

# ESV Fieldbus Valve Terminal

## ESV

Solenoid Valve&Valve Terminal



**PROFINET**  
**EtherCAT**

### 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 necessary, 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.

### 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                 |
|-----------------------------|-------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------|-----------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------|
| ES: Fieldbus valve terminal | V: Top ported<br>VM: Side ported<br>VB: Bottom ported<br>1: 1 series<br>2: 2 series |             | Valve Quantity<br>(Applicable to different ports mixed;<br>Blank if same ports) | E4: DC24V | Blank: Internal pilot<br>WB: External pilot | Blank: Double control wiring (max. 16 links)<br>S: Single control wiring (max. 24 links)<br>(Note: Mix wiring is available to customize) | Blank: Without accessories<br>D: With DIN rail clip and 1M guide rail<br>D0: With DIN rail clip, no guide rail<br>DIN guide rail packed separately<br>(if order with guide rail, the guide rail will be packed separately) |          | Blank: G<br>P: PT<br>T: NPT |

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

| Code | Function             | Remark                                        |
|------|----------------------|-----------------------------------------------|
| S    | 5/2 single           |                                               |
| D    | 5/2 double           |                                               |
| C    | 5/3 center closed    | assembly sequence, 1st link start from U side |
| 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          |                                               |

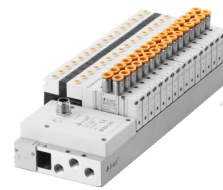
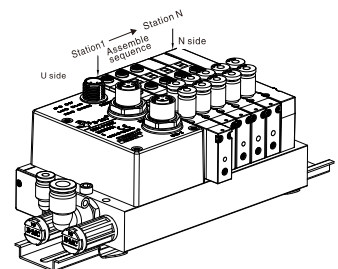
| No.     | Code | Port size                         | Remark |
|---------|------|-----------------------------------|--------|
| 1Series | M5   | M5: M5 fitting                    |        |
|         | C4   | φ 4 one-touch fitting(ZPOC04-M5C) |        |
|         | M7   | M7: M7 fitting                    |        |
|         | C6   | φ 6 one-touch fitting(ZPOC06-M7C) |        |
| 2Series | C4A  | φ 4 one-touch fitting(ZPOC04-M7C) |        |
|         | 06   | 1/8 fitting                       |        |
|         | C4   | φ 4 one-touch fitting(ZPOC04-01)  |        |
|         | C6   | φ 6 one-touch fitting(ZPOC06-01)  |        |
|         | C8   | φ 8 one-touch fitting(ZPOC08-01)  |        |

| Code  | Port entry                                | 1Series | 2Series | Remark |
|-------|-------------------------------------------|---------|---------|--------|
| Blank | Both side without silencer, fitting, plug | -       | -       |        |
| U     | U side with silencer                      |         |         |        |
| 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                      |         |         |        |
| 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 controlled, 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 φ 6 one-touch fitting ZPOC06-M7C, station 3-5 with φ 4 one-touch fitting ZPOC04-M7C, DC24V, G thread, external pilot, double control wiring, U-sub side with silencer, φ 8 one-touch fitting EPL, with DIN rail clip and 1M guide rail, the ERP code is ES1V-PN32-CDH2SB-2C63C4AE4-WB-UL-D



**IO-Link**

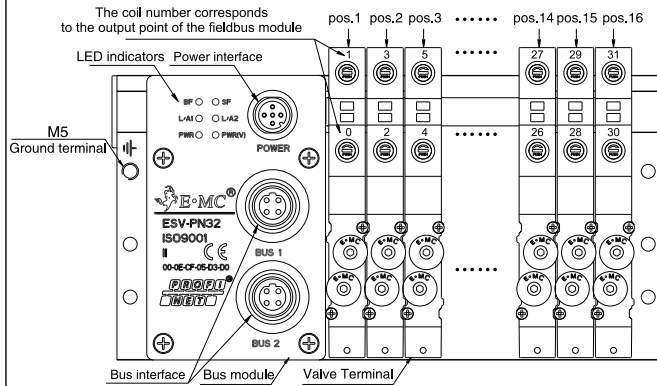
### Product Features

- \* 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.

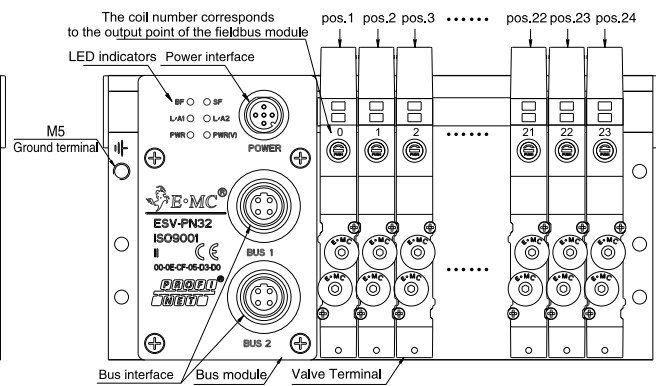
# ESV Fieldbus Valve Terminal

## Wiring Diagram—ESV-PN/EC Series

### Wiring for double control(maximum 16 positions)



### Wiring for single control(maximum 24 positions)



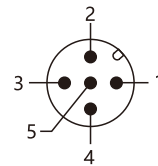
## ESV-LK Series

### Specifications

| Code                | ES1V(VM/VB)-LK16<br>ES2V(VM/VB)-LK16                            | ES1V(VM/VB)-LK32<br>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

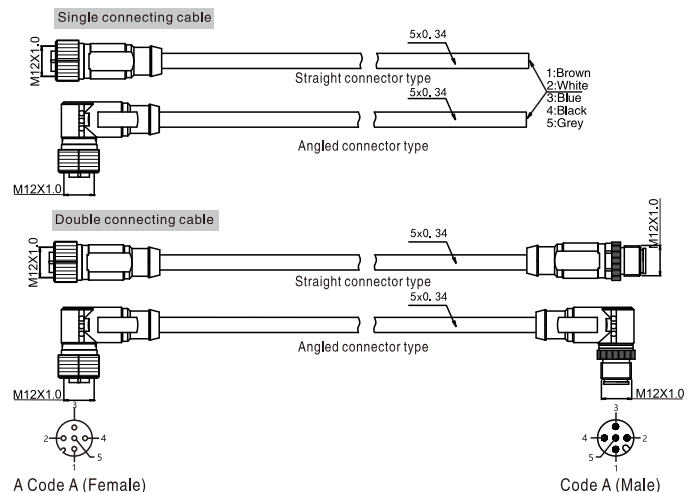
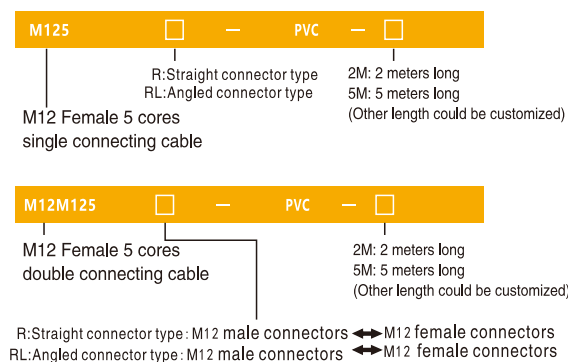


| Pin | Type | Description                          |
|-----|------|--------------------------------------|
| 1   | PS24 | +24V control voltage +24V            |
| 2   | PL24 | +24V Operating voltage of load valve |
| 3   | PS0  | 0V control voltage 0V                |
| 4   | C/Q  | Data communication                   |
| 5   | PLO  | Functional earthing                  |

### LED Indicators

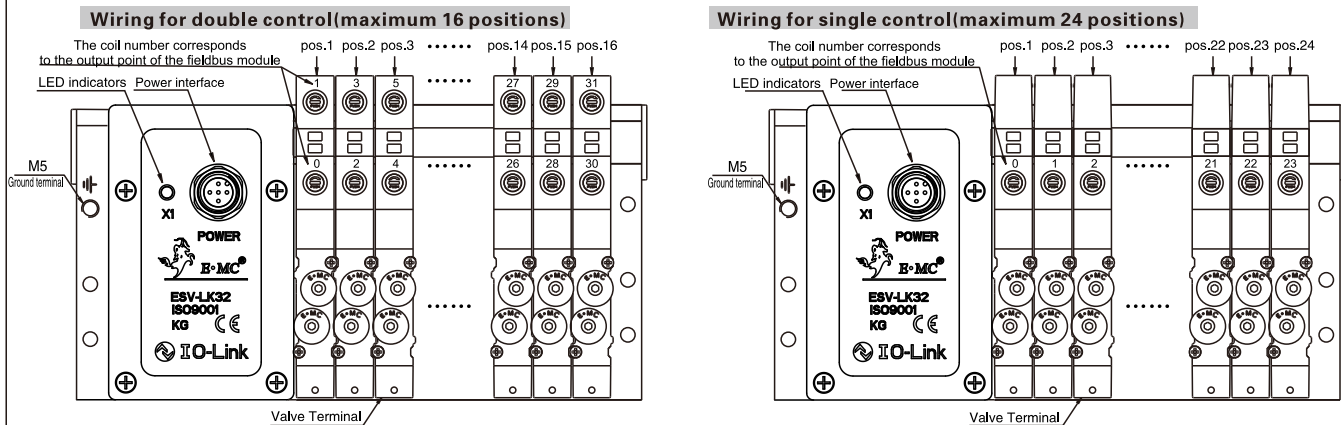
| Indicators | Status      | Meaning                                     |
|------------|-------------|---------------------------------------------|
| X1         | LED Close   | Abnormal power supply                       |
|            | Green open  | normal power supply, no establish protocols |
|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

### Wiring



# ESV Fieldbus Valve Terminal

## Wiring Diagram—ESV-LK Series



## Precautions for Use

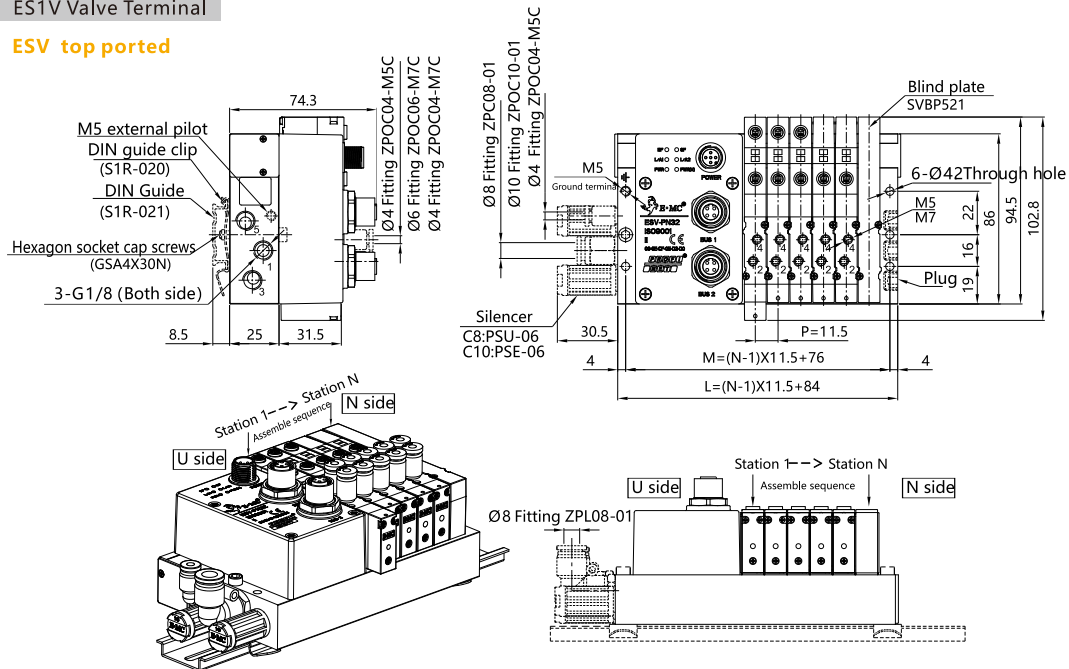
1. Do not disassemble, modify(including replacing printed circuit boards) or repair without authorization, which may result in injury or failure.
2. Do not operate the product exceeding the parameters(limited values), and do not use it for flammable or harmful liquids, which may cause fire, malfunction 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, perform 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. Except under industrial environments, when used under environments 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 operating voltage through the B-type port,using A-type port, additional power supply should be provided.

# ESV Fieldbus Valve Terminal

## Main Dimension

### ES1V Valve Terminal

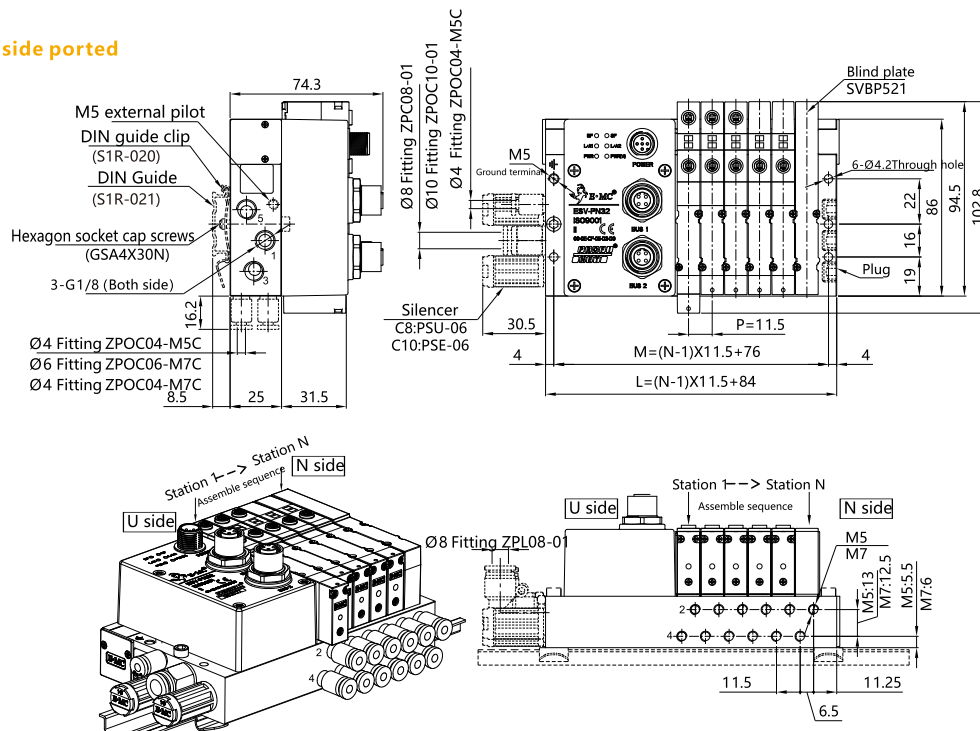
#### ESV top ported



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 |



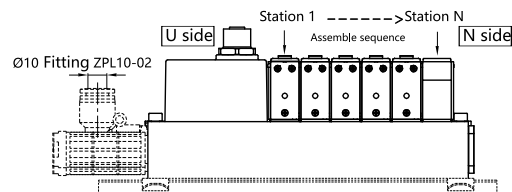
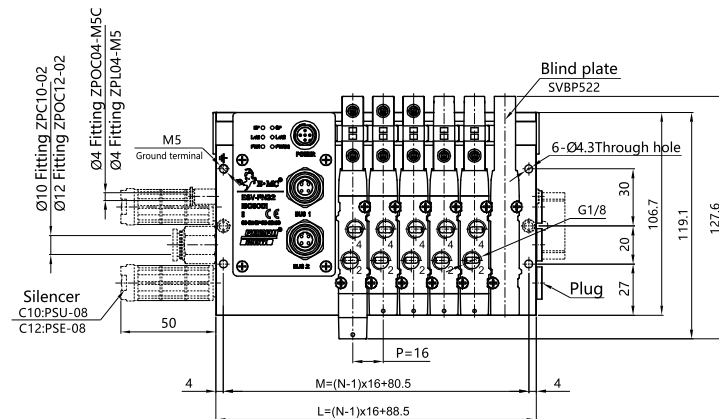
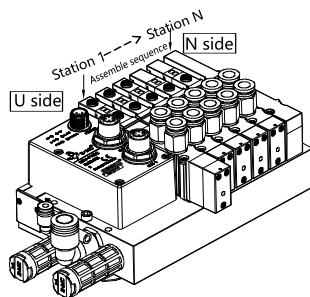
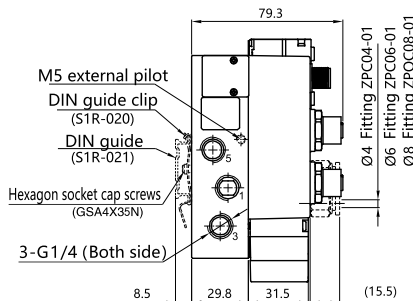
Note: N means valve link

# ESV Fieldbus Valve Terminal

## Main Dimension

### ES2V Valve Terminal

#### ES2V top ported

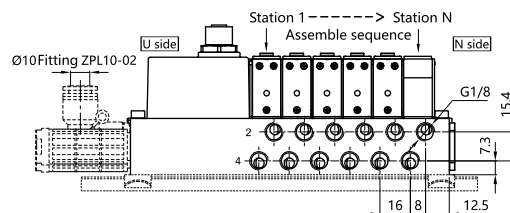
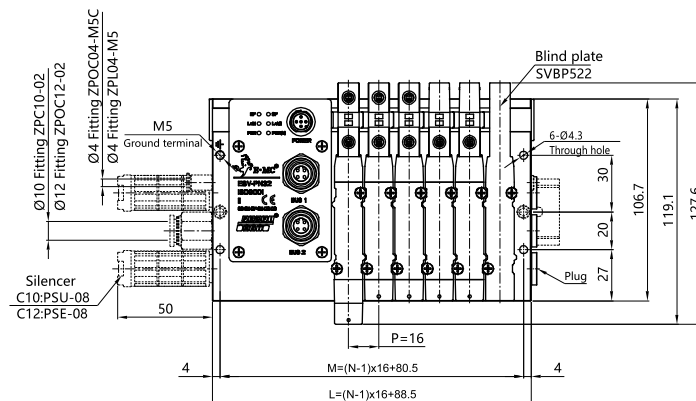
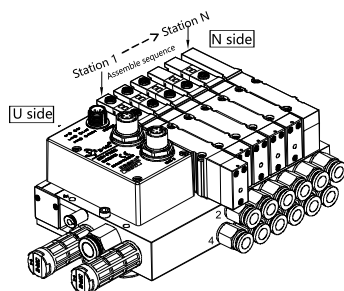
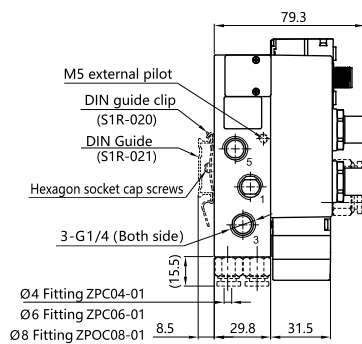


Note: N means valve link

| 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    |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 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 |

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