WUXI XINMING
AUTO-CONTROL VALVES INDUSTRY CO.,LTD
无锡鑫明自控阀业有限公司

智能阀门定位器
Smart Positioner

XM-E800 系列智能阀门定位器

Smart Positioner XM-E800 Series

应用 APPLICATION

XM-E800智能阀门定位器带有微处器，可用DC、4～20、mA信号控制，可支持HART通信与开度信号反馈输出。相比于机械式电-气阀门定位器更便捷，可提升调节阀的控制性，适用于多种不同规格阀门。本产品自主研发、本地化生产，具有最高的性价比。

XM-E800, which is a series of smart positioner with a microprocessor, is available for the DC 4 to 20 mA instrumentation and compatible with HART communication and travel transmission output. It is more convenient than E/P positioner, can improve the control performance of control valves, and is suitable for various valves. This product is independently developed and locally produced, with the highest cost-effectiveness.

调整方便：自动整定，能够识别出安装的执行器规格，并按照不同规格进行设定，并自动进行适当调整。简单的零点和量程调整，在调整零点和量程时，不会出现相互干扰的情况。即使变更其它设定，零点和量程点也不会发生变化。

Adjust easily: auto setup,this product recognizes the specifications of the mounted actuator, and automatically makes the appropriate settings and optimal adjus ments.Easy zero/span adjustment,no mutual interference occurs in the zero/span adjustment process. Both zero point and span point are independent parameter, remain unchanged even if other settings are changed.

适用于多种规格：在不更换任何部件的情况下更改数据设定即可适用于多种不同规格的阀门。控制参数可设定，输入范围（分程）、流量特性（线性、等百分比、快开或自定义用户特性）

A wide range of application: various specifications can be covered by changing the setting data.Configurable parameter,input range (split-range)Flow characteristic (linear, EQ%, Quick opening, user- defined custom value)

调节阀在线监控：可使用 HART 通信器和调节阀维护支持系统对运行参数进行监控。

Online monitor: parameters can be monitored and optimized by HART communicator and Positioner Maintenance System.

阀门的强制关闭特性：可设定阀门关闭时的输入信号。

Forced valve shut-off feature,the user can set any input signal value as the low threshold that triggers valve shut-off.

维护方便：电气回路部分和气动回路完全隔离。标配自动/手动开关，方便确认阀门的工作状态。

Easy maintenance:the electrical circuit and air circuit are completely separate. As standard equipment, Auto/Manual switch is used to check the operation easily.

反馈信号功能：选配反馈信号（4～20mA）可远程监控调节阀的工作状态。（变送回路需独立电源）

Travel transmission:the status of the control valve can be remotely monitored through 4 - 20 mA signal by an optional transmitter. (independent power supply circuit)

适用于单作用或双作用型执行机构机构，需选配双作用放大器。

It is suitable for single or double-acting actuators, add a reversing relay to the output air connector.

标准规格 / GENERAL DATA

▶▶ 功能一览 FUNCTION OVERVIEW

项目 Project	功能 Function
输入信号范围 Signal range	可设定任何分程数值。 Any split-range value can be specified.
强制全开 / 全关 Forced fully open/closed	达到设定输入信号百分比时，可完全关闭或打开控制阀。 The control valve can be fully closed or opened securely when the percentage of input signal is reached.
用户自定义流量特性 Flow characteristics	使用 16 点折线可规定输入信号和阀门开度的关系使其与流程相比配。 The relationship between input signal and valve travel that is appropriate for the process can be defined by using a 16-point line graph.
反馈信号 Travel transmission	可设定任何分程数值。 Any split-range value can be specified.

▶▶ 标准规格 STANDARD SPECIFICATION

功能特性 Features	手动操作 Manual operation	自动/手动外部开关(仅限单作用执行机构) Auto/Manual external switch (Not available for double acting actuator)
	分程控制 Split control	4～20mA DC可分程控制 Configurable to any required range for split range.
	反馈信号（选配） Transmission (optional)	4～20mA DC输出信号监控阀门开度状况 Monitor of valve traval
	强制全开/全关 Forced fully open/closed	可设定在阀门到达全开或全关位置时，执行机械施加最大压力 The actuator can be maximum output when the percentage of input signal is reached
	流量特性 Flow characteristics	线性、等百分比、快开或自定义用户特性 Linear, Equal percentage, Quick opening, Custom user characteristics
	输出平衡压力 Output balanced pressure	55±5 %（仅限双作用型执行机构） 55±5 % for double acting actuator only
接口类型 Connections	气路接口-输出 Air connections-output	Rc1/4
	气路接口-输入 Air connections-input	Rc1/4
	压力表接口 Gauge connection	Rc1/8
	压力表单位 Gauge units	kPa
	电气接口 Electrical connections	1/2"NPT
环境温度 Ambient temperature	环境温度限制 Ambient temperature limits	防水型：-40℃～+100℃ General models 隔爆型：-40℃～+60℃ Flameproof 本安型：-40℃～+60℃ Intrinsically safe
电气参数 Electrical parameters	输入信号 Input signal	4～20 mA DC（可分程） (Split range available)
	通信方式（选配） Communication (optional)	可选HART通信 HART communication
	阻抗 resistance	400Ω ±5%(20℃)
	浪涌保护 Lightning protection	电压浪涌的峰值：12 kV Peak value of voltage surge 电流浪涌峰值：1000 A Peak value of current surge
仪表用气 Air supply	气源压力 Supply air pressure	140～700 kPa
	输出压力 Output air pressure	0～700 kPa
	定位器耗气量（单作用型） Air consumption (single)	4～20mA DC输出信号监控阀门开度状况 Monitor of valve traval
	定位器耗气量（单作用型） Air consumption (single)	4.5L/min(N)或以下：140kPa{1.4kgf/cm2}稳定供气压力，输出50% 4.5L/min (N) or less: with steady supply air pressure of 140 kPa {1.4 kgf/cm2} and output of 50 % 5.5L/min(N)或以下：280kPa{2.8kgf/cm2}稳定供气压力，输出50% 5.5L/min (N) or less: with steady supply air pressure of 280 kPa {2.8 kgf/cm2} and output of 50 % 6.5L/min(N)或以下：500kPa{5.0kgf/cm2}稳定供气压力，输出50% 6.5L/min (N) or less: with steady supply air pressure of 500 kPa {5.0 kgf/cm2} and output of 50 %
	定位器耗气量（双作用型） Air consumption (double)	10 L/min(N)或以下：400kPa{4.0 kgf/cm2}稳定供气压力 10 L/min (N) or less: steady supply air pressure of 400 kPa {4.0 kgf/cm2}, with a reversing relay
	流量（单作用型） Maximum flowrate (single)	在140 kPa{1.4kgf/cm2}下最大为110L/min(N) 110 L/min (N) maximum at 140 kPa {1.4 kgf/cm2}
	流量（双作用型） Maximum flowrate (double)	在400 kPa{4.0kgf/cm2}下最大为250L/min(N) 250 L/min (N) maximum at 400 kPa {4.0 kgf/cm2} with a reversing relay

▶▶ 标准规格 STANDARD SPECIFICATION

供气相关 Conditions of supply air	环境湿度限制 Ambient humidity limits	10～90% RH
	压缩空气颗粒度 Particles	5μm以下 Maximum diameter 5μm
	油雾 Oil mist	小于1ppm Less than 1 ppm at mass
	供气温度 Humidity of the air supply	露点应低于该装置温度 10° C 以上 The dew point should be at least 10 ° C lower than the temperature of this device
	空气净化装置 Air purification device	管路过滤器、湿气分离器 Line filter, moisture separators
性能参数 Performance	线性 Accuracy	±1%F.S.（独立直线性：±0.5%）（用户自定义流量特性为±2.5%） ±1.0 % F.S.(Independent linearity: ±0.5%)(±2.5 % with user-defined flow characteristics)
	灵敏度 Sensitivity	0.3%F.S.
	重复精度 Accuracy of repetition	0.4%
	反馈信号精度 Travel transmission accuracy	±1.0 %F.S（用户自定义流量特性为±2.5 %） ±1.0 % F.S.(±2.5 % with user-defined flow characteristics)
	阀杆行程范围 Stroke coverage	≤110 mm
外壳相关 Enclosure	重量 Weight	2.2Kg
	材料 Material	铸铝 Cast aluminum
	外形尺寸 Dimensions	216x150x90mm
	颜色 Color	黑色 Black
	防腐涂装 Finish	铝合金表面处理：钝化处理；防腐涂装：聚氨酯烤漆 Silver finish: Passivation; Corrosion proof finish: Baked Urethane
	防水 Protection classification	IP66
	压力表材质 Gauge Material	铜、不锈钢 Copper, stainless steel

▶▶ 型号选择 MODEL SELECTION

型号示例：XM-E801-S1（XM-E800系列带HART、不带位置反馈信号、常温型、IP66防水型定位器）
Model example: XM-E801-S1 (XM-E800 series with HART, without position feedback signal, normal temperature type, IP66 waterproof positioner)

固定代号 Basic model number	XM-E8	（1）	-	（2）	（3）
可选型号 OPTION（1）	控制信号:4～20mA DC+HART，反馈信号：无 Input: 4~20mA DC+HART,Transmission: Without	01	-		
	控制信号：4～20mA DC，反馈信号：带 Input: 4~20mA DC,Transmission: With	02			
	控制信号：4～20mA DC+HART，反馈信号：带 Input:4~20mA DC+HART,Transmission:With	03			
可选型号 OPTION（2）	常温型（-20至+60度） Standard: -20~+60℃			S	
	低温型（-40至+40度） Low-temperature: -40~+40℃			L	
	高温型（0至+100度） High-temperature: 0~+100℃			H	
可选型号 OPTION（3）	防水型-IP66（注释1） Water-proof type IP66(Note 1)				1
	隔爆型（⚠ 注释2） Flameproof (Note 2)				2
	本安型（⚠ 注释3） Intrinsically safe (Note 3)				3

注释1：防水型定位器可选高温型、低温型和常温型。
Note 1: Water-proof model is available in Standard, low-temperature and high-temperature.

注释2：隔爆型定位器无高温型！
Note 2: Flameproof model is unavailable in high-temperature!

注释3：本安型定位器无高温型！
Note 3: Intrinsically safe model is unavailable in high-temperature!

▶▶ 标准规格 STANDARD SPECIFICATION

1.输入范围 Input range	4～20 mA（默认）范围内可设定 4 to 20 mA (default)
2.输出特性*1 Output characteristic	线性（默认）、等百分比、快开或用户自定义 Liner (default) ,EQ, QO or custom setting by user
3.调节阀运行*2 Copper, stainless steel	正向（向阀门轴从主机中拔出的方向打开阀门）（默认） Direct (Push down to close)(default)
	反向（向阀门轴从主机中拔出的方向关闭阀门） Reverse (Push down to open) can be ordered or set by use
4.反馈信号形式 Travel transmission	仅限4～20 mA模拟输出 4 to 20 mA only

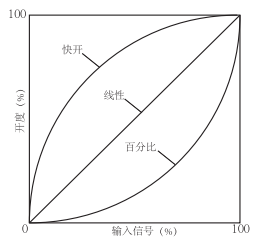


图1.输入输出特性

输入输出特性选择
通过选择阀门流量特性可设定调节阀的流量特性，且定位器的输入输出特性必须设定为线性特性。但是，如果受限于调节阀形状和结构的阀门流量特性不满足要求，可如表 1 所示，通过“等百分比”或“快开”设定定位器的输入输出特性，从而校正调节阀的总体流量特性。

表 1. 通过定位器校正调节阀流量特性

阀门流量特性	定位器输入– 输出特性	调节阀总体流量特性
线性	快开	快开
线性	等百分比	等百分比
等百分比	快开	线性

注:若阀门流量特性为“快开”，则即便将定位器输入输出特性设定为“等百分比”，调节阀的总流量特性也不可能为线性特性。（原因在于，当阀门流量特性为“快开”时，调节阀就被用作开/关阀，因此通过修改定位器特性也难以校正阀门流量的特性）

*1.请参考以下内容选择输入输出特性。
Refer to the following when selecting the input/output characteristics.

*2.由于不同于执行机构作用，因此请谨慎选择。
Positioner action differs from actuator and control valve action, so be careful in selecting the positioner’s action.

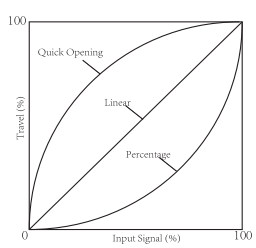


Figure1. Input–output characterization

Selection of input characterization
The flow characteristic of a control valve is set by selecting the valve plug characteristic, and the input–output characteristics of the positioner must be specified as linear. However, if the valve plug flow characteristic, which depends on the control valve’s shape and structure, does not meet requirements, you can correct the overall flow characteristic of the control valve by specifying “equal percentage” or “quick opening” for the input–output characteristics of the positioner, as shown in Table 1.

Table 1. Control valve flow characteristics correction by the positioner

Characteristic of valve plug	Input–output characterization of positioner	Overall flow characteristic of control valve
Linear	Quick opening	Quick opening
Linear	EQ%	EQ%
EQ%	Quick opening	Linear

Note: If the valve plug characteristic is “quick opening,” the overall flow characteristic of the control valve cannot be linear even if “equal percentage” is set for the positioner’s input–output char– acteristics. (This is because when the valve plug characteristic is “quick opening,” the control valve works as an ON/OFF valve and it is difficult to correct its characteristics by changing the setting of the positioner)

接线示意图 WIRING DIAGRAM

请参阅以下图 2 和图 3 。
Figures 2 and 3 show the wiring diagrams.

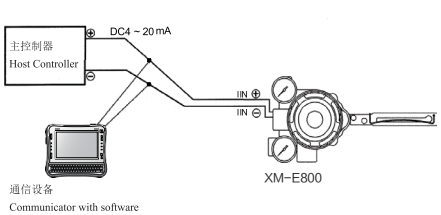


图2.不带反馈信号功能的定位器
Figure 2.Positioner without travel transmission function

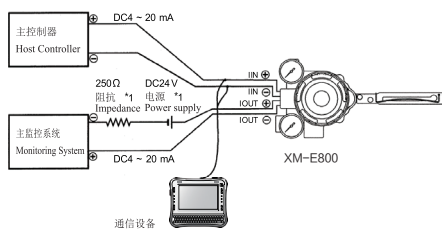
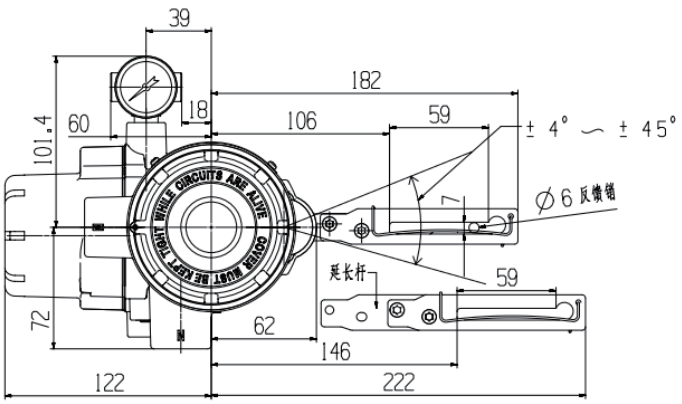


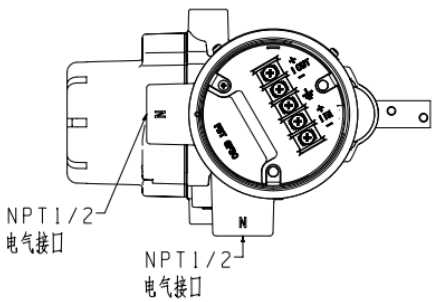
图3.带反馈信号功能的定位器
Figure 3.Positioner with travel transmission function

▶▶ 标准规格 STANDARD SPECIFICATION

单作用
Single action

[单位： mm]
[Unit:mm]

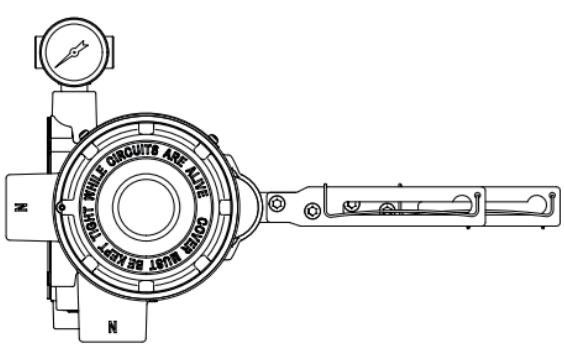


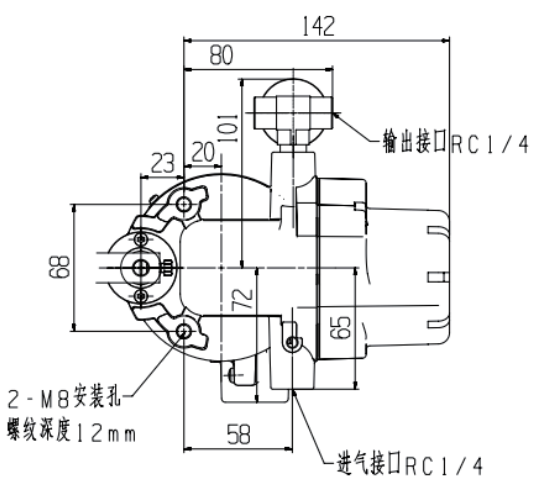


电气连接口 Electrical connection	输出空气管接口 Air piping connection
1/2NPT	1/4NPT
M20 × 1.5（可选）	1/4NPT

单作用
Single action

[单位： mm]
[Unit:mm]

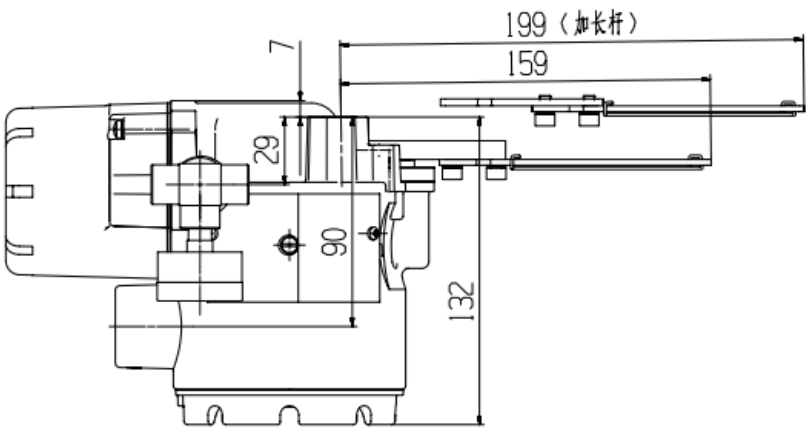


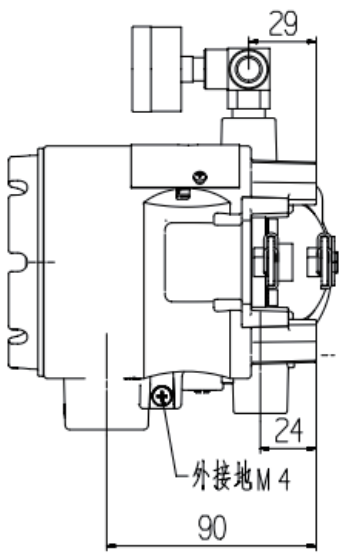


▶▶ 标准规格 STANDARD SPECIFICATION

单作用
Single action

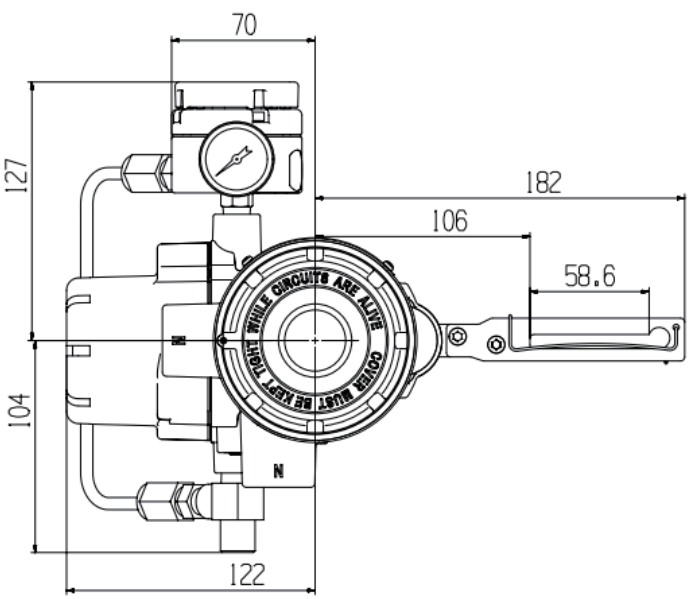
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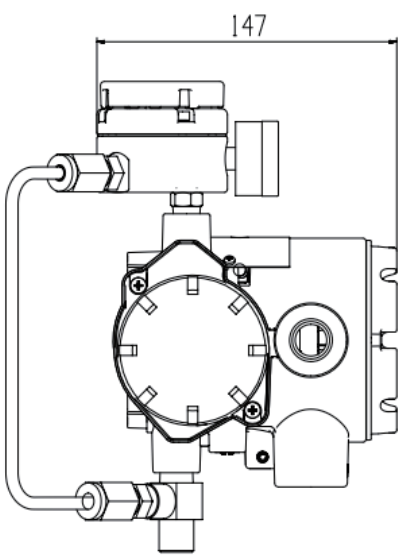




双作用
Dual action

[单位： mm]
[Unit:mm]





无锡鑫明自控阀业有限公司
WUXI XINMING AUTO-CONTROL VALVES INDUSTRY CO.,LTD.

地址:江苏省无锡市惠山区洛社镇振杨路6号 邮编：214154
电话：0510-83569699 传真：0510-83568179
E-mail: sales@xmzkf.com

www.xmzkf.com

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