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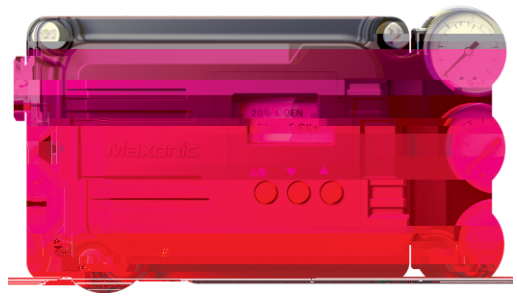
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MVP

MVP SMART POSITIONER

↘ 3800

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4.1

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4J1 MVm

4.2 Ė
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4.2.1 * Ė a =* Ė * Ė * Ė * Ė * Ė * Ė * Ė

===== 4-2 4-2

LCD LCD NOINI 50.0

===== 4J3

4J3 4J4

50%

4-3

40° 60°

4.2.3

N	4		D6
O	4		D6
P	4		M6×12
Q	1		
R	1		M4×5
S	1		
T	2		
U	1		
V	1		M6
NM	4		M5×12
NN	4		D5
NO	4		D5
13	4		M5×12
14	4		D5
15	4		D5



4J6

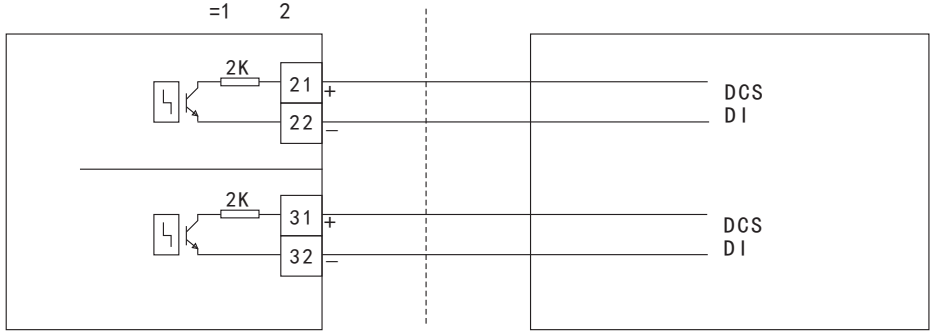
===== MKNQ MKTjm~
===== I
=====
===== Q Q
===== NMh

4.4
4.4.1

4.4.3
4.4.3.1 4-9

======== Q 0M«^=DC=
======== PK8«^=DC
======== 455 C]0M«^ e^oq L=550 C]0M«^ e^oq

=1 2



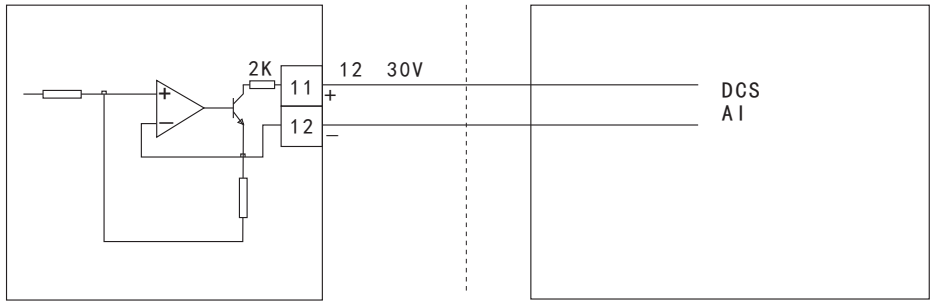
4J10

4.4.3.3 QJN1

Q OM«^=a`

===== ==== NMM®®«L
===== =PKS= =OMKR=«^=a`
===== ==== MKNB
===== =NO PMs=a`

=1 2



4J11

5 MVP

5.1

1、 (5.3.4)

2、

04 TYPE , TURN ,

LINE/LINE2/LINE3/LINE4( )。

3 (5.4)

4

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5

A/M 4~20mA

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5.2

LCD

1

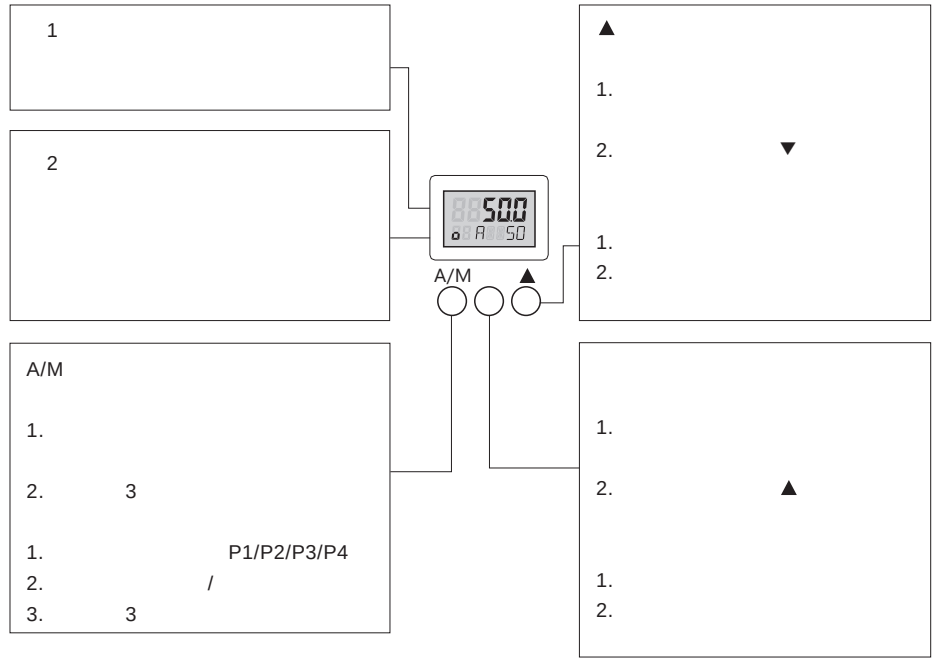
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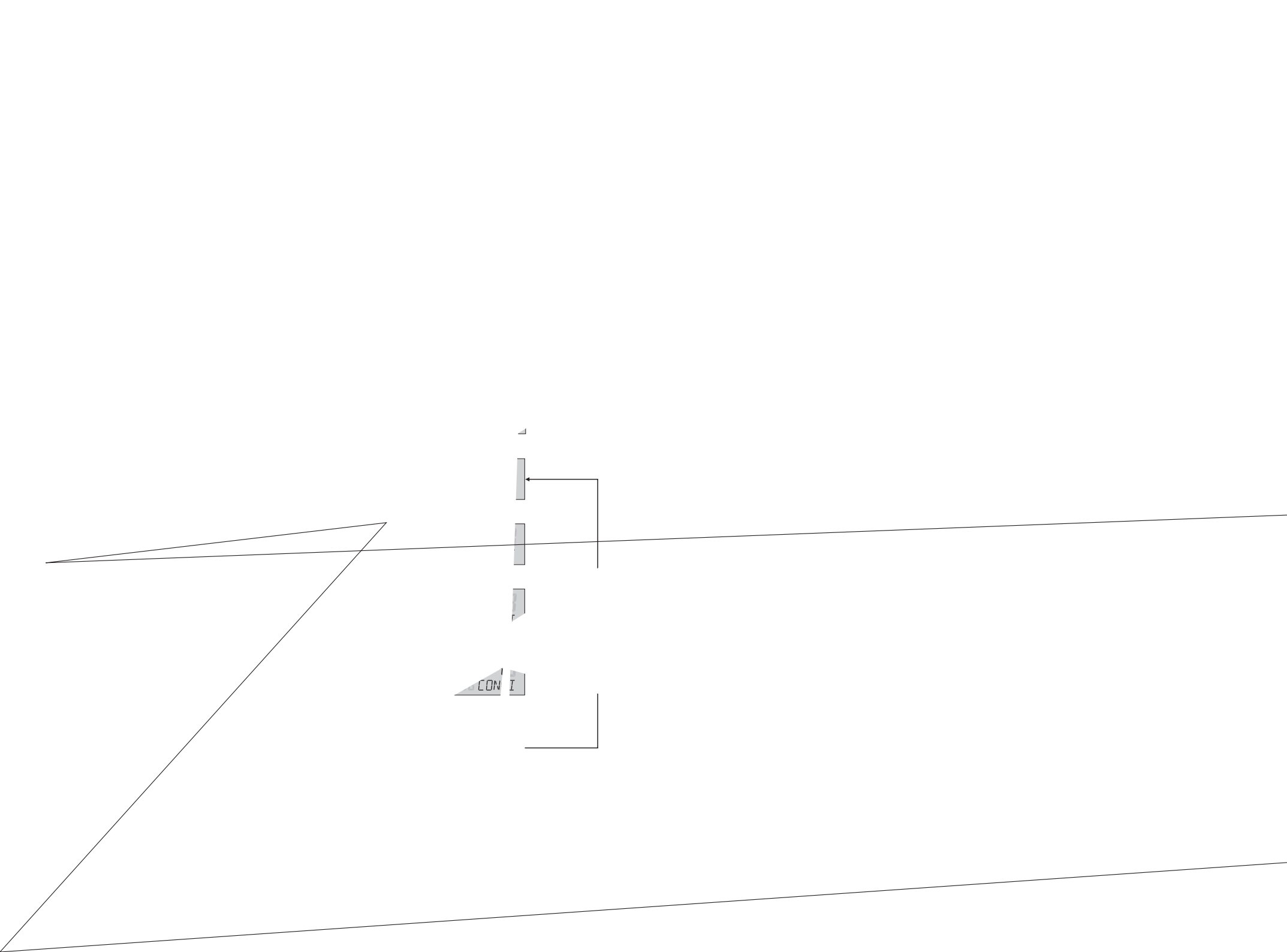
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i	JNM i`a

5-1



5-1


CON I

5.4.2

1). A/M 3



2). ▲ 1 “No” 2 “INIA”

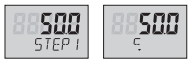


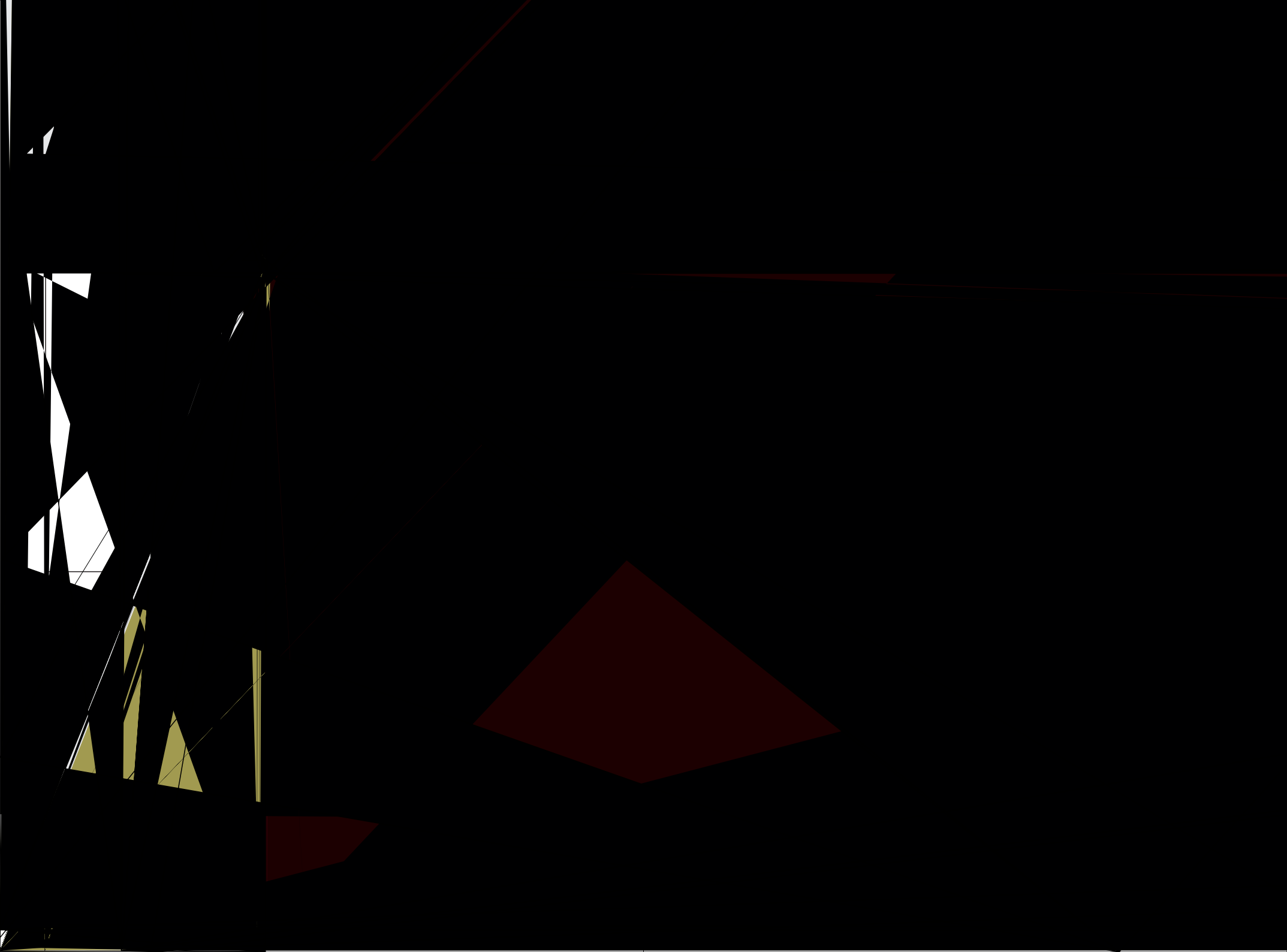
3). A/M 2 INIA

4). ▲ 1 “START” 3



5). “STEP1” “STEP5” 2







6.DEBA

DEBA =AUTO

DEBA

7.HYST

HYST =AUTO DEBA

HYST

8.PRST

i

9.SDIR

6-1

SDIR	RISE	4mA	0	20mA	100%
SDIR	FALL	4mA	100	20mA	0%

10.SPRA

6-1 ÿ

11.SPRE

6-1

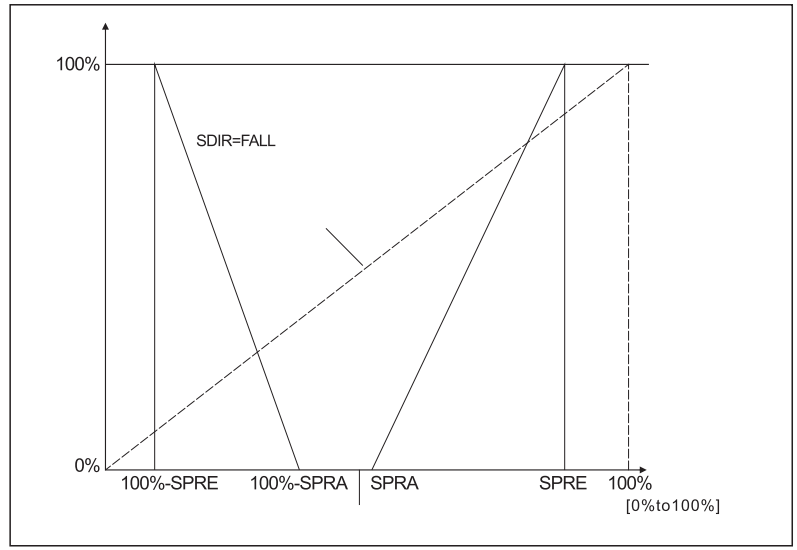
“SPRA” “SPRE” “SDIR”

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15.SP00 35.SP20

20

SFCT=FREE

36.YA

37.YE

YA YE
YE YA

38.YDIR

YDIR=RISE
YDIR=FALL

39.YCDW

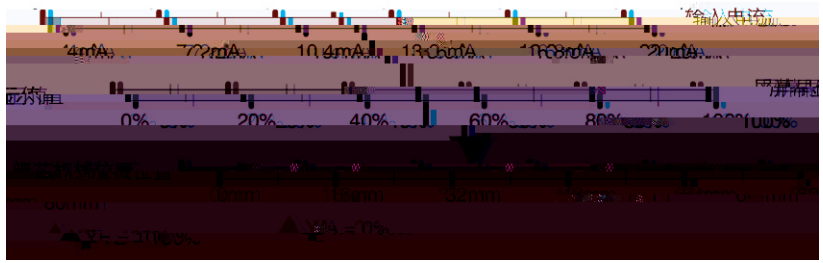
40.YCUP

41.YNRM

36 37

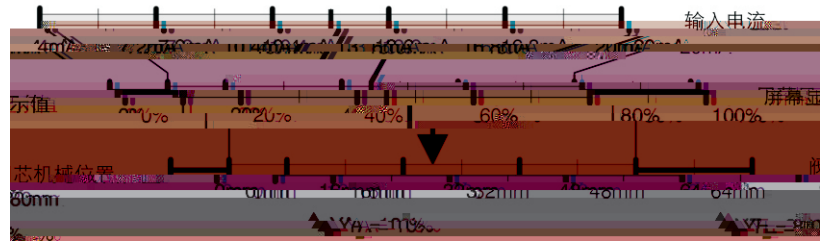
1 YA=0% YE=100% YNRM MPOS FLOW

50%

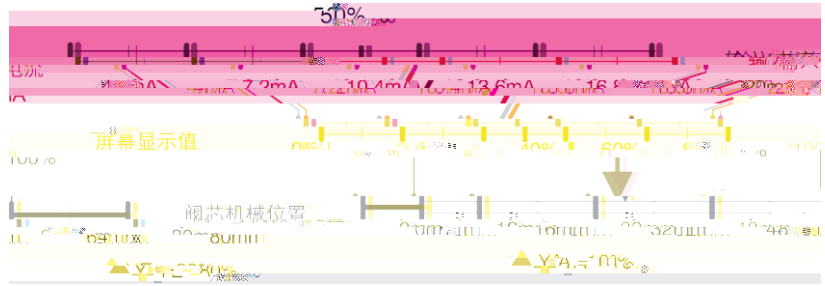


2 YA=10% YE=80% YNRM=MPOS

50%



3 YA=10% YE=80% YNRM=FLOW



44.DO1F

45.DO1V

1
DO1F=LSET DO1F=HSET DO1V DO1

46.DO2F

47.DO2V

2
DO2F=LSET DO2F=HSET DO2V DO2

48.AMIN

0%

8 MVP

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===== J40 ~80 75%

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9、产品选型 MVP

9.1

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		R
		1
		2
	/	D
	/	3
	/	E
	/	L
		0
	HART	H
	Profibus PA	P
	FF	F
		0
	4~20mA	F
		0
		1
	M20x1.5 / G1/4	
/	M20x1.5 / 1/4NPT	G
	1/2NPT / 1/4NPT	N
	1/2NPT / G1/4	M
		P
		0
		1
		2
		G
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======== 1 Profibus=PA/FF 4¼20mA

2 : ?5kA , 10kV?

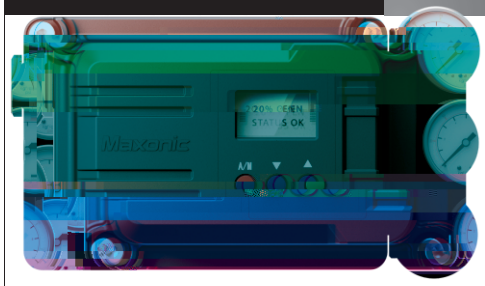
3 ?D/E? J30˚C, ?3/L? J40˚C

======== 4 I

======== 5 :

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Maxonic



MVP SMART VALVE POSITIONER

MVP3800 Series User Manual

Answers for industry

Maxonic

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4000 300 112

Ver 202512

^ -³²²¦§±=d³§¢£

This instruction manual applies to the MVP3800 Smart Positioner.

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In no case does this manual guarantee the merchantability of the positioner or its adaptability to a specific client needs. Please report any errors or questions about the information in this manual to your local supplier or MAXONIC.

afp` i^f j bo

THESE INSTRUCTIONS ASSUME THAT OPERATORS ALREADY HAVE A GENERAL UNDERSTANDING OF THE REQUIREMENTS FOR SAFE OPERATION OF MECHANICAL AND ELECTRICAL EQUIPMENT IN POTENTIALLY HAZARDOUS ENVIRONMENTS. THEREFORE, THESE INSTRUCTIONS SHOULD BE INTERPRETED AND APPLIED IN CONJUNCTION WITH THE SAFETY RULES AND REGULATIONS APPLICABLE AT THE SITE AND THE PARTICULAR REQUIREMENTS FOR OPERATION OF OTHER EQUIPMENT AT THE SITE.

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Document Changes

Version/Date	Changes
A0/02-2026	Original Release.

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1、r±£°÷¬-²§¡£ MVP >>>>>

⚠	WARNING	Potentially hazardous situation! Non-observance could result in serious injury!
⚠	NOTICE	Hazardous situation! Non-observance may result in minor ormoderate injury!
i	NOTE	Important information in order to understand the machine for optimized operation !

1.2 p~¤£²· ~¬¢ ¡~³²§-¬±

i

1. The design of this equipment meets the intrinsic safety requirements , and it is safe and effective when the factory is tested out of the factory。
2. This equipment is complied with the relevant rules and standards。
3. The equipment manufacturer reserves the right to modify technical parameters without prior notice。
4. The permitted storage transport and operating temperature must be observed。
5. The equipment must be connected in accordance with the connection diag(

1.3 r±£ ~±§¬²£¬¢£¢

⚠

1. Except for the application scope specified in this manual, any other application scope will pose a threat to the safety of personnel and the entire equipment system, and its use is prohibited.
2. The manufacturer is not responsible for damages caused by improper operation or non-designated use.

1.Q f¬±²~ªª ~¬¢ « ~§¬²~§¬ -®£°~²§-¬

1. Installation, commissioning, operation, maintenance and repair of the instrument requires special knowledge and should be performed only by qualified personnel.
2. For installing this instrument, the operator must read the user's manual and comply with the rules.
3. When theinstrument is installed, it should be in the state of power off and no external load is overstressed.
4. The instrumentmust not be modified or repaired unless the user is according to the manual.
5. Repairs that are not described in the supplied operation manual may only be carried out directly by the manufacturer or by the service organization.
6. If the welding operation is carried out near the equipment, the grounding of the welding equipment must not be carried out through this equipment.

1.R i§±²=-¤¢£ª§´£°·

MVP smart valve positioner
User's manual
Ordered spare parts (Optional)

2、p³ « «~°·

MVP smart valve positioner is a two-wire system instrument made by Maxonic. The positioner is a control accessory of pneumatic valve. It is widely used in automatic control systems of petroleum, chemical, electricity, metallurgy, paper and pulp industry and other fields.

MVP smart valve positioner accepts the 4~20mA valve setting analog signal from the control system. This valve setting value will be converted by an analog to digital converter (ADC) to digital signal then input to CPU. At the same time, instrument gets the actual valve position from location sensors. The two signals are compared by the instrument software so as to control the intake and exhaust of the pneumatic actuator, and drive the valve to reach setpoint (refer to Figure2-1)

MVP smart valve positioned is based on microprocessor technology. It can overcome friction and the imbalance power on the control valve well, and improve the response speed of control valve, which makes the position set rapidly and accurately. It is not only able to completely substitute conventional valve positioner, but also is able to directly access HART network, exchanging information between control system and positioner.

MVP smart valve positioner is complied with the:
GB/T 3836.1-2021 Explosive atmospheres - Part 1: Equipment - General requirements;
GB/T 3836.2-2021 Explosive atmospheres - Part 2: Equipment protection by flameproof enclosures "d";

GB/T 3836.31-2021 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosures "t";
It has been inspected and approved by a nationally recognized certification body for explosion-proof electrical products, and has obtained the China Compulsory Certification (CCC) for explosion protection.
The explosion-proof marking is Ex db IIC T4...T6 Gb, suitable for explosive gas atmospheres; the explosion-proof marking is Ex tb IIIC T80°C...T130°C Db, suitable for explosive dust atmospheres.

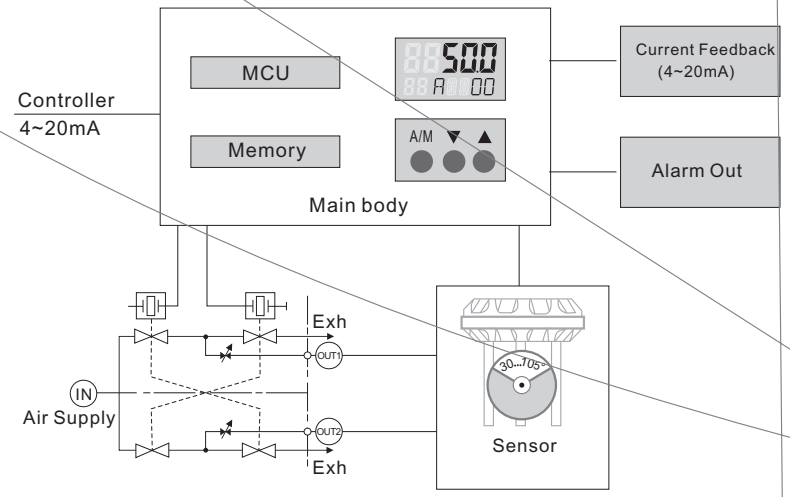


Fig 2-1：MVP Valve Positioner Principle

0.N c³¬¡²§-¬±

p£ª¤J~¢~®²§-¬:¤³¬¡²§-¬₩=automatically set the Zero and Span of control valve, and optimize the control parameters to improve the control precision.

`-¬¤§¥³°~²§-¬:¤³¬¡²§-¬₩ valve characteristic curve, action mode, dead band, stroke range, shut-off value, and alarm events.

p£ª¤J¢§~¥¬-±§±:¤³¬¡²§-¬₩ show the value of setpoint current, travel time, and dead band.

c~³ª²=« -¢£:¤³¬¡²§-¬₩=fail safe (function open/close) or fail freeze (function hold).

`-« « ³¬§¡~²§-¬:¤³¬¡²§-¬₩=HART communication protocol.

c££¢ ~¡©:¤³¬¡²§-¬₩ 4~20mADC valve position feedback signal, switch valve feedback signal.

SSS

2.2 j ~§¬ c£~²³°£±

- ☞ Positioning precision: 0.5%F.S.
- ☞ The operation does not need to open the cover.
- ☞ Simple and compact design, modular construction.
- ☞ Automatic initialization, automatic diagnosis, dynamic setting of valve characteristic curve.
- ☞ Less components, better anti-vibration performance.
- ☞ Local or remote parameters configuration.
- ☞ Less power and air consumption, less operation cost for customers.
- ☞ Two-wire supply in 4-20mA standard.
- ☞ The integrated lightning protection module can be selected to reduce the damage probability of the locator due to the surge of lightning.

2.3 f¬²£¥°~²£¢ ª§¥¦²¬§¬¥ ®°-²£¡²§-¬

With the development of technologies, the smart valve positioner becomes more smart with communication bus technology. Therefore, it is inevitable to use a number of highly integrated components, which will depress the performance of overcoming overvoltage, over current and anti-surge. When lightning coming, these components can be easily damaged, which will lead to positioner failure. If the control valve is usefor critical process control or on high reliability position, the lightning may cause production out of control or accident because of the sudden failure of the positioner. Normal smart valve positioner is easy to be damaged by lightning. It is dangerous for production activities. In order to solve this problem, MVP has surge protection function by a built-in surge discharge circuit.

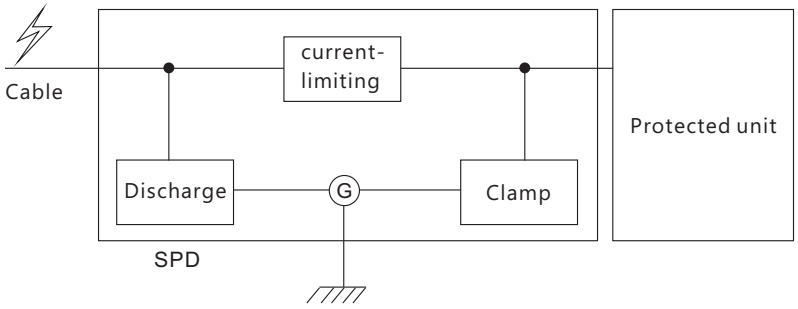


Fig 2-2：MVP Block diagram of lightning protection

⚠	1. The lightning protection function is an optional function; 2. It must be grounded according to relevant standards, when installing the lightning protection positioner.

OKQ=m~°²±=~¬¢=^±±£« ª·



Fig 2-3：Exploded view

1. Base Cover
2. I/P Module
3. Base body
4. Gauge block
5. Main shaft
6. Magnet
7. Cable glands
8. Feedback sensor
9. Main Control Board

3、q£¡¦¬§¡~ª a~²~

Pneumatic	Supply Air Pressure	0.14~0.7 MPa
	Valve Leakage	< 0.6L / H
	Air Consumption	< 36L / H
	Air Supply	According to ISO8573-1,Size and density of particlates: Class 4 Oil concentration：Class 4 Dew point：Class 4 or 10K below operating temperature
	Actuator	Single acting,Double acting
	Travel Range[1]	Linear:10~130mm Rotation angle: 30~160°
Input/Output	Input Current	4~20mA DC，Minimum input current>3.8mA DC; Split range start and end pont adjustable
	Feedback Output	4~20mA DC
	Digital Output	Electronic switch:2 channel
	Piezo Valves Switch Time	Average failure free time > 2 Billion
	Output Characteristic	Linear，1:30，30:1，User defined(20points)
	Communication	HART(HART7)
Display	LCD	2x7 digitals, dimension:22x38mm
	Pressure Gauge	Optional,displaying the and out pressure
Operate	Self Tuning	Automatic calibrate the Zero and Span,dead band
	Self Diagnose	Show the value of input current,travel time,dead band,etc
	Manual	3 Keys on the front panel
Precision	Dead Zone	0.1 ~ 10% adjustable
	Linearity	≤±0.5%F.S
	Hysteresis	≤0.5%F.S
Environment	Ambient Temperature	-40～+65℃(T6)/70℃(T5)/80℃(T4)
	Relative Humidity	5 ~ 95%RH
	Vibration Resistance	15 ~ 150Hz@2g
	IP Protection Level	IP66（According to customer needs）
	Explosion-Proof Type (Intrinsicall Safety)	Ex db IIC T4···T6 Gb Ex tb IIIC T80℃···T105℃ Db
Appearance	Weight	≥ 3 .2 kg(Pressure gauge assembly included)
	Dimension	206. 5×117. 4×107 mm
	HousingMaterial	AluminiumDiecasting / Stainless steel（Optional）

The default minimum operating ambient temperature is -30 ° C, and for the low-temperature type, it is -40 ° C.

4、f¬±²~ªª~²§-¬

4.1 a§«£¬±§-¬±

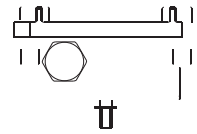


Fig 4-1：Product Dimension

4.2 f¬±²~ªª~²§-¬

4.2.1 General

Fig. 4-2 shows the positioner feedback indicator and the arrow which indicate the rotating range. The shown position is the middle position of the rotating range. Without initialization, the LCD feedback value should be about 50.0 and the bottom row displays NOINI. The two dotted lines are the limit positions of the feedback rotating range in normal status. The position sensor was adjusted before out of factory.

Fig.4-3 is the image which shows that positioner is mounted on a linear actuator with standard feedback lever. The recommended feedback angle is from 40° to 60°on a linear actuator.

Fig. 4-4 is the image which shows that positioner is mounted on a rotary actuator with standard feedback lever.

a rotary actuator

-6):

e positioner with hexagon head

scre d washers (Fig. 4-6/①).

actuator through hexagon head

nut(F

F head screw

(Fig.4-6

Scre

feedback le

Put the p

(Fig. 4-6/④) sho

the positioner, faste

positioner with hexagon

washers (Fig. 4-6/⑮). Adjust

requirements in §4.2.1.

i	1、Do not cover the exhaust with th 2、The feedback lever should comply to the the rotary actuator. 3、The feedback lever is horizontal when the valve is 50% opened fo the linear actuator.

4.4 bª£¡²°§¡~ª¯¡-¬¬£¡²§-¬

4.4.1 Electrical connection terminal

Terminal name	Signal name	Function
1+	Current input signal(+)	Connect the 4–20 mA control signal to this terminal to supply power and signal to the positioner.
2-	Current input signal(-)	
11+	Current output signal(+)	4–20 mA analog feedback signal indicating the current valve position.
12-	Current output signal(-)	
21+	Switch output signal1(+)	Alarm output 1: When the valve operates to the set alarm position, Output switch signals that comply with the NUMAR standard.
22-	Switch output signal1(-)	
31+	Switch output signal2(+)	Alarm output 2: When the valve operates to the set alarm position, Output switch signals that comply with the NUMAR standard.
32-	Switch output signal2(-)	

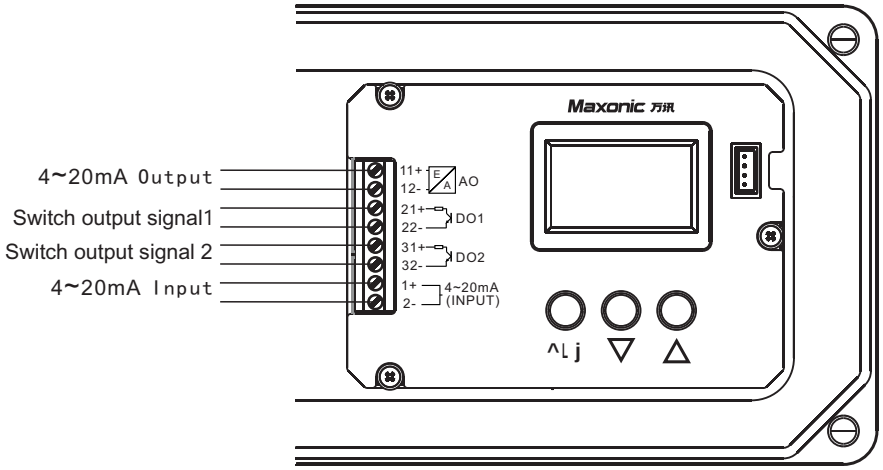


Fig 4-8：Electrical connection

4.4.2 Basic requirements

The electrical connections should be strictly in accordance with the connection diagram, and firmly fixed, and not be loose.

1.When the positioner is installed in a hazardous gas atmosphere, its cable entries must be fitted with cable glands or blanking elements that are certified by a nationally accredited inspection body, comply with the requirements of GB/T 3836.1-2021 and GB/T 3836.2-2021, and are maCa

4.4.3 Connection of flameproof version

4.4.3.1 Input electrical connection

Type: Two-wire system
Input:4~20mADC
Min. current:3.8mADC
Impedance :455Ω@20mA(no HART), 575Ω@20mA(with HART)

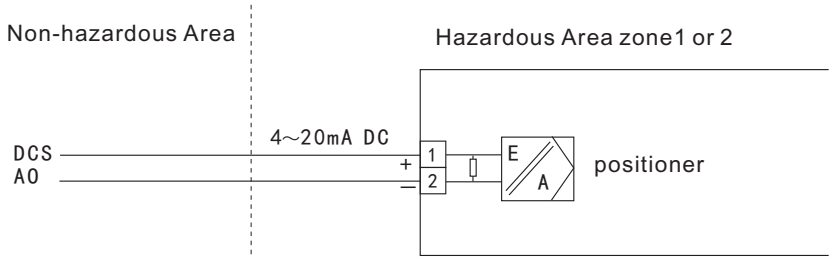


Fig 4-9：Input electrical connection

4.4.3.2 Digital output module electrical connection

Working Voltage：18~35V DC

Output signal:

Digital feedback module	Explosion-proof
Signal status"high"(trigger)	≥2.1 mA
Signal status"low"(No trigger)	≤1.2 mA

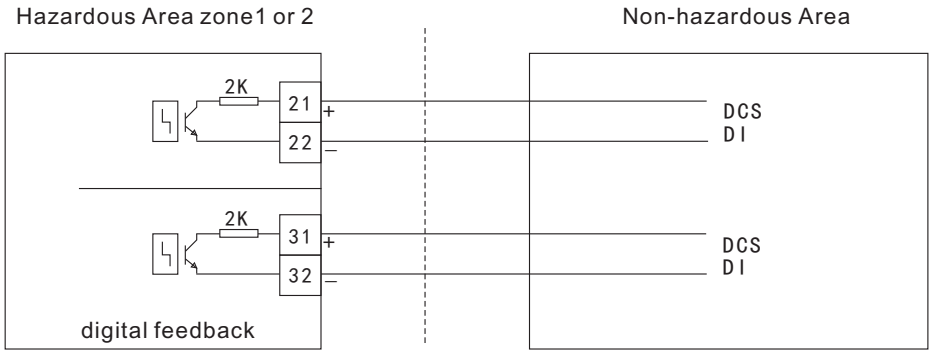


Fig.4-10 Digital output module electricalconnection

4.4.3.3 Analog feedback module electrical connection

Feedback signal type: Two-wire system,4~20mA DC
Temperature drift：≤100ppm/℃
Working range： 3.6 ~ 20.5 mA DC
Precision：≤0.1%
voltage:12 ~ 30VDC

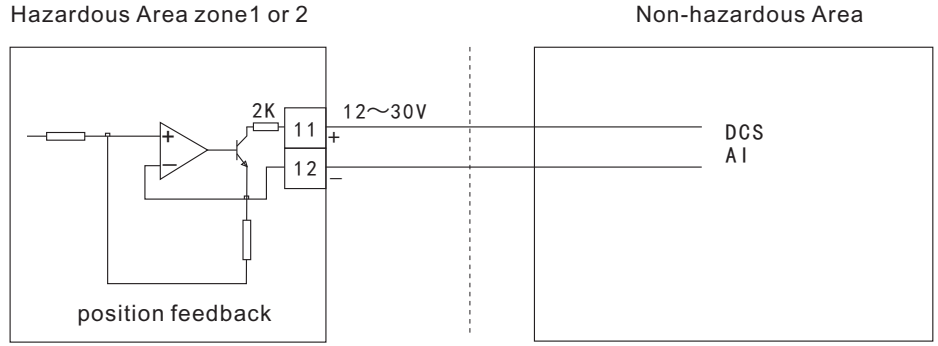


Fig.4-11 Analog feedback output module electronic connection

5、^¢¨³±²«£¬²±-®£°~²§-¬

5.1 ^¢¨³±²«£¬²±±²£®±

1、 Factory data reset(Refer §5.3.4)

2、Select the type of actuator

In the user menu, select 04 TYPE, Set according to the actuator type, choose Turn for rotary actuator and LINE/LINE2/LINE3/LINE4/LINE5/LINE6 for linear actuator (Refer to the parameter description).

3、Initialization(Refer §5.4)

4、User parameter Settings

After initialization is completed, set other parameters as needed.

5、Debugging result inspection

Press and hold the A/M key to exit the user menu and switch to the automatic control mode. Adjust the input 4-20mA control signal, and the positioner responds to the corresponding control action.

5.2 `-¬¤§¥³°~²§-¬~¬¢ |®£°~²§-¬

Display： The LCD display has two lines

In the normal mode：

The 1st line shows the position.

The 2nd line from left to righyt shows "Direction of the valve-action","The state of running", and "The setpoint".

In the Configuration menu state：

The 1st line shows the parameter value.

The 2nd line from left to right shows "Parameter"and "The parameter name".

i	If the positioner is operatedin ranges with temperatures below -10°C the LCD display becomes sluggish and the display refresh rate is reduced obviously.

Buttons：The positioner has three buttons (Fig 5-1)

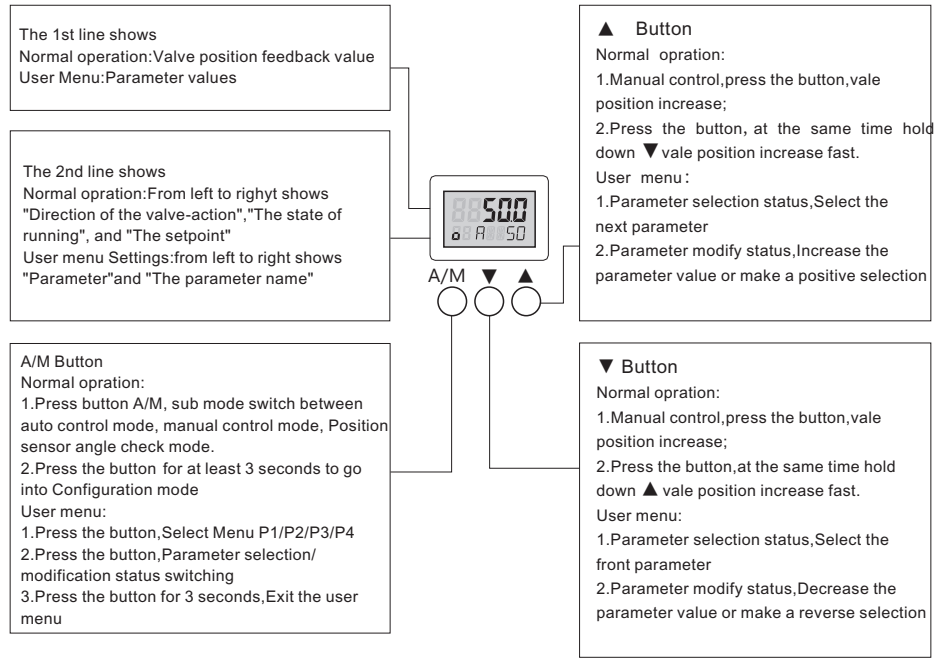


Fig 5-1：Operation interface diagram

i	1. Auto control mode:The 2nd line of LCD show "A" 2. Manual control mode:The 2nd line of LCD show "M" 3. Position sensor angle check mode:The 2nd line of LCD show " SENS"

5.3 r±£°«£«³

5.3.1 Entering configuration mode

In the normal mode,press the button A/M for at least 3 seconds to go into configuraton mode.

5.3.2 Choosing a parameter for configuration

In the user menu category selection state, the menus that users can choose from are divided into four categories: P1, P2, P3, P4, and P5.

Conversion of four types of menus: When any one of P1, P2, P3, P4, or P5 is displayed on the first line, press the A/M key to convert Loop through the menu class, as shown in Fig 5-2.

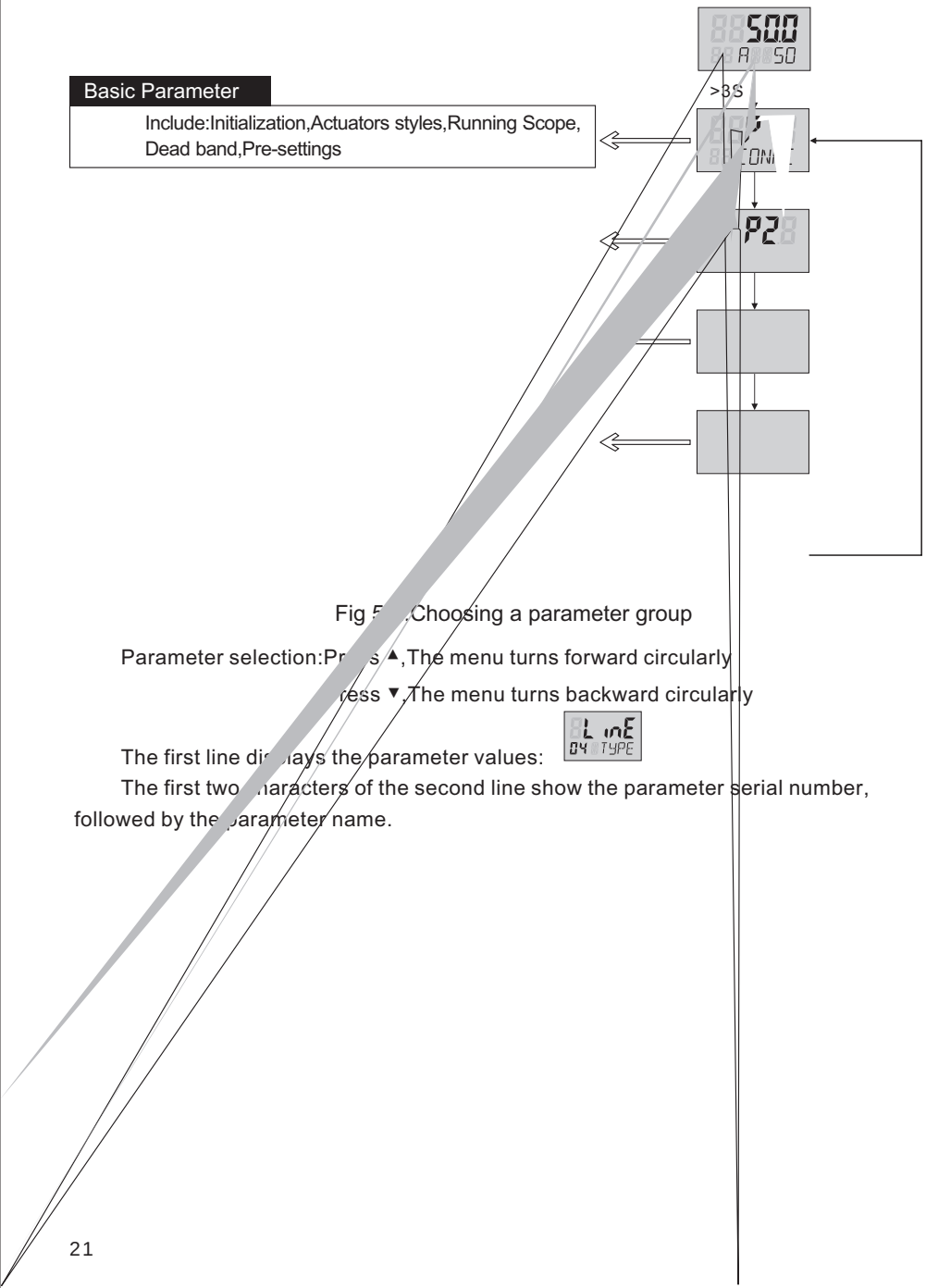


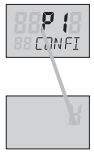
Fig 5-1 Choosing a parameter group

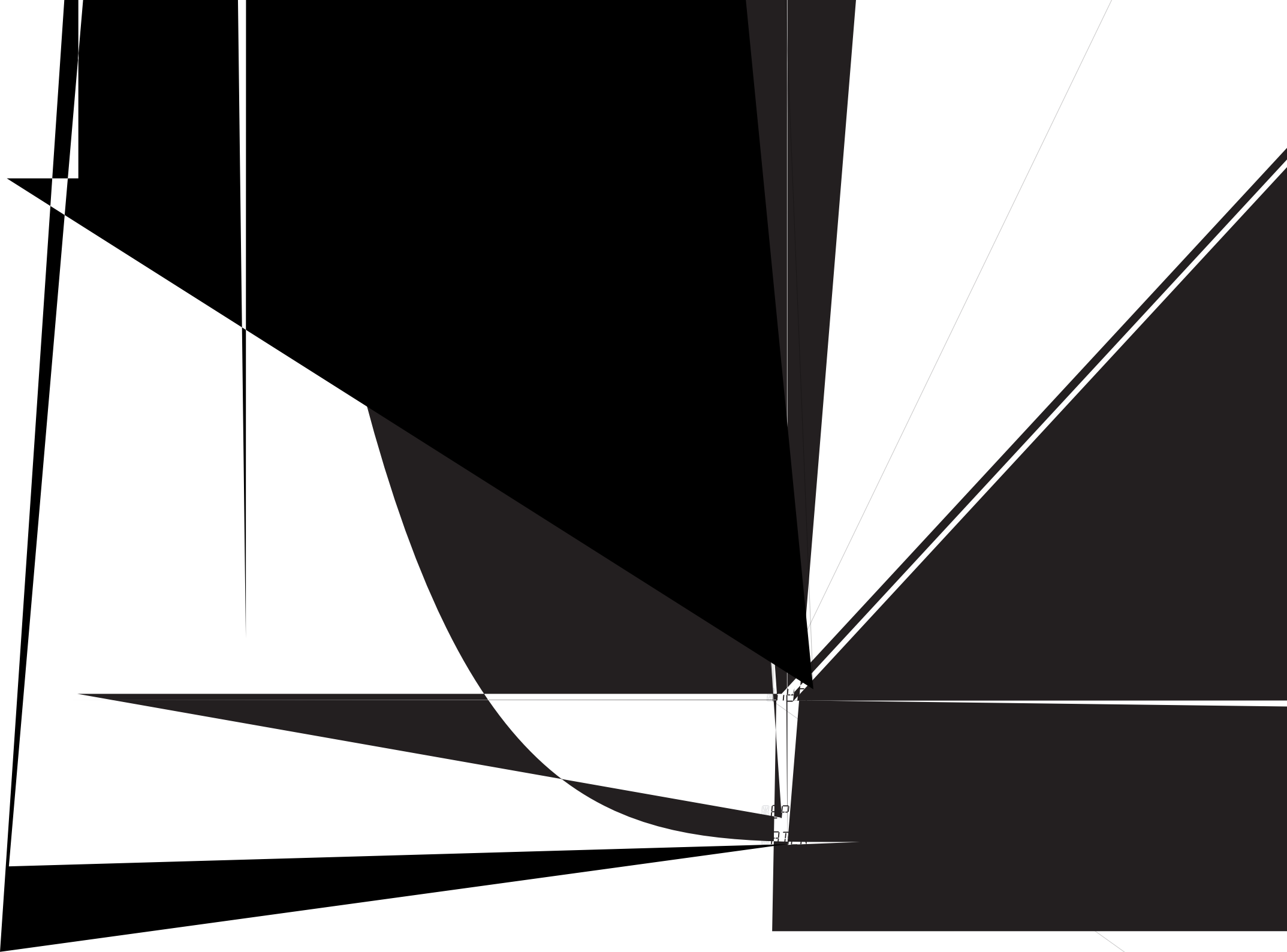
Parameter selection:Press ▲,The menu turns forward circularly

Press ▼,The menu turns backward circularly

The first line displays the parameter values:

The first two characters of the second line show the parameter serial number, followed by the parameter name.


P1
CONFI

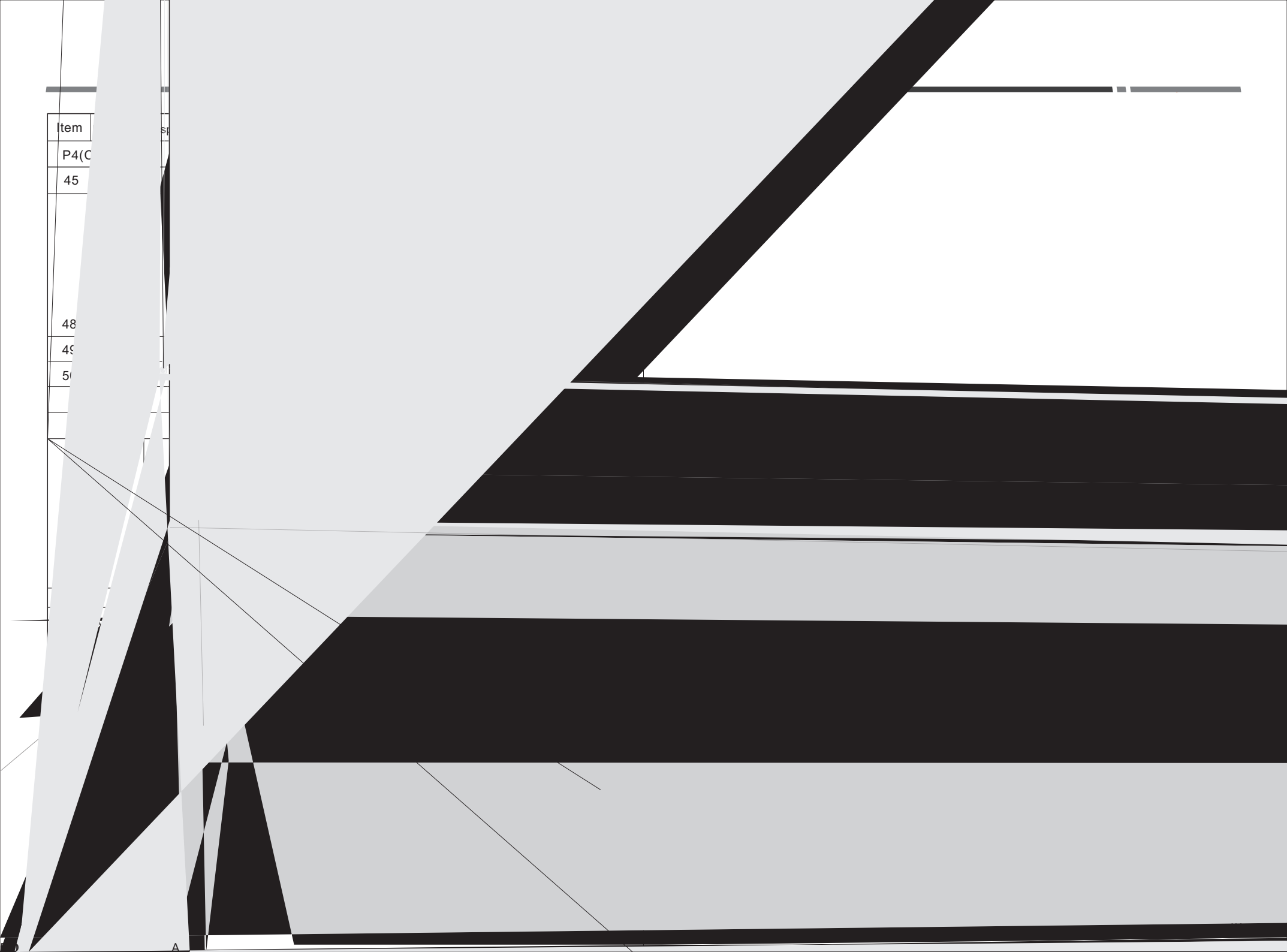




6、r ±£°=m~%

6.1 Parameter

Item	Parameter	D
P1		
01	A	
02		


Item
P4(C
45
48
49
5(
A

PRA

Split ra .6

PRE

Split ra se .6

The par "S d"S e ative setpoint range.

way, s ge t ca the oteristics.

Rising Fa

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a Fa g

Risi g



: Split

12.

eff

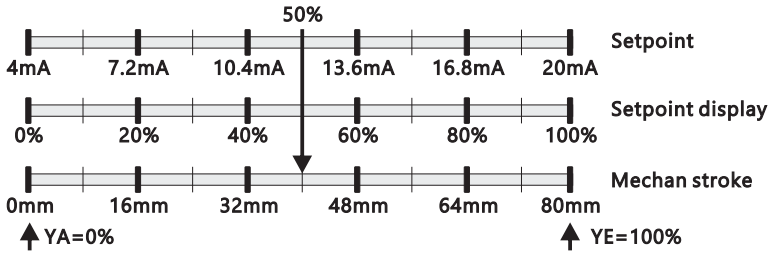
alt

anua

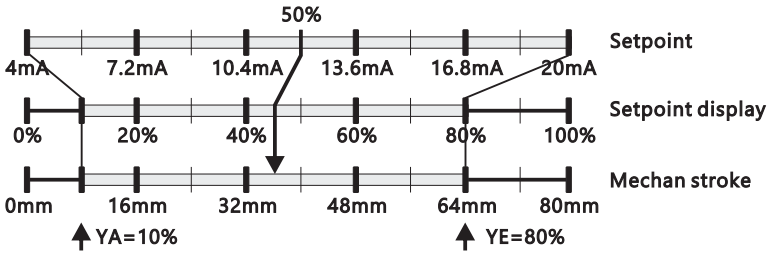
41.YNRM

The range standard of the control signal, this parameter is generally used in conjunction with parameters 36 and 37 to determine the control input signal The relationship between the number and the valve opening degree, for specific meanings, please refer to the following figure.

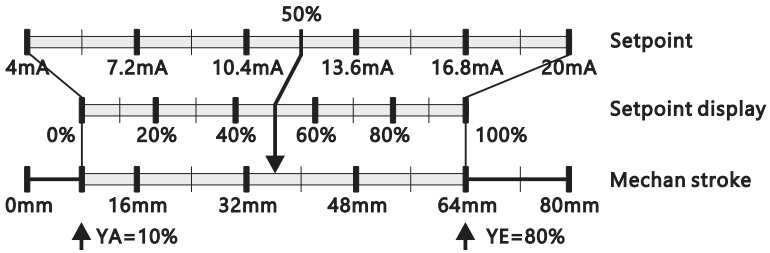
Status 1：YA=0% YE=100% YNRM=MPOS or FLOW



Status 2：YA=10% YE=80% YNRM=MPOS



Status 3：YA=10% YE=80% YNRM=FLOW



44.DO1

Digit output function 1

45.SW1

DO1 set value

DO1=LSET or DO1=HSET，SW1 is the alarm setting value of DO1.

46.DO2

Digit output function 2

47.SW2

DO2 set value

DO2=LSET or DO2=HSET，SW2 is the alarm setting value of DO2.

48.AMIN

Min output current

Min output current for the 0% position.

49.AMAX

Max output current

Max output current for the 100% position.

50.ADIR

Relation between the output current of position feedback module and valve position

There are two choices: RISE and FALL. When choosing RISE, output current will be 4mA when valve position is 0%; Output current will be 20mA when valve position is 100%. When choosing FALL, the result will be opposite.

51.PROT

Write protect for HART

PROT=ON: Write parameter is allowed by field communicator with HART protocol.

PROT=OFF: Write parameter is not allowed by field communicator with HART protocol.

52.ADDR

Communication address

HART address : 0~63;

PA address : 0~126.

53.SPSRC

Control signal source

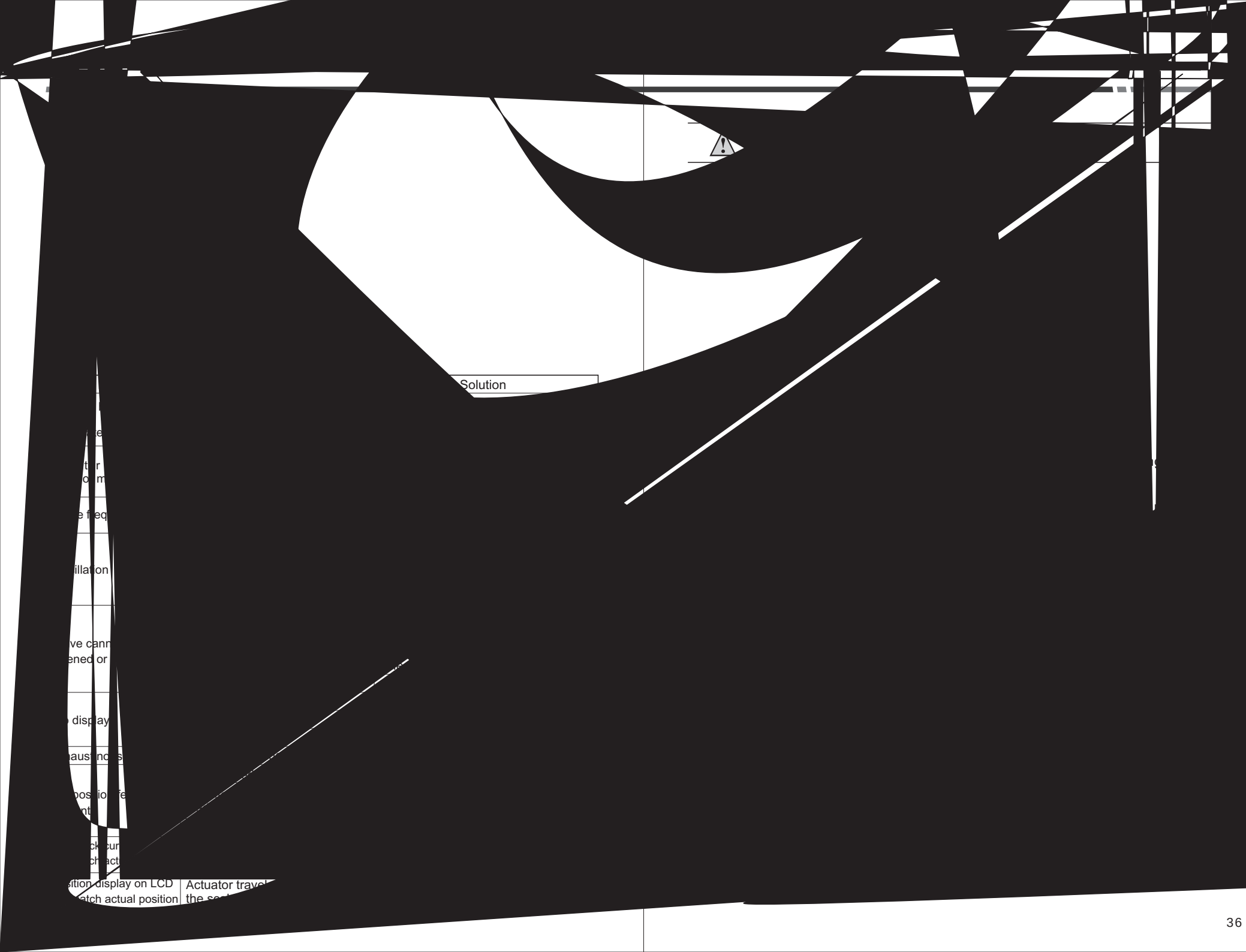
SPSRC=AIN : It is the analog control mode;

SPSRC=DIG : It is the digital control mode.

54.HTDVA

HART dynamic veriabl

0	PV:Setpoint(mA)	SV:Setpoint(%)	TV:Feedback(%)	QV:Temperature(℃)
1	PV:Setpoint(%)	SV:Feedback(%)	TV:Deviation(%)	QV:Temperature(℃)
2	PV:Setpoint(mA)	SV:Feedback(%)	TV:Temperature(℃)	QV:Feedback(%)
3	PV:Feedback(%)	SV:Setpoint(%)	TV:Feedback(%)	QV:Temperature(℃)
4	PV:Setpoint(%)	SV:Setpoint(%)	TV:Feedback(%)	QV:Temperature(℃)



	Solution

9、 l °¢£°§¬¥ f¬¤-° « ~²§-¬

9.1 q¦£ ¢£²~§ª ®°-¢³ ¡² « -¢£ª± §± §¬ ²¦£ ¤-ªª-µ§¬¥

Ordering data	
Fail mode	
Actuator type	
For actuator	
Explosion-proof type	
Communications	
Position	