

**YT-1200 Pneumatic positioner.
Installation, Operation &
Maintenance Instructions.**



Doc: YT-1200/IOM/01

Nov 2006

Instruction Manual

(YT-1200L, R/ Linear, Rotary Type)



YT-200 Series air filter regulator.

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1. GENERAL

The pneumatic-pneumatic positioner YT-1200 is used for pneumatic valve actuators by means of pneumatic controller or control systems with an output signal of 3 to 15psi or split ranges.

2. FEATURES

- Performing 1/2 Split Control without any other substitutes.
- Easy to adjust zero and span
- Easy to convert from Reverse Action to Direct Action or vice versa
- Easy to protect from hunting effect by using output orifice in small size actuator.
- Easy Feedback Connection
- Fast and accurate response
- Low air consumption
- Easy installation
- Designed as block build structure for maintenance and repair
- Proved the reliability through over 500,000 times of Repeat Test and Vibration Test.
- Superior anti-corrosion by special surface treating

3. SPECIFICATIONS

Item • Type	YT-1200L (Linear Type)		YT-1200R (Rotary Type)	
	Single Acting	Double Acting	Single Acting	Double Acting
Input Signal	0.2~1.0kgf/cm ² (3 ~ 15psi) (1/2 split range adjustment is also available)			
Supply Pressure	1.4~7.0kgf/cm ² G (20~100psiG)			
Stroke	Standard : 20 ~ 70mm Option : 70 ~ 150mm		0° ~ 90°	
Connection	Standard : PT 1/4 (Gauge PT 1/8) Option : NPT 1/4 (Gauge NPT 1/8)			
Pressure Gauge (Output Pressure)	Standard : 0~4.0kgf/cm ² 0~10kgf/cm ²		Standard : 0~2.0kgf/cm ² 0~4.0kgf/cm ² 0~10kgf/cm ²	
Protection	Dust & Weather proof (IP66)			
Cam	Linear characteristics			
Ambient Temp.	-20℃~70℃			
Linearity	±1.0%F.S		±2.0%F.S	
Hysteresis	0.75%F.S		1.0%F.S	
Sensitivity	0.2%F.S		0.5%F.S	
Repeatability	±0.3%F.S		±0.5%F.S	
Air Consumption	3.0 LPM (Sup.=1.4kgf/cm ²)		11 LPM (Sup.=4.0kgf/cm ²)	
Maximum Flow Capacity	80 LPM (Sup.=1.4kgf/cm ²)		200 LPM (Sup.=4.0kgf/cm ²)	
Material	Aluminum Diecasting			
Weight	1.8 kg (Approx.)			

Based on temperature 20℃, absolute pressure 760mmHg and relative humidity 65%.

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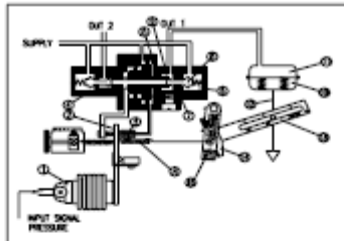
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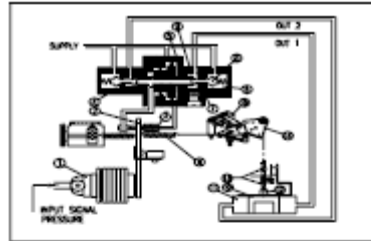
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4. OPERATING PRINCIPLES



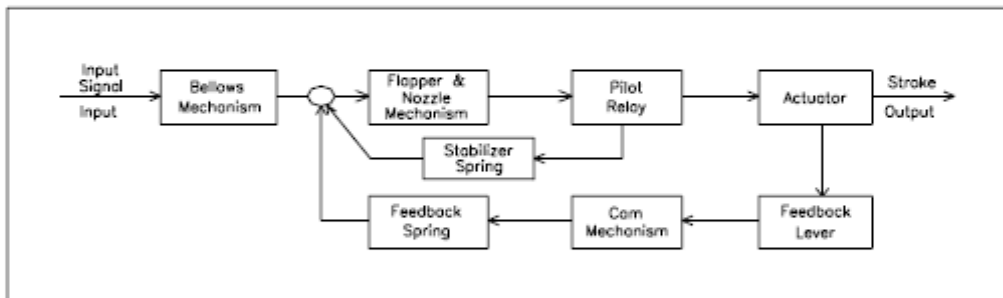
<YT-1200L>



<YT-1200R>

Increase the input signal to change in lift position of valve.
 Force exerted by ①Torque Motor reduces Nozzle Back Pressure with increase in gap between ②Flapper and ③Nozzle. Then ⑤Spool moves upward and the Seat opens simultaneously.
 Air pressure of OUT1 pipe is discharged to ⑩Actuator. As pressure in the actuator chamber goes up, ⑫Actuator stem start to move.
 The movement of Actuator stem exerted force to the ⑭Feedback Spring through Feedback Shaft connections. Then ⑩Actuator will stop at the point of force balance exerted by the input current signal and the feedback spring.

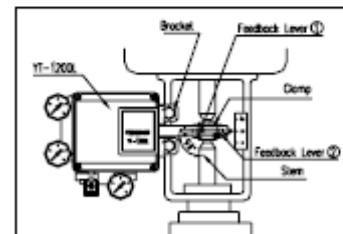
<YT-1200 Block Diagram>



5. INSTALLATION

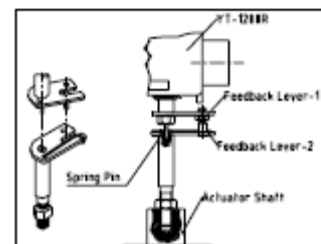
<YT-1200L>

- (1) Attach to the position that the valve stem and lever form the right angle when the input signal is 50%.
- (2) Attach to the position that the runout angle is within the range of 10° -30°



<YT-1200R>

- 1) Connection with feedback shaft
 Attach to the position at which the positioner feedback shaft and the rotary actuator main shaft are almost concentric(range in which the spring pin of feedback shaft edge enters the hole of fork assembly shaft edge).



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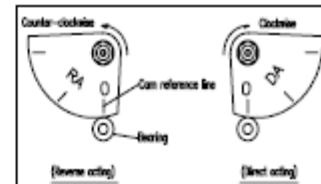


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2) Cam attaching procedure

- (1) Use the DA face of cam to turn the actuator main shaft clockwise (viewed from the positioner front cover side) at the time of input. Use the RA face to turn it counterclockwise (reverse action).
Correctly attach the cam to the flange part of feedback shaft.
- (2) Attach the cam in the procedure of loosening the hexagonal nut with flange first, setting the using actuator to the starting position and then setting the cam reference line and the bearing contact point of span adjusting arm unit to the matching position.
- (3) Do not apply the supply pressure when attaching the cam as otherwise it is very dangerous.
- (4) When the positioner is shipped out of our plant, the cam is tentatively tightened to the shaft. Be sure to firmly lock the cam the lock nut [tightening torque 2.0~2.5Nm(20~25kgfcm)].

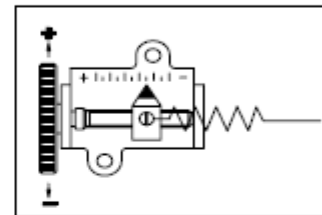


6. ADJUSTMENT PROCEDURE

1) Zero Adjustment

<YT-1200L,R>

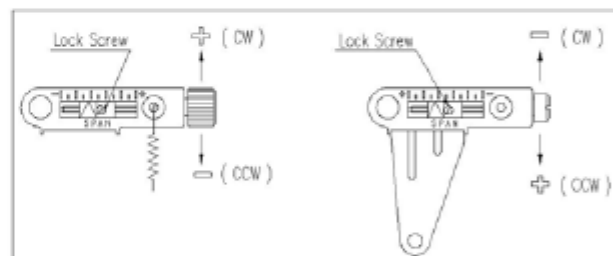
- ① Set an signal to the Stroke starting signal(3psi) then turn the Zero Adjuster clockwise or counterclockwise.
- ② In case of Spring Actuator, check if it is set to standard pressure in Zero Point. If not, repeat Zero adjustment.



2) Span Adjustment

<YT-1200L,R>

- ① Turn and adjust Span Adjustment Screw so that Indicator reaches at final Stroke Point by final input signal.
- ② Check Zero Point and repeat Zero Span Adjustment.
1/2 Split Range can be used by Zero and Span Adjustment.
- ③ After setting, tighten up Lock Screw of Span adjustment.

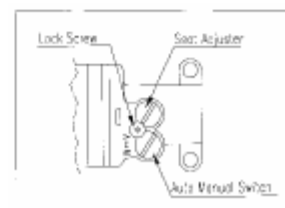


3) Auto/Manual Switch

- ① This is a Switch for changing Auto and Manual.
- ② Shipped products is set for Auto.
To use Manual operation, turns A/M Switch counterclockwise.
- ③ In manual operation, the pressure of YT-200 air filter regulator connects to Actuator.
After using, return switch to "A".
- ④ Not available for Single Acting-OUT2 and Double Acting.

4) Seat Adjuster

- ① No need to adjust at the field because Seat Adjuster is to be adjusted before shipment for balanced pressure point of output pressure.
- ② Seat Adjuster is always used for Double-acting.
If need to change balanced pressure point of output pressure, use Seat Adjuster.
- ③ If the sensitivity is poor because of the actuator type of load condition, turn the seat adjuster screw clockwise.
(The amount of turning varies by actuators. Do not loosen the stopper screw at this time since it is set to avoid the screw coming off.)



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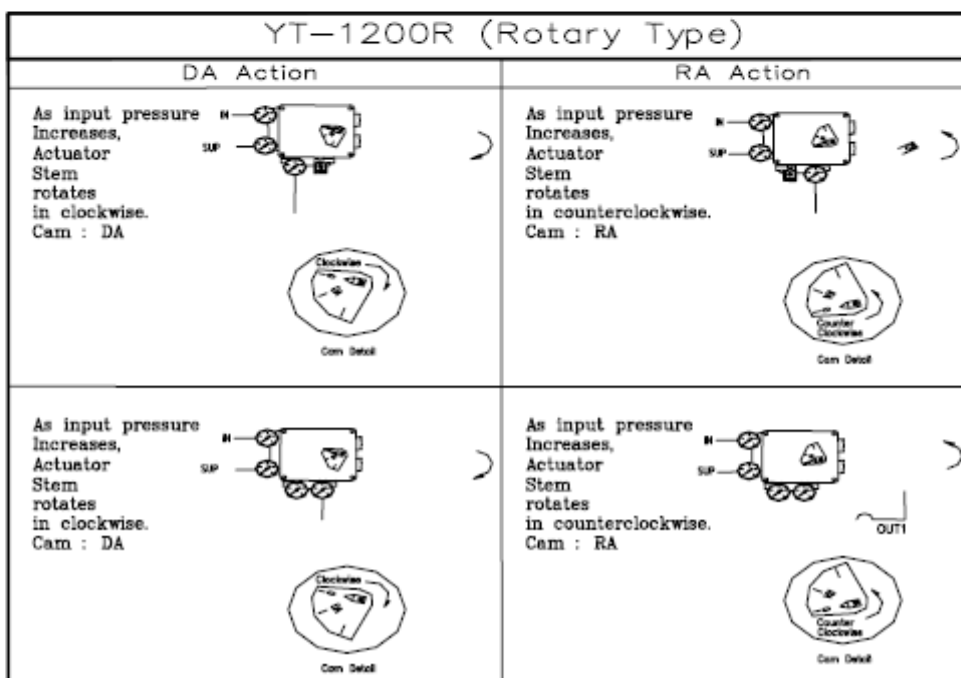
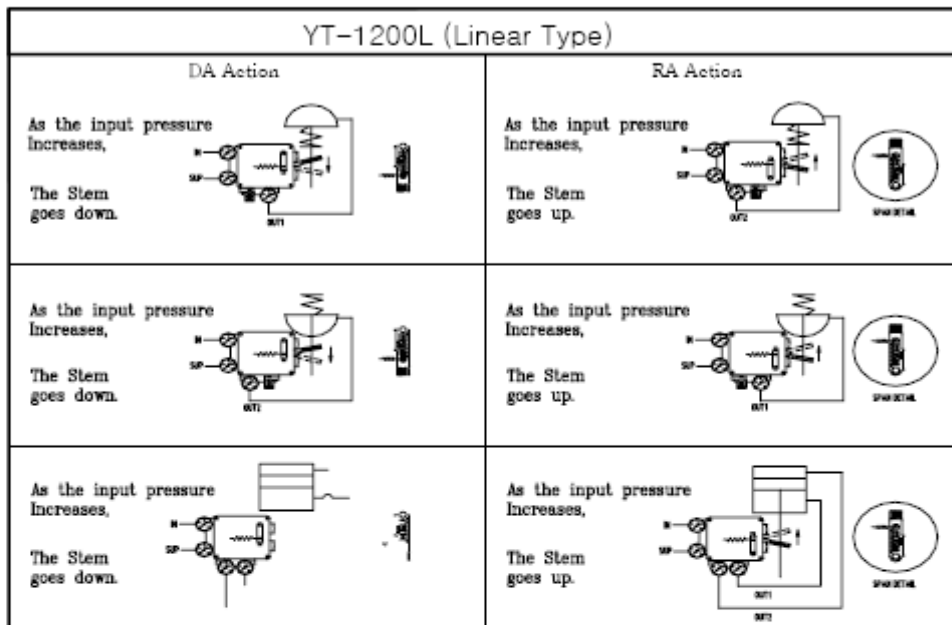
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7. AIR PIPING CONDITIONS

- ① Fully purge the pipe from foreign matters.
- ② Use clean air fully removed humidity and dust.
- ③ Use YT-200 filter regulator to keep supply air pressure constantly.
- ④ When using the double acting type as the single acting type, blind either OUT1 or OUT2 and also remove the pressure gauge to close its connection.

8. AIR PIPING DIAPHRAM



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9. LEVER TYPE SELECT

Linear Lever Type

Feedback Lever

YT-1000 Lever Type				
Type	Dimension Stroke	H	I	J
A	10~40mm	95	84	
B	40~70mm	120.5	123	
C	60~100mm	176.5	101	
D	70~130mm			381
E	120~150mm			418

* Lever Type A,B as standard C,D,E as option

Installation Method for Feedback Lever and Connection Bar

Connection Bar (option)

Type A,B

Type	L	M
A	16	12
B	40	18

* When you order Connection Bar, please contact us

Rotary Lever Type

YT-1000R Lever Type			
Type	Dimension Stroke	E	F
A	40	MB	BS
B	63	MB	10S
C	40	MB	BS
D	63	MB	10S
E		NUM11	

10. MAINTENANCE AND CHECK

- ① If the supply air is fouled, the positioner may not operate normally.
Periodically check the compressed air cleaning system and make sure that always clean air is supplied.
- ② When you disassemble the pilot valve, coat grease to the O-ring of the sliding section.
- ③ When the fixed orifice is clogged with carbon particles or others, remove the pilot valve Auto/Manual changeover screw(built-in fixed aperture) and clean it by inserting a $\varnothing 0.2$ wire into the aperture.
If it must be replaced with new one, stop the supply pressure and remove the stopper screw of the pilot valve.
- ④ Check the positioner once a year. When you find excessively worn diaphragm, O-ring and other packing or any unit, it should be changed with new one.
Treatment at an early stage is especially import if the positioner is used in a place of severe environment like coastal area.

11. WARNING

- ① Do not apply large vibration or impact to the positioner. It causes trouble.
The positioner must be handled very carefully during transportation and operation.
- ② If the positioner is used under temperature outside of the specification, the sealing materials deteriorate quickly and also the positioner may not operate normally.
- ③ Use clean supply air fully removed humidity and dust.
- ④ If you leave the positioner at the operation site for a long time without using it, put the cover on it so that the rain water does not enter the positioner.
If the atmosphere is of high temperature or high humidity, take measures to avoid condensation inside. The condensation control measures must be taken thoroughly for export shipment.

