

## CATALOG

# Intelligent Valve Positioner APV400



- Adaptive predictive control algorithm for faster response and more precise control.
- Automatic detection of valve lower and upper limits, optimizing valve control parameters to enhance accuracy.
- Dot matrix LCD display with multi-language support, rotatable by 180° for easy observation. Equipped with four configuration buttons for local valve control and settings adjustments.
- Supporting parameter configuration for split range, characteristic curves, stroke range and direction, tight closure, dead zone, control parameters, digital input, alarm and fault outputs, and more.
- Diagnostic capabilities include leakage detection, partial stroke testing, upper and lower limit monitoring, pressure and temperature diagnostics, stroke accumulation, directional change counts, and piezoelectric operation monitoring.

- IDM software allows setup and calibration of valve accessories, with status monitoring and alarm tracking.
- Compatible with HART 5 and HART 7 communication protocols.
- Including one isolated digital input and two dry contact inputs.
- Digital output with electric isolation provides alarm or fault notifications.
- Electrically isolated position feedback block outputs 4 to 20mA position feedback.
- Optional "fail last" function ensures operational stability during power, gas, or signal failure.
- Equipped with surge protection for enhanced reliability.

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## Overview



APV400 Intelligent Valve Positioner operates on the principle of piezoelectric valves and is equipped with HART communication protocol. It effectively converts a 2-wire 4 to 20 mA control signal into pneumatic output for the actuator, making it suitable for both pneumatic linear actuators and rotary actuators. This functionality enables precise positioning of the valve according to predetermined settings. The positioner features a compact and modular design that offers high cost-effectiveness. Its self-tuning capability for control parameters, combined with excellent adaptability, significantly reduces setup time while ensuring optimal control performance.

### Main Parameters

- Type: Piezoelectric
- Signal: Two-wire 4 to 20 mA DC input, optional HART 5 and HART 7, 4 to 20 mA feedback output
- Protection Grade: IP66
- Explosion-proof: Exia IIC T4 ... T6 Ga, Exdb IIC T4 ... T6 Gb
- Three-break Fail Last: Optional valve manifolds can make valve fail last in case of power failure, gas failure, and signal failure
- Surge: Surge protection function.
- Diagnostic Function: Leakage detection, partial stroke test, upper limit and lower limit monitoring, pressure detection diagnostic, temperature diagnostic, stroke accumulation, direction change times, piezoelectric operation times, etc.

## Model Code

Model Type	Code	Description
APV400		
Stroke type	L	Linear
	R	Rotary
Action type	S	Single acting
	D	Double acting
Explosion protection	n	Non-explosion (IP66)
	i	Intrinsically safe (Exi)
	d	Flameproof (Exd)
	t	Dust ignition-proof (Ext)
	k	Intrinsically safe (Exi), dust ignition-proof (Ext)
	e	Flameproof (Exd), dust ignition-proof (Ext)
Feedback lever	1	10 to 30 mm
	2	40 to 130 mm
	X	User-defined
	8	0 to 90°
Feedback module	0	None
	1	Position feedback 4 to 20 mA
	2	Limit switch
	3	Position feedback 4 to 20 mA + limit switch
Communication function	0	None
	H	HART
Electrical connection	M	M20 × 1.5 female
	N	1/2 NPT female
Air supply connection	1	1/4 NPT female
Fail position	R	Fail safe
	H	Fail last (selected if three-break fail last is required)
	G	Fail open
Ambient Temperature	T	-30 to 80 °C
	L	-40 to 80 °C

Housing material	A	Die-cast aluminum type A (for intrinsically safe, normal type)
	B	Die-cast aluminum type B (for Exd)
	C	Stainless steel type C (for intrinsically safe, normal type)
	D	Stainless steel type D (for Exd)
Pressure gauge	0	None
	1	Stainless steel pressure gauge
Mounting bracket	0	None
	1	With rotary stroke mounting bracket (assembled to actuator 30 × 80 × 42)
	2	With linear stroke mounting bracket (assembled to actuator 30 × 130 × 52)
	X	Customized bracket
Options	0	None
	A	Split-range control
	B	Alarm module/digital I/O module (DIO)
	C	Pressure measurement module

# Certifications

	NEPSI intrinsically safe Ex ia IIC T4 ... T6 Ga Applicable standard: GB/T 3836.1-2021, GB/T 3836.4-2021
NEPSI	NEPSI explosive-proof Ex db IIC T4 ... T6 Gb Applicable standard: GB/T 3836.1-2021, GB/T 3836.2-2021, GB/T 3836.31-2021
	NEPSI dust explosion prevention Ex tb IIIC T85°C ... T135°C Db Applicable standard: GB/T 3836.1-2021, GB/T 3836.2-2021, GB/T 3836.31-2021
CCC	China Compulsory Product Certification, NEPSI Ex ia IIC T4 ... T6 Ga/Ex db IIC T4...T6 Gb/ Ex tb IIIC T85°C ... T135°C Db
Others	Industrial automation instrument intelligent evaluation certificate Applicable standard: T/SHIA000001-2020




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