Valve terminals VTUB-12
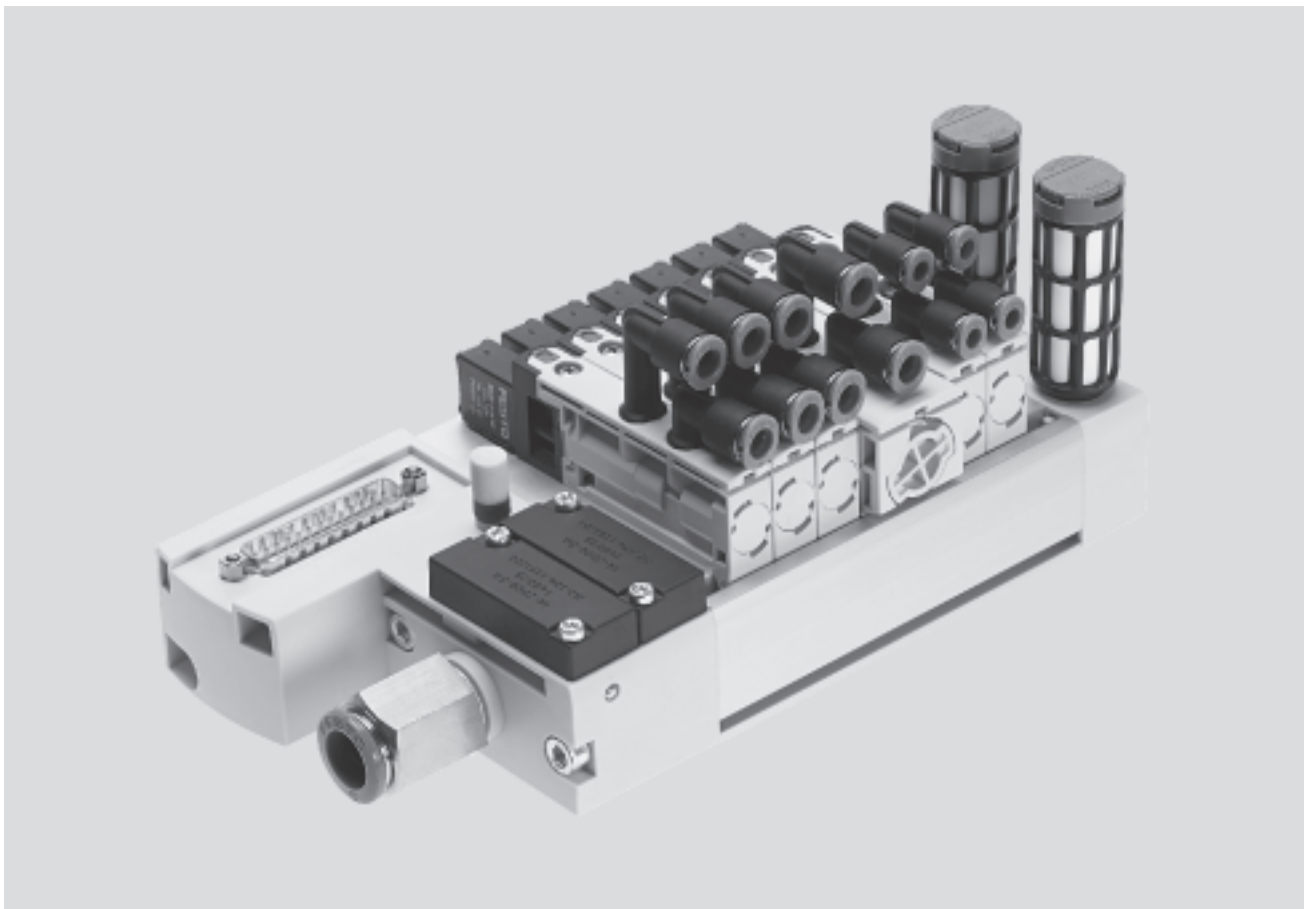
Valve terminals VTUB-12

Key features

Innovative

- Cost-effective I-Port interface for fieldbus nodes (CTEU)
- IO-Link mode for direct connection to a higher-level IO-Link master
- Lower installation costs thanks to multi-pin plug connection
- Valve terminal for a wide range of pneumatic applications
- Minimal space requirement
- Great flexibility during planning, assembly and operation
- Pneumatic distributor integrated on the valve terminal
- Use in dusty environments

Versatile

- Room for expansion with up to 35 valve positions on one valve terminal
- Flexibility of the pneumatic working lines provides a practical solution to different requirements
- Quick and easy replacement of fittings
- Optional manifold rail variant with LED signal status display

Reliable

- Manual override
- Durable
- Sturdy thanks to the polymer housing and metal manifold rail

Easy to mount

- Ready-to-install and tested unit
- Lower ordering, installation and commissioning costs
- Quick and secure installation thanks to integrated QS push-in connectors
- Easy valve assembly with just one screw

- ┊ - Note

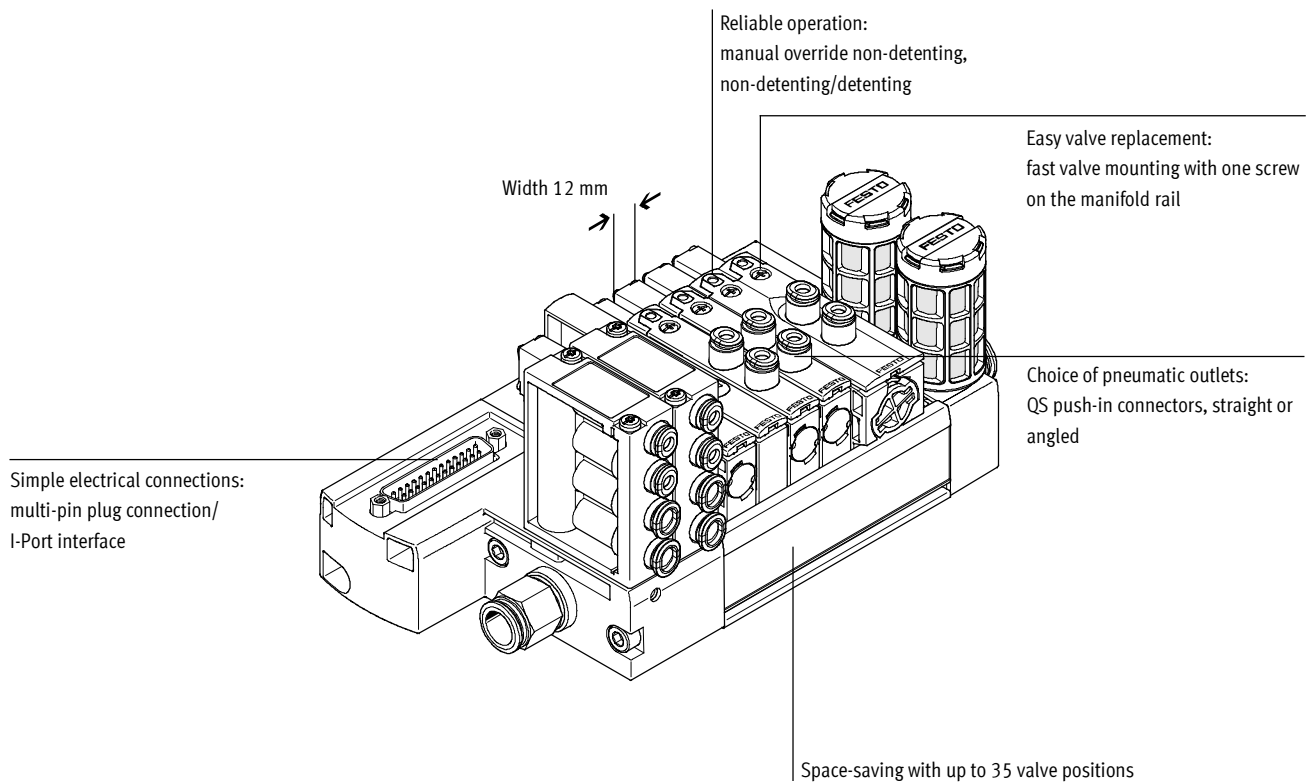Ordering system for valve terminal VTUB-12
➔ Internet: vtub-12
Fieldbus CTEU
➔ Internet: cteu

Valve terminals VTUB-12

Key features

Reliable operation:
manual override non-detenting,
non-detenting/detenting

Easy valve replacement:
fast valve mounting with one screw
on the manifold rail

Width 12 mm

Choice of pneumatic outlets:
QS push-in connectors, straight or
angled

Simple electrical connections:
multi-pin plug connection/
I-Port interface

Space-saving with up to 35 valve positions

Equipment options			
Valve functions		**Electrical connection options**	

Valve functions

- 5/2-way valve, single solenoid
- 5/2-way valve, double solenoid

- 3/2-way valve can be created from a 5/2-way valve using blanking plugs

Electrical connection options

Multi-pin plug
- Sub-D, 25-pin
- Sub-D, 44-pin
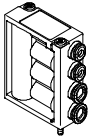- 2 … 35 valve positions/ max. 35 solenoid coils

I-Port
- Fieldbus connection (CTEU)
- IO-Link mode
- 3 … 35 valve positions/ max. 35 solenoid coils

Key features

Pneumatic distributor

The pneumatic distributor supplies the operating pressure from port 1 to up to four other ports. The pneumatic distributor has integrated QS4 or QS6 connections.
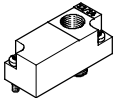
- ☐ - Note

Number of pneumatic distributors that can be used
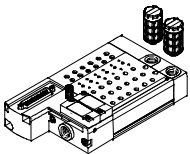➔ Page 8 Pilot air supply

Selector plate/pilot control with external pilot air (optional)

The VTUB-12 is intended for use with pilot air. It can be operated with external pilot air by mounting the selector plate VABF-C8-12-P6-...-Z instead of the blanking plate. The pilot air is then supplied via port 12/14 on the selector plate.

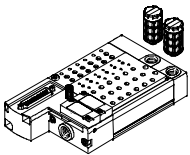## Manifold rail with multi-pin plug connection

The manifold rail features a groove into which the semi in-line valves are latched and secured with just one screw.

The valve functions 3/2-way, normally closed or normally open, 5/2-way single solenoid and 5/2-way double solenoid are available.

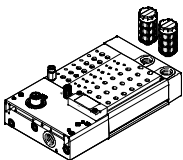The valves can be supplied as semi in-line valves with cartridges QSP for tubing diameters 4 and 6 mm.

Manifold rail with optional LED signal status display

The manifold rail with multi-pin plug can optionally be ordered with LEDs (code L).

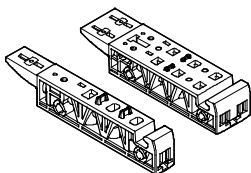These indicate the signal states of the solenoid coils.

Manifold rail with I-Port interface

The manifold rail can be ordered with I-Port interface (code PT) and IO-Link (code LK) as a basis for fieldbus nodes (CTEU) or in IO-Link mode for direct connection to a higher-level IO-Link master.

Sub-base for semi in-line valve

The valve VUVB-12 can be operated as an individual valve using an individual sub-base (single width for single solenoid valves or double width for double solenoid valves). The power is supplied via the plug socket with cable KMYZ and the adapter (M8x1) with corresponding connecting cable (➔ accessories, p. 33)
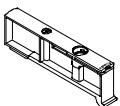
Blanking plate

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

Valves and blanking plates are attached to the manifold rail using one screw.

Valve terminals VTUB-12

Peripherals overview

Overview – Valve terminal VTUB-12

Valve terminal with electrical multi-pin plug connection

- Up to 20 valve positions/solenoid coils, 25-pin Sub-D multi-pin plug connection, code: M
- From 21 valve positions/solenoid coils, 44-pin Sub-D multi-pin plug connection, code: M

Valve terminals with electrical multi-pin plug connection are available in gradations from 2 to max. 35 valve positions.

Each valve position can either be equipped with a valve or a blanking plate. Double solenoid valves occupy two valve positions.

A maximum of 35 solenoid coils can be actuated via the electrical multi-pin plug connection.
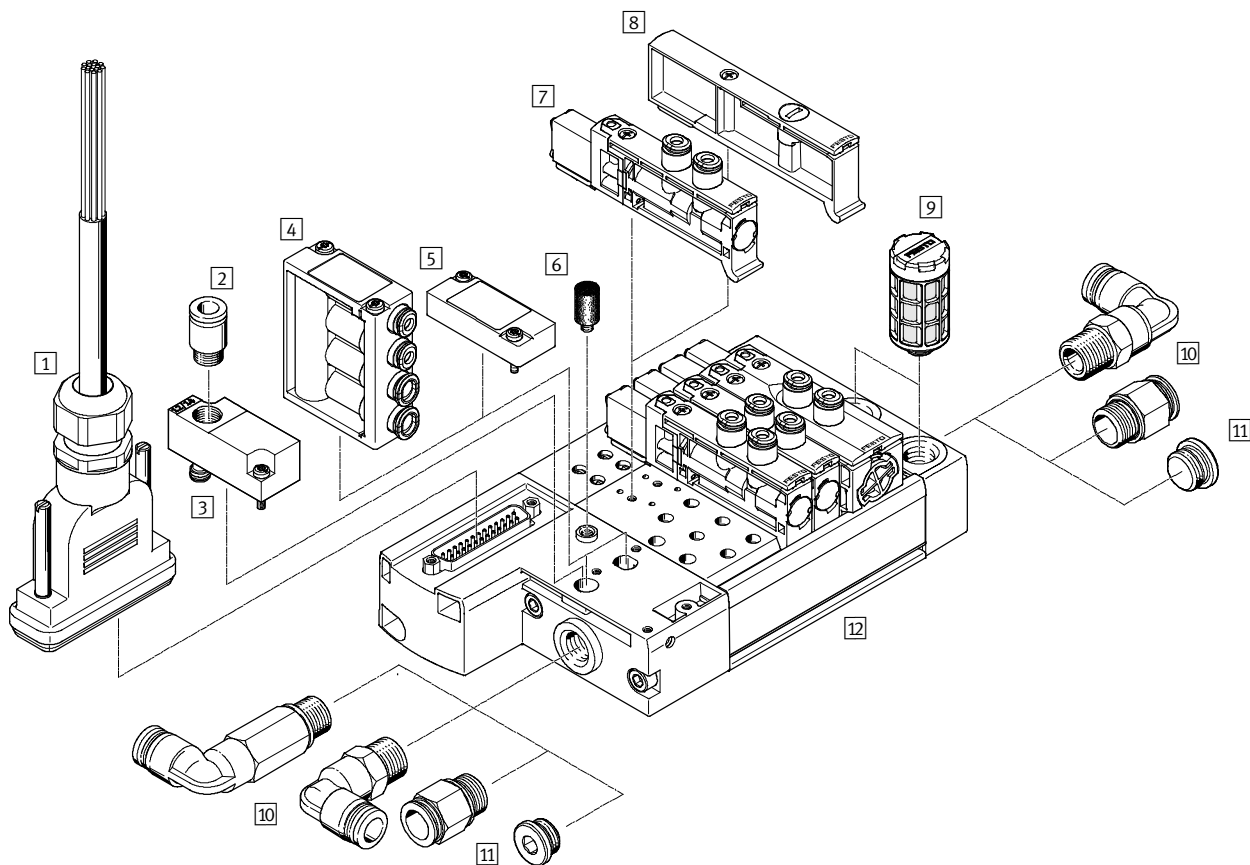
Accessories			Brief description	→ Page/Internet
1	Connecting cable	NEBV	Connecting cable for multi-pin plug connection, with Sub-D plug	36
2	Push-in fitting	QS	For connecting compressed air tubing with standard O.D.	35
3	Selector plate	VABF	Pilot control with external pilot air (optional)	34
4	Pneumatic distributor	VABF	For connecting additional distributors to the air supply (port 1)	34
5	Blanking plate	VABB	Blanking plate for vacant position (pneumatic distributor)	34
6	Silencer	U	For venting hole	35
7	Solenoid valve	VUVB-12	–	32
8	Blanking plate	VABB	Blanking plate for vacant position (solenoid valve)	34
9	Silencer	U	For fitting in exhaust ports	35
10	Fittings	QS	For connecting compressed air tubing with standard O.D.	35
11	Blanking plug	B	For sealing the air supply port	34
12	Manifold rail	VABM	With multi-pin plug connection, for connecting max. 35 valves	32

Valve terminals VTUB-12

Peripherals overview

| **Overview – Valve terminal VTUB-12** |
|---|
| Valve terminal with I-Port interface |

Valve terminals with electrical supply and transmission of communication data via M12 plugs on the valve terminal (I-Port connection, code PT/LK) are available in gradations from 3 to max. 35 valve positions.

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

Double solenoid valves occupy two valve positions.
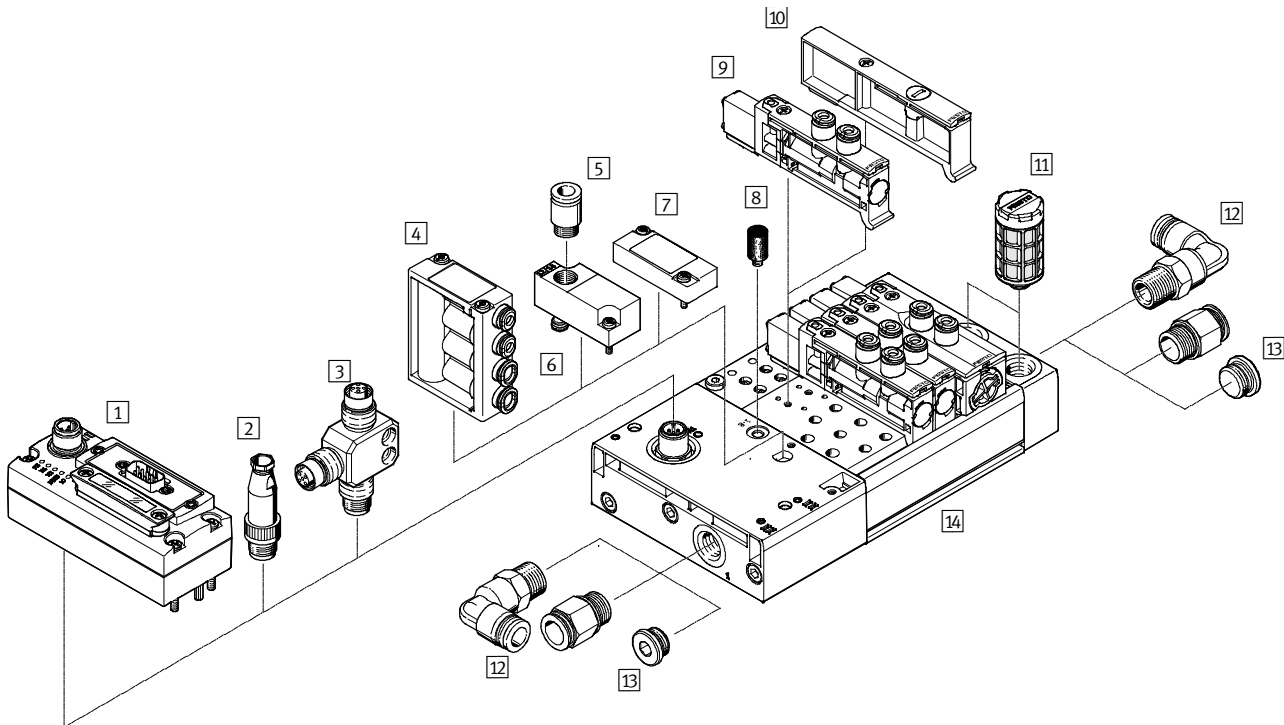
Accessories			**Brief description**	**➔ Page/Internet**
1	Bus node	CTEU	–	cteu
2	Plug	SEA	For IO-Link and load supply	37
3	T-adapter	FB	For IO-Link and load supply (in combination with plug SEA for separate load supply)	37
4	Pneumatic distributor	VABF	For connecting additional distributors to the air supply (port 1)	34
5	Push-in fitting	QS	–	32
6	Selector plate	VABF	Pilot control with external pilot air (optional)	34
7	Blanking plate	VABB	Blanking plate for vacant position (pneumatic distributor)	34
8	Silencer	U	For venting hole	35
9	Solenoid valve	VUVB-12	–	35
10	Blanking plate	VABB	Blanking plate for vacant position (solenoid valve)	34
11	Silencer	U	For fitting in exhaust ports	35
12	Fittings	QS	For connecting compressed air tubing with standard O.D.	35
13	Blanking plug	B	For sealing the air supply port	34
14	Manifold rail	VABM	With I-Port interface, for connecting max. 35 valves	32

Valve terminals VTUB-12

Peripherals overview

FESTO

Sub-base for semi in-line valve

- Single design for single solenoid valves
- Double design for double solenoid valves

Electrical connection via plug socket with cable KMYZ

and adapter (M8x1) with corresponding connecting cable.
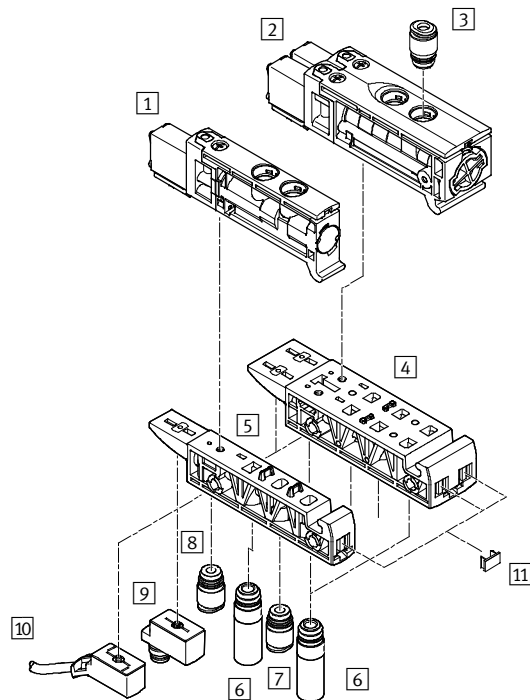
| Accessories				
		Brief description		**➔ Page/Internet**
1	Single solenoid valve	VUVB-12	–	32
2	Double solenoid valve	VUVB-12	–	32
3	Push-in fitting	QS	For port 2, 4: Cartridge with push-in connector	35
4	Sub-base	VABS	Double design for double solenoid individual valve	33
5	Sub-base	VABS	Single design for single solenoid individual valve	33
6	Silencer	AMTC	For port 3, 5 (optional)	35
7	Push-in fitting	QS	For port 1: Cartridge with push-in connector	35
8	Push-in fitting	QS	For port 12, 14: Cartridge with push-in connector (optional)	35
9	Adapter	VAVE	M8x1 (optional), LED	37
10	Plug socket with cable	KMYZ	Connecting cable (optional)	36
11	Inscription label holder	IBS-6x10	–	34

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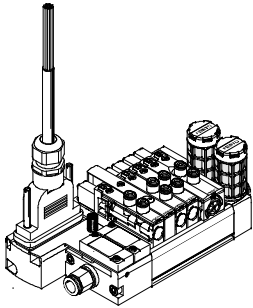
Control signals from the controller to the valve terminal are transmitted via a pre-assembled multi-core cable, which substantially reduces installation time.

This valve terminal can be equipped with 2 ... 35 valves.

Versions
• Sub-D connection

I-Port interface/IO-Link
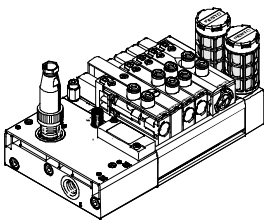
The electrical supply/transmission of communication data takes place via an M12 plug on the valve terminal (I-Port interface).

This valve terminal can be equipped with 3 ... 35 valves.

Versions:
• I-Port interface for fieldbus nodes (CTEU)
• IO-Link mode for direct connection to a higher-level IO-Link master

Pilot air supply

| Internal		External	
The port for the pneumatic main supply is located on the left-hand sub-base (multi-pin plug connection/ I-Port interface). The internal pilot air (duct 12/14) is branched from duct 1 in the left-hand sub-base.	The air is branched using a pneumatic distributor or a blanking plate on the left-hand pneumatic distributor port. The multi-pin plug connection provides two pneumatic distributor ports and the I-Port provides one.	External pilot air is supplied via the selector plate on the left-hand pneumatic distributor port. It enables the pilot air and main supply to the valve terminal to be separated.	The multi-pin plug connection provides one pneumatic distributor port and the I-Port interface does not provide any.

Wide range of pneumatic components
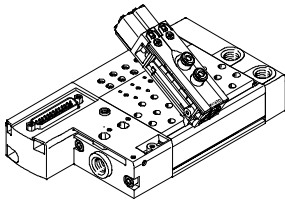
- The use of the same basic valves for the 3/2-way and 5/2-way valve function permits fast and flexible conversion and multiple use of parts.

- Flexible construction thanks to assembled and tested units or single components as modules for individual configurations.

- Flow rates from 230 … 400 l/min depending on the valve used and appropriate QS connections.

Changing fittings on port 2/4
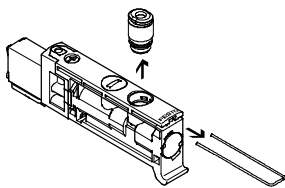
The cartridges (port 2/4) can be changed quickly and easily by removing the spring clip.
The ports can be sealed by inserting a blanking plug (➔ 34).

Connection to the valve

At the rear

To the right

TC
T
TA
TB

To the front

To the left
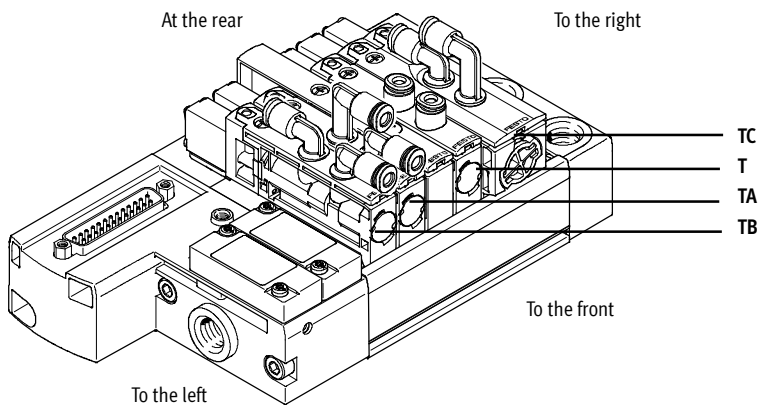
Connection positions on the valve:
- T (on top, straight)
- TA (on top, angled outlet to the front)
- TB (on top, angled outlet to the front/rear)
- TC (on top, angled outlet to the rear)

Connection sizes:
- Push-in connector 4 mm (code P4)
- Push-in connector 6 mm (code P6)

Valve terminals VTUB-12

Key features – Pneumatic components

Design

| Valve replacement	Expansion
The valves are attached to the aluminium manifold rail using one screw, which means that they can be easily replaced. Use of high-quality plastics guarantees minimum weight and maximum performance.	Blanking plates can be replaced by valves at a later date. The dimensions, mounting points and the pneumatic installation already carried out do not change.

Valve function

Code	Circuit symbol	Width		Description
		12 mm	24 mm	
M		■	–	5/2-way valve, single solenoid • Mechanical spring return • Non-reversible • Not suitable for vacuum
J		–	■	5/2-way valve, double solenoid • Non-reversible • Not suitable for vacuum
N		■	–	3/2-way valve, single solenoid • Normally open • Mechanical spring return • Non-reversible • Not suitable for vacuum
K		■	–	3/2-way valve, single solenoid • Normally closed • Mechanical spring return • Non-reversible • Not suitable for vacuum

➔ Internet: www.festo.com/catalogue/...
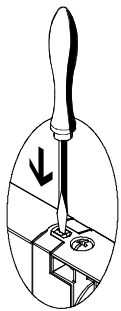
Subject to change – 2012/10

Display and operation
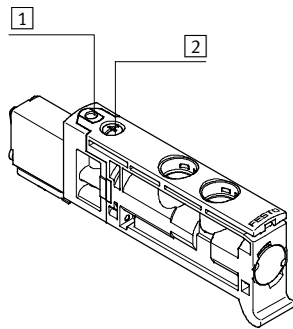
1 Manual override (non-detent-ing, non-detenting/detenting)
2 Screw for valve assembly

The manual override (MO) enables the valve to be activated without electronic control or power supply.

Manual override (MO)

MO with automatic return (non-detenting)

Press in the stem of the MO with a pointed object or screwdriver.
┈┈➔ Valve is then actuated.
Remove the pointed object or screwdriver.
Spring force pushes the stem of the MO back.
┈┈➔ Valve returns to normal position.

### MO set via turning (non-detenting/detenting)
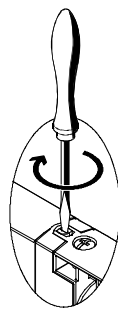
Press in the stem of the MO using a screwdriver until the valve switches and then turn the stem clockwise by 90° until the stop is reached.
┈┈➔ Valve remains in switching position.
Turn the stem anti-clockwise by 90° until the stop is reached and then remove the screwdriver. Spring force pushes the stem of the MO back.
┈┈➔ Valve returns to normal position.

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

Mounting – Valve terminal
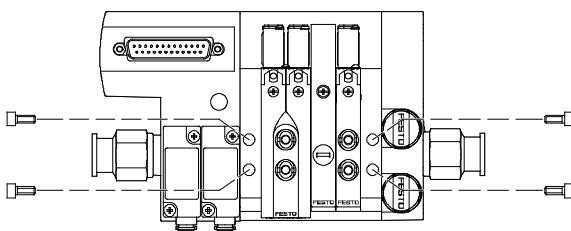
Sturdy terminal mounting thanks for four through-holes for wall mounting (M5 screws).
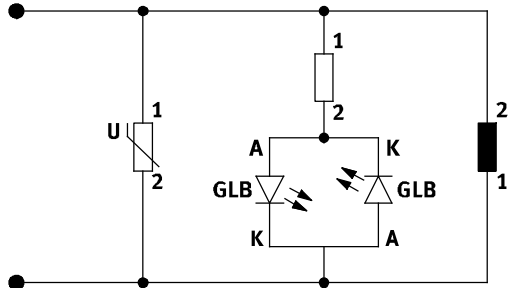
Protective circuit

Manifold rail with LED signal status display, multi-pin plug connection

- ▮ - Note

The electrical protective circuit only relates to the optional LED variant with the multi-pin plug connection.

Electrical multi-pin plug connection

The following multi-pin plug connections are available for the valve terminal VTUB-12:
- Sub-D multi-pin plug connection (25-pin)
- Sub-D multi-pin plug connection (44-pin)

Pins 1 ... 44 are used for addresses 0 ... 43 in order.

If fewer than 44 addresses are used for the valve terminal, the remaining pins are left free. Pins 22 ... 25 or 41 ... 44 are reserved for the neutral conductor or 24 V.
The valves are switched by means of positive or negative logic (positive switching or negative switching).

Mixed operation is not permitted. Each pin on the multi-pin plug can actuate exactly one solenoid coil. If the maximum configurable number of valve positions is 35, this means that 35 valves can be addressed with one solenoid coil (single solenoid).

- ▮ - Note

A double solenoid valve occupies two valve positions.
With 17 or more valve positions, the number of available valve positions for double solenoid valves decreases.

Pin allocation – Sub-D plug, 25-pin

	Pin	Address/coil	Wire colour[1] of connecting cable	
			15-wire, NEBV-S1...25-K-...-LE15	25-wire, NEBV-S1...25-K-...-LE25
	1	0	WH	WH
	2	1	BN	BN
	3	2	GN	GN
	4	3	YE	YE
	5	4	GY	GY
	6	5	PK	PK
	7	6	BU	BU
	8	7	RD	RD
	9	8	BK	BK
	10	9	VT	VT
	11	10	GY PK	GY PK
	12	11	RD BU	RD BU
	13	12	–	GN WH
	14	13	–	BN GN
	15	14	–	YE WH
	16	15	–	BN YE
	17	16	–	GY WH
	18	17	–	BN GY
	19	18	–	WH PK
	20	19	–	BN PK
	21	–	–	BU WH
	22	0 V/24 V	–	BN BU
	23	0 V/24 V	GN WH	RD WH
	24	0 V/24 V	BN GN	BN RD
	25	0 V/24 V	YE WH	BK WH

Sub-D plug pin diagram:
14+ / + 1
15+ / + 2
16+ / + 3
17+ / + 4
18+ / + 5
19+ / + 6
20+ / + 7
21+ / + 8
22+ / + 9
23+ / +10
24+ / +11
25+ / +12
/ +13

- ▮ - Note

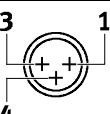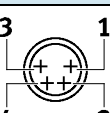The drawing shows the view on the pins of the Sub-D plug.

1) To IEC 757

Valve terminals VTUB-12
Key features – Electrical components

FESTO

Pin allocation – Sub-D plug, 44-pin

	Pin	Address/coil	Wire colour[1] of connecting cable		Pin	Address/coil	Wire colour[1] of connecting cable
	NEBV-S1...44-K-...-LE39						
	1	0	WH		23	22	WH RD
	2	1	BN		24	23	BN RD
	3	2	GN		25	24	WH BK
	4	3	YE		26	25	BN BK
	5	4	GY		27	26	GY GN
	6	5	PK		28	27	YE GY
	7	6	BU		29	28	PK GN
	8	7	RD		30	29	YE PK
	9	8	BK		31	30	GN BU
	10	9	VT		32	31	YE BU
	11	10	GY PK		33	32	GN RD
	12	11	RD BU		34	33	YE RD
	13	12	WH GN		35	34	GN BK
	14	13	BN GN		36	–	–
	15	14	WH YE		37	–	–
	16	15	YE BN		38	–	–
	17	16	WH GY		39	–	–
	18	17	GY BN		40	–	–
Note	19	18	WH PK		41	0 V	YE BK
	20	19	PK BN		42	0 V	GY BU
The drawing shows the view on the pins	21	20	WH BU		43	0 V	PK BU
of the Sub-D plug.	22	21	BN BU		44	0 V	GY RD

1) To IEC 757

Pin allocation – Adapter M8x1 with LED

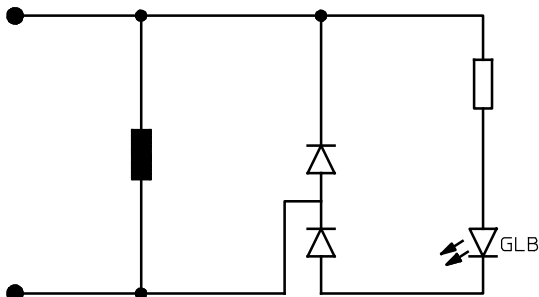|	Pin	
Round plug, M8, 3-pin		
	VAVE-C8-1R8	
	1	n.c.
	3	0V
	4	24V
Round plug, M8, 4-pin		
	VAVE-C8-1R1	
	1	n.c.
	2	n.c.
	3	0V
	4	24V

1) To DIN EN 61076-2-101

Valve terminals VTUB-12

Key features – Electrical components

FESTO

Protective circuit

Manifold rail with I-Port interface

I-Port interface

The valve terminal VTUB-12 can be connected as follows via the I-Port:
- Directly to the fieldbus by mounting the CTEU bus node on the valve terminal
- To an IO-Link master (in IO-Link mode) via a cable

Up to 35 solenoid coils can be actuated. A valve position always occupies one address. The following allocation applies in this case:
– Less significant valve position (address) for coil 14
– More significant valve position (address) for coil 12

Addresses are allocated in ascending order without gaps, from left to right. The address allocation is independent of whether blanking plates or valves are used.
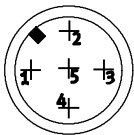
-▮- Note

More information on CTEU
➜ cteu

Additionally required IODD for IO-Link mode
➜ www.festo.com

Pin allocation of the I-Port/IO-Link cable[1]

	Pin	Allocation
	1	24 V electronics (logic voltage)
	2	24 V valves (load voltage)
	3	0 V electronics (logic)
	4	COM I-Port communication signal
	5	0 V valves (load)

1) 5-pin socket, M12, A-coded

Equipment

Operate system equipment with un-lubricated compressed air if possible. Festo valves and cylinders are designed so that, if used as designated, 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 all of your system equipment with lubricated compressed air. The lubricators should, where possible, always be installed directly upstream of the actuator used.

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 which are based on synthetic or native ester, e.g. rapeseed oil methyl ester), the maximum residual oil content of 0.1 mg/m^3 must not be exceeded (see ISO 8573-1 Class 2).

Mineral oils

When using mineral oils (e.g. HLP oils to DIN 51524, parts 1 to 3) or similar oils based on poly-alpha-olefins (PAO), the maximum residual oil content of 5 mg/m^3 must not be exceeded (see ISO 8573-1 Class 4).

A higher residual oil content irrespective of the compressor oil cannot be permitted, as the basic lubricant would be flushed out over time.

Valve terminals VTUB-12

Technical data

- Voltage
  24 V DC

- Pressure
  +2.8 … +8 bar

- Temperature range
  −5 … +60 °C

General technical data		5/2-way	5/2-way	3/2C-way	3/2U-way
Valve function		5/2-way	5/2-way	3/2C-way	3/2U-way
Design		Poppet valve with spring return	Poppet valve with self-holding funct.	Poppet valve with spring return	
Valve function		Single solenoid	Double solenoid	normally closed	normally open
Sealing principle		Soft			
Actuation type		Electric			
Reset method		Mechanical spring	–	Mechanical spring	
Type of control		Piloted			
Pilot air supply		Internal			
		External			
Direction of flow		Non-reversible			
Exhaust function		No flow control			
Manual override		Non-detenting, non-detenting/detenting			
Type of mounting		Via through-hole			
Width	[mm]	12	24	12	
Nominal size	[mm]	4			
Max. number of valve positions		35	17	35	
Max. number of pressure zones		1			
Standard nominal flow rate qnN	[l/min]	400			
Pneumatic connection	1, 3, 5	G¼			
	2, 4	QS-4 or QS-6			
	12, 14	G⅛			

Operating and environmental conditions			
Operating medium			Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium			Operation with lubricated medium possible (in which case lubricated operation will always be required)
Operating pressure		[bar]	+2.8 … +8 (5/2-way)
			+2 … +8 (3/2-way)
Ambient temperature	Multi-pin plug connection	[°C]	−5 … +60
	I-Port interface	[°C]	−5 … +50
Temperature of medium	Multi-pin plug connection	[°C]	−5 … +60
	I-Port interface	[°C]	−5 … +50
Note on materials			RoHS-compliant
CE marking			To EU EMC Directive

- Note

The CE marking for the valve terminal with I-Port interface applies up to a maximum length of the connecting cable of 30 m.

Technical data

Product weight		
Approx. weight		[g]
Valves		
• 5/2-way, single solenoid (code M), ducted solenoid exhaust		27.8
• 5/2-way, double solenoid (code J), ducted solenoid exhaust		57.4
• 5/2-way, single solenoid (code M), unducted solenoid exhaust		27.5
• 5/2-way, double solenoid (code J), unducted solenoid exhaust		57.1
• 3/2-way, normally open (code K), ducted/unducted solenoid exhaust		26.3
• 3/2-way, normally closed (code N), unducted solenoid exhaust		28.1
• 3/2-way, normally closed (code N), ducted solenoid exhaust		29.4
Blanking plate for vacant position		13.8
Manifold rail		
• Multi-pin plug with Sub-D plug, 25-pin	2 valve positions	382
	4 valve positions	484
	6 valve positions	585
	8 valve positions	687
	10 valve positions	788
	12 valve positions	890
	14 valve positions	992
	16 valve positions	1,093
	18 valve positions	1,195
• Multi-pin plug with Sub-D plug, 44-pin	20 valve positions	1,296
	24 valve positions	1,500
	28 valve positions	1,704
	32 valve positions	1,907
	35 valve positions	2,060
• I-Port interface with M12 plug	4 valve positions	521
	6 valve positions	627
	8 valve positions	727
	10 valve positions	834
	12 valve positions	940
	14 valve positions	1,040
	16 valve positions	1,145
	18 valve positions	1,251
	20 valve positions	1,358
	24 valve positions	1,562
	28 valve positions	1,775
	32 valve positions	1,982
	35 valve positions	2,138

Electrical data				
			Multi-pin plug	I-Port interface
Nominal operating voltage		[V DC]	24, reverse polarity protected	
Permissible voltage fluctuations			±10%	
Electrical power consumption per solenoid coil		[W]	1	
Protection class to EN 60529			IP65	
Duty cycle		[%]	100	
Intrinsic current consumption, logic supply		[mA]	–	30
Intrinsic current consumption, valve supply		[mA]	–	30
Max. cable length		[m]	–	20
Min. cable cross section		[mm^2]	–	1
Baud rate	COM3	[kbps]	–	230.4
	COM2	[kbps]	–	38.4

Valve terminals VTUB-12

Technical data

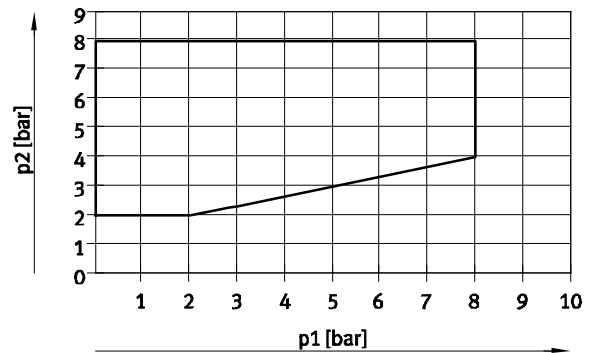| Valve switching times [ms]			
Valve function	3/2-way	5/2-way, single solenoid	5/2-way, double solenoid
On	6	6	–
Off	14	14	–
Changeover	–	–	10

**Pilot pressure as a function of operating pressure
(operating pressure with external pilot air)
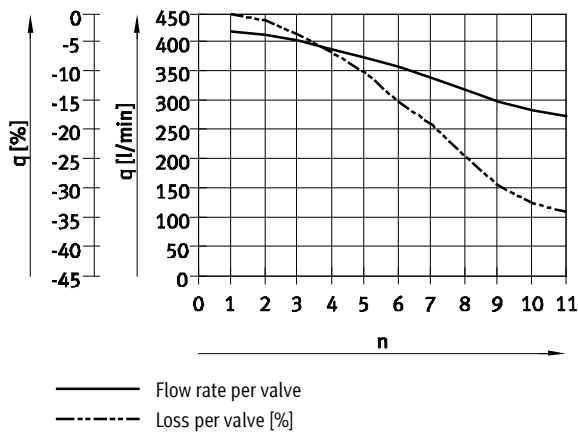Pilot pressure 5/2 and 3/2U**
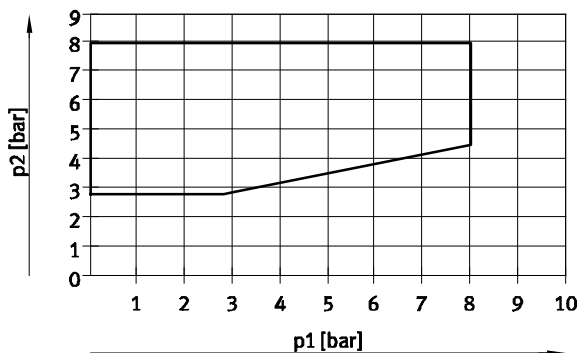
**Pilot pressure as a function of operating pressure
(operating pressure with external pilot air)
Pilot pressure 3/2C**

**Flow rate q per valve with multiple (n) valves switched simultaneously
(tolerance ± 20%)**

——————— Flow rate per valve

– – – – – – Loss per valve [%]

Valve terminals VTUB-12

Technical data

FESTO

Materials

Sectional view – Valves

Double solenoid

Single solenoid
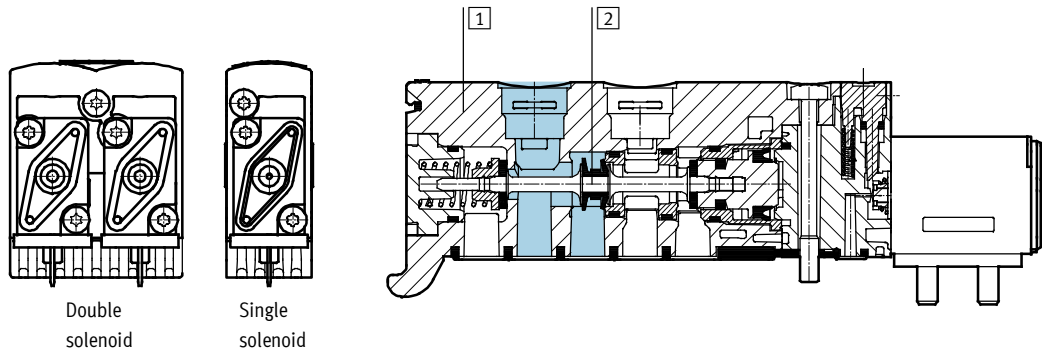
1	Housing	PA, reinforced
2	Piston spool	Wrought aluminium alloy
–	Seals	NBR, PUR
–	Manifold rail with multi-pin plug	Wrought aluminium alloy
–	Power supply module	PA, reinforced
–	Blanking plate for vacant position	PA, reinforced
–	Selector plate	Wrought aluminium alloy

Dimensions – 5/2-way valve, single solenoid

Download CAD data ➔ **www.festo.com**

[1] Manual override
[2] Mounting screw
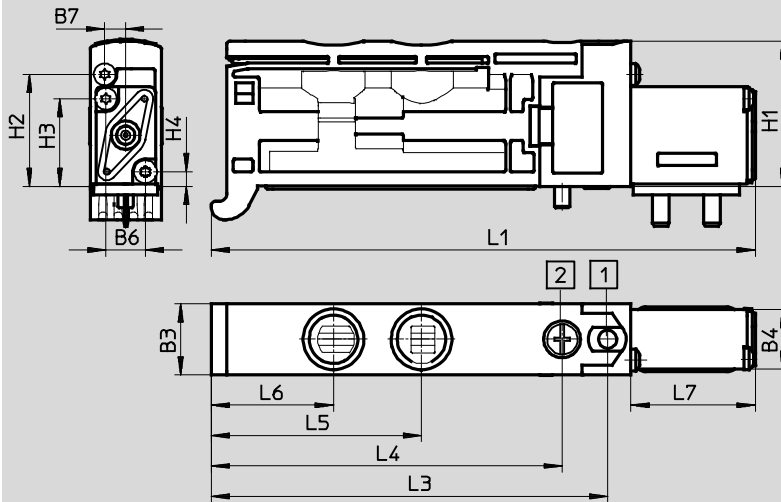
Type	B1	B2	B3	B4	B5	B6	B7	H1	H2	H3	H4	L1	L2	L3	L4	L5	L6	L7
VUVB-ST12-M52-MZH-QX-1T1	–	–	12	9.8	–	6.5	3.5	24	18.5	14.5	2.5	89.6	–	65.3	57.8	34.7	20.2	20.5
VUVB-ST12-M52-MZH-QX-D-1T1												89.9						20.8

Dimensions – 5/2-way valve, double solenoid

Download CAD data ➔ **www.festo.com**

[1] Manual override
[2] Mounting screw
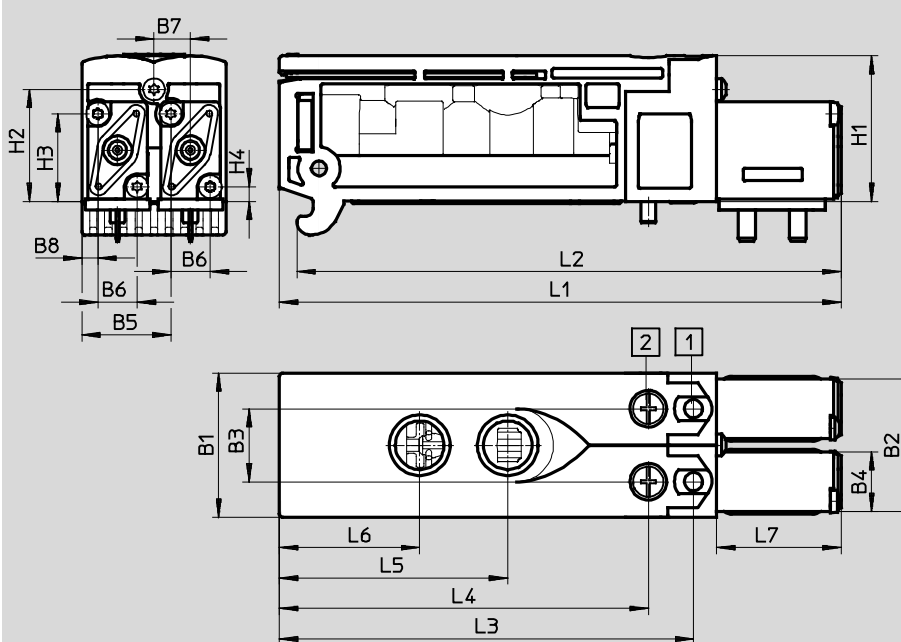
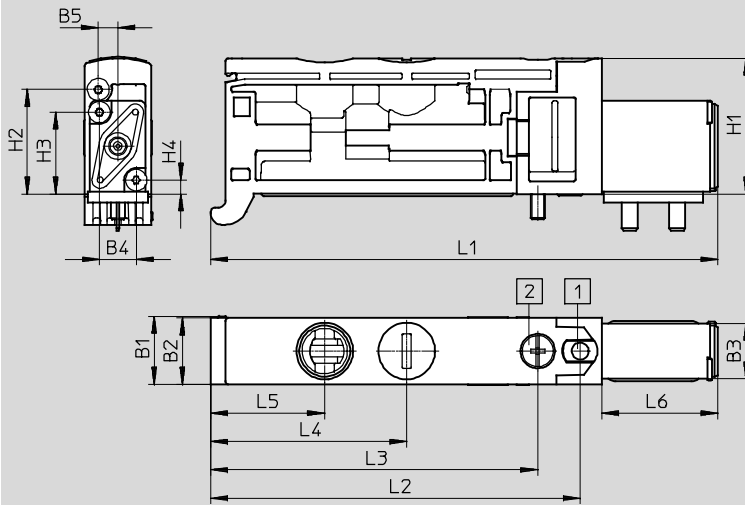| Type	B1	B2	B3	B4	B5	B6	B7	H1	H2	H3	H4	L1	L2	L3	L4	L5	L6	L7
VUVB-ST12-B52-ZH-QX-1T1	23.7	21.8	12	9.8	14.6	6.5	6	24	18.5	14.5	2.5	92.4	89.5	68.1	60.7	37.6	23.1	20.5
VUVB-ST12-B52-ZH-QX-D-1T1												92.7	89.8					20.8

Valve terminals VTUB-12

Technical data

Dimensions – 3/2-way valve, single solenoid, normally closed
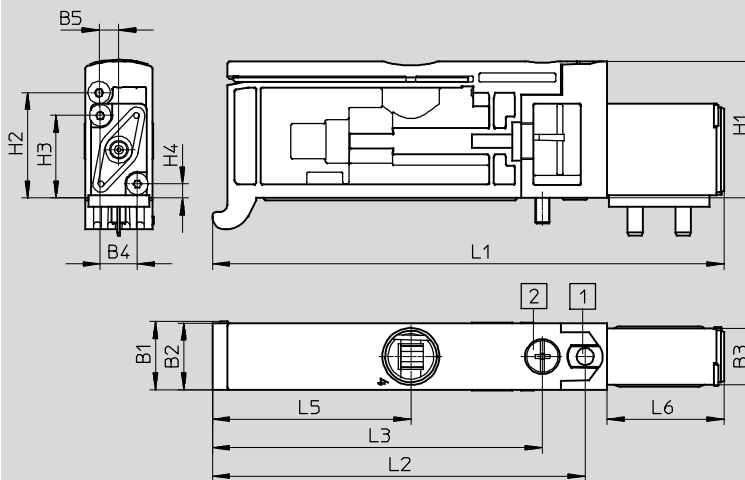
Download CAD data ➔ **www.festo.com**

1 Manual override non-detenting
or non-detenting/detenting
2 Mounting screw M2.5

Type	B1	B2	B3	B4	B5	H1	H2	H3	H4	L1	L2	L3	L4	L5	L6
VUVB-ST12-M32U-…-QX-1T1	12	11.7	9.8	6.5	3.5	24	18.4	14.5	2.5	89.6	65.3	57.8	34.7	20.2	20.5
VUVB-ST12-M32U-…-QX-D-1T1										89.9					20.8

Dimensions – 3/2-way valve, single solenoid, normally open

Download CAD data ➔ **www.festo.com**

1 Manual override non-detenting
or non-detenting/detenting
2 Mounting screw M2.5

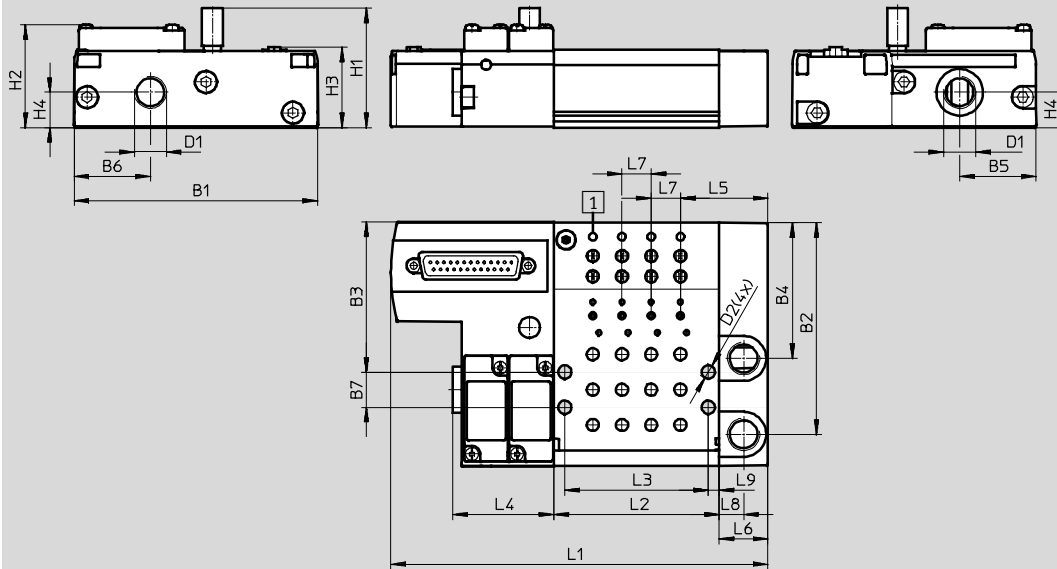| Type	B1	B2	B3	B4	B5	H1	H2	H3	H4	L1	L2	L3	L5	L6
VUVB-ST12-M32C-…-QX-1T1	12	11.7	9.8	6.5	3.5	24	18.5	14.5	2.5	89.6	65.3	57.8	34.8	20.5
VUVB-ST12-M32C-…-QX-D-1T1										89.9				20.8

Valve terminals VTUB-12

Technical data

Dimensions – Manifold rail with multi-pin plug
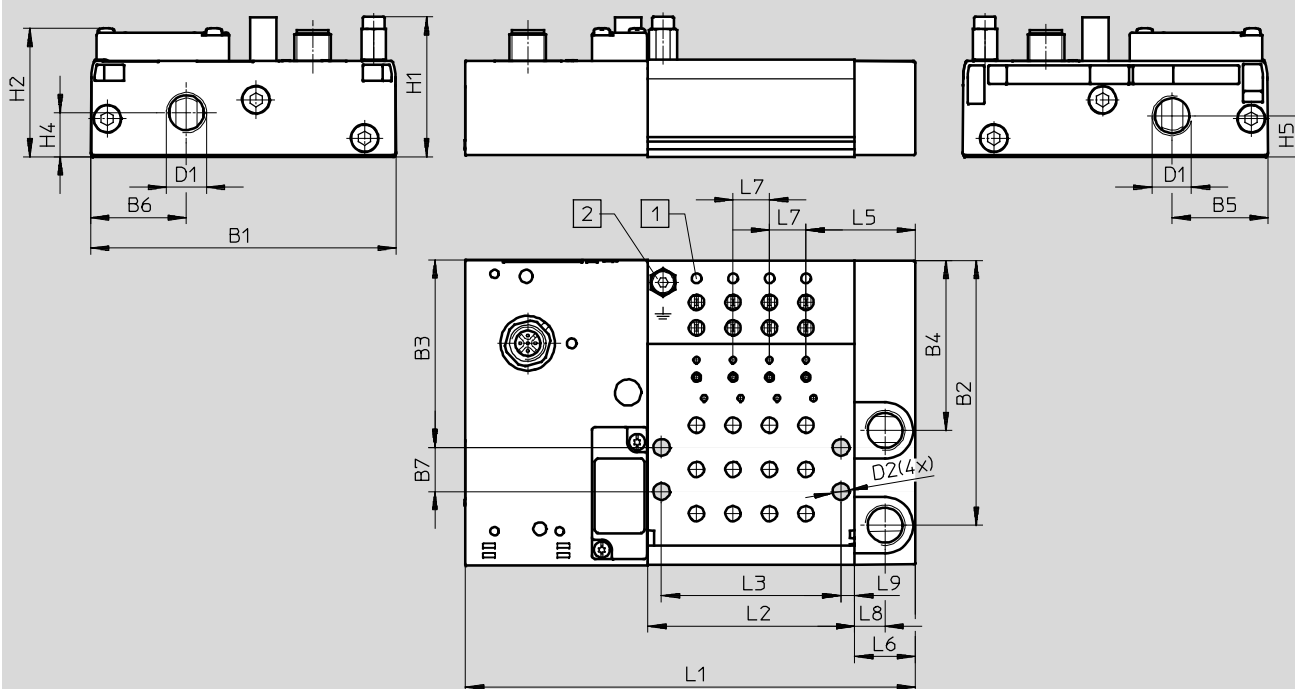
Download CAD data ➔ www.festo.com

1   LED signal status display
    (optional)

n   Number of valve positions
    (2 ... 35)

Type	B1	B2	B3	B4	B5	B6	B7	D1	D2	H1	H2	H3	H4
VABM-C8-12E	100	87	61.4	55.9	31.5	31.3	14.5	G¼	5.5	49	42.2	33	14.5

Type	L1	L2	L3	L4	L5	L6	L7	L8	L9
VABM-C8-12E	(n x 12) + 107	(n x 12) + 20	(n x 12) + 11	41.5	36	20	12	10	4.5

Valve terminals VTUB-12

Technical data

FESTO

1	LED signal status display	n	Number of valve positions
2	Earthing screw M4		(3 ... 35)

Type	B1	B2	B3	B4	B5	B6	B7	D1	D2-⌀-	H1	H2	H4	H5
VTUB-12	100	87	61.5	55.9	31.5	31.3	14.5	G¼	5.5	48	42.2	14.5	13.5

Type	L1	L2	L3	L5	L6	L7	L8	L9
VTUB-12	(nx12)+100	(nx12)+20	(nx12)+11	36	20	12	10	4.5

Valve terminals VTUB-12

Technical data

Dimensions – Valve terminal

Download CAD data ➔ **www.festo.com**

With electrical multi-pin plug
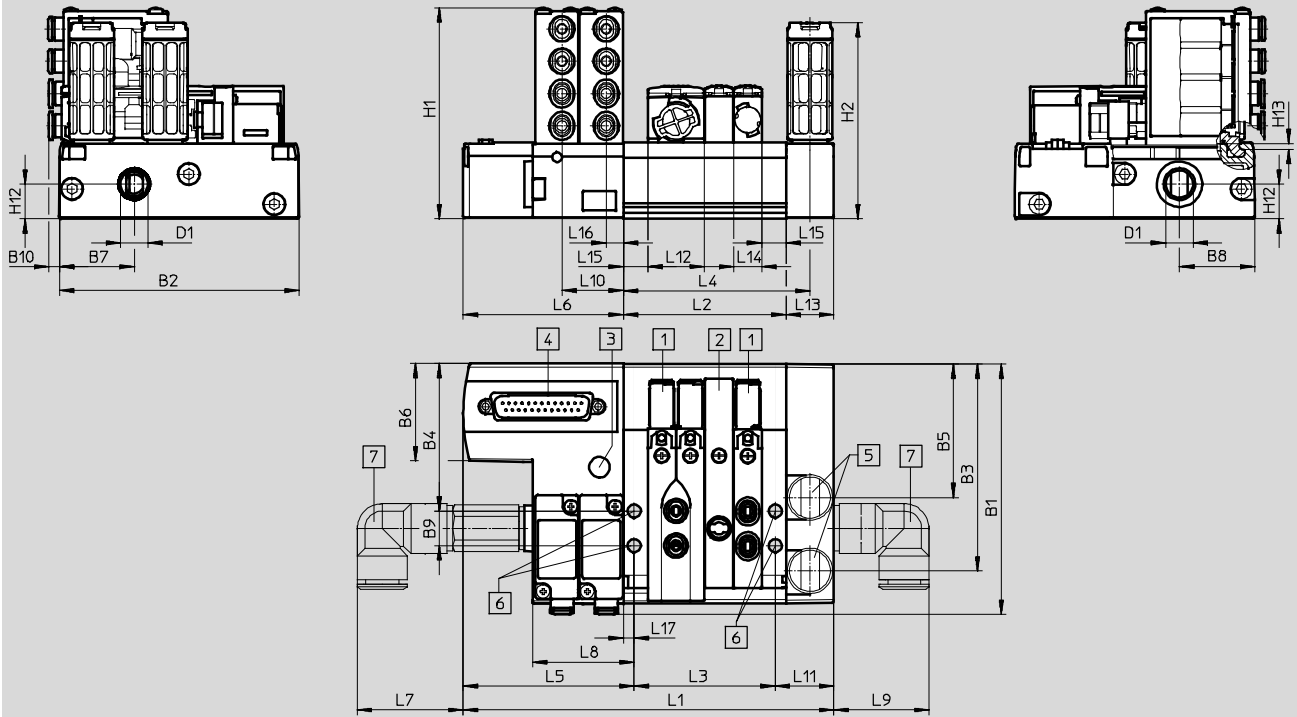
Symbol	Description
1	5/2-way valve
2	Blanking plate for vacant position
3	Silencer/threaded connection M5
4	Sub-D plug, 25-pin or 44-pin with 21 or more solenoid coils
5	Silencer/threaded connection G¼
6	Hole for wall mounting, ⌀ 5.5 mm
7	Fittings for air supply port
n	Number of valve positions (2 … 35)

Type	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16	L17
VTUB-12	(n x 12) + 107	(n x 12) + 20	(n x 12) + 11	78	71.5	67	44.3	42.5	40	25.7	24.5	23.7	20	11.7	10.2	7.2	4.5

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	D1	H1	H2	H12	H13
VTUB-12	103	100	86.5	61.5	55.9	40.5	31.3	31.5	14.5	3	G¼	88.2	82	14.5	2.5

Valve terminals VTUB-12

Technical data

FESTO

1	Connecting cable (optional)
2	Adapter M8x1 (optional)
3	Port 2, 4: Cartridge with push-in connector
4	Plug socket with cable KMYZ (optional)
5	Port 12, 14: Cartridge with push-in connector (optional)
6	Port 1: Cartridge with push-in connector
7	Port 3, 5: Silencer AMTC-P-PC10 (optional)
8	Holes for M4 mounting
9	Exhaust port 82/84
10	Mounting space for spring clips for solenoid valve
11	Mounting space for spring clips for sub-base
12	Slot for inscription label IBS-6x10 (not included in the scope of delivery)

Type	B1	B2	H1	H2	H3	H4	H5	H6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	W1
VABS-C8-12XB-QX-B	12.6	11.9	34.9	30.6	17.9	15.5	11	6.9	94.5	82.9	57.3	50	37.3	30	22.8	15.5	9.5	8.3	82	51	60°
VABS-C8-12XB-QX																					

Valve terminals VTUB-12

Technical data

FESTO

Dimensions – Sub-base for semi in-line valve (double solenoid)   Download CAD data → www.festo.com
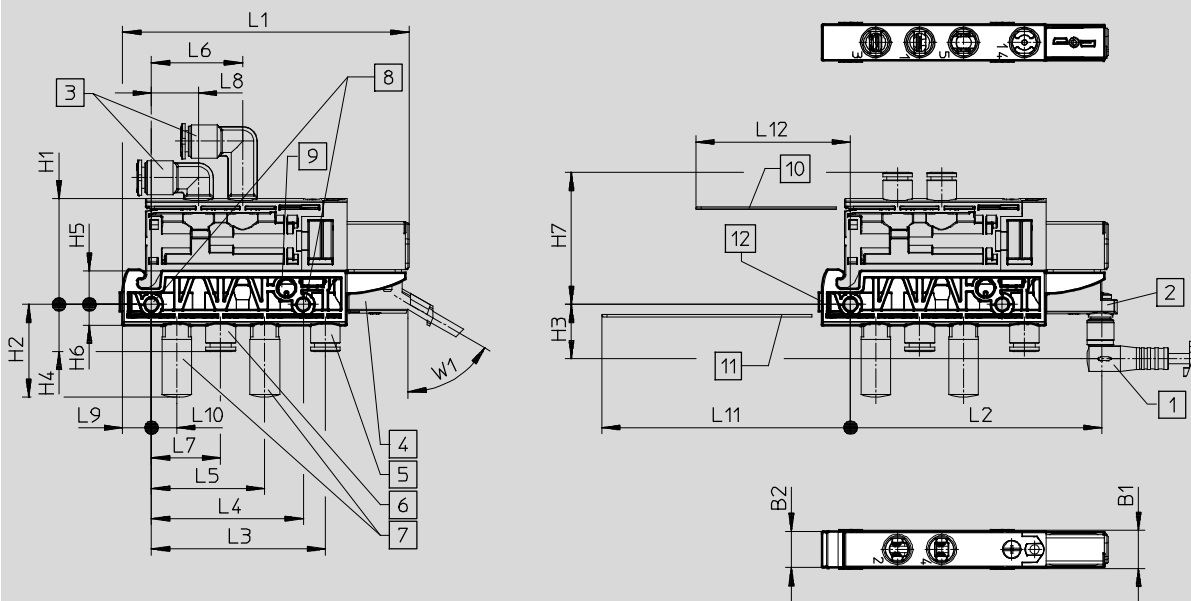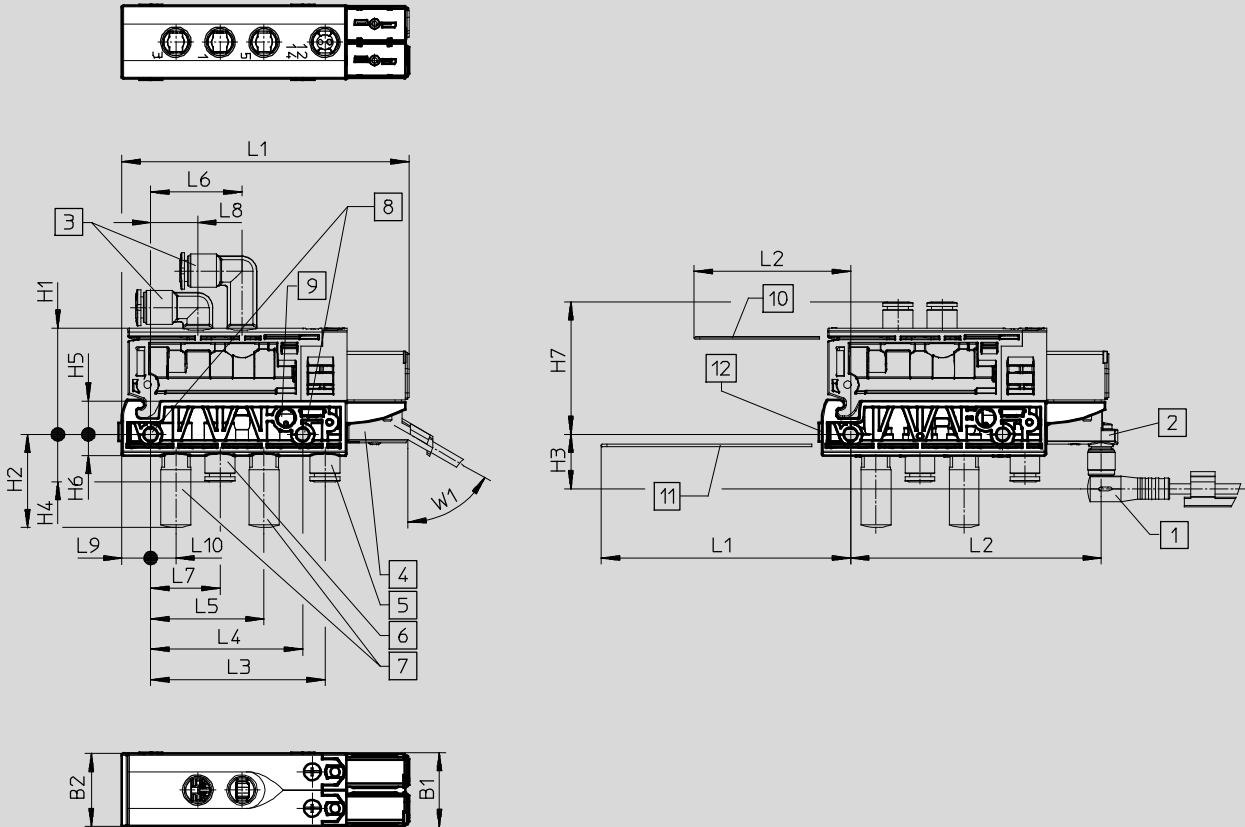
	Description		Description		Description		Description
1	Connecting cable (optional)	4	Plug socket with cable KMYZ (optional)	7	Port 3, 5: Silencer AMTC-P-PC10 (optional)	10	Mounting space for spring clips for solenoid valve
2	Adapter M8x1 (optional)	5	Port 12, 14: Cartridge with push-in connector (optional)	8	Holes for M4 mounting	11	Mounting space for spring clips for sub-base
3	Port 2, 4: Cartridge with push-in connector	6	Port 1: Cartridge with push-in connector	9	Exhaust port 82/84	12	Slot for inscription label IBS-6x10 (not included in the scope of delivery)

Type	B1	B2	H1	H2	H3	H4	H5	H6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	W1
VABS-C8-12XB-QX-B	24.6	23.9	34.9	30.6	17.9	15.5	11	6.9	94.5	82.9	57.3	50	37.3	30	22.8	15.5	9.5	8.3	82	51	60°
VABS-C8-12XB-QX																					

Valve terminals VTUB-12

Technical data – Bus node CTEU-CO

FESTO

CANopen

The bus node handles communication between the valve terminal and a higher-level CANopen® master.

The module has basic diagnostic functions. It has 5 integrated LEDs for on-site display. Up to 8 byte inputs and 8 byte outputs are typically transmitted in the cyclic process image.

Application
Fieldbus connection

The bus connection is established via a 9-pin Sub-D plug (pin) as per the CAN in Automation (CiA) specification DS 102 with additional 24 V CAN transceiver supply (option as per DS 102).

The bus connector plug (with protection class IP65/IP67 from Festo or IP20 from other manufacturers) facilitates the connection of an incoming and an outgoing bus cable.

There are 4 contacts each available for the conductors (CAN_L/CAN_H and 24 V/0 V) of the incoming and outgoing bus cables.

The fieldbus parameters and the basic device parameter settings are set on the bus node via DIL switches.

Implementation

Protocol chip used:
- CAN transceiver 82C251

Baud rates supported:
- 125 kB
- 250 kB
- 500 kB
- 1 MB

Max. CANopen line length (trunk cable):
- 40 m at 1 Mbps
- 100 m at 500 kbps
- 250 m at 250 kbps
- 500 m at 125 kbps

Max. branch line length (drop cable):
- 0.30 m at 1 Mbps
- 0.75 m at 500 kbps
- 2 m at 250 kbps
- 3.75 m at 125 kbps

The following variants can be realised using an adapter:
- 2 x micro style M12, protection class IP65, 5-pin, socket and pin
- Open Style plug, protection class IP20, 5-pin, pin
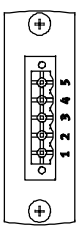
Valve terminals VTUB-12
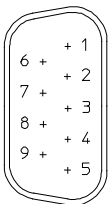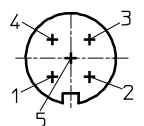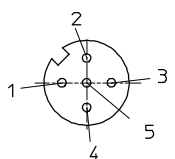
Technical data – Bus node CTEU-CO

FESTO

General technical data			
Fieldbus interface			• Sub-D socket, 9-pin • Sub-D plug, for self-assembly • 2x M12x1, 5-pin • 5-pin terminal strip
Protocol			CANopen
Baud rate		[kbps]	125, 250, 500 and 1,000
Internal cycle time			1 ms per 1 byte of user data
Operating voltage	Nominal value	[V DC]	24
	Permissible range	[V DC]	18 ... 30
Intrinsic current consumption at nominal operating voltage		[mA]	Typically 120
Max. power supply		[A]	4
Parameterisation			Diagnostic behaviour Fail state
Max. address capacity, inputs			8 byte
Max. address capacity, outputs			8 byte
Additional functions			• Emergency message • Acyclic data access via "SDO"
Operating elements			DIL switch
Configuration support			EDS files
Device-specific diagnostics			• System diagnostics • Undervoltage • Communication errors
LED display	Fieldbus-specific		• MNS: Network status • IO: I/O status
	Product-specific		• PS: Operating voltage for electronics and load supply • X1: System status of module at I-Port 1 • X2: System status of module at I-Port 2
Protection class to EN 60529			IP 65/67
CE marking			To EU EMC Directive
Note on materials			RoHS-compliant
Housing materials			• PC • PA, reinforced
Product weight		[g]	90
Temperature range	Ambient temperature	[°C]	−5 ... +50
	Storage	[°C]	−20 ... +70
Dimensions W x L x H		[mm]	40 x 91 x 50

Valve terminals VTUB-12

Technical data – Bus node CTEU-CO

Pin allocation of the CANopen interface			
Pin allocation	Pin	Signal	Designation
Sub-D plug			
	1	n.c.	Not connected
	2	CAN_L	Received/transmitted data low
	3	CAN_GND	0 V CAN interface
	4	n.c.	Not connected
	5	CAN_Shld	Optional screened connection
	6	GND	Ground[1]
	7	CAN_H	Received/transmitted data high
	8	n.c.	Not connected
	9	CAN_V+	24 V DC supply CAN interface
	Housing	Screen	Connection to FE (functional earth)
Bus connection Micro Style (M12)			
Incoming	1	Screen	Connection to FE (functional earth)
	2	CAN_V+	24 V DC supply CAN interface
	3	CAN_GND	0 V CAN interface
	4	CAN_H	Received/transmitted data high
	5	CAN_L	Received/transmitted data low
Outgoing	1	Screen	Connection to FE (functional earth)
	2	CAN_V+	24 V DC supply CAN interface
	3	CAN_GND	0 V CAN interface
	4	CAN_H	Received/transmitted data high
	5	CAN_L	Received/transmitted data low
Bus connection Open Style			
	1	CAN_GND	0 V CAN interface
	2	CAN_L	Received/transmitted data low
	3	Screen	Connection to FE (functional earth)
	4	CAN_H	Received/transmitted data high
	5	CAN_V+	24 V DC supply CAN interface

1) Connected internally via Pin 3

Valve terminals VTUB-12

Technical data – Bus node CTEU-CO

FESTO

Dimensions – Valve terminal with CTEU-CO   Download CAD data ➔ www.festo.com
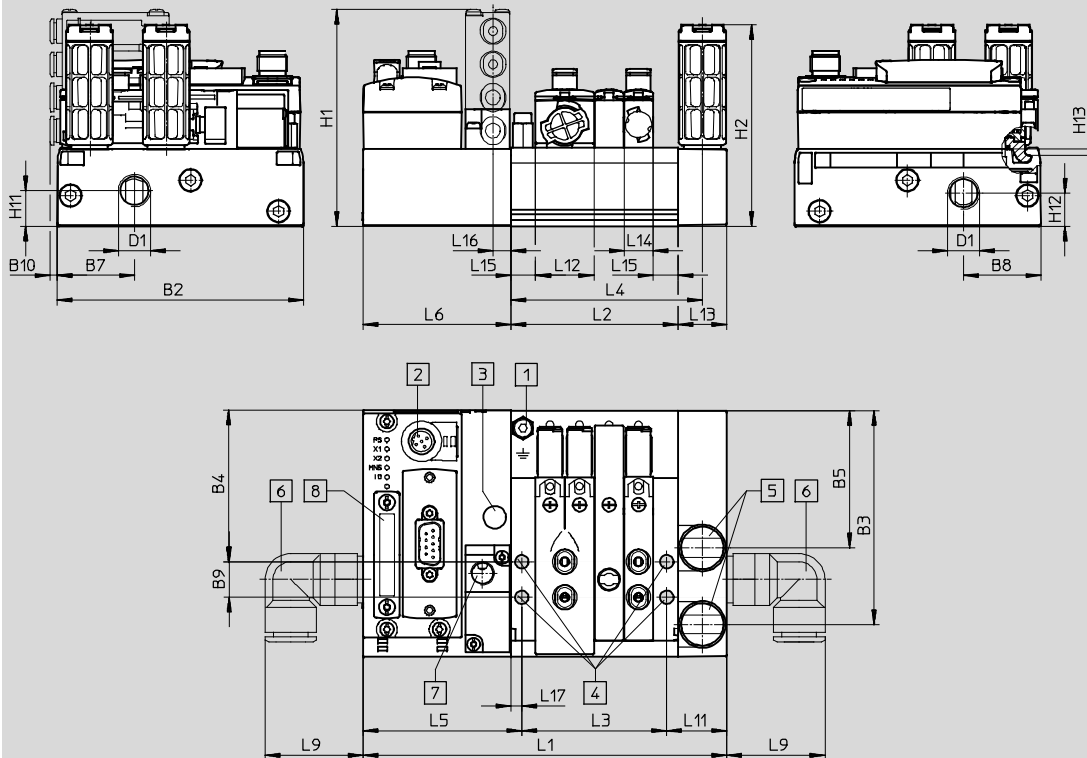
1	Earthing screw M4	5	Silencer, threaded connection G¼	8	CTEU bus node	n	Number of valve positions (3 … 35)
2	M12 plug, 5-pin	6	Fittings for air supply port				
3	Silencer, threaded connection M5	7	External pilot air 12/14, G⅛				
4	Holes for mounting ⌀ 5.5						
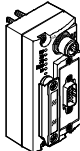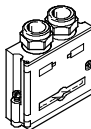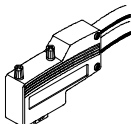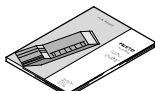
Type	B2	B3	B4	B5	B7	B8	B9	B10	D1	H1	H2	H11	H12	H13
VTUB-12	100	87	61.5	55.9	31.3	31.5	14.5	3	G¼	88.2	82	14.5	13.5	2.5

Type	L1	L2	L3	L4	L5	L6	L9	L11	L12	L13	L14	L15	L16	L17
VTUB-12	(nx12)+100	(nx12)+20	(nx12)+11	78	64.5	60	40	24.5	23.7	20	11.7	10.2	7.2	4.5

Valve terminals VTUB-12
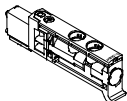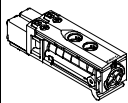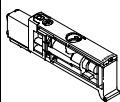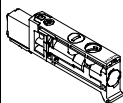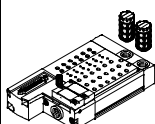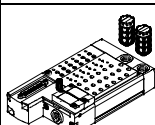
Accessories – Bus node CTEU-CO

FESTO

Ordering data				
Designation			**Part No.**	**Type**
Bus node				
	CANopen bus node		570038	**CTEU-CO**
Bus connection				
	Sub-D plug		532219	**FBS-SUB-9-BU-2x5POL-B**
	Sub-D plug, angled		533783	**FBS-SUB-9-WS-CO-K**
	Micro Style bus connection, 2xM12, 5-pin		525632	**FBA-2-M12-5POL**
	Fieldbus socket for Micro Style connection, M12, 5-pin		18324	**FBSD-GD-9-5POL**
	Plug for Micro Style connection, M12, 5-pin		175380	**FBS-M12-5GS-PG9**
	Open Style bus connection		525634	**FBA-1-SL-5POL**
	Terminal strip for Open Style connection, 5-pin		525635	**FBSD-KL-2x5POL**
Plug socket				
	For voltage supply		538999	**NTSD-GD-9-M12-5POL-RK**
Manual				
	Manual – Bus node CTEU-CO	German	573767	**P.BE-CTEU-CO-FUNCT+MAINT**
		English	573768	**P.BE-CTEU-CO-FUNCT+MAINT**
		Spanish	573769	**P.BE-CTEU-CO-FUNCT+MAINT**
		French	573770	**P.BE-CTEU-CO-FUNCT+MAINT**
		Italian	573771	**P.BE-CTEU-CO-FUNCT+MAINT**
		Chinese	573774	**P.BE-CTEU-CO-FUNCT+MAINT**

Accessories
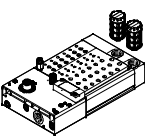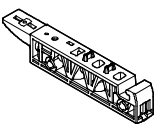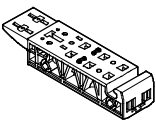
Ordering data					
	Code	Valve function	Solenoid exhaust air	Part No.	Type
Solenoid valve					
	M	5/2-way valve, single solenoid, manual override non-detenting	Unducted	557649	VUVB-ST12-M52-MZH-QX-1T1
			Ducted	558369	VUVB-ST12-M52-MZH-QX-D-1T1
		5/2-way valve, single solenoid, manual override non-detenting/detenting	Unducted	570908	VUVB-ST12-M52-MZD-QX-1T1
			Ducted	570909	VUVB-ST12-M52-MZD-QX-D-1T1
	J	5/2-way valve, double solenoid, manual override non-detenting	Unducted	557650	VUVB-ST12-B52-ZH-QX-1T1
			Ducted	558370	VUVB-ST12-B52-ZH-QX-D-1T1
		5/2-way valve, double solenoid, manual override non-detenting/detenting	Unducted	570910	VUVB-ST12-B52-ZD-QX-1T1
			Ducted	570911	VUVB-ST12-B52-ZD-QX-D-1T1
	K	3/2-way valve, single solenoid, normally open, manual override non-detenting	Unducted	575997	VUVB-ST12-M32C-MZH-QX-1T1
			Ducted	575998	VUVB-ST12-M32C-MZH-QX-D-1T1
		3/2-way valve, single solenoid, normally open, manual override non-detenting/detenting	Unducted	576001	VUVB-ST12-M32C-MZD-QX-1T1
			Ducted	576002	VUVB-ST12-M32C-MZD-QX-D-1T1
	N	3/2-way valve, single solenoid, normally closed, manual override non-detenting	Unducted	575999	VUVB-ST12-M32U-MZH-QX-1T1
			Ducted	576000	VUVB-ST12-M32U-MZH-QX-D-1T1
		3/2-way valve, single solenoid, normally closed, manual override non-detenting/detenting	Unducted	576003	VUVB-ST12-M32U-MZD-QX-1T1
			Ducted	576004	VUVB-ST12-M32U-MZD-QX-D-1T1
Manifold rail					
	–	Multi-pin plug with Sub-D plug, 25-pin	2	557651	VABM-C8-12E-G14-2-M1
			4	557653	VABM-C8-12E-G14-4-M1
			6	557655	VABM-C8-12E-G14-6-M1
			8	557657	VABM-C8-12E-G14-8-M1
			10	557659	VABM-C8-12E-G14-10-M1
			12	557661	VABM-C8-12E-G14-12-M1
			14	557663	VABM-C8-12E-G14-14-M1
			16	557665	VABM-C8-12E-G14-16-M1
			18	557667	VABM-C8-12E-G14-18-M1
			20	557669	VABM-C8-12E-G14-20-M1
		Multi-pin plug with Sub-D plug, 44-pin	24	557673	VABM-C8-12E-G14-24-M1
			28	557677	VABM-C8-12E-G14-28-M1
			32	557681	VABM-C8-12E-G14-32-M1
			35	557684	VABM-C8-12E-G14-35-M1
	L	Multi-pin plug with Sub-D plug, 25-pin, LED signal status display	2	1361863	VABM-C8-12E-G14-2-M1-L
			4	1361865	VABM-C8-12E-G14-4-M1-L
			6	1361867	VABM-C8-12E-G14-6-M1-L
			8	1361868	VABM-C8-12E-G14-8-M1-L
			10	1361869	VABM-C8-12E-G14-10-M1-L
			12	1361870	VABM-C8-12E-G14-12-M1-L
			14	1361871	VABM-C8-12E-G14-14-M1-L
			16	1361873	VABM-C8-12E-G14-16-M1-L
			18	1361874	VABM-C8-12E-G14-18-M1-L
			20	1361875	VABM-C8-12E-G14-20-M1-L
		Multi-pin plug with Sub-D plug, 44-pin, LED signal status display	24	1361876	VABM-C8-12E-G14-24-M1-L
			28	1361877	VABM-C8-12E-G14-28-M1-L
			32	1361878	VABM-C8-12E-G14-32-M1-L
			35	1361879	VABM-C8-12E-G14-35-M1-L
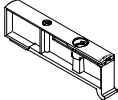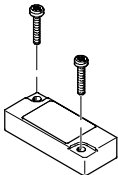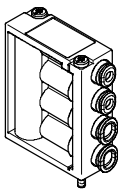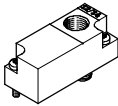
Ordering data					
	Code	Description	Valve positions	Part No.	Type
Manifold rail					
	PT/LK	Manifold rail with I-Port interface	4	**1247975**	**VABM-C8-12E-G14-4-PT-L**
			6	**1247976**	**VABM-C8-12E-G14-6-PT-L**
			8	**1247977**	**VABM-C8-12E-G14-8-PT-L**
			10	**1247978**	**VABM-C8-12E-G14-10-PT-L**
			12	**1247979**	**VABM-C8-12E-G14-12-PT-L**
			14	**1247980**	**VABM-C8-12E-G14-14-PT-L**
			16	**1247981**	**VABM-C8-12E-G14-16-PT-L**
			18	**1247982**	**VABM-C8-12E-G14-18-PT-L**
			20	**1247983**	**VABM-C8-12E-G14-20-PT-L**
			24	**1247984**	**VABM-C8-12E-G14-24-PT-L**
			28	**1247985**	**VABM-C8-12E-G14-28-PT-L**
			32	**1247986**	**VABM-C8-12E-G14-32-PT-L**
			35	**1247987**	**VABM-C8-12E-G14-35-PT-L**
Sub-base for semi in-line valves					
	–	Internal pilot air supply	1 (M52/M32)	**1236025**	**VABS-C8-12XB-QX-B**
		External pilot air supply	1 (M52/M32)	**1236027**	**VABS-C8-12XB-QX**
	–	Internal pilot air supply	1 (B52)	**1236028**	**VABS-C8-12XB-QX-DB**
		External pilot air supply	1 (B52)	**1236029**	**VABS-C8-12XB-QX-D**
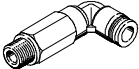
Ordering data				
	Code	Description	Part No.	Type
Blanking plate				
	L	Blanking plate for vacant valve position	**562461**	**VABB-C8-12-ET**
	–	Blanking plate for pneumatic distributor position	**562460**	**VABB-C8-12-A**
Pneumatic distributor				
	AL	Push-in connector 4 mm	**562457**	**VABF-C8-12-V1P4-Q4**
	BL	Push-in connector 6 mm	**562458**	**VABF-C8-12-V1P4-Q6**
	CL	Push-in connector 4 and 6 mm	**562459**	**VABF-C8-12-V1P4-Q4-Q6**
Selector plate				
	SL	Pneumatic connection G1/8	**1210305**	**VABF-C8-12-P6-G18-Z**
Blanking plug				
		Connection ∅ 10 mm	**562243**	**QSPC10**
	–	For thread G¼, 10 pieces	**3569**	**B-¼**
Inscription labels				
	–	Inscription labels 6x10 mm, 64 pieces, in frames	**18576**	**IBS-6x10**

Valve terminals VTUB-12

Accessories
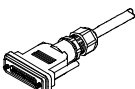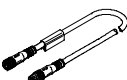
Ordering data						
	Code	Description	Tubing O.D.	Packaging unit	Part No.	Type
Push-in fitting					Technical data ➔ Internet: quick star	
	–	With sealing ring connection G¼	8 mm	10 pieces	**186099**	**QS-G¼-8**
	–		10 mm	10 pieces	**186101**	**QS-G¼-10**
	–		12 mm	10 pieces	**186350**	**QS-G¼-12**
Push-in L-fitting					Technical data ➔ Internet: quick star	
	–	With sealing ring connection G¼	8 mm	10 pieces	**186120**	**QSL-G¼-8**
	–		10 mm	10 pieces	**186122**	**QSL-G¼-10**
	–		12 mm	10 pieces	**186351**	**QSL-G¼-12**
Push-in L-fitting, long					Technical data ➔ Internet: quick star	
	–	With sealing ring connection G¼	8 mm	10 pieces	**186131**	**QSLL-G¼-8**
	–		10 mm	10 pieces	**186133**	**QSLL-G¼-10**
	–		12 mm	10 pieces	**132596**	**QSLL-G¼-12**
Cartridge with push-in connector						
	–	Straight connection ⌀ 10 mm	4 mm	10 pieces	**172972**	**QSP10-4**
	–		6 mm	10 pieces	**172973**	**QSP10-6**
	–	L-shaped connection ⌀ 10 mm	4 mm	10 pieces	**132601**	**QSPLK10-4**
	–		6 mm	10 pieces	**132602**	**QSPLK10-6**
	–	Extra-long L-shaped connection ⌀ 10 mm	4 mm	10 pieces	**132603**	**QSPLLK10-4**
	–		6 mm	10 pieces	**132604**	**QSPLLK10-6**
Silencer					Technical data ➔ Internet: u	
	–	For thread M5		1 piece	**4645**	**U-M5**
	–	For thread G¼		1 piece	**2316**	**U-¼**
	–	For individual sub-base, QSP10		1 piece	**1224460**	**AMTC-P-P10**

Accessories

Ordering data					
	Code	Description	Cable length [m]	Part No.	Type
Connecting cable for multi-pin plug					
	M1	Sub-D, 25-pin, straight socket, up to 12 coils, IP65	2.5	538222	**NEBV-S1G25-K-2,5-N-LE15**
	M2		5	538223	**NEBV-S1G25-K-5-N-LE15**
	M3		10	538224	**NEBV-S1G25-K-10-N-LE15**
	M1	Sub-D, 25-pin, straight socket, up to 20 coils, IP65	2.5	538225	**NEBV-S1G25-K-2,5-N-LE25**
	M2		5	538226	**NEBV-S1G25-K-5-N-LE25**
	M3		10	538227	**NEBV-S1G25-K-10-N-LE25**
	M1	Sub-D, 44-pin, straight socket, up to 35 coils, IP65	2.5	565289	**NEBV-S1G44-K-2.5-N-LE39**
	M2		5	565290	**NEBV-S1G44-K-5-N-LE39**
	M3		10	565291	**NEBV-S1G44-K-10-N-LE39**
Plug socket with cable for individual valve					
	–	Angled socket, square design, 2-pin,	2.5	193687	**KMYZ-9-24-2,5-LED-PUR-B**
	–	cable open at one end, 2-wire, with LED, IP65	5	193689	**KMYZ-9-24-5-LED-PUR-B**
	–		10	196063	**KMYZ-9-24-10-LED-PUR-B**
	–	Angled socket, square design, 2-pin,	0.5	196064	**KMYZ-9-24-M8-0,5-LED-B**
	–	straight plug, M8x1, 3-pin, with LED, IP65	2.5	196065	**KMYZ-9-24-M8-2,5-LED-B**
	–	Angled socket, square design, 2-pin,	0.5	193690	**KMYZ-4-24-0,5-B**
	–	cable open at one end, 2-wire, without LED, IP40	2.5	193691	**KMYZ-4-24-2,5-B**
Connecting cable					
	Open cable end, 3-wire				
	–	Socket M8x1, straight, 3-pin	2.5	541333	**NEBU-M8G3-K-2.5-LE3**
	–		5	541334	**NEBU-M8G3-K-5-LE3**
	–		10	541332	**NEBU-M8G3-K-10-LE3**
	–		2.5	159420	**SIM-M8-3GD-2,5-PU**
	–		5	159421	**SIM-M8-3GD-5-PU**
	–		10	192964	**SIM-M8-3GD-10-PU**
	–	Socket M8x1, angled, 3-pin	2.5	541338	**NEBU-M8W3-K-2.5-LE3**
	–		5	541341	**NEBU-M8W3-K-5-LE3**
	–		10	541335	**NEBU-M8W3-K-10-LE3**
	–		2.5	159422	**SIM-M8-3WD-2,5-PU**
	–		5	159423	**SIM-M8-3WD-5-PU**
	–		10	192965	**SIM-M8-3WD-10-PU**
	Open cable end, 4-wire				
	–	Socket M8x1, straight, 4-pin	2.5	541342	**NEBU-M8G4-K-2.5-LE4**
	–		5	541343	**NEBU-M8G4-K-5-LE4**
	–		2.5	158960	**SIM-M8-4GD-2,5-PU**
	–		5	158961	**SIM-M8-4GD-5-PU**
	–	Socket M8x1, angled, 4-pin	2.5	541344	**NEBU-M8W4-K-2.5-LE4**
	–		5	541345	**NEBU-M8W4-K-5-LE4**
	–		2.5	158962	**SIM-M8-4WD-2,5-PU**
	–		5	158963	**SIM-M8-4WD-5-PU**
	Straight plug, 3-pin				
	–	Socket M8x1, straight, 3-pin	0.5	541346	**NEBU-M8G3-K-0.5-M8G3**
	–		1	541347	**NEBU-M8G3-K-1-M8G3**
	–		2.5	541348	**NEBU-M8G3-K-2.5-M8G3**
	–		5	541349	**NEBU-M8G3-K-5-M8G3**
	–		10	569844	**NEBU-M8G3-K-10-M8G3**
	Straight plug, 4-pin				
	–	Socket M8x1, straight, 3-pin	2.5	554037	**NEBU-M8G3-K-2.5-M8G4**
	–	Socket M8x1, straight, 4-pin	2.5	554035	**NEBU-M8G4-K-2.5-M8G4**

Valve terminals VTUB-12

Accessories

Ordering data					
	Code	Description	Cable length [m]	Part No.	Type
Adapter M8x1					
	–	Plug M8x1, 3-pin, with LED	–	**571686**	**VAVE-C8-1R8**
	–	Plug M8x1, 4-pin, with LED	–	**573194**	**VAVE-C8-1R1**
Connection technology for IO-Link					
	XM	T-adapter M12, 5-pin	2.5	**171175**	**FB-TA-M12-5POL**
	XN	Straight plug, M12, 5-pin (in combination with adapter for separate load supply)	2.5	**175487**	**SEA-M12-5GS-PG7**