

SAFETY SPEED SERVICE



MP series
X series
C series
TE series
XR series
AS series
XB series
SE series
WP series
X wired

3S
Positioner

Supporting industries all over the world with three “S”s.

3S stands for “Safety”, “Speed” and “Service”.

We pride ourselves on contributing to customers as “behind-the-scenes support”.



MP series P.03

Smart Positioner
MP100 / MP300



X series P.07

Mechanical Positioner
XE100 / XP100



C series P.11

Mechanical Positioner
CE100 / CP200



TE series P.13

I/P Converter
TE100 / TE200



XR series P.15

Filter Regulator
XR100



AS series P.16

Signal Simulator
AS200



XB series P.17

Booster Relay
XB100 / XB200



SE series P.19

Control Drive
SE



WP series P.21

Actuator for Damper
WP201



X wired P.22

Wire-driven Positioner

Company Profile P.23



Smart Positioner MP100



Features

- Auto-Tuning function
- LCD and Buttons for no-communicator operation
- Setting available in Explosive Environment
- Lightning Arrester Equipped
- 17 points Custom-setting Flow Characteristics
- Analogue Feedback & HART Communication Function (Option)



Specifications

Items	Specification
Input Signal	4~20 mA (Minimum range: 4 mA) / Minimum Operating: 3.8 mA *1 (Voltage Across Terminals: 10.5 V Typ.)
Supply Air Pressure	0.14~0.70 MPa
Stroke / Angle	Linear: 10~100 mm Rotary: Lever Angle 40~100 deg.
Air Connection	Standard: Rc 1/4 (Rc 1/8 for Gauges) Option: 1/4 NPT (1/8 NPT for Gauges)
Electric Connection	Standard: G 1/2 (Except for NEPSI Certification) Option: 1/2 NPT or M20x1.5 (Except for TIIS Certification)
Enclosure Protection	IP66 (IEC 60529: 1989 / AMD2: 2013)
Housing Construction	Standard: non-Explosion Proof Option: Flameproof Ex d IIC T6
Ambient Temperature	Standard: -20~80°C Flameproof: -20~60°C
Flow Characteristics	Linear / Eq % / Quick Open / Custom Setting (17 points)
Manual Operation	A/M Switch (Only in Single Acting)
Mass	Approx. 3.8 kg
Housing Material	Aluminium Die-casting

*1 Whenever input current falls below this value, the positioner goes stand-by. Setting needs at least 4 mA input.
* Supply air should be dry (dew point under than -30°C) and clean.
* Air filter (smaller than 5µm) shall be placed just precading of supply port.
* Precision regulators are recommended for smart positioners.

Options

Function	Items	Specification
Analogue Feedback Function	Output Signal	DC 4~20 mA (Invertible)
	Input Voltage	Standard: 12~36 V DC Frameproof: 12~24 V DC
	Accuracy	±1.0 % to recognised value
Communication Function	HART Communication	HART7

* Whenever input current falls below 3.8 mA, the output current goes stand-by.

Performances

Items	Single Action	Double Action
Linearity	±1.0% F.S. *1	
Hysteresis	1.0% F.S. *1	
Air Consumption	SUP 0.14 MPa: 3.0 NI/min SUP 0.40 MPa: 6.5 NI/min Output Pressure 50%	SUP 0.40 MPa: 10 NI/min Output Pressure 75%
Maximum Airflow Capacity	SUP 0.14 MPa: 90 NI/min SUP 0.40 MPa: 200 NI/min	SUP 0.40 MPa: 200 NI/min
Surge Immunity (Lightning Protection)	IEC6100-4-5 Level 2 (1.0 kV ±10%) *2	

* Actual performance depends on each actuator.
*1: At sensor angle range 90 deg.
*2: Temporary malfunction may be occurred at surging but automatically recovers.

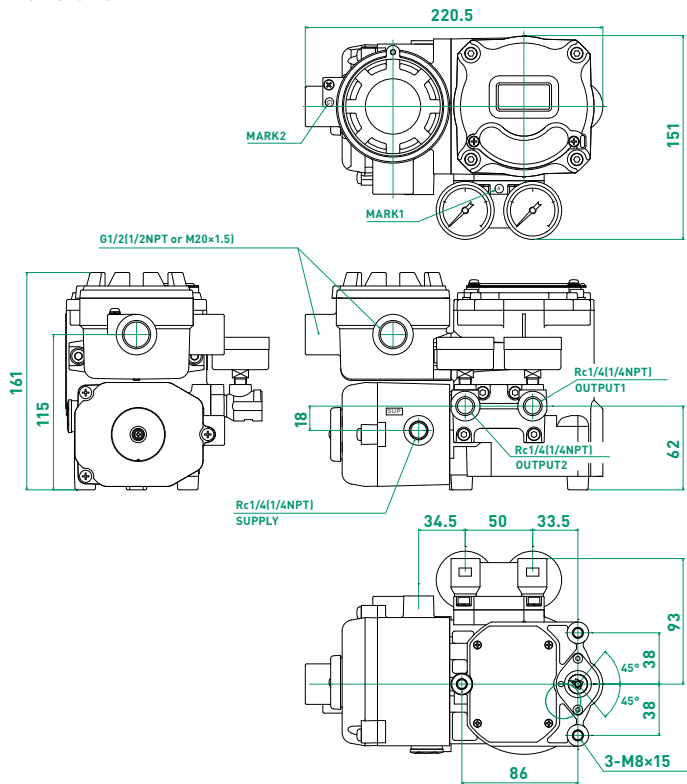
Notation Table

1	2	3a	3b	3c	4	5	6
MP1							

	Items	Specification	Notation
1	Series	Smart Positioner MP100	MP1
2	Housing Construction	Standard (Non-Explosion Proof) Flameproof Ex d IIC T6	0 6
3a	Air Connection	Single Acting Rc 1/4 (Gauge Rc 1/8) Double Acting Rc 1/4 (Gauge Rc 1/8) Single Acting 1/4 NPT (Gauge 1/8 NPT) Double Acting 1/4 NPT (Gauge 1/8 NPT)	1 2 3 4
3b	Electric Connection	G 1/2 (Not available for NEPSI Certification) 1/2 NPT M20 x 1.5 (Not available for TIIS Certification)	1 2 3
3c	Options	None HART function Feedback + HART function	1 3 4
4	Ambient Temperature	Standard: -20~80°C Flameproof: -20~60°C	S
5	Actuator	Linear Rotary	L R
6	Pressure Gauges	0.2MPa, 0.4MPa, 1.0MPa 200kPa, 400kPa, 1000kPa 30psi, 60psi, 150psi 2bar, 4bar, 10bar	M2, M4, M0 K2, K4, K0 P2, P4, P0 *1 B2, B4, B0

*1 No domestic sales in Japan due to Non-SI unit.

Dimensions



Air connections

Supply	Output	Gauge	MARK1
Rc 1/4	Rc 1/4	Rc 1/8	A
1/4 NPT	1/4 NPT	1/8 NPT	B
Rc 1/4	Rc 1/4	1/8 NPT	C

Electric Connections

Cable Entry Conduit	MARK 2
G1/2	G
1/2 NPT	N
M20x1.5	M



Smart Positioner MP300

Features

- Compact Structure
- LCD and Buttons for no-communicator operation
- Analogue Feedback & HART Communication Function (Option)



Specifications

Items	Specification
Input Signal	4~20 mA (Minimum range: 4 mA) / Minimum Operating: 3.8 mA *1 (Voltage Across Terminals: 10.5 V Typ.)
Supply Air Pressure	0.14~0.70 MPa
Stroke / Angle	Linear: 10~100 mm Rotary: Lever Angle 30~100 deg.
Air Connection	Standard: Rc 1/4 (Rc 1/8 for Gauges) Option: 1/4 NPT (1/8 NPT for Gauges)
Electric Connection	Standard: G 1/2 Option: 1/2 NPT or M20x1.5
Enclosure Protection	IP66 (IEC 60529: 1989/AMD2: 2013)
Housing Construction	Non-Explosion Proof
Ambient Temperature	Standard: -20~80°C
Flow Characteristics	Linear / Eq % / Quick Open / Custom Setting (17 points)
Manual Operation	A/M Switch (Only in Single Acting)
Mass	Approx. 2.5 kg
Housing Material	Aluminium Die-casting

*1 Whenever input current falls below this value, the positioner goes stand-by. Setting needs at least 4 mA input.
* Supply air should be dry (dew point under than -30°C) and clean.
* Air filter (smaller than 5µm) shall be placed just precading of supply port.
* Precision regulators are recommended for smart positioners.

Options

Function	Items	Specification
Analogue Feedback Function	Output Signal	DC 4~20 mA (Invertible)
	Input Voltage	Standard: 12~36 V DC Frameproof: 12~24 V DC
	Accuracy	±1.0 % to recognised value
Communication Function	HART Communication	HART7

* Whenever input current falls below 3.8 mA, the output current goes stand-by.

Performances

Items	Single acting	Double acting
Linearity	±1.0% F.S. *1	
Hysteresis	1.0% F.S. *1	
Air Consumption	SUP 0.14 MPa: 3.0 NI/min	SUP 0.40 MPa: 10 NI/min
	SUP 0.40 MPa: 6.5 NI/min Output Pressure 50%	Output Pressure 75%
Maximum Airflow Capacity	SUP 0.14 MPa: 90 NI/min SUP 0.40 MPa: 200 NI/min	SUP 0.40 MPa: 200 NI/min
Surge Immunity (Lightning Protection)	IEC6100-4-5 Level 2 (1.0 kV ±10%) *2	

* Actual performance depends on each actuator.
*1: At sensor angle range 90 deg.
*2: Temporary malfunction may be occurred at surging but automatically recovers.



Buttons for setting and/or operation equipped

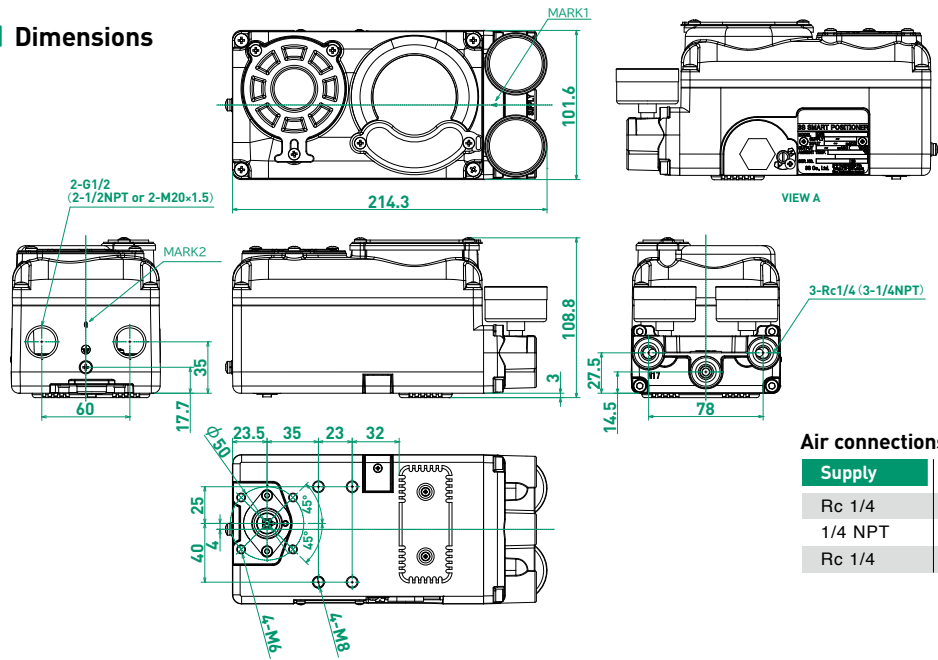
Notation Table

1	2	3a	3b	3c	4	5	6
MP3	0						

	Items	Specification	Notation
1	Series	Smart Positioner MP300	MP3
2	Housing Construction	Standard (Non-Explosion Proof) Flameproof Ex d IIC T6	0
3a	Air Connection	Single Acting Rc 1/4 (Gauge Rc 1/8)	1
		Double Acting Rc 1/4 (Gauge Rc 1/8)	2
		Single Acting 1/4 NPT (Gauge 1/8 NPT)	3
		Double Acting 1/4 NPT (Gauge 1/8 NPT)	4
3b	Electric Connection	G 1/2 (Not available for NEPSI Certification)	1
		1/2 NPT	2
		M20 x 1.5 (Not available for TIIS Certification)	3
3c	Options	None	1
		HART function	3
		Feedback + HART function	4
4	Ambient Temperature	Standard: -20~80°C Flameproof: -20~60°C	S
5	Actuator	Linear	L
		Rotary	R
6	Pressure Gauges	0.2MPa, 0.4MPa, 1.0MPa	M2, M4, M0
		200kPa, 400kPa, 1000kPa	K2, K4, K0
		30psi, 60psi, 150psi	P2, P4, P0 *1
		2bar, 4bar, 10bar	B2, B4, B0

*1 No domestic sales in Japan due to Non-SI unit.

Dimensions



Air connections

Supply	Output	Gauge	MARK1
Rc 1/4	Rc 1/4	Rc 1/8	A
1/4 NPT	1/4 NPT	1/8 NPT	B
Rc 1/4	Rc 1/4	1/8 NPT	C

Electric Connections

Cable Entry Conduit	MARK 2
G1/2	G
1/2 NPT	N
M20x15	M



E/P Positioner XE100



Features

- Compatible Mounting for E/P and P/P
- Simplified Zero / Span Adjusting
- Linear / Rotary Selectable
- 3 Types of Pilot Relay (Standard / Stable / Quick Speed)
- Innovative Design for Various Mounting
- 4 Characteristics Selectable with 4-sided Cam



Specifications

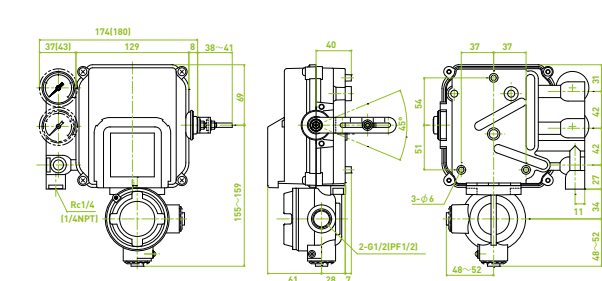
Items	Single acting	Double acting
Input Signal / Input Resistance	Standard (1/2 Split range available)	
Supply Air Pressure	0.14~0.70MPa	
Stroke / Angle	Linear: 10~100 mm Rotary: Lever Angle 60~90 deg.	
Air Connection	Standard: Rc 1/4 (Rc 1/8 for Gauges) Option: 1/4 NPT (1/8 NPT for Gauges)	
Electric Connection	Standard: G 1/2 Option: 1/2 NPT	
Cable Entry Conduit	Conduit method or Pressure-tight packing method	
*1 Pressure Gauge (Output Pressure)	Standard: 0.2 MPa / 0.4 MPa / 1.0 MPa Option: kPa, psi, bar	
Enclosure Protection	IP65 (IEC 529-1989)	
*2 Housing Construction	Standard: Non-Explosion Proof Flameproof: Exd IIB T6 Flapeproof H2 : Exd IIB+H2 T6	
Cam	Standard: Linear Characteristics Option: Eq % (S3 model) / Reverse Eq % / Sq-Law	
*3 Ambient Temperature	Standard: -20~83°C Low Temp.: -50~60°C High Temp.: 0~100°C Ex d IIB T6: -20~60°C Ex d IIB+H2 T6: -20~60°C	
Mass	Approx. 2.2~2.6 kg	
Housing Material	Body: Aluminium Die-casting Cover: Standard: PBT resin with Glass Fiber Option: Aluminium Die-casting	

*1 kPa, psi and bar units shall be investigated. psi is only for foreign market due to Non-SI unit.
*2 Certifications list are on page 23 *3 Low temp. nor High temp. options are not available on explosion proof models.
* Supply air should be dry (dew point under than -30°C) and clean.
* Air filter (smaller than 5µm) shall be placed just precading of supply port.

Dimensions

Linear / Side-lever construction

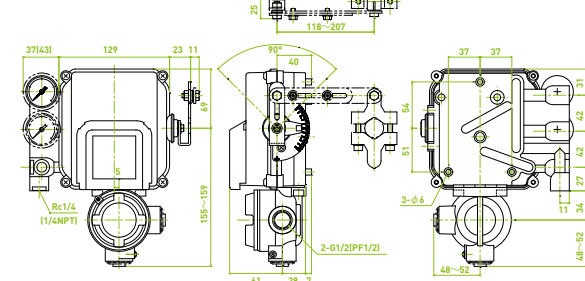
XE1●●-SS1



* No levers included

Rotary / Linkage construction

XE1●●-SS3



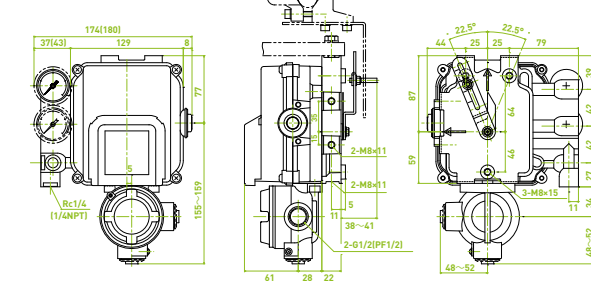
Notation Table

1	2	3	4	5	6	7	8	9
Items	Specification		Notation					
1 Series	XE1: E/P Positioner		XE1					
2 Housing Construction*	Standard: Non-explosion proof		0					
	Flameproof: Exd IIB T6		5					
	Flapeproof H2: Exd IIB+H2 T6		6					
3 Air connection & Action	Single Rc 1/4		1					
	Double Rc 1/4		2					
	Single 1/4 NPT		3					
	Double 1/4 NPT		4					
4 Ambient Temperature	Standard: Non-explosion proof: -20~83°C Explosion proof: -20~60°C		S					
	Low temp.: -50~60°C		L					
	High temp.: 0~100°C		H					
5/9 Mounting / Cam	Linear / Side-lever Construction: 4 phases cam: Linear & Eq%		S1/C1a					
	Rotary / Linkage Construction: 2 phases cam: Linear		S3/C3L					
	Rotary / Linkage Construction: 2 phases cam: Eq%		S3/C3E					
	Rotary / Linkage Construction: 2 phases cam: Square-law		S3/C3B					
	Rotary / Linkage Construction: 2 phases cam: reverse Eq%		S3/C3P					
	Linear / Back-lever Construction: 4 phases cam: Linear		B4/C4La					
	Rotary / Back-lever Construction: 2 phases cam: Linear		B7/C7L					
6 Pressure Gauges	0.2MPa, 0.4MPa, 1.0MPa		M2, M4, M0					
	200kPa, 400kPa, 1000kPa		K2, K4, K0					
	30psi, 60psi, 150psi		P2, P4, P0 *1					
	2 bar, 4bar, 10bar		B2, B4, B0					
7 Pilot relay / Orifice diameter	Standard with mesh protector		F1~F6					
	Standard with cleaning pin		Q1~Q6					
	Stable with mesh protector		G1~G6					
	Stable with cleaning pin		J1~J6					
	Quick speed with mesh protector		R1					
	Quick speed with cleaning pin		T1					
	* Numbers represents orifice diameter 1=φ5.0 2=φ2.0 4=φ1.0 5=φ0.7 6=φ0.45							
8 Input signal	4~20mA		M1					
	4~12mA		M2					
	12~20mA		M3					

* Certifications are listed on page 23
*1 No domestic sales in Japan due to Non-SI unit.

Linear / Side-lever construction

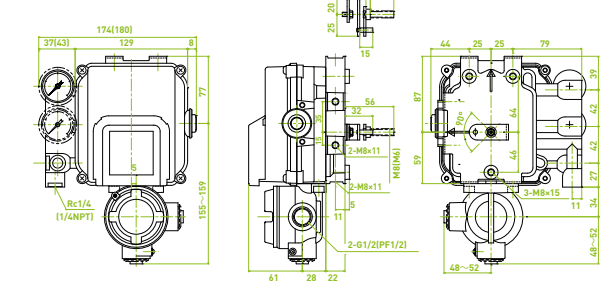
XE1●●-SB4



* No levers included

Rotary / Linkage construction

XE1●●-SB7





P/P Positioner XP100



Features

- Compatible Mounting for E/P and P/P
- Simplified Zero / Span Adjusting
- Linear / Rotary Selectable
- 3 Types of Pilot Relay (Standard / Stable / Quick Speed)
- Innovative Design for Various Mounting
- 4 Characteristics Selectable with 4-sided Cam



Specifications

Items	Single acting	Double acting
Input Signal / Input Resistance	Standard (1/2 Split range available)	
Supply Air Pressure	0.14~0.70MPa	
Stroke / Angle	Linear: 10~100 mm Rotary: Lever Angle 60~90 deg.	
Air Connection	Standard: Rc 1/4 (Rc 1/8 for Gauges) Option: 1/4 NPT (1/8 NPT for Gauges)	
*1 Pressure Gauge (Output Pressure)	Standard: 0.2 MPa / 0.4 MPa / 1.0 MPa Option: kPa, psi, bar	
Housing Construction	Non-Explosion Proof	
Cam	Standard: Linear Characteristics Option: non-Linear Characteristics	
Ambient Temperature	Standard: -20~83°C Low Temp.: -50~60°C High Temp.: 0~100°C	
Mass	Approx. 1.3 kg	Approx. 1.4 kg
Housing Material	Body: Aluminium Die-casting Cover: Standard: PBT resin with Glass Fiber Option: Aluminium Die-casting	

*1 kPa, psi and bar units shall be investigated. psi is only for foreign market due to Non-SI unit.
* Supply air should be dry (dew point under than -30°C) and clean.
* Air filter (smaller than 5µm) shall be placed just precading of supply port.

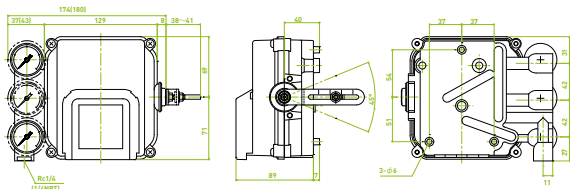
Notation Table

1	2	3	—	4	5	/	6	7	8	9
	Items	Specification								Notation
1	Series	XP: P/P Positioner								XP1
2	Housing Construction	Standard								0
3	Air connection & Action	Single Rc 1/4								1
		Double Rc 1/4								2
		Single 1/4 NPT								3
		Double 1/4 NPT								4
4	Ambient Temperature	Standard: -20～83℃								S
		Low temp.: -50～60℃								L
		High temp.: 0～100℃								H
5/9	Mounting / Cam	Linear / Side-lever Construction: 4 phases cam: Linear & Eq%								S1/C1a
		Rotary / Linkage Construction: 2 phases cam: Linear								S3/C3L
		Rotary / Linkage Construction: 2 phases cam: Eq%								S3/C3E
		Rotary / Linkage Construction: 2 phases cam: Square-law								S3/C3B
		Rotary / Linkage Construction: 2 phases cam: reverse Eq%								S3/C3P
		Linear / Back-lever Construction: 4 phases cam: Linear								B4/C4La
		Rotary / Back-lever Construction: 2 phases cam: Linear								B7/C7L
6	Pressure Gauges	0.2MPa, 0.4MPa, 1.0MPa								M2, M4, M0
		200kPa, 400kPa, 1000kPa								K2, K4, K0
		30psi, 60psi, 150psi								P2, P4, P0 *1
		2 bar, 4bar, 10bar								B2, B4, B0
7	Pilot relay / Orifice diameter	Standard with mesh protector								F1～F6
		Standard with cleaning pin								Q1～Q6
		Stable with mesh protector								G1～G6
		Stable with cleaning pin								J1～J6
		Quick speed with mesh protector								R1
		Quick speed with cleaning pin								T1
		* Numbers represents orifice diameter 1=φ5.0 2=φ2.0 4=φ1.0 5=φ0.7 6=φ0.45								
8	Input signal	20～100kPa								B1
		20～60kPa								B2
		60～100kPa								B3

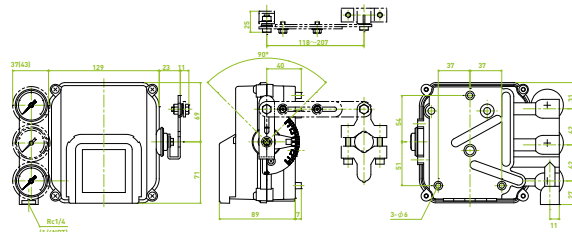
*1 No domestic sales in Japan due to Non-SI unit.

Dimensions

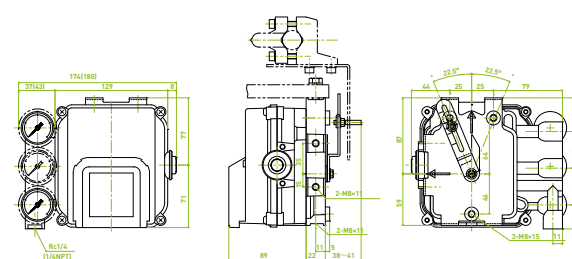
Linear / Side-lever construction
XP10●-SS1



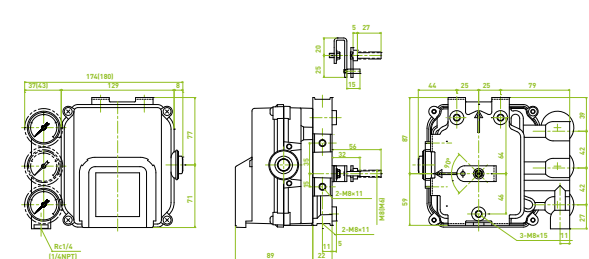
Rotary / Linkage construction
XP10●-SS3



Linear / Side-lever construction
XP10●-SB4



Rotary / Linkage construction
XP10●-SB7



* No levers included

E/P Positioner CE100

Features

- Light weight and Compact
- Linear / Rotary Selectable
- Split range Available
- Auto/Manual function
- 4~20mA Feedback function (option)



Specifications

Items	CE100
Input Signal / Input Resistance	Standard (1/2 Split range available)
Supply Air Pressure	0.14~0.70MPa
Stroke / Angle	Linear: 10~100 mm Rotary: Lever Angle 60~90 deg.
Air Connection	Standard: Rc 1/4 (Rc 1/8 for Gauges) Option: 1/4 NPT (1/8 NPT for Gauges)
Electric Connection	Standard: G 1/2 Option: 1/2 NPT
Cable Entry Conduit	Conduit method or Pressure-tight packing method
*1 Pressure Gauge (Output Pressure)	Standard: 0.2 MPa / 0.4 MPa / 1.0 MPa Option: kPa, psi, bar
Housing Construction	Standard: Non-Explosion Proof Flameproof: Exd IIB T6 (TIIS)
Enclosure Protection	IP65 (IEC529-1989)
Cam	Standard: Linear Characteristics
Ambient Temperature	Standard: -20~83°C (Flameproof: -20~60°C) Low Temp.: -50~60°C High Temp.: 0~100°C Low Temp.: T4: -40~80°C T5: -40~65°C T6: -40~50°C
Mass	Single Acting: Approx. 2.2 kg Double Acting: Approx. 2.3 kg
Housing Material	Body: Aluminium Die-casting Cover: Aluminium Die-casting

*1 kPa, psi and bar units shall be investigated. psi is only for foreign market due to Non-SI unit.

* Supply air should be dry (dew point under than -30°C) and clean.

* Air filter (smaller than 5µm) shall be placed just precading of supply port.

Notation Table

1	2	3	4	5	6	7	8	9
			—			/		

	Items	Specification	Notation
1	Series	CE1: E/P Positioner Dustproof & Waterproof: IP65 (IEC529-1989)	CE1
2	Housing Construction	Standard: Non-explosion proof	0
		Flameproof: Exd IIB T6 (TIIS)	5
		Air connection & Action: Analogue Feedback (Non-explosion proof)	7
3	Action / Connection	Single Rc 1/4	1
		Double Rc 1/4	2
		Single 1/4 NPT	3
		Double 1/4 NPT	4
4	Ambient Temperature	Standard	S
		Low Temp.	L
		High Temp.	H
5/9	Mounting / Cam	Linear / Back-lever Construction: 4 phases cam: Linear	B5/C5La
		Rotary / Back-lever Construction: 2 phases cam: Linear	B6/C6L
6	Pressure Gauges	0.2MPa, 0.4MPa, 1.0MPa	M2, M4, M0
		200kPa, 400kPa, 1000kPa	K2, K4, K0
		30psi, 60psi, 150psi	P2, P4, P0 *1
		2bar, 4bar, 10bar	B2, B4, B0
7	Pilot relay	Single	V1
		Double	V2
8	Input Signal	4~20mADC	M1
		4~12mADC	M2
		12~20mADC	M3

*1 No domestic sales in Japan due to Non-SI unit.

P/P Positioner CP200

Features

- Light weight and Compact
- Linear / Rotary Selectable
- Split range Available
- Auto/Manual function



Specifications

Items	CP200
Input Signal / Input Resistance	Standard (1/2 Split range available)
Supply Air Pressure	0.14~0.70MPa
Stroke / Angle	12~100mm / 60~90°
Air Connection	Standard: Rc 1/4 (Rc 1/8 for Gauges) Option: 1/4 NPT (1/8 NPT for Gauges)
*1 Pressure Gauge (Output Pressure)	Standard: 0.2 MPa / 0.4 MPa / 1.0 MPa Option: kPa, psi, bar
Cam	Standard: Linear Characteristics Option: Non-Linear
Ambient Temperature	Standard: -20~83°C Low Temp.: -50~60°C High Temp.: 0~100°C
Housing Material	Body: Aluminium Die-casting Cover: Aluminium Die-casting
Mass	Single Acting: Approx. 1.2 kg Double Acting: Approx. 1.3 kg

*1 kPa, psi and bar units shall be investigated. psi is only for foreign market due to Non-SI unit.

* Supply air should be dry (dew point under than -30°C) and clean.

* Air filter (smaller than 5µm) shall be placed just precading of supply port.

Notation Table

1	2	3	4	5	6	7	8	9
			—		/			

	Items	Specification	Notation
1	Series	CP200	CP2
2	Housing Construction	Non-explosion proof	0
3	Air connection & Action	Single Rc 1/4	1
		Double Rc 1/4	2
		Single 1/4 NPT	3
		Double 1/4 NPT	4
4	Ambient Temperature	Standard: -20~83°C	S
		Low Temp.: -50~60°C	L
		High Temp.: 0~100°C	H
5/9	Mounting / Cam	Linear / Back-lever Construction: 4 phases cam: Linear	B8/C8L
		Rotary / Back-lever Construction: 2 phases cam: Linear	B9/C9L
6	Pressure Gauges	0.2MPa, 0.4MPa, 1.0MPa	M2, M4, M0
		200kPa, 400kPa, 1000kPa	K2, K4, K0
		30psi, 60psi, 150psi	P2, P4, P0 *1
		2bar, 4bar, 10bar	B2, B4, B0
7	Pilot relay	Single	P1, N1, H1
		Double	P2, N2, H2
		Reverse	P3, N3, H3
8	Input Signal	20~100kPa	B1
		20~60kPa	B2
		60~100kPa	B3

*1 No domestic sales in Japan due to Non-SI unit.



I/P Converter

TE100

(w/ Junction box)

TE200

(w/o Junction box)



TE100 (w/ Junction box)



TE200 (w/o Junction box)

Features

Direct mounting of Regulator
Auto/Manual Function
Wall or Pipe mounting kit included



Specifications

Items	TE100	TE200
Supply Air Pressure	140kPa	
Output Air Pressure	20~100kPa	
Input Signal	4~20mA	
Accuracy	Linearity: $\pm 0.2\%$ Hysteresis: $\pm 0.2\%$ Repeatability: $\pm 0.1\%$	
Minimum Voltage	6.5V @ 20mA	
Air Flow Capacity	Approx. 40 NI / min	
Air Consumption	3 NI / min (w/ Regulator: 4 NI / min)	
Ambient Temperature	Standard: -20~80°C Flameproof: -20~60°C	-
Air Connection	Standard: Rc 1/4 (Rc 1/8 for Gauges) Option: 1/4 NPT (1/8 NPT for Gauges)	
Electric Connection	Standard: G 1/2 Option: 1/2 NPT	
Housing Construction	Explosion Proof: IIIS Flameproof Ex d IIB T6	-
Mass	1.6 kg (w/ Regulator: 1.8 kg)	1.3 kg (w/ Regulator: 1.5 kg)
Material	Aluminium Die-casting	

* Supply air should be dry (dew point under than -30°C) and clean.

* Air filter (smaller than 5 μ m) shall be placed just precading of supply port.

Notation Table

1	2	3	4	5	6	7	8	9

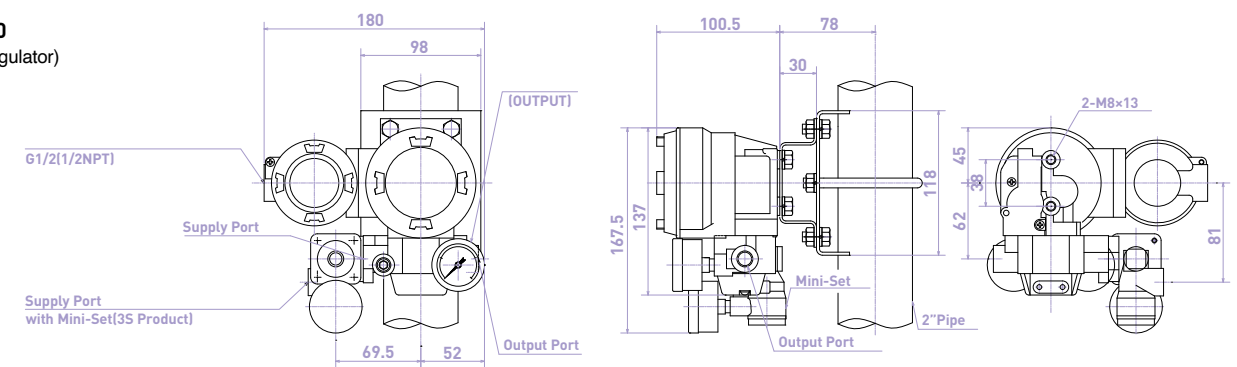
	Items	Specification	記号
1	Series	TE100: w/ Junction Box TE200: w/o Junction Box	TE1 TE2
2	Housing Construction	Non-Explosion Proof Ex d IIB T6 (IIIS) Flameproof *1	0 5
3	Air Connection Electric Connection	Rc 1/4 G1/2 1/4 NPT G1/2 1/4 NPT 1/2 NPT	1 3 5
4	Ambient Temperature	Standard: -20~60°C (Flameproof: -20~60°C)	S
5	A/M Function	Switchable	M K2
6	Pressure Unit	200kPa 0.2Mpa 30psi 2bar	M2 M2 P2 *1 B2
7	Pressure Gauge	None on Output Supply + Output	G0 G1 G2
8	Input Signal	4~20mA 4~12mA 12~20mA Special	M1 M2 M3 M4
9	Regulator Supply	Rc 1/4 1/4 NPT w/o Regulator	R1 N1 no-mark

* Pressure gauges applied when w/ regulator

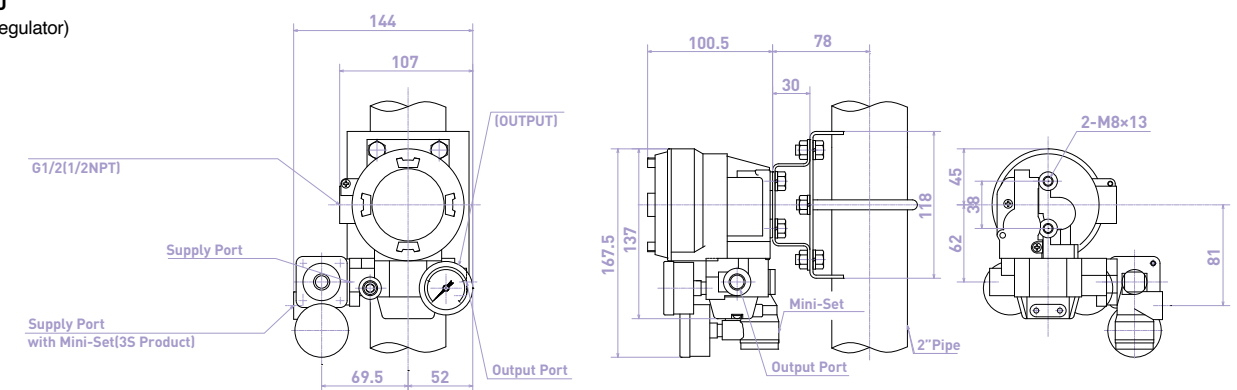
*2 No domestic sales in Japan due to Non-SI unit. *2 Not available with TE200 series

Dimensions

TE100 (w/ Regulator)



TE200 (w/o Regulator)





Filter Regulator XR100

Features

Compact & Lightweight
No Bracket Needed
2 Input ports & 3 Output ports (Connector Type)
Drain-plug Equipped
Low Filtration Resistance Polypropylene Filter
Panel-Mounting Hole Equipped



Specifications

Items	XR100
Ambient Temperature	Standard: -20~83°C High Temp.: 0~100°C
Pressure Range	0.2MPa, 0.4MPa, 0.8MPa
Pressure Gauge	0.2MPa, 0.4MPa, 1.0MPa Option: kPa / psi / bar *
Air Connection (Pressure Gauge)	Standard: Rc 1/4 (Gauge Rc 1/8) Option 1/4 NPT (Gauge 1/8 NPT)
Filter Element	Polypropylene non-woven 5μm Filtering Accuracy
Material	Approx. Resistance
Air Consumption	1.5kPa@100NI/min, 4.5kPa@300NI/min, 9.0kPa@600NI/min
Max. Supply Pressure	0.5Nℓ/min: 0.14MPa, 0.6Nℓ/min: 0.24MPa, 0.7Nℓ/min: 0.40MPa
Mass	0.9MPa
	Approx. 260 g

*1 No domestic sales in Japan due to Non-SI unit.

Notation Table

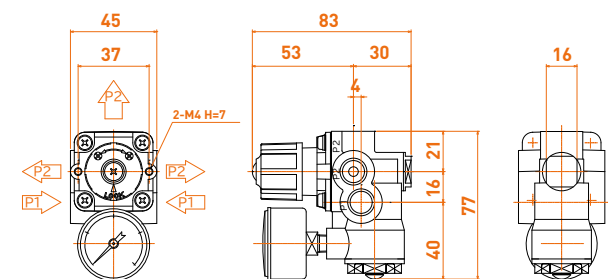
1	2	3	4	5

	Items	Specification	Notation
1	Series	XR100 Filter Regulator	XR10
2	Pressure Range	200kPa (0.2MPa) 400kPa (0.4MPa) 800kPa (0.8MPa)	2 4 8
3	Ambient Temperature	Standard: -20~80°C High Temp.: 0~100°C	S H
4	Pressure Gauge	0.2MPa, 0.4MPa, 1.0MPa 200kPa, 400kPa, 1000kPa 30psi, 60psi, 150psi	M2, M4, M0 K2, K4, K0 P2, P4, P0 *
5	Air Connection	2bar, 4bar, 10bar Rc 1/4 Connector Type 1/4 NPT Connector Type Rc 1/4 Frange Type 1/4 NPT Frange Type	B2, B4, B0 J3 U3 R1 N1

*1 No domestic sales in Japan due to Non-SI unit.

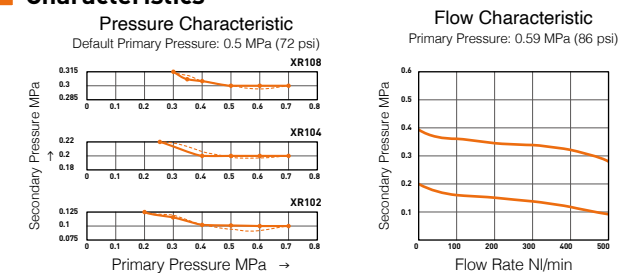
* R1/N1 are specially designed for our CE & TE series.

Dimensions



*1 Supply Air Port
*2 Air Ports are Rc 1/4 or 1/4 NPT.
*3 Pressure gauge is Rc 1/8 or 1/8 NPT.
* Ports not in use shall be sealed by attached plugs.

Characteristics



Signal Simulator AS200

Features

3 Modes Equipped

Source Mode	Signal Emission for 4~20 mA (or 1~5V) / 25% Step (or 0.01 % step) / mA or % Display Selectable
Receive Mode	Display Receiving Signal via 2-wire Transmission
Read Mode (Option)	Measure 4~20mA Current in circuit
2Wire Mode (Option)	Loop Test of 2-wire Transmission

Automatic LED Lighting for Dark Place Equipped
500Ω / 750Ω Resistance Switchable



Specifications

Items	Non-Rechargeable Battery (AS200)	
Accuracy	Source Mode	Current (4~20 mA) Voltage (1~5 V)
Input/Output Range	Receive / 2Wire Mode	0~23mA (-25%~119%) 0~5.76V (-25%~119%) 0~23mA (-25%~119%) ⇒ 2Wire Mode Loop Voltage Limit: 35 VDC Max
Drive Load Capacity	Read Mode	0~24mA (-25%~125%) L-load Mode: 500 Ω Max (@20 mA) H-load Mode: 750 Ω Max (@20 mA)
Display	Current (@20 mA)	3 1/2 digit 50PPM (TYP) / °C
Temperature Influence		
*3 Battery Lifetime	Source / Receive Mode (4~20 mA Mode)	L-load Mode H-load Mode
	Source (1~5 V)	Approx. 7 Hours (20 mA Continuously Output) Approx. 5 Hours (20 mA Continuously Output) Approx. 8 Hours (L-load Mode) / Approx 5 Hours (H-load Mode)
	2Wire / Read Mode	Approx 50 Hours
Battery		*4 Alkaline Battery (9V 006P) x1
Ambient Temperature		0~50°C
Storage Temperature Limit		-20~70°C
Dimensions		145x80x40
Mass		Approx. 320 g
Accessories		Connecting Wire / Carrying Case / Battery ... 1 per each Option: AC Adapter (9V 300 mA Center-Plus *5)

*1 FS: 16 mA (20 mA~4 mA) for current, 4V (5 V~1 V) for voltage

*2 At maximum output (119% / 23 mA), load capacity is approx. 90% of 20 mA output.

*3 Depends on battery capacity and ambient temperature.

*4 Alkaline battery is only acceptable (Zinc-carbon battery or Lithium battery is permitted.)

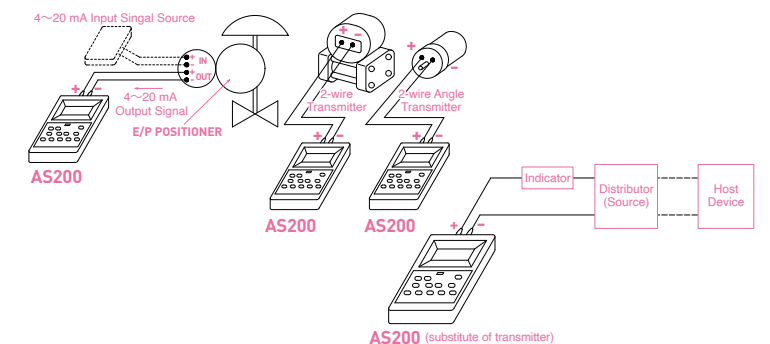
*5 Japanese type (A-type Plug / 100V AC) only.

Notation Table

1	2	3	4

	Items	Specification	Notation
1	Series	AS200 Signal Simulator	AS2
2	Battery	Non-Rechargeable	0
3	Mode select	Read 2Wire	0 1
4	AC Adapter	w/ Adapter w/o Adapter	0 1

Example of Use





Booster Relay XB100

Features

Suitable Flow Characteristics for Control Valves
Secondary Pressure Seal Plate to Detect Stable Secondary Pressure
Built-In Bypass Valve for Sensitivity Adjustment
Built-In Filter on Supply and Signal Ports
SUS Bolts and Nuts on Exposed Surfaces



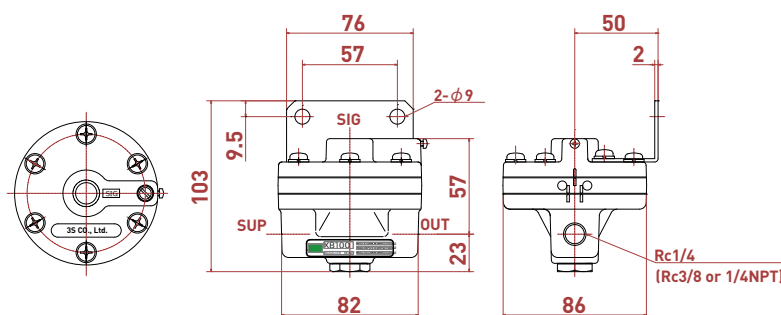
Specifications

Items	XB100
Maximum Supply Pressure	1.03MPa
Maximum Input Pressure	1.03MPa
Maximum Cv Value	1.2
Ambient Temperature	Standard: -30~83°C Option: -55~60°C / 0~100°C
Input : Output Pressure Ratio	1:1
Air Connection	Standard: Rc 1/4 Option: Rc 3/8, 1/4 NPT
Mass	Approx. 0.6 kg

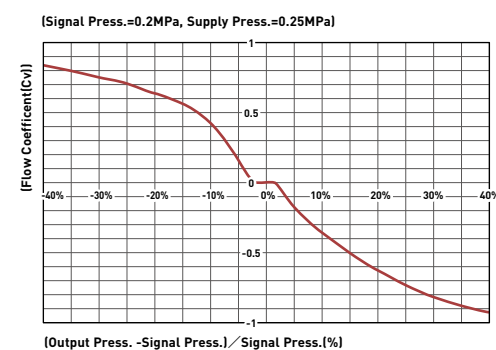
Notation Table

1	2	3	4
1	Series	Small Booster Relay	XB1
2	Ambient Temperature	Standard: -30~83°C Low Temp.: -55~60°C High Temp.: 0~100°C	0 1 2
3	Air Connection	SUP&OUT: Rc1/4, SIG: Rc1/4 SUP&OUT: Rc3/8, SIG: Rc1/4 SUP&OUT: 1/4NPT, SIG: 1/4NPT	1 2 3
4	Bracket	w/ Bracket w/o Bracket	B N

Dimensions



Characteristics



Booster Relay XB200

Features

Suitable Cv Value for Large Control Valves
Secondary Pressure Seal Plate to Detect Stable Secondary Pressure
Built-In Bypass Valve for Sensitivity Adjustment
Built-In Filter on Supply and Signal Ports
SUS Bolts and Nuts on Exposed Surfaces



Specifications

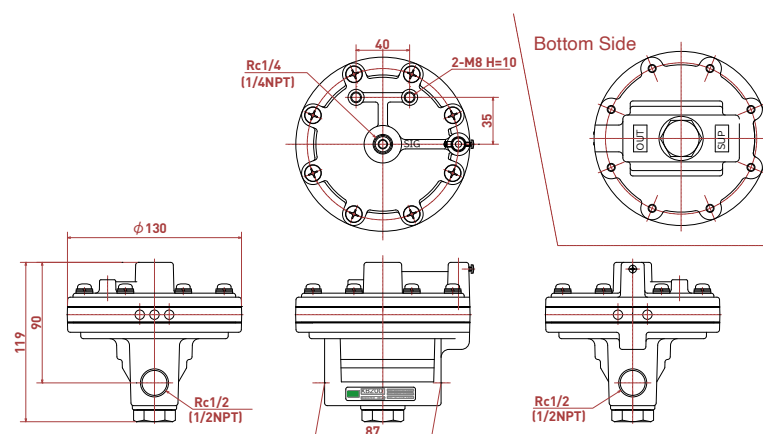
Items	XB200
Maximum Supply Pressure	0.99MPa
Maximum Input Pressure	0.99MPa
Maximum Cv Value	2.6
Ambient Temperature	-30~80°C
Input : Output Pressure Ratio	1:1
Air Connection	Standard: Rc1/2 Option: 1/2 NPT
Mass	Approx. 1.5 kg

Notation Table

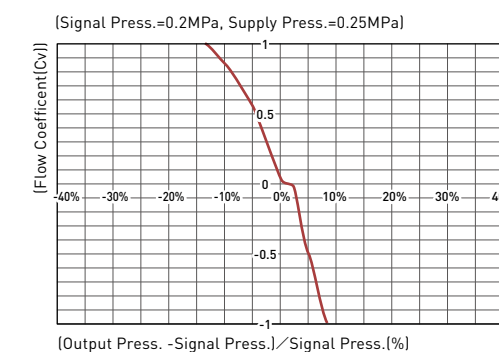
1	2	3
1	Series	Middle-size Booster Relay
2	Ambient Temperature	-30~80°C
3	Air Connection	SUP&OUT: Rc1/2, SIG: Rc1/4 SUP&OUT: 1/2 NPT, SIG: 1/4 NPT

* Brackets need to be evaluated.

Dimensions



Characteristics





Control Drive SE

Features

- High Durability SUS304 Construction
- Easy Maintenance
- Various Drive Power
- Manual Handle Equipped
- Changeable Characteristics by Angle of Cam



Specifications

Series	Pneumatic Control Drive Unit SE Series		
Construction	Totally-Enclosed Outdoor Type		
Ambient Temperature	Standard: -10~50°C High Temp.: 0~100°C		
Humidity	Less than 85 % (No Condensation)		
Rated Specification	Continuous		
Input Signal	Electric: DC 4~20 mA Pneumatic: 0.02~0.1 MPa (20~100 kPa)		
Supply Pressure	0.14~0.70MPa		
Air Consumption	11 NI/min (@ 0.4 MPa Supply Blanced)		
Material	Standard: SUS304 Option: SS (Painting Colour Munsell 7.5 BG 6/1.5 Light Gray)		
Hysteresis	2%		
Linearity	±3%		
Characteristic	Linear / Eq % / Reverse-Eq %		

* Hysteresis and Linearity depend on devices such as dampers, valves.

Notation Table

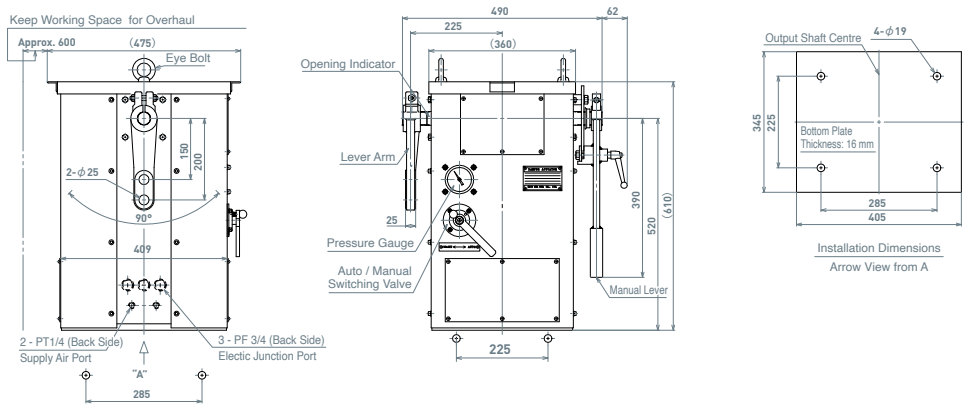
Model	Rated Torque N-m (kgf-m)					Cylinder Dimensions (mm)			Body Weight (kg)	
	Supply Pressure (MPa)					Piston	Diameter Stroke	Rod-Diameter		
	0.4		0.5		0.55					
SE-01H	123	(12.6)	152	(15.5)	167	(17.0)	φ100	100	φ30	70
SE-02H	196	(20.0)	245	(25.0)	274	(28.0)	φ125	100	φ36	80
SE-05H	323	(33.0)	412	(42.0)	451	(46.0)	φ160	100	φ40	160
SE-08H	627	(64.0)	784	(80.0)	872	(89.0)	φ180	150	φ45	190
SE-15H	1039	(106.0)	1313	(134.0)	1421	(145.0)	φ200	200	φ50	280
SE-25H	1568	(160.0)	1960	(200.0)	2156	(220.0)	φ200	300	φ50	380
SE-40H	2489	(254.0)	3126	(319.0)	3430	(350.0)	φ250	300	φ60	440
SE-60H	4155	(424.0)	5194	(530.0)	5684	(580.0)	φ300	350	φ70	620
SE-80H	5341	(545.0)	6664	(680.0)	7350	(750.0)	φ300	450	φ70	720
SE-100H	6517	(664.5)	8212	(837.4)	9055	(923.4)	φ300	550	φ70	820

Dimensions

Model	W	D	H	t	Model	W	D	H	t
SE-01H	360	475	595	16	SE-25H	530	755	1170	22
SE-02H	360	475	610	16	SE-40H	545	805	1285	22
SE-05H	360	475	675	16	SE-60H	630	930	1495	25
SE-08H	420	560	860	19	SE-80H	650	1050	1700	25
SE-15H	460	620	964	19	SE-100H	700	1230	1960	25

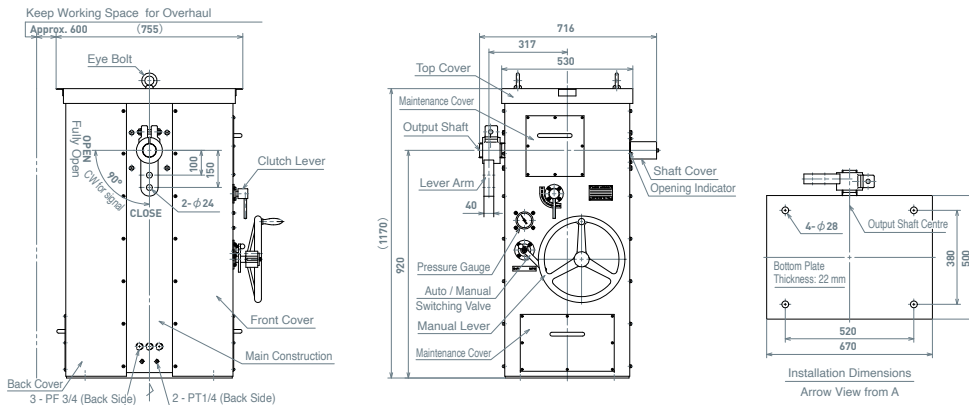
* Excluding Projection Part.

Control Drive SE-02H



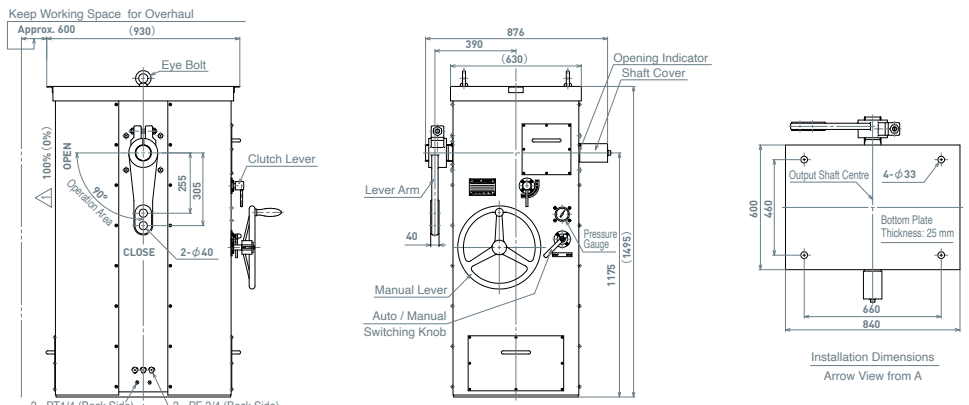
* Lever Arm can be connected from any angle on the shaft.
Pitch 11.3 deg.
Lever Arm can be connected on the other side.

Control Drive SE-25H



* Lever Arm can be connected from any angle on the shaft.
Pitch 9.5 deg.
Lever Arm can be connected on the other side.

Control Drive SE-60H



* Lever Arm can be connected from any angle on the shaft.
Pitch 9.5 deg.
Lever Arm can be connected on the other side.



Actuator For Damper WP201



Features

Ambient Temperature 10~83°C
P/P or E/P Selectable

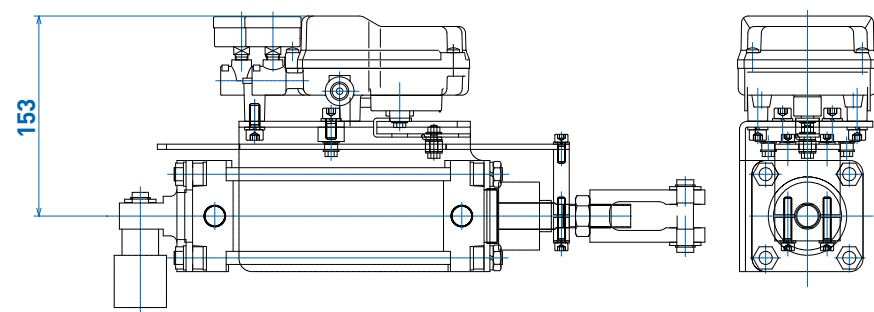
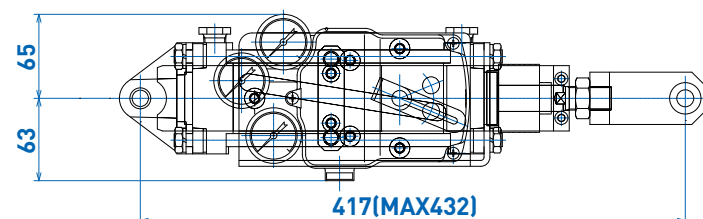


Specifications

Items	WP200 Double Action
Input Signal	20~100 kPa (Up to 1/2 Split range can be set)
Supply Pressure	0.14~0.70MPa
Stroke	125mm
Air Connection	Standard: Rc 1/4 (Rc 1/8 for Gauges) Option: 1/4 NPT (1/8 NPT for Gauges)
Pressure Gauge	Standard: 0.2 MPa / 0.4 MPa / 1.0 MPa Option: kPa, psi, bar *1
Construction	Dripproof
Cam	Standard: Linear Characteristics Option: non-Linear Characteristics
Ambient Temperature	-10~83°C
Mass	Approx. 8 kg
Material	Body / Cover: Aluminium Die-casting
Cylinder	Heat-Resistant Type: CA2C63-125-DCP5769P
Linearity	±3.5%
Hysteresis	2.0%
Repeatability	1.0%
Sensitivity	1.0%
Supply Fluctuation	0.3%/0.01MPa
Position Tolerance	10°: 0.5% 90°: 1.0%
Vibration Resistance	1%/1G
Air Consumption	10 NI/min (@75% balanced SUP 0.4 MPa)
Air Flow Capacity	140 /min (@SUP 0.4 MPa)
Balancing Pressure	75%

*1 No domestic sales in Japan due to Non-SI unit.

Dimensions



Wire-Driven Positioner



Linear Motion



Rotary Motion

Features

Feedback from Wire Connection
Isolate Positioner from Vibration and/or High Temperature
Preeminent Vibration Resistance (10G - 1000 Hz)
Flexible Installation Style
Separate from Actuator
Linear / Rotary Selectable by Simple Mounting Kit

Specifications

XE

Items	Single / Double
Input Signal / Input Resistance	Standard 4~20 mA / 250 Ω (1/2 Split range available)
Supply Air Pressure	0.14~0.70MPa
Stroke / Angle	Linear: 20~100 mm Rotary: Lever Angle 60~90 deg.
Air Connection	Standard: Rc 1/4 Option: 1/4 NPT
Cable Entry Conduit	Conduit method or Pressure-tight packing method
*1 Pressure Gauge (Output Pressure)	Standard: 0.2 MPa / 0.4 MPa / 1.0 MPa Option: kPa, psi, bar
Enclosure Protection	Standard: IP65 (IEC529-1989)
Housing Construction	non-Explosion Proof Flameproof: Exd IIB T6 Flameproof H2 : Exd IIB+H2 T6
Cam	Linear Characteristics
Ambient Temperature	Standard: -20~83°C (Flameproof: -20~60°C) Low Temp.: -50~60°C High Temp.: 0~100°C
Material	Body: Aluminium Die-casting Cover: Standard: PBT resin with Glass Fiber Option: Aluminium Die-casting
Accuracy	±2 % (Depends on length of wire, installation angle, and wire bending radius)
Air Consumption	10 NI/min (@SUP: 0.4 MPa)
Flow Capacity	370 NI/min (@Orifice φ5mm / max. venting)

XP

Items	Single	Double
Input Signal (Pressure)	Standard: 20~100kPa (1/2 Split range available)	
Supply Air Pressure	0.14~0.70MPa	
Stroke / Angle	Linear: 20~100 mm Rotary: Lever Angle 60~90 deg.	
Air Connection	Standard: Rc 1/4 (Rc 1/8 for Gauges) Option: 1/4 NPT (1/8 NPT for Gauges)	
Pressure Gauge (Output Pressure)	Standard: 0.2 MPa / 0.4 MPa / 1.0 MPa Option: kPa, psi, bar	
Housing Construction	Non-Explosion Proof	
Cam	Standard: Linear Characteristics Option: non-Linear Characteristics	
Ambient Temperature	Standard: -20~83°C Low Temp.: -50~60°C High Temp.: 0~100°C	
Mass	Approx. 1.3 kg	Approx. 1.4 kg
Housing Material	Body: Aluminium Die-casting Cover: Standard: PBT resin with Glass Fiber Option: Aluminium Die-casting	

*1 kPa, psi and bar units shall be investigated.

psi is only for foreign market due to Non-SI unit.

* Supply air should be dry (dew point under than -30°C) and clean.

* Air filter (smaller than 5μm) shall be placed just precading of supply port.

Wire System

Items	Feedback Wire
Length	3m, 5m, 7m, 10m
Stroke of Wire	75mm
Ambient Temperature	Standard: -30~80°C
Construction	Standard: Dustproof & Dripproof Option: Bellows Covered
Material	SUS

Notation Table

1	2	3	4	5

	Items	Specification	Notation
1	Model	Feedback Wire	FW
2	Construction	Standard Bellows Covered	1 2
3	Length	3m 5m 7m 10m	3 5 7 10
4	Ambient Temperature	Standard: -30~80°C	S
5	Mounting	Linear Motion Rotary Motion	S1 S3

Certifications for XE Series

TIIS	Ex d IIB T6 Ex d IIB + H ₂ T6		Ex d IIB T6 Gb Standards: IEC60079-0:2007 IEC60079-1:2007
ATEX 2014/34/EU	II 2G Ex d IIB T6 Gb Standards: EN60079-0:2009 EN60079-1:2007	IECEX02	Ex d IIB + H ₂ T6 Gb Standards: IEC60079-0:2009 IEC60079-1:2007
	II 2G Ex d IIB + H ₂ T6 Gb Standards: EN60079-0:2009 EN60079-1:2007	KOSHA	Ex d IIB T6 Ex d IIB + H ₂ T6

FAQ for X Series

How to replace existing
3S Products?

Please ask us with serial numbers.
We can determine each specifications
on their delivery.

How is the supply pressure range
for positioners?

140 to 700 kPa.
Using XR100 series on supply port is required.

Can be positioner operated in
high-temperature ambient?

Please choose High Temp, model (0~100 °C).
Flameproof model is limited up to 60°C
by certification restriction, so High Temp. model
cannot be used for flameproof model.

Are psi units and/or NPT
connection available for
pressure gauges?

Pressure gauges can be choosed from MPa, kPa,
psi and bar, and also we have NPT gauges.
Delivery time is to be discussed.

How orifice diameter shall
be choosed?

Please refer the table below;

[Orifice selection chart by capacity of actuator]

Type	Capacity (l)	Orifice diameter	Type	Capacity (l)	Orifice diameter
Double	Less than 0.3	0.45	Single	Less than 0.1	0.45
	0.3-0.7	0.7		0.1-0.5	0.7
	0.7-1.5	1.0		0.5-1.0	1.0
	1.5-10.0	2.0		1.0-3.0	2.0
	Over than 10.0	2.0 (5.0)		Over than 3.0	2.0 (5.0)

* Double action actuator should be considered for the total of 2 air rooms.

Company Profile

3S Co., Ltd. was born in Tokyo in 1986 as specialised manufacture of valve positioners. For more than 30 years, our services are put focuses on valve positioners Our products and services with our experience for instrumentation industries are highly appreciated. E/P, P/P and smart positioners, I/P converters and other peripheral devices are used in various industries such as petrochemical, chemistry, steel, paper, electricity, gas and so on. Our technical know-hows of pneumatic devices are contribute to clients' industrial operations by our products which are suitable with various valves. Additionally, 3S's products are used throughout the world especially in Asia. We do continue our efforts to support world industries as specialised manufacturer of positioners.

Business Locations

Headquarter / Factory (Tokyo)
East Japan Sales Branch (Tokyo)
West Japan Sales Branch (Osaka)
Hanoi Representative Office (Vietnam)



Supply for Valve Manufacturers

3S has been supplied positioners for domestic valve manufacturers continuously, and also have many OEM contracts with them. We feel proud that our customers are satisfied with our high-quality products and services.

Valve / Cylinder Manufacturers (Alphabetical Order)	Asahi Yukizai Corporation Azbil Corporation CKD Corporation Dresser Japan, Ltd. Emerson Valves & Controls Japan Co. IMI.Co.,Ltd	KITZ Corporation Konan Electric Co., Ltd. Motoyama Eng. Works, Ltd. NBS Corporation Nihon KOSO Co.,Ltd. Nippon Daiya Valve Co., Ltd.	Okamura Engineering corp. TOKO VALEX Co., Ltd. Tomoe Valve Co., Ltd. YKV Corporation etc...
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End Users

> Domestic (Industrial Area)

Petrochemical	Idemitsu Kosan Co., Ltd. / ENEOS Corporation / Cosmo Oil Co., Ltd. etc...
Chemistry	Asahi Kasei Corporation / Shin-Etsu Chemical Co., Ltd. / Sumitomo Chemical Company, Limited / Mitsui Chemicals, Incorporated / Mitsubishi Chemical Corporation etc...
Steel	Nippon Steel Corporation / JFE Steel Corporation / Kobe Steel, Ltd. etc...
Paper	Nippon Paper Industries Co., Ltd. / Oji Paper Co., Ltd. / Daio Paper Corporation / Hokuetsu Corporation etc...
Electricity / Gas	JERA Co., Inc. / Tokyo Gas Co., Ltd.
Others	Foods&Beverages / Sugar / Textile / Pharmacy / Grass / Tobacco / Cement / Ship Building / Plant Engineering

> Overseas (Countries & Regions)

Asia Pacific	China / Taiwan / South Korea / Philippines / Indonesia / Singapore / Thailand / Malaysia / Myanmar / India / Pakistan / Turkey / Australia etc...
Middle East	Iran / Qatar / Saudi Arabia / United Arab Emirates etc...
Europe	United Kingdom / France / Germany / Portugal / Spain / Switzerland / Denmark etc...
Others	United States / Canada / Mexico / Chile / Zambia etc...



3S Co., Ltd.

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FAX: +81-3-5918-0231

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