1600 Series Intelligent Electropneumatic Valve Positioner

1600 Position controller
1601 Process controller

- **Compact stainless steel design**
- **Electrical waterproof connectors**
- **LCD with backlight**
- **Easy to start-up**
- **Rich additional software functions**

1600 series intelligent electro-pneumatic valve positioner is designed for integral pneumatic control valve, particularly suitable for angle seat valves and diaphr-agm valves.
The product is easy to operate and has rich software functions. It can easily be operated via the LCD and keypad.
The positioner adjusts the valve position quickly and accurately through detecting the position sensor signal.

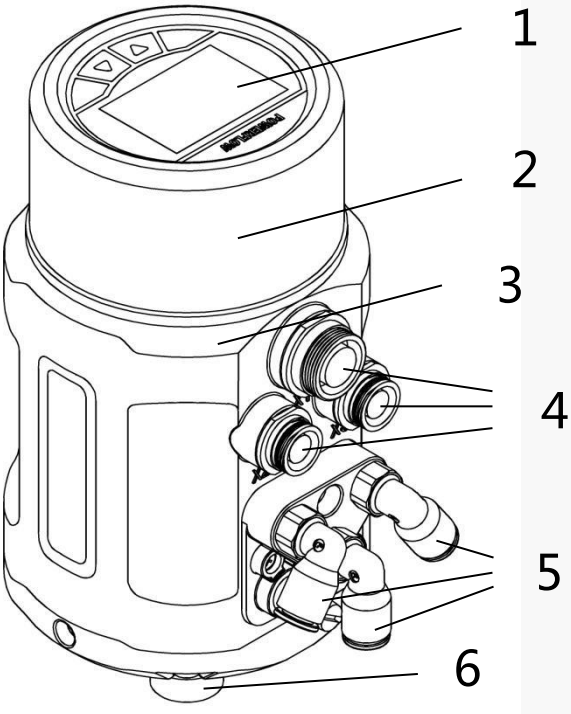
Technical data	
Material	PC、PA6-GF30、Stainless Steel、SI
Power supply	24V DC ±10%
Set-point signal	0/4-20mA or 0-5/10 V
Input resistance for set-point signal	240Ω at 0/4-20mA, 21KΩ at 0-5/10V
Control medium Dust concentration Particle density Pressure condensation point Oil concentration	neutral gases, air DIN ISO 8573-1 Class 5 (<40μm particle size) Class 5 (<10mg/m3) Cass 3 (<-20°C) Class 5 (<25mg/m3)
Ambient temperature	0-70°C
Pneumatic connection	Plug-in hose connector G1/4(internal Φ6mm
Electrical connection	M12 3-pins B-coded(cable ø 4-6mm) M12 4-pins D-coded(cable ø 4-6mm) M12 5-pins A-coded(cable ø 4-6mm)
Supply pressure	3~7 bar, specific values depending on the actuator
Air flow rate	17 l/min(input pressure of 0.6Mpa) 58 l/min(input pressure of 0.6Mpa ,only single-acting)
Stroke control range	Line 5-50mm Angle 90°
Installation	As required, Preferably with actuator in upright position, Screw
Protection class	IP66
Power consumption	<5W
Explosion-proof class	Ex nA II C T4

Combinations

Diaphragm control valve

Angle seat control valve

Structure



1. LCD and key panel
2. Stainless steel body casing
3. Main body casing
4. Electrical connection
5. Pneumatic connection
6. Actuator connection

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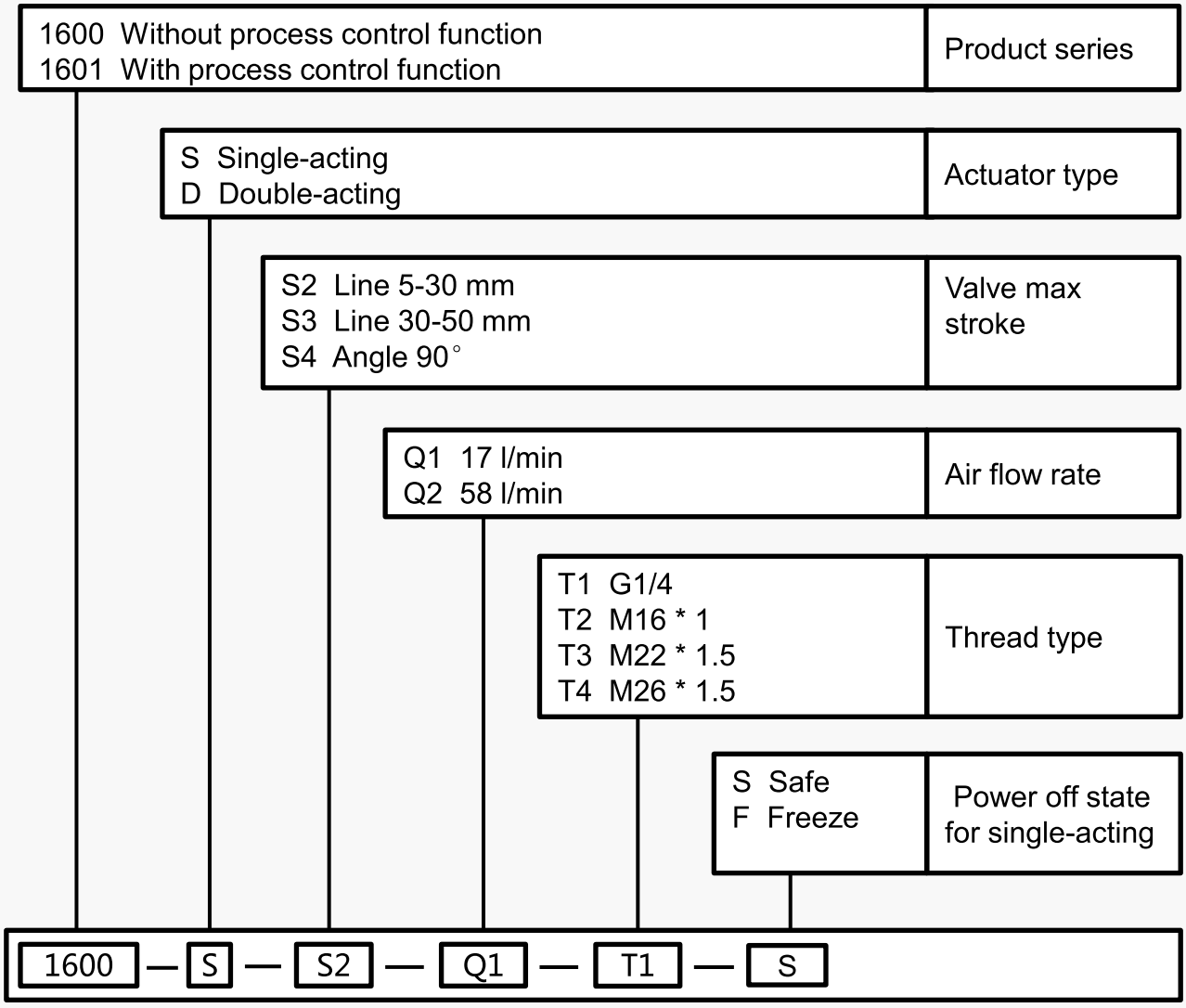
Product type selection



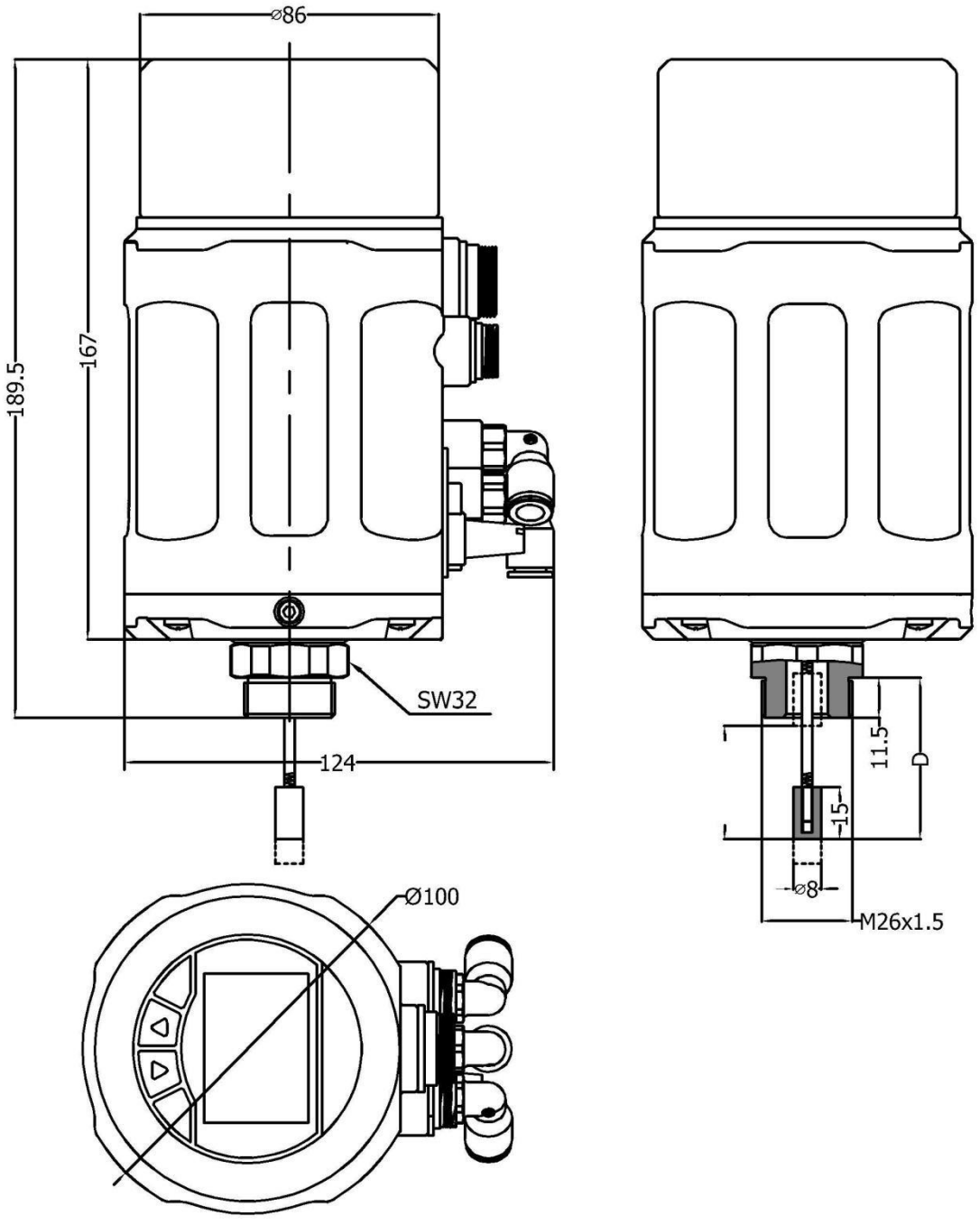
Remark:

In the **air flow rate** option, code Q1 is suggested to match the actuator of 40-100 mm internal gas chamber diameter, code Q2 is suggested to match the actuator of 125-160 mm internal gas chamber diameter. code Q2 is only used for single-acting actuator. The air flow rates for code Q1 and Q2 are under the condition of 0.6Mpa input pressure.

In the **valve max stroke** option, AT actuator range for code S4 is AT50~AT125. For other actuator models, please consult our company. It is no need to select the **thread type** option for code S4.

Power off state for single-acting option is **Safe** by default.

Dimensions



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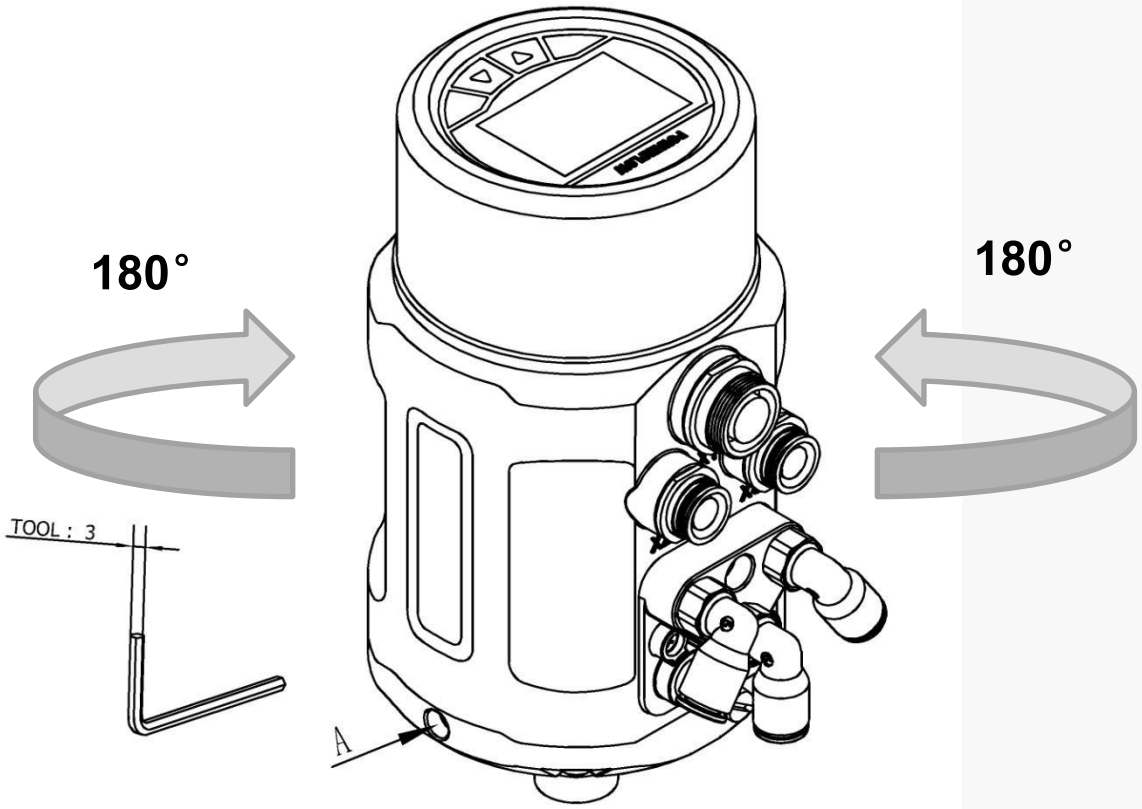
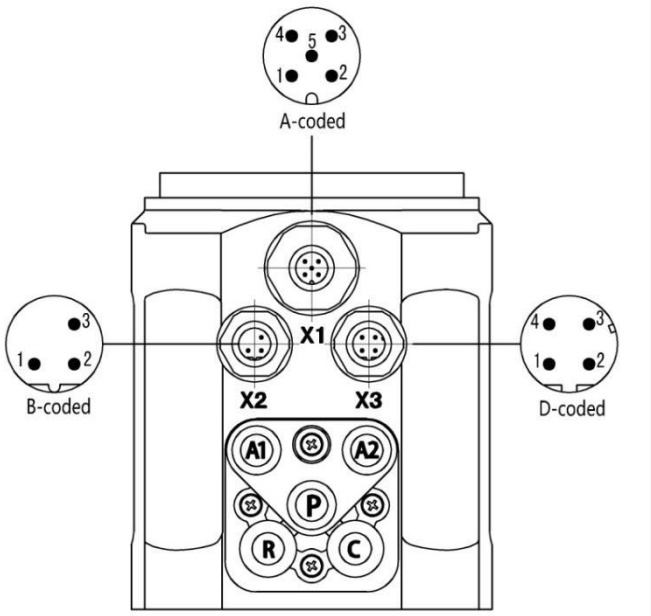
Interface angle adjustment

The angle can be adjusted between the positioner and the valve. If need to adjust the interface angle, relaxing the hexagon screw in place A first. Then adjusting the angle clockwise or counter-clockwise in 180° range. After adjusting the angle, locking the angle by the hexagon screw.



Electrical connections



X1		
Pin	Description	Signal type
1	Analogue signal output +	0/4 – 20 mA or 0 – 5/10 V
2	Binary signal output 1	0/24 V
3	Binary signal output 2	0/24 V
4	Binary signal input +	0-3V = “ 0 ” , 15-30V = “ 1 ”
5	Signal common GND	GND

X2(Optional for process control only)		
Pin	Description	Signal type
1	Transmitter input +	+24 V
2	Transmitter signal output	4-20 mA
3	Transmitter GND	GND

X3		
Pin	Description	Signal type
1	Power supply +	+24 V
2	Power supply GND	GND
3	Set signal input +	0/4 – 20 mA or 0 – 5/10 V
4	Set signal input GND	GND

Pneumatic connections

P	Air supply enter(built-in filter, filter size 5 μm)
R	Air exhaust
C	Check valve
A1	Pilot air outlet 1
A2	Pilot air outlet 2

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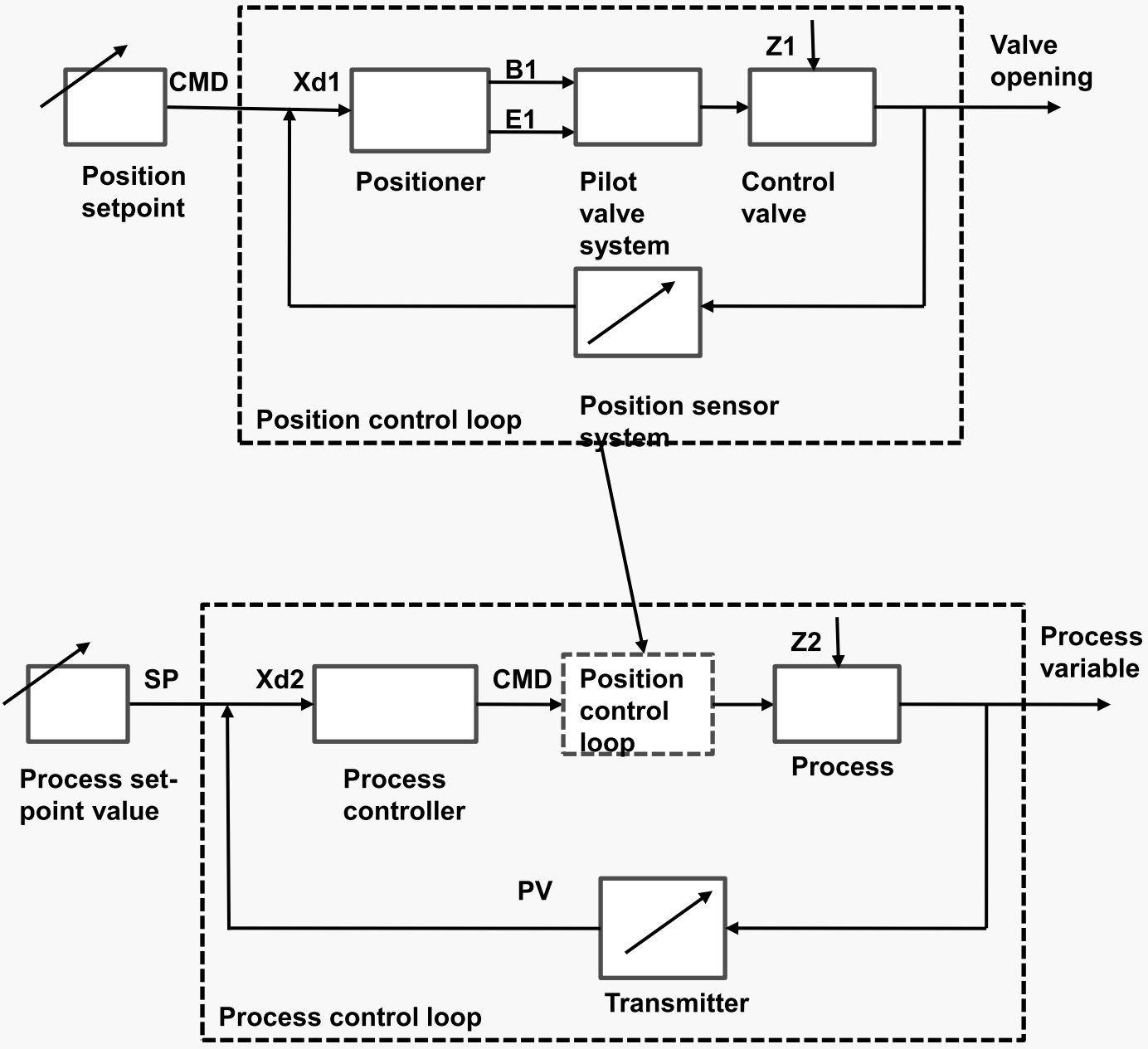
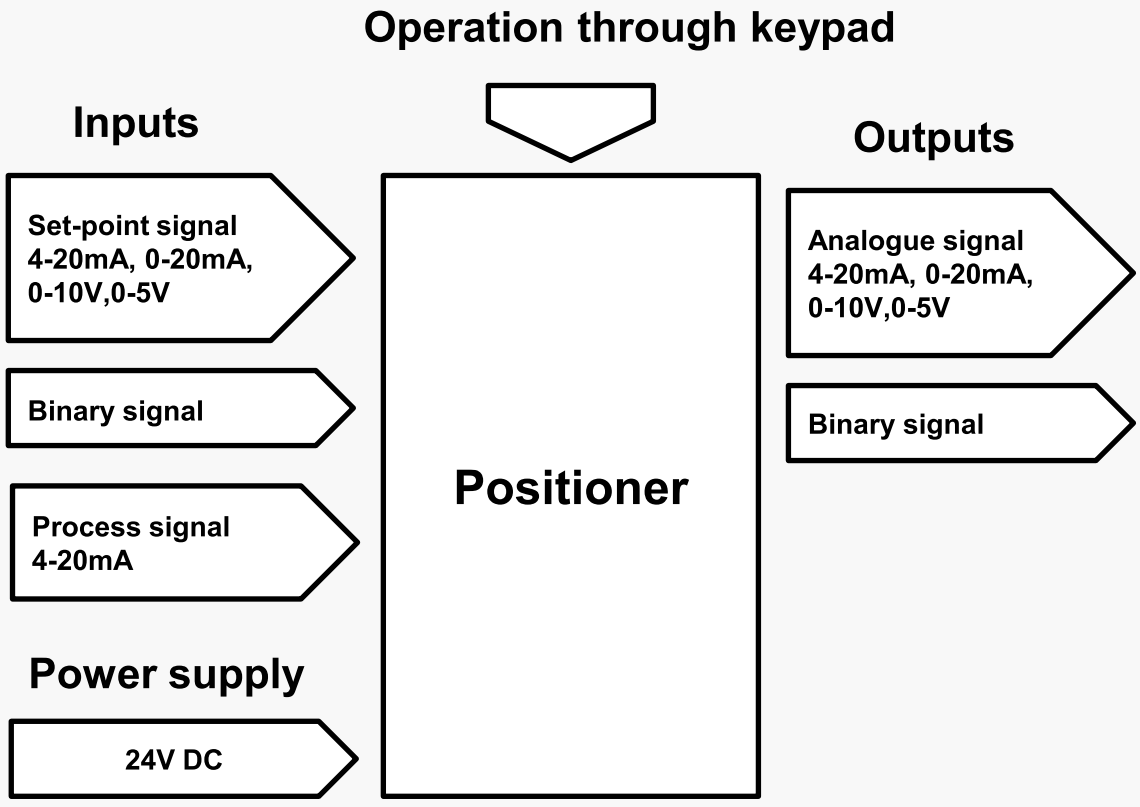
Signal flow diagram



Additional software functions

- Selection of the transfer characteristic between set-point value and stroke.
- Sealing function for position controller.
- Effective sense of direction between input signal and set-point value.
- Limit of the mechanical stroke range.
- Setting for control parameters.
- Safety position setting for the position controller.
- Configuration of signal level fault detection.
- Activating of the binary input.
- Configuration of the outputs.
- Calibrating the control parameters.
- Setting for manual control rate.
- Code protection.

Schematic diagram



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Function comparison for all types

FUNCTION	1600	1601	1500
Explosion-proof	√	√	×
Process control	×	√	×
4-20mA signal input	√	√	√
4-20mA signal output	√	√	○
Autotune	√	√	√
Valve position manual adjustment	√	√	√
Sealing function	√	√	√
Dead band setting	√	√	√
4-20mA input signal error detection	√	√	√
Factory setting	√	√	√
Characteristic curve setting	√	√	×
Direction of set-point value	√	×	×
Valve stroke range limiting	√	√	×
Safety position setting	√	√	×
Binary signal input/output	√	√	×
Input signal calibration	√	√	×
Speed setting of manual adjustment	√	√	×
Code protection	√	√	×

√	YES
×	NO
○	optional

Valve match

	Intelligent valve positioner 1600 series	Intelligent valve positioner 1500 series	Intelligent valve positioner IP4000 series
Diaphragm valve 2800 series			
T type angle seat valve (3rd party company)			
Pneumatic sleeve valve (3rd party company)			
Pneumatic butterfly valve with rotary actuator (3rd party company)			
Pneumatic ball valve with rotary actuator (3rd party company)			
Angle seat Valve 2710 series			N/A
Divert seat valve (3rd party company)			N/A
Pneumatic butterfly valve with linear actuator (3rd party company)			N/A

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