



ESV Valve Terminal(IO-Link) OPERATION MANUAL

⚠ WARNING

- Do not disassemble, modify(including replacing printed circuit boards) or repair without authorization, which may result in injury or failure.
- 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.
- 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.
- 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.
- 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.
- 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.

⚠ CAUTION

- This product is only permitted to operate by trained professional in field of control and automation; and should master skills including assembly, installation and diagnose of control system, network and fieldbus system as well as provisions for trouble prevention and operation security. Do read the operation manual carefully.
- The product designed used for industries. Except under industrial environments, when used under enviroments such as: mixed commercial and residential areas, measures must be taken to prevent radio interference.
- The bus manifold and power cord must be functionally grounded to ensure the safety and anti-noise performance of the fieldbus system.
- The equipment provides load voltage through class B port of IO link master station. When class a port is used, it shall additionally supply power to the valve island.

■ How to Order?

Series No.	Body Size	Wiring Type	Protocols Type					Voltage	Pilot Type	Wiring Type	Inlet & Exhaust port	Mounting	Thread Type
ES: Fieldbus valve terminal	V: Top ported VM: Side ported VB: Bottom ported	1: 1 series 2: 2 series						E4: DC24V	Blank: Internal pilot WB: External pilot				Blank: G P: PT T: NPT
					Valve Quantity (Applicable to different ports mixed; Blank if same ports)				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 separately (if order with guide rail, the guide rail will be packed separately)	
Code	Protocols type	Output		Qty									
LK16	IO-Link	16		(suitable for same valve single control 2~24 links double control 2~16 links)									
LK32		32											
Code	Function	Remark											
S	5/2 single												
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												
Series	Code	Port size											
1 series	M5	M5 fitting											
	C4	φ 4 one-touch fitting(ZPOC04-M5C)											
	M7	M7 fitting											
	C6	φ 6 one-touch fitting(ZPOC06-M7C)											
	C4A	φ 4 one-touch fitting(ZPOC04-M7C)											
2 series	O6	1/8 fitting											
	C4	φ 4 one-touch fitting(ZPC04-01)											
	C6	φ 6 one-touch fitting(ZPC06-01)											
	C8	φ 8 one-touch fitting(ZPOC08-01)											
		Remark:assembly sequence, 1st link start from U side											
Code	Port entry												
Blank	Silencer, fitting, plug												
U	U side with silencer, PC fitting												
N	Station N with silencer, PC fitting												
UN	Both side with silencer, PC fitting												
UL	U side with silencer, PL fitting												
NL	Station N with silencer, PL fitting												
UNL	Both side with silencer, PL fitting												
U1	U side with silencer, POC fitting												
N1	Station N with silencer, POC fitting												

Order Example:

- Same valve: ES Fieldbus Valve Terminal, 1 series body, top ported, IO-Link,32 outputs, 6 links 5/2 double controlled, port size M5, DC24V, G thread, internal pilot, double control wiring, both side without silencer, fitting, pug, the ERP code is **ES1V-LK32-6D-M5E4**.
- Mix different valves: ES series fieldbus system, 1 series body, top ported, IO-Link, 32 outputs, see let 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 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-LK32-CDH2SB-2C63C4AE4-WB-UL-D**.

■ Specifications

model	ESV-LK16	ESV-LK32
Output points	16	32
Protocols	IO-Link	
Baud rate	COM2 (38.4kbps)	
Configuration files	IODD file	
Specification version	V1.1(compatibleV1.0)	
Control power supply	Voltage	DC24V(DC21.6 ~ 26.4V)
	Current consumption	15mA below
Output voltage(valve)	DC24V(DC22.8 ~ 26.4V)	
Electrical interface	M12, 5pin, A encode	
Port type	Class B	
Diagnostic	System diagnosis, communication error, short circuit protection	
Protection	IP40	
Storage temperature	-20 ~ 70℃	
Working temperature	-10 ~ 50℃	

■ Electrical interface

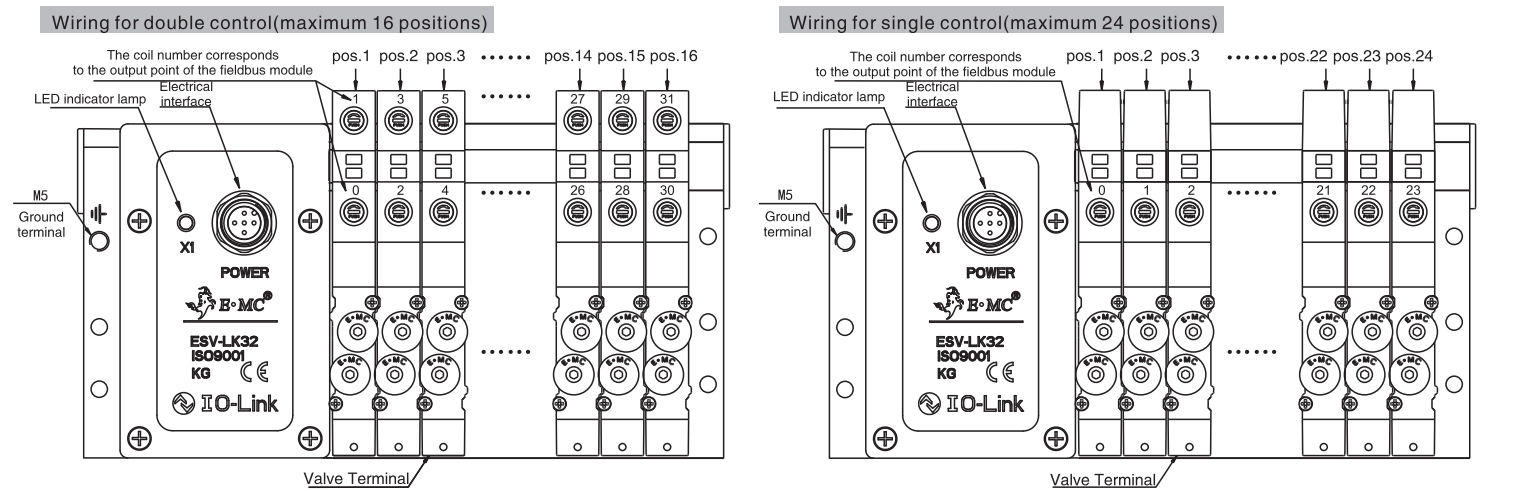
Electrical interface (M12 pin, a code, class B type)

Pin	Type	Description
1	PS24	Control operating voltage +24V
2	PL24	Load valve operating voltage +24V
3	PSO	Control operating voltage 0V
4	C/Q	Data cpmmunication(IO-Link)
5	PLO	Load valve operating voltage 0V

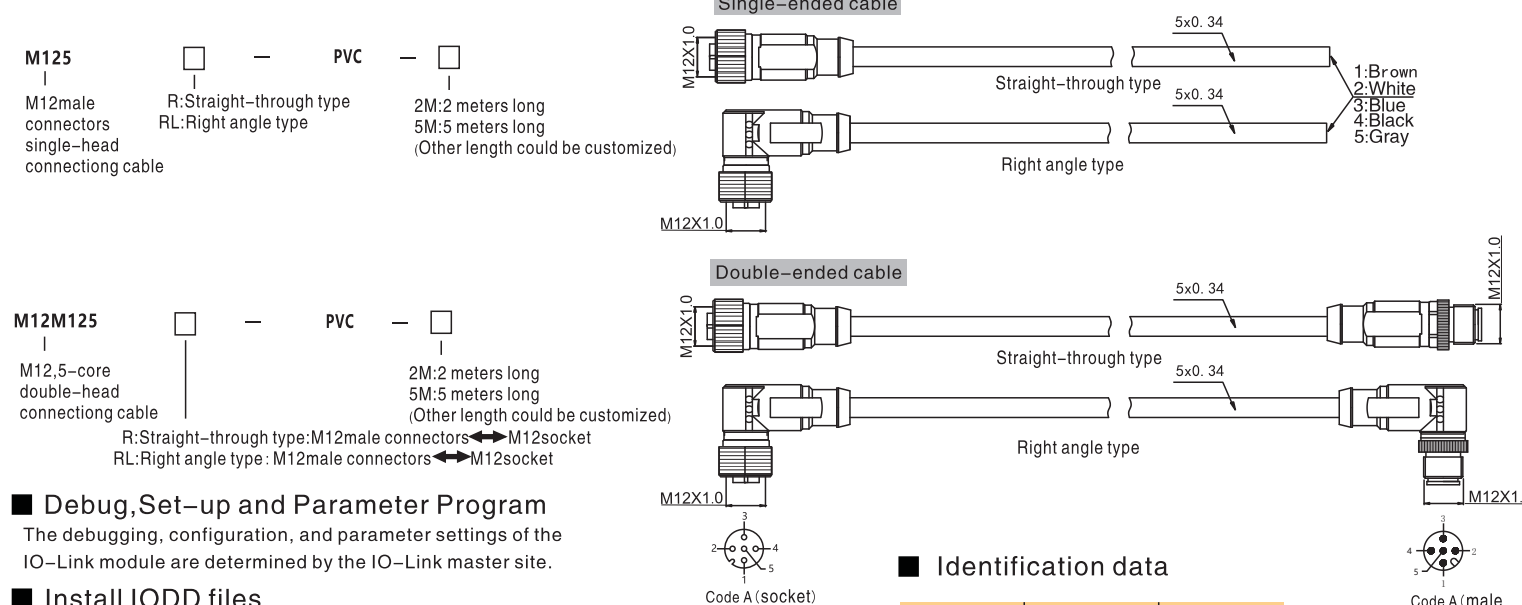
■ LED Indicators

LED	State	Description
X1	Indicator is not on	Abnormal power supply
	Green always on	Noraml power supply and no communication
	Red is always bright	Failure or abnormal load power supply
	Green flashing	Communication is normal

■ Wiring Diagram



■ Cable specification



■ Debug,Set-up and Parameter Program

The debugging, configuration, and parameter settings of the IO-Link module are determined by the IO-Link master site.

■ Install IODD files

- For example, using PLC TIA Portal in S7-1200 and Siemens IO-Link main station SM1278 connection valve Island can be configured by IO-Link configuration tool S7-PCT, and the specific steps are as follows.
- Add PLC→Device View Hardware Directory→Process module→IO-Link master→SM1278
- Drag the order number to the signal channel of PLC→Right-click the SM1278 module
- Click Start device tool→Select a local Nic→Click S7-PCT in the Options tool → Import IODD... →Browse and load EMC-ESV-LK...-IODD1.1.xml" → Import→Close.
- Note: 1. Please visit the official website of Siemens for the usage and S7-PCT of the main station module software;2. PLC should have basic IO signal module expansion ability; 3. Please contact E.MC Business Department for IODD documents;

■ Add IO-Link Device

Click IO-Link V1.1 in the right-side directory→E.MC Corporation→Select the IO-Link model of the corresponding product and drag it to the actual IO-Link channe→S7-PCT tools Address Tab →Modify the output address Ouput Start → Click Load with Devices.

■ Parameter or apparatus

Acyclic data is exchanged and accessed through fixed indexes and sub-indexes, and can be read and writtenby library function IO_LINK_DEVICE in TIA Portal. Please refer to the instructions for details.

DPP	Index	SPDU	Sub-Index	Parameter	Length (Byte)	Zugriffs-recht	Default-Wert
Identification Data	07hex			Vendor ID	2	Read Only	0X0527
	08hex			Device ID	2		See Identification data for details
	0Ahex			Vendor Name	16		E.MC Corporation
	0Bhex			Vendor website	20		www.emc-machinery.cn
	10hex	0		Product name	8		See Identification data for details
	11hex	0		Product ID	10		See Identification data for details
	12hex	0		Product text	14		Valve Terminal
	13hex	0		Hardware Revision	3		1.0
	14hex	0		Firmware Revision	3		1.0
	17hex	0		Fault Count	2		0hex
Parameter Data	20hex	0		Process Data	Lk16: 2 Lk32: 4		0hex
	29hex	0					

■ Identification data

Product name	Product ID	Device ID
ESV-LK16	1479000074	7416
ESV-LK32	1479000075	7532

■ Error Code

Error Code	Description
0X8011	Index not available
0X8012	Subindex not available
0X8023	Access Denied
0X8033	Parameter length overrun
0X8034	Parameter length underrun
0X8035	Function not available

■ Events

Event Code	Description
0X5112	Secondary supply voltage fault
0X1813	C/Q current out of limit
0X4000	Over load or short circuit

■ Note

- If any doubts please contact with E·MC.
- E·MC reserve the right for final interpretation, if any change without notice in advance.



E · MC GROUP
www.emc-machinery.com
TEL: +86-574-88847888
FAX: +86-574-28565767
E-Mail: pneumatic@emc-machinery.com
ADD: No.288 jiangning Road,Fenghua,
Ningbo,China,315504