ELCO INDUSTRIAL AUTOMATION

MVTE Series Valve Terminals

MVTE 2025.06 V1.0

CONTENTS

MVTE Series Valve Terminals

Performance Characteristics

- For modular pneumatic control systems.
- It has excellent flexibility and scalability.
- The solenoid valves are available in 10 mm and 14 mm specifications.
- Five types of valve island nodes are available, enabling communication via multiple protocols.
- Reversible piston slide valve, with a maximum of 24 valve positions. An empty position valve can be installed to reserve space for future application of electromagnetic valves.
- Each coil has an independent power management module, which can reduce power consumption by 70%.
- The valve island can achieve the functions of pilot control or external pilot control by using plugs or pins.
- LED display, quickly eliminating obstacles.

Configure The List

MVTE-001 C-002 10-003 I-004 1C2D5S-005 CLK-006 Q10L-007 UL-008 8Q4-009

001	Valve terminal
MVTE	MVTE series

002	Exhalation method
C	Plate-type side exhaust air
F	Half-tube exhaust pipe
B	Plate-type bottom exhaust

003	Size
10	The valve width is 10 mm
14	The valve width is 14 mm

004	Pilot method
I	Inner pilot
E	External pilot

005	Valve function
S	5/2-way valve, single solenoid, gas return
D	5/2-way valve, double solenoid
E	5/3-way valve, midposition exhausted
P	5/3-way valve, midposition pressurised
C	5/3-way valve, midposition closed
NC	2 x 3/2-way valve, normally closed, gas return
NO	2 x 3/2-way valve, normally open, gas return
NOC	2 x 3/2-way valve, 1 x normally open, 1 x normally closed
B	Empty valve position

006	Valve terminal node
CLK	IO-Link slaves
CEN	Multi-bus protocol slaves
EEN	Multi-bus protocol with IO-Link master
CEC	EC bus protocol slaves
EEC	EC bus protocol with IO-Link master

007	Air intake port
G14	Without connectors, G1/4 screw thread
Q6	Straight push-in fitting 6 mm
Q8	Straight push-in fitting 8 mm
Q10	Straight push-in fitting 10 mm
Q12	Straight push-in fitting 12 mm
	Air intake position
B	Air intake at both ends
L	Left air intake
R	Right air intake

008	Exhaust port
U	muffler
G14	Without connectors, G1/4 screw thread
	Exhaust position
B	Exhaust at both ends
L	Left side exhaust
R	Right side exhaust

009	Working port
	Without connectors
Q4	Straight push-in fitting 4 mm
Q6	Straight push-in fitting 6 mm
Q8	Straight push-in fitting 8 mm

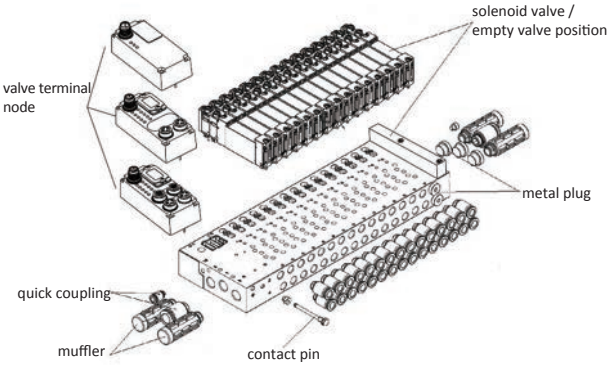
Note: For the 10 mm valve with a wide body, the Q8 type of working interface cannot be selected.

Note: Information that is not in the configuration list, please note or call the sales phone for consultation.

Key features

Valve terminal bus node

There are 5 types of valve island nodes available: namely, IO-Link valve island node, multi-protocol valve island node, multi-protocol with IO-Link master station valve island node, EtherCAT protocol valve island node, and EtherCAT protocol with IO-Link master station valve island node. They can meet the needs of various communication protocols. Among them, the multi-protocol valve island node and the multi-protocol with IO-Link master station valve island node support Profinet, CC-Link IEFB, and Ethernet/IP protocols.

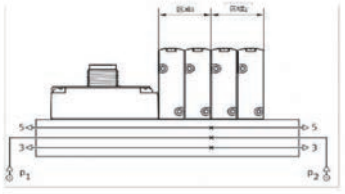


A variety of solenoid valves are available

5/2-way valve, single solenoid, gas return
5/2-way valve, double solenoid
2 x 3/2-way valve, normally closed, gas return
2 x 3/2-way valve, normally open, gas return
2 x 3/2-way valve, 1 x normally open, 1 x normally closed, gas return 5/3-way valve, Mid-position closed
5/3-way valve, Mid-position exhausted
5/3-way valve, Mid-position pressurised
Empty valve position

Dual pressure partitions can be created

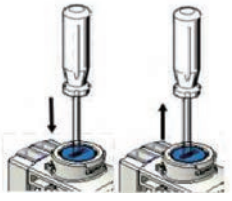
Pressure zones are available for air ports 1, 3 and 5

Air port isolation	Achievable
	Air port 1 is blocked 
	Air port 1/3/5 is blocked 
	Air port 3/5 is blocked 

The isolatioon component can achieve pressure zoning.

The on/off of the valve can be manually controlled, which is convenient for valve terminal commissioning

●The pilot end of each solenoid valve is equipped with a blue hand adjustment lever, which allows the valve to be switched on and off by manually adjusting the hand adjustment lever, which is very useful during valve terminal commissioning.
●There are two ways to drive the manual adjustment lever: push-button type and lock-on type.
●Button type: press the hand adjustment lever with a flathead screwdriver, and the pilot valve can be switched to drive the main valve; Release the hand adjustment lever, the pilot valve is reset, and the main valve is reset (not applicable to 5/2-way valve, double solenoid).
●Locking type: press the hand adjustment lever with a flathead screwdriver, and then rotate 45° clockwise until the hand adjustment lever is locked and the main valve remains driven; The hand adjustment lever rotates 45° counterclockwise until it stops, then releases the hand adjustment lever, the pilot valve resets, and the main valve resets (not applicable to 5/2-way valve, double solenoid).

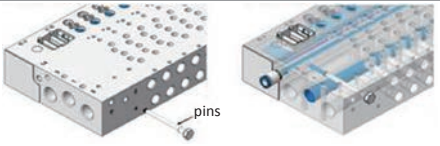


Button type

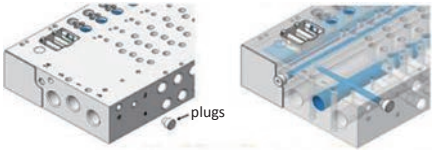
Locking type

The installation of pins and plugs can realize the external pilot and inner pilot functions of the valve terminal

The valve terminal pilot and external pilot functions are optional, only need to install plugs or pins in the air path plate inside and outside pilot conversion holes.



Pilot function outside the valve terminal

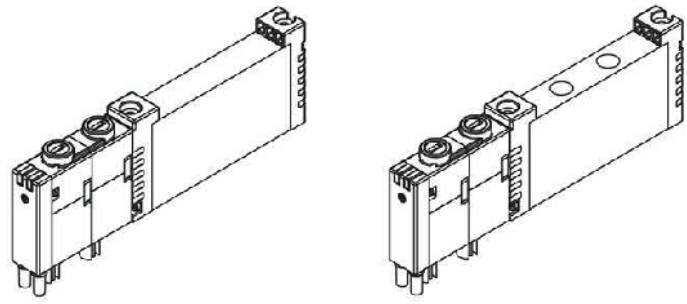


Pilot function in the valve terminal

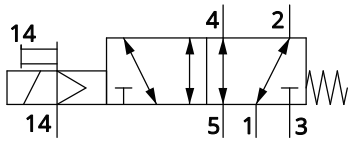
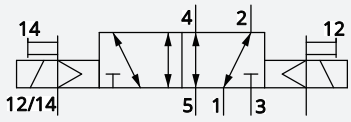
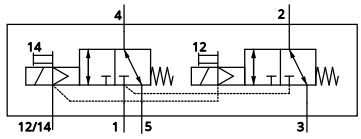
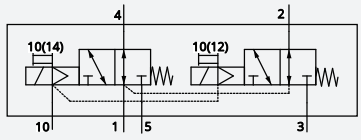
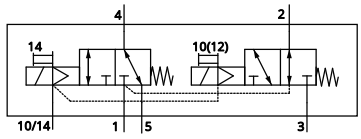
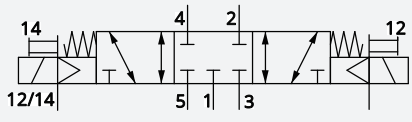
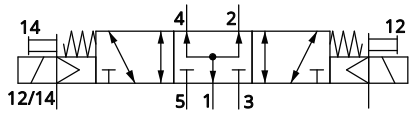
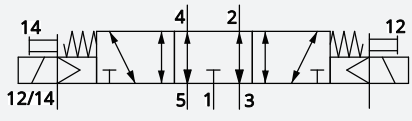
10 mm Electromagnetic Valve

Characteristics of 10 mm Electromagnetic Valve

Sub-base valve / Semi-tube valve
The valve width is 10mm
Air ports 1, 3 and 5 and working ports 2 and 4 are all connected with corresponding holes on the gas circuit plate



Solenoid Valve Function Overview

Valve type	Schematic	Valve description
S		5/2-way valve, single solenoid, gas return
D		5/2-way valve, double solenoid
NC		2 x 3/2-way valve, normally closed, gas return
NO		2 x 3/2-way valve, normally open, gas return
NOC		2 x 3/2-way valve, 1 x normally open, 1 x normally closed, gas return
C		5/3-way valve, Mid-position closed
P		5/3-way valve, Mid-position pressurised
E		5/3-way valve, Mid-position exhausted

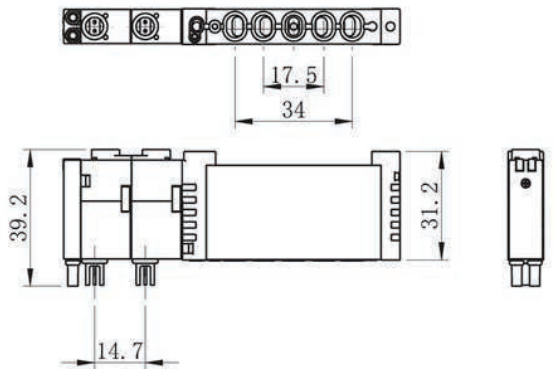
10 mm Electromagnetic Valve

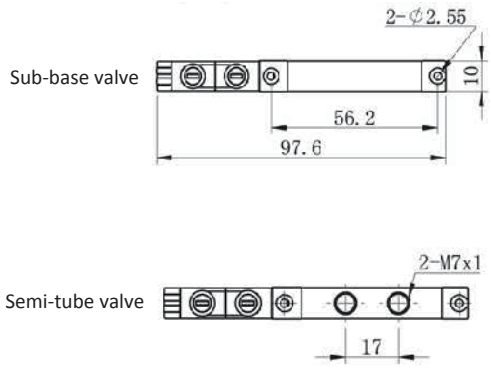
Datasheet

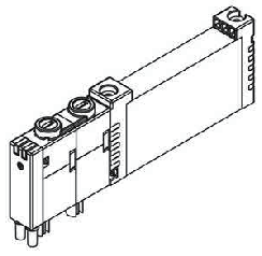
General technical data	S	D	NC / NO / NOC	C / P / E
Ambient temperature (°C)	-5 ... +50			
storage temperature (°C)	-5 ... +50			
Sealing principle	Soft			
Pilot air supply	External, Internal			
Type of actuation	Piloted, Electrical			
Manual override	Button type / Locking type			
Type of mounting	On manifold rail			
Mounting position	Any			
Signal status indication	LED			
Standard nominal flow rate (l/min)	300	300	280	260
Operating pressure (Internal pilot air supply) (Mpa)	0.2 0.8	0.2~0.8	0.3~0.8	0.25~0.8
Operating pressure (External pilot air supply) (Mpa)	0~0.8	0~0.8	0.2~0.8	0~0.8
External pilot pressure (Mpa)	0.2~0.8	0.2~0.8	0.3~0.8	0.25~0.8
Product weight (g)	57.7	57.7	57.7	57.7
Protection rating	IP65			
Operating voltage (V DC)	24±10%			
power (W)	1.2			
Sustainable electricity rate (%)	100			

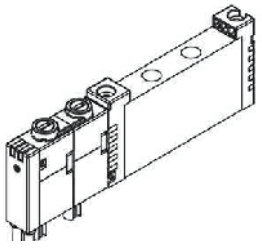
10 mm Electromagnetic Valve

10 mm electromagnetic valve external dimensions



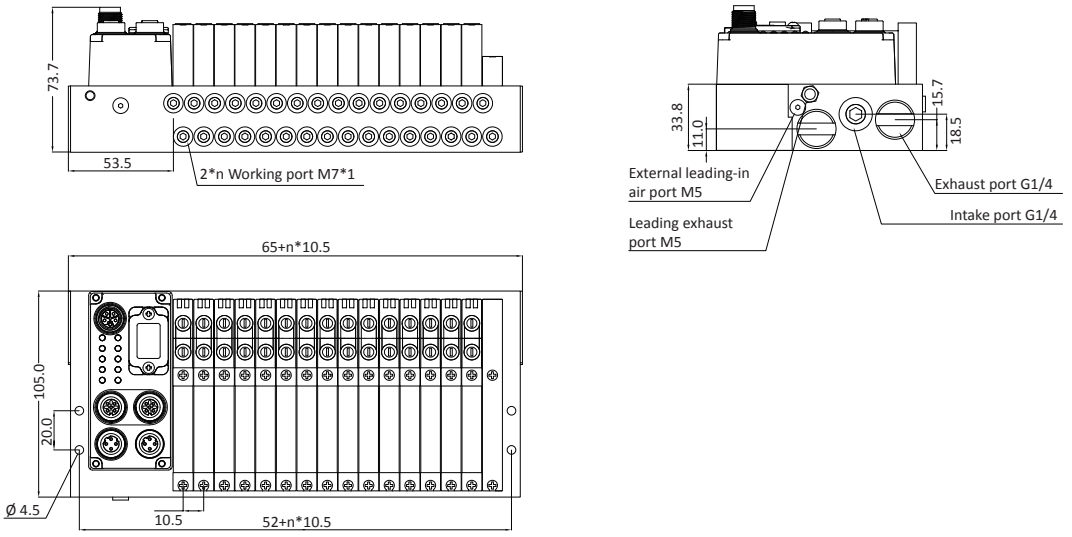


Sub-base valve	Description	Type
	5/2-way valve, single solenoid, gas return	FDF-C10-510
	5/2-way valve, double solenoid	FDF-C10-520
	5/3-way valve, Mid-position closed	FDF-C10-530
	5/3-way valve, Mid-position exhausted	FDF-C10-533
	5/3-way valve, Mid-position pressurised	FDF-C10-534
	2 x 3/2-way valve, normally closed, gas return	FDF-C10-310
	2 x 3/2-way valve, 1 x normally open, 1 x normally closed, gas return	FDF-C10-314
	2 x 3/2-way valve, normally open, gas return	FDF-C10-312

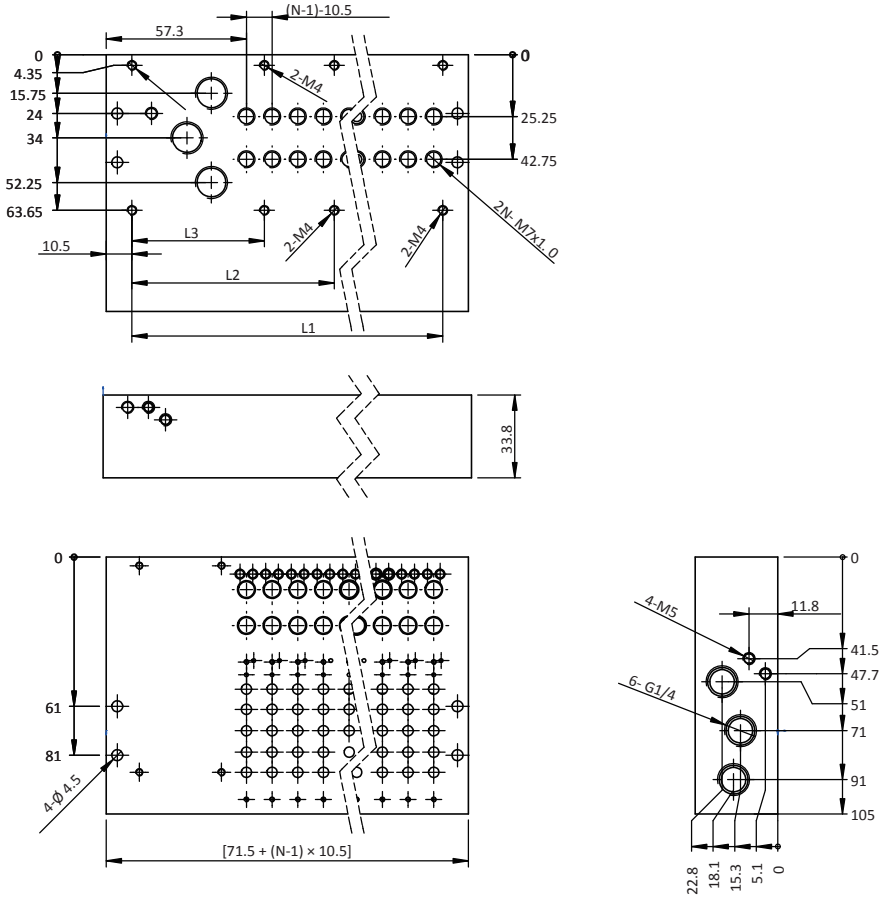
Semi-tube valve	Description	Type
	5/2-way valve, single solenoid, gas return	FDF-F10-510
	5/2-way valve, double solenoid	FDF-F10-520
	5/3-way valve, Mid-position closed	FDF-F10-530
	5/3-way valve, Mid-position exhausted	FDF-F10-533
	5/3-way valve, Mid-position pressurised	FDF-F10-534
	2 x 3/2-way valve, normally closed, gas return	FDF-F10-310
	2 x 3/2-way valve, 1 x normally open, 1 x normally closed, gas return	FDF-F10-314
	2 x 3/2-way valve, normally open, gas return	FDF-F10-312

Dimensions

Dimensions - side outlet valve terminals



Dimensions - rear outlet valve terminal



10 mm Electromagnetic Valve

Dimensions

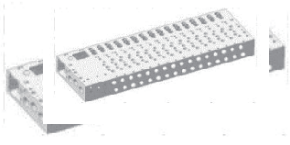
The size of the valve island corresponding to different valve positions (common for side-exit and back-exit types)

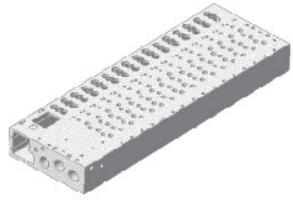
Valve number	Valve terminal size (mm)
4	103
5	113.5
6	124
7	134.5
8	145
9	155.5
10	166
12	187
16	229
20	271
24	313

For the rear outlet valve terminal, the valve terminal mounting holes are as follows for control cabinet installation

Type	Valve number	L1	L2	L3
FDM-B10-4F	4	82	\	\
FDM-B10-5F	5	92.5	\	\
FDM-B10-6F	6	103	\	\
FDM-B10-7F	7	113.5	\	\
FDM-B10-8F	8	124	\	\
FDM-B10-9F	9	134.5	\	67.25
FDM-B10-10F	10	145	\	72.5
FDM-B10-12F	12	166	\	83
FDM-B10-16F	16	208	\	104
FDM-B10-20F	20	250	\	125
FDM-B10-24F	24	292	192	100

Manifold Rail

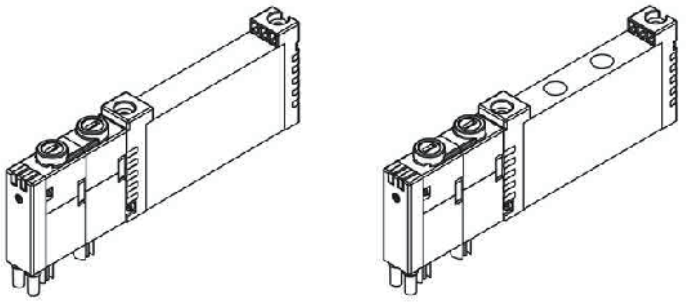
Manifold rail	Description	Type
	4 valve positions	FDM-C10-4F
	5 valve positions	FDM-C10-5F
	6 valve positions	FDM-C10-6F
	7 valve positions	FDM-C10-7F
	8 valve positions	FDM-C10-8F
	9 valve positions	FDM-C10-9F
	10 valve positions	FDM-C10-10F
	12 valve positions	FDM-C10-12F
	16 valve positions	FDM-C10-16F
	20 valve positions	FDM-C10-20F
	24 valve positions	FDM-C10-24F

Manifold rail	Description	Type
	4 valve positions	FDM-B10-4F
	5 valve positions	FDM-B10-5F
	6 valve positions	FDM-B10-6F
	7 valve positions	FDM-B10-7F
	8 valve positions	FDM-B10-8F
	9 valve positions	FDM-B10-9F
	10 valve positions	FDM-B10-10F
	12 valve positions	FDM-B10-12F
	16 valve positions	FDM-B10-16F
	20 valve positions	FDM-B10-20F
	24 valve positions	FDM-B10-24F

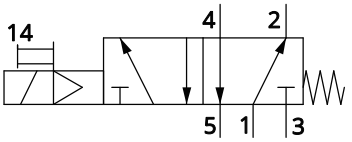
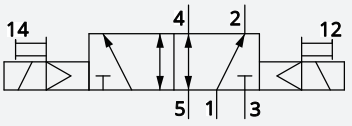
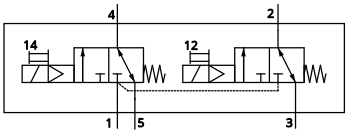
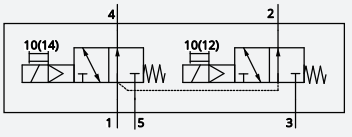
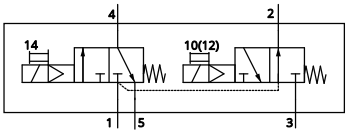
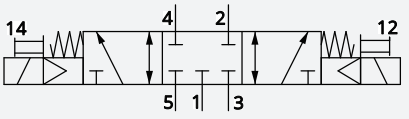
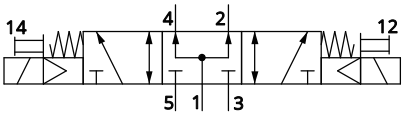
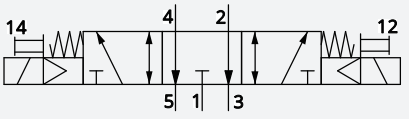
14 mm Electromagnetic Valve

Characteristics of 14 mm Electromagnetic Valve

Sub-base valve / Semi-tube valve
The valve width is 14mm
Air ports 1, 3 and 5 and working ports 2 and 4 are all connected with corresponding holes on the gas circuit plate



Solenoid Valve Function Overview

Valve type	Schematic	Valve description
S		5/2-way valve, single solenoid, gas return
D		5/2-way valve, double solenoid
NC		2 x 3/2-way valve, normally closed, gas return
NO		2 x 3/2-way valve, normally open, gas return
NOC		2 x 3/2-way valve, 1 x normally open, 1 x normally closed, gas return
C		5/3-way valve, Mid-position closed
P		5/3-way valve, Mid-position pressurised
E		5/3-way valve, Mid-position exhausted

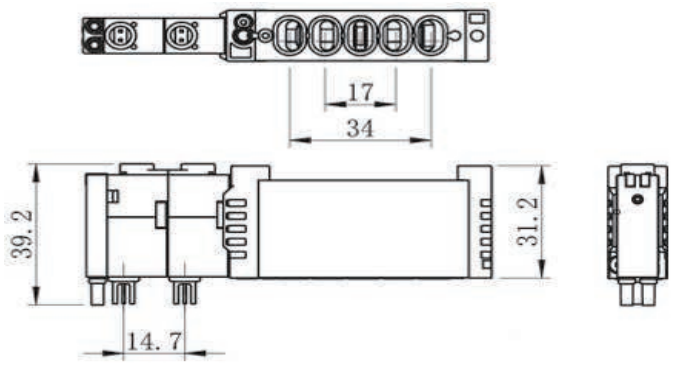
14mm Electromagnetic Valve

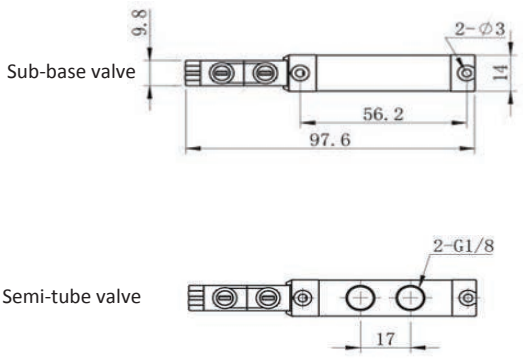
Datasheet

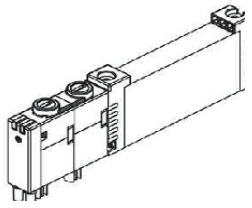
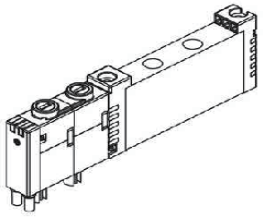
General technical data	S	D	NC / NO / NOC	C / E / P
Ambient temperature (°C)	-5 ... 50			
storage temperature (°C)	-5 ... 50			
Sealing principle	Soft			
Pilot air supply	External,Internal			
Type of actuation	Piloted,Electrical			
Manual override	Button type/Locking type			
Type of mounting	On manifold rail			
Mounting position	Any			
Signal status indication	LED			
Standard nominal flow rate (l/min)	560	560	600 / 500 / 500	500 / 500 / 600
Operating pressure (Internal pilot air supply) (Mpa)	0.2~0.8	0.2~0.8	0.3~0.8	0.25~0.8
Operating pressure (External pilot air supply) (Mpa)	0~0.8	0~0.8	0.2~0.8	0~0.8
External pilot pressure (Mpa)	0.2~0.8	0.2~0.8	0.3~0.8	0.25~0.8
Product weight (g)	69.5	69.5	69.5	69.5
Protection rating	IP65			
Operating voltage (V DC)	24±10%			
power (W)	1.2			
Sustainable electricity rate (%)	100			

14mm Electromagnetic Valve

14mm Electromagnetic Valve External Dimensions



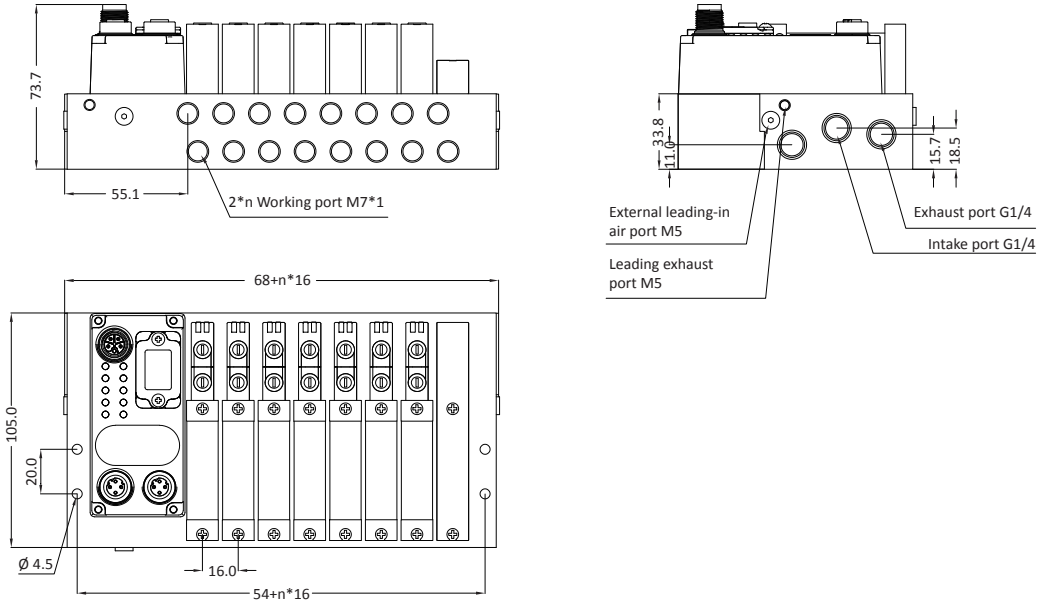


Sub-base valve	Description	Type
	5/2-way valve, single solenoid, gas return	FDF-C14-510
	5/2-way valve, double solenoid	FDF-C14-520
	5/3-way valve, Mid-position closed	FDF-C14-530
	5/3-way valve, Mid-position exhausted	FDF-C14-533
	5/3-way valve, Mid-position pressurised	FDF-C14-534
	2 x 3/2-way valve, normally closed, gas return	FDF-C14-310
	2 x 3/2-way valve, 1 x normally open, 1 x normally closed, gas return	FDF-C14-314
	2 x 3/2-way valve, normally open, gas return	FDF-C14-312
Semi-tube valve	**Description**	**Type**
	5/2-way valve, single solenoid, gas return	FDF-F14-510
	5/2-way valve, double solenoid	FDF-F14-520
	5/3-way valve, Mid-position closed	FDF-F14-530
	5/3-way valve, Mid-position exhausted	FDF-F14-533
	5/3-way valve, Mid-position pressurised	FDF-F14-534
	2 x 3/2-way valve, normally closed, gas return	FDF-F14-310
	2 x 3/2-way valve, 1 x normally open, 1 x normally closed, gas return	FDF-F14-314
	2 x 3/2-way valve, normally open, gas return	FDF-F14-312

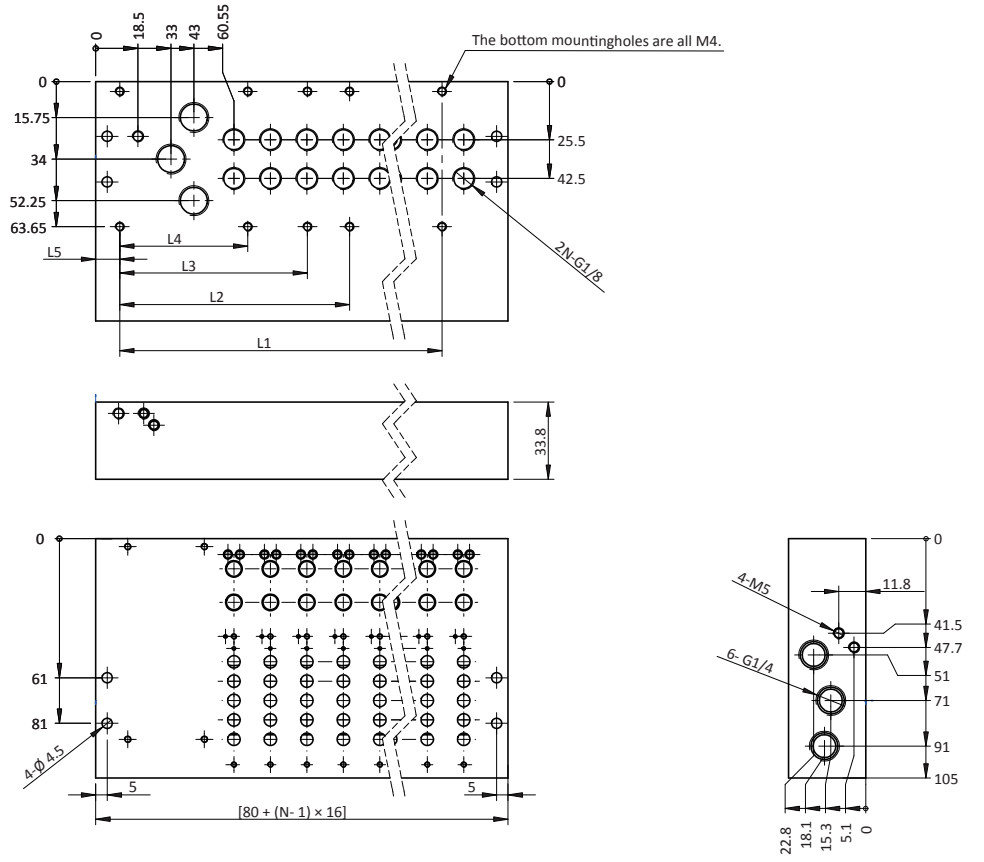
14 mm Electromagnetic Valve

Dimensions

Dimensions - side outlet valve terminals



Dimensions - rear outlet valve terminal



14 mm Electromagnetic Valve

Dimensions

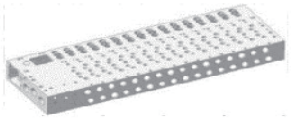
The size of the valve island corresponding to different valve positions (common for side-exit and back-exit types)

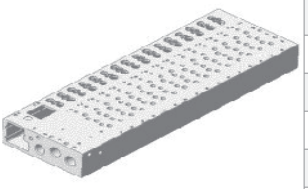
Valve number	Valve terminal size (mm)
4	132
5	148
6	164
7	180
8	196
9	212
10	228
12	260
16	324
20	388
24	452

For the rear outlet valve terminal, the valve terminal mounting holes are as follows for control cabinet installation

Type	Valve number	L1	L2	L3	L4
FDM-B14-4F	4	116	\	\	\
FDM-B14-5F	5	132	\	\	\
FDM-B14-6F	6	148	\	\	\
FDM-B14-7F	7	164	\	\	\
FDM-B14-8F	8	180	\	\	90
FDM-B14-9F	9	196	\	\	98
FDM-B14-10F	10	212	\	\	106
FDM-B14-12F	12	244	\	162	82
FDM-B14-16F	16	308	\	204	104
FDM-B14-20F	20	372	279	186	93
FDM-B14-24F	24	436	327	218	109

Manifold rail

Manifold rail	Description	Type
	4 valve positions	FDM-C14-4F
	5 valve positions	FDM-C14-5F
	6 valve positions	FDM-C14-6F
	7 valve positions	FDM-C14-7F
	8 valve positions	FDM-C14-8F
	9 valve positions	FDM-C14-9F
	10 valve positions	FDM-C14-10F
	12 valve positions	FDM-C14-12F
	16 valve positions	FDM-C14-16F
	20 valve positions	FDM-C14-20F
	24 valve positions	FDM-C14-24F

Manifold rail	Description	Type
	4 valve positions	FDM-B14-4F
	5 valve positions	FDM-B14-5F
	6 valve positions	FDM-B14-6F
	7 valve positions	FDM-B14-7F
	8 valve positions	FDM-B14-8F
	9 valve positions	FDM-B14-9F
	10 valve positions	FDM-B14-10F
	12 valve positions	FDM-B14-12F
	16 valve positions	FDM-B14-16F
	20 valve positions	FDM-B14-20F
	24 valve positions	FDM-B14-24F

Valve terminal bus node

IO-Link Valve terminal bus node			
It supports the IO-Link protocol, is directly connected to the IO-Link master, adopts the Class-B interface, and can be configured with up to 24 dual-control solenoid valves.		Type	MVT-C-LK
		Description	Class-B
		Protocol	IO-Link
		Field bus, connection system	Class-B: 1*M12, A-CODE, 5 pin, male
		Max. address volume, inputs	6 Byte
		Max. address volume, outputs	6 Byte
		Max. no. of valve positions	24
		Intern power consumption (mA)	< 100 mA
		Operation temperature	-5 ... +60 °C
		Protection class	IP67
Multiple protocols Valve terminal bus node			
It supports multiple buses and can be configured with up to 24 dual-control solenoid valves.		Type	MVT-C-EN
		Description	Supports multiple bus protocols
		Protocol	Profinet, CC-Link IE, Ethernet/IP
		Field bus, connection system	2*M12, D-CODE, 4 pin, female
		Power supply, connection system	M12*1, L-CODE, 5 pin, male
		Max. address volume, inputs	8 Byte
		Max. address volume, outputs	6 Byte
		Max. no. of valve positions	24
		Intern power consumption (mA)	< 200 mA
		Operation temperature	-5 ... +60 °C
		Protection class	IP67
Multiple protocols Valve terminal bus node			
Multiple protocols Valve terminal bus node		Type	MVT-E-EN
		Description	Supports multiple bus protocols, with IO-Link master (2*Class-A)
		Protocol	Profinet, CC-Link IE, Ethernet/IP
		Field bus, connection system	2* M12, D-CODE, 4 pin, male
		Power supply, connection system	M12*1, L-CODE, 5 pin, female
		IO-Link Expansion port	2*M12, A-CODE, 5pin, male
		Max. address volume, inputs	74 Byte
		Max. address volume, outputs	74 Byte
		Max. no. of valve positions	24
		Intern power consumption (mA)	< 200 mA
		Operation temperature	-5 ... +60 °C
		Protection class	IP67

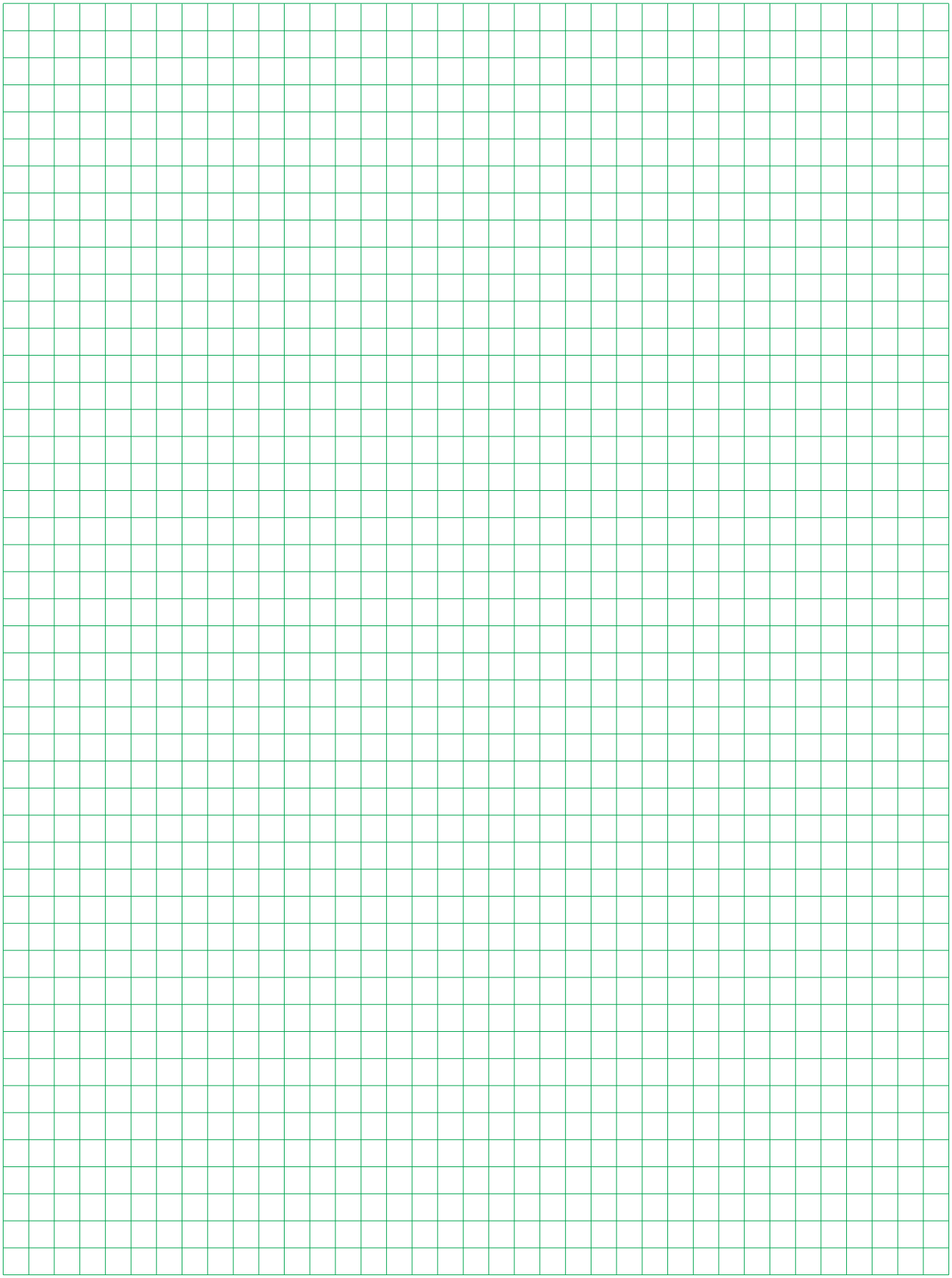
Valve terminal bus node

EC protocol valve terminal node			
Supports the EtherCAT protocol and can be configured to have a maximum of 24 dualcontrolled solenoid valves.		Type	MVT-C-EC
		Description	Support the EtherCAT protocol
		Protocol	EtherCAT
		Field bus, connection system	2*M12, D-CODE, 4 pin, Female
		Power supply, connection system	M12*1, L-CODE, 5 pin, Male
		Max. address volume, inputs	7 Byte
		Max. address volume, outputs	6 Byte
		Max. no. of valve positions	24
		Intern power consumption (mA)	< 200 mA
		Operation temperature	-5 ... +60 °C
		Protection class	IP67
EC protocol valve terminal node			
Supports the EtherCAT protocol, with IO-Link master station function, and can be configured to have a maximum of 24 dual-control solenoid valves.		Type	MVT-E-EC
		Description	Supports the EtherCAT protocol, with an IO-Link master station interface (2*Class-A)
		Protocol	EtherCAT
		Field bus, connection system	2* M12, D-CODE, 4 pin, female
		Power supply, connection system	M12*1, L-CODE, 5 pin, male
		IO-Link Expansion port	2*M12, A-CODE, 5 pin, female
		Max. address volume, inputs	74 Byte
		Max. address volume, outputs	74 Byte
		Max. no. of valve positions	24
		Intern power consumption (mA)	< 200 mA
		Operation temperature	-5 ... +60 °C
		Protection class	IP67

Accessories

Accessories

Quick Connector	Description		Type
	M5 thread	Suitable for air tubes with a diameter of ϕ4mm	POC4-M5C
	M7 thread	Suitable for air tubes with a diameter of ϕ4mm	POC4-M7C
		Suitable for air tubes with a diameter of ϕ6mm	POC6-M7C
	G1/8 thread	Suitable for air tubes with a diameter of ϕ4mm	POC4-G01
		Suitable for air tubes with a diameter of ϕ6mm	POC6-G01
		Suitable for air tubes with a diameter of ϕ8mm	POC8-G01
	G1/4 thread	Suitable for air tubes with a diameter of ϕ6mm	POC6-G02
		Suitable for air tubes with a diameter of ϕ8mm	POC8-G02
		Suitable for air tubes with a diameter of ϕ10mm	POC10-G02
		Suitable for air tubes with a diameter of ϕ12mm	POC12-G02
Empty valve position			
	Empty valve position, width of 10mm		FDF-C10-B
	Empty valve position, width of 14mm		FDF-C14-B
Empty valve position			
	Lead-in switching screw		FD-QHLD
Silencer			
	G1/4 thread		BSL-02
Silencer			
	Specification 14		FD-FQDT
Metal Plug			
	G14 Metal Plug		IBP-G02
	G18 Metal Plug		TTY-GDT1/8
	M7 Metal Plug		TTY-GDTM7
	M5 Metal Plug		TTY-GDTM5
service cable			
	Straight single-end pre-cast hole end L-code, 5 meters		CO12.5-5/LC
	Straight hole end to straight needle end, Class B, 5 meters		CO12.5-5-C12.5
	Class A to Class B, 5 meters		ECS-FC12.5-2.2-5-5/VT
Communication cable			
	RJ45/M12 dual-ended preembedded, 5 meters		E16DA4002M050
	M12/M12 dual-ended preembedded, 5 meters		E11D04002M050



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