ESV

Solenoid Valve&Valve Terminal

PROFINET®

EtherCAT®

IO-Link

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.
* Shielded cable with strong anti-jamming, maximum transmission distance is 100 meters , communication is stable and reliable.

Product Features

* Compatible Protocols: I/O-Link,general-purpose 5-wire unshielded cables are used for connection I/O-Link master and exchange data with PLC.
* Support hot swap,data is stored in the I/O-LINK master,no need to reconfigure parameters to replace the valve island,The newly replaced is automatically identified and start to work at once,reduce equipment downtime, reduce maintenance costs, and improve production efficiency
* Diagnostic functions:system diagnosis,communication error,short circuit protection.
* Independent of fieldbus,possess strong industrial network compatibility,supply popular fieldbus and industry ethernet.
* Communication is completely digitally transmitted,reduce the accuracy loss of analog-to-digital conversion,possess strong anti-interference ability. Maximum transmission distance is 20 meters.

How to Order?

ES Fieldbus Valve Terminal

Series No. | Body Size | Piping Type | Communication Protocol | □ | □ | - | □ | □ | Voltage | Pilot Type | Wiring Type | Inlet & Exhaust port | Mounting | Thread Type

- Series No.: ES: Fieldbus valve terminal
- Body Size: 1: 1 series; 2: 2 series
- Piping Type: V: Top ported; VM: Side ported; VB: Bottom ported
- Communication Protocol: Protocols type
- 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)
- Voltage: E4: DC24V
- Pilot Type: Blank: Interal pilot; WB: External pilot
- Wiring Type: Blank: Double control wiring (max.16 links); S: Single control wiring (max.24 links); (Note:Mix wiring is available to customize)
- Inlet & Exhaust port: 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)
- Mounting
- Thread Type: Blank: G; P: PT; T: NPT

Code	Communication Protocol	Output
PN16	PROFINET	16
PN32		32
EC16	EtherCAT	16
EC32		32
LK16	IO-Link	16
LK32		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	

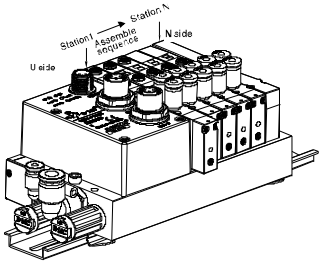
No.	Code	Port size	Remark
1Series	M5	M5: M5 fitting	assembly sequence 1st link start from U side
	C4	ϕ4 one-touch fitting(ZPOC04-M5C)	
	M7	M7: M7 fitting	
	C6	ϕ6 one-touch fitting(ZPOC06-M7C)	
	C4A	ϕ4 one-touch fitting(ZPOC04-M7C)	
2Series	06	1/8 fitting	
	C4	ϕ4 one-touch fitting(ZPOC04-01)	
	C6	ϕ6 one-touch 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-CDH2SB-2C63C4AE4-WB-UL-D

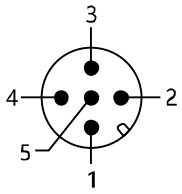


ESV–PN/EC Series

Specifications

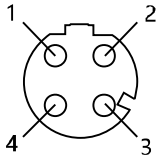
Code		ES1V(VM/VB)–PN16 ES2V(VM/VB)–PN16	ES1V(VM/VB)–PN32 ES2V(VM/VB)–PN32	ES1V(VM/VB)–EC16 ES2V(VM/VB)–EC16	ES1V(VM/VB)–EC32 ES2V(VM/VB)–EC32
Output		16	32	16	32
Protocols		PROFINET		EtherCAT	
Baud rate		100Mbps		100Mbps	
Configuration files		GSDML file		XML file	
Control power supply	Voltage	DC24V(DC21.6～26.4V)			
	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)

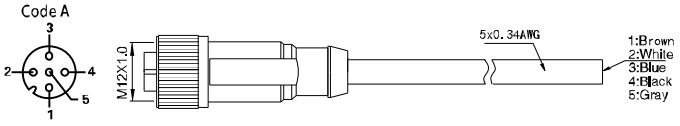
ESV-EN – □ – □

Ethernet fieldbus wiring

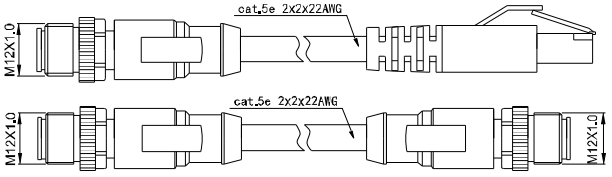
M12RJ：M12male connectors ⟺ RJ45
M12M12：M12male connectors ⟺ M12male connectors

2M: 2 meters long
5M: 5 meters long
(Other length could be customized)

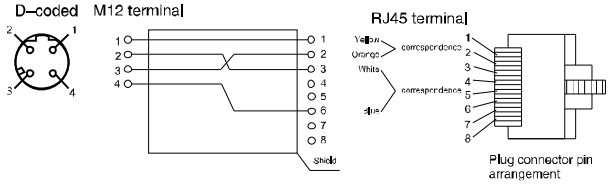
Power cable



Communication Cable



Connections



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)

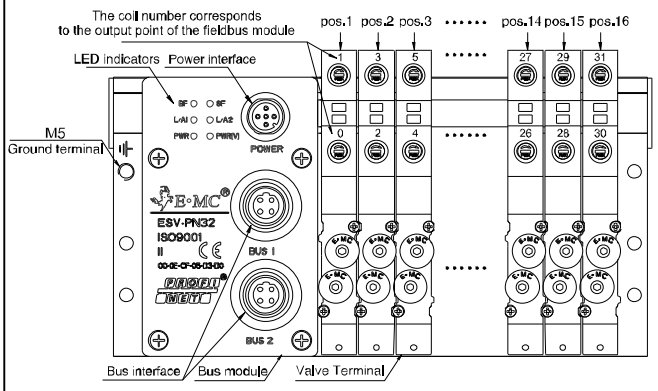
EtherCAT

RUN ○ ○ ERR
L/A IN ○ ○ L/A OUT
PWR ○ ○ PWR(V)

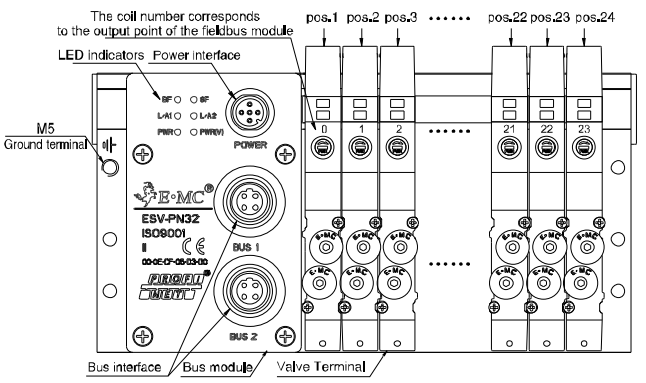
Indicators	Status	Meaning
RUN	OFF	Initial Status
	Rapid Flash	Pre-operational status
	Slow Flash	Safe Status
	ON	Operational Status(Enter into normal data exchange status)
ERR	OFF	Normal Initiation
	ON	Initiantion Failure
L/A IN L/A OUT	ON	EtherCAT BUS IN
	OFF	BUS OUT
	Flash	BUS IN WITH DATA TRANSMISSION 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——ESV-PN/EC Series

Wiring for double control(maximum 16 positions)



Wiring for single control(maximum 24 positions)



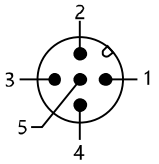
ESV-LK Series

Specifications

Code		ES1V(VM/VB)-LK16 ES2V(VM/VB)-LK16	ES1V(VM/VB)-LK32 ES2V(VM/VB)-LK32
Output		16	32
Protocols		IO-Link	
Baud rate		COM2 (38.4kbps)	
Configuration files		IODD file	
Specification		V1.1(Compatible with V1.0)	
Output voltage	Voltage	DC24V(DC21.6~26.4V)	
	Current consumption	15mA below	
Output type		DC24V(DC22.8 ~ 26.4V)	
Power interface		M12, 5pin, A encode	
Type		Class B	
Diagnostic		System diagnosis,communication error,short circuit protection	
Protection		IP40	
Storage temperature		-20 ~ 70℃	
Working temperature		-10 ~ 50℃	

Power interface

M12, A encode, Class B



Pin	Type	Description
1	PS24	+24V control voltage +24V
2	PL24	+24VOperating voltage of load valve
3	PSO	0V control voltage 0V
4	C/Q	Data communication
5	PLO	Functional earthing

LED Indicators

Indicators	Status	Meaning
X1	LED Close	Abnormal power supply
	Green open	normal power supply, no establish protocols
	Red open	Fault or abnormal load power supply
	Green flash	normal working

Wiring

M125 □ — PVC — □

R:Straight connector type
RL:Angled connector type

2M: 2 meters long
5M: 5 meters long
(Other length could be customized)

M12 Female 5 cores
single connecting cable

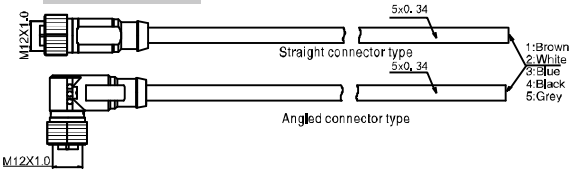
M12M125 □ — PVC — □

M12 Female 5 cores
double connecting cable

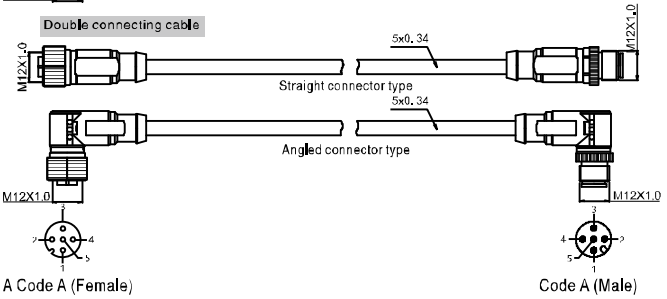
2M: 2 meters long
5M: 5 meters long
(Other length could be customized)

R:Straight connector type: M12 male connectors ↔ M12 female connectors
RL:Angled connector type: M12 male connectors ↔ M12 female connectors

Single connecting cable

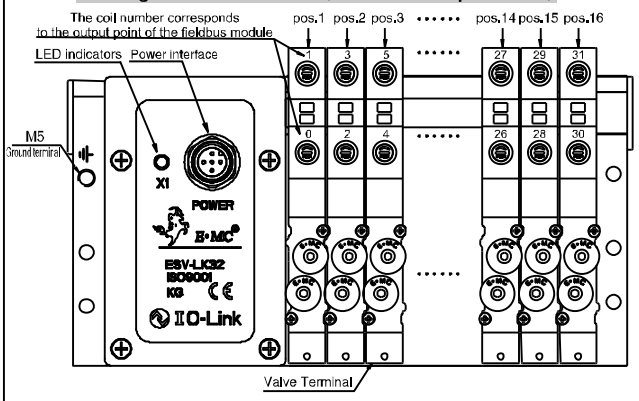


Double connecting cable



Wiring Diagram——ESV-LK Series

Wiring for double control(maximum 16 positions)



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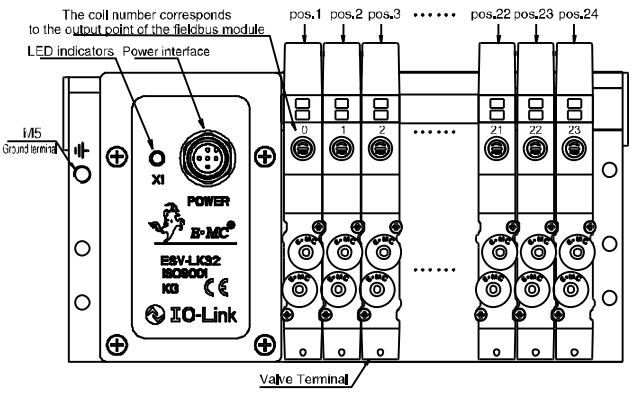


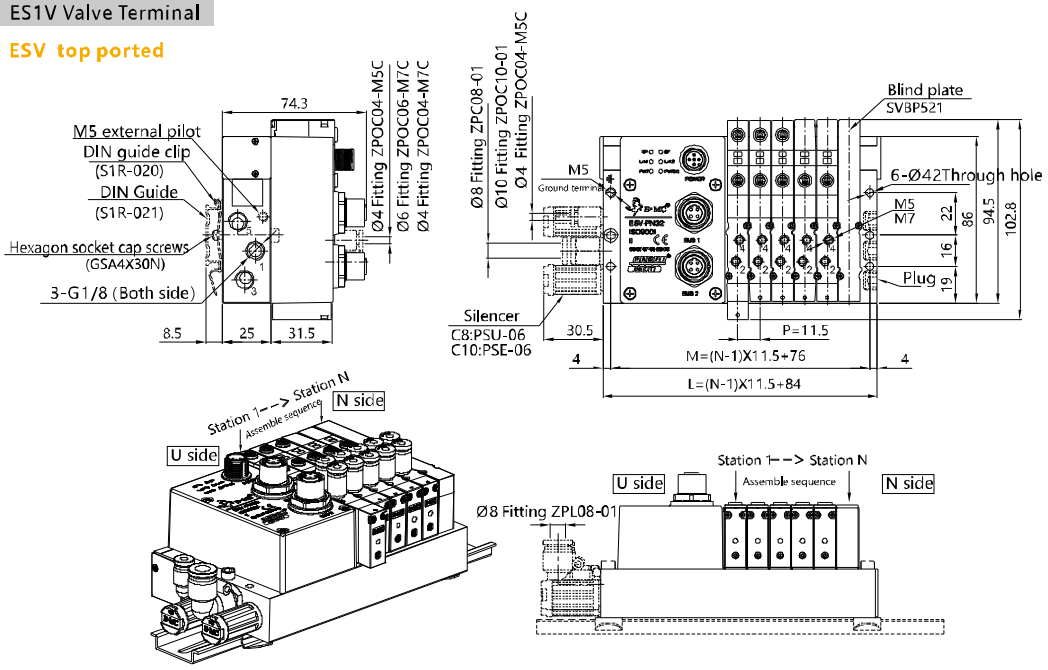
Precautions for Use

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.
9. IO-Link valve island provide the opetrating voltage through the B-type port,using A-type port, additional power supply should be provided.

Main Dimension

ES1V Valve Terminal

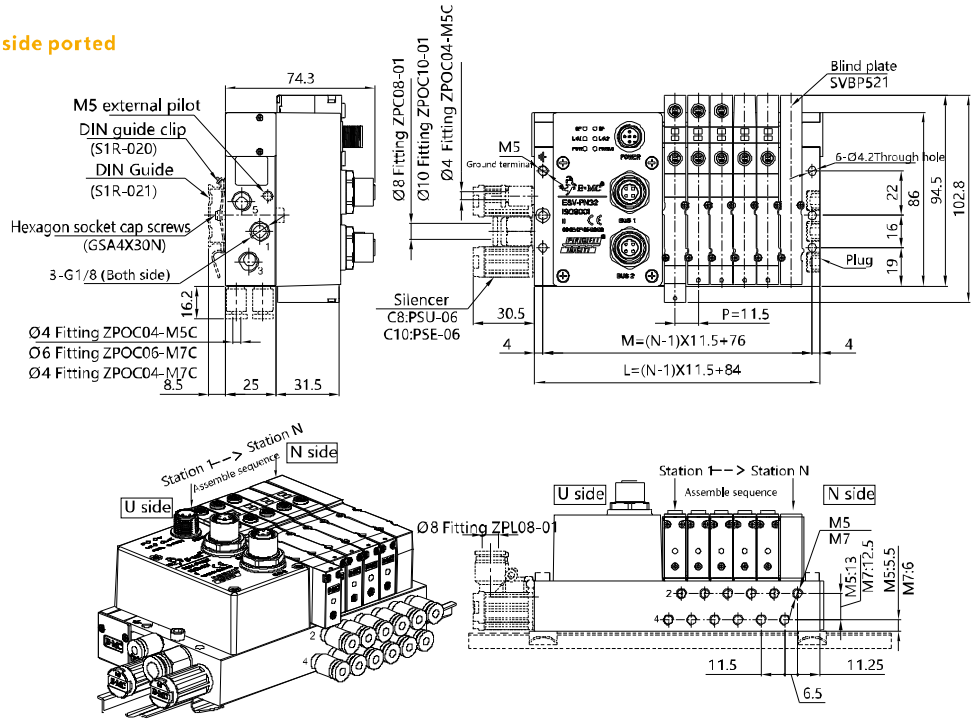
ESV top ported



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



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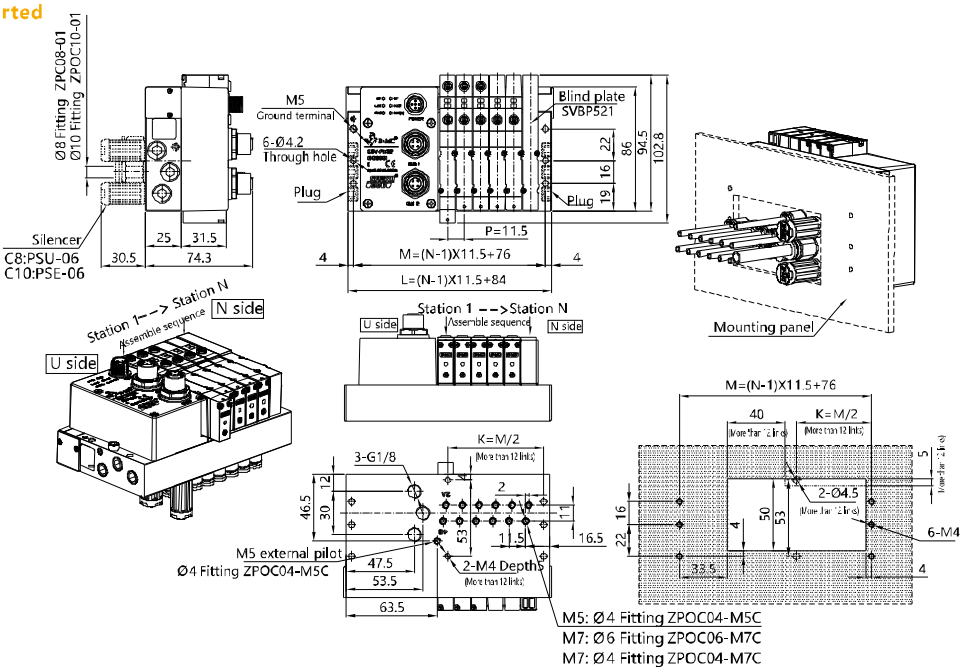
M	87.5	99	110.5	122	133.5	145	156.5	168	179.5	191	202.5	214	225.5	237	248.5	260	271.5	283	294.5	306	317.5	329	340.5

Main Dimension

ES1VB bottom ported



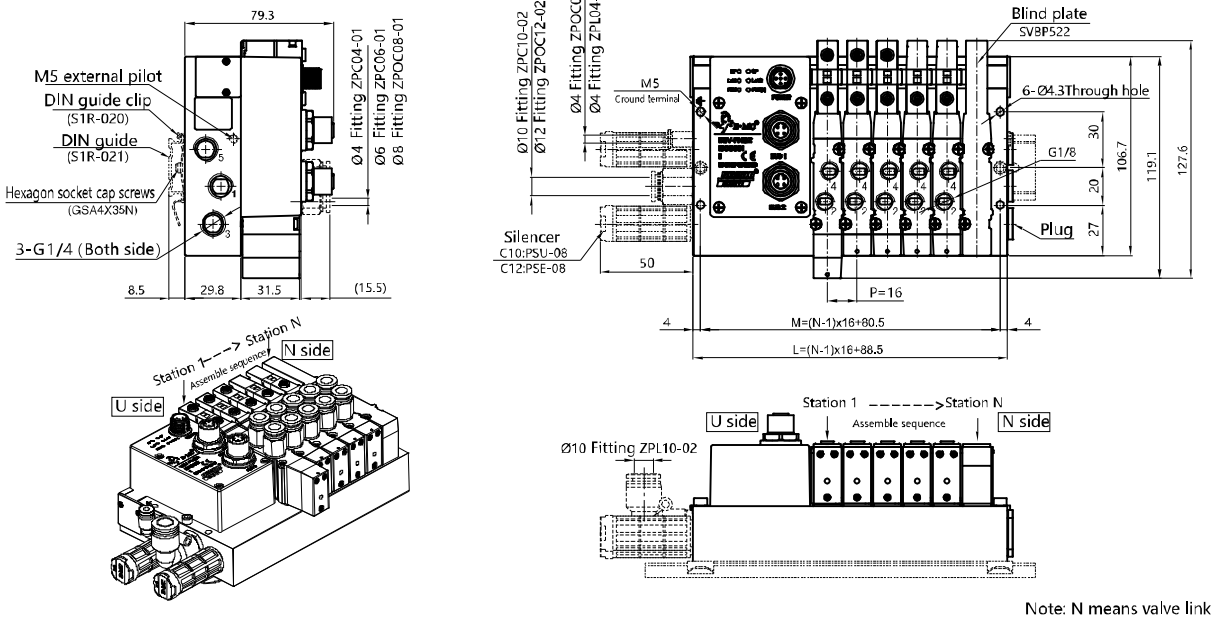
Sign \ Model	2	3	4	5	6	7	8	9	10	11	12	
L	95.5	107	118.5	130	141.5	153	164.5	176	187.5	199	210.5	
M	87.5	99	110.5	122	133.5	145	156.5	168	179.5	191	202.5	
Sign \ Model	13	14	15	16	17	18	19	20	21	22	23	24
L	222	233.5	245	256.5	268	279.5	291	302.5	314	325.5	337	348.5
M	214	225.5	237	248.5	260	271.5	283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

Main Dimension

ES2V Valve Terminal

ES2V top ported

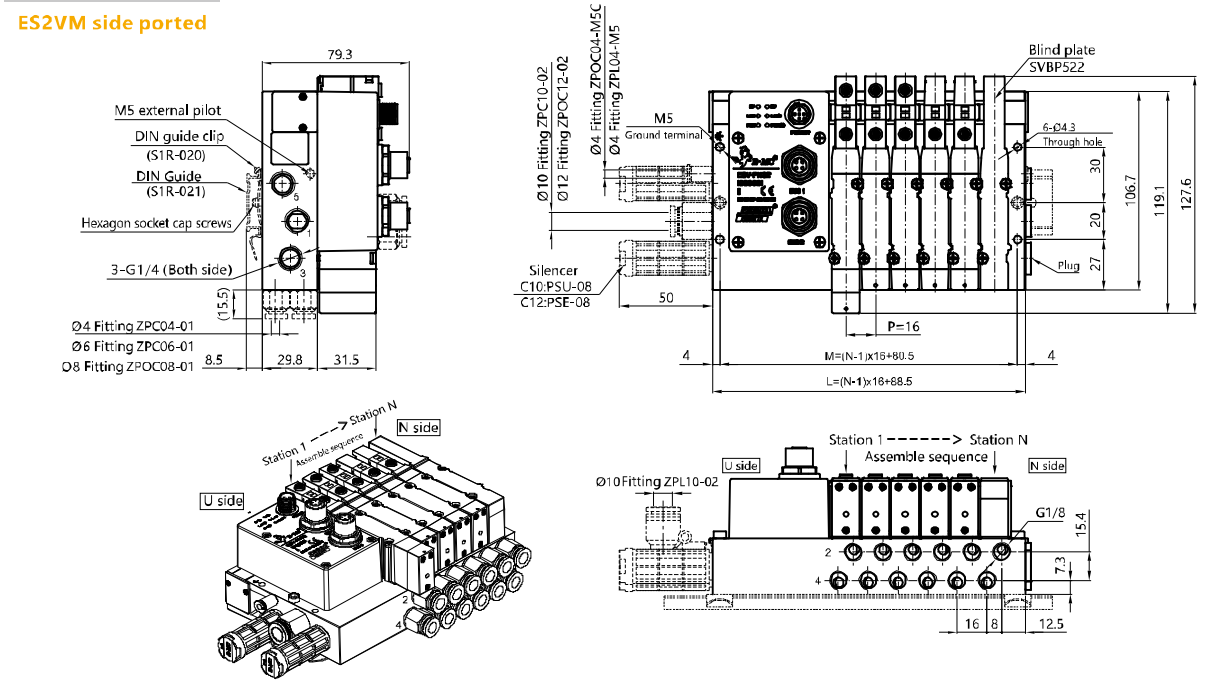


Note: N means valve link

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

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
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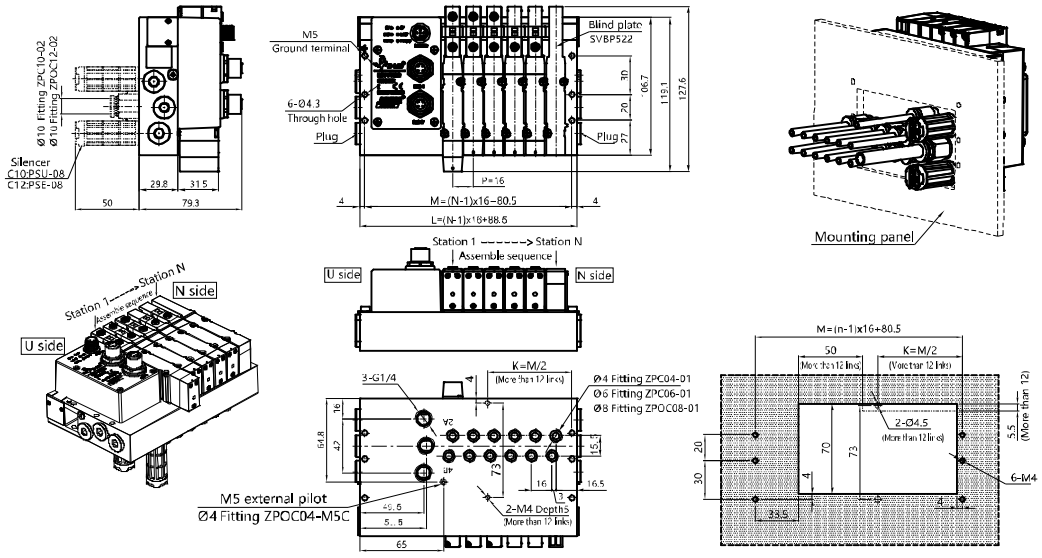
M	96.5	112.5	128.5	144.5	160.5	176.5	192.5	208.5	224.5	240.5	256.5	272.5	288.5	304.5	320.5	336.5	352.5	368.5	384.5	400.5	416.5	432.5	448.5

Main Dimension

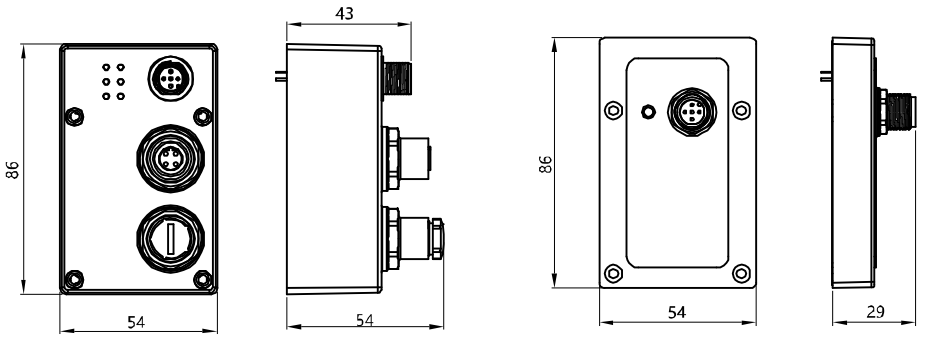
ES2VB bottom ported



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

Dimensions of Control Module



EC/PN Protocol control module

IO-Link Protocol control module

Note: Except for the module, the dimensions of ESV-LK and ESV-PN/EC are the same