

**MOTOYAMA**

# General Specifications

## Model EA10S

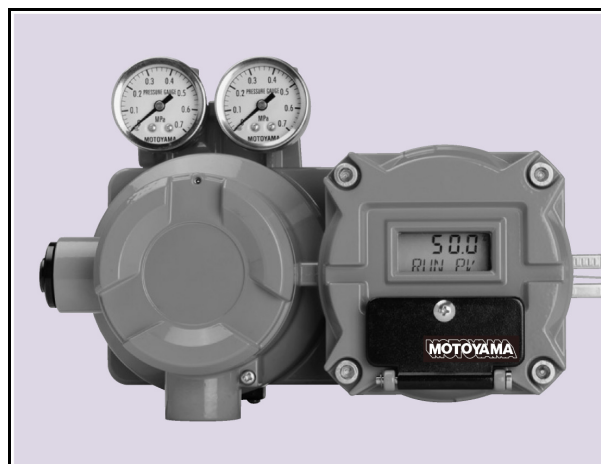
*Flameproof Type Explosion-protected Construction*

## *Intelligent Valve Positioner*

Model EA10S intelligent valve positioners are electro pneumatic valve positioners that are equipped with microprocessors and operate control valves precisely with PID algorithm, with flameproof type explosion protected construction.

Unlike conventional electro-pneumatic positioners, EA10S positioners have various functions such as auto calibration, cutoff and flow characteristic change, and can show extremely improved performances of operability and functionality.

HART®-Protocol communication is equipped as a normal function and analog travel transmitter is optional. These functions are very useful for plant maintenance by remotely monitoring the operating condition of control valves.



## 1. FEATURES

- **Easy adjustment by function of auto calibration.**  
Adjustment time can be greatly reduced since calibration of zero point and stroke, and selection of PID parameters are automatically processed with simple action.
- **Display of operation status.**  
Operation status at the moment can be confirmed on site since valve travel, input signal and error can be displayed on LCD monitor installed on positioner itself.
- **Manual buttons enable all kinds of adjustment and setup.**  
Any adjustment and setup are possible by operating manual buttons installed on positioner itself.  
No handheld communicator is required.
- **Adjustment is possible even in explosive environment.**  
Any adjustment and setup are possible by operating manual buttons even in explosive environment.
- **Easy setup of various flows characteristic.**  
In addition to linear, equal percentage and quick opening, arbitrary characteristic can be set with simple action. Modification work, which has been formerly done by exchanging cam, of inherent characteristic for rotary valves, etc. becomes much easier.
- **Assured shutoff is possible by cutoff function.**  
It is possible to set up so that output air pressure to actuator can be forcefully changed to zero or supply pressure itself immediately when input signal reaches setting value(s). This function enables assured shutoff of valves.
- **HART®-Protocol communication function is equipped.**  
Positioners can be adjusted, set and monitored remotely by HART® -Protocol communication function.
- **Four Diagnostic Functions are equipped**  
Total valve operation, turn over times, shut-off times and travel deviation alert, these four diagnostic Functions will help reduce valve maintenance man-power.

## 2. SPECIFICATIONS

<b>Model</b>		EA10S
<b>Input Signal</b>		4 to 20mA DC (Minimum current required: 3.8mA) <sup>Note1</sup>
<b>Input Resistance</b>		Max. 455Ω equivalent (when input signal is 20mA)
<b>Supply Air Pressure</b>		Max. 500kPaG
<b>Applicable Actuator Type</b>		Linear motion, Rotary motion / Single action type
<b>Structure</b>	<b>Explosion-protection</b>	TIIS Ex d II C T6 Gb
		IEC Ex d II C T6 Gb
		ATEX II 2G Ex d II C T6 Gb
		KTL Ex d II C T6
		NEPSI Ex d II C T6 Gb
		FM Class I , Div.1 Gr. A, B, C, D T6
<b>Structure</b>	<b>Protection Class</b>	IEC IP66
	<b>Lightning Protection</b>	IEC61000-4-5, Performance Criteria : A@Level 2(1kV), B@Level 4(4kV) <sup>Note5</sup>
<b>Connection</b>	<b>Air Piping Connection</b>	Rc 1/4
	<b>Electrical Connection</b>	G1/2 <sup>Note3</sup>
<b>Characteristics</b>	<b>Standard Stroke</b>	10 to 130mm (Linear motion) / 60 to 90° (Rotary motion)
	<b>Linearity</b>	≤ ±1.0% F.S.
	<b>Hysteresis Error</b>	≤ 1.0% F.S.
	<b>Air Consumption</b>	≤ 4 ℓ/min Nor (Sup.140kPaG, Signal 50%),
		≤ 5 ℓ/min Nor (Sup.280kPaG, Signal 50%)
	<b>Max Sup / Exhaust Air</b>	≥ 55 ℓ/min Nor (Sup.140kPaG, Signal 50%)
		≥ 90 ℓ/min Nor (Sup.280kPaG, Signal 50%)
<b>Function</b>	<b>Ambient Temperature</b>	-20°C to +80°C (Explosion-protected: -20°C to +60°C)
	<b>Auto Calibration</b>	Zero and stroke adjustment, PID parameter selection
	<b>Flow Characteristic Change</b>	Linear, Equal %, Quick opening, User's definition
	<b>Cutoff</b>	Setting value(s) for cutoff can be set arbitrarily.
	<b>Diagnosis</b>	Total valve operation, Turn over times, Shut-off times, Travel Deviation alert
<b>Communication</b>		HART®-Protocol communication
<b>Manual Operation</b>		Applicable by A/M switching bolt
<b>Body Material</b>		Die-cast aluminum
<b>Painting Color</b>		Blue
<b>Option</b>		HART® communication, Position transmitter (4 to 20mA DC) <sup>Note4</sup>
<b>Weight</b>		Approx. 3.6 kg

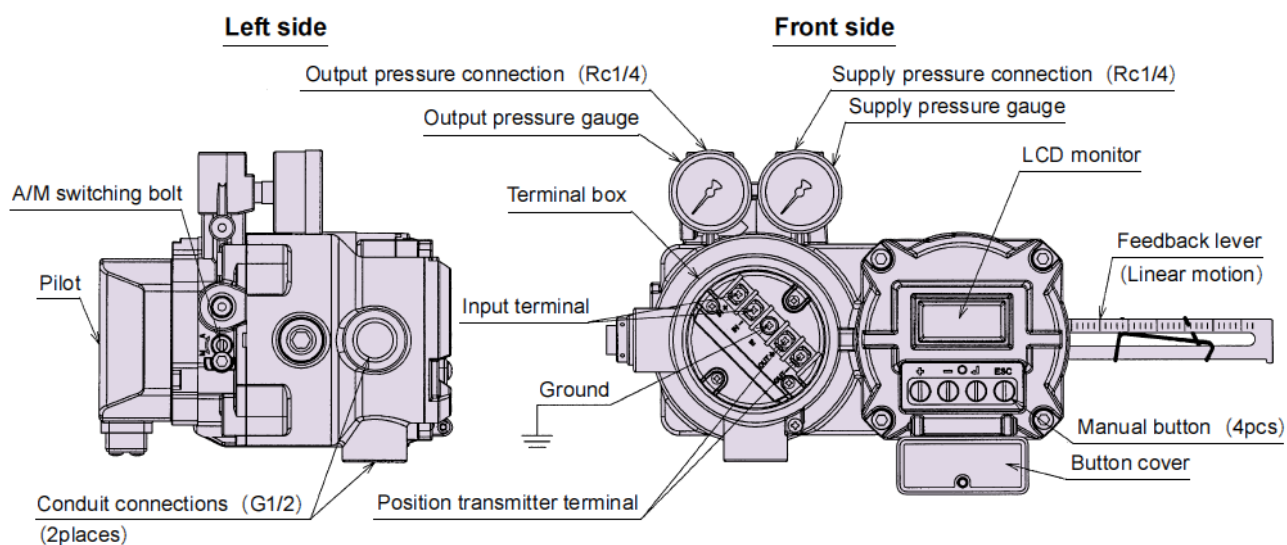
- 【Notes】
1. Current of 3.8mA or larger is constantly required for operating microprocessor inside positioner.
  2. Cable gland (Model No.: KXBF-16) is attached when TIIS explosion protection is specified.
  3. Electrical Connection: When NPT1/2" or M20 is required, the adapter is available on request.
  4. Position transmitter option requires an independent electric source of 10 to 28 VDC.
  5. Performance Criteria : A=No degradation during testing. B=Temporary degradation during testing, but is self-recovering.

## 3. MODEL NUMBERING SYSTEM

Specifications		Basic Model No.	Suffix Code				
Type	Intelligent Positioner	EA10S-	*	*	*	*	*
Motion	Linear motion, Rotary motion		L				
Actuator Type	Single action			S			
Function	HART®-Protocol communication				1		
	Position transmitter + HART®				3		
Air Piping Connection	Rc1/4					R	

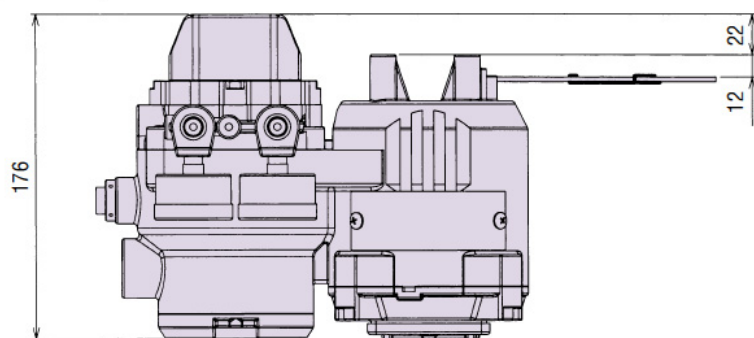
- ※ HART® is a registered trademark of the FieldComm Group.  
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## 4. CONSTRUCTION

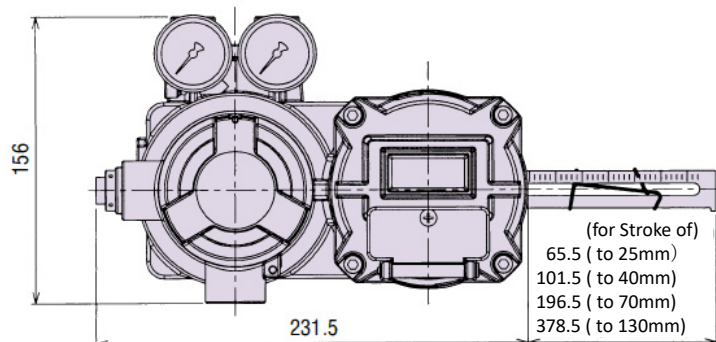


## 5. EXTERNAL DIMENSIONS

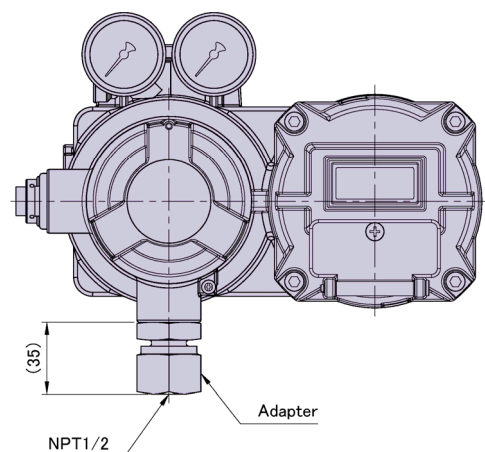
**Top side**



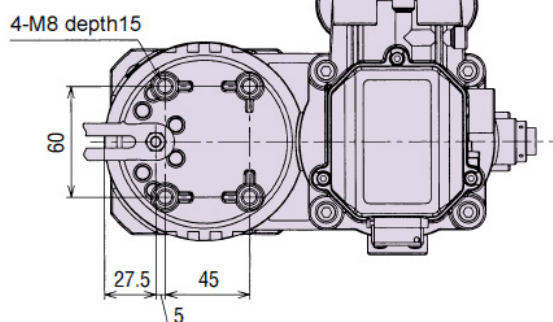
**Front side**



Adapter is attached when FM explosion protection is specified.



**Back side**





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