

# Electro-Pneumatic Positioner (Lever type/Rotary type)



## IP8000/8100 Series

- **Enclosure:** JISF8007 IP65 (conforms to IEC 60529)
- **Monitoring function** (Opening current transmission 4 to 20 mA DC, Accessory J, JR)
- **Explosion-proof construction/Electro-pneumatic positioner:** TIIS explosion-proof construction (Exd II BT5), ATEX intrinsically safe explosion-proof construction (II 2G Ex h ib IIC T5/T6 Gb)

### How to Order

**ATEX directive compliance and connection**

**X14** ATEX directive category 2  
Intrinsically safe explosion-proof item  
Air connection port: 1/4 NPT  
Conduit connection port: M20 x 1.5  
With blue cable gland

**Option** Note 10)

Symbol	Option	Applicable model	
		IP8000-X14	IP8100-X14
NII	—	●	●
L	Low temperature (-40 to 60°C)	●	●
W	With internal opening indicator plate	—	●

**ATEX Directive Intrinsically Safe Explosion proof**

**Standard**

**IP8000-010- -X14- -**

**IP8000-010- - - -**

**Type**

Type	Description
000	Electro-pneumatic lever type
100	Electro-pneumatic rotary type

**Pressure gauge**

Symbol	Pressure
0	None
1	0.2 MPa
2	0.3 MPa
3	1.0 MPa

**Construction** Note 1)

Construction	Description
0	No terminal box
1	With terminal box (Exd II BT5) TIIS (Japan) explosion-proof item

**Made to Order** (p.142)

**X310** Exterior covering enclosure: JISF8007 IP66 (Conforms to IEC60529)

**CE/UKCA marking**

Marking	Description
NII	—
Q	CE/UKCA marked product

**Connection**

Symbol	Air	Electric	Applicable model	
			IP8000-000-0	IP8000-000-1
NII	Rc1/4	G1/2	●	●
M	Rc1/4	M20 x 1.5	●	—
N	Rc1/4	1/2NPT	●	—
1	1/4NPT	G1/2	●	●
2	1/4NPT	M20 x 1.5	●	—
3	1/4NPT	1/2NPT	●	—
4	G1/4	G1/2	●	●
5	G1/4	M20 x 1.5	●	—
6	G1/4	1/2NPT	●	—

**Accessories** Note 2)

Symbol	Accessories	Applicable model	
		IP8000	IP8100
NII	None (Standard)	●	●
A	ø0.7 Output restriction with pilot valve Note 3)	●	●
B	ø1.0 Output restriction with pilot valve Note 3)	●	●
C	Fork lever-type fitting M Note 4)	—	●
D	Fork lever-type fitting S Note 5)	—	●
E	For stroke 35 to 100 mm with lever unit Note 6)	●	—
F	For stroke 50 to 140 mm with lever unit Note 6)	●	—
G	Compensation spring (A) Note 7)	●	●
H	With external scale plate Note 8)	—	●
J	With opening current transmission (4 to 20 mA DC)/Positive operation Note 9)	—	●
JR	With opening current transmission (4 to 20 mA DC)/Reverse operation Note 9)	—	●

**Note 1)** For construction No.1 (with terminal box), the ambient and fluid temperatures are as follows:

- Exd II BT5 — -20 to 60°C
- Non-explosion proof (non hazardous locations only) — -20 to 80°C

The positioner body is Exd II BT5 labeled.

**Note 2)** If two or more accessories are required, the part numbers should be made according to alphabetical order. (ex. IP8100-010-AG)

**Note 3)** "A" is applied to approx 90cm<sup>3</sup>-capacity actuator.  
"B" is applied to approx 180cm<sup>3</sup>-capacity actuator.

**Note 4)** Fork lever-type fitting MX (Connection thread: M6 x 1) for IP8100-000-□-X14.  
**Note 5)** Fork lever-type fitting SX (Connection thread: M6 x 1) for IP8100-000-□-X14.  
**Note 6)** Standard lever is not attached.

**Note 7)** It is to be used together with "A" or "B" when tending to overshoot by the use of "A" or "B".  
It is mounted to the body as a replacement of the standard compensation spring.

**Note 8)** For side mounting, select a model with internal opening indicator plate (IP8100-000-□-□-X318 for standard type, X14-W for ATEX intrinsically safe explosion-proof type).

**Note 9)** Symbol J/JR is with terminal box, non-explosion proof specification. Select 1 for Construction. Positive operation signifies clockwise rotational direction by the main actuator shaft when positioner cover is viewed from the front.

**Note 10)** Combination of L and W is not available.

## Specifications Note 1)

Type  Item	IP8000		IP8100		IP8001	IP8101
	Electro-Pneumatic Positioner				Smart Positioner	
	Lever type lever feedback		Rotary type cam feedback		Lever type	Rotary type
	Single action	Double action	Single action	Double action	Single action / Double action	
Input current	4 to 20 mA DC (Standard) <small>Note 2)</small>					
Min. operating current	—				3.85 mA DC or more	
Intra-terminal voltage	—				12 V DC (equivalent to 600 Ω input resistance, at 20 mA DC)	
Max. supplied power	—				1 W (Imax: 100 mA DC, Vmax: 28 V DC)	
Input resistance	235 ±15 Ω (4 to 20 mA DC)				—	
Supply air pressure	0.14 to 0.7 MPa				0.3 to 0.7 MPa	
Standard stroke	10 to 85 mm (Allowable deflection angle 10 to 30°)		60 to 100° <small>Note 3)</small>		10 to 85 mm (Allowable deflection angle 10 to 30°)	
Sensitivity <small>Note 4)</small>	Within 0.1% F.S.		Within 0.5% F.S.		Within 0.2% F.S.	
Linearity <small>Note 4)</small>	Within ±1% F.S.		Within ±2% F.S.		Within ±1% F.S.	
Hysteresis <small>Note 4)</small>	Within 0.75% F.S.		Within 1% F.S.		Within 0.5% F.S.	
Repeatability <small>Note 4)</small>	Within ±0.5% F.S.					
Coefficient of temperature	Within 0.1% F.S./°C				Within 0.05% F.S./°C	
Supply pressure fluctuation	Within 0.3% F.S./0.01 MPa				— <small>Note 5)</small>	
Output flow <small>Note 6)</small>	80 L/min (ANR) or more (SUP = 0.14 MPa)				200 L/min (ANR) or more (SUP = 0.4 MPa)	
Air consumption <small>Note 6)</small>	5 L/min (ANR) or less (SUP = 0.14 MPa) 11 L/min (ANR) or less (SUP = 0.4 MPa)				2 L/min (ANR) or less (SUP = 0.14 MPa) 4 L/min (ANR) or less (SUP = 0.4 MPa)	11 L/min (ANR) or less (SUP = 0.4 MPa)
Ambient and fluid temperature	General structure: -20 to 80°C					
	TIIS explosion-proof: -20 to 60°C ATEX intrinsically safe explosion-proof: -20 to 80°C (T5) -20 to 60°C (T6) -40 to 60°C (T6)/-L type low-temperature specification				ATEX intrinsically safe explosion-proof -20 to 80°C (T4/T5) -20 to 60°C (T6)	
	Explosion proof construction <small>Note 7)</small> ATEX intrinsically safe explosion-proof construction (IIC 2G Ex h IIC T5/T6 Gb)				ATEX intrinsically safe explosion-proof construction (IIC 1G Ex h IIC T4/T5/T6 Ga)	
ATEX intrinsically safe explosion-proof parameter (current circuit)	Ui ≤ 28 V, Ii ≤ 125 mA, Pi ≤ 1.2 W Ci ≤ 0 nF, Li ≤ 0 mH				Ui ≤ 28 V, Ii ≤ 100 mA, Pi ≤ 0.7 W Ci ≤ 12.5 nF, Li ≤ 1.5 mH	
Exterior covering enclosure <small>Note 8)</small>	JISF8007, IP65 (conforms to IEC Pub.60529)					
Transmission method <small>Note 7)</small>	—				HART transmission	
Air connection port <small>Note 9)</small>	Rc 1/4 female thread, NPT 1/4 female thread, G 1/4 female thread					
Electrical connection port <small>Note 9)</small>	G 1/2 female thread, M20 x 1.5 female thread, NPT 1/2 female thread					
Material/coating	Aluminum diecast body/baking finish with denatured epoxy resin					
Weight	2.4 kg (Without terminal box)/2.6 kg (With terminal box)				2.6 kg	

Note 1) Specification values are based at normal temperature (20°C).  
 Note 2) 1/2 Split range (Standard). For operation with 1/2 split range, the linearity and hysteresis should be 1% higher than the above specifications.  
 Note 3) Stroke adjustment: 0 to 60°, 0 to 100°  
 Note 4) Characteristics relating to accuracy differ depending on combination with other constituent loop equipment, such as positioners and actuators.

Note 5) While there is no output changes due to pressure fluctuations, when the pressure supply setting is changed following calibration, once again adjust balance current and perform calibration.

Note 6) Air consumption is due to exhaust from nozzle. And (ANR) indicates JIS B0120 standard air.

Note 7) Model selection required for explosion proof construction and HART transmission.

Note 8) For IP66 compliant products, refer to pages 142 to 145.

Note 9) Thread type can be specified by model selection.

## Optional Specifications

Type		IP8100-0□-J/JR (Non-explosion proof)	IP8□01-0□2 (Non-explosion proof)	52-IP8□01-0□4
Item		Electro-Pneumatic Positioner	Smart Positioner	
Analog output	Wiring	2-line		
	Output signal	4 to 20 mA DC		
	Power supply voltage	12 to 35 V DC	10 to 28 V DC	
	Load resistance	(Power supply voltage -12 V) ÷ 20 mA DC or less	0 to 750 Ω	
	Accuracy	±2% F.S. or less <small>Note 1)</small>	±0.5% F.S. or less <small>Note 2)</small>	
	Hysteresis	Within 1% F.S.	—	
Alarm output 1, 2	Wiring	—	2-line	
	Applicable standards	—	DIN19234/NAMUR Standard	
	Power supply voltage	—	10 to 28 V DC	5 to 28 V DC
	Load resistance	—	10 to 40 mA DC	(Constant current output)
	Alarm ON	—	R = 350 Ω ±10%	≥ 2.1 mA DC
	Alarm OFF (Leakage current)	—	0.5 mA DC or less	≤ 1.2 mA DC
	Response time	—	50 msec or less	

Note 1) Indicates analog output accuracy with respect to actuator angle.

Note 2) Indicates analog output accuracy with respect to LCD display position value (P value).