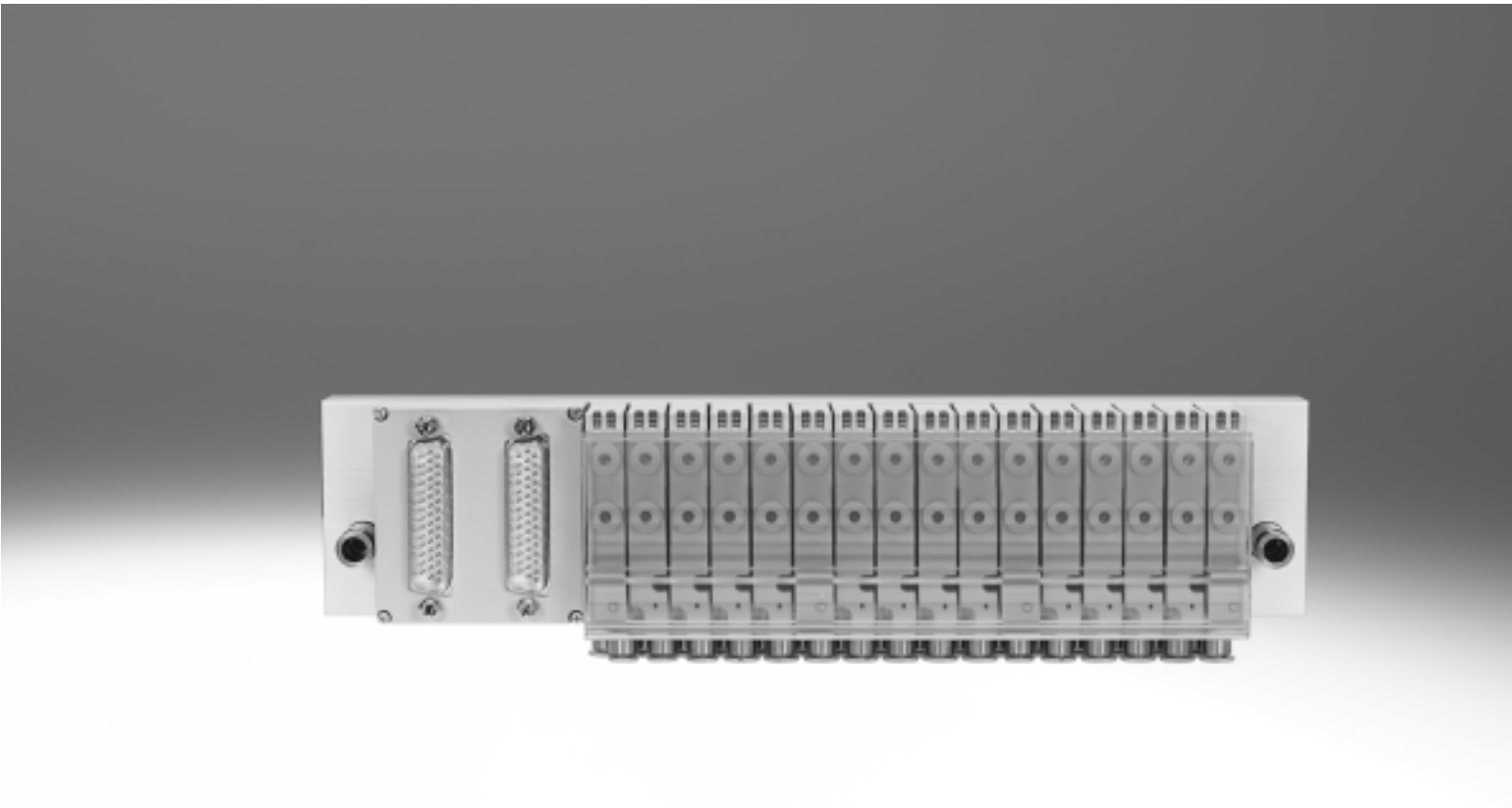
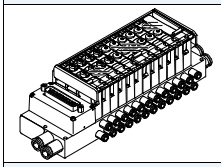
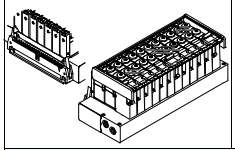
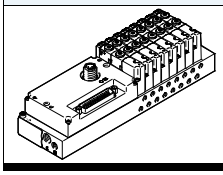
Valve terminals VTOC

FESTO



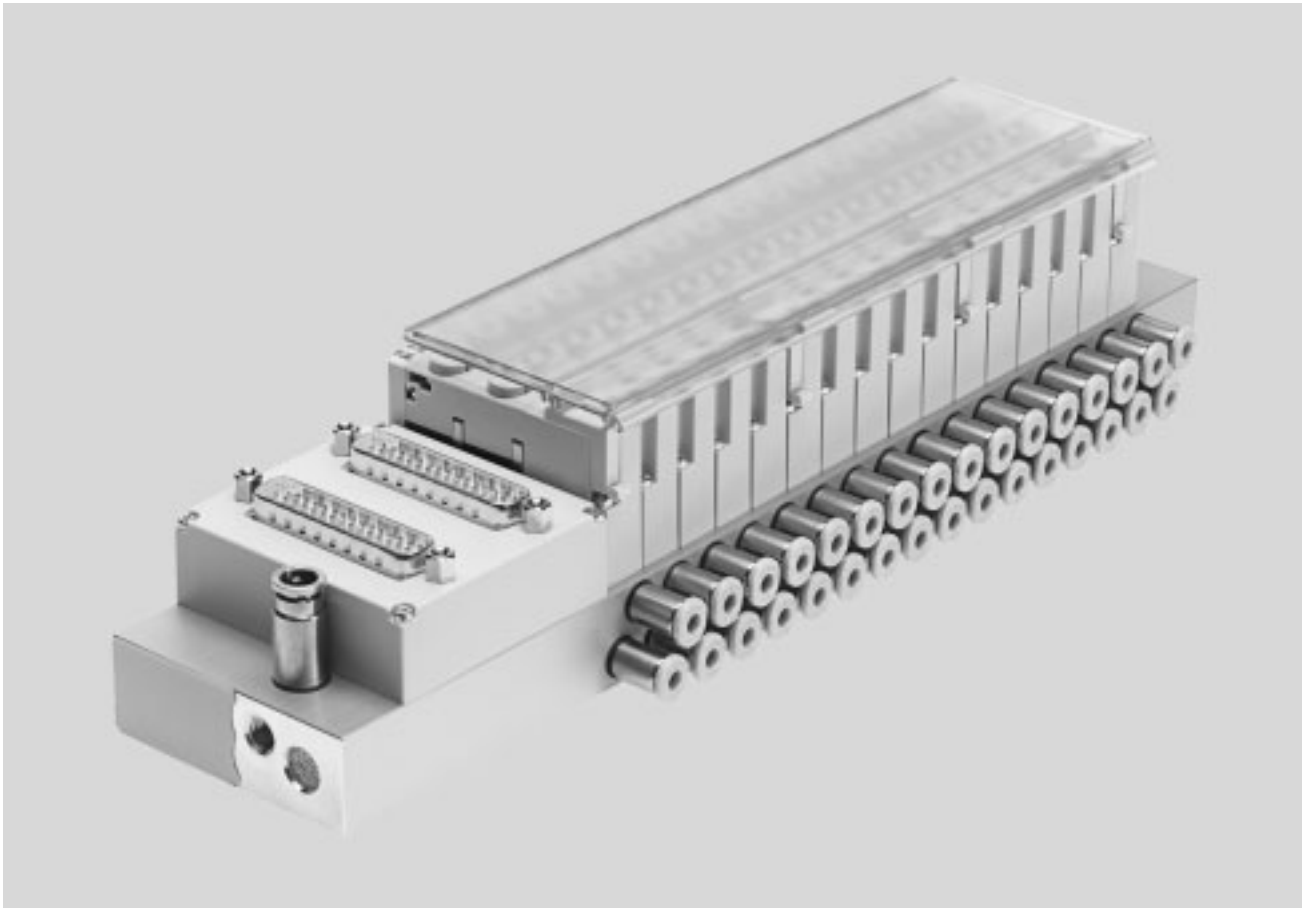
Valve terminals VTOC

Overview – Valve terminals

Design	Type code	Description	➔ Page/ Internet
Valve terminal VTOC with multi-pin plug connection, Sub-D			
	SD	• Sub-D, 25-pin • Sub-D, 44-pin	25
Valve terminal VTOC with multi-pin plug connection, flat cable			
	RC	• Flat cable, 26-pin • Flat cable, 40-pin • Flat cable, 50-pin	25
Valve terminal with I-Port interface, interlock/IO-Link			
	LK/PT	• I-Port interface: plug M12, 5-pin • Sub-D, 44-pin • IO-Link	27

Valve terminals VTOC

Key features



Innovative

- Valve terminal for a wide range of pneumatic applications
- Weight-optimised metal manifold rail
- Space-saving thanks to 2x3/2-way valves at one valve position
- Great flexibility during planning, assembly and operation
- Configurable manifold rails (pneumatic and electric connections)

Versatile

- Provides 2 ... 24 valve positions on one terminal
- Flexibility of the pneumatic working ports provides a practical solution to different requirements
- Wide range of electrical outlet directions
- Multi-pin plug connection with Sub-D plug or flat cable
- I-Port interface with interlock for fieldbus node (CTEU)
- IO-Link mode for direct connection to a higher-level IO-Link master

Reliable

- Manual override
- Durable
- Sturdy thanks to simple structure

Easy to mount

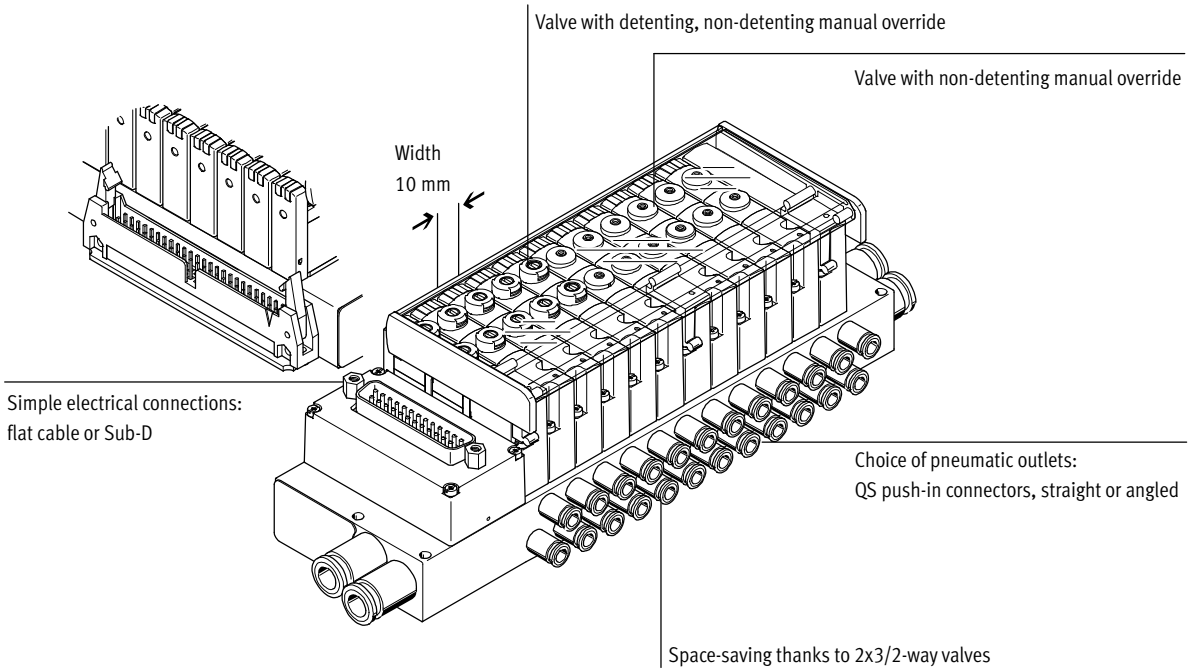
- Ready-to-install and tested unit
- Lower ordering, installation and commissioning costs
- Easy valve assembly

Note

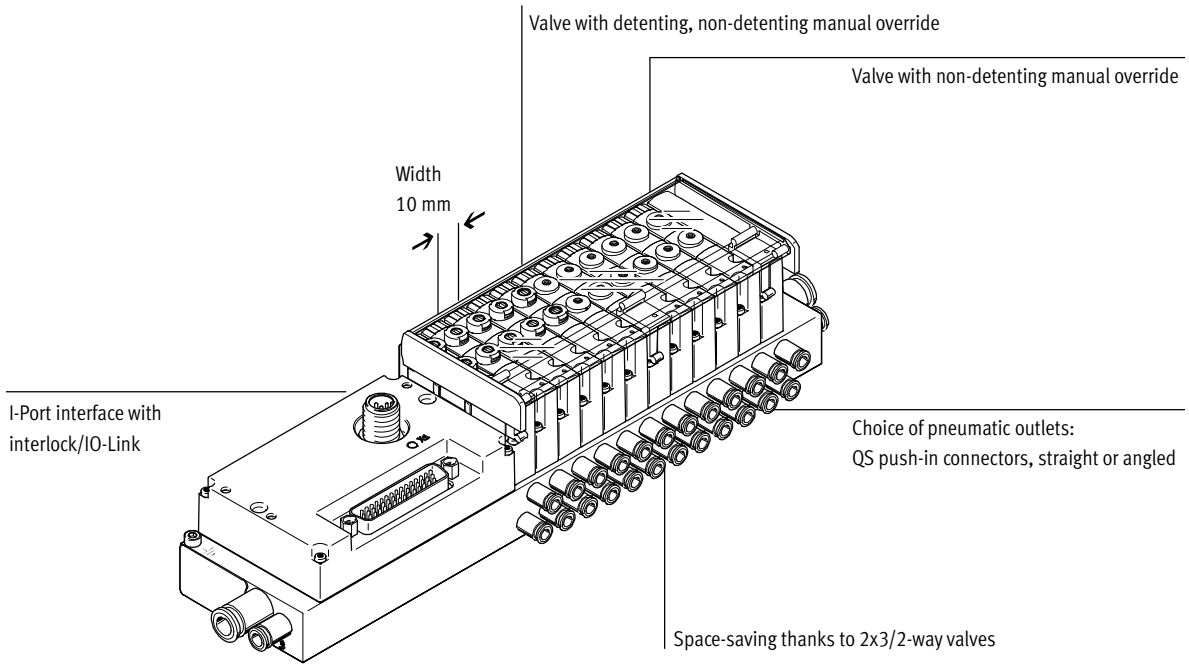
Ordering system for valve terminal VTOC

➔ Internet: vtoc

Valve terminal with multi-pin plug connection



Valve terminal with I-Port interface, interlock/IO-Link



Equipment options

Valve functions

- 2x3/2-way valve, single solenoid, normally closed
- Valve with non-detenting manual override
- Valve with detenting, non-detenting manual override
- 2 ... 24 valve positions/ max. 48 solenoid coils

Electrical connection options

- Variable multi-pin plug connection: Sub-D or flat cable
- I-Port interface with interlock for fieldbus node (CTEU)
- IO-Link mode for direct connection to a higher-level IO-Link master

Valve terminals VTOC

Key features

Integration of the I-Port interface/IO-Link

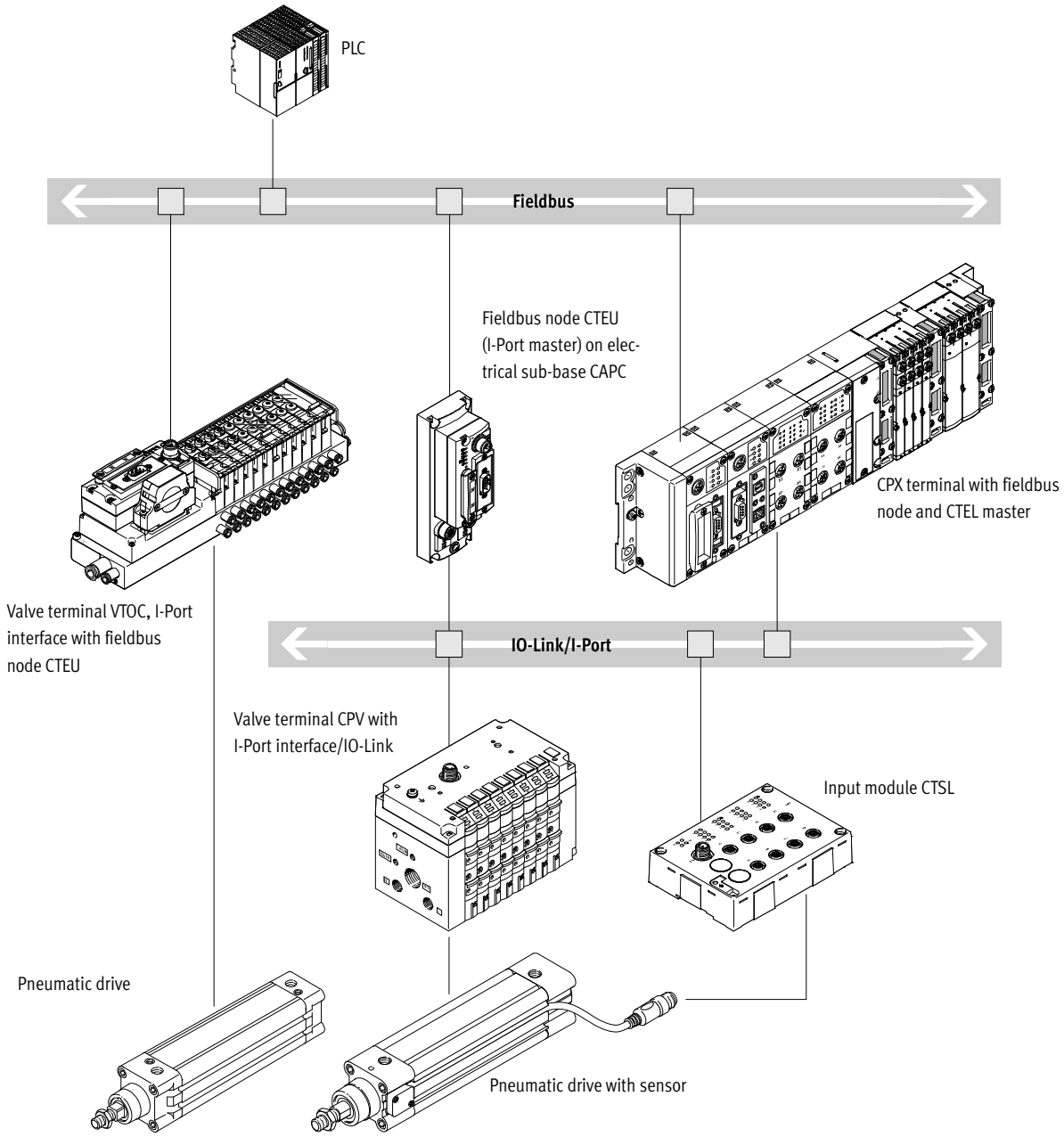
Different fieldbus nodes are used for integration into the control systems of various manufacturers.

The following protocols are supported with the compatible fieldbus node CTEU:

- CANopen
- DeviceNet
- EtherCAT
- CC-Link
- PROFIBUS

Use of the electrical sub-base CAPC permits decentralised installation of fieldbus nodes CTEU on a further valve terminal or input modules with I-Port interfaces (➔ installation system CTEU/CTEL)

System overview, example



- Communication with the higher-order controller via fieldbus
- Use the fieldbus node CTEU compatible with the fieldbus protocol
- Up to 64 inputs/outputs (solenoid coils), depending on the valve terminal

Valve terminals VTOC

Peripherals overview

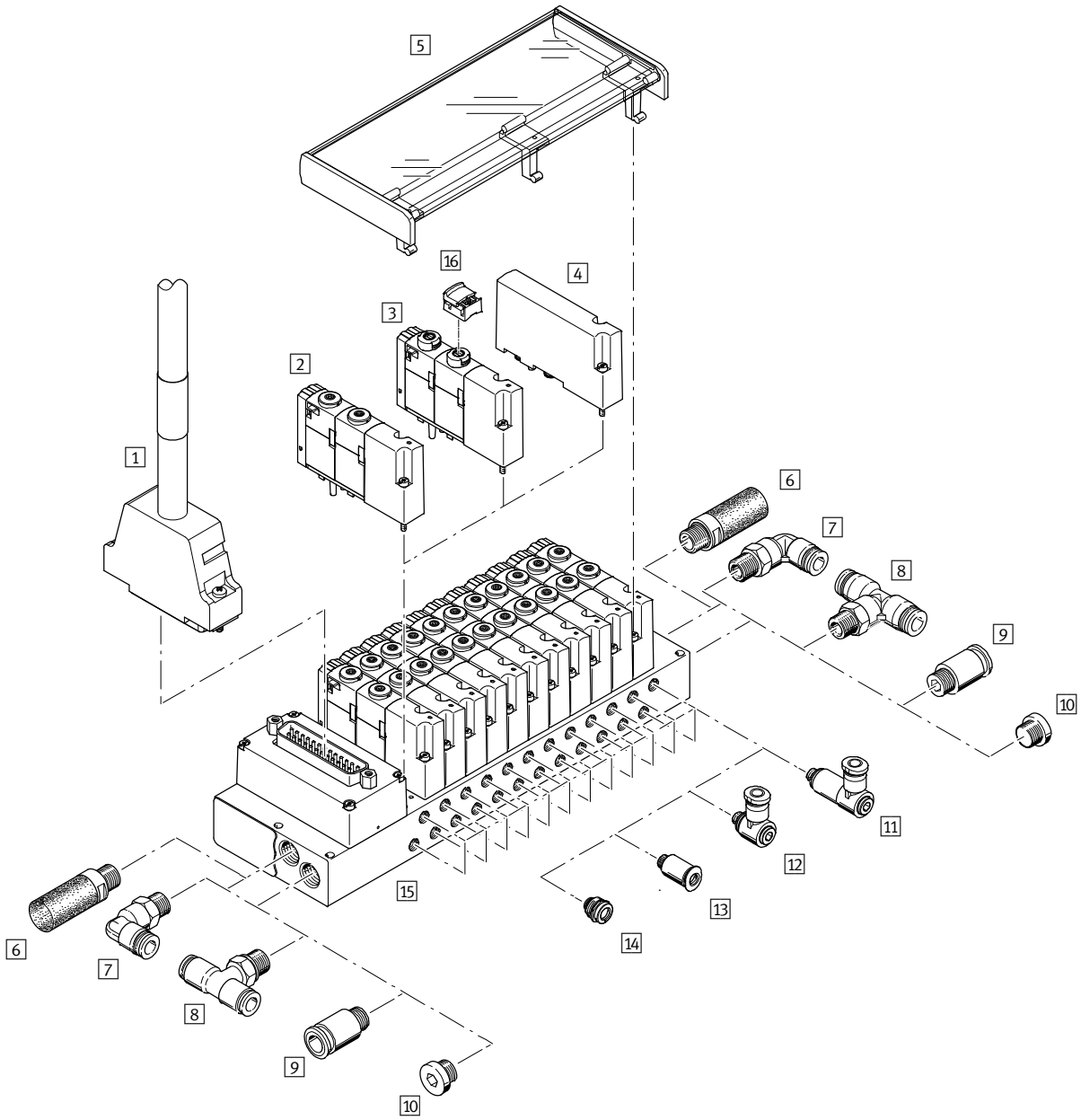
Overview – Valve terminal VTOC with multi-pin plug connection, Sub-D

- Up to 24 valve positions/ 48 solenoid coils
- Flat cable connection type, code: RC
- Sub-D plug connection type, code: SD

Valve terminals with electrical multi-pin plug connection are available with 2 to max. 24 valve positions. Each valve position can either be equipped with a valve body or a blanking plate.

Only valve bodies containing two 3/2-way single solenoid valves are available.

A maximum of 48 solenoid coils can be actuated via the electrical multi-pin plug connection.



Accessories

		Type	Brief description	➔ Page/ Internet
1	Connecting cable	KMP6/ NEBV	For multi-pin plug connection, with Sub-D plug, 25-pin or 44-pin	37
2	Solenoid valve, single solenoid	VOVC	With non-detenting manual override	37
3	Solenoid valve, single solenoid	VOVC	With detenting, non-detenting manual override	37
4	Blanking plate	VABB	For vacant position	37
5	Inscription label holder	ASCF	For labelling the valves/manual override cover	38
6	Silencer	U	For fitting in exhaust ports	38
7	Elbow connector	QSL	For connecting to the air supply or exhaust	38
8	T-fitting	QST	For connecting to the air supply or exhaust	38
9	Straight fitting	OS	For connecting to the air supply or exhaust	38
10	Blanking plug	B	For sealing the air supply or exhaust port	37
11	Push-in L-fitting, long	QSMLLV	Long elbow connector for working ports	38
12	Push-in L-fitting	QSMLV	Elbow connector for working ports	38
13	Push-in fitting	QS	Straight push-in fitting for working ports	38
14	Push-in fitting	QSIMG	Straight countersunk push-in fitting for working ports (compact)	–
15	Manifold rail	VABB	With multi-pin plug connection for max. 24 valve positions	–
16	Cover	VAMC	For manual override, detenting (without accessories)	37

Valve terminals VTOC

Peripherals overview

Overview – Valve terminal VTOC with I-Port interface, interlock/IO-Link

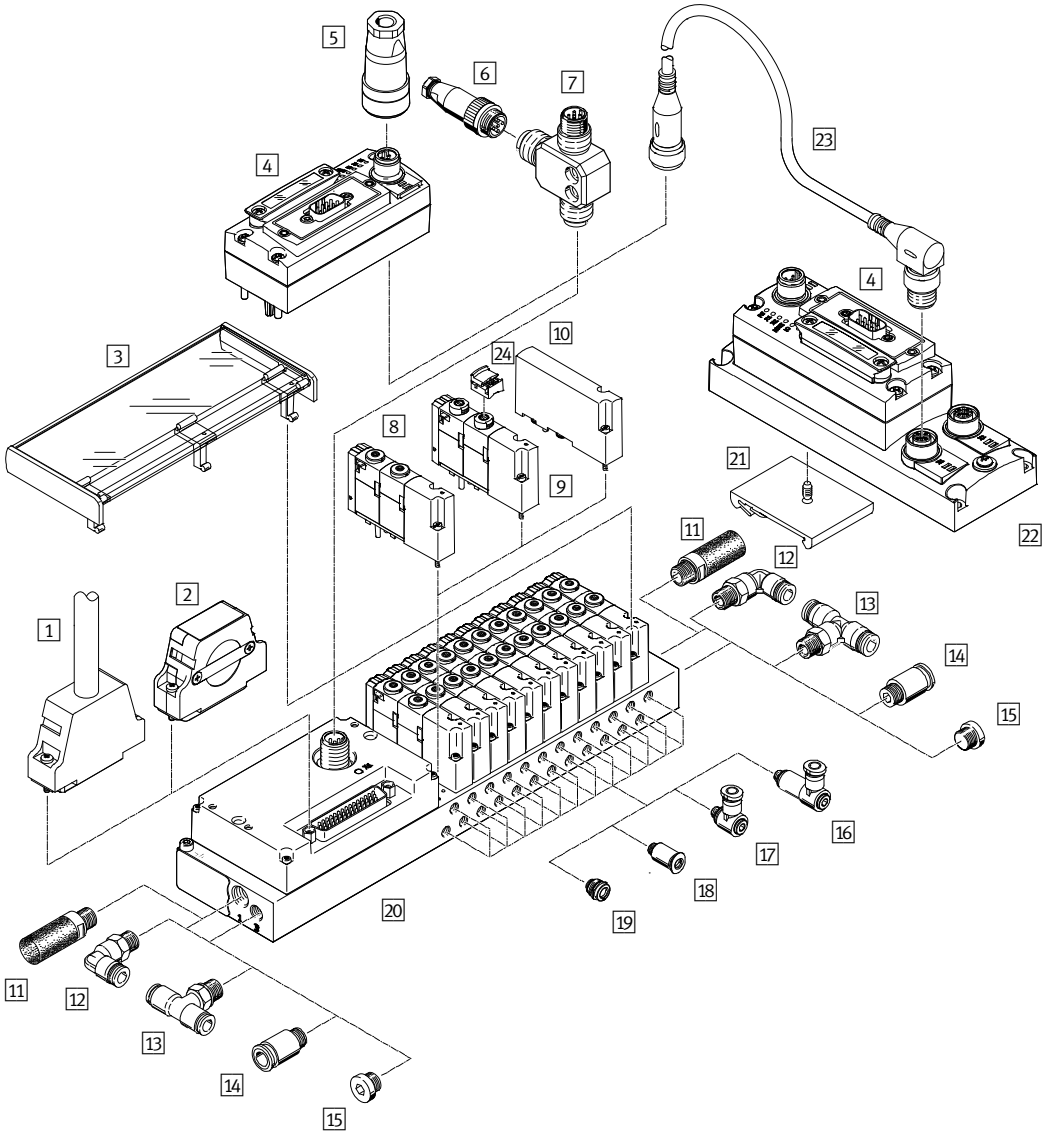
- Up to 24 valve positions/ 48 solenoid coils
- I-Port interface with interlock connection type, code: PT
- IO-Link connection type, code: LK

The electrical supply/transmission of communication data takes place via an M12 plug.
The valve terminal can be equipped with 2 ... 24 valves.

Only valve bodies containing two 3/2-way single solenoid valves are available.

The following protocols are supported in connection with the associated CTEU fieldbus node:

- DeviceNet
- CANopen
- PROFIBUS DP
- EtherCat
- CC-Link



Accessories				
		Type	Brief description	➔ Page/ Internet
1	Connecting cable	KMP6/ NEBV	For multi-pin plug connection, with Sub-D plug, 44-pin	37
2	Plug socket	NEFF	For bypassing the interlock function	40
3	Inscription label holder	ASCF	For labelling the valves/manual override cover	38
4	Fieldbus	CTEU	Fieldbus node	39
5	Plug socket	FBSD/ NTSD	For fieldbus node CTEU	40
6	Plug	SEA	Straight, for T-adapter FB-TA	40
7	T-adapter	FB-TA	For IO-Link and load supply	40
8	Solenoid valve, single solenoid	VOVC	With non-detenting manual override	37
9	Solenoid valve, single solenoid	VOVC	With detenting, non-detenting manual override	37
10	Blanking plate	VABB	For vacant position	37
11	Silencer	U	For fitting in exhaust ports	38
12	Elbow connector	QSL	For connecting to the air supply or exhaust	38
13	T-fitting	QST	For connecting to the air supply or exhaust	38
14	Straight fitting	OS	For connecting to the air supply or exhaust	38
15	Blanking plug	B	For sealing the air supply or exhaust port	37
16	Push-in L-fitting, long	QSMLLV	Long elbow connector for working ports	38
17	Push-in L-fitting	QSMLV	Elbow connector for working ports	38
18	Push-in fitting	QS	Straight, for working ports	38
19	Push-in fitting	QSIMG	Straight countersunk push-in fitting for working ports (compact)	–
20	Manifold rail	VABB	With I-Port interface/IO-Link, interlock	–
21	H-rail mounting	CAFM	For electrical connecting plate CAPC	38
22	Electrical connecting plate	CAPC	For connecting a second device with I-Port interface	40
23	Connecting cable	NEBU	–	40
24	Cover	VAMC	For manual override, detenting (without accessories)	37

Pin allocation variants

Flat cable	Number of valve positions	Top left (LT)				Bottom left (LB)		Top right (RT)			
		26 pins 1-way	26 pins 2-way	50 pins 1-way	50 pins 2-way	26 pins 1-way	26 pins 2-way	40 pins 1-way	40 pins 2-way	50 pins 1-way	50 pins 2-way
	4–12	V14	–	–	–	V8	–	–	–	–	–
	8–12	–	–	V11[1)]	–	–	–	–	–	V10[1)]	–
	6–10	–	–	–	–	–	–	V9[1)2)]	–	–	–
	13–24	–	V15	–	–	–	V17	–	–	–	–
	16–24	–	–	–	V16[1)]	–	–	–	–	–	–
	16–20	–	–	–	–	–	–	–	V18[1)2)]	–	–
	18–24	–	–	–	–	–	–	–	–	–	V19[1)]

1) Individual ground
2) Not bi-directional

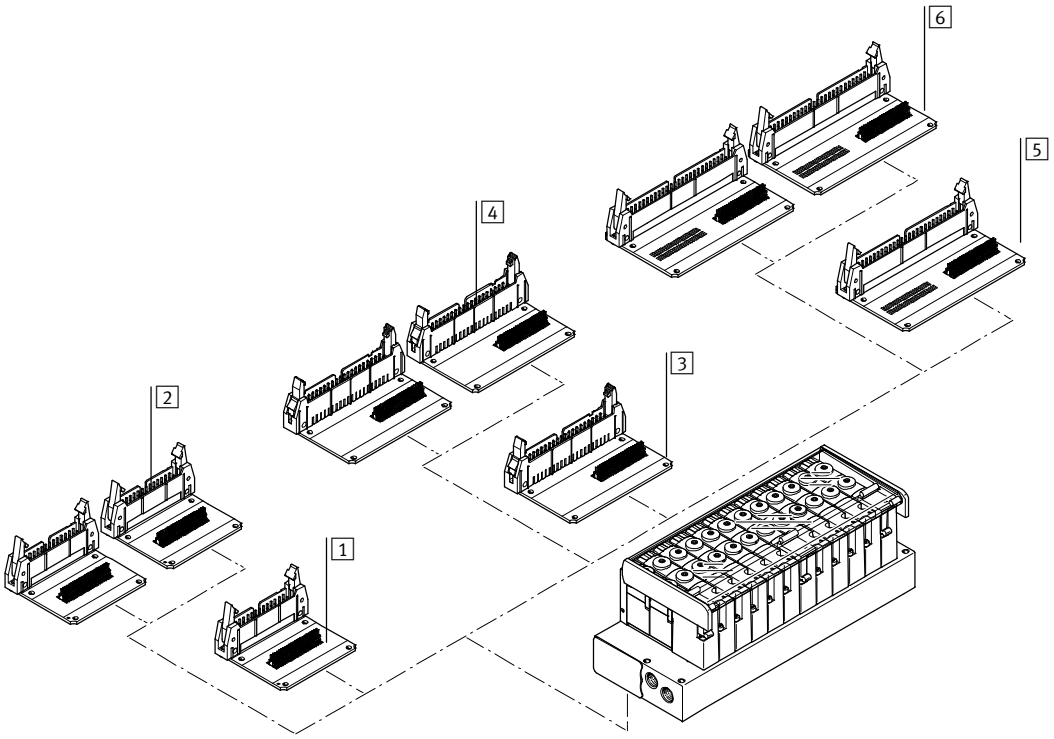
Overview of electrical connections

Valve terminal with flat cable connection on top

- Flat cable connection type, code: RC
- Connection direction:
  - Top left (code LT)
  - Top right (code RT)

A total of 10 pin allocation variants are available.

Detailed pin allocation ➔p. 20



Accessories

		Code	Brief description	Number of valve positions	Variants
1	Flat cable, 26-pin	LT	1-way, top left	4–12	V14
2	Flat cable, 26-pin		2-way, top left	13–24	V15
3	Flat cable, 40-pin	RT	1-way, top right	6–10	V9
4	Flat cable, 40-pin		2-way, top right	16–20	V18
5	Flat cable, 50-pin	RT	1-way, top right	8–12	V10
6	Flat cable, 50-pin		2-way, top right	18–24	V19
5	Flat cable, 50-pin	LT	1-way, top left	8–12	V11
6	Flat cable, 50-pin		2-way, top left	16–24	V16

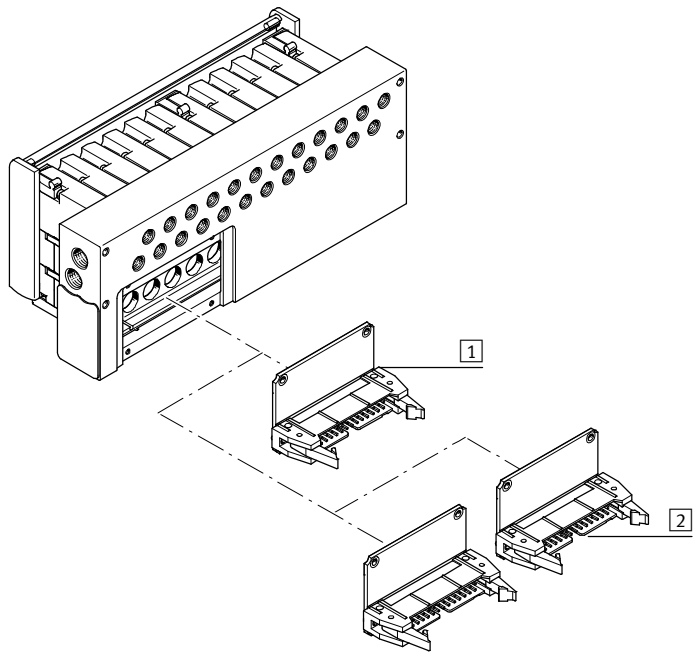
Overview of electrical connections

Valve terminal with flat cable connection underneath

- Flat cable connection type, code: RC
- Connection direction:
  - Bottom left (code LB)

A total of 10 pin allocation variants are available.

Detailed pin allocation ➔p. 20



Accessories

	Code	Brief description	Number of valve positions	Variants
1 Flat cable, 26-pin	LB	1-way, bottom left	4–12	V8
2 Flat cable, 26-pin		2-way, bottom left	13–24	V17

Pin allocation variants

Sub-D	Number of valve positions	Top left (LT)								Top right (RT)
		25 pins 1-way			25 pins 2-way	25 pins 2-way	44 pins 1-way	44 pins 2-way		44 pins 1-way
	2–12	V2	V3[2)]	V1	–	–	–	–	–	–
	4–12	–	–	–	–	V12[1)]	–	–	–	–
	13–21	–	–	–	–	–	V5	–	–	V13
	13–22	–	–	–	–	–	–	V7[1)]	V6[1)2)]	–
	13–24	–	–	–	V4	–	–	–	–	–

1) Individual ground
2) Not bi-directional

Overview of electrical connections

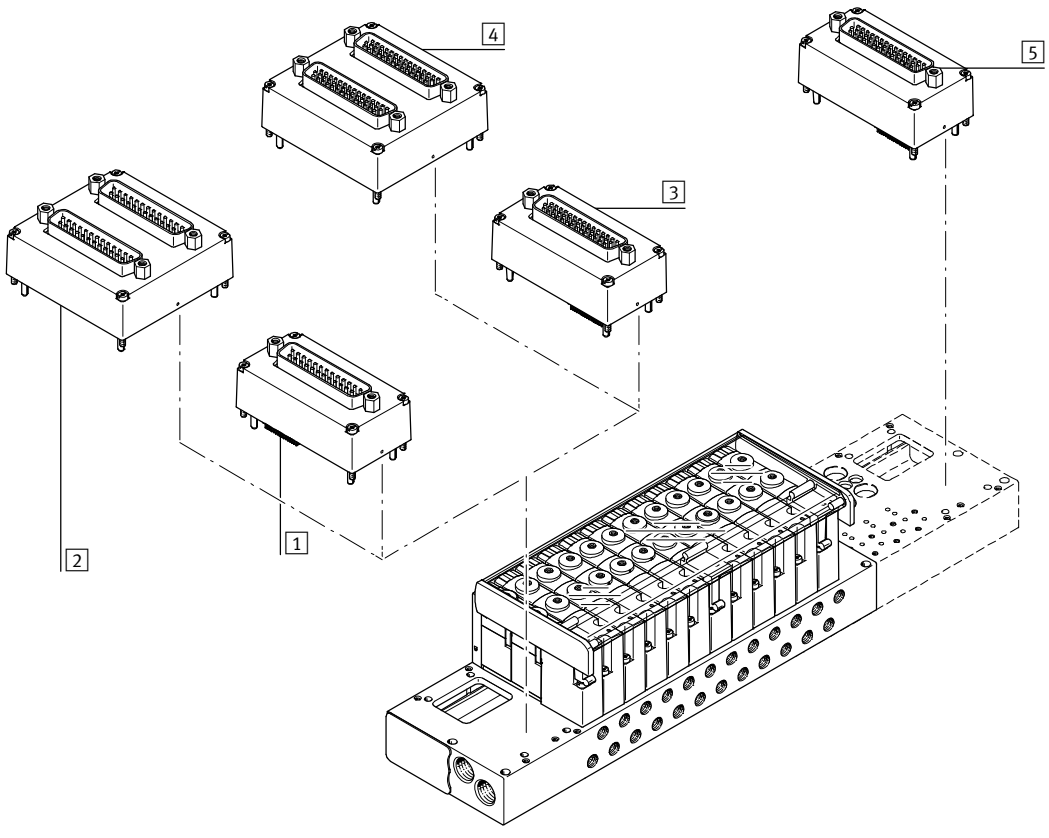
Valve terminal with Sub-D connection on top

- Sub-D connection type, code: SD

Connection direction:
- Top left (code LT)
- Top right (code RT)

A total of 9 pin allocation variants are available.

Detailed pin allocation ➔p. 18



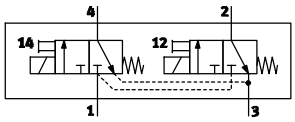
Accessories

	Code	Brief description	Number of valve positions	Variants
1 Sub-D, 25-pin	LT	1-way, top left	2…12	V1, V2, V3
2 Sub-D, 25-pin		2-way, top left	13…24	V4
			4…12	V12
3 Sub-D, 44-pin	LT	1-way, top left	13…21	V5
4 Sub-D, 44-pin		2-way, top left	13…22	V6, V7
5 Sub-D, 44-pin	RT	1-way, top right	13…20	V13

Design

The valves are mounted on the metal manifold rail using two screws. The use of 2x3/2 directional control valves per valve position guarantees optimum use of space with maximum performance. The valves only differ in the type of manual override. The assembled and tested units or individual components as modules enable a custom configuration. Blanking plates can be replaced by valves at a later date. The existing dimensions, mounting points and the pneumatic and electrical installation do not change.

Valve function

Code	Circuit symbol	Width 10 mm	Description
K		■	2x3/2-way valve, single solenoid • Mechanical spring return • Non-reversible

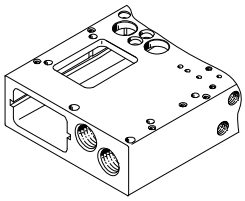
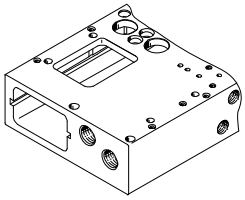
Fittings
Ports 1/3

Wide range of connection sizes:
- Threaded connection M7, G1⁄8, 1⁄8NPT
- Push-in connector QS6, QS8, QS3⁄8 or QS1⁄4 (compressed air supply)
- Push-in connector QS6, QS1⁄4 or silencer (exhaust air)

Choice of connection types for port 1, compressed air supply and port 3, exhaust air:
- Straight
- Elbow connector
- T-fitting

Flexible connection positions for the compressed air supply and exhaust:
- At both ends
- To the left
- To the right

Ports 1/3

Connection direction: front	Code	Description
	-G18	Manifold block G1⁄8 (diagram shows example of Sub-D electrical connection on left) Basis for design: • Push-in connector QS8 • Push-in connector QS3⁄8"
	-M7	Manifold block M7 (diagram shows example of Sub-D electrical connection on left) Basis for design: • Push-in connector QS6 • Push-in connector QS1⁄4 • Exhaust port via push-in fitting or silencer

Fittings

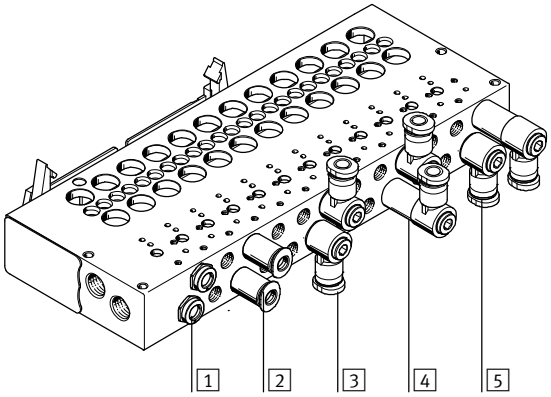
Ports 2/4

Wide range of connection sizes:
- Threaded connection M5
- 10-32 UNF
- Push-in connector QS3, QS4 or ⅛"

Outlet direction:
- To the front
- Underneath

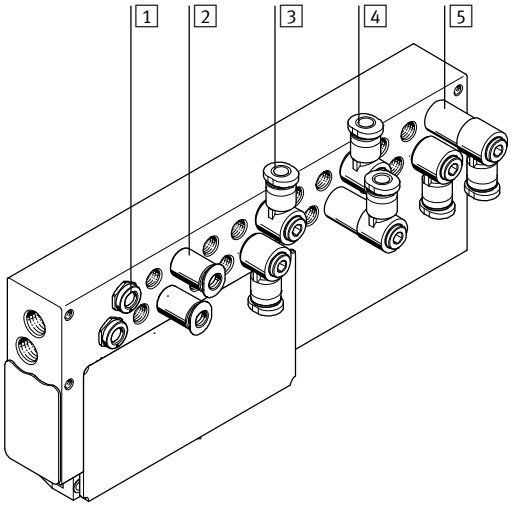
Connection on the valve (port 2/4)

Outlet direction to the front



	Code	Description
1	X	Straight countersunk outlet (compact)
2	–	Straight outlet
3	FB	Angled outlet, upwards/downwards
4	FA	Angled outlet, upwards
5	FC	Angled outlet, downwards

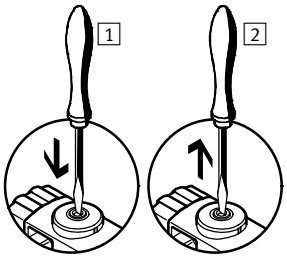
Outlet direction underneath



	Code	Description
1	X	Straight countersunk outlet (compact)
2	U	Straight outlet
3	UB	Angled outlet, to the front/rear
4	UA	Angled outlet, to the front
5	UC	Angled outlet, to the rear

Manual override (MO)

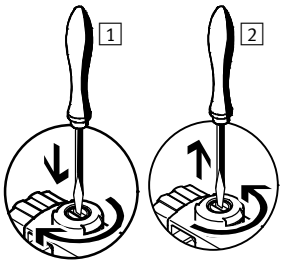
Manual override with automatic return (non-detenting)



1 Press in the stem of the manual override with a pointed object or screwdriver.
The valve switches.

2 Remove the pointed object or screwdriver.
Spring force pushes the manual override back.
The valve returns to its normal position.

Manual override with lock (non-detenting/detenting)



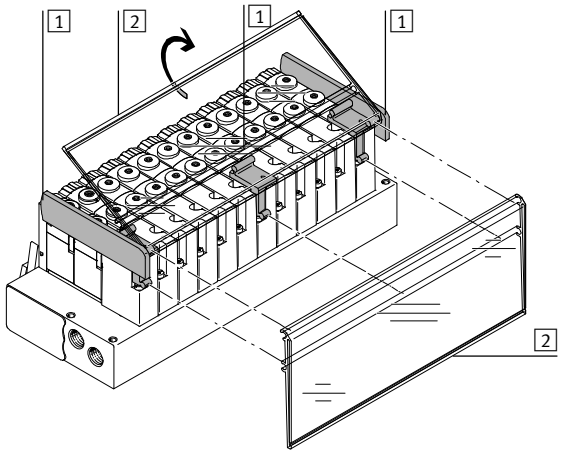
1 Press in the stem of the manual override with a screwdriver until the valve switches and then turn the stem clockwise by 90° until the stop is reached.
The valve remains switched.

2 Turn the stem anti-clockwise by 90° until the stop is reached and then remove the screwdriver.
Spring force pushes the manual override back.
The valve returns to its normal position.

Note

VTOC provides two valves with the same valve function but different types of manual override. There is no provision for subsequent modification of the type of manual override (e.g. by attaching a cover).

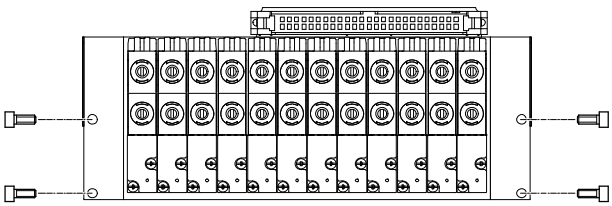
Identification system



1 Retainer for inscription label holder
The retainer for the inscription label holder is fastened to the valves with one screw and enables the inscription label holder to be mounted in two different directions. The retainers at the side are flanged to prevent the inscription label sliding out.

2 Inscription label holder
A transparent inscription label holder ASCF-H-L2 (code F/T in the order code) can be mounted for labelling the valves. Inscription labels can be inserted in the holders for labelling purposes. Templates for printing the inscription label are available on request.

Mounting – Valve terminal



Sturdy terminal assembly thanks to:
- Four through-holes for wall mounting (hole ∅: 3.3 mm)
- Four holes with thread on the reverse side:
  - Thread M3
  - Thread M4
  - Thread 8-32 UNC
  - Thread 10-32 UNC-2B

Electrical connection

Multi-pin plug

The following multi-pin plug connections are available for the valve terminal VTOC:
- Sub-D multi-pin plug connection (25-pin, 1-way or 2-way)
- Sub-D multi-pin plug connection (44-pin, 1-way or 2-way)
- Flat cable plug (26-pin, 1-way or 2-way)
- Flat cable plug (40-pin, 1-way or 2-way)
- Flat cable plug (50-pin, 1-way or 2-way)

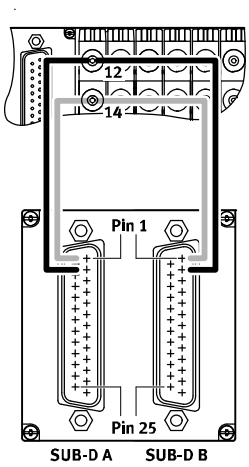
The multi-pin plug connection is available with 19 different pin allocation variants.
Other variants on request.

Connection directions:
- Sub-D connection (top left/right)
- Flat cable (top/bottom left, top/bottom right)

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

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 24, this means that 48 valves can be addressed.

Explanation of pin allocation (V12)

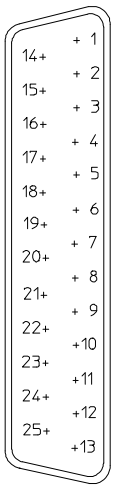


The example shows the pin allocation code V12. The solenoid coils are wired in ascending order of the valves so that solenoid coil 14 occupies the low-value pin and solenoid coil 12 the next pin of both Sub-D connections:
- Pin 1 of Sub-D A and Sub-D B at valve position 1, coil 14.
- Pin 2 of Sub-D A and Sub-D B at valve position 1, coil 12.

The following tables show the different pin allocation variants.

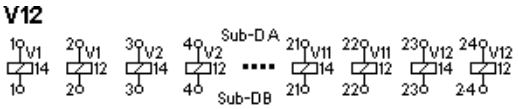
The circuitry may differ from the example depending on the multi-pin plug connection chosen.

Pin allocation – Sub-D plug, 25-pin

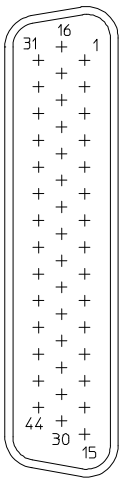
	Pin	-V1		-V2		-V3		-V4				-V12			
								Sub-D A[1]		Sub-D B[2]		Sub-D A[1]		Sub-D B[2]	
	1	VP1	12	VP1	14	VP1	14-	VP1	14	VP13	14	VP1	14	VP1	14
	2	VP1	14	VP2	14	VP2	14-	VP1	12	VP13	12	VP1	12	VP1	12
	3	VP2	12	VP3	14	VP3	14-	VP2	14	VP14	14	VP2	14	VP2	14
	4	VP2	14	VP4	14	VP4	14-	VP2	12	VP14	12	VP2	12	VP2	12
	5	VP3	12	VP5	14	VP5	14-	VP3	14	VP15	14	VP3	14	VP3	14
	6	VP3	14	VP6	14	VP6	14-	VP3	12	VP15	12	VP3	12	VP3	12
	7	VP4	12	VP7	14	VP7	14-	VP4	14	VP16	14	VP4	14	VP4	14
	8	VP4	14	VP8	14	VP8	14-	VP4	12	VP16	12	VP4	12	VP4	12
	9	VP5	12	VP9	14	VP9	14-	VP5	14	VP17	14	VP5	14	VP5	14
	10	VP5	14	VP10	14	VP10	14-	VP5	12	VP17	12	VP5	12	VP5	12
	11	VP6	12	VP11	14	VP11	14-	VP6	14	VP18	14	VP6	14	VP6	14
	12	VP6	14	VP12	14	VP12	14-	VP6	12	VP18	12	VP6	12	VP6	12
	13	VP7	12	Com		Com+		VP7	14	VP19	14	VP7	14	VP7	14
	14	VP7	14	VP1	12	VP1	12-	VP7	12	VP19	12	VP7	12	VP7	12
	15	VP8	12	VP2	12	VP2	12-	VP8	14	VP20	14	VP8	14	VP8	14
	16	VP8	14	VP3	12	VP3	12-	VP8	12	VP20	12	VP8	12	VP8	12
	17	VP9	12	VP4	12	VP4	12-	VP9	14	VP21	14	VP9	14	VP9	14
	18	VP9	14	VP5	12	VP5	12-	VP9	12	VP21	12	VP9	12	VP9	12
	19	VP10	12	VP6	12	VP6	12-	VP10	14	VP22	14	VP10	14	VP10	14
	20	VP10	14	VP7	12	VP7	12-	VP10	12	VP22	12	VP10	12	VP10	12
- - Note	21	VP11	12	VP8	12	VP8	12-	VP11	14	VP23	14	VP11	14	VP11	14
	22	VP11	14	VP9	12	VP9	12-	VP11	12	VP23	12	VP11	12	VP11	12
The drawing shows the view onto the Sub-D plug on the valve terminal.	23	VP12	12	VP10	12	VP10	12-	VP12	14	VP24	14	VP12	14	VP12	14
	24	VP12	14	VP11	12	VP11	12-	VP12	12	VP24	12	VP12	12	VP12	12
	25	Com		VP12	12	VP12	12-	Com 1-12		Com 13-24		–	–	–	–

VP Valve position
1) Sub D-A, first Sub-D plug
2) Sub-D B, second Sub-D plug

Example of pin allocation V12



Pin allocation – Sub-D plug, 44-pin



Pin	-V5		-V6				-V7				-V13	
			Sub-D A[1]		Sub-D B[2]		Sub-D A[1]		Sub-D B[2]			
1	VP1	14	VP1	14+	VP1	14-	VP1	14	VP1	14	VP1	12
2	VP1	12	VP1	12+	VP1	12-	VP1	12	VP1	12	VP1	14
3	VP2	14	VP2	14+	VP2	14-	VP2	14	VP2	14	VP2	12
4	VP2	12	VP2	12+	VP2	12-	VP2	12	VP2	12	VP2	14
5	VP3	14	VP3	14+	VP3	14-	VP3	14	VP3	14	VP3	12
6	VP3	12	VP3	12+	VP3	12-	VP3	12	VP3	12	VP3	14
7	VP4	14	VP4	14+	VP4	14-	VP4	14	VP4	14	VP4	12
8	VP4	12	VP4	12+	VP4	12-	VP4	12	VP4	12	VP4	14
9	VP5	14	VP5	14+	VP5	14-	VP5	14	VP5	14	VP5	12
10	VP5	12	VP5	12+	VP5	12-	VP5	12	VP5	12	VP5	14
11	VP6	14	VP6	14+	VP6	14-	VP6	14	VP6	14	VP6	12
12	VP6	12	VP6	12+	VP6	12-	VP6	12	VP6	12	VP6	14
13	VP7	14	VP7	14+	VP7	14-	VP7	14	VP7	14	VP7	12
14	VP7	12	VP7	12+	VP7	12-	VP7	12	VP7	12	VP7	14
15	VP8	14	VP8	14+	VP8	14-	VP8	14	VP8	14	VP8	12
16	VP8	12	VP8	12+	VP8	12-	VP8	12	VP8	12	VP8	14
17	VP9	14	VP9	14+	VP9	14-	VP9	14	VP9	14	VP9	12
18	VP9	12	VP9	12+	VP9	12-	VP9	12	VP9	12	VP9	14
19	VP10	14	VP10	14+	VP10	14-	VP10	14	VP10	14	VP10	12
20	VP10	12	VP10	12+	VP10	12-	VP10	12	VP10	12	VP10	14
21	VP11	14	VP11	14+	VP11	14-	VP11	14	VP11	14	VP11	12
22	VP11	12	VP11	12+	VP11	12-	VP11	12	VP11	12	VP11	14
23	VP12	14	VP12	14+	VP12	14-	VP12	14	VP12	14	VP12	12
24	VP12	12	VP12	12+	VP12	12-	VP12	12	VP12	12	VP12	14
25	VP13	14	VP13	14+	VP13	14-	VP13	14	VP13	14	VP13	12
26	VP13	12	VP13	12+	VP13	12-	VP13	12	VP13	12	VP13	14
27	VP14	14	VP14	14+	VP14	14-	VP14	14	VP14	14	VP14	12
28	VP14	12	VP14	12+	VP14	12-	VP14	12	VP14	12	VP14	14
29	VP15	14	VP15	14+	VP15	14-	VP15	14	VP15	14	VP15	12
30	VP15	12	VP15	12+	VP15	12-	VP15	12	VP15	12	VP15	14
31	VP16	14	VP16	14+	VP16	14-	VP16	14	VP16	14	VP16	12
32	VP16	12	VP16	12+	VP16	12-	VP16	12	VP16	12	VP16	14
33	VP17	14	VP17	14+	VP17	14-	VP17	14	VP17	14	VP17	12
34	VP17	12	VP17	12+	VP17	12-	VP17	12	VP17	12	VP17	14
35	VP18	14	VP18	14+	VP18	14-	VP18	14	VP18	14	VP18	12
36	VP18	12	VP18	12+	VP18	12-	VP18	12	VP18	12	VP18	14
37	VP19	14	VP19	14+	VP19	14-	VP19	14	VP19	14	VP19	12
38	VP19	12	VP19	12+	VP19	12-	VP19	12	VP19	12	VP19	14
39	VP20	14	VP20	14+	VP20	14-	VP20	14	VP20	14	VP20	12
40	VP20	12	VP20	12+	VP20	12-	VP20	12	VP20	12	VP20	14
41	VP21	14	VP21	14+	VP21	14-	VP21	14	VP21	14	Com	
42	VP21	12	VP21	12+	VP21	12-	VP21	12	VP21	12	Com	
43	Com		VP22	14+	VP22	14-	VP22	14	VP22	14	Com	
44	Com		VP22	12+	VP22	12-	VP22	12	VP22	12	Com	

- Note

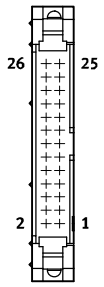
The drawing shows the view onto the Sub-D plug on the valve terminal.

VP Valve position

1) Sub D-A, first Sub-D plug

2) Sub-D B, second Sub-D plug

Pin allocation – Flat cable, 26-pin



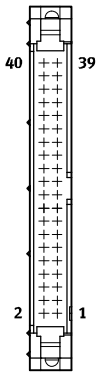
Pin	-V8		-V14		-V15				-V17			
					Plug 1		Plug 2		Plug 1		Plug 2	
1	VP12	14	VP1	14	VP1	14	VP13	14	VP12	14	VP24	14
2	VP12	12	VP1	12	VP1	12	VP13	12	VP12	12	VP24	12
3	VP11	14	VP2	14	VP2	14	VP14	14	VP11	14	VP23	14
4	VP11	12	VP2	12	VP2	12	VP14	12	VP11	12	VP23	12
5	VP10	14	VP3	14	VP3	14	VP15	14	VP10	14	VP22	14
6	VP10	12	VP3	12	VP3	12	VP15	12	VP10	12	VP22	12
7	VP9	14	VP4	14	VP4	14	VP16	14	VP9	14	VP21	14
8	VP9	12	VP4	12	VP4	12	VP16	12	VP9	12	VP21	12
9	VP8	14	VP5	14	VP5	14	VP17	14	VP8	14	VP20	14
10	VP8	12	VP5	12	VP5	12	VP17	12	VP8	12	VP20	12
11	VP7	14	VP6	14	VP6	14	VP18	14	VP7	14	VP19	14
12	VP7	12	VP6	12	VP6	12	VP18	12	VP7	12	VP19	12
13	VP6	14	VP7	14	VP7	14	VP19	14	VP6	14	VP18	14
14	VP6	12	VP7	12	VP7	12	VP19	12	VP6	12	VP18	12
15	VP5	14	VP8	14	VP8	14	VP20	14	VP5	14	VP17	14
16	VP5	12	VP8	12	VP8	12	VP20	12	VP5	12	VP17	12
17	VP4	14	VP9	14	VP9	14	VP21	14	VP4	14	VP16	14
18	VP4	12	VP9	12	VP9	12	VP21	12	VP4	12	VP16	12
19	VP3	14	VP10	14	VP10	14	VP22	14	VP3	14	VP15	14
20	VP3	14	VP10	14	VP10	14	VP22	12	VP3	12	VP15	12
21	VP2	14	VP11	14	VP11	14	VP23	14	VP2	14	VP14	14
22	VP2	12	VP11	12	VP21	12	VP23	12	VP2	12	VP14	12
23	VP1	14	VP12	14	VP12	14	VP24	14	VP1	14	VP13	14
24	VP1	12	VP12	12	VP12	12	VP24	12	VP1	12	VP13	12
25	Com		Com		Com		Com		Com		Com	
26	Com		Com		Com		Com		Com		Com	

- Note

The drawing shows the view onto the flat cable plug on the valve terminal.

VP Valve position

Pin allocation – Flat cable, 40-pin



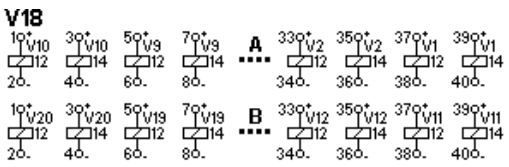
Pin	-V9		-V18			
			Plug 1		Plug 2	
1	VP10	12+	VP10	12+	VP11	14+
2	VP10	12-	VP10	12-	VP11	14-
3	VP10	14+	VP10	14+	VP11	12+
4	VP10	14-	VP10	14-	VP11	12-
5	VP9	12+	VP9	12+	VP12	14+
6	VP9	12-	VP9	12-	VP12	14-
7	VP9	14+	VP9	14+	VP12	12+
8	VP9	14-	VP9	14-	VP12	12-
9	VP8	12+	VP8	12+	VP13	14+
10	VP8	12-	VP8	12-	VP13	14-
11	VP8	14+	VP8	14+	VP13	12+
12	VP8	14-	VP8	14-	VP13	12-
13	VP7	12+	VP7	12+	VP14	14+
14	VP7	12-	VP7	12-	VP14	14-
15	VP7	14+	VP7	14+	VP14	12+
16	VP7	14-	VP7	14-	VP14	12-
17	VP6	12+	VP6	12+	VP15	14+
18	VP6	12-	VP6	12-	VP15	14-
19	VP6	14+	VP6	14+	VP15	12+
20	VP6	14-	VP6	14-	VP15	12-
21	VP5	12+	VP5	12+	VP16	14+
22	VP5	12-	VP5	12-	VP16	14-
23	VP5	14+	VP5	14+	VP16	12+
24	VP5	14-	VP5	14-	VP16	12-
25	VP4	12+	VP4	12+	VP17	14+
26	VP4	12-	VP4	12-	VP17	14-
27	VP4	14+	VP4	14+	VP17	12+
28	VP4	14-	VP4	14-	VP17	12-
29	VP3	12+	VP3	12+	VP18	14+
30	VP3	12-	VP3	12-	VP18	14-
31	VP3	14+	VP3	14+	VP18	12+
32	VP3	14-	VP3	14-	VP18	12-
33	VP2	12+	VP2	12+	VP19	14+
34	VP2	12-	VP2	12-	VP19	14-
35	VP2	14+	VP2	14+	VP19	12+
36	VP2	14-	VP2	14-	VP19	12-
37	VP1	12+	VP1	12+	VP20	14+
38	VP1	12-	VP1	12-	VP20	14-
39	VP1	14+	VP1	14+	VP20	12+
40	VP1	14-	VP1	14-	VP20	12-

- - Note

The drawing shows the view onto the flat cable plug on the valve terminal.

VP Valve position

Example of pin allocation V18



I-Port interface with interlock/IO-Link

IO-Link

IO-Link is an interface that supplies data for communication in addition to the power supply.
An IO-Link system consists of an IO-Link master and IO-Link devices.
The IO-Link master offers the interface to the higher-order controller (PLC) and controls communication with the connected IO-Link devices. One device with IO-Link (e.g. an IO-Link valve terminal from Festo) can be connected to each port on an IO-Link master.

I-Port

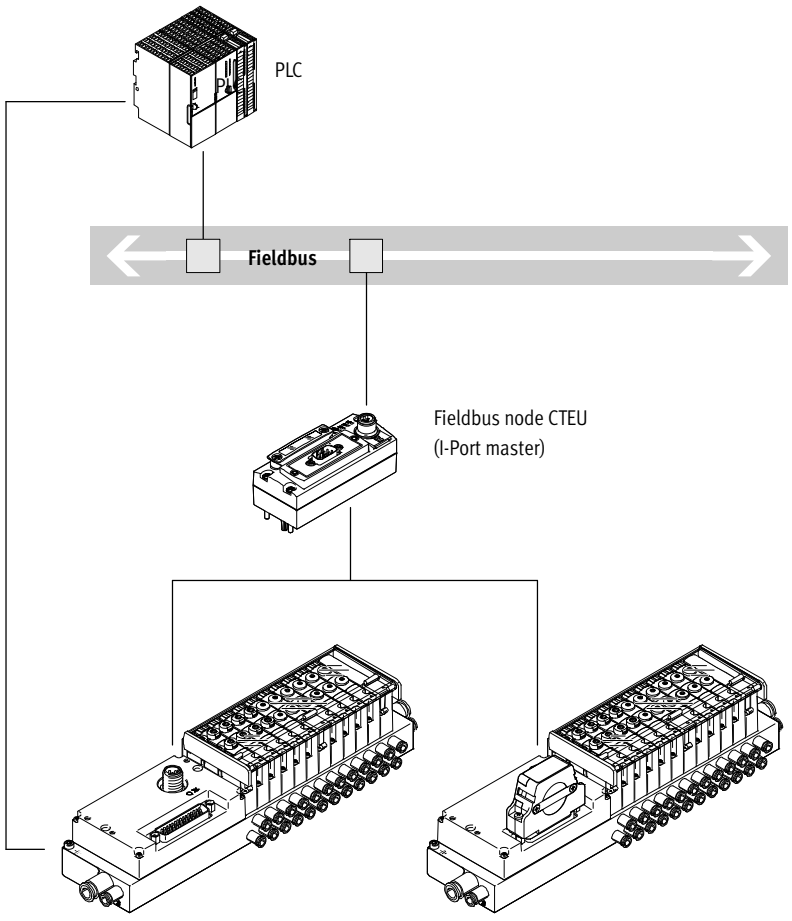
The Festo-specific I-Port interface based on IO-Link offers the following connection options:
- Directly at the fieldbus, by mounting a fieldbus node CTEU
- Connection to a higher-order I-Port master from Festo

Interlock

The interlock function enables the first 16 solenoid coils to be individually supplied externally. This guarantees safety-related release of these valves.
The interlock interface is established via external contacts for a single-pin connection or via safety output terminals for a double-pin connection.

For applications that do not require actuation of the solenoid coils via interlock, the Sub-D connection can be bypassed using a special Sub-D socket (NEFF...).
The solenoid coils are then supplied with load voltage via the I-Port interface.

Overview



Valve terminal VTOC, I-Port interface with interlock/IO-Link

Valve terminal VTOC, I-Port interface/ IO-Link with Sub-D socket NEFF

Interlock interface

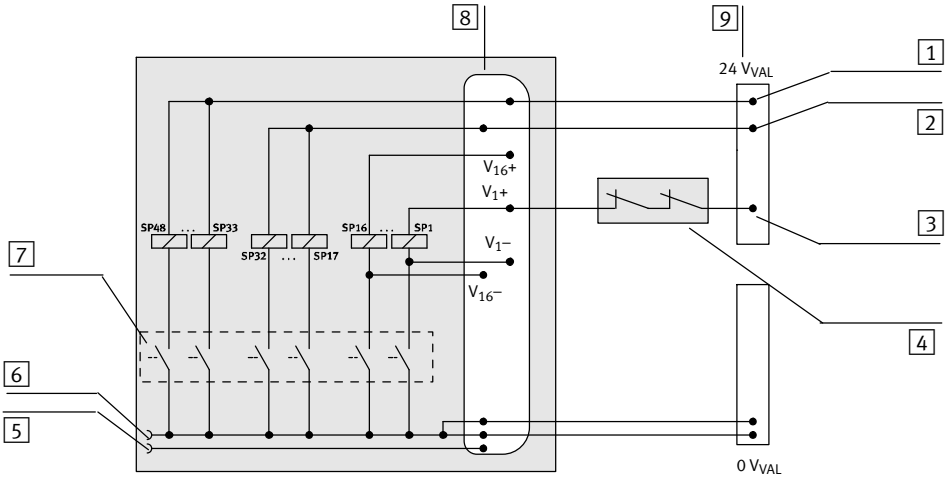
Single-pin interlock interface

- The interlock interface is established via external positive switching contacts or single-pin switching safety terminals
- 16 solenoid coils can be actuated via the interlock (Vn+)
- Solenoid coils that do not require interlock actuation can be supplied directly with 24 V from pins 1 ... 3
- Application of the respective input voltage is reported via the fieldbus as an image table

Double-pin interlock interface

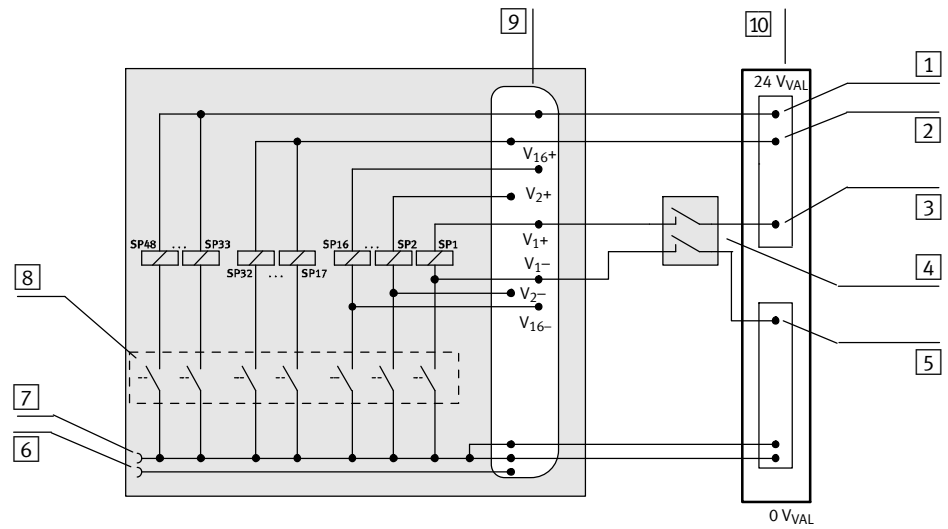
- The interlock interface is established via external positive-negative switching safety terminals
- The solenoid coils of the interlock valves are actuated via the corresponding pins in the sub-D plug (pins 7 ... 38)
- Solenoid coils that do not require interlock actuation can be supplied directly with 24 V (e.g. from pins 1 ... 3)
- Any difference in potential between Vn– and 0 VVAL/OUT must be below 5 V

Sample circuit diagram for a single-pin interlock interface



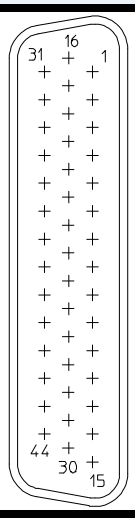
1 Power supply V+, solenoid coils 33 ... 48 (no interlock)
2 Power supply V+, solenoid coils 17 ... 32 (no interlock)
3 Actuation Vn+ (via interlock)
4 Interlock contacts of the output terminal
5 I-Port connection pin 2, 24 VVAL/OUT (PL), load voltage supply
6 I-Port connection pin 5, 0 VVAL/OUT (PL), load voltage supply
7 Driver, actuated via fieldbus/I-Port
8 Interlock Sub-D connection
9 Power supply (interlock)

Sample circuit diagram for a double-pin interlock interface



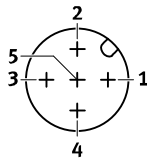
1 Power supply V+, solenoid coil 33 ... 48 (no interlock)
2 Power supply V+, solenoid coils 17 ... 32 (no interlock)
3 Actuation Vn+ (via interlock)
4 Interlock contacts of the output terminal
5 Actuation Vn– (via interlock)
6 I-Port connection pin 2, 24 VVAL/OUT (PL), load voltage supply
7 I-Port connection pin 5, 0 VVAL/OUT (PL), load voltage supply
8 Driver, actuated via fieldbus/I-Port
9 Interlock Sub-D connection
10 Power supply (interlock)

Pin allocation – Interlock



Pin	Coil	Signal	Pin	Coil	Signal	Pin	Coil	Signal
1	–	24 $V_{VAL/OUT}$	16	5	V5-	31	13	V13+
2	–	24 $V_{VAL/OUT}$	17	6	V6+	32	13	V13-
3	–	24 $V_{VAL/OUT}$	18	6	V6-	33	14	V14+
4	1 … 48	0 $V_{VAL/OUT}$	19	7	V7+	34	14	V14-
5	1 … 48	0 $V_{VAL/OUT}$	20	7	V7-	35	15	V15+
6	1 … 48	0 $V_{VAL/OUT}$	21	8	V8+	36	15	V15-
7	1	V1+	22	8	V8-	37	16	V16+
8	1	V1-	23	9	V9+	38	16	V16-
9	2	V2+	24	9	V9-	39	17 … 32	V17…32+
10	2	V2-	25	10	V10+	40	33 … 48	V33…48+
11	3	V3+	26	10	V10-	41	1 … 48	0 $V_{VAL/OUT}$
12	3	V3-	27	11	V11+	42	1 … 48	0 $V_{VAL/OUT}$
13	4	V4+	28	11	V11-	43	1 … 48	0 $V_{VAL/OUT}$
14	4	V4-	29	12	V12+	44	–	n.c.
15	5	V5+	30	12	V12-	Housing		FE

Pin allocation – I-Port interface/IO-Link



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

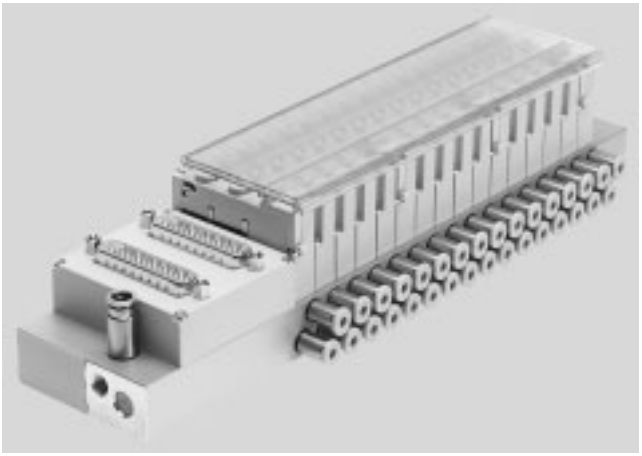
Valve terminals VTOC

Technical data – Valve terminal VTOC with multi-pin plug connection

Voltage
24 V DC

Pressure
0 ... +8 bar

Temperature range
–5 ... +50 °C



General technical data			
Valve function			2x3/2-way valve, closed, single solenoid
Design			Poppet valve with spring return
Sealing principle			Soft
Actuation type			Electric
Reset method			Mechanical spring
Type of control			Direct
Direction of flow			Non-reversible
Exhaust function			No flow control
Manual override			Non-detenting, detenting and non-detenting, detenting (without accessories)
Type of mounting			Via through-hole or thread
Width		[mm]	10
Nominal size		[mm]	0.65
Max. number of valve positions			24
Standard nominal flow rate	qnN	[l/min]	10

Operating and environmental conditions		
Operating medium		Compressed air according to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Operating pressure	[bar]	0 ... +8
Ambient temperature	[°C]	–5 ... +50
Temperature of medium	[°C]	–5 ... +50
Note on materials		RoHS-compliant
CE marking (see declaration of conformity)		To EU EMC Directive
Certification		cULus recognized (OL)

Product weight		
Valve	[g]	30
Blanking plate for vacant position	[g]	20

Electrical data		
Electrical actuation		Multi-pin plug (Sub-D/flat cable)
Nominal operating voltage	[V DC]	24
Permissible voltage fluctuations	[%]	±10
Protection class to EN 60529		IP40
Duty cycle	[%]	100

Valve switching times		
On	[ms]	4.7
Off	[ms]	5.2

Safety characteristics	
Note on forced checking procedure	Min. 1/week
Resistance to shocks	Shock test at severity level 2, to FN 942017-5 and EN 60068-2-27
Vibration resistance	Transport application test at severity level 2, to FN942017-4 and EN 60068-2-6

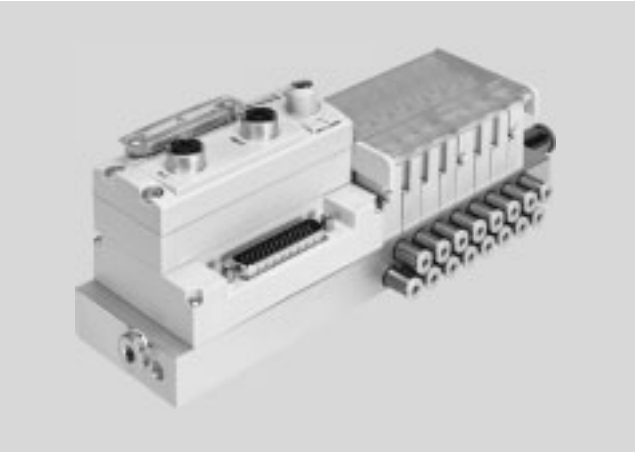
Valve terminals VTOC

Technical data – Valve terminal VTOC with I-Port interface, interlock/IO-Link

Voltage
24 V DC

Pressure
0 … +8 bar

Temperature range
–5 … +50 °C



General technical data			
Valve			2x3/2 normally closed, reset via mechanical spring
Design			Poppet valve with spring return
Reset method			Mechanical spring
Type of control			Direct
Direction of flow			Non-reversible
Exhaust function			No flow control
Manual override			Non-detenting, detenting and non-detenting, detenting (without accessories)
Communication types			I-Port/IO-Link
Number of valve positions			2 … 24
Max. number of solenoid coils			48
Number of interlock solenoid coils			16
Number of inputs for reading back voltage			18 (16x interlock + 2 group supply)
Mounting position			Any
Nominal flow rate		[l/min]	10
Residual ripple		[V_{SS}]	4
Baud rate	COM3	[kbps]	230.4
	COM2	[kbps]	38.4
IO-Link	Protocol		V1.0
	Connection technology		M12, A-coded
	Port type		Type B
	Number of ports		1
	Process data width OUT		6 bytes
	Process data IN		4 bytes
	Minimum cycle time		11.5 ms (2.3 ms per frame = 2 bytes of user data)
Product weight	Valve	[g]	30
	Blanking plate for vacant position	[g]	20

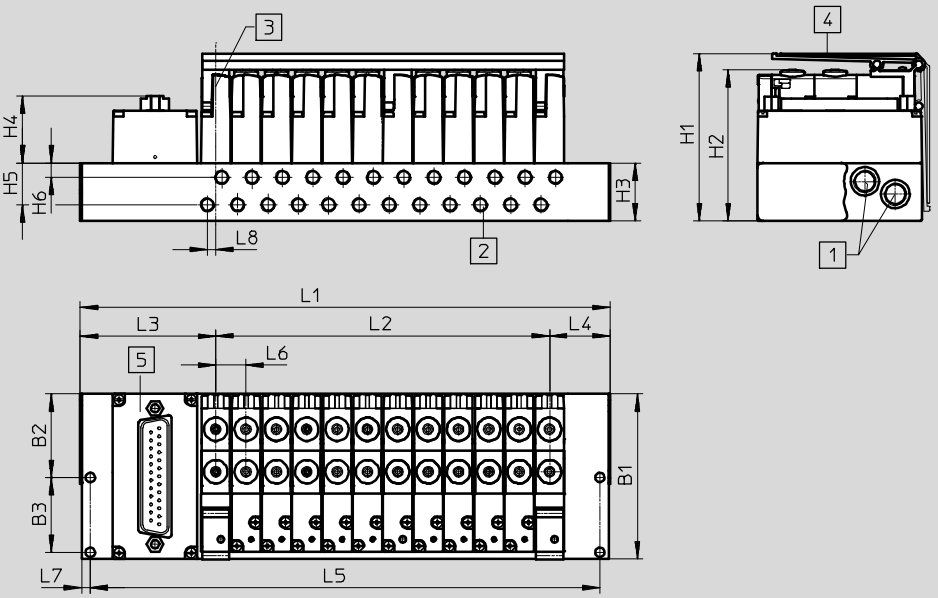
Operating and environmental conditions		
Operating medium		Compressed air according to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Operating pressure	[bar]	0 … +8
Ambient temperature	[°C]	–5 … +50
Note on materials		RoHS-compliant
CE marking (see declaration of conformity)		To EU EMC Directive
Certification		cULus recognized (OL)

Valve switching times		
On	[ms]	4.7
Off	[ms]	5.2

Electrical data			
Power supply	Interlock load voltage (valves)	[V DC]	24 (±10%)
	Load voltage (valves)	[V DC]	24 (±10%)
	Operating voltage (electronics)	[V DC]	24 (±25%)
Power consumption (load) per solenoid coil at nominal operating voltage		[W]	1/0.4 (after 30 ms)
Intrinsic current consumption via I-Port (valves/electronics)		[mA]	40/30
Protection class to EN 60529			IP40

Safety characteristics	
Reliable component	Yes
Note on forced checking procedure	Min. 1/week
Resistance to shocks	Shock test at severity level 2, to FN 942017-5 and EN 60068-2-27
Vibration resistance	Transport application test at severity level 2, to FN942017-4 and EN 60068-2-6

Dimensions – Sub-D, single or double Download CAD data ➔ **www.festo.com**

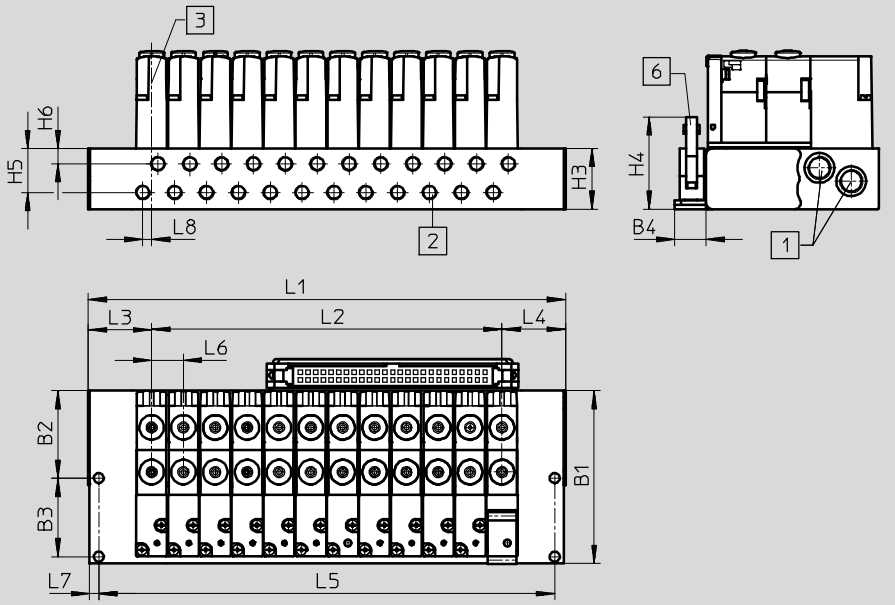


1 Ports 1 and 3, left and right, M7 or G1/8
2 Ports 2 and 4, front or underneath, M5 or 10-32 UNF
3 Centre of first valve position
4 Inscription label
5 Electrical connection via Sub-D, single or double (left or right)

	Comment	Electrical connection on top, single			Electrical connection on top, double		
Pneumatic connection	–	M7	G1/8	G1/8	M7	G1/8	G1/8
Through-hole	–	∅ 3.3	∅ 3.3	M4	∅ 3.3	∅ 3.3	M4
L1	–	L2+L3+L4	L2+L3+L4	L2+L3+L4	L2+L3+L4	L2+L3+L4	L2+L3+L4
L2	–	(n-1)x10.5	(n-1)x10.5	(n-1)x10.5	(n-1)x10.5	(n-1)x10.5	(n-1)x10.5
L3	Distance from centre of first valve position to outer edge on left-hand side	41.4	46.4	36.9	66.4	71.4	66.4
	Sub-D connection, 44-pin, top right, 1-way: Distance from centre of first valve position to outer edge on left-hand side	14.4	20.4	20.4	–	–	–
L4	Distance from centre of last valve position to outer edge on right-hand side	14.4	20.4	20.4	–	–	–
	Sub-D connection, 44-pin, top right, 1-way: Distance from centre of last valve position to outer edge on right-hand side	41.4	46.4	36.9	–	–	–
L5	–	(L1-6)	(L1-6)	(L1-6)	(L1-6)	(L1-6)	(L1-6)

B1	B2 ±0.1	B3 ±0.1	H1	H2	H3	H4	H5	H6	L6	L7 ±0.1	L8
57	28.9	25.9	57.9	52.3	20	23.1	14.5	5	10.5	3	2.9

Dimensions – Flat cable on top Download CAD data ➔ **www.festo.com**

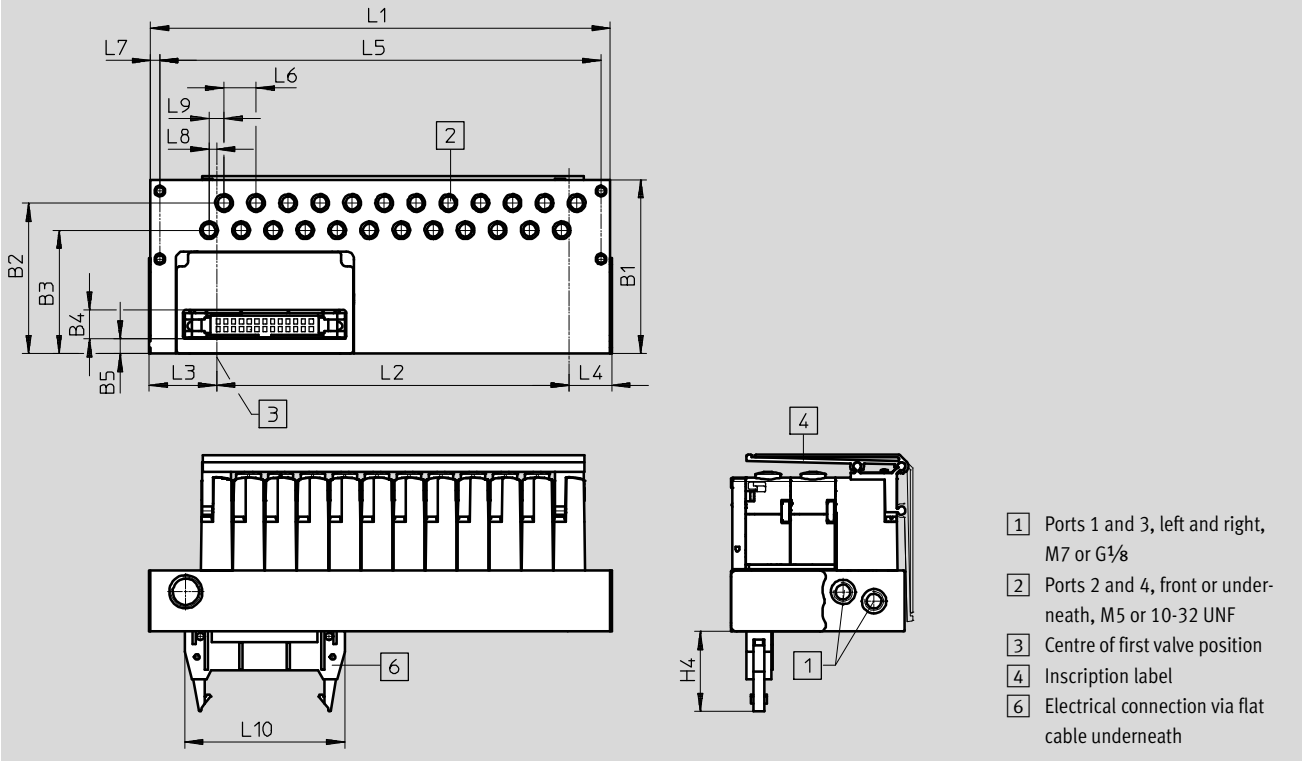


1 Ports 1 and 3, left and right, M7 or G1/8
2 Ports 2 and 4, front or underneath, M5 or 10-32 UNF
3 Centre of first valve position
6 Electrical connection via flat cable

	Comment	Electrical connection via flat cable on top		
Pneumatic connection	–	M7	G1/8	G1/8
Through-hole	–	∅ 3.3	∅ 3.3	M4
L1	–	L2+L3+L4	L2+L3+L4	L2+L3+L4
L2	–	(n-1)x10.5	(n-1)x10.5	(n-1)x10.5
L3	Distance from centre of first valve position to outer edge on left-hand side	14.4	46.4	36.9
L4	Distance from centre of last valve position to outer edge on right-hand side	14.4	20.4	20.4
L5	–	(L1-6)	(L1-6)	(L1-6)

B1	B2 ±0.1	B3 ±0.1	B4	H3	H4	H5	H6	L6	L7 ±0.1	L8
57	28.9	25.9	10.4	20	30.5	14.5	5	10.5	3	2.9

Dimensions – Flat cable underneath Download CAD data ➔ **www.festo.com**

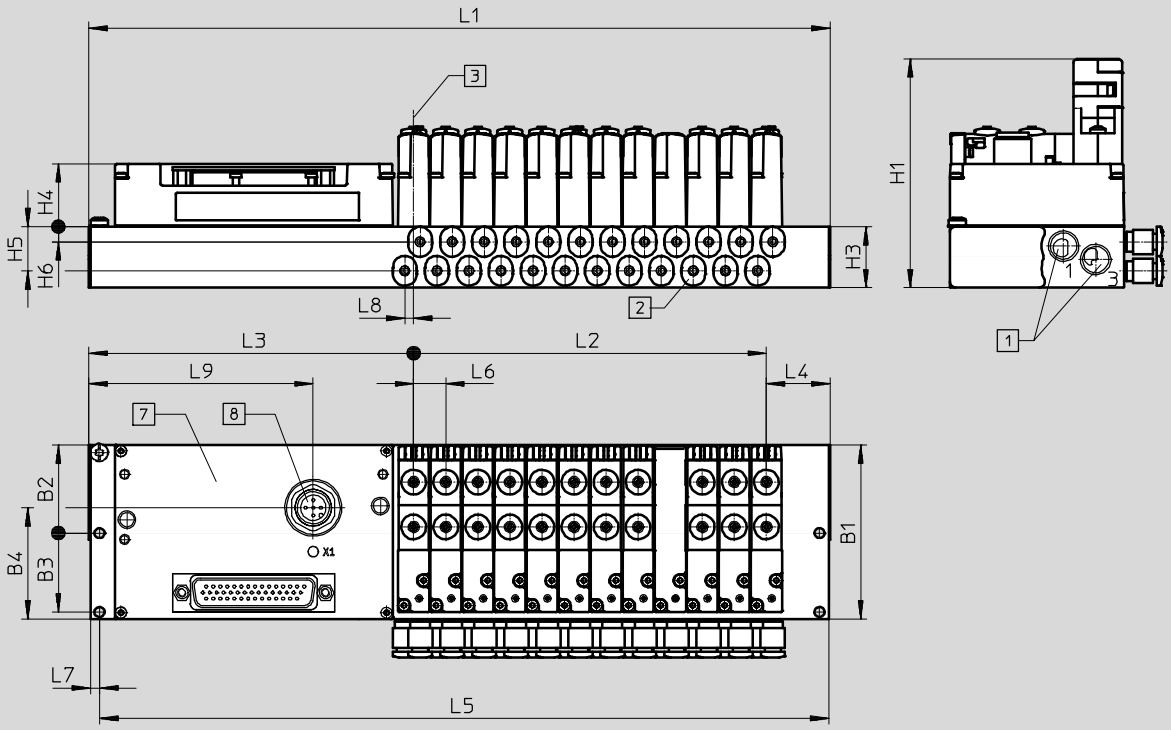


1 Ports 1 and 3, left and right, M7 or G1⁄8
2 Ports 2 and 4, front or underneath, M5 or 10-32 UNF
3 Centre of first valve position
4 Inscription label
6 Electrical connection via flat cable underneath

	Comment	Electrical connection via flat cable underneath				
Pneumatic connection	–	M7 left	M7 front	G1⁄8 front	G1⁄8 left	G1⁄8 left
Through-hole	–	∅ 3.3	∅ 3.3	∅ 3.3	∅ 3.3	M4
L1	–	L2+L3+L4	L2+L3+L4	L2+L3+L4		
L2	–	(n-1)x10.5	(n-1)x10.5	(n-1)x10.5		
L3	Distance from centre of first valve position to outer edge on left-hand side	14.4	25.55	21.6	20.4	20.4
L4	Distance from centre of last valve position to outer edge on right-hand side	14.4	28.55	20.4	20.4	20.4
L5	–	(L1-6)	(L1-6)	(L1-6)	(L1-6)	(L1-6)

B1	B2 ±0.1	B3 ±0.1	B4	H3	H4	H5	H6	L6	L7 ±0.1	L8	L9	L10
57	28.9	25.9	10.4	20	30.5	14.5	5	10.5	3	2.5	4.9	52.5

Dimensions – I-Port interface with interlock Download CAD data ➔ **www.festo.com**



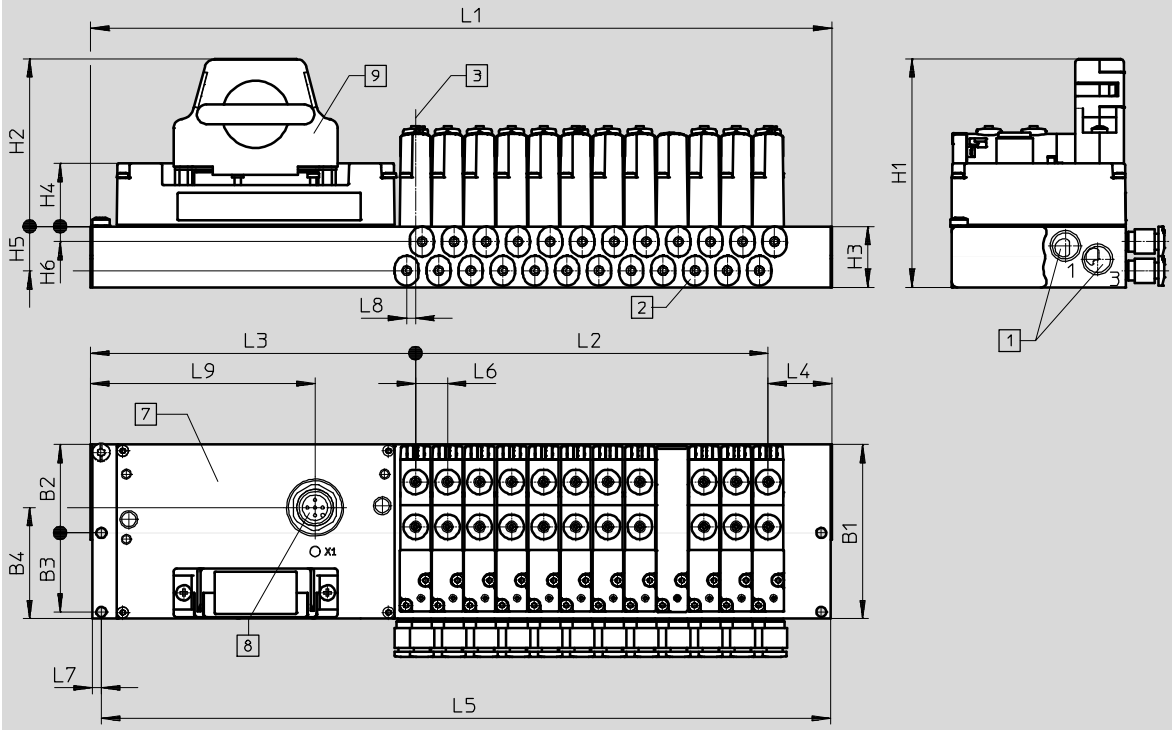
1 Ports 1 and 3: M7 or G⅛
2 Ports 2 and 4: M5 or M8x0.5
3 Centre of first valve position
7 Electrical connection: I-Port interface
8 M12 plug

B1	B2 ±0.1	B3 ±0.1	B4	H1	H2	H3	H4	H5 ±0.1	H6 ±0.1	L1	L2	L3	L4	L5 ±0.2	L6 ±0.5	L7 ±0.1	L8	L9
57	28.9	25.9	36.4	74.7	54.7	20	20.6	14.5	5	L2+L3+L4	(n-1)x10.5	105.9	14.4	(L1-6)	10.5	3	2.9	73

- - Note

Deviating dimensions following assembly of the fieldbus node CTEU. Specified dimensions for the fieldbus node CTEU ➔ installation system CTEU/CTEL

Dimensions – I-Port interface with Sub-D socket NEFF Download CAD data ➔ **www.festo.com**



1 Ports 1 and 3: M7 or G⅛
2 Ports 2 and 4: M5 or M8x0.5
3 Centre of first valve position
7 Electrical connection: I-Port interface
8 M12 plug
9 Sub-D socket for bypassing the interlock function

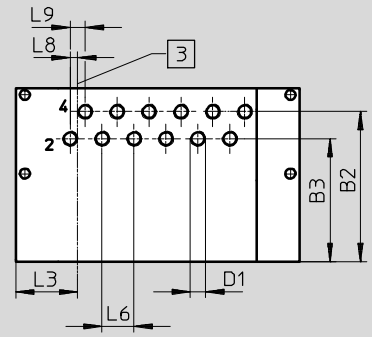
B1	B2 ±0.1	B3 ±0.1	B4	H1	H2	H3	H4	H5 ±0.1	H6 ±0.1	L1	L2	L3	L4	L5 ±0.2	L6 ±0.5	L7 ±0.1	L8	L9
57	28.9	25.9	36.4	74.7	54.7	20	20.6	14.5	5	L2+L3+L4	(n-1)x10.5	105.9	14.4	(L1-6)	10.5	3	2.9	73

Note

Deviating dimensions following assembly of the fieldbus node CTEU. Specified dimensions for the fieldbus node CTEU ➔ installation system CTEU/CTEL

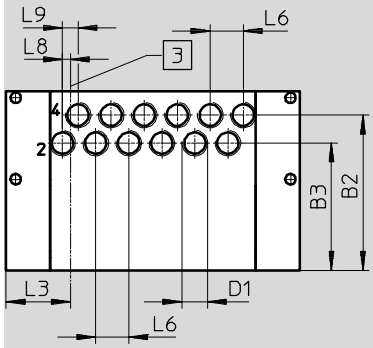
Dimensions – Pneumatic connections Download CAD data ➔ **www.festo.com**

Ports 2 and 4 underneath, M5 (10-32 UNF)



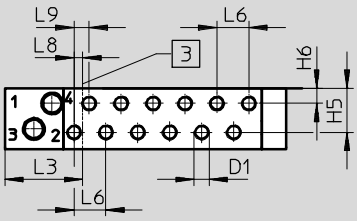
3 Centre of first valve position

Ports 2 and 4 underneath, compact



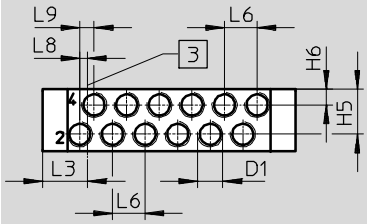
3 Centre of first valve position

Ports 2 and 4 at front, M5 (10-32 UNF)



3 Centre of first valve position

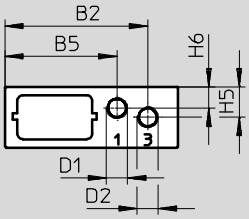
Ports 2 and 4 at front, compact



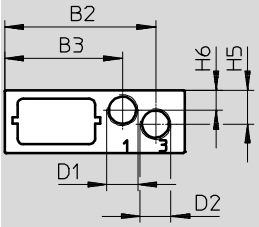
3 Centre of first valve position

Port	B2	B3 ±0.1	D1	H5	H6	L6	L8	L9
Underneath, M5 (10-32 UNF)	49.3	40.4	M5	–	–	10.5	2.5	4.9
Underneath, compact	49.3	40.4	M8x0.5	–	–	10.5	2.5	4.9
Front, M5 (10-32 UNF)	–	–	M5	14.5	5	10.5	2.9	5
Front, compact	–	–	M8x0.5	14.5	5	10.5	2.5	4.6

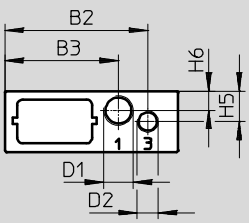
Ports 1 and 3, M7 left



Ports 1 and 3, G⅛ left



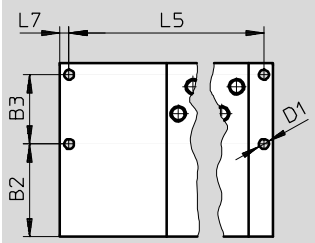
Ports 1 and 3, G⅛ left with mounting hole M4



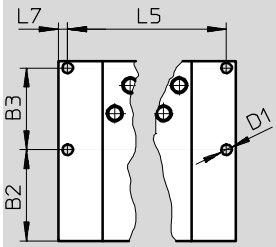
Ports 1 and 3	B2	B3	D1	D2	H5	H6
M7 left	47	36.8	M7	M7	10	7
G⅛ left, with mounting hole M4	47	37.3	G⅛	M7	10	6.4

Dimensions – Mounting hole Download CAD data ➔ **www.festo.com**

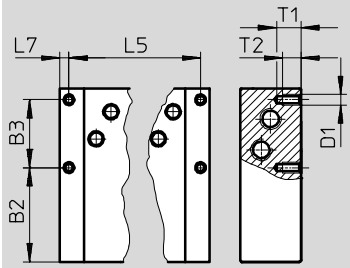
∅ 3.3 underneath, ports 1 and 3, M7



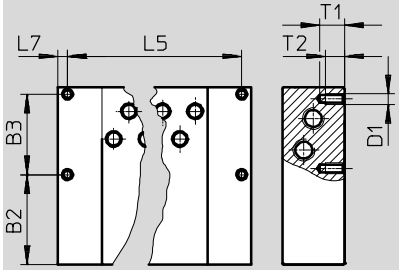
∅ 3.3 underneath, ports 1 and 3, G⅛



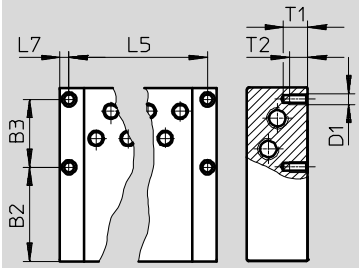
M3 underneath, ports 1 and 3, M7



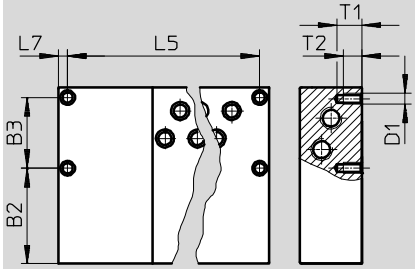
M3 underneath, ports 1 and 3, G⅛



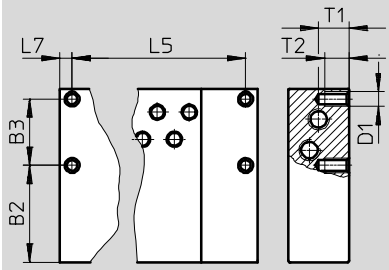
M4 underneath, ports 1 and 3, M7



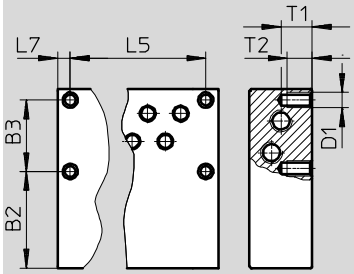
M4 or 8-32UNC underneath, ports 1 and 3, G⅛



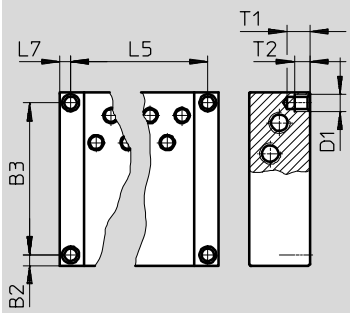
8-32UNC underneath, ports 1 and 3, M7



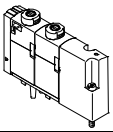
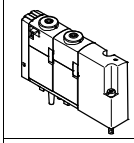
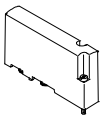
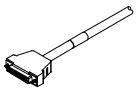
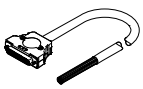
8-32UNC underneath, ports 1 and 3, G⅛



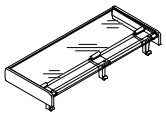
10-32UNF-2B underneath, ports 1 and 3, M7 or G⅛



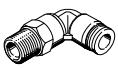
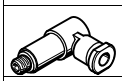
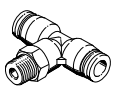
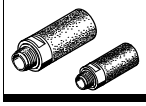
	B2	B3	D1	L5	L7	T1	T2
3.3 underneath, ports 1 and 3 M7	30.5	22.8	3.3	L1-2xL7	3	–	–
3.3 underneath, ports 1 and 3 G⅛	28.9	25.9	3.3		3	–	–
M3 underneath, ports 1 and 3 M7	31	22.3	M3		3	8	6
M3 underneath, ports 1 and 3 G⅛	28.9	25.9	M3		3	8	6
M4 underneath, ports 1 and 3 M7	31	22.3	M4		3	7.5	6
M4 or 8-32UNC underneath, ports 1 and 3 G⅛	30.8	22.8	M4/8-32UNC		3	7.5	6
8-32UNC underneath, ports 1 and 3 M7	31.8	21.8	8-32UNC		4	10	8
8-32UNC underneath, ports 1 and 3 G⅛	30.8	22.8	8-32UNC		4	10	8
10-32UNF-28 underneath, ports 1 and 3, M7 or G⅛	3.5	50	10-32UNF-28		3.5	7.5	5

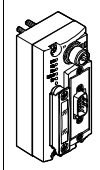
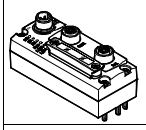
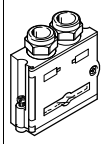
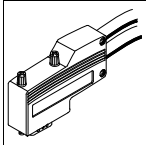
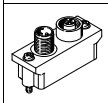
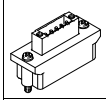
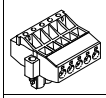
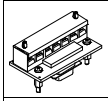
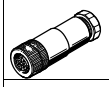
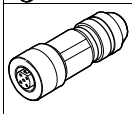
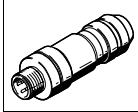
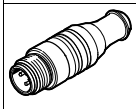
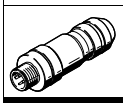
Ordering data					
	Code	Valve function		Part No.	Type
Solenoid valves					
	K	2x3/2-way valve, single solenoid, normally closed, detenting, non-detenting/ detenting manual override		**565450**	**VOVC-BT-T32C-MT-F-1T1**
	K	2x3/2-way valve, single solenoid, normally closed, non-detenting manual override		**565449**	**VOVC-BT-T32C-MH-F-1T1**
Blanking plate					
	L	Blanking plate for vacant position		**565451**	**VABB-L2-P3**
Cover for manual override					
	–	Detenting, without accessories		**8002234**	**VAMC-L1-CD**
Blanking plug					
	–	For sealing the air supply or exhaust port		**3568**	**B-1/8**
	–			**174309**	**B-M7**
Connecting cable for multi-pin plug					
	–	• Socket Sub-D, 25-pin, IP40 • Open cable end, 15-wire	2.5	**530049**	**KMP6-25P-12-2,5**
			5	**530050**	**KMP6-25P-12-5**
			10	**530051**	**KMP6-25P-12-10**
	–	• Socket, Sub-D 25-pin, IP40 • Open cable end 25-wire	2.5	**530046**	**KMP6-25P-20-2,5**
			5	**530047**	**KMP6-25P-20-5**
			10	**530048**	**KMP6-25P-20-10**
	–	• Socket Sub-D, straight, 44-pin, up to 35 coils, IP40 • Open cable end, 44-wire	2.5	**575113**	**NEBV-S1G44-K-2.5-N-LE44-S6**
			5	**575114**	**NEBV-S1G44-K-5-N-LE44-S6**
			10	**575115**	**NEBV-S1G44-K-10-N-LE44-S6**

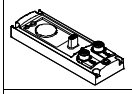
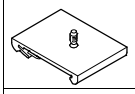
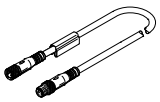
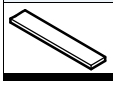
Ordering data

	Code	Valve function		Part No.	Type
Inscription label holder					
	–	Inscription label holder for identifying the valves	3 valve positions	**565571**	**ASCF-H-L2-3V**
			4 valve positions	**565572**	**ASCF-H-L2-4V**
			5 valve positions	**565573**	**ASCF-H-L2-5V**
			6 valve positions	**565574**	**ASCF-H-L2-6V**
			7 valve positions	**565575**	**ASCF-H-L2-7V**
			8 valve positions	**565576**	**ASCF-H-L2-8V**
			9 valve positions	**565577**	**ASCF-H-L2-9V**
			10 valve positions	**565578**	**ASCF-H-L2-10V**
			11 valve positions	**565579**	**ASCF-H-L2-11V**
			12 valve positions	**565580**	**ASCF-H-L2-12V**
			13 valve positions	**565581**	**ASCF-H-L2-13V**
			14 valve positions	**565582**	**ASCF-H-L2-14V**
			15 valve positions	**565583**	**ASCF-H-L2-15V**
			16 valve positions	**565584**	**ASCF-H-L2-16V**
			17 valve positions	**565585**	**ASCF-H-L2-17V**
			18 valve positions	**565586**	**ASCF-H-L2-18V**
			19 valve positions	**565587**	**ASCF-H-L2-19V**
			20 valve positions	**565588**	**ASCF-H-L2-20V**
			21 valve positions	**565589**	**ASCF-H-L2-21V**
			22 valve positions	**565590**	**ASCF-H-L2-22V**
			23 valve positions	**565591**	**ASCF-H-L2-23V**
			24 valve positions	**565592**	**ASCF-H-L2-24V**

Ordering data

	Code	Description	Tubing O.D.	Packaging unit quantity	Part No.	Type
Push-in fittings						Technical data ➔ Internet: quick star
	–	QS push-in fitting	¼"	1	**183741**	**QS-1/8-1/4-I-U-M**
			⅜"	10	**567773**	**QB-1/8-3/8-U**
			8 mm	10	**153015**	**QS-1/8-8-I**
			6 mm	10	**153321**	**QSM-M7-6-I**
			¼"	1	**183740**	**QSM-M7-1/4-I-U-M**
			⅛"	10	**183749**	**QSM-M5-1/8-I-U-M**
			5⁄32"	1	**130593**	**QSM-M5-5⁄32-I-U-M**
			3 mm	10	**153313**	**QSM-M5-3-I**
			4 mm	10	**153315**	**QSM-M5-4-I**
	–	Push-in L-fitting	8 mm	20	**130928**	**QSL-B-1/8-8-20**
			3⁄16"	1	**533234**	**QBL-1/8-3/16-U-M**
			¼"	1	**533235**	**QBL-1/8-1/4-U-M**
			⅜"	1	**562578**	**QBL-1/8-3/8-U-M**
			3 mm	10	**130830**	**QSMLV-M5-3-I**
			4 mm	10	**130831**	**QSMLV-M5-4-I**
	–	Push-in L-fitting, long	3 mm	10	**130834**	**QSMLLV-M5-3-I**
			4 mm	10	**130835**	**QSMLLV-M5-4-I**
	–	T-fitting	¼"	1	**533254**	**QBT-1/8-1/4-U-M**
			⅜"	1	**562579**	**QBT-1/8-3/8-U-M**
			8 mm	20	**130940**	**QST-B-1/8-8-20**
Silencer						Technical data ➔ Internet: quick star
	U	Silencer	–	1	**161418**	**UC-M7**
				50	**534218**	**UC-M7-50**

Ordering data – CTEU				
			Part No.	Type
Bus node				
	–	CANopen fieldbus node	**570038**	**CTEU-CO**
	–	DeviceNet fieldbus node	**570039**	**CTEU-DN**
	–	CC-Link fieldbus node	**1544198**	**CTEU-CC**
	–	PROFIBUS fieldbus node	**570040**	**CTEU-PB**
	–	EtherCAT fieldbus node	**572556**	**CTEU-EC**
Bus connection				
	–	Sub-D plug, straight, for DeviceNet/CANopen	**532219**	**FBS-SUB-9-BU-2x5POL-B**
	–	Sub-D plug, straight, for CC-Link	**532220**	**FBS-SUB-9-GS-2x4POL-B**
	–	Sub-D plug, straight, for PROFIBUS	**532216**	**FFBS-SUB-9-GS-DP-B**
	–	Sub-D plug, angled, for CANopen, 9-pin	**533783**	**FBS-SUB-9-WS-CO-K**
	–	Sub-D plug, angled, for PROFIBUS, 9-pin	**533780**	**FBS-SUB-9-WS-PB-K**
	–	M12x1, 5-pin, A-coded, for DeviceNet/CANopen	**525632**	**FBA-2-M12-5POL**
	–	M12x1, 5-pin, B-coded, for PROFIBUS	**533118**	**FBA-2-M12-5POL-RK**
	–	For 5-pin terminal strip for DeviceNet/CANopen	**525634**	**FBA-1-SL-5POL**
	–	Terminal strip, 5-pin, for DeviceNet/CANopen	**525635**	**FBSD-KL-2x5POL**
	–	Screw terminal for CC-Link	**197962**	**FBA-1-KL-5POL**
	–	Fieldbus socket, M12x1, 5-pin, for DeviceNet/CANopen	**18324**	**FBSD-GD-9-5POL**
	–	Plug, M12x1, 5-pin, for DeviceNet/CANopen		**FBS-M12-5GS-PG9**
	–	Straight socket, M12x1, 5-pin, for assembling a connecting cable compatible with FBA-2-M12-5POL-RK for PROFIBUS	**1067905**	**NECU-M-B12G5-C2-PB**
	–	Straight plug, M12x1, 5-pin, for assembling a connecting cable compatible with FBA-2-M12-5POL-RK for PROFIBUS	**1066354**	**NECU-M-S-B12G5-C2-PB**
	–	Terminating resistor, M12, B-coded for PROFIBUS	**1072128**	**CACR-S-B12G5-220-PB**
	–	Plug M12x1, 4-pin, D-coded for EtherCAT	**543109**	**NECU-M-S-D12G4-C2-ET**

Ordering data – CTEU				Part No.	Type
Electrical connecting plate					
	–	For connecting a second device with I-Port interface		**570042**	**CAPC-F1-E-M12**
H-rail mounting					
	–	For electrical connecting plate CAPC		**570043**	**CAFM-F1-H**
Connecting cable					Technical data ➔ Internet: nebu
	–	• Straight socket, M12x1, 5-pin • Straight plug, M12x1, 5-pin • Nominal conductor cross section 1 mm²	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**
	–	• Angled socket, M12x1, 5-pin • Angled plug, M12x1, 5-pin	0.5 m	**570733**	**NEBU-M12W5-K-0.5-M12W5**
			2 m	**570734**	**NEBU-M12W5-K-2-M12W5**
	–	• Straight socket, M12x1, 5-pin • Angled plug, M12x1, 5-pin	0.5 m	**8003617**	**NEBU-M12G5-K-0.5-M12W5**
			2 m	**8003618**	**NEBU-M12G5-K-2-M12W5**
Plug socket					
	–	For power supply, M12x1, 5-pin, B-coded for CANopen/DeviceNet		**538999**	**NTSD-GD-9-M12-5POL-RK**
	–	For power supply, M12x1, 5-pin for CC-Link, PROFIBUS, EtherCAT		**18324**	**FBSD-GD-9-5POL**
Connection technology for IO-Link					
	XM	T-adapter M12, 5-pin for IO-Link and load supply		**171175**	**FB-TA-M12-5POL**
Straight plug, for I-Port interface/IO-Link					
	XN	M12, 5-pin, in combination with T-adapter for separate load voltage		**175487**	**SEA-M12-5GS-PG7**
Plug socket					
	–	For bypassing the interlock function		**1589339**	**NEFF-S1G44LB**
Inscription label					
	–	For bus node		**565306**	**ASLR-C-E4**