tork
valve & automation

fluid under control

ESV

SOLENOID VALVE & VALVE REMINAL

Product Features

* Compatible Protocols: PROFINET and EtherCAT
* 16 Outputs and 32 outputs for option, 16 outputs max.16pcs coil/16pcs valve; 32 outputs max.32pcs coil/16pcs double control valve/24pcs valve (8pcs double control + 16pcs single control)
* Equipped with two M12 BUS Interface, realize daisy-chain wiring communication, branch connector is not neccessary, reduced wiring space
* Diagnostic functions: system diagnosis, communication error, undervoltage .
* Safe output can be set at any point in module parameter interface. For example, when the bus connection is interrupted, the valve could keep the last condition, or be forced to close or open.
* Plug and play: replace the entire valve terminal without shutdown, the new replaced valve terminal could be identified automatically and operated immediately.
* Simple installation and configuration, easy operation.

How to Order?

ES Fieldbus Valve Terminal

Series No. | Body Size | Piping Type | Protocols Type | □ | □ | – | □ | □ | Voltage | Pilot Type | Wiring Type | Inlet & Exhaust port | Mounting | Thread Type

ES: Fieldbus valve terminal

1: 1 series
2: 2 series

V: Top ported
VM: Side ported
VB: Bottom ported

Qty
(Max.24 links for same valve of single control
Max.16 links for same valve of double control)

Valve Quantity (Applicable to different ports mixed; Blank if same ports)

E4: DC24V

Blank: Interal pilot
WB: External pilot

Blank: Double control wiring (max.16 links)
S: Single control wiring (max.24 links)
(Note:Mix wiring is available to customize)

Blank: Without accessories
D: With DIN rail clip and 1M guide rail
D0: With DIN rail clip, no guide rail
DIN guide rail packed separatly
(if order with guide rail, the guidee rail will be packed separately)

Blank: G
P: PT
T: NPT

Code	Protocols type	Output	Interface
PN16	PROFINET	16	M12
PN32		32	
EC16	EtherCAT	16	M12
EC32		32	

Code	Function	Remark
S	5/2 single	assembly sequence, 1st link start from U side
D	5/2 double	
C	5/3 center closed	
P	5/3 center pressure	
E	5/3 center exhaust	
Y	2pcs 3/2 (N.C.)	
H	2pcs 3/2 (N.O.)	
U	2pcs 3/2 (N.O./N.C.)	
B	blind plate	

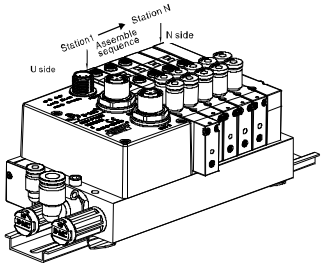
No.	Code	Port size	Remark
1Series	M5	M5: M5 fitting	assembly sequence, 1st link start from U side
	C4	ϕ4 one-touch fitting(ZPOC04-M5C)	
	M7	M7: M7 fitting	
	C6	ϕ6 one-touch fitting(ZPOC06-M7C)	
	C4A	ϕ4 one-touch fitting(ZPOC04-M7C)	
2Series	06	1/8 fitting	
	C4	ϕ4 one-touch fitting(ZPOC04-01)	
	C6	ϕ6 one-touch fitting(ZPOC06-01)	
	C8	ϕ8 one-touch fitting(ZPOC08-01)	

Code	Port entry	1Series	2Series	Remark
Blank	Both side without silencer, fitting, plug	–	–	1) plugs are mounted on the opposite side of the selected ports; 2) only U,U1,UL side is available for bottom ported
U	U side with silencer	ϕ8	ϕ10	
N	Station N with silencer			
UN	Both side with silencer			
UL	U side with silencer			
NL	Station N with silencer			
UNL	Both side with silencer			
U1	U side with silencer	ϕ10	ϕ12	
N1	Station N with silencer			
UN1	Both side with silencer			

Order Example:

1. Same valve: ES Fieldbus Valve Terminal, 1 series body, top ported, PROFINET,32 outputs, 6 links 5/2 double controled, port size M5, DC24V, G thread, internal pilot, double control wiring, both side without silencer, fitting, plug, the ERP code is ES1V-PN32-6D-M5E4

2. Mix different valves: ES series fieldbus system, 1 series body, top ported, PROFINET, 32 outputs, see right picture : station 1 is 5/3 center closed SV5312C, station 2 is 5/2 double control SV5212, station 3 is 2pcs 3/2 (N.O.) SV5412H ,station 4 & station 5 are 5/2 single SV5211, station 6 is blind plate. station 1 & 2 with ϕ6 one-touch fitting ZPOC06-M7C, station 3~5 with with ϕ4 one-touch fitting ZPOC04-M7C, DC24V,G thread, external pilot, double control wiring, U-sub side with silencer, ϕ8 one-touch fitting EPL, with DIN rail clip and 1M guide rail, the ERP code is ES1V-PN32-CHD2SB-2C63C4AE4-WB-UL-D

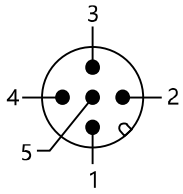


SOLENOID VALVE & VALVE REMINAL (ESV)

Specifications

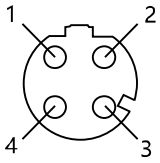
Code	ES1V(VM/VB)–PN16 ES2V(VM/VB)–PN16	ES1V(VM/VB)–PN32 ES2V(VM/VB)–PN32	ES1V(VM/VB)–EC16 ES2V(VM/VB)–EC16	ES1V(VM/VB)–EC32 ES2V(VM/VB)–EC32
Output	16	32	16	32
Protocols	PROFINET		EtherCAT	
Baud rate	100Mbps		100Mbps	
Configuration files	GSDML file		XML file	
Control power supply – Voltage	DC24V(DC21.6～26.4V)			
Control power supply – Current consumption	120mA below			
Output voltage(valve)	DC24V(DC22.8～26.4V)			
Output type	NPP/Sink (+com)			
Power interface	M12, 5pin, A encode			
Bus Interface	2xM12 socket,4 hole, D encode			
Diagnostic	System diagnosis, communication error, undervoltage			
Protection	IP40 Dust proof			
Storage temperature(℃)	-20～70			
Working temperature(℃)	-10～50			

Power interface



Pin	Type	Description
1	PS24	+24V control voltage +24V
2	PL24	+24VOperating voltage of load valve
3	PSO	0V control voltage 0V
4	PLO	0V Operating voltage of load valve
5	FE	Functional earthing

BUS interface



Pin	Type	Description
1	TD+	Send data+
2	RD+	Receive data+
3	TD-	Send data-
4	RD-	Receive data-

Wiring

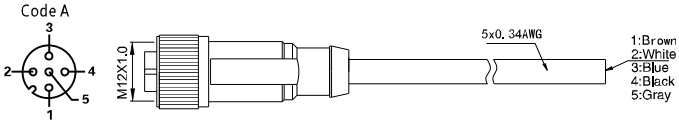
M125R – PVC – □

- M12 Female, 5 cores
- 2M: 2 meters
- 5M: 5 meters
- (Other length could be customized)

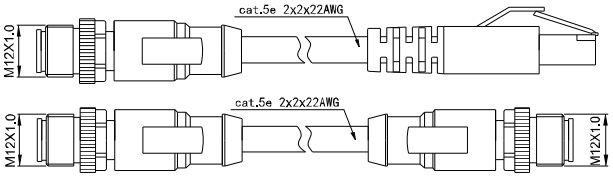
ESV-EN – □ – □

- Ethernet fieldbus wiring
- M12RJ：M12male connectors ⟺ RJ45
- M12M12：M12male connectors ⟺ M12male connectors
- 2M: 2 meters long
- 5M: 5 meters long
- (Other length could be customized)

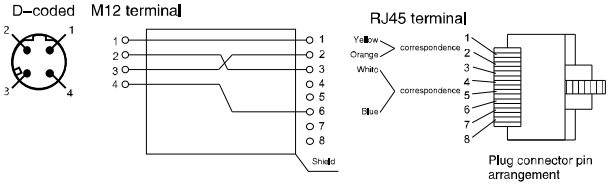
Power cable



Communication Cable



Connections



SOLENOID VALVE & VALVE REMINAL (ESV)

LED Indicators

PROFINET

BF ○ ○ SF

L/A1 ○ ○ L/A2

PWR ○ ○ PWR(V)

Indicators	Status	Meaning
BF	ON	Communication not connected
	Flash	Module is connecting with PN master station, IP address or device name duplicated.
	OFF	System is normal
SF	OFF	System is normal
	ON	Diagnosed fault, or the master station configuration does not match the salve station
L/A1 L/A2	Yellow light on	PROFINET BUS IN
	Yellow light off	BUS OUT
	Green light flash	BUS IN
	Green light off	BUS OUT
PWR	ON	Module with 24V power supply
	OFF	Module without power supply
PWR(V)	OFF	24V load voltage is normal
	ON	The load voltage is not connected or the load voltage is too low (During the under voltage monitor is on)

EtherCAT

RUN ○ ○ ERR

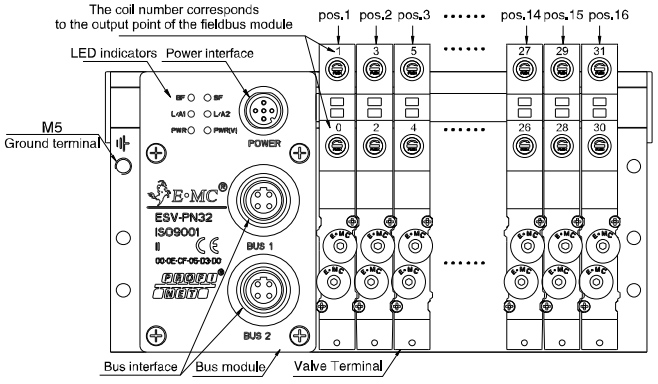
L/A IN ○ ○ L/A OUT

PWR ○ ○ PWR(V)

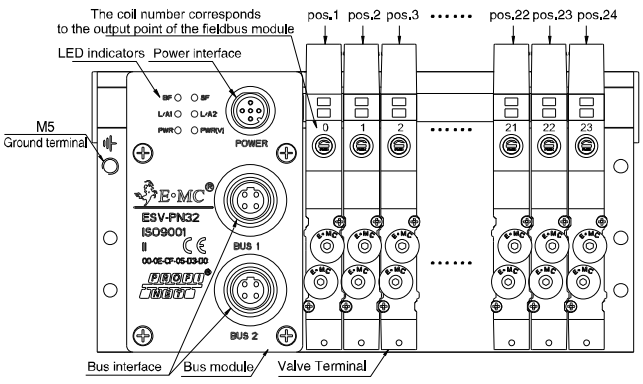
Indicators	Status	Meaning
RUN	OFF	Initial Status
	Rapid Flash	Pre-operational status
	Slow Flash	Safe Status
	ON	Operational Status(Enter into normal data exchange status)
ERR	OFF	Normal Initiation
	ON	Initiantion Failure
L/A IN L/A OUT	ON	EtherCAT BUS IN
	OFF	BUS OUT
	Flash	BUS IN WITH DATA TRANSMISSION ON NETWORK
PWR	ON	Module with 24V power supply
	OFF	Module without power supply
PWR(V)	OFF	24V load voltage is normal
	ON	The load voltage is not connected or the load voltage is too low (During the under voltage monitor is on)

Wiring Diagram

Wiring for double control(maximum 16 positions)



Wiring for single control(maximum 24 positions)



Precautions for Use

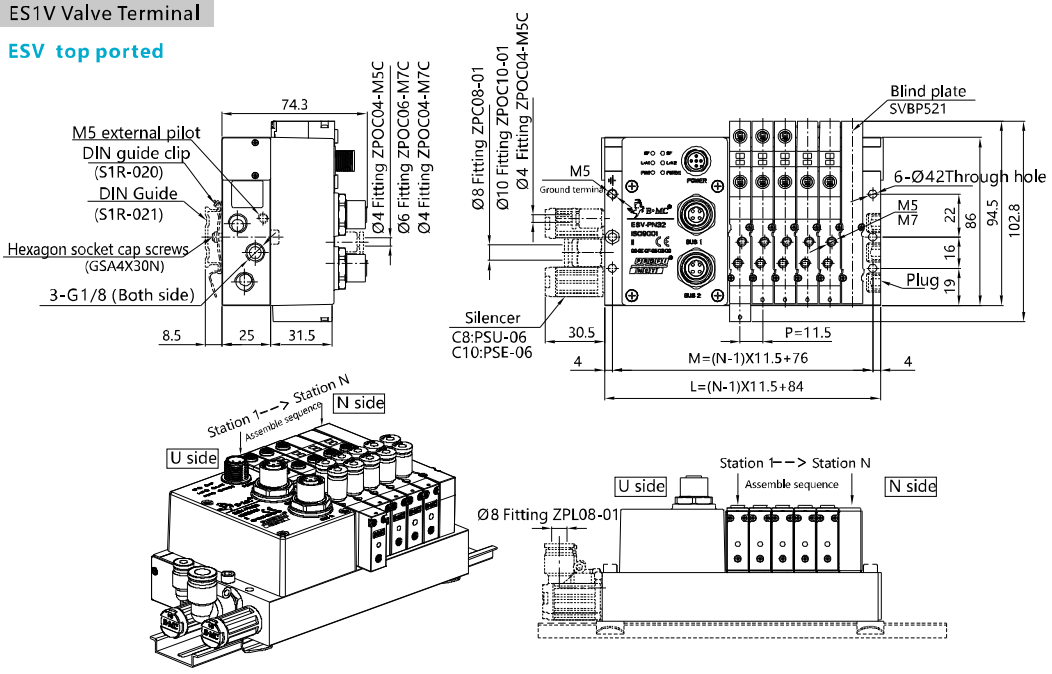
1. Do not disassemble, modify(including replacing printed circuit boards) or repair without authorization, which may result in injury or failure.
2. Do not operate the product exceeding the parameters(limited values), and do not use it for flammable or harmful liquids, which may cause fire, malfunction or damage to the product. Please verify the manual before using.
3. Do not operate in an environment containing flammable and explosive gases, which may cause fire or explosion. This product is not designed of explosion-proof.
4. If use this product in the interlock circuit:
   (1)Provide double interlocking systems, such as mechanical system;
   (2)Check regularly whether the product is operating normally; otherwise,malfunctions may occur leading to accidents.
5. The following instructions must be followed during maintenance: (1)turn off the power;(2) stop providing gas, remove the remaining pressure and make sure that there is no air supply before maintenance; otherwise, it may cause injury.
6. After the maintenance is completed, peform proper functional checks. If the equipment does not work properly, please stop the operation. In case of unexpected failure, safety cannot be guaranteed.
7. The product designed used for industries. Ecept under industrial environments, when used under enviroments such as: mixed commercial and residential areas, measures must be taken to prevent radio interference.
8. The bus manifold and power cord must be functionally grounded to ensure the safety and anti-noise performance of the fieldbus system.

SOLENOID VALVE & VALVE REMINAL (ESV)

Main Dimension

ES1V Valve Terminal

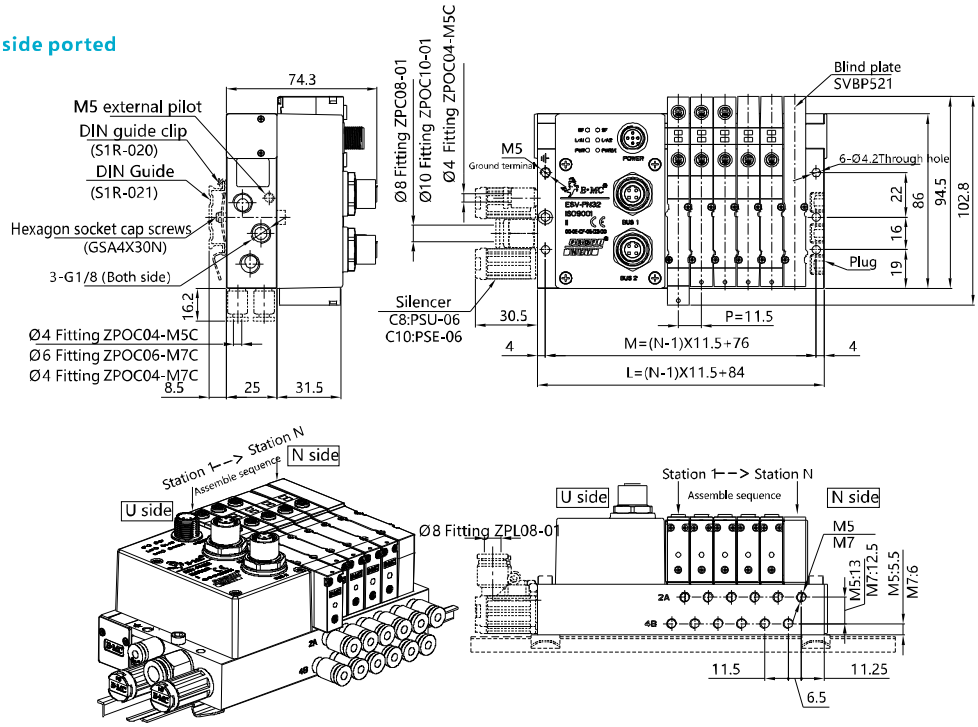
ESV top ported



Note: N means valve link

Sign \ Model	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L	95.5	107	118.5	130	141.5	153	164.5	176	187.5	199	210.5	222	233.5	245	256.5	268	279.5	291	302.5	314	325.5	337	348.5
M	87.5	99	110.5	122	133.5	145	156.5	168	179.5	191	202.5	214	225.5	237	248.5	260	271.5	283	294.5	306	317.5	329	340.5

ES1VM side ported



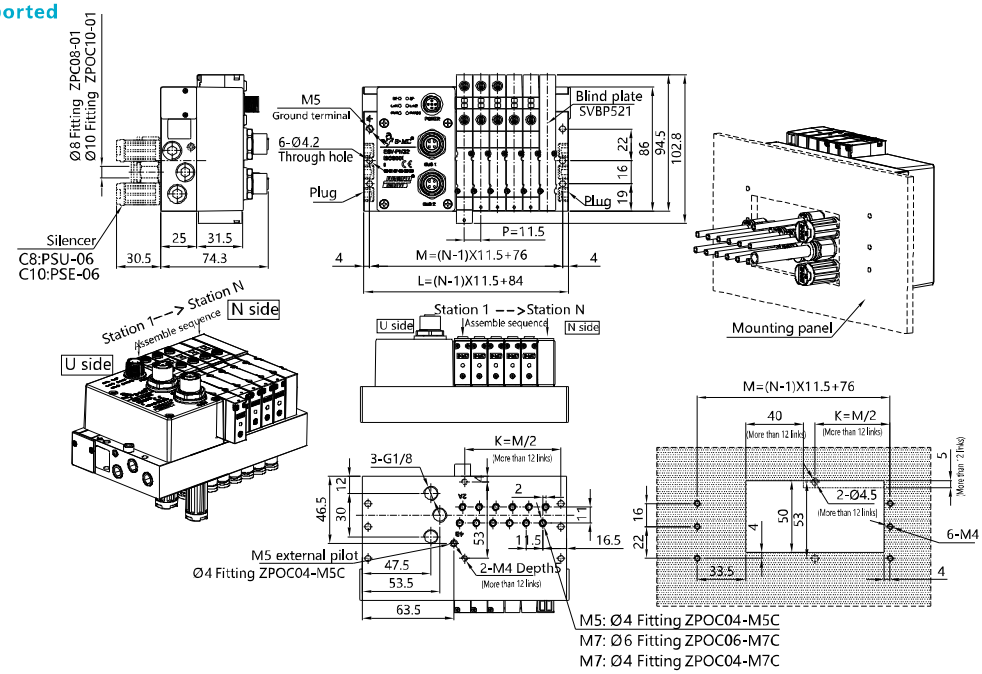
Note: N means valve link

Sign \ Model	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L	95.5	107	118.5	130	141.5	153	164.5	176	187.5	199	210.5	222	233.5	245	256.5	268	279.5	291	302.5	314	325.5	337	348.5
M	87.5	99	110.5	122	133.5	145	156.5	168	179.5	191	202.5	214	225.5	237	248.5	260	271.5	283	294.5	306	317.5	329	340.5

SOLENOID VALVE & VALVE REMINAL (ESV)

Main Dimension

ES1VB bottom ported

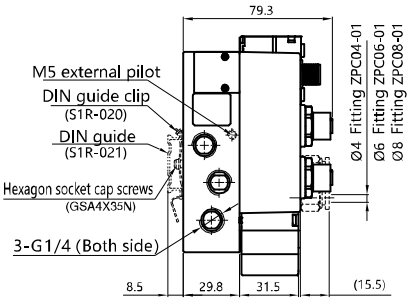


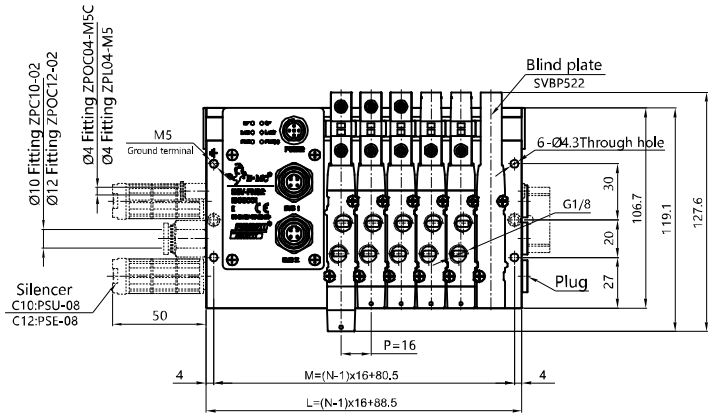
Sign \ Model	2	3	4	5	6	7	8	9	10	11	12	
L	95.5	107	118.5	130	141.5	153	164.5	176	187.5	199	210.5	
M	87.5	99	110.5	122	133.5	145	156.5	168	179.5	191	202.5	
Sign \ Model	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
L	222	233.5	245	256.5	268	279.5	291	302.5	314	325.5	337	348.5
M	214	225.5	237	248.5	260	271.5	283	294.5	306	317.5	329	340.5
K	107	112.75	118.5	124.25	130	135.75	141.5	147.25	153	158.75	164.5	170.25

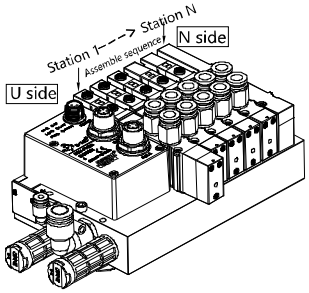
Note: N means valve link

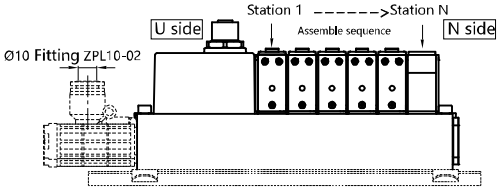
ES2V Valve Terminal

ES2V top ported









Note: N means valve link

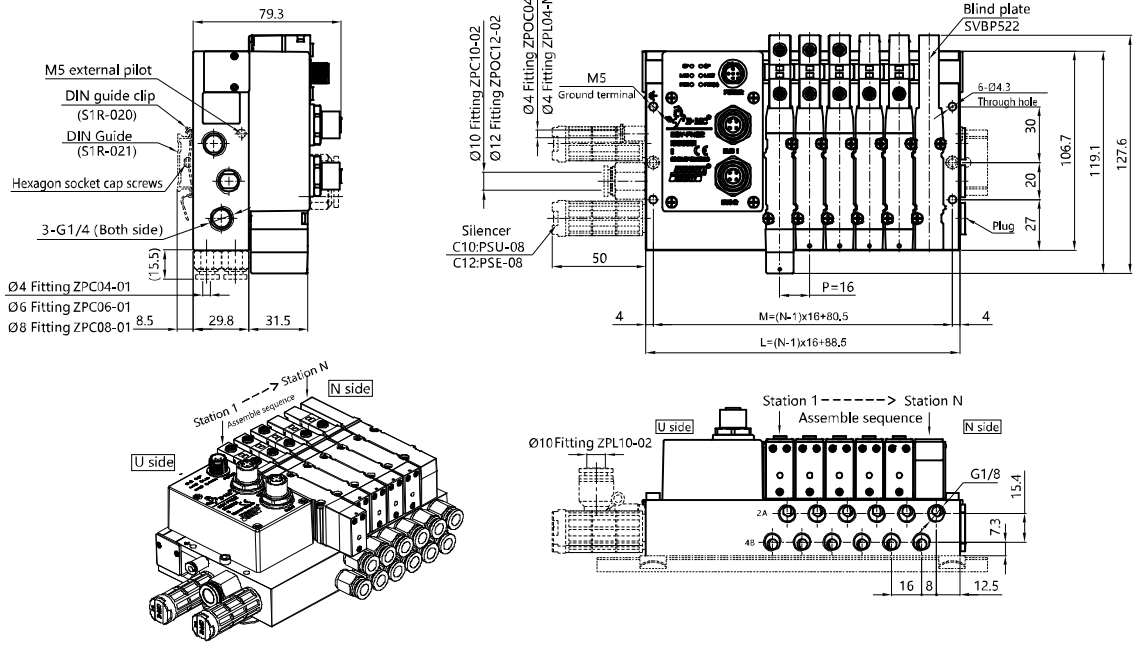
Sign \ Model	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L	104.5	120.5	136.5	152.5	168.5	184.5	200.5	216.5	232.5	248.5	264.5	280.5	296.5	312.5	328.5	344.5	360.5	376.5	392.5	408.5	424.5	440.5	456.5
M	96.5	112.5	128.5	144.5	160.5	176.5	192.5	208.5	224.5	240.5	256.5	272.5	288.5	304.5	320.5	336.5	352.5	368.5	384.5	400.5	416.5	432.5	448.5

SOLENOID VALVE & VALVE REMINAL (ESV)

Main Dimension

ES2V Valve Terminal

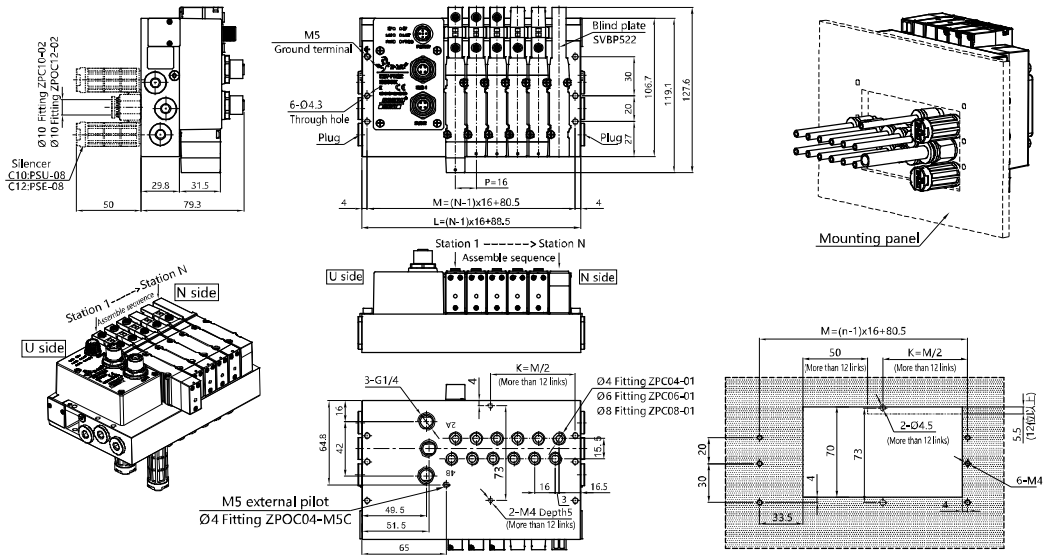
ES2VM side ported



Note: N means valve link

Sign \ Model	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L	104.5	120.5	136.5	152.5	168.5	184.5	200.5	216.5	232.5	248.5	264.5	280.5	296.5	312.5	328.5	344.5	360.5	376.5	392.5	408.5	424.5	440.5	456.5
M	96.5	112.5	128.5	144.5	160.5	176.5	192.5	208.5	224.5	240.5	256.5	272.5	288.5	304.5	320.5	336.5	352.5	368.5	384.5	400.5	416.5	432.5	448.5

ES2VB bottom ported



Sign \ Model	2	3	4	5	6	7	8	9	10	11	12	
L	104.5	120.5	136.5	152.5	168.5	184.5	200.5	216.5	232.5	248.5	264.5	
M	96.5	112.5	128.5	144.5	160.5	176.5	192.5	208.5	224.5	240.5	256.5	
Sign \ Model	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
L	280.5	296.5	312.5	328.5	344.5	360.5	376.5	392.5	408.5	424.5	440.5	456.5
M	272.5	288.5	304.5	320.5	336.5	352.5	368.5	384.5	400.5	416.5	432.5	448.5
K	136.25	144.25	152.25	160.25	168.25	176.25	184.25	192.25	200.25	208.25	216.25	224.25

Note: N means valve link