PS1OR Series E/P Regulator Operation Manual

⚠ WARING

1. Do not disassemble, modify(including replacing printed circuit boards) or repair without authorization, which may result in injury or failure.
2. Do not operate the product exceeding the parameters(limited values), and do not use it for flammable or harmful liquids, which may cause fire, malfunction or damage to the product. Please verify the manual before using.
3. Do not operate in an environment containing flammable and explosive gases, which may cause fire or explosion. This product is not designed of explosion-proof.
4. If use this product in the interlock circuit:(1)Provide double interlocking systems, such as mechanical system;(2)Check regularly whether the product is operating normally; otherwise,malfunctions may occur leading to accidents.
5. The following instructions must be followed during maintenance: (1)turn off the power;(2) stop providing gas, remove the remaining pressure and make sure that there is no air supply before maintenance; otherwise, it may cause injury.
6. After the maintenance is completed, peform proper functional checks. If the equipment does not work properly, please stop the operation. In case of unexpected failure, safety cannot be guaranteed.

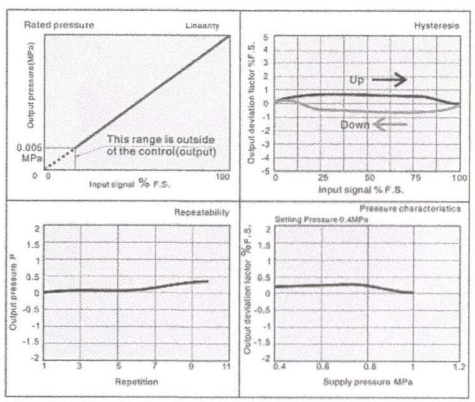
⚠ CAUTION

1. Only trained personnel should operate this product, who is familar with conrol, installation, operation, diagnosis and repair of this pneumatic system. Ref the regulations of the malfunction prevention and the operating safety, read this instruction and fully undertand before operating.
2. If power to this product is cut off due to a power failure etc, when it is in a controlled state, residual pressure will be retained temporarily. Handle carefully when operating with output pressure released to the atmosphere, as air will continue to flow out.
3. If supply pressure to this product is interrupted or shut off, while the power is still on, the internal solenoid valve will continue to operate and a humming noise may be generated. Since the life of the product may be shortened, shut off the power supply also when supply pressure is interrupted or shut off.
4. The incorrect wiring can cause damage, please proceed carefully. When the monitor output is not being used, keep if from touching the other wires as this can cause malfunction.

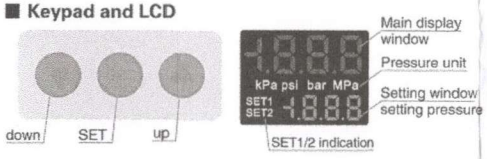
■ Specifications

Model		
Port size	G1/4	G3/8
Flow rate characteristics	1.5	2.0
Pressure range	0~0.9MPa	
Input signal	0~10V or 4~20mA(sink)	
Monitor output	4~20mA(sink) / 1~5V / 1 point switch output	
Connector type	4-pins M12A standard(Male)	
Supply Voltage	DC24V ± 10%	
Power	≤3W	
Enclosure	IP65 (DIN40050)	
Working temperature	0~50℃	
Working medium	Clear air(After 5μm filtration)	
LED display	Set pressure and actual pressure display at the same time	
Valve body	Aluminium alloy	
Installation position	Random direction	
Max input pressure	1.0MPa	
Min input pressure	bigger than max output pressure by 0.1Mpa	
Accuracy	≤ ± 0.5%	
Linearity	≤1.0%F.S.	
Repeatability	≤ ± 0.5%F.S.	
Hysteresis	≤0.5%F.S.	

■ Flow Chart



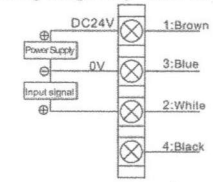
■ Keypad and LCD



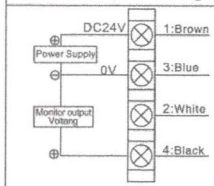
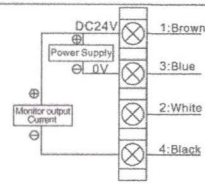
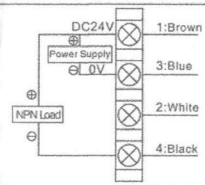
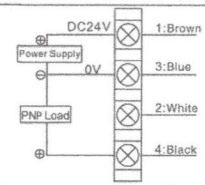
■ Electrical connection

4 pin		Electrical connection
PIN #	Cable color	Analog input type
PIN 1	Brown	+24VDC
PIN 2	White	Positive input signal
PIN 3	Blue	Negative power supply 0V
PIN 4	Black	Positive output signal

■ Wiring diagram(Power supply and input signal)



■ Wiring diagram(Monitor output)

Monitor output/Voltang type	Monitor output/Current(sink) type	Monitor output/NPN type	Monitor output/PNP type
			
Only use equipment with a minimum load impedance of 100KΩ.	Only use equipment with a maximum load impedance of 250Ω.	When a current over 150mADC, the over current circuit starts activating, "Er3" is displayed and the operation stops.Please use with installing the load that the output current becomes to 80mADC or less.	When a current over 150mADC, the over current circuit starts activating, "Er3" is displayed and the operation stops.Please use with installing the load that the output current becomes to 80mADC or less.

Caution:when the monitor output is not being used prevent it from touching the other wires as this can cause a malfunction。

■ Lock and Unlock

1. When power on, Lock is defaulted. "Loc" is displayed and can not be operated.
2. Press ▼ for 2 seconds or more, "Loc" starts flashing on the display.
Press SET key, "unl" is displayed for approx. 1 second, key lock is released and pressure is displayed.Press ▲ to exit the unlocked status immediately. No more operation for 5 seconds, pressure displayed and the keys are locked.
3. When key locked, press ▲ for 2 seconds or more,"unl" starts flashing on the display, it is to be locked.Press SET key,"loc" is displayed for approx.1 second, pressure is displayed and the keys are locked.Press ▼ to exit the locked status immediately. No more operation for approx.5 seconds, pressure displayed and the keys are unlocked.

■ Setting of min. pressure, max. pressure

1.Unlock keys, Press SET, "F_1" is displayed on main window and "SET 1" displayed on settting area, set the minimum pressure by using ▲ and ▼ keys.
2. Press SET, "F_2" is displayed on main window and "SET 2" displayed on settting area, set the maximum pressure by using ▲ and ▼ keys.
3.Press SET again, If set in correct data, press SET and save the data and pressure displayed.
NOTE:F_1 is adjustable in a range from 0 to 90% of the rated value. F_2 is adjustable in a range from 20 to 120% of the rated value. F_1 should be < F_2.

■ Detail setting mode

Unlock keys, press SET key for 2 seconds or more, then the main display window flashes. Release the SET key to enter into the menu of pre-intermediate settings. Press▲ or ▼ keys to switch between "F01" (GAIN) , "F02"(SENSITIVITY), "F03" (ZERO CLEAR), "F04" (PRESSURE UNIT), "F99"(INITIALIZE). Press SET key to enter into the corresponding settings.

1. Gain Setting
Enter "F01" to set the Gain,"GL.x" is displayed. Press▲ and ▼ keys to switch the Gain between "GL.0" and "GL.9". The initial value is "GL.9". Press SET key to set and save the value to return to the Detail setting menu.
The relation between the Gain setting and the response:

Response	Qucik ◄								► Slow
Gain Setting	GL.9	GL.8	GL.7	GL.6	GL.5	GL.4	GL.3	GL.2	GL.0	GL.0

2. Sensitivity Setting
Enter "F02" to set the Control Sensitivity, "SL.x" is displayed. Press▲ or ▼ keys to switch the Sensitivity between "SL.0" and "SL.5". The initial value is "SL.0". Press SET key to set and save the value to return to the Detail setting menu.
The relation between the setting and the sensitivity:

Sensitivity	Sharp ◄					► Dull
Gain Setting	SL.0	SL.1	SL.2	SL.3	SL.4	SL.5

3. Pressure zero clear
Enter "F03" to set the Zero Clear,"OcL" is displayed. Press▲ and ▼ keys for 3 seconds or more, release the SET key, "cLr" is displayed after 3 seconds and "Zero clear" is executed. Return to the Detail setting menu immediately.
4.Pressure unit setting
Enter "F04" to set the Pressure Unit,it is displayed between the main window and the setting area. Press▲ or ▼ keys to switch the unit between "kPa" 、 "psi" 、 "bar" 、 "MPa" . The initial value is "kPa". Press SET key to set and save the value to return to the Detail setting menu.
5.Initialize
Enter "F99" to initialize the value."ini" is displayed. Press▲ and ▼ keys for 5 seconds or more,the display window flashes quickly. Release the keys and Turning off and restart, "Initialize" is executed.If the SET key is released within 5 seconds, it will stay in the Initialize setting status.

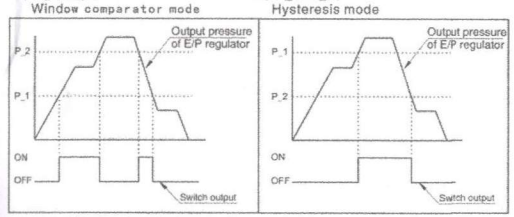
■ Switch output NPN/PNP type

1.Unlock keys, Press SET, "P_1" is displayed on main window and "SET 1" displayed on settting area, set the "P_1" by using ▲ and ▼ keys.
2. Press SET, "P_2" is displayed on main window and "SET 2" displayed on settting area, set the "P_2" by using ▲ and ▼ keys.
3.Press SET again, If set in correct data, press SET and save the data and pressure displayed.

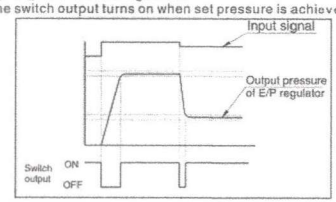
The following operation types are available by setting P_1 and P_2.

1、P_1<P_2:
Window comparator mode

2、P_1>P_2:
Hysteresis mode



3、P_1=P_2=0: Out of range mode
(The switch output turns on when set pressure is achieved.)



■ Fault error type

S.N	Error	Description
1	Er1	Control signal over-range, in the case of 4~20mA signal, <3.5 or > 20.5mA error; in the case of 0~10V, > 10.5V error.
2	Er2	Reading or writing errors occurred. Press ▲ and SET key to initialize the values.
3	Er3	Over current errors in switch output.Please use with installing the load that the output current becomes to 80mADC or less.
4	Err	The min.pressure or max. pressure setting are out of range, Press ▲ or ▼ keys to reset the values.

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