

Electro-Pneumatic Positioner

(Lever type / Rotary type)

Series *IP 8000 / IP 8100*



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Series *IP8000/8100*

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 9)

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

ATEX Directive Intrinsically Safe Explosion proof

Standard

Type

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

CE marking

Nil	—
Q	CE marked product

Connection

Symbol	Air	Electric	Applicable model	
			IP8000-00-0□0	IP8000-00-0□1
Nil	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	●	—

Construction Note 1)

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

Accessories Note 2)

Symbol	Accessories	Applicable model	
		IP8000	IP8100
Nil	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	—	●
J	With opening current transmission (4 to 20 mA DC)/Positive operation Note 8)	—	●
JR	With opening current transmission (4 to 20 mA DC)/Reverse operation Note 8)	—	●

Lever type IP8000

Rotary type IP8100

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. IP8100-011-AG)

Note 3) "A" is applied to approx 90cm³-capacity actuator.
 "B" is applied to approx 180cm³-capacity actuator.

Note 4) Fork lever-type fitting MX (Connection thread: M6 x 1) for IP8100-0□0-□-X14.

Note 5) Fork lever-type fitting SX (Connection thread: M6 x 1) for IP8100-0□0-□-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) 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 9) Combination of L and W is not available.

Specifications Note 1)

Item	Type	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) Note 2)					
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° Note 3)		10 to 85 mm (Allowable deflection angle 10 to 30°) 60 to 100° Note 3)	
Sensitivity Note 4)		Within 0.1% F.S.		Within 0.5% F.S.		Within 0.2% F.S.	
Linearity Note 4)		Within ±1% F.S.		Within ±2% F.S.		Within ±1% F.S.	
Hysteresis Note 4)		Within 0.75% F.S.		Within 1% F.S.		Within 0.5% F.S.	
Repeatability Note 4)		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				— Note 5)	
Output flow Note 6)		80 ℓ/min (ANR) or more (SUP = 0.14 MPa)				200 ℓ/min (ANR) or more (SUP = 0.4 MPa)	
Air consumption Note 6)		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 Note 7)		TIIS explosion-proof construction (Exd II BT5) ATEX intrinsically safe explosion-proof construction (II 2G Ex ib II CT5/T6)				ATEX intrinsically safe explosion-proof construction (II 1G Ex ia II CT4/T5/T6)	
ATEX intrinsically safe explosion-proof parameter (current circuit)		Ui ≤ 28 V, li ≤ 125 mA, Pi ≤ 1.2 W, Ci ≤ 0 nF, Li ≤ 0 mH				Ui ≤ 28 V, li ≤ 100 mA, Pi ≤ 0.7 W, Ci ≤ 12.5 nF, Li ≤ 1.5 mH	
Exterior covering enclosure		JISF8007, IP65 (conforms to IEC Pub.60529)					
Transmission method Note 7)		—				HART transmission	
Air connection port Note 8)		Rc 1/4 female thread, NPT 1/4 female thread, G 1/4 female thread					
Electrical connection port Note 8)		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 given at normal temperature (20°C).

Note 2) 1/2 Split range (Standard)

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) (ANR) indicates JIS B0120 standard air.

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

Note 8) Thread type can be specified by model selection.

Optional Specifications

Type Item		IP8100-0□1-J/JR (Non-explosion proof)	IP8□01-0□2	52-IP8□01-0□4
		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 ^{Note 1)}	±0.5% F.S. or less ^{Note 2)}	
	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).