

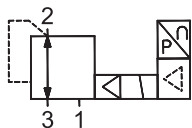
Proportional Pressure Regulator

Series : PPR

Sizes : G1/4, G3/8, G1/2



- ❑ Suitable for standalone and modular mounting
- ❑ Set pressure 0.05 to 10, 6, 2.5 and 1 bar
- ❑ Straight and Right angle cable options
- ❑ Accessories



AIR PREPARATION UNITS

PROPORTIONAL PRESSURE REGULATOR Series PPR

Cat No PPR - 01 - 01 - D

PROPORTIONAL PRESSURE REGULATOR - G1/4, G3/8, G1/2

Features

- ☐ LED display for monitoring output pressure
- ☐ Fast response
- ☐ High flow rate
- ☐ Output pressure is maintained in the event of power loss
- ☐ IP65 class protection
- ☐ Compact and lightweight
- ☐ Suitable for standalone and modular mounting
- ☐ Straight and right angle cable options available



Application

- ☐ Tension control applications
- ☐ Glue proportioning
- ☐ Spot welding
- ☐ Control of speed, force and torque
- ☐ Zero weighing balancer
- ☐ Position control
- ☐ Fluid coating and many...

Technical Specifications

Model			PPR156.....		PPR146.....	
Port size			G1/2		G1/4, G3/8	
Medium			Compressed air, Filtered [#]			
Minimum supply pressure (bar)			Regulated pressure +0.5 to 1 bar			
Maximum supply pressure (bar)			10.5	7	3.5	2
Regulating pressure range (bar)			0.05 - 10.0 (Standard)	0.05 - 6.00	0.05 - 2.5	0.05 - 1
Power Supply	Voltage		24V DC ±10 %			
	Power consumption		3 Watts			
	Current consumption		0.125A at 24V DC			
Command Signal	Potentiometer mode (only in voltage analog input model)		Analog Input through potentiometer (Load Impedance >10kΩ)			
	Keyboard mode		Input through keys			
	Analog input	Voltage	0 - 10V (Load impedance 10 kΩ)			
			0 - 5V (Load impedance 10 kΩ)			
		Current	4 - 20mA (Load impedance < 270Ω)			
			0 - 20mA (Load impedance < 270Ω)			
Monitoring output	Analog output	Voltage	0.2 - 4.7V DC (output impedance 10 kΩ), output accuracy ±3% of full span			
			1 - 5V DC (output impedance 10 kΩ), output accuracy ±3% of full span			
			0 - 10V DC (output impedance 10 kΩ), output accuracy ±3% of full span			
		Current	4 - 20mA DC (output impedance 250Ω), output accuracy ±3% of full span			
Linearity			±1% of full span or less			
Hysteresis			0.5% of full span or less			
Repeatability			±0.5% of full span or less			
Sensitivity			0.2% of full span or less			
Output pressure Display	Accuracy		±2% of F.S. ±1 Digit or less			
	Minimum Unit		0.01 bar, 1 psi, 0.01 kgf/cm ²			
Flow @ (ltrs/min)			7000		2250	
Ambient / Medium temperature			0° to 50° C			
Enclosure (Class protection)			IP 65			
Weight (kg)			0.750		0.560	

@ Supply pressure 10.5 bar, Set pressure 6 bar, Pressure drop $\Delta p = 1$ bar (For standard models).

Use a Filter (5 micron) and a Mist separator (0.01 micron) at the inlet.

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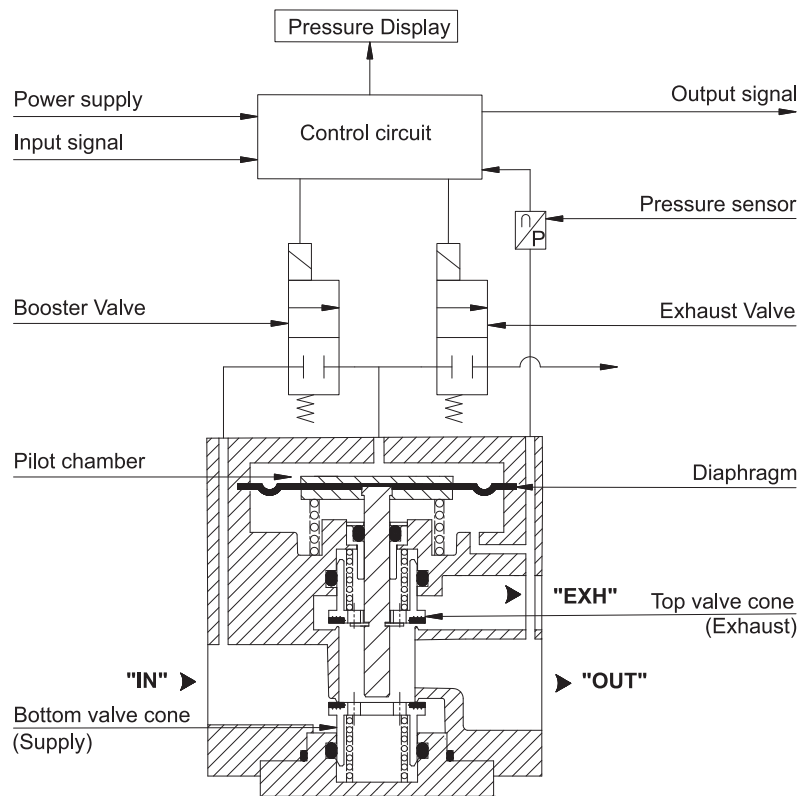
Function

When the input signal rises, "Booster valve" switches ON and pressurises the "Pilot chamber". Increase in pressure in the pilot chamber forces the "Diaphragm" downwards, and closes the "Top valve cone" (blocks Out to Exhaust) and subsequently opens the "Bottom valve cone", eventually connecting "IN" to "OUT".

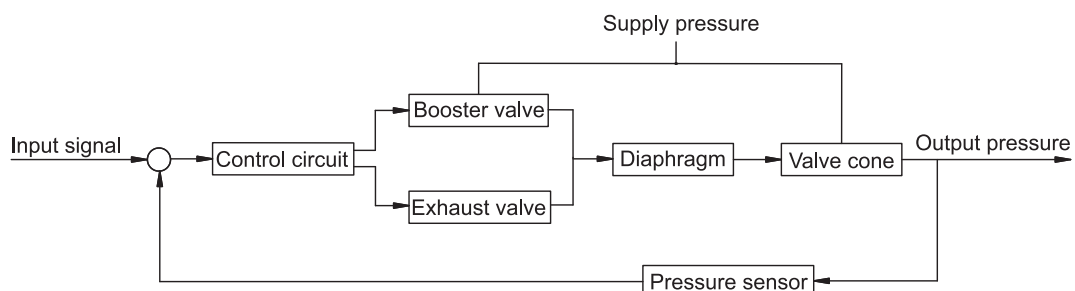
The "Pressure sensor" monitors the output pressure and sends feedback to the "Control circuit". Once the desired output pressure is attained, "Control circuit" switches OFF the "Booster valve".

The "Control circuit" tries to maintain a pressure proportional to the "Input signal". i.e., in case if the output pressure exceeds the desired value, it switches OFF the "Booster valve" and switches ON the "Exhaust valve" and depressurises the "Pilot chamber", until the output pressure reaches the desired value.

Similarly, when the output pressure falls below the desired value, the "Exhaust valve" gets switched OFF and the "Booster valve" gets switched ON to maintain the desired output pressure. This cycle is repeated until the output pressure is proportional to the input signal.



Functional block diagram

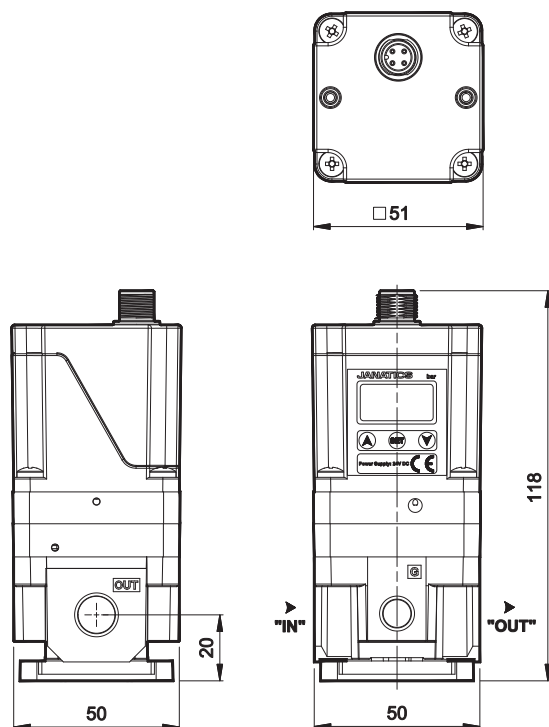


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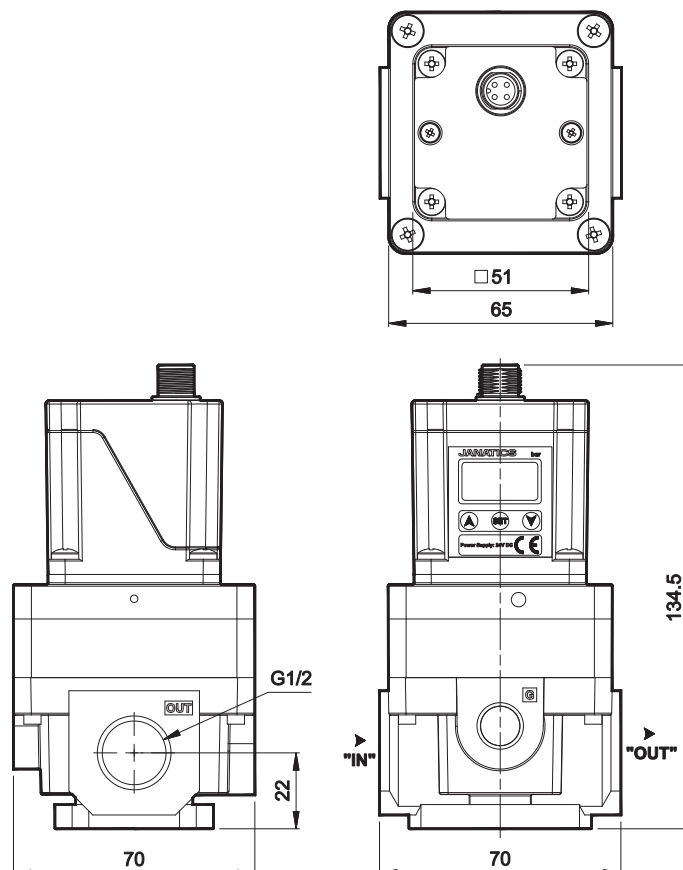
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Model PPR 1461..-W..



Model PPR 1563..-W..



Accessories

L - Clamp - (Ordering No: A2C07)

Dimensional details	PPR146XXX-WXX	PPR156XXX-WXX

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PROPORTIONAL PRESSURE REGULATOR Series PPR

Cat No PPR - 01 - 01 - D

Foot Bracket - (Ordering No: A2C08)		
Dimensional details	PPR146XXX-WXX	PPR156XXX-WXX

Electrical cable connection

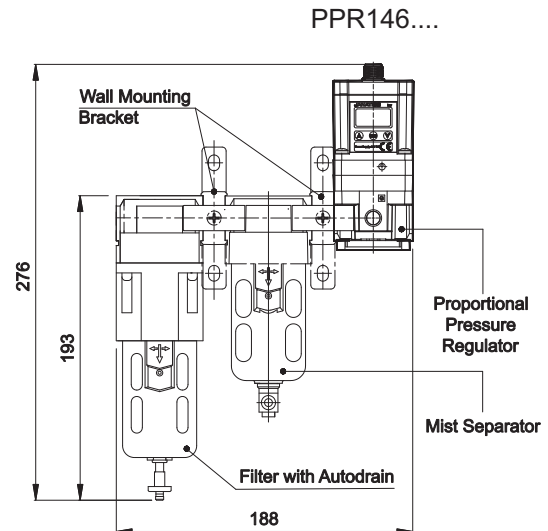
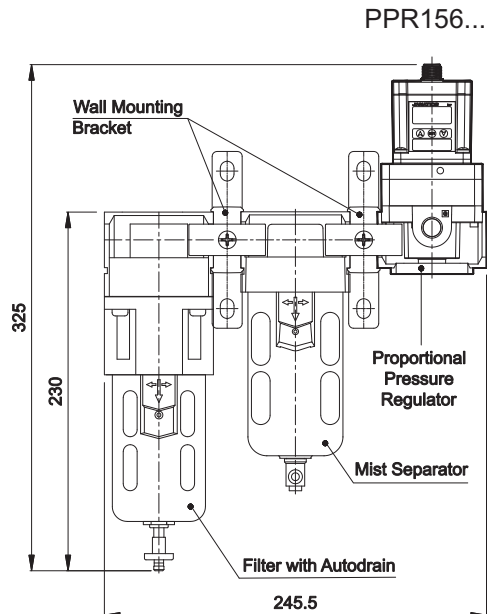
Straight Connector	Right Angle Connector
Ordering No: AC100-M124S-PVC-2M (L=2mtr) AC100-M124S-PVC-5M (L=5mtr) AC100-M124S-PUR-2M (L=2mtr) AC100-M124S-PUR-5M (L=5mtr)	Ordering No: AC100-M124L-PVC-2M (L=2mtr) AC100-M124L-PVC-5M (L=5mtr) AC100-M124L-PUR-2M (L=2mtr) AC100-M124L-PUR-5M (L=5mtr)

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Recommended modular mounting and products



Sl. No	Product name	Part no	Qty
1	Filter with auto drain	F15631-A	1
2	Mist separator	FS15632	1
3	Wall mounting bracket	A2W03	2

Sl. No	Product name	Part no	Qty
1	Filter with auto drain	F14621-A	1
2	Mist separator	FS14622	1
3	Wall mounting bracket	A2W02	2

Precautions

General information

1. Read these instructions carefully before installing and commissioning the device
2. These instructions are important and must be stored for future references
3. Only trained personnel should operate (Installation, commissioning, and maintenance) the product
4. Inspection and maintenance of the product only be performed once safety of personnel and product is confirmed
5. Before the product is removed, stop the air supply, exhaust the residual pressure and verify the air pressure is zero and turn off the power
6. Before the product is restarted, ensure safety for the product and the person
7. These instructions and procedures in this manual are intended to be an overview of the product and do not contain detailed information on design of the product
8. Safety / warning symbols in these instructions are given for optimum protection of personnel, environment and as well as safe and fault-free operation of the product
9. Information and symbols directly on the product must be observed. They may not be removed so that it shall be fully legible at all times
10. For any problems or difficulties that are not discussed in this manual, please contact JANATICS

Air Supply

Caution

1. Do not use compressed air that contains chemicals, synthetic oils, organic solvents, salt or corrosive gases etc., as it can cause malfunction
2. Install an air filter on the supply side. Refer recommended modular mounting and products.
3. Compressed air containing large amounts of drainage can cause malfunction to the product and other pneumatic equipment. As a countermeasure, install an after cooler, air dryer or Drain Catch, etc.

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Pneumatic connection

Caution

1. Connect the piping adapter with the recommended torque. If the tightening torque is low, sealing will not proper. If the tightening torque is high, thread damage will occur. Refer recommended modular mounting and products.
2. Do not allow twisting or bending moment to be applied on the unit. Provide separate support for external piping
3. Use flexible (PU, Nylon) tubing for intermediate connections to avoid excessive moment loads and the propagation of vibrations in the system
4. Flush the piping for dirt, dust, rust and other foreign particles
5. Please ensure foreign particles (tape, dirt etc.,) do not enter the product during assembly

Handling Precaution

Warning

1. If the power supply of the product is turned off during normal operation, the output pressure will be held as same as set pressure of the product and air will flow continuously. To exhaust the output pressure, first reduce the set pressure, then power off the unit and discharge the residual pressure by using exhaust valve or an equivalent
2. If supply pressure of the product is interrupted or shut off, while the power is still on, the internal solenoid valve will continue to operate. Turn off the power supply when supply pressure is interrupted or shut off, so that life of the solenoid valve is not affected
3. If the Output pressure is released to atmosphere, the booster valve will be in full open condition and under such condition product does not meet the desired pressure and product life may be shortened
4. The M12 connector is 4-wire type. When the analog output is not being used, insulate it from touching the other wires to avoid malfunction
5. The right angled cable connector does not rotate and is designed to only one entry direction. If it is forcibly rotated, cable or product may be damaged
6. This product is adjusted to specification at the time of shipment from the factory. It is recommended to avoid disassembly or removal of parts, as this can lead to malfunction of the product
7. Do not use a lubricator on the supply side of the regulator, as this will cause the valve to become clogged and lead to malfunction. If lubrication is required for terminal devices, connect a lubricator after the output side of the regulator
8. Do not use the product outside the range of its specifications as this can cause failure. Refer Technical specifications
9. When mounting is performed, make connections while confirming port indications
10. Take the following steps to avoid malfunction due to noise:
 - a) Install a line filter to the AC power line to reduce / eliminate power supply noise
 - b) Avoid malfunction due to noise, by installing this product and its wiring away from strong electric fields (such as those of motors and power cables, etc.)
 - c) Ensure to implement protective measures against surge for inductive loads (i.e. solenoid valves, etc.)
 - d) Turn off the power supply before inserting or removing the connector
11. The capacity of the output side is large, and when used for the purpose of a relief function, the exhaust sound will be loud when being relieved. Therefore, operate with a silencer mounted on the exhaust port (EXH port). The connection is G1/2
12. Output pressure cannot be released to atmosphere in the range below 0.05 bar. In case output pressure needs to be zero, connect a 3/2 NC valve on the output pressure port
13. If the air supply is given in the absence of electrical power, output pressure may increase up to the supply pressure because this product does not have shut off valve function. Operate the product when both electrical power and supply pressure are available
14. The solenoid valves inside the unit are consumables. Perform periodic maintenance where the requirement of pressure is very high and very frequent. Please contact Janatics for the replacement

Operating Environment

Caution

1. In locations where the body is exposed to water, steam, dust, etc., there is a possibility that moisture or dust could enter the body through the EXH (solenoid) ports, thereby causing problems
To solve this problem, install tubing to each port, using the fittings, and extend the tubing so that the other end is at a location where no water splash, etc. occurs. Make sure not to bend, or block the I.D. of the tubing as this will have effect on the pressure control
2. Do not operate in locations where vibration or impact occurs
3. In locations which receive direct sunlight, provide a protective cover
4. In locations near heat sources, block off any radiated heat
5. In locations where there is contact with splash from water, oil, etc., implement suitable protective measures

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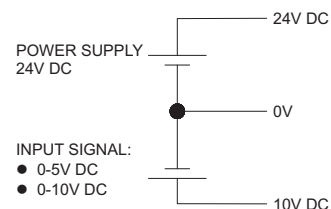
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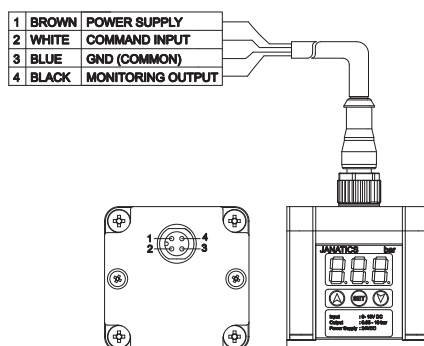
Electrical wiring

Caution

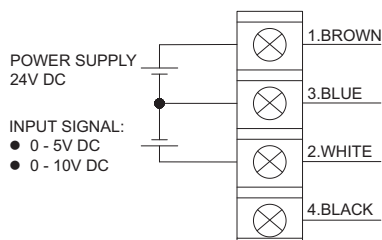
1. Operate this product only within the specified voltage (24V DC $\pm 10\%$). Using voltages beyond the specified levels could cause faults or malfunctions
2. Use DC power supply with sufficient capacity with low ripple. Turn off the power supply when inserting and removing the connector
3. The electrical connection information in the manual must be observed; otherwise, electrical protection may be affected
4. Use 0 V as the baseline for the power supplied to the unit for output, control and input
5. Connect the cable to the connector on the product as per below wiring. Connect the cable carefully, as incorrect wiring can cause damage



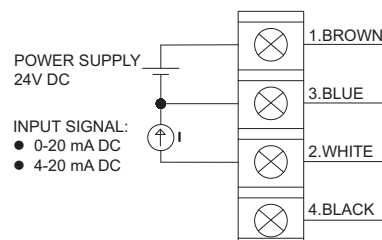
Electrical connection details



Command input - Analog - Voltage

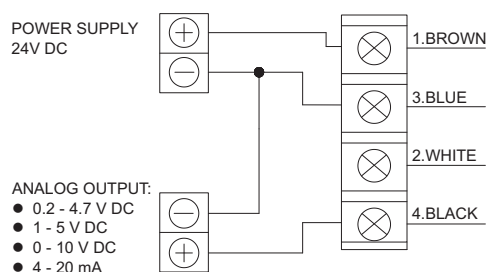


Command input - Analog - Current

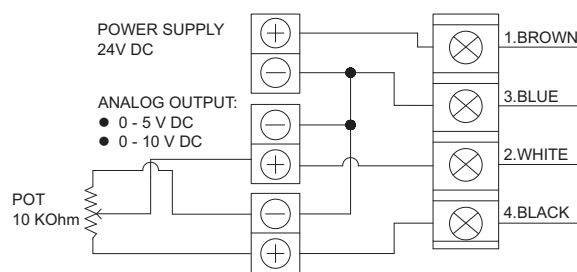


Electrical Connection details

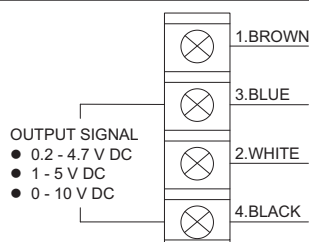
Command input - Keyboard mode



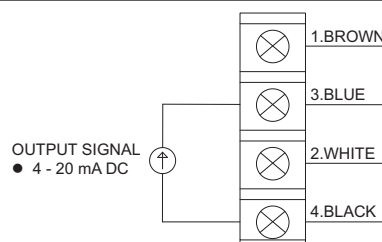
Command input - Potentiometer mode



Monitoring output - Analog - Voltage



Monitoring output - Analog - Current



Note: Above wire colors are based on the M12 cable which is supplied by JANATICS

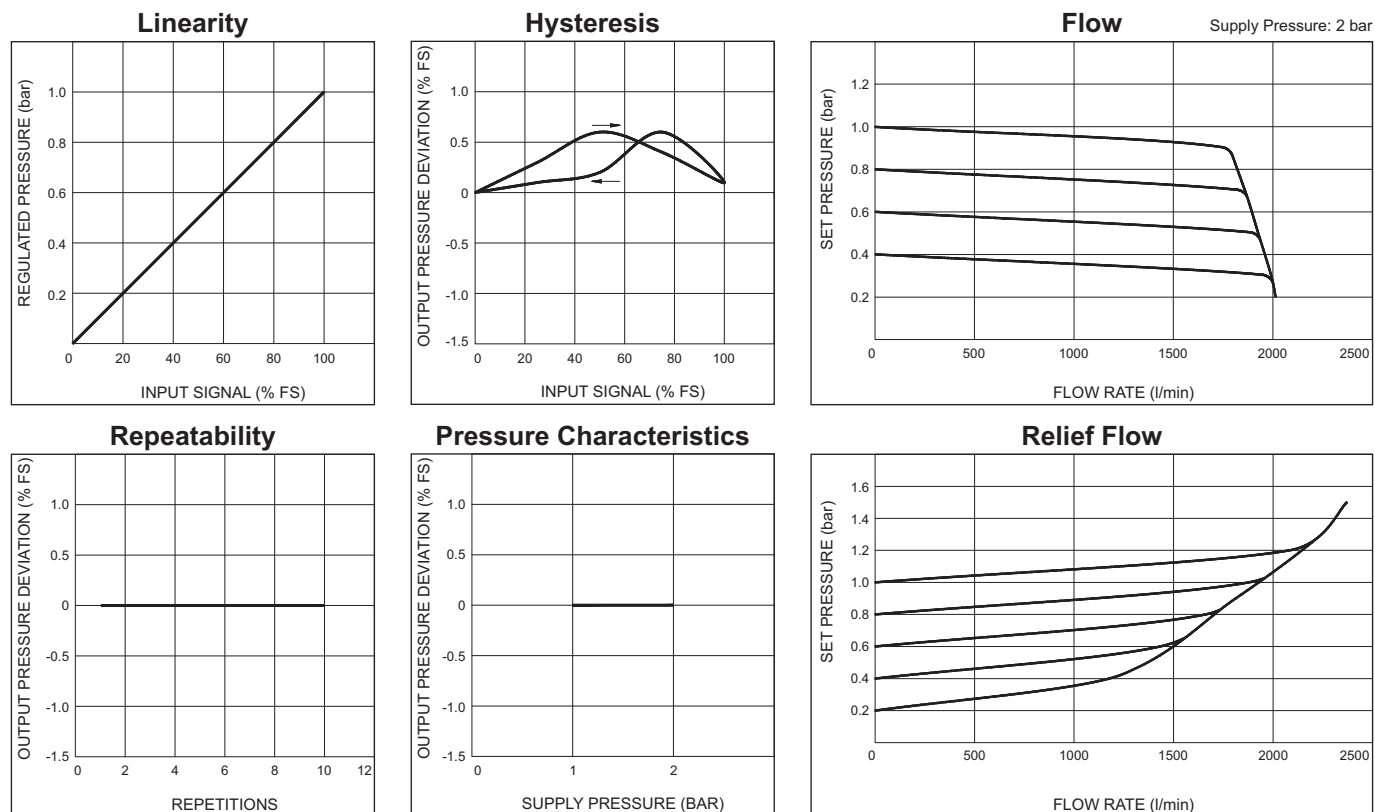
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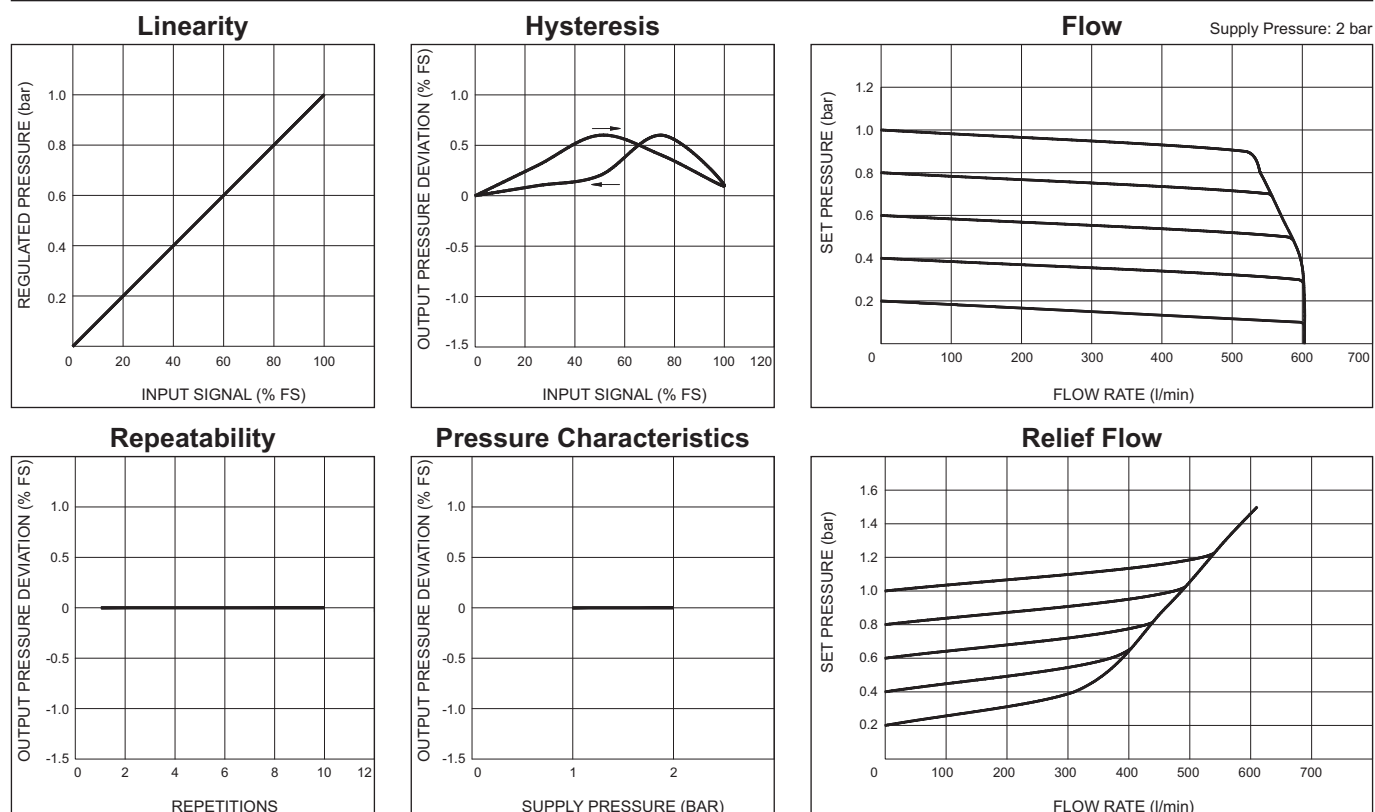
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Flow Graphs

PPR15631X-WXX (G1/2, 1 bar)



PPR14611X-WXX (G1/4, 1 bar)

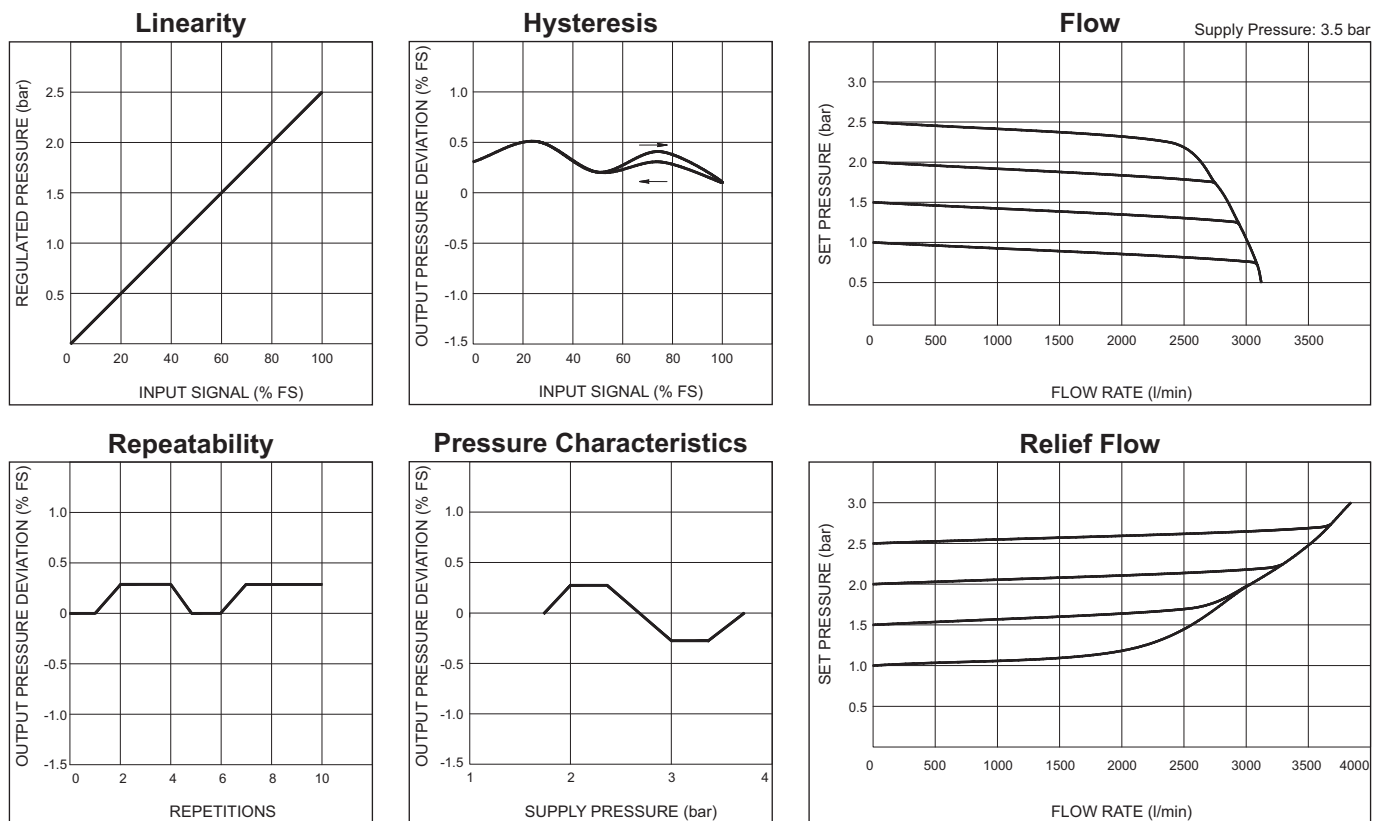


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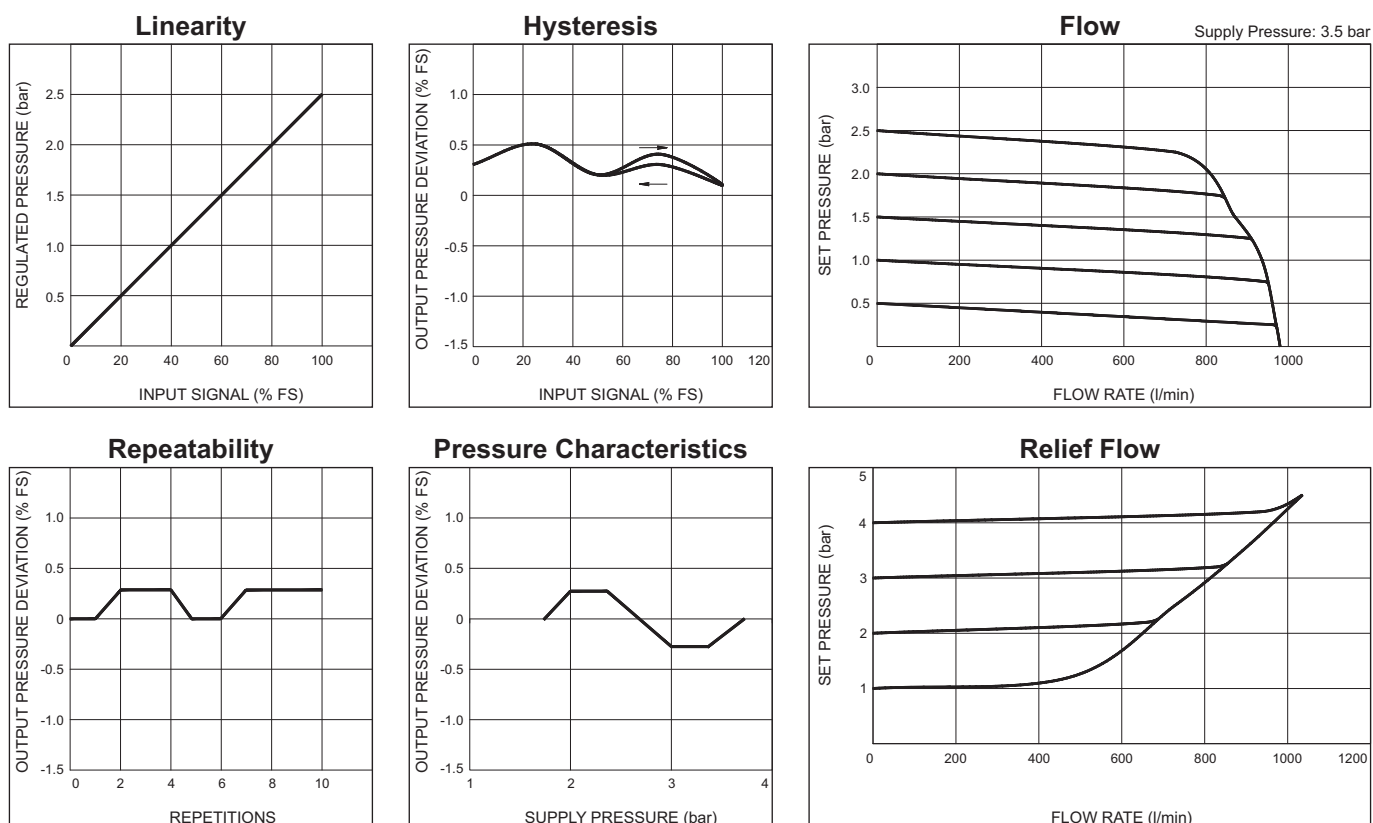
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PPR15632X-WXX (G1/2, 2.5 bar)



PPR14612X-WXX (G1/4, 2.5 bar)

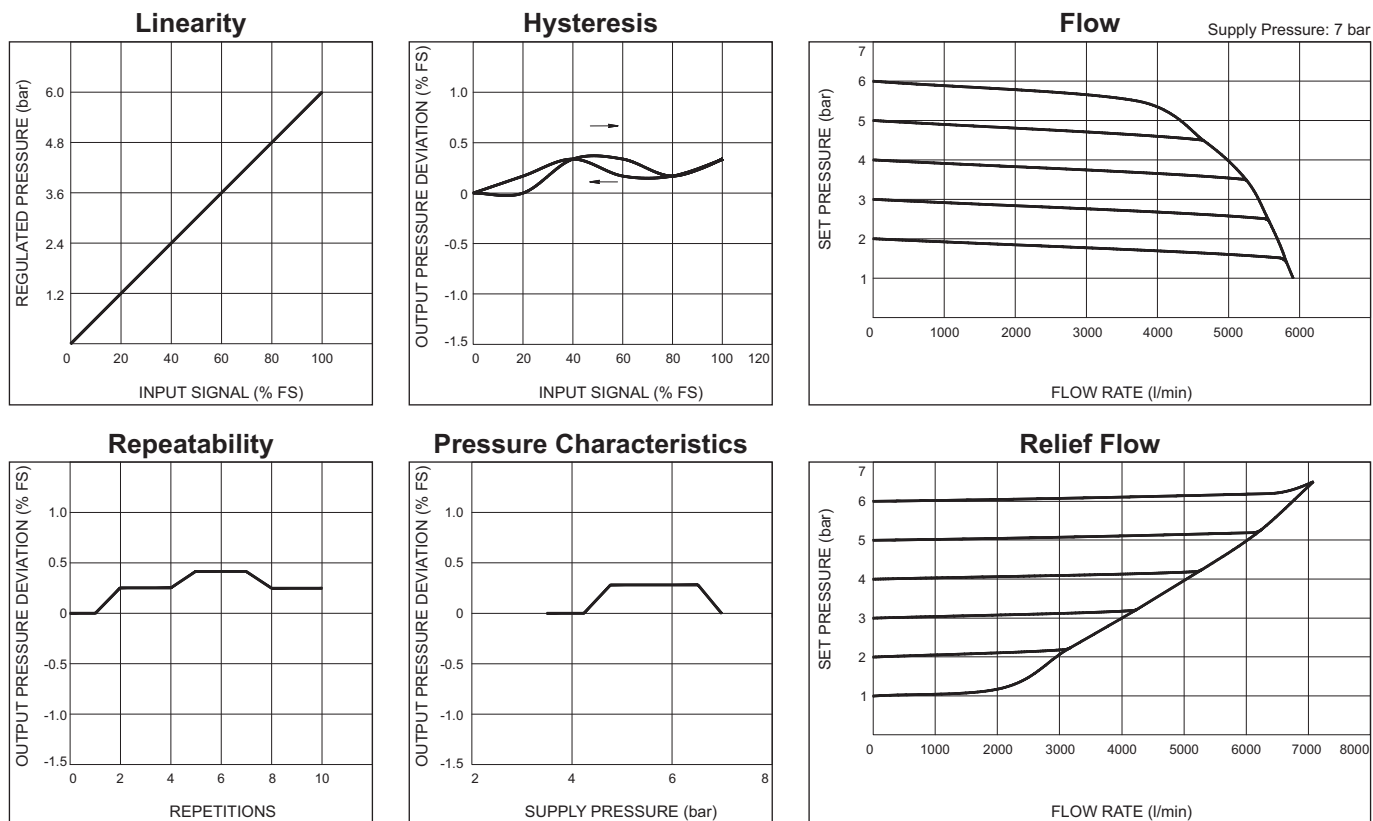


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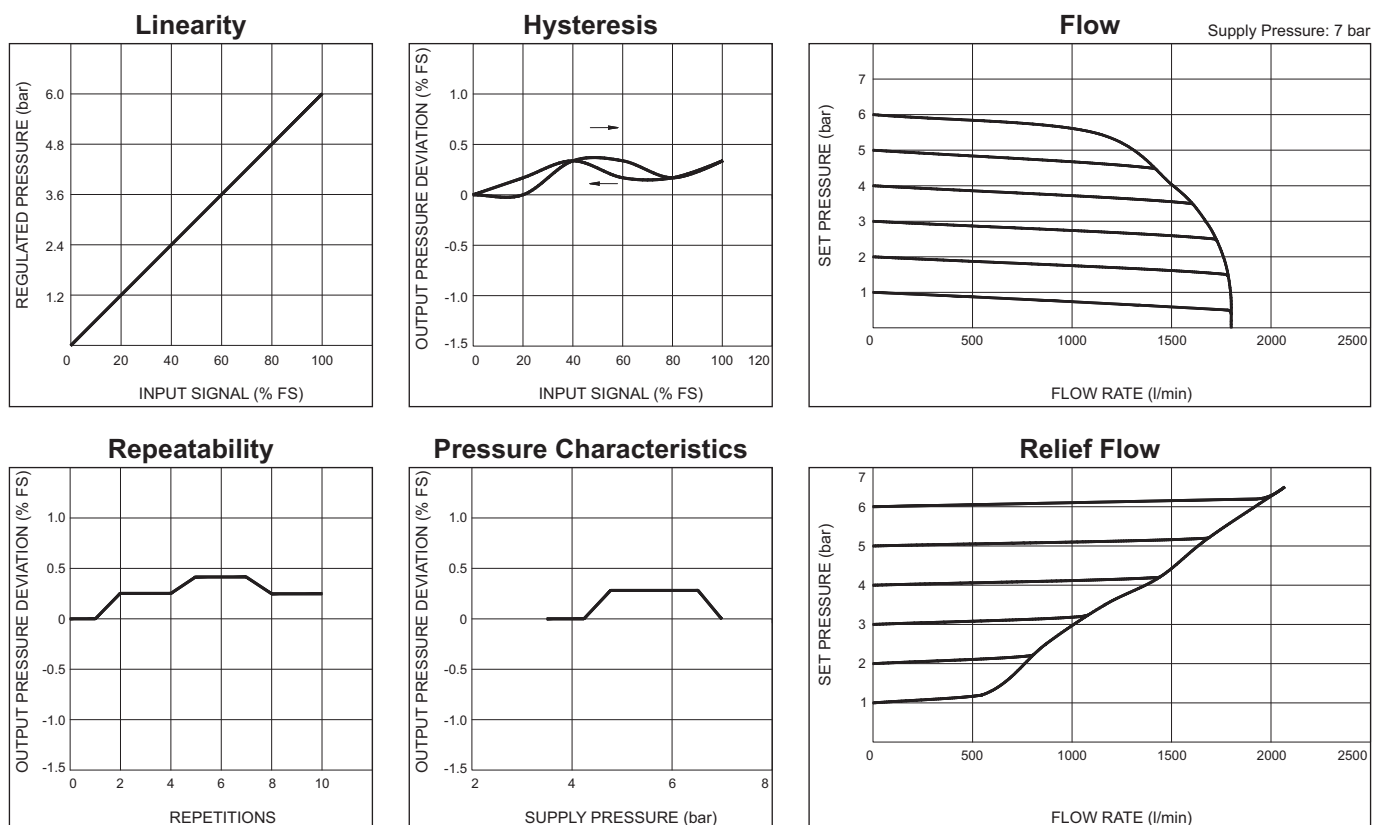
PROPORTIONAL PRESSURE REGULATOR Series PPR

Cat No PPR - 01 - 01 - D

PPR15633X -WXX (G1/2, 6 bar)



PPR14613X-WXX (G1/4, 6 bar)

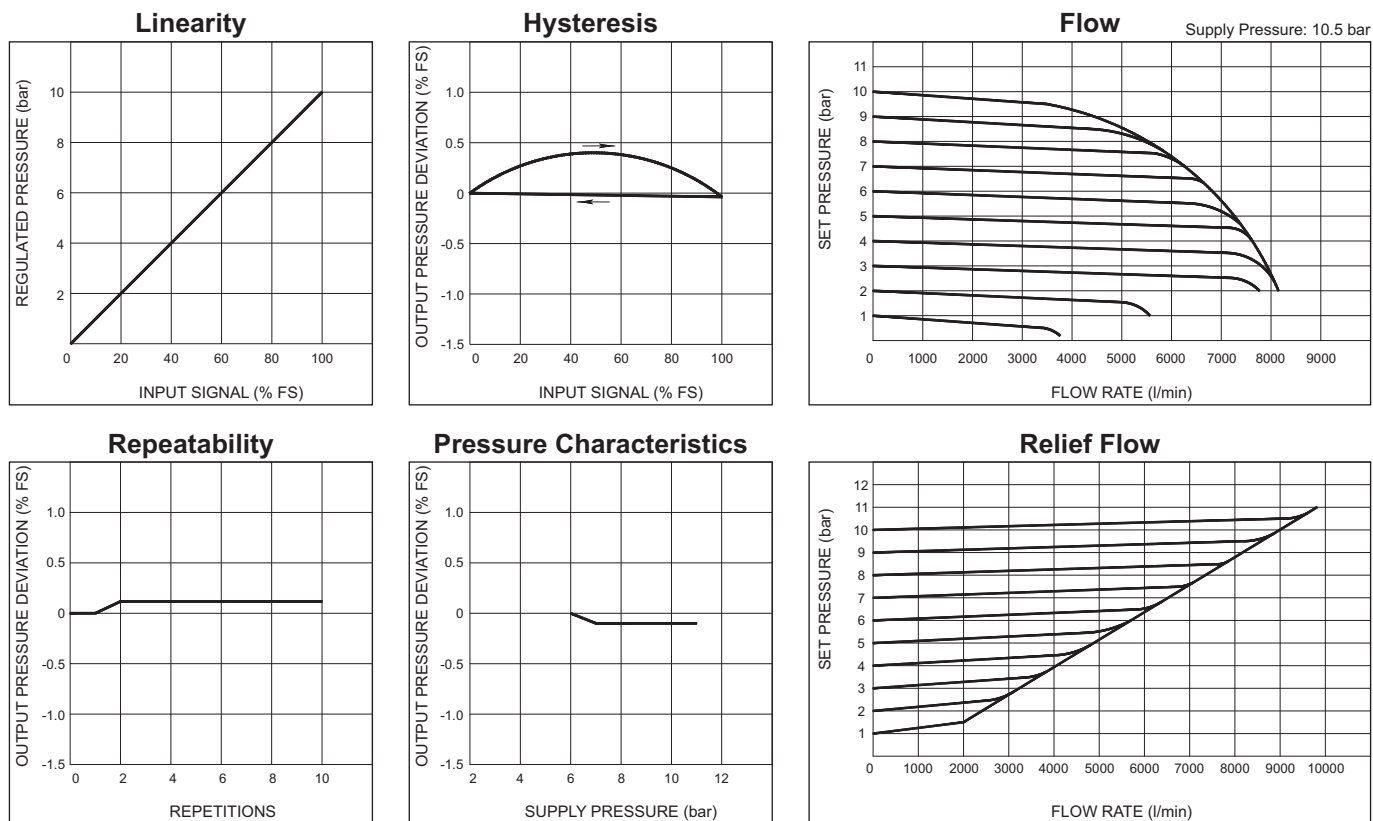


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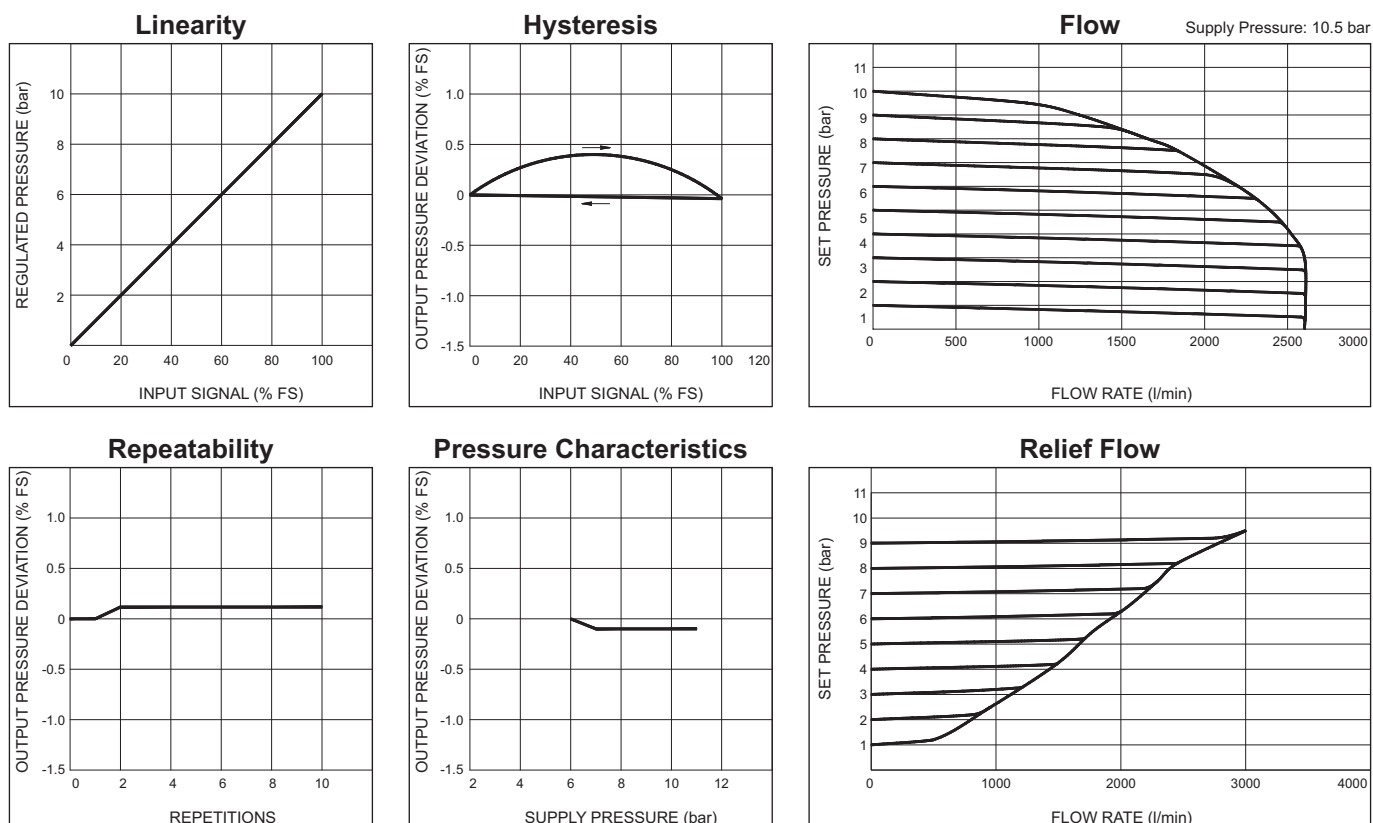
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PPR15634X-WXX (G1/2, 10 bar)



PPR14614X-WXX (G1/4, 10 bar)



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PROPORTIONAL PRESSURE REGULATOR Series PPR

Cat No PPR - 01 - 01 - D

How to order

PPR1		563	4	1	—	W	1	2	—	X	Optional		X	Optional	
Body & Port size		Pressure range		Pressure unit		Operating voltage		Input signal		Output signal		Mounting		Cable connector	
461	G1/4	1	0.05-1 bar	1	bar (Standard)	W	24V DC	1	0-10V DC	1	0.2-4.7V	X	Without Clamp	X	Without Cable
491	NPT1/4	2	0.05-2.5 bar	2	Psi			2	0-5V DC	2	1-5V (Standard)	L	L-Clamp	S	Straight PVC 2m
462	G3/8	3	0.05-6 bar	3	Kgf/cm ²			3	0-20 mA	3	4-20 mA	F	Foot Clamp	L	Right angle PVC 2m
492	NPT3/8	4	0.05-10 bar (Standard)					4	4-20 mA	4	0-10V			M	Straight PVC 5m
563	G1/2													N	Right Angle PVC 5m
593	NPT1/2													O	Straight PUR 2m
														P	Right angle PUR 2m
														Q	Straight PUR 5m
														R	Right Angle PUR 5m

Ordering example:

Proportional Pressure Regulator - Body and Port size G1/2", Pressure range 0.05 to 10 bar, Pressure unit - bar, Operating voltage - 24V DC, Input signal - 0 to 10V, Output signal - 1.5V, Ordering number: **PPR156341-W12**

Proportional Pressure Regulator with L-Clamp and without Cable connector, Ordering number: **PPR156341-W12-LX**

Proportional Pressure Regulator without Clamp and with Straight connector cable, Ordering number: **PPR156341-W12-XS**