts for supplying compressed air to and exhausting the valve terminal as well as the working ports for the pneumatic drives for each valve.

The manifold sub-bases are connected by a tie rod system. This comprises a tie rods and a screw set. The combination of tie rods and screw set is selected according to the chosen number of individual sub-bases.

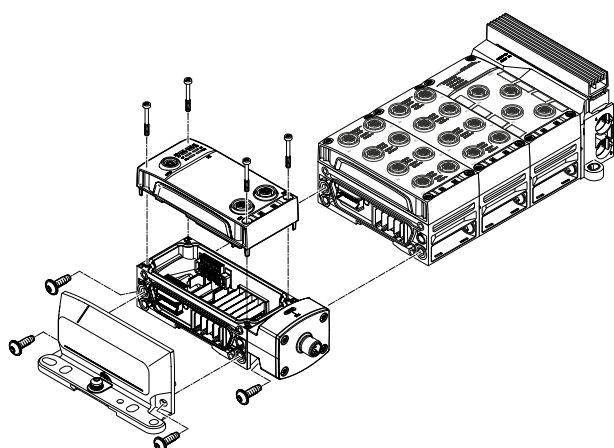
A valve terminal can be easily extended by adding individual manifold sub-bases or supply modules. This is done simply by inserting suitable tie rod extenders. This ensures that the valve terminal can be rapidly and reliably extended.



Note

The tie rod system for the valve terminal VTUX consists of at least two manifold sub-bases or one manifold sub-base and one supply module.

Modular electrical peripherals



The mechanical connection between the CPX-AP-A modules is created using angled fittings.

The remote I/O system CPX-AP-A can therefore be flexibly expanded at any time.

The advantages of polymer (low weight) and metal (sturdy, high EMC compatibility) are perfectly combined by using high-quality polymer materials.

The I/O modules, connection blocks and bus nodes of the remote I/O system CPX-AP-A are mounted on the interlinking blocks using 4 screws and can be swapped or modified in almost any way.

Peripherals overview

Pneumatic components of the valve terminal with parallel communication

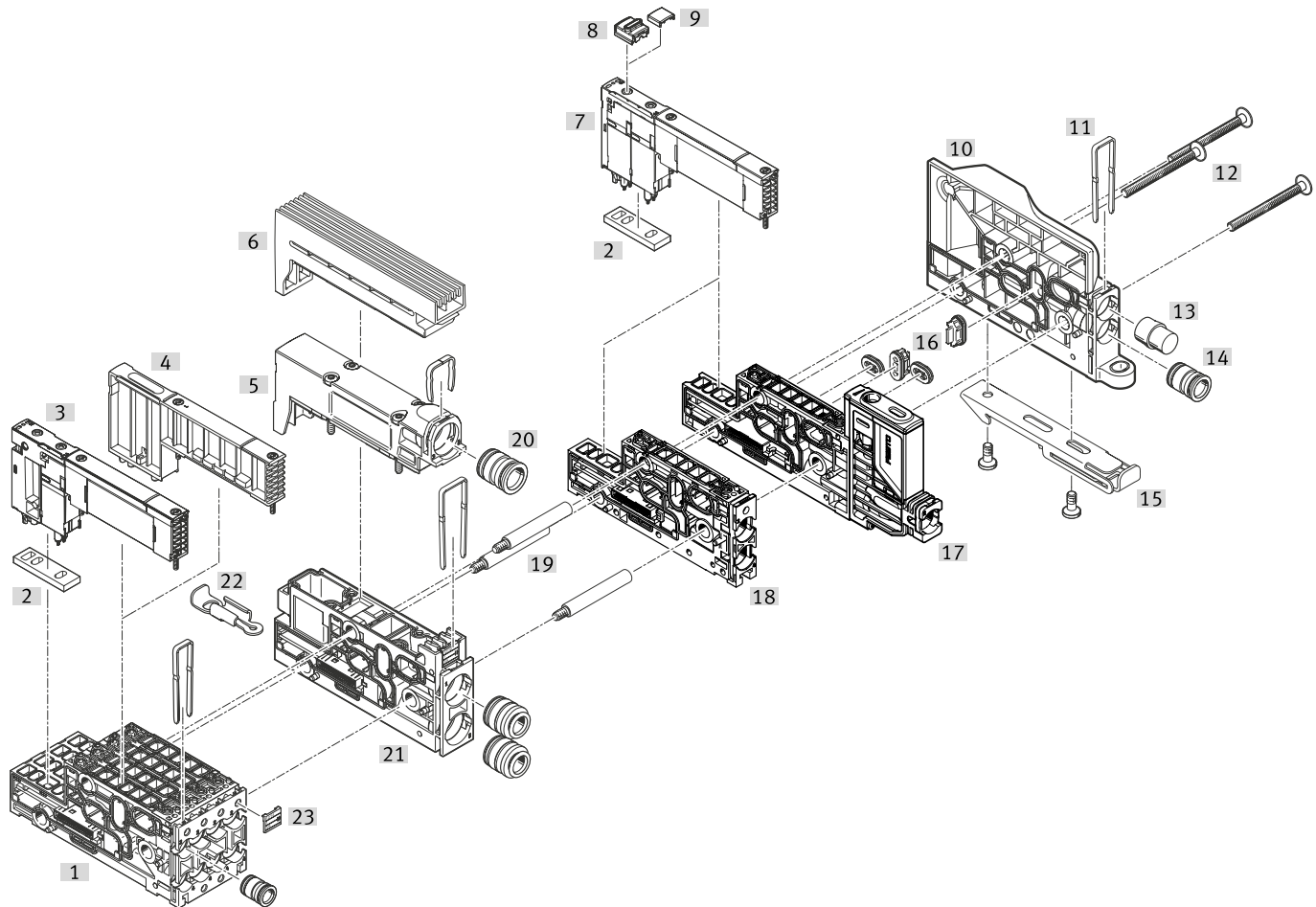
The manifold sub-bases are available individually with one valve position or with a grid of four valve positions.

The manifold sub-bases include the electrical links for:

- Valves with one solenoid coil or
- valves with two solenoid coils

- Valve positions with two solenoid coils occupy two addresses and can be equipped with any valve or a cover plate.

- Valve positions with one solenoid coil occupy a single address and can only be equipped with single solenoid valves or a cover plate.



Peripherals overview

Pneumatic components of the valve terminal			
Designation		Brief description	→ Page/Internet
[1]	Manifold sub-base	Manifold sub-base with four valve positions	94
[2]	Seal	–	–
[3]	Solenoid valve	Valve size 10 mm	74
		Valve size 15 mm	74
[4]	Vacant position	Cover plate for one valve position	74
[5]	Plate	Exhaust plate for ducted exhaust air	131
[6]	Plate	Exhaust plate as flat plate silencer	131
[7]	Solenoid valve	Valve size 10 mm	74
		Valve size 15 mm	74
[8]	Cover cap for manual override	Conversion from non-detenting to detenting	74
[9]	Cover cap for manual override	Conversion from non-detenting to concealed	74
[10]	Right end plate	End plate with ports 12/14, 82/84	65
[11]	Clamping clip for cartridge	–	–
[12]	Screw	Tie rod system, connects the manifold sub-bases	95
[13]	Silencer	With cartridge connection	66
[14]	Cartridge	For air supply and exhaust ports	66
[15]	Mounting	Clamp mounting for DIN rail mounting	95
[16]	Separator	Separator for pressure zone separation in duct 1 and duct 3, 5	95
[17]	Manifold sub-base	Manifold sub-base with one valve position for vacuum	117
[18]	Manifold sub-base	Manifold sub-base with one valve position	94
[19]	Tie rods	Threaded rod, clamps the manifold sub-bases between the end plates	95
[20]	Cartridge	For air supply and exhaust ports	131
[21]	Supply module	For compressed air supply/exhaust air	131
[22]	Mounting	Mounting bracket for wall mounting	95
[23]	Inscription label	For identifying the pressure zone separation	95

Peripherals overview

Pneumatic components of the valve terminal with serial communication

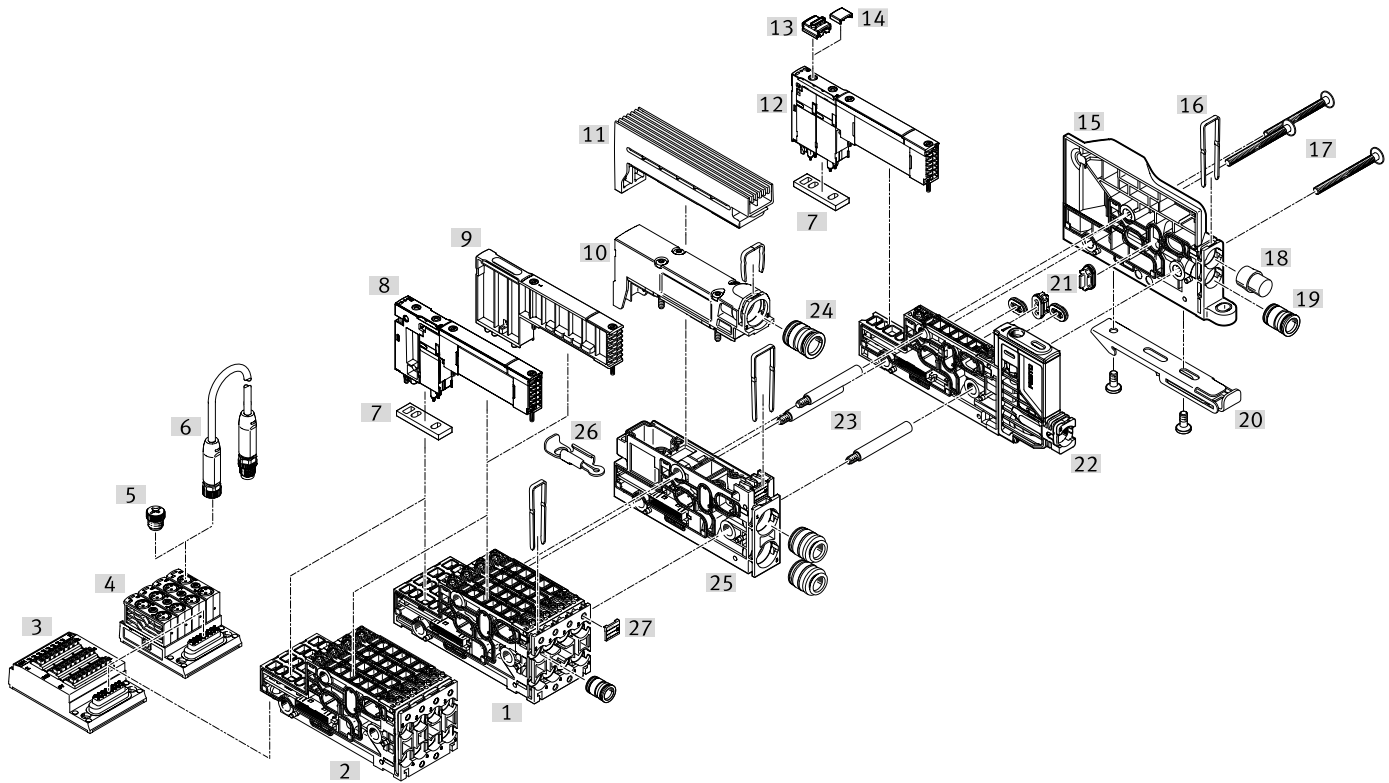
The manifold sub-bases are available in a grid of four. Additional functions such as input modules are available.

The manifold sub-bases include the electrical links for:

- Valves with one solenoid coil or
- valves with two solenoid coils

- Valve positions with two solenoid coils occupy two addresses and can be equipped with any valve or a cover plate.

- Valve positions with one solenoid coil occupy a single address and can only be equipped with single solenoid valves or a cover plate.



Peripherals overview

Pneumatic components of the valve terminal			
Designation		Brief description	→ Page/Internet
[1]	Manifold sub-base	Manifold sub-base with four valve positions	100
[2]	Manifold sub-base	Manifold sub-base with four valve positions with connection for input module	100
[3]	Input module	Electrical connection: spring-loaded terminal	109
[4]	Input module	Electrical connection socket M8	109
[5]	Cover cap	For electrical connections M8x1	109
[6]	Connecting cable	–	109
[7]	Seal	–	–
[8]	Solenoid valve	Valve size 10 mm	74
		Valve size 15 mm	74
[9]	Vacant position	Cover plate for one valve position	74
[10]	Plate	Exhaust plate for ducted exhaust air	131
[11]	Plate	Exhaust plate as flat plate silencer	131
[12]	Solenoid valve	Valve size 10 mm	74
		Valve size 15 mm	74
[13]	Cover cap for manual override	Conversion from non-detenting to detenting	74
[14]	Cover cap for manual override	Conversion from non-detenting to concealed	74
[15]	Right end plate	End plate with ports 12/14, 82/84	65
[16]	Clamping clip for cartridge	–	–
[17]	Screw	Tie rod system, connects the manifold sub-bases	101
[18]	Silencer	With cartridge connection	66
[19]	Cartridge	For air supply and exhaust ports	66
[20]	Mounting	Clamp mounting for DIN rail mounting	101
[21]	Separator	Separator for pressure zone separation in duct 1 and duct 3, 5	101
[22]	Manifold sub-base	Manifold sub-base with one valve position for vacuum	117
[23]	Tie rods	Threaded rod, clamps the manifold sub-bases between the end plates	101
[24]	Cartridge	For air supply and exhaust ports	131
[25]	Supply module	For compressed air supply/exhaust air	131
[26]	Mounting	Mounting bracket for wall mounting	101
[27]	Inscription label	For identifying the pressure zone separation	101

Peripherals overview

Valve terminal with multi-pin plug connection:

Order code:

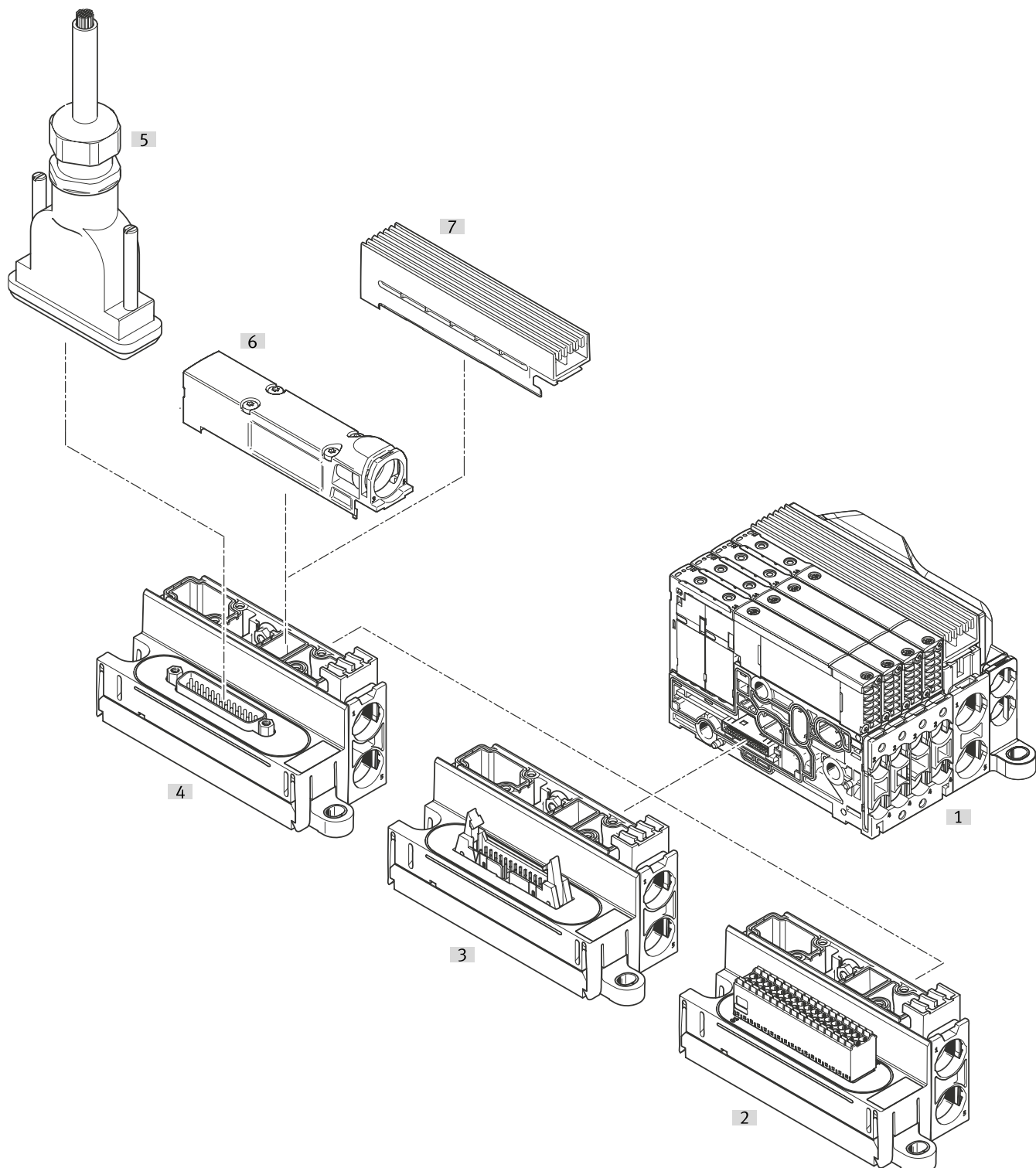
- VTUX-A-P-M... for pneumatic components with parallel communication

Valve terminals VTUX with multi-pin plug connection can be expanded by up to 32 solenoid coils/valve positions.

The multi-pin plug connection can be ordered as a Sub-D connection (25- or 44-pin) or as a terminal strip (34-pin) or as a ribbon cable connection (26-pin).

The Sub-D multi-pin plug connection (25- and 44-pin) is available with degree of protection IP40 and IP65; the terminal strip with IP40 and the ribbon cable connection with IP20.

Pre-assembled cables of different lengths with degree of protection IP40 or IP65/67 are available as accessories for the Sub-D multi-pin plug connection (25- and 44-pin).



Peripherals overview

Designation		Brief description	→ Page/Internet
[1]	Valve terminal VTUX	Pneumatic part	8
[2]	Multi-pin plug connection	Terminal strip	65
[3]	Multi-pin plug connection	For ribbon cable, 26-pin, IP20	65
[4]	Multi-pin plug connection	Sub-D, 25-pin	65
[5]	Connecting cable	Socket 25-pin, Sub-D, open cable end 25-pin	67
[6]	Plate	Exhaust plate for ducted exhaust air	131
[7]	Plate	Exhaust plate as flat plate silencer	131

Peripherals overview

Valve terminal with multi-pin plug connection:

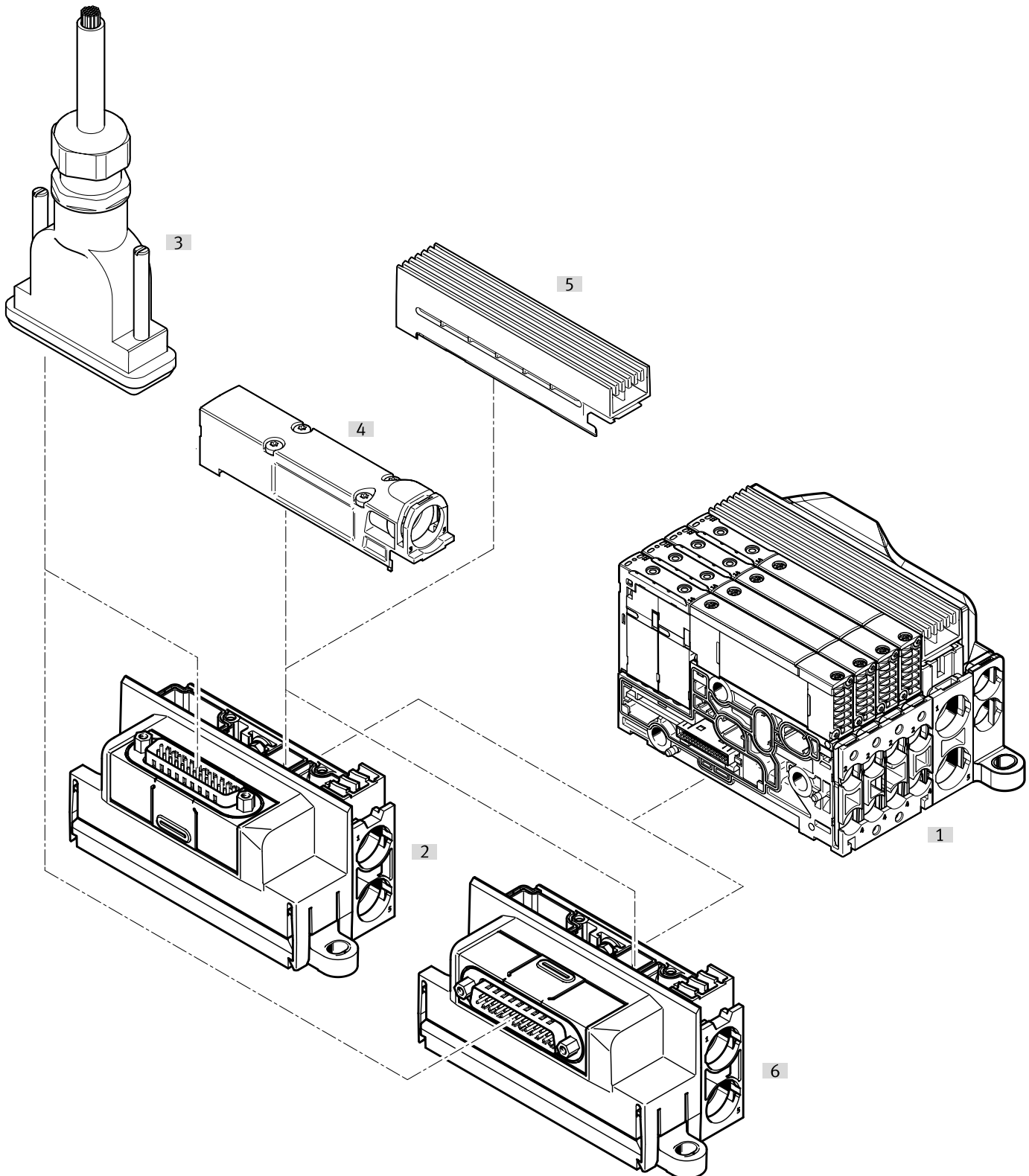
Order code:

- VTUX-A-P-M... for pneumatic components with parallel communication

Valve terminals VTUX with a rotatable multi-pin plug connection can be expanded by up to 24 solenoid coils/valve positions.

The multi-pin connector can be ordered as a Sub-D connection (25-pin). The rotatable Sub-D multi-pin connection is available in degree of protection IP40.

Pre-assembled cables of different lengths are available as accessories for the rotatable Sub-D multi-pin connection.



Peripherals overview

Designation		Brief description	→ Page/Internet
[1]	Valve terminal VTUX	Pneumatic part	8
[2]	Multi-pin plug connection	Sub-D, 25-pin, rotatable, with outlet direction at the front	65
[3]	Connecting cable	Socket 25-pin, Sub-D, open cable end 25-pin	67
[4]	Plate	Exhaust plate for ducted exhaust air	131
[5]	Plate	Exhaust plate as flat plate silencer	131
[2]	Multi-pin plug connection	Sub-D, 25-pin, rotatable, with outlet direction at the side	65

Peripherals overview

Valve terminal with fieldbus connection, remote I/O system CPX-AP-A

Order code:

- VTUX-A-P-APA-... for pneumatic components with parallel communication
- VTUX-A-S-APA-... for pneumatic components with serial communication
- CPX-AP-A-... for the electrical peripherals

Valve terminals with CPX-AP-A connection can be expanded with up to 32 solenoid coils/valve positions with parallel communication and with up to 64 valve positions with serial communication.

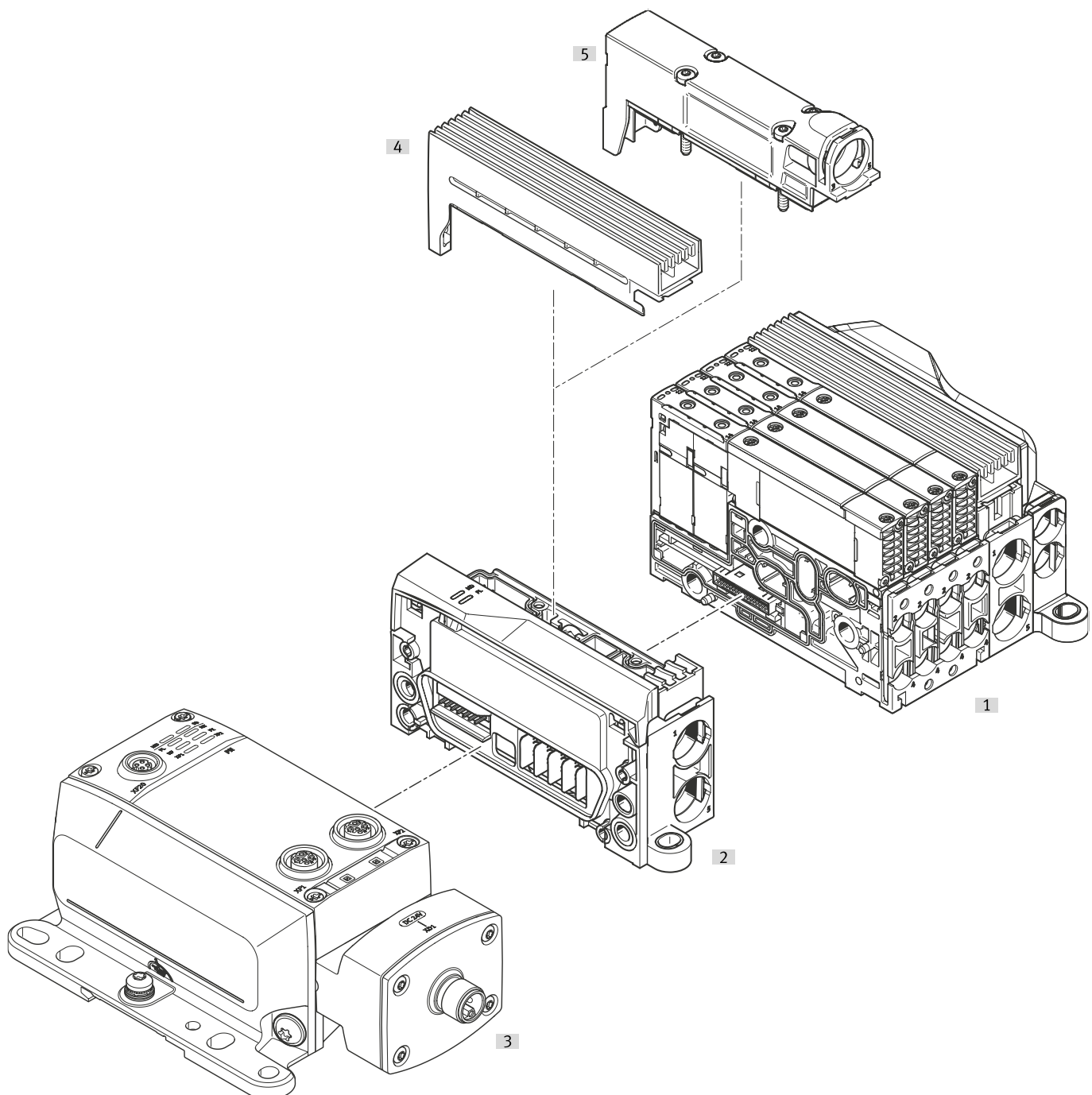
In combination with parallel communication with single-solenoid valves, up to 32 valve positions can be equipped.

When used exclusively with valves having two solenoid coils (double-solenoid valves, 5/3-way valves, 2x 3/2-way valves), the maximum number of valve positions reduces to 16 with parallel communication.

Each valve position can be equipped with any valve or a cover plate. The rules for CPX-AP-A apply to the equipment that can be used with the electrical peripherals CPX-AP-A.

In general:

- Digital inputs/outputs
- Parameterisation of inputs and outputs
- Integrated, convenient diagnostics
- Preventive maintenance concepts



Peripherals overview

Designation		Brief description	→ Page/Internet
[1]	Valve terminal VTUX	Pneumatic part	8
[2]	Left end plate	Pneumatic interface for remote I/O system CPX-AP-A	65
[3]	Remote I/O system CPX-AP-A	Electrical part of the remote I/O system CPX-AP-A	cpx-ap-a
[4]	Plate	Exhaust plate as flat plate silencer	131
[5]	Plate	Exhaust plate for ducted exhaust air	131

Peripherals overview

Valve terminal with interface to the remote I/O system CPX-AP-I

Order code:

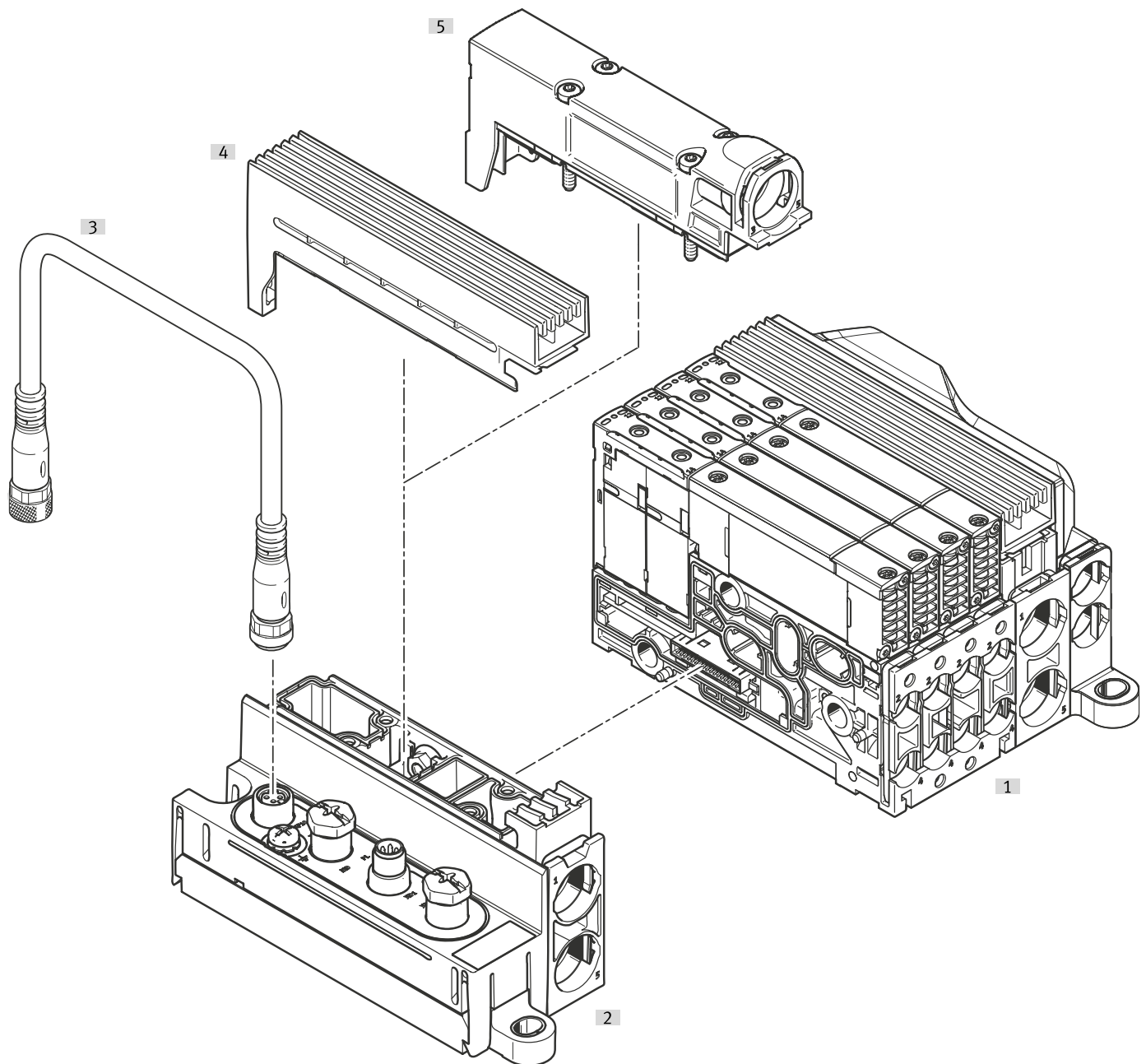
- VTUX-A-P-API... Pneumatic components with parallel communication
- VTUX-A-S-API... for pneumatic components with serial communication
- CPX-AP-I components are to be ordered individually

Valve terminals with CPX-AP-I connection can be expanded with up to 32 solenoid coils/valve positions with parallel communication and with up to 64 valve positions with serial communication.

In combination with parallel communication with single-solenoid valves, up to 32 valve positions can be equipped.

When used exclusively with valves having two solenoid coils (double-solenoid valves, 5/3-way valves, 5/4-way valves, 2x 3/2-way valves), the maximum number of valve positions reduces to 16 with parallel communication.

Each valve position can be equipped with any valve or a cover plate.



Peripherals overview

Designation		Brief description	→ Page/Inter- net
[1]	Valve terminal VTUX	Pneumatic part	8
[2]	Left end plate	End plate with interface to the remote I/O system CPX-AP-I and with interface for power supply	65
[3]	Connecting cable	Between two CPX-AP-I modules	cpx-ap-i
[4]	Plate	Exhaust plate as flat plate silencer	131
[5]	Plate	Exhaust plate for ducted exhaust air	131

Peripherals overview

Valve terminal with IO-Link® interface (and bus node)

Order code:

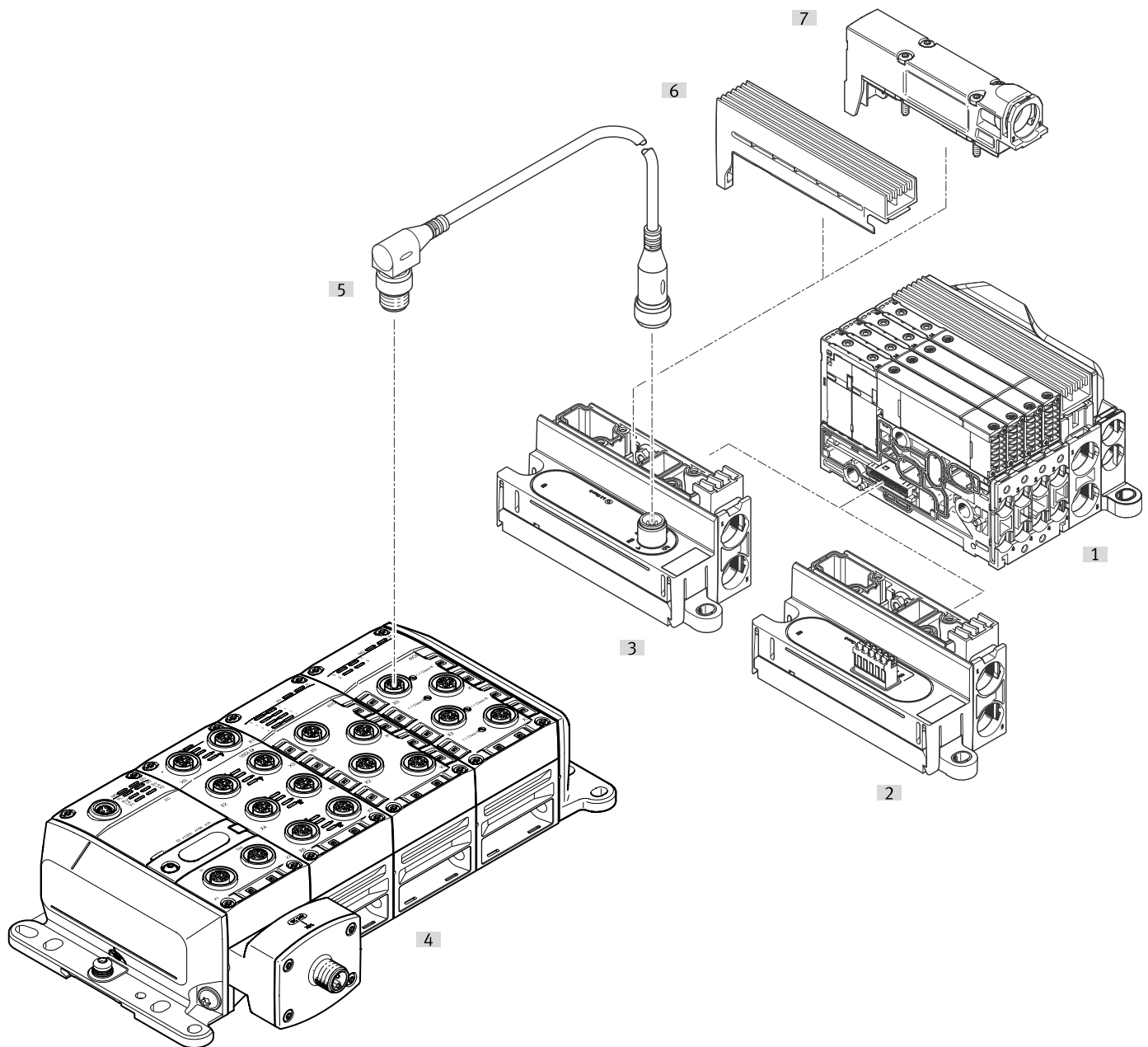
- VTUX-A-P-IO... for pneumatic components with parallel communication
- CPX-AP-A-... for the bus node

Valve terminals with IO-Link® interface can be expanded by up to 32 solenoid coils/valve positions.

Up to 32 valve positions can be equipped with single solenoid valves.

The maximum number of valve positions is reduced to 16 if only valves with two solenoid coils are used (double solenoid valves, 5/3-way valves, 5/4-way valves, 2x 3/2-way valves).

Each valve position can be equipped with any valve or a cover plate.



Peripherals overview

Designation		Brief description	→ Page/Internet
[1]	Valve terminal VTUX	Pneumatic part	8
[2]	Left end plate	End plate with IO-Link® interface, push-in electrical connection	78
[3]	Left end plate	End plate with IO-Link® interface, electrical connection M12	78
[4]	Remote I/O system CPX-AP-A	With bus nodes, input/output modules and IO-Link master for connecting devices with IO-Link® interface	cpx-ap-a
[5]	Connecting cable	Between two IO-Link® interfaces	78
[6]	Plate	Exhaust plate as flat plate silencer	78
[7]	Plate	Exhaust plate for ducted exhaust air	78

Peripherals overview

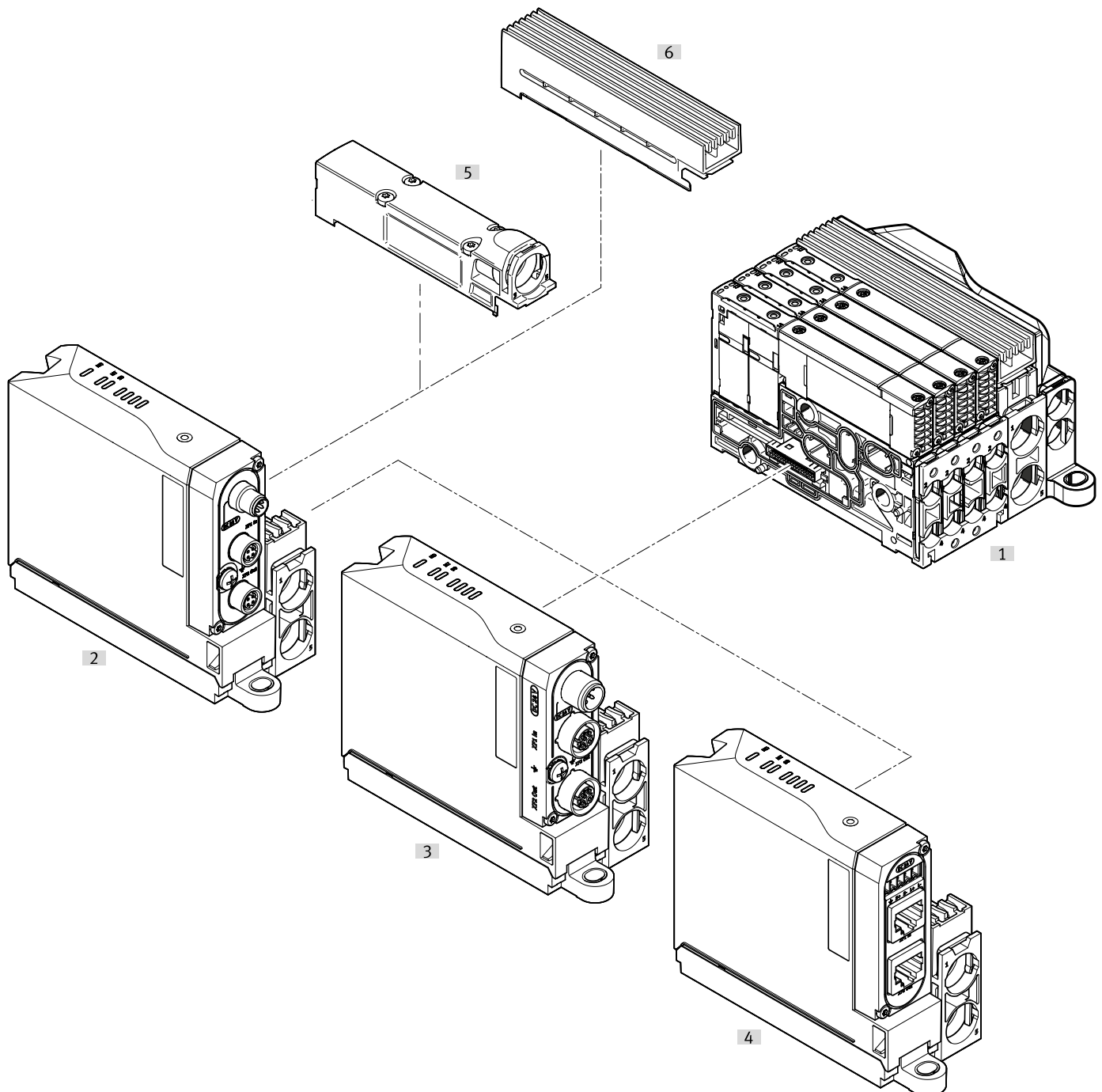
Valve terminal with multiprotocol interface

Order code:

- VTUX-AS-CTED... for pneumatic components with serial communication and bus interface

Valve terminals with multiprotocol interface can be expanded by up to 128 solenoid coils/valve positions.

Each valve position can be equipped with any valve or a cover plate.

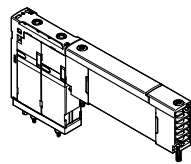


Peripherals overview

Designation		Brief description	→ Page/Internet
[1]	Valve terminal VTUX	Pneumatic part	8
[2]	Left end plate	Multiprotocol end plate with connection technology M8x1, D-coded	87
[3]	Left end plate	Multiprotocol end plate with connection technology M12x1, D-coded	87
[4]	Left end plate	Multiprotocol end plate with connection technology RJ45	87
[5]	Plate	Exhaust plate for ducted exhaust air	87
[6]	Plate	Exhaust plate as flat plate silencer	87

Key features – Pneumatic components

Sub-base valve



The VTUX offers a comprehensive range of valve functions. The piston spool valves VTUX in width 10 mm offer a particularly high flow rate. They are used on manifold sub-bases in width 10 mm and 12 mm with a tubing connection up to 8 mm.
Valve size 15 mm provides an even greater flow rate.

Mounting valves on manifold sub-bases offers a range of advantages. The valves are secured using two screws and can be easily replaced. The 5/2-way and 3/2-way valves are designed to have a negative overlap. This thus enables the working ports to be exhausted in the de-energised state.
Pilot air (duct 12/14) is supplied via the manifold sub-bases, allowing it to be interrupted and exhausted.

All valves have pneumatic pilot control for optimising performance. Irrespective of the valve function, there are sub-base valves with one solenoid coil (single solenoid) or with two solenoid coils (double solenoid or two single solenoid valves in one housing).

Design

Replacing valves

Extension

The valves are attached to the sub-base using two screws.
The tubing remains on the manifold sub-base, which prevents mix-ups during servicing.

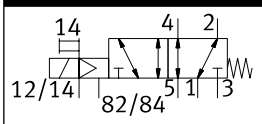
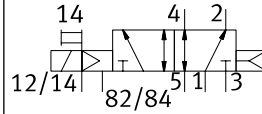
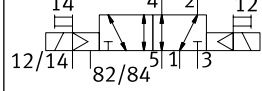
which means that they can be easily replaced. The sturdy mechanical structure of the sub-base ensures efficient, durable sealing.

Cover plates can be replaced by valves at a later date.

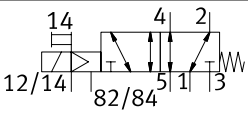
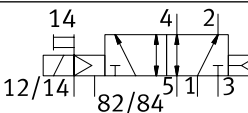
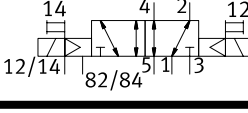
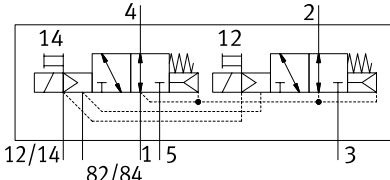
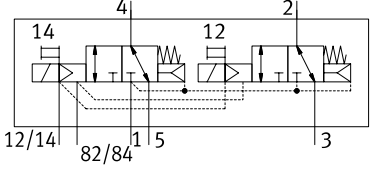
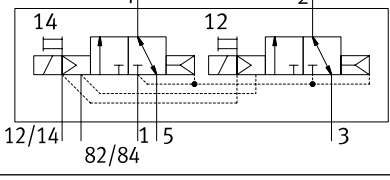
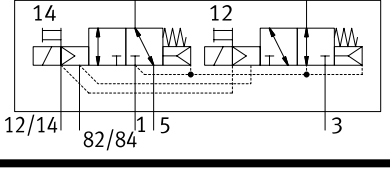
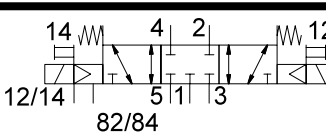
The dimensions, mounting points as well as the existing pneumatic installation do not change.

 **Note**

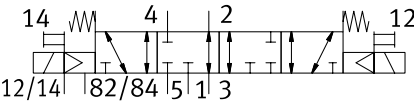
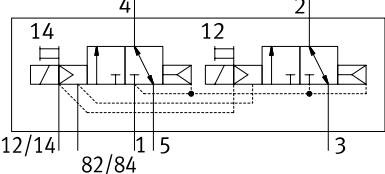
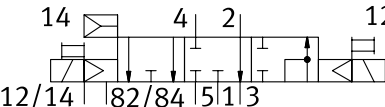
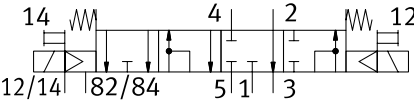
A filter must be installed upstream of valves operated in vacuum mode. This prevents any foreign matter in the intake air getting into the valve (e.g. when operating a suction cup).

5/2-way valve			
Circuit symbol	Code	Assigned addresses	Description
	Position function: A	1	- Valve size 10 mm and 15 mm - Single solenoid - Mechanical spring return - Reversible - Operating pressure –0.09 ... +0.7 MPa
	Position function: M	1	- Valve size 10 mm and 15 mm - Single solenoid - Pneumatic spring return - Operating pressure +0.2 ... +0.7 MPa
	Position function: J	2	- Valve size 10 mm and 15 mm - Double solenoid - Limited reversibility - Operating pressure –0.09 ... +0.7 MPa

Key features – Pneumatic components

5/2-way valve			
Circuit symbol	Code	Assigned addresses	Description
	Position function: A	1	- Valve size 10 mm and 15 mm - Single solenoid - Mechanical spring return - Reversible - Operating pressure $-0.09 \dots +0.7$ MPa
	Position function: M	1	- Valve size 10 mm and 15 mm - Single solenoid - Pneumatic spring return - Operating pressure $+0.2 \dots +0.7$ MPa
	Position function: J	2	- Valve size 10 mm and 15 mm - Double solenoid - Limited reversibility - Operating pressure $-0.09 \dots +0.7$ MPa
2x 3/2-way valve			
Circuit symbol	Code	Assigned addresses	Description
	Position function: NS	2	- Valve size 10 mm and 15 mm - Single solenoid - Normally open - Mechanical spring return - Reversible - Operating pressure $0 \dots 0.7$ MPa
	Position function: K	2	- Valve size 10 mm and 15 mm - Single solenoid - Normally closed - Mechanical spring return - Reversible - Operating pressure $0 \dots 0.7$ MPa - Vacuum possible with reversible operation
	Position function: KC	2	- Valve size 10 mm and 15 mm - Single solenoid - Normally closed - Pneumatic spring return - Operating pressure $0.15 \dots 0.7$ MPa
	Position function: NG	2	- Valve size 10 mm and 15 mm - Single solenoid 1x normally open, 1x normally closed, - Mechanical spring return
5/3-way valve			
Circuit symbol	Code	Assigned addresses	Description
	Position function: G	2	- Valve size 10 mm and 15 mm - Mid-position closed - Mechanical spring return - Reversible - Operating pressure $-0.09 \dots +0.7$ MPa

Key features – Pneumatic components

5/4-way valve			
Circuit symbol	Code	Assigned addresses	Description
	Position function: ND	2	- Valve size 10 mm - Exhausted - Mechanical spring return - Reversible - Operating pressure –0.09 ... +0.7 MPa - For Smart Switching Lite
Valves for manifold sub-bases for vacuum			
Circuit symbol	Code	Assigned addresses	Description
	Position function: KV	2	2x 3/2-way valve - Valve size 10 mm - Single solenoid - Normally closed - Pneumatic spring return - For vacuum generator
	Position function: NL	2	5/3-way valve - Valve size 10 mm - With holding function, for vacuum switching unit - Mechanical spring return - Not reversible - Operating pressure 0.2 ... +0.7 MPa
	Position function: NQ	2	5/4-way valve - Valve size 10 mm - For vacuum generator - Mechanical spring return - Not reversible - Operating pressure –0.09 ... +0.7 MPa

- - **Note**

The valve functions of an exhausted and pressurised 5/3-way valve can be realised using the 3/2-way valves "normally closed" and "normally open", respectively, with mechanical spring return.

The negative overlap makes it possible to exhaust the working ports in the de-energised state.

Application areas 5/4-way valve, vertically mounted cylinder

Description

The 5/4-way valve (place function code: ND) combined with a vertically mounted cylinders can be used to ensure protection against falling.

When using 5/3-way valves, the cylinder is either completely blocked or completely movable.

When using the 5/4-way valve, the moving object is protected from falling by the applied pressure.

The lifting direction is not blocked.

Key features – Pneumatic components

Application areas 5/4-way valve, Smart Switching Lite

Description

The 5/4-way valve (position function code: ND) allows the supply air to be switched off during movement, thus saving energy and improving cycle times. The cylinder end position is still reliably reached by using the expansion energy. The cylinder chambers can be individually pressurised and blocked.

As the pressure in the end position is reduced, the subsequent movement can be carried out more dynamically. Smart Switching Lite is the complete solution for valve and control logic (PLC module).

The PLC module can be integrated into the existing control logic; it determines the required pressurisation time and detects when the end position has been reached via limit switches.

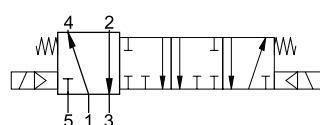
Appropriate application notes with further information are also available for the PLC modules.

The application notes can be downloaded from the Support Portal:

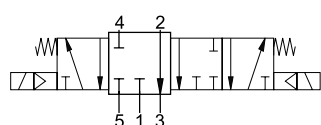
→ Internet: vtux

In the Downloads/Expert Knowledge section.

Cylinder advances

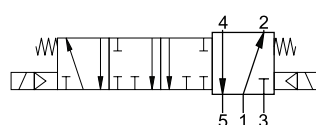


- Solenoid coil is active, pilot control switches
- The cylinder begins its movement with full pressure and maximum force.

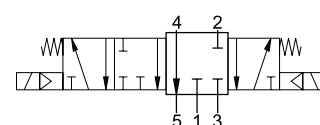


- Solenoid coil is switched off
- The cylinder is moved by the trapped air volume until it reaches its end position
- Pressure drops continuously
- The end position is reached using the minimum required pressure
- Cushioning can be minimised because of the reduced pressure, or is not required at all

Cylinder retracts

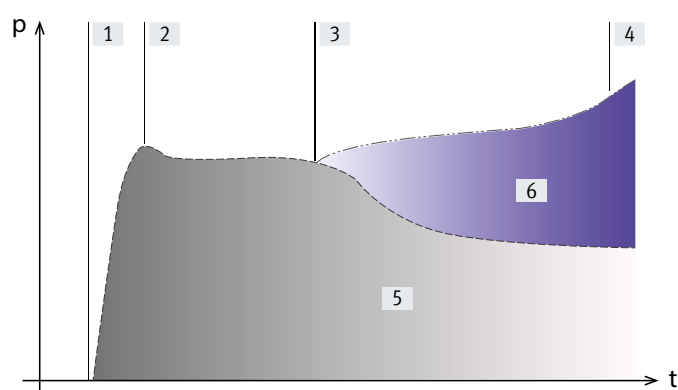


- Solenoid coil is active, pilot control switches
- The cylinder begins its movement with full pressure and maximum force.
- As the pressure in the end position is lower, the movement starts more dynamically and consumes less energy



- Solenoid coil is switched off
- The cylinder is moved by the trapped air volume until it reaches its end position
- Pressure drops continuously
- The end position is reached using the minimum required pressure
- Cushioning can be minimised because of the reduced pressure, or is not required at all

Cylinder advances

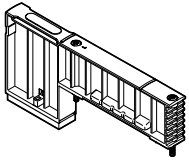


- [1] The pilot control receives the switching signal
- [2] The cylinder starts its movement at full pressure.
- [3] The pilot control is switched off; the cylinder movement is now only triggered by the trapped air volume
- [4] The end position is reached

- [5] Energy use with Smart Switching Lite
- [6] Additional energy consumption without Smart Switching Lite (achievable energy savings)

Key features – Pneumatic components

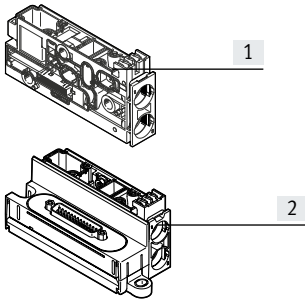
Cover plate



Cover plate (code L) without valve function, for reserving valve positions on a valve terminal.

Valves and cover plates are attached to the manifold sub-base using two screws.

Compressed air supply and exhaust



- [1] Power supply module
- [2] Left end plate

The valve terminal VTUX can be supplied with compressed air at one or more points via the left end plate and/or via supply modules. The generously sized pneumatic system ensure that all components will offer good performance, even with large-scale extensions.

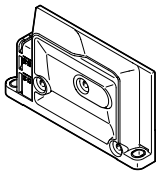
Exhausting (ducts 3 and 5) takes place either via silencers or ports for ducted exhaust air, via the supply modules or the left end plate.

There are two variants for exhausting:

- Exhaust air 3/5 via flat plate silencer
- Exhaust air 3/5 ducted

Ducts 3 and 5 are separated in the terminal and are only joined together in the power supply module/left end plate. The pilot exhaust air (duct 82/84) is completely separate from ducts 3 and 5.

Pilot air supply



The valve terminal VTUX is supplied with pilot air only via the right end plate.

The type of pilot air supply can be selected using a separator in duct 1 of the end plate:

- Internal (from duct 1) or
- External (from duct 12/14)

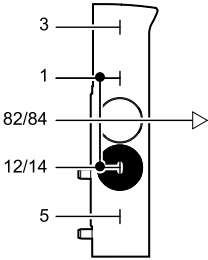
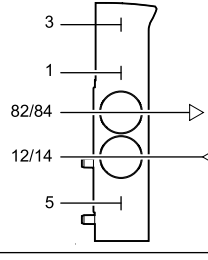
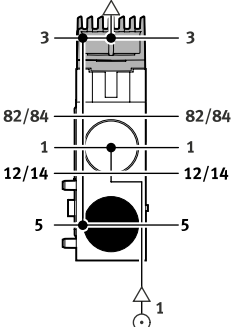
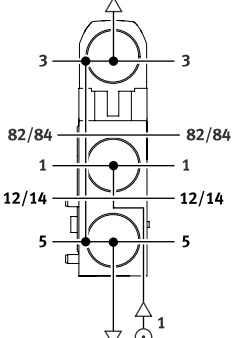
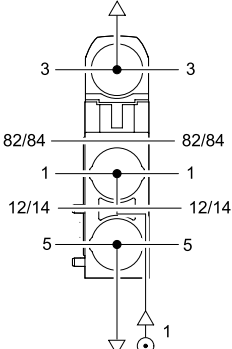
The actual control pressure required depends on the valves used on the terminal. Internal pilot air supply can be selected if the supply pressure of the terminal is correspondingly high. In this case, the pilot air supply is branched by an internal connection from duct 1 in the right end plate.

The operating pressure in the right pressure zone must be at least equal to the highest control pressure required for the entire valve terminal. Port 12/14 on the right end plate is sealed using a blanking plug.

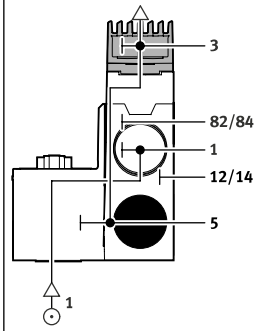
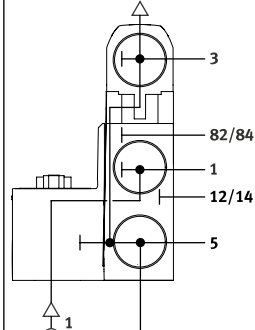
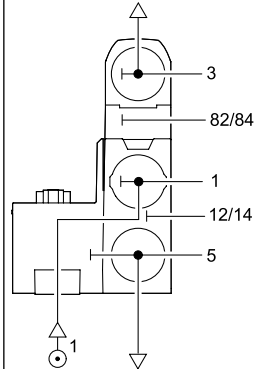
- - Note

If a gradual pressure build-up in the system using a soft-start valve is chosen, an external pilot air supply should be connected so that the pilot pressure applied during switch-on is already very high.

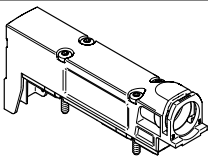
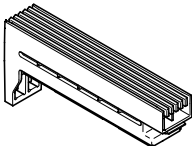
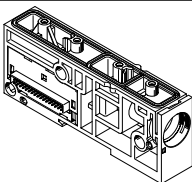
Key features – Pneumatic components

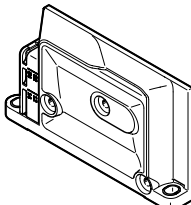
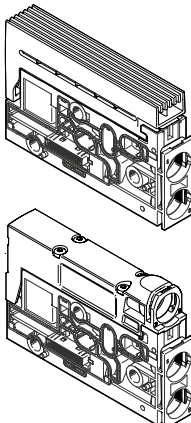
Compressed air supply and pilot air supply		
Illustration	Code	Note
Right end plate, with supply ports		
	Pilot air supply, via right end plate: –	Internal pilot air supply - Pilot air is branched internally from port 1 in the right end plate - Port 12/14 in the right end plate is sealed using a blanking plug - Pilot exhaust air 82/84 via right end plate - For operating pressure in the range 0.25 ... 0.7 MPa
	Pilot air supply, via right end plate: Z	External pilot air supply - Pilot air supply (0.25 ... 0.7 MPa) is connected at port 12/14 on the right end plate - Port 1 in the right end plate is sealed using a separator - Pilot exhaust air 82/84 via right end plate - For operating pressure in the range –0.09 ... +0.7 MPa (suitable for vacuum)
Supply module, flat plate silencer		
	Connection position type: U Position function: US	- Exhaust air 3/5 via flat plate silencer - Pilot exhaust air 82/84 via right end plate - For operating pressure in the range –0.09 ... +0.7 MPa (suitable for vacuum)
Supply module, ducted exhaust air		
	Connection position type: U Position function: UD	- Exhaust air 3/5 via power supply module and exhaust plate - Pilot exhaust air 82/84 via right end plate - For operating pressure in the range –0.09 ... +0.7 MPa (suitable for vacuum)
	Connection position type: U Position function: UT	- Exhaust air 3 via exhaust plate, exhaust air 5 via power supply module - Pilot exhaust air 82/84 via right end plate - For operating pressure in the range –0.09 ... +0.7 MPa (suitable for vacuum)

Key features – Pneumatic components

Compressed air supply and pilot air supply		
Illustration	Code	Note
Left end plate, flat plate silencer		
	–	• Exhaust air 3/5 via flat plate silencer • Pilot exhaust air 82/84 via right end plate • For operating pressure in the range –0.09 ... +0.7 MPa (suitable for vacuum)
Left end plate, ducted exhaust air		
	–	• Exhaust air 3/5 via exhaust air plate and left end plate • Pilot exhaust air 82/84 via right end plate • For operating pressure in the range –0.09 ... +0.7 MPa (suitable for vacuum)
	–	• Exhaust air 3 via exhaust air plate, exhaust air 5 via left end plate • Pilot exhaust air 82/84 via right end plate • For operating pressure in the range –0.09 ... +0.7 MPa (suitable for vacuum)

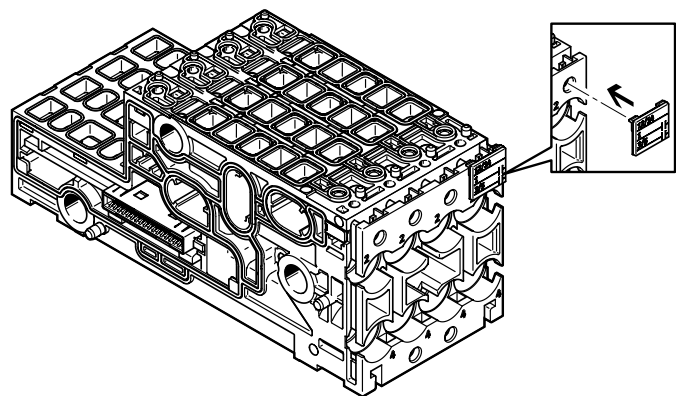
Key features – Pneumatic components

Supply module	Code	Type	Designation	Note
	Position function: UD	VABF-XA-12-M2	Exhaust plate for ducted exhaust air, duct 3/5 combined	Additional power supply modules can be used for larger terminals or to create pressure zones. Supply modules can be configured at any point upstream or downstream from the manifold sub-bases or also next to one another. Supply modules contain the following ports: - Compressed air supply (duct 1) - Exhaust air (duct 3/5) Depending on your order, the exhaust ducts are either ducted or vented via the flat plate silencer. The flat plate silencer is fixed on the manifold sub-base with a latching hook and can be removed without the need for tools.
	Position function: UT	VABF-XA-12-M2A17 VABF-XA-34-M2A17	Exhaust plate for ducted exhaust air, duct 3 and 5 separated	
	Position function: US	VABF-XA-12-M1	Flat plate silencer	
	Connection position type: U	VABX-A-P-BU VABX-A-S-BU	Supply module without cartridge	

Supply and exhaust ports					
	Code	Connection			Push-in fitting/cartridge
Right end plate with supply ports 12/14, 82/84					
		12/14	Pilot air supply	Cartridge	Cartridge, straight
		82/84	Pilot exhaust air	Cartridge	
Supply module					
	Connection position type: U	1	Working air/vacuum supply	Cartridge	Cartridge, straight
		3/5	Exhaust air	Flat plate silencer	–
				Cartridge	Cartridge, straight

Key features – Pneumatic components

Creating pressure zones and separating exhaust air



VTUX offers a number of options for creating pressure zones if different working pressures are required. A pressure zone is created by separating the internal supply duct between any two manifold sub-bases. Every pressure zone must have its own compressed air supply. Compressed air can be supplied and exhausted via the left end plate and/or the supply modules.

The position of the supply modules and the pressure zone separation can be freely chosen with the valve terminal VTUX.

The separators for pressure zone separation are integrated into the terminal at the factory as specified in your order. Their position is marked using corresponding inscription labels. Duct separation takes place between two manifold sub-bases.

Creating pressure zones		Coding	Code	Note	
Manifold sub-bases with separator for pressure zone separation					
Illustrated examples		12/14 1 3/5	Duct separation 1 - 64: TT	[1] Duct 82/84 [2] Duct 3 [3] Duct 1, separated [4] Duct 12/14 [5] Duct 5	
			Duct separation 1 - 64: TR	[1] Duct 82/84 [2] Duct 3, separated [3] Duct 1 [4] Duct 12/14 [5] Duct 5, separated	
		12/14 1 3/5	Duct separation 1 - 64: TS	[1] Duct 82/84 [2] Duct 3, separated [3] Duct 1, separated [4] Duct 12/14 [5] Duct 5, separated	

Key features – Pneumatic components

Examples: Compressed air supply and pilot air supply

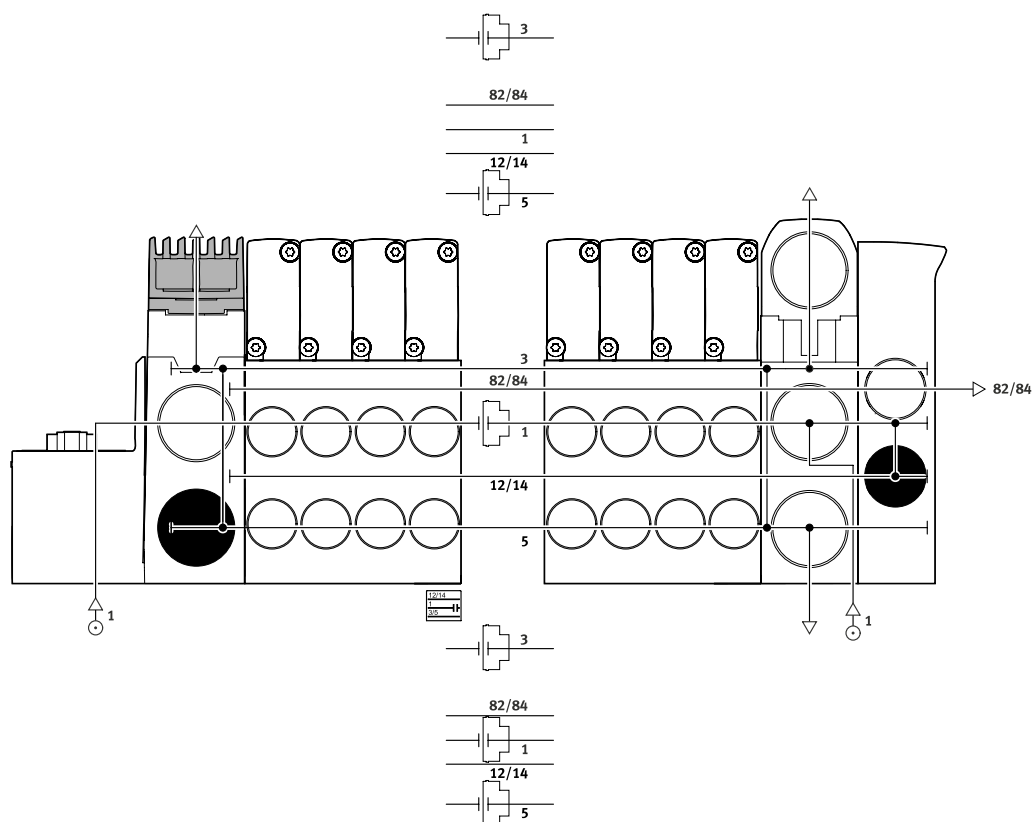
Internal pilot air supply

The adjacent illustration shows an example of the configuration and connection of the compressed air supply with internal pilot air supply.

The exhaust air (duct 3/5) is exhausted via supply modules.

The pilot exhaust air (duct 82/84) is discharged via the right end plate.

Special separators are used to create pressure zones.



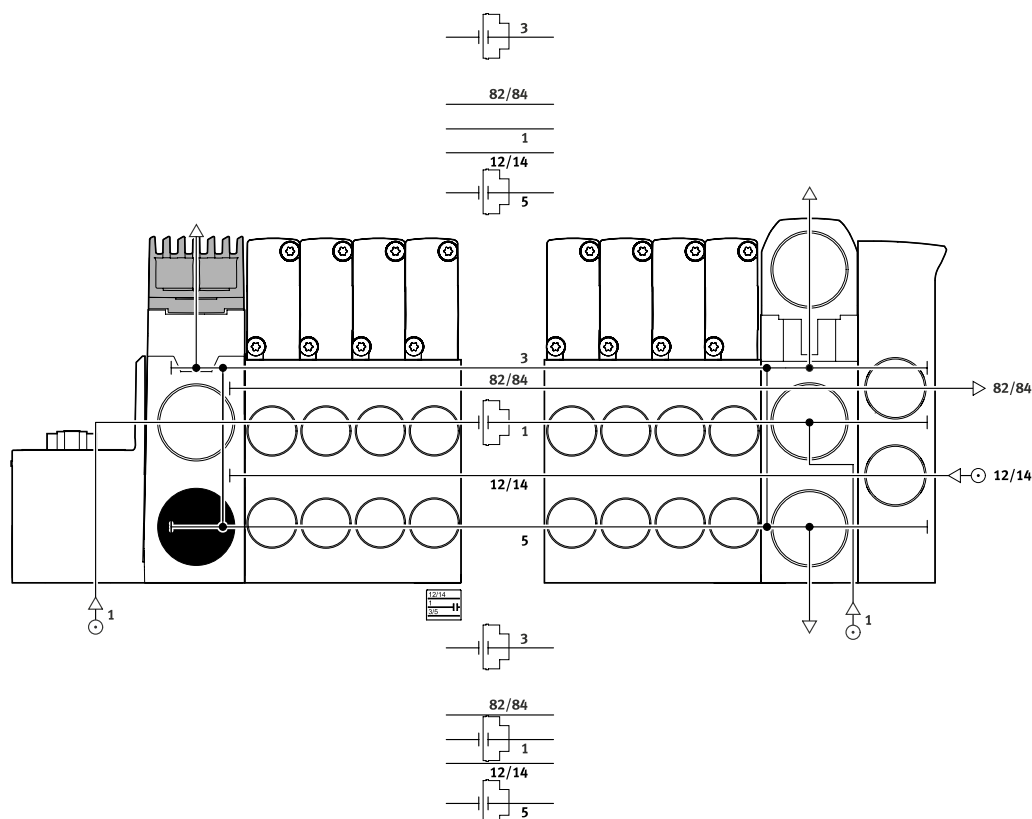
External pilot air supply

The adjacent illustration shows an example of the configuration and connection of the compressed air supply with external pilot air supply. Port 12/14 on the right end plate is equipped with a fitting for this.

The exhaust air (duct 3/5) is exhausted via supply modules.

The pilot exhaust air (duct 82/84) is discharged via the right end plate.

Special separators are used to create pressure zones.

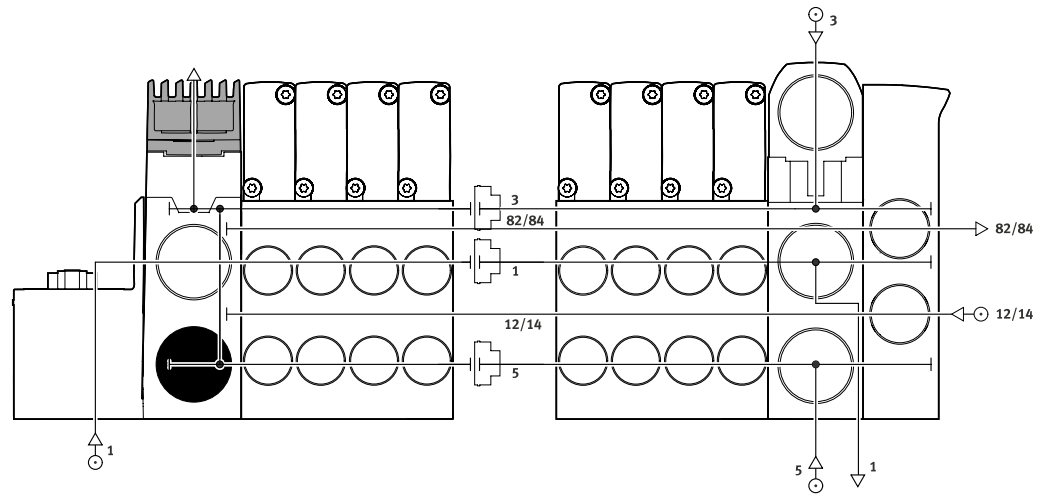


Key features – Pneumatic components

Examples: Compressed air supply and pilot air supply

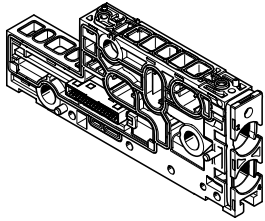
Exhaust air port 3/5 separated

The adjacent illustration shows an example of the configuration, the possibilities and connection of the air supply with ducts 3 and 5 separated. The exhaust air (duct 3/5) is discharged together on one side via the exhaust plate on the left end plate. The pilot exhaust air (duct 82/84) is discharged via the right end plate. The second pressure zone is supplied with compressed air by a power supply module with an exhaust plate with ducts 3 and 5 separated. Special separators are used to create pressure zones.



Key features – Pneumatic components

Manifold sub-base



The VTUX is based on a modular system which consists of manifold sub-bases and valves. The manifold sub-bases are joined together using tie rods and thus form the support system for the valves.

They contain the ducts for supplying compressed air to and exhausting from the valve terminal as well as the working ports for the pneumatic drives for each valve.

The tie rod used to join the manifold sub-bases together consists of a threaded rod and screw.

The manifold sub-bases are available in variants for one or for four valves. The threaded rod/screw combination is selected according to the number and width of the individual manifold sub-bases.

To add further manifold sub-bases, simply loosen the tie rod and adapt using extenders.

There are no restrictions on how extensions. A tie rod could be constructed almost entirely using extenders.

The electrical connections for the valve terminal are also integrated into the manifold sub-bases.

Manifold sub-base variants	Code	Type	Note
	—	VABX-A-P-BV-AH-F VABX-A-P-BV-AH-A	• One valve position • Without cartridge • Width 10.55 mm
		VABX-A-P-BV-BH-G VABX-A-P-BV-BH-B	• One valve position • Without cartridge • Width 12.55 mm
		VABX-AP-BV-CH-H VABX-AP-BV-CH-C	• One valve position • Without cartridge • Width 16.05 mm
	—	VABX-A-P-BV-AH-RVFFFF VABX-A-P-BV-AH-RVAAAA VABX-A-S-BV-AH-RVAAAA	• Four valve positions • Without cartridge • Width 42.05 mm
		VABX-A-P-BV-BH-RVGGGG VABX-A-P-BV-BH-RVB BBB VABX-A-S-BV-BH-RVB BBB	• Four valve positions • Without cartridge • Width 50.05 mm
		VABX-AS-BV-CH-RVCCCC VABX-AP-BV-CH-RVHHHH VABX-AP-BV-CH-RVCCCC	• Four valve positions • Without cartridge • Width 64.05 mm
	—	VABX-A-S-BV-AH-RV0XJAAAA	• Four valve positions • Space for input module • Without cartridge • Width 42.05 mm
		VABX-A-S-BV-BH-RV0XJB BBB	• Four valve positions • Space for input module • Without cartridge • Width 50.05 mm
		VABX-AS-BV-CH-RV0XJCCCC	• Four valve positions • Space for input module • Without cartridge • Width 50.05 mm
	VB	VABX-AP-VP-BH-VH VABX-A-P-VE-BH-VB07H VABX-A-P-VE-BH-VB07L VABX-A-P-VE-BH-VB010H VABX-A-P-VE-BH-VB010L VABX-AS-VP-BH-VH VABX-A-S-VE-BH-VB07H VABX-A-S-VE-BH-VB07L VABX-A-S-VE-BH-VB010H VABX-A-S-VE-BH-VB010L	• A valve position for a special 2x 3/2-way valve, 5/3-way valve or 5/4-way valve (can only be ordered via the configurator) • With integrated vacuum generator or for switching external vacuum • Without cartridge • Width 12.55 mm

Key features – Mounting

Valve terminal mounting

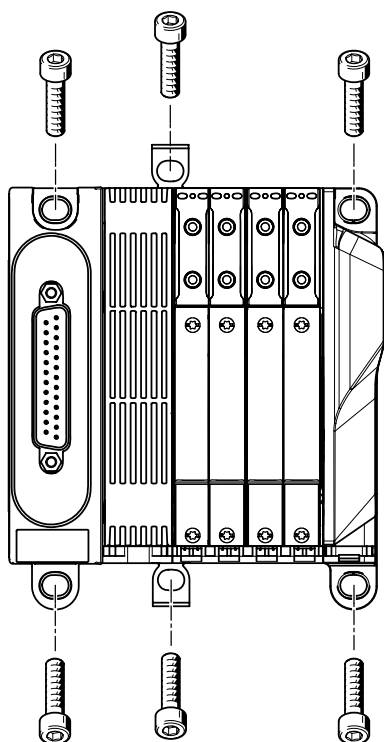
Sturdy terminal mounting via:

- Four through-holes for wall mounting
- Additional mounting brackets
- DIN rail mounting

Note

For valve terminals with manifold sub-bases for vacuum, the mounting position must be selected so that the integrated silencer is protected against the ingress of water and any water that has penetrated can drain away again.

Wall mounting



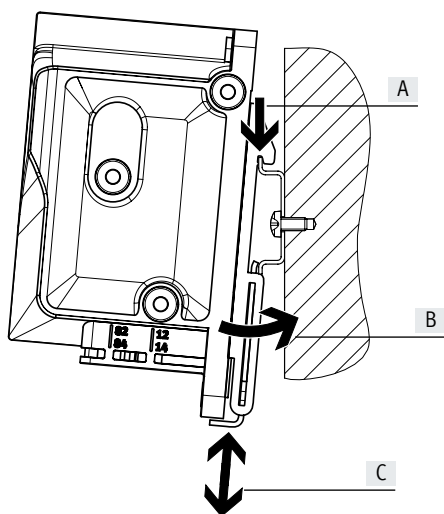
The valve terminal VTUX is screwed onto the mounting surface using four M5 screws. The mounting holes are on the multi-pin plug connection and on the right end plate.

Optional mounting brackets for the power supply modules and the manifold sub-base for valves are also available.

Note

If the length of the manifold sub-bases that are connected to each other exceeds 35 cm, mounting brackets for wall mounting must be fitted every 20 cm in addition to the mounting holes in the end plates.

DIN rail mounting



The valve terminal VTUX is attached to the DIN rail (see arrow A). The valve terminal VTUX is then swivelled onto the DIN rail (see arrow B). As a third step, the valve terminal VTUX is fitted on the DIN rail by moving the slide on the DIN rail mounting (see arrow C).

The clamp fastening for DIN rail mounting enables the valve terminal to be mounted on DIN rails in accordance with EN 60715.

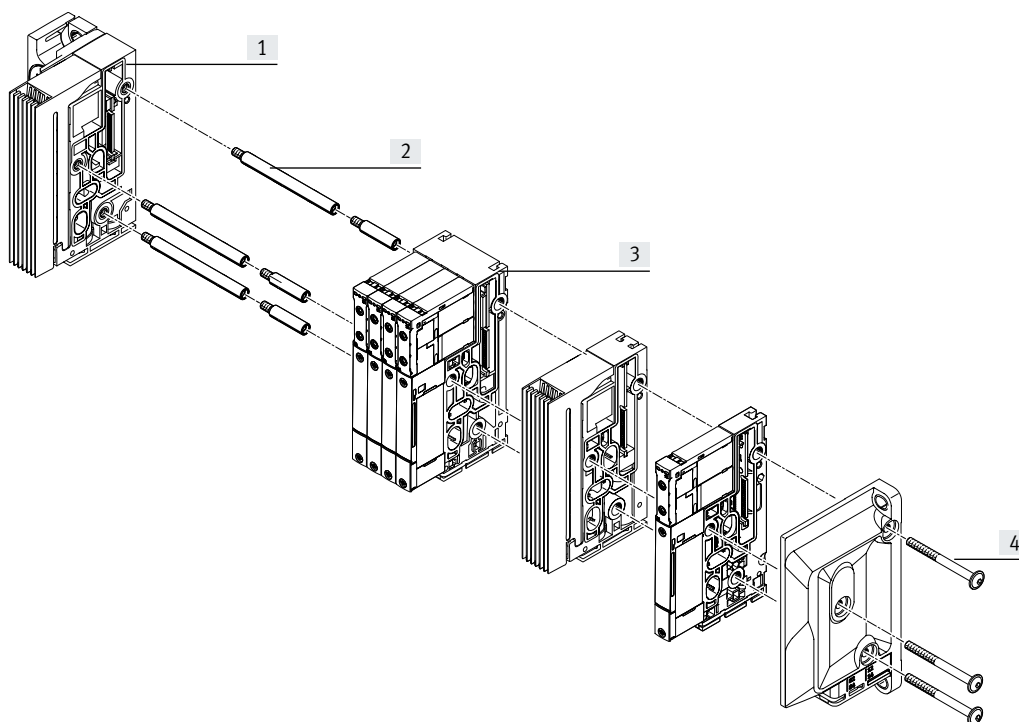
Note

The clamp fastening locks the valve terminal in a horizontal mounting position.

Key features – Mounting

Tie rods

Configuration



- [1] Left end plate
- [2] Tie rod sections
- [3] Manifold sub-bases
- [4] Tie rod screws

Operating mode

The tie rod on the VTUX is made up of two parts:

- Threaded rods
- Screw

This enables valve terminals of any length to be created. It takes just four steps to assemble the tie rod and the valve terminal:

- Screw the threaded rods into the left end plate
- Push the sub-bases and supply modules onto the threaded rods
- Push on the right end plate and secure using the screws

The tie rod enables the valve terminal to be extended at a later date. This is done by loosening the tie rod screws and disassembling the relevant components. The additional sub-base or the additional supply module is inserted at the required location. The previously disassembled components are then re-assembled.

To compensate for the change in length, the tie rod must be extended by the increase in length. To do this, threaded rods of a suitable length are screwed in place.

To determine which components are required, the online spare parts catalogue includes information on how to use the spare parts and a conversion guide.

Tie rod – Components and design

Tie rod (threaded rod)



The threaded rod is used to create a cost-optimised fixed-grid tie rod. The combination of a threaded rod and screw offers the optimum compensation of tolerances (by compressing the seals between the manifold sub-bases).

The valve terminal can be extended almost infinitely at any time using additional threaded rod sections. The threaded rod sections are inserted between the existing threaded rod and are available in different lengths, in each case matched to the manifold sub-bases and supply modules.

Screw



The entire valve terminal is clamped via the tie rod using the screw. Tolerances that occur, for example when the seals are compressed between the manifold sub-bases during assembly, are compensated by the interaction of the screw and the threaded rod.

Ensure that no more than 65 seals, i.e. 64 manifold sub-bases and supply modules, are combined in one valve terminal.

Key features – Mounting

Ordering data – Tie rods															
Reference length [mm]	Part no.			Part no.			Part no.			Part no.					
L = sum of the widths of the manifold sub-bases and power supply modules	Tie rods											Screw			
21.00 ... 23.00	=		–	+		–	+		–	+		–	+	1	8191748
25.00 ... 29.60		1	8191756			–			–			–		1	8191747
31.50 ... 38.80		1	8191757			–			–			–		1	8191747
40.00 ... 63.30		1	8191758			–			–			–		1	8191748
63.40 ... 86.20		1	8191761			–			–			–		1	8191748
86.30 ... 109.10		1	8191762			–			–			–		1	8191748
109.20 ... 131.80		1	8191763			–			–			–		1	8191748
131.90 ... 154.30		1	8191764			–			–			–		1	8191748
154.40 ... 173.70		1	8191765			–			–			–		1	8191748
173.80 ... 193.20		1	8191766			–			–			–		1	8191748
193.30 ... 212.70		1	8191767			–			–			–		1	8191748
212.80 ... 231.20		1	8191767		1	8191756			–			–		1	8191748
231.30 ... 249.90		1	8191767		1	8191758			–			–		1	8191748
250.00 ... 252.60		1	8191766		1	8191761			–			–		1	8191748
252.70 ... 255.60		1	8191765		1	8191762			–			–		1	8191748
255.70 ... 272.40		1	8191767		1	8191761			–			–		1	8191748
272.50 ... 275.10		1	8191766		1	8191762			–			–		1	8191748
275.20 ... 278.10		1	8191765		1	8191763			–			–		1	8191748
278.20 ... 294.60		1	8191767		1	8191762			–			–		1	8191748
294.70 ... 297.60		1	8191766		1	8191763			–			–		1	8191748
297.70 ... 300.60		1	8191765		1	8191764			–			–		1	8191748
300.70 ... 317.10		1	8191767		1	8191763			–			–		1	8191748
317.20 ... 320.10		1	8191766		1	8191764			–			–		1	8191748
320.20 ... 331.70		1	8191767		1	8191762		1	8191758			–		1	8191748
331.80 ... 339.50		1	8191767		1	8191764			–			–		1	8191748
339.60 ... 354.20		1	8191767		1	8191763		1	8191758			–		1	8191748
354.30 ... 359.00		1	8191767		1	8191765			–			–		1	8191748
359.10 ... 368.00		1	8191767		1	8191764		1	8191757			–		1	8191748
368.10 ... 378.50		1	8191767		1	8191766			–			–		1	8191748
378.60 ... 387.70		1	8191767		1	8191765		1	8191757			–		1	8191748
387.80 ... 398.20		2	8191767			–			–			–		1	8191748
398.30 ... 407.20		1	8191767		1	8191766		1	8191757			–		1	8191748
407.30 ... 416.80		2	8191767			–		1	8191756			–		1	8191748
416.90 ... 426.70		2	8191767		1	8191757			–			–		1	8191748
426.80 ... 435.10		2	8191767		1	8191758			–			–		1	8191748
435.20 ... 438.10		1	8191767		1	8191766		1	8191761			–		1	8191748
438.20 ... 440.90		1	8191767		1	8191765		1	8191762			–		1	8191748
441.00 ... 443.90		1	8191767		1	8191764		1	8191763			–		1	8191748
444.00 ... 446.90		1	8191766		2	8191764			–			–		1	8191748
447.00 ... 457.60		2	8191767		1	8191761			–			–		1	8191748
457.70 ... 460.60		1	8191767		1	8191766		1	8191762			–		1	8191748
460.70 ... 463.40		1	8191767		1	8191765		1	8191763			–		1	8191748
463.50 ... 466.40		1	8191767		2	8191764			–			–		1	8191748
466.50 ... 472.30		2	8191767		2	8191758			–			–		1	8191748
472.40 ... 480.10		2	8191767		1	8191762			–			–		1	8191748
480.20 ... 482.90		1	8191767		1	8191766		1	8191763			–		1	8191748
483.00 ... 485.80		1	8191767		1	8191765		1	8191764			–		1	8191748

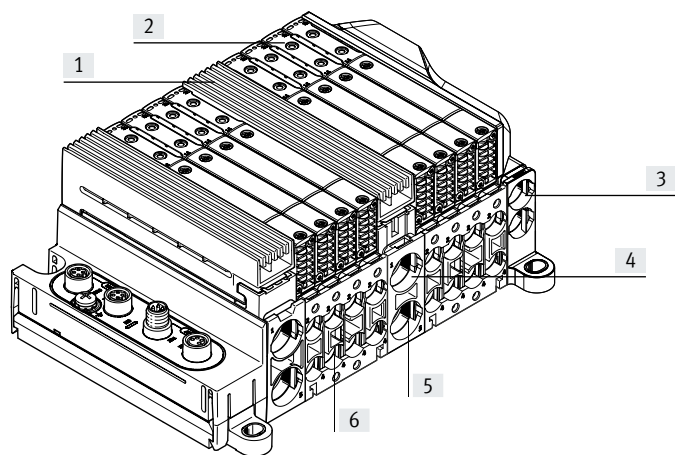
Key features – Mounting

Ordering data – Tie rods															
Reference length [mm]	Part no.			Part no.			Part no.			Part no.					
L = sum of the widths of the manifold sub-bases and power supply modules	Tie rods									Screw					
485.90 ... 494.50	=	2	8191767	+	1	8191761	+	1	8191758	+		–	+	1	8191748
494.60 ... 502.60		2	8191767		1	8191763			–			–		1	8191748
502.70 ... 505.30		1	8191767		1	8191766		1	8191764			–		1	8191748
505.40 ... 508.60		2	8191767		1	8191762		1	8191757			–		1	8191748
508.70 ... 517.00		2	8191767		1	8191762		1	8191758			–		1	8191748
517.10 ... 524.90		2	8191767		1	8191764			–			–		1	8191748
525.00 ... 531.10		2	8191767		1	8191763		1	8191757			–		1	8191748
531.20 ... 539.50		2	8191767		1	8191763		1	8191758			–		1	8191748
539.60 ... 544.50		2	8191767		1	8191765			–			–		1	8191748
544.60 ... 553.50		2	8191767		1	8191764		1	8191757			–		1	8191748
553.60 ... 562.00		2	8191767		1	8191764		1	8191758			–		1	8191748
562.10 ... 564.00		2	8191767		1	8191766			–			–		1	8191748
564.10 ... 565.00		1	8191767		1	8191766		1	8191764	1		8191761		1	8191748
565.10 ... 573.00		2	8191767		1	8191765		1	8191757			–		1	8191748
573.10 ... 579.50		2	8191767		1	8191766		1	8191755			–		1	8191748
580.60 ... 583.50		3	8191767			–			–			–		1	8191748
583.60 ... 584.50		2	8191767		1	8191764		1	8191761			–		1	8191748
584.60 ... 587.50		1	8191767		1	8191766		1	8191764	1		8191762		1	8191748
587.60 ... 592.50		2	8191767		1	8191766		1	8191757			–		1	8191748
592.60 ... 598.90		3	8191767		1	8191755			–			–		1	8191748
599.00 ... 602.00		3	8191767		1	8191756			–			–		1	8191748
602.10 ... 603.90		2	8191767		1	8191765		1	8191761			–		1	8191748
604.00 ... 606.90		2	8191767		1	8191764		1	8191762			–		1	8191748
607.00 ... 612.00		3	8191767		1	8191757			–			–		1	8191748
612.10 ... 612.70		1	8191767		1	8191765		2	8191764			–		1	8191748
612.80 ... 618.60		2	8191767		1	8191765		2	8191758			–		1	8191748
618.70 ... 620.40		3	8191767		1	8191758			–			–		1	8191748
620.50 ... 623.40		2	8191767		1	8191766		1	8191761			–		1	8191748
623.50 ... 626.40		2	8191767		1	8191765		1	8191762			–		1	8191748
626.50 ... 629.40		2	8191767		1	8191764		1	8191763			–		1	8191748
629.50 ... 632.20		1	8191767		1	8191766		2	8191764			–		1	8191748
632.30 ... 638.10		2	8191767		1	8191766		2	8191758			–		1	8191748
638.20 ... 642.90		3	8191767		1	8191761			–			–		1	8191748
643.00 ... 645.90		2	8191767		1	8191766		1	8191762			–		1	8191748
646.00 ... 648.90		2	8191767		1	8191765		1	8191763			–		1	8191748
649.00 ... 651.60		2	8191767		2	8191764			–			–		1	8191748
651.70 ... 651.90		2	8191767		1	8191766		1	8191761	1		8191757		1	8191748
652.00 ... 655.10		2	8191767		1	8191765		1	8191762	1		8191757		1	8191748
655.20 ... 657.60		3	8191767		2	8191758			–			–		1	8191748
657.70 ... 661.40		3	8191767		1	8191761		1	8191756			–		1	8191748
661.50 ... 665.40		3	8191767		1	8191762			–			–		1	8191748
665.50 ... 668.40		2	8191767		1	8191766		1	8191763			–		1	8191748
668.50 ... 671.40		2	8191767		1	8191765		1	8191764			–		1	8191748
671.50 ... 671.60		3	8191767		1	8191761		1	8191757			–		1	8191748
671.70 ... 671.90		2	8191767		1	8191766		1	8191762	1		8191757		1	8191748

Key features – Display and operation

Display and operation	
Signal status indication	Manual override
Every solenoid coil is assigned to an LED that indicates its signal status. - Indicator 12 shows the signal status of the coil for duct 2 - Indicator 14 shows the signal status of the coil for duct 4	The valve terminal with serial communication also has an LED for extended diagnostic information. The manual override (MO) enables the valve to be switched when not electrically activated or energised. The valve is switched by pushing the manual override.
	Alternatives: - A cover cap (code HR or as an accessory) can be used to operate the manual override in detenting mode. - A cover cap (code HV or as an accessory) can prevent the manual override from being accidentally activated.

Pneumatic connection and control elements



- [1] Flat plate silencer, duct 3/5
- [2] Manual override (for each pilot solenoid, non-detenting or non-detenting/de-tenting)
- [3] Ports 12/14 for external pilot air supply and 82/84 for pilot exhaust air in the right end plate
- [4] Supply port, duct 1
- [5] Ducted exhaust air, duct 3/5
- [6] Working ports, ducts 2 and 4, for each valve position

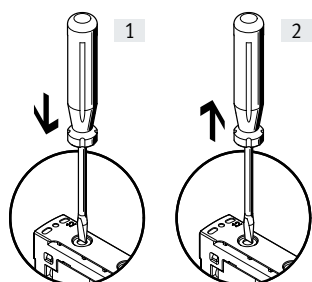
Note

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

Key features – Display and operation

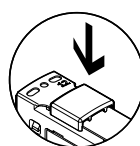
Manual override

Manual override with automatic return (non-detenting)



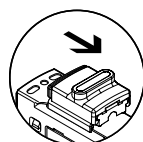
- [1] Press in the plunger of the manual override with a pointed object or screwdriver.
The pilot valve switches and actuates the main valve.
- [2] Remove the pointed object or screwdriver.
The spring force pushes the plunger of the manual override back.
The pilot valve returns to the normal position as does the single solenoid main valve (this is not the case with a double solenoid valve).

Cover cap for manual override, mounting

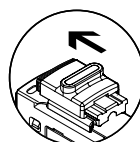


Clip the covering onto the pilot valve.

Manual override with cover cap, detenting without accessories, actuation



- Moving the slider of the cover cap in the direction of the arrow results in:
- The slide locks into the end position
 - The pilot valve switches and actuates the main valve

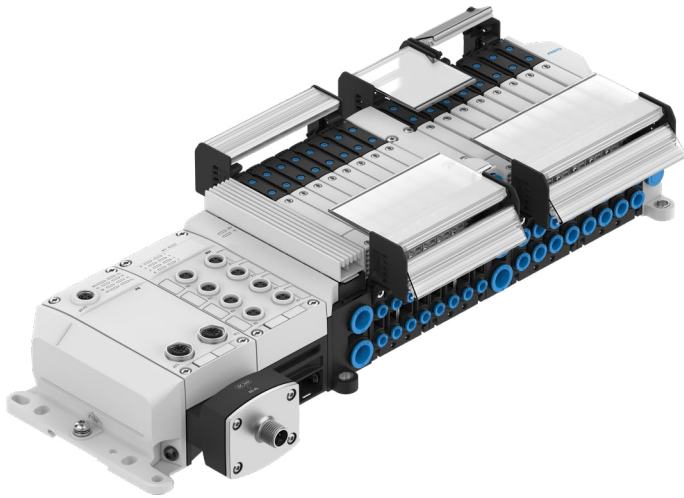


- Moving the slider of the cover cap in the direction of the arrow results in:
- The slide locks into the end position
 - The spring force pushes the plunger of the manual override back.
 - The pilot valve returns to the normal position as does the single solenoid main valve (this is not the case with a double solenoid valve).

Key features – Display and operation

Display and operation

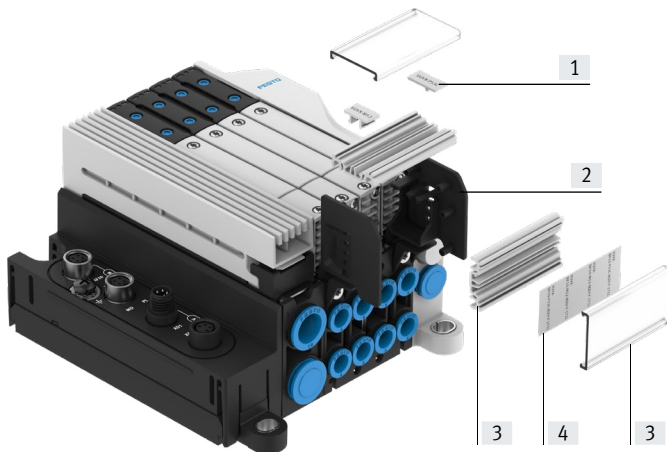
Labelling system



A modular inscription labelling system is available for the valve terminals VTUX:

- Holder for inscription labels
- Holder for large-format paper label
- Can be mounted at the front or side
- Pre-assembled for 4 or 8 valves
- For self-assembly up to lengths of 1 m
- Can be mounted on the manifold sub-base and on the input module

The holders can be folded, thus allowing easy access to the valves located underneath. This ensures that labelling, mounting screws and manual overrides remain accessible.



- [1] Inscription label
- [2] Holder for inscription label
- [3] Inscription label holder
- [4] Paper label

Key features – Electrical components

Internal communication

Parallel communication

Parallel communication is the classic type of multi-pin. Each valve coil is assigned a signalling line within the valve terminal.

When controlled via IO-Link® or the remote I/O system CPX-AP-A, the bus signal is split internally into individual channels for the valve coils.

The valve terminal VTUX is displayed as a single module (32 addresses) when operated using the remote I/O system CPX-AP-A or CPX-AP-I.

Advantages:

- Robust and easy-to-understand control
- Troubleshooting and diagnostics with simple tools directly on the valve terminal

Limitations:

- Number of controllable valve coils is limited
- No diagnostic functions directly on the valve

Serial communication

Serial communication significantly expands the internal communication. This is the infrastructure for highly integrated technology modules and enables bidirectional exchange of data and information between the valve and the PLC.

Significantly more valve coils can be controlled and extensive diagnostic functions are possible.

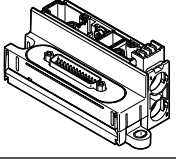
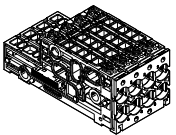
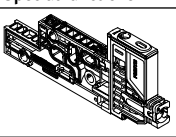
Each manifold sub-base is displayed as a single module (with a customised number of addresses) for operation on the remote I/O system CPX-AP-A or CPX-AP-I.

Advantages:

- The number of controllable valve coils is not limited by the communication bandwidth
- Diagnostic functions and, if necessary, sensors directly on the valve
- Troubleshooting and diagnostics also possible remotely via the controller

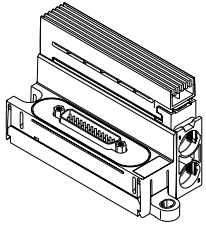
Limitations:

- Manifold sub-bases for four valves available only
- No multi-pin plug connection available
- No IO-Link® connection available

Performance of parallel and serial communication			
	Feature	Parallel communication	Serial communication
Connection to the higher-level control system			
	Electrical multi-pin plug connection	■	–
	Direct connection to the remote I/O system CPX-AP-A	■	■
	Connection to the remote I/O system CPX-AP-I	■	■
	Connection to IO-Link®	■	–
	Direct fieldbus connection via multiprotocol end plates	–	■
Internal structure			
	Manifold sub-bases with one valve position	■	–
	Manifold sub-bases with four valve positions	■	■
	Pressure zone separation	■	■
	Max. number of valve positions	32	64
Special functions			
	Manifold sub-base with vacuum generator	■	■
	Manifold sub-base with input modules (2 inputs per valve position)	–	■

Key features – Electrical components

Electrical connection – Left end plate



The electrical connection from the valves to a higher-order controller is in the left end plate of the VTUX.

Switching between the various connection options is easy: simply swap the left end plate. The pneumatic connections remain unaffected.

The valves are switched by positive or negative logic (PNP or NPN). Mixed operation is not permitted.

Guidelines on addressing for valves/solenoid coils

The addresses are numbered from left to right in ascending order. The following applies for individual valve positions: address x for coil 14 and address x+1 for coil 12.

Every manifold sub-base occupies a specific number of addresses/pins:

- Manifold sub-base for a valve with one solenoid coil: 1
- Manifold sub-base for a valve with two solenoid coils: 2

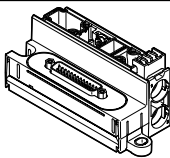
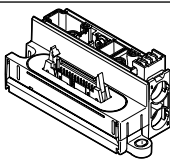
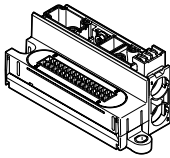
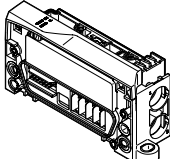
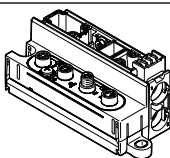
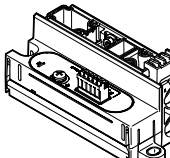
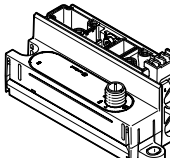
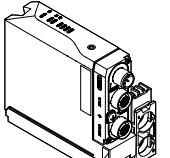
- Manifold sub-base for four valves with one solenoid coil: 4
- Manifold sub-base for four valves with two solenoid coils: 8



Note

If a valve with one solenoid coil is mounted on a position for a valve with two solenoid coils, the second address (for coil 12) is also occupied and cannot be used.

Key features – Electrical components

Variants of the left end plate							
	Code	Type	Communication type	Max. number of addresses/valve coils	Degree of protection	Note	
Electrical multi-pin plug connection							
	Electrical connection: MS1	VABX-A-P-EL-E12-MS1 VABX-A-P-EL-E34-MS1	Parallel	24	IP40	Electrical connection: Sub-D, 25-pin	
	Electrical connection: MS1T	VABX-A-P-EL-E12-MS1T VABX-A-P-EL-E34-MS1T	Parallel	24	IP40	Electrical connection: Sub-D, 25-pin	
	Electrical connection: MS3	VABX-A-P-EL-E12-MS3 VABX-A-P-EL-E34-MS3	Parallel	32	IP40	Electrical connection: Sub-D, 44-pin	
	Electrical connection: MS6	VABX-A-P-EL-E12-MS6 VABX-A-P-EL-E34-MS6	Parallel	24	IP65	Electrical connection: Sub-D, 25-pin	
	Electrical connection: MS8	VABX-A-P-EL-E12-MS8 VABX-A-P-EL-E34-MS8	Parallel	32	IP65	Electrical connection: Sub-D, 44-pin	
	Electrical connection: MF1	VABX-A-P-EL-E12-MF1 VABX-A-P-EL-E34-MF1	Parallel	24	IP20	Electrical connection: ribbon cable, 26-pin	
	Electrical connection: MC	VABX-A-P-EL-E12-MC VABX-A-P-EL-E34-MC	Parallel	32	IP40	Electrical connection: terminal strip, 34-pin	
Fieldbus connection/ remote I/O system CPX-AP-A							
	Electrical connection: APA	VABX-A-P-EL-E12-APA VABX-A-P-EL-E34-APA	Parallel	32	IP65	Electrical connection: CPX-AP-A interface	
		VABX-A-S-EL-E12-APA VABX-A-S-EL-E34-APA	Serial	127	IP65		
Interface to the remote I/O system CPX-AP-I							
	Electrical connection: API	VABX-A-P-EL-E12-API VABX-A-P-EL-E34-API	Parallel	32	IP65	Electrical connection • 2x socket, M8x1, D-coded, 4-pin, AP-COM • M8x1, A-coded, 4-pin for power supply	
		VABX-A-S-EL-E12-API VABX-A-S-EL-E34-API	Serial	196	IP65		
IO-Link® interface							
	Electrical connection: IOL	VABX-A-P-EL-E12-IOL VABX-A-P-EL-E34-IOL	Parallel	32	IP40	Electrical connection: Push-in, IO-Link®	
	Electrical connection: IOS	VABX-A-P-EL-E12-IOS VABX-A-P-EL-E34-IOS	Parallel	32	IP65	Electrical connection: M12, IO-Link®	
Fieldbus connection via multiprotocol end plate							
	Electrical connection: CTED	VABX-A-S-EL-E12-CTED-MPM8	Serial	128	IP65	Electrical connection: M8x1, D-coded	
		VABX-A-S-EL-E12-CTED-MPM12				Electrical connection: M12x1, D-coded	
		VABX-A-S-EL-E12-CTED-MPRJ45			IP20	Electrical connection: RJ45	

Key features – Electrical components

Fieldbus connection/ remote I/O system CPX-AP-A

The pneumatic interface (left end plate) serves as an adapter between the two current feeds. All functions and features of the remote I/O system CPX-AP-A are valid in combination with the CPX-AP-I interface.

This means that:

- The valves are supplied via the system supply of the remote I/O system CPX-AP-A

- The valves can optionally be actuated or switched off separately from the outputs

**Note**

More information can be found at:

→ Internet: cpx-ap-a

Remote I/O system CPX-AP-I

All functions and features of the CPX-AP-I are valid in combination with the remote I/O system CPX-AP-I:

- Power supply via the connection in the left end plate of the VTUX

- Power supply together with other modules or individually for the valve terminal
- Valves actuated via the communication cable from the preceding module

- Cable length of up to 50 m between the modules
- Up to 80 individual modules/valve terminals per bus interface

**Note**

More information can be found at:

→ Internet: cpx-ap-i

IO-Link®

The IO-Link® interface enables the valve terminal VTUX to be connected to the following systems:

- Remote I/O systems CPX-AP-I and CPX-AP-A from Festo
- Automation system CPX-E from Festo
- CPX terminal
- Control system CECC
- IO-Link master

The maximum distance between the IO-Link master and valve terminal with IO-Link® interface is 20 m.

The 5-pin connecting cables transmit the power supply for the valves; the power supply for the internal valve terminal electronics and the control signals are separate from this.

**Note**

More information can be found at:

→ Internet: cpx-ap-a

Instructions for use

Operating materials

Operate your system with unlubricated compressed air, if possible. Festo valves and cylinders are designed so that, if used as intended, they will not require additional lubrication and will still achieve a long service life. The quality of compressed air downstream of the compressor must correspond to that of unlubricated compressed air. If possible, do not operate the entire system with lubricated compressed air. The lubricators should, where possible, always be installed directly upstream of the actuator requiring them.

Incorrect additional oil and too high an oil content in the compressed air reduce the service life of the valve terminal.

Use Festo special oil OFSW-32 or the alternatives listed in the Festo catalogue (as specified in DIN 51524 HLP32; basic oil viscosity 32 CST at 40 °C).

Bio-oils

When using bio-oils (oils synthesised on the basis of synthetic or native esters, e.g. rapeseed oil methyl esters), the residual oil content of max. 0.1 mg/m³ must not be exceeded (see ISO 8573-1 Class 2).

Mineral oils

When using mineral oils (e.g. HLP oils to DIN 51524 Part 1 to 3) or corresponding oils based on poly alpha olefins (PAO), the residual oil content of max 5 mg/m³ must not be exceeded (see ISO 8573-1 Class 4). A higher residual oil content is not permitted, regardless of the compressor oil, because the permanent lubrication would otherwise be flushed out over a period of time.

Datasheet – Valve terminal VTUX

-  - Flow rate
470 ... 1650 l/min
-  - Valve width
10 mm
15 mm
-  - Voltage
24 V DC



General technical data		Parallel communication	Serial communication
Valve terminal design		Modular and expandable	Modular and expandable
Actuation type		Electrical	Electrical
Nominal operating voltage	[V DC]	24	24
Permissible voltage fluctuations	[%]	±10	±10
Max. number of valve positions		32	64
Max. number of pressure zones		16	16
Valve size	[mm]	10; 15	10; 15
Type of control		Piloted	Piloted
Valve function		2x3/2-way, single solenoid, closed	2x3/2-way, single solenoid, closed
		2x3/2-way, single solenoid, open	2x3/2-way, single solenoid, open
		2x3/2-way, single solenoid, open/closed	2x3/2-way, single solenoid, open/closed
		5/2-way, single solenoid	5/2-way, single solenoid
		5/2-way, double solenoid	5/2-way, double solenoid
		5/3-way, closed	5/3-way, closed
		5/3-way valve with holding function, for vacuum switching unit	5/3-way valve with holding function, for vacuum switching unit
		5/4-way, closed, 2 or 4 exhausted	5/4-way, closed, 2 or 4 exhausted
		5/4-way valve with holding function, for vacuum generator	5/4-way valve with holding function, for vacuum generator
Design		Piston spool	Piston spool
Sealing principle		Soft	Soft
Type of mounting sub-base		With through-hole	With through-hole
Type of mounting		Tie rods	Tie rods
Pilot air supply		Internal or external	Internal or external
Suitable for vacuum		Yes	Yes
Exhaust air function		Can be throttled	Can be throttled
Nominal flow rate standardised to ISO 8778	[l/min]	470 ... 1650	470 ... 1650
Grid dimension	[mm]	10.55 ... 16.05	10.55 ... 16.05

Datasheet – Valve terminal VTUX

Pneumatic ports							
Pneumatic connection	1	2	3	4	5	12/14	82/84
QS-3	–	■	–	■	–	–	–
QS-4	–	■	–	■	–	■	■
QS-6	■	■	■	■	■	■	■
QS-8	■	■	■	■	■	■	■
QS-10	■	■	■	–	■	■	■
QS-12	■	■	■	–	■	–	–
QS-14	■	–	–	–	■	–	–
QS-1/8	–	■	–	■	–	–	–
QS-5/32	–	■	–	■	–	–	–
QS-1/4	■	■	■	■	■	■	■
QS-5/16	■	■	■	■	■	■	■
QS-3/8	■	■	■	■	■	–	–
QS-1/2	■	–	■	–	■	–	–
For 10 mm cartridge	–	■	–	■	–	–	–
For 12 mm cartridge	–	■	–	■	–	■	■
For 15 mm cartridge	■	■	■	■	■	■	■
Silencer	■	–	■	–	■	–	■
Blanking plug	■	■	■	■	■	■	–

Datasheet – Valve terminal VTUX

Operating and environmental conditions		Parallel communication	Serial communication
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4] → 46	
Pilot medium		Compressed air to ISO 8573-1:2010 [7:4:4] → 46	
Note on the operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)	
Operating pressure	[MPa]	−0.1 ... +0.7	
	[bar]	−1 ... +7	
Operating pressure for valve terminal with internal pilot air supply	[MPa]	0.15 ... 0.7	
	[bar]	1.5 ... 7	
	[psi]	21.75 ... 101.5	
Pilot pressure ¹⁾	[MPa]	0.15 ... 0.7	
	[bar]	1.5 ... 7	
Ambient temperature	[°C]	−5 ... +50	
Storage temperature	[°C]	−20 ... +70	
Nominal operating altitude	[m]	≤ 2000 above sea level	
Maximum setup altitude	[m]	3500	
Corrosion resistance class CRC ²⁾		1	
CE marking (see declaration of conformity)		To EU EMC Directive ³⁾	
		in accordance with EU RoHS Directive ³⁾	
UKCA marking (see declaration of conformity)		To UK EMC regulations ³⁾	
		To UK RoHS regulations ³⁾	
KC marking		KC EMC	
Certification		RCM	
		c UL us - Listed (OL)	
Certificate-issuing authority		UL E322346	
Vibration resistant		Transport application test with severity level 1 to FN 942017-4 and EN 60068-2-6	
Shock resistance		Shock test with severity level 1 to FN 942017-5 and EN 60068-2-27	
Continuous shock resistance to DIN/IEC 68, Part 2 - 82		Tested to severity level 1	
Degree of protection		IP20, IP40, IP65	IP20, IP40, IP65
	Fieldbus connection from the remote I/O system CPX-AP-A	IP40, IP65	IP20, IP40, IP65

1) See pilot pressure graphs on page 72.

2) More information www.festo.com/x/topic/crc

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

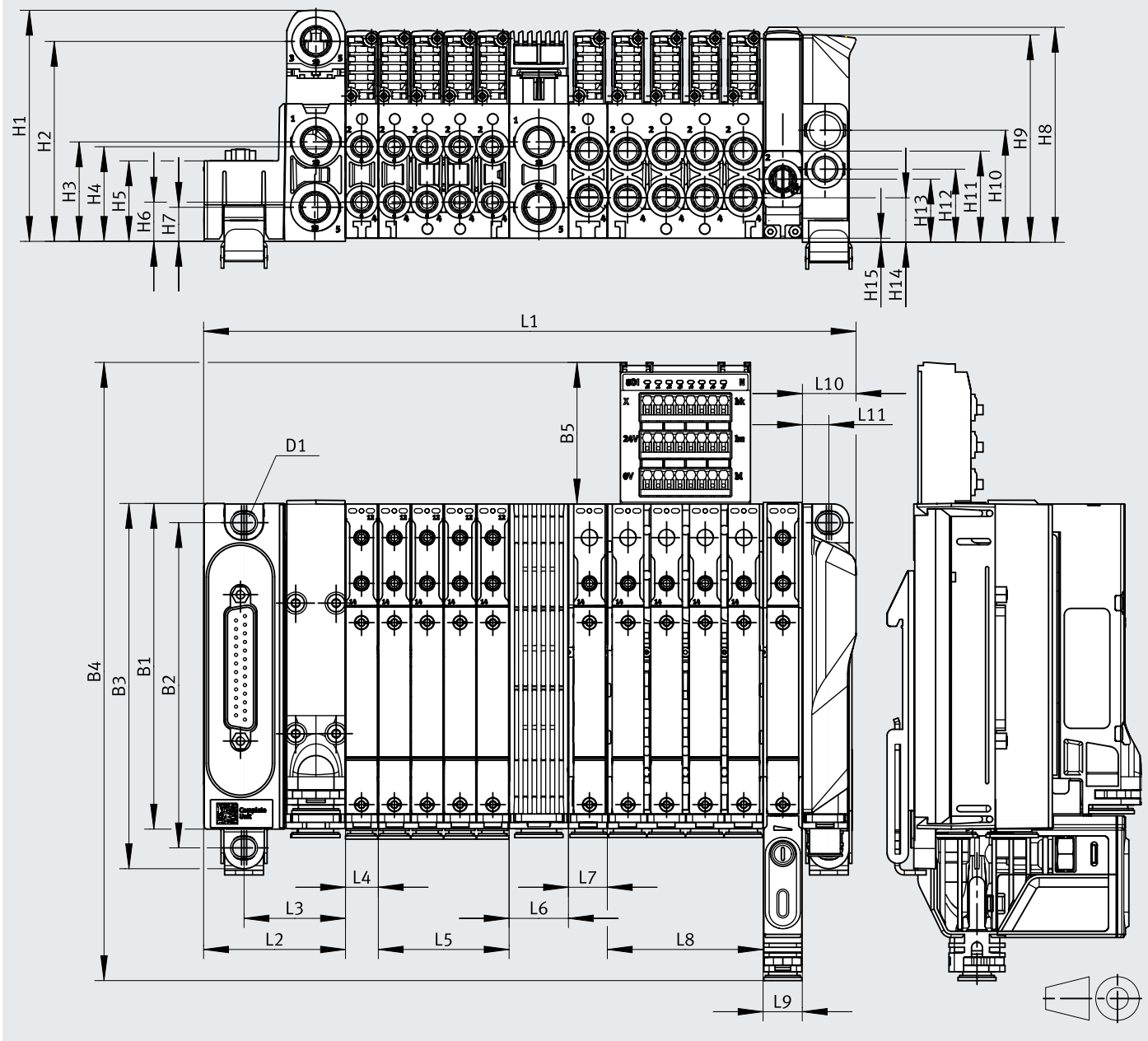
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Materials	
Seals	NBR
	HNBR
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-C1-L
Food-safe	NSF H1

Datasheet – Valve terminal VTUX

Dimensions – Valve terminal VTUX size 1 and 2

Download CAD data → www.festo.com



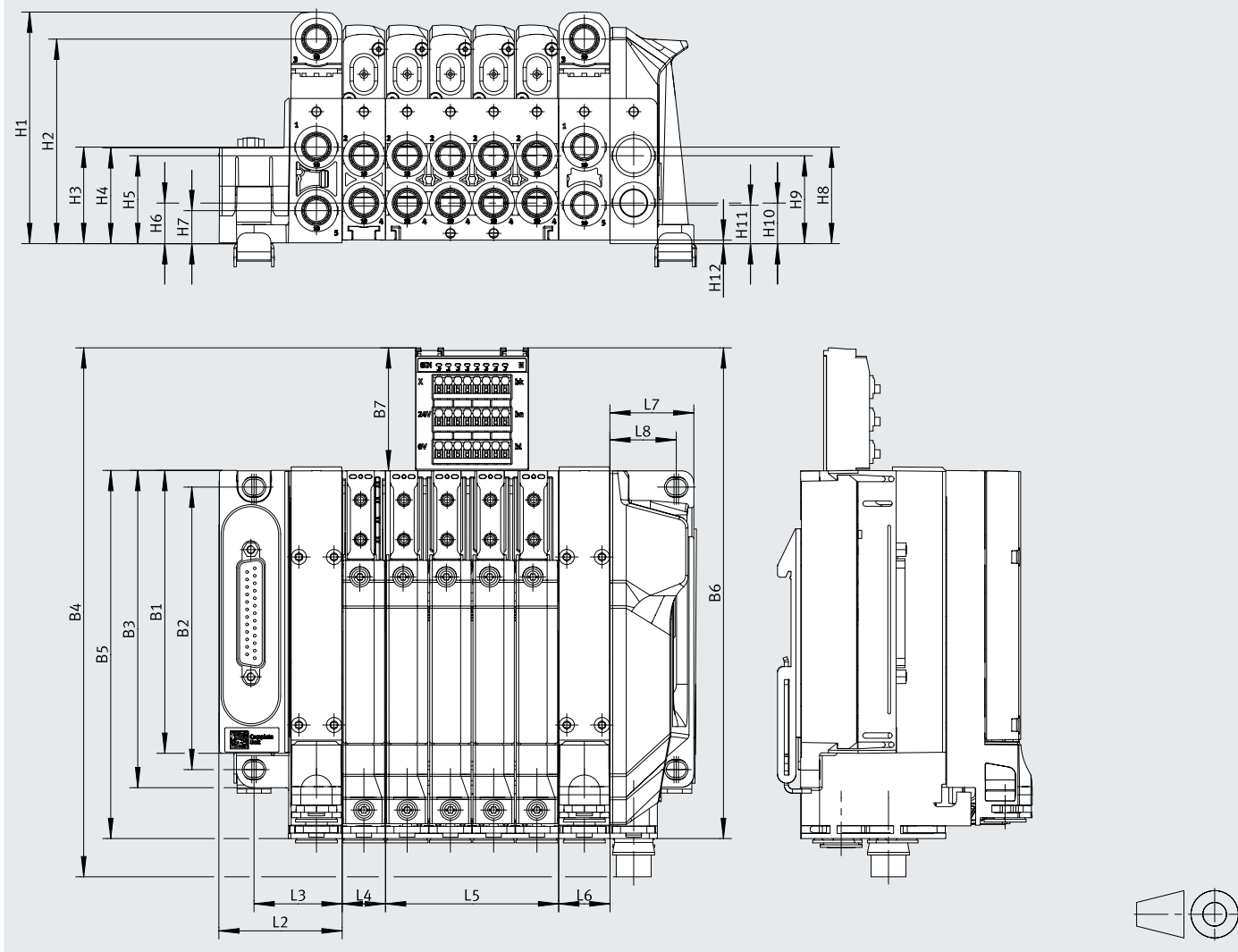
Type	B1	B2	B3	B4	B5	D1
VTUX	104.6	104.5	117.4	195.8	45.5	M5

Type	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14	H15
VTUX	73.1	63.1	32.25	30.7	26.25	12.9	11.25	69.1	66.65	36	29.3	23.5	20.3	14.3	1.3

Type	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11
VTUX	209.7	45.6	32.6	10.55	42.05	19.05	12.55	50.05	12.55	17.3	8.55

Datasheet – Valve terminal VTUX

Dimensions – Valve terminal VTUX size 3

Download CAD data → www.festo.com

Type	B1	B2	B3	B4	B5	B6	B7
VTUX	104.6	104.5	117.4	195.7	136.17	181.5	45.5

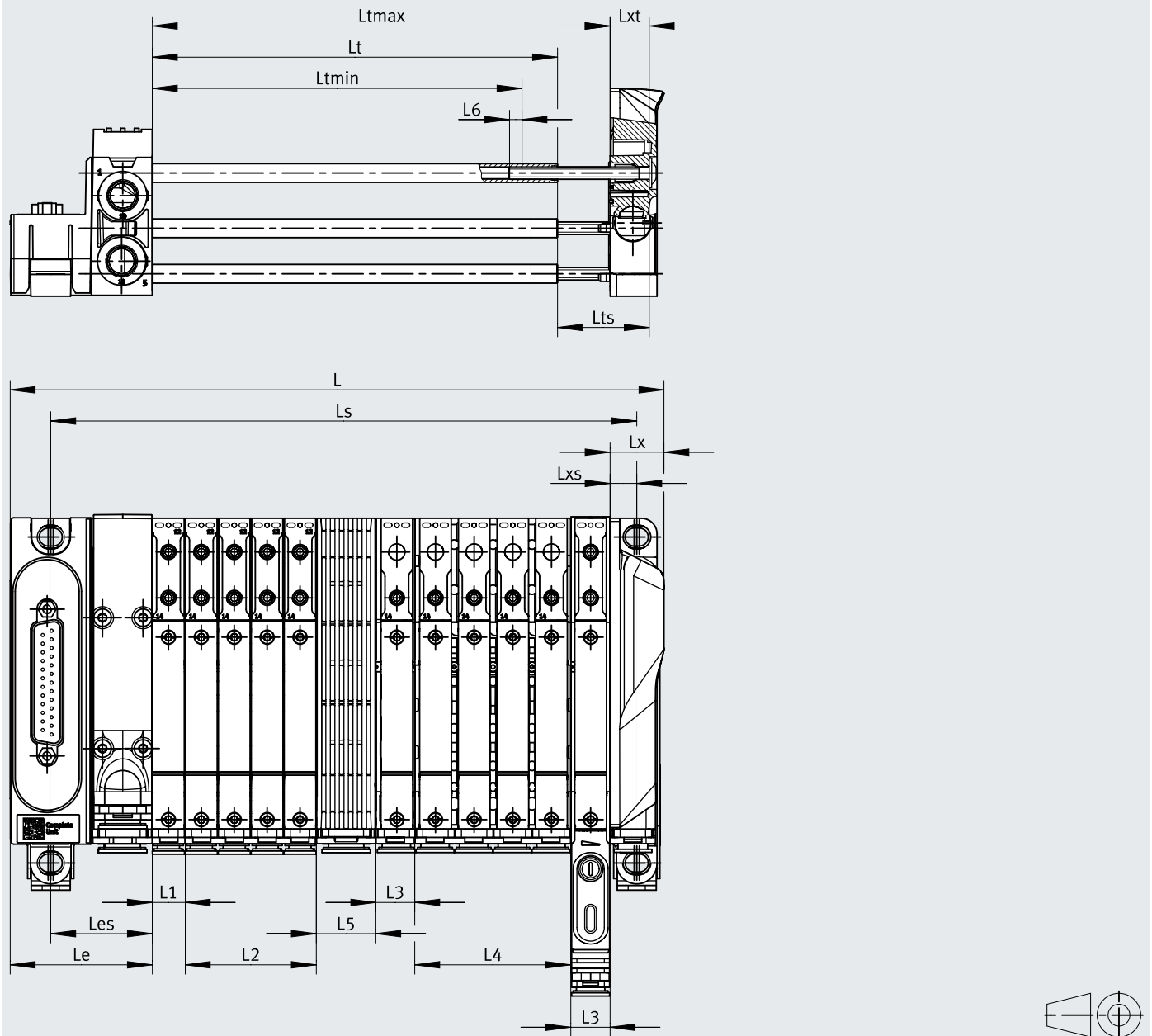
Type	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12
VTUX	85.65	75.65	35.7	35.45	32.5	15	12.2	35.7	32.5	15	14.2	1.3

Type	L2	L3	L4	L5	L6	L7	L8
VTUX	45.6	32.6	16.05	64.05	19.05	31.05	24.55

Datasheet – Valve terminal VTUX

Dimensions – Valve terminal VTUX, tie rod system, size 1 and 2

Download CAD data → www.festo.com



Type	L1	L2	L3	L4	L5	L6	Le	Les	Lx	Lxs	Lxt	Lts
VABX-A-P-EL-E12-MS1	10.55	42.05	12.55	50.05	19.05	4	45.6	32.6	17.3	8.55	12.55	–
VABX-A-P-EL-E12-MS1T							49.9					–
VABX-A-P-EL-E12-MS3							45.6					–
VABX-A-P-EL-E12-MF1												–
VABX-A-P-EL-E12-MC												–
VABX-A-P-EL-E12-MS6												–
VABX-A-P-EL-E12-MS8												–
VABX-A-P-EL-E12-APA							35.2	25.5				–
VABX-A-S-EL-E12-APA												–
VABX-A-P-EL-E12-API							45.6	32.6				–
VABX-A-S-EL-E12-API												–
VAME-XA-S-M4-30	–	–	–	–	–	–	–	–	–	–	–	30
VAME-XA-S-M4-45	–	–	–	–	–	–	–	–	–	–	–	45

Datasheet – Valve terminal VTUX

Type	L ¹⁾	L _S ¹⁾
VTUX	$L_e + m \times L_1 + n \times L_2 + o \times L_5 + p \times L_3 + q \times L_4 + L_x$	$L_{eS} + m \times L_1 + n \times L_2 + o \times L_5 + p \times L_3 + q \times L_4 + L_{xS}$

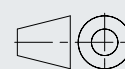
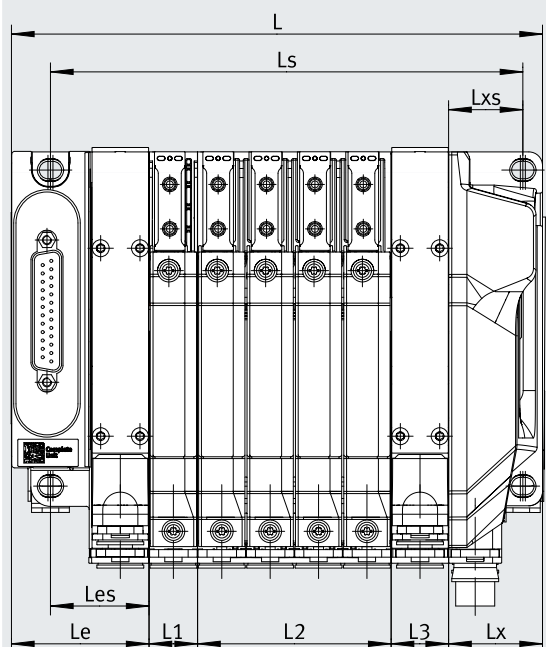
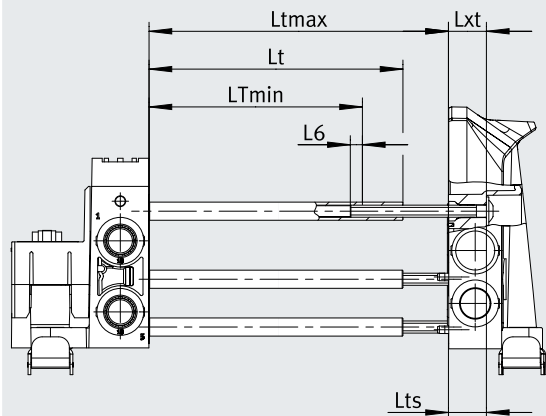
- 1) m = Number of manifold sub-bases for one valve, size 1
 n = Number of manifold sub-bases for four valves, size 1
 o = Number of power supply modules
 p = Number of manifold sub-bases for one valve, size 2/manifold sub-bases for vacuum
 q = Number of manifold sub-bases for four valves, size 2
 o, p, q = Number of manifold sub-bases/valve positions

Type	L _{tmax} ¹⁾	L _{tmin} ¹⁾	L _{tol} ¹⁾
VTUX	$m \times L_1 + n \times L_2 + o \times L_5 + p \times L_3 + q \times L_4$	$m \times L_1 + n \times L_2 + o \times L_5 + p \times L_3 + q \times L_4 + (L_{xt} - L_{ts}) + 4 + L_{tol}$	$(m + n + o + p + q + 1) \times 0.2$

- 1) m = Number of manifold sub-bases for one valve, size 1
 n = Number of manifold sub-bases for four valves, size 1
 o = Number of power supply modules
 p = Number of manifold sub-bases for one valve, size 2/manifold sub-bases for vacuum
 q = Number of manifold sub-bases for four valves, size 2
 o, p, q = Number of manifold sub-bases/valve positions

Datasheet – Valve terminal VTUX

Dimensions – Valve terminal VTUX, tie rod system, size 3

Download CAD data → www.festo.com


Type	L1	L2	L3	L6	Le	Les	Lx	Lxs	Lxt	Lts
VABX-A-P-EL-E12-MS1	16.05	62.05	19.05	4	45.6	32.6	17.27	8.55	12.55	–
VABX-A-P-EL-E12-MS1T					49.9					
VABX-A-P-EL-E12-MS3					45.6					
VABX-A-P-EL-E12-MF1										
VABX-A-P-EL-E12-MC										
VABX-A-P-EL-E12-MS6										
VABX-A-P-EL-E12-MS8										
VABX-A-P-EL-E12-APA					35.2	25.45				
VABX-A-S-EL-E12-APA										
VABX-A-P-EL-E12-API					45.6	32.6				
VABX-A-S-EL-E12-API										
VAME-XA-S-M4-30	–	–	–	–	–	–	–	–	–	30
VAME-XA-S-M4-45	–	–	–	–	–	–	–	–	–	45

Datasheet – Valve terminal VTUX

Type	L ¹⁾	Ls ¹⁾
VTUX	$Le + mx L1 + nx L2 + ox L3 + Lx$	$Les + m x L1 + n x L2 + o x L3 + Lxs$

- 1) m = Number of manifold sub-bases for one valve, size 3
 n = Number of manifold sub-bases for four valves, size 3
 o = Number of power supply modules

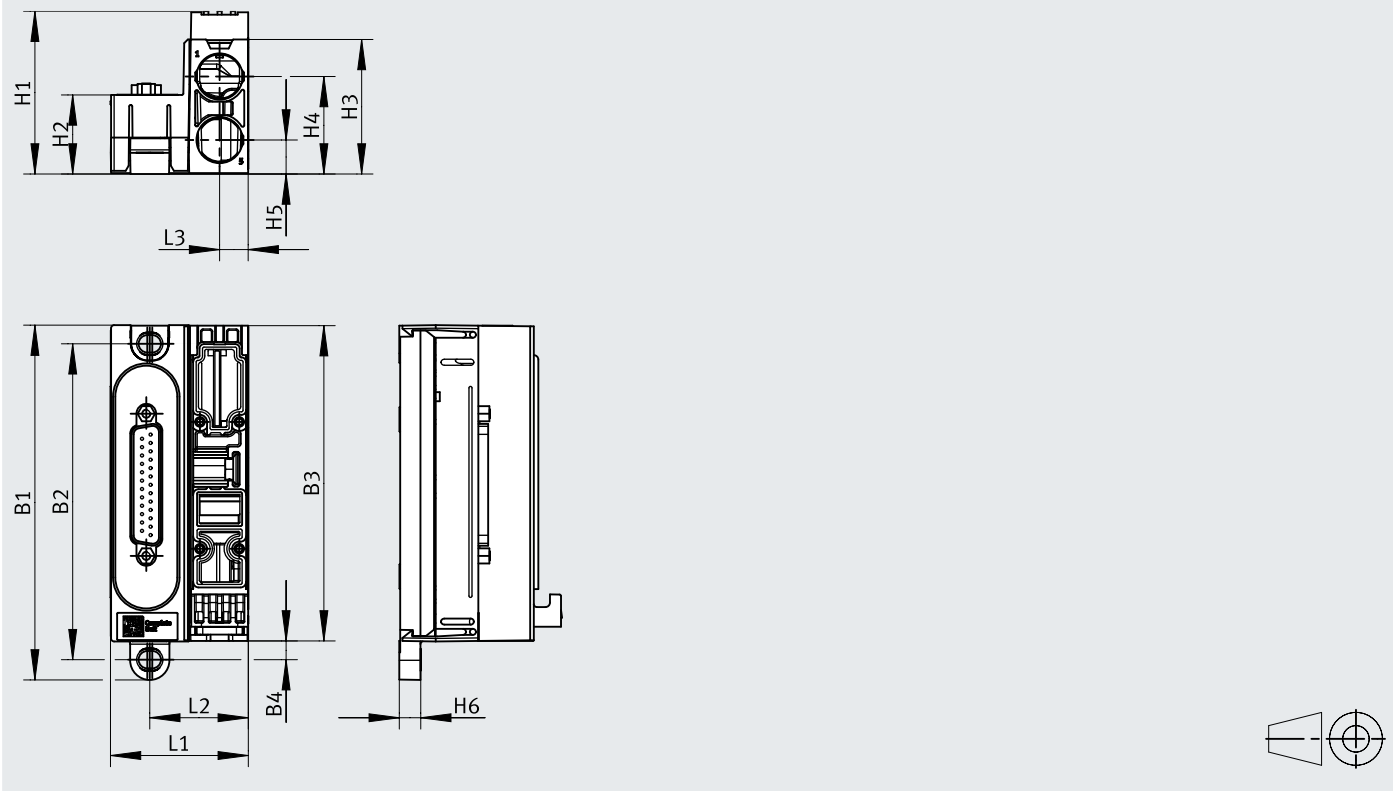
Type	Ltmax ¹⁾	Ltmin ¹⁾	Ltol ¹⁾
VTUX	$mx L1 + nx L2 + ox L3$	$m x L1 + n x L2 + o x L3 + (Lxt - Lts) + 4 + Ltol$	$(m + n + o + 1) x 0.2$

- 1) m = Number of manifold sub-bases for one valve, size 3
 n = Number of manifold sub-bases for four valves, size 3
 o = Number of power supply modules

Datasheet – Valve terminal VTUX

Dimensions – Left end plate, electrical interface for multi-pin plug connection, size 1 and 2

Download CAD data → www.festo.com

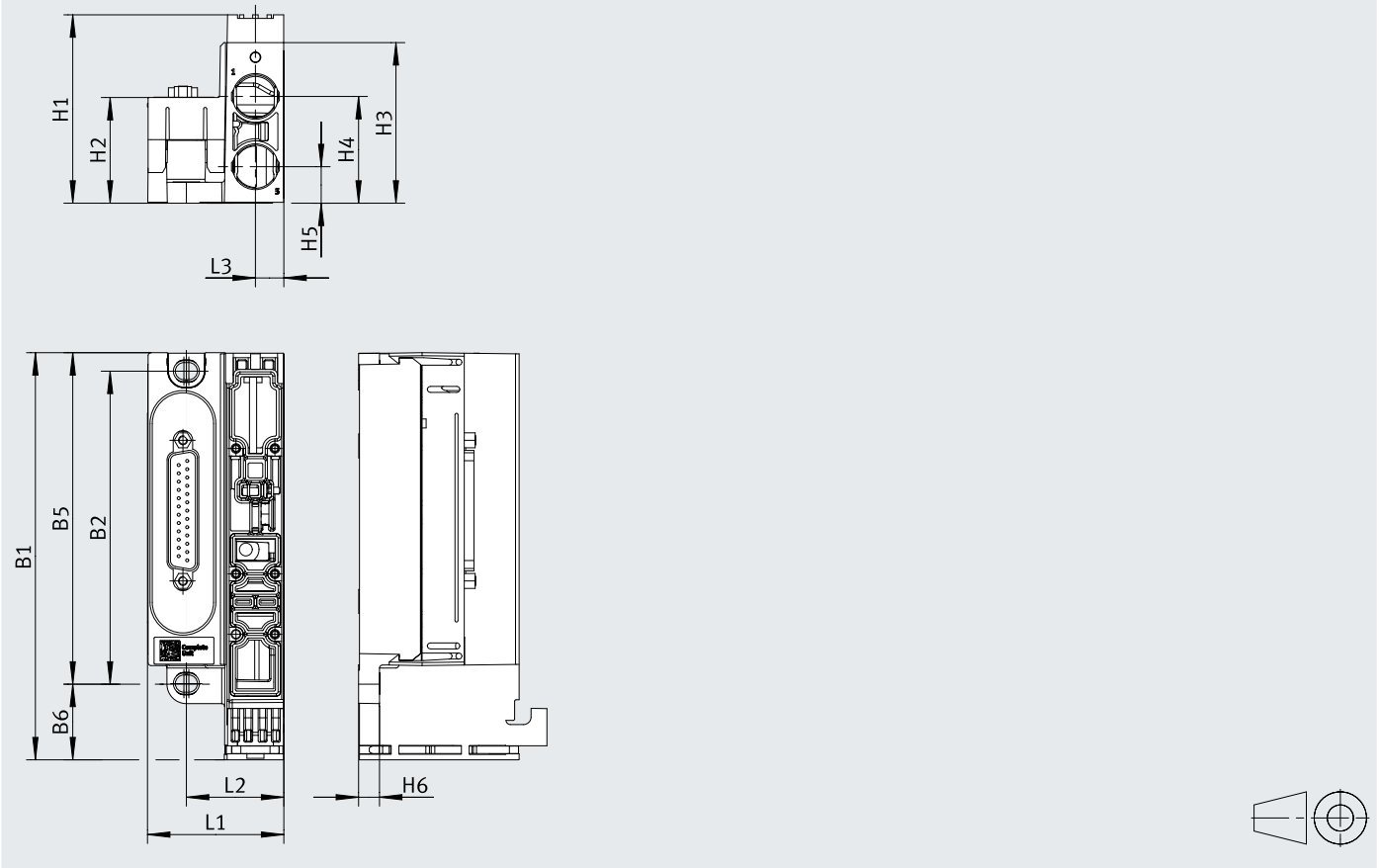


Type	B1	B2	B3	B4	H1	H2	H3	H4	H5	H6	L1	L2	L3
VABX-AP-EL-E12	117.4	104.5	104.3	6.2	53.9	26.15	44.5	32.25	11.25	7.1	45.6	32.6	9.5

Datasheet – Valve terminal VTUX

Dimensions – Left end plate, electrical interface for multi-pin plug connection, size 3

Download CAD data → www.festo.com

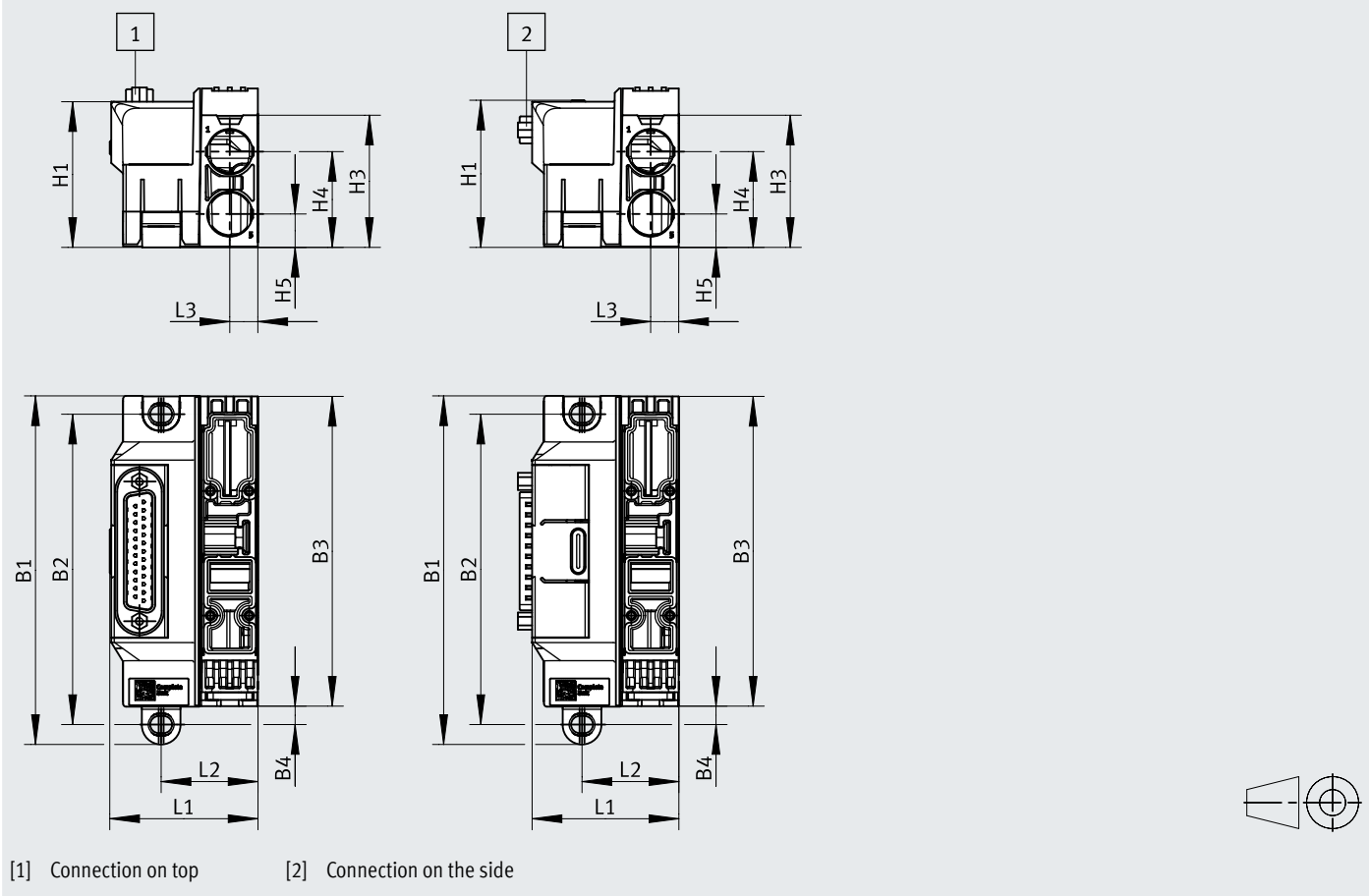


Type	B1	B2	B3	B4	H1	H2	H3	H4	H5	H6	L1	L2	L3
VABX-AP-EL-E34	136.17	104.7	110.87	25.3	63	35.35	53.7	35.7	12.2	7	45.6	32.6	9.5

Datasheet – Valve terminal VTUX

Dimensions – Left end plate, electrical interface for multi-pin plug connection, rotatable, size 1 and 2

Download CAD data → www.festo.com

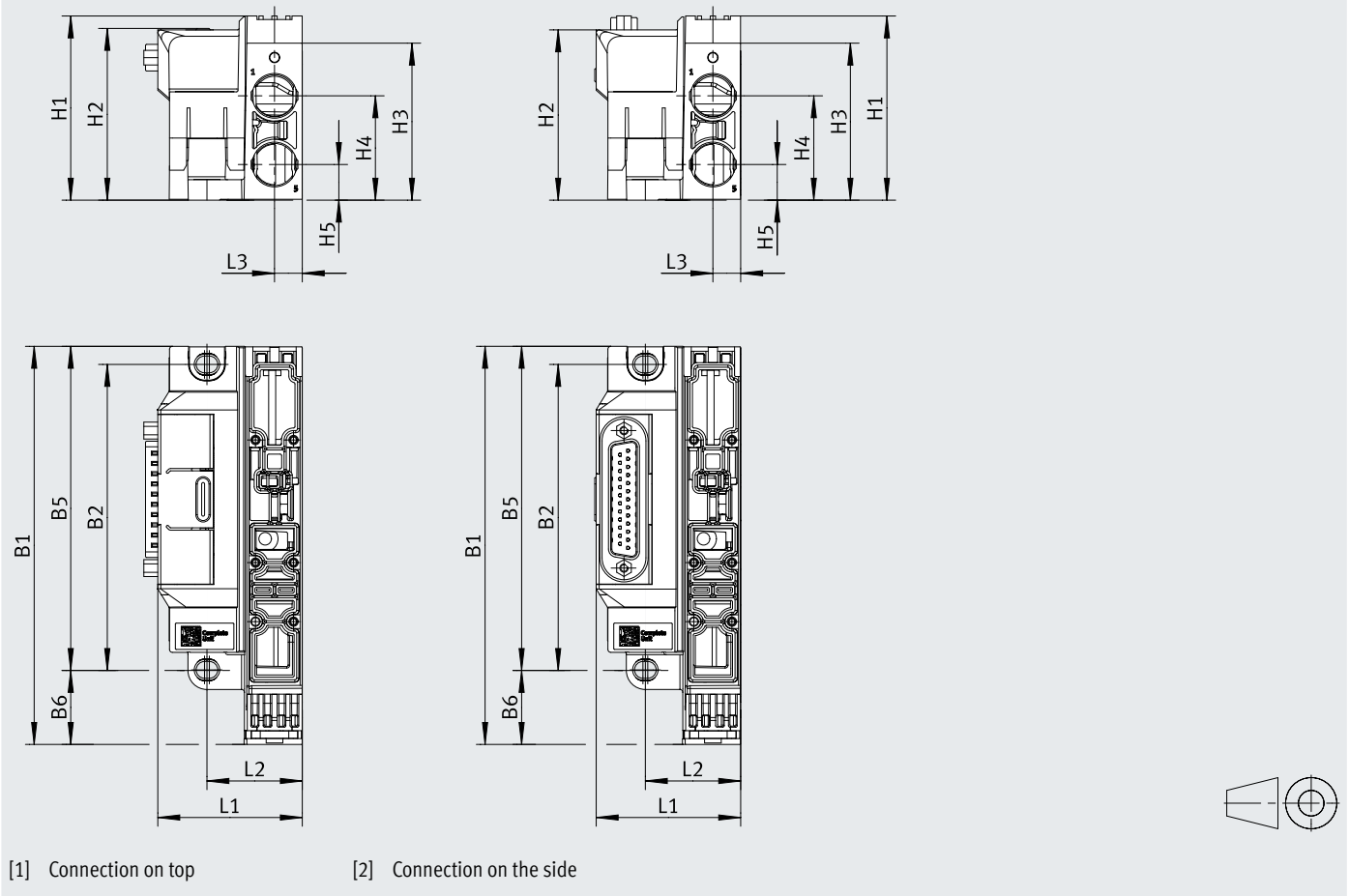


	B1	B2	B3	B4	H1	H3	H4	H5	L1	L2	L3
Connection on top	117.4	104.5	104.3	6.2	49.05	44.5	32.25	11.25	19.9	32.6	9.5
Connection at the side					49.55				49.4		

Datasheet – Valve terminal VTUX

Dimensions – Left end plate, electrical interface for multi-pin plug connection, rotatable, size 3

Download CAD data → www.festo.com

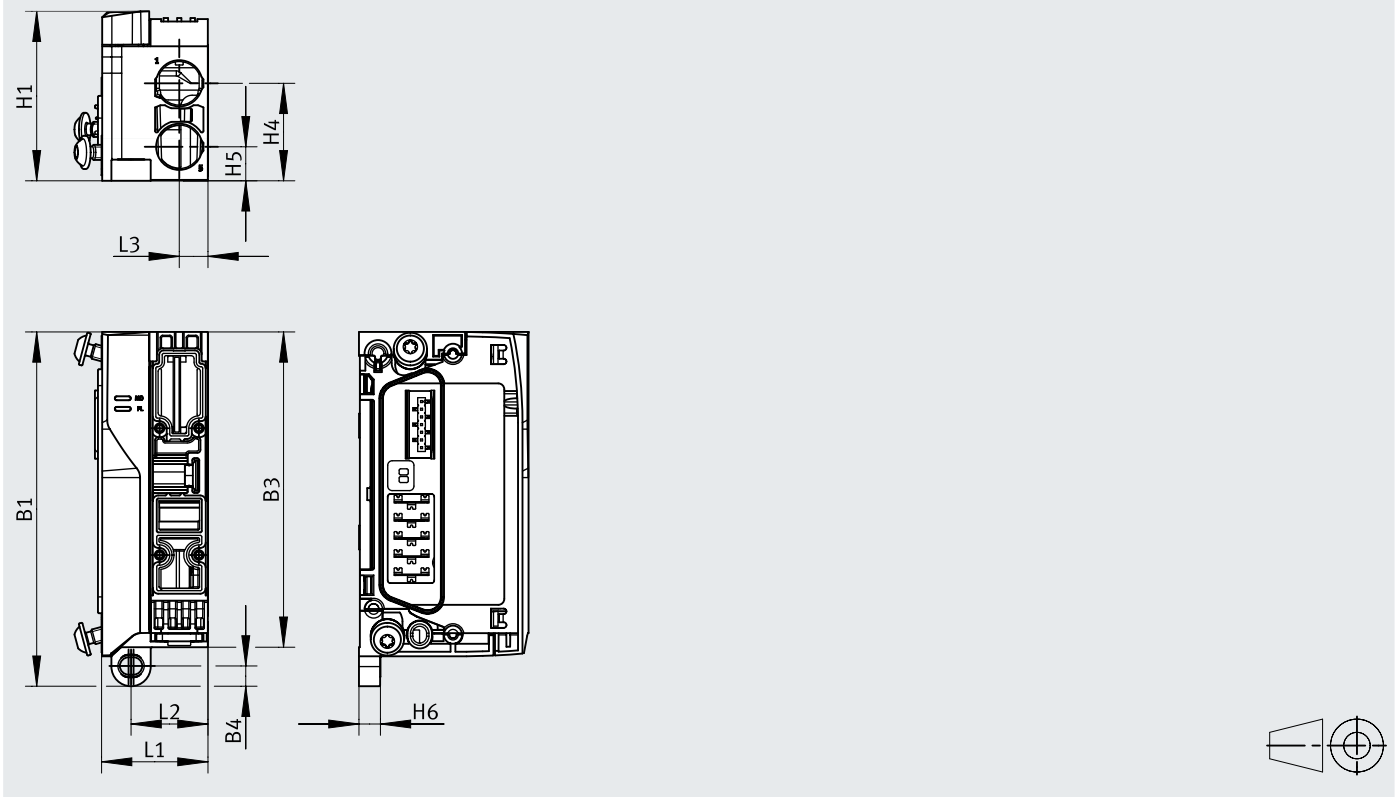


	B1	B2	B5	B6	H1	H2	H3	H4	H5	L1	L2	L3
Connection on top	136.17	104.7	110.87	25.3	63	58.25	53.7	35.7	12.2	49.4	32.6	9.5
Connection at the side						58.75						

Datasheet – Valve terminal VTUX

Dimensions – Left end plate, pneumatic interface for Remote I/O system CPX-AP-A, with silencer, size 1 and 2

Download CAD data → www.festo.com

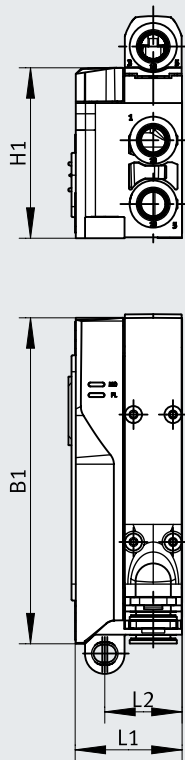


Type	B1	B3	B4	H1	H4	H5	H6	L1	L2	L3
VABX-A-P-EL-E12-APA	117.2	104.3	6.7	56.1	32.25	11.25	7.1	35.2	25.45	9.5
VABX-A-S-EL-E12-APA										

Datasheet – Valve terminal VTUX

Dimensions – Left end plate, pneumatic interface for
Remote I/O system CPX-AP-A, with ducted exhaust air, size 1 and 2

Download CAD data → www.festo.com

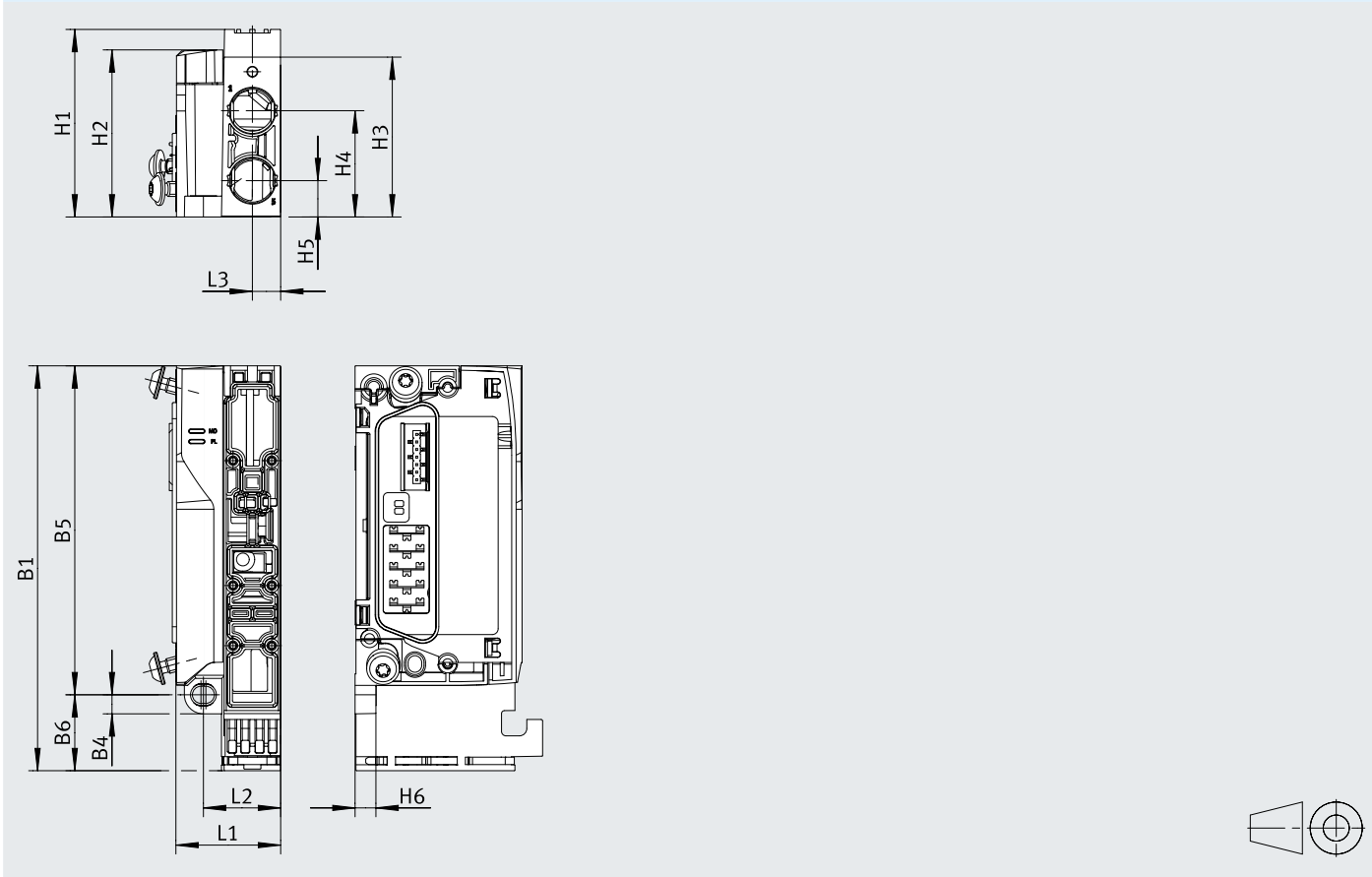


Type	B1	H1	L1	L2
VABX-A-P-EL-E12-APA	107.3	56.1	35.2	25.5
VABX-A-S-EL-E12-APA				

Datasheet – Valve terminal VTUX

Dimensions – Left end plate, pneumatic interface for
Remote I/O system CPX-AP-A, with silencer, size 3

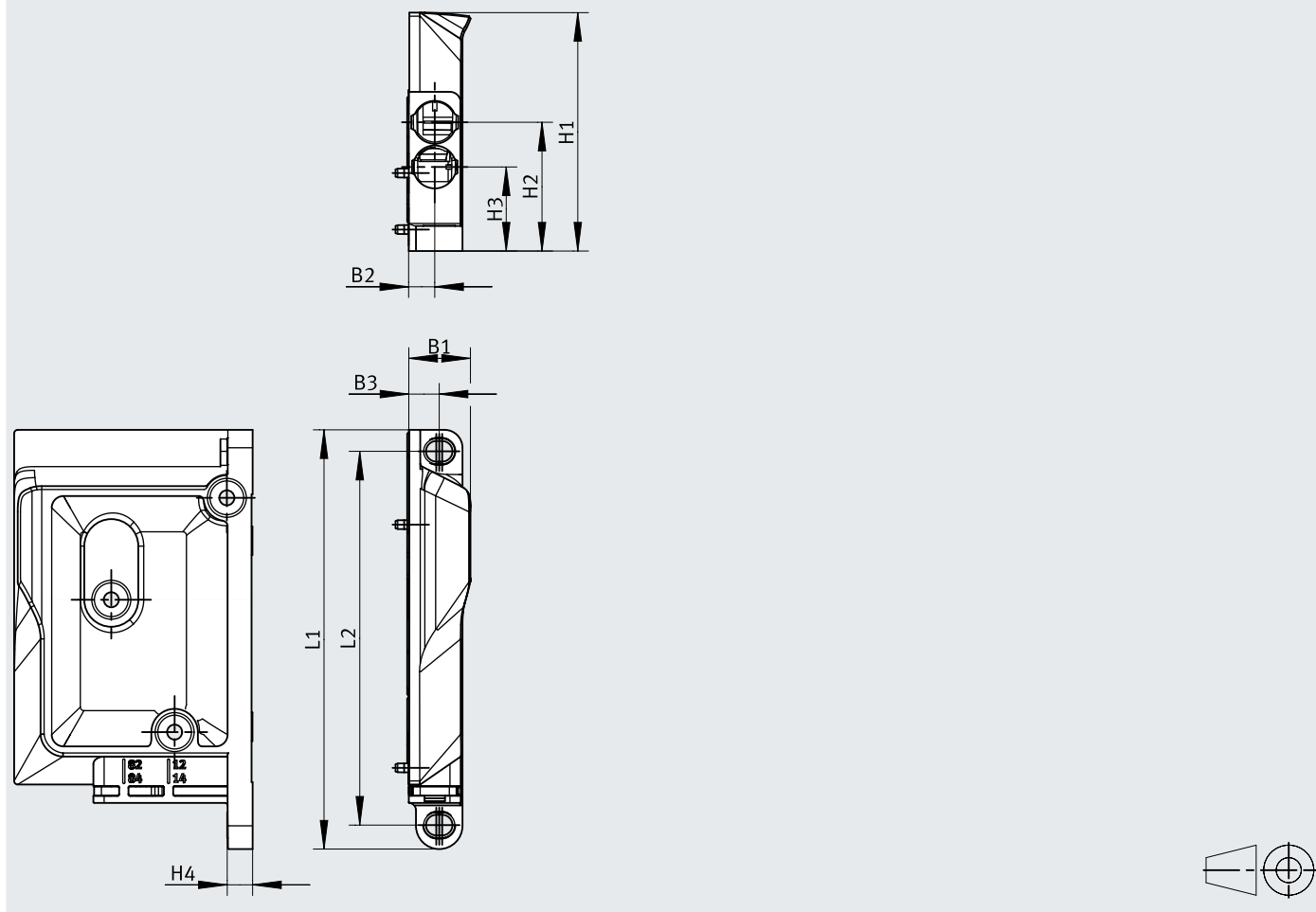
Download CAD data → www.festo.com



Type	B1	B4	B5	B6	H1	H2	H3	H4	H5	H6	L1	L2	L3
VABX-A-P-EL-E34-APA	136.17	6.4	110.5	25.3	63	56.1	53.7	35.7	12.2	7	35.2	25.95	9.5
VABX-A-S-EL-E34-APA													

Datasheet

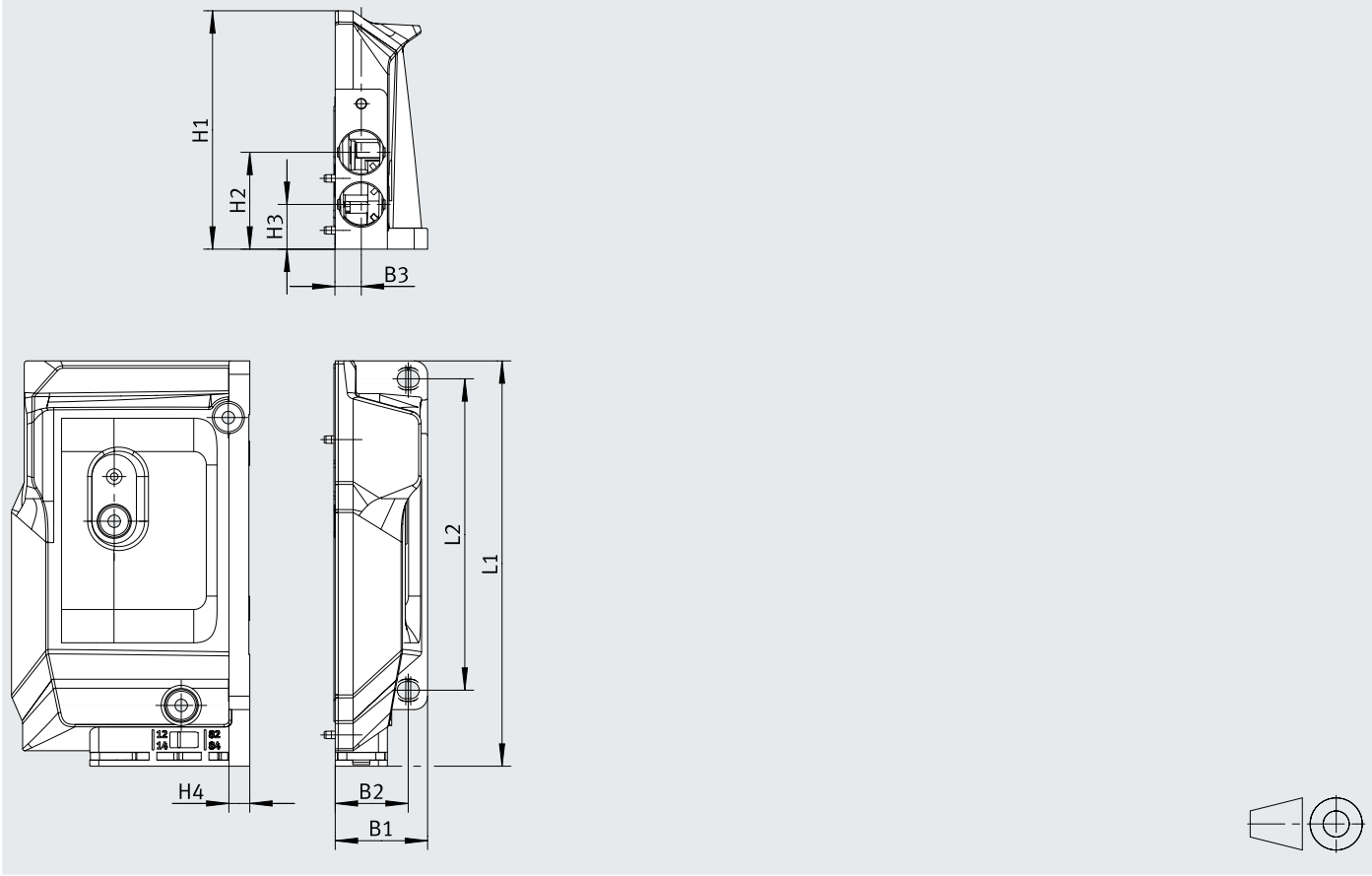
Dimensions – End plate right, size 1 and 2

Download CAD data → www.festo.com

Type	B1	B2	B3	H1	H2	H3	H4	L1	L2
VABX-A-ER-E12	17.3	7.3	8.55	66.65	36	23.5	7.1	117.2	104.5

Datasheet

Dimensions – Right end plate, size 3 Download CAD data → www.festo.com



Type	B1	B2	B3	H1	H2	H3	H4	L1	L2
VABX-A-ER-E34	31	24.5	8.9	79.98	32.5	15	7	136	104.5

Datasheet – Valve terminal VTUX

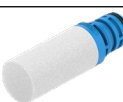
Ordering data						
	Code	Description		Part no.	Type	
Right end plate						
	–	With mounting holes for wall mounting		Size 1 and 2	8191781	VABX-A-ER-E12-JHTH-XR
				Size 3	8236669	VABX-A-ER-E34-JHTH-XR
Left end plate, compatible with valve terminal VTUX-A-P						
	Electrical connection: MS1	Electrical interface for multi-pin plug connection, IP40	Sub-D, 25-pin, Maximum 24 valve coils	Size 1 and 2	8188447	VABX-A-P-EL-E12-MS1-SHUH-XL
	Electrical connection: MS1T			Size 3	8214210	VABX-A-P-EL-E34-MS1-SHUH-XL
				Size 1 and 2	8206421	VABX-A-P-EL-E12-MS1T-SHUH-XL
				Size 3	8214224	VABX-A-P-EL-E34-MS1T-SHUH-XL
	Electrical connection: MS3		Sub-D, 44-pin, maximum 32 valve coils	Size 1 and 2	8188449	VABX-A-P-EL-E12-MS3-SHUH-XL
	Size 3			8214212	VABX-A-P-EL-E34-MS3-SHUH-XL	
	Electrical connection: MC	Terminal strip, 34-pin, maximum 32 valve coils	Size 1 and 2	8188452	VABX-A-P-EL-E12-MC-SHUH-XL	
	Size 3		8214213	VABX-A-P-EL-E34-MC-SHUH-XL		
	Electrical connection: MF1	Electrical interface for multi-pin plug connection, IP20	Ribbon cable, 26-pin, maximum 24 valve coils	Size 1 and 2	8188451	VABX-A-P-EL-E12-MF1-SHUH-XL
	Size 3			8214214	VABX-A-P-EL-E34-MF1-SHUH-XL	
	Electrical connection: MS6	Electrical interface for multi-pin plug connection, IP65	Sub-D, 25-pin, Maximum 24 valve coils	Size 1 and 2	8188448	VABX-A-P-EL-E12-MS6-SHUH-XL
	Size 3			8214209	VABX-A-P-EL-E34-MS6-SHUH-XL	
Electrical connection: MS8	Sub-D, 44-pin, maximum 32 valve coils		Size 1 and 2	8188450	VABX-A-P-EL-E12-MS8-SHUH-XL	
			Size 3	8214211	VABX-A-P-EL-E34-MS8-SHUH-XL	
	Electrical connection: APA	Pneumatic interface for remote I/O system CPX-AP-A, IP65	maximum 32 valve coils	Size 1 and 2	8189594	VABX-A-P-EL-E12-APA-SHUH-XL
				Size 3	8216163	VABX-A-P-EL-E34-APA-SHUH-XL
	Electrical connection: API	Pneumatic interface for remote I/O system CPX-AP-I, IP65	maximum 32 valve coils	Size 1 and 2	8189592	VABX-A-P-EL-E12-API-SHUH-XL
				Size 3	8214217	VABX-A-P-EL-E34-API-SHUH-XL
	Electrical connection: IOL	Node with IO-Link®, IP40	Push-in, maximum 32 valve coils	Size 1 and 2	8189591	VABX-A-P-EL-E12-IOL-SHUH-XL
				Size 3	8214222	VABX-A-P-EL-E34-IOL-SHUH-XL
	Electrical connection: IOS	Node with IO-Link®, IP65	M12, maximum 32 valve coils	Size 1 and 2	8189590	VABX-A-P-EL-E12-IOS-SHUH-XL
				Size 3	8214221	VABX-A-P-EL-E34-IOS-SHUH-XL

Datasheet – Valve terminal VTUX

Ordering data						
	Code	Description			Part no.	Type
Left end plate, compatible with valve terminal VTUX-A-S						
	Electrical connection: APA	Pneumatic interface for remote I/O system CPX-AP-A, IP65	Maximum 120 valve coils	Size 1 and 2	8189595	VABX-A-S-EL-E12-APA-SHUH-XL
			Maximum 127 valve coils	Size 3	8216164	VABX-A-S-EL-E34-APA-SHUH-XL
	Electrical connection: API	Pneumatic interface for remote I/O system CPX-AP-I, IP65	Maximum 150 valve coils	Size 1 and 2	8189593	VABX-A-S-EL-E12-API-SHUH-XL
			Maximum 196 valve coils	Size 3	8214218	VABX-A-S-EL-E34-API-SHUH-XL

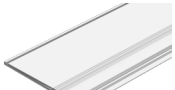
Ordering data						
	Code	Description	Pack size	Part no.	Type	
Cartridge						
	–	Cartridge 10 mm, Connection for tubing O.D.	3 mm	10	8250481	NPQX-D-PC10-Q3-P10
			4 mm	10	8174164	NPQX-D-PC10-Q4-P10
			6 mm	10	8174165	NPQX-D-PC10-Q6-P10
			1/8"	10	8184511	NPQX-D-PC10-T18-P10
			5/32"	10	8184509	NPQX-D-PC10-T532-P10
			1/4"	10	8184510	NPQX-D-PC10-T14-P10
		Cartridge 12 mm, Connection for tubing O.D.	4 mm	10	8174166	NPQX-D-PC12-Q4-P10
			6 mm	10	8174167	NPQX-D-PC12-Q6-P10
			8 mm	10	8174168	NPQX-D-PC12-Q8-P10
			5/32"	10	8184512	NPQX-D-PC12-T532-P10
			1/4"	10	8184514	NPQX-D-PC12-T14-P10
			5/16"	10	8184513	NPQX-D-PC12-T516-P10
		Cartridge 15 mm, Connection for tubing O.D.	6 mm	10	8246825	NPQX-D-PC15-Q6-P10
			8 mm	10	8174169	NPQX-D-PC15-Q8-P10
			10 mm	10	8174170	NPQX-D-PC15-Q10-P10
			12 mm	2	8225231	NPQX-D-PC15-Q12-P2
			14 mm	2	8225233	NPQX-D-PC15-Q14-P2
			5/16"	10	8184515	NPQX-D-PC15-T516-P10
			3/8"	10	8246826	NPQX-D-PC15-T38-P10
			1/2"	2	8225234	NPQX-D-PC15-T12-P2

Blanking plug						
	–	Cartridge		10	8191749	NPQX-P-PC10
				10	8191750	NPQX-P-PC12
				10	8191751	NPQX-P-PC15

Silencer						
	–	Cartridge 12 mm	Only for connection 82/84	1	8191740	AMTX-P-PC12
		Cartridge 15 mm		2	8236739	AMTX-P-PC15
			–	2	8242223	AMTX-LP-PC15

Release tool						
	–	Release tool for easier removal of cartridges NPQX		1	8214270	NPAT-QX-T-V1

Datasheet – Valve terminal VTUX

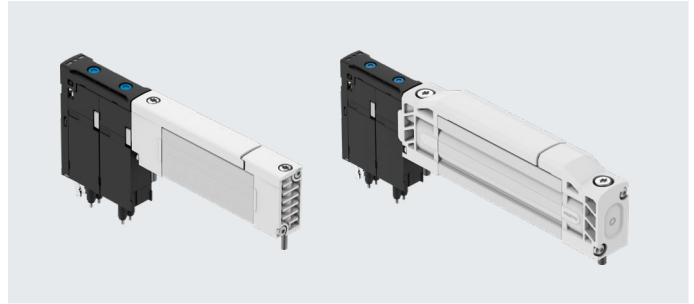
Ordering data		Description			Part no.	Type
Connecting cable for multi-pin plug connection						
	–	Sub-D socket, 25-pin	Degree of protection IP40	Cable outlet straight	575417	NEBV-S1G25-K-2.5-N-LE25-S6
					575418	NEBV-S1G25-K-5-N-LE25-S6
					575419	NEBV-S1G25-K-10-N-LE25-S6
			Degree of protection IP 65, IP67	Cable outlet straight	538225	NEBV-S1G25-K-2.5-N-LE25
					538226	NEBV-S1G25-K-5-N-LE25
					538227	NEBV-S1G25-K-10-N-LE25
		Sub-D socket, 44-pin	Degree of protection IP 65, IP67	Cable outlet angled	575423	NEBV-S1WA25-K-2.5-N-LE25-S9
					575424	NEBV-S1WA25-K-5-N-LE25-S9
					575425	NEBV-S1WA25-K-10-N-LE25-S9
			Modular system for a choice of connecting cables	575420	NEBV-S1WA44-K-2.5-N-LE44-S9	
				575421	NEBV-S1WA44-K-5-N-LE44-S9	
				575422	NEBV-S1WA44-K-10-N-LE44-S9	
				8003577	NEBV-... → Internet: nebv	
Label holder for size 1						
	–	Set consisting of retainer and label holder, width 26 mm	Suitable for 4 valve positions	Length 42 mm	8207652	ASCF-RP1-XA-42
			Suitable for 8 valve positions	Length 84 mm	8207655	ASCF-RP1-XA-84
	–	Set consisting of retainer and label holder, width 53 mm	Suitable for 4 valve positions	Length 42 mm	8207653	ASCF-RP3-XA-42
			Suitable for 8 valve positions	Length 84 mm	8207656	ASCF-RP3-XA-84
Label holder for size 2						
	–	Set consisting of retainer and label holder, width 26 mm	Suitable for 4 valve positions	Length 50 mm	8207658	ASCF-RP1-XA-50
			Suitable for 8 valve positions	Length 100 mm	8207661	ASCF-RP1-XA-100
	–	Set consisting of retainer and label holder, width 53 mm	Suitable for 4 valve positions	Length 50 mm	8207659	ASCF-RP3-XA-50
			Suitable for 8 valve positions	Length 100 mm	8207662	ASCF-RP3-XA-100
Label holder for size 1 and 2						
	–	Holder for inscription label			8207664	ASCF-R-XA
	–	Label holder for inscription label for self-assembly	Width 26 mm	Length 1000 mm	8207665	ASCF-P1-XA-1000
	–	Label holder for inscription labels or paper labels for self-assembly	Width 53 mm	Length 1000 mm	8207666	ASCF-P3-XA-1000
Inscription labels for inscription label holder						
	–	Inscription label for clipping into label holder	10x6 mm	–	18576	IBS-6X10
			6x12.5 mm	10 frames with 24 pieces each	8087174	ASLR-L-X4-612-P240

Datasheet – Valves

-  - Flow rate
up to 1650 l/min

-  - Valve size
10 mm
15 mm

-  - Voltage
24 V DC

**General technical data**

Valve size	10 mm	15 mm
Design	Piston spool with sealing ring	
Actuation type	Electrical	
Type of control	Piloted	
Electrical connection	Plug-in	
Pilot air supply	External	
Sealing principle	Soft	
Exhaust air function	Can be throttled	
Manual override	Non-detenting	
Signal status indication	Yes	
Mounting position	Any	
Type of mounting	On sub-base	
Max. tightening torque for valve mounting [Nm]	0.345	1.25
Width [mm]	10.35	15.3

Pneumatic ports

Pneumatic connection	1	Connecting plate
	3	Connecting plate
	5	Connecting plate
	2	Connecting plate
	4	Connecting plate
Pilot air port	12/14	Connecting plate
Pilot exhaust air port	82/84	Connecting plate

Electrical data

Electrical connection	Plug-in	
Characteristic coil values	24 V DC: 0.35 W	
Permissible voltage fluctuations [%]	±10	
Duty cycle [%]	100	

Datasheet – Valves

Technical data – 3/2-way valves							
Code for position function 1-64		NS		K		KC	
Valve size		10 mm	15 mm	10 mm	15 mm	10 mm	15 mm
Valve function		2x3/2-way, single solenoid, open		2x3/2-way, single solenoid, closed			
Reset method		Mechanical spring		Mechanical spring		Pneumatic spring	
Overlap		Negative overlap					
Flow direction		Reversible		Reversible		Not reversible	
Suitable for vacuum		No		No		No	
Nominal width	[mm]	3.6	6	3.8	5.9	3.8	5.9
Switching time on	[ms]	14	21	14	21	12	17
Switching time off	[ms]	17	28	17	28	22	33
Switching time changeover	[ms]	–	–	–	–	–	–
Maximum switching frequency	[Hz]	3	2	3	2	5	3
Nominal flow rate standardised according to ISO 8778	[l/min]	555	1390	600	1330	600	1330
Nominal flow rate standardised to ISO 8778; exhaust 2 → 3	[l/min]	545	1430	650	1400	650	1400
b value		0.41	0.32	0.34	0.34	0.34	0.34
C value	[l/sbar]	2.02	5.39	2.3	5.1	2.3	5.1
Operating pressure	[MPa]	0.0 ... 0.7		0.0 ... 0.7		0.15 ... 0.7	
	[bar]	0 ... 7		0 ... 7		1.5 ... 7	
Pilot pressure1)	[MPa]	0.2 ... 0.7		0.2 ... 0.7		0.15 ... 0.7	
	[bar]	2 ... 7		2 ... 7		1.5 ... 7	
Product weight	[g]	52.6	93.9	52.6	93.9	52	92.4

1) See pilot pressure graphs on page 72.

Technical data – 3/2-way valves				
Code for position function 1-64		–		NG
Valve size		10 mm	10 mm	15 mm
Valve function		2x3/2-way, single solenoid, closed		2x3/2-way, single solenoid, open/closed
Reset method		Pneumatic spring		Mechanical spring
Overlap		Negative overlap		
Flow direction		Reversible		Reversible
Suitable for vacuum		No		No
Nominal width [mm]		3.8	3.6	5.9
Switching time on [ms]		14	14	21
Switching time off [ms]		17	17	28
Switching time changeover [ms]		–	–	–
Maximum switching frequency [Hz]		3	3	2
Nominal flow rate standardised according to ISO 8778 [l/min]		600	555	1330
Nominal flow rate standardised to ISO 8778; exhaust 2 → 3 [l/min]		650	545	1225
b value		0.34	0.34	0.34
C value [l/sbar]		2.3	2.02	5.10
Operating pressure		[MPa]	0.0 ... 0.7	
		[bar]	0 ... 7	
Pilot pressure1)		[MPa]	0.2 ... 0.7	
		[bar]	2 ... 7	
Product weight [g]		52.6	52.6	93.9

1) See pilot pressure graphs on page 72.

Datasheet – Valves

Technical data – 5/2-way valves							
Code for position function 1-64		A		M		J	
Valve size		10 mm	15 mm	10 mm	15 mm	10 mm	15 mm
Valve function		5/2-way, single solenoid				5/2-way, double solenoid	
Reset method		Mechanical spring		Pneumatic spring		–	
Overlap		Negative overlap					
Flow direction		Reversible		Not reversible		Reversible with restrictions	
Suitable for vacuum		Yes		No		Yes	
Nominal width	[mm]	4.2	6.4	4.2	6.4	4.2	6.4
Switching time on	[ms]	8	11	10	14	–	–
Switching time off	[ms]	32	67	18	33	–	–
Switching time changeover	[ms]	–	–	–	–	9	9
Maximum switching frequency	[Hz]	3	2	5	3	5	3
Nominal flow rate standardised according to ISO 8778	[l/min]	690	1650	690	1650	690	1650
Nominal flow rate standardised to ISO 8778; exhaust 2 → 3	[l/min]	700	1650	700	1650	700	1650
b value		0.36	0.33	0.36	0.33	0.36	0.33
C value	[l/sbar]	2.76	6.35	2.76	6.35	2.76	6.35
Operating pressure	[MPa]	–0.09 ... +0.7		0.2 ... 0.7		–0.09 ... +0.7	
	[bar]	–0.9 ... +7		2 ... 7		–0.9 ... +7	
Pilot pressure1)	[MPa]	0.25 ... 0.7		0.2 ... 0.7		0.15 ... 0.7	
	[bar]	2.5 ... 7		2 ... 7		1.5 ... 7	
Product weight	[g]	43.4	82.6	43.3	81.9	51.9	91

1) See pilot pressure graphs on page 72.

Technical data – 5/3-way valves and 5/4-way valves				
Code for position function 1-64		G		ND
Valve size		10 mm	15 mm	10 mm
Valve function		5/3-way, closed		5/4-way, exhausted
Reset method		Mechanical spring		Mechanical spring
Overlap		Positive overlap		Positive overlap
Flow direction		Reversible		Reversible
Suitable for vacuum		Yes		No
Nominal width	[mm]	3.5	5.3	3.4
Switching time on	[ms]	10	14	17
Switching time off	[ms]	48	95	17
Switching time changeover	[ms]	–	29	–
Switching time changeover when exhausting via duct 2 or 4	[ms]	–	–	7
Switching time changeover when pressurising in duct 2 or 4	[ms]	–	–	18
Maximum switching frequency	[Hz]	3	2	3
Nominal flow rate standardised according to ISO 8778	[l/min]	510	1200	500
Nominal flow rate standardised to ISO 8778; exhaust 2 → 3	[l/min]	465	1130	450
b value		0.4	0.42	0.39
C value	[l/sbar]	1.88	4.36	1.86
Operating pressure	[MPa]	–0.09 ... +0.7		0.0 ... 0.7
	[bar]	–0.9 ... +7		0 ... 7
Pilot pressure1)	[MPa]	0.25 ... 0.7		0.2 ... 0.7
	[bar]	2.5 ... 7		2 ... 7
Product weight	[g]	53.2	96.6	52.2

1) See pilot pressure graphs on page 72.

Datasheet – Valves

Technical data – Valves for manifold sub-bases for vacuum				
Code for position function 1-64		KV	NL	NQ
Valve size		10 mm	10 mm	10 mm
Valve function		2x3/2-way, single solenoid, closed	5/3 with holding function, for vacuum switching unit	5/4-way valve with holding function, for vacuum generator
Reset method		Pneumatic spring	Mechanical spring	Mechanical spring
Overlap		Negative overlap	–	–
Flow direction		Not reversible	Not reversible	Not reversible
Suitable for vacuum		No	Yes	Yes
Nominal width	[mm]	3.8	3	2.7
Switching time on	[ms]	12	14	12
Switching time off	[ms]	22	19	40
Switching time changeover	[ms]	–	14	12
Maximum switching frequency	[Hz]	5	3	3
Nominal flow rate standardised according to ISO 8778	[l/min]	600	400	340
Nominal flow rate standardised to ISO 8778; exhaust 2 → 3	[l/min]	650	–	–
b value		0.34	0.48	0.44
C value	[l/sbar]	2.3	1.39	1.2
Operating pressure	[MPa]	0.15 ... 0.7	0.2 ... 0.7	–0.09 ... +0.7
	[bar]	1.5 ... 7	2 ... 7	–0.9 ... +7
Pilot pressure ¹⁾	[MPa]	0.15 ... 0.7	0.2 ... 0.7	0.25 ... 0.7
	[bar]	1.5 ... 7	2 ... 7	2.5 ... 7
Product weight	[g]	52	54.1	53.6

1) See pilot pressure graphs on page 72.

Operating and environmental conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4] → 46
Pilot medium	Compressed air to ISO 8573-1:2010 [7:4:4] → 46
Note on the operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
	Ester oil < 0.1mg/m ³ , according to ISO 8573-1:2010 [:::2]
Ambient temperature	[°C] –5 ... +50
Temperature of medium	[°C] –5 ... +50
Storage temperature	[°C] –20 ... +70
Relative humidity	[%] 5 ... 95
Corrosion resistance class CRC ¹⁾	1
Maximum positive test pulse with logic 0	[µs] 1400
Maximum negative test pulse with logic 1	[µs] 800
Vibration resistant	Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6
Shock resistance	Shock test with severity level 1 to FN 942017-5 and EN 60068-2-27
Degree of protection	IP65

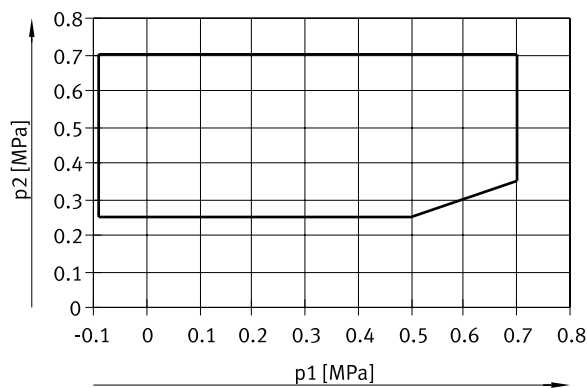
1) More information www.festo.com/x/topic/crc

Materials				
Valve size	10 mm	15 mm		
		5/2-way valve	2x 3/2-way valve	5/3-way valve
Housing	Anodised wrought aluminium alloy			
Spring	High-alloy stainless steel			
Piston spool	POM			
Screws	Stainless steel			
Seals	HNBR	NBR, HNBR		
Dynamic seals	HNBR			
Note on materials	RoHS-compliant			
LABS (PWIS) conformity	VDMA24364-Zone III	VDMA24364-C1-L	VDMA24364-C1-L	VDMA24364-Zone III
Food-safe	NSF H1			

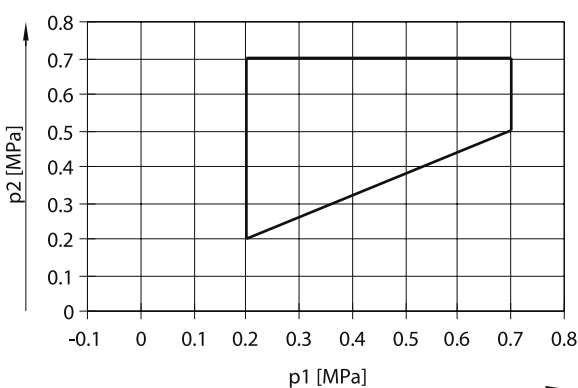
Datasheet – Valves

Pilot pressure p2 as a function of working pressure p1

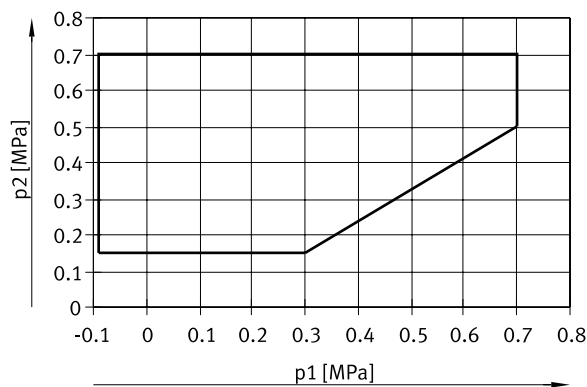
For 5/2-way valve, single solenoid, mechanical spring return



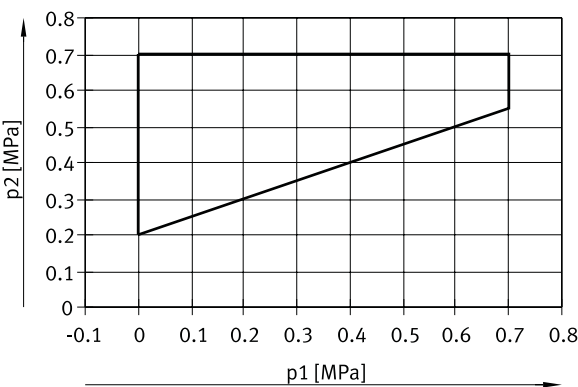
For 5/2-way valve, single solenoid, pneumatic spring return



For 5/2-way valve, double solenoid



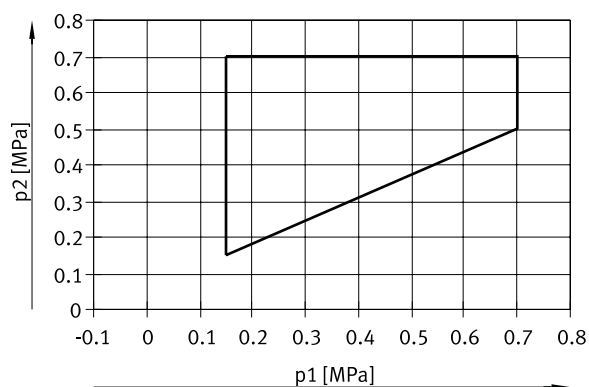
For 2x 3/2-way valve, mechanical spring return



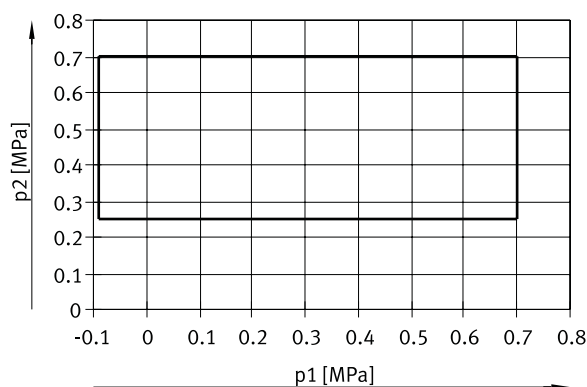
Datasheet – Valves

Pilot pressure p_2 as a function of working pressure p_1

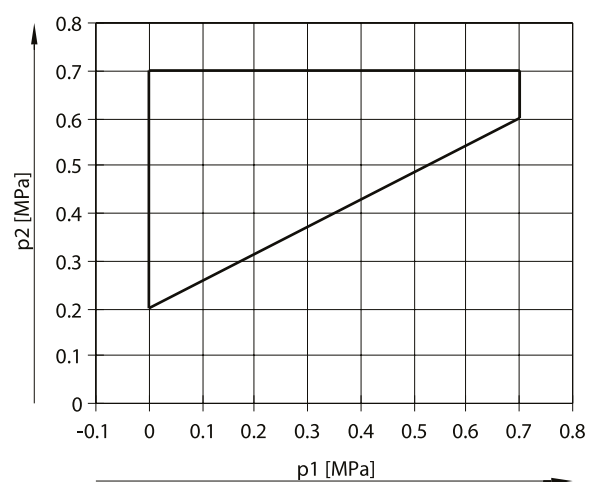
For 2x 3/2-way valve, pneumatic spring return



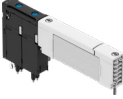
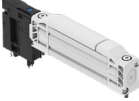
For 5/3-way valve, normally closed



For 5/4-way valve, exhausted



Datasheet – Valves

Ordering data						
	Code	Valve function	Part no.	Type		
Individual solenoid valve – Valve size 10 mm						
	5/2-way valve					
	Position function: A	Single solenoid, mechanical spring return		8187057	VUVX-BK10-M52-MZH-F-1T1L	
	Position function: M	Single solenoid, pneumatic spring return		8187056	VUVX-BK10-M52-A1ZH-F-1T1L	
	Position function: J	Double solenoid		8187059	VUVX-BK10-B52-ZH-F-1T1L	
	2x 3/2-way valve					
	Position function: NS	Normally open, Mechanical spring return		8187063	VUVX-BK10-T32U-MZH-F-1T1L	
	Position function: K	Normally closed, Mechanical spring return		8187061	VUVX-BK10-T32C-MZH-F-1T1L	
	Position function: KC	Normally closed, Pneumatic spring return		8187060	VUVX-BK10-T32C-A1ZH-F-1T1L	
	Position function: NG	1x normally open, 1x normally closed, Mechanical spring return		8187065	VUVX-BK10-T32H-MZH-F-1T1L	
	5/3-way valve					
	Position function: G	Mid-position closed		8187066	VUVX-BK10-P53C-MZH-F-1T1L	
	–	Mid-position pressurised	Can be realised using 3/2-way valves "normally closed" or "normally open" with mechanical spring return	–	–	
		Mid-position exhausted		–	–	
	5/4-way valve					
	Position function: ND	Exhausted		8187067	VUVX-BK10-P54E-MZH-F-1T1L	
Individual solenoid valve – Valve size 15 mm						
	5/2-way valve					
	Position function: A	Single solenoid, mechanical spring return		8224473	VUVX-BK15-M52-MZH-F-1T1L	
	Position function: M	Single solenoid, pneumatic spring return		8224472	VUVX-BK15-M52-A1ZH-F-1T1L	
	Position function: J	Double solenoid		8224471	VUVX-BK15-B52-ZH-F-1T1L	
	2x 3/2-way valve					
	Position function: NS	Normally open, Mechanical spring return		8224476	VUVX-BK15-T32U-MZH-F-1T1L	
	Position function: K	Normally closed, Mechanical spring return		8224475	VUVX-BK15-T32C-MZH-F-1T1L	
	Position function: KC	Normally closed, Pneumatic spring return		8224474	VUVX-BK15-T32C-A1ZH-F-1T1L	
	5/3-way valve					
	Position function: G	Mid-position closed		8224477	VUVX-BK15-P53C-MZH-F-1T1L	
	–	Mid-position pressurised	Can be realised using 3/2-way valves "normally closed" or "normally open" with mechanical spring return	–	–	
		Mid-position exhausted		–	–	
	Individual solenoid valve for manifold sub-bases for vacuum – Valve size 10 mm					
		2x 3/2-way valve				
		Position function: KV	Normally closed, Pneumatic spring return		8229210	VUVX-BK10-T32CV-A1ZH-F-1T1L
5/3-way valve						
Position function: NL		With holding function, for vacuum switching unit		8229212	VUVX-BK10-P53CD-A1ZH-F-1T1L	
5/4-way valve						
Position function: NQ		With holding function, for vacuum generator		8229211	VUVX-BK10-P54CV-MZH-F-1T1L	
Vacant position						
	Position function: L	Cover plate for one valve position	Valve size 10 mm	8163948	VABB-XA-10-T	
			Valve size 15 mm	8239827	VABB-XA-15-T	
Cover cap						
	Manual override: HV	Cover cap for manual override, pack size 10	Concealed	8198864	VAMC-XA-CS	
	Manual override: HR		Detenting	8198865	VAMC-XA-CD	

Datasheet – Left end plate with IO-Link®

Festo-specific, standardised interface for direct connection via a cable to an IO-Link master.

Valve terminals with IO-Link® interface can be expanded by up to 32 solenoid coils/valve positions.

Up to 32 valve positions can be equipped with single solenoid valves.



IO-Link® for valve terminal VTUX

The IO-Link® interface enables the valve terminal VTUX to be connected to an IO-Link® network.

The maximum distance between the IO-Link master and the valve terminal with IO-Link® interface is 20 m.

The 5-pin connecting cables transmit the power supply for the valves; the power supply for the internal valve terminal electronics and the control signals are separate from this.

The built-in LED is used as a status indicator for diagnostics and maintenance.

General technical data					
Electrical connection		Size 1 and 2		Size 3	
		Push-in	M12	Push-in	M12
Size	1		3		
	2				
Communication types	IO-Link®				
Protocol	IO-Link®				
Electrical control	IO-Link®				
Valve terminal design	Valve sizes can be mixed				
Compatible with	Valve terminal VTUX-A-P				
Max. number of solenoid coils	32				
Diagnostics via LED	Connection status				
	(Outputs) Power supply load				
Connection position	On the side				
Cable outlet	Straight				
Type of mounting	With through-hole for M5 screw				
Type of mounting sub-base	With through-hole				
Max. tightening torque for wall mounting	[Nm]	6			
Dimensions W x L x H	[mm]	45.6 x 117.4 x 53.9		45.6 x 136 x 63	
Product weight	[g]	124.4	127.4	170.4	173.4

Pneumatic ports		
Pneumatic connection	1	For 15 mm cartridge
	5	For 15 mm cartridge

Datasheet – Left end plate with IO-Link®

Technical data – Electrical components		
Electrical connection	Push-in	M12
Connection cross section [mm²]	0.2 ... 1.5	–
Reverse polarity protection	Yes	
Fuse protection (short circuit)	Internal electronic fuse per channel	
Electrical isolation of outputs between channel - internal communication	Yes	
Electrical isolation between the supply voltages for electronics/sensors and load/valves	Yes	
Nominal operating voltage DC for electronics/sensors [V]	24	
Nominal operating voltage DC load [V]	24	
Note on the operating voltage	SELV/PELV power supply units required	
	Note voltage drop	
Permissible voltage fluctuations, electronics/sensors [%]	±25	
Permissible voltage fluctuations, load [%]	±10	
Intrinsic current consumption at nominal operating voltage, electronics/sensors [mA]	Typically 10	
Intrinsic current consumption at nominal operating voltage, load [mA]	Typically 15	
Power consumption at 24 V DC [mW]	240	
Max. power supply [A]	2 x 4 (external fuse required)	
Pollution degree	2	

Technical data – IO-Link®		
IO-Link®, protocol version [mm²]	Device V 1.1	
IO-Link®, communication mode	COM3.	
IO-Link®, port class	B	
IO-Link®, process data width [byte] OUT	4	
IO-Link®, minimum cycle time [µs]	500	
Max. cable length [m]	20	

Datasheet – Left end plate with IO-Link®

Operating and environmental conditions				
		Size 1 and 2		Size 3
Electrical connection		Push-in	M12	Push-in M12
Ambient temperature	[°C]	-5 ... 50		-20 ... 50
Storage temperature	[°C]	-20 ... 70		
Relative humidity	[%]	5 ... 95		
Nominal operating altitude	[m]	≤ 2000 above sea level		
Maximum setup altitude	[m]	3500		
Corrosion resistance class CRC ¹⁾		2		
CE marking (see declaration of conformity) ²⁾		To EU EMC Directive		
		To EU RoHS Directive		
UKCA marking (see declaration of conformity) ²⁾		To UK EMC regulations		
		To UK RoHS regulations		
KC marking		KC EMC		
Certification		RCM		
Vibration resistant		Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6		
Shock resistance		Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27		
Degree of protection to EN 60529		IP40	IP65	IP40 IP65

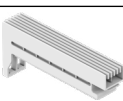
1) More information www.festo.com/x/topic/crc

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

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

Materials	
Connecting plate	Reinforced PA
Cover	Reinforced PA
Seals	NBR
Film	Polyester
Sleeve	High-alloy stainless steel
Clip	High-alloy stainless steel
Nut	High-alloy stainless steel
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L

Datasheet – Left end plate with IO-Link®

Ordering data						
	Code	Description			Part no.	Type
Left end plate, compatible with valve terminal VTUX-A-P						
	Electrical connection: IOL	Node with IO-Link®, IP40	Push-in, maximum 32 valve coils	Size 1 and 2	8189591	VABX-A-P-EL-E12-IOL-SHUH-XL
				Size 3	8214222	VABX-A-P-EL-E34-IOL-SHUH-XL
	Electrical connection: IOS	Node with IO-Link®, IP65	M12, maximum 32 valve coils	Size 1 and 2	8189590	VABX-A-P-EL-E12-IOS-SHUH-XL
				Size 3	8214221	VABX-A-P-EL-E34-IOS-SHUH-XL
Plate						
	Position function: UD	Plate for ducted exhaust air, without cartridge, for mounting on supply module	Pneumatic connection 3/5 combined	–	8191794	VABF-XA-12-M2-QX
	Position function: UT			Pneumatic connection 3 and 5 separated	Size 1 and 2	8249322
	Position function: US	Exhaust plate	For mounting on a power supply module		–	8234043
				–	8191741	VABF-XA-12-M1-C
Connecting cable, for IO-Link®						
	–	Suitable for energy chains	Straight – angled	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
Distributor, for IO-Link®						
	–	T-adaptor M12, 5-pin	Socket to 1x plug and 1x socket	171175	FB-TA-M12-5POL	
			Socket to 2x plug	2839846	NEDU-L2R1-V8-M12G5-M12G5	
	–	Y-distributor with cable on controller side, M12x1 A-coded			8091516	NEDU-L1R2-M12G5-M12LE-1R

Datasheet – Left end plate with multiprotocol interface

Multiprotocol interface for controlling the valve terminal VTUX via CC-Link IE Field Basic, EtherCAT®, PROFINET, EtherNet/IP or Modbus TCP.

Valve terminals with multiprotocol interface can be expanded by up to 128 solenoid coils/64 valve positions.



Multiprotocol interface of the valve terminal VTUX

The multiprotocol interface enables the valve terminal VTUX to be controlled via different communication protocols such as CC-Link IE Field Basic, EtherCAT®, PROFINET, EtherNet/IP or Modbus TCP.

The type of protocol used is set at the interface according to the relevant requirements.

The maximum distance between the higher-level controller and the valve terminal with multiprotocol interface is 50 m.

The built-in LED is used as a status indicator for diagnostics and maintenance.

General technical data

Size	1
	2
Protocol	CC-Link IE Field Basic
	EtherCAT®
	PROFINET
	EtherNet/IP
	Modbus TCP
Electrical control	AP interface
Valve terminal design	Valve sizes can be mixed
Compatible with	Valve terminal VTUX-A-S
Max. number of solenoid coils	128
Diagnostics via LED	Diagnostics per module
Diagnostics via internal communication	Logic supply overvoltage PS
	Logic supply undervoltage PS
Max. cable length [m]	100

Pneumatic ports

Pneumatic connection	1	For 15 mm cartridge
	5	For 15 mm cartridge

Technical data – Mechanical components

Communication interface, connection technology	M8x1, D-coded	M12x1, D-coded	RJ45
Connection position	On the side		
Cable outlet	Straight		
Type of mounting	With through-hole for M5 screw		
Type of mounting sub-base	With through-hole		
Max. tightening torque for wall mounting [Nm]	6		
Dimensions W x L x H [mm]	26 x 104 x 92		
Product weight [g]	233	240	227

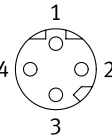
Datasheet – Left end plate with multiprotocol interface

Technical data – Electrical components		
Reverse polarity protection		Yes
Inductive protective circuit		Integrated
Overvoltage category		II
Protection against direct and indirect contact		PELV, SELV
Electrical isolation of outputs between channel - internal communication		Yes
Electrical isolation between the supply voltages for electronics/sensors and load/valves		Yes
Nominal operating voltage DC for electronics/sensors	[V]	24
Nominal operating voltage DC load	[V]	24
Note on the operating voltage		SELV/PELV power supply units required
		Note voltage drop
Permissible voltage fluctuations, electronics/sensors	[%]	±25
Permissible voltage fluctuations, load	[%]	±10
Undervoltage load/valves (diagnostic message)	[V]	≤21.1
Power failure buffering	[ms]	10
Intrinsic current consumption at nominal operating voltage, electronics/sensors	[mA]	Typically 50
Power consumption at 24 V DC	[W]	1.2
Max. power supply	[A]	2 x 4 (external fuse required)
Pollution degree		2

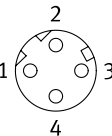
Datasheet – Left end plate with multiprotocol interface

Communication interface			
Communication interface, connection technology	M8x1, D-coded	M12x1, D-coded	RJ45
Protocol	CC-Link IE Field Basic		
	EtherCAT®		
	PROFINET		
	EtherNet/IP		
	Modbus TCP		
Function	System communication XF10 IN / XF20 OUT		
Connection type	2 x socket		
Connection technology	M8x1, D-coded to EN 61076-2-114	M12x1, D-coded to EN 61076-2-101	RJ45
Number of pins/cores	4	4	4
Shielding	Yes		

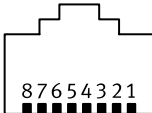
Pin assignment of communication interface – connection technology M8x1

Connection pattern	Pin	Signal	Designation
	1	TX+	Transmitted data+
	2	RX+	Received data+
	3	TX–	Transmitted data–
	4	RX–	Received data–

Pin assignment of communication interface – Connection technology M12x1

Connection pattern	Pin	Signal	Designation
	1	TX+	Transmitted data+
	2	RX+	Received data+
	3	TX–	Transmitted data–
	4	RX–	Received data–

Pin assignment of communication interface – Connection technology RJ45

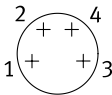
Connection pattern	Pin	Signal	Designation
	1	TX+	Transmitted data+
	2	TX–	Transmitted data–
	3	RX+	Received data+
	4	n.c.	Not connected
	5	n.c.	Not connected
	6	RX–	Received data–
	7	n.c.	Not connected
	8	n.c.	Not connected

Datasheet – Left end plate with multiprotocol interface

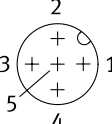
Power supply

Communication interface, connection technology	M8x1, D-coded	M12x1, D-coded	RJ45
Function	Incoming electronics/sensors and load		
Connection type	Plug		
Connection technology	M8x1, A-coded to EN 61076-2-104	M12x1, A-coded to EN 61076-2-101	Pin header, 5-pin
Number of pins/cores	4	5	5

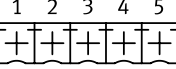
Pin assignment of power supply – Connection technology M8x1

Connection pattern	Pin	Signal	Designation
	1	24 V	Operating voltage 24 V electronics/sensors
	2	0 V	Operating voltage 0 V electronics/sensors
	3	0 V	Operating voltage 0 V load
	4	24 V	Operating voltage 24 V load

Pin assignment power supply – connection technology M12x1

Connection pattern	Pin	Signal	Designation
	1	24 V	Operating voltage 24 V electronics/sensors
	2	24 V	Operating voltage 24 V load
	3	0 V	Operating voltage 0 V electronics/sensors
	4	0 V	Operating voltage 0 V load
	5	FE	Functional earth

Pin assignment of power supply – Connection technology terminal strip

Connection pattern	Pin	Signal	Designation
	1	FE	Functional earth
	2	24 V	Operating voltage 24 V electronics/sensors
	3	0 V	Operating voltage 0 V electronics/sensors
	4	24 V	Operating voltage 24 V load
	5	0 V	Operating voltage 0 V electronics/sensors

Datasheet – Left end plate with multiprotocol interface

Operating and environmental conditions			
Communication interface, connection technology	M8x1, D-coded	M12x1, D-coded	RJ45
Ambient temperature [°C]	–5 ... 50		
Storage temperature [°C]	–20 ... 70		
Relative humidity [%]	5 ... 95		
Nominal operating altitude [m]	≤ 2000 above sea level		
Maximum setup altitude [m]	3500		
Corrosion resistance class CRC ¹⁾	2		
CE marking (see declaration of conformity) ²⁾	To EU EMC Directive		
	To EU RoHS Directive		
UKCA marking (see declaration of conformity) ²⁾	To UK EMC regulations		
	To UK RoHS regulations		
KC marking	KC EMC		
Certification	RCM		
Vibration resistant	Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6		
Shock resistance	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27		
Degree of protection to EN 60529	IP65	IP65	IP20
Note on degree of protection	Unused connections sealed	Unused connections sealed	–

1) More information www.festo.com/x/topic/crc

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

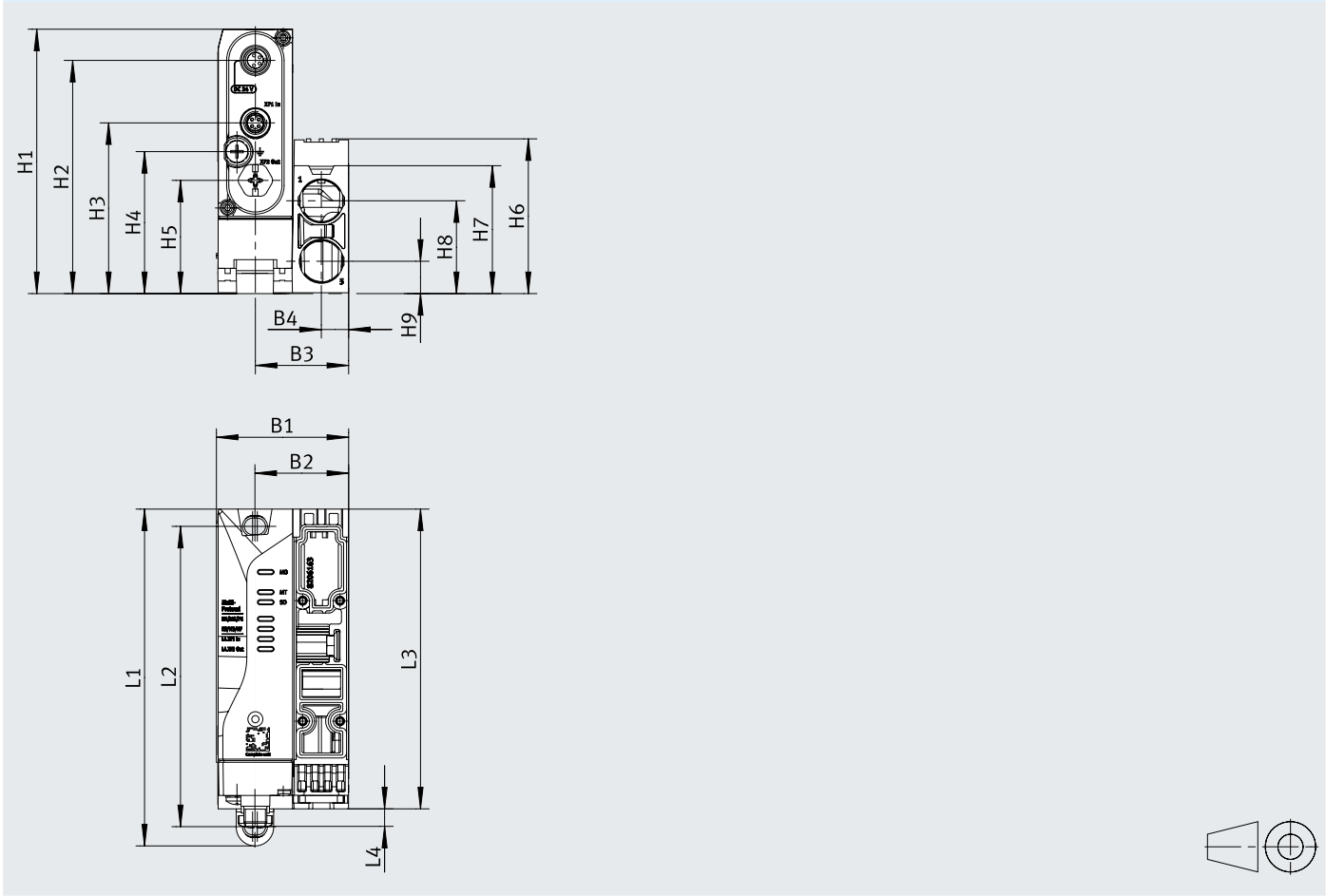
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Materials			
Communication interface, connection technology	M8x1, D-coded	M12x1, D-coded	RJ45
Connecting plate	Reinforced PA		
Cover	Reinforced PA		
Seals	NBR		
Film	Polyester	–	–
Sleeve	High-alloy stainless steel		
Clip	High-alloy stainless steel		
Nut	High-alloy stainless steel		
Note on materials	RoHS-compliant		
LABS (PWIS) conformity	VDMA24364-B1/B2-L		

Datasheet

Dimensions – Left end plate, multiprotocol end plate with connection technology M8x1

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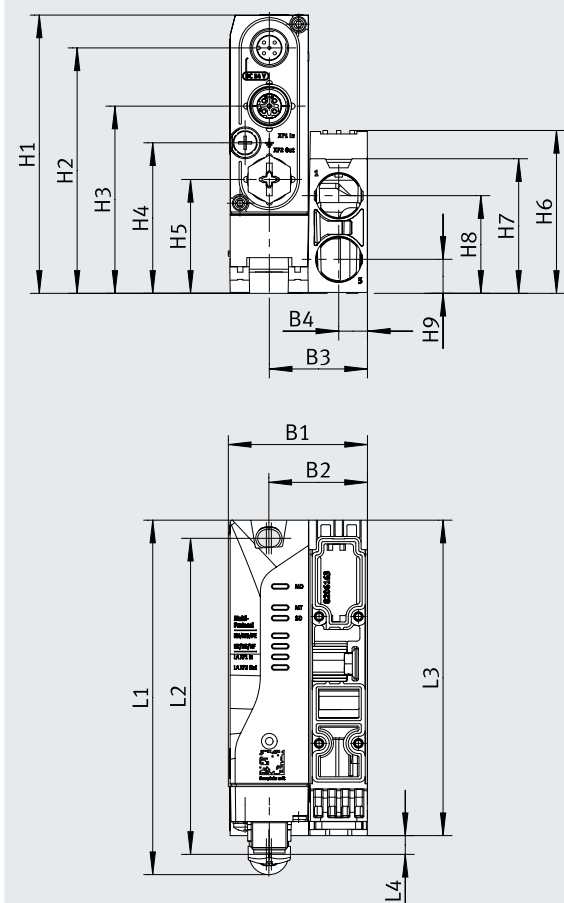
Type	B1	B2	B3	B4	H1	H2	H3	H4	H5	H6	H7	H8	H9
VABX-A-S-EL-E12-CTED-MPM8	46	32.6	32.45	9.5	92	81.15	59.4	49.4	39.4	53.85	44.5	32.25	11.25

Type	L1	L2	L3	L4
VABX-A-S-EL-E12-CTED-MPM8	117.2	104.5	104.3	6.2

Datasheet – Left end plate with multiprotocol interface

Dimensions – Left end plate, multiprotocol end plate with connection technology M12x1

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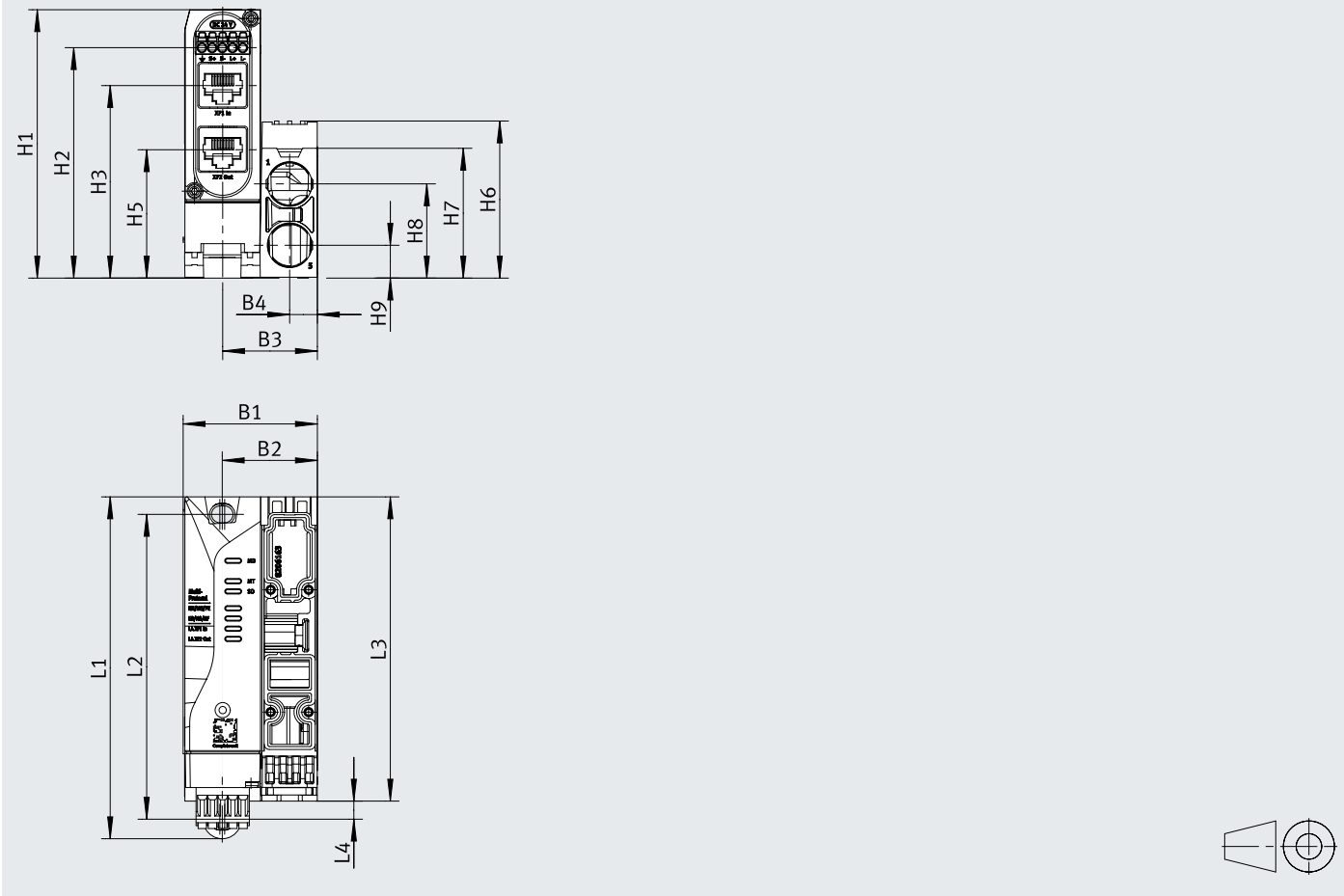
Type	B1	B2	B3	B4	H1	H2	H3	H4	H5	H6	H7	H8	H9
VABX-A-S-EL-E12-CTED-MPM12	46	32.6	32.45	9.5	92	81.15	61.9	49.8	37.65	53.85	44.5	32.25	11.25

Type	L1	L2	L3	L4
VABX-A-S-EL-E12-CTED-MPM12	117.2	104.5	104.3	6.2

Datasheet – Left end plate with multiprotocol interface

Dimensions – Left end plate, multiprotocol end plate with connection technology RJ45

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Type	B1	B2	B3	B4	H1	H2	H3	H5	H6	H7	H8	H9
VABX-A-S-EL-E12-CTED-MPRJ45	46	32.6	32.45	9.5	92	79	66	44	53.85	44.5	32.25	11.25

Type	L1	L2	L3	L4
VABX-A-S-EL-E12-CTED-MPRJ45	117.2	104.5	104.3	6.2

Datasheet – Left end plate with multiprotocol interface

Ordering data						
	Code	Description			Part no.	Type
Left end plate with multiprotocol interface						
	Electrical connection: CTED	Nodes with CC-Link IE Field Basic, Ether- CAT®, PROFINET, EtherNet/IP, Modbus TCP, IP65	Compatible with valve terminal VTUX-A-S	M8x1 D-coded, maximum 128 valve coils	8208386	VABX-AS-EL-E12-CTED-MPM8-SHUH-XL
	Electrical connection: CTED	Nodes with CC-Link IE Field Basic, Ether- CAT®, PROFINET, EtherNet/IP, Modbus TCP, IP65	Compatible with valve terminal VTUX-A-S	M12x1 D-coded, maximum 128 valve coils	8208382	VABX-AS-EL-E12-CTED-MPM12-SHUH-XL
	Electrical connection: CTED	Nodes with CC-Link IE Field Basic, Ether- CAT®, PROFINET, EtherNet/IP, Modbus TCP, IP20	Compatible with valve terminal VTUX-A-S	RJ45, maximum 128 valve coils	8208384	VABX-AS-EL-E12-CTED-MPRJ45-SHUH-XL
Plate						
	Position function: UD	Plate for ducted ex- haust air, without cartridge, for mount- ing on supply module	Pneumatic con- nection 3/5 com- bined	–	8191794	VABF-XA-12-M2-QX
	Position function: UT		Pneumatic con- nection 3 and 5 separated	Size 1 and 2	8249322	VABF-XA-12-M2A17-QX
	Position function: US	Exhaust plate	For mounting on a power supply module	–	8191741	VABF-XA-12-M1-C
Plug connector						
	–	Straight socket, 5-pin, M12x1 A-coded to EN 61076-2-101			8162291	NECB-M12G5-C2

Datasheet – Left end plate with multiprotocol interface

Ordering data – Connecting cables				Part no.	Type
	–	Straight plug, 4-pin, M8x1, D-coded to EN 61076-2-114	Straight plug, 4-pin, M8x1, D-coded to EN 61076-2-114	0.3 m	8082902 NEBC-D8G4-ES-0.3-N-S-D8G4-ET
				0.5 m	8065123 NEBC-D8G4-ES-0.5-N-S-D8G4-ET
				1 m	8065125 NEBC-D8G4-ES-1-N-S-D8G4-E
				2 m	8065127 NEBC-D8G4-ES-2-N-S-D8G4-ET
				3 m	8235496 NEBC-D8G4-ES-3-N-S-D8G4-ET
				5 m	8065129 NEBC-D8G4-ES-5-N-S-D8G4-ET
				7.5 m	8065131 NEBC-D8G4-ES-7.5-N-S-D8G4-ET
				10 m	8065133 NEBC-D8G4-ES-10-N-S-D8G4-ET
				15 m	8065135 NEBC-D8G4-ES-15-N-S-D8G4-ET
				20 m	8146031 NEBC-D8G4-ES-20-N-S-D8G4-ET
				25 m	8146032 NEBC-D8G4-ES-25-N-S-D8G4-ET
				30 m	8146033 NEBC-D8G4-ES-30-N-S-D8G4-ET
				40 m	8146034 NEBC-D8G4-ES-40-N-S-D8G4-ET
				50 m	8146035 NEBC-D8G4-ES-50-N-S-D8G4-ET
	–	Angled plug, 4-pin, M8x1, D-coded to EN 61076-2-114	Angled plug, 4-pin, M8x1, D-coded to EN 61076-2-114	0.5 m	8065124 NEBC-D8W4-ES-0.5-N-S-D8W4-ET
				1 m	8065126 NEBC-D8W4-ES-1-N-S-D8W4-ET
				2 m	8065128 NEBC-D8W4-ES-2-N-S-D8W4-ET
				5 m	8065130 NEBC-D8W4-ES-5-N-S-D8W4-ET
				7.5 m	8065132 NEBC-D8W4-ES-7.5-N-S-D8W4-ET
				10 m	8065134 NEBC-D8W4-ES-10-N-S-D8W4-ET
				15 m	8065136 NEBC-D8W4-ES-15-N-S-D8W4-ET
				20 m	8146036 NEBC-D8W4-ES-20-N-S-D8W4-ET
				25 m	8146037 NEBC-D8W4-ES-25-N-S-D8W4-ET
				30 m	8146038 NEBC-D8W4-ES-30-N-S-D8W4-ET
				40 m	8146039 NEBC-D8W4-ES-40-N-S-D8W4-ET
	–	Straight plug, 4-pin, M8x1, D-coded to EN 61076-2-114	Straight plug, RJ45 to IEC 60603-7-3	0.3 m	8188942 NEBC-D8G4-ES-0.3-N-S-R3G4-ET
				0.5 m	8188943 NEBC-D8G4-ES-0.5-N-S-R3G4-ET
				1 m	8188944 NEBC-D8G4-ES-1-N-S-R3G4-ET
				2 m	8188945 NEBC-D8G4-ES-2-N-S-R3G4-ET
				5 m	8188946 NEBC-D8G4-ES-5-N-S-R3G4-ET
				7.5 m	8188947 NEBC-D8G4-ES-7.5-N-S-R3G4-ET
	–	Straight socket, 4-pin, M8x1 A-coded to EN 61076-2-104	Straight plug, 4-pin, M8x1, A-coded to EN 61076-2-104	0.3 m	8082904 NEBL-M8G4-E-0.3-N-M8G4
				0.5 m	8065102 NEBL-M8G4-E-0.5-N-M8G4
				1 m	8065104 NEBL-M8G4-E-1-N-M8G4
				2 m	8065106 NEBL-M8G4-E-2-N-M8G4
				5 m	8065108 NEBL-M8G4-E-5-N-M8G4
				7.5 m	8065111 NEBL-M8G4-E-7.5-N-M8G4
				10 m	8065115 NEBL-M8G4-E-10-N-M8G4
				15 m	8065119 NEBL-M8G4-E-15-N-M8G4
	–	Straight socket, 4-pin, M8x1 A-coded to EN 61076-2-104	Open end, 4-core	5 m	8065110 NEBL-M8G4-E-5-N-LE4
				7.5 m	8065113 NEBL-M8G4-E-7.5-N-LE4
				10 m	8065117 NEBL-M8G4-E-10-N-LE4
				15 m	8065121 NEBL-M8G4-E-15-N-LE4
	–	Angled socket, 4-pin, M8x1 A-coded to EN 61076-2-104	Straight plug, 4-pin, M8x1, A-coded to EN 61076-2-104	0.3 m	8146577 NEBL-M8W4-E-0.3-N-M8W4
				0.5 m	8065103 NEBL-M8W4-E-0.5-N-M8W4
				1 m	8065105 NEBL-M8W4-E-1-N-M8W4
				2 m	8065107 NEBL-M8W4-E-2-N-M8W4
				5 m	8065109 NEBL-M8W4-E-5-N-M8W4
				7.5 m	8065112 NEBL-M8W4-E-7.5-N-M8W4
				10 m	8065116 NEBL-M8W4-E-10-N-M8W4
				15 m	8065120 NEBL-M8W4-E-15-N-M8W4
	–	Angled socket, 4-pin, M8x1 A-coded to EN 61076-2-104	Open end, 4-core	7.5 m	8065114 NEBL-M8W4-E-7.5-N-LE4
				10 m	8065118 NEBL-M8W4-E-10-N-LE4
				15 m	8065122 NEBL-M8W4-E-15-N-LE4

Datasheet – Manifold sub-bases for parallel communication

–  – Valve size
10 mm



General technical data												
Maximum number of valve positions	1						4					
Size	1		2		3		1		2		3	
Max. no. of solenoid coils	1	2	1	2	1	2	4	8	4	8	4	8
Integrated function	With electrical interlinking module											
Compatible with	Valve terminal VTUX-A-P											
Flow direction	Reversible											
Suitable for vacuum	Yes											
Nominal flow rate standardised to ISO 8778 [l/min]	470		690		–		470		690		–	
Pneumatic connection 2	For 10 mm cartridge		For 12 mm cartridge		For 15 mm cartridge		For 10 mm cartridge		For 12 mm cartridge		For 15 mm cartridge	
Pneumatic connection 4	For 10 mm cartridge		For 12 mm cartridge		For 15 mm cartridge		For 10 mm cartridge		For 12 mm cartridge		For 15 mm cartridge	
Type of mounting	Tie rods											
Type of mounting sub-base	With through-hole											
Grid dimension [mm]	10.55		12.55		16.05		10.55		12.55		64.05	
Dimensions W x L x H [mm]	10.55 x 104.3 x 43.1		12.55 x 104.3 x 43.1		16.05 x 136 x 52.4		42.05 x 104.3 x 43.1		50.05 x 104.3 x 43.1		64.05 x 136 x 52.4	
Product weight [g]	31.2		36.2		71		115.7		136.2		254	255

Technical data – Electrical components

Electrical control	Multi-pin plug
Pollution degree	2

Operating and environmental conditions

Ambient temperature [°C]	–5 ... 50
Storage temperature [°C]	–20 ... 70
Relative humidity [%]	5 ... 95
Corrosion resistance class CRC ¹⁾	2
CE marking (see declaration of conformity) ²⁾	To EU EMC Directive
	To EU RoHS Directive
KC marking	KC EMC
Certification	RCM
Vibration resistant	Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6
Shock resistance	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27
Degree of protection to EN 60529	IP65

1) More information www.festo.com/x/topic/crc

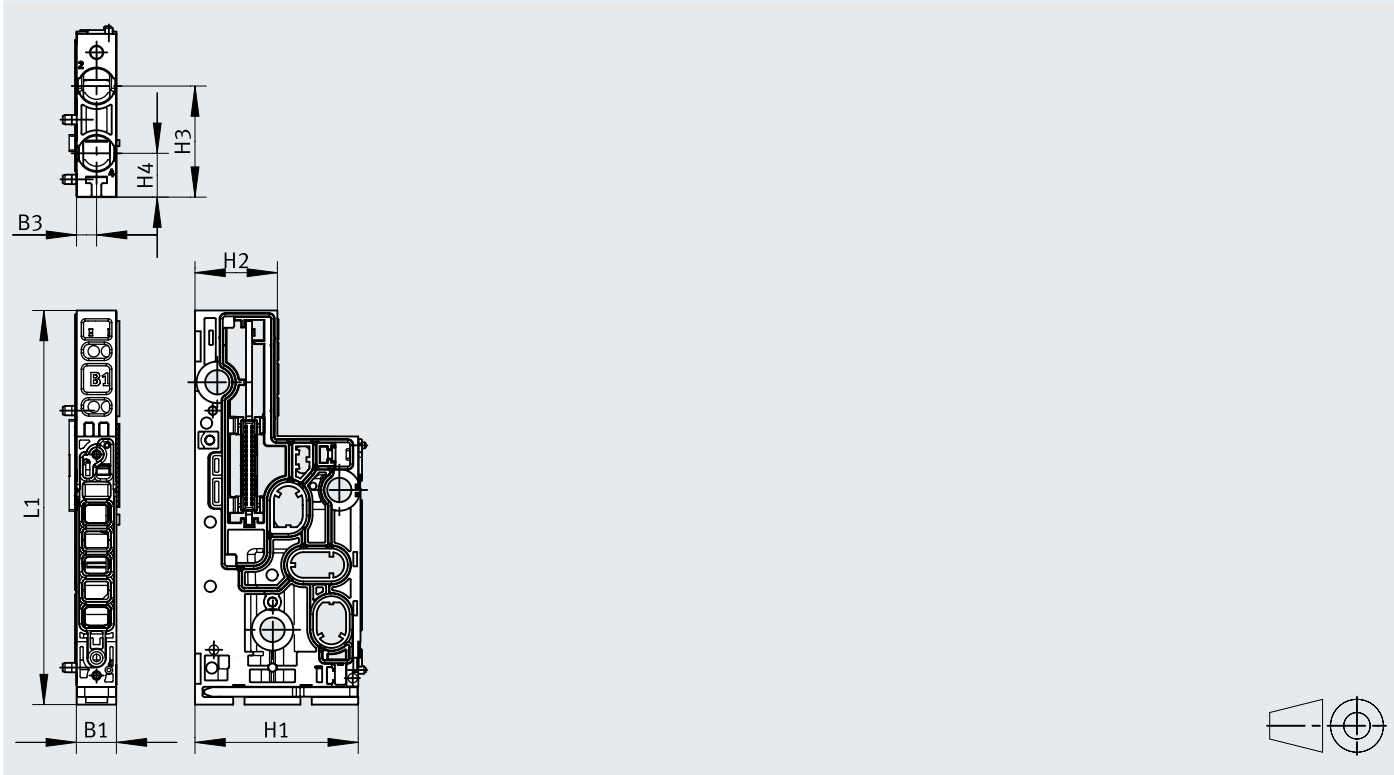
2) For information about the area of use, see the declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.

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

Materials	For one valve	For four valves
Connecting plate	Reinforced PA	Reinforced PA
Seals	NBR	NBR
Retaining bracket	–	POM
Clip	High-alloy stainless steel	High-alloy stainless steel
Nut	High-alloy stainless steel	High-alloy stainless steel
Note on materials	RoHS-compliant	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L	VDMA24364-B1/B2-L

Datasheet – Manifold sub-bases for parallel communication

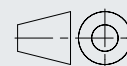
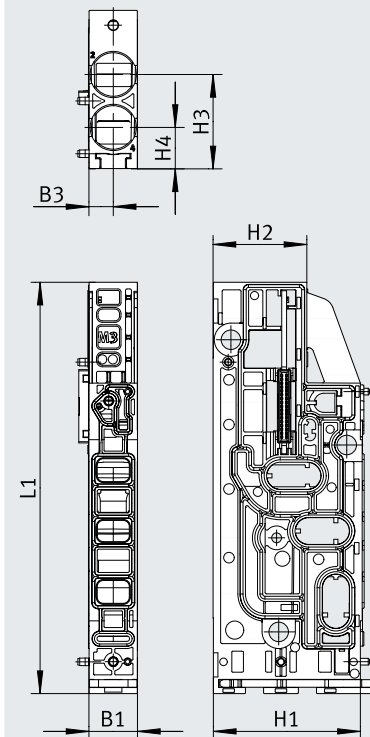
Dimensions – Manifold sub-base for one valve, size 1 and 2 Download CAD data → www.festo.com



Type	B1	B3	H1	H2	H3	H4	L1
VABX-A-P-BV-AH	10.55	5.3	43.2	21.8	29.4	11.6	104.3
VABX-A-P-BV-BH	12.55	6.3	43.2	21.8	28	13	104.3

Datasheet – Manifold sub-bases for parallel communication

Dimensions – Manifold sub-base for one valve, size 3

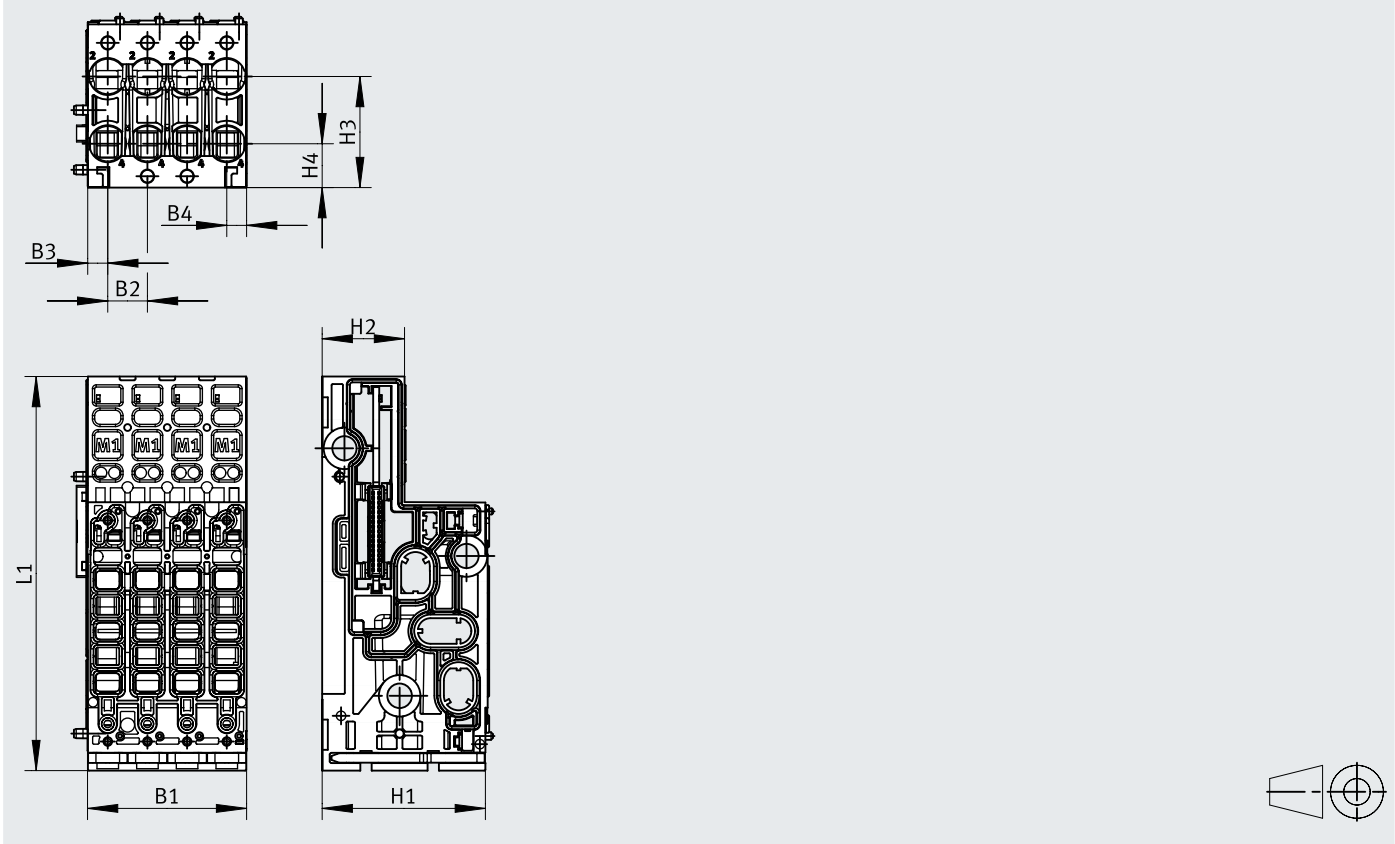
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Type	B1	B3	H1	H2	H3	H4	L1
VABX-A-P-BV-CH	16.05	8.05	48.6	31	31.2	13.7	136

Datasheet – Manifold sub-bases for parallel communication

Dimensions – Manifold sub-base for four valves, without connection for input module, size 1 and 2

Download CAD data → www.festo.com

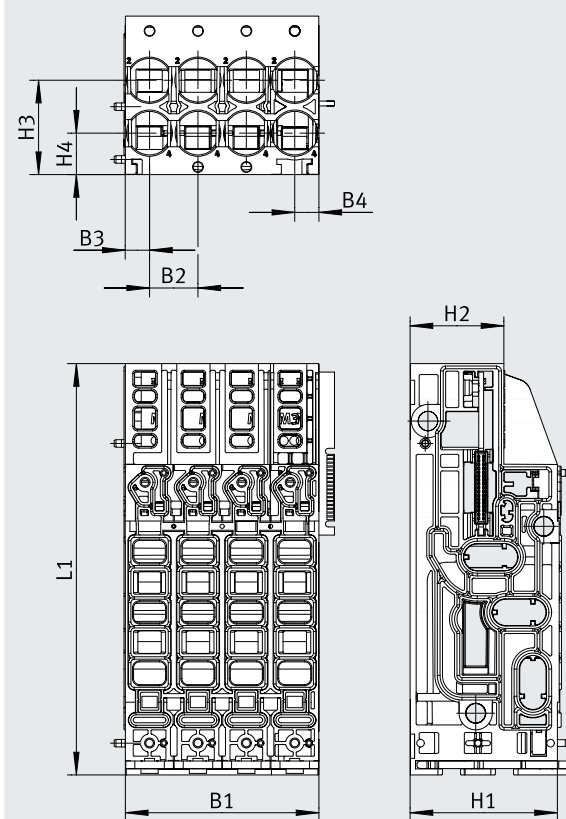


Type	B1	B2	B3	B4	H1	H2	H3	H4	L1
VABX-A-P-BV-AH	42.05	10.5	5.3	5.25	43.2	21.8	29.4	11.6	104.3
VABX-A-P-BV-BH	50.05	12.4	6.45	6.4	43.2	21.8	28	13	104.3

Datasheet – Manifold sub-bases for parallel communication

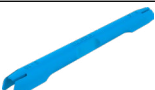
Dimensions – Manifold sub-base for four valves, without connection for input module, size 3

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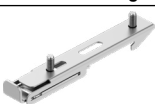


Type	B1	B2	B3	B4	H1	H2	H3	H4	L1
VABX-A-P-BV-CH	64.05	16	8.05	8	48.6	31	31.2	13.7	136

Datasheet – Manifold sub-bases for parallel communication

Ordering data							
	Code	Description	Size	Part no.	Type		
Manifold sub-base – for one valve							
	–	Maximum number of solenoid coils 1	1	8188458	VABX-A-P-BV-AH-F		
			2	8188462	VABX-A-P-BV-BH-G		
			3	8236662	VABX-AP-BV-CH-H		
		Maximum number of solenoid coils 2	1	8188459	VABX-A-P-BV-AH-A		
			2	8188463	VABX-A-P-BV-BH-B		
			3	8236663	VABX-AP-BV-CH-C		
Manifold sub-base – for four valves, without connection for input module							
	–	Maximum number of solenoid coils 4	1	8188460	VABX-A-P-BV-AH-RVFFFF		
			2	8188464	VABX-A-P-BV-BH-RVGGGG		
			3	8236666	VABX-AP-BV-CH-RVHHHH		
		Maximum number of solenoid coils 8	1	8188461	VABX-A-P-BV-AH-RVAAAA		
			2	8188465	VABX-A-P-BV-BH-RVBBBB		
			3	8236667	VABX-AP-BV-CH-RVCCCC		
Ordering data							
	Code	Description	Pack size	Part no.	Type		
Cartridge							
	–	Cartridge 10 mm, Connection for tubing O.D.	3 mm	10	8250481	NPQX-D-PC10-Q3-P10	
			4 mm	10	8174164	NPQX-D-PC10-Q4-P10	
			6 mm	10	8174165	NPQX-D-PC10-Q6-P10	
			1/8"	10	8184511	NPQX-D-PC10-T18-P10	
			5/32"	10	8184509	NPQX-D-PC10-T532-P10	
			1/4"	10	8184510	NPQX-D-PC10-T14-P10	
		Cartridge 12 mm, Connection for tubing O.D.	4 mm	10	8174166	NPQX-D-PC12-Q4-P10	
			6 mm	10	8174167	NPQX-D-PC12-Q6-P10	
			8 mm	10	8174168	NPQX-D-PC12-Q8-P10	
			5/32"	10	8184512	NPQX-D-PC12-T532-P10	
			1/4"	10	8184514	NPQX-D-PC12-T14-P10	
			5/16"	10	8184513	NPQX-D-PC12-T516-P10	
		Cartridge 15 mm, Connection for tubing O.D.	6 mm	10	8246825	NPQX-D-PC15-Q6-P10	
			8 mm	10	8174169	NPQX-D-PC15-Q8-P10	
			10 mm	10	8174170	NPQX-D-PC15-Q10-P10	
			12 mm	2	8225231	NPQX-D-PC15-Q12-P2	
			5/16"	10	8184515	NPQX-D-PC15-T516-P10	
			3/8"	10	8246826	NPQX-D-PC15-T38-P10	
Blanking plug							
	–	Cartridge	10	8191749	NPQX-P-PC10		
			10	8191750	NPQX-P-PC12		
			10	8191751	NPQX-P-PC15		
Release tool							
	–	Release tool for easier removal of cartridges NPQX	1	8214270	NPAT-QX-T-V1		

Datasheet – Manifold sub-bases for parallel communication

Ordering data				Pack size	Part no.	Type
Code	Description					
Tie rods						
	Tie rod: –	Threaded rod for tie rod, internal hex, A/F 4 The threaded rod/screw combination is selected based on the number and width of the individual sub-bases.	10 mm	3	8191752	VAME-XA-Z-10
			12 mm	3	8191753	VAME-XA-Z-12
			15 mm	3	8191754	VAME-XA-Z-16
			17 mm	3	8191755	VAME-XA-Z-17
			19 mm	3	8191756	VAME-XA-Z-19
			29 mm	3	8191757	VAME-XA-Z-29
			38 mm	3	8191758	VAME-XA-Z-38
			42 mm	3	8191759	VAME-XA-Z-42
			50 mm	3	8191760	VAME-XA-Z-50
			61 mm	3	8191761	VAME-XA-Z-61
			64 mm	3	8246657	VAME-XA-Z-64
			84 mm	3	8191762	VAME-XA-Z-84
			107 mm	3	8191763	VAME-XA-Z-107
			130 mm	3	8191764	VAME-XA-Z-130
			150 mm	3	8191765	VAME-XA-Z-150
	–	M4 screw with internal hex, spanner size 2.5, for tie rod	170 mm	3	8191766	VAME-XA-Z-170
			190 mm	3	8191767	VAME-XA-Z-190
			30 mm	3	8191747	VAME-XA-S-M4-30
			45 mm	3	8191748	VAME-XA-S-M4-45
Separator						
	–	Separator for pressure zone separation in duct 1	Size 12	1	8191736	VABD-XA-12-P1
	–	Separator for pressure zone separation in duct 3/5	Size 12	2	8191737	VABD-XA-12-P2
	–	Separator for pressure zone separation in duct 1, 3 and 5	Size 34	1	8236670	VABD-XA-34-P3-C
Wall mounting						
	–	Mounting bracket Wall brackets should be mounted on the valve terminal every 20 cm.		2	8191739	VAME-XA-W
DIN rail mounting						
	Mounting accessories: H	Clamp mounting for DIN rail mounting		2	8191782	VAME-XA-H
Inscription labels						
	–	Inscription label for marking pressure zone separation	Duct 1 separated	5	8191742	ASLR-C-XA-TT
			Duct 3/5 separated	5	8191743	ASLR-C-XA-TR
			Duct 1, 3/5 separated	5	8191745	ASLR-C-XA-TS

Datasheet – Manifold sub-bases for serial communication

-  – Valve size
 10 mm
 15 mm



General technical data						
Size	1		2		3	
	Without connection for input module	With connection for input module	Without connection for input module	With connection for input module	Without connection for input module	With connection for input module
Integrated function	With electrical interlinking module					
Compatible with	Valve terminal VTUX-A-S					
Maximum number of valve positions	4					
Max. no. of solenoid coils	8					
Flow direction	Reversible					
Suitable for vacuum	Yes					
Nominal flow rate standardised to ISO 8778 [l/min]	470		690		–	
Pneumatic connection 2	For 10 mm cartridge		For 12 mm cartridge		For 15 mm cartridge	
Pneumatic connection 4	For 10 mm cartridge		For 12 mm cartridge		For 15 mm cartridge	
Type of mounting	Tie rods					
Type of mounting sub-base	With through-hole					
Grid dimension [mm]	10.55		12.55		16.05	
Dimensions W x L x H [mm]	42.05 x 104.3 x 43.1		50.05 x 104.3 x 43.1		64.05 x 136 x 52.4	
Product weight [g]	120.7	120.7	141.2	141.2	259	258

Technical data – Control		
	Without input module	With input module
Electrical control	AP interface	
Communication interface, protocol	AP	
Max. number of inputs	–	8
Max. address volume for outputs [byte]	1	1
Diagnostics via LED	Diagnostics per channel	
	Diagnostics per module	
Diagnostics via internal communication	Load switch-off	
	Logic supply overvoltage PS	
	Load supply overvoltage PL	
	Logic supply undervoltage PS	
	Load supply undervoltage PL	
Electrical isolation of outputs between channel - internal communication	Yes	
Electrical isolation between the supply voltages for electronics/sensors and load/valves	Yes	

Datasheet – Manifold sub-bases for serial communication

Technical data – Electrical components		
Nominal operating voltage DC for electronics/sensors	[V]	24
Nominal operating voltage DC load	[V]	24
Permissible voltage fluctuations, electronics/sensors	[%]	±25
Permissible voltage fluctuations, load	[%]	±10
Note on the operating voltage	SELV/PELV power supply units required	
	Note voltage drop	
Power failure buffering	[ms]	10
Intrinsic current consumption at nominal operating voltage, electronics/sensors	[mA]	Typically 24
Intrinsic current consumption at nominal operating voltage, load	[mA]	Typically 7
Power consumption at 24 V DC	[mW]	740
Overvoltage category		II
Fuse protection (short circuit)		Internal electronic fuse per channel
Inductive protective circuit		Integrated
Reverse polarity protection		Yes
Pollution degree		2

Operating and environmental conditions		
	Without input module	With input module
Ambient temperature	[°C]	–5 ... 50
Storage temperature	[°C]	–20 ... 70
Relative humidity	[%]	5 ... 95
Max. setup altitude	[m]	– 3500
Nominal operating altitude		< 3000 m above sea level ≤ 2000 m above sea level
Corrosion resistance class CRC ¹⁾		1
CE marking (see declaration of conformity) ²⁾	To EU EMC Directive	
	To EU RoHS Directive	
KC marking	KC EMC	
Certification	RCM	
Vibration resistant	Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6	
Shock resistance	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27	
Degree of protection to EN 60529	IP65	IP20, IP65

1) More information www.festo.com/x/topic/crc

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

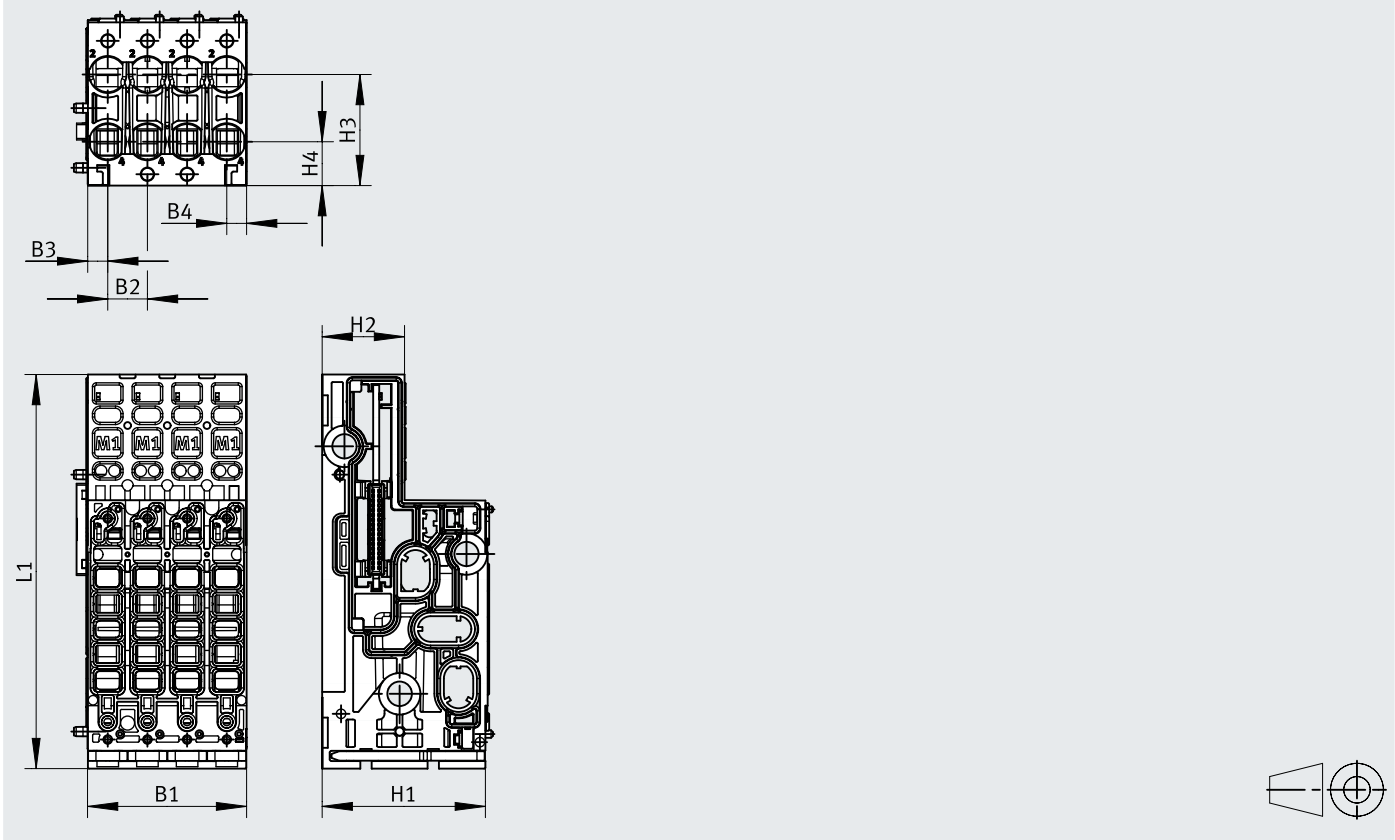
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Materials		
	Without input module	With input module
Connecting plate	Reinforced PA	
Seals	NBR	
Retaining bracket	POM	
Sleeve	High-alloy stainless steel	
Clip	High-alloy stainless steel	
Nut	High-alloy stainless steel	
Note on materials	RoHS-compliant	
LABS (PWIS) conformity	VDMA24364-B1/B2-L	VDMA24364-B2-L

Datasheet – Manifold sub-bases for serial communication

Dimensions – Manifold sub-base for four valves, without connection for input module, size 1 and 2

Download CAD data → www.festo.com

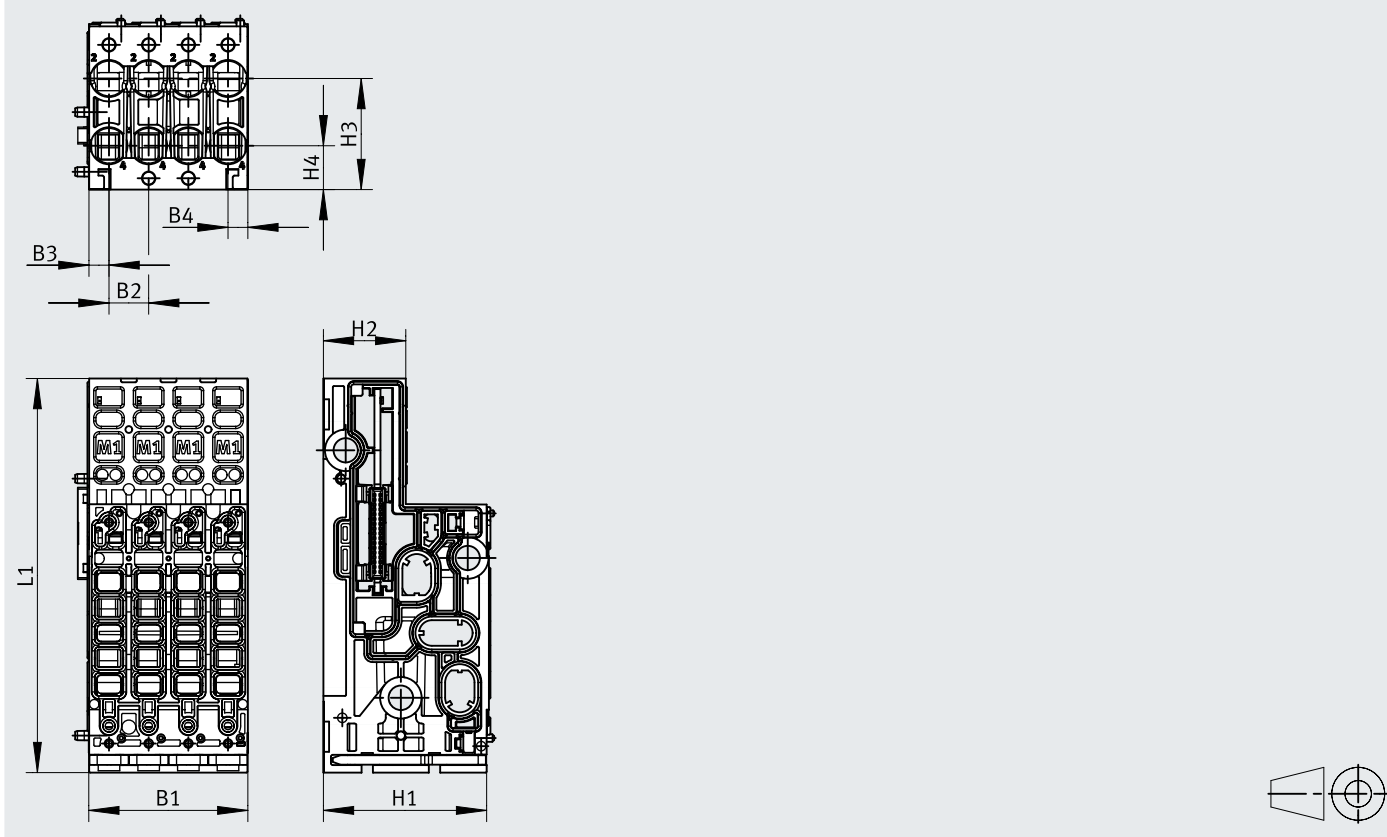


Type	B1	B2	B3	B4	H1	H2	H3	H4	L1
VABX-A-S-BV-AH	42.05	10.5	5.3	5.25	43.2	21.8	29.4	11.6	104.3
VABX-A-S-BV-BH	50.05	12.4	6.45	6.4	43.2	21.8	28	13	104.3

Datasheet – Manifold sub-bases for serial communication

Dimensions – Manifold sub-base for four valves, without connection for input module, size 3

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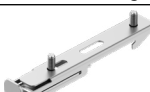


Type	B1	B2	B3	B4	H1	H2	H3	H4	L1
VABX-A-S-BV-CH	64.05	16	8.05	8	48.6	31	31.2	13.7	136

Datasheet – Manifold sub-bases for serial communication

Ordering data							
	Code	Description	Size	Part no.	Type		
Manifold sub-base – for four valves, without connection for input module							
	–	Maximum number of solenoid coils 8	1	8188466	VABX-A-S-BV-AH-RVAAAA		
			2	8188467	VABX-A-S-BV-BH-RVBBBB		
			3	8236664	VABX-AS-BV-CH-RVCCCC		
Manifold sub-base – for four valves, with connection for input module							
	Sub-base block, additional function 1-64: 0XJ	Maximum number of solenoid coils 8	1	8196628	VABX-A-S-BV-AH-RV0XJAAAA		
			2	8196629	VABX-A-S-BV-BH-RV0XJB BBB		
			3	8236665	VABX-AS-BV-CH-RV0XJCCCC		
Ordering data							
	Code	Description	Pack size	Part no.	Type		
Cartridge							
	–	Cartridge 10 mm, Connection for tubing O.D.	3 mm	10	8250481	NPQX-D-PC10-Q3-P10	
			4 mm	10	8174164	NPQX-D-PC10-Q4-P10	
			6 mm	10	8174165	NPQX-D-PC10-Q6-P10	
			1/8"	10	8184511	NPQX-D-PC10-T18-P10	
			5/32"	10	8184509	NPQX-D-PC10-T532-P10	
			1/4"	10	8184510	NPQX-D-PC10-T14-P10	
		Cartridge 12 mm, Connection for tubing O.D.	4 mm	10	8174166	NPQX-D-PC12-Q4-P10	
			6 mm	10	8174167	NPQX-D-PC12-Q6-P10	
			8 mm	10	8174168	NPQX-D-PC12-Q8-P10	
			5/32"	10	8184512	NPQX-D-PC12-T532-P10	
			1/4"	10	8184514	NPQX-D-PC12-T14-P10	
			5/16"	10	8184513	NPQX-D-PC12-T516-P10	
		Cartridge 15 mm, Connection for tubing O.D.	6 mm	10	8246825	NPQX-D-PC15-Q6-P10	
			8 mm	10	8174169	NPQX-D-PC15-Q8-P10	
			10 mm	10	8174170	NPQX-D-PC15-Q10-P10	
			12 mm	2	8225231	NPQX-D-PC15-Q12-P2	
			5/16"	10	8184515	NPQX-D-PC15-T516-P10	
			3/8"	10	8246826	NPQX-D-PC15-T38-P10	
Blanking plug							
	–	Cartridge	10	8191749	NPQX-P-PC10		
			10	8191750	NPQX-P-PC12		
			10	8191751	NPQX-P-PC15		
Release tool							
	–	Release tool for easier removal of cartridges NPQX	1	8214270	NPAT-QX-T-V1		

Datasheet – Manifold sub-bases for serial communication

Ordering data						
	Code	Description		Pack size	Part no.	Type
Tie rods						
	Tie rod: –	Threaded rod for tie rod, internal hex, A/F 4 The threaded rod/screw combination is selected based on the number and width of the individual sub-bases.	10 mm	3	8191752	VAME-XA-Z-10
			12 mm	3	8191753	VAME-XA-Z-12
			15 mm	3	8191754	VAME-XA-Z-16
			17 mm	3	8191755	VAME-XA-Z-17
			19 mm	3	8191756	VAME-XA-Z-19
			29 mm	3	8191757	VAME-XA-Z-29
			38 mm	3	8191758	VAME-XA-Z-38
			42 mm	3	8191759	VAME-XA-Z-42
			50 mm	3	8191760	VAME-XA-Z-50
			61 mm	3	8191761	VAME-XA-Z-61
			64 mm	3	8246657	VAME-XA-Z-64
			84 mm	3	8191762	VAME-XA-Z-84
			107 mm	3	8191763	VAME-XA-Z-107
			130 mm	3	8191764	VAME-XA-Z-130
			150 mm	3	8191765	VAME-XA-Z-150
	–	M4 screw with internal hex, spanner size 2.5, for tie rod	30 mm	3	8191747	VAME-XA-S-M4-30
			45 mm	3	8191748	VAME-XA-S-M4-45
Separator						
	–	Separator for pressure zone separation in duct 1	Size 12	1	8191736	VABD-XA-12-P1
	–	Separator for pressure zone separation in duct 3/5	Size 12	2	8191737	VABD-XA-12-P2
	–	Separator for pressure zone separation in duct 1, 3 and 5	Size 34	1	8236670	VABD-XA-34-P3-C
Inscription labels						
	–	Inscription label for marking pressure zone separation	Duct 1 separated	5	8191742	ASLR-C-XA-TT
			Duct 3/5 separated	5	8191743	ASLR-C-XA-TR
			Duct 1, 3/5 separated	5	8191745	ASLR-C-XA-TS
Wall mounting						
	–	Mounting bracket Wall brackets should be mounted on the valve terminal every 20 cm.		2	8191739	VAME-XA-W
DIN rail mounting						
	Mounting accessories: H	Clamp mounting for DIN rail mounting		2	8191782	VAME-XA-H

Datasheet – Manifold sub-bases for serial communication

Ordering data					
	Code	Description	Pack size	Part no.	Type
Input module, compatible with valve terminal VTUX-A-S					
	Sub-base block, additional function 1-64: 04J	Electrical connection: spring-loaded terminal	NPN (negative switching)	8196630	VAEM-XA-E-8E-N-K2
	Sub-base block, additional function 1-64: 03J		PNP (positive switching)	8196631	VAEM-XA-E-8E-P-K2
	Sub-base block, additional function 1-64: 02J	Electrical connection socket M8	NPN (negative switching)	8196632	VAEM-XA-E-8E-N-V
	Sub-base block, additional function 1-64: 01J		PNP (positive switching)	8196633	VAEM-XA-E-8E-P-V
Cover cap					
	–	Sealing cap for connecting the input module to the manifold sub-base	Pack size 4	8240790	VABB-XA-8E

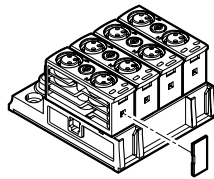
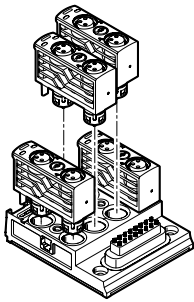
Datasheet – Input modules for manifold sub-bases

 Voltage
24 V DC

The digital input modules provide 8 digital inputs in accordance with IEC 61131-2, types 1 and 3 for connecting digital sensors. The input modules have LEDs to indicate the signal status.



Configuration



On the input module with electrical connection M8, two M8 connections are mounted as a unit using a screw connection. This makes it easy to disconnect both connections from the module at the same time. When assembled, the entire installation is particularly space-saving.

Extremely compact plug connectors (e.g. connecting cables NEBA) are also required so that all M8 connectors can be used. The units also allow inscription labels to be attached.

General technical data		Electrical connection: spring-loaded terminal	Electrical connection socket M8
Max. number of modules		6	
Number of inputs		8	
Max. number of inputs		8	
Diagnostics via internal communication		Short circuit/overload Power OUT PL	
Electrical isolation of inputs between channels		No	
Dimensions W x L x H	[mm]	41.8 x 60.5 x 20.9	41.8 x 49.0 x 27.2
Product weight	[g]	32	42

Datasheet – Input modules for manifold sub-bases

Technical data – Inputs		
	Electrical connection: spring-loaded terminal	Electrical connection socket M8
Electrical connection 1, function	Digital input	Digital input
Electrical connection	Spring-loaded terminal	M8
Electrical connection 1, connection type	Terminal strip	Socket
Electrical connection 1, number of pins/cores	3	3
Electrical connection 1, assigned pins/cores	24	24
Electrical connection 1, type of mounting	Screw-type lock	Screw-type lock
Electrical connection 1, tightening [Nm] torque	0.7	0.7
Max. tightening torque for plug [Nm]	–	0.6
Electrical connection for input, [mm ²] conductor cross-section	0.2 ... 1.5	–
Electrical connection for output, note on con- ductor cross-section	0.09-1.5 flex. without wire ferrule	–
Electrical connection for input, AWG conductor cross-section	AWG28 ... AWG16	–
Input debounce time [ms]	3	3
Switching level	Signal 1: ≥ 11 V	Signal 1: ≥ 11 V
Voltage drop of sensor supply [V]	<1	<1
Max. cable length	30 m inputs	30 m inputs
Characteristic curve of inputs	To EN 61131-2	To EN 61131-2

Technical data – Electrical components		
	Electrical connection: spring-loaded terminal	Electrical connection socket M8
Nominal operating voltage DC for [V] electronics/sensors	24	
Permissible voltage fluctuations, [%] electronics/sensors	±25	
Permissible voltage fluctuations, [%] load	±10	
Note on the operating voltage	SELV/PELV power supply units required	
	Note voltage drop	
Power failure buffering [ms]	10	
Intrinsic current consumption at [mA] nominal operating voltage, elec- tronics/sensors	Typically 4	
Max. total current of inputs per [A] module	0.2	
Overvoltage category	II	
Fuse protection (short circuit)	Internal electronic fuse per module	
Behaviour after end of overload of the sensor supply	Automatic return (default)	
Pollution degree	2	

Datasheet – Input modules for manifold sub-bases

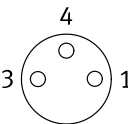
Operating and environmental conditions		
	Electrical connection: spring-loaded terminal	Electrical connection socket M8
Ambient temperature [°C]	–5 ... 50	
Storage temperature [°C]	–20 ... 70	
Relative humidity [%]	5 ... 95	
Nominal operating altitude	≤ 2000 m above sea level	
Corrosion resistance class CRC ¹⁾	0	1
CE marking (see declaration of conformity) ²⁾	To EU EMC Directive	
	To EU RoHS Directive	
KC marking	KC EMC	
Certification	RCM	
Vibration resistant	Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6	
Shock resistance	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27	
Degree of protection	IP20	IP65
Note on degree of protection	–	In mounted state

1) More information www.festo.com/x/topic/crc

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

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

Materials		
	Electrical connection: spring-loaded terminal	Electrical connection socket M8
Plug housing	PA	PA
Film	Polyester	Polyester
Seals	–	NBR
O-ring	–	NBR
Note on materials	RoHS-compliant	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B2-L	VDMA24364-B2-L

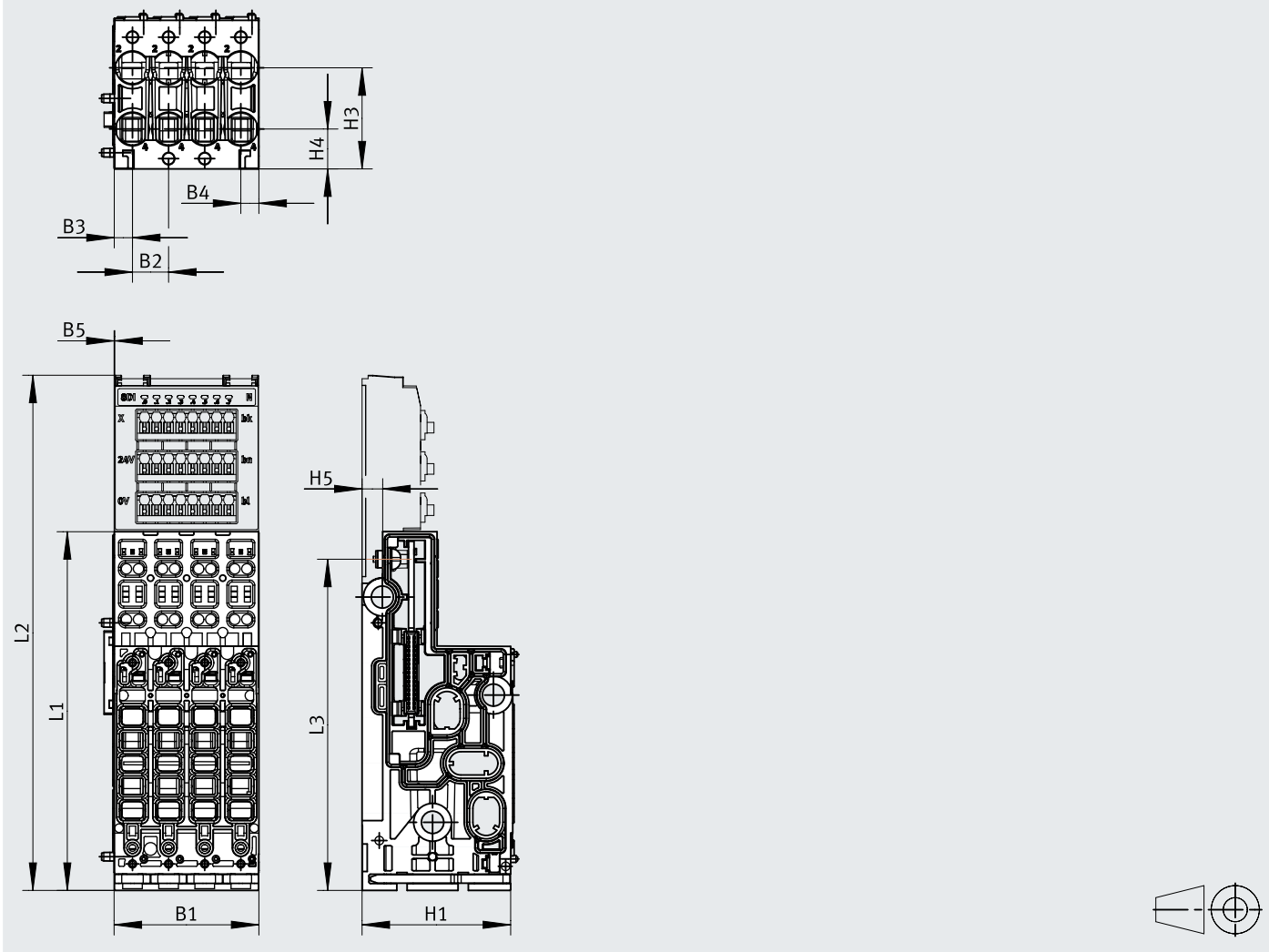
Pin assignment of sensor connections, electrical connection socket M8			
Connection pattern	Pin	Signal	Designation
	1	24 V	Operating voltage 24 V
	3	0 V	Operating voltage 0 V
	4	Ix*	Sensor signal

* Ix = Input x

Datasheet – Input modules for manifold sub-bases

Dimensions – Manifold sub-base for four valves, with connection for input module, size 1 and 2

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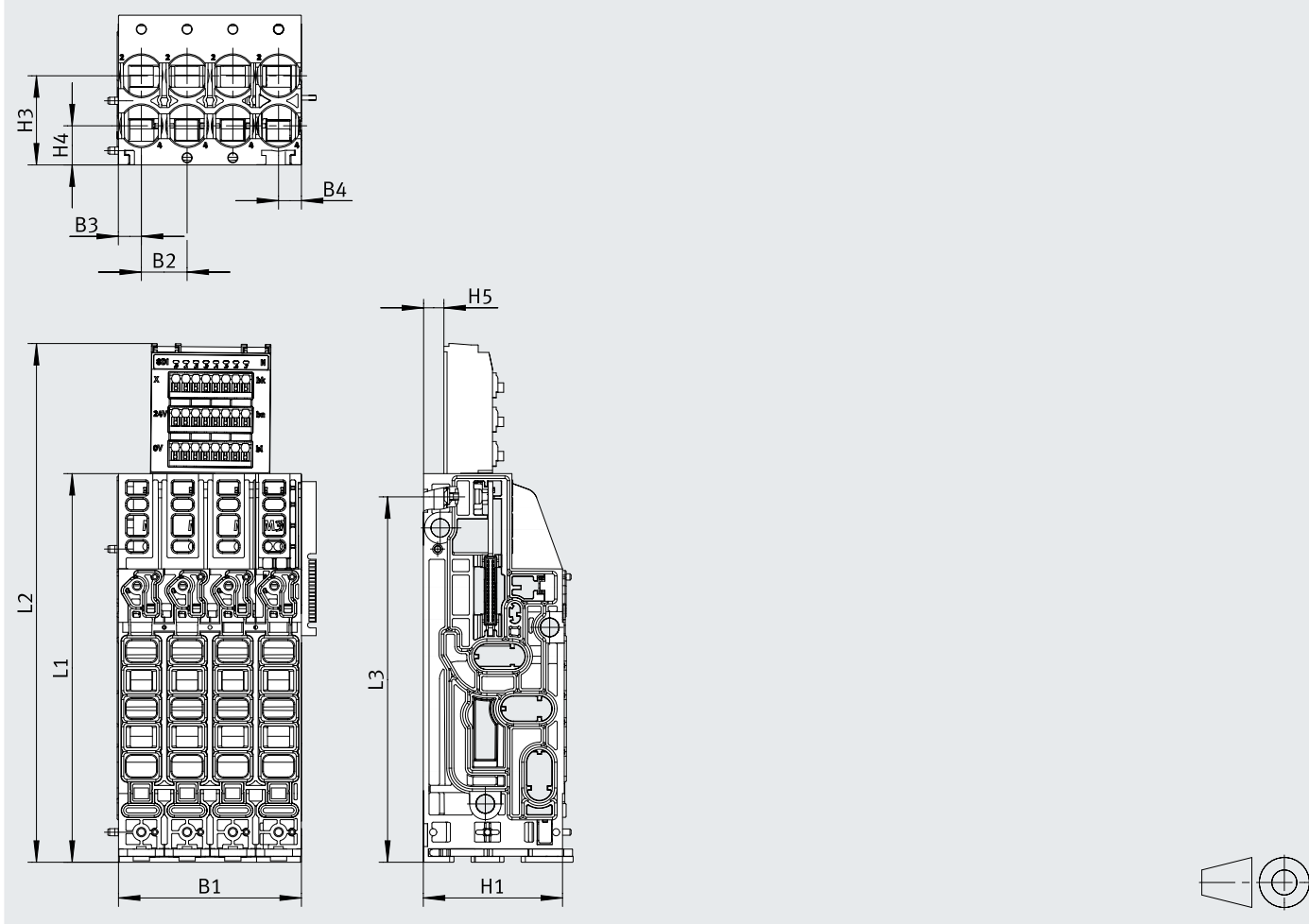


Type	B1	B2	B3	B4	B5	H1	H3	H4	H5	L1	L2	L3
VABX-A-S-BV-AH-RV0XJAAAA	42.05	10.5	5.3	5.25	0.2	43.2	29.4	11.6	6	104.3	149.8	96.3
VABX-A-S-BV-BH-RV0XJBBBB	50.05	12.4	6.45	6.4	4.2	43.2	28	13	6	104.3	149.8	96.3

Datasheet – Input modules for manifold sub-bases

Dimensions – Manifold sub-base for four valves, with connection for input module, size 3

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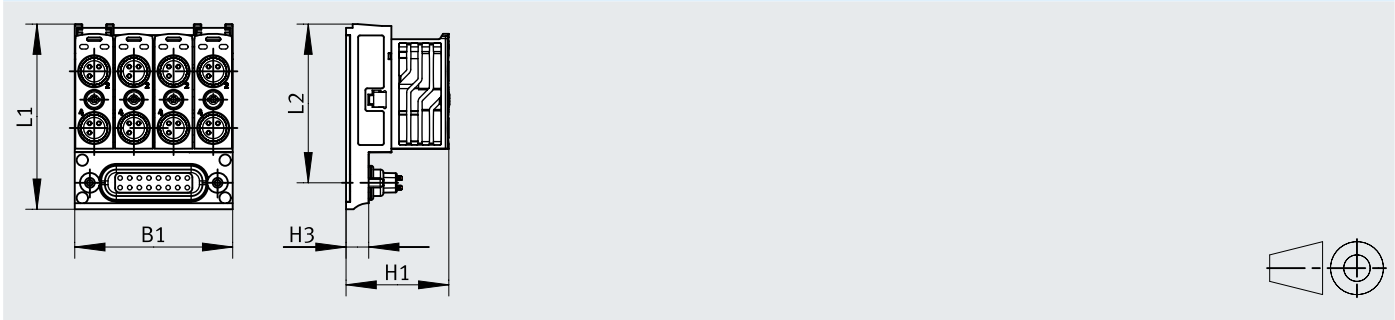


Type	B1	B2	B3	B4	H1	H3	H4	H5	L1	L2	L3
VABX-AS-BV-CH-RV0XJCCCC	64.05	16	8.05	8	48.6	31.2	13.7	7.1	136	181.53	127.86

Datasheet – Input modules for manifold sub-bases

Dimensions – Input module – Electrical connection socket M8

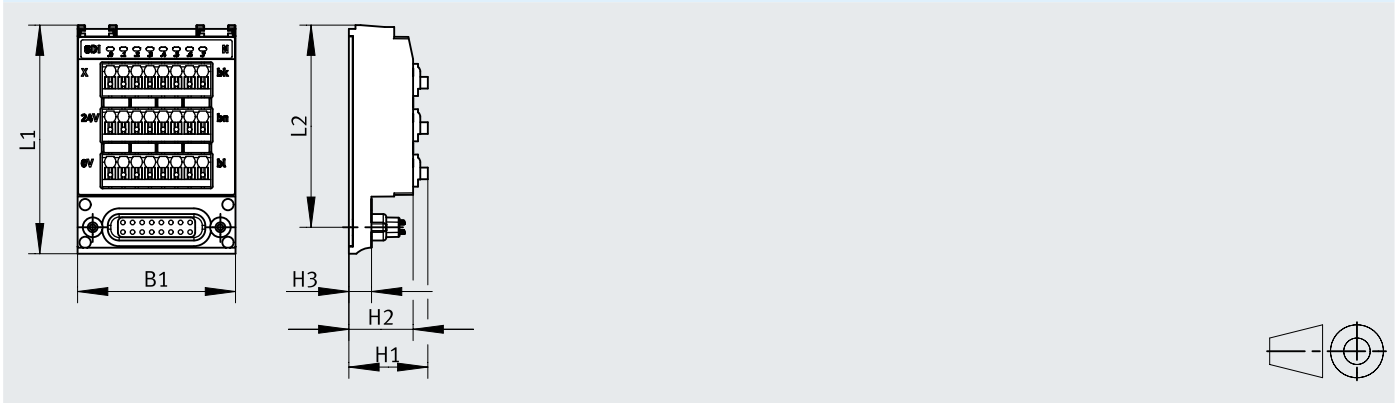
Download CAD data → www.festo.com



Type	B1	H1	H3	L1	L2
VAEM-XA-E-8E-N-V	41.8	27.2	6	49	42
VAEM-XA-E-8E-P-V					

Dimensions – Input module – Electrical connection spring-loaded terminal

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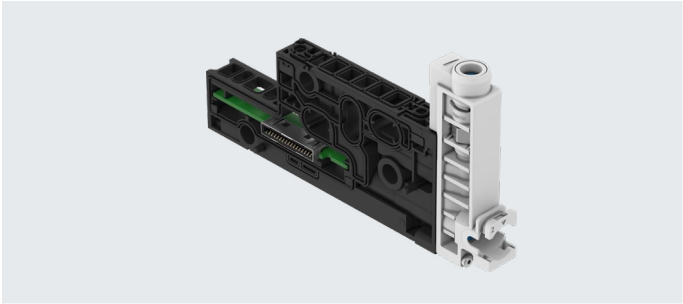
Type	B1	H1	H2	H3	L1	L2
VAEM-XA-E-8E-N-K2	41.8	20.9	17	6	60.5	53.5
VAEM-XA-E-8E-P-K2						

Datasheet – Input modules for manifold sub-bases

Ordering data		Code	Description	Part no.	Type	
Input module, compatible with valve terminal VTUX-A-S						
	Sub-base block, additional function 1-64: 04J	Electrical connection: spring-loaded terminal	NPN (negative switching)	8196630	VAEM-XA-E-8E-N-K2	
	Sub-base block, additional function 1-64: 03J		PNP (positive switching)	8196631	VAEM-XA-E-8E-P-K2	
	Sub-base block, additional function 1-64: 02J	Electrical connection socket M8	NPN (negative switching)	8196632	VAEM-XA-E-8E-N-V	
	Sub-base block, additional function 1-64: 01J		PNP (positive switching)	8196633	VAEM-XA-E-8E-P-V	
Manifold sub-base – for four valves, with connection for input module						
	Sub-base block, additional function 1-64: 0XJ	Maximum number of solenoid coils 8	Size 1	8196628	VABX-A-S-BV-AH-RV0XJAAAA	
			Size 2	8196629	VABX-A-S-BV-BH-RV0XJB BBB	
			Size 3	8236665	VABX-AS-BV-CH-RV0XJCCCC	
Connecting cable – Round plug						
	–	Straight plug, M8x1 A-coded to EN 61076-2-104, straight socket, M8x1 A-coded to EN 61076-2-104	3-pin	0.5 m	8078282	NEBA-M8G3-U-0.5-N-M8G3
				1 m	8078283	NEBA-M8G3-U-1-N-M8G3
				1.5 m	8078284	NEBA-M8G3-U-1.5-N-M8G3
				2 m	8078285	NEBA-M8G3-U-2-N-M8G3
				2.5 m	8078286	NEBA-M8G3-U-2.5-N-M8G3
				5 m	8078287	NEBA-M8G3-U-5-N-M8G3
	–	Straight plug, M8x1, A-coded to EN 61076-2-104, open end	3-pin	2.5 m	8078270	NEBA-LE3-U-2.5-N-M8G3
				5 m	8078271	NEBA-LE3-U-5-N-M8G3
				Cover cap		
	IP cover caps pre-assembled: AK	Cover cap for electrical connections M8x1	Pack size 8	8196625	NEAU-AK-M8	
	–	Sealing cap for connecting the input module to the manifold sub-base	Pack size 4	8240790	VABB-XA-8E	
Inscription labels						
	–	Inscription label 6x12.5 mm for input modules	Pack size 24	8087174	ASLR-L-X4-612-P240	

Datasheet – Manifold sub-base for external vacuum

–  – Valve size
10 mm



Operating mode
Description

With the manifold sub-base for external vacuum and the suitable valve VUVX the externally supplied vacuum as well as the ejector pulse can be switched.
The vacuum is supplied at duct 5, duct 3 is non-functional, and pressure for the ejector pulse is present at duct 1.

The vacuum itself and the ejector pulse are provided at duct 2.
The manifold sub-base for external vacuum can be operated in combination with switching valves on a valve terminal with appropriate pressure zone separation in ducts 3 and 5.

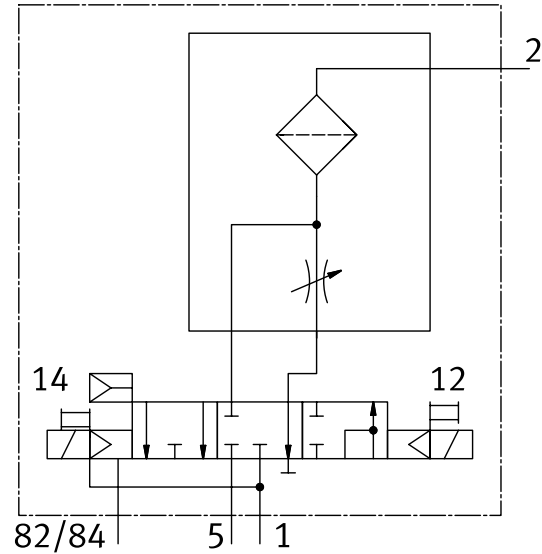
The manifold sub-base for vacuum comprises:

- Adjusting screw for setting the ejector pulse
- Integrated replaceable filter in duct 2
- The corresponding valve must be ordered separately via the configurator

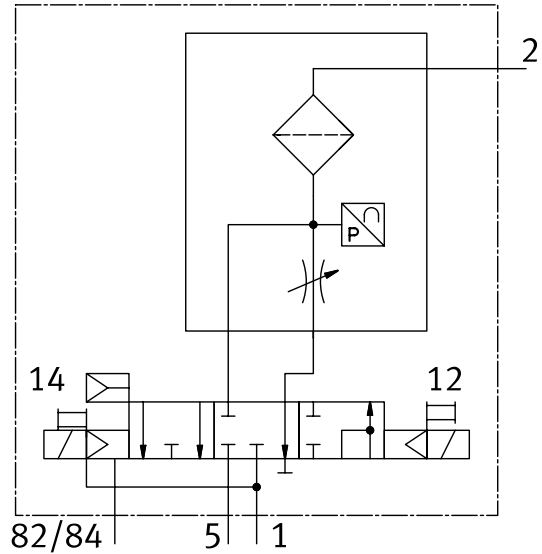
Additional functions are available for the version with serial links:

- Pressure sensor
- Display module
- Condition monitoring

Manifold sub-base for vacuum with multi-pin electrical control



Manifold sub-base for vacuum with AP interface electrical control



Datasheet – Manifold sub-base for external vacuum

Combination of manifold sub-bases for vacuum and power supply modules			
Ambient temperature	Power supply modules	Number of manifold sub-bases for vacuum per valve terminal	
Max. 50 °C	None	4	The manifold sub-bases for vacuum place high demands on the valve terminal VTUX. Good heat dissipation is therefore required. Avoid mounting the valve terminal on highly insulating surfaces (e.g. wood or plastic).
	After 4 manifold sub-bases for vacuum	Any	
Max. 40 °C	None	7	
	After 4 manifold sub-bases for vacuum	Any	

Examples of possible configurations at a maximum ambient temperature of 50 °C

4 manifold sub-base without intermediate supply



8 manifold sub-bases with intermediate supply



13 manifold sub-base with intermediate supply



 Note

The manifold sub-bases for external vacuum have an internal filter. This filter must be checked regularly and replaced if it is contaminated in order to ensure it continues to function correctly. It is recommended to install an additional external filter in case of serious contamination.

Datasheet – Manifold sub-base for external vacuum

General technical data		
Type	VABX-A-P	VABX-A-S
Electrical control	Multi-pin plug	AP interface
Communication interface, protocol	–	AP-COM
Compatible with	Valve terminal VTUX-A-P	Valve terminal VTUX-A-S
Maximum number of valve positions	1	
Max. no. of solenoid coils	2	
Integrated function	Ejector pulse, electrical	Ejector pulse, electrical
	Ejector pulse valve, electric	Ejector pulse valve, electric
	Flow restrictor	Flow restrictor
	On/off valve, electric	On/off valve, electric
	Filter	Filter
	With electrical interlinking module	With electrical interlinking module
	–	Pressure sensor
	–	Pressure transmitter
Mounting position	Any	
Type of mounting	Tie rods	
Dimensions W x L x H	[mm]	12.55 x 127.6 x 68.8
Width	[mm]	12.5
Width	[mm]	12.55
Length	[mm]	127.6
Grid dimension	[mm]	12.55
Valve size	[mm]	10
Product weight	[g]	52.7
		56.4

Pneumatic ports		
Pneumatic connection	2	For tubing O.D. 4 mm
		For tubing O.D. 6 mm
		For tubing O.D. 8 mm
		For tubing O.D. 5/32"
		For tubing O.D. 1/4"
		For tubing O.D. 5/16"

Technical data – Valves		
Type	VABX-A-P	VABX-A-S
Valve function	5/3-way, pressurised 1 to 2, 4 to 5 closed	
Type of control	Piloted	
Actuation type	Electrical	
Pilot air supply	Internal	
Sealing principle	Soft	
Type of indicator	LED	LED
Signal status indication	Yellow LED, valve control	Yes

Datasheet – Manifold sub-base for external vacuum

Technical data – Electrical components		
Type	VABX-A-P	VABX-A-S
Reverse polarity protection	Yes	Yes
Inductive protective circuit	Integrated	–
Nominal operating voltage DC [V]	24	–
Nominal operating voltage DC for electronics/sensors [V]	–	24
Nominal operating voltage DC load [V]	24	24
Note on the operating voltage	–	SELV/PELV power supply units required
	–	Note voltage drop
Permissible voltage fluctuations [%]	±10	–
Permissible voltage fluctuations, electronics/sensors [%]	–	±10
Permissible voltage fluctuations, load [%]	±10	±10
Intrinsic current consumption at nominal operating voltage, electronics/sensors [mA]	–	Typically 27
Intrinsic current consumption at nominal operating voltage, load [mA]	–	Typically 2.5
Power consumption at 24 V DC [W]	–	0.65
Power failure buffering [ms]	–	10
Electrical isolation of outputs between channel - internal communication	–	Yes
Electrical isolation between the supply voltages for electronics/sensors and load/valves	–	Yes
Diagnostics via internal communication	–	Load switch-off
		Electronics/sensors overvoltage
		Electronics/sensors undervoltage

Technical data – Vacuum	
Adjusting element	Slotted head screw
Silencer design	Open

Technical data - Pressure sensor		
Measured variable	Relative pressure	
Measuring principle	Piezoresistive	
Pressure measuring range	[MPa]	–0.1 ... +0.1
	[bar]	–1 ... +1
	[psi]	–14.5 ... +14.5
Accuracy in ± % FS	[%]	3 FS
Reproducibility, switching value FS	[%]	1

Datasheet – Manifold sub-base for external vacuum

Operating and environmental conditions		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4] → 46
Pilot medium		Compressed air to ISO 8573-1:2010 [7:4:-] → 46
Note on the operating/pilot medium		Ester oil < 0.1mg/m ³ , according to ISO 8573-1:2010 [:::2]
		Lubricated operation not possible
Grade of filtration	[µm]	40
Operating pressure	[MPa]	0.2 ... 0.7
	[bar]	2 ... 7
Nominal operating pressure	[MPa]	0.6
	[bar]	6
	[psi]	87
Pilot pressure	[MPa]	0.2 ... 0.7
	[bar]	2 ... 7
Ambient temperature	[°C]	-5 ... +50
Storage temperature	[°C]	-20 ... +70
Relative humidity	[%]	5 ... 95
Maximum setup altitude	[m]	2000
Nominal operating altitude		≤ 2000 m above sea level
Corrosion resistance class CRC ¹⁾		2
CE marking (see declaration of conformity)		To EU EMC Directive ²⁾
		in accordance with EU RoHS Directive ²⁾
UKCA marking (see declaration of conformity)		To UK EMC regulations ²⁾
KC marking		KC EMC
Certification		RCM
Vibration resistant		Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6
Shock resistance		Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27
Degree of protection		IP65
Note on degree of protection		In mounted state

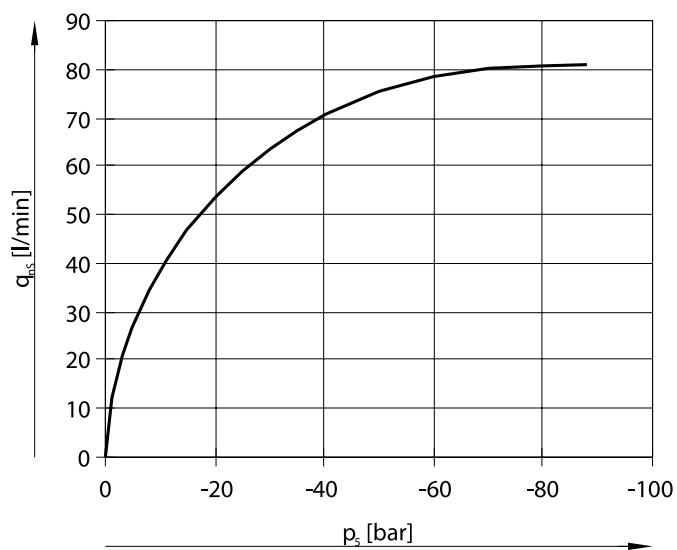
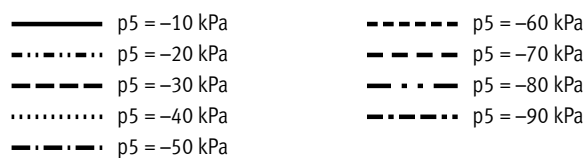
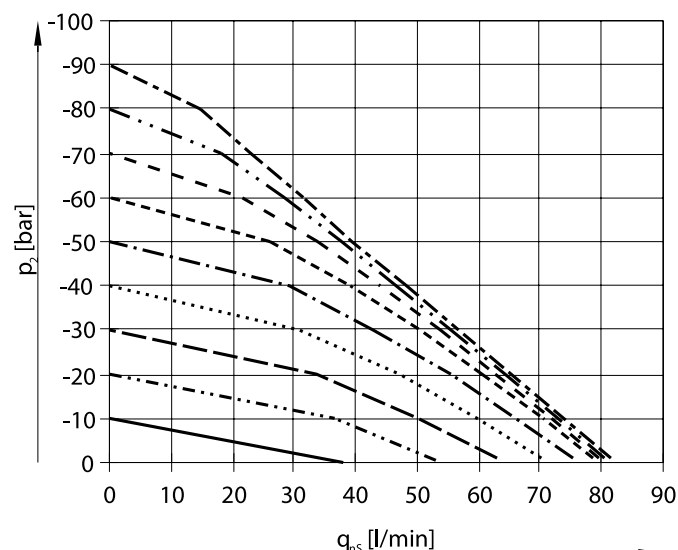
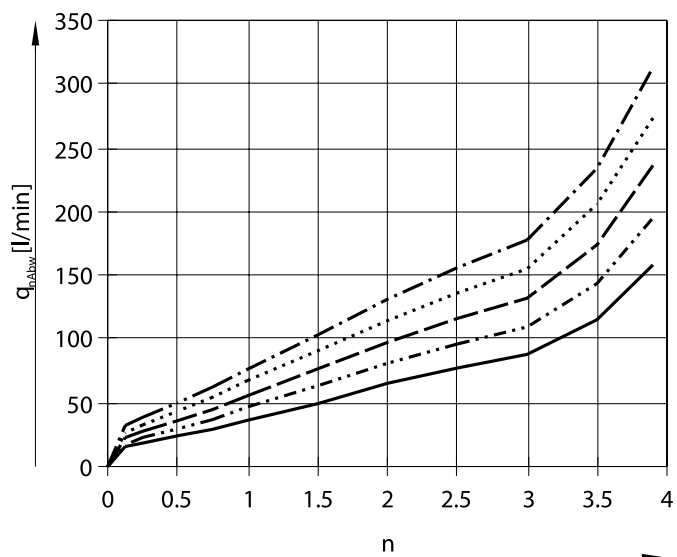
1) More information www.festo.com/x/topic/crc

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

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

Materials	
Connecting plate	Reinforced PA
Housing	Reinforced PA
Adjusting screw	Reinforced PA
Seals	HNBR; NBR
O-ring	HNBR; NBR
Clip	High-alloy stainless steel
Nut	High-alloy stainless steel
Screws	High-alloy stainless steel
Film	Polyester
Sleeve	Reinforced PA
Filter	Fabric; PA; PE; POM
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L

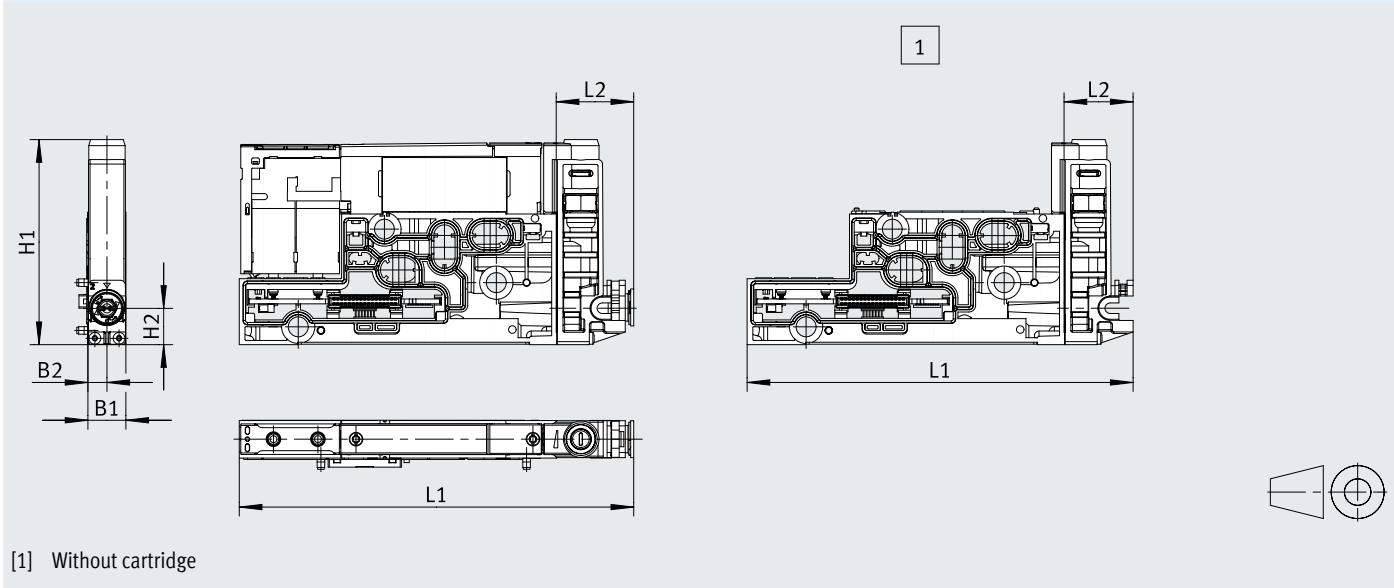
Datasheet – Manifold sub-base for external vacuum

Suction volume flow q_{ns} as a function of working pressure p_5 Suction volume flow q_{ns} as a function of vacuum p_2 Flow rate of the ejector pulse as a function of operating pressure p_1 and the number of turns of the adjusting screw n 

Datasheet – Manifold sub-base for external vacuum

Dimensions – Manifold sub-base for external vacuum, without vacuum display module

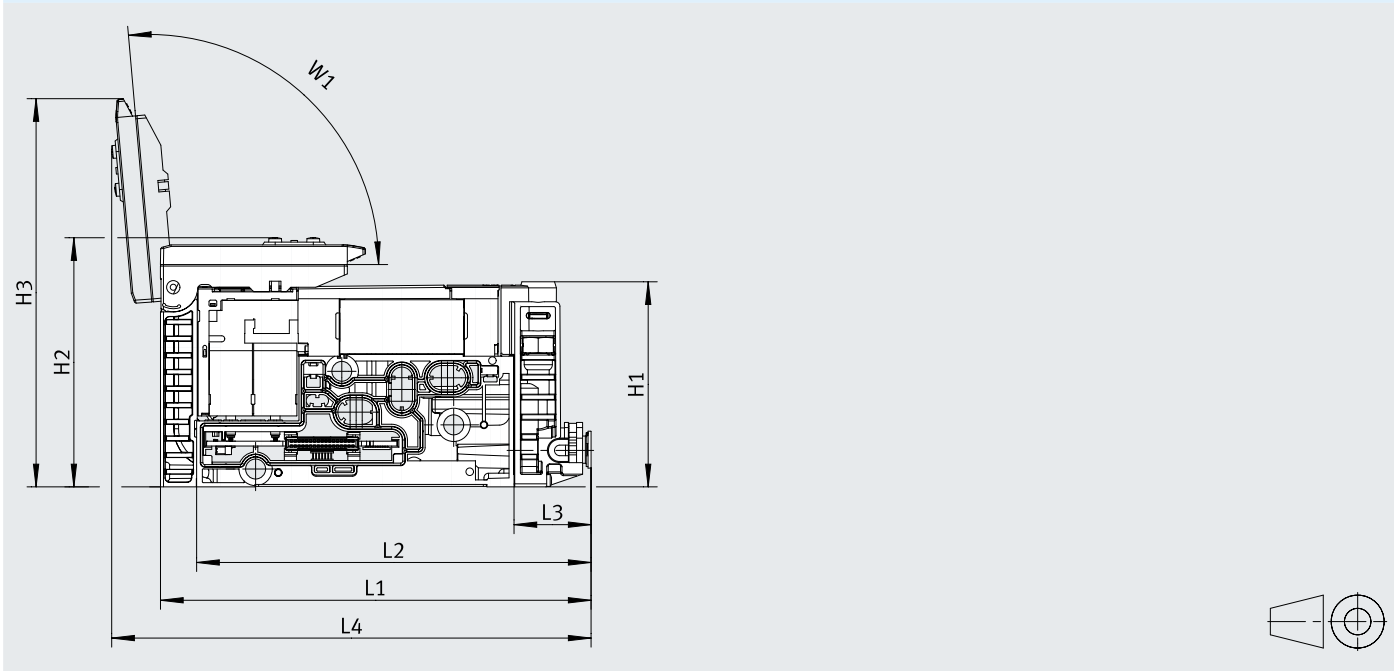
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		B1	B2	H1	H2	L1	L2
VABX-A-P-VP-BH	With cartridge	12.55	6.3	67.8	12	130.4	25.5
	Without cartridge					127.6	22.7
VABX-A-S-VP-BH	With cartridge	12.55	6.3	67.8	12	130.4	25.5
	Without cartridge					127.6	22.7

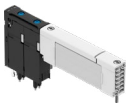
Dimensions – Manifold sub-base for external vacuum, with vacuum display module

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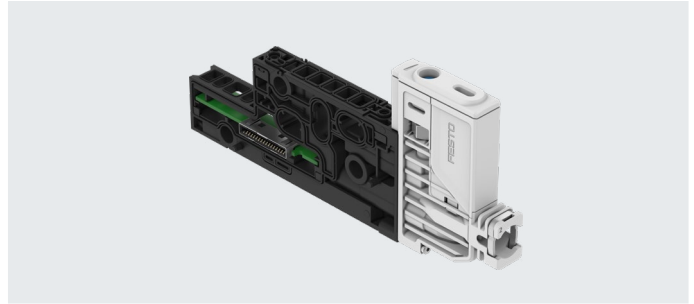
	H1	H2	H3	L1	L2	L3	L4	W1
VABX-A-S-VP-BH	67.8	82.4	128.3	142.4	130.4	25.5	158.5	max. 95°

Datasheet – Manifold sub-base for external vacuum

Ordering data						
	Code	Valve function	Part no.	Type		
Individual solenoid valve – Valve size 10 mm						
	5/3-way valve					
	Position function: NL	With holding function, for vacuum switching unit	8229212	VUVX-BK10-P53CD-A1ZH-F-1T1L		
Vacant position – Valve size 10 mm						
	Position function: L	Cover plate for one valve position	8163948	VABB-XA-10-T		
Manifold sub-base – for valve terminal VTUX-A-P						
	Connection position type: VH	Valve function: 5/3 pressurised, 1 to 2, 4 to 5 closed	8227840	VABX-AP-VP-BH-VH		
Manifold sub-base – for valve terminal VTUX-A-S						
	Connection position type: VH	Valve function: 5/3 pressurised, 1 to 2, 4 to 5 closed	8227839	VABX-AS-VP-BH-VH		
Cover cap						
	Manual override: HV	Cover cap for manual override, pack size 10	Concealed	8198864	VAMC-XA-CS	
	Manual override: HR		Detenting	8198865	VAMC-XA-CD	
Vacuum filter						
	–	For in-line installation	For tubing O.D. of 4 mm	Grade of filtration 10 µm	8212637	OAFB-C-Q4-E-F
				Grade of filtration 40 µm	8212638	OAFB-C-Q4-E-E
			For tubing O.D. of 6 mm	Grade of filtration 10 µm	8212640	OAFB-C-Q6-E-F
				Grade of filtration 40 µm	8212641	OAFB-C-Q6-E-E
			For tubing O.D. of 8 mm	Grade of filtration 10 µm	8212643	OAFB-C-Q8-E-F
				Grade of filtration 40 µm	8212644	OAFB-C-Q8-E-E
			For tubing O.D. of 10 mm	Grade of filtration 10 µm	8212646	OAFB-C-Q10-E-F
				Grade of filtration 40 µm	8234107	OAFB-C-Q10-E-E

Datasheet – Manifold sub-base for internal vacuum generation

-  – Valve size
10 mm
-  – Maximum vacuum
93 kPa



Operating mode

Description

Vacuum generation for a single valve position can be integrated on the VTUX. No further installations are required.

The vacuum is generated within the manifold sub-base according to the Venturi principle and is available at port 2.

Various valve types are available, all of which can simultaneously provide the function of the ejector impulse.

With the integrated check valve, vacuum can be held in an energy-saving way.

The pilot air for the valve is supplied via duct 1 of the manifold sub-base. This also applies if there is also an external pilot air supply for the valve terminal.

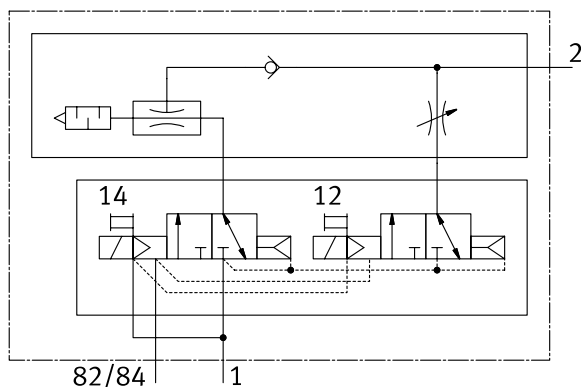
The manifold sub-base for vacuum comprises:

- Adjusting screw for setting the ejector pulse
- Integrated check valve for energy-saving vacuum maintenance
- Integrated silencer
- The corresponding valve must be ordered separately via the configurator

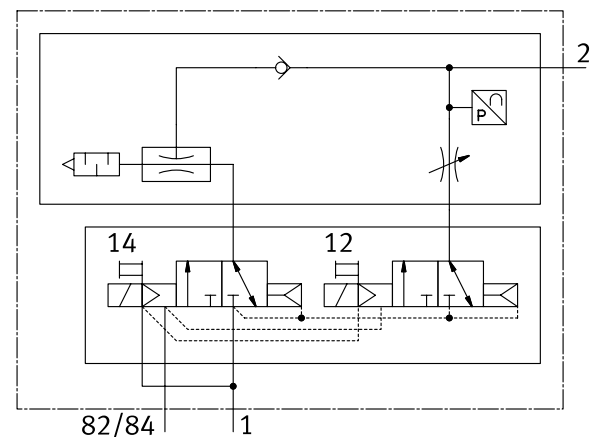
Additional functions are available for the version with serial links:

- Pressure sensor
- Air saving function
- Condition monitoring

Manifold sub-base for vacuum with multi-pin electrical control



Manifold sub-base for vacuum with AP interface electrical control

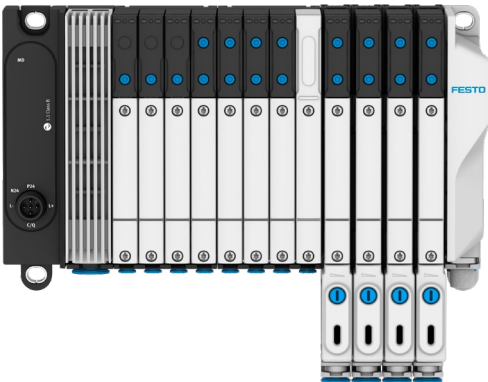


Datasheet – Manifold sub-base for internal vacuum generation

Combination of manifold sub-bases for vacuum and power supply modules			
Ambient temperature	Power supply modules	Number of manifold sub-bases for vacuum per valve terminal	
Max. 50 °C	None	4	The integrated vacuum generation places high demands on the valve terminal VTUX. Good heat dissipation is therefore required. Avoid mounting the valve terminal on highly insulating surfaces (e.g. wood or plastic).
	After 4 manifold sub-bases for vacuum	Any	
Max. 40 °C	None	7	
	After 4 manifold sub-bases for vacuum	Any	

Examples of possible configurations at a maximum ambient temperature of 50 °C

4 manifold sub-base without intermediate supply



8 manifold sub-bases with intermediate supply



13 manifold sub-base with intermediate supply



 Note

The vacuum connection has no filter function. A filter must therefore be installed upstream if contamination of the intake air is expected. This prevents any foreign matter getting in (e.g. when operating a suction cup).

Datasheet – Manifold sub-base for internal vacuum generation

General technical data		
Type	VABX-A-P	VABX-A-S
Electrical control	Multi-pin plug	AP interface
Communication interface, protocol	–	AP-COM
Compatible with	Valve terminal VTUX-A-P	Valve terminal VTUX-A-S
Maximum number of valve positions	1	
Max. no. of solenoid coils	2	
Integrated function	Ejector pulse, electrical	Ejector pulse, electrical
	Ejector pulse valve, electric	Ejector pulse valve, electric
	Flow restrictor	Flow restrictor
	On/off valve, electric	On/off valve, electric
	Check valve	Check valve
	Open silencer	Open silencer
	With electrical interlinking module	With electrical interlinking module
	–	Pressure sensor
	–	Pressure transmitter
	–	Air-saving function, electric
Mounting position	Any	
Type of mounting	Tie rods	
Dimensions W x L x H	[mm]	12.55 x 150.8 x 68.8
Width	[mm]	12.5
Width	[mm]	12.55
Length	[mm]	150.8
Grid dimension	[mm]	12.55
Valve size	[mm]	10
Product weight	[g]	65 68

Pneumatic ports		
Pneumatic connection	2	For tubing O.D. 4 mm
		For tubing O.D. 6 mm
		For tubing O.D. 8 mm
		For tubing O.D. 5/32"
		For tubing O.D. 1/4"
		For tubing O.D. 5/16"

Minimum connection sizes				
Type	VABX-VB07H	VABX-VB07L	VABX-VB010H	VABX-VB010L
Tubing length up to 0.5 m	Tubing O.D. 6 mm		Tubing O.D. 6 mm	
	Tubing O.D. 1/4"		Tubing O.D. 1/4"	
Tubing length up to 2.0 m	Tubing O.D. 6 mm		Tubing O.D. 8 mm	
	Tubing O.D. 1/4"		Tubing O.D. 5/16"	
Recommended connection size	Tubing O.D. 8 mm		Tubing O.D. 8 mm	

 **Note**
Tubing sizes smaller than those specified reduce the performance of the vacuum generator.

Technical data – Valves		
Type	VABX-A-P	VABX-A-S
Valve function	2x3/2-way, single solenoid, closed	
Type of control	Piloted	
Actuation type	Electrical	
Pilot air supply	Internal	
Sealing principle	Soft	
Type of indicator	LED	LED
Signal status indication	Yellow LED, valve control	Yes

Datasheet – Manifold sub-base for internal vacuum generation

Technical data – Electrical components		
Type	VABX-A-P	VABX-A-S
Reverse polarity protection	Yes	
Inductive protective circuit	Integrated	Integrated
Nominal operating voltage DC [V]	24	–
Nominal operating voltage DC for electronics/sensors [V]	–	24
Nominal operating voltage DC load [V]	–	24
Note on the operating voltage	SELV/PELV power supply units required	SELV/PELV power supply units required
	Note voltage drop	Note voltage drop
Permissible voltage fluctuations [%]	±10	–
Permissible voltage fluctuations, electronics/sensors [%]	–	±10
Permissible voltage fluctuations, load [%]	–	±10
Intrinsic current consumption at nominal operating voltage [mA]	Typically 2	–
Intrinsic current consumption at nominal operating voltage, electronics/sensors [mA]	–	Typically 27
Intrinsic current consumption at nominal operating voltage, load [mA]	–	Typically 2.5
Power consumption at 24 V DC [W]	–	0.65
Power failure buffering [ms]	–	10
Electrical isolation of outputs between channel - internal communication	–	Yes
Electrical isolation between the supply voltages for electronics/sensors and load/valves	–	Yes
Diagnostics via internal communication	–	Load switch-off
		Electronics/sensors overvoltage
		Electronics/sensors undervoltage

Technical data – Vacuum				
Type	VABX-VB07H	VABX-VB07L	VABX-VB010H	VABX-VB010L
Ejector characteristics	High vacuum	High suction rate	High vacuum	High suction rate
Adjusting element	Slotted head screw			
Silencer design	Open			
Nominal width of Laval nozzle [mm]	0.7	0.7	0.95	0.95
Maximum vacuum [kPa]	93	–	93	–
Max. suction rate with respect to atmosphere [l/min]	18	33.7	24	45
Pressurisation time at nominal operating pressure [s]	0.37	0.34	0.39	0.42

Technical data - Pressure sensor		VABX-A-S
Type		
Measured variable		Relative pressure
Measuring principle		Piezoresistive
Pressure measuring range	[kPa]	–0.1 ... +0.1
	[bar]	–1 ... +1
	[psi]	–14.5 ... +14.5
Accuracy in ± % FS	[%]	3 FS
Reproducibility, switching value FS	[%]	1

Datasheet – Manifold sub-base for internal vacuum generation

Operating and environmental conditions					
Type		VABX-VB07H	VABX-VB07L	VABX-VB010H	VABX-VB010L
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4] → 46			
Pilot medium		Compressed air to ISO 8573-1:2010 [7:4:-] → 46			
Note on the operating/pilot medium		Ester oil < 0.1mg/m ³ , according to ISO 8573-1:2010 [:-:2]			
		Lubricated operation not possible			
Operating pressure	[MPa]	0.2 ... 0.7			
	[bar]	2 ... 7			
Nominal operating pressure	[MPa]	0.6			
	[bar]	6			
	[psi]	87			
Operating pressure for max. vacuum	[MPa]	0.44	–	0.38	–
	[bar]	4.4	–	3.8	–
	[psi]	63.8	–	55.1	–
Operating pressure for max. suction rate	[MPa]	0.3	0.6	0.4	0.6
	[bar]	3	6	4	6
	[psi]	43.5	87	58	87
Pilot pressure	[MPa]	0.2 ... 0.7			
	[bar]	2 ... 7			
Ambient temperature	[°C]	–5 ... +50			
Storage temperature	[°C]	–20 ... +70			
Relative humidity	[%]	5 ... 95			
Maximum setup altitude	[m]	2000			
Nominal operating altitude		≤ 2000 m above sea level			
Corrosion resistance class CRC ¹⁾		2			
CE marking (see declaration of conformity)		To EU EMC Directive ²⁾			
		in accordance with EU RoHS Directive ²⁾			
UKCA marking (see declaration of conformity)		To UK EMC regulations ²⁾			
KC marking		KC EMC			
Certification		RCM			
Vibration resistant		Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6			
Shock resistance		Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27			
Degree of protection		IP65			
Note on degree of protection		In mounted state			

1) More information www.festo.com/x/topic/crc

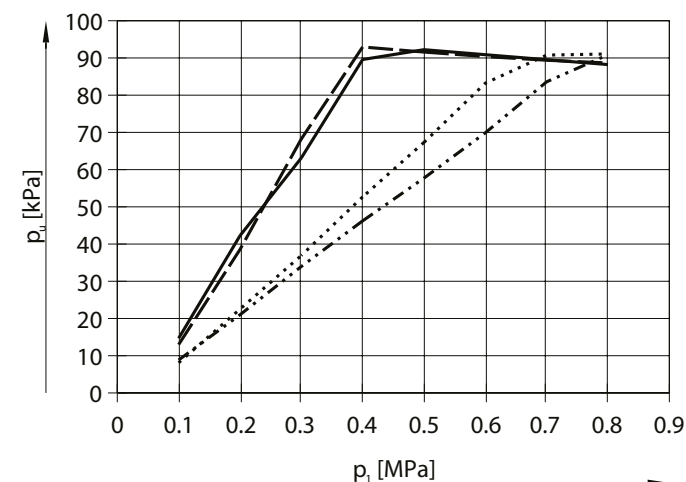
2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.

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

Materials					
Type		VABX-VB07H	VABX-VB07L	VABX-VB010H	VABX-VB010L
Connecting plate		Reinforced PA			
Cover		Reinforced PA			
Housing		Reinforced PA			
Adjusting screw		Reinforced PA			
Silencer		PP; PU foam			
Seals		HNBR; NBR			
O-ring		HNBR; NBR			
Clip		High-alloy stainless steel			
Nut		High-alloy stainless steel			
Screws		High-alloy stainless steel			
Film		Polyester			
Sleeve		Reinforced PA	Reinforced PA	Wrought aluminium alloy	Reinforced PA
Female nozzle		POM			
Jet nozzle		Wrought aluminium alloy			
Note on materials		RoHS-compliant			
LABS (PWIS) conformity		VDMA24364-C1-L			

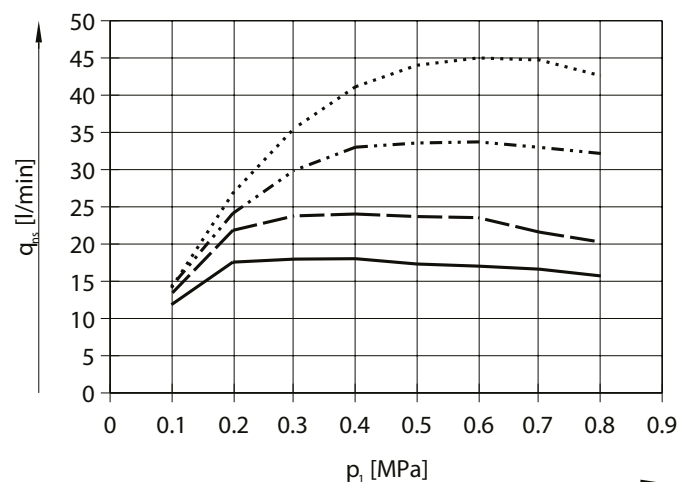
Datasheet – Manifold sub-base for internal vacuum generation

Vacuum p_u as a function of working pressure p_1



— VABX-VB07H - - - VABX-VB010H
 - · - · - VABX-VB07L · · · · · VABX-VB010L

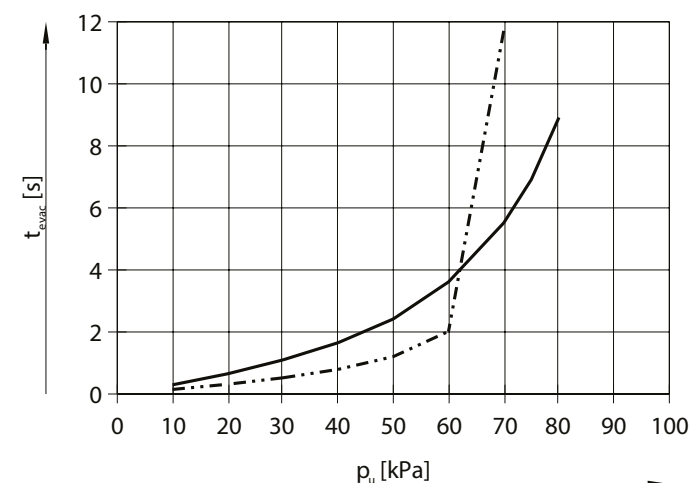
Suction volume flow q_{VS} as a function of working pressure p_1



— VABX-VB07H - - - VABX-VB010H
 - · - · - VABX-VB07L · · · · · VABX-VB010L

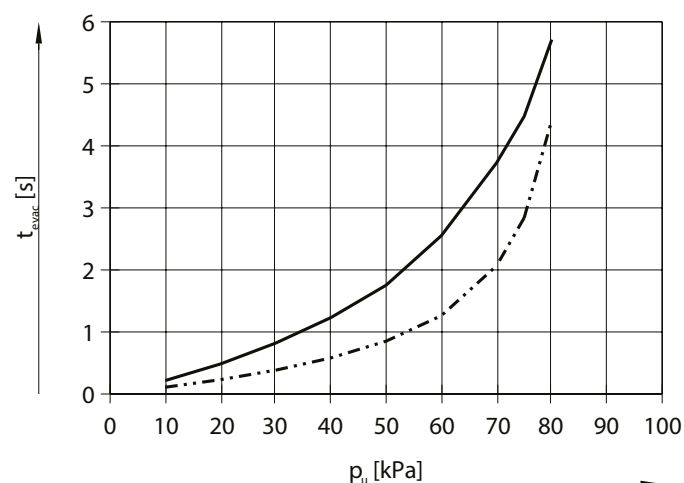
Evacuation time t_{evac} as a function of vacuum p_u at 0.6 bar operating pressure

Nominal width of Laval nozzle 0.7 mm



— VABX-VB07H
 - · - · - VABX-VB07L

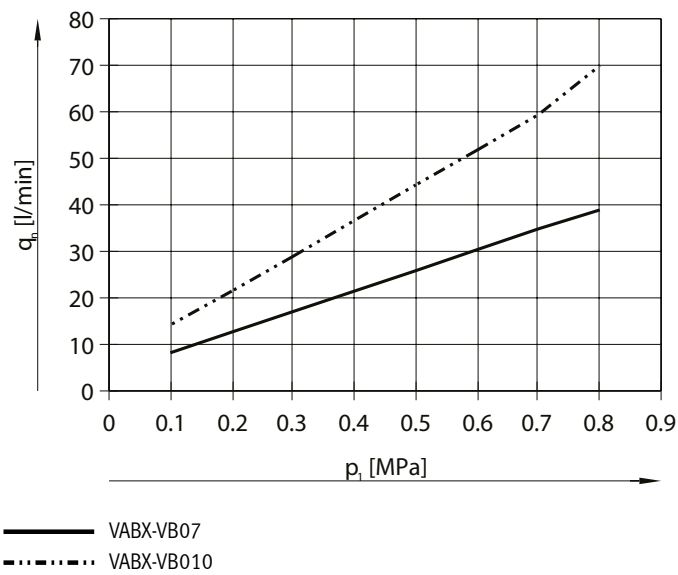
Nominal width of Laval nozzle 0.95 mm



— VABX-VB010H
 · · · · · VABX-VB010L

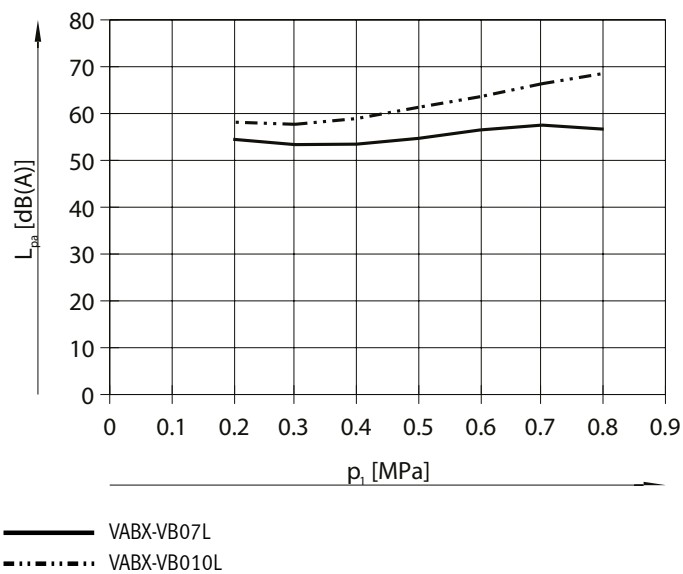
Datasheet – Manifold sub-base for internal vacuum generation

Compressed air consumption qn as a function of working pressure p1

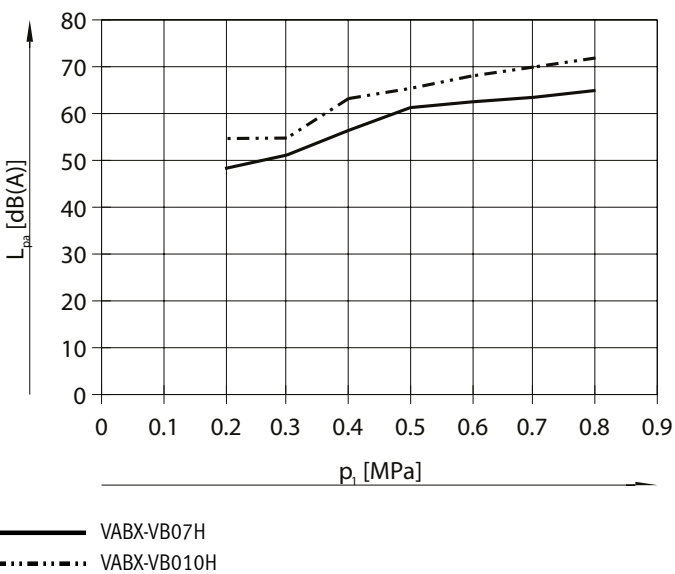


Sound pressure L_{pA} as a function of working pressure p_1 , port 2 closed

Low suction volume flow



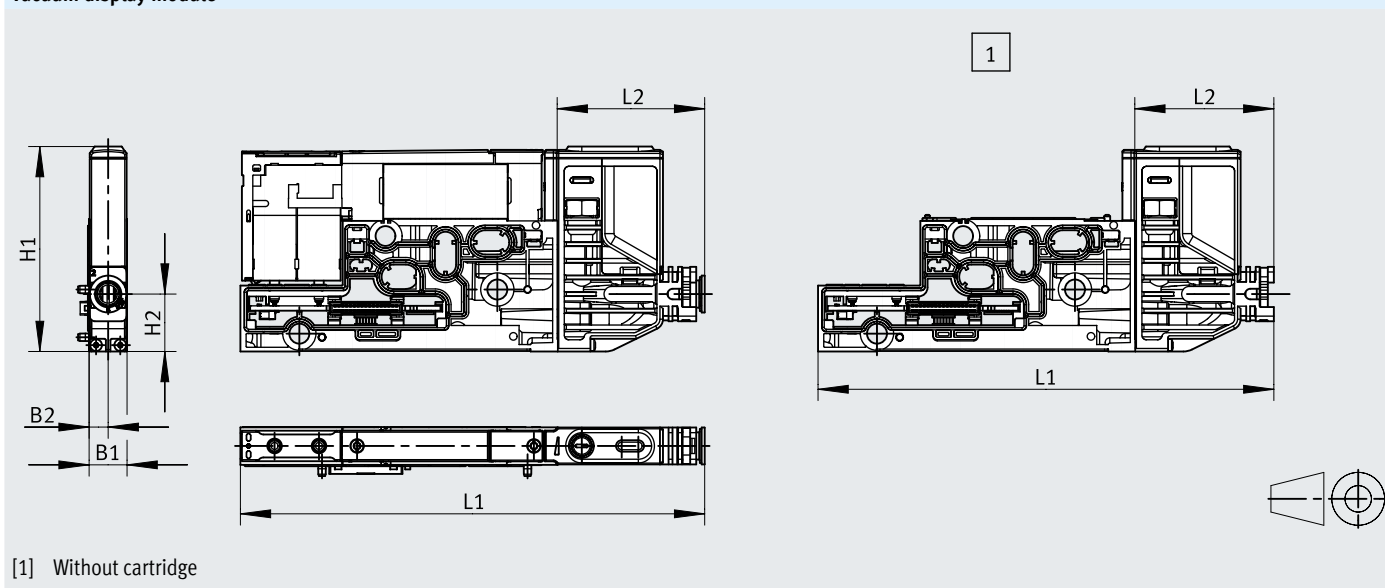
High suction rate



Datasheet – Manifold sub-base for internal vacuum generation

Dimensions – Manifold sub-base for internal vacuum generation, without vacuum display module

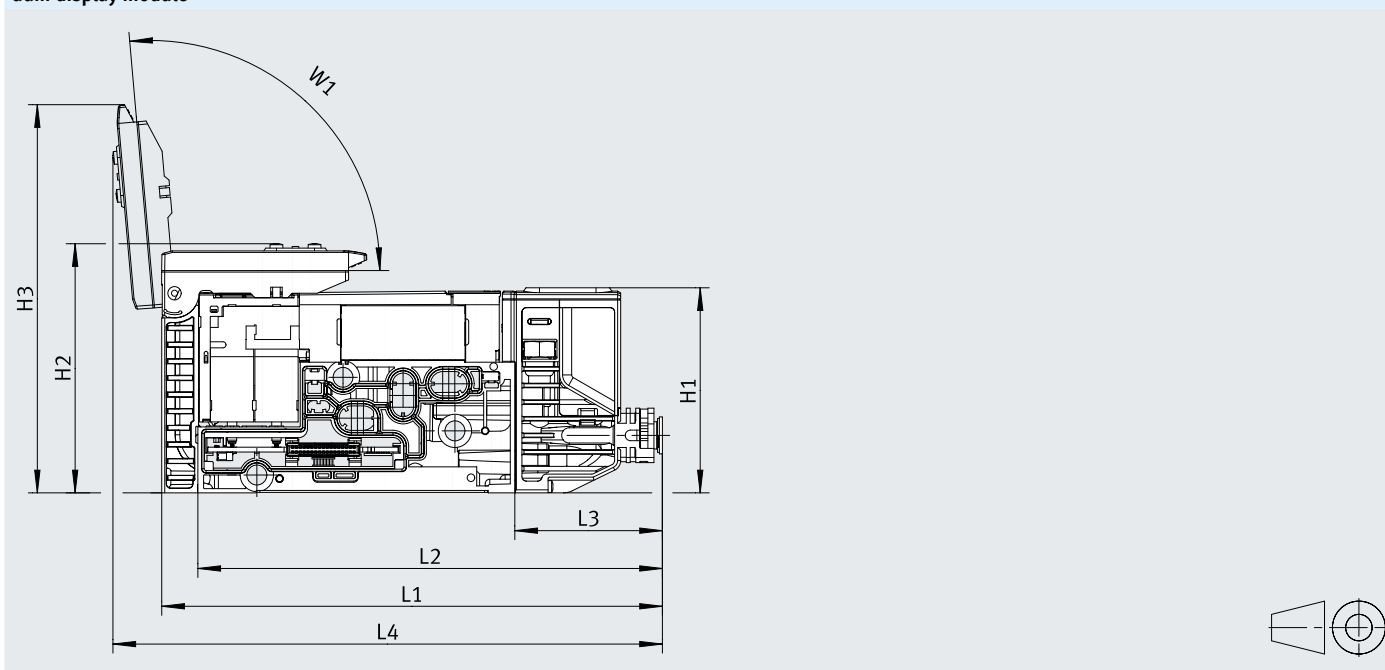
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		B1	B2	H1	H2	L1	L2
VABX-A-P-VE-BH	With cartridge	12.55	6.3	67.8	19	153.6	48.8
	Without cartridge					150.8	46
VABX-A-S-VE-BH	With cartridge	12.55	6.3	67.8	19	153.6	48.8
	Without cartridge					150.8	46

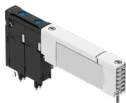
Dimensions – Manifold sub-base for internal vacuum generation, with vacuum display module

Download CAD data → www.festo.com



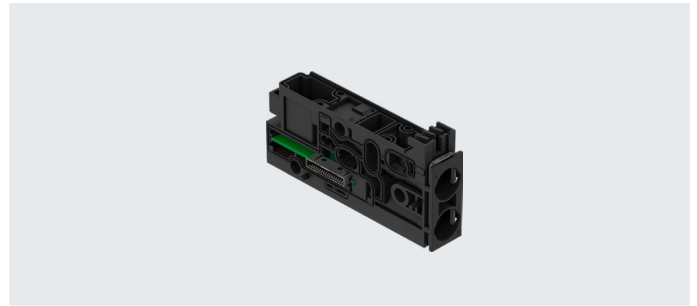
	H1	H2	H3	L1	L2	L3	L4	W1
VABX-A-S-VE-BH	67.8	82.4	128.3	165.6	153.6	48.8	181.7	max. 95°

Datasheet – Manifold sub-base for internal vacuum generation

Ordering data		Code	Valve function	Part no.	Type	
Individual solenoid valve – Valve size 10 mm						
	2x 3/2-way valve					
	Position function: KV	Normally closed, Mechanical spring return		8229210	VUVX-BK10-T32CV-A1ZH-F-1T1L	
	5/4-way valve					
	Position function: NQ	With holding function, for vacuum generator		8229211	VUVX-BK10-P54CV-MZH-F-1T1L	
Vacant position – Valve size 10 mm						
	Position function: L	Cover plate for one valve position		8163948	VABB-XA-10-T	
Manifold sub-base – for valve terminal VTUX-A-P						
	Connection position type: VB	Valve function: 2x3/2-way, single solenoid, closed	High vacuum	Nominal width of Laval nozzle 0.7 mm	8233483	VABX-A-P-VE-BH-VB07H
				Nominal width of Laval nozzle 0.95 mm	8213837	VABX-A-P-VE-BH-VB010H
			High suction rate	Nominal width of Laval nozzle 0.7 mm	8233485	VABX-A-P-VE-BH-VB07L
				Nominal width of Laval nozzle 0.95 mm	8233481	VABX-A-P-VE-BH-VB010L
Manifold sub-base – for valve terminal VTUX-A-S						
	Connection position type: VB	Valve function: 2x3/2-way, single solenoid, closed	High vacuum	Nominal width of Laval nozzle 0.7 mm	8233482	VABX-A-S-VE-BH-VB07H
				Nominal width of Laval nozzle 0.95 mm	8213836	VABX-A-S-VE-BH-VB010H
			High suction rate	Nominal width of Laval nozzle 0.7 mm	8233484	VABX-A-S-VE-BH-VB07L
				Nominal width of Laval nozzle 0.95 mm	8233480	VABX-A-S-VE-BH-VB010L
Cover cap						
	Manual override: HV	Cover cap for manual override, pack size 10	Concealed	8198864	VAMC-XA-CS	
	Manual override: HR		Detenting	8198865	VAMC-XA-CD	
Vacuum filter						
	–	For in-line installation	For tubing O.D. of 4 mm	Grade of filtration 10 µm	8212637	OAFA-C-Q4-E-F
				Grade of filtration 40 µm	8212638	OAFA-C-Q4-E-E
			For tubing O.D. of 6 mm	Grade of filtration 10 µm	8212640	OAFA-C-Q6-E-F
				Grade of filtration 40 µm	8212641	OAFA-C-Q6-E-E
			For tubing O.D. of 8 mm	Grade of filtration 10 µm	8212643	OAFA-C-Q8-E-F
				Grade of filtration 40 µm	8212644	OAFA-C-Q8-E-E
			For tubing O.D. of 10 mm	Grade of filtration 10 µm	8212646	OAFA-C-Q10-E-F
				Grade of filtration 40 µm	8234107	OAFA-C-Q10-E-E

Datasheet – Power supply module

Size
1, 2 and 3



General technical data			Parallel communication	Serial communication
Compatible with			Valve terminal VTUX-A-P	Valve terminal VTUX-A-S
Electrical control			Multi-pin plug	AP interface
Communication interface, protocol			–	AP
Overvoltage category			–	II
Integrated function			With electrical interlinking module	
Size			1	
			2	
			3	
Flow direction			Reversible	
Suitable for vacuum			Yes	
Type of mounting sub-base			With through-hole	
Type of mounting			Tie rods	
Dimensions W x L x H	Size 1 and 2	[mm]	19.05 x 104.3 x 43.1	
	Size 3	[mm]	19.05 x 136 x 61.7	
Grid dimension		[mm]	19.05	
Product weight	Size 1 and 2	[g]	56.3	
	Size 3	[g]	88	

Pneumatic ports		
Pneumatic connection	1	For 15 mm cartridge
	3	–
	5	For 15 mm cartridge
	2	–
	4	–
Pilot air port	12/14	–
Pilot exhaust air port	82/84	–

Datasheet – Power supply module

Operating and environmental conditions		Parallel communication	Serial communication
Ambient temperature	[°C]	–5 ... +50	
Storage temperature	[°C]	–20 ... +70	
Relative humidity	[%]	5 ... 95	
Nominal operating altitude	[m]	–	< 3000 m above sea level
Pollution degree		2	2
Corrosion resistance class CRC ²⁾		2	1
CE marking (see declaration of conformity)		To EU EMC Directive ³⁾ in accordance with EU RoHS Directive ³⁾	
UKCA marking (see declaration of conformity)		To UK EMC regulations ³⁾	
		To UK RoHS regulations ³⁾	
KC marking		KC EMC	
Certification		RCM	
Vibration resistant		Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6	
Shock resistance		Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27	
Degree of protection		IP65	

1) See pilot pressure graphs on page 72.

2) More information www.festo.com/x/topic/crc

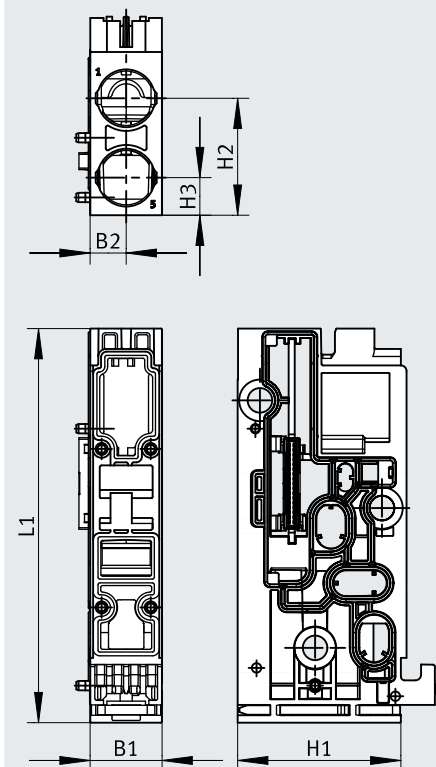
3) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.

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

Materials	
Connecting plate	Reinforced PA
Seals	NBR
Clip	High-alloy stainless steel
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L

Datasheet – Power supply module

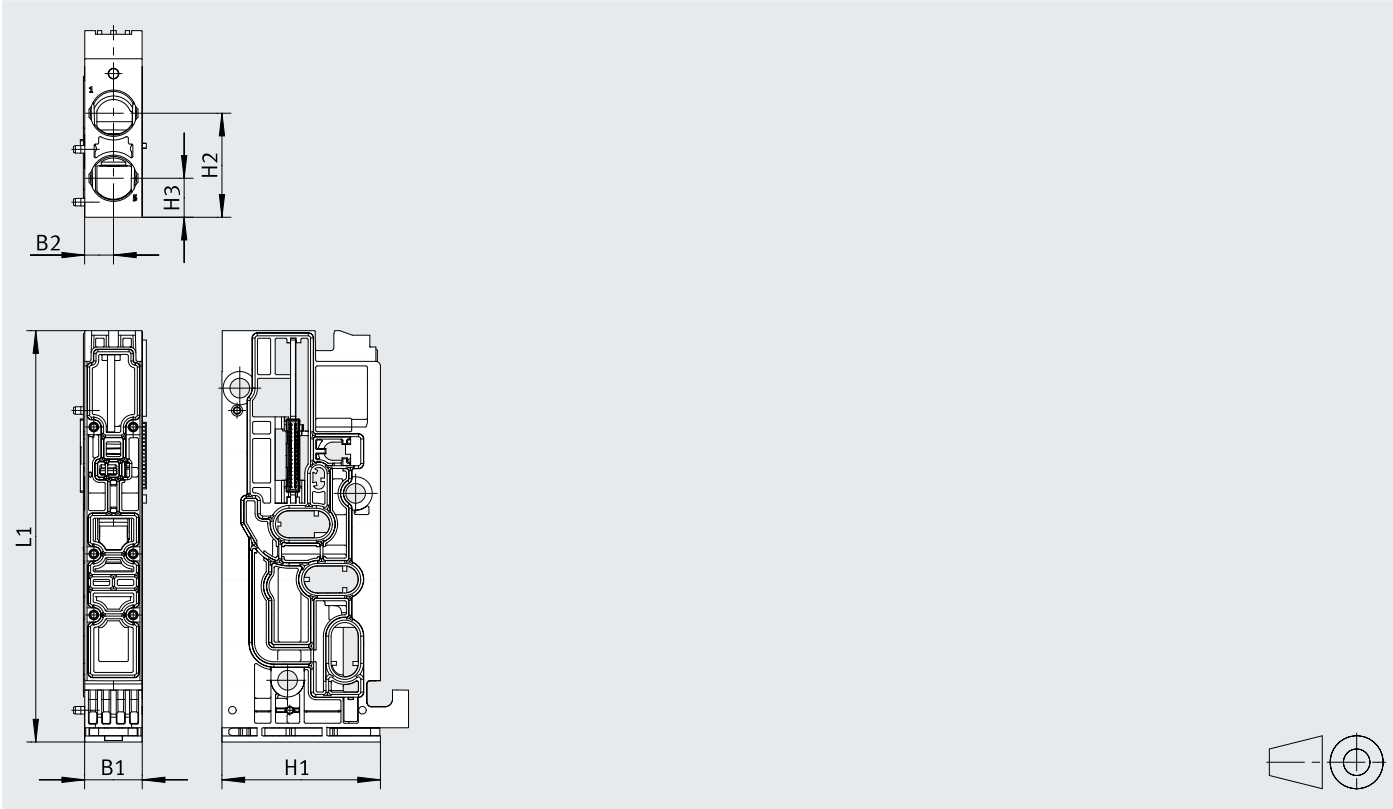
Dimensions – Power supply module size 1 and 2

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Type	B1	B2	H1	H2	H3	L1
VABX-A-P-BU-12	19.05	9.55	43.2	30.95	9.95	104.3
VABX-A-S-BU-12						

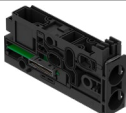
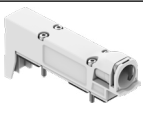
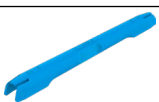
Datasheet – Power supply module

Dimensions – Power supply module size 3 Download CAD data → www.festo.com



Type	B1	B2	H1	H2	H3	L1
VABX-A-P-BU-34	19.05	9.55	52.4	34.4	12.9	136
VABX-A-S-BU-34						

Datasheet – Power supply module

Ordering data						
	Code	Description	Size	Part no.	Type	
Power supply module – For valve terminal VTUX-A-P, parallel communication						
	Connection position type: U	Manifold sub-base with ports for ducts 1 and 3/5, no plate, no cartridge	1 and 2	8191788	VABX-A-P-BU-12-SHUH-U	
			3	8236659	VABX-A-P-BU-34-SHUH-U	
Power supply module – For valve terminal VTUX-A-S, serial communication						
	Connection position type: U	Manifold sub-base with ports for ducts 1 and 3/5, no plate, no cartridge	1 and 2	8191789	VABX-A-S-BU-12-SHUH-U	
		Manifold sub-base for electrical supply plate with connections for duct 1 and 3/5, without plate, without cartridge	3	8236660	VABX-A-S-BU-34-SHUH-U	
			1 and 2	8212444	VABX-A-S-BU-12-SHUH-USP	
Plate						
	Position function: UD	Plate for ducted exhaust	Pneumatic connection 3/5 combined	–	8191794	VABF-XA-12-M2-QX
	Position function: UT	air, without cartridge, for mounting on supply module	Pneumatic connection 3 and 5 separated	1 and 2	8249322	VABF-XA-12-M2A17-QX
				–	8234043	VABF-XA-34-M2A17-QX
	Position function: US	Exhaust plate	For mounting on a power supply module	–	8191741	VABF-XA-12-M1-C
	Position function: TN	Electrical supply plate	Electrical connection M12x1, A-coded to EN 61076-2-101	1 and 2	8243167	VABF-XA-12-E4-C-1R3
Ordering data						
	Code	Description	Pack size	Part no.	Type	
Cartridge						
	–	Cartridge 15 mm, Connection for tubing O.D.	6 mm	10	8246825	NPQX-D-PC15-Q6-P10
			8 mm	10	8174169	NPQX-D-PC15-Q8-P10
			10 mm	10	8174170	NPQX-D-PC15-Q10-P10
			12 mm	2	8225231	NPQX-D-PC15-Q12-P2
			5/16"	10	8184515	NPQX-D-PC15-T516-P10
			3/8"	10	8246826	NPQX-D-PC15-T38-P10
Blanking plug						
	–	Cartridge	10	8191751	NPQX-P-PC15	
Silencer						
	–	Cartridge 15 mm, For fitting in exhaust ports	2	8242223	AMTX-LP-PC15	
Release tool						
	–	Release tool for easier removal of cartridges NPQX	1	8214270	NPAT-QX-T-V1	

Datasheet – Power supply module

Ordering data						
	Code	Description		Pack size	Part no.	Type
Tie rods						
	Tie rod: –	Threaded rod for tie rod, internal hex, A/F 4 The threaded rod/screw combination is selected based on the number and width of the individual sub-bases.	10 mm	3	8191752	VAME-XA-Z-10
			12 mm	3	8191753	VAME-XA-Z-12
			15 mm	3	8191754	VAME-XA-Z-16
			17 mm	3	8191755	VAME-XA-Z-17
			19 mm	3	8191756	VAME-XA-Z-19
			29 mm	3	8191757	VAME-XA-Z-29
			38 mm	3	8191758	VAME-XA-Z-38
			42 mm	3	8191759	VAME-XA-Z-42
			50 mm	3	8191760	VAME-XA-Z-50
			61 mm	3	8191761	VAME-XA-Z-61
			64 mm	3	8246657	VAME-XA-Z-64
			84 mm	3	8191762	VAME-XA-Z-84
			107 mm	3	8191763	VAME-XA-Z-107
			130 mm	3	8191764	VAME-XA-Z-130
			150 mm	3	8191765	VAME-XA-Z-150
170 mm	3	8191766	VAME-XA-Z-170			
190 mm	3	8191767	VAME-XA-Z-190			
	–	M4 screw with internal hex, spanner size 2.5, for tie rod	30 mm	3	8191747	VAME-XA-S-M4-30
			45 mm	3	8191748	VAME-XA-S-M4-45
Separator						
	–	Separator for pressure zone separation in duct 1	Size 12	1	8191736	VABD-XA-12-P1
	–	Separator for pressure zone separation in duct 3/5	Size 12	2	8191737	VABD-XA-12-P2
	–	Separator for pressure zone separation in duct 1, 3 and 5	Size 34	1	8236670	VABD-XA-34-P3-C
Wall mounting						
	–	Mounting bracket Wall brackets should be mounted on the valve terminal every 20 cm.		2	8191739	VAME-XA-W
DIN rail mounting						
	Mounting accessories: H	Clamp mounting for DIN rail mounting		2	8191782	VAME-XA-H
Inscription labels						
	–	Inscription label for marking pressure zone separation	Duct 1 separated	5	8191742	ASLR-C-XA-TT
			Duct 3/5 separated	5	8191743	ASLR-C-XA-TR
			Duct 1, 3/5 separated	5	8191745	ASLR-C-XA-TS