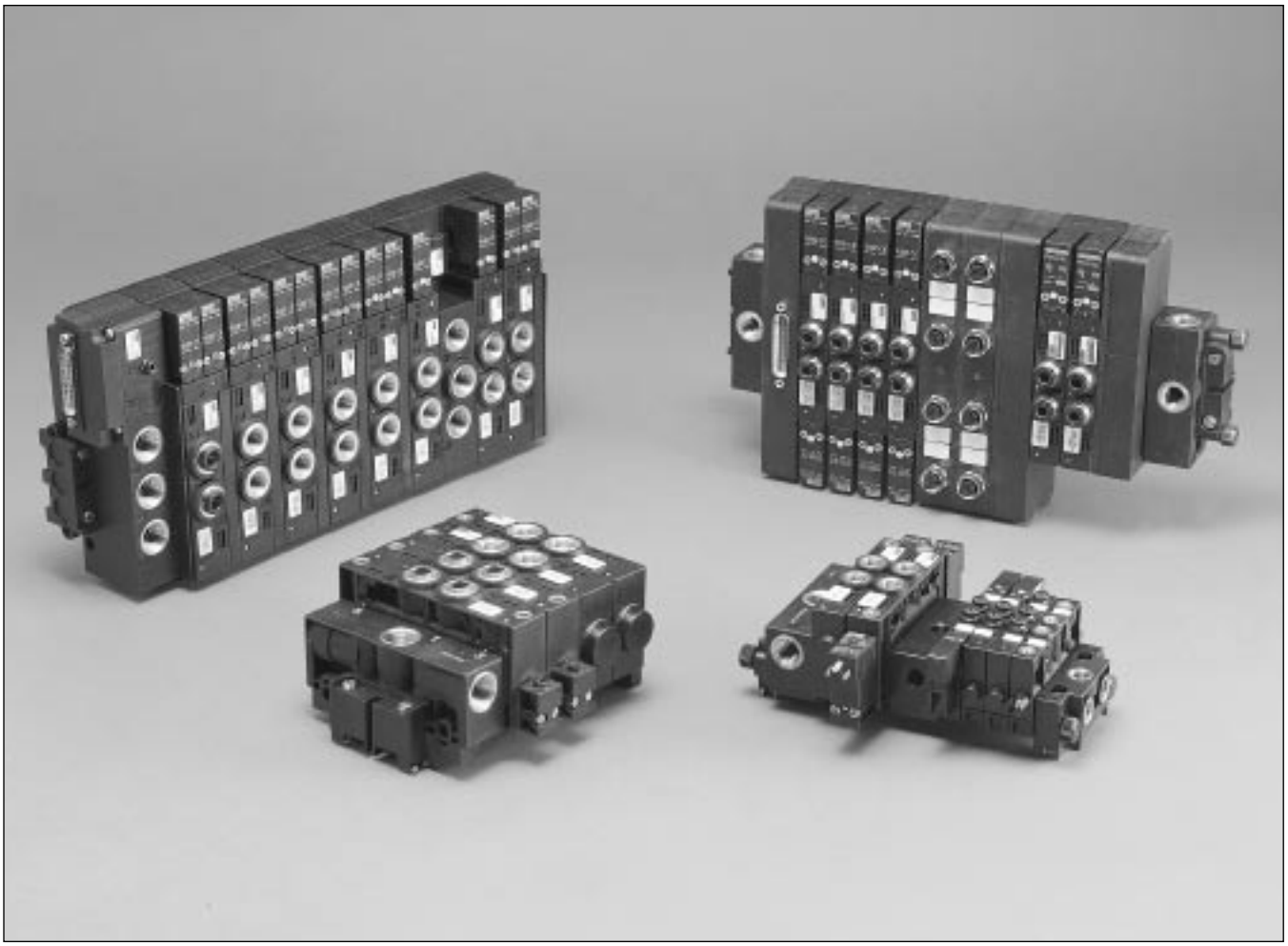
"PVL" Series

Solenoid & Remote Pilot Operated 1/8" & 1/4" Valves

Section E

www.parker.com/pneu/pvl

E



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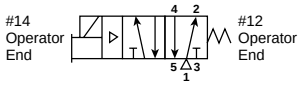
E

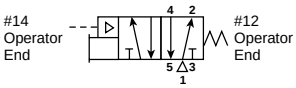
Single Solenoid
4-Way, 2-Position



De-energized position – Solenoid operator #14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Energized position – Solenoid operator #14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

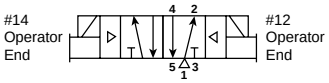
Single Remote Pilot
4-Way, 2-Position



Normal position – Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Operated position – Maintained air signal at port 14. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

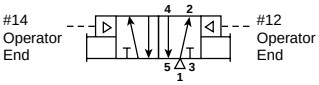
Double Solenoid
4-Way, 2-Position



Solenoid operator #14 energized last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Double Remote Pilot
4-Way, 2-Position



Momentary air signal at port 14 last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Double Solenoid
3-Position

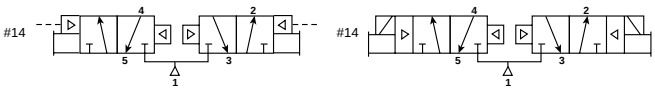
With #12 operator energized – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

With #14 operator energized – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

All Ports Blocked
All ports blocked in the center position.

Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Double Solenoid / Remote Pilot
Dual 3-Way, 2-Position NC (NNP)



With #14 & #12 operators both de-energized – pressure at inlet port 1 blocked, outlet port 4 connected to exhaust port 5, outlet port 2 connected to exhaust port 3.

With #14 operator energized – pressure at inlet port 1 connected to outlet port 4, exhaust port 5 blocked, outlet port 2 connected to exhaust port 3.

With #12 operator energized – pressure at inlet port 1 connected to outlet port 2, exhaust port 3 blocked, outlet port 4 connected to exhaust port 5.

With #14 & #12 operators both energized – pressure at inlet port 1 connected to outlet ports 4 & 2, exhaust ports 3 & 5 blocked.

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Application

The PVL Series stacking system permits assembly of several valves into one stack. Supply is connected at either a single or dual head / tail set.* Two common exhaust galleries are provided. Connections to outlet ports #2 and #4 on each valve can be accomplished by threaded pipe or instant tube fittings.

Electrical connection is made to each solenoid utilizing a 15mm, 3-Pin connector plug (PVLB & PVLC).

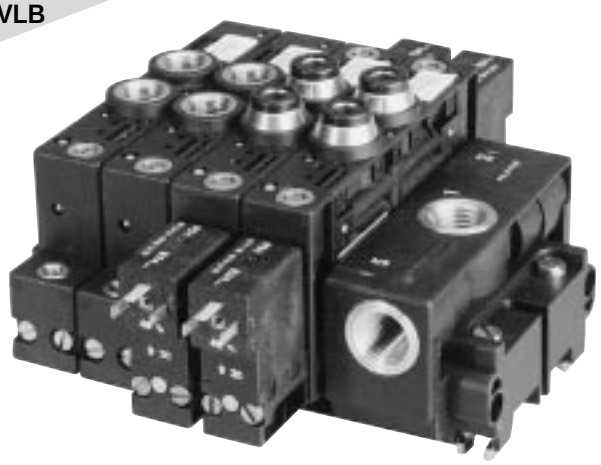
Each stack assembly can handle any combination of the following valve types:

- Single Solenoid
- Double Solenoid
- Single Remote Pilot
- Double Remote Pilot

Two valve sizes can be combined in one stack using a transition kit.

* For simultaneous operation of more than 5 valves, a dual head / tail set is recommended.

PVLB



Stack shows solenoid and remote pilot valves, threaded pipe ports, instant tube fittings, and a single supply head / tail set.

Features

- Greatly reduces installation costs.
- Reduces piping and the risk of leaks.
- Consolidates controls, saves space.
- Provides custom valving arrangements with standard components.
- Improves appearance of pneumatic equipment.
- Common main supply port.
- Allows for two common exhausts which can easily be plumbed away for cleanliness.
- Indicator lights and surge suppression available.
- Designed for 35mm DIN rail mounting. May be surface mounted by removing DIN rail clips.
- Servicing valves can be accomplished quickly without disassembling the entire stack or removing plumbing.

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Mounting on 35mm DIN Rail

Valve stacks mount quickly and easily to 35mm DIN rail with the use of a pneumatic head / tail set. The dual head / tail set provides input and exhaust ports at both ends and is recommended if more than 5 valves are to be operated simultaneously.

Surface Mounting

Stacks may be surface mounted by removing the 35mm DIN mounting hardware on the pneumatic head / tail set.

Removal or Replacement

Modules are removed in reverse of the order shown at right. Before removing a module for service or replacement, loosen the *pneumatic* tail piece.

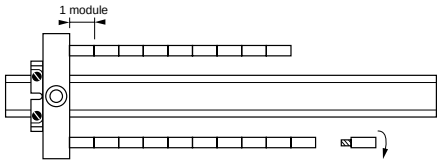
PVLB

Stack shows solenoid and remote pilot valves, threaded pipe ports, instant tube fittings, and a single supply head / tail set.

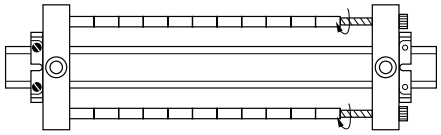
Mounting Procedure

1. Clip on and tighten the pneumatic head piece.

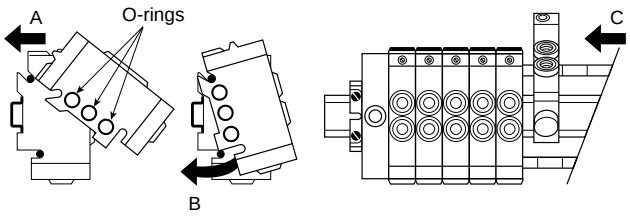
2. Assemble the two parallel mounting rods using cross rods provided with modules.



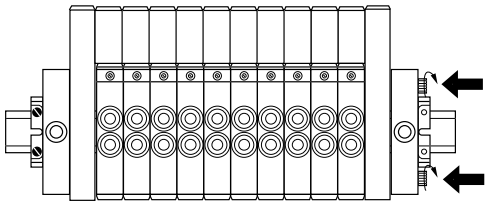
3. Clip on the pneumatic tail piece. Start screws into mounting rod but leave loose for module insertion.



4. To mount valves, position upper slot then push-lock lower slot. Mount modules (valves, modules, transition pieces, etc.) and press together.



5. Tighten the assembly.



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"PVLB" Series
"PVLC" Series

Specifications

- 4-Way, 5-Port, 2 or 3-Position Valves
- Single & Double Solenoid
- Single & Double Remote Pilot
- Dual 3/2

PVLB - .6 Cv

- 1/8" NPT & BSP
- 1/4" & 6mm Tube Porting

PVLC - 1.2 Cv

- 1/4" NPT & BSP
- 3/8" & 6mm Tube Porting

Mounting Style

- Stacking Manifold Valve
- DIN Rail Mounting (35mm)

Solenoid Pilot Actuation

- Continuous Duty Rated

PVLB, PVLC

- 1.2W - 12VDC & 24VDC
- 1.6VA - 24VAC, 120VAC, 240VAC
- 3-Pin, 15mm

Manual Overrides

- Brass Locking & Non-Locking

Operating Pressure

- 30 to 150 PSI (310 to 1035 kPa)

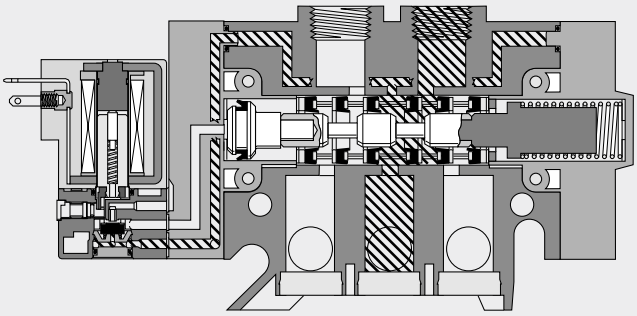
Operating Temperature

- 5°F to 140°F (-15°C to 60°C)

Certification / Approval

- Approved to be CE Marked
- UL (PVLB10 only)
- NFC 79 300

Note: DC units are polarity sensitive.



PVLB (1/8"), PVLC (1/4")
Shown De-Energized

Pressure **Exhaust**

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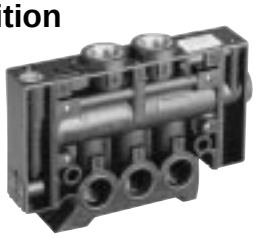
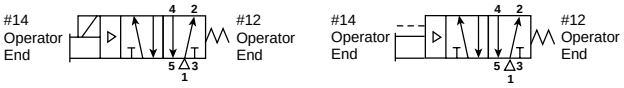
E

Single Solenoid / Remote Pilot
4-Way, 2-Position

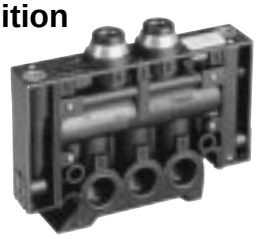


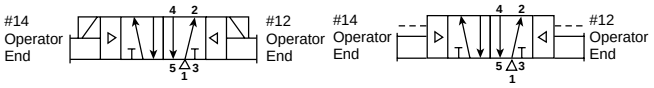


Valve Only			
PVLB	PVLB121618	1/8" BSP	0.6 Cv
	PVLB1216187	1/8" NPT	
	PVLB121606	6mm Tube	
	PVLB1216067	1/4" Tube	
PVLC	**PVLC1216197**	1/4" NPT	1.2 Cv
	PVLC1216097	3/8" Tube	

Locking Manual Override, Valve Less Solenoid.

Double Solenoid / Remote Pilot
4-Way, 2-Position

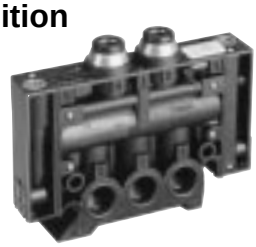


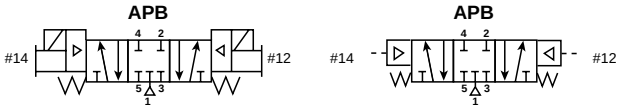


Valve Only			
PVLB	PVLB122618	1/8" BSP	0.6 Cv
	PVLB1226187	1/8" NPT	
	PVLB122606	6mm Tube	
	PVLB1226067	1/4" Tube	
PVLC	**PVLC1226197**	1/4" NPT	1.2 Cv
	PVLC1226097	3/8" Tube	

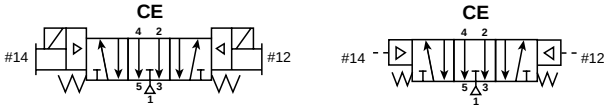
Non-Locking Manual Override, Valve Less Solenoid.

Double Solenoid / Remote Pilot
4-Way, 3-Position





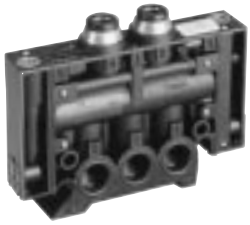
Valve Only			
PVLB	**PVLB1276187**	1/8" NPT	0.6 Cv
PVLC	**PVLC1276197**	1/4" NPT	1.2 Cv

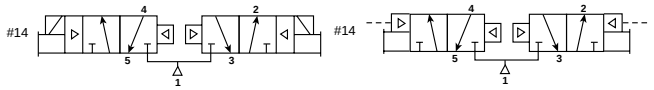


Valve Only			
PVLB	**PVLB1286187**	1/8" NPT	0.6 Cv
PVLC	**PVLC1286197**	1/4" NPT	1.2 Cv

Non-Locking Manual Override, Valve Less Solenoid.

Double Solenoid / Remote Pilot
Dual 3/2 Normally Closed





Valve Only			
PVLB	**PVLB1256187**	1/8" NPT	0.6 Cv
	PVLB1256067	1/4" Tube	
PVLC	**PVLC1256197**	1/4" NPT	1.2 Cv

Non-Locking Manual Override, Valve Less Solenoid.

NOTES:
Solenoids or Remote Pilot Adapter must be ordered separately from page E9.

Each valve is shipped with 2 tie rods for stacking assembly.

BOLD OPTIONS ARE MOST POPULAR.

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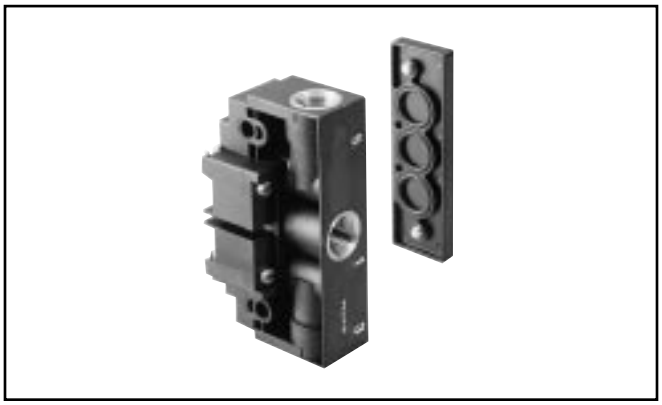
Single Supply Head / Tail Sets



Series	Model Number	Port Size
PVL	**PVLB17197**	1/4" NPT
	PVLB1719	1/4" BSP
PVLC**	**PVLC17137**	3/8" NPT
	PVLC1713	3/8" BSP

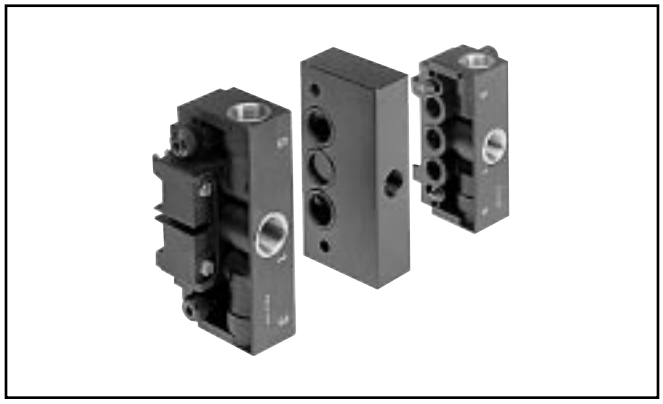
Kit includes: 1 Ported End (head) and 1 Blank End (tail) plus all necessary hardware.

* DIN rail mounting clips on both head and tail. Maximum stack length of 16 valves.

** ⚠ ***Caution:*** DIN rail mounting clips *on head piece only. Maximum stack length of 8 valves.*

Note: DIN rail mounting clips may be removed for surface mounting.

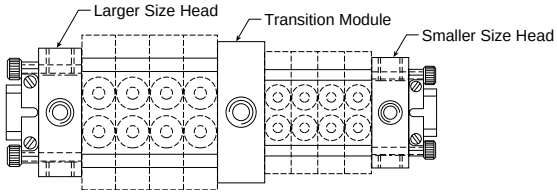
Transition Kits



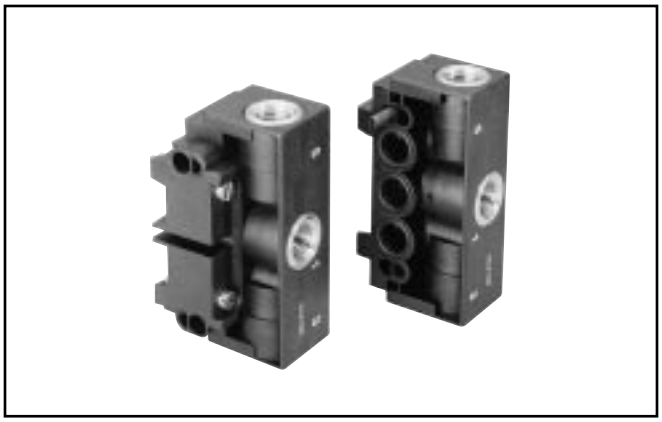
Combination	Model Number	Port Size
PVLB & PVLC	**PVULCB1197**	NPT
	PVULCB119	BSP

Kit enables valves of two different sizes to be combined in the same stack.

Kit includes: 2 Ported Heads (one for each valve size) and a Transition Module with an Auxiliary Supply Port. Maximum number of valves for each size is 16.



Dual Supply Head / Tail Sets

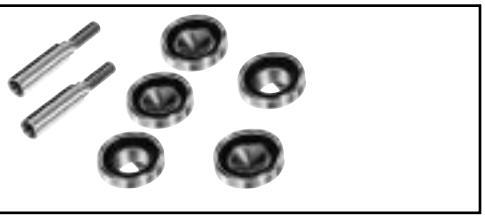


Series	Model Number	Port Size
PVLB	**PVLB17297**	1/4" NPT
	PVLB1729	1/4" BSP
PVLC	**PVLC17237**	3/8" NPT
	PVLC1723	3/8" BSP

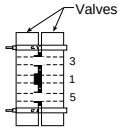
Kit includes: 2 Ported Ends (head and tail) plus all hardware.
Mounts to 35mm DIN rail at both ends.
Maximum stack length of 16 valves.

Note: DIN rail mounting clips may be removed for surface mounting.

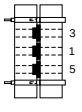
Pressure Isolation Kit



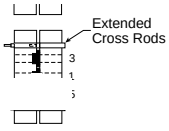
Assembly Instructions



Example 1: Two different pressures P1 and P2 can supply the same bank of power valves, the exhausts remaining common.



Example 2: Complete isolation of the commons in the same bank of power valves: main pressure and exhaust commons.



Example 3: The exhaust commons can be isolated within the same bank of power valves, while the main pressure supply remains common.

Series	Model Number	Kit includes:
PVLB	**PVLB1901**	3 isolation plugs, 2 open port plugs and 2 extended cross rods.
PVLC	**PVLC1901**	
PVLB	**PVLB1902**	10 isolation discs and 10 O-rings.
PVLC	**PVLC1902**	

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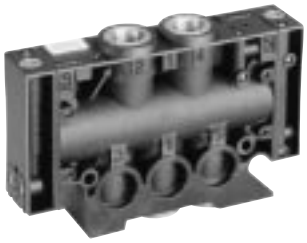
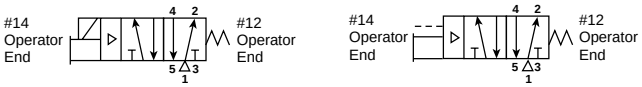
E

Single Solenoid / Remote Pilot
4-Way, 2-Position

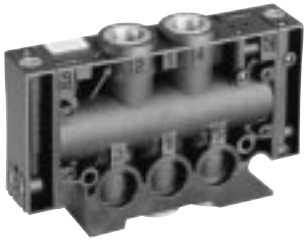


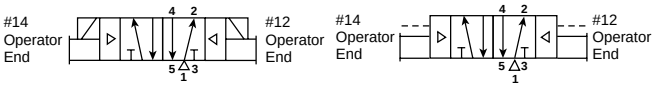


Valve Only			
PVLB	PVLB111618	1/8" BSP	0.6 Cv
	PVLB1116187	1/8" NPT	
	PVLB1116067	1/4" Tube	
PVLC	**PVLC1116197**	1/4" NPT	1.2 Cv
	PVLC1116097	3/8" Tube	

Solenoids or Remote Pilot Adapter must be ordered separately from page E9.

Double Solenoid / Remote Pilot
4-Way, 2-Position





Valve Only			
PVLB	PVLB112618	1/8" BSP	0.6 Cv
	PVLB1126187	1/8" NPT	
	PVLB1126067	1/4" Tube	
PVLC	**PVLC1126197**	1/4" NPT	1.2 Cv
	PVLC1126097	3/8" Tube	

Solenoids or Remote Pilot Adapter must be ordered separately from page E9.

NOTE: BOLD OPTIONS ARE MOST POPULAR.

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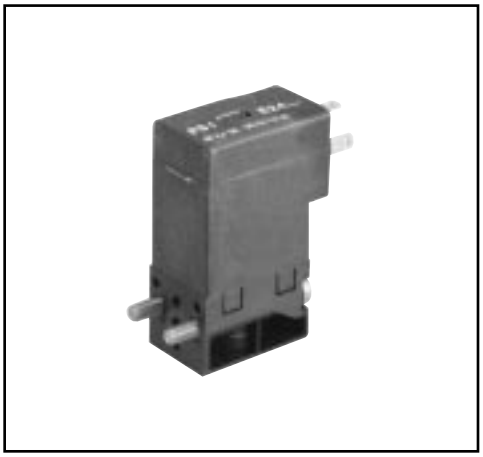
PVLB & PVLC 3-Pin,

15mm Solenoids, Non-Locking, Flush Override (w/o electrical connectors)



Voltage	8mm Pin Spacing Kit Number	8mm Pin Spacing Solenoid	9.4mm Pin Spacing Solenoid Replacement	Power Consumption
12VDC	**PS2982B45P**	**P2E-KV32B1**	**PS1E2492J**	1.2W
24VDC	**PS2982B49P**	**P2E-KV32C1**	**PS1E2492B**	1.2W
24V-50/60Hz	**PS2982B42P**	**P2E-KV31C1**	**PS1E2491B**	1.6VA
120V/60Hz	**PS2982B53P**	**P2E-KV31F1**	**PS1E2491F**	1.6VA
240V/60Hz	**PS2982B57P**	**P2E-KV31J1**	**PS1E2491M**	1.6VA

Notes:
Kit includes: solenoid, (2) machine screws, (2) self threading screws, (1) gasket, (1) 3-cell gasket.

Electrical connectors must be ordered separately from the chart shown on page E10.

E

Remote Pilot Connectors

PVLB (1/8") & PVLC (1/4") Valves

Model Number	Port Fitting
PVAP111	**5/32" Tube**
PVAP115	**10-32 UNF (M5)**

Supplied with two screws to quickly mate with the valve body.

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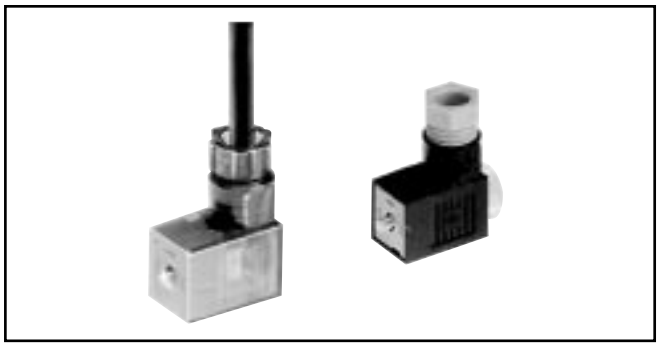
E

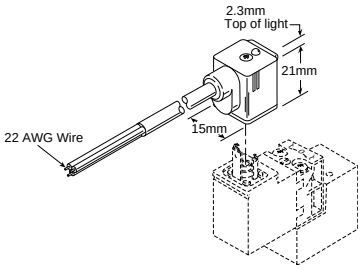
Replacement Plug-in Electrical Connectors - 9.4mm



Indication	Voltage	Unwired Plug	Plug with 6' Lead
None	N/A	**PESC10**	**PESC12**
LED & Suppression	12/24V	**PESC2020B**	**PESC2220B**
	120VAC	**PESC2001F**	**PESC2201F**

For use with 1.2W/1.6VA solenoids on PVLB (1/8") and PVLC (1/4") valves. These IP65 connectors use a maximum 20 AWG wire size or come pre-wired.

Female Electrical Connectors
15mm 3-Pin DIN 43650C - 8mm



**Molded 6'
Cord Shown**

Connector	Connector with Cord	Description
PS2932BP	PS2932HBP 18 Inches	Unlighted
PS2932BP	PS2932JBP 6 Feet	Unlighted
PS294675BP	PS2946J75BP* 6 Feet	Light – 12VAC or DC
PS294679BP	PS2946J79BP* 6 Feet	Light – 24VAC or DC
PS294683BP	PS2946J83BP* 6 Feet	Light – 110/120VAC
PS294687BP	N/A	Light – 240/230VAC

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

Engineering Data:
Conductors: 2 Poles Plus Ground
Cable Range (Connector Only): 4 to 6mm (0.16 to 0.24 Inch)
Contact Spacing: 8mm

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"PVLB10" Series
"PVLC10" Series

Specifications

- 4-Way, 5-Port, 2 or 3-Position Valves
- Single & Double Solenoid
- Dual 3/2 Valves

PVLB10 - 0.6 Cv

- 1/8" NPT & BSP
- 1/4" & 6mm Tube Porting

PVLC10 - 1.2 Cv

- 1/4" NPT & BSP
- 3/8" & 8mm Tube Porting

Mounting Style

- DIN Rail Mounting (35mm)
- Stacking Manifold Valve

Solenoid Pilot Actuation

PVLB10, PVLC10

- Low watt solenoid pilots: 1.2W/1.6VA
- Lights & Surge Suppression Standard
- 12VDC to 120VAC

Operating Pressure

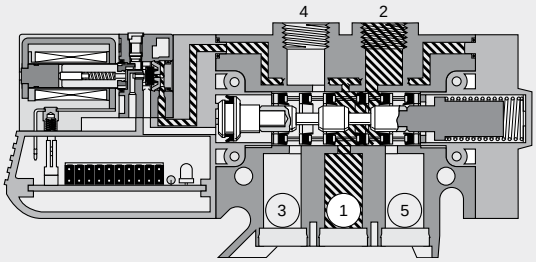
- 30 to 150 PSI (310 to 1035 kPa)

Operating Temperature

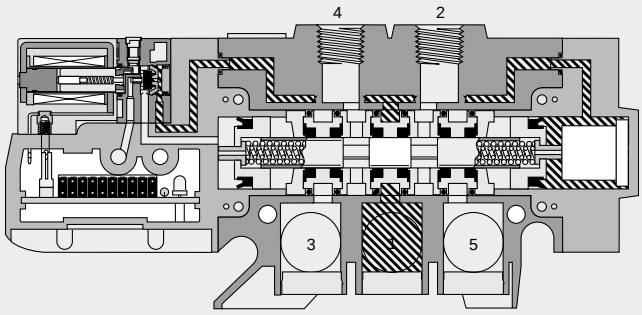
- 5°F to 140°F (-15°C to 60°C)

Certification / Approval

- Approved to be CE Marked
- IP65



PVLB10 Single Solenoid
Shown De-Energized



PVLC10 3-Position APB

Pressure **Exhaust**

Note: DC units are polarity sensitive.

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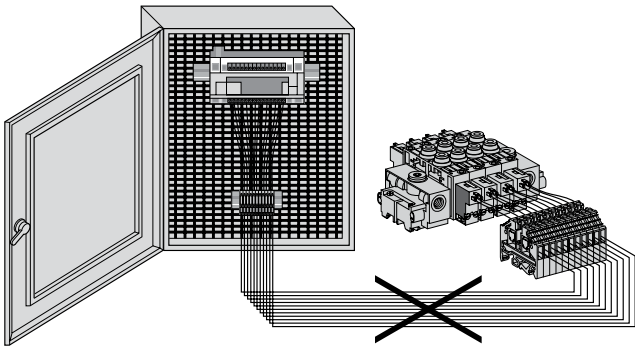
E

Simplified Electrical Wiring

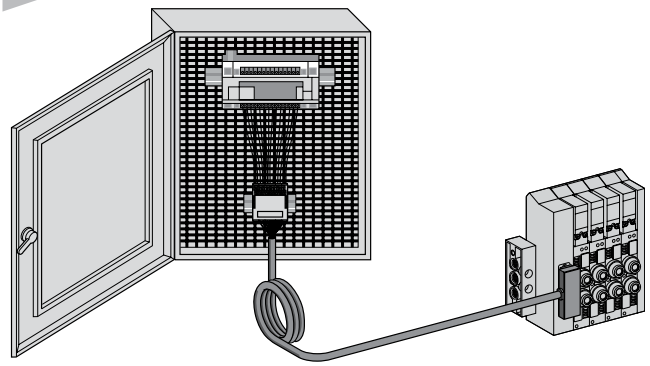
Eliminate costly wiring of individual solenoids with compact PVLB10 or PVLC10 stacks of up to 16 modules with built-in electrical connectors.



Simplified Setup

A single cable provides electrical connection to PLC or special terminal block.

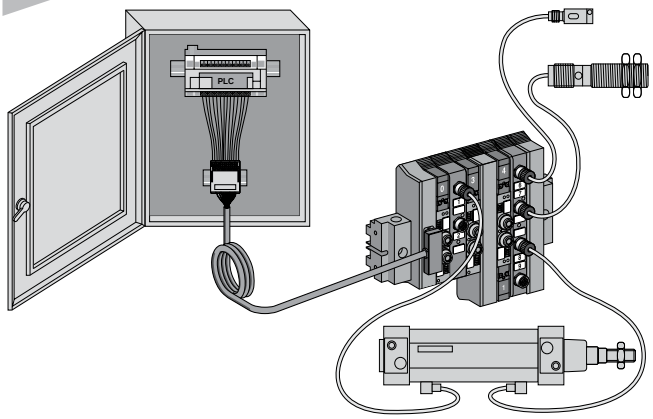
PVLB10



External Connections

External connection modules with PVLB10 valves allow sensor feedback or output connections to be integrated into the valve stack.

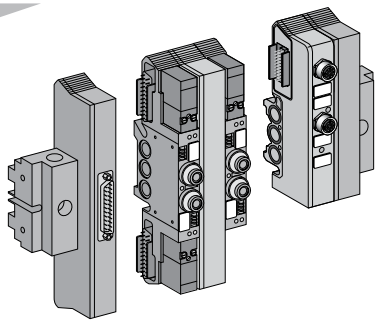
PVLB10



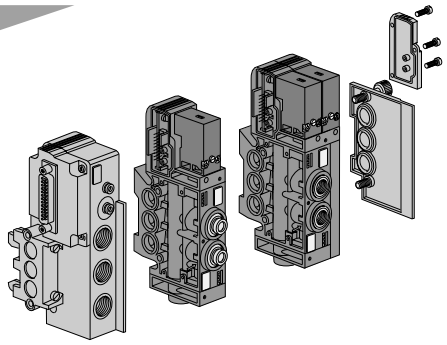
Modular Stacking

- The modular stacking system permits easy assembly of valves and external connection modules into a single stack.
- Integral supply and exhaust ports are manifolded as the stack is assembled.
- Intermodular electrical connection is accomplished through integral 20-Pin electrical connectors, eliminating the need for harnessing or wiring within the stack.
- PVLB10 single and double solenoid valves can be combined into one stack with the use of transition modules.
- PVLC10 single and double solenoid valves can be combined into one stack without any transition modules.
- The electrical head / tail set provides a single electrical connection from the stack to a PLC or terminal block.
- Each stack mounts easily to 35mm DIN rail by means of a pneumatic head / tail set, which also provides common air supply and exhaust.

PVLB10



PVLC10



Stacking System Benefits

- Reduces wiring, saves space.
- Allows custom arrangements with standard components.
- Further reduces wiring by integrating feedback and output connections into the PVLB10 valve stack.
- Greatly reduces installation time and costs.
- Servicing valves can be accomplished quickly without disassembling the entire stack.

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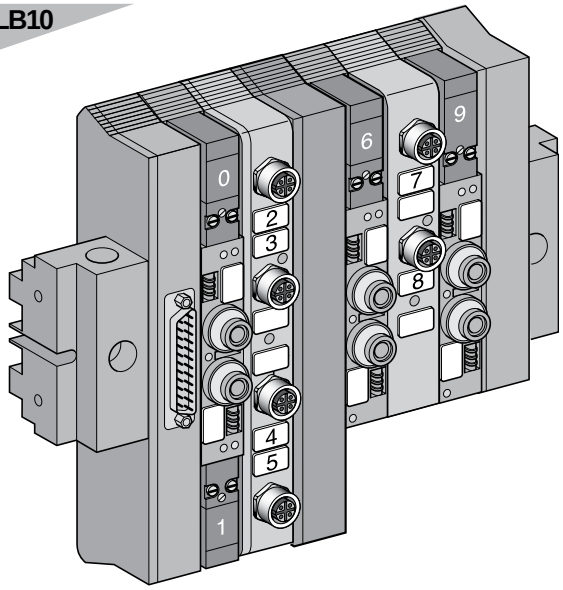
Autoconfiguration

The construction of the stack determines the relationship of each connector pin and the device it is to control. The address of each solenoid valve and each feedback or output connection is based on its physical position in the stack. For PVLB10, addresses are assigned consecutively from top to bottom and left to right beginning at top left with 0. For PVLC10, addresses are assigned consecutively from left to right and beginning at top left with 0.

PVLB10



It is easy to add or remove one or more modules to adapt to machine modifications. Once the controller is programmed, however, it is recommended that, where possible, the addition or permanent removal of any module be done at the tail (right-hand) end of the stack to prevent affecting the addresses of other modules in the stack. A change in address requires reprogramming of the controller.

Connector Options

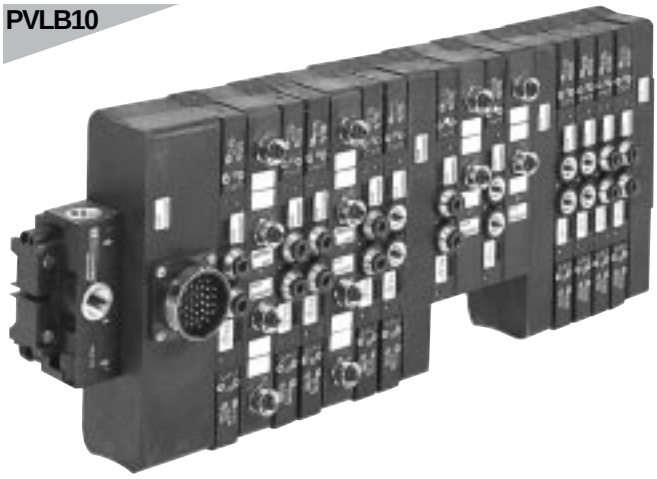
PVLB10

25-Pin Connector, Single Size Stack
Maximum 16 Addresses

PVLB10

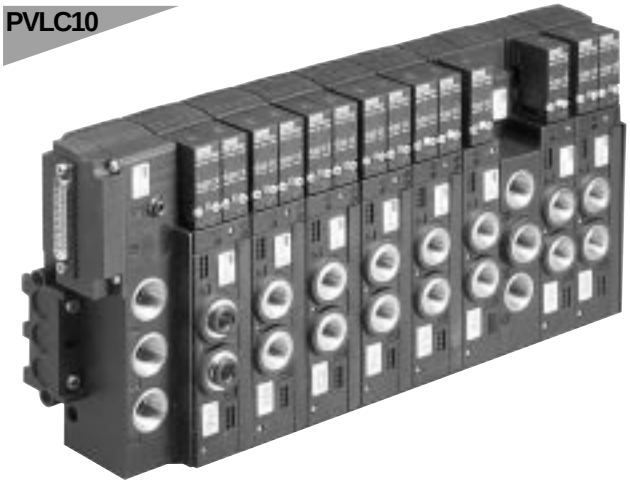
25-Pin Connector, Dual Size Stack
Maximum 21 Addresses

PVLB10



35-Pin Connector, Dual Size Stack
Maximum 32 Addresses

PVLC10



25-Pin Connector,
Maximum 16 Addresses

E

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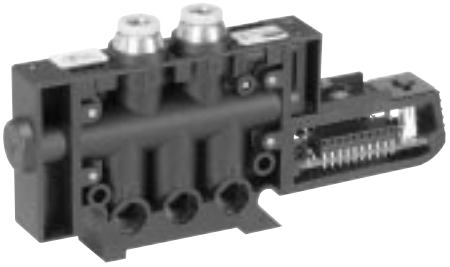
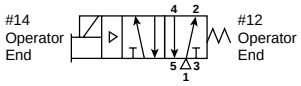
E

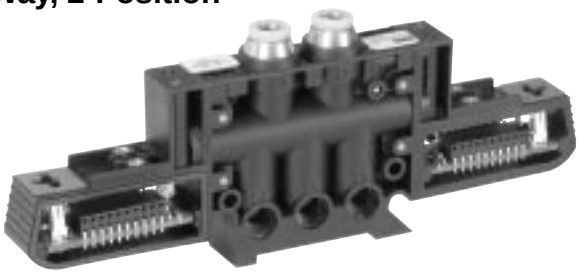
Single Solenoid
4-Way, 2-Position

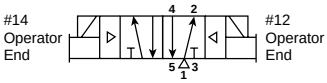




Valve Only				
PVLB10	**PVLB1016187W2**	1/8" NPT	12-24 VDC	0.6 Cv
	PVLB1016187W1		24-120 VAC	
	PVLB1016067W2	1/4" Tube	12-24 VDC	
	PVLB1016067W1		24-120 VAC	

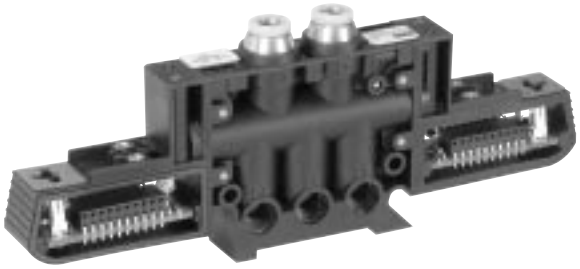
Double Solenoid
4-Way, 2-Position

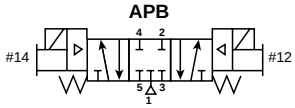




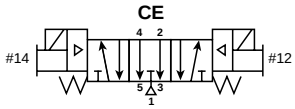
Valve Only				
PVLB10	**PVLB1026187W2**	1/8" NPT	12-24 VDC	0.6 Cv
	PVLB1026187W1		24-120 VAC	
	PVLB1026067W2	1/4" Tube	12-24 VDC	
	PVLB1026067W1		24-120 VAC	

Double Solenoid
4-Way, 3-Position APB



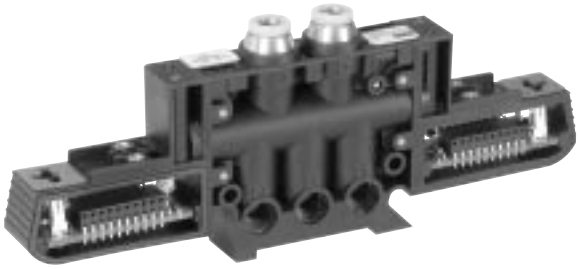


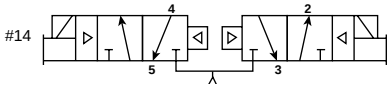
Valve Only				
PVLB10	**PVLB1076187W2**	1/8" NPT	12-24 VDC	0.6 Cv
	PVLB1076187W1		24-120 VAC	
	PVLB1076067W2	1/4" Tube	12-24 VDC	
	PVLB1076067W1		24-120 VAC	



Valve Only				
PVLB10	**PVLB1086187W2**	1/8" NPT	12-24 VDC	0.6 Cv
	PVLB1086187W1		24-120 VAC	
	PVLB1086067W2	1/4" Tube	12-24 VDC	
	PVLB1086067W1		24-120 VAC	

Double Solenoid
Dual 3/2 Normally Closed





Valve Only				
PVLB10	**PVLB1056187W2**	1/8" NPT	12-24 VDC	0.6 Cv
	PVLB1056187W1		24-120 VAC	

NOTES:
Solenoids sold separately on page E16.

Part Numbers Do Not include Solenoids.

BOLD OPTIONS ARE MOST POPULAR.

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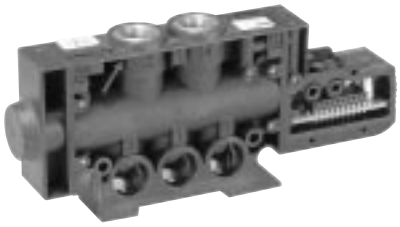
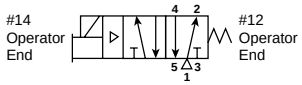
E

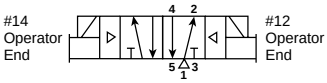
Single Solenoid
4-Way, 2-Position





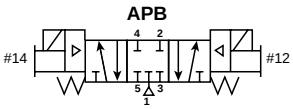
Valve Only				
PVLC10	**PVLC1016197W2**	1/4" NPT	12-24 VDC	1.2 Cv
	PVLC1016197W1		24-120 VAC	
	PVLC1016097W2	3/8" Tube	12-24 VDC	
	PVLC1016097W1		24-120 VAC	

Double Solenoid
4-Way, 2-Position

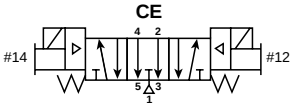


Valve Only				
PVLC10	**PVLC1026197W2**	1/4" NPT	12-24 VDC	1.2 Cv
	PVLC1026197W1		24-120 VAC	
	PVLC1026097W2	3/8" Tube	12-24 VDC	
	PVLC1026097W1		24-120 VAC	

Double Solenoid
4-Way, 3-Position APB

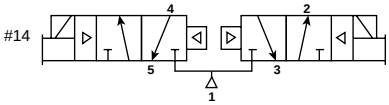


Valve Only				
PVLC10	**PVLC1076197W2**	1/4" NPT	12-24 VDC	1.2 Cv
	PVLC1076197W1		24-120 VAC	



Valve Only				
PVLC10	**PVLC1086197W2**	1/4" NPT	12-24 VDC	1.2 Cv
	PVLC1086197W1		24-120 VAC	

Double Solenoid
Dual 3/2 Normally Closed



Valve Only				
PVLC10	**PVLC1056197W2**	1/4" NPT	12-24 VDC	1.2 Cv
	PVLC1056197W1		24-120 VAC	

NOTES:

Solenoids sold separately on page E16.

Part Numbers Do Not include Solenoids.

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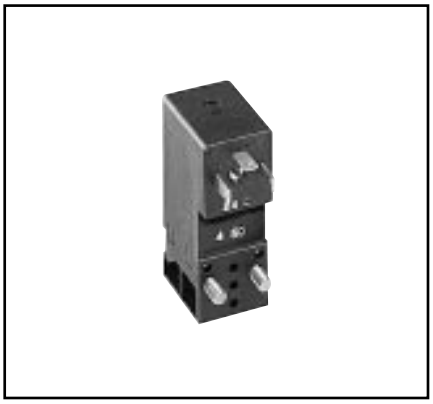
PVLB10 & PVLC10 3-Pin,
15mm Solenoids / Kits
(8mm Pin Spacing) DIN43650C



E

Voltages	Power Consumption	Holding Current	Id (Drop-Out Current)*	Kit Numbers With Non-Locking Flush Manual Override	Solenoid Only	Kit Numbers With Locking Flush Manual Override	Solenoid Only
12VDC	1.2W	100 mA	10 mA	**PS3441B45P**	**P2E-KS32B1**	**PS3441C45P**	**P2E-KS32B2**
24VDC	1.2W	50 mA	5 mA	**PS3441B49P**	**P2E-KS32C1**	**PS3441C49P**	**P2E-KS32C2**
24VAC	1.6VA	65 mA	22 mA	**PS3441B42P**	**P2E-KS31C1**	**PS3441C42P**	**P2E-KS31C2**
110VAC, 50Hz 120VAC, 60Hz	1.6VA	13.3 mA	5 mA	**PS3441B53P**	**P2E-KS31F1**	**PS3441C53P**	**P2E-KS31F2**

* When using a programmable controller, be sure that the leakage current of the controller outputs is lower than the drop-out current value.

Notes:
Kit includes: Solenoid, (2) machine screws, (2) self threading screws, (1) gasket, (1) 3-cell gasket, (1) L-shaped 3-cell gasket.

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Constructing a PVLB10 Stack

When constructing a stack, the following rules apply:

1. A stack must have a pneumatic and an electrical head / tail set.
2. A stack has a physical limit of 16 active modules (valves, feedback modules and output modules), regardless of whether they are double or single.
3. Single feedback and output modules must be stacked with single solenoid valves, and double feedback and output modules must be stacked with double solenoid valves.
4. Double and single modules can be combined in a stack with the use of a transition module. A stack order of double to single is recommended to maximize the number of possible addresses.

⚠ ***CAUTION:*** *If the application requires simultaneous operation of valves and/or external connection modules, see Technical Data page for operating limits.*

Addressing

Addresses are automatically assigned to each solenoid and each external connection based on its position in the stack. Addresses are numbered consecutively from top to bottom and left to right beginning at the top left of the stack with 0.

To find the total number of addresses that will be required for a stack, calculate the following for each type of module based on table below and total:

Addresses x Quantity of Units = Addresses Required

Type of Module	Addresses Assigned		Quantity In stack		Addresses Required
Double solenoid valve	2	x		=	
Double ck module	4	x		=	
Double output module	4	x		=	
Single solenoid valve	1	x		=	
Single feedback module	2	x		=	
Single output module	2	x		=	
TOTAL ADDRESSES				=	

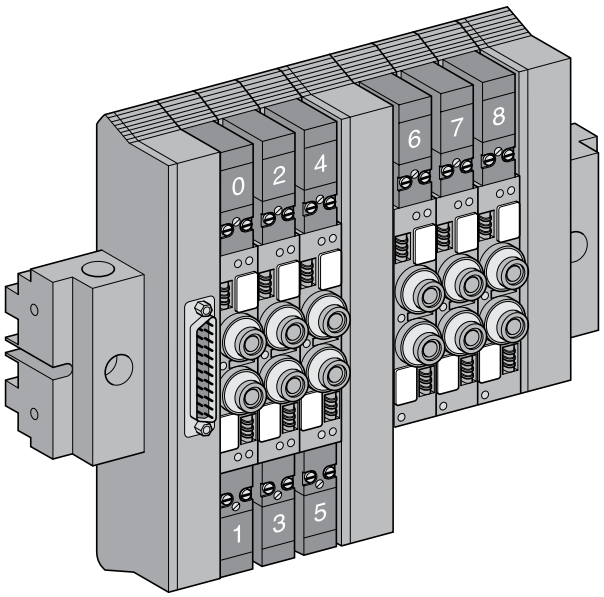
Electrical Connection

When selecting the electrical head / tail set, the following must be considered:

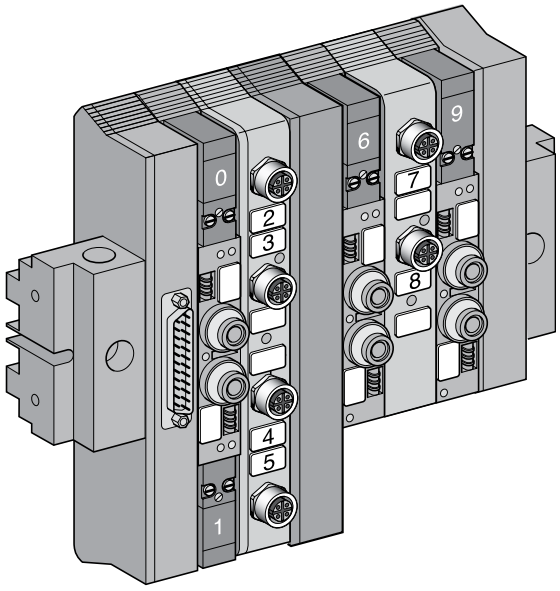
1. The size (double or single) of the electrical head piece must match that of the first module to its right.
2. The electrical connector must provide sufficient addresses for the stack.

The number of addresses possible with each type of head / tail set is shown in the following table. Based on the head type needed, select the connector that provides sufficient addresses for the stack.

PVLB10



Double to Single Valve Stack with 25-Pin Connector:
6 valves
9 addresses



Double to Single Mixed Stack with 25-Pin Connector:
5 active modules
10 addresses

Head Type	Connector	Possible Addresses
Single	25-Pin	16
Double	25-Pin	21
	35-Pin	32

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External Connection Modules

With 20-Pin intermodular system and 12mm (mini) connectors, these modules can be combined with valves and/or other modules. Feedback modules supply voltage to sensors and accept signals for communication back to the PLC. Feedback modules can be used for PNP or NPN sensors, indicator lights will only work on PNP sensors. Output modules allow connection and control of valves mounted externally from the stack.

Type	Size	Connections	Model Number
Feedback	Single	2 Inputs	**PVLB1E1302**
	Double	4 Inputs	**PVLB1E2304**
Output	Single	2 Outputs	**PVLB1S1302**
	Double	4 Outputs	**PVLB1S2304**

Double **Single**

Head / Tail Sets

Pneumatic

Single air supply head / tail are used for shorter manifolds and dual air supply head / tail are used for longer manifolds.

Dual air supply head / tail sets contains 2 ported ends plus all hardware. Clamps to 35mm DIN rail. Removing 35mm hardware provides mounting holes for surface mounting. Single air supply head / tail sets clamp on one side only, Dual air supply head / tail sets clamp on both sides.

Type	Port Size	Model Number
Single	1/4" NPT	**PVLB17197**
Supply	1/4" BSP	PVLB1719
Double	1/4" NPT	**PVLB17297**
Supply	1/4" BSP	PVLB1729

Single Air Supply Head / Tail Set

Dual Air Supply Head / Tail Set

Pressure Isolating Disc

Description	Model Number
Sold in lots of 10.	PVLB1902

Electrical

For use with single size stacks. Provides electrical link between all functions in the stack and the PLC.

Size	Connector	Model Number
Single	25-Pin (Male),D-Sub	**PVLB191125**
Double	25-Pin (Male),D-Sub	**PVLB192125**
	35-Pin (Male)	**PVLB192235**

Single Size Stacks

For use with dual size stacks. Provides electrical connection to PLC and transition between sizes.

Stack Order	Connector	Model Number
Double then Single	25-Pin (Male),D-Sub	**PVLB194125**
	35-Pin (male)	**PVLB194235**
Single then Double	25-Pin (Male),D-Sub	**PVLB193125**

Dual Size Stacks

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Input & Output Version

PVLBA3BA44

Description	Model Number
Head Module for Single Solenoid Valves with ASI, 4-Inputs and 4-Outputs	**PVLBA1BA44 - with M12 (Micro) Connection**
	PVLBA1BA44V - with Vampire Connection

Description	Model Number
Head Module for Single to Double Solenoid Valves with ASI, 4-Inputs and 4-Outputs. Use this module for Double Solenoid Valves. (Includes Transition Module)	**PVLBA3BA44 - with M12 (Micro) Connection**
	PVLBA3BA44V - with Vampire Connection

Description	Model Number
Auxiliary Head Module with ASI, 4-Inputs and 4-Outputs	**PVLBA5BA44**

Notes: If application requires control of 16 single solenoid (24VDC) PVLB10 valves and 16 inputs (PNP), select (1) PVLBA1BA44, (3) PVLBA5BA44 and the required air supply module. 4 ASI nodes are consumed.

If application requires control of 8 double solenoid (24VDC) PVLB10 valves and 16 inputs (PNP), select (1) PVLBA3BA44, (3) PVLBA5BA44 and the required air supply module. 4 ASI nodes are consumed.

Bus and power connection is through 4-Pin Micro (M12) single key male connectors or Vampire connection. Input connection is through 4-Pin Micro (M12) single key female connectors.

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Constructing a PVLC10 Stack

When constructing a stack, the following rules apply:

1. A stack must have a pneumatic and an electrical head / tail set.
2. A stack has a physical limit of 16 solenoids.
3. Single and double solenoid valves can be combined into one stack without any transition module.

⚠ ***CAUTION:*** *If the application requires simultaneous operation of valves and/or external connection modules, see Technical Data page for operating limits.*

E

Addressing

Addresses are automatically assigned to each solenoid and each external connection based on its position in the stack. Addresses are numbered consecutively from left to right beginning at the top left of the stack with 0.

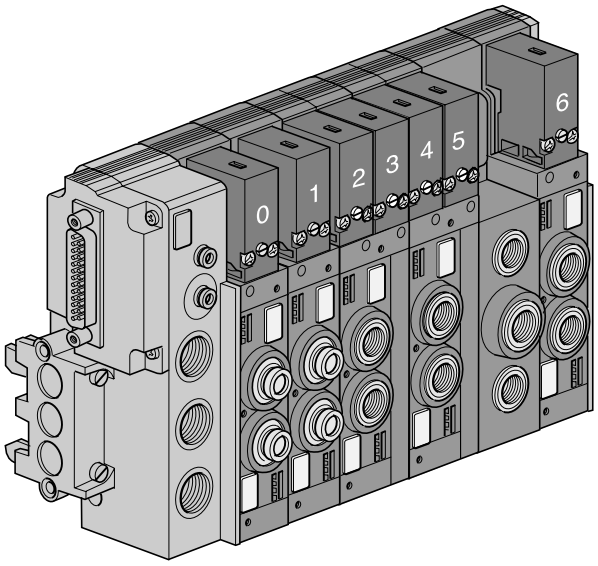
To find the total number of addresses that will be required for a stack, calculate the following for each type of module based on table below and total:

Addresses x Quantity of units = Addresses Required

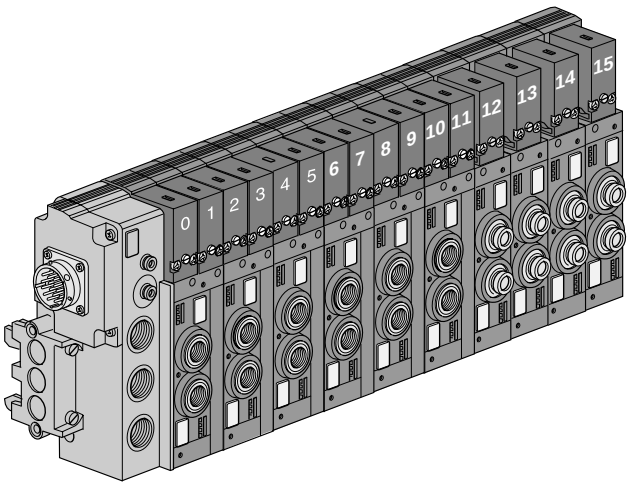
Type of Module	Addresses Assigned		Quantity In stack	Addresses Required
Double solenoid valve	2	x		=
Single solenoid valve	1	x		=
TOTAL ADDRESSES				=

Head Type	Connector Possible Addresses
25-Pin	16
19-Pin	16

PVLC10



25-Pin Connector with Intermediate Air Supply Module:
5 valves
7 addresses



19-Pin Connector:
10 valves
16 addresses

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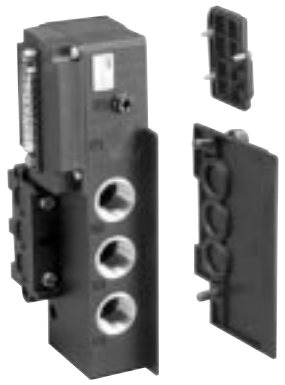
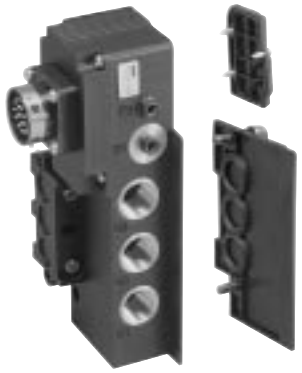
Head / Tail Sets
Electrical / Pneumatic

Port Size / Type	Connector	Model Number
3/8" NPT, Single	D-Sub, 25-Pin w/External Pilot (Px)	**PVLC27137D25A**
3/8" NPT, Single	D-Sub, 25-Pin w/o External Pilot (Px)	**PVLC17137D25A**
3/8" NPT, Single	Circular, 19-Pin w/o External Pilot (Px)	**PVLC17137C19A**



D-Sub, 25-Pin



Circular, 19-Pin

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Air Supply Modules

Tail Air Supply Module to be mounted at the end of the manifold for dual air supply for longer manifolds.

Intermediate Air Supply Module used when multiple pressures are required on a manifold.

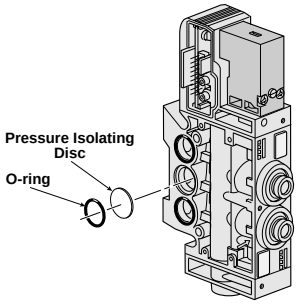
Port Size / Type	Tail Air Supply Module	Intermediate Air Supply Module
3/8" NPT	**PVULC2137**	**PVULC2137E**
3/8" BSP	PVULC213	PVULC213E

Tail Air Supply Module

Intermediate Air Supply Module

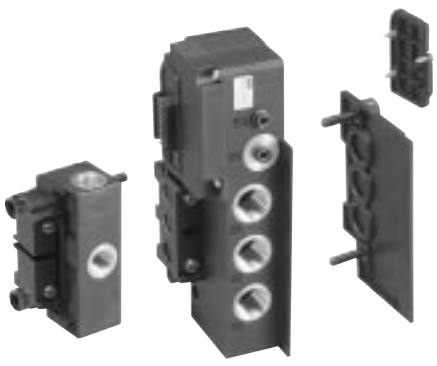
Pressure Isolating Disc

Description	Model Number
Sold in lots of 10	**PVLC1902**



Transition Kits
(PVLB10 to PVLC10)

Port Size / Type	Connector	Model Number
1/4" NPT to 3/8" NPT	Transition Kit with External Pilot (Px)	**PVLC27137B19**
1/4" NPT to 3/8" NPT	Transition Kit without External Pilot (Px)	**PVLC17137B19**
1/4" BSP to 3/8" BSP	Transition Kit with External Pilot (Px)	PVLC2713B19
1/4" BSP to 3/8" BSP	Transition Kit without External Pilot (Px)	PVLC1713B19



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Input & Output Version

PVLBA1BA44

Description	Model Number
Head Module with ASI 4-Inputs and 4-Outputs	**PVLBA1BA44 - with M12 (Micro) Connection**
	PVLBA1BA44V - with Vampire Connection

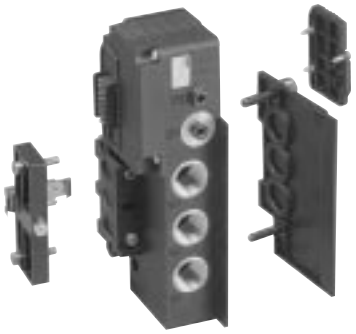
Description	Model Number
Auxiliary Head Module with ASI, 4-Inputs and 4-Outputs	**PVLBA5BA44**

Note: If application requires control of 16 single or 8 double solenoid (24VDC) PVLC10 valves 16 inputs (PNP), select (1) PVLBA1BA44, (3) PVLBA5BA44 and the required Air Supply Module. 4 ASI nodes are consumed. Bus and external power connection is through 4-Pin Micro (M12) single key male connectors or Vampire connection. Input connection is through 4-Pin Micro (M12) single key female connectors.

Air Supply Module for Serial Bus Communication

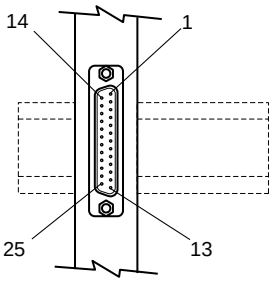
This module is required when using a Bus Communication Head Module.

Port Size / Type	Connector	Model Number
3/8" NPT	Air Supply Module with External Pilot (Px)	**PVLC27137B**
3/8" NPT	Air Supply Module without External Pilot (Px)	**PVLC17137B**



D-Sub, 25-Pin Single Size Head / Tail Set

Pin No.	Stack Address	Pin No.	Stack Address
13	0	8	10
25	1	20	11
12	2	7	12
24	3	19	13
11	4	6	14
23	5	18	15
10	6	5	Not Used
22	7	17	24V (feedback) (PVBL10)
9	8	4	0V (feedback) (PVBL10)
21	9	16	Common 0v



D-Sub, 25-Pin Double Size Head / Tail Set*

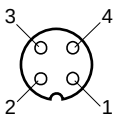
Pin No.	Stack Address	Pin No.	Stack Address
13	0	19	13
25	1	6	14
12	2	18	15
24	3	5	Not Used
11	4	17	24V (feedback)
23	5	4	0V (feedback)
10	6	16	Common 0v
22	7	3	16
9	8	15	17
21	9	2	18
8	10	14	19
20	11	1	20
7	12		

Feedback Connector*

Pin No.	I/O
1	24V (feedback)
2	—
3	0V (feedback)
4	Input

Output Connector*

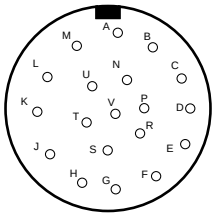
Pin No.	I/O
1	—
2	—
3	Common 0v
4	Output



Notes: Solenoids are polarity sensitive. The common must be at 0V. Switching must be at the high potential.

* Available with PVLB10 Only

19-Pin Circular Connector†

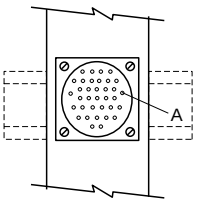


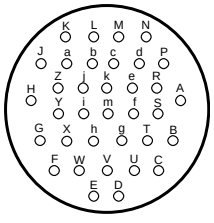
Pin No.	Stack Address
A	0
B	1
C	2
D	3
E	4
F	5
G	6
H	7
J	8
K	9
L	10
M	11
N	12
P	13
R	14
S	15
T	Common 0V
U	Not Used
V	Not Used

† Available with PVLC10 Only

Cylindrical, 35-Pin type "Trident Ringlock" Double Size Head / Tail Set*

Pin No.	Stack Address	Pin No.	Stack Address
A	0	V	18
B	1	W	19
C	2	X	20
D	3	Y	21
E	4	Z	22
F	5	a	23
G	6	b	24
H	7	c	25
J	8	d	26
K	9	e	27
L	10	f	28
M	11	g	29
N	12	h	30
P	13	i	31
R	14	j	Common 0V
S	15	k	0V (feedback)
T	16	m	24V (feedback)
U	17		





* Available with PVLB10 only.

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Operating Pressure Range:

Single Pilot ..... 45 to 150 psi (311 to 1035 kPa)
Double Pilot..... 30 to 150 psi (207 to 1035 kPa)

Temperature Range (Ambient)

Operating ..... 5° to 140°F (-15° to 60°C)
Storage..... -40° to 158°F (-40° to 70°C)

⚠ ***CAUTION:***
If it is possible that the ambient temperature may fall below freezing, the medium must be moisture free to prevent internal damage or unpredictable behavior.

Medium:..... Dry or lubricated air or inert gas

Medium Quality:

PVLB & PVLC..... Dry or lubricated air at 50 micron filtration

Materials:

Body .....Glass filled polyamide
Seals .....Polyurethane
Fittings.....Brass

Mounting:

Inline.....Surface mount on flat surface
Stacking .....Mount on 35mm DIN rail or flat surface

Mounting Orientation: .....All positions

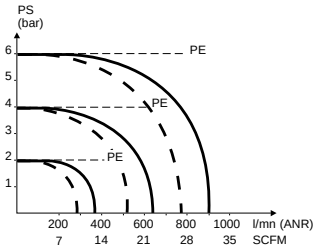
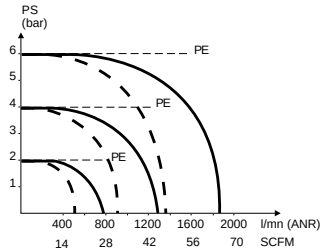
Manual Overrides:..... Locking or non-locking

Lubrication

Valves are pre-lubricated and may be operated with dry air. If lubrication is desired, use F442 oil.

Cycle Life:..... 30 million (dry air)

Specific Characteristics

Description		1/8" Valves (PVLB) (PVLB10)		1/4" Valves (PVLC) (PVLC10)	
Cv		0.6		1.2	
Flow Rates —— Threaded connector – – – Instant tube fitting PE = input pressure PS = output pressure					
Port Sizes	Instant tube fitting	1/4"		3/8"	
	Threaded	1/8" Pipe		1/4" Pipe	
Maximum Valve Fitting Torque		7.4 ft-lb (10Nm)		14.8 ft-lb (20Nm)	
Head / Tail Port Size / Max. Torque		1/4" Pipe / 14.8 ft-lb (20Nm)		3/8" Pipe / 40.6 ft-lb (55Nm)	
For Air Operated Valves:		**Single Acting**	**Double Acting**	**Single Acting**	**Double Acting**
Response Time (Input to Output)*		14 ms	8 ms	25 ms	11 ms
Pilot Pressure (@ 90 PSIG Inlet)		44 PSI	29 PSI	44 PSI	29 PSI
Depilot Pressure (@ 90 PSIG Inlet)		15 PSI	—	22 PSI	—
Maximum Operating Frequency		5 Hz	10 Hz	5 Hz	10 Hz
For Solenoid Operated Valves:		**Single Acting**	**Double Acting**	**Single Acting**	**Double Acting**
Response Time (Input to Output)*		22 ms	12 ms	39 ms	17 ms
Maximum Operating Frequency		5 Hz	10 Hz	5 Hz	10 Hz
Power Consumption Hold		DC = 1.2 Watt, AC = 1.6VA		DC = 1.2 Watt, AC = 1.6VA	
Power Consumption Inrush		DC = 1.2 Watt, AC = 3.5VA		DC = 1.2 Watt, AC = 3.5VA	
Voltage Tolerance		+10% to -15% rated voltage @ 70° F (20° C)		+10% to -15% rated voltage @ 70° F (20° C)	
Standard Voltages		12 and 24 VDC 24 and 120 VAC		12 and 24 VDC 24 and 120 VAC	
Rated Insulation Voltage		1500 Volts		1500 Volts	
Protection Rating		IP65		IP65	
Standards		(UL) (except 240 VAC) and NFC 79 300			

* Valves tested with test chamber at 90 PSIG inlet pressure.

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Electrical Characteristics

Standard Voltages:

Solenoid ..... DC = 12 and 24
AC = 24V 50/60 Hz and 120V 60 Hz

Feedback module.....24VDC (designed for sourcing sensor)

Output module.....24VDC

Voltage Tolerance:

+10% to -15% of rated voltage @ 70° F (20° C)

Power Consumption (Solenoid):

Hold .....DC = 1.2W.....AC = 1.6VA
Inrush .....DC = 1.2W.....AC = 3.5VA

Rated Currents (Solenoid)

Voltage	Holding Current	I_d (Drop-out Current)*
12VDC	100 mA	10 mA
24VDC	50 mA	5 mA
48VDC	25 mA	2.5 mA
24VAC	65 mA	22 mA
120VAC	13.3 mA	5 mA

* When using a programmable controller, be sure that the leakage current of the controller outputs is lower than the drop-out current value.

Maximum Allowable Currents:

Stack = 1000 mA (1 Amp)
Output module = 1000 mA (1 Amp)
Feedback Module = 100 mA (supply + load)

Indication:

By LED – one for each stack address

PVLB10 External Connection:

Round connector M12

Protection Rating..... IP65

⚠ Simultaneous Operation

Some applications require simultaneous use of devices during setup or operation. Under normal single device operation, reliability can be assured by staying within the stated "Maximum Allowable Currents". During simultaneous operation, however, the currents for each device must be added together with the total current not exceeding the 1000 mA (1 Amp) rating for the stack (example: only ten 12VDC solenoids can be operated simultaneously because their total accumulated current = 1000 mA). This is especially true for any connected external load when using the output module. While each output module is rated for 1000 mA, simultaneous operation of this load will reduce this rating. Calculate maximum available current for any externally connected load during simultaneous operation according to the following formula:

Available Current = 1,000 mA - simultaneous current*

* Add all solenoid currents based on system voltage and any other external load operating simultaneously.

Type of Device	Current Required		Quantity (simultaneous)		Current Used
Solenoid	_____	mA(1) x	_____	=	_____ mA
External Load(2)	_____	mA(3) x	_____	=	_____ mA
Total Required Current				=	_____ mA(4)

(1) Depending on system voltage (see "Rated Currents").

(2) Feedback modules use a separate common so are not used for this calculation, but total feedback current cannot exceed 1000 mA (1 Amp).

(3) Depending on device connected to the output module. Use rated current (mA) for device or calculate: mA = Watts/Volts x 1000.

(4) Must not exceed 1000 mA (1 Amp).

ASI Bus Module Specifications

ASI Bus Supply Voltage:
29.5 to 31.6VDC

Bus and Power Connector on Head Module:
(M12) Micro 4-Pin Single Key Connector

Bus Connector Protection
Miswiring Protection

External Power Supply Voltage:
21.6 to 26.4VDC
(For solenoids only)

EMC Protection:
IEC 801-2 level 3
IEC 801-3 level 3
IEC 801-4 level 3

Identification Code:
8.F

Input Connector on Head Module
(M12) Micro 4-Pin Single Key Female Connector

Input Type:
PNP

Number of Inputs:
4 to 16 Max.

4 ASI nodes are used when controlling 16 outputs and 16 inputs.

Number of Outputs:
4 to 16 Max.

4 ASI nodes are used when controlling 16 outputs and 16 inputs.

Protection Level:
IP65 (Washdown)

Shock:
IEC 68-2-27 15g 11 ms

Short Circuit Protection:
Diagnostic by LED

Solenoid Supply Voltage:
21.6 to 26.4VDC

Storage Temperature:
-40°F to 158°F
(-40°C to 70°C)

Working Temperature:
32°F to 130°F
(0°C to 55°C),
Intermittent Duty
(60% Rating)

32°F to 104°F
(0°C to 40°C),
Continuous Duty
(100% Rating)

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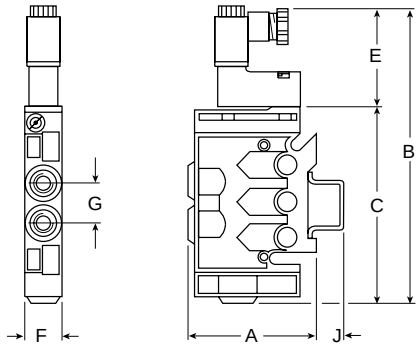
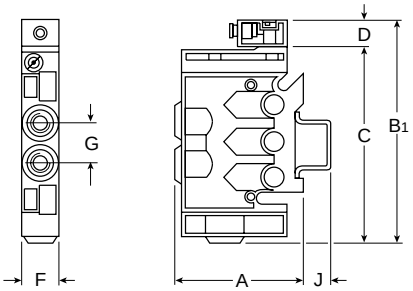
PVLB Valves

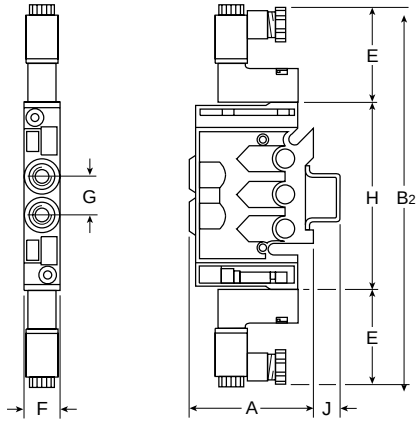
Single Solenoid



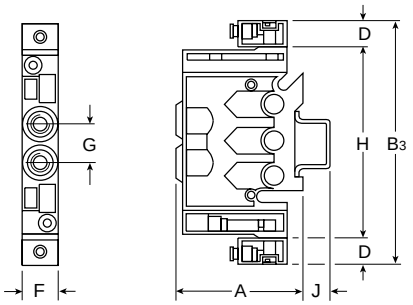
Single Remote Pilot



Double Solenoid



Double Remote Pilot



Dimensions

A (Inline Pipe)	2.40 (61)
A (Inline Tube)	2.80 (71)
A (Stacking Pipe)	2.40 (61)
A (Stacking Tube)	2.68 (68)

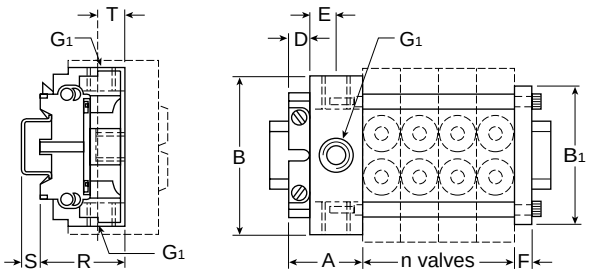
B	**B1**	**B2**	**B3**	**C**
5.91 (150)	4.25 (108)	7.91 (201)	4.60 (117)	3.74 (95)
D	**E**	**F**	**G**	**H**
.51 (13)	2.17 (55)	.71 (18)	.79 (20)	3.58 (91)
J				
.47 (12)				

Inches (mm)

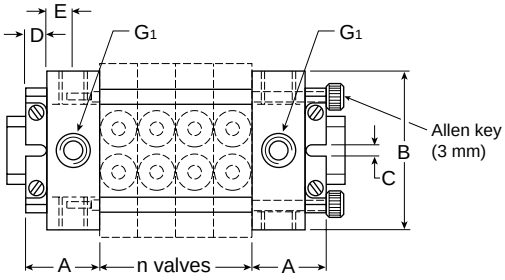
1/8" Pipe or 1/4" tube or 6mm tube for main ports.

Stacking System – PVLB

Single Air Supply



Double Air Supply



Dimensions

A	**B**	**B1**	**C***	**D**
1.50 (38)	3.27 (83)	2.76 (70)	.17 (4.2)	.39 (10)
E	**F**	**G1**	**R**	**S**
.47 (12)	.31 (8)	1/4"	1.73 (44)	.35 (9)
T				
.43 (11)				

Inches (mm)

* Clearance for #6 screw.

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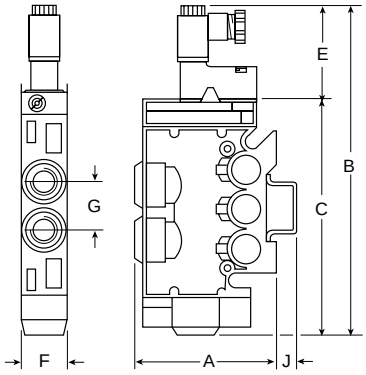
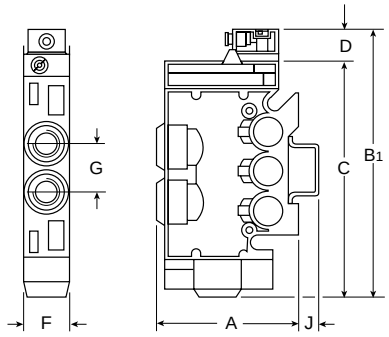
PVLC Valves

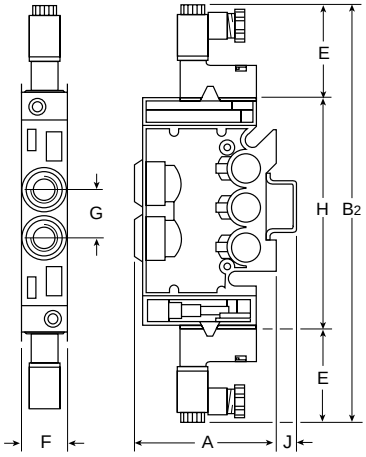
Single Solenoid



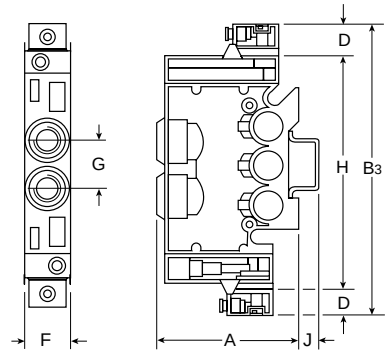
Single Remote Pilot



Double Solenoid



Double Remote Pilot



Dimensions

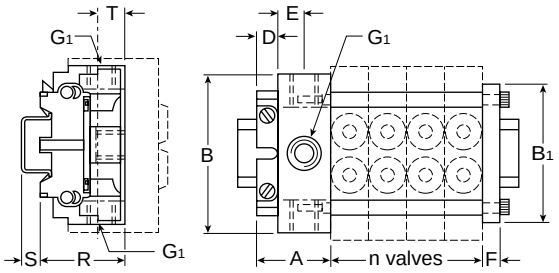
A (Inline Pipe)	2.87 (73)			
A (Inline Tube)	3.66 (93)			
A (Stacking Pipe)	2.87 (73)			
A (Stacking Tube)	3.27 (83)			
B 7.00 (178)	**B1** 5.35 (136)	**B2** 8.94 (227)	**B3** 5.62 (143)	**C** 4.84 (123)
D .51 (13)	**E** 2.17 (55)	**F** .98 (25)	**G** 1.00 (26)	**H** 4.61 (117)
J .43 (11)				

Inches (mm)

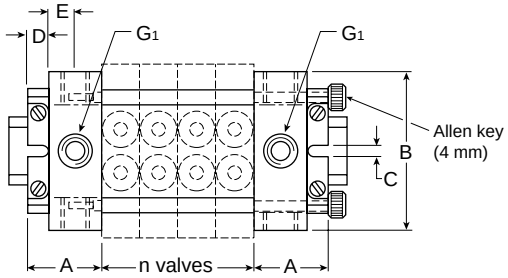
1/4" Pipe or 3/8" tube or 8mm tube for main ports.

Stacking System – PVLC

Single Air Supply



Double Air Supply



Dimensions

A 1.50 (38)	**B** 4.25 (108)	**B1** 3.94 (100)	**C*** .17 (4.2)	**D** .39 (10)
E .47 (12)	**F** .31 (8)	**G1** 3/8"	**R** 2.17 (55)	**S** .35 (9)
T .51 (13)				

Inches (mm)

* Clearance for #6 screw.

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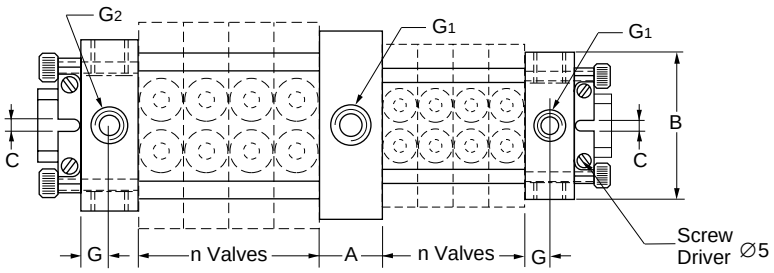
E

Transition Kits – PVLB & PVLC Valves



Dimensions

A	B	C	G	G1
.98 (25)	3.94 (100)	.17 (4.2)	.47 (12)	1/4"
G2 3/8"				

Inches (mm)

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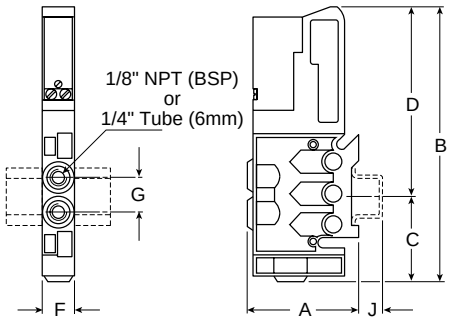
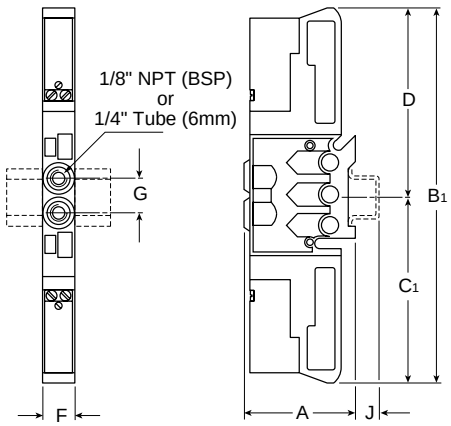
Single Solenoid



Double Solenoid



Dimensions

A (Inline Pipe)	2.87 (73)
A (Inline Tube)	3.66 (93)
A (Stacking Pipe)	2.87 (73)
A (Stacking Tube)	3.27 (83)

B	**B1**	**C**	**C1**	**D**
5.43 (138)	6.97 (177)	1.93 (49)	3.46 (88)	3.50 (89)

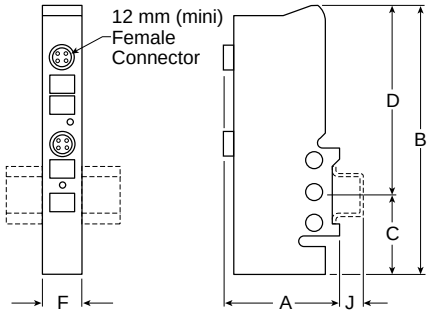
F	**G**	**J**
.71 (18)	.79 (20)	.47 (12)

Inches (mm)

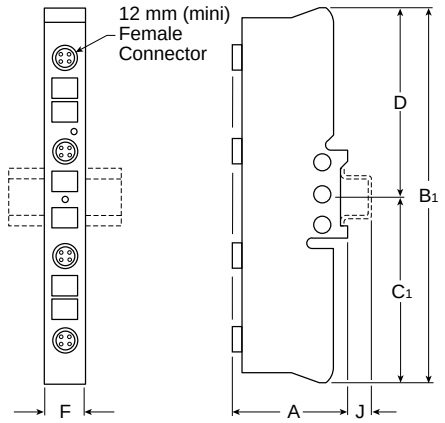
E

External Connection Modules

Single



Double



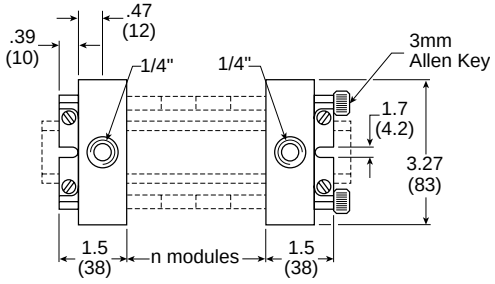
Dimensions

A	**B**	**B1**	**C**	**C1**
2.72 (69)	5.31 (135)	6.97 (177)	1.81 (46)	3.46 (88)

D	**F**	**J**
3.50 (89)	.87 (22)	.47 (12)

Inches (mm)

Pneumatic Head / Tail Set



To calculate stack length, add the width of the pneumatic and electrical head / tail sets plus (quantity x width) for each type of active module. Widths shown in inches (mm).

Module	Qty		Width		Total Width
Pneumatic head / tail set	1	x	3.00" (76)	=	3.00" (76)
Electrical head / tail set:	1	x		=	
Select 25-Pin head / tail			*1.73" (44)*		
or 25-Pin w/transition			*2.60" (66)*		
or 35-Pin head / tail			*2.76" (70)*		
or 35-Pin w/transition			*3.62" (92)*		
Valves		x	.71" (18)	=	
Feedback/output modules		x	.87" (22)	=	
TOTAL STACK LENGTH				=	

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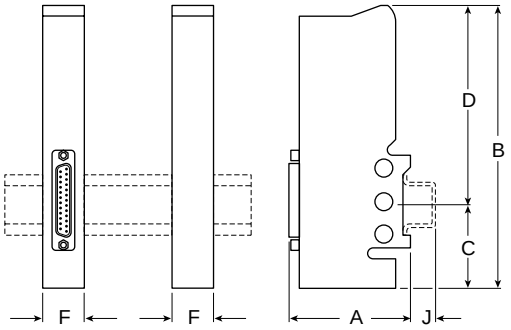
E

Electrical Head / Tail Sets*

Single Stack D-Sub, 25-Pin Connector



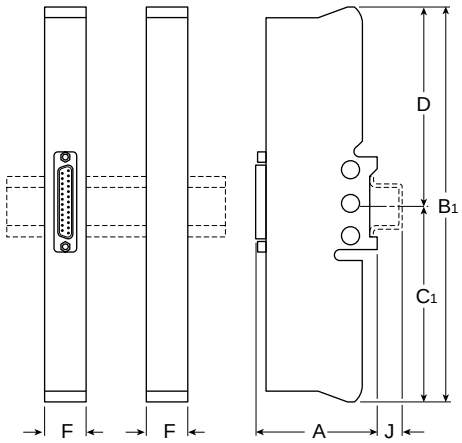
* When the stack contains both single and double modules, you must use a head / tail set that includes a size transition module (shown below).

Dimensions

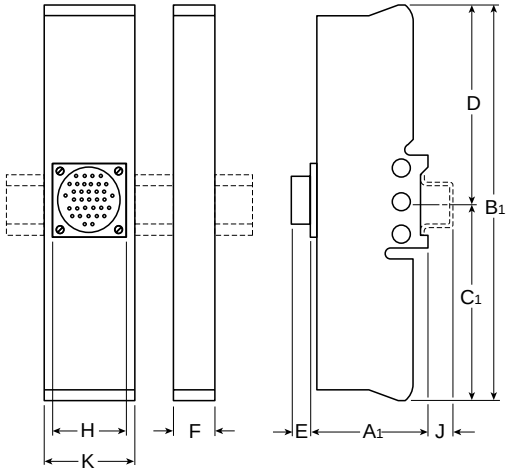
A	A_1	B	B_1	C
2.48 (63)	2.40 (60)	5.31 (135)	6.97 (177)	1.81 (46)
C_1	**D**	**E**	**F**	**H**
3.46 (88)	3.50 (89)	.39 (10)	.87 (22)	1.57 (40)
J	**K**			
.47 (12)	1.89 (48)			

Inches (mm)

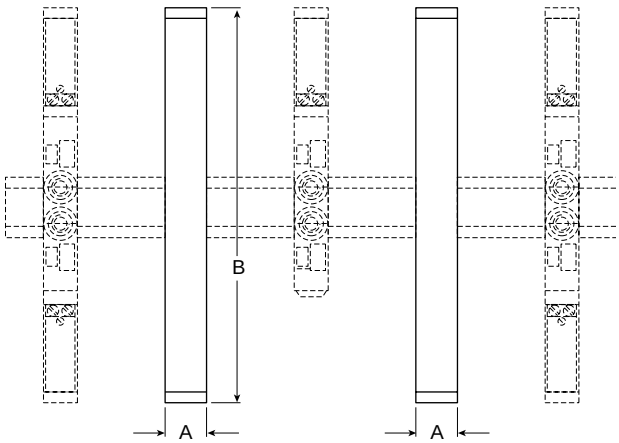
Double Stack D-Sub, 25-Pin Connector



Cylindrical 35-Pin Double Size Head / Tail Set



Size Transition Module



Dimensions

A	B			
.87 (22)	6.97 (177)			

Inches (mm)

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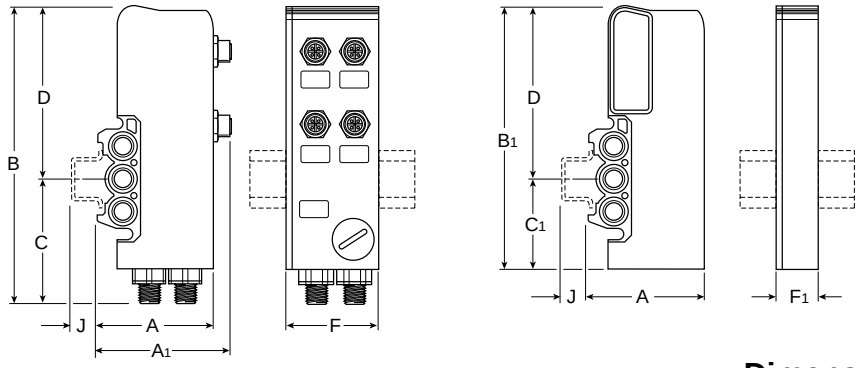
E

ASI Head Module, 4 Input & 4 Output Version

(PVLBA1BA44 with Transition Module Shown)



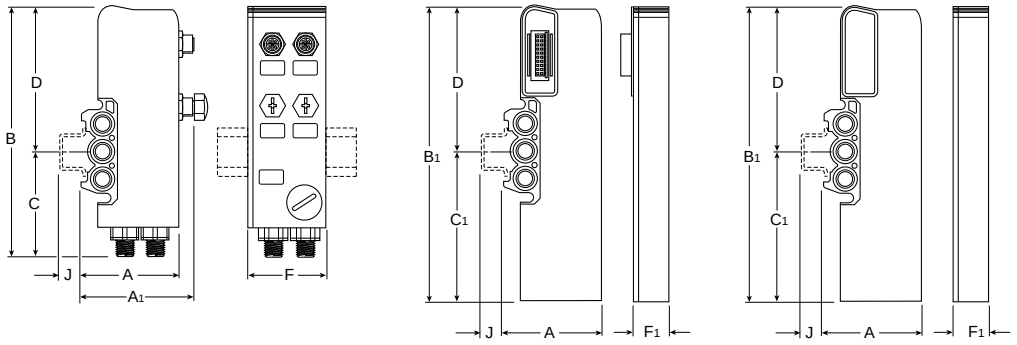
Dimensions

A	A1	B	B1	C
2.31 (59)	2.88 (73)	6.00 (153)	5.25 (133)	2.50 (64)
C1	**D**	**F**	**F1**	**J**
1.75 (44)	3.50 (89)	1.89 (48)	.87 (22)	.47 (12)

Inches (mm)

ASI Head Module for Single to Double Solenoid Valves, 4 Input and 4 Output Version

(PVLBA3BA44 with Transition Modules Shown)



Dimensions

A	A1	B	B1	C
2.31 (59)	2.88 (73)	6.00 (153)	6.97 (177)	2.50 (64)
C1	**D**	**F**	**F1**	**J**
3.47 (88)	3.50 (89)	1.89 (48)	.87 (22)	.47 (12)

Inches (mm)

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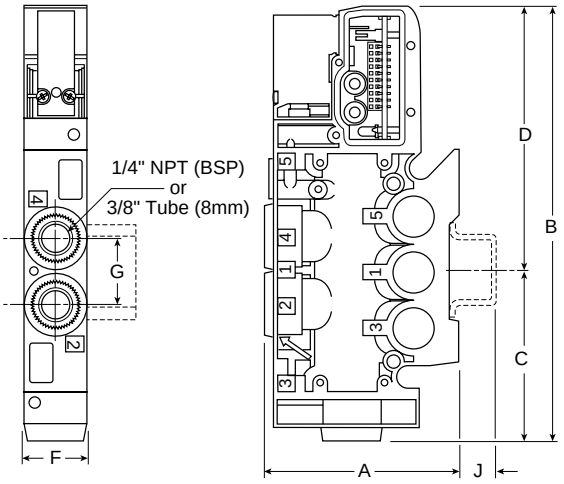
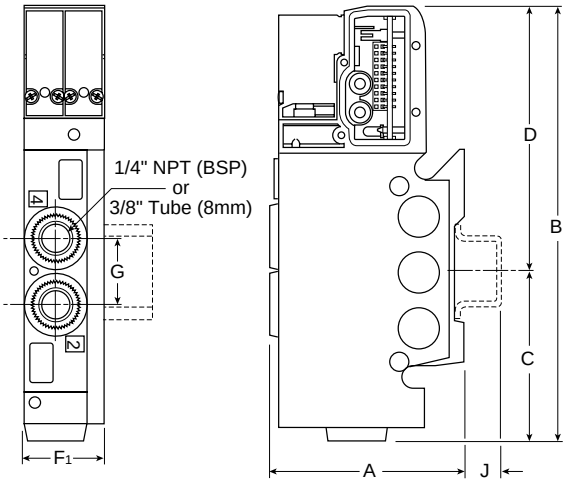
E

Single Solenoid



Double Solenoid



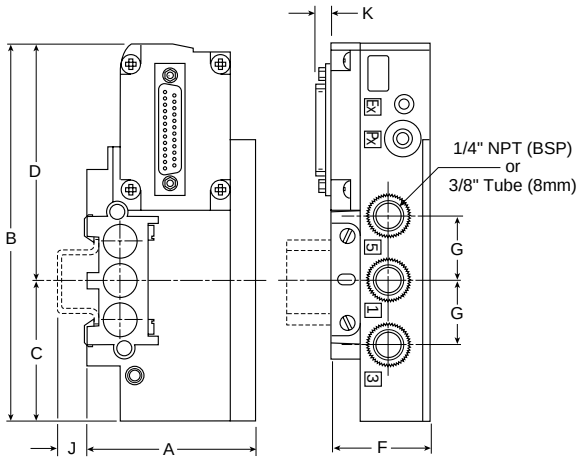
Dimensions

A (Inline Pipe)	2.87 (73)
A (Inline Tube)	3.66 (93)
A (Stacking Pipe)	2.87 (73)
A (Stacking Tube)	3.27 (83)

B	**C**	**D**	**F**	**F_1**
6.50 (165)	2.56 (65)	3.94 (100)	1.00 (25.4)	1.31 (33)
G	**J**			
1.00 (25.4)	.47 (12)			

Inches (mm)

D-Sub, 25-Pin Connector

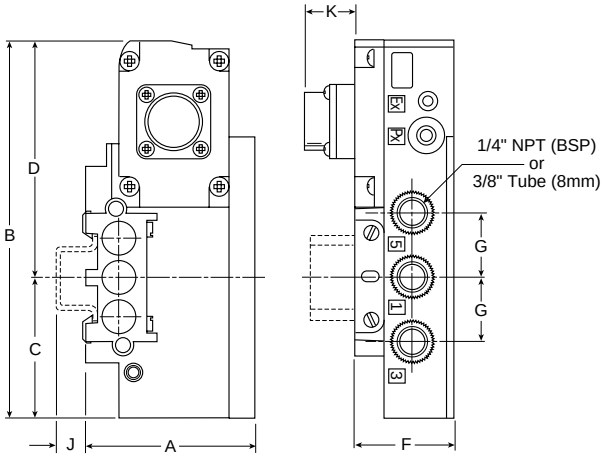


Dimensions

A	**B**	**C**	**D**	**F**
2.75 (70)	6.22 (158)	2.28 (58)	3.94 (100)	1.65 (42)
G	**J**	**K**		
1.06 (27)	.39 (10)	.12 (3)		

Inches (mm)

Cylindrical Connector



Dimensions

A	**B**	**C**	**D**	**F**
2.75 (70)	6.22 (158)	2.28 (58)	3.94 (100)	1.65 (42)
G	**J**	**K**		
1.06 (27)	.39 (10)	.30 (8)		

Inches (mm)

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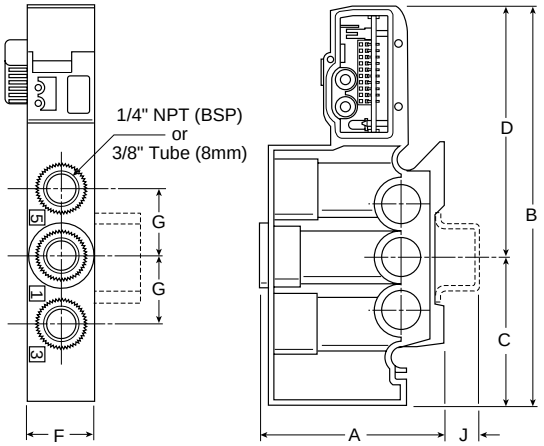
E

Intermediary Air Supply Module

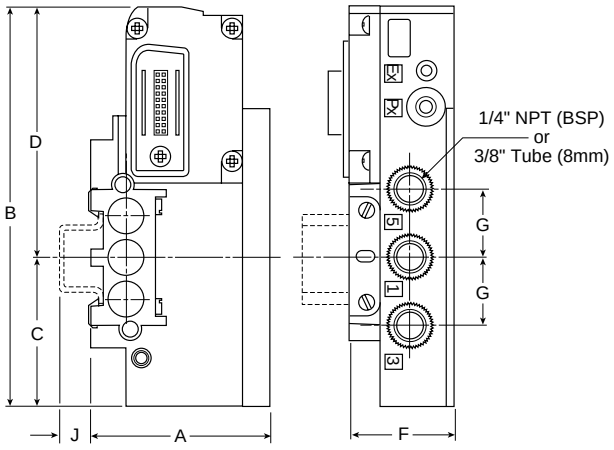


Dimensions

A	B	C	D	F
2.94 (75)	6.22 (158)	2.28 (58)	3.94 (100)	1.08 (28)
G	**J**			
1.06 (27)	.47 (12)			

Inches (mm)

Transfer Module



Dimensions

A	B	C	D	F
2.75 (70)	6.22 (158)	2.28 (58)	3.94 (100)	1.65 (42)
G	**J**			
1.06 (27)	.39 (10)			

Inches (mm)

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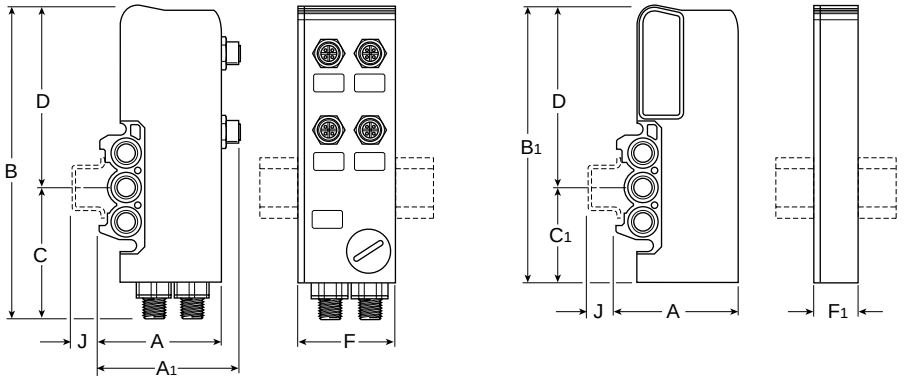
E

ASI Head Module, 4 Input & 4 Output Version

(PVLBA1BA44 with Transition Module Shown)



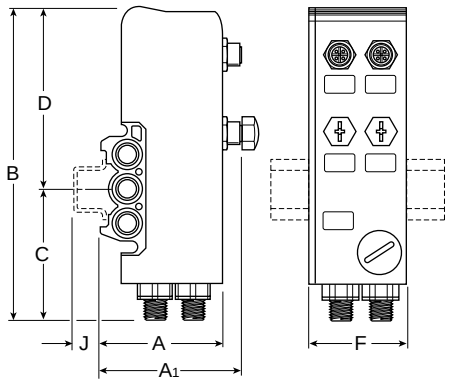
Dimensions

A	A1	B	B1	C
2.31 (59)	2.88 (73)	6.00 (153)	5.25 (133)	2.50 (64)
C1	**D**	**F**	**F1**	**J**
1.75 (44)	3.50 (89)	1.89 (48)	.87 (22)	.47 (12)

Inches (mm)

ASI Head Module for Single to Double Solenoid Valves,

4 Input and 4 Output Version
(PVLBA3BA44 Shown)



Dimensions

A	A1	B	C	D
2.31 (59)	2.88 (73)	5.25 (133)	1.75 (44)	3.50 (89)
F	**J**			
1.89 (48)	.47 (12)			

Inches (mm)

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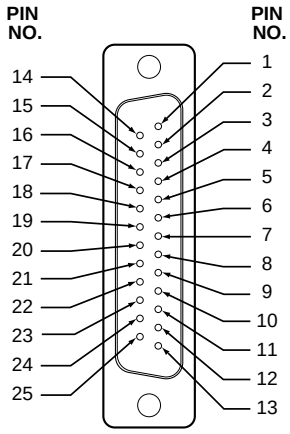
Pin Out Detail D-Sub, 25-Pin Connector

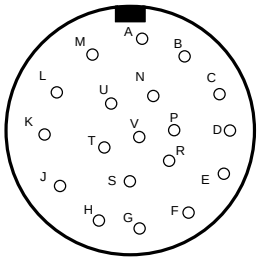


Output Solenoid No.	D-Sub 25-Pin No.	IP65 Cable Colors	Output Solenoid No.	D-Sub 25-Pin No.	IP65 Cable Colors
1	13	Green	11	8	Blue / Black
2	25	Transparent	12	20	White / Black
3	12	Dark Blue	13	7	Khaki
4	24	Light Blue	14	19	Orange
5	11	Pink	15	6	White
6	23	Purple	16	18	Gray
7	10	Dark Green / Black	Not Used	5	Red / Black
8	22	Yellow	Not Used	17	Red
9	9	Light Green / Black	Not Used	4	Brown
10	21	Yellow / Black	Valve Common	16	Black

Notes: Solenoids are polarity sensitive. The common must be at OV. Switching must be at the high potential. Maximum 16 solenoid outputs with one valve (negative) common line on Pin 16.

E

19-Pin Circular Connector*

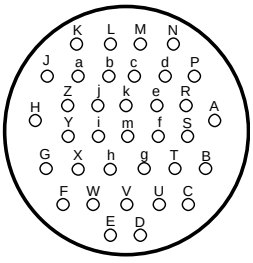


* Available with PVLC10 Only.

Output Solenoid No.	19-Pin Connector	IP65 Cable Colors	Output Solenoid No.	19-Pin Connector	IP65 Cable Colors
1	A	Pink / Brown	11	L	Blue
2	B	White / Green	12	M	Pink
3	C	White / Yellow	13	N	Grey
4	D	White / Grey	14	P	Yellow
5	E	White / Pink	15	R	White
6	F	Brown / Green	16	S	Green
7	G	Red / Blue	Valve Common	T	Black
8	H	Grey / Pink	Not Used	U	Brown
9	J	Brown / Yellow	Not Used	V	Red
10	K	Violet			

Notes: Solenoids are polarity sensitive. The common must be at OV. Switching must be at the high potential. Maximum 16 solenoid outputs with one valve (negative) common line on Pin T.

35-Pin Circular Connector*



* Available with PVLB10 Only.

Output Solenoid No.	35-Pin Connector	IP65 Cable Colors	Output Solenoid No.	35-Pin Connector	IP65 Cable Colors
0	A	White / Brown	18	V	Brown / Pink
1	B	White / Green	19	W	Brown / Blue
2	C	White / Yellow	20	X	Brown / Red
3	D	White / Grey	21	Y	Brown / Black
4	E	White / Pink	22	Z	Green / Grey
5	F	White / Blue	23	a	Green / Pink
6	G	White / Red	24	b	Green / Blue
7	H	White / Black	25	c	Green / Red
8	J	Brown / Yellow	26	d	Green / Black
9	K	Violet	27	e	Yellow / Grey
10	L	Blue	28	f	Yellow / Pink
11	M	Pink	29	g	Yellow / Blue
12	N	Grey	30	h	Yellow / Red
13	P	Yellow	31	i	Yellow / Black
14	R	White	0 V valves	j	Black
15	S	Green	0 V inputs	k	Brown
16	T	Brown / Green	24 V inputs	m	Red
17	U	Brown / Grey			

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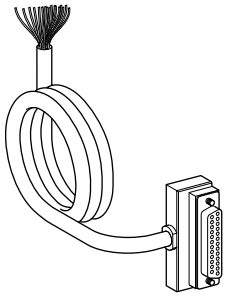
E

Cable with Female D-Sub, IP65 Rated, 25-Pin Connector

P8L-MD25A5B	5 Meters / 16.40 Ft

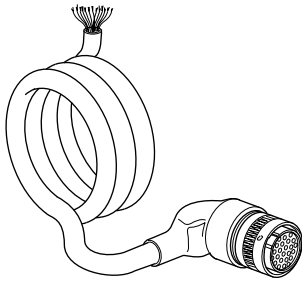
Connection to the control system is through 20 colored wires AWG 24, rated at 2.5 amp.



Cable with Female IP65 Rated, 19-Pin Connector

P8L-MC19A5	5 Meters / 16.40 Ft

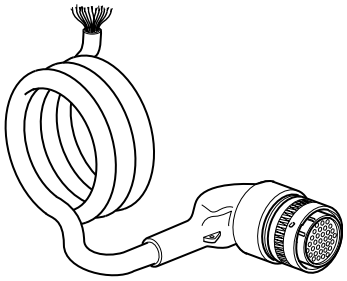
Connection to the control system is through 19 colored wires AWG 20, rated at 5 amp.



Cable with Female IP65 Rated, 35-Pin Connector

P8L-MC35A5	5 Meters / 16.40 Ft

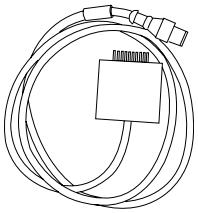
Connection to the control system is through 35 colored wires AWG 20, rated at 5 amp.



ASI Module Addressing Cables

P8B-AJACK	2 Meters / 6.56 Ft
Used to connect ASI Head Module for PVLB10 and PVLC10 to an ASI Programming Unit.	
P8L-MH02B1	1 Meter / 3.28 Ft
Used to program ASI Output Head and Auxilliary head modules.	

P8B-AJACK



P8L-MH02B1

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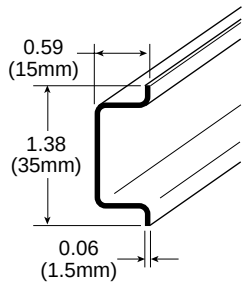
35mm DIN Rail

AM1DE200	6 Feet

Zinc chromated steel rail for easy mounting of stacks.

DIN rail can be mounted to grids or other surfaces to allow snap in mounting of pneumatic and electrical components.



E

Adapter Kits

Contains a size transition module and a replacement tail piece for field conversion to a combination stack.

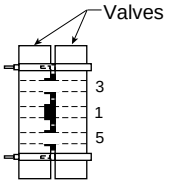
PVLB1940	Double then Single
PVLB1930	Single then Double

Pressure Isolation Kit

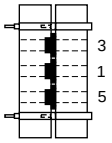
Series	Model Number	Kit includes:
PVLB	**PVLB1901**	3 Isolation Plugs, 2 Open Port Plugs and 2 Extended Cross Rods.
PVLC	**PVLC1901**	
PVLB	**PVLB1902**	10 Isolation Discs
PVLC	**PVLC1902**	

Assembly Instructions

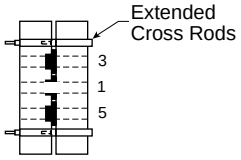
Example 1: Two different pressures P1 and P2 can supply the same bank of power valves, the exhausts remaining common.



Example 2: Complete isolation of the commons in the same bank of power valves: main pressure and exhaust commons.



Example 3: The exhaust commons can be isolated within the same bank of power valves, while the main pressure supply remains common.



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Seals and Gaskets

Series	O-Rings [1]	Gaskets [2]
PVLB	PPRV23	PPRV20
PVLC	PPRV24	PPRV20

Series	O-Rings
PVLB10	PPRV23
PVLC10	PPRV24

Notes:
[1] O-rings seal between stackable valve bodies. Sold in set of 30.
[2] 3-cell gaskets seal between pilot and valve body. Sold as one set of 20 gaskets.

PPRV23

PPRV20

Cross Rods

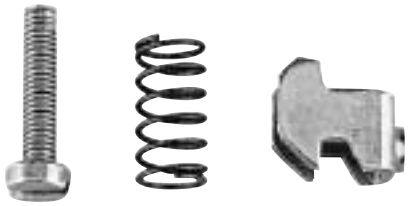
Series	Model Number
PVLB	PPRV21
PVLC	PPRV22

Used in valve stack mounting.
Sold as 1 set of 10 cross rods.

DIN Rail Clip Assembly

PPRL09	Head / Tail Set – All Sizes

Assembly includes: clamp, screw, and spring.
Sold as 1 set of 20 each.



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⚠ WARNING

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Safety Guide For Selecting And Using Pneumatic Division Products And Related Accessories

⚠ WARNING:

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF PNEUMATIC DIVISION PRODUCTS, ASSEMBLIES OR RELATED ITEMS ("PRODUCTS") CAN CAUSE DEATH, PERSONAL INJURY, AND PROPERTY DAMAGE. POSSIBLE CONSEQUENCES OF FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THESE PRODUCTS INCLUDE BUT ARE NOT LIMITED TO:

- Unintended or mistimed cycling or motion of machine members or failure to cycle
- Work pieces or component parts being thrown off at high speeds.
- Failure of a device to function properly for example, failure to clamp or unclamp an associated item or device.
- Explosion
- Suddenly moving or falling objects.
- Release of toxic or otherwise injurious liquids or gasses.

Before selecting or using any of these Products, it is important that you read and follow the instructions below.

1. GENERAL INSTRUCTIONS

1.1. Scope: This safety guide is designed to cover general guidelines on the installation, use, and maintenance of Pneumatic Division Valves, FRLs (Filters, Pressure Regulators, and Lubricators), Vacuum products and related accessory components.

1.2. Fail-Safe: Valves, FRLs, Vacuum products and their related components can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of associated valves, FRLs or Vacuum products will not endanger persons or property.

1.3 Relevant International Standards: For a good guide to the application of a broad spectrum of pneumatic fluid power devices see: ISO 4414:1998, Pneumatic Fluid Power – General Rules Relating to Systems. See www.iso.org for ordering information.

1.4. Distribution: Provide a copy of this safety guide to each person that is responsible for selection, installation, or use of Valves, FRLs or Vacuum products. Do not select, or use Parker valves, FRLs or vacuum products without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the products considered or selected.

1.5. User Responsibility: Due to the wide variety of operating conditions and applications for valves, FRLs, and vacuum products Parker and its distributors do not represent or warrant that any particular valve, FRL or vacuum product is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:

- Making the final selection of the appropriate valve, FRL, Vacuum component, or accessory.
- Assuring that all user's performance, endurance, maintenance, safety, and warning requirements are met and that the application presents no health or safety hazards.
- Complying with all existing warning labels and / or providing all appropriate health and safety warnings on the equipment on which the valves, FRLs or Vacuum products are used; and,
- Assuring compliance with all applicable government and industry standards.

1.6. Safety Devices: Safety devices should not be removed, or defeated.

1.7. Warning Labels: Warning labels should not be removed, painted over or otherwise obscured.

1.8. Additional Questions: Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the product being considered or used, or call 1-800-CPARKER, or go to www.parker.com, for telephone numbers of the appropriate technical service department.

2. PRODUCT SELECTION INSTRUCTIONS

2.1. Flow Rate: The flow rate requirements of a system are frequently the primary consideration when designing any pneumatic system. System components need to be able to provide adequate flow and pressure for the desired application.

2.2. Pressure Rating: Never exceed the rated pressure of a product. Consult product labeling, Pneumatic Division catalogs or the instruction sheets supplied for maximum pressure ratings.

2.3. Temperature Rating: Never exceed the temperature rating of a product. Excessive heat can shorten the life expectancy of a product and result in complete product failure.

2.4. Environment: Many environmental conditions can affect the integrity and suitability of a product for a given application. Pneumatic Division products are designed for use in general purpose industrial applications. If these products are to be used in unusual circumstances such as direct sunlight and/or corrosive or caustic environments, such use can shorten the useful life and lead to premature failure of a product.

2.5. Lubrication and Compressor Carryover: Some modern synthetic oils can and will attack nitrile seals. If there is any possibility of synthetic oils or greases migrating into the pneumatic components check for compatibility with the seal materials used. Consult the factory or product literature for materials of construction.

2.6. Polycarbonate Bowls and Sight Glasses: To avoid potential polycarbonate bowl failures:

- Do not locate polycarbonate bowls or sight glasses in areas where they could be subject to direct sunlight, impact blow, or temperatures outside of the rated range.
- Do not expose or clean polycarbonate bowls with detergents, chlorinated hydro-carbons, keytones, esters or certain alcohols.
- Do not use polycarbonate bowls or sight glasses in air systems where compressors are lubricated with fire resistant fluids such as phosphate ester and di-ester lubricants.

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2.7. Chemical Compatibility: For more information on plastic component chemical compatibility see Pneumatic Division technical bulletins Tec-3, Tec-4, and Tec-5

2.8. Product Rupture: Product rupture can cause death, serious personal injury, and property damage.
- Do not connect pressure regulators or other Pneumatic Division products to bottled gas cylinders.
- Do not exceed the maximum primary pressure rating of any pressure regulator or any system component.
- Consult product labeling or product literature for pressure rating limitations.

3. PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1. Component Inspection: Prior to assembly or installation a careful examination of the valves, FRLs or vacuum products must be performed. All components must be checked for correct style, size, and catalog number. DO NOT use any component that displays any signs of nonconformance.

3.2. Installation Instructions: Parker published Installation Instructions must be followed for installation of Parker valves, FRLs and vacuum components. These instructions are provided with every Parker valve or FRL sold, or by calling 1-800-CPARKER, or at www.parker.com.

3.3. Air Supply: The air supply or control medium supplied to Valves, FRLs and Vacuum components must be moisture-free if ambient temperature can drop below freezing

4. VALVE AND FRL MAINTENANCE AND REPLACEMENT INSTRUCTIONS

4.1. Maintenance: Even with proper selection and installation, valve, FRL and vacuum products service life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a component failure, and experience with any known failures in the application or in similar applications should determine the frequency of inspections and the servicing or replacement of Pneumatic Division products so that products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.10.

4.2. Installation and Service Instructions: Before attempting to service or replace any worn or damaged parts consult the appropriate Service Bulletin for the valve or FRL in question for the appropriate practices to service the unit in question. These Service and Installation Instructions are provided with every Parker valve and FRL sold, or are available by calling 1-800-CPARKER, or by accessing the Parker web site at www.parker.com.

4.3. Lockout / Tagout Procedures: Be sure to follow all required lockout and tagout procedures when servicing equipment. For more information see: OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – (Lockout / Tagout)

4.4. Visual Inspection: Any of the following conditions requires immediate system shut down and replacement of worn or damaged components:
- Air leakage: Look and listen to see if there are any signs of visual damage to any of the components in the system. Leakage is an indication of worn or damaged components.
- Damaged or degraded components: Look to see if there are any visible signs of wear or component degradation.
- Kinked, crushed, or damaged hoses. Kinked hoses can result in restricted air flow and lead to unpredictable system behavior.
- Any observed improper system or component function: Immediately shut down the system and correct malfunction.
- Excessive dirt build-up: Dirt and clutter can mask potentially hazardous situations.

Caution: Leak detection solutions should be rinsed off after use.

4.5. Routine Maintenance Issues:
- Remove excessive dirt, grime and clutter from work areas.
- Make sure all required guards and shields are in place.

4.6. Functional Test: Before initiating automatic operation, operate the system manually to make sure all required functions operate properly and safely.

4.7. Service or Replacement Intervals: It is the user's responsibility to establish appropriate service intervals. Valves, FRLs and vacuum products contain components that age, harden, wear, and otherwise deteriorate over time. Environmental conditions can significantly accelerate this process. Valves, FRLs and vacuum components need to be serviced or replaced on routine intervals. Service intervals need to be established based on:
- Previous performance experiences.
- Government and / or industrial standards.
- When failures could result in unacceptable down time, equipment damage or personal injury risk.

4.8. Servicing or Replacing of any Worn or Damaged Parts: To avoid unpredictable system behavior that can cause death, personal injury and property damage:
- Follow all government, state and local safety and servicing practices prior to service including but not limited to all OSHA Lockout Tagout procedures (OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – Lockout / Tagout).
- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to system and Pneumatic Division products before installation, service, or conversion.
- Installation, servicing, and / or conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversions air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or if the product does not operate properly, do not put product or system into use.
- Warnings and specifications on the product should not be covered or painted over. If masking is not possible, contact your local representative for replacement labels.

4.9. Putting Serviced System Back into Operation: Follow the guidelines above and all relevant Installation and Maintenance Instructions supplied with the valve FRL or vacuum component to insure proper function of the system.

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2. Payment: Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Amounts not timely paid shall bear interest at the maximum rate permitted by law for each month or portion thereof that the Buyer is late in making payment. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

4. Warranty: Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of 18 months from date of shipment from Parker Hannifin Corporation. THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED.

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5. Limitation of Remedy: SELLER'S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER'S SOLE OPTION. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEMS SOLD HEREUNDER, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.

6. Changes, Reschedules and Cancellations: Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitations, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

8. Buyer's Property: Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer, or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. Indemnity For Infringement of Intellectual Property Rights: Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter "Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgements resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

11. Force Majeure: Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter "Events of Force Majeure"). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

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