

Excellent performance
Fast response, high response sensitivity
PXK Proportional Pressure Controllers

PXK series P1K/P2K/P3K



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Applications



Printing & Packaging



Welding



Mechanical Equipment Manufacturing



Plastic Extrusion & Hot melt dispensing System



Industrial Coating



Lapping & Polishing Machines

Technical Advantages

- Patented closed Loop control algorithm Ideal™
- Embedded high precision sensor boosts accuracy of control
- Pressure Indication light facilitates debugging on site
- High flexibility in custom filed bus interface

Products Features

- $\pm 0.5\%$ High accuracy
- 0-1Bar/3Bar/5Bar/8Bar/9Bar extended pressure output range selection
- Flow rate as high as 5000L (ANR)
- Flashing LED monitoring pressure output

Competitive price-to-performance ratio
Various output signals and electrical connections available



Tension Control





Product Introduction

Cosys-control provides automation and electrical & mechanical engineers with high performance and exceptional PPC -Proportional Pressure Controllers. P1K series PPC can effectively improve control accuracy by integration of breakthrough Idea™ closed loop control technology, which enable our customers' diversified applications realized. Cosys offers a large family of PPCs, including P1K, P2K and P3K variants that address in variety of requirements for air flow rate in application. Unlike our competitors, P1K PPC has optimized the monitoring function by clearly visible LED flashing lights indicating switching status. It shows whether steady air pressure output was achieved or not. Thanks to that, application engineers are able to carry out installation quickly and simply. Besides, it is also time-saving for regular equipment maintenance, debugging and trouble-shooting.

It is the continuous pursuit for precision of control and professional service that makes Cosys an outstanding supplier who is dedicated to design, develop and manufacture PPC products. The innovative technology developed by Cosys will help our customers to enhance their capabilities and make them successful in different domains.

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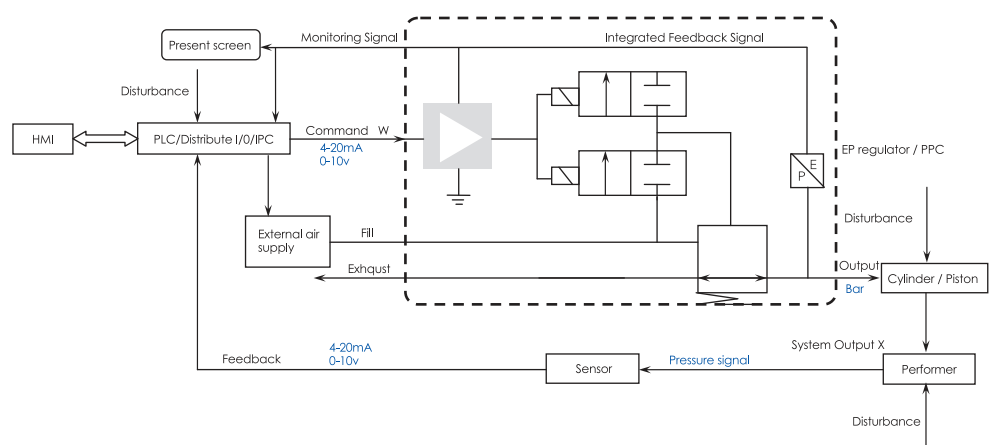
Technical Specification

With advanced Ideal™ technology, Cosy's PXX-series proportional pressure valves can effectively boost the performance of varied applications benefiting from outstanding precision and fast response.

Reliability and stability are also key factors that our products dominate in the market. This is due to the rich experience accumulated in product design and manufacturing over the years.

Model	P1K/P2K/P3K
Power Supply	24VDC±10%, < 6W
Electric connect	4 pin M12A code round plug connector (male)
Protection standard for EN60529	IP65
Command Signal	0...5/10V, 0.4...20mA, 4 point switch input, manual input
Monitor Signal	1...5V, 4...20mA or 1 point switch output
LED indicator	Pressure achieved indicator and real pressure indicator
Install position	Any plane
Enclosure	Aluminum
Ambient temperature	0...50 °C

Working Principals

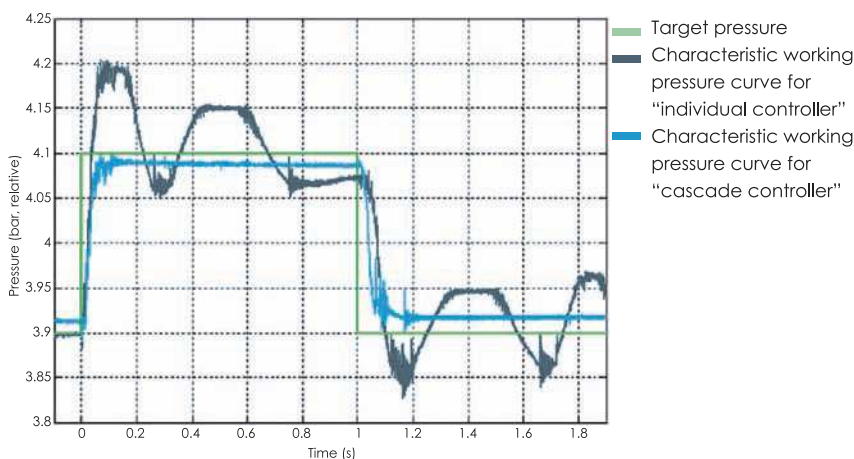


The above diagram illustrates a typical close loop control circuit. The PLC or PAC control system connects PPC devices with the human machine interface computer. The reference variable W (set value usually is 4-20mA or 0-10V) is usually transmitted from the AO module of the PLC system to the PPC. The integrated high precision pressure sensor measures the actual output pressure X and sends it back to the PLC as a feedback signal. The reference point detects this deviation and processes the differences to the PLC controllers, finally generates update W to PPC. The PPC regulates the pressure to actuator in order to control the final control elements. This process runs continuously, so that changes in the reference variable are always detected until the whole system achieves the set value.

Ideal Control Algorithm



Comparison of different control methods



Stability and Reliability

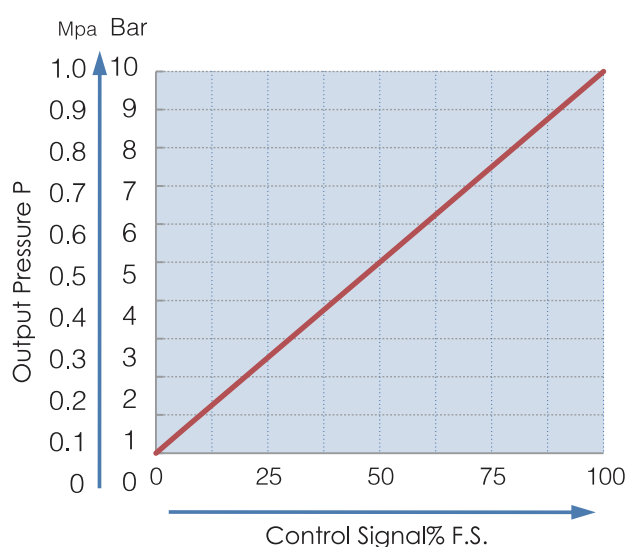
Precise

Closed loop technology can provide much higher accuracy, more stability and less setting time. The overall system is under the dynamic control, which means that either W and X are both variable. Changing indication becomes stable till the final set value is achieved. However, a system deviation will happen also, when flow through the valve changes in response to a switching action, a cylinder movement or a change in load. The disturbance variable from actuator elements will also cause a system deviation. Here is the example, if the pressure drops in the air supply. In addition to these disturbances, there are also differences resulting from temperature drift or time shift. In all these cases, Cosys PPC are capable of maintaining the stability even if these challenges. Thanks to the excellence of internal embedded IC integrated, Cosys PPC can detect the deviation more fast and then regulate the pressure in very time. Consequently, the robust performance of Cosys PPC obtains the benefits from it as well.

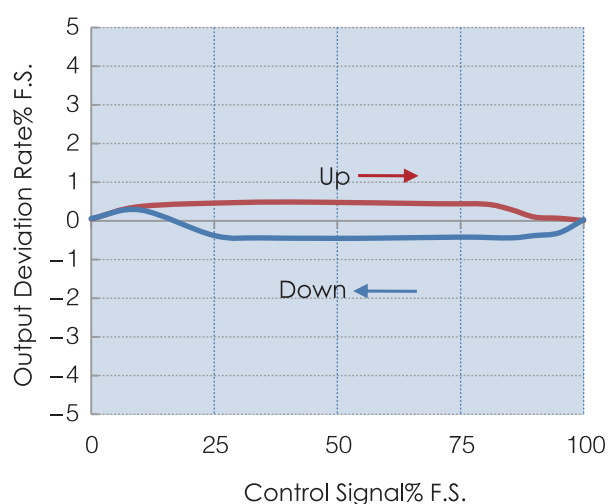


Characteristic curve PXK series

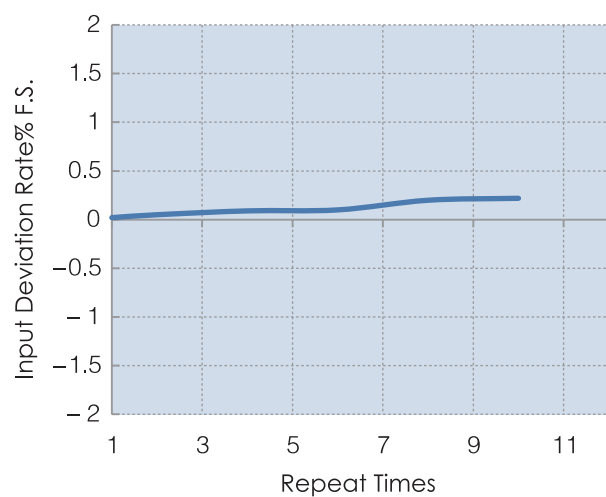
Linearity



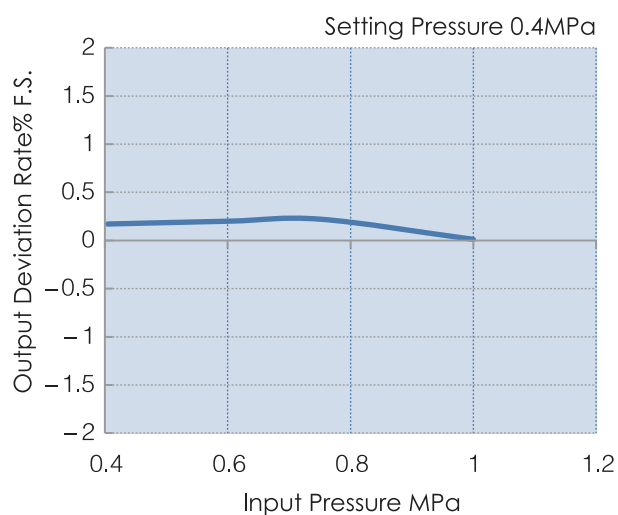
Hysteresis

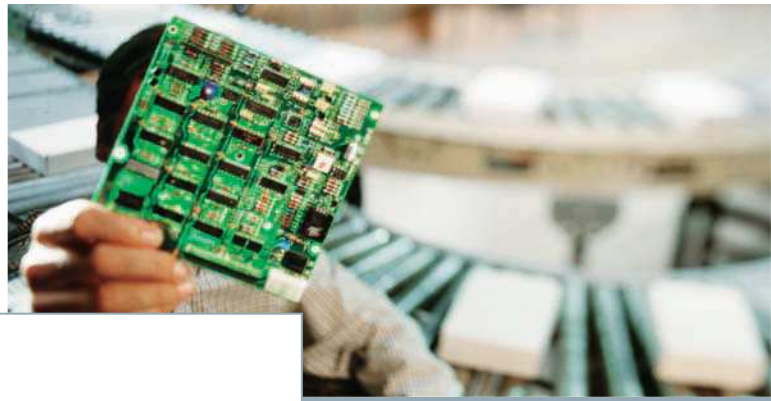


Repeatability



Pressure Character





Electrical connection diagram

Easy to use operation and extensive design principle make our products can be installed, operated and maintained very easily. No matter what the application calls for, you can set up our products in a few steps: connections, display unit selection, setting up pressure range. The last step is only to switch on the power supply and you are finished.

**Risk
Reduction**

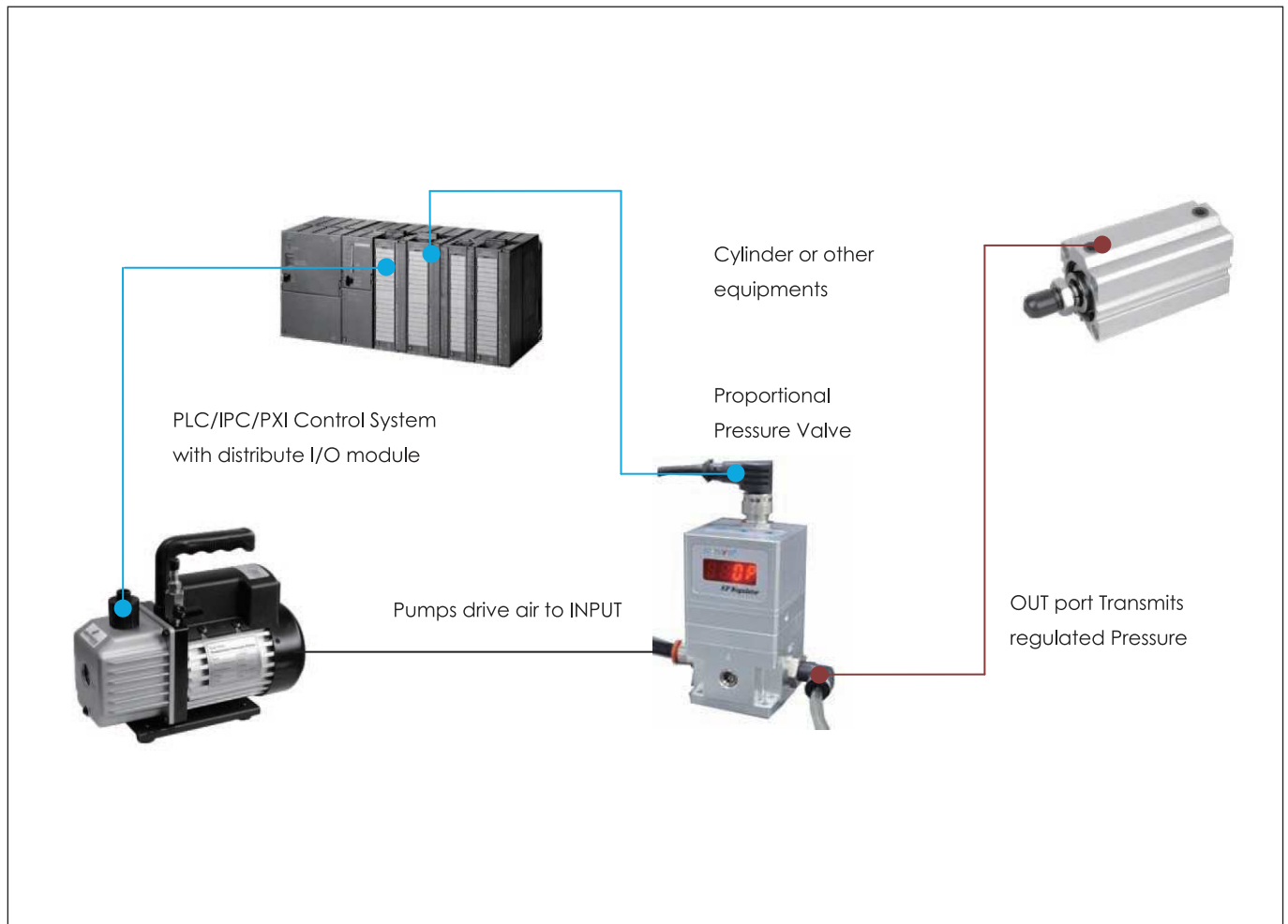
Easy to Use



Excellent performance Fast response, high response sensitivity

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Application System



Industries



Printing & Packaging

A so-called contact winding roller is configured with an expandable profile in order to ensure that rolls of paper in roller cutter do not slip during the winding process. The clamping pressure is adjusted by EP controller. For example, the more clamping pressure is, the bigger tension of the paper is stretched. The tension is varied with the sorts of the materials of paper. Also, the pressure sensor or location sensor responds to the tension changing and transmits it to the PLC as a feedback signal in aiming to regulate tension pressure accordingly.



Double Sided Lapping & Polishing Machine

The lapping and polishing equipment requires reliable control system to transmit stable, precise pressure which is used to hold the work piece at proper position. For some special cases, such as glass surface, the pressure must be fairly nicely in case that the glass damaged. Cosys's Proportional Pressure Controller is ideally designed for this application as it comes equipped with embedded PID controllers. Therefore, the much lower deficient rate of plate as well as extremely fine surface can be possible and the overall polishing process can be also performed smoothly and efficiently.



Welding

In welding automation field, the welding guns are supposed to approach the object quickly and steadily. PPC can control the press pressure precisely no matter what material option is. As a result ,the welding process is optimized and the welding force is also ensured.



Winding

Friction roller must be always precisely decelerated with the diminishing the diameter of roll which is being wound up. During this stage, constant web tension is considered to play a key role in accomplishing uninterrupted winding. The braking force is set by PLCs or PACs, which is supposed to keep tension stable. Even if during the different winding phases, braking force still could be regulated and hardly fluctuate.



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Industries



Rubber and Plastic Processing Machine

The employ of molding or squeezing equipment is prevalent in industry of rubber and plastic. Among these equipments, PPCs are very pivotal section for securing application realized. Because they contribute to the precisely controlling profile haul-off in extrusion machinery. In addition, continuity of the process also could be ensured.



Test and Measurement Equipment

To verify the leak proof performance of some pneumatic components, the pressure testing system are usually developed based on custom demands in terms of tightness, leak, or dynamic response. In these integrated systems, the compress air is pumped into under-test-unit by PPCs in the programmable procedures. In this situation, the PPC stimulates UTUs as a controllable drive. For mass volume of products online test, PPCs definitely enhance testing reliability and maximize throughout of test platform.



Laminating and Coating

Coating or laminating process is quite common in the industries ranging from automotive to sports equipments manufacturing, which may involve a vary of materials but at the meantime, require appearance of every single product strictly uniform. Furthermore, curves of surface usually make it difficult to have each segment coated with the same thickness. Therefore, In order to ensure the desired quality, it often requires different pressure to conduct the coating procedures. Stemming from its quick and dynamic response, Cosys PPCs specialize in this application if curves of surface change in the periodically or constantly way.



Fluid process control

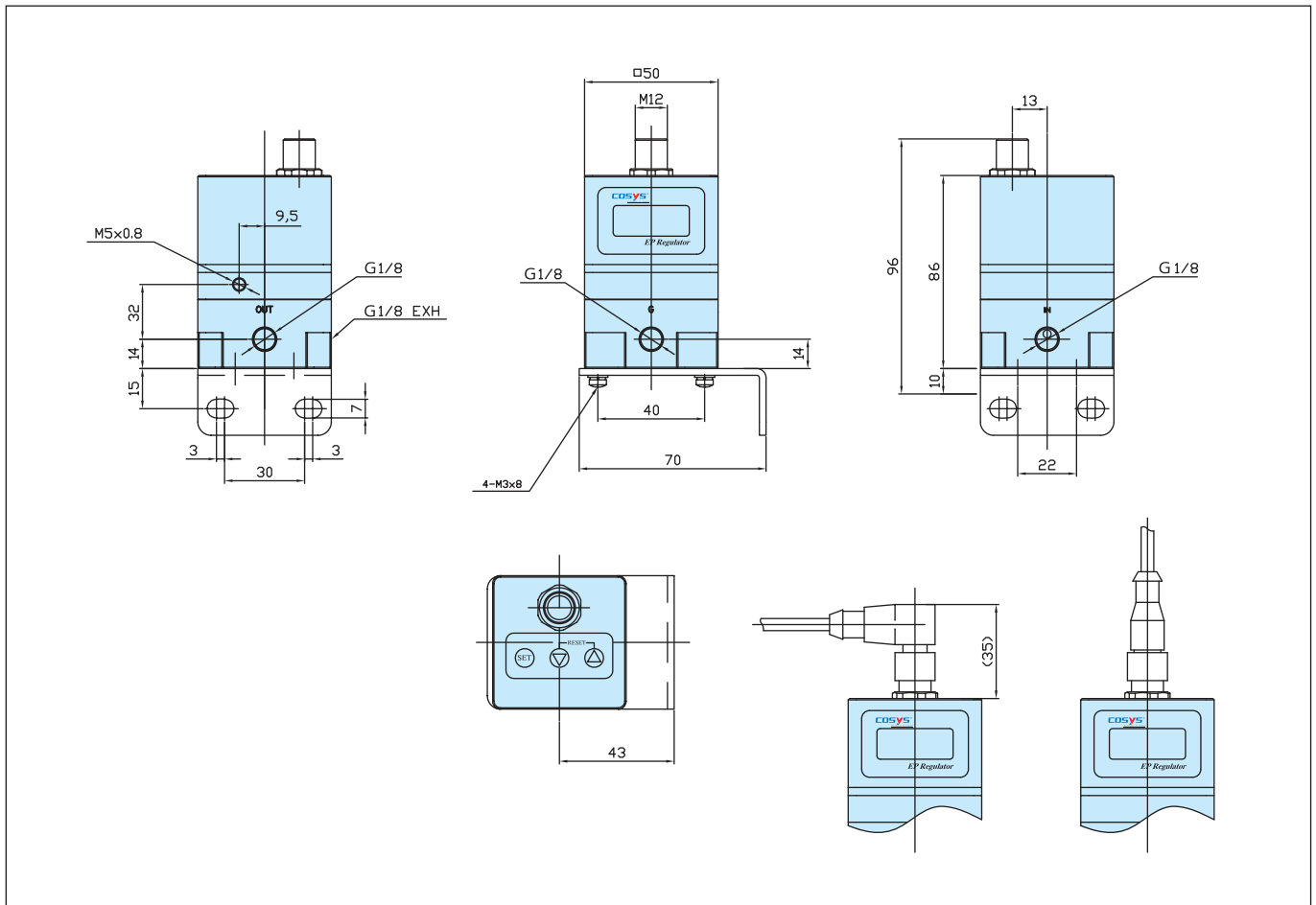
Pneumatic diaphragm pumps are often used for suction of corrosive and high viscosity fluid. Air-operated diaphragm pumps require the correct amount of pressure and air to deliver the proper amount of this kind of fluid. The output pressure of PPCs can be adjusted smoothly, accordingly it determines the flow rate of pump with more flexibility.



Dimensions

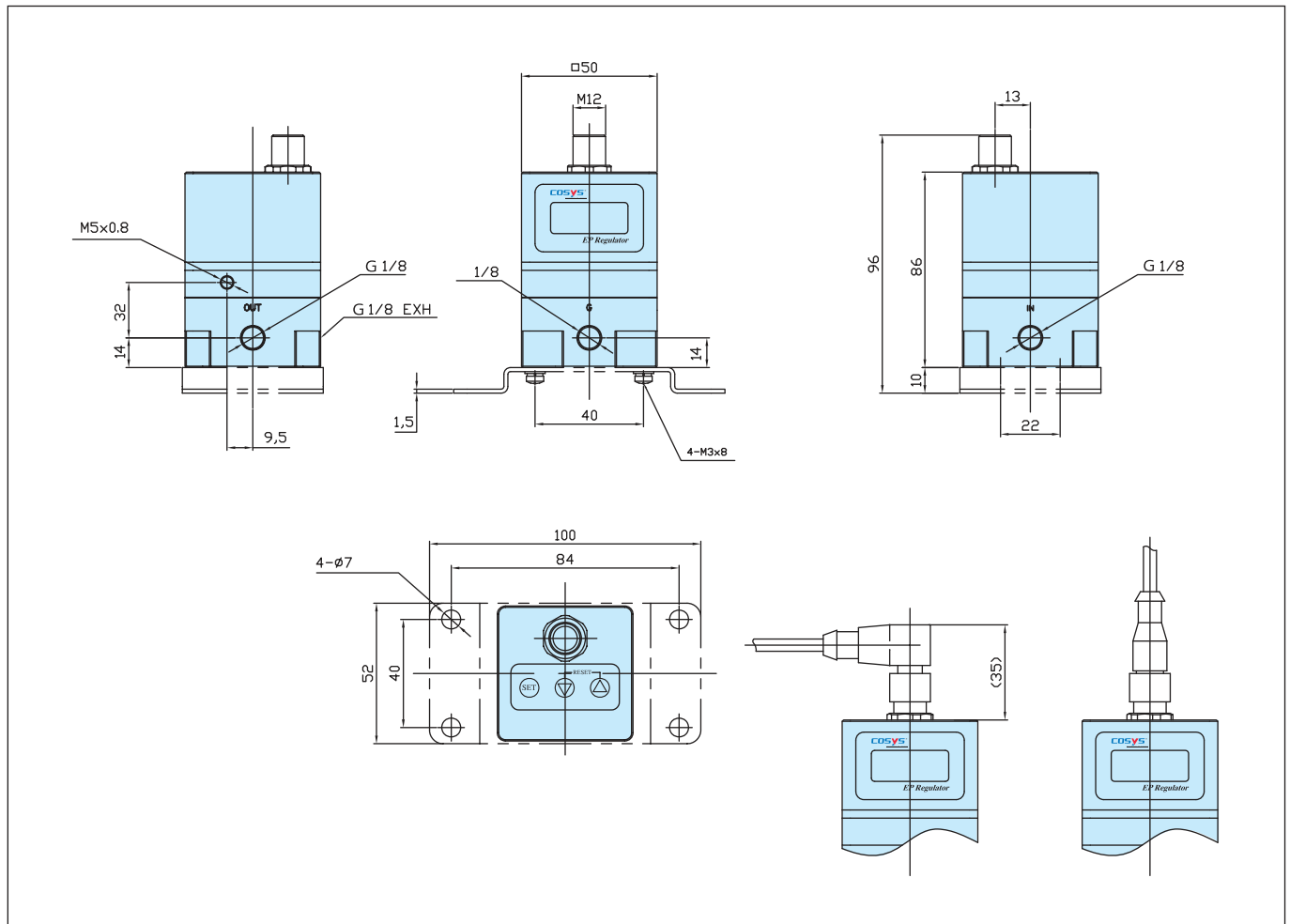
Our PPCs are compact and portable. The ports of connection are configurable. Integrated multi-function display module can be used in different applications. We also offer customized interface, filled bus integration, etc. so that the customer can integrate compact PPC into their system on their own demands.

P1K Overall Dimensions



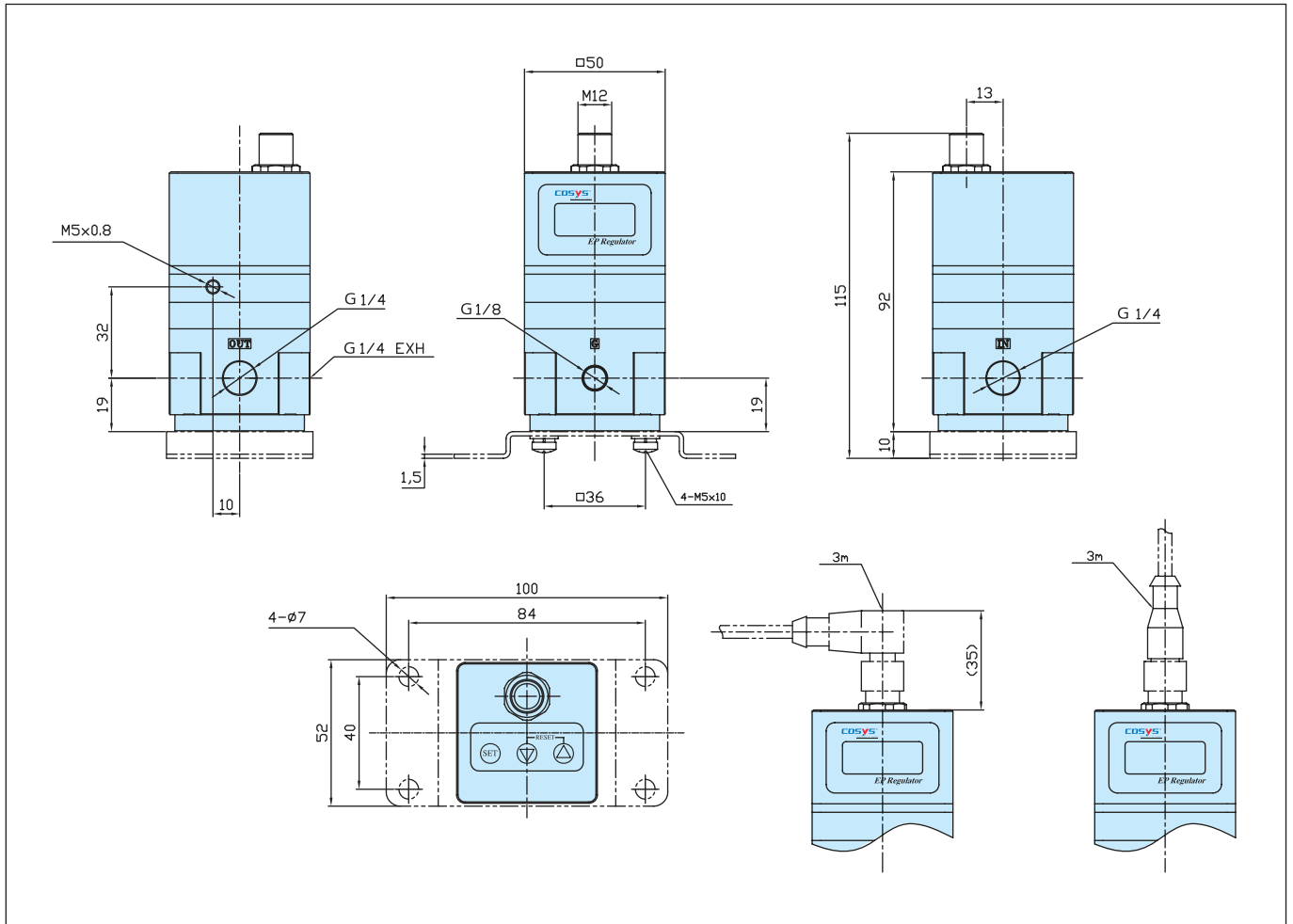
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P1K Overall Dimensions





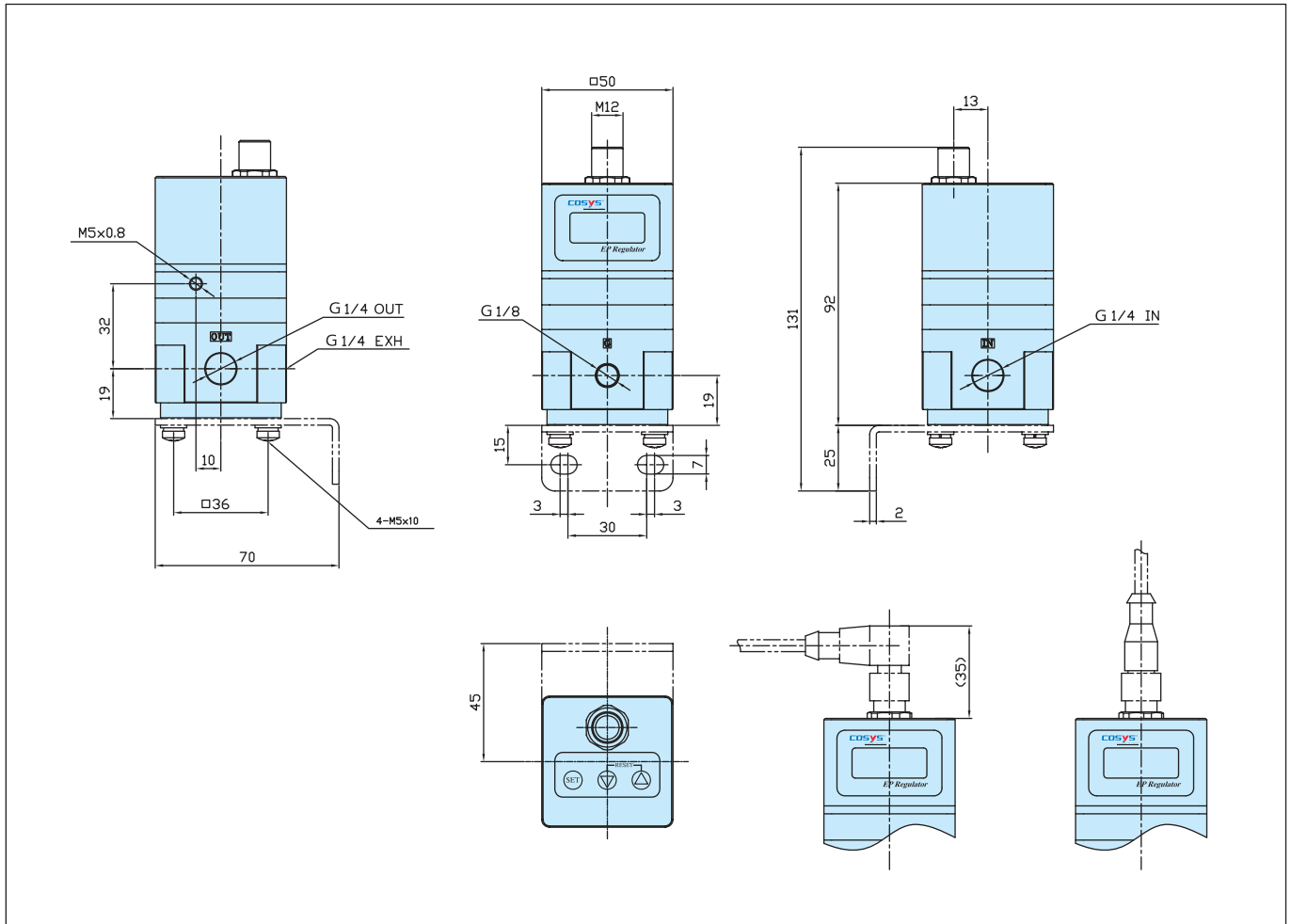
P2K Overall Dimensions



Excellent performance Fast response, high response sensitivity

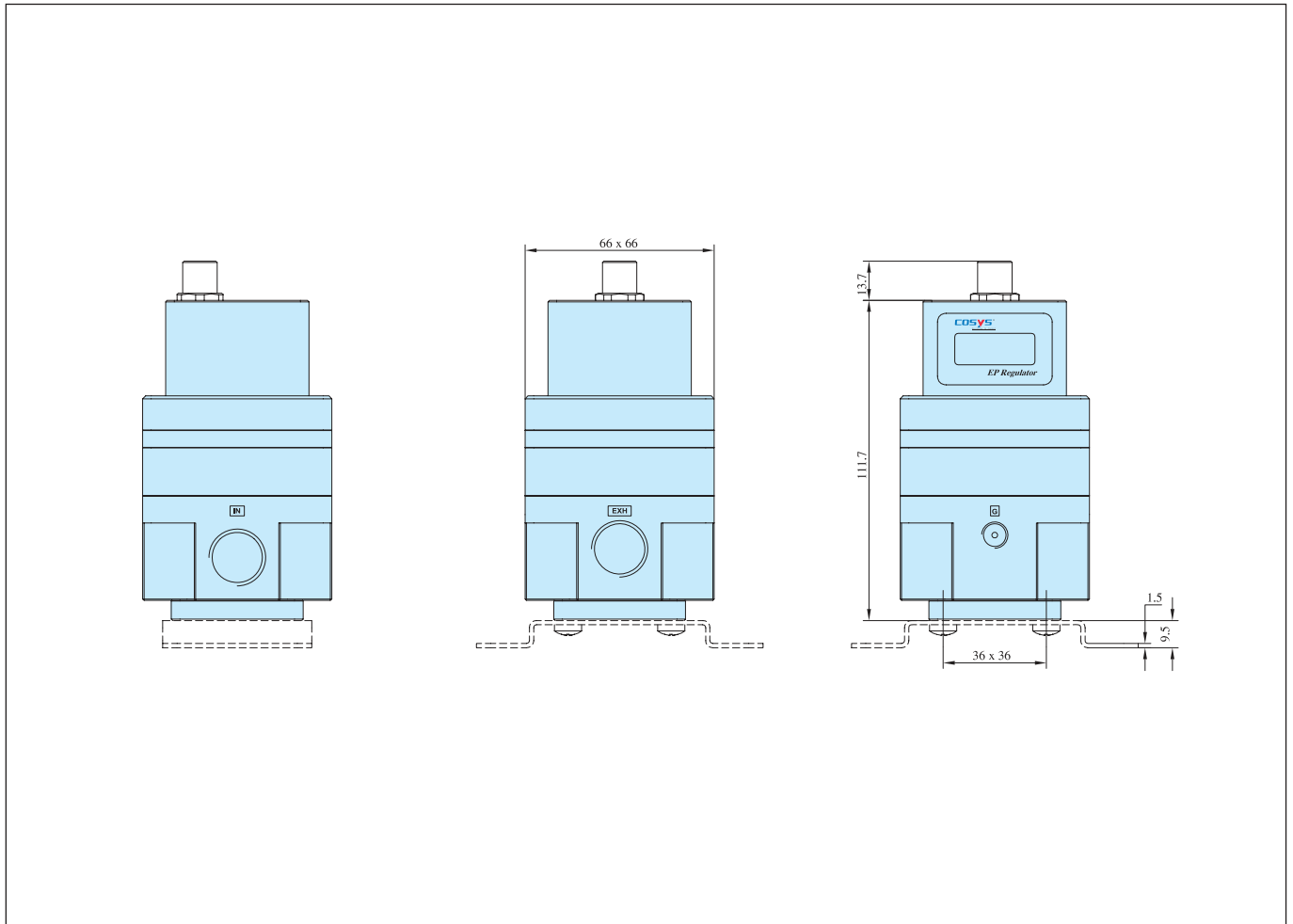
PXK series P1K/P2K/P3K Proportional Pressure Controllers

P2K Overall Dimensions





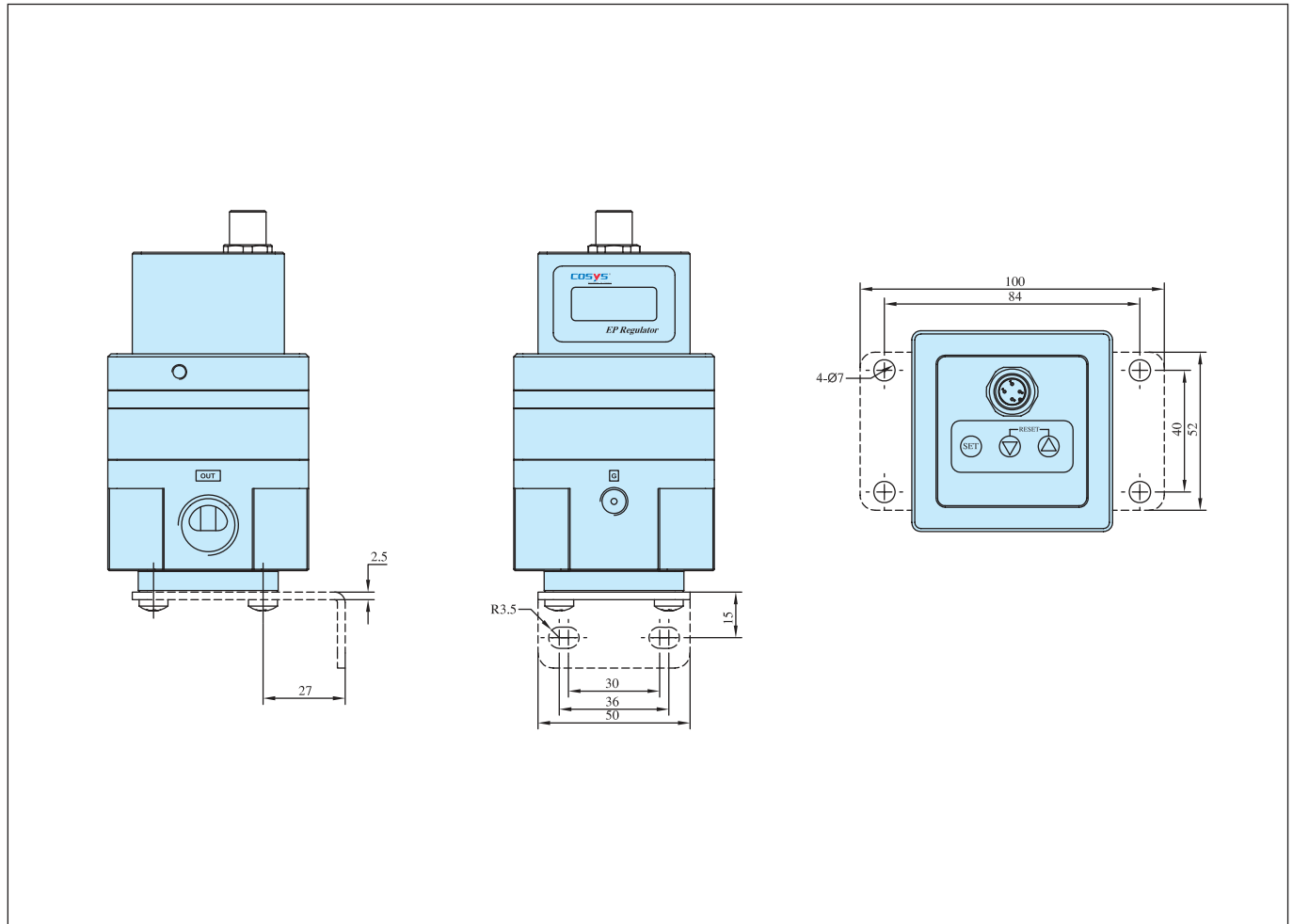
P3K Overall Dimensions

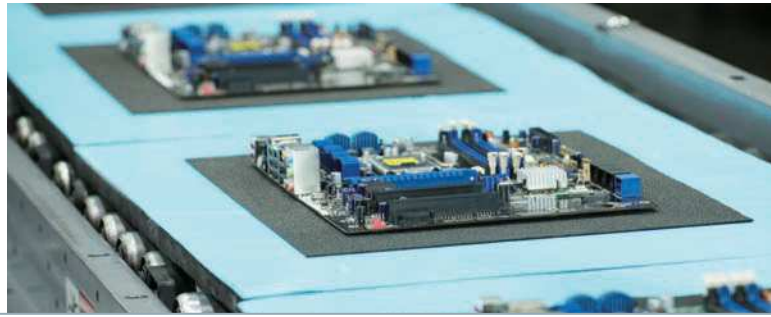


Excellent performance Fast response, high response sensitivity

PXK series P1K/P2K/P3K Proportional Pressure Controllers

P3K Overall Dimensions





Selection Guide

How to order

P **K** - -

Series

- ☐ 1 1K Series
- ☐ 2 2K Series
- ☐ 3 3K Series

Output Range

- ☐ 10 0...15Psi/0...1bar/0...100Kpa
- ☐ 20 0...40Psi/0...3bar/0...300Kpa
- ☐ 30 0...70Psi/0...5bar/0...500Kpa
- ☐ 40 0...120Psi/0...8bar/0...800Kpa
- ☐ 50 0...130Psi/0...9bar/0...900Kpa

Command Signal

- ☐ 0 4...20mA
- ☐ 1 0...20mA
- ☐ 2 0...5V
- ☐ 3 0...10V

Monitor Signal

- ☐ 0 N/A
- ☐ 1 1...5V
- ☐ 2 24V High Active
- ☐ 3 24V Low Active
- ☐ 4 4...20mA

Connector

- ☐ S 3m Straight Cable
- ☐ L 3m 90° Cable
- ☐ N Without Cable
- ☐ H 90° Round Plug Connector
- ☐ V Straight Round Plug Connector

Mounting Kit

- ☐ 0 Without Mounting Bracket
- ☐ B Horizontal Assembly Bracket
- ☐ C Wall Assembly Bracket

Port Size

- ☐ 1 1/8" (P1K standard)
- ☐ 2 1/4" (P2K standard)
- ☐ 3 3/8" (Customized)
- ☐ 4 1/2" (P3K only)

Port Screw

- ☐ G BSPP(standard)
- ☐ T NPT(Customized)
- ☐ P BSPT(Customized)

Order Example: P2K40-04GL-0L///Default pressure display unit (Psi) and scale (0...120Psi)
P2K40-04GL-0L (0...7bar)///Pre-set pressure display unit (bar) and scale (0...7bar)
P2K40-04GL-0L (0...700Kpa)///Pre-set pressure display unit (Kpa) and scale (0...700Kpa)

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Accessories



We offer many different connection solutions for PXK series. Different terminals must be specified for different mounting methods. Custom connectivity solutions are also available for most areas of the world.

Description	Order Code
4Pole straight cable	3100000021
4Pole straight connector	3100000010
4Pole 90° cable	3100000020
4Pole 90° Connector	3100000009
Horizontal Assembly Bracket	3000600023
Wall Assembly Bracket	3000600024

Innovative technology

- Patented closed loop control technology
- Additional self-diagnose function
- High precision sensors integrated

Wide adaptability

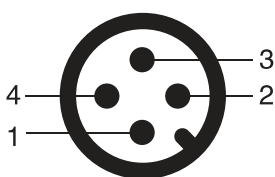
- Ideal for many applications like welding, tension control, polishing, etc.
- Variable pressure zones
- Multiple control signal input accepted: 4-20mA current, 0-5V, 0-10V, etc
- Custom solutions are available
- IP65 Protection, suitable for harsh industrial environment

High reliability

- Blinking of LED lights indicates failure output
- Independent signal output of internal pressure
- 100% products tested and certificated
- Professional consult and service team

Easy to Use

- Replacement for existing product seamlessly
- Wide options of accessories
- Comprehensive after-sales service system



Description	Description	Analog Signal Type	4 Points Switch Signal Type
PIN1	Red/Brown	+24VDC	+24VDC
PIN2	White	+Input Signal	Switch 1
PIN3	Blue	GND	Power GND
PIN4	Black	+Monitor Signal	Switch 2



Our Core Value

As a professional PPC supplier, our core objective is to create value with and for our customers. With this corporate vision, we not only concentrate on high product quality, but also offer high standard and holistic services for our customers:

- Comprehensive local service e.g on-site technical support/maintenance/spare parts stock
- Custom product solutions, e.g alternative connections, filed bus, other specific requirements
- Presales consulting in designing and system improvement

Fully traceability of products and certified manufacturing standards.

Professional

On Time





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