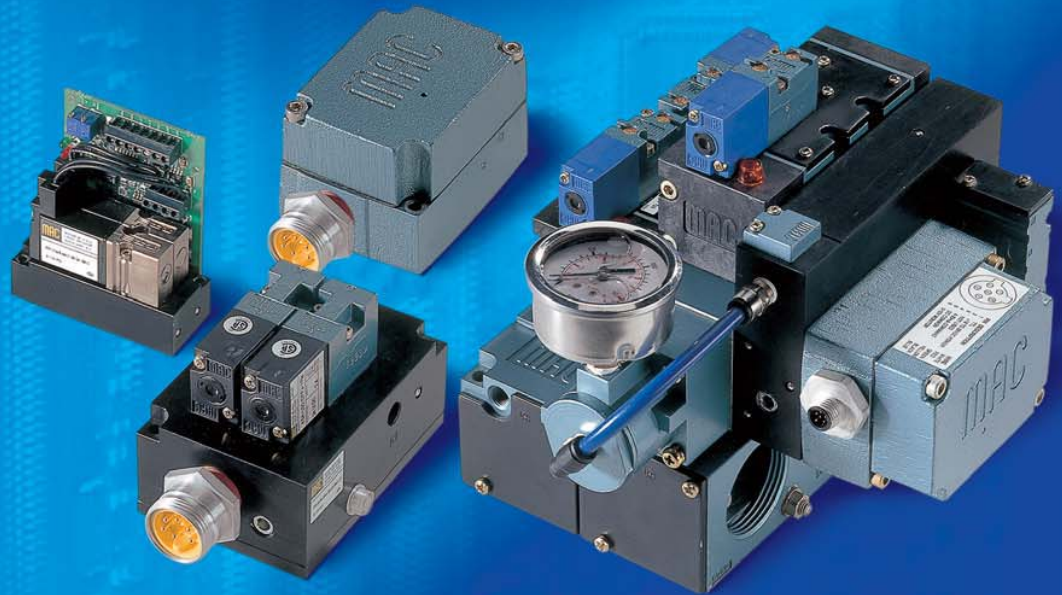
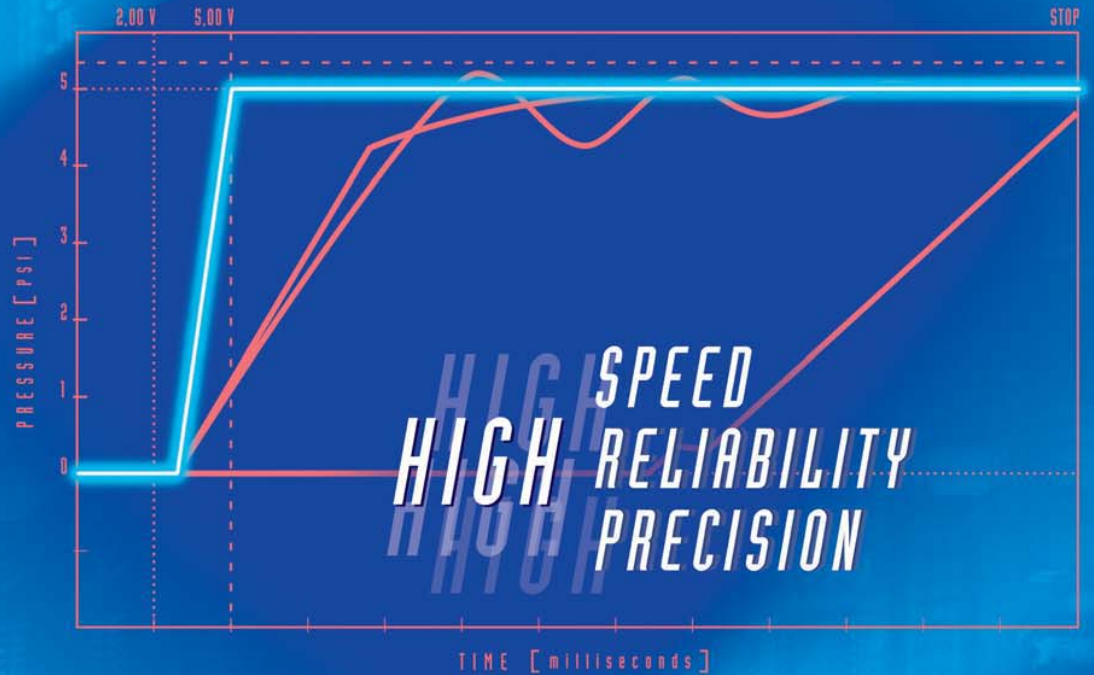


®

# MAC

V A L V E S

# Proportional Pressure Controller

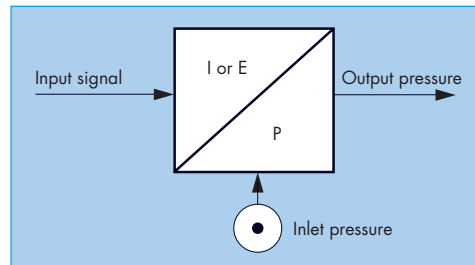




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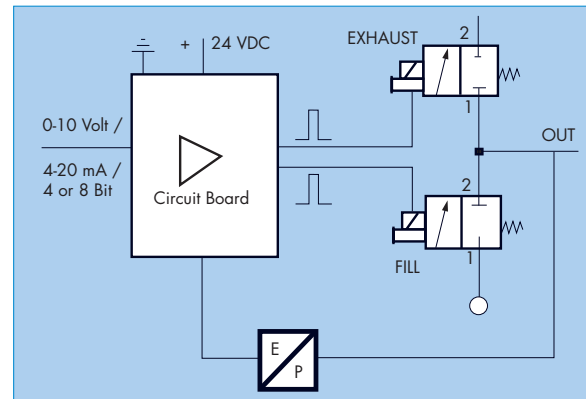
## I. Introducing : Proportional Pressure Controller

The MAC Proportional Pressure Controller, (PPC) is an innovative product which converts an electrical signal into a proportional pneumatic output. The PPC is unlike conventional I/P or V/P transducers. It offers much more in terms of performance, features, and reliability.



The key to the MAC PPCs are two MAC 34, 45, 400, 47, 92 or 93 Series valves that are used to control the output pressure. The valves are operated by the PPCs closed loop electronic control circuit. Feedback is obtained from one or two transducers. The balanced poppet, fast response, and high flow of these two MAC Valves provide outstanding performance characteristics for the PPC.

The PPC controls output pressure by constantly measuring its downstream pressure and comparing it to the command signal. If a higher pressure is commanded the PPC quickly responds by actuating the MAC fill valve, increasing the output pressure until it is equal to the pressure represented by the command signal. Conversely, if a lower pressure is required, the PPC will energize the MAC exhaust valve, decreasing output pressure until the correct pressure is achieved. All of this happens very quickly to smoothly maintain the correct pressure.



This approach to pressure control provides a small, light, and cost effective unit. Unlike voice coil units, the PPC is not affected by vibration or mounting position. Unlike large direct solenoid proportional units, the PPC is small and light, drawing little power, and producing little heat. Unlike units that utilize unbalanced air valves, the PPCs balanced valves provide high flow and extremely fast and repeatable response times as well as eliminating “undershoot” and “overshoot” problems normally associated with unbalanced valve designed units. Other proportional products often incorporate valves from third party manufactures. All MAC PPCs utilize only fast shifting, repeatable, high flow, long life MAC Valves as fill and exhaust valves.

## II. Configuration

The PPC is available in many configurations.

The PPC5C can be ordered with a single or dual transducer, with an analog or digital command signal, for pressure or vacuum service. All other PPCs can be ordered with a single transducer with an analog command signal.

Single transducer PPCs can be configured with internal sensing (stand alone) or with external sensing (e.g. for Proportional Multi-Pressure Pak®). Dual transducer PPCs are available for controlling other devices such as boosters.

PPCs with analog or digital command signal are chosen following the command device available for the application.

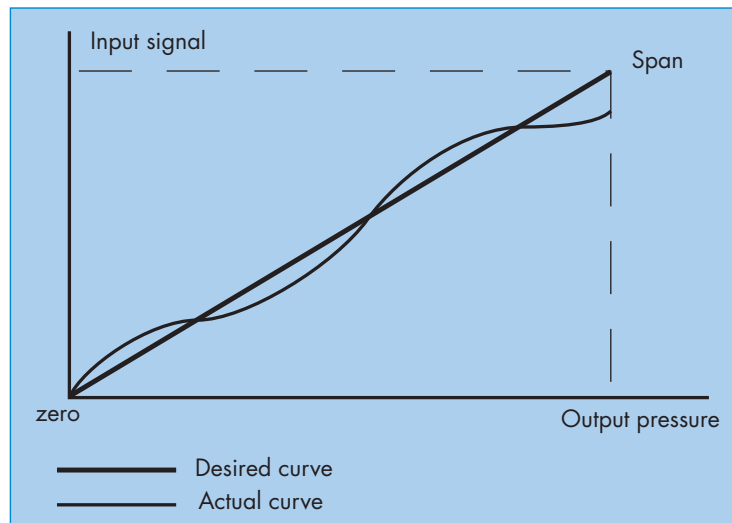
Most PPC Series are available as covered or coverless devices. Coverless PPCs are intended for use in cabinets or areas protected from moisture while covered PPCs can be used in unprotected environments (Washdown).

MAC offers a multitude of special modifications designed to meet customers specific application requirements. Please contact your local MAC distributor for consultation if our standard product options do not fulfill your requirements.

### III. Specifications

#### LINEARITY

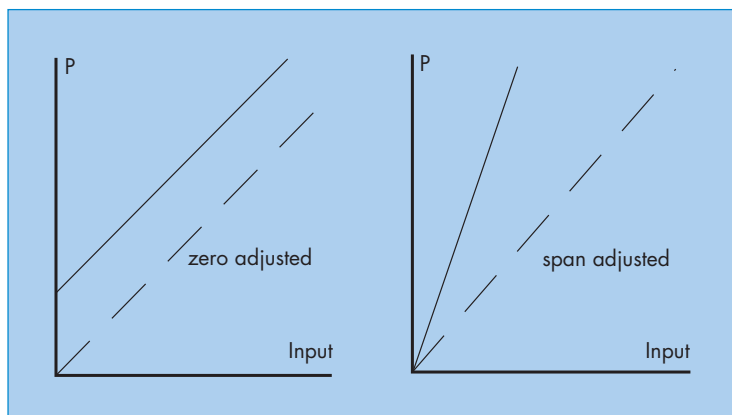
The linearity parameter shows the capability of the unit to follow the input signal according to an ideal straight line curve. MAC PPCs exhibit excellent linearity throughout the pressure range. The deviation is measured in  $\pm$  % of full scale.



#### LIMITS OF ADJUSTMENT

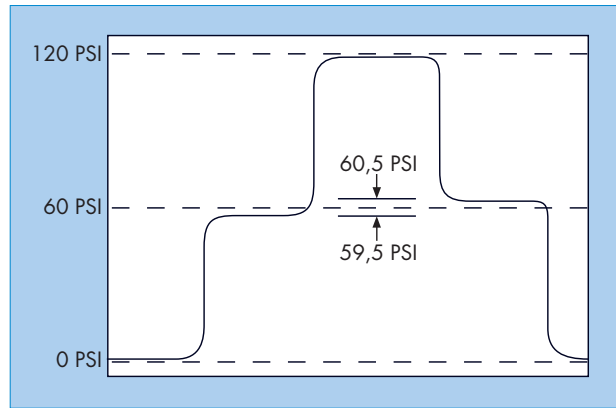
For single transducer models, two parameters can be adjusted. Primarily these should be set by the factory but can be done in the field if absolutely necessary. The first parameter is the ZERO adjust, the second is the SPAN adjust. These parameters provide the possibility of customizing the PPC according to customers needs. However these adjustments are limited due to the tolerances of the transducers. If adjustments are necessary, please consult the factory or your local distributor

Note: Dual transducer models are not field adjustable.



## HYSTERESIS

The hysteresis error, sometimes called “deadband”, is the amount of output pressure variance required to cause the PPC to react, making a correction to the output pressure. It is given in percent of full scale pressure, all MAC PPC products perform with minimal hysteresis.



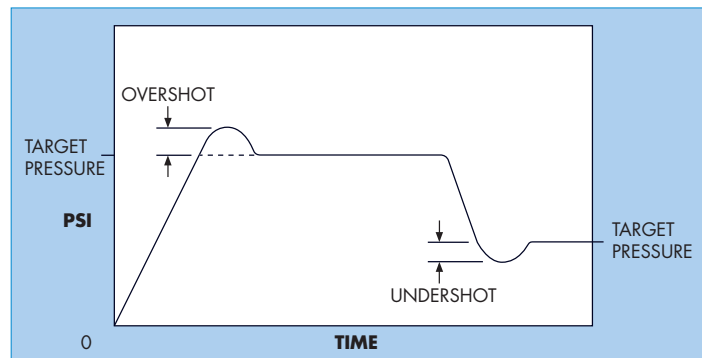
## ACCURACY

MAC Valves states accuracy of the MAC PPCs as overall accuracy. Accuracy is expressed in percent of full scale, which includes hysteresis and linearity. Some suppliers give separate parameters in order to give a better impression. In this case hysteresis and linearity are added. MAC PPCs are extremely accurate and maintain excellent control of output pressure well within our stated accuracy.

## OVERSHOOT – UNDERSHOOT

Two undesirable characteristics of other proportional control units available on the market are overshoot and undershoot.

Overshoot is a characteristic of the regulator to exceed the desired output pressure when the command signal is given. Undershoot is a characteristic of the regulator to fail to reach the desired output pressure.



The PPC is based on a closed loop design which combined with MACs fast responding, very repeatable, high flow, balanced 2-way valves, optimizes response and accuracy, practically eliminating overshoot and undershoot.

## CLOSED END VOLUME

The closed end volume is the amount of volume needed to keep the PPC stable. If the closed volume to be filled is not appropriate for a particular PPC model (too small in comparison with the flow of air coming from the PPC), it will be very difficult to control the desired pressure inside this volume. So the PPC will be required to compensate for any small variation of pressure and the device will be unstable. This instability is sometimes referred to as “motorboating” or the continuous energizing and de-energizing of the fill and exhaust valves. Minimum volume requirements to prevent “motorboating” are listed for each PPC in this catalog for your reference.

## IV. Command Signal Options

The PPC can be controlled with either an analog command signal or a digital command signal.

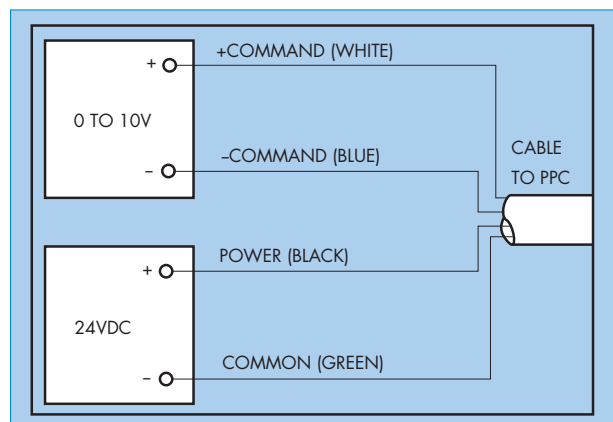
### ANALOG COMMAND SIGNAL

The analog command signal can be either 0 – 10 VDC (voltage) or 4 – 20 mA (current).

Two wires are necessary to accept the command signal. The PPC measures the voltage differences between the two wires to determine the desired pressure output. Along with the command signals, a 24 VDC source must be available to operate the PPC. The return path for the 24VDC source and the return path for the command signal must not be isolated from each other. An example of how to wire the PPC with a differential command signal is shown below.

The major advantages of the command signal for the PPC are :

- Elimination of ground loop noise.
- Operation of multiple PPC's from a single power supply.
- Easy to connect to single-ended equipment.



### DIGITAL COMMAND SIGNAL

The PPC, through the use of a converter board, accepts a digital command signal for 4-bit or 8-bit binary logic and converts this to an analog signal to produce a proportional pressure.

Using a 4-bit digital input, the maximum number of different pressures available at the output is 16. If an 8-bit digital input is specified, a much finer resolution (256 pressures at the output) can be obtained. For example, in a 100 PSI output system, using 4-bit logic, each bit is equal to 6.67 PSI. With an 8-bit digital, each bit is equal to .392 PSI

There are four different models available for the 4-bit and 8-bit digital PPC based on the type of input signal :

1. Positive Logic/Sourcing Input
3. Positive Logic/Sinking Input

2. Negative Logic/Sourcing Input
4. Negative Logic/Sinking Input

**Positive Logic** is defined as a minimum command level (all bits are logic low) controlling a minimum pressure output. For example, in a 4-bit system, a 0000 digital signal would correspond to zero psi and a 1111 digital signal would correspond to the maximum pressure.

**Negative Logic** is defined as a maximum command level (all bits are logic high) controlling a minimum pressure output. For example, in a 4-bit system, a 1111 digital signal would correspond to zero psi and a 0000 digital signal would correspond to the maximum pressure.

**Sinking Input** requires the digital voltage to be supplied by the controller connected to the input of the PPC. A command signal must be supplied by the external controller to the digital input connections. The PLC "drives" the PPC, by which a digital input (as opposed to analog) will control the output pressure.

**Sourcing Input** requires the PPC to produce the digital voltage. The controller connected to the input of the PPC is required to "pull the logic level down to zero" or to "maintain the logic level at one". "Zero" is considered that level of the signal which corresponds to the minimum value of the digital input supply (logic low). "One" is considered that level of the signal which corresponds to the maximum positive value of the digital input supply (logic high). In this case, the PPC "drives" the PLC. Again, a digital input will control the output pressure.

**V. Monitor Signal Options**

The PPC is available with two optional monitor signals. The Analog Monitor Signal (AMS), and the Logic Monitor Signal (LMS). The PPC may be ordered with either one or both of these signals. Monitor Signals provide intelligent feedback to the controlling device.

**ANALOG MONITOR SIGNAL -AMS-**

The Analog Monitor Signal is a 0 to 10 VDC feedback signal that provides a voltage proportional to the pressure output of the PPC or the output of the device it is controlling. In the case of MACs Proportional Multi-Pressure Pak®, the AMS signal provides a voltage output proportional to the output pressure of the PMPP.

The AMS may be used by the controlling device to verify that the correct pressure has been achieved. Also, the AMS may be connected to a voltage meter to display the pressure output. In some applications, the AMS is fed into the analog input of a controller to provide data for Statistical Process Control. In either case, a high impedance input is required for proper operation.

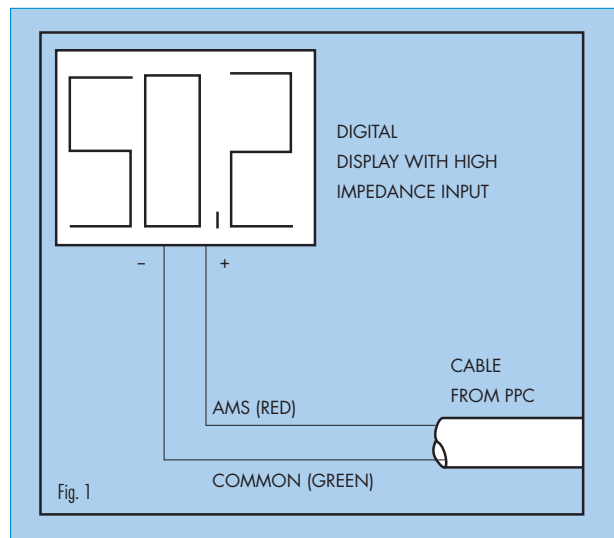


Figure 1, shows how to wire the AMS to a panel meter to display pressure output.

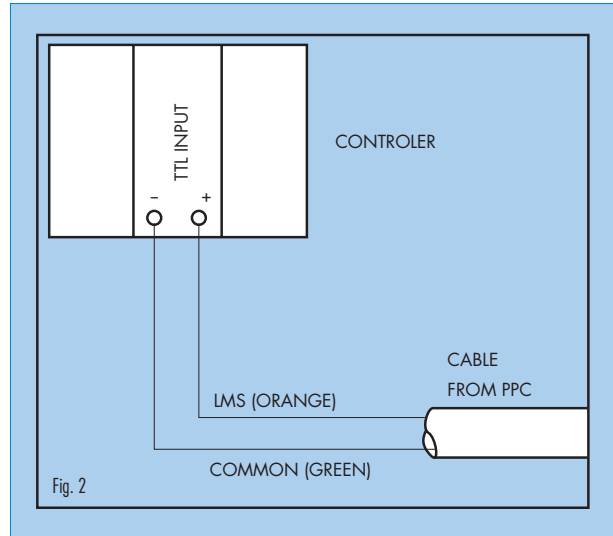
**LOGIC MONITOR SIGNAL -LMS-**

The Logic Monitor Signal provides digital feedback to confirm that the PPC has achieved the correct pressure. The LMS provides standard logic levels such as TTL (5V) or 24 VDC.

With the TTL option, when correct pressure is achieved, the LMS outputs a logic 1, (5 VDC). When the PPC is working, (Fill or Exhaust valve is in operation) the LMS outputs a logic 0, 0 VDC.

Figure 2 shows how to wire the LMS to a controller's TTL input.

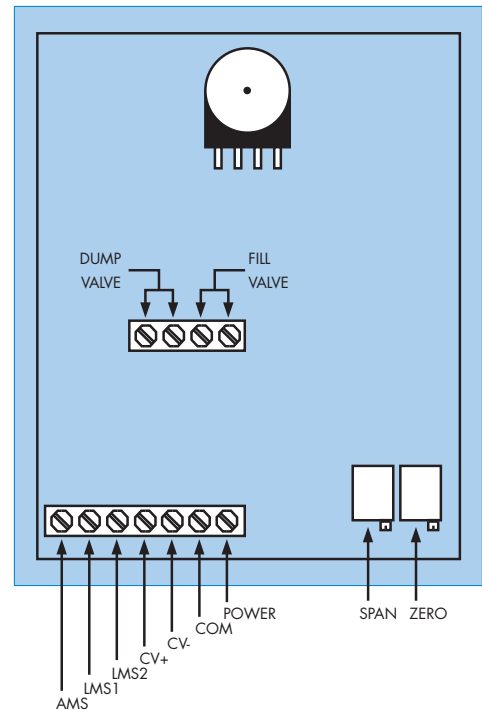
The LMS provides a simple "go/no go" signal back to the controlling device. The LMS may also be used to turn on an L.E.D. for remote indication.



There also is a negative logic version (LMS) available. When the correct pressure is achieved, this option outputs a logic 0. When the PPC is working (fill or exhaust valve is in operation) the output is a logic 1. In either case, the LMS circuit is a sinking type of output. Thus, the PPC supplies the ground to the reading device.

**COVERLESS PPC WIRING PIN OUT**

- AMS - Analog Monitor Signal**
  - 0-10 VDC feedback signal that provides a voltage proportional to the output pressure
- LMS 1 - Logic Monitor Signal**
  - 5 VDC (TTL high), 24 VDC (high), 5 VDC (low), or 24 VDC (low) "go/no go" feedback signal (depending on requirements)
- LMS 2 - Logic Monitor Signal**
  - 5VDC (TTL low), 24 VDC (high), or 24 VDC (low) "go/no go" feedback signal (depending on requirements)
- CV+ - Positive Command Signal**
  - Positive lead for the 0 – 10 VDC or 4-20 MA command signal (depends on requirements)
- CV- - Negative Command Signal**
  - Negative lead for the 0 – 10 VDC or 4-20 MA command signal (depends on requirements)
- COM - Main Power Common**
  - Common lead for the 24 VDC power
- PWR - Main Power**
  - Positive lead for the 24 VDC power







## Section 1      Proportional Pressure Controller



# Proportional pressure controller

Port size	Flow (Max) C <sub>v</sub> / NI/min	Individual mounting						Mounting	Series
		covered analog	covered analog with remote transducer	covered digital	coverless analog base mount	coverless analog base manifold mount	covered analog base mount		
<b>1/8"</b>	<b>0.07/70 - 0.09/90</b>	P. 13		P. 21					<b>PPC5C</b>
<b>1/8"</b>	<b>0.07/70</b>		P. 17						
<b>1/8"</b>	<b>0.07/70</b>				P. 25	P. 27		P.29	<b>PPC34B</b>
<b>1/8"</b>	<b>0.10/100</b>				P. 31				<b>LCP35A</b>
<b>1/8"</b>	<b>0.25/250</b>				P. 33	P. 35	P.41	P. 37	<b>PPC45B</b>
<b>1/4"</b>	<b>0.72/720</b>	P. 45							<b>PPC47A</b>
<b>1/4"</b>	<b>0.74/740</b>				P. 47	P. 49		P. 51	
<b>1/4"</b>	<b>1.3/1300</b>				P. 53			P. 55	<b>PPC400A</b>
<b>3/8"</b>	<b>2.0/2000</b>						P. 59		<b>PPC92B</b>
<b>1/2" - 3/4"</b>	<b>6.2/6200</b>						P. 61		<b>PPC93A</b>
<b>Additional dimensions for PPC's</b>		P. 89-93							

Port size

Flow [Max][Cv]

Individual mounting

1/8"

0.07 / 0.09

Covered Analog

## OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 34 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Rugged enclosure.
7. Not affected by vibrations.
8. Accurate pressure control.
9. Can be stand alone or used in combination with our remote air sandwich regulators.
10. Analog command signal and output.



## HOW TO ORDER

BASIC MODEL

Revision PPC5C XXX - XXXX - (XXX -XX -XX) See below

Type	Porting	Feedback options	Pressure range PSI/BAR	Pressure reference	Overall accuracy	Flow Cv/NI/min Fill Exh.
A Analog	SIDE PORTS A 1/8" NPTF B 1/8" BSPPL C 1/8" BSPTR BOTTOM PORTS D 1/8" NPTF E 1/8" BSPPL F 1/8" BSPTR G Bottom port O-ring Mount	A Single Xducer/ Int. Sense (Pressure) B Single Xducer/ Ext. Sense (Pressure) C Dual Xducer/ Int. Sense (Pressure)	A 100/6.7 B 60/4 C 30/2 D 15/1 E 50/3.3 F 80/5.3 G 2/0.13 H 20/1.3 J 75/5 K 117/7.8 L 4/0.26 M 150/10 N 10/0.66 P 90/6 V VACUUM	G Gage Pressure D Differential Pressure	A ± 1.5 % F.S. B ± 1.0 % F.S. C ± 0.5 % F.S. E ± 2.5 % F.S.	A 0.07/70 0.07/70 B 0.09/90 0.09/90 C 0.07/70 0.09/90

SIGNAL & CONNECTOR OPTIONS

XXX - XX - XX

Command signal	Analog monitor signal	Logic monitor signal (10mA, MAX)	Electrical connector	Cable length	Digital Display
B 0-10V C 4-20mA 3-Wire D 4-20mA 4-Wire	A None B 0-10V	A None B TTL (Low = Pressure Achieved) C TTL (High = Pressure Achieved) D 24V (Low = Pressure Achieved) E 24V (High = Pressure Achieved)	A 3 Pin Mini B 5 Pin Mini C 6 Pin Mini D 3 Pin Micro E 5 Pin Micro F 6 Pin Micro G 3 Wire Grommet H 4 Wire Grommet I 5 Wire Grommet J 6 Wire Grommet	O No Cable B 3 Ft/0.9m D 6 Ft/1.8m E 12 Ft/3.6m	Blank Not required DP Display PSI & com. signal DB Display Bar & com. signal

## IMPORTANT ! READ NOTES BEFORE ORDERING

- 1 For stand alone, choose Option "A".  
For PMPP, choose Option "B" and MOD 1164.  
For use with inline Boosters, choose Option "C".
  - 2 Feedback Option "C" not available with pressure ranges below 30 PSI. Maximum inlet pressure for Option "D" (15 PSI) is 30 PSI. Maximum inlet pressure for Options "G" (2 PSI) and "L" (4 PSI) is 15 PSI. Vacuum at inlet should not exceed 25" HG.
  - 3 Caution : Differential pressure must not exceed pressure range.
  - 4 For PMPPs, choose Option "A" or "E".  
For dual xducers, choose Option "B". Option "B" not available with single xducer.
  - 5 For PMPPs, choose Option "A".  
For any booster application, choose Option "A".  
For stand alone, "A" is standard; "B" is optional.
  - 6 For other options, consult the factory.
  - 7 See the list of standard electrical connectors before ordering.
  - 8 For Option "O" (no cable), choose electrical connector Options "A" through "F" only.
  - 9 This option is not available with feedback options "B" & "C", pressure range option "V" and pressure reference option "D".
- Note :** For PMPP ordering information, consult factory.  
For circuit bar® mounting of PPC5C, consult factory.

**GENERAL DATA**

<b>Ambient temperature :</b>	32°F to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Enclosure :</b>	Aluminium, sealed
<b>Vibration :</b>	Not affected
<b>Port size :</b>	G 1/8", 1/8" NPT - Option : bottom ports
<b>Connector :</b>	Micro or mini 3, 5 or 6 pin plug-in 3, 4, 5 or 6 wire grommet
<b>Mounting :</b>	Any plane
<b>Protection :</b>	IP 65

**ELECTRICAL DATA**

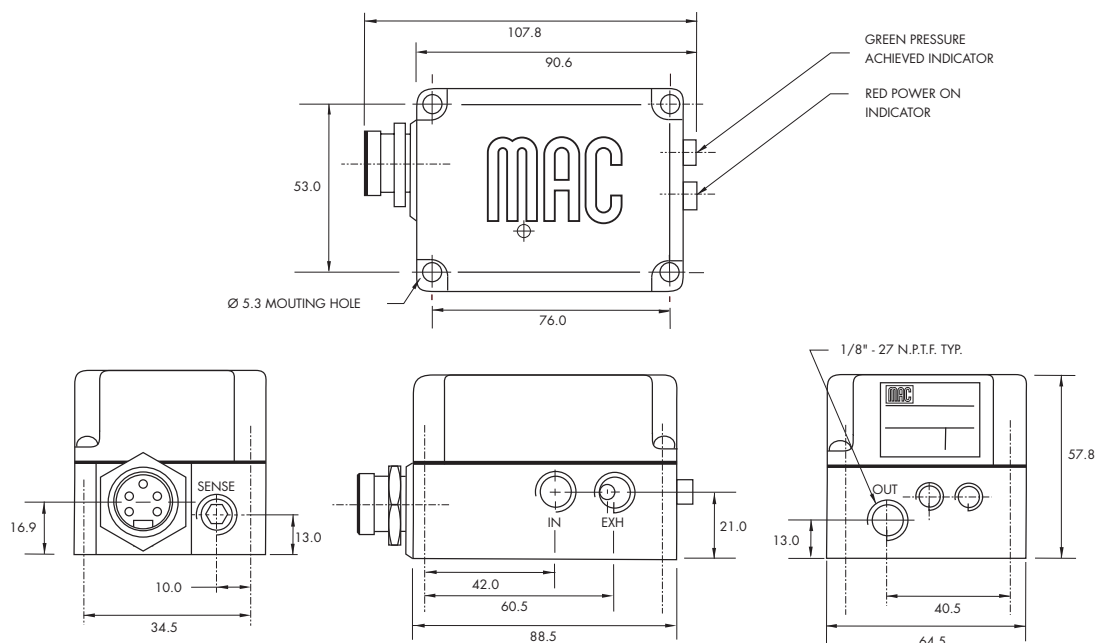
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 275mA (single transducer) 50 to 500mA (dual transducer)
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volts
<b>Logic Monitor Signal (LMS) :</b>	TTL or 24V 10mA max. (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	160 PSI max (for 0-150 PSI output pres.) 10.7 BAR max (for 0-10 BAR output pres.) 120 PSI max (for 20-117 PSI output pres.) 8 BAR max (for 1.3-7.8 BAR output pres.)
<b>Inlet vacuum** :</b>	25" HG/635 mm HG
<b>Output vacuum :</b>	0 to 20" HG/0 to 508 mm HG
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 2, 4, 10, 15, 20, 30, 50, 60, 100, 117, 150 PSI (single transducer) 0 to 0.13, 0.26, 0.66, 1, 1.3, 2, 3.3, 4, 6.7, 7.8, 10 BAR (single transducer) 0 to 50, 60, 75, 80, 90, 100, 117, 150 PSI (dual transducer) 0 to 3.3, 4, 5, 5.3, 6, 6.7, 7.8, 10 BAR (dual transducer)
<b>Overall accuracy :</b>	± 1.5% full scale (single transducer standard) ± 1.0% full scale (dual transducer) ± 0.5% full scale (single transducer optional) ± 2.5% full scale (single transducer optional)
<b>Flow :</b>	Cv 0.07/70 NI/min (standard) - Cv 0.09/90 NI/min (High flow)
<b>Minimum closed end volume :</b>	1.0 cubic inch (Cv = 0.07) - 16 cm <sup>3</sup> (Flow = 70 NI/min)

\* 30 PSI maximum inlet for 15 PSI output pressure - 2 BAR maximum inlet for 1 BAR output pressure - 15 PSI maximum inlet for 2 PSI and 4 PSI output pressure - 1 BAR maximum inlet for 0.13 BAR output pressure  
\*\* Vacuum inlet should not exceed 25"/635 mm HG

**DIMENSIONS**



**OPTIONS**

LIST OF AVAILABLE SIGNAL & CONNECTOR OPTIONS

**PPC5C XXX-XXXX-(XXX-XX) - SIGNAL & CONNECTOR OPTIONS**

PART NO.	COMMAND SIGNAL	COMMAND TYPE	ANALOG MONITOR	LOGIC MONITOR	CONNECTOR DESCRIPTION
- CAA-AX	4-20mA	SINGLE	NONE	NONE	3-PIN
- CAA-DX	4-20mA	SINGLE	NONE	NONE	3-PIN MICRO
- CAA-GX	4-20mA	SINGLE	NONE	NONE	3-WIRE GROMMET
- BAA-HX	0-10V	DIFFERENTIAL	NONE	NONE	4-WIRE GROMMET
- DAA-HX	4-20mA	DIFFERENTIAL	NONE	NONE	4-WIRE GROMMET
- CBB-BX	4-20mA	SINGLE	0-10V	TTL	5-PIN
- CBD-BX	4-20mA	SINGLE	0-10V	24V	5-PIN
- BBA-BX	0-10V	DIFFERENTIAL	0-10V	NONE	5-PIN
- BAB-BX	0-10V	DIFFERENTIAL	NONE	TTL	5-PIN
- BAD-BX	0-10V	DIFFERENTIAL	NONE	24V	5-PIN
- DBA-BX	4-20mA	DIFFERENTIAL	0-10V	NONE	5-PIN
- DAB-BX	4-20mA	DIFFERENTIAL	NONE	TTL	5-PIN
- DAD-BX	4-20mA	DIFFERENTIAL	NONE	24V	5-PIN
- CBB-EX	4-20mA	SINGLE	0-10V	TTL	5-PIN MICRO
- CBD-EX	4-20mA	SINGLE	0-10V	24V	5-PIN MICRO
- BBA-EX	0-10V	DIFFERENTIAL	0-10V	NONE	5-PIN MICRO
- BAB-EX	0-10V	DIFFERENTIAL	NONE	TTL	5-PIN MICRO
- BAD-EX	0-10V	DIFFERENTIAL	NONE	24V	5-PIN MICRO
- DBA-EX	4-20mA	DIFFERENTIAL	0-10V	NONE	5-PIN MICRO
- DAB-EX	4-20mA	DIFFERENTIAL	NONE	TTL	5-PIN MICRO
- DAD-EX	4-20mA	DIFFERENTIAL	NONE	24V	5-PIN MICRO
- CBB-IX	4-20mA	SINGLE	0-10V	TTL	5-WIRE GROMMET
- CBD-IX	4-20mA	SINGLE	0-10V	24V	5-WIRE GROMMET
- BBA-IX	0-10V	DIFFERENTIAL	0-10V	NONE	5-WIRE GROMMET
- BAB-IX	0-10V	DIFFERENTIAL	NONE	TTL	5-WIRE GROMMET
- BAD-IX	0-10V	DIFFERENTIAL	NONE	24V	5-WIRE GROMMET
- DBA-IX	4-20mA	DIFFERENTIAL	0-10V	NONE	5-WIRE GROMMET
- DAB-IX	4-20mA	DIFFERENTIAL	NONE	TTL	5-WIRE GROMMET
- DAD-IX	4-20mA	DIFFERENTIAL	NONE	24V	5-WIRE GROMMET
- BBB-CX	0-10V	DIFFERENTIAL	0-10V	TTL	6-PIN
- BBD-CX	0-10V	DIFFERENTIAL	0-10V	24V	6-PIN
- DBB-CX	4-20mA	DIFFERENTIAL	0-10V	TTL	6-PIN
- DBD-CX	4-20mA	DIFFERENTIAL	0-10V	24V	6-PIN
- BBB-FX	0-10V	DIFFERENTIAL	0-10V	TTL	6-PIN MICRO
- BBD-FX	0-10V	DIFFERENTIAL	0-10V	24V	6-PIN MICRO
- DBB-FX	4-20mA	DIFFERENTIAL	0-10V	TTL	6-PIN MICRO
- DBD-FX	4-20mA	DIFFERENTIAL	0-10V	24V	6-PIN MICRO
- BBB-JX	0-10V	DIFFERENTIAL	0-10V	TTL	6-WIRE GROMMET
- BBD-JX	0-10V	DIFFERENTIAL	0-10V	24V	6-WIRE GROMMET
- DBB-JX	4-20mA	DIFFERENTIAL	0-10V	TTL	6-WIRE GROMMET
- DBDJX	4-20mA	DIFFERENTIAL	0-10V	24V	6-WIRE GROMMET

**PPC5C**

**PPC34B**

**LCP35A**

**PPC45B**

**PPC47A**

**PPC400A**









**PPC92B**

**PPC93A**

**OPTIONS**

STANDARD PLUG-IN - ELECTRICAL CONNECTIONS

PPC5C **XXX-XXXX-(XXX-XX)** - ELECTRICAL OPTIONS

	PART NO.	PIN	DESCRIPTION	MATING CORD
	- (CAA-AX)	3	1 COMMON 2 POWER +20.4 TO +26.4VDC 3 COMMAND	GREEN BLACK WHITE
	- (CAA-DX)	3 MICRO	1 COMMON 2 POWER +20.4 TO +26.4VDC 3 COMMAND	GREEN RED WITH BLACK TRACER RED WITH WHITE TRACER
	- (CBB-BX)	5 (SINGLE-ENDED)	1 + COMMAND 2 ANALOG MONITOR SIGNAL 3 COMMON 4 LOGIC MONITOR SIGNAL 5 POWER +20.4 TO +26.4VDC	WHITE RED GREEN ORANGE BLACK
	- (BBA-BX) - (BAB-BX) - (DBA-BX) - (DAB-BX)	5 (DIFFERENTIAL)	1 + COMMAND 2 - COMMAND 3 COMMON 4 LMS or AMS 5 POWER +20.4 TO +26.4VDC	WHITE RED GREEN ORANGE BLACK
	- (CBB-EX)	5 MICRO (SINGLE ENDED)	1 + COMMAND 2 ANALOG MONITOR 3 COMMON 4 LOGIC MONITOR SIGNAL 5 POWER +20.4 TO +26.4VDC	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER
	- (BBA-EX) - (BAB-EX) - (DBA-EX) - (DAB-EX)	5 MICRO (DIFFERENTIAL)	1 + COMMAND 2 - COMMAND 3 COMMON 4 LMS or AMS 5 POWER +20.4 TO +26.4VDC	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER
	- (BBB-CX) - (DBB-CX)	6	1 LOGIC MONITOR SIGNAL 2 - COMMAND 3 POWER +20.4 TO +26.4VDC 4 + COMMAND 5 ANALOG MONITOR SIGNAL 6 COMMON	ORANGE BLUE BLACK WHITE RED GREEN
	- (BBB-FX) - (DBB-FX)	6 MICRO	1 + COMMAND 2 ANALOG MONITOR SIGNAL 3 COMMON 4 LOGIC MONITOR SIGNAL 5 POWER +20.4 TO +26.4VDC 6 - COMMAND	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER RED WITH BLUE TRACER

STANDARD WIRE GROMMET - ELECTRICAL CONNECTIONS

PPC5C **XXX-XXXX-(XXX-XX)** - ELECTRICAL OPTIONS

PART NO.	WIRES	DESCRIPTION	WIRE COLOR
- (CAA-GX)	3	COMMON POWER +20.4 TO +26.4VDC COMMAND	GREEN RED WITH BLACK TRACER RED WITH WHITE TRACER
- (BAA-HX) - (DAA-HX)	4	COMMON POWER +20.4 TO +26.4VDC + COMMAND - COMMAND	GREEN RED WITH BLACK TRACER RED WITH WHITE TRACER RED WITH BLUE TRACER
- (CBB-IX)	5	COMMAND ANALOG MONITOR SIGNAL COMMON LOGIC MONITOR SIGNAL POWER +20.4 TO +26.4VDC	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER
- (BAB-IX) - (BBA-IX) - (DAB-IX) - (DBA-IX)	5	+ COMMAND - COMMAND COMMON LMS or AMS POWER +20.4 TO +26.4VDC	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER
- (BBB-JX) - (DBB-JX)	6	+ COMMAND ANALOG MONITOR SIGNAL COMMON LOGIC MONITOR SIGNAL POWER +20.4 TO +26.4VDC - COMMAND	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER RED WITH BLUE TRACER



# Proportional pressure controller

Part size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
1/8"	0.07/70 0.09/90	covered analog with remote transducer	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 34 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Rugged enclosure.
7. Not affected by vibrations.
8. Accuracy : ± 2.5 % full scale
9. Can be stand alone or used in combination with our remote air sandwich regulators.
10. Analog command signal and output.



PPC5C

PPC34B

LCP35A

PPC45B

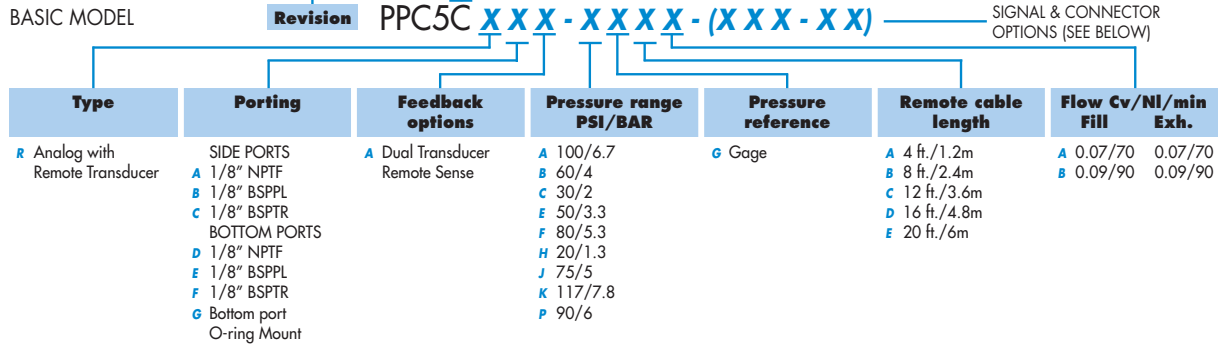
PPC47A

PPC400A

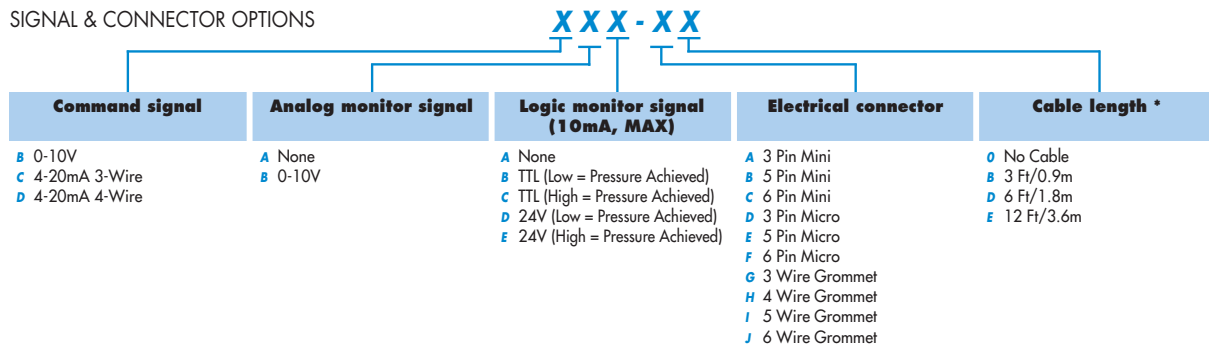
PPC92B

PPC93A

### HOW TO ORDER



### SIGNAL & CONNECTOR OPTIONS



### NOTE :

\* For Option "0" (no cable), choose electrical connector Options "A" through "F" only.

### EXAMPLE : PPC5C RAA - AGAA - BBB - CB

**Type:** Remote sense analog. Sealed aluminum hsg. with 1/8" NPT side ports

**Feedback:** Internal transducer sensing air pressure at the "out" port

**Pressure range:** 0 to 100 PSI output

**Pressure options:** Gage pressure with 4 ft. remote cable and Cv of 0.07

**Signal:** 0 to 10V differential command signal with analog and TTL Logic monitor signals

**Connector options:** 6 Pin Mini electrical connector for hook up and a 3 ft. cable

**GENERAL DATA**

<b>Ambient temperature :</b>	PPC5C : 32 to 120°F/0 to 50°C Remote transducer : -40 to 185°F/-40 to 85°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Enclosure :</b>	PPC5C : Aluminium, sealed Remote transducer : Aluminium, sealed
<b>Vibration :</b>	Not affected
<b>Port size :</b>	G 1/8", 1/8" NPT - Option : bottom ports
<b>Connector :</b>	Micro or mini 3, 5 or 6 pin plug-in 3, 4, 5 or 6 wire grommet
<b>Mounting :</b>	Any plane

**ELECTRICAL DATA**

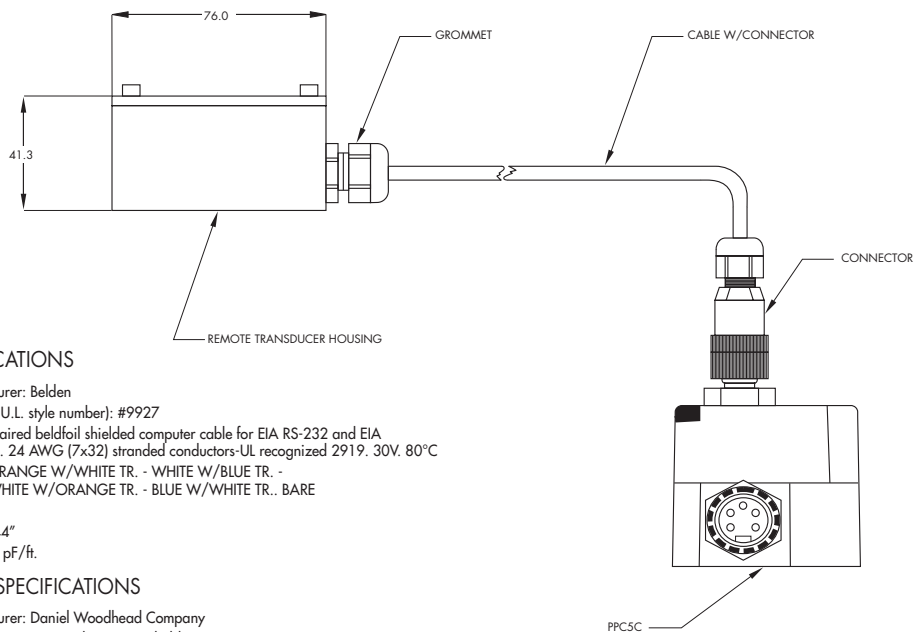
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 500mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volts
<b>Logic Monitor Signal (LMS) :</b>	TTL or 24V 10mA max. (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 20-117 PSI output pres.) 8 BAR max (for 1.3-7.8 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 20, 30, 50, 60, 75, 80, 90, 100, 117 PSI 0 to 1.3, 2, 3.3, 4, 5, 5.3, 6, 6.7, 7.8 BAR
<b>Overall accuracy :</b>	± 2.5% full scale
<b>Flow :</b>	Cv 0.07/70 NL/min (standard)
<b>Minimum closed end volume :</b>	50 cubic inch - 820 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.7 BAR output pressure

**DIMENSIONS**



**CABLE SPECIFICATIONS**

- Approved manufacturer: Belden
- Cable type (Trade & U.L. style number): #9927
- Cable description: paired beldfoil shielded computer cable for EIA RS-232 and EIA RS-422 applications. 24 AWG (7x32) stranded conductors-UL recognized 2919. 30V. 80°C
- Cable wire colors: ORANGE W/WHITE TR. - WHITE W/BLUE TR. - WHITE W/ORANGE TR. - BLUE W/WHITE TR.. BARE
- Number of pairs: 2
- Nominal O.D.: 0.244"
- Capacitance: 12.95 pF/ft.

**CONNECTOR SPECIFICATIONS**

- Approved manufacturer: Daniel Woodhead Company
- Connector: Brad Harrison micro-change attachable connector-screw termination
- Woodhead part number: 8A5000-31
- Contacts: Copper alloy, gold plated
- Voltage rating: 30VAC/35VDC
- Current rating: 4A



**OPTIONS**

LIST OF AVAILABLE SIGNAL & CONNECTOR OPTIONS

**PPC5C XXX - XXXX - (XXX - XX) -** SIGNAL & CONNECTOR OPTIONS

PART NO.	COMMAND SIGNAL	COMMAND TYPE	ANALOG MONITOR	LOGIC MONITOR	CONNECTOR DESCRIPTION
- CAA-AX	4-20mA	SINGLE	NONE	NONE	3-PIN
- CAA-DX	4-20mA	SINGLE	NONE	NONE	3-PIN MICRO
- CAA-GX	4-20mA	SINGLE	NONE	NONE	3-WIRE GROMMET
- BAA-HX	0-10V	DIFFERENTIAL	NONE	NONE	4-WIRE GROMMET
- DAA-HX	4-20mA	DIFFERENTIAL	NONE	NONE	4-WIRE GROMMET
- CBB-BX	4-20mA	SINGLE	0-10V	TTL	5-PIN
- CBD-BX	4-20mA	SINGLE	0-10V	24V	5-PIN
- BBA-BX	0-10V	DIFFERENTIAL	0-10V	NONE	5-PIN
- BAB-BX	0-10V	DIFFERENTIAL	NONE	TTL	5-PIN
- BAD-BX	0-10V	DIFFERENTIAL	NONE	24V	5-PIN
- DBA-BX	4-20mA	DIFFERENTIAL	0-10V	NONE	5-PIN
- DAB-BX	4-20mA	DIFFERENTIAL	NONE	TTL	5-PIN
- DAD-BX	4-20mA	DIFFERENTIAL	NONE	24V	5-PIN
- CBB-EX	4-20mA	SINGLE	0-10V	TTL	5-PIN MICRO
- CBD-EX	4-20mA	SINGLE	0-10V	24V	5-PIN MICRO
- BBA-EX	0-10V	DIFFERENTIAL	0-10V	NONE	5-PIN MICRO
- BAB-EX	0-10V	DIFFERENTIAL	NONE	TTL	5-PIN MICRO
- BAD-EX	0-10V	DIFFERENTIAL	NONE	24V	5-PIN MICRO
- DBA-EX	4-20mA	DIFFERENTIAL	0-10V	NONE	5-PIN MICRO
- DAB-EX	4-20mA	DIFFERENTIAL	NONE	TTL	5-PIN MICRO
- DAD-EX	4-20mA	DIFFERENTIAL	NONE	24V	5-PIN MICRO
- CBB-IX	4-20mA	SINGLE	0-10V	TTL	5-WIRE GROMMET
- CBD-IX	4-20mA	SINGLE	0-10V	24V	5-WIRE GROMMET
- BBA-IX	0-10V	DIFFERENTIAL	0-10V	NONE	5-WIRE GROMMET
- BAB-IX	0-10V	DIFFERENTIAL	NONE	TTL	5-WIRE GROMMET
- BAD-IX	0-10V	DIFFERENTIAL	NONE	24V	5-WIRE GROMMET
- DBA-IX	4-20mA	DIFFERENTIAL	0-10V	NONE	5-WIRE GROMMET
- DAB-IX	4-20mA	DIFFERENTIAL	NONE	TTL	5-WIRE GROMMET
- DAD-IX	4-20mA	DIFFERENTIAL	NONE	24V	5-WIRE GROMMET
- BBB-CX	0-10V	DIFFERENTIAL	0-10V	TTL	6-PIN
- BBD-CX	0-10V	DIFFERENTIAL	0-10V	24V	6-PIN
- DBB-CX	4-20mA	DIFFERENTIAL	0-10V	TTL	6-PIN
- DBD-CX	4-20mA	DIFFERENTIAL	0-10V	24V	6-PIN
- BBB-FX	0-10V	DIFFERENTIAL	0-10V	TTL	6-PIN MICRO
- BBD-FX	0-10V	DIFFERENTIAL	0-10V	24V	6-PIN MICRO
- DBB-FX	4-20mA	DIFFERENTIAL	0-10V	TTL	6-PIN MICRO
- DBD-FX	4-20mA	DIFFERENTIAL	0-10V	24V	6-PIN MICRO
- BBB-JX	0-10V	DIFFERENTIAL	0-10V	TTL	6-WIRE GROMMET
- BBD-JX	0-10V	DIFFERENTIAL	0-10V	24V	6-WIRE GROMMET
- DBB-JX	4-20mA	DIFFERENTIAL	0-10V	TTL	6-WIRE GROMMET
- DBDJX	4-20mA	DIFFERENTIAL	0-10V	24V	6-WIRE GROMMET

**PPC5C**

**PPC34B**

**LCP35A**

**LCP45B**

**PPC47A**

**PPC400A**









**PPC92B**

**PPC93A**

**OPTIONS**

STANDARD PLUG-IN - ELECTRICAL CONNECTIONS

PPC5C **XXX-XXXX-(XXX-XX)** - ELECTRICAL OPTIONS

	PART NO.	PIN	DESCRIPTION	MATING CORD
	- (CAA-AX)	3	1 COMMON 2 POWER +20.4 TO +26.4VDC 3 COMMAND	GREEN BLACK WHITE
	- (CAA-DX)	3 MICRO	1 COMMON 2 POWER +20.4 TO +26.4VDC 3 COMMAND	GREEN RED WITH BLACK TRACER RED WITH WHITE TRACER
	- (CBB-BX)	5 (SINGLE-ENDED)	1 + COMMAND 2 ANALOG MONITOR SIGNAL 3 COMMON 4 LOGIC MONITOR SIGNAL 5 POWER +20.4 TO +26.4VDC	WHITE RED GREEN ORANGE BLACK
	- (BBA-BX) - (BAB-BX) - (DBA-BX) - (DAB-BX)	5 (DIFFERENTIAL)	1 + COMMAND 2 - COMMAND 3 COMMON 4 IMS or AMS 5 POWER +20.4 TO +26.4VDC	WHITE RED GREEN ORANGE BLACK
	- (CBB-EX)	5 MICRO (SINGLE ENDED)	1 + COMMAND 2 ANALOG MONITOR 3 COMMON 4 LOGIC MONITOR SIGNAL 5 POWER +20.4 TO +26.4VDC	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER
	- (BBA-EX) - (BAB-EX) - (DBA-EX) - (DAB-EX)	5 MICRO (DIFFERENTIAL)	1 + COMMAND 2 - COMMAND 3 COMMON 4 IMS or AMS 5 POWER +20.4 TO +26.4VDC	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER
	- (BBB-CX) - (DBB-CX)	6	1 LOGIC MONITOR SIGNAL 2 - COMMAND 3 POWER +20.4 TO +26.4VDC 4 + COMMAND 5 ANALOG MONITOR SIGNAL 6 COMMON	ORANGE BLUE BLACK WHITE RED GREEN
	- (BBB-FX) - (DBB-FX)	6 MICRO	1 + COMMAND 2 ANALOG MONITOR SIGNAL 3 COMMON 4 LOGIC MONITOR SIGNAL 5 POWER +20.4 TO +26.4VDC 6 - COMMAND	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER RED WITH BLUE TRACER

STANDARD WIRE GROMMET - ELECTRICAL CONNECTIONS

PPC5C **XXX-XXXX-(XXX-XX)** - ELECTRICAL OPTIONS

PART NO.	WIRES	DESCRIPTION	WIRE COLOR
- (CAA-GX)	3	COMMON POWER +20.4 TO +26.4VDC COMMAND	GREEN RED WITH BLACK TRACER RED WITH WHITE TRACER
- (BAA-HX) - (DAA-HX)	4	COMMON POWER +20.4 TO +26.4VDC + COMMAND - COMMAND	GREEN RED WITH BLACK TRACER RED WITH WHITE TRACER RED WITH BLUE TRACER
- (CBB-IX)	5	COMMAND ANALOG MONITOR SIGNAL COMMON LOGIC MONITOR SIGNAL POWER +20.4 TO +26.4VDC	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER
- (BAB-IX) - (BBA-IX) - (DAB-IX) - (DBA-IX)	5	+ COMMAND - COMMAND COMMON IMS or AMS POWER +20.4 TO +26.4VDC	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER
- (BBB-JX) - (DBB-JX)	6	+ COMMAND ANALOG MONITOR SIGNAL COMMON LOGIC MONITOR SIGNAL POWER +20.4 TO +26.4VDC - COMMAND	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER RED WITH BLUE TRACER



# Proportional pressure controller

Port size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
1/8"	0.07/70 0.09/90	covered digital	PPC5C

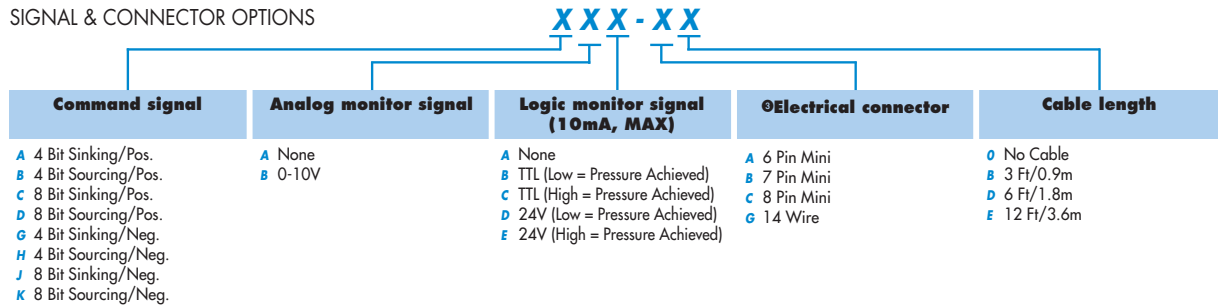
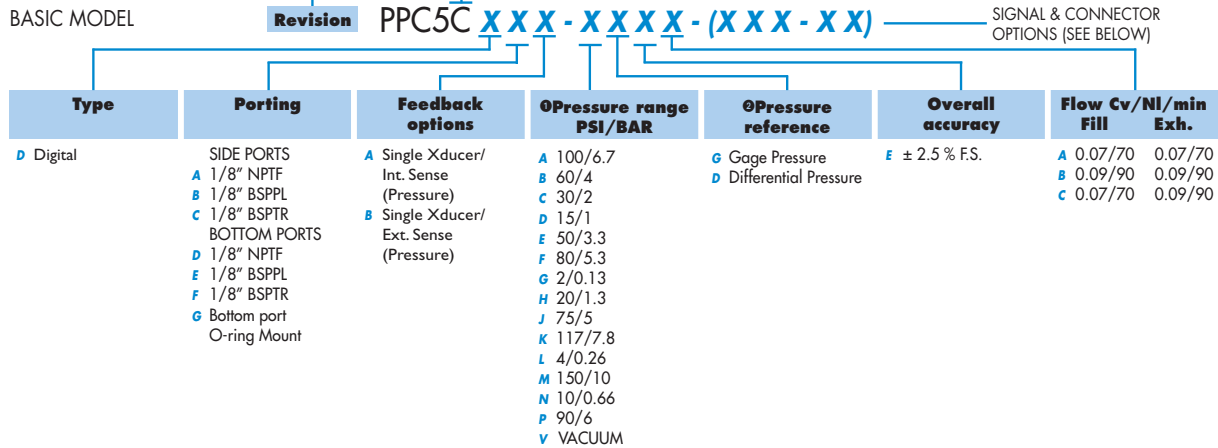
### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 34 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Rugged enclosure.
7. Not affected by vibrations.
8. Accuracy : ± 2.5 % full scale.
9. Can be stand alone or used in combination with our remote air sandwich regulators.
10. Digital command signal.



- PPC5C
- PPC34B
- LCP35A
- PPC45B
- PPC47A
- PPC400A
- PPC92B
- PPC93A

### HOW TO ORDER



### IMPORTANT ! READ NOTES BEFORE ORDERING

1. Maximum inlet pressure for Option "D" (15 PSI) is 30 PSI. Maximum inlet pressure for Options "G" (2 PSI) and "L" (4 PSI) is 15 PSI. Vacuum at inlet should not exceed 25" HG.
2. Caution : Differential pressure must not exceed pressure range.
3. All connector options are available with the 4 Bit command signal. Options "A", "B", "C" can be supplied with or without a cable. Option "G" requires a cable. Select length from table.

The 4 Bit command signal without the analog monitor signal (AMS) or logic monitor signal (LMS) requires a 6 Pin connector. For the AMS or LMS options, add one pin for each. The 8 Bit command signal can only use Option "G". Select cable length from table.  
**Note :** For PMPP ordering information, consult factory.  
 For circuit bar® mounting of PPC5C, consult factory.

**GENERAL DATA**

<b>Ambient temperature :</b>	32°F to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Enclosure :</b>	Aluminium, sealed
<b>Vibration :</b>	Not affected
<b>Port size :</b>	G 1/8", 1/8" NPT - Option : bottom ports
<b>Connector :</b>	Mini 6, 7 or 8 pin plug-in 14 wire grommet
<b>Mounting :</b>	Any plane
<b>Protection :</b>	IP 65

**ELECTRICAL DATA**

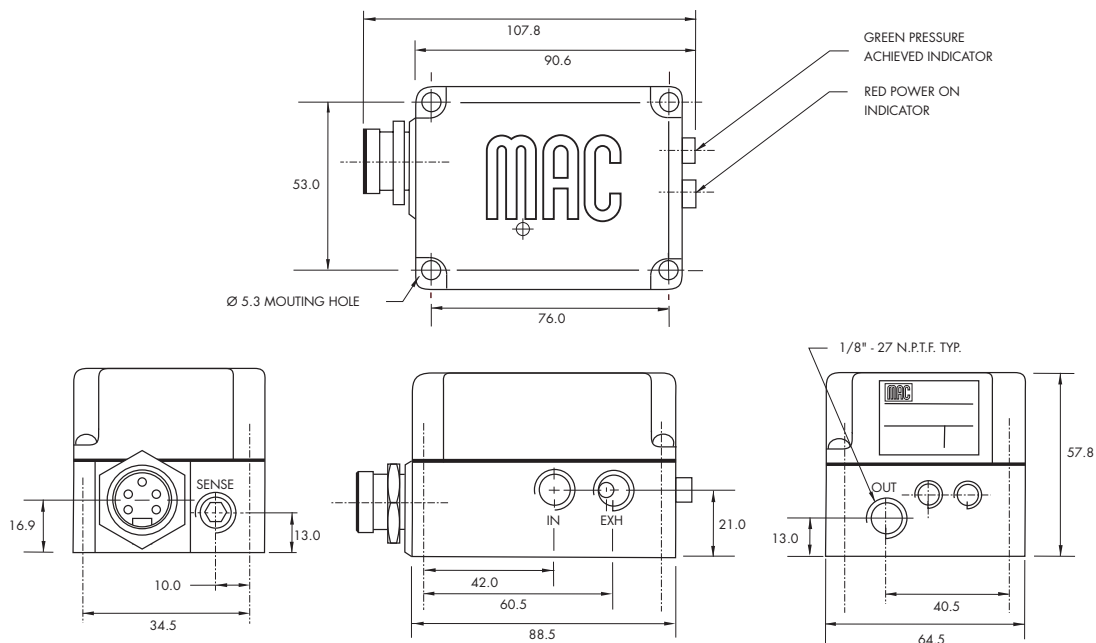
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 275mA (single transducer)
<b>Command signal :</b>	24V Sinking or 5V Sourcing
<b>Command type :</b>	4 or 8 Bit Digital, Positive and Negative Logic
<b>Analog Monitor Signal</b>	0 to 10 Volts
<b>Logic Monitor Signal (AMS) : (Active High)</b>	TTL or 24V (Hi = Pres. Achieved)
<b>Logic Monitor Signal (LMS) : (Active Low)</b>	TTL or 24V (Lo = Pres. Achieved)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	160 PSI max (for 0-150 PSI output pres.) 10.7 BAR max (for 0-10 BAR output pres.) 120 PSI max (for 20-117 PSI output pres.) 8 BAR max (for 1.3-7.8 BAR output pres.)
<b>Inlet vacuum** :</b>	25" HG/635 mm HG
<b>Output vacuum :</b>	0 to 20" HG/0 to 508 mm HG
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 2, 4, 10, 15, 20, 30, 50, 60, 100, 117, 150 PSI (single transducer) 0 to 0.13, 0.26, 0.66, 1, 1.3, 2, 3.3, 4, 6.7, 7.8, 10 BAR (single transducer)
<b>Overall accuracy :</b>	± 2.5% full scale (single transducer optional)
<b>Flow :</b>	Cv 0.07/70 NI/min (standard) - Cv 0.09/90 NI/min (High flow)
<b>Minimum closed end volume :</b>	1.0 cubic inch (Cv = 0.07) - 16 cm <sup>3</sup> (Flow = 70 NI/min)






\* 30 PSI maximum inlet for 15 PSI output pressure - 2 BAR maximum inlet for 1 BAR output pressure -  
15 PSI maximum inlet for 2 PSI and 4 PSI output pressure - 1 BAR maximum inlet for 0.13 BAR output pressure  
\*\* Vacuum inlet should not exceed 25"/635 mm HG

**DIMENSIONS**



**OPTIONS**

ELECTRICAL CONNECTOR PIN OUTS

4 BIT COMMAND SIGNAL	PIN	DESCRIPTION	MATING CORD
	1	DATA BIT 0	ORANGE
	2	DATA BIT 1	BLUE
	3	DATA BIT 2	BLACK
	4	DATA BIT 3	WHITE
	5	POWER +24 VDC	RED
	6	COMMON	GREEN
<b>4 BIT COMMAND SIGNAL WITH AMS</b>			
	1	DATA BIT 0	WHITE/BLACK
	2	DATA BIT 1	BLACK
	3	DATA BIT 2	WHITE
	4	DATA BIT 3	RED
	5	AMS	ORANGE
	6	POWER +24 V	BLUE
	7	COMMON	GREEN
<b>4 BIT COMMAND SIGNAL WITH AMS &amp; LMS</b>			
	1	DATA BIT 0	ORANGE
	2	DATA BIT 1	BLUE
	3	DATA BIT 2	WHITE/BLACK
	4	DATA BIT 3	BLACK
	5	AMS	WHITE
	6	LMS	RED
	7	POWER +24 V	GREEN
	8	COMMON	RED/BLACK
<b>4 BIT COMMAND SIGNAL WITH LMS</b>			
	1	DATA BIT 0	WHITE/BLACK
	2	DATA BIT 1	BLACK
	3	DATA BIT 2	WHITE
	4	DATA BIT 3	RED
	5	LMS	ORANGE
	6	POWER +24 V	BLUE
	7	COMMON	GREEN
<b>8 BIT COMMAND SIGNAL - 14 WIRE</b>			
	1	+24 VDC	RED
	2	COMMON	BLACK
	3	DATA BIT 0	WHITE/BLACK
	4	DATA BIT 1	BLUE
	5	DATA BIT 2	GREEN/WHITE
	6	DATA BIT 3	RED/WHITE
	7	DATA BIT 4	BLUE/WHITE
	8	DATA BIT 5	ORANGE
	9	DATA BIT 6	BLACK/WHITE
	10	DATA BIT 7	BLUE/BLACK
	11	AMS	RED/BLACK
	12	LMS	GREEN/BLACK
	13	/AMS	WHITE
	14	/LATCH	ORANGE/BLACK

**PPC5C**

**PPC34B**

**LCP35A**

**PPC45B**

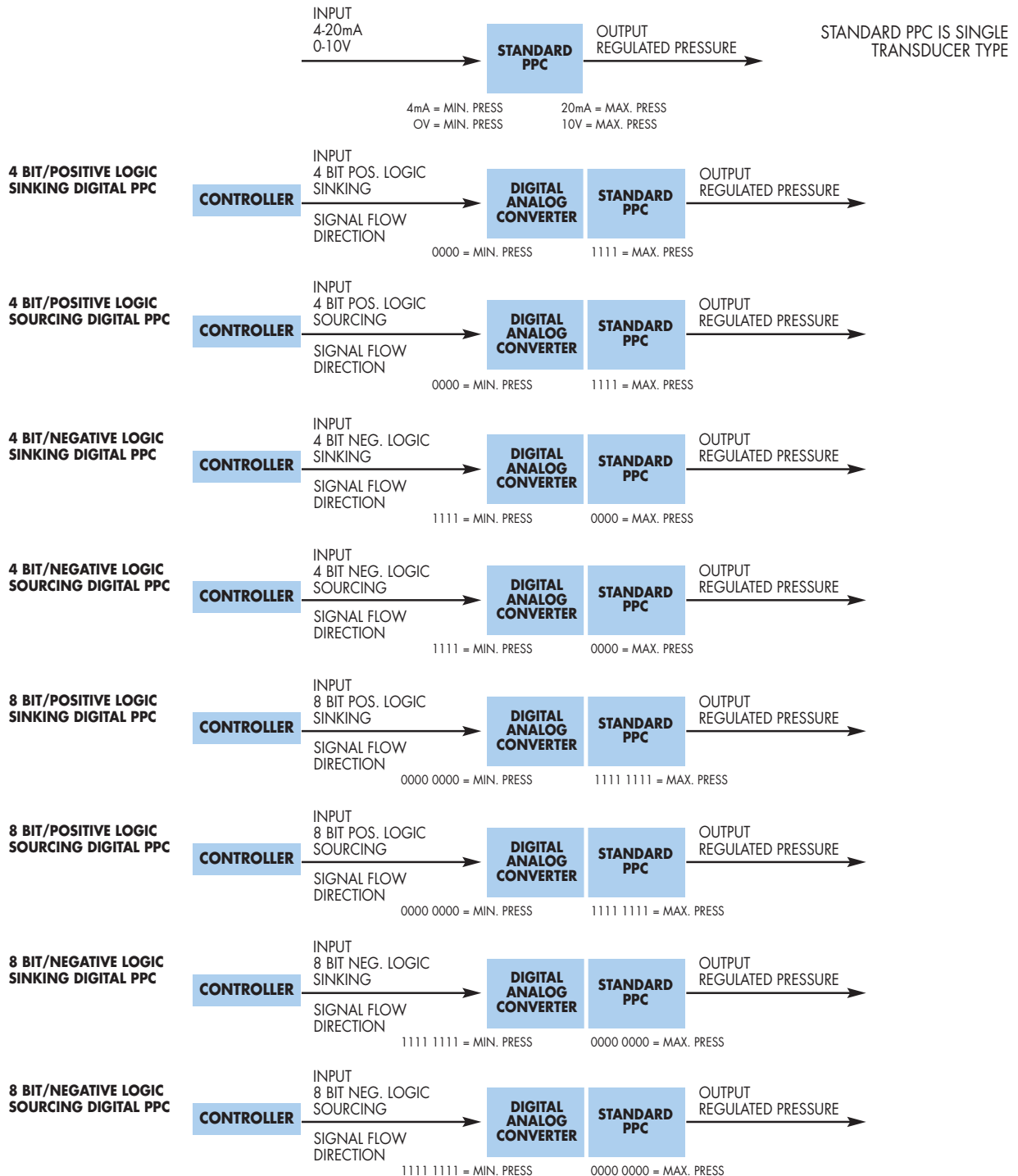
**PPC47A**

**PPC400A**

**PPC92B**

**PPC93A**

**OPTIONS**





# Proportional pressure controller

Part size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
<b>1/8"</b>	<b>0.07/70</b>	coverless analog base mount	

## OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 34 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accurate pressure control.
8. Analog command signal and output.



PPC5C

**PPC34B**

LCP35A

PPC45B

PPC47A

PPC400A

PPC92B

PPC93A

## HOW TO ORDER

BASIC MODEL

PPC034B **X X X - X X X X - X X X**

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy	Command signal	Logic monitor signal	Cover options
<b>A</b> Analog	<b>AA</b> Base side port 1/8" NPTF <b>AB</b> Base side port 1/8" BSPPL <b>AC</b> Base side port 1/8" BSPTR <b>AD</b> Base side 5/32" tube receptacle <b>BA</b> Base bottom port 1/8" NPTF <b>BB</b> Base bottom port 1/8" BSPPL <b>BC</b> Base bottom port 1/8" BSPTR <b>BD</b> Base bottom 5/32" tube receptacle	<b>0A</b> 100/6.7 <b>0B</b> 60/4 <b>0C</b> 30/2 <b>0N</b> 10/0.66 <b>0T</b> 45/3	<b>G</b> Gage pressure <b>D</b> Differential pressure  Caution: differential pressure must not exceed pressure range.	<b>A</b> ±1.5% F.S. <b>C</b> ±0.5% F.S. <b>E</b> ±2.5% F.S.	<b>B</b> 0-10v differential <b>D</b> 4-20mA differential	<b>A</b> TTL LMS 1,2 <b>B</b> 24v LMS High on TTL LMS 1 Press. Achieved <b>C</b> 24v LMS Low on TTL LMS Press. Achieved	<b>0</b> No Cover

EXAMPLE : PPC034B **AAA - OBGA - BAO**

34 Series flow valves, analog, individual base mount 1/8" NPTF ports, 60 psi pressure range, gage reference, 1.5% accuracy, 0-10v differential, TTL LMS 1,2, no cover.

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Vibration :</b>	Not affected
<b>Port size :</b>	G 1/8", 1/8" NPT - Option : bottom ports
<b>Connector :</b>	7 pin terminal block
<b>Mounting :</b>	Any plane

**ELECTRICAL DATA**

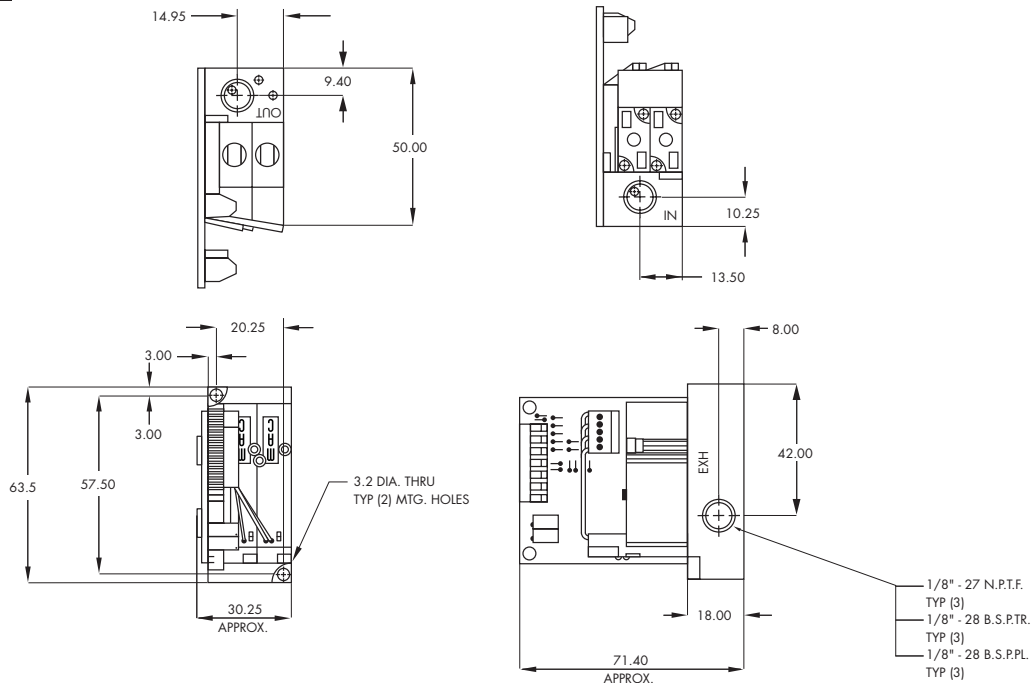
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 275mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 1.5% full scale ± 0.5% full scale ± 2.5% full scale
<b>Flow :</b>	Cv 0.07/70 NI/min
<b>Minimum closed end volume :</b>	1.0 cubic inch - 16 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure

**DIMENSIONS**



Note: for additional dimensions , see pages 89, 90.





# Proportional pressure controller

Port size	Flow [Max] [Cv/NI/min]	Circuit bar mounting	Series
<b>1/8"</b>	<b>0.07/70</b>	coverless analog base manifold mount	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 34 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accurate pressure control.
8. Analog command signal and output.



PPC5C

**PPC34B**

LCP35A

PPC45B

### HOW TO ORDER

#### BASIC MODEL

PPC034B **XXX-XXX-XXX-9** — Assembled to EPP bar

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy	Command signal	Logic monitor signal	Cover options
A Analog	*CA Base manifold Mt	0A 100/6.7 0B 60/4 0C 30/2 0N 10/0.66 0T 45/3	G Gage pressure D Differential pressure  Caution: differential pressure must not exceed pressure range.	A ±1.5% F.S. C ±0.5% F.S. E ±2.5% F.S.	B 0-10v differential D 4-20mA differential	A TTL LMS 1,2 B 24v LMS High on TTL LMS 1 Press. Achieved C 24v LMS Low on TTL LMS Press. Achieved	0 No Cover

\* See EPP 34A "How to order"

PPC47A

PPC400A

PPC92B

PPC93A

#### CIRCUIT BAR FOR MANIFOLD MOUNT

EPP34A **XXXXX-XX-9** — PPC assembled to bar N° of stations

Spacing	Configuration	Style	Cyl. port size
00 31.75mm	A Side cylinder port B Bottom cylinder port	A Standard	A 1/8" NPTF B 1/8" BSPPL C 1/8" BSPTR  D 5/32" tube receptacle (NPTF commons) E 5/32" tube receptacle (BSPPL commons) F 5/32" tube receptacle (BSPTR commons)  Common (through) ports on manifold are 1/8"

EXAMPLE : 5 - PPC034B - **ACA - OAGE - BAO - 9**  
1 - EPP34A - **00AAA - 05 - 9**

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Vibration :</b>	Not affected
<b>Port size :</b>	G 1/8", 1/8" NPT - Option : bottom ports
<b>Connector :</b>	7 pin terminal block
<b>Mounting :</b>	Any plane

**ELECTRICAL DATA**

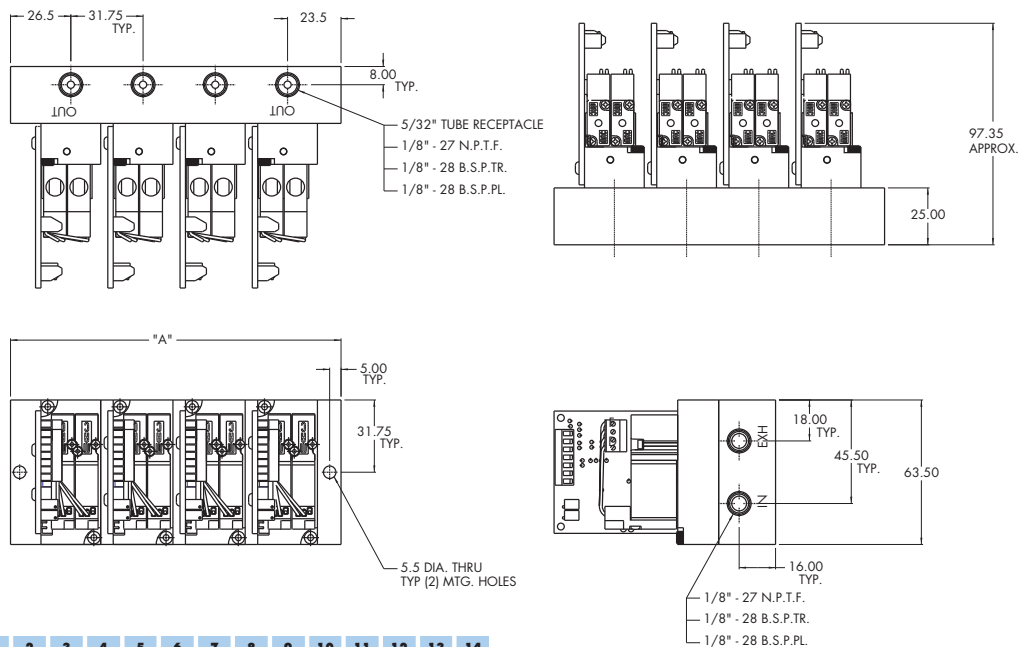
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 275mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 1.5% full scale ± 0.5% full scale ± 2.5% full scale
<b>Flow :</b>	Cv 0.07/70 NI/min
<b>Minimum closed end volume :</b>	1.0 cubic inch - 16 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure

**DIMENSIONS**



Number of stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14
"A"	50.0	81.75	113.5	145.25	177.0	208.75	240.5	272.25	304.0	335.75	367.5	399.25	431.0	462.75

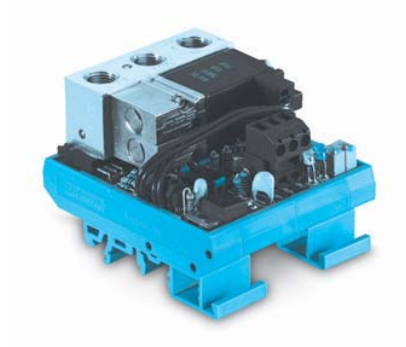


# Proportional pressure controller

Port size	Flow [Max] [Cv/NI/min]	Mounting	Series
1/8"	0.07/70	coverless analog DIN rail mount	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 34 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accurate pressure control.
8. Analog command signal and output.



PPC5C

PPC34B

LCP35A

PPC45B

PPC47A

PPC400A

PPC92B

PPC93A

### HOW TO ORDER

BASIC MODEL

PPC034B XXX - XXXX - XXX

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy	Command signal	Logic monitor signal	Cover options
A Analog	<b>DIN RAIL OPTIONS</b> Standard (EN50 022) DA Din rail base 1/8" NPTF side port DB Din rail base 1/8" BSPPL side port DC Din rail base 1/8" BSPTR side port DD Din rail base side 5/32" tube receptacle Phoenix contact UMK Type EA Base bottom port 1/8" NPTF EB Base bottom port 1/8" BSPPL EC Base bottom port 1/8" BSPTR ED Base bottom 5/32" tube receptacle	0A 100/6.7 0B 60/4 0C 30/2 0N 10/0.66 0T 45/3	G Gage pressure D Differential pressure  Caution: differential pressure must not exceed pressure range.	A ±1.5% F.S. C ±0.5% F.S. E ±2.5% F.S.	B 0-10v differential D 4-20mA differential	A TTL LMS 1,2 B 24v LMS High on TTL LMS 1 Press. Achieved C 24v LMS Low on TTL LMS Press. Achieved	0 No Cover

NOTE : Above photo shown with Phoenix UMK type.

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Vibration :</b>	Not affected
<b>Port size :</b>	G 1/8", 1/8" NPT - Option : bottom ports
<b>Connector :</b>	7 pin terminal block
<b>Mounting :</b>	Any plane

**ELECTRICAL DATA**

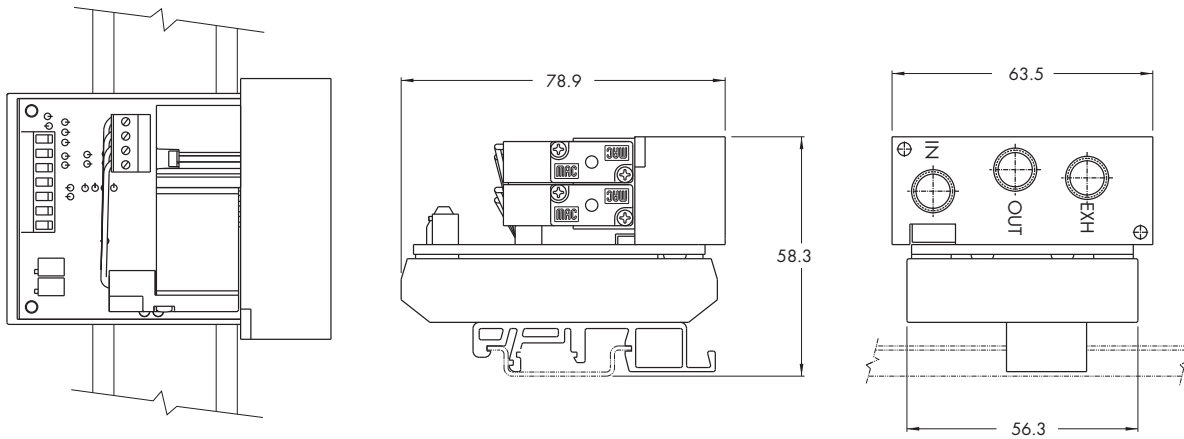
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 275mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 1.5% full scale ± 0.5% full scale ± 2.5% full scale
<b>Flow :</b>	Cv 0.07/70 NI/min
<b>Minimum closed end volume :</b>	1.0 cubic inch - 16 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure

**DIMENSIONS**



Note: for additional dimensions , see pages 90.

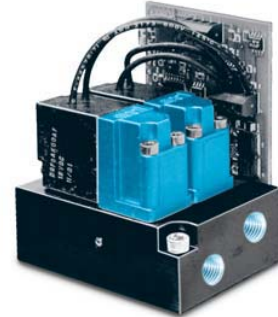


# Proportional pressure controller

Part size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
<b>1/8"</b>	<b>0.10/100</b>	coverless analog base mount	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 35 Series
2. Repeatability.
3. Fast response.
4. Long life.
5. High flow.
6. Low power consumption.
7. Not affected by vibrations.
8. Accurate pressure control.
9. Analog command signal and output.



PPC5C

PPC34B

**LCP35A**

PPC45B

PPC47A

PPC400A

PPC92B

PPC93A

### HOW TO ORDER

BASIC MODEL

LCP035A **X X X - X X X X - X**

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy	Command signal
<b>A</b> Analog	<b>AA</b> Base side port 1/8" NPTF <b>AB</b> Base side port 1/8" BSPPL <b>AC</b> Base side port 1/8" BSPTR	<b>0A</b> 100/6.7 <b>0B</b> 60/4 <b>0C</b> 30/2 <b>0N</b> 10/0.7 <b>0S</b> 40/2.7 <b>0T</b> 45/3	<b>G</b> Gage pressure	<b>A</b> ±1.5% F.S. <b>E</b> ±2.5% F.S.	<b>B</b> 0-10v differential <b>D</b> 4-20mA differential

EXAMPLE : LCP035A **AAA - 0BGA - B**

35 series valves, analog, individual base mount 1/8" NPTF, 60 PSI/4 bar pressure range, gage reference, 1.5% accuracy, 0-10v differential

**GENERAL DATA**

Ambient temperature :	32 to 120°F/0 to 50°C
Vibration :	Not affected
Port size :	1/8"
Connector :	4 pin terminal block
Mounting :	Any plane

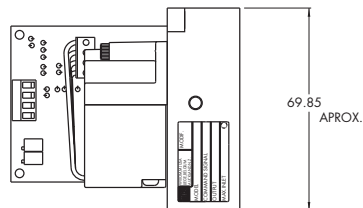
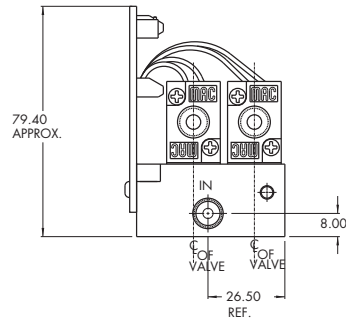
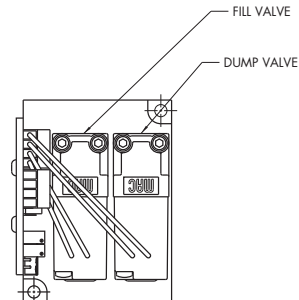
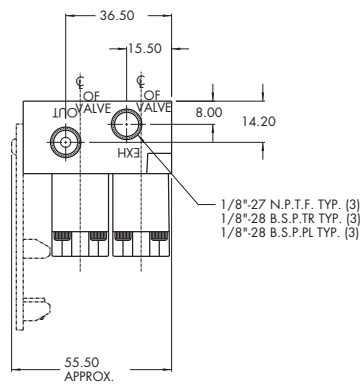
**ELECTRICAL DATA**

Supply voltage :	18 to 28 VDC
Supply current :	50 to 350mA
Command signal :	4 to 20mA, 0-10v
Command type :	Differential
Input impedance :	316 Ω ± 0.1% (current) 4.99 Ω ± 1.0% (voltage)
EMI/RFI protection :	Common mode and high frequency noise reduction

**PNEUMATIC DATA**

Inlet pressure :	120 PSI max (for 10-100 PSI output pressure) 8 BAR max (for 0.66-6.6 BAR output pressure)
Fluids :	Air or inert gases
Lubrication :	Not required, if used select a medium aniline point oil
Output pressure :	0 to 10, 30, 40, 45, 60 and 100 0 to 0.66, 2, 2.6, 3, 4 and 6.6
Overall accuracy :	± 1.5% full scale ± 2.5% full scale
Flow :	Cv 0.10/100 NI/min
Minimum closed end volume :	1.0 cubic inch

**DIMENSIONS**





# Proportional pressure controller

Part size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
<b>1/8"</b>	<b>0.25/250</b>	coverless analog base mount	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 45 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accurate pressure control.
8. Analog command signal and output.



PPC5C

PPC34B

LCP35A

**PPC45A**

### HOW TO ORDER

BASIC MODEL

PPC045A **XXX - XXXX - XXX**

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy	Command signal	Logic monitor signal	Cover options
<b>A</b> Analog	<b>AA</b> Base side port 1/8" NPTF <b>AB</b> Base side port 1/8" BSPPL <b>AC</b> Base side port 1/8" BSPTR <b>AD</b> Base side 1/4" tube receptacle <b>BA</b> Base bottom port 1/8" NPTF <b>BB</b> Base bottom port 1/8" BSPPL <b>BC</b> Base bottom port 1/8" BSPTR <b>BD</b> Base bottom 1/4" tube receptacle	<b>0A</b> 100/6.7 <b>0B</b> 60/4 <b>0C</b> 30/2 <b>0N</b> 10/0.66 <b>0T</b> 45/3	<b>D</b> Differential pressure <b>G</b> Gage pressure Caution: differential pressure must not exceed pressure range.	<b>A</b> ±1.5% F.S. <b>C</b> ±0.5% F.S. <b>E</b> ±2.5% F.S.	<b>B</b> 0-10v differential <b>D</b> 4-20mA differential	<b>A</b> TTL LMS 1,2 <b>B</b> 24v LMS High on TTL LMS 1 Press. Achieved <b>C</b> 24v LMS Low on TTL LMS Press. Achieved	<b>0</b> No Cover

PPC47A

PPC400A

PPC92B

PPC93A

EXAMPLE :

PPC045A - **AAA - OAGE - BAO**

45 Series flow valves, individual base mount, 1/8" NPTF side ports, 100 psi pressure range, gage reference, 2.5% accuracy, 0-10 volt differential, TTL LMS 1,2, no cover.

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Vibration :</b>	Not affected
<b>Port size :</b>	G 1/8", 1/8" NPT - Option : bottom ports
<b>Connector :</b>	7 pin terminal block
<b>Mounting :</b>	Any plane

**ELECTRICAL DATA**

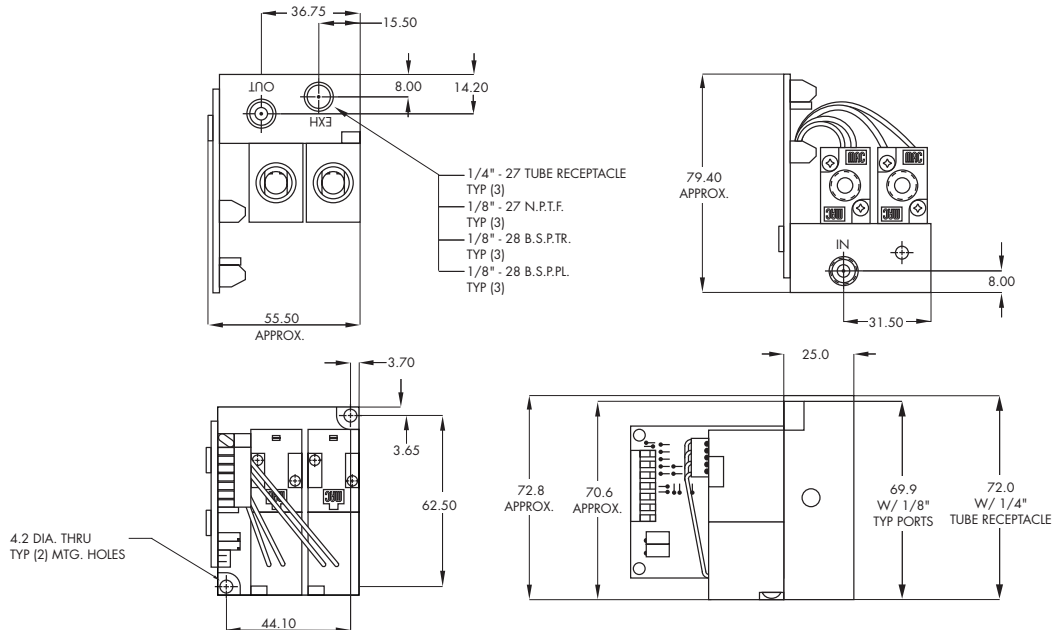
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 350mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 1.5% full scale ± 0.5% full scale ± 2.5% full scale
<b>Flow :</b>	Cv 0.25/250 NI/min
<b>Minimum closed end volume :</b>	1.0 cubic inch - 16 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure

**DIMENSIONS**



Note: for additional dimensions , see pages 91.





# Proportional pressure controller

Port size	Flow [Max] [Cv/Nl/min]	Circuit bar mounting	Series
1/8"	0.25/250	coverless analog base manifold mount	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 45 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accurate pressure control.
8. Analog command signal and output.



PPC5C

PPC34B

LCP35A

**PPC45A**

### HOW TO ORDER

#### BASIC MODEL

PPC045A **XXX-XXX-XXX-9** — Assembled to EPP bar

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy	Command signal	Logic monitor signal	Cover options
A Analog	*CA Base manifold Mt	0A 100/6.7 0B 60/4 0C 30/2 0N 10/0.66 0T 45/3	G Gage pressure D Differential pressure  Caution: differential pressure must not exceed pressure range.	A ±1.5% F.S. C ±0.5% F.S. E ±2.5% F.S.	B 0-10v differential D 4-20mA differential	A TTL LMS 1,2 B 24v LMS High on TTL LMS 1 Press. Achieved C 24v LMS Low on TTL LMS Press. Achieved	0 No Cover

\* See EPP 45A "How to order"

PPC47A

PPC400A

PPC92B

PPC93A

#### CIRCUIT BAR FOR MANIFOLD MOUNT

EPP45A **XXXXX-XX-9** — PPC assembled to bar N° of stations

Spacing	Configuration	Style	Cyl. port size
00 57.0mm	A Side cylinder port B Bottom cylinder port	A Standard	A 1/8" NPTF B 1/8" BSPPL C 1/8" BSPTR  D 1/4" tube receptacle (NPTF commons) E 1/4" tube receptacle (BSPPL commons) F 1/4" tube receptacle (BSPTR commons)

Common (through) ports on manifold are 1/4"

EXAMPLE : 5 - PPC045A - **ACA - OAGE - BA0 - 9**  
1 - EPP45A - **00AAA - 05 - 9**

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Vibration :</b>	Not affected
<b>Port size :</b>	G 1/8", 1/8" NPT - Option : bottom ports
<b>Connector :</b>	7 pin terminal block
<b>Mounting :</b>	Any plane

**ELECTRICAL DATA**

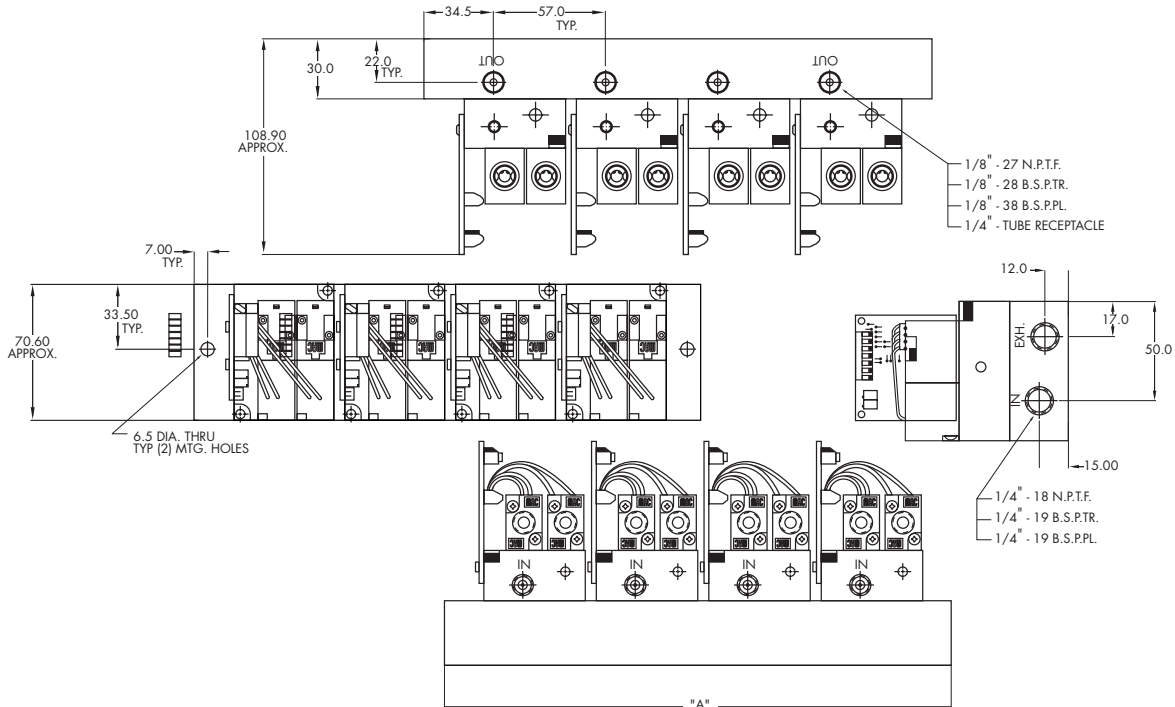
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 350mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 0.5% full scale ± 1.5% full scale ± 2.5% full scale
<b>Flow :</b>	Cv 0.25/250 NI/min
<b>Minimum closed end volume :</b>	1.0 cubic inch - 16 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure

**DIMENSIONS**



Number of stations	1	2	3	4	5	6	7	8	9	10	11
"A"	86,5	143,5	200,5	257,5	314,5	371,5	428,5	485,5	542,5	599,5	656,5



# Proportional pressure controller

Part size	Flow [Max] [Cv/NI/min]	Mounting	Series
<b>1/8"</b>	<b>0.25/250</b>	coverless analog DIN rail mount	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 45 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accurate pressure control.
8. Analog command signal and output.



PPC5C

PPC34B

LCP35A

**PPC45A**

### HOW TO ORDER

BASIC MODEL

PPC045A **XXX - XXXX - XXX - 9** — Assembled to EPP bar

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy	Command signal	Logic monitor signal	Cover options
<b>A</b> Analog	<b>DIN RAIL OPTIONS</b> Standard (EN50 022) <b>DA</b> Din rail base 1/8" NPTF side port <b>DB</b> Din rail base 1/8" BSPPL side port <b>DC</b> Din rail base 1/8" BSPTR side port <b>DD</b> Din rail base side 1/4" tube receptacle Phoenix contact UMK Type <b>EA</b> Base bottom port 1/8" NPTF <b>EB</b> Base bottom port 1/8" BSPPL <b>EC</b> Base bottom port 1/8" BSPTR <b>ED</b> Base bottom 1/4" tube receptacle	<b>0A</b> 100/6.7 <b>0B</b> 60/4 <b>0C</b> 30/2 <b>0N</b> 10/0.66 <b>0T</b> 45/3	<b>D</b> Differential pressure <b>G</b> Gage pressure  Caution: differential pressure must not exceed pressure range.	<b>A</b> ±1.5% F.S. <b>C</b> ±0.5% F.S. <b>E</b> ±2.5% F.S.	<b>B</b> 0-10v differential <b>D</b> 4-20mA differential	<b>A</b> TTL LMS 1,2 <b>B</b> 24v LMS High on TTL LMS 1 Press. Achieved <b>C</b> 24v LMS Low on TTL LMS Press. Achieved	<b>0</b> No Cover

PPC47A

PPC400A

PPC92B

PPC93A

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Vibration :</b>	Not affected
<b>Port size :</b>	G 1/8", 1/8" NPT - Option : bottom ports
<b>Connector :</b>	7 pin terminal block
<b>Mounting :</b>	Any plane

**ELECTRICAL DATA**

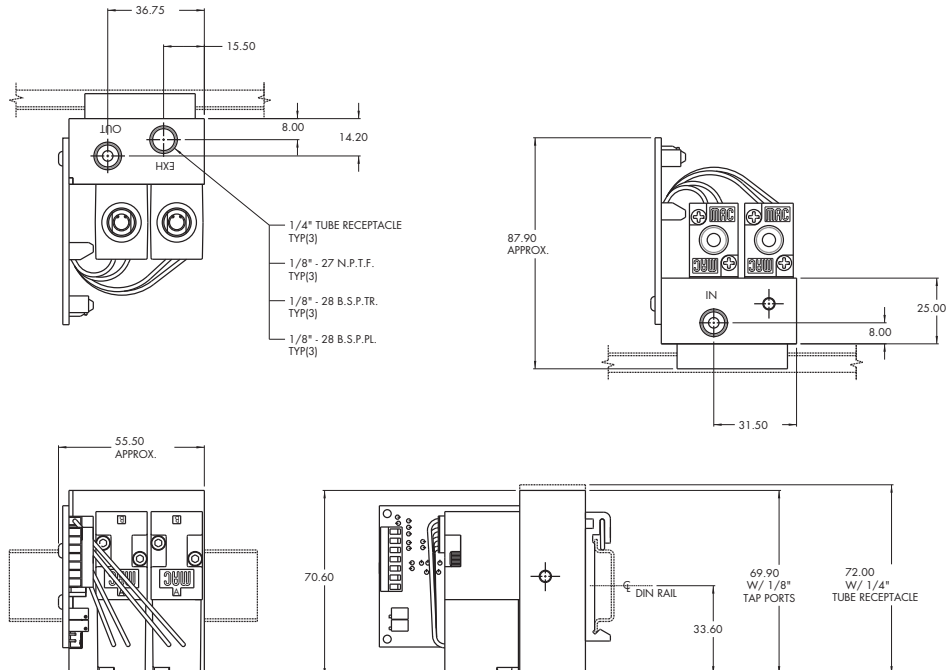
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 350mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 0.5% full scale ± 1.5% full scale ± 2.5% full scale
<b>Flow :</b>	Cv 0.25/250 NI/min
<b>Minimum closed end volume :</b>	1.0 cubic inch - 16 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure

**DIMENSIONS**





# Proportional pressure controller

Port size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
1/8"	0.25/250	covered analog base mount	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 45 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accurate pressure control.
8. Analog command signal and output.



PPC5C

PPC34B

LCP35A

**PPC45B**

PPC47A

PPC400A

PPC92B

PPC93A

### HOW TO ORDER

BASIC MODEL **PPC045B XXX - XXXX - (XXX - XX)** SIGNAL & CONNECTOR OPTIONS (SEE BELOW)

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy
<b>A</b> Analog	<b>AA</b> Base side port 1/8" NPTF <b>AB</b> Base side port 1/8" BSPPL <b>AC</b> Base side port 1/8" BSPTR <b>AD</b> Base side port 1/4" tube receptacle 1/8" NPTF Exh. <b>AE</b> Base side port 1/4" tube receptacle 1/8" BSPPL Exh. <b>AF</b> Base side port 1/4" tube receptacle 1/8" BSPTR Exh.	<b>OA</b> 100/6.7 <b>OB</b> 60/4 <b>OC</b> 30/2 <b>ON</b> 10/0.66 <b>OT</b> 45/3	<b>D</b> Differential pressure <b>G</b> Gage pressure  Caution: differential pressure must not exceed pressure range.	<b>A</b> ± 1.5 % F.S. <b>C</b> ± 0.5 % F.S. <b>E</b> ± 2.5 % F.S.

### SIGNAL & CONNECTOR OPTIONS

Command signal	AMS/LMS signal	Cover options	Electrical connector	Cable length
<b>B</b> 0-10V Differential <b>D</b> 4-20mA Differential	<b>0</b> No AMS or LMS <b>A</b> TTL LMS 1, 2 <b>B</b> 24v LMS 2 High on TTL LMS 1 Press. Achieved <b>C</b> 24v LMS Low on TTL LMS Press. Achieved <b>D</b> TTL LMS 1,2 w/AMS <b>E</b> 24v LMS 2 High on w/AMS TTL LMS 1 Press. Achieved <b>F</b> 24v LMS Low on w/AMS TTL LMS 1 Press. Achieved <b>G</b> AMS	<b>A</b> Sealed Electrical & electronic components w/Washdown valves	<b>A</b> 3 Pin Mini <b>B</b> 5 Pin Mini <b>C</b> 6 Pin Mini <b>D</b> 7 Pin Mini  <b>E</b> 3 Pin Micro <b>F</b> 5 Pin Micro <b>G</b> 6 Pin Micro  <b>J</b> 7 Wire Grommet (cable length required)	<b>0</b> No Cable <b>B</b> 3 Ft/0.9m <b>D</b> 6 Ft/1.8m <b>E</b> 12 Ft/3.6m

### NOTE

- (Options below are AMS/LMS signals)
- 3 Pin connector for option 0
- 5 Pin connector for option G
- 6 Pin connector for options A, B, C
- 7 Pin connector for options D, E, F
- 7 Wire grommet for all AMS/LMS signals

EXAMPLE : PPC045B **AAA - OAGE - BAA - CO**

45 Series flow valves, analog, 1/8" side ports (NPTF), 100 psi pressure range, gage reference, 2.5% accuracy, 0-10v differential, TTL LMS 1,2, sealed electrical components, 6 pin mini connector, no cable.

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Enclosure :</b>	Aluminium Barstock, sealed
<b>Vibration :</b>	Not affected
<b>Port size :</b>	1/8" (side only)
<b>Connector :</b>	3, 5, 6 or 7 Pin Plug-in or 7 wire grommet
<b>Mounting :</b>	Any plane
<b>Washdown :</b>	Standard

**ELECTRICAL DATA**

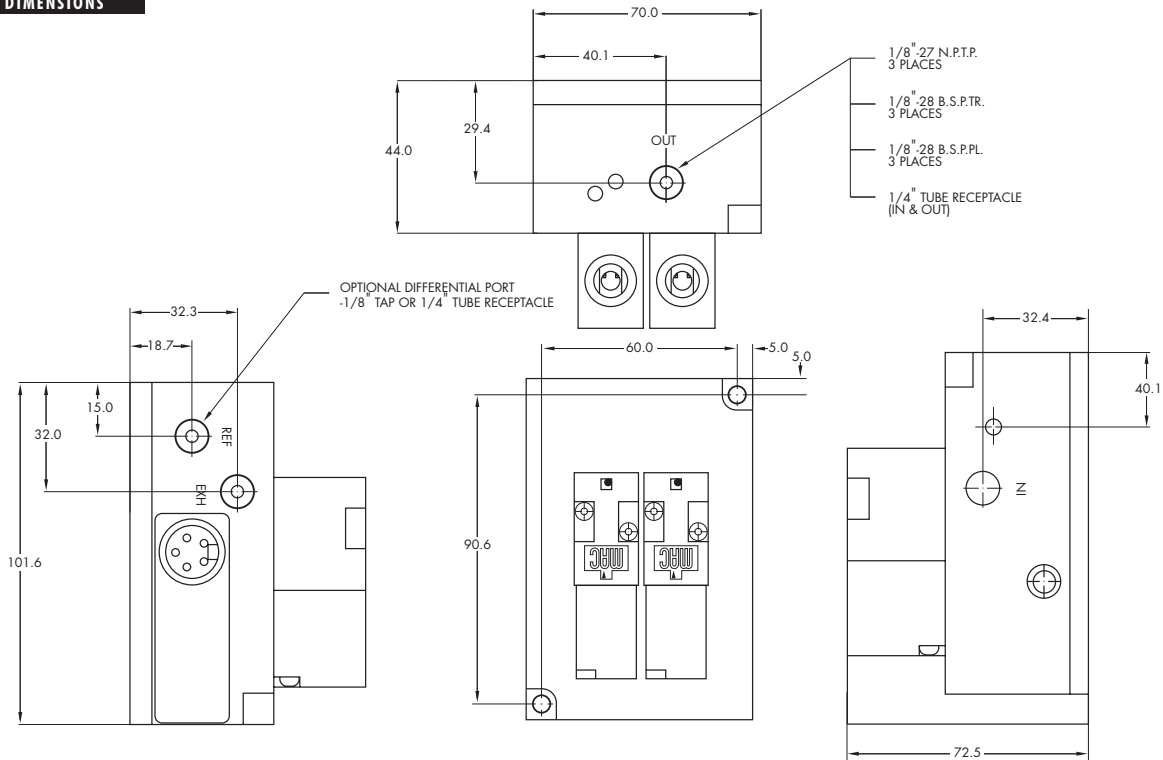
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 350mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 0.5% full scale ± 1.5% full scale ± 2.5% full scale
<b>Flow :</b>	Cv 0.25/250 NI/min
<b>Minimum closed end volume :</b>	1.0 cubic inch - 16 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure














**DIMENSIONS**



**OPTIONS**

STANDARD PLUG-IN - ELECTRICAL CONNECTIONS

**PPC045B XXX - XXXX - (XXX - XX) -** ELECTRICAL OPTIONS

	PART NO.	PIN	DESCRIPTION	MATING CORD
	- (BOA-AX) - (DOA-AX)	3	COMMON POWER +20.4 TO +26.4VDC + COMMAND	GREEN BLACK WHITE
	- (BOA-EX) - (DOA-EX)	3 MICRO	COMMON POWER +20.4 TO +26.4VDC + COMMAND	GREEN RED WITH BLACK TRACER RED WITH WHITE TRACER
	- (BGA-BX) - (DGA-BX)	5	+ COMMAND ANALOG MONITOR SIGNAL COMMON - COMMAND POWER +20.4 TO +26.4VDC	WHITE RED GREEN ORANGE BLACK
	- (BGA-FX) - (DGA-FX)	5 MICRO	+ COMMAND ANALOG MONITOR SIGNAL COMMON - COMMAND POWER +20.4 TO +26.4VDC	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER
	- (BAA-CX) - (DAA-CX)	6	LMS1: TTL (high = pressure achieved) - COMMAND POWER +20.4 TO +26.4VDC + COMMAND LMS2: TTL (low = pressure achieved) COMMON	ORANGE BLUE BLACK WHITE RED GREEN
	- (BAA-GX) - (DAA-GX)	6 MICRO	+ COMMAND LMS2: TTL (low = pressure achieved) COMMON LMS1: TTL (high = pressure achieved) POWER +20.4 TO +26.4VDC - COMMAND	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER RED WITH BLUE TRACER
	- (BBA-CX) - (DBA-CX)	6	LMS1: TTL (high = pressure achieved) - COMMAND POWER +20.4 TO +26.4VDC + COMMAND LMS2: 24V (high = pressure achieved) COMMON	ORANGE BLUE BLACK WHITE RED GREEN
	- (BBA-GX) - (DBA-GX)	6 MICRO	+ COMMAND LMS2: 24V (high = pressure achieved) COMMON LMS1: TTL (high = pressure achieved) POWER +20.4 TO +26.4VDC - COMMAND	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER RED WITH BLUE TRACER
	- (BCA-CX) - (DCA-CX)	6	LMS1: TTL (high = pressure achieved) - COMMAND POWER +20.4 TO +26.4VDC + COMMAND LMS2: 24V (low = pressure achieved) COMMON	ORANGE BLUE BLACK WHITE RED GREEN
	- (BCA-GX) - (DCA-GX)	6 MICRO	+ COMMAND LMS2: 24V (low = pressure achieved) COMMON LMS1: TTL (high = pressure achieved) POWER +20.4 TO +26.4VDC - COMMAND	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER RED WITH BLUE TRACER
	- (BDA-DX) - (DDA-DX)	7	LMS2: TTL (low = pressure achieved) POWER +20.4 TO +26.4VDC + COMMAND ANALOG MONITOR SIGNAL LMS1: TTL (high = pressure achieved) - COMMAND COMMON	WHITE WITH BLACK TRACER BLACK WHITE RED ORANGE BLUE GREEN
	- (BEA-DX) - (DEA-DX)	7	LMS2: 24V (high = pressure achieved) POWER +20.4 TO +26.4VDC + COMMAND ANALOG MONITOR SIGNAL LMS1: TTL (high = pressure achieved) - COMMAND COMMON	WHITE WITH BLACK TRACER BLACK WHITE RED ORANGE BLUE GREEN
	- (BFA-DX) - (DFA-DX)	7	LMS2: 24V (low = pressure achieved) POWER +20.4 TO +26.4VDC + COMMAND ANALOG MONITOR SIGNAL LMS1: TTL (high = pressure achieved) - COMMAND COMMON	WHITE WITH BLACK TRACER BLACK WHITE RED ORANGE BLUE GREEN

PPC5C

PPC34B

LCP35A

PPC45B

PPC47A

PPC400A

PPC92B

PPC93A

**OPTIONS**

STANDARD WIRE GROMMET - ELECTRICAL CONNECTIONS

**PPC045B XXX - XXXX - (XXX - XX) -** ELECTRICAL OPTIONS

PART NO.	WIRES	DESCRIPTION	WIRE COLOR
- (BOA-JX) - (DOA-JX)	4	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND	BLACK GREEN BLUE WHITE * BROWN (NOT USED) * ORANGE (NOT USED) * RED (NOT USED)
- (BGA-JX) - (DGA-JX)	5	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE RED * BROWN (NOT USED) * ORANGE (NOT USED)
- (BAA-JX) - (DAA-JX)	6	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: TTL (low = pressure achieved) LMS1: TTL (high = pressure achieved)	BLACK GREEN BLUE WHITE BROWN ORANGE * RED (NOT USED)
- (BBA-JX) - (DBA-JX)	6	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (high = pressure achieved) LMS1: TTL (high = pressure achieved)	BLACK GREEN BLUE WHITE BROWN ORANGE * RED (NOT USED)
- (BCA-JX) - (DCA-JX)	6	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (low = pressure achieved) LMS1: TTL (high = pressure achieved)	BLACK GREEN BLUE WHITE BROWN ORANGE * RED (NOT USED)
- (BDA-JX) - (DDA-JX)	7	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: TTL (low = pressure achieved) LMS1: TTL (high = pressure achieved) ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE BROWN ORANGE RED
- (BEA-JX) - (DEA-JX)	7	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (high = pressure achieved) LMS1: TTL (high = pressure achieved) ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE BROWN ORANGE RED
- (BFA-JX) - (DFA-JX)	7	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (low = pressure achieved) LMS1: TTL (high = pressure achieved) ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE BROWN ORANGE RED

**NOTES**

- \* 1. All units with electrical connector option "J" (listed above) are factory equipped with a 7-wire grommet and wires not used are trimmed off to ends of cable.
- 2. Variable "X" = cable length



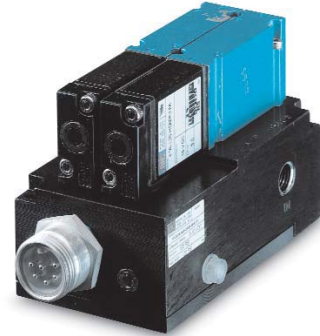


# Proportional pressure controller

Port size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
1/4"	0.72/720	covered analog	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 47 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accurate pressure control.
8. Analog command signal and output.



PPC5C

PPC34B

LCP35A

PPC45B

### HOW TO ORDER

BASIC MODEL **PPC047A XXX - XXXX - (XXX - XX)** SIGNAL & CONNECTOR OPTIONS (SEE BELOW)

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy
<b>A</b> Analog	<b>AA</b> Base side port 1/4" NPTF <b>AB</b> Base side port 1/4" BSPPL <b>AC</b> Base side port 1/4" BSPTR <b>AD</b> Base side port 8mm tube receptacle 1/4" NPTF Exh. <b>AE</b> Base side port 8mm tube receptacle 1/4" BSPPL Exh. <b>AF</b> Base side port 8mm tube receptacle 1/4" BSPTR Exh.	<b>0A</b> 100/6.7 <b>0B</b> 60/4 <b>0C</b> 30/2 <b>0N</b> 10/0.66 <b>0T</b> 45/3	<b>D</b> Differential pressure <b>G</b> Gage pressure  Caution: differential pressure must not exceed pressure range.	<b>A</b> ± 1.5 % F.S. <b>E</b> ± 2.5 % F.S.

PPC47A

PPC400A

PPC92B

PPC93A

### SIGNAL & CONNECTOR OPTIONS

Command signal	AMS/LMS signal	Cover options	Electrical connector	Cable length
<b>B</b> 0-10V Differential <b>D</b> 4-20mA Differential	<b>0</b> No AMS or LMS <b>A</b> TTL LMS 1, 2 <b>B</b> 24v LMS 2 High on TTL LMS 1 Press. Achieved <b>C</b> 24v LMS Low on TTL LMS Press. Achieved <b>D</b> TTL LMS 1,2 w/AMS <b>E</b> 24v LMS 2 High on w/AMS TTL LMS 1 Press. Achieved <b>F</b> 24v LMS Low on w/AMS TTL LMS 1 Press. Achieved <b>G</b> AMS	<b>B</b> Sealed Electrical & electronic components standard valves	<b>A</b> 3 Pin Mini <b>B</b> 5 Pin Mini <b>C</b> 6 Pin Mini <b>D</b> 7 Pin Mini  <b>E</b> 3 Pin Micro <b>F</b> 5 Pin Micro <b>G</b> 6 Pin Micro  <b>J</b> 7 Wire Grommet (cable length required)	<b>0</b> No Cable <b>B</b> 3 Ft/0.9m <b>D</b> 6 Ft/1.8m <b>E</b> 12 Ft/3.6m

### NOTE

- (Options below are AMS/LMS signals)
- 3 Pin connector for option 0
- 5 Pin connector for option G
- 6 Pin connector for options A, B, C
- 7 Pin connector for options D, E, F
- 7 Wire grommet for all AMS/LMS signals

EXAMPLE : PPC047A **AAA - OAGE - BAB - CO**

47 Series flow valves, analog, 1/4" side ports (NPTF), 100 psi pressure range, gage reference, 2.5% accuracy, 0-10v differential, TTL LMS 1,2, sealed electrical components, 6 pin mini connector, no cable.

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Enclosure :</b>	Aluminium Barstock, sealed
<b>Vibration :</b>	Not affected
<b>Port size :</b>	1/4" (side only)
<b>Connector :</b>	3, 5, 6 or 7 Pin Plug-in or 7 wire grommet
<b>Mounting :</b>	Any plane
<b>Washdown :</b>	Not available at this time

**ELECTRICAL DATA**

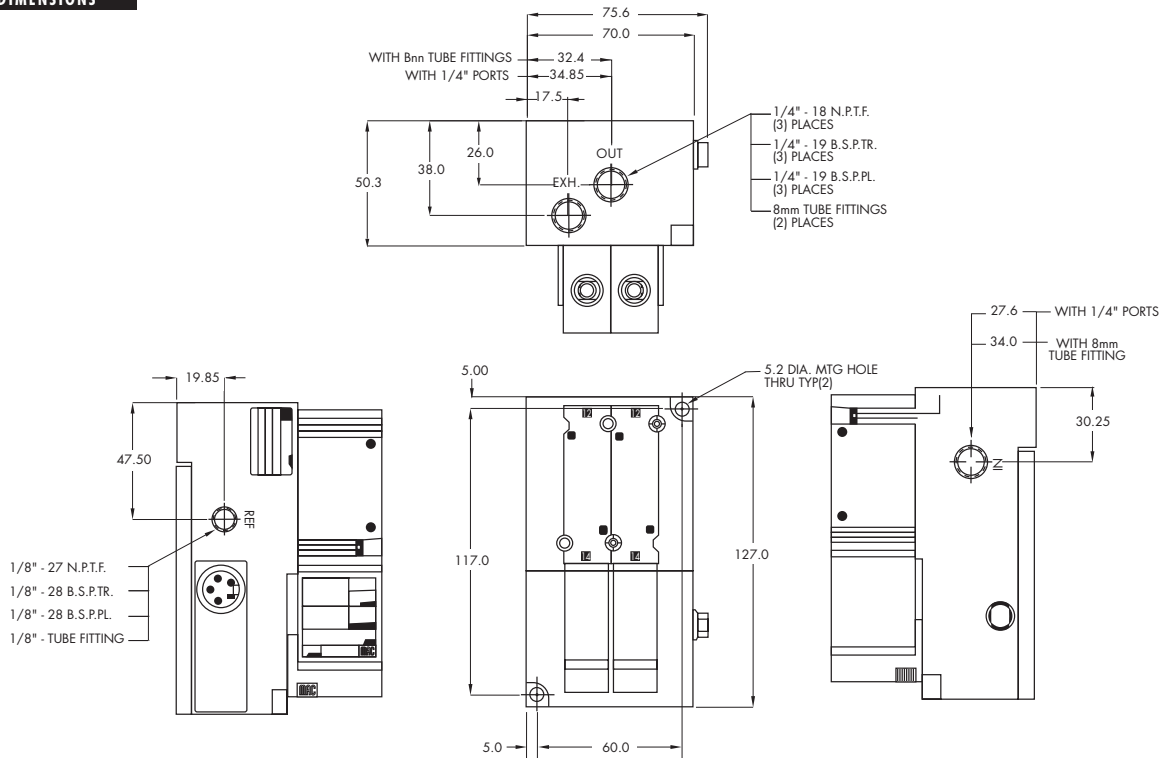
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	110 to 440mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt, single-ended
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 1.5% full scale ± 2.5% full scale
<b>Flow :</b>	Cv 0.72/720 NI/min
<b>Minimum closed end volume :</b>	5.0 cubic inch - 82 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure














**DIMENSIONS**



**OPTIONS**

STANDARD PLUG-IN - ELECTRICAL CONNECTIONS

**PPC047A XXX-XXXX-(XXX-XX)-** ELECTRICAL OPTIONS

	PART NO.	PIN	DESCRIPTION	MATING CORD
	- (BOB-AX) - (DOB-AX)	3	COMMON POWER +20.4 TO +26.4VDC + COMMAND	GREEN BLACK WHITE
	- (BOB-EX) - (DOB-EX)	3 MICRO	COMMON POWER +20.4 TO +26.4VDC + COMMAND	GREEN RED WITH BLACK TRACER RED WITH WHITE TRACER
	- (BGB-BX) - (DGB-BX)	5	+ COMMAND ANALOG MONITOR SIGNAL COMMON - COMMAND POWER +20.4 TO +26.4VDC	WHITE RED GREEN ORANGE BLACK
	- (BGB-FX) - (DGB-FX)	5 MICRO	+ COMMAND ANALOG MONITOR SIGNAL COMMON - COMMAND POWER +20.4 TO +26.4VDC	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER
	- (BAB-CX) - (DAB-CX)	6	LMS1: TTL (high = pressure achieved) - COMMAND POWER +20.4 TO +26.4VDC + COMMAND LMS2: TTL (low = pressure achieved) COMMON	ORANGE BLUE BLACK WHITE RED GREEN
	- (BAB-GX) - (DAB-GX)	6 MICRO	+ COMMAND LMS2: TTL (high = pressure achieved) COMMON LMS1: TTL (high = pressure achieved) POWER +20.4 TO +26.4VDC - COMMAND	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER RED WITH BLUE TRACER
	- (BBB-CX) - (DBB-CX)	6	LMS1: TTL (high = pressure achieved) - COMMAND POWER +20.4 TO +26.4VDC + COMMAND LMS2: 24V (high = pressure achieved) COMMON	ORANGE BLUE BLACK WHITE RED GREEN
	- (BBB-GX) - (DBB-GX)	6 MICRO	+ COMMAND LMS2: 24V (high = pressure achieved) COMMON LMS1: TTL (high = pressure achieved) POWER +20.4 TO +26.4VDC - COMMAND	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER RED WITH BLUE TRACER
	- (BCB-CX) - (DCB-CX)	6	LMS1: TTL (high = pressure achieved) - COMMAND POWER +20.4 TO +26.4VDC + COMMAND LMS2: 24V (low = pressure achieved) COMMON	ORANGE BLUE BLACK WHITE RED GREEN
	- (BCB-GX) - (DCB-GX)	6 MICRO	+ COMMAND LMS2: 24V (low = pressure achieved) COMMON LMS1: TTL (high = pressure achieved) POWER +20.4 TO +26.4VDC - COMMAND	RED WITH WHITE TRACER RED GREEN RED WITH YELLOW TRACER RED WITH BLACK TRACER RED WITH BLUE TRACER
	- (BDB-DX) - (DDB-DX)	7	LMS2: TTL (low = pressure achieved) POWER +20.4 TO +26.4VDC + COMMAND ANALOG MONITOR SIGNAL LMS1: TTL (high = pressure achieved) - COMMAND COMMON	WHITE WITH BLACK TRACER BLACK WHITE RED ORANGE BLUE GREEN
	- (BEB-DX) - (DEB-DX)	7	LMS2: 24V (high = pressure achieved) POWER +20.4 TO +26.4VDC + COMMAND ANALOG MONITOR SIGNAL LMS1: TTL (high = pressure achieved) - COMMAND COMMON	WHITE WITH BLACK TRACER BLACK WHITE RED ORANGE BLUE GREEN
	- (BFB-DX) - (DFB-DX)	7	LMS2: 24V (low = pressure achieved) POWER +20.4 TO +26.4VDC + COMMAND ANALOG MONITOR SIGNAL LMS1: TTL (high = pressure achieved) - COMMAND COMMON	WHITE WITH BLACK TRACER BLACK WHITE RED ORANGE BLUE GREEN

PPC5C

PPC34B

LCP35A

PPC45B

**PPC47A**

PPC400A

PPC92B

PPC93A

**OPTIONS**

STANDARD WIRE GROMMET - ELECTRICAL CONNECTIONS

PPC047A **XXX-XXXX-(XXX-XX)** - ELECTRICAL OPTIONS

PART NO.	WIRES	DESCRIPTION	WIRE COLOR
- (BOB-JX) - (DOB-JX)	4	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND	BLACK GREEN BLUE WHITE * BROWN (NOT USED) * ORANGE (NOT USED) * RED (NOT USED)
- (BGB-JX) - (DGB-JX)	5	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE RED * BROWN (NOT USED) * ORANGE (NOT USED)
- (BAB-JX) - (DAB-JX)	6	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: TTL (low = pressure achieved) LMS1: TTL (high = pressure achieved)	BLACK GREEN BLUE WHITE BROWN ORANGE * RED (NOT USED)
- (BBB-JX) - (DBB-JX)	6	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (high = pressure achieved) LMS1: TTL (high = pressure achieved)	BLACK GREEN BLUE WHITE BROWN ORANGE * RED (NOT USED)
- (BCB-JX) - (DCB-JX)	6	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (low = pressure achieved) LMS1: TTL (high = pressure achieved)	BLACK GREEN BLUE WHITE BROWN ORANGE * RED (NOT USED)
- (BDB-JX) - (ddb-JX)	7	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: TTL (low = pressure achieved) LMS1: TTL (high = pressure achieved) ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE BROWN ORANGE RED
- (BEB-JX) - (DEB-JX)	7	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (high = pressure achieved) LMS1: TTL (high = pressure achieved) ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE BROWN ORANGE RED
- (BFB-JX) - (DFB-JX)	7	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (low = pressure achieved) LMS1: TTL (high = pressure achieved) ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE BROWN ORANGE RED

**NOTES**

- \* 1. All units with electrical connector option "J" (listed above) are factory equipped with a 7-wire grommet and wires not used are trimmed off to ends of cable.
- 2. Variable "X" = cable length

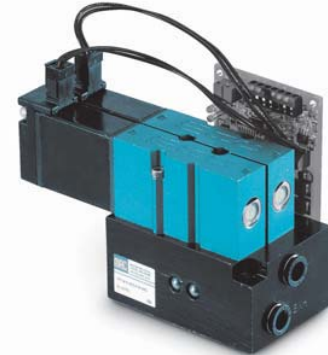


# Proportional pressure controller

Port size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
<b>1/4"</b>	<b>0.74/740</b>	coverless analog base mount	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 47 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accurate pressure control.
8. Analog command signal and output.



PPC5C

PPC34B

LCP35A

PPC45B

### HOW TO ORDER

BASIC MODEL

PPC047A **XXX - XXXX - XXX**

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy	Command signal	Logic monitor signal	Cover options
<b>A</b> Analog	<b>AA</b> Base side port 1/4" NPTF <b>AB</b> Base side port 1/4" BSPPL <b>AC</b> Base side port 1/4" BSPTR <b>AD</b> Base side 8mm tube receptacle (1/4" NPTF Exh.) <b>AE</b> Base side 8mm tube receptacle (1/4" BSPPL Exh.) <b>AF</b> Base side 8mm tube receptacle (1/4" BSPTR Exh.) <b>BA</b> Base bottom port 1/4" NPTF <b>BB</b> Base bottom port 1/4" BSPPL <b>BC</b> Base bottom port 1/4" BSPTR <b>BD</b> Base bottom 8mm tube receptacle (1/4" NPTF Exh.) <b>BE</b> Base bottom 8mm tube receptacle (1/4" BSPPL Exh.) <b>BF</b> Base bottom 8mm tube receptacle (1/4" BSPTR Exh.)	<b>0A</b> 100/6.7 <b>0B</b> 60/4 <b>0C</b> 30/2 <b>0N</b> 10/0.66 <b>0T</b> 45/3	<b>D</b> Differential pressure <b>G</b> Gage pressure  Caution: differential pressure must not exceed pressure range.	<b>A</b> ±1.5% F.S. <b>E</b> ±2.5% F.S.	<b>B</b> 0-10v differential <b>D</b> 4-20mA differential	<b>A</b> TTL LMS 1,2 <b>B</b> 24v LMS High on TTL LMS 1 Press. Achieved <b>C</b> 24v LMS Low on TTL LMS Press. Achieved	<b>0</b> No Cover

PPC47A

PPC400A

PPC92B

PPC93A

EXAMPLE : PPC047A **AAA - OAGE - BAO**

47 Series flow valves, analog, base 1/4" NPTF side port, 100 psi pressure range, gage reference, 2.5% accuracy, 0-10v differential, TTL LMS 1,2, no cover.

### NOTE :

Tube receptacles are normally installed in the "In" and "Out" port with the exhaust threaded. If a tube receptacle is required in the exhaust port, consult factory for MOD number.

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Vibration :</b>	Not affected
<b>Port size :</b>	8mm tube receptacle, 1/4"
<b>Connector :</b>	7 pin terminal block
<b>Mounting :</b>	Any plane

**ELECTRICAL DATA**

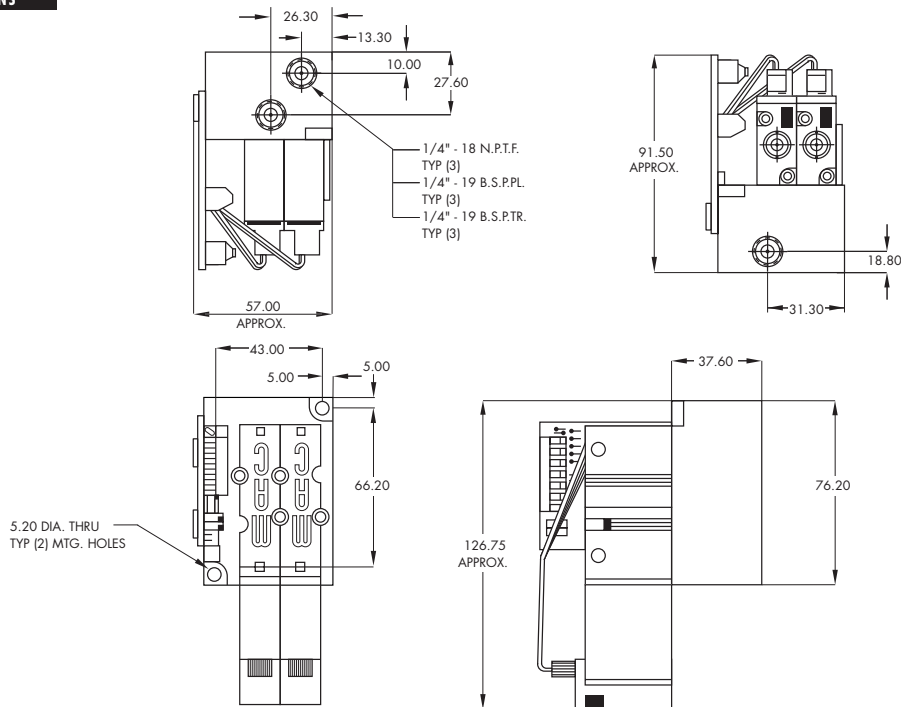
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	110 to 440mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 1.5% full scale ± 2.5% full scale
<b>Flow :</b>	Cv 0.74/740 NI/min
<b>Minimum closed end volume :</b>	5.0 cubic inch - 82 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure

**DIMENSIONS**



Note: for additional dimensions , see pages 92, 93.



# Proportional pressure controller

Port size	Flow [Max] [Cv/Nl/min]	Circuit bar mounting	Series
1/4"	0.74/740	coverless analog base manifold mount	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 47 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accurate pressure control.
8. Analog command signal and output.



PPC5C

PPC34B

LCP35A

PPC45B

### HOW TO ORDER

#### BASIC MODEL

PPC047A **XXX-XXXX-XXX-9** — Assembled to EPP bar

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy	Command signal	Logic monitor signal	Cover options
A Analog	*CA Base manifold Mt	0A 100/6.7 0B 60/4 0C 30/2 0N 10/0.66 0T 45/3	G Gage pressure D Differential pressure  Caution: differential pressure must not exceed pressure range.	A ±1.5% F.S. E ±2.5% F.S.	B 0-10v differential D 4-20mA differential	A TTL LMS 1,2 B 24v LMS High on TTL LMS 1 Press. Achieved C 24v LMS Low on TTL LMS Press. Achieved	0 No Cover

\* See EPP 47A "How to order"

PPC47A

PPC400A

PPC92B

PPC93A

#### CIRCUIT BAR FOR MANIFOLD MOUNT

EPP47A **XXXXXX-XX-9** — PPC assembled to bar N° of stations

Spacing	Configuration	Style	Output port size
00 59.0mm	A Side output port B Bottom output port	A Standard	A 1/4" NPTF B 1/4" BSPPL C 1/4" BSPTR  D 8mm tube receptacle (NPTF commons) E 8mm tube receptacle (BSPPL commons) F 8mm tube receptacle (BSPTR commons)

Common (through) ports on manifold are 3/8"

EXAMPLE : 5 - PPC047A - **ACA - OAGE - BA0 - 9**  
1 - EPP47A - **00AAA - 05 - 9**

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Vibration :</b>	Not affected
<b>Port size :</b>	8mm tube receptacle, 1/4"
<b>Connector :</b>	7 pin terminal block
<b>Mounting :</b>	Any plane

**ELECTRICAL DATA**

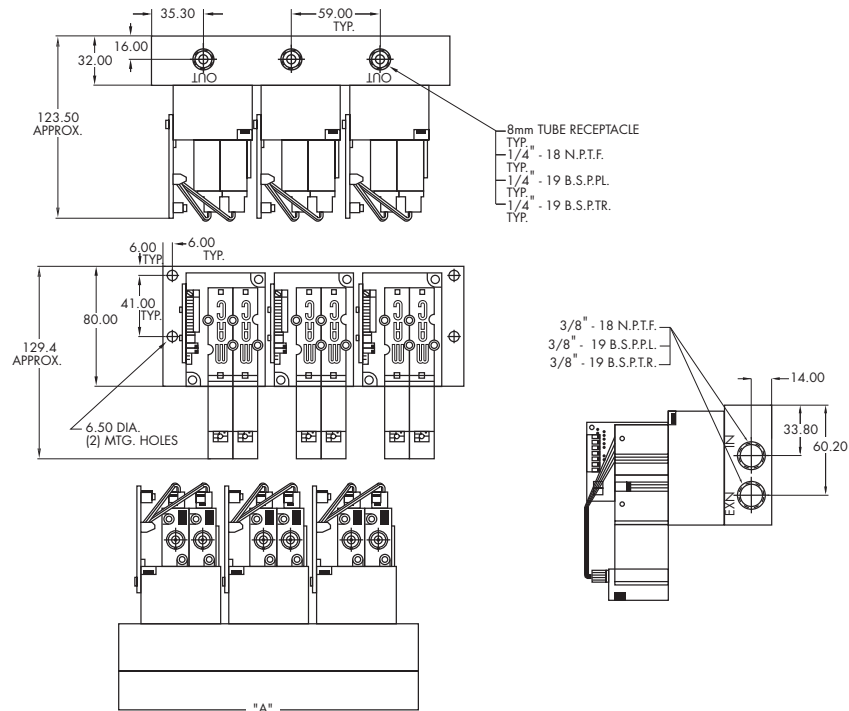
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	110 to 440mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 1.5% full scale ± 2.5% full scale
<b>Flow :</b>	Cv 0.74/740 NI/min
<b>Minimum closed end volume :</b>	5.0 cubic inch - 82 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure

**DIMENSIONS**



Number of stations	1	2	3	4	5	6	7	8	9	10	11
"A"	83	142	201	260	319	378	437	496	555	614	673



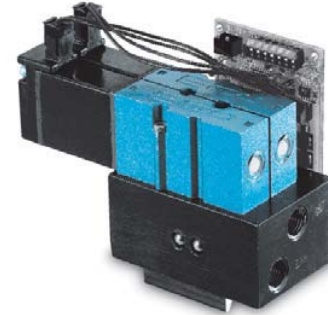


# Proportional pressure controller

Port size	Flow [Max] [Cv/NI/min]	Mounting	Series
1/4"	0.74/740	coverless analog DIN rail mount	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 47 Series with balanced poppet.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accurate pressure control.
8. Analog command signal and output.



PPC5C

PPC34B

LCP35A

PPC45B

### HOW TO ORDER

BASIC MODEL

PPC047A **X X X - X X X X - X X X**

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy	Command signal	Logic monitor signal	Cover options
A Analog	<b>DA</b> Din rail base 1/4" NPTF side port <b>DB</b> Din rail base 1/4" BSPPL side port <b>DC</b> Din rail base 1/4" BSPTR side port <b>DD</b> Din rail base side 8mm tube receptacle (1/4" NPTF Exh.) <b>DE</b> Din rail base side 8mm tube receptacle (1/4" BSPPL Exh.) <b>DF</b> Din rail base side 8mm tube receptacle (1/4" BSPTR Exh.)	<b>0A</b> 100/6.7 <b>0B</b> 60/4 <b>0C</b> 30/2 <b>0N</b> 10/0.66 <b>0T</b> 45/3	<b>D</b> Differential pressure <b>G</b> Gage pressure  Caution: differential pressure must not exceed pressure range.	<b>A</b> ±1.5% F.S. <b>E</b> ±2.5% F.S.	<b>B</b> 0-10v differential <b>D</b> 4-20mA differential	<b>A</b> TTL LMS 1,2 <b>B</b> 24v LMS High on TTL LMS 1 Press. Achieved <b>C</b> 24v LMS Low on TTL LMS Press. Achieved	<b>0</b> No Cover

PPC47A

PPC400A

PPC92B

PPC93A

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Vibration :</b>	Not affected
<b>Port size :</b>	8mm tube receptacle, 1/4"
<b>Connector :</b>	7 pin terminal block
<b>Mounting :</b>	Any plane

**ELECTRICAL DATA**

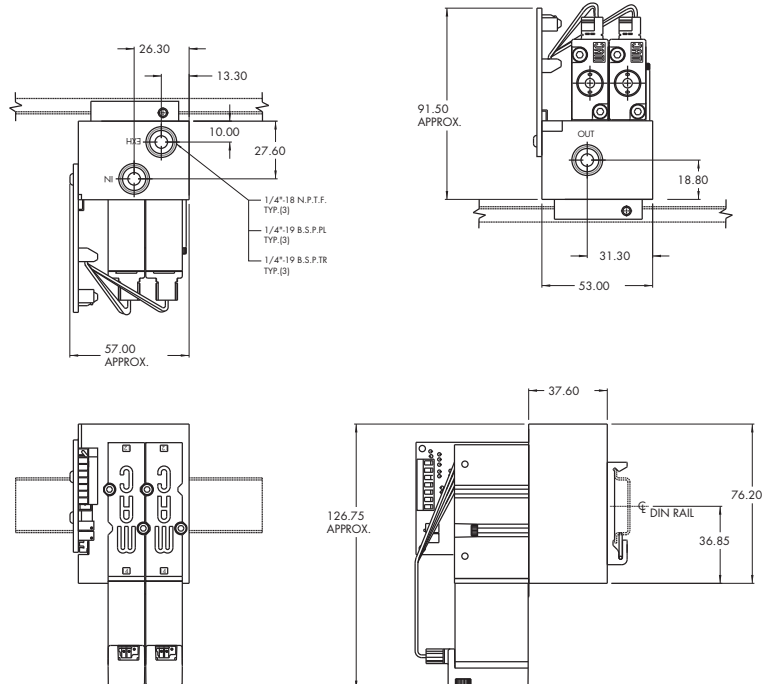
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	110 to 440mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 1.5% full scale ± 2.5% full scale
<b>Flow :</b>	Cv 0.74/740 NI/min
<b>Minimum closed end volume :</b>	5.0 cubic inch - 82 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure

**DIMENSIONS**





# Proportional pressure controller

Part size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
<b>1/4"</b>	<b>1.3/1300</b>	coverless analog base mount	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 400 Series with balanced pilot.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accuracy :  $\pm 2.5\%$  full scale.
8. Analog command signal and output.



PPC5C

PPC34B

LCP35A

PPC45B

### HOW TO ORDER

BASIC MODEL

PPC400A **XXX - XXXX - XXX**

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy	Command signal	Logic monitor signal	Cover options
<b>A</b> Analog (int. pilot)	<b>AA</b> Base side port 1/4" NPTF	<b>0A</b> 100/6.7	<b>G</b> Gage pressure	<b>E</b> $\pm 2.5\%$ F.S.	<b>B</b> 0-10v differential	<b>A</b> TTL LMS 1,2	<b>0</b> No Cover
<b>B</b> Analog (ext. pilot)	<b>AB</b> Base side port 1/4" BSPPL	<b>0B</b> 60/4	<b>D</b> Differential pressure		<b>D</b> 4-20mA differential	<b>B</b> 24v LMS High on TTL LMS 1 Press. Achieved	
	<b>AC</b> Base side port 1/4" BSPTR	<b>0C</b> 30/2				<b>C</b> 24v LMS Low on TTL LMS Press. Achieved	
	<b>AD</b> Base side 8mm tube receptacle	<b>0N</b> 10/0.66	Caution: differential pressure must not exceed pressure range.				
	<b>BA</b> Base bottom port 1/4" NPTF	<b>0T</b> 45/3					
	<b>BB</b> Base bottom port 1/4" BSPPL						
	<b>BC</b> Base bottom port 1/4" BSPTR						
	<b>BD</b> Base bottom 8mm tube receptacle						

PPC47A

**PPC400A**

PPC92B

PPC93A

EXAMPLE : PPC400A **AAA - OAGE - BAO**

400 Series flow valves, analog, side port 1/4" NPTF, 100 psi pressure range, gage reference, 2.5% accuracy, 0-10v differential, TTL LMS 1,2, no cover.

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Vibration :</b>	Not affected
<b>Port size :</b>	G1/4", 1/4" NPTF - Option : bottom ports
<b>Connector :</b>	7 pin terminal block
<b>Mounting :</b>	Any plane

**ELECTRICAL DATA**

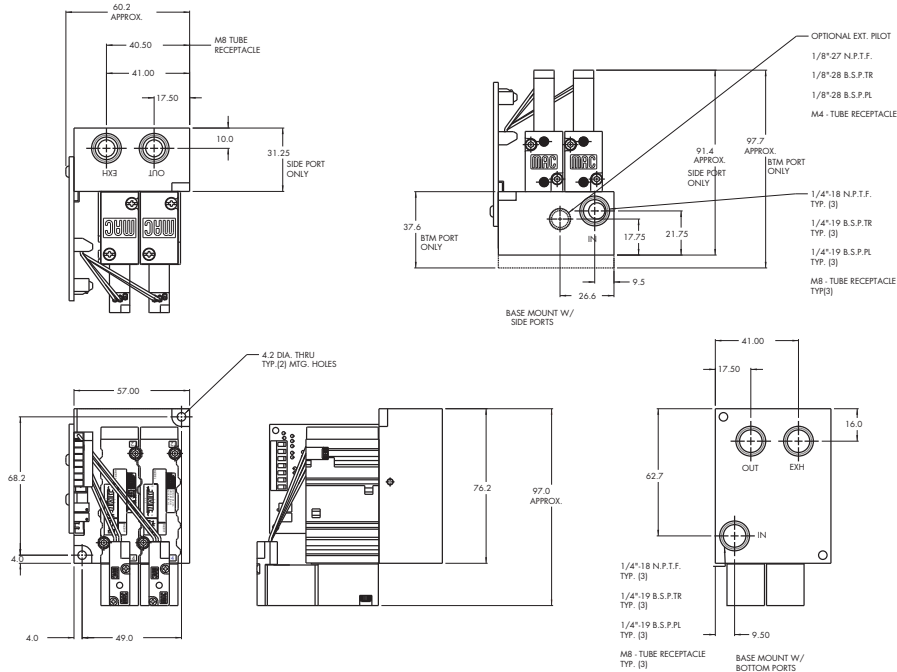
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 350mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 2.5% full scale
<b>Flow :</b>	Cv 1.3/1300 NI/min
<b>Minimum closed end volume :</b>	50.0 cubic inch - 820 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure.  
Minimum inlet pressure for 400 series internal pilot is 20 PSI/1.3 BAR.

**DIMENSIONS**





# Proportional pressure controller

Port size	Flow [Max] [Cv/NI/min]	Mounting	Series
<b>1/4"</b>	<b>1.3/1300</b>	coverless analog DIN rail mount	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 400 Series with balanced pilot.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accuracy :  $\pm 2.5\%$  full scale.
8. Analog command signal and output.



PPC5C

PPC34B

LCP35A

PPC45B

### HOW TO ORDER

BASIC MODEL

PPC400A **X X X - X X X X - X X X**

Type	Type of mounting	Pressure range PSI/BAR	Pressure reference	Accuracy	Command signal	Logic monitor signal	Cover options
<b>A</b> Analog (int. pilot)	<b>DA</b> Din rail base 1/4" NPTF side port	<b>0A</b> 100/6.7 <b>0B</b> 60/4	<b>G</b> Gage pressure <b>D</b> Differential pressure	<b>E</b> $\pm 2.5\%$ F.S.	<b>B</b> 0-10v differential <b>D</b> 4-20mA differential	<b>A</b> TTL LMS 1,2 <b>B</b> 24v LMS High on TTL LMS 1 Press. Achieved <b>C</b> 24v LMS Low on TTL LMS Press. Achieved	<b>0</b> No Cover
<b>B</b> Analog (ext. pilot)	<b>DB</b> Din rail base 1/4" BSPPL side port <b>DC</b> Din rail base 1/4" BSPTR side port <b>DD</b> Din rail base side 8mm tube receptacle	<b>0C</b> 30/2 <b>0N</b> 10/0.66 <b>0T</b> 45/3	Caution: differential pressure must not exceed pressure range.				

Note: Din rail mount (EN50 022)

PPC47A

**PPC400A**

PPC92B

PPC93A

### EXAMPLE : PPC400A **ADA - OAGE - BAO**

400 Series flow valves, analog, din rail 1/4" NPTF side port, 100 psi pressure range, gage reference, 2.5% accuracy, 0-10v differential, TTL LMS 1,2, no cover.

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Vibration :</b>	Not affected
<b>Port size :</b>	G1/4", 1/4" NPTF - Option : bottom ports
<b>Connector :</b>	7 pin terminal block
<b>Mounting :</b>	Any plane

**ELECTRICAL DATA**

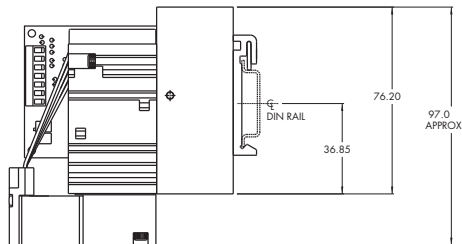
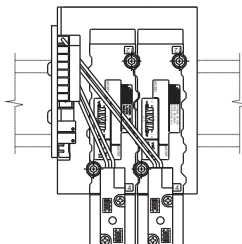
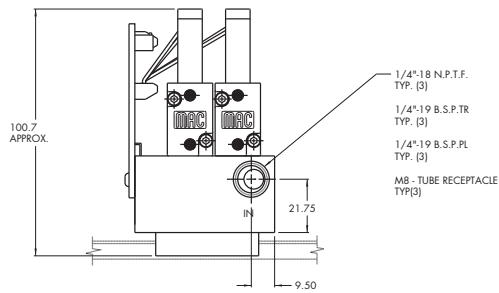
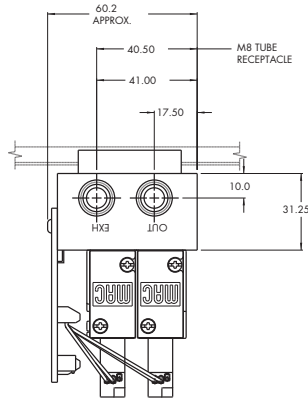
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 350mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 2.5% full scale
<b>Flow :</b>	Cv 1.3/1300 NI/min
<b>Minimum closed end volume :</b>	50.0 cubic inch - 820 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure.  
Minimum inlet pressure for 400 series internal pilot is 20 PSI/1.3 BAR.

**DIMENSIONS**





# Proportional pressure controller

Port size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
<b>3/8"</b>	<b>2.0/2000</b>	covered analog base mount	

### OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 92 Series with balanced pilot.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accuracy :  $\pm 2.5\%$  full scale.
8. Analog command signal and output.



PPC5C

PPC34B

LCP35A

PPC45B

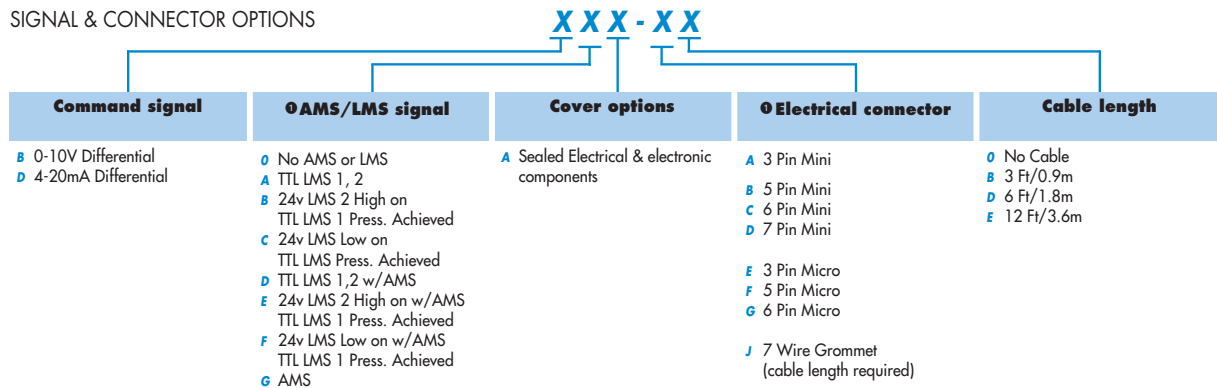
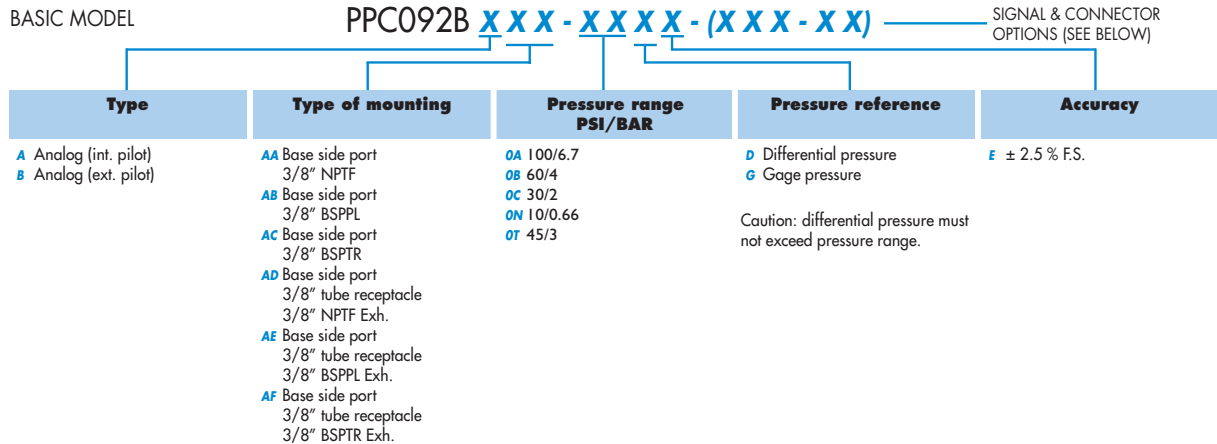
PPC47A

PPC400A

**PPC92B**

PPC93A

### HOW TO ORDER



### NOTE

- (Options below are AMS/LMS signals)
- 3 Pin connector for option 0
- 5 Pin connector for option G
- 6 Pin connector for options A, B, C
- 7 Pin connector for options D, E, F
- 7 Wire grommet for all AMS/LMS signals

EXAMPLE : PPC092B **AAA - OAGE - BAA - CO**

92 Series flow valves, analog, 3/8" side ports (NPTF), 100 psi pressure range, gage reference, 2.5% accuracy, 0-10v differential, TTL LMS 1,2, sealed electrical components, 6 pin mini connector, no cable.

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Enclosure :</b>	Aluminium Barstock, sealed
<b>Vibration :</b>	Not affected
<b>Port size :</b>	3/8" (side only)
<b>Connector :</b>	3, 5, 6 or 7 Pin Plug-in or 7 wire grommet
<b>Mounting :</b>	Any plane
<b>Washdown :</b>	Standard

**ELECTRICAL DATA**

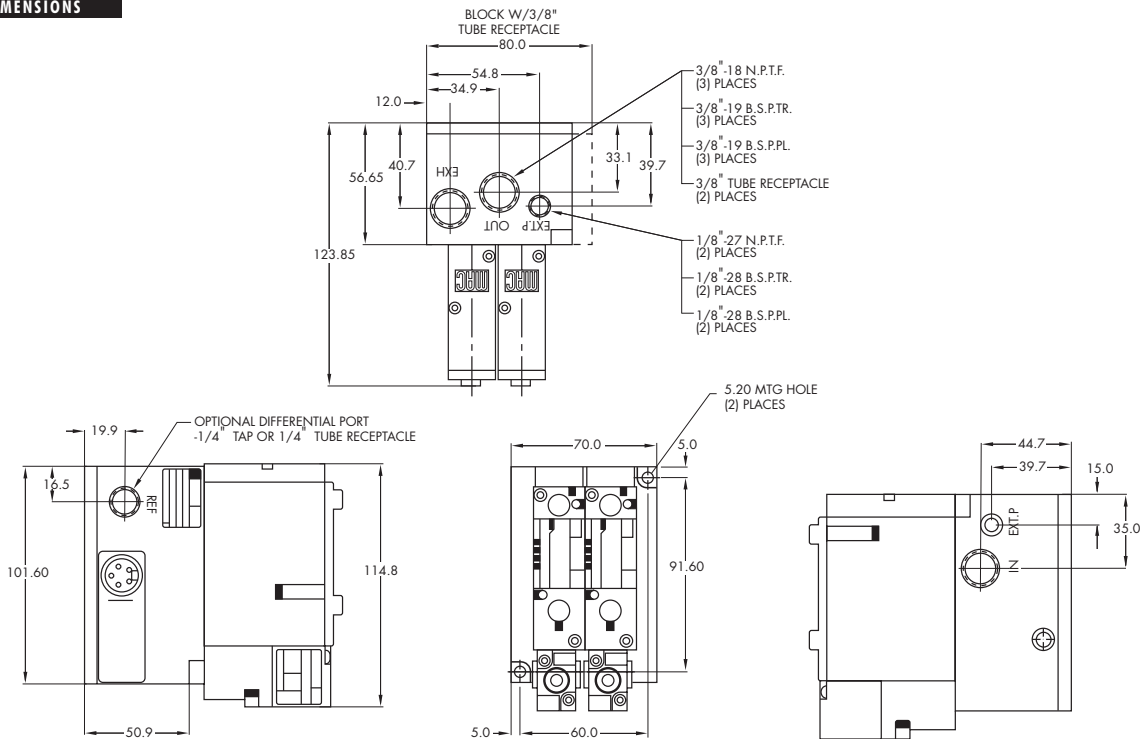
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 350mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0 to 10, 30, 45, 60, 100 PSI 0 to 0.66, 2, 3, 4, 6.6 BAR
<b>Overall accuracy :</b>	± 2.5% full scale
<b>Flow :</b>	Cv 2.0/2000 NI/min
<b>Minimum closed end volume :</b>	80.0 cubic inch - 1310 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure

**DIMENSIONS**





**OPTIONS**

STANDARD PLUG-IN - ELECTRICAL CONNECTIONS

**PPC092B XXX-XXXX-(XXX-XX)-** ELECTRICAL OPTIONS

	PART NO.	PIN	DESCRIPTION	MATING CORD
	- (BOA-AX) - (DOA-AX)	3	1 COMMON 2 POWER +20.4 TO +26.4VDC 3 + COMMAND	GREEN BLACK WHITE
	- (BOA-EX) - (DOA-EX)	3 MICRO	1 COMMON 2 POWER +20.4 TO +26.4VDC 3 + COMMAND	GREEN BLACK WHITE
	- (BGA-BX) - (DGA-BX)	5	1 + COMMAND 2 ANALOG MONITOR SIGNAL 3 COMMON 4 - COMMAND 5 POWER +20.4 TO +26.4VDC	WHITE RED GREEN BLUE BLACK
	- (BGA-FX) - (DGA-FX)	5 MICRO	1 + COMMAND 2 ANALOG MONITOR SIGNAL 3 COMMON 4 - COMMAND 5 POWER +20.4 TO +26.4VDC	WHITE RED GREEN BLUE BLACK
	- (BAA-CX) - (DAA-CX)	6	1 LMS1: TTL (high = pressure achieved) 2 - COMMAND 3 POWER +20.4 TO +26.4VDC 4 + COMMAND 5 LMS2: TTL (low = pressure achieved) 6 COMMON	ORANGE BLUE BLACK WHITE BROWN GREEN
	- (BAA-GX) - (DAA-GX)	6 MICRO	1 + COMMAND 2 LMS2: TTL (low = pressure achieved) 3 COMMON 4 LMS1: TTL (high = pressure achieved) 5 POWER +20.4 TO +26.4VDC 6 - COMMAND	WHITE BROWN GREEN ORANGE BLACK BLUE
	- (BBA-CX) - (DBA-CX)	6	1 LMS1: TTL (high = pressure achieved) 2 - COMMAND 3 POWER +20.4 TO +26.4VDC 4 + COMMAND 5 LMS2: 24V (high = pressure achieved) 6 COMMON	ORANGE BLUE BLACK WHITE BROWN GREEN
	- (BBA-GX) - (DBA-GX)	6 MICRO	1 + COMMAND 2 LMS2: 24V (high = pressure achieved) 3 COMMON 4 LMS1: TTL (high = pressure achieved) 5 POWER +20.4 TO +26.4VDC 6 - COMMAND	WHITE BROWN GREEN ORANGE BLACK BLUE
	- (BCA-CX) - (DCA-CX)	6	1 LMS1: TTL (high = pressure achieved) 2 - COMMAND 3 POWER +20.4 TO +26.4VDC 4 + COMMAND 5 LMS2: 24V (low = pressure achieved) 6 COMMON	ORANGE BLUE BLACK WHITE BROWN GREEN
	- (BCA-GX) - (DCA-GX)	6 MICRO	1 + COMMAND 2 LMS2: 24V (low = pressure achieved) 3 COMMON 4 LMS1: TTL (high = pressure achieved) 5 POWER +20.4 TO +26.4VDC 6 - COMMAND	WHITE BROWN GREEN ORANGE BLACK BLUE
	- (BDA-DX) - (DDA-DX)	7	1 LMS2: TTL (low = pressure achieved) 2 POWER +20.4 TO +26.4VDC 3 + COMMAND 4 ANALOG MONITOR SIGNAL 5 LMS1: TTL (high = pressure achieved) 6 - COMMAND 7 COMMON	BROWN BLACK WHITE RED ORANGE BLUE GREEN
	- (BEA-DX) - (DEA-DX)	7	1 LMS2: 24V (high = pressure achieved) 2 POWER +20.4 TO +26.4VDC 3 + COMMAND 4 ANALOG MONITOR SIGNAL 5 LMS1: TTL (high = pressure achieved) 6 - COMMAND 7 COMMON	BROWN BLACK WHITE RED ORANGE BLUE GREEN
	- (BFA-DX) - (DFA-DX)	7	1 LMS2: 24V (low = pressure achieved) 2 POWER +20.4 TO +26.4VDC 3 + COMMAND 4 ANALOG MONITOR SIGNAL 5 LMS1: TTL (high = pressure achieved) 6 - COMMAND 7 COMMON	BROWN BLACK WHITE RED ORANGE BLUE GREEN

PPC5C

PPC34B

LCP35A

PPC45B

PPC47A

PPC400A

**PPC92B**

PPC93A

**OPTIONS**

STANDARD WIRE GROMMET - ELECTRICAL CONNECTIONS

**PPC092B XXX - XXXX - (XXX - XX) -** ELECTRICAL OPTIONS

PART NO.	WIRES	DESCRIPTION	WIRE COLOR
- (BOA-JX) - (DOA-JX)	4	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND	BLACK GREEN BLUE WHITE * BROWN (NOT USED) * ORANGE (NOT USED) * RED (NOT USED)
- (BGA-JX) - (DGA-JX)	5	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE RED * BROWN (NOT USED) * ORANGE (NOT USED)
- (BAA-JX) - (DAA-JX)	6	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: TTL (low = pressure achieved) LMS1: TTL (high = pressure achieved)	BLACK GREEN BLUE WHITE BROWN ORANGE * RED (NOT USED)
- (BBA-JX) - (DBA-JX)	6	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (high = pressure achieved) LMS1: TTL (high = pressure achieved)	BLACK GREEN BLUE WHITE BROWN ORANGE * RED (NOT USED)
- (BCA-JX) - (DCA-JX)	6	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (low = pressure achieved) LMS1: TTL (high = pressure achieved)	BLACK GREEN BLUE WHITE BROWN ORANGE * RED (NOT USED)
- (BDA-JX) - (DDA-JX)	7	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: TTL (low = pressure achieved) LMS1: TTL (high = pressure achieved) ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE BROWN ORANGE RED
- (BEA-JX) - (DEA-JX)	7	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (high = pressure achieved) LMS1: TTL (high = pressure achieved) ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE BROWN ORANGE RED
- (BFA-JX) - (DFA-JX)	7	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (low = pressure achieved) LMS1: TTL (high = pressure achieved) ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE BROWN ORANGE RED

**NOTES**

- \* 1. All units with electrical connector option "J" (listed above) are factory equipped with a 7-wire grommet and wires not used are trimmed off to ends of cable.
- 2. Variable "X" = cable length



# Proportional pressure controller

Port size	Flow [Max] [Cv/Nl/min]	Individual mounting	Series
1/2" 3/4"	6.2/6200	covered analog base mount	

## OPERATIONAL BENEFITS

1. Reliable operation, using two MAC 93 Series with balanced pilot.
2. Fast response.
3. Long life.
4. High flow.
5. Low power consumption.
6. Not affected by vibrations.
7. Accuracy : ± 2.5 % full scale.
8. Analog command signal and output.



PPC5C

PPC34B

LCP35A

PPC45B

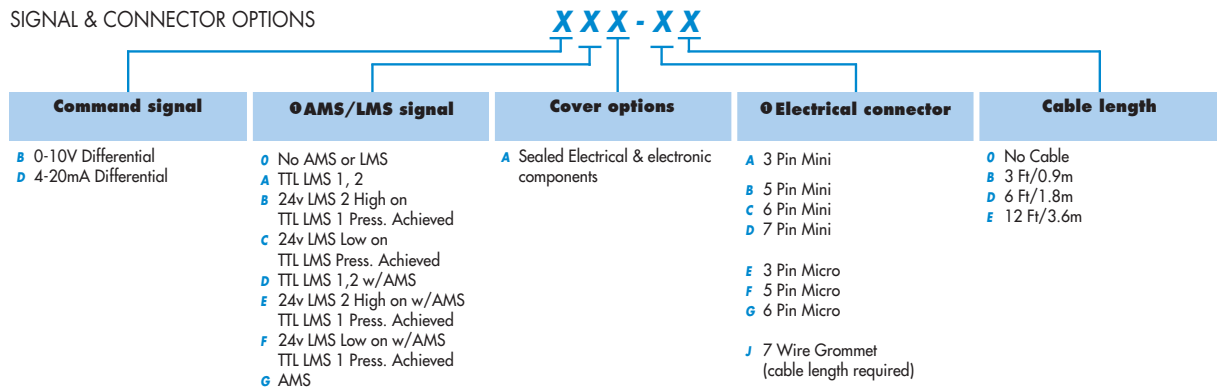
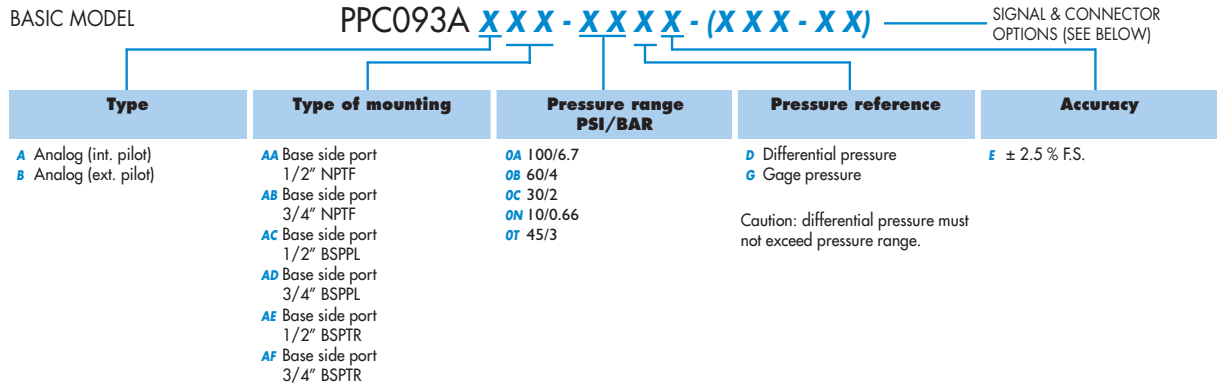
PPC47A

PPC400A

PPC92B

**PPC93A**

## HOW TO ORDER



## NOTE

- (Options below are AMS/LMS signals)
- 3 Pin connector for option 0
- 5 Pin connector for option G
- 6 Pin connector for options A, B, C
- 7 Pin connector for options D, E, F
- 7 Wire grommet for all AMS/LMS signals

## EXAMPLE : PPC093A AAB - OAGE - BAA - CO

93 Series flow valves, analog, internal pilot, 3/4" side ports (NPTF), 100 psi pressure range, gage reference, 2.5% accuracy, 0-10v differential, TTL LMS 1,2, sealed electrical components, 6 pin mini connector, no cable.

**GENERAL DATA**

<b>Ambient temperature :</b>	32 to 120°F/0 to 50°C
<b>LED indicators :</b>	Red : power on - Green : pressure achieved
<b>Enclosure :</b>	Aluminium Barstock, sealed
<b>Vibration :</b>	Not affected
<b>Port size :</b>	1/2" or 3/4" (side only)
<b>Connector :</b>	3, 5, 6 or 7 Pin Plug-in or 7 wire grommet
<b>Mounting :</b>	Any plane
<b>Washdown :</b>	Standard

**ELECTRICAL DATA**

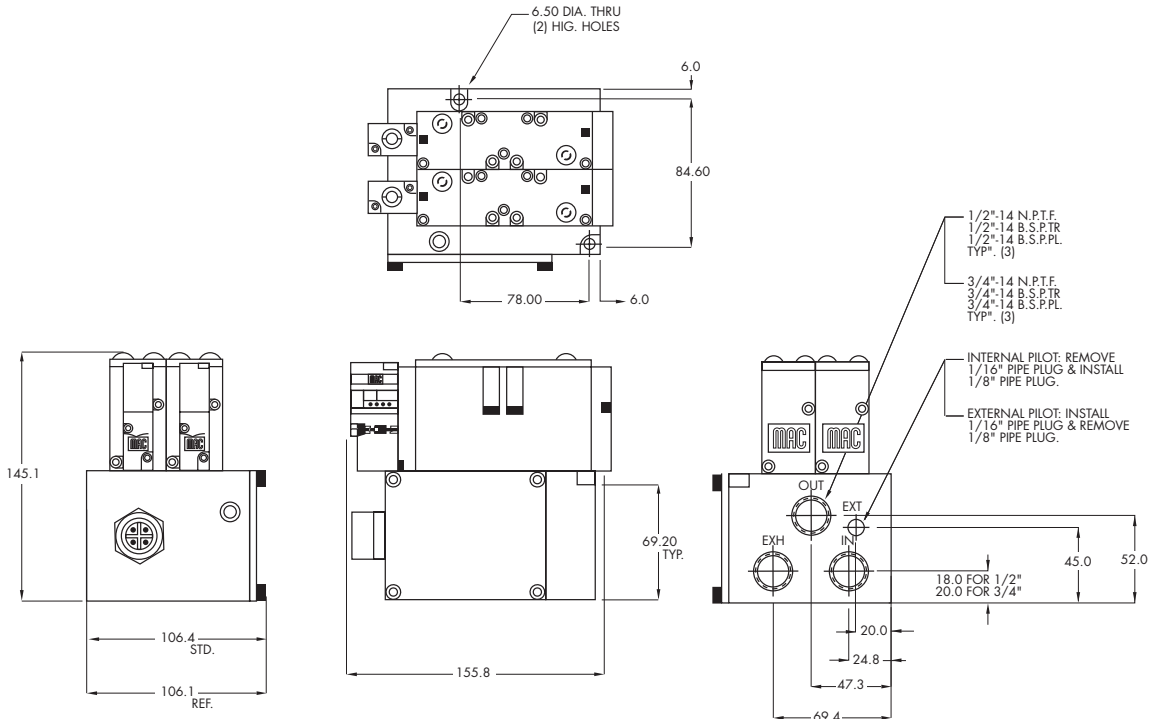
<b>Supply voltage :</b>	20.4 to 26.4 VDC
<b>Supply current :</b>	50 to 275mA - 50 to 350mA
<b>Command signal :</b>	0 to 10V or 4 to 20mA
<b>Command type :</b>	Single-ended or differential
<b>Input impedance :</b>	4.99 kΩ ± 1.0% (voltage) 316 Ω ± 0.1% (current)
<b>Analog Monitor Signal (AMS) :</b>	0 to 10 Volt
<b>Logic Monitor Signal (LMS) :</b>	2 types of signals (see How to order) (sinking)
<b>EMI/RFI protection :</b>	Common mode and high frequency noise reduction for electrical inputs

**PNEUMATIC DATA**

<b>Inlet pressure* :</b>	120 PSI max (for 10-100 PSI output pres.) 8 BAR max (for 0.66-6.6 BAR output pres.)
<b>Fluids :</b>	Compressed air or inert gases
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended
<b>Output pressure :</b>	0, 10, 30, 45, 60, 100 PSI 0, 0.66, 2, 3, 4, 6.7 BAR
<b>Overall accuracy :</b>	± 2.5% full scale
<b>Flow :</b>	Cv 6.2/6200 NI/min
<b>Minimum closed end volume :</b>	100.0 cubic inch - 1640 cm <sup>3</sup>

\* 20 PSI maximum inlet for 10 PSI output pressure - 1.3 BAR maximum inlet for 0.66 BAR output pressure











**DIMENSIONS**



**OPTIONS**

STANDARD PLUG-IN - ELECTRICAL CONNECTIONS

**PPC093A XXX-XXXX-(XXX-XX)-**

	PART NO.	PIN	DESCRIPTION	MATING CORD
	- (BOA-AX) - (DOA-AX)	3	1 COMMON 2 POWER +20.4 TO +26.4VDC 3 + COMMAND	GREEN BLACK WHITE
	- (BOA-EX) - (DOA-EX)	3 MICRO	1 COMMON 2 POWER +20.4 TO +26.4VDC 3 + COMMAND	GREEN BLACK WHITE
	- (BGA-BX) - (DGA-BX)	5	1 + COMMAND 2 ANALOG MONITOR SIGNAL 3 COMMON 4 - COMMAND 5 POWER +20.4 TO +26.4VDC	WHITE RED GREEN BLUE BLACK
	- (BGA-FX) - (DGA-FX)	5 MICRO	1 + COMMAND 2 ANALOG MONITOR SIGNAL 3 COMMON 4 - COMMAND 5 POWER +20.4 TO +26.4VDC	WHITE RED GREEN BLUE BLACK
	- (BAA-CX) - (DAA-CX)	6	1 IMS1: TTL (high = pressure achieved) 2 - COMMAND 3 POWER +20.4 TO +26.4VDC 4 + COMMAND 5 IMS2: TTL (low = pressure achieved) 6 COMMON	ORANGE BLUE BLACK WHITE BROWN GREEN
	- (BAA-GX) - (DAA-GX)	6 MICRO	1 + COMMAND 2 IMS2: TTL (low = pressure achieved) 3 COMMON 4 IMS1: TTL (high = pressure achieved) 5 POWER +20.4 TO +26.4VDC 6 - COMMAND	WHITE BROWN GREEN ORANGE BLACK BLUE
	- (BBA-CX) - (DBA-CX)	6	1 IMS1: TTL (high = pressure achieved) 2 - COMMAND 3 POWER +20.4 TO +26.4VDC 4 + COMMAND 5 IMS2: 24V (high = pressure achieved) 6 COMMON	ORANGE BLUE BLACK WHITE BROWN GREEN
	- (BBA-GX) - (DBA-GX)	6 MICRO	1 + COMMAND 2 IMS2: 24V (high = pressure achieved) 3 COMMON 4 IMS1: TTL (high = pressure achieved) 5 POWER +20.4 TO +26.4VDC 6 - COMMAND	WHITE BROWN GREEN ORANGE BLACK BLUE
	- (BCA-CX) - (DCA-CX)	6	1 IMS1: TTL (high = pressure achieved) 2 - COMMAND 3 POWER +20.4 TO +26.4VDC 4 + COMMAND 5 IMS2: 24V (low = pressure achieved) 6 COMMON	ORANGE BLUE BLACK WHITE BROWN GREEN
	- (BCA-GX) - (DCA-GX)	6 MICRO	1 + COMMAND 2 IMS2: 24V (low = pressure achieved) 3 COMMON 4 IMS1: TTL (high = pressure achieved) 5 POWER +20.4 TO +26.4VDC 6 - COMMAND	WHITE BROWN GREEN ORANGE BLACK BLUE
	- (BDA-DX) - (DDA-DX)	7	1 IMS2: TTL (low = pressure achieved) 2 POWER +20.4 TO +26.4VDC 3 + COMMAND 4 ANALOG MONITOR SIGNAL 5 IMS1: TTL (high = pressure achieved) 6 - COMMAND 7 COMMON	BROWN BLACK WHITE RED ORANGE BLUE GREEN
	- (BEA-DX) - (DEA-DX)	7	1 IMS2: 24V (high = pressure achieved) 2 POWER +20.4 TO +26.4VDC 3 + COMMAND 4 ANALOG MONITOR SIGNAL 5 IMS1: TTL (high = pressure achieved) 6 - COMMAND 7 COMMON	BROWN BLACK WHITE RED ORANGE BLUE GREEN
	- (BFA-DX) - (DFA-DX)	7	1 IMS2: 24V (low = pressure achieved) 2 POWER +20.4 TO +26.4VDC 3 + COMMAND 4 ANALOG MONITOR SIGNAL 5 IMS1: TTL (high = pressure achieved) 6 - COMMAND 7 COMMON	BROWN BLACK WHITE RED ORANGE BLUE GREEN

PPC5C

PPC34B

LCP35A

PPC45B

PPC47A

PPC400A

PPC92B

**PPC93A**

**OPTIONS**

STANDARD WIRE GROMMET - ELECTRICAL CONNECTIONS

PPC093A **XXX - XXXX - (XXX - XX)** - ELECTRICAL OPTIONS

PART NO.	WIRES	DESCRIPTION	WIRE COLOR
- (BOA-JX) - (DOA-JX)	4	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND	BLACK GREEN BLUE WHITE * BROWN (NOT USED) * ORANGE (NOT USED) * RED (NOT USED)
- (BGA-JX) - (DGA-JX)	5	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE RED * BROWN (NOT USED) * ORANGE (NOT USED)
- (BAA-JX) - (DAA-JX)	6	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: TTL (low = pressure achieved) LMS1: TTL (high = pressure achieved)	BLACK GREEN BLUE WHITE BROWN ORANGE * RED (NOT USED)
- (BBA-JX) - (DBA-JX)	6	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (high = pressure achieved) LMS1: TTL (high = pressure achieved)	BLACK GREEN BLUE WHITE BROWN ORANGE * RED (NOT USED)
- (BCA-JX) - (DCA-JX)	6	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (low = pressure achieved) LMS1: TTL (high = pressure achieved)	BLACK GREEN BLUE WHITE BROWN ORANGE * RED (NOT USED)
- (BDA-JX) - (DDA-JX)	7	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: TTL (low = pressure achieved) LMS1: TTL (high = pressure achieved) ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE BROWN ORANGE RED
- (BEA-JX) - (DEA-JX)	7	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (high = pressure achieved) LMS1: TTL (high = pressure achieved) ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE BROWN ORANGE RED
- (BFA-JX) - (DFA-JX)	7	POWER +20.4 TO +26.4VDC COMMON - COMMAND + COMMAND LMS2: 24V (low = pressure achieved) LMS1: TTL (high = pressure achieved) ANALOG MONITOR SIGNAL	BLACK GREEN BLUE WHITE BROWN ORANGE RED

**NOTES**

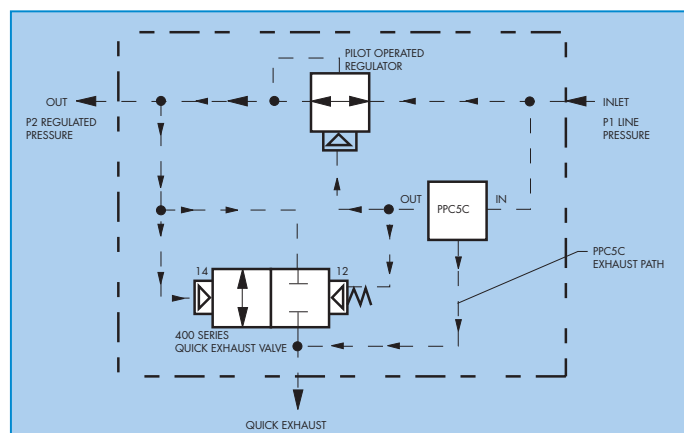
- \* 1. All units with electrical connector option "J" (listed above) are factory equipped with a 7-wire grommet and wires not used are trimmed off to ends of cable.
- 2. Variable "X" = cable length

## Section 2 Proportional Quick Exhaust

### OPERATION OF THE PQE

1. The pilot operated regulator and the PPC5C are both fed from a common inlet.
2. The "out" port of the PPC5C sends pressure to the pilot port of the pilot operated regulator and to the "12" end of the 400 Series Quick Exhaust Valve. The secondary pressure of the pilot operated regulator is sent to the output port of the block and it is also sent to the "14" end and inlet of the 400 Series Quick Exhaust Valve.
3. The outlet pressure of the PPC5C along with the memory spring in the 400 Series valve will keep the valve in a closed state as the unit increases pressure.
4. To reduce pressure, drop the PPC5C's signal. This will lower the pressure on the "12" end of the 400 Series valve. The "14" end of the 400 Series valve now has higher pressure causing a snap-action shifting of the 400 Series valve which will quickly exhaust the downstream pressure to the new selected pressure.

Note: Below 20 psi, the P.Q.E. has reduced exhausting capabilities due to the memory spring in the 400 Series Quick Exhaust Valve and modifications to the pilot operated regulator.





# Proportional quick exhaust

Port size	Flow (Max) C <sub>v</sub> / NI/min	Individual mounting		Series
		analog	digital	
<b>1/2" - 3/4"</b>	<b>6.3/6300</b>	P. 69	P. 71	<b>6500</b>
<b>1/4" - 3/8"</b>	<b>1.3/1300</b>	P. 73	P. 75	<b>92</b>





# Proportional quick exhaust

Port size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
1/2" - 3/4"	6.3/6300	analog	6500

## OPERATIONAL BENEFITS

1. Accurate pressure control.
2. Fast response.
3. High flow.
4. Quick exhaust function.
5. Unaffected by change in line pressure.
6. Long life.
7. Designed to meet Nema 4 specifications.
8. Analog control.
9. Analog or TTL feedback.
10. Closed loop system.

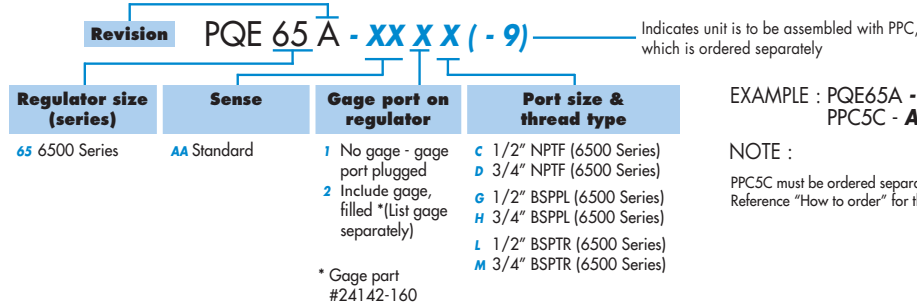


6500

92

## HOW TO ORDER

### PROPORTIONAL QUICK EXHAUST

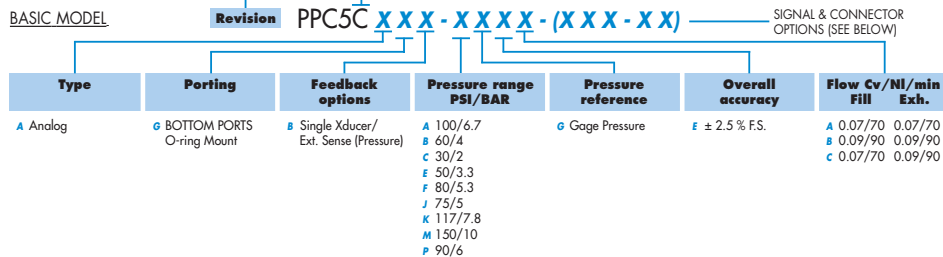


EXAMPLE : PQE65A - AA1C - 9  
PPC5C - AGB- AGEA - BBB - C0 - 9

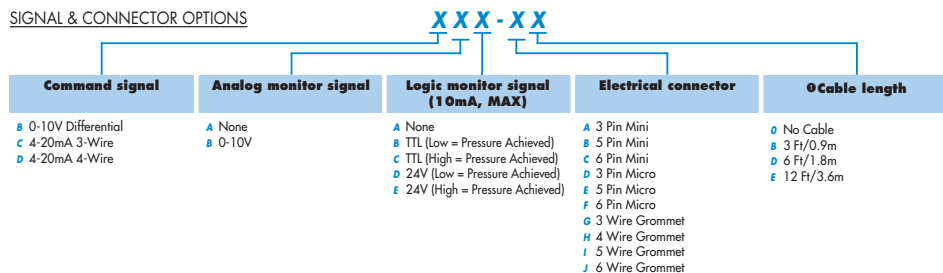
NOTE :  
PPC5C must be ordered separately.  
Reference "How to order" for the analog PPC5C.

### PPC5C SERIES

#### BASIC MODEL



#### SIGNAL & CONNECTOR OPTIONS



IMPORTANT ! READ NOTES BEFORE ORDERING

① For options "0" (no cable), choose electrical connector options "A" through "F" only.

**PPC TYPE**

Analog, single transducer external sense, bottom O-ring mount

**ELECTRICAL DATA**

Reference PPC5C specifications

**PHYSICAL DATA**

<b>Connector :</b>	Reference PPC5C specifications
<b>Enclosure :</b>	Aluminum, sealed
<b>Mounting :</b>	Any plane
<b>Ambient temperature range :</b>	0 to 50°C (32°F to 120°F)

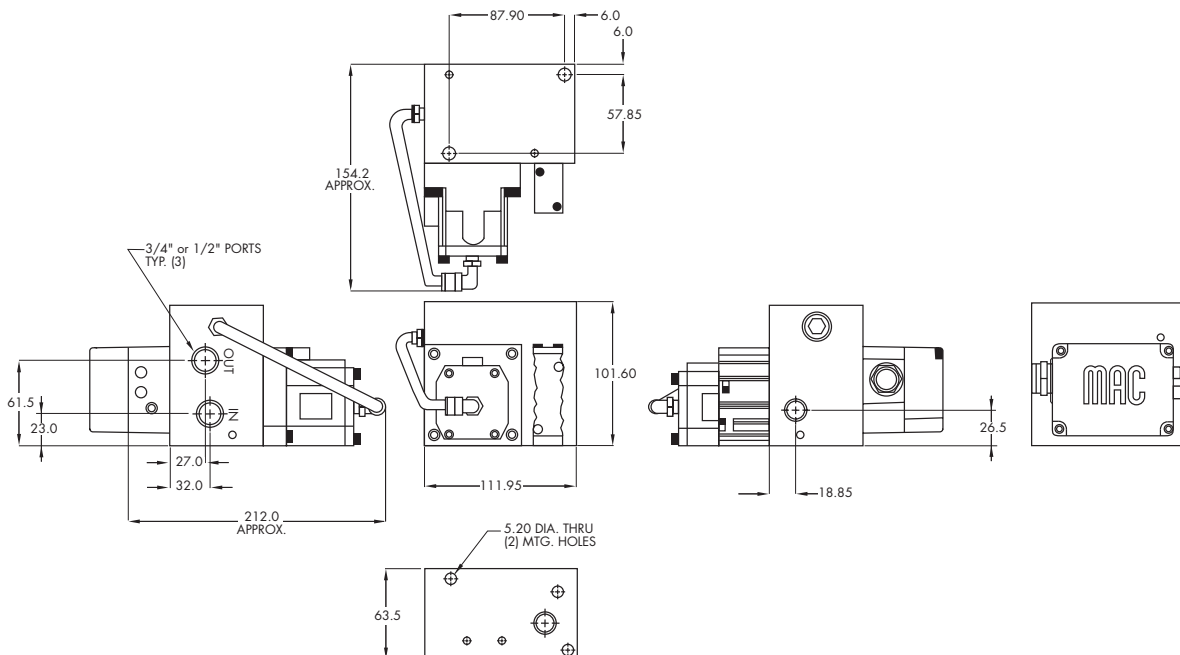
**PNEUMATIC DATA**

<b>Inlet pressure :</b>	120 PSI max	
<b>Fluids :</b>	Air or inert gases	
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended	
<b>Filtration :</b>	40 micron	
<b>*Output pressure :</b>	20 to 100 PSI	
<b>Overall accuracy :</b>	2.5% full scale	
<b>All ports :</b>	1/2, 3/4, NPTF, BSPPL, BSPTR	
<b>Flows :</b>		
<b>Output flow :</b>	1/2" ports: Cv 5.3	3/4" ports: Cv 6.3
<b>Exhaust flow :</b>	1/2" ports: Cv 1.5	3/4" ports: Cv 1.5
<b>**Output volume requirements :</b>	<b>Port size</b>	<b>Output volume at end of output pipe</b>
		<b>Minimum length of output pipe</b>
	1/2"	100 Cu. in. and larger
		50 to 99 Cu. in.
	3/4"	100 Cu. in. and larger
		50 to 99 Cu. in.
		60"
		90"

\* The quick exhaust portion of the PQE was not designed to be used at pressures below 20 PSIG. The PQE will exhaust below 20 PSIG but at a very reduced rate. Also, the minimum pressure change (from higher to lower) that will allow the quick exhaust to function is 3 PSIG.

\*\* This is the minimum output volume and output piping required to keep the unit stable. Configurations below these minimums should be tested on a case by case basis.

**DIMENSIONS**





# Proportional quick exhaust

Port size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
1/2" - 3/4"	6.3/6300	digital	6500

### OPERATIONAL BENEFITS

1. Accurate pressure control.
2. Fast response.
3. High flow.
4. Quick exhaust function.
5. Unaffected by change in line pressure.
6. Long life.
7. Designed to meet Nema 4 specifications.
8. Digital control.
9. Analog or TTL feedback.
10. Closed loop system.

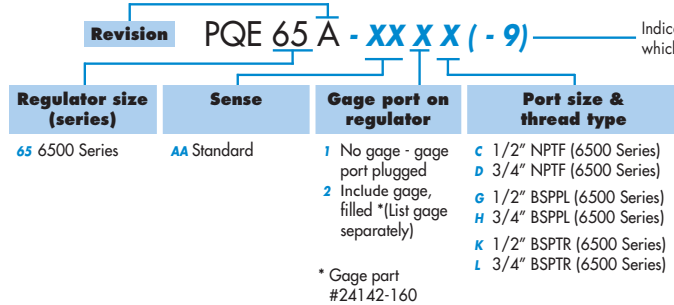


6500

92

### HOW TO ORDER

#### PROPORTIONAL QUICK EXHAUST



Indicates unit is to be assembled with PPC, which is ordered separately

EXAMPLE : PQE65A - AA1C - 9  
PPC5C DGB- AGEA - AAA - 9

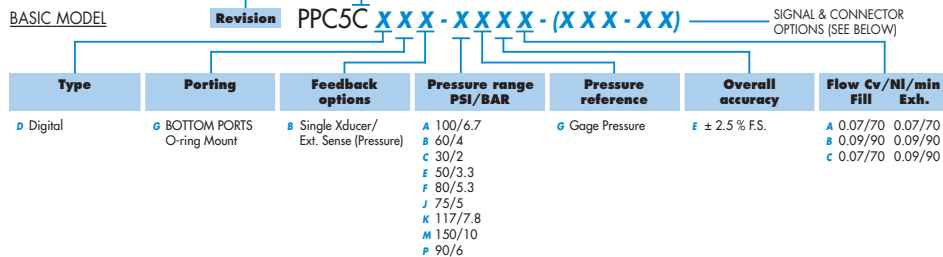
6500 Series style regulator, standard sense, no gage, 1/2" NPTF ports. Digital PPC, bottom o-ring mount, external sense, 100 psi range, gage reference, 2.5% accuracy, with .07 flow (fill and exhaust), 4 bit sinking/positive command signal, no analog or logic signal, 6-pin mini connector, no cable.

#### NOTE :

PPC5C must be ordered separately. Reference "How to order" for the digital PPC5C.

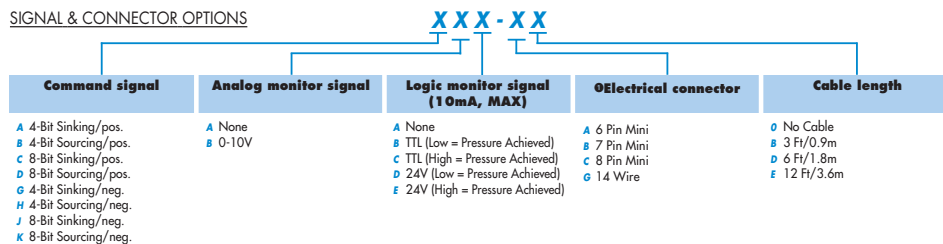
#### PPC5C SERIES

##### BASIC MODEL



SIGNAL & CONNECTOR OPTIONS (SEE BELOW)

##### SIGNAL & CONNECTOR OPTIONS



#### IMPORTANT ! READ NOTES BEFORE ORDERING

- All connector options are available with the 4-Bit command signal. Options "A", "B" and "C" can be supplied with or without a cable. Option "G" requires a cable. Select length from table.
- The 4-Bit command signal without the analog monitor signal (AMS) or logic monitor signal (LMS) requires a 6 Pin connector. For the AMS or LMS options, add one pin for each.
- The 8-Bit command signal can only use option "G". Select cable length from table.

**PPC TYPE**

Digital, single transducer external sense, bottom O-ring mount

**ELECTRICAL DATA**

Reference PPC5C specifications

**PHYSICAL DATA**

<b>Connector :</b>	Reference PPC5C specifications
<b>Enclosure :</b>	Aluminum, sealed
<b>Mounting :</b>	Any plane
<b>Ambient temperature range :</b>	0 to 50°C (32°F to 120°F)

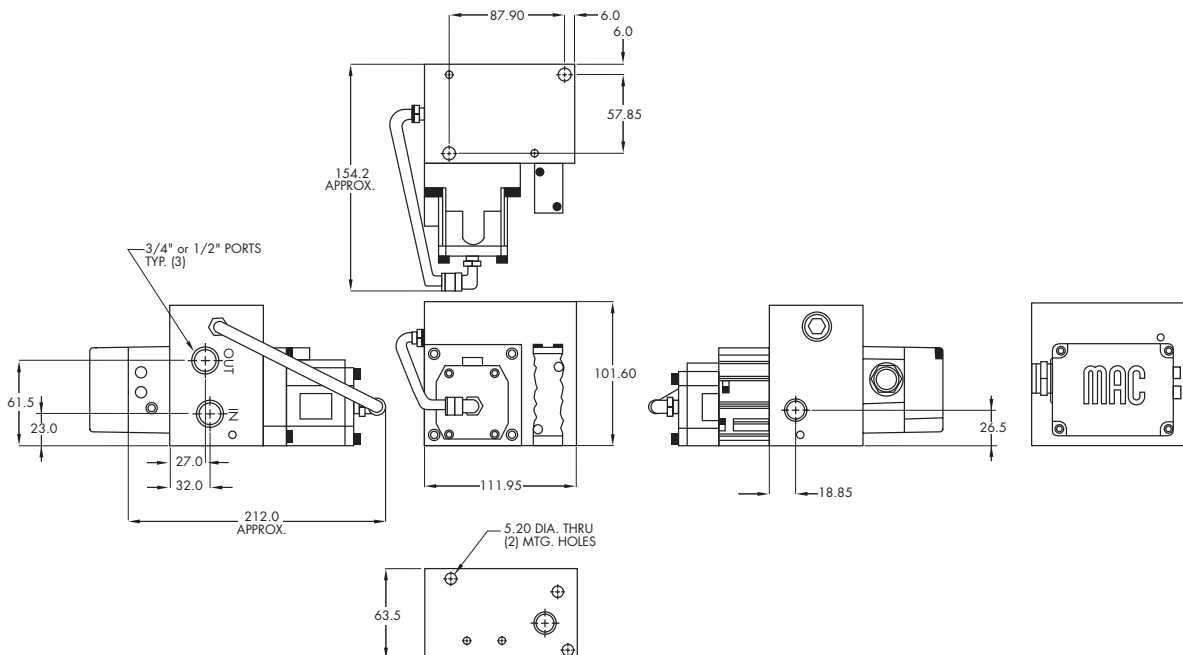
**PNEUMATIC DATA**

<b>Inlet pressure :</b>	120 PSI max	
<b>Fluids :</b>	Air or inert gases	
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended	
<b>Filtration :</b>	40 micron	
<b>*Output pressure :</b>	20 to 100 PSI	
<b>Overall accuracy :</b>	2.5% full scale	
<b>All ports :</b>	1/2, 3/4, NPTF, BSPPL, BSPTR	
<b>Flows :</b>		
<b>Output flow :</b>	1/2" ports: Cv 5.3	3/4" ports: Cv 6.3
<b>Exhaust flow :</b>	1/2" ports: Cv 1.5	3/4" ports: Cv 1.5
<b>**Output volume requirements :</b>	<b>Port size</b>	<b>Output volume at end of output pipe</b>
		<b>Minimum length of output pipe</b>
	1/2"	100 Cu. in. and larger
		50 to 99 Cu. in.
	3/4"	100 Cu. in. and larger
		50 to 99 Cu. in.
		60"
		90"

\* The quick exhaust portion of the PQE was not designed to be used at pressures below 20 PSIG. The PQE will exhaust below 20 PSIG but at a very reduced rate. Also, the minimum pressure change (from higher to lower) that will allow the quick exhaust to function is 3 PSIG.

\*\* This is the minimum output volume and output piping required to keep the unit stable. Configurations below these minimums should be tested on a case by case basis.

**DIMENSIONS**





# Proportional quick exhaust

Port size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
1/4" - 3/8"	1.3/1300	analog	

### OPERATIONAL BENEFITS

1. Accurate pressure control.
2. Fast response.
3. High flow.
4. Quick exhaust function.
5. Unaffected by change in line pressure.
6. Long life.
7. Designed to meet Nema 4 specifications.
8. Analog control.
9. Analog or TTL feedback.
10. Closed loop system.

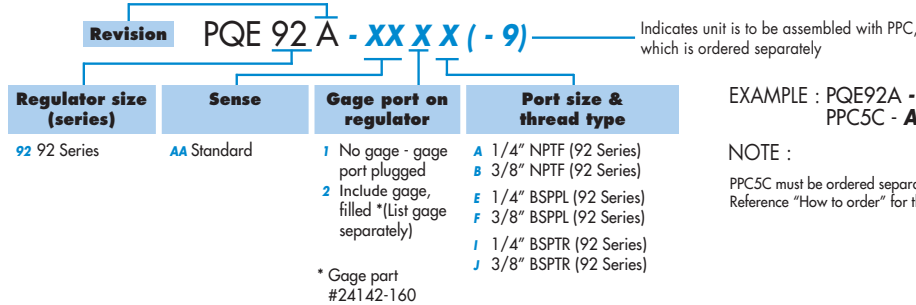


6500

92

### HOW TO ORDER

#### PROPORTIONAL QUICK EXHAUST

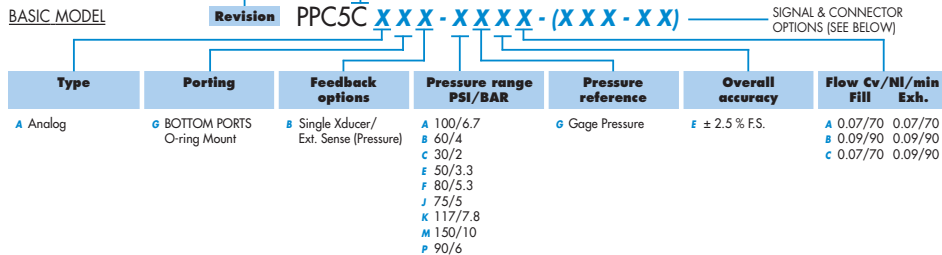


EXAMPLE : PQE92A - AA1B - 9  
PPC5C - AGB- AGEA - BBB - C0 - 9

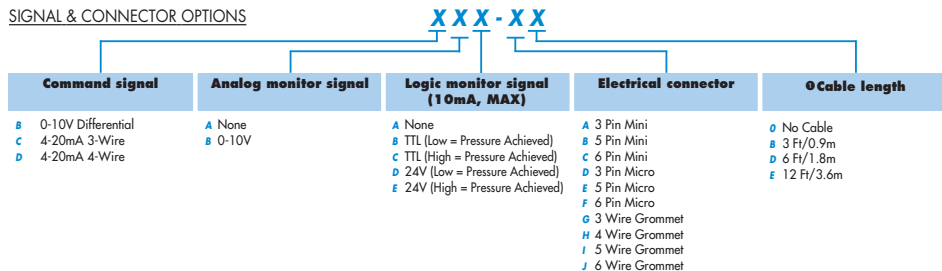
NOTE :  
PPC5C must be ordered separately.  
Reference "How to order" for the analog PPC5C.

#### PPC5C SERIES

##### BASIC MODEL



##### SIGNAL & CONNECTOR OPTIONS



IMPORTANT ! READ NOTES BEFORE ORDERING

For options "0" (no cable), choose electrical connector options "A" through "F" only.

**PPC TYPE**

Analog, single transducer external sense, bottom O-ring mount

**ELECTRICAL DATA**

Reference PPC5C specifications

**PHYSICAL DATA**

<b>Connector :</b>	Reference PPC5C specifications
<b>Enclosure :</b>	Aluminum, sealed
<b>Mounting :</b>	Any plane
<b>Ambient temperature range :</b>	0 to 50°C (32°F to 120°F)

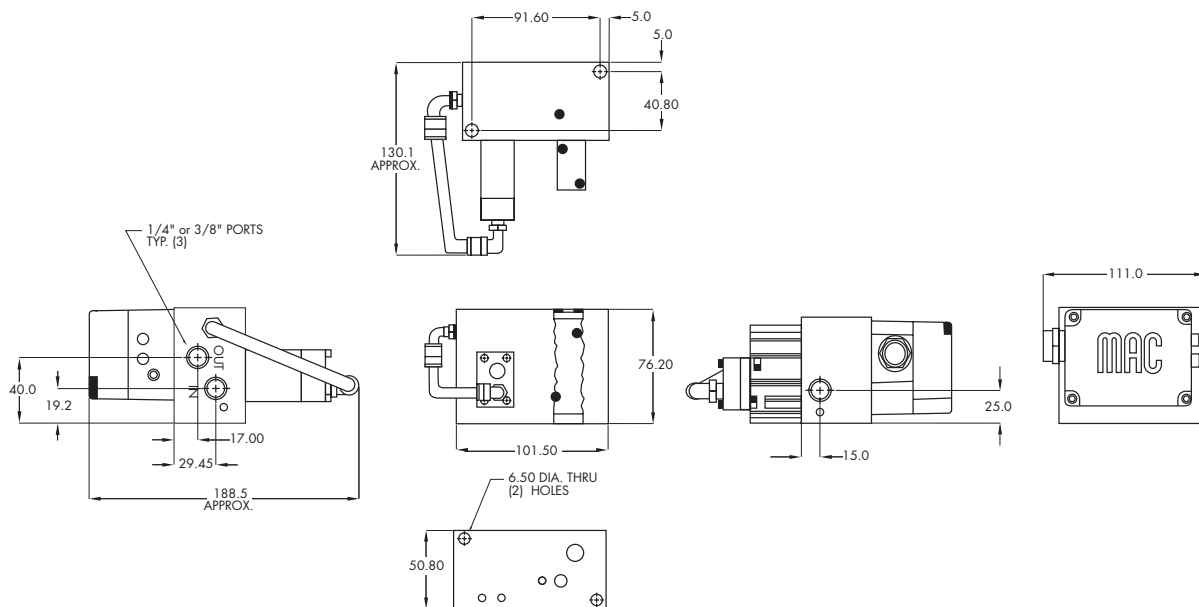
**PNEUMATIC DATA**

<b>Inlet pressure :</b>	120 PSI max	
<b>Fluids :</b>	Air or inert gases	
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended	
<b>Filtration :</b>	40 micron	
<b>*Output pressure :</b>	20 to 100 PSI	
<b>Overall accuracy :</b>	2.5% full scale	
<b>All ports :</b>	1/4, 3/8, NPTF, BSPPL, BSPTR	
<b>Flows :</b>		
<b>Output flow :</b>	1/4" ports: Cv 0.94	3/8" ports: Cv 1.2
<b>Exhaust flow :</b>	1/4" ports: Cv 1.3	3/8" ports: Cv 1.3
<b>**Output volume requirements :</b>	<b>Port size</b>	<b>Output volume at end of output pipe</b>
	1/4"	100 Cu. in. and larger
		50 to 99 Cu. in.
	3/8"	100 Cu. in. and larger
		50 to 99 Cu. in.
		<b>Minimum length of output pipe</b>
		12"
		50"
		24"
		50"

\* The quick exhaust portion of the PQE was not designed to be used at pressures below 20 PSIG. The PQE will exhaust below 20 PSIG but at a very reduced rate. Also, the minimum pressure change (from higher to lower) that will allow the quick exhaust to function is 3 PSIG.

\*\* This is the minimum output volume and output piping required to keep the unit stable. Configurations below these minimums should be tested on a case by case basis.

**DIMENSIONS**





# Proportional quick exhaust

Port size	Flow [Max] [Cv/NI/min]	Individual mounting	Series
1/4" - 3/8"	1.3/1300	digital	

### OPERATIONAL BENEFITS

1. Accurate pressure control.
2. Fast response.
3. High flow.
4. Quick exhaust function.
5. Unaffected by change in line pressure.
6. Long life.
7. Designed to meet Nema 4 specifications.
8. Digital control.
9. Analog or TTL feedback.
10. Closed loop system.

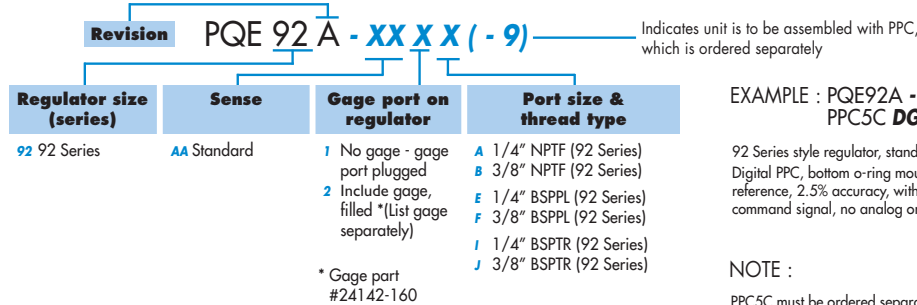


6500

92

### HOW TO ORDER

#### PROPORTIONAL QUICK EXHAUST



EXAMPLE : PQE92A - AA1B - 9  
PPC5C DGB- AGEA - AAA - 9

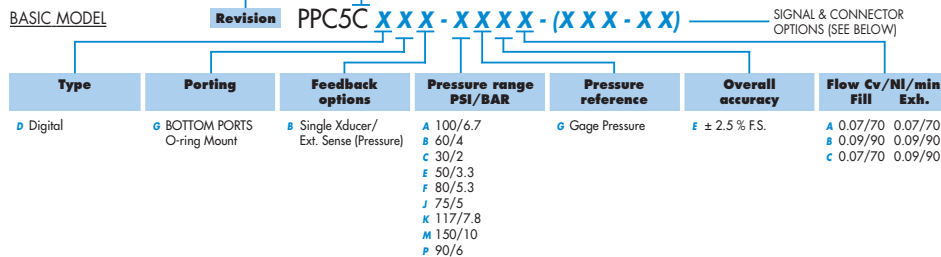
92 Series style regulator, standard sense, no gage, 3/8" NPTF ports. Digital PPC, bottom o-ring mount, external sense, 100 psi range, gage reference, 2.5% accuracy, with .07 flow (fill and exhaust), 4 bit sinking/positive command signal, no analog or logic signal, 6-pin mini connector, no cable.

#### NOTE :

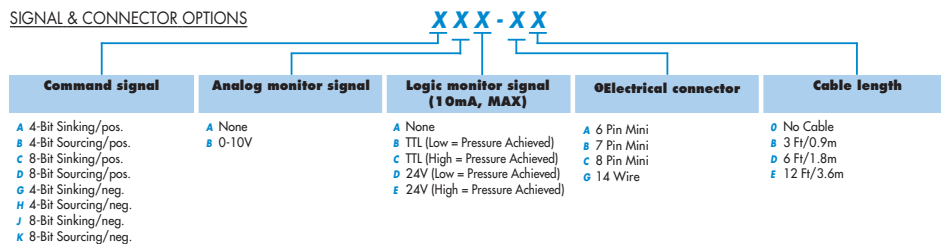
PPC5C must be ordered separately. Reference "How to order" for the digital PPC5C.

#### PPC5C SERIES

##### BASIC MODEL



##### SIGNAL & CONNECTOR OPTIONS



#### IMPORTANT ! READ NOTES BEFORE ORDERING

- 1 All connector options are available with the 4-Bit command signal. Options "A", "B" and "C" can be supplied with or without a cable. Option "G" requires a cable. Select length from table. The 4-Bit command signal without the analog monitor signal (AMS) or logic monitor signal (LMS) requires a 6 Pin connector. For the AMS or LMS options, add one pin for each. The 8-Bit command signal can only use option "G". Select cable length from table.

**PPC TYPE**

Digital, single transducer external sense, bottom O-ring mount

**ELECTRICAL DATA**

Reference PPC5C specifications

**PHYSICAL DATA**

<b>Connector :</b>	Reference PPC5C specifications
<b>Enclosure :</b>	Aluminum, sealed
<b>Mounting :</b>	Any plane
<b>Ambient temperature range :</b>	0 to 50°C (32°F to 120°F)

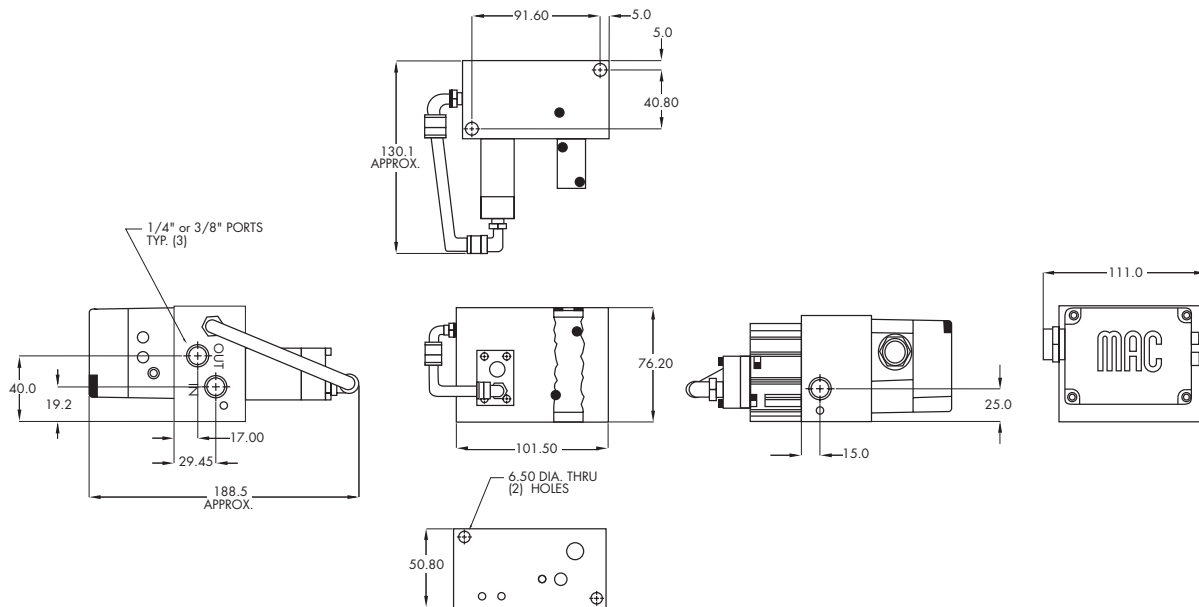
**PNEUMATIC DATA**

<b>Inlet pressure :</b>	120 PSI max	
<b>Fluids :</b>	Air or inert gases	
<b>Lubrication :</b>	Not required. However, if used, a medium aniline point oil is recommended	
<b>Filtration :</b>	40 micron	
<b>*Output pressure :</b>	20 to 100 PSI	
<b>Overall accuracy :</b>	2.5% full scale	
<b>All ports :</b>	1/4, 3/8, NPTF, BSPP, BSPT	
<b>Flows :</b>		
<b>Output flow :</b>	1/4" ports: Cv 0.94	3/8" ports: Cv 1.2
<b>Exhaust flow :</b>	1/4" ports: Cv 1.3	3/8" ports: Cv 1.3
<b>**Output volume requirements :</b>	<b>Port size</b>	<b>Output volume at end of output pipe</b>
		<b>Minimum length of output pipe</b>
	1/4"	100 Cu. in. and larger
		50 to 99 Cu. in.
	3/8"	100 Cu. in. and larger
		50 to 99 Cu. in.
		24"
		50"

\* The quick exhaust portion of the PQE was not designed to be used at pressures below 20 PSIG. The PQE will exhaust below 20 PSIG but at a very reduced rate. Also, the minimum pressure change (from higher to lower) that will allow the quick exhaust to function is 3 PSIG.

\*\* This is the minimum output volume and output piping required to keep the unit stable. Configurations below these minimums should be tested on a case by case basis.

**DIMENSIONS**







## Section 3      Pressure Control Systems



# Pressure control systems

		Series
	PMPP	MPP
P. 81		PMPP
	P. 85	MPP



**Proportional Pressure Control system with analog or digital command signal. Proportional Multi-Pressure Pak® (PMPP)**

**OPERATIONAL BENEFITS**

1. Fast response.
2. Long life.
3. High flow.
4. The use of an analog or 4 bit or 8 bit command signal brings increased accuracy in pressure control.
5. A compact unit saves room and installation costs.
6. The analog and logic (TTL) outputs allow for constant pressure monitoring from the control unit.
7. Infinite or discrete number of pressures available.
8. For 2, 3 or 4 ported weld guns and other applications.
9. Accuracy of  $\pm 2.5\%$  of full scale (consult factory for other accuracies).
10. DeviceNet compatible.

PMPP

MPP

**COMPONENTS**

- The Proportional Multi-Pressure Pak® is made of the following components :
- one proportional pressure controller PPC5C for pressure selection.
  - one (or more) directional valves to be selected as a function of the flow required.
  - one pilot operated regulator for main pressure control.

**FIELDS OF APPLICATION**

The Proportional Multi-Pressure Pak® is suitable for all applications requiring multiple pressures. The numerous possibilities of flows and pressure ranges makes it easy to find the best appropriate configuration.

This system has proven its abilities in the automotive industry, for the fast and accurate control of spot welding. Many other applications are satisfied, such as pressure selection for any supply network or machinery, force control in a cylinder, tension control on a drum and robot arm mounting.

**OPERATION**

**PROPORTIONAL PRESSURE CONTROLLER PPC5C**

This is the pressure selector controlling the entire system. Depending on the command signal (analog or digital), the PPC5C will quickly adjust the outlet pressure to the requested value.

**PILOT OPERATED SANDWICH REGULATOR**

The outlet port of the PPC5C gives a pressure signal to the sandwich regulator. This will regulate the main pressure as a function of the command signal at a high flow rate.

**DIRECTIONAL VALVE(S)**

Depending on the application, one or more directional valves are used. For instance : a 4/2 valve for the welding control (with the regulated pressure) and another one (line pressure) for the control of the back-up on the weld gun. Additional valves for tooling can be added.

**TECHNICAL DATA**

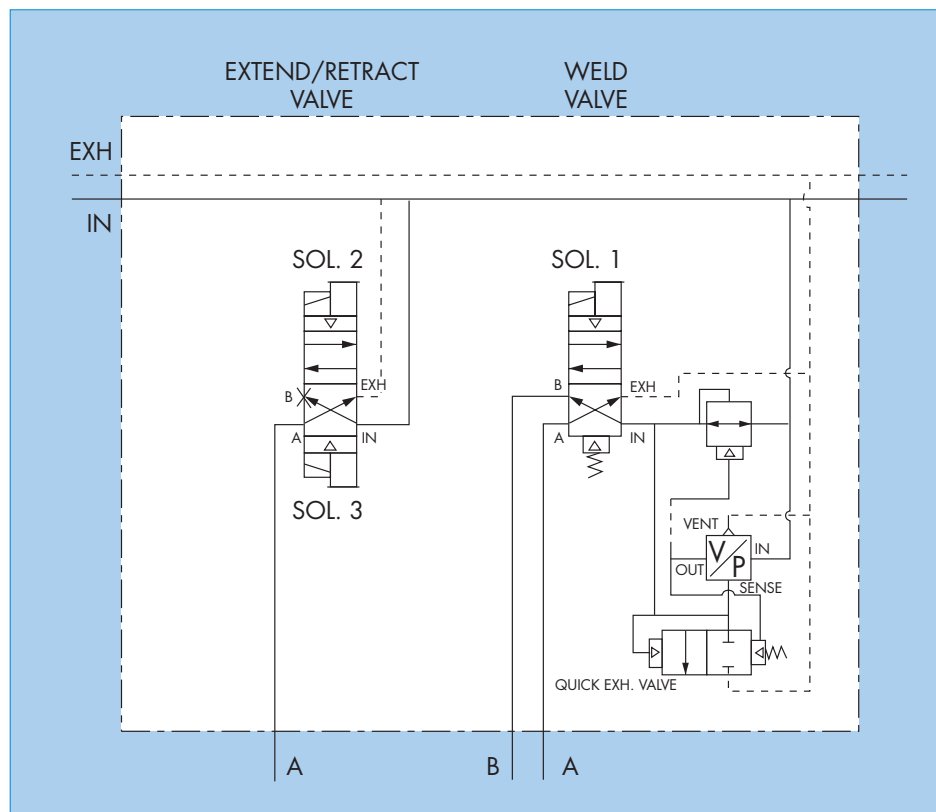
<b>Supply pressure :</b>	2 to 10 bar/30 to 150 PSI
<b>*Output pressure :</b>	Standard : 1.7 to 10 bar, other ranges upon request. 25 to 150 PSI
	* For 82 and ISO 1 - 1.7 to 8 BAR, 25 to 120 PSI

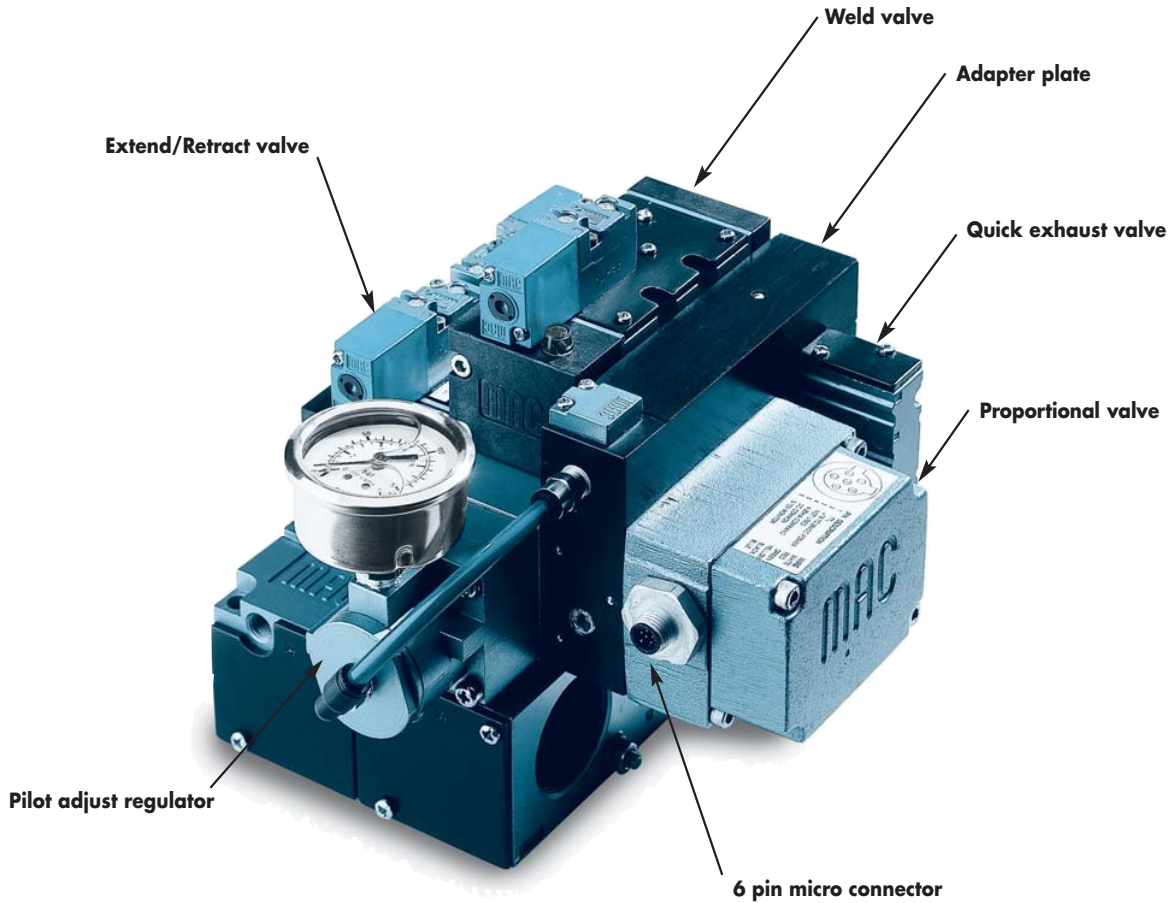
*Series	Port size	Flow
82	1/4" - 3/8"	C <sub>v</sub> 0.9 / 900 NI/Min
93	3/8" - 1/2"	C <sub>v</sub> 2.4 / 2400 NI/Min
6300	3/8" - 1/2"	C <sub>v</sub> 2.1 / 2100 NI/Min
6500	1/2" - 3/4"	C <sub>v</sub> 3.5 / 3500 NI/Min
ISO 1	1/4" - 3/8"	C <sub>v</sub> 1.1 / 1100 NI/Min
ISO 2	3/8" - 1/2"	C <sub>v</sub> 2.1 / 2100 NI/Min
ISO 3	1/2" - 3/4"	C <sub>v</sub> 5.0 / 5000 NI/Min

Please consult factory for the selection of best appropriate PMPP.

\* Other valve series may be available - consult factory.

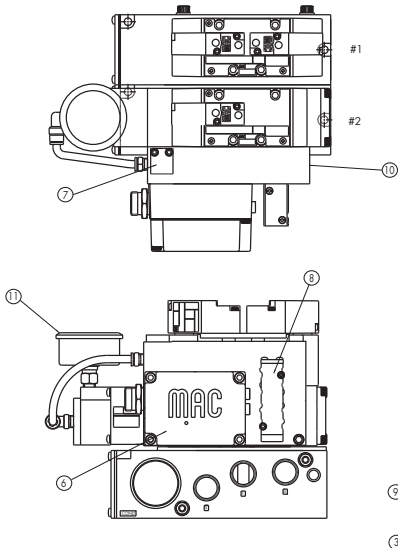
**Example circuit with quick exhaust valve**





PMPP

MPP



MAC VALVES, INC. MULTI-PRESSURE PAK		
Item	QTY	Description
1	1	MV-P2A-AADB-DM-DDAP-1DS-9
2	1	PRP2A-DABA-9 MOD. 1367
3	1	MM-P2A-231-A-9 MOD. 3176
4	1	MV-P2A-ABDA-DM-DDAP-1DS-9
5	1	MM-P2A-231-B-9 MOD. 3158
6	1	PPC5A-DGB-PGEA-AAE BO-9 MOD. 1238
7	1	M-35004
8	1	416A-00A-9 MOD. 1368
9	1	N-P2004-03
10	1	N-P2009
11	1	24142-160



**Non Proportional Pressure Control system.**

**Multi-Pressure Pak® (MPP)**

**OPERATIONAL BENEFITS**

1. Fast response.
2. Long life.
3. High flow.
4. The use of a digital command signal brings easy installation and use.
5. A compact and lightweight unit saves room and installation costs.
6. This system is the alternative to proportional valves if more than six pressures or closed loop feedback are not required.
7. The Multi-Pressure Pak® is easy to set up and maintain.
8. For 2, 3 or 4 ported weld guns and other applications.
9. Accuracy of  $\pm 2.5\%$  of full scale

**DESIGN DESCRIPTION**

The MAC Multi-Pressure Pak® is designed for applications requiring multiple pressures which can be selected electrically through low powered AC or DC solenoids. The selected pilot pressure is directed to a pilot operated sandwich pressure regulator. The sandwich regulator amplifies the flow of this pre-selected pressure.

The multiple pressures can be manually preset from 25 to 120 PSI (1.7 to 8 BAR).

The Multi-Pressure Pak® is pre-wired, pre-piped, lightweight and compact.

The optional quick exhaust valve allows for quick close on 3 ported weld guns.

**COMPONENTS**

A typical Multi-Pressure Pak® is made of the following components :

- one cascading manifold with regulators and solenoid valves for the pressure selection. (up to six (6))
- one (or more) directional valves to be selected as a function of the flow required.
- one air pilot operated pressure regulator for main pressure control.
- one optional quick exhaust valve.

**FIELDS OF APPLICATION**

The Multi-Pressure Pak® is suitable for all applications requiring up to six different pre-determined pressures.

The numerous possibilities of flows and pressure ranges makes it easy to find the best appropriate configuration.

This system has proven its abilities in the automotive industry, for the fast and accurate control of spot welding. The lightweight and compact size of this assembly makes it ideally suited for robot arm mounting. Many other applications are satisfied, such as pressure selection for any supply network or machinery, force control in a cylinder, ...

PMPP

MPP



**TECHNICAL DATA**

<b>Min. supply pressure :</b>	25 PSI (1.7 BAR)
<b>Max. supply pressure :</b>	150 PSI (10 BAR)
<b>Pressure output range :</b>	25-120 PSI (1.7 to 8 BAR)
<b>Voltages available AC :</b>	120/60, 110/50
<b>DC :</b>	12 & 24 volt. 1.8 to 12.7 watts
<b>Other AC and DC voltages available :</b>	Consult factory
<b>Air supply :</b>	40 micron filtration
<b>Lubrication :</b>	Not required but if lubrication is used, a medium aniline point oil is recommended

NOTE: Pressures shown are minimum and maximum safe working pressures.

*Series	Port size	Flow
82	1/4" - 3/8"	C <sub>v</sub> 0.9 / 900 NI/Min
93	3/8" - 1/2"	C <sub>v</sub> 2.4 / 2400 NI/Min
6300	3/8" - 1/2"	C <sub>v</sub> 2.1 / 2100 NI/Min
6500	1/2" - 3/4"	C <sub>v</sub> 3.5 / 3500 NI/Min
ISO 1	1/4" - 3/8"	C <sub>v</sub> 1.1 / 1100 NI/Min
ISO 2	3/8" - 1/2"	C <sub>v</sub> 2.1 / 2100 NI/Min
ISO 3	1/2" - 3/4"	C <sub>v</sub> 5.0 / 5000 NI/Min

\* Other valve series may be available - consult factory.

**REQUIREMENTS FOR APPLICATION**

First determine the Flow or Cv required for the application and then select the appropriate valve series from the table above.

Refer to the MAC® Catalog for valve designation, voltage options and cylinder port configuration or size.

Determine the number of pressures required by the application.

For welding applications, state if for 2, 3 or 4 ported gun.

Indicate whether any other valves are to be ganged to the Multi-Pressure Pak® (for example a standard 4 way valve to operate a tool changer or tip dresser).

External electrical conduit connections can be supplied (consult factory) for ordering purposes.

MAC® Valves will then provide a MPP (Multi-Pressure Pak®) number to this particular configuration.

**OPERATIONAL DESCRIPTION**

The Multi-Pressure Pak® consists of:

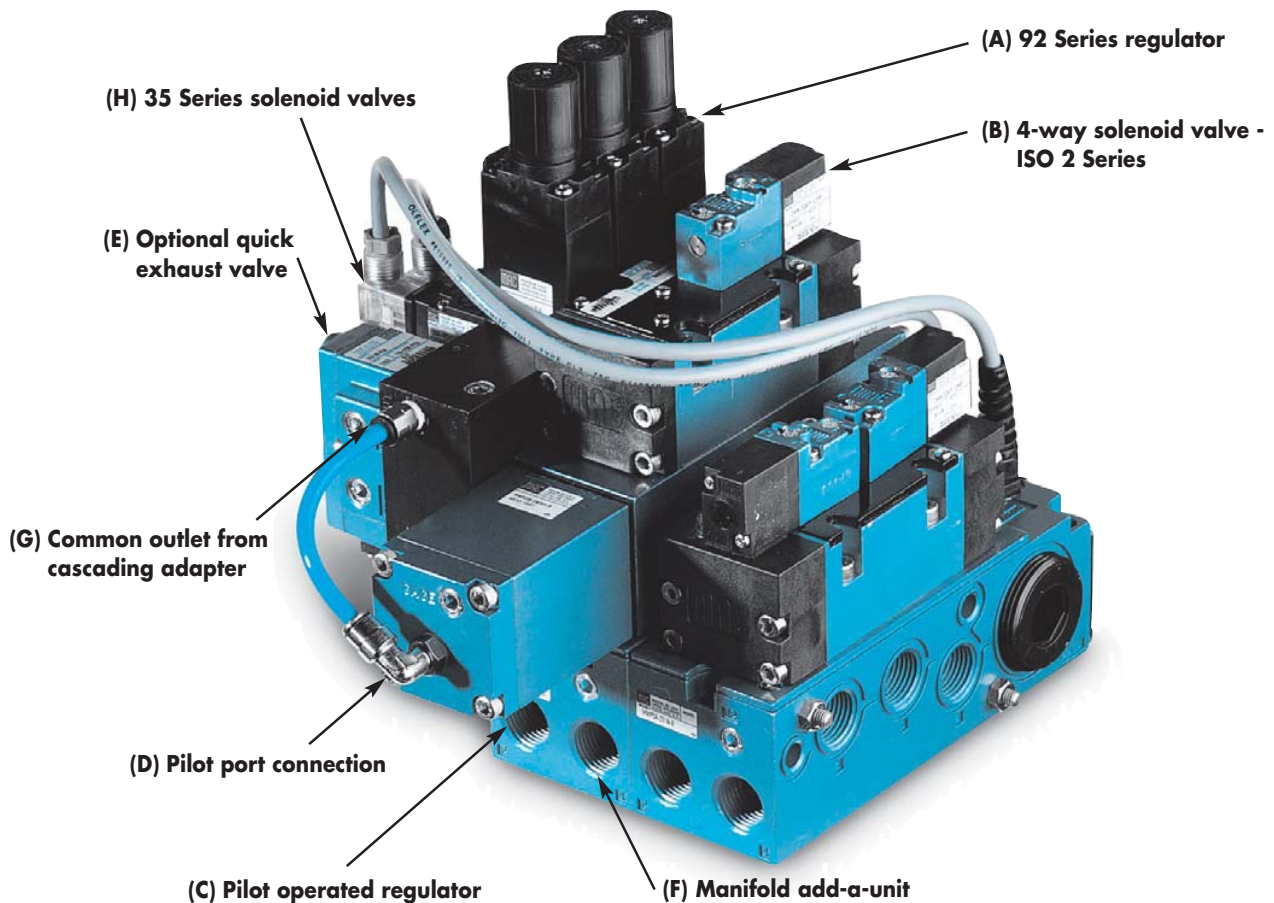
- A 4 way solenoid valve (B) (i.e. ISO 2, 6300, etc...)
- A pilot operated sandwich regulator (C) mounted on a manifold add-a-unit base (F).
- 35 Series, solenoid valves (H), each with its own individual 92 Series regulator (A), are mounted to the side of the cascading manifold adapter. The adapter has a common outlet (G) connected to the air pilot port (D) of the sandwich air pilot regulator (C). The inlet pressure to the manifold adapter is supplied thru the sandwich regulator block.

The number of pressures supplied by this assembly corresponds to the number of 92 Series regulators (A). NOTE: Up to six regulators are possible. The optional quick exhaust valve (E) is available to provide a "quick close" on 3 ported weld guns.

Once the pressure at each individual 92 Series regulator has been manually preset, energizing the corresponding 35 Series solenoid will provide that particular pressure at the common outlet of the manifold. The pre-selected pressure at the common outlet is connected to the air pilot of the sandwich regulator. The sandwich regulator amplifies the flow of this pre-selected pressure either to both cylinder ports of the 4 way valve or to one cylinder port with main line pressure fed through a bypass plate to the other cylinder port.

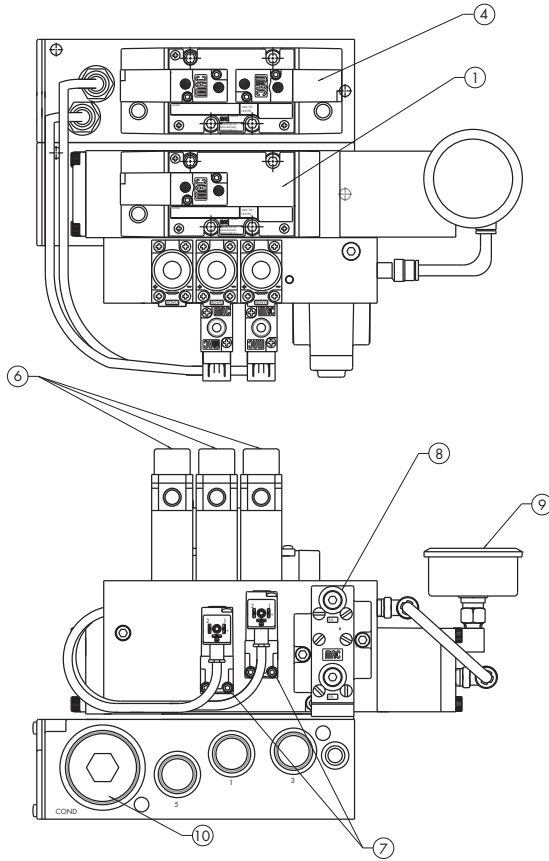
PMPP

MPP

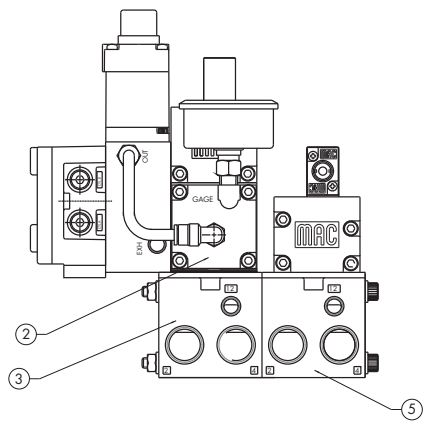




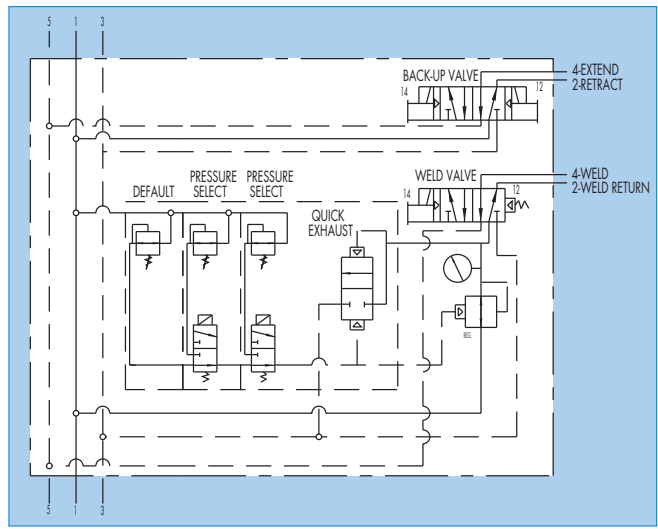
**PRESSURE SELECTION**



MAC VALVES, INC. MULTI-PRESSURE PAK		
Item	QTY	Description
1	1	MV-P2A-AADB-DM-DDAP-1DS-9 (STA.1)
2	1	PRP2B-DEBA-9 MOD. 1537
3	1	MM-P2A-231-A-9
4	1	MV-P2A-ABDA-DM-DDAP-1DS-9 (STA.2)
5	1	MM-P2A-231-B-9 MOD. 1734
6	3	PR92C-MOAB-9 MOD. 1680
7	2	35A-BOO-DDAJ-1KD-9 MOD. 3501
8	1	921B-RA MOD.1453
	1	N-P2017 BRKT. & FITTINGS
	1	N-63002-02 FASTENING KIT
9	1	24142-160 GAGE
	1	
	1	
10	1	32848 CONDUIT PLUG
	2	23154 STRAIN RELIEF FITTING

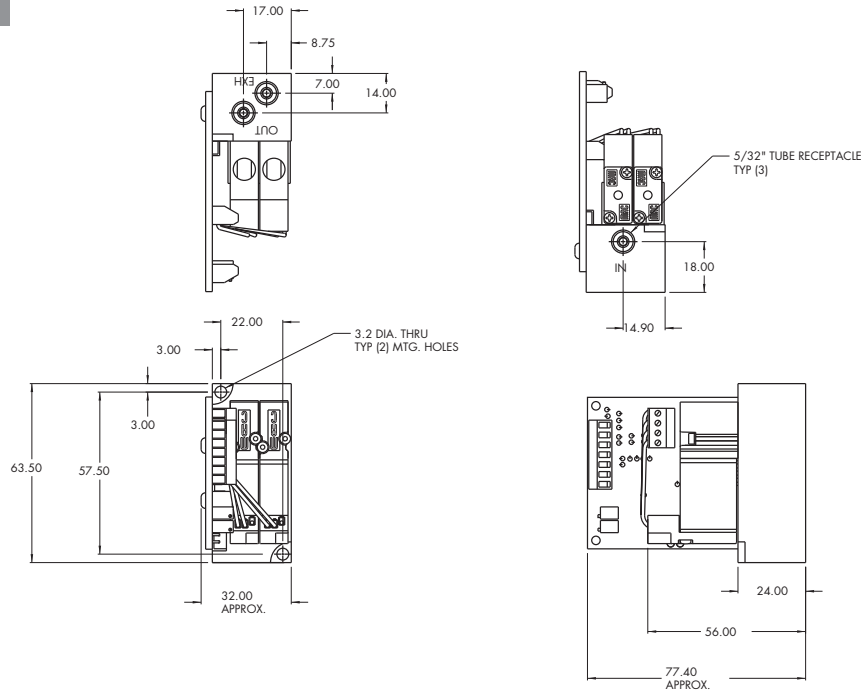


**Example circuit with quick exhaust valve**

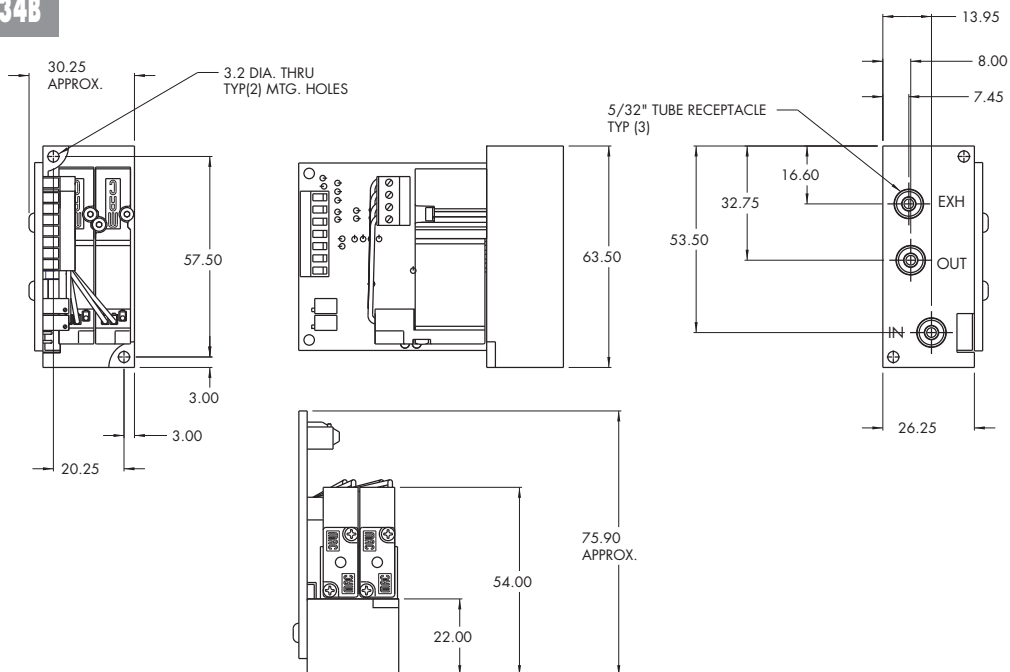


Additional dimensions for PPC's

Series PPC34B

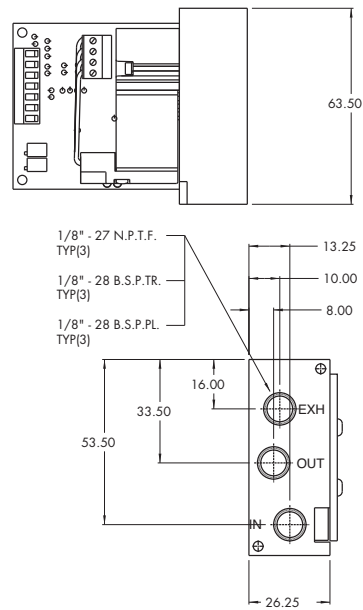
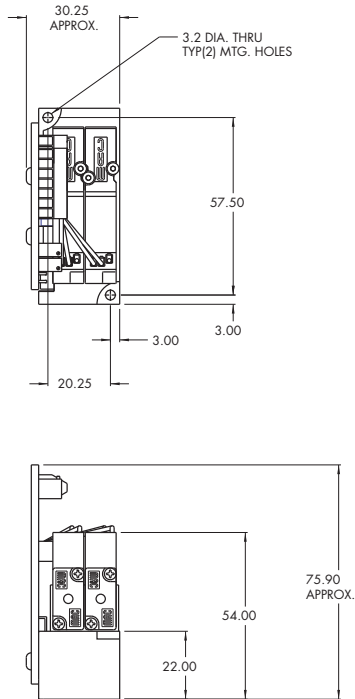


Series PPC34B

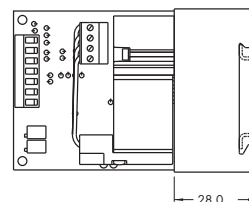
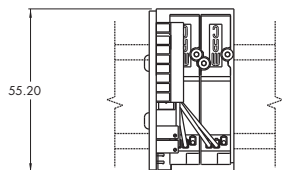
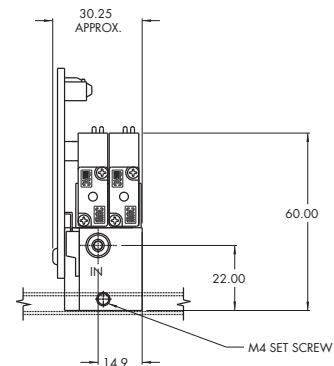
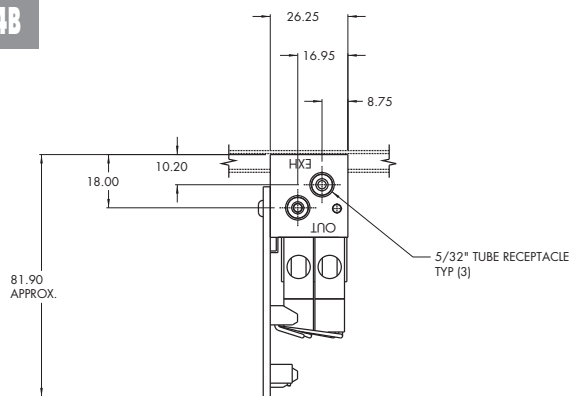


**Additional dimensions for PPC's**

**Series PPC34B**

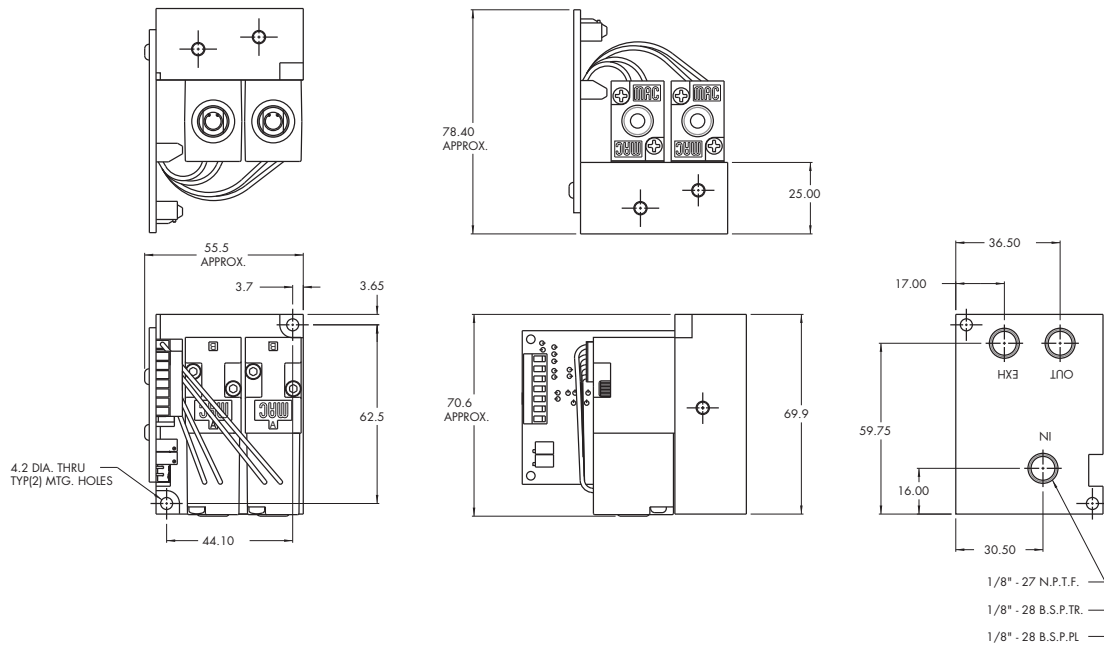


**Series PPC34B**

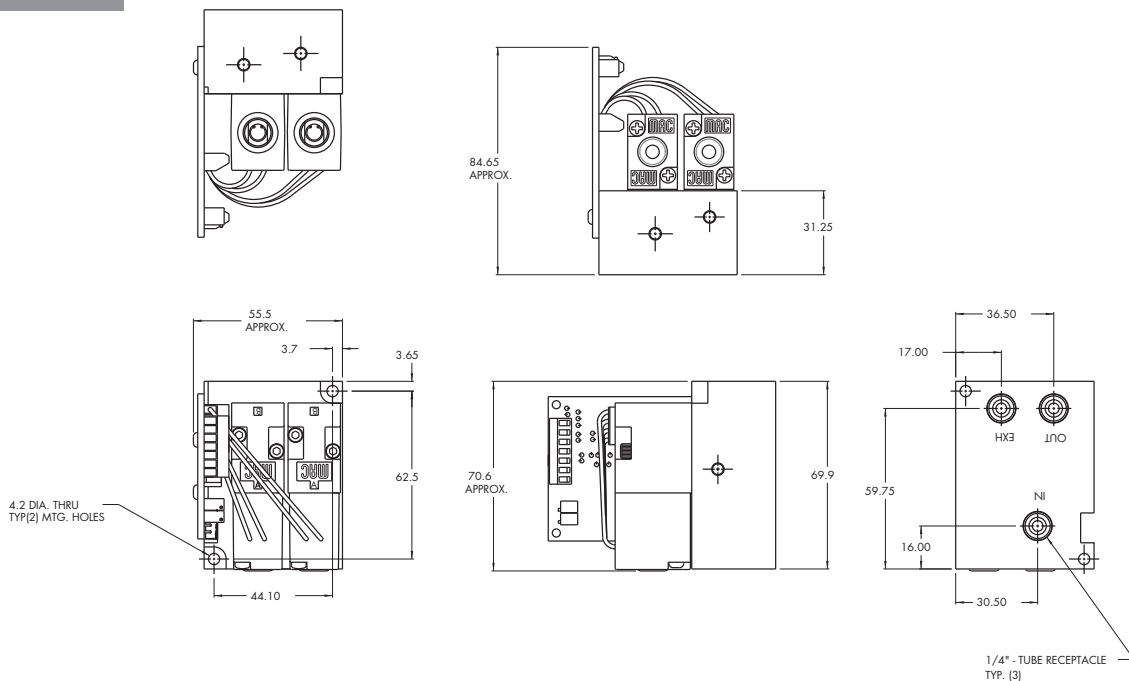


Additional dimensions for PPC's

Series PPC45A

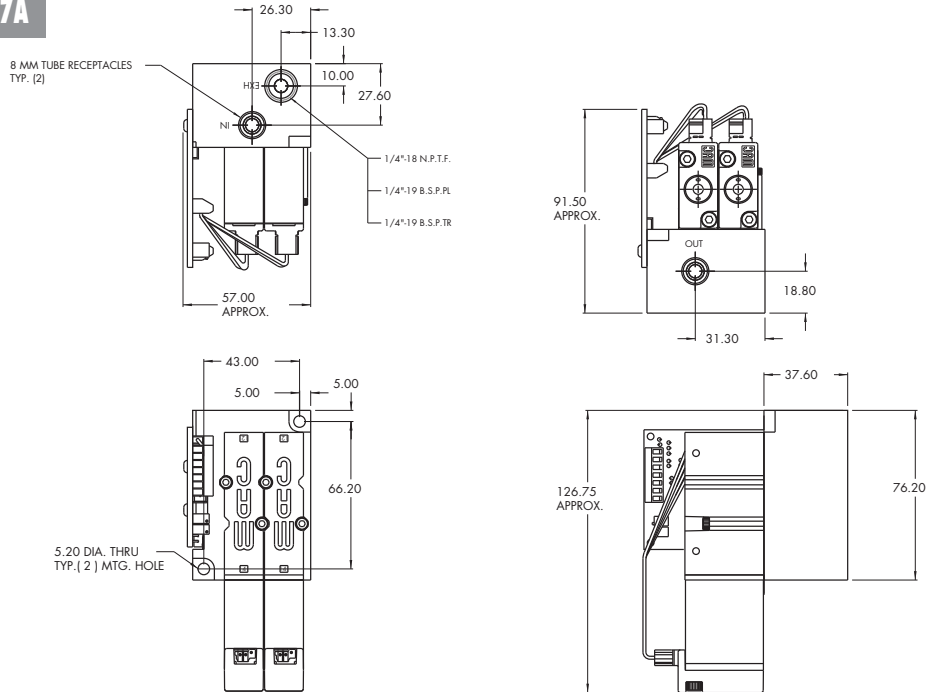


Series PPC45A

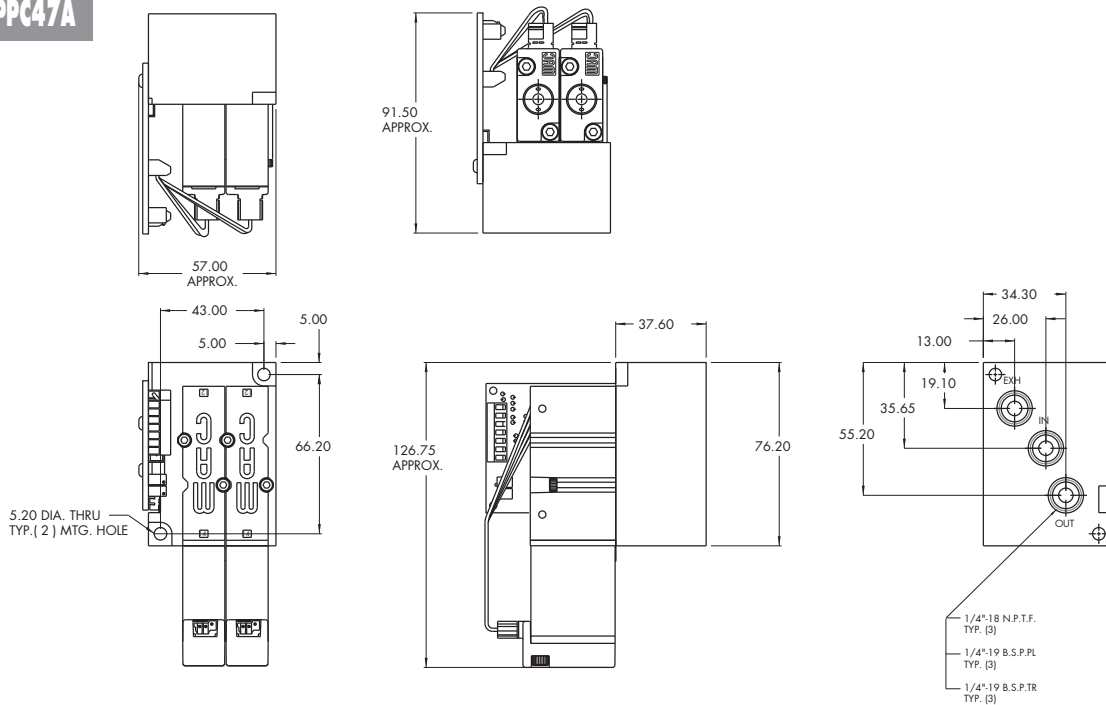


**Additional dimensions for PPC's**

**Series PPC47A**

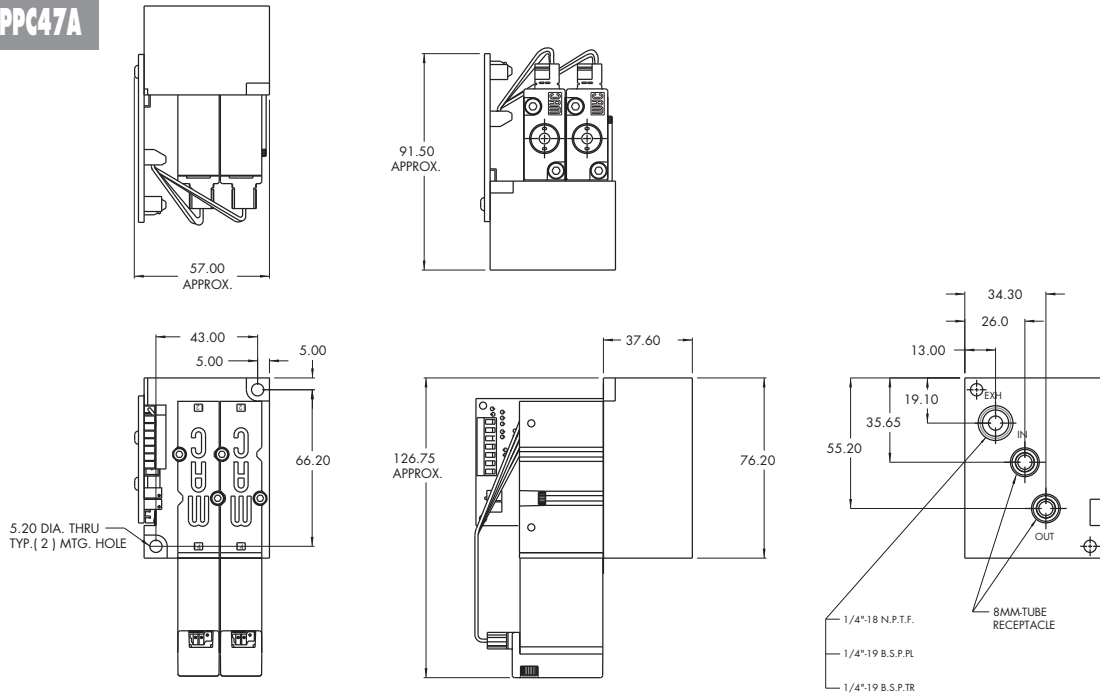


**Series PPC47A**



**Additional dimensions for PPC's**

**Series PPC47A**



## PRECAUTIONS AND WARNINGS CONCERNING THE APPLICATION, INSTALLATION AND SERVICE OF MAC VALVES AND OTHER MAC VALVES PRODUCTS

The warnings and precautions below are important to be read and understood before designing into a system any MAC Valves products, and before installing or servicing any MAC Valves product. Improper use, installation or servicing of any MAC Valves product in some systems could create a hazard to personnel or equipment. No distinction in importance should be made between the terms warnings and precautions.

### WARNING :

Under no circumstances are MAC Valves products to be used in any application or in any manner where failure of the MAC Valves product to operate as intended could in any way jeopardize the safety of the operator or any other person or property.

- Do not operate outside of pressure range listed on a valve label or outside of the designated temperature range.
- Air supply must be clean and dry. Moisture or contamination can affect proper operation of the valve.
- Before attempting to repair, adjust or clean a MAC Valves product, consult catalog, parts & operation sheet, or factory for proper maintenance procedures, lubrication and cleaning agents. Never attempt to repair or perform other maintenance with air pressure to the valve.
- If air line lubrication is used do not use any lubrication other than those recommended in the catalog, parts & operation sheet or by the factory.

### APPLICATION PRECAUTIONS :

#### INDUSTRIAL USE -

- MAC Valve products are intended for general use in industrial pneumatic and/or vacuum systems. They are general purpose industrial products with literally thousands of different applications in industrial systems. These products are not inherently dangerous, but they are only a component of an overall system. The system in which they are used must provide adequate safeguards to prevent injury or damage in the event failure occurs, whether it be failure of switches, regulators, cylinders, valves or any other component.

#### POWER PRESSES -

MAC Valve products are not designed nor intended to be used to operate and/or control the operation of clutch and/or brake systems on power presses. There are special products on the market for such use.

#### 2-POSITION VALVES -

Some MAC valves are 2-position, 4-way valves. When air is supplied to the inlet port(s) of these valves, there will always be a flow path from the inlet to one of the outlets regardless of which of the two positions the valve is situated. Therefore, if pressurized air retained in the system would present a hazard in the application or servicing of the valve or system, a separate method in the system must be provided to remove the trapped air.

#### 3- POSITION VALVES-

Some MAC valves are 3-position, 4-way valves. These valves are either double solenoid or double remote air operated.

If either of the two operators is in control, air supplied to the inlet port(s) will pass through the valve to one of the outlets as on 2-position, 4-way valves. However, if neither operator is in control, the valve moves to a center position. Listed below are the various center position functions :

#### A. CLOSED CENTER-

With this type valve, when in the center position all ports are blocked (inlets and exhausts) meaning the air at both outlet ports is trapped. If trapping the air in both outlet ports would present a hazard in the application or servicing, a separate method in the system must be provided to remove the trapped air or this type valve should not be used.

#### B. OPEN CENTER-

With this type valve, when in the center position, the inlet port(s) is blocked and the two outlet ports are open to the exhaust port(s) of the valve. If having no air in either outlet port would present a hazard in the application or servicing, this type valve should not be used.

#### C. PRESSURE CENTER-

With this type valve, when in the center position, the inlet port(s) is connected to both outlet ports of the valve. If having pressurized air to either or both outlet ports would present a hazard in the application or servicing of the valve or system, a separate method in the system must be provided to remove the retained air or this type valve should not be used.

#### OPERATING SPECIFICATIONS -

MAC Valves products are to be installed only on applications that meet all operating specifications described in the MAC catalog for the MAC Valves product.

#### MANUAL OPERATORS-

Most MAC valves can be ordered with manual operators. Manual operators when depressed, are designed to shift the valve to the same position as would the corresponding solenoid or remote air pilot operator if it were activated. Care must be taken to order a type, if any, that will be safe for the physical location of the manual operator in the system. If intentional or accidental operation of a valve by a manual operator could cause personal injury or property damage, a manual operator should not be used.

#### REMOTE AIR OPERATED VALVES

Pilot valves supplying signal pressure to remote air operated valves should be 3-way valves with adequate supply and exhaust capacity to provide positive pressurizing and exhausting of the pilot supply line. Pilot lines should be open to exhaust when valves are deenergized.

#### INSTALLATION PRECAUTIONS :

- A. Do not install any MAC Valves product without first turning off air (bleed system completely) and electricity to the machine.
- B. MAC Valves products should only be installed by qualified, knowledgeable personnel who understand how the specific valve is to be pneumatically piped and electrically connected (where applicable). Flow paths through the valve are shown in the catalog and on the valve by use of ANSI or ISO type standard graphic symbols. Do not install unless these symbols and the valve functions and operations are thoroughly understood.
- C. If air line lubrication is used do not use any lubrication other than those recommended in the catalog, parts & operation sheet or by the factory.

#### SERVICE PRECAUTIONS :

- A. Do not service or remove from service any MAC Valves product without first shutting off both the air and electricity to the valve and making certain no pressurized air which could present a hazard is retained in the system.
- B. MAC Valves products should only be serviced or removed from service by qualified, knowledgeable personnel who understand how the specific product is used and/or how the specific valve is piped and used and whether there is air retained in the connecting lines to the valve or electric power still connected to the valve.
- C. Before attempting to repair, adjust or clean a MAC Valves product, consult catalog, parts & operation sheet, or factory for proper maintenance procedures, lubrication and cleaning agents. Never attempt to repair or perform other maintenance with air pressure to the valve.
- D. MAC Valves products are never to be stepped on while working on a machine. Damage to a MAC valve, or other product or lines to the product (either air or electrical lines) or accidental activation of a manual operator on the valve could result in personal injury or property damage.

#### LIMITATION OF GUARANTEE

This Guarantee is limited to the replacement or rebuilding of any valve or other product which should fail to operate properly. Valves or other products, under the MAC Guarantee, must be returned (with or without bases) transportation prepaid and received at our factory within the Guarantee period. They will be returned to the customer at the expense of MAC Valves, Inc., and will carry the same guarantee as provided under the Flat Rate Rebuild Program.

#### DISCLAIMER OF GUARANTEE

No claims for labor, material, time, damage, or transportation are allowable nor will any valve or other product be replaced or rebuilt under this guarantee which has been damaged by the purchaser not in the normal course of its use and maintenance during the warranty period. The guarantee does not apply to loss or damage caused by fire, theft, riot, explosion, labor dispute, act of God, or other causes beyond the control of MAC Valves, Inc. MAC Valves, Inc. shall in no event be liable for remote, special or consequential damages under the MAC Guarantee, nor under any implied warranties, including the implied warranty of merchantability.

The above Guarantee is our manner of extending the engineering and service resources of the MAC Valves, Inc. organization to assure our customer long, and continued satisfaction.

®  
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