

H Series ISO

The H Series ISO valve conforms to international standards 15407 and 5599, providing maximum flexibility for end users. As Parker's premier manifold mount product offering, H Series ISO offers machine builders a complete offering with a wide variety of accessories and options in a valve family with flow ranges from 0.55 Cv up to 6.0 Cv. Individual wiring is available with DIN or central connectors, and collective solutions offer installation time savings with either multi-pin connectors or fieldbus solutions.

Ports, Flow

- HB: 1/8 inch, 0.55 Cv
- HA: 1/4 inch, 1.1 Cv
- H1: 3/8 inch, 1.5 Cv
- H2: 1/2 inch, 3.0 Cv
- H3: 3/4 inch, 6.0 Cv
- NPT and BSPP "G" standard

Mounting

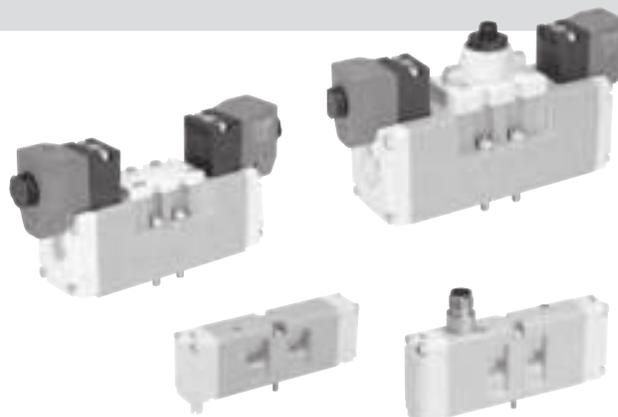
- Manifold or subbase

Solenoids

- HB & HA: 24 VDC, 1.0 Watt, and 120 VAC, 1.0 VA
- H1, H2, & H3: 24 VDC, 3.2 Watt, and 120 VAC, 4.5 VA

Certification / approval

- IP65 rated
- CSA / C-US approved
- BSPP manifold and subbase ports meet ISO 1179 specifications



Operating information

Operating pressure:	Vacuum to 145 PSIG (Vacuum to 10 bar)
Pilot pressure:	See chart
Temperature range:	5°F to 120°F (-15°C to 49°C)

Material specifications

Body	Aluminum
End caps	PBT
End plates	Aluminum
Fasteners	Zinc plated steel
Manifolds	Aluminum
Seals	Nitrile
Spool	Aluminum

Operating Pressure

Maximum: 145 PSIG (1000 kPa)

Minimum:

Operator / function	Internal pilot	PSIG (Min. kPa) HB	PSIG (Min. kPa) HA	PSIG (Min. kPa) H1	PSIG (Min. kPa) H2	PSIG (Min. kPa) H3
1	Single solenoid - 2-position	30	25	25	25	35
2	Double solenoid - 2-position	(207)	(173)	(173)	(173)	(241)
3	Single remote pilot - 2-position**	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
4	Double remote pilot - 2-position**	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
5, 6, 7	Double solenoid - 3-position APB, CE, PC	35 (241)	35 (241)	35 (241)	50 (345)	50 (345)
8, 9, 0	Double remote pilot - 3-position** APB, CE, PC	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
E	Single solenoid pilot - 2-position					
	Air return / spring assist	30	30	35	45	45
		(207)	(207)	(241)	(310)	(310)
F	Single remote pilot - 2-position**					
	Air return / spring assist					
N, P, Q	Double solenoid - dual 3/2	30 (207)	N/A	N/A	N/A	N/A
	External pilot*	*	*	*	*	*
All	H Series	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum

* External Pilot Pressure / Remote Pilot Supply - Must meet or exceed minimum pilot pressure for internal pilot option. Not available on Operator / Function N, P, or Q.

** Must be equal to or greater than operating pressure.

D

Subbase & Manual Valves

H Series Micro

Modulflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

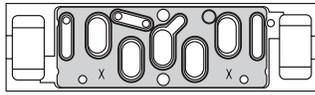
Valvair II Series



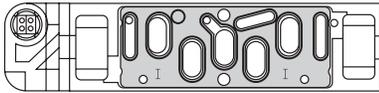
For inventory, lead times, and kit lookup, visit www.pdnplu.com

ISO Pneumatic Valve Standard Definitions

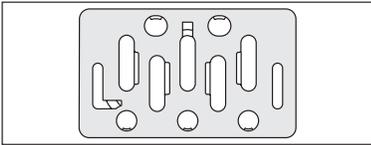
15407-1: Non-Plug-in Standards for Size 01 (26mm) & Size 02 (18mm) Wide Valves



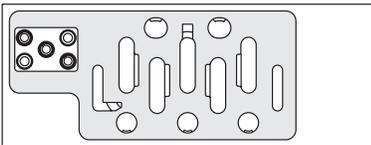
15407-2: Plug-in Standards for Size 01 (26mm) & Size 02 (18mm) Wide Valves



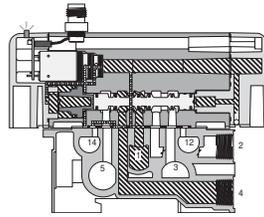
5599-1: Non-Plug-in Standards for Sizes 1, 2, 3



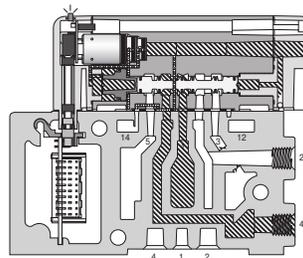
5599-2: Plug-in Standards for Size 1, 2, 3



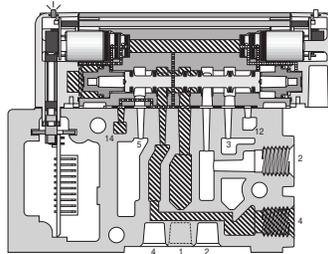
HB / HA Series



15407-1 18mm Single Solenoid Internal Pilot Manifold Mounted



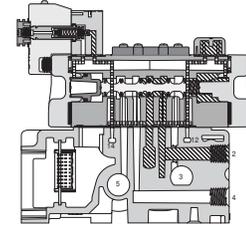
15407-2 18mm Single Solenoid Internal Pilot Manifold Mounted



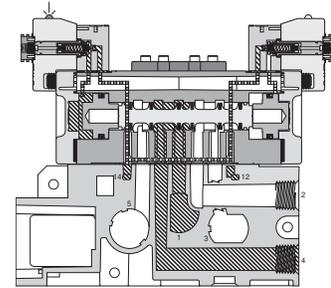
15407-2 26mm Double Solenoid External Pilot Manifold Mounted

Pressure Exhaust

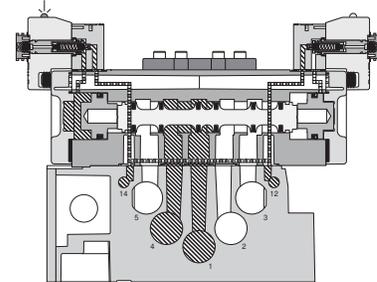
H1, H2, H3 Series



H1 5599-2 Single Solenoid Internal Pilot Manifold Mounted



H2 5599-2 Double Solenoid External Pilot Manifold Mounted

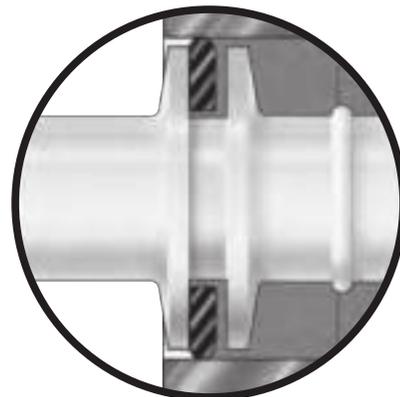


H3 5599-2 Double Solenoid External Pilot Subbase Mounted

Pressure Exhaust

Wear Compensation System

- Maximum Performance
 - Low Friction
 - Lower Operating Pressures
 - Fast Response
 - Less Wear
- Long Cycle Life - Under pressure, radial expansion of the seal occurs to maintain sealing contact with the valve bore.
- Non-Lube Service - No lubrication required for continuous valve shifting.
- Bi-Directional Spool Seals - Common spool used for any pressure, including vacuum.



For inventory, lead time, and kit lookup, visit www.pdnplu.com

15407-2, Plug-in, Size 18mm (HB)

Symbol	Type	Cv	Operator	Voltage	Pilot	Non-locking	Locking
 Sol. 14	4-way, 2-position, spring return	0.55	Single solenoid	24 VDC	Internal	HBEVXBG0G9A	HBEVXBH0G9A
					External	HBEVXLG0G9A	HBEVXLH0G9A
 Sol. 14	4-way, 2-position, air return	0.55	Single solenoid	24 VDC	Internal	HB1VXBG0G9A	HB1VXBH0G9A
					External	HB1VXLG0G9A	HB1VXLH0G9A
 Sol. 14 Sol. 12	4-way, 2-position	0.55	Double solenoid	24 VDC	Internal	HB2VXBG0G9A	HB2VXBH0G9A
					External	HB2VXLG0G9A	HB2VXLH0G9A
 #14	4-way, 3-position, all ports blocked	0.5	Double solenoid	24 VDC	Internal	HB5VXBG0G9A	HB5VXBH0G9A
					External	HB5VXLG0G9A	HB5VXLH0G9A
 #14	4-way, 3-position, center exhaust	0.5	Double solenoid	24 VDC	Internal	HB6VXBG0G9A	HB6VXBH0G9A
					External	HB6VXLG0G9A	HB6VXLH0G9A
 #14	4-way, 3-position, pressure center	0.5	Double solenoid	24 VDC	Internal	HB7VXBG0G9A	HB7VXBH0G9A
					External	HB7VXLG0G9A	HB7VXLH0G9A
 #14	3-way, 2-position, dual valve, NC/NC	0.45	Double solenoid	24 VDC	Internal	HBNVXBG0G9A	HBNVXBH0G9A
					Internal	HBPVXBG0G9A	HBPVXBH0G9A
 #14	3-way, 2-position, dual valve, NO/NO	0.45	Double solenoid	24 VDC	Internal	HBNVXBG0G9A	HBNVXBH0G9A
					Internal	HBPVXBG0G9A	HBPVXBH0G9A

Symbol	Type	Cv	Operator	Voltage	Pilot	Non-locking	Locking
 Sol. 14	4-way, 2-position, spring return	0.55	Single solenoid	120 VAC	Internal	HBEVXBG023A	HBEVXBH023A
					External	HBEVXLG023A	HBEVXLH023A
 Sol. 14	4-way, 2-position, air return	0.55	Single solenoid	120 VAC	Internal	HB1VXBG023A	HB1VXBH023A
					External	HB1VXLG023A	HB1VXLH023A
 Sol. 14 Sol. 12	4-way, 2-position	0.55	Double solenoid	120 VAC	Internal	HB2VXBG023A	HB2VXBH023A
					External	HB2VXLG023A	HB2VXLH023A
 #14	4-way, 3-position, all ports blocked	0.5	Double solenoid	120 VAC	Internal	HB5VXBG023A	HB5VXBH023A
					External	HB5VXLG023A	HB5VXLH023A
 #14	4-way, 3-position, center exhaust	0.5	Double solenoid	120 VAC	Internal	HB6VXBG023A	HB6VXBH023A
					External	HB6VXLG023A	HB6VXLH023A
 #14	4-way, 3-position, pressure center	0.5	Double solenoid	120 VAC	Internal	HB7VXBG023A	HB7VXBH023A
					External	HB7VXLG023A	HB7VXLH023A
 #14	3-way, 2-position, dual valve, NC/NC	0.45	Double solenoid	120 VAC	Internal	HBNVXBG023A	HBNVXBH023A
					Internal	HBPVXBG023A	HBPVXBH023A
 #14	3-way, 2-position, dual valve, NO/NO	0.45	Double solenoid	120 VAC	Internal	HBNVXBG023A	HBNVXBH023A
					Internal	HBPVXBG023A	HBPVXBH023A

15407-2, Plug-in, Size 18mm (HB), 2-Station Manifold Bases

End ported bases	Enclosure / Lead length	Solenoid addresses	1/8" NPT	1/8" BSPP
	Circuit board	Single solenoid - 1 address	PS561151JP	PS561152JP
	Circuit board	Double solenoid - 2 addresses	PS561151MP	PS561152MP
	Circuit board with 32 output expansion	Single solenoid - 1 address	PS561151NP	PS561152NP
	Circuit board with 32 output expansion	Double solenoid - 2 addresses	PS561151PP	PS561152PP
Bottom / end ported bases				
	Circuit board	Single solenoid - 1 address	PS561161JP	PS561162JP
	Circuit board	Double solenoid - 2 addresses	PS561161MP	PS561162MP
	Circuit board with 32 output expansion	Single solenoid - 1 address	PS561161NP	PS561162NP
	Circuit board with 32 output expansion	Double solenoid - 2 addresses	PS561161PP	PS561162PP

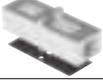
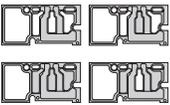
 Most popular.



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 Subbase & Manual Valves
 H Series Micro
 Modutefx Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

15407-2, Plug-in, Size 18mm (HB) Accessories

Accessories	Description	Part number
 Sandwich regulator	Common pressure 2-60 PSIG w/ gauge	PS5638155P
	Common pressure 5-125 PSIG w/ gauge	PS5638166P
	Independent pressure 2-60 PSIG w/ gauge	PS5638255P
	Independent pressure 5-125 PSIG w/ gauge	PS5638266P
 Gauge adapter kit	Includes 1/8" coupling and long nipple	PS5651160P
 Blanking plate kit		PS5634P
 Sandwich supply module	1/8" NPT	PS561600P
	1/8" BSPP	PS561601P
 Sandwich exhaust module	1/8" NPT	PS561700P
	1/8" BSPP	PS561701P
 Intermediate air supply module	1/8" NPT	D02P-01-80
 Sandwich flow control		PS5635P
 Manifold to manifold gasket kits	Standard	PS561AP
	Blocked #1 port	PS561BP
	Blocked #1, 3, 5, ports	PS561CP
	Blocked #3, 5 ports	PS561DP

 Most popular.



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Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

15407-2, Plug-in, Size 26mm (HA)

Symbol	Type	Cv	Operator	Voltage	Pilot	Non-locking	Locking
 Sol. 14	4-way, 2-position, spring return	1.1	Single solenoid	24 VDC	Internal	HAEVXBG0G9A	HAEVXBH0G9A
					External	HAEVXLG0G9A	HAEVXLH0G9A
 Sol. 13	4-way, 2-position, air return	1.1	Single solenoid	24 VDC	Internal	HA1VXBG0G9A	HA1VXBH0G9A
					External	HA1VXLG0G9A	HA1VXLH0G9A
 Sol. 14	4-way, 2-position	1.1	Double solenoid	24 VDC	Internal	HA2VXBG0G9A	HA2VXBH0G9A
					External	HA2VXLG0G9A	HA2VXLH0G9A
 #14	4-way, 3-position, all ports blocked	1.0	Double solenoid	24 VDC	Internal	HA5VXBG0G9A	HA5VXBH0G9A
					External	HA5VXLG0G9A	HA5VXLH0G9A
 #14	4-way, 3-position, center exhaust	1.0	Double solenoid	24 VDC	Internal	HA6VXBG0G9A	HA6VXBH0G9A
					External	HA6VXLG0G9A	HA6VXLH0G9A
 #14	4-way, 3-position, pressure center	1.0	Double solenoid	24 VDC	Internal	HA7VXBG0G9A	HA7VXBH0G9A
					External	HA7VXLG0G9A	HA7VXLH0G9A

Symbol	Type	Cv	Operator	Voltage	Pilot	Non-locking	Locking
 Sol. 14	4-way, 2-position, spring return	1.1	Single solenoid	120 VAC	Internal	HAEVXBG023A	HAEVXBH023A
					External	HAEVXLG023A	HAEVXLH023A
 Sol. 13	4-way, 2-position, air return	1.1	Single solenoid	120 VAC	Internal	HA1VXBG023A	HA1VXBH023A
					External	HA1VXLG023A	HA1VXLH023A
 Sol. 14	4-way, 2-position	1.1	Double solenoid	120 VAC	Internal	HA2VXBG023A	HA2VXBH023A
					External	HA2VXLG023A	HA2VXLH023A
 #14	4-way, 3-position, all ports blocked	1.0	Double solenoid	120 VAC	Internal	HA5VXBG023A	HA5VXBH023A
					External	HA5VXLG023A	HA5VXLH023A
 #14	4-way, 3-position, center exhaust	1.0	Double solenoid	120 VAC	Internal	HA6VXBG023A	HA6VXBH023A
					External	HA6VXLG023A	HA6VXLH023A
 #14	4-way, 3-position, pressure center	1.0	Double solenoid	120 VAC	Internal	HA7VXBG023A	HA7VXBH023A
					External	HA7VXLG023A	HA7VXLH023A

15407-2, Plug-in, Size 26mm (HA), Single Subbase

Enclosure / Lead length	Solenoid addresses	1/4" NPT	1/4" BSPP
 Terminal strip in the base	Double solenoid - 2 addresses	PS55113CP	PS55114CP

15407-2, Plug-in, Size 26mm (HA), 2-Station Manifold Bases

End ported bases	Enclosure / Lead length	Solenoid addresses	1/4" NPT	1/4" BSPP
 Circuit board	Circuit board	Single solenoid - 1 address	PS551153JP	PS551154JP
	Circuit board	Double solenoid - 2 addresses	PS551153MP	PS551154MP
	Circuit board with 32 output expansion	Single solenoid - 1 address	PS551153NP	PS551154NP
	Circuit board with 32 output expansion	Double solenoid - 2 addresses	PS551153PP	PS551154PP
	Terminal strip in the base	Double solenoid - 2 addresses	PS551153CP	PS551154CP
Bottom / end ported bases				
 Circuit board	Circuit board	Single solenoid - 1 address	PS551163JP	PS551164JP
	Circuit board	Double solenoid - 2 addresses	PS551163MP	PS551164MP
	Circuit board with 32 output expansion	Single solenoid - 1 address	PS551163NP	PS551164NP
	Circuit board with 32 output expansion	Double solenoid - 2 addresses	PS551163PP	PS551164PP
	Terminal strip in the base	Double solenoid - 2 addresses	PS551163CP	PS551164CP

 Most popular.



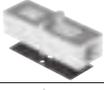
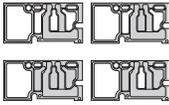
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 Fieldbus Systems
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15407-2, Plug-in, Size 26mm (HA) Accessories

Accessories	Description	Part number
 Sandwich regulator	Common pressure 2-60 PSIG w/ gauge	PS5538155P
	Common pressure 5-125 PSIG w/ gauge	PS5538166P
	Independent pressure 2-60 PSIG w/ gauge	PS5538255P
	Independent pressure 5-125 PSIG w/ gauge	PS5538266P
 Gauge adapter kit	Includes 1/8" coupling and long nipple	PS5651160P
 Blanking plate kit		PS5534P
 Sandwich supply module	1/4" NPT	PS551600P
	1/4" BSPP	PS551601P
 Sandwich exhaust module	1/4" NPT	PS551700P
	1/4" BSPP	PS551701P
 Intermediate air supply module	1/4" NPT	D01P-02-80
 Sandwich flow control		PS5535P
 Manifold to manifold gasket kits	Standard	PS561AP
	Blocked #1 port	PS561BP
	Blocked #1, 3, 5, ports	PS561CP
	Blocked #3, 5 ports	PS561DP

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Subbase & Manual Valves

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Moduflex Series

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15407-2, Plug-in, Size 18mm & 26mm End Plate Kits

	Electrical option	NPT port	BSPP port
	No connector - HB non plug-in valves HA non plug-in valves, or HA plug-in valves with terminals in base	PS5631010P	PS5631011P
	25-pin, D-Sub	PS5620L20P	PS5620L21P
	19-pin, round, Brad Harrison	PS5620L30P	PS5620L31P
	12-pin, M23	PS5620L40P	PS5620L41P
	16-point terminal strip	PS5620L50P	PS5620L51P
	19-pin, M23	PS5620M20P	PS5620M21P
	Moduflex fieldbus	PS5620M40P	PS5620M41P
	H Series Fieldbus, with valve driver module	PS5620L60P	PS5620L61P
	Turck fieldbus with valve driver module - 16 outputs	PS5620T10P	PS5620T11P
	Turck fieldbus with valve driver module - 32 outputs	PS5620T20P	PS5620T21P

15407-2 End Plate Kits with Transition to H2

	Electrical option	NPT port	BSPP port
	25-pin, D-sub	PS5624L20P	PS5624L21P
	19-pin, round, Brad Harrison	PS5624L30P	PS5624L31P
	12-pin, M23	PS5624L40P	PS5624L41P
	16-point terminal strip	PS5624L50P	PS5624L51P
	19-pin, M23	PS5624M20P	PS5624M21P
	Moduflex fieldbus	PS5624M40P	PS5624M41P
	H Series Fieldbus, with valve driver module	PS5624L60P	PS5624L61P
	Turck fieldbus with valve driver module - 16 outputs	PS5624T10P	PS5624T11P
	Turck fieldbus with valve driver module - 32 outputs	PS5624T20P	PS5624T21P

Turck, H Series Fieldbus, and Moduflex communication modules must be ordered separately. See Fieldbus Section for more information.

Note:

For cable part numbers and pin out information see Fieldbus System Accessories.

 Most popular.

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15407-2, Plug-in, Size 18mm (HB) & 26mm (HA)

HB 1 VX B G 0 G9 A

Basic series 15407-2	
ISO 15407-2 18mm	HB
ISO 15407-2 26mm	HA

15407-2 Engineering level	
A	Current

15407-2 Operator / Function	
Single solenoid, 2-position - air return	1
Double solenoid, 2-position	2
Double solenoid, 3-position - APB	5
Double solenoid, 3-position - CE	6
Double solenoid, 3-position - PC	7
Single solenoid, 2-position - air return, spring assist	E
Double solenoid, dual 3/2, NC/NC	N*
Double solenoid, dual 3/2, NO/NO	P*
Double solenoid, dual 3/2, 14 end NC – 12 end NO	Q*

15407-2 Voltage & frequency				
	AC		DC	Light & surge suppression
	60Hz	50Hz		
G9			24	LED & suppression
23	120	115		LED & suppression

15407-2 Enclosure / Lead length	
0	Valve less base

15407-2 Overrides / Lights	
G	Non-locking, flush, push - w/ light
H	Locking, flush, push / turn - w/ light

* Available on HB Only, must use Internal Pilot Source Option "B".

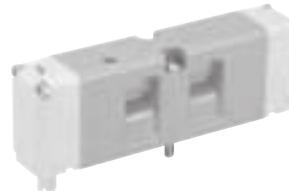
Mounting	
15407-2 Valve less base	VX

15407-2 Pilot source / Pilot exhaust	
Internal pilot, port #1 / vented	B
External pilot, port #14 / vented	L*

* Must be specified when using Sandwich Regulators.



HB: 18mm



HA: 26mm

Most popular.



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15407-2, Plug-in, Size 18mm (HB) & 26mm (HA)

Manifold / Subbase Kits

PS551113

C

P

Mounting Style / Port Size	
ISO 15407-2, 18mm HB	
Manifold with 1/8 NPT End Ports	PS561151
Manifold with 1/8 BSPP End Port	PS561152*
Manifold with 1/8 NPT Bottom / End Port	PS561161
Manifold with 1/8 BSPP Bottom / End Port	PS561162*
ISO 15407-2, 26mm HA	
Subbase with 1/4 NPT Side Ports	PS551113
Subbase with 1/4 BSPP Side Ports	PS551114*
Subbase with 1/4 NPT Bottom / Side Port	PS551123
Subbase with 1/4 BSPP Bottom / Side Port	PS551124*
Manifold with 1/4 NPT End Port	PS551153
Manifold with 1/4 BSPP End Port	PS551154*
Manifold with 1/4 NPT Bottom / End Port	PS551163
Manifold with 1/4 BSPP Bottom / End Port	PS551164*

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

Enclosures / Lead Length	
Individually Wired Base	
C [†]	Terminal Strip
Collective Wired Base	
J [*]	Circuit Board, Single Address
M [*]	Circuit Board, Double Address
N [§]	Single Address Circuit Board with 32 Output Expansion
P [‡]	Double Address Circuit Board with 32 Output Expansion

* Manifolds Only.

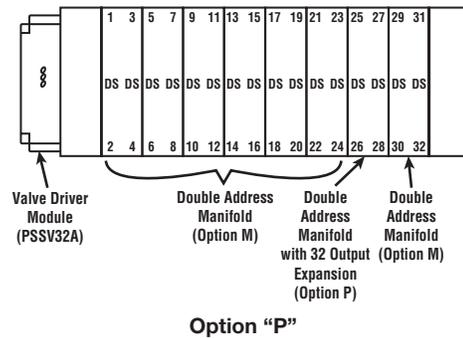
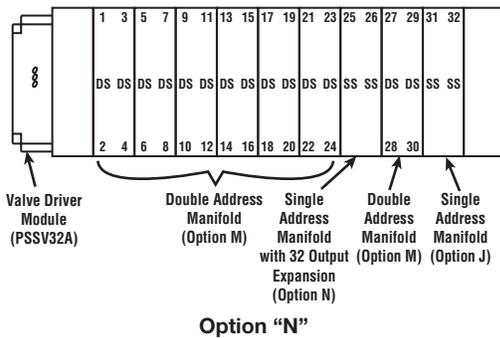
† Available with HA (26mm). Conduit port included on left hand end plate for wires to exit.

§ When using an HA or HB manifold base with the "N" Enclosure / Lead Length option:

- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 26 are a single address base. Use a base with "N" Enclosure / Lead Length option (this is a single address board with a ribbon connection from the valve driver module, PSSV32A).
- Outputs 27 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.

‡ When using an HA or HB manifold base with the "P" Enclosure / Lead Length option:

- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 28 are a double address base. Use a base with "P" Enclosure / Lead Length option (this is a double address board with a ribbon connection from the valve driver module, PSSV32A).
- Outputs 29 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.



Most popular.



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 DX ISOMAX Series
 Valvair II Series

Plug-in, 15407-2, Size 18mm (HB) & 26mm (HA)

End Plate Kits

PS5620L6

0

P

Thread Type	
0	NPT
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads

End Plate Type	
PS563101 †	No Connector - Use with Individually Wired Base
PS5620L2*	25-Pin, D-Sub
PS5620L3	19-Pin, Round, Brad Harrison
PS5620L4	12-Pin, M23
PS5620L5	16-Point Terminal Strip
PS5620M2	19-Pin, M23
PS5620M4	Moduflex Fieldbus
PS5620L6	H Series Fieldbus, with Valve Driver Module
PS5620T1	Turck Fieldbus with Valve Driver Module - 16 outputs
PS5620T2	Turck Fieldbus with Valve Driver Module - 32 outputs

* 120VAC is not CSA rated.

† HA Series only.

Turck, H Series Fieldbus, and Moduflex communication modules must be ordered separately. See Fieldbus Section for more information.

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Plug-in, 15407-2, Sandwich Regulators

PS5638 1 6 6 P

Basic Series	
HB	
15407-2, 18mm, Plug-in	PS5638
HA	
15407-2, 26mm, Plug-in	PS5538

#2 Port Regulator / Gauge*	
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

Regulator Function	
Common Pressure Regulator	1
Independent Pressure Regulator	2

#4 Port Regulator / Gauge*	
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

Ordering Components

- Sandwich Regulator Kit configured for Internal Pilot as standard.
- Order valve as External Pilot.



HB - 18mm
 (Independent Dual Port Regulator Shown)



HA - 26mm
 (Common Port Regulator Shown)

How to Configure Sandwich Regulator / Valve Combinations

Internal Pilot Configuration of Sandwich Regulator HA, HB

Pressure in Base Port 1 feeds regulator configured for Internal Pilot which feeds valve configured for External Pilot.

Sandwich Regulator Cv Flow Chart*

	Common Pressure Code 166				Dual Pressure Code 266			
	1-2	1-4	2-3	4-5	1-2	1-4	2-3	4-5*
HB	0.20	0.20	0.41	0.34	0.23	0.19	0.28	0.27
HA	0.41	0.43	0.87	0.89	0.42	0.45	0.68	0.66

* Regulator Port exhaust through Base Port 3.
 Note: All Cv's calculated with regulator adjusted full open.

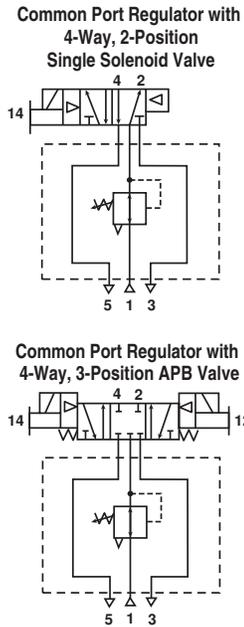
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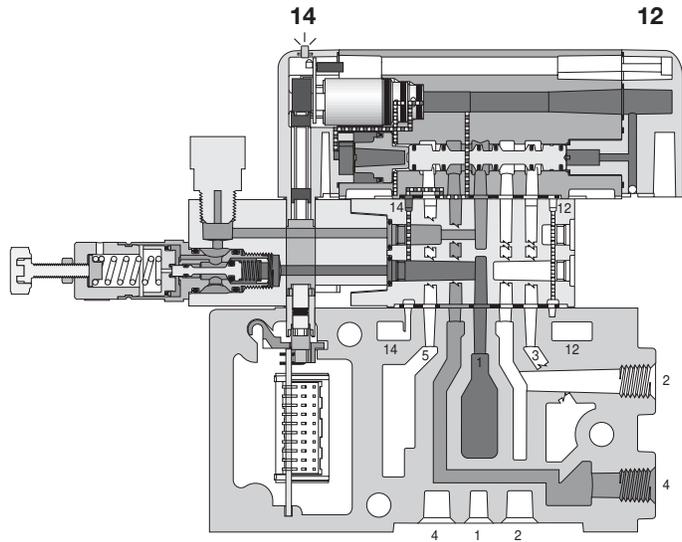
For inventory, lead times, and kit lookup, visit www.pdnplu.com

Plug-in, HB & HA Common Port Regulation

Provides adjustable regulated air pressure to the valve's #1 port which gives the same pressure to both the #2 and #4 port of the manifold or subbase. The regulator is always on the 14 end of the valve.



HB Common Port Regulator Shown - Single Solenoid, 14 Energized

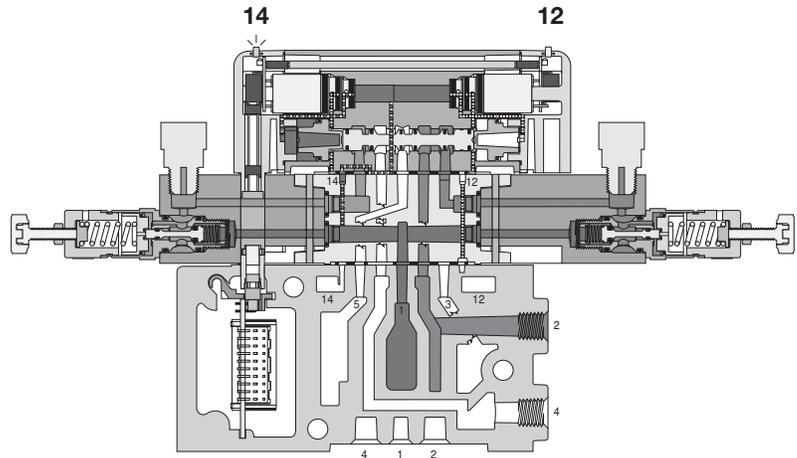
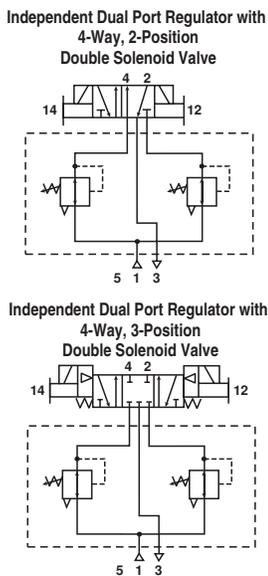


Plug-in, HB & HA Independent Dual Port Regulation

Dual Port Regulator

Provides regulated pressure to both ports. Pressure regulation can occur out of the #2 or #4 port of the valve.

HB Independent Dual Port Regulator Shown - Double Solenoid, 14 Energized



When using an Independent Pressure Sandwich Regulator, the cylinder outlet ports are reversed. The 12 end energizes the #4 port and the 14 end energizes the #2 port. The 3-Position CE and PC functions are also reversed. (See schematics above.)



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Ordering Information

How To Order Plug-in Add-A-Fold Assemblies

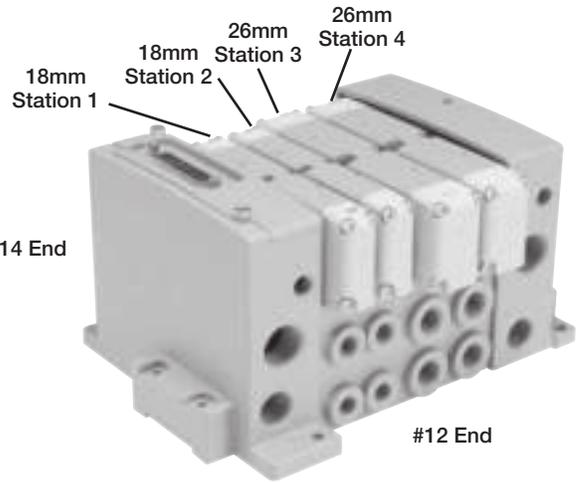
1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold. The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)

Example

Application requires a 4-Station manifold.
(Two 18mm + Two 26mm Stations)

Item	Qty.	Part No.	Location
01	1	AAHBD004	
02	1	HB1VXBGOG9A	Station 1
03	1	HB2VXLGOG9A	Station 2
04	1	PS561151MP	Station 1 & 2
05	2	HA1VXBGOG9A	Station 3 & 4
06	1	PS551151MP	Station 3 & 4

NOTE: Construct manifold assemblies from left to right while looking at the ports. Valves must be ordered as External Pilot when using Sandwich Regulator.



Example:
4-Station Manifold with (2) 18mm and (2) 26mm Valves on Manifold Bases with 25-pin, D-Sub End Plates

Maximum Number of Solenoids (Maximum energized simultaneously)

Voltage	Voltage code	19-pin M23 or		Turck				
		25-pin D-sub	Brad Harrison	12-pin M23	Moduflex	H Series 16 Fieldbus Outputs	32 Outputs	
24VDC	G9	24 (24)	16 (16)	8 (8)	24 (24)	32 (32)	16 (16)	32 (32)
120VAC*	23	24 (24)	16 (16)	8 (8)	N/A	N/A	N/A	N/A

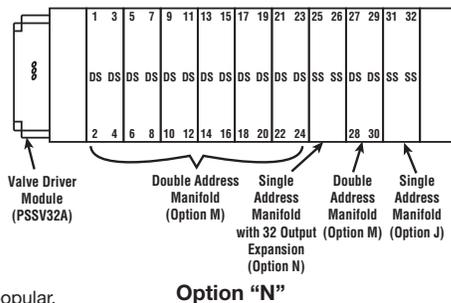
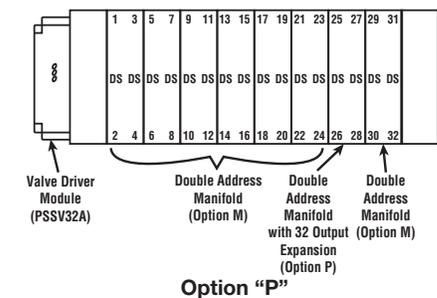
* Not CSA certified for 25-pin, D-Sub option.

When using an HA or HB manifold base with the "N" Enclosure / Lead Length option:

- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 26 are a single address base. Use a base with "N" Enclosure / Lead Length option (this is a single address board with a ribbon connection from the valve driver module, PSSV32A).
- Outputs 27 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.

When using an HA or HB manifold base with the "P" Enclosure / Lead Length option:

- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 28 are a double address base. Use a base with "P" Enclosure / Lead Length option (this is a double address board with a ribbon connection from the valve driver module, PSSV32A).
- Outputs 29 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.



Most popular.

Add-A-Fold Assembly Model Number

AA	HB	D	0	04	
Valve series	Transition Plate				
Right & left end plate 15407-2 (plug-in, HB 18mm & HA 26mm)	Blank No transition plate B HB / HA to H2				
End plate type		Number of stations*			
Turck fieldbus with valve driver module - 16 outputs A*		02			
Turck fieldbus with valve driver module - 32 outputs B*		04			
25-pin, D-sub D		•			
19-pin, Brad Harrison E		24			
16 Point terminal strip F		•			
12-pin, M23 G		32			
19-pin, M23 H					
Moduflex fieldbus T*					
H Series Fieldbus, with valve driver module Y*					
Thread type					
0 NPT					
1* BSPP "G"					

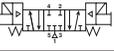
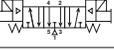
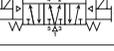
* Common end plates for HA & HB.
* Must be ordered in multiples of (2) unless using the HB / HA to H2 Transition Plate.
* Must order communication modules separately.
* BSPP conforms to ISO 1179-1 with 228-1 threads.

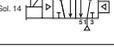
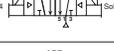
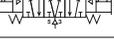


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 H Series
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 Fieldbus
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 DX ISO MAX
 Series
 Valvair II
 Series

5599-2, Plug-in, Size 1 (H1)

Symbol	Type	Cv	Operator	Voltage	Pilot	Non-locking	Locking					
	4-way, 2-position, spring return	1.5	Single solenoid	24 VDC	Internal	H1EVXBG0B9D	H1EVXBH0B9D					
					External	H1EVXXG0B9D	H1EVXXH0B9D					
	4-way, 2-position, air return	1.5	Single solenoid	24 VDC	Internal	H11VXBG0B9D	H11VXBH0B9D					
					External	H11VXXG0B9D	H11VXXH0B9D					
	4-way, 2-position	1.5	Double solenoid	24 VDC	Internal	H12VXBG0B9D	H12VXBH0B9D					
					External	H12VXXG0B9D	H12VXXH0B9D					
						4-way, 3-position, all ports blocked	1.2	Double solenoid	24 VDC	Internal	H15VXBG0B9D	H15VXBH0B9D
										External	H15VXXG0B9D	H15VXXH0B9D
	4-way, 3-position, center exhaust	1.2	Double solenoid	24 VDC	Internal	H16VXBG0B9D	H16VXBH0B9D					
					External	H16VXXG0B9D	H16VXXH0B9D					
	4-way, 3-position, pressure center	1.2	Double solenoid	24 VDC	Internal	H17VXBG0B9D	H17VXBH0B9D					
					External	H17VXXG0B9D	H17VXXH0B9D					

Symbol	Type	Cv	Operator	Voltage	Pilot	Non-locking	Locking					
	4-way, 2-position, spring return	1.5	Single solenoid	120 VAC	Internal	H1EVXBG023D	H1EVXBH023D					
					External	H1EVXXG023D	H1EVXXH023D					
	4-way, 2-position, air return	1.5	Single solenoid	120 VAC	Internal	H11VXBG023D	H11VXBH023D					
					External	H11VXXG023D	H11VXXH023D					
	4-way, 2-position	1.5	Double solenoid	120 VAC	Internal	H12VXBG023D	H12VXBH023D					
					External	H12VXXG023D	H12VXXH023D					
						4-way, 3-position, all ports blocked	1.2	Double solenoid	120 VAC	Internal	H15VXBG023D	H15VXBH023D
										External	H15VXXG023D	H15VXXH023D
	4-way, 3-position, center exhaust	1.2	Double solenoid	120 VAC	Internal	H16VXBG023D	H16VXBH023D					
					External	H16VXXG023D	H16VXXH023D					
	4-way, 3-position, pressure center	1.2	Double solenoid	120 VAC	Internal	H17VXBG023D	H17VXBH023D					
					External	H17VXXG023D	H17VXXH023D					

5599-2, Plug-in Single Subbase, Size 1 (H1)

Side ported	Enclosure / Lead length	Solenoid addresses	3/8" NPT	3/8" BSPP
	Terminal strip in base	Double solenoid - 2 address	PS401115CDP	PS401116CDP
	6" flying leads	Double solenoid - 2 addresses	PS401115ADP	PS401116ADP
	4-pin, M12 micro connector in base, SAE / Ford wiring	Double solenoid - 2 addresses	PS4011158FDP	PS4011168FDP

5599-2, Plug-in Manifold Bases, Size 1 (H1)

Bottom / End	Enclosure / Lead length	Solenoid addresses	3/8" NPT	3/8" BSPP
	Circuit board	Single solenoid - 1 address	PS401165JCP	PS401166JCP
	Circuit board	Double solenoid - 2 addresses	PS401165MCP	PS401166MCP
	Terminal strip in base	Double solenoid - 2 address	PS401165CCP	PS401166CCP
	6" flying leads	Double solenoid - 2 addresses	PS401165ACP	PS401166ACP
	4-pin, M12 micro connector in base, SAE / Ford wiring	Double solenoid - 2 addresses	PS4011658FCP	PS4011668FCP

End Ported	Enclosure / Lead length	Solenoid addresses	3/8" NPT	3/8" BSPP
	Circuit board	Single solenoid - 1 address	PS401155JCP	PS401156JCP
	Circuit board	Double solenoid - 2 addresses	PS401155MCP	PS401156MCP
	Terminal strip in base	Double solenoid - 2 address	PS401155CCP	PS401156CCP
	6" flying leads	Double solenoid - 2 addresses	PS401155ACP	PS401156ACP

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H Series Micro

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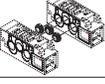
H Series ISO

Fieldbus Systems

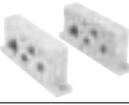
DX ISOMAX Series

Valvair II Series

5599-2, Size 1 (H1) Accessories

Accessory	Description	Part number
	Common pressure 5-125 PSIG w/ gauge	PS4038166CP
	Independent pressure 5-125 PSIG w/ gauge	PS4038266CP
	Blanking plate kit	PS4034CP
	Sandwich flow control	PS4035CP
	A Sandwich Flow Control and Common Port Sandwich Regulator may be sandwiched together on a manifold or subbase. The Sandwich Flow Control MUST be located between the manifold/subbase and the Common Port Sandwich Regulator.	
	Manifold to manifold gasket kits	PS4013P
	Main galley (1, 3, 5)	PS4032CP
	Pilot galley	PS4033CP
	1/4" & 3/8" NPT	PS403000CP
		BSPP
	Kit includes: Pilot Port Access Plate, Gasket and Mounting Screws. <ul style="list-style-type: none"> • Used on H1 Manifolds to provide auxiliary access to Ports 1, 3 & 5. • Port 1: 1/4", Ports 3 & 5: 3/8". Height: .72 Inch 	

Plug-in, 5599-2 End Plate Kits, Size 1 (H1)

Electrical option	Description	NPT port	BSPP port
	No connector - use with individually wired base	PS4031010DP	PS4031011DP
	25-pin, D-sub	PS4020L20DP	PS4020L21DP
	19-pin, round, Brad Harrison	PS4020L30DP	PS4020L31DP
	12-pin, M23	PS4020L40DP	PS4020L41DP
	19-pin, M23	PS4020M20DP	PS4020M21DP
	Moduflex fieldbus	PS4020M40DP	PS4020M41DP
	H Series Fieldbus, with valve driver module	PS4020L60DP	PS4020L61DP
	Turck fieldbus with valve driver module - 16 outputs	PS4020T10DP	PS4020T11DP
	Turck fieldbus with valve driver module - 24 outputs	PS4020T20DP	PS4020T21DP

Turck, H Series Fieldbus, and Moduflex communication modules must be ordered separately. See Fieldbus Section for more information.

Note:
For cable part numbers and pin out information see Fieldbus System Accessories.

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How To Order Plug-in Add-A-Fold Assemblies

1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold. The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)

Example

Application requires a 3-Station manifold with a valve, regulator on Station 3.

Item	Qty.	Part No.	Location
01	1	AAH1D003	
02	1	H11VXBG0B9D	Station 1
03	1	PS401155MCP	Station 1
04	1	H12VXBG0B9D	Station 2
05	1	PS401155MCP	Station 2
06	1	H12VXXG0B9D	Station 3
07	1	PS4038166CP	Station 3
08	1	PS401155MCP	Station 3

NOTE:

Construct manifold assemblies from left to right while looking at the cylinder ports. Valves must be ordered as External Pilot when using Sandwich Regulator.



**Example:
 3-Station Manifold with (3) H1 Valves
 and Regulator at Station 3**

**Maximum Number of Solenoids
 (Maximum energized simultaneously)**

Voltage	Voltage code	25-pin D-sub	19-pin M23 or		12-pin M23	Moduflex	Turck	
			Brad Harrison	Brad Harrison			H Series 16 Fieldbus Outputs	32 Outputs
24VDC	G9	24 (24)	16 (16)	8 (8)	24 (24)†	24 (21)	16 (16)	24 (21)
120VAC*	23	24 (24)	16 (16)	8 (8)	N/A	N/A	N/A	N/A

* Not CSA certified for 25-pin, D-sub option.

† Use Type A IO-Link module for 24 outputs simultaneously.

Add-A-Fold Assembly Model Numbers

AA H1 D 0 03

Valve series	Right & left end plate H1
End plate type	Turck fieldbus with valve driver module - 16 outputs A* Turck fieldbus with valve driver module - 32 outputs B* 25-pin, D-sub D 19-pin, Brad harrison E 12-pin, M23 G 19-pin, M23 H Standard, non-collective wiring S Moduflex fieldbus T* H series fieldbus, with valve driver module X*
Transition Plate	Blank No transition plate C H1 to H2 D H1 to H3
Number of stations	01 02 03 04 • • 24
Thread type	0 NPT 1* BSPP "G"

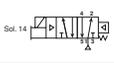
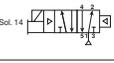
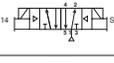
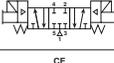
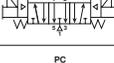
* Must order communication modules separately.

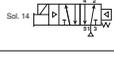
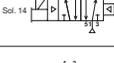
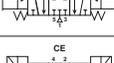
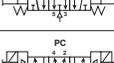
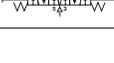
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5599-2, Plug-in, Size 2 (H2)

Symbol	Type	Cv	Operator	Voltage	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	3.0	Single solenoid	24 VDC	Internal	H2EVXBG0B9D	H2EVXBH0B9D
					External	H2EVXXG0B9D	H2EVXXH0B9D
	4-way, 2-position, air return	3.0	Single solenoid	24 VDC	Internal	H21VXBG0B9D	H21VXBH0B9D
					External	H21VXXG0B9D	H21VXXH0B9D
	4-way, 2-position	3.0	Double solenoid	24 VDC	Internal	H22VXBG0B9D	H22VXBH0B9D
					External	H22VXXG0B9D	H22VXXH0B9D
	4-way, 3-position, all ports blocked	2.8	Double solenoid	24 VDC	Internal	H25VXBG0B9D	H25VXBH0B9D
					External	H25VXXG0B9D	H25VXXH0B9D
	4-way, 3-position, center exhaust	2.8	Double solenoid	24 VDC	Internal	H26VXBG0B9D	H26VXBH0B9D
					External	H26VXXG0B9D	H26VXXH0B9D
	4-way, 3-position, pressure center	2.8	Double solenoid	24 VDC	Internal	H27VXBG0B9D	H27VXBH0B9D
					External	H27VXXG0B9D	H27VXXH0B9D

Symbol	Type	Cv	Operator	Voltage	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	3.0	Single solenoid	120 VAC	Internal	H2EVXBG023D	H2EVXBH023D
					External	H2EVXXG023D	H2EVXXH023D
	4-way, 2-position, air return	3.0	Single solenoid	120 VAC	Internal	H21VXBG023D	H21VXBH023D
					External	H21VXXG023D	H21VXXH023D
	4-way, 2-position	3.0	Double solenoid	120 VAC	Internal	H22VXBG023D	H22VXBH023D
					External	H22VXXG023D	H22VXXH023D
	4-way, 3-position, all ports blocked	2.8	Double solenoid	120 VAC	Internal	H25VXBG023D	H25VXBH023D
					External	H25VXXG023D	H25VXXH023D
	4-way, 3-position, center exhaust	2.8	Double solenoid	120 VAC	Internal	H26VXBG023D	H26VXBH023D
					External	H26VXXG023D	H26VXXH023D
	4-way, 3-position, pressure center	2.8	Double solenoid	120 VAC	Internal	H27VXBG023D	H27VXBH023D
					External	H27VXXG023D	H27VXXH023D

5599-2, Plug-in Single Subbase, Size 2 (H2)

Side ported base	Enclosure / Lead length	Solenoid addresses	1/2" NPT	1/2" BSPP
	Terminal strip in base	Double solenoid - 2 address	PS411117CCP	PS411118CCP
	6" flying leads	Double solenoid - 2 addresses	PS411117ACP	PS411118ACP

5599-2, Plug-in Manifold Bases, Size 2 (H2)

Bottom / End ported bases	Enclosure / Lead length	Solenoid addresses	1/2" NPT	1/2" BSPP				
	Circuit board	Single solenoid - 1 address	PS411167JCP	PS411168JCP				
	Circuit board	Double solenoid - 2 addresses	PS411167MCP	PS411168MCP				
	Terminal strip in base	Double solenoid - 2 address	PS411167CCP	PS411168CCP				
	6" flying leads	Double solenoid - 2 addresses	PS411167ACP	PS411168ACP				
End Ported	Enclosure / Lead length	Solenoid addresses	1/2" NPT	1/2" BSPP				
					Circuit board	Single solenoid - 1 address	PS411157JCP	PS411158JCP
					Circuit board	Double solenoid - 2 addresses	PS411157MCP	PS411158MCP
					Terminal strip in base	Double solenoid - 2 address	PS411157CCP	PS411158CCP
					6" flying leads	Double solenoid - 2 addresses	PS411157ACP	PS411158ACP

 Most popular.



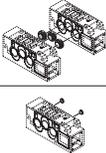
For inventory, lead times, and kit lookup, visit www.pdnplu.com

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 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

5599-2, Size 2 (H2) Accessories

Accessory	Description	Part number
	Common pressure 5-125 PSIG w/ gauge	PS4138166CP
	Independent pressure 5-125 PSIG w/ gauge	PS4138266CP
	Blanking plate kit	PS4134CP
	Sandwich flow control	PS4135CP
A Sandwich Flow Control and Common Port Sandwich Regulator may be sandwiched together on a manifold or subbase. The Sandwich Flow Control MUST be located between the manifold/subbase and the Common Port Sandwich Regulator.		
	Manifold to manifold gasket kits	PS4113P
	Main galley (1, 3, 5)	PS4132CP
	Pilot galley	PS4033CP

Plug-in, 5599-2 End Plate Kits, Size 2 (H2)

Electrical option	Description	NPT port	BSPP port
	No connector - use with individually wired base	PS4131010DP	PS4131011DP
	25-pin, D-sub	PS4120L20DP	PS4120L21DP
	19-pin, round, Brad Harrison	PS4120L30DP	PS4120L31DP
	12-pin, M23	PS4120L40DP	PS4120L41DP
	19-pin, M23	PS4120M20DP	PS4120M21DP
	Moduflex fieldbus	PS4120M40DP	PS4120M41DP
	H Series Fieldbus, with valve driver module	PS4120L60DP	PS4120L61DP
	Turck fieldbus with valve driver module - 16 outputs	PS4120T10DP	PS4120T11DP
	Turck fieldbus with valve driver module - 24 outputs	PS4120T20DP	PS4120T21DP

Turck, H Series Fieldbus, and Moduflex communication modules must be ordered separately. See Fieldbus Section for more information.

Note:

For cable part numbers and pin out information see Fieldbus System Accessories.

 Most popular.



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Subbase & Manual Valves

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Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

Ordering Information

How To Order Plug-in Add-A-Fold Assemblies

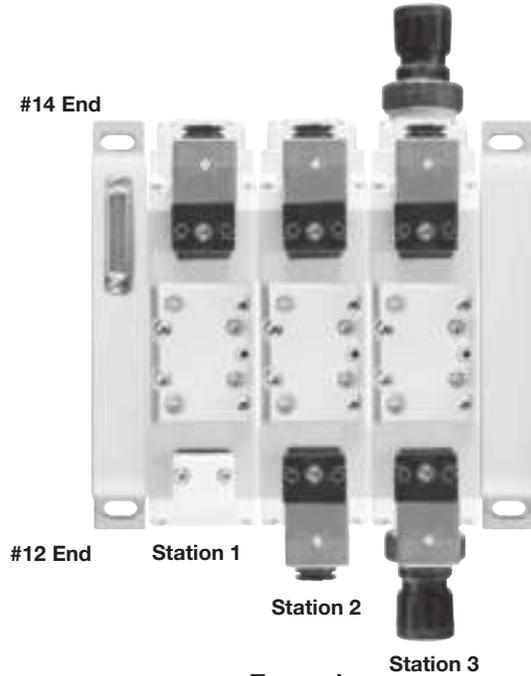
1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold. The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)

Example

Application requires a 3-Station manifold with a valve and regulator on Station 3.

Item	Qty.	Part No.	Location
01	1	AAH2D003	
02	1	H21VXBG0B9D.....	Station 1
03	1	PS411157MCP.....	Station 1
04	1	H22VXBG0B9D.....	Station 2
05	1	PS411157MCP.....	Station 2
06	1	H22VXXG0B9D.....	Station 3
07	1	PS4138166CP.....	Station 3
08	1	PS411157MCP.....	Station 3

NOTE: Construct manifold assemblies from left to right while looking at the cylinder ports.
Valves must be ordered as External Pilot when using Sandwich Regulator.



Example:
3-Station Manifold with (3) H2 Valves on Manifold Bases and Regulator at Station 3

Maximum Number of Solenoids (Maximum energized simultaneously)

Voltage	Voltage code	25-pin D-sub	19-pin M23 or		Turck			
			Brad Harrison	12-pin M23	H Series 16	32	Fieldbus Outputs	32
24VDC	G9	24 (24)	16 (16)	8 (8)	24 (24) [†]	24 (21)	16 (16)	24 (21)
120VAC*	23	24 (24)	16 (16)	8 (8)	N/A	N/A	N/A	N/A

* Not CSA certified for 25-pin, D-Sub option.
† Use Type A IO-Link module for 24 outputs simultaneously.

Add-A-Fold Assembly Model Numbers

AA H2 D 0 03

Valve series	Transition Plate
Right & left end plate H2	Blank No transition plate
Right & left end plate H3	E ‡ H2 to H3
	‡ Must specify valve series H3.

End plate type	Number of stations
Turck fieldbus with valve driver module - 16 outputs A*	01
Turck fieldbus with valve driver module - 32 outputs B*	02
25-pin, D-sub D [†]	03
19-pin, brad harrison E [†]	04
12-pin, M23 G [†]	•
19-pin, M23 H [†]	•
Standard, non-collective wiring S	24
Moduflex fieldbus T*	
H Series Fieldbus, with valve driver module Y*	

Thread type
0 NPT
1* BSPP "G"

* Most order communication modules separately.
† Collective wiring module included.
* BSPP conforms to ISO 1179-1 w 228-1 threads.

D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

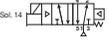
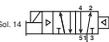
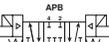
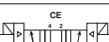
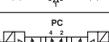
Valvair II Series

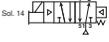
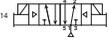
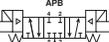
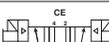
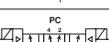
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5599-2, Plug-in, Size 3 (H3)

Symbol	Type	Cv	Operator	Voltage	Pilot	Non-locking	Locking	
		4-way, 2-position, spring return	6.0	Single solenoid	24 VDC	Internal	H3EVXBG0B9D	H3EVXBH0B9D
						External	H3EVXXG0B9D	H3EVXXH0B9D
		4-way, 2-position, air return	6.0	Single solenoid	24 VDC	Internal	H31VXBG0B9D	H31VXBH0B9D
						External	H31VXXG0B9D	H31VXXH0B9D
		4-way, 2-position	6.0	Double solenoid	24 VDC	Internal	H32VXBG0B9D	H32VXBH0B9D
						External	H32VXXG0B9D	H32VXXH0B9D
		4-way, 3-position, all ports blocked	5.0	Double solenoid	24 VDC	Internal	H35VXBG0B9D	H35VXBH0B9D
						External	H35VXXG0B9D	H35VXXH0B9D
		4-way, 3-position, center exhaust	5.0	Double solenoid	24 VDC	Internal	H36VXBG0B9D	H36VXBH0B9D
						External	H36VXXG0B9D	H36VXXH0B9D
		4-way, 3-position, pressure center	5.0	Double solenoid	24 VDC	Internal	H37VXBG0B9D	H37VXBH0B9D
						External	H37VXXG0B9D	H37VXXH0B9D

Symbol	Type	Cv	Operator	Voltage	Pilot	Non-locking	Locking	
		4-way, 2-position, spring return	6.0	Single solenoid	120 VAC	Internal	H3EVXBG023D	H3EVXBH023D
						External	H3EVXXG023D	H3EVXXH023D
		4-way, 2-position, air return	6.0	Single solenoid	120 VAC	Internal	H31VXBG023D	H31VXBH023D
						External	H31VXXG023D	H31VXXH023D
		4-way, 2-position	6.0	Double solenoid	120 VAC	Internal	H32VXBG023D	H32VXBH023D
						External	H32VXXG023D	H32VXXH023D
		4-way, 3-position, all ports blocked	5.0	Double solenoid	120 VAC	Internal	H35VXBG023D	H35VXBH023D
						External	H35VXXG023D	H35VXXH023D
		4-way, 3-position, center exhaust	5.0	Double solenoid	120 VAC	Internal	H36VXBG023D	H36VXBH023D
						External	H36VXXG023D	H36VXXH023D
		4-way, 3-position, pressure center	5.0	Double solenoid	120 VAC	Internal	H37VXBG023D	H37VXBH023D
						External	H37VXXG023D	H37VXXH023D

5599-2, Plug-in Single Subbase, Size 3 (H3)

Side ported base	Enclosure / Lead length	Solenoid addresses	3/4" NPT	3/4" BSPP
	Terminal strip in base	Double solenoid - 2 address	PS421119CCP	PS401110CCP
	6" flying leads	Double solenoid - 2 addresses	PS421119ACP	PS421110ACP

5599-2, Plug-in Manifold Bases, Size 3 (H3)

Bottom / End ported bases	Enclosure / Lead length	Solenoid addresses	3/4" NPT	3/4" BSPP
	Circuit board	Single solenoid - 1 address	PS421169JDP	PS421160JDP
	Circuit board	Double solenoid - 2 addresses	PS421169MCP	PS421160MCP
	Terminal strip in base	Double solenoid - 2 address	PS421169CCP	PS421160CCP
	6" flying leads	Double solenoid - 2 addresses	PS421169ACP	PS421160ACP

End Ported	Enclosure / Lead length	Solenoid addresses	3/4" NPT	3/4" BSPP
	Circuit board	Single solenoid - 1 address	PS421159JCP	PS421150JCP
	Circuit board	Double solenoid - 2 addresses	PS421159MCP	PS421150MCP
	Terminal strip in base	Double solenoid - 2 address	PS421159CCP	PS421150CCP
	6" flying leads	Double solenoid - 2 addresses	PS421159ACP	PS421150ACP

 Most popular.



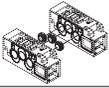
For inventory, lead time, and kit lookup, visit www.pdnplu.com

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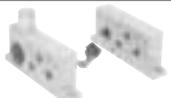
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5599-2, Size 3 (H3) Accessories

Accessory	Description	Part number
 Sandwich regulator	Common pressure 5-125 PSIG w/ gauge	PS4238166CP
	Independent pressure 5-125 PSIG w/ gauge	PS4238266CP
 Blanking plate kit		PS4234CP
 Sandwich flow control	A Sandwich Flow Control and Common Port Sandwich Regulator may be sandwiched together on a manifold or subbase. The Sandwich Flow Control MUST be located between the manifold/subbase and the Common Port Sandwich Regulator.	PS4235CP
 Manifold to manifold gasket kits		PS4213P
 Manifold port isolation kit	Main galley (1, 3, 5)	PS4232CP
	Pilot galley	PS4033CP

Plug-in, 5599-2 End Plate Kits, Size 3 (H3)

Electrical option	NPT port	BSPP port
 No connector - use with individually wired base	PS4231010DP	PS4231011DP
 25-pin, D-sub	PS4220L20DP	PS4220L21DP
 19-pin, round, Brad Harrison	PS4220L30DP	PS4220L31DP
 12-pin, M23	PS4220L40DP	PS4220L41DP
	19-pin, M23	PS4220M20DP
 Moduflex fieldbus	PS4220M40DP	PS4220M41DP
 H Series Fieldbus, with valve driver module	PS4220L60DP	PS4220L61DP
 Turck fieldbus with valve driver module - 16 outputs	PS4220T10DP	PS4220T11DP
	Turck fieldbus with valve driver module - 24 outputs	PS4220T20DP

Turck, H Series Fieldbus, and Moduflex communication modules must be ordered separately. See Fieldbus Section for more information.

Note:
For cable part numbers and pin out information see Fieldbus System Accessories.

 Most popular.



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How To Order Plug-in Add-A-Fold Assemblies

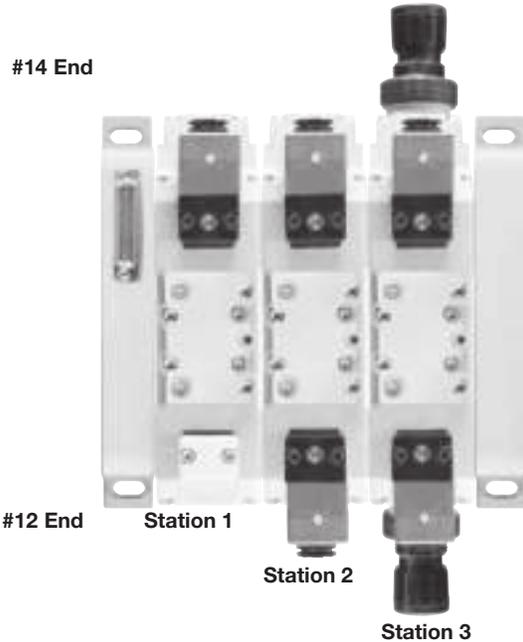
1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold. The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)

Example

Application requires a 3-Station manifold with a valve and regulator on Station 3.

Item	Qty.	Part No.	Location
01	1	AAH3D003	
02	1	H31VXBG0B9D.....	Station 1
03	1	PS421159MCP.....	Station 1
04	1	H32VXBG0B9D.....	Station 2
05	1	PS421159MCP.....	Station 2
06	1	H32VXXG0B9D.....	Station 3
07	1	PS4238166CP.....	Station 3
08	1	PS421159MCP.....	Station 3

NOTE: Construct manifold assemblies from left to right while looking at the cylinder ports.
 Valves must be ordered as External Pilot when using Sandwich Regulator.



Example:
3-Station Manifold with (3) H3 Valves on Manifold Bases and Regulator at Station 3

Maximum Number of Solenoids (Maximum energized simultaneously)

Voltage	Voltage code	19-pin M23 or		12-pin M23	12-pin Moduflex	Turck		
		25-pin D-sub	Brad Harrison			H Series 16 Fieldbus Outputs	32 Outputs	
24VDC	G9	24 (24)	16 (16)	8 (8)	24 (24) [†]	24 (21)	16 (16)	24 (21)
120VAC*	23	24 (24)	16 (16)	8 (8)	N/A	N/A	N/A	N/A

* Not CSA certified for 25-pin, D-Sub option.
[†] Use Type A IO-Link module for 24 outputs simultaneously.

Add-A-Fold Assembly Model Numbers

AA H3 D 0 03

Valve series	End plate type
Right & left end plate H3	Turck fieldbus with valve driver module - 16 outputs A*
	Turck fieldbus with valve driver module - 32 outputs B*
	25-pin, D-sub D [†]
	19-pin, brad harrison E [†]
	12-pin, M23 G [†]
	19-pin, M23 H [†]
	Standard, non-collective wiring S
	Moduflex fieldbus T*
	H Series Fieldbus, with valve driver module Y*

Number of stations
01
02
03
04
•
•
24

Thread type
0 NPT
1* BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

* Must order communication modules separately.
[†] Collective wiring module included.

Most popular.



For inventory, lead time, and kit lookup, visit www.pdnplu.com

Plug-in, 5599-2, Size 1, 2, & 3

H1 E VX B G O B9 D

Basic series 5599-2	
ISO 5599-2 Size 1	H1
ISO 5599-2 Size 2	H2
ISO 5599-2 Size 3	H3

5599-2 Engineering level	
D	Current

5599-2 Operator / Function	
Single solenoid, 2-position - air return	1
Double solenoid, 2-position	2
Double solenoid, 3-position - APB	5
Double solenoid, 3-position - CE	6
Double solenoid, 3-position - PC	7
Single solenoid, 2-position - air return, spring assist	E

5599-2 Voltage & Frequency				
	AC		DC	Light & surge suppression
	60Hz	50Hz		
42	24			
45			12	
B9			24	LED & suppression
23	120	115		LED & suppression
57	240			

5599-2 Mounting	
5599-2 Valve less vase	VX

5599-2 Enclosure / Lead length	
0	None, valve less base

5599-2 Pilot source / Pilot exhaust	
Internal pilot, port #1 / vented	B
External pilot, port #12 or #14 / vented	X*

* Must be specified when using Sandwich Regulators.

5599-2 Overrides / Lights		
	Voltage code	
B	42, 45, 57	Non-locking, flush, push - w/o light
C	42, 45, 57	Locking, flush, push / turn - w/o light
G	B9, 23	Non-locking, flush, push - w/ light
H	B9, 23	Locking, flush, push / turn - w/ light

D

Subbase & Manual
Valves

H Series
Micro

Modulflex
Series

H Series
ISO

Fieldbus
Systems

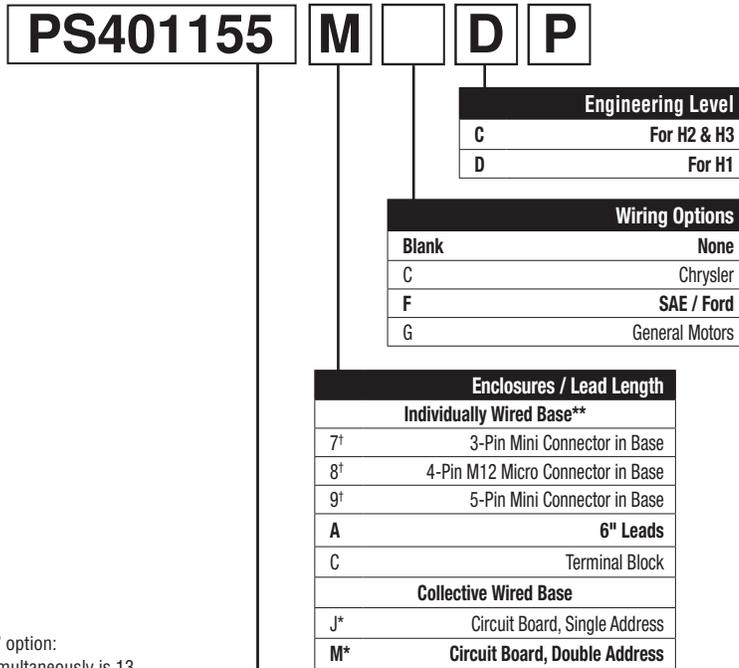
DX ISOMAX
Series

Valvair II
Series



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Plug-in, 5599-2, Size 1, 2 & 3 Manifold / Subbase Kits



Note:
 When using the Enclosure / Lead Length "J" or "M" option:
 12VDC - Maximum number of coils energized simultaneously is 13
 24VDC - Maximum number of coils energized simultaneously is 21
 120VAC - Coils limited by the number of pins available in the connector
 (25-Pin D-Sub = 24 coils, 19-Pin Brad Harrison = 16, 12-Pin M23 = 8)
 240VAC - Must use "A" or "C" Option, Lead Wires or Terminal Blocks

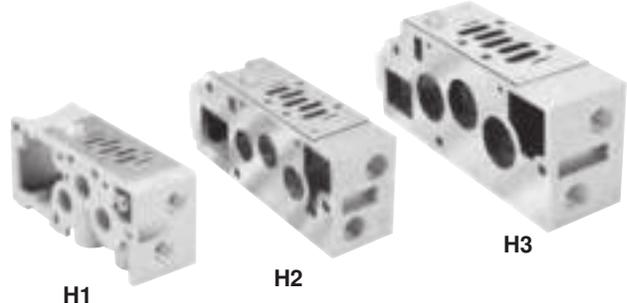
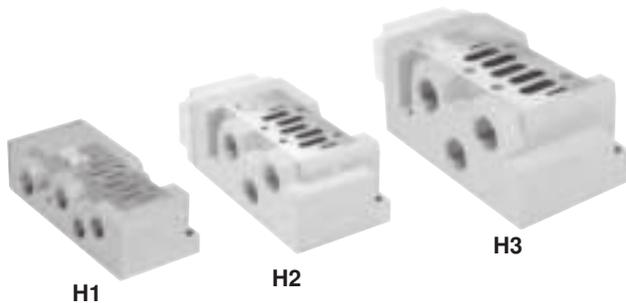
* Not Available with Subbase Kits.
 ** Use Plate with No Connection.
 † Must Specify Valve Auto Wiring Option "C", "F", or "G".

Mounting Base Style / Port Size		ISO 5599-2, Size 1 H1 Series	ISO 5599-2, Size 2 H2 Series	ISO 5599-2, Size 3 H3 Series	
Subbase: 3/8 NPT Side Ports	PS401115	Subbase: 1/2 NPT Side Ports	PS411117	Subbase: 3/4 NPT Side Ports	PS421119
Subbase: 3/8 BSPP Side Ports	PS401116	Subbase: 1/2 BSPP Side Ports	PS411118*	Subbase: 3/4 BSPP Side Port	PS421110*
Manifold: 3/8 NPT End Ports	PS401155	Manifold: 1/2 NPT End Port	PS411157	Manifold: 3/4 NPT End Port	PS421159
Manifold: 3/8 BSPP End Ports	PS401156*	Manifold: 1/2 BSPP End Ports	PS411158*	Manifold: 3/4 BSPP End Port	PS421150*
Manifold: 3/8 NPT Bottom / End Port	PS401165†	Manifold: 1/2 NPT Bottom / End Port	PS411167	Manifold: 3/4 NPT Bottom / End Port	PS421169
Manifold: 3/8 BSPP Bottom / End Port	PS401166*†	Manifold: 1/2 BSPP Bottom / End Port	PS411168*	Manifold: 3/4 BSPP Bottom / End Port	PS421160*

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.
 † #1 Bottom Port - 1/4".

Subbase Kits

Manifold Kits



Automotive Connectors
 Mounted in 1/2" Conduit Port

- 3-Pin - Wired for Single Solenoid
- 4-Pin / 5-Pin - Wired for Double Solenoid

Automotive Connectors
 Mounted in Individual Manifold Conduit Cover

- 3-Pin - Wired for Single Solenoid
- 4-Pin / 5-Pin - Wired for Double Solenoid



For inventory, lead time, and kit lookup, visit www.pdnplu.com

D95

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D

Subbase & Manual Valves

H Series Micro

Modulflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

Plug-in, 5599-2 End Plate Kits

PS40 20L2 0 D P

Basic Series	
ISO 5599, Size 1	PS40
ISO 5599, Size 2	PS41
ISO 5599, Size 3	PS42

Engineering Level	
D	Current

Thread Type	
0	NPT
1*	BSPG "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads

Options †	
25-Pin, D-Sub	20L2*
19-Pin, Round, Brad Harrison	20L3
12-Pin, M23	20L4
19-Pin, M23	20M2
Moduflex Fieldbus	20M4
H Series Fieldbus, with Valve Driver Module	20L6
Turck Fieldbus with Valve Driver Module - 16 Outputs	20T1
Turck Fieldbus with Valve Driver Module - 24 Outputs	20T2

* 120VAC is Not CSA Rated.

† Manifold bases must have a circuit board.

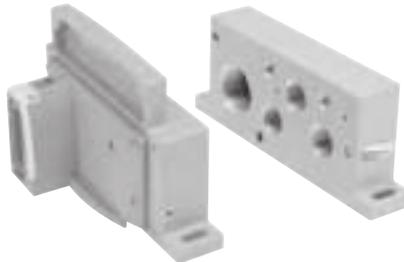
Turck, H Series Fieldbus, and Moduflex communication modules must be ordered separately. See Fieldbus Section for more information.



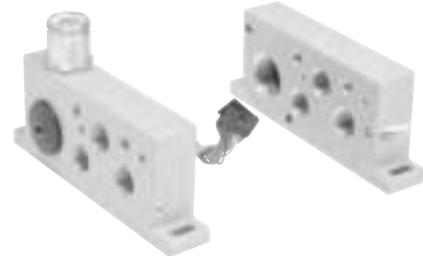
L2: H1 25-Pin D-Sub End Plates



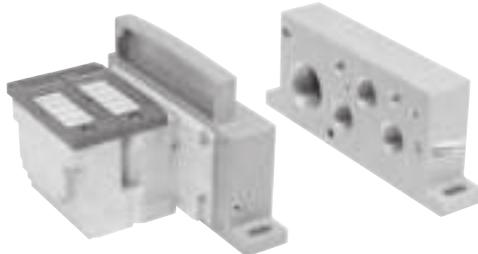
L4 or M2: H1, M23, 12-Pin or 19-Pin End Plates



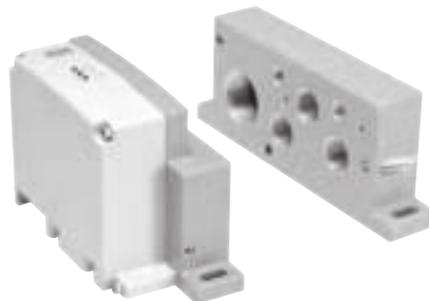
M4: H1 Moduflex Fieldbus End Plates



L3: H1 19-Pin Brad Harrison End Plates



T1, T2: Turck Fieldbus with Valve Driver Module End Plates



L6: H1 H Series Fieldbus End Plates

D
 Subbase & Manual Valves
 H Series Micro
 Moduflex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series



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Plug-in, 5599-2 Transition Plate Kits

PS4026 L2 0 C P

Transition plate type*	
H1 to H2 to H3	PS4025
H1 to H3	PS4026
H1 to H2	PS4027
H2 to H3	PS4028

* Includes Left Hand and Right Hand End Plates

Engineering level	
C	Basic series PS40

Thread type	
0	NPT
1*	BSPP "G"

* BSPP conforms to ISO 1179-1 w 228-1 threads.

Options	
25-pin, D-sub	L2
19-pin, round, brad harrison	L3
12-pin, M23	L4
19-pin, M23	M2
Moduflex fieldbus	M4*
H Series Fieldbus, with valve driver module	L6*
Turck fieldbus with valve driver module - 16 outputs	T1
Turck fieldbus with valve driver module - 32 outputs	T2

* Must order communication module separately
 turck, H Series Fieldbus, and moduflex communication modules must be ordered separately.
 See fieldbus section for more information.



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D	Subbase & Manual Valves
	H Series Micro
	Moduflex Series
	H Series ISO
Fieldbus Systems	
DX ISOMAX Series	
Valvair II Series	

Plug-in, 5599-2, Sandwich Regulators

PS4038 1 6 6 C P

Basic Series	
H1	
5599-2, Plug-in	PS4038
H2	
5599-2, Plug-in	PS4138
H3	
5599-2, Plug-in	PS4238

Regulator Function	
Common Pressure Regulator	1
Independent Pressure Regulator	2

#2 Port Regulator / Gauge*	
0**	Line By-Pass Plate
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge
D	Remote Pilot ISO 2 & 3 only

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

** Pressure Line By-Pass Option can only be used with Independent Pressure Regulators.

#4 Port Regulator / Gauge*	
0**	Line By-Pass Plate
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge
D	Remote Pilot ISO 2 & 3 only

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

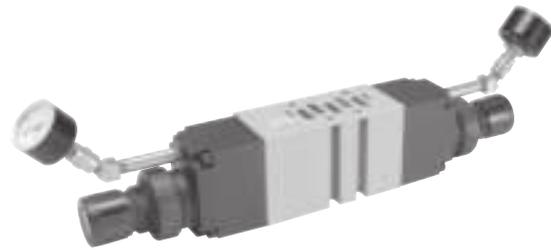
** Pressure Line By-Pass Option can only be used with Independent Pressure Regulators.

Ordering Components

- Sandwich Regulator Kit configured for Internal Pilot as standard.
- Order valve as External Pilot.



H1 - Size 1
 (Independent Dual Port Regulator Shown)



H2 - Size 2
 (Independent Dual Port Regulator Shown)

How to Configure Sandwich Regulator / Valve Combinations

Internal Pilot Configuration of Sandwich Regulator H1, H2 & H3

Pressure in Base Port 1 feeds regulator configured for Internal Pilot which feeds valve configured for External Pilot.

External Pilot Configuration of Sandwich Regulator H1, H2, H3

An External Pilot pressure in Port 12 or 14 of the base feeds thru the Sandwich Regulator 12 or 14 galley directly to the 12/14 pilot of the valve. This configuration takes an External Pilot from the 12 port of the base and passes it thru the regulator to feed the 12 galley of the valve.

Sandwich Regulator Cv Flow Chart*

	Common Pressure Code 166				Single Pressure 2 Code 206				Single Pressure 4 Code 260				Dual Pressure Code 266			
	1-2	1-4	2-3	4-5	1-2	1-4	2-3	4-5*	1-2	1-4	2-3	4-5*	1-2	1-4	2-3	4-5*
H1	0.62	0.61	1.28	1.18	0.73	0.96	0.96	0.93	0.34	0.70	0.94	0.98	0.52	0.48	0.86	0.88
H2	1.47	1.60	2.41	2.33	1.71	1.90	1.52	1.75	1.74	1.67	1.73	1.79	1.61	1.62	1.50	1.67
H3	2.37	2.39	4.30	4.47	2.37	2.81	2.75	3.01	2.65	2.59	2.68	2.74	2.43	2.41	3.16	3.04

* Regulator Port exhaust through Base Port 3.

Note: All Cv's calculated with regulator adjusted full open.

D

Subbase & Manual Valves

H Series Micro

Modulflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series



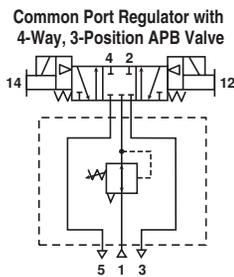
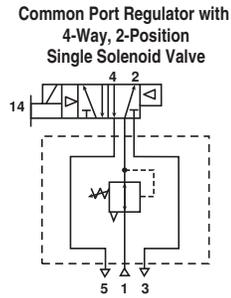
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D98

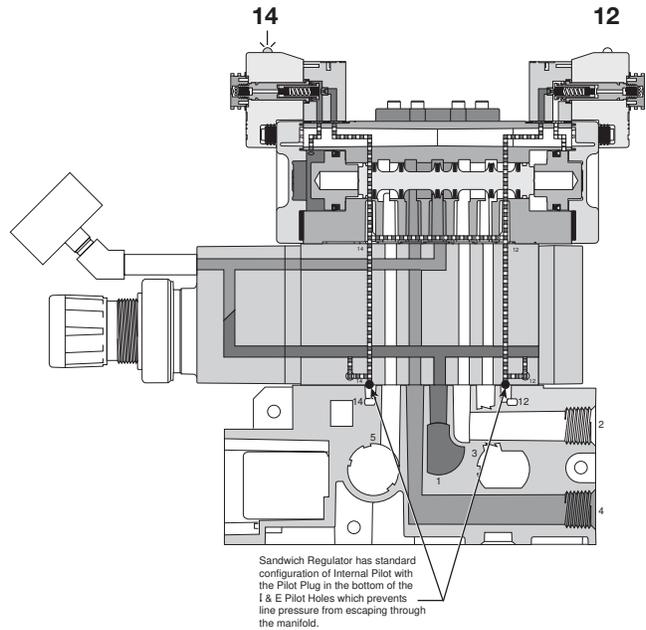
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Plug-in, H1, H2, H3 Common Port Regulation

Provides adjustable regulated air pressure to the valve's #1 port which gives the same regulated pressure to both the #2 and #4 port of the manifold or subbase. The regulator is always on the 14 end of the valve.



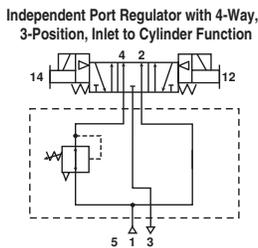
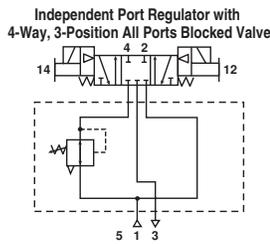
H2 Common Port Regulator Shown - Double Solenoid, 14 Energized, Internal Pilot



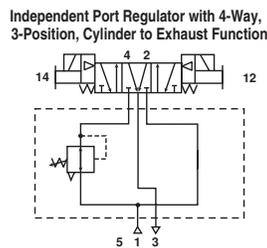
Plug-in, H1, H2, H3 Independent Port Regulation

Single Port Regulator

Provides regulated pressure to one of the ports and full line pressure to the other by use of the Line Pressure By-Pass Plate. Pressure regulation can occur out of the #4 port of the valve.

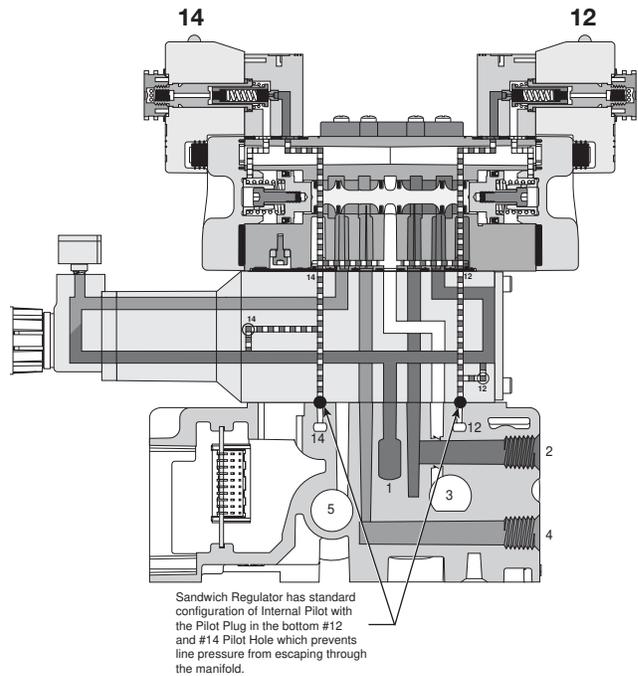


CAUTION: Requires 4-Way, 3-Position, Cylinder to Exhaust Valve



CAUTION: Requires 4-Way, 3-Position, Inlet to Cylinder Valve

H1 Independent Port Regulator Shown - Double Solenoid, De-energized, Internal Pilot



D

Subbase & Manual Valves

H Series Micro

Modulflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

When using an Independent Pressure Sandwich Regulator, the cylinder outlet ports are reversed. The 12 end energizes the #4 port and the 14 end energizes the #2 port. The 3-Position CE and PC functions are also reversed. (See schematics above.)



For inventory, lead time, and kit lookup, visit www.pdnplu.com

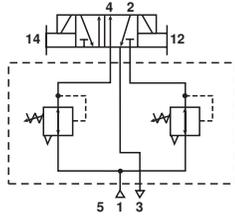
Plug-in, H1, H2, H3 Independent Dual Port Regulation

Dual Port Regulator

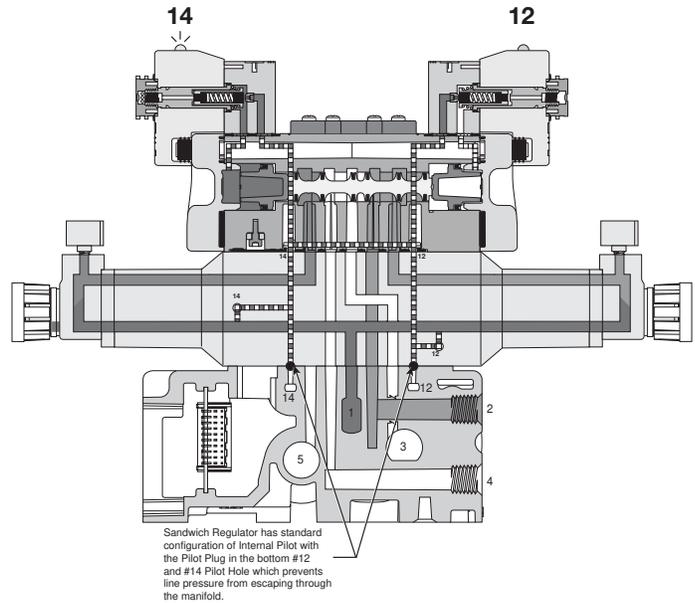
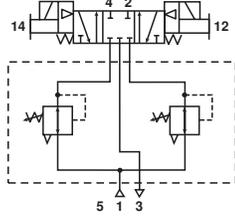
Provides regulated pressure to both ports. Pressure regulation can occur out of the #2 or #4 port of the valve.

H1 Independent Dual Port Regulator Shown - Double Solenoid, 14 Energized, Internal Pilot

Independent Dual Port Regulator with 4-Way, 2-Position Double Solenoid Valve



Independent Dual Port Regulator with 4-Way, 3-Position Double Solenoid Valve



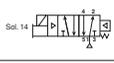
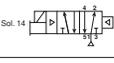
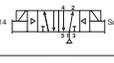
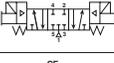
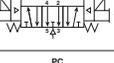
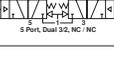
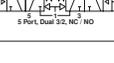
When using an Independent Pressure Sandwich Regulator, the cylinder outlet ports are reversed. The 12 end energizes the #4 port and the 14 end energizes the #2 port. The 3-Position CE and PC functions are also reversed. (See schematics on above.)

D	Subbase & Manual Valves
	H Series Micro
	Modutflex Series
	H Series ISO
	Fieldbus Systems
	DX ISOMAX Series
Valvair II Series	



For inventory, lead times, and kit lookup, visit www.pdnplu.com

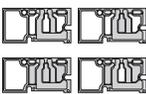
15407-1, Non Plug-in, Size 18mm (HB)

Symbol	Type	Cv	Operator	Voltage	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	0.55	Single solenoid	24 VDC	Internal	HB EWXBG2G9000FA	HB EWXBH2G9000FA
					External	HB EWXLG2G9000FA	HB EWXLH2G9000FA
	4-way, 2-position, air return	0.55	Single solenoid	24 VDC	Internal	HB 1WXBG2G9000FA	HB 1WXBH2G9000FA
					External	HB 1WXLG2G9000FA	HB 1WXLH2G9000FA
	4-way, 2-position	0.55	Double solenoid	24 VDC	Internal	HB 2WXBG2G9000FA	HB 2WXBH2G9000FA
					External	HB 2WXLG2G9000FA	HB 2WXLH2G9000FA
	4-way, 3-position, all ports blocked	0.5	Double solenoid	24 VDC	Internal	HB 5WXBG2G9000FA	HB 5WXBH2G9000FA
					External	HB 5WXLG2G9000FA	HB 5WXLH2G9000FA
	4-way, 3-position, center exhaust	0.5	Double solenoid	24 VDC	Internal	HB 6WXBG2G9000FA	HB 6WXBH2G9000FA
					External	HB 6WXLG2G9000FA	HB 6WXLH2G9000FA
	4-way, 3-position, pressure center	0.5	Double solenoid	24 VDC	Internal	HB 7WXBG2G9000FA	HB 7WXBH2G9000FA
					External	HB 7WXLG2G9000FA	HB 7WXLH2G9000FA
	3-way, 2-position, dual valve, NC/NC	0.45	Double solenoid	24 VDC	Internal	HBNWXBG2G9000FA	HBNWXBH2G9000FA
					External	HB 7WXLG2G9000FA	HB 7WXLH2G9000FA
	3-way, 2-position, dual valve, NO/NO	0.45	Double solenoid	24 VDC	Internal	HBPWXBG2G9000FA	HBPWXBH2G9000FA
					External	HB 7WXLG2G9000FA	HB 7WXLH2G9000FA
	3-way, 2-position, dual valve, NC/NO	0.45	Double solenoid	24 VDC	Internal	HBQWXBG2G9000FA	NA
					External	HB 7WXLG2G9000FA	HB 7WXLH2G9000FA

15407-1, Non Plug-in, Size 18mm (HB)

2 Station manifold bases	Description	1/8" NPT	1/8" BSPP
	End ported bases	PS5611510P	PS5611520P
	Bottom / end port	PS5611610P	PS5611620P
End plate kit	Description	NPT port	BSPP port
	Non-collective wiring end plate	PS5631010P	PS5631011P

15407-1, Non-Plug-in, Size 18mm (HB) Accessories

Accessories	Description	Part number
	Common pressure	2-60 PSIG w/ gauge PS5637155P
	Common pressure	5-125 PSIG w/ gauge PS5637166P
	Independent pressure	2-60 PSIG w/ gauge PS5637255P
	Independent pressure	5-125 PSIG w/ gauge PS5637266P
Gauge adapter kit	Includes 1/8" coupling and long nipple	PS5651160P
Blanking plate kit		PS5634P
	1/8" NPT	PS562600P
	1/8" BSPP	PS562601P
	1/8" NPT	PS562700P
	1/8" BSPP	PS562701P
Intermediate air supply module	1/8" NPT	D02P-01-80
Sandwich flow control		PS5642P
	Standard	PS561AP
	Blocked #1 port	PS561BP
	Blocked #1, 3, 5, ports	PS561CP
	Blocked #3, 5 ports	PS561DP

 Most popular.



For inventory, lead time, and kit lookup, visit www.pdnplu.com

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D

Subbase & Manual Valves

H Series Micro

Moduflex Series

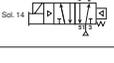
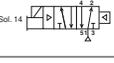
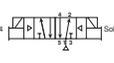
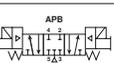
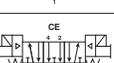
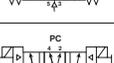
H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

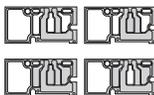
15407-1, Non Plug-in, Size 26mm (HA)

Symbol	Type	Cv	Operator	Voltage	Pilot	Non-locking	Locking
 Sol. 14	4-way, 2-position, spring return	1.1	Single solenoid	24 VDC	Internal	HAEWXBG2G9000FA	HAEWXBH2G9000FA
					External	HAEWXLG2G9000FA	HAEWXLH2G9000FA
 Sol. 14	4-way, 2-position, air return	1.1	Single solenoid	24 VDC	Internal	HA1WXBG2G9000FA	HA1WXBH2G9000FA
					External	HA1WXLG2G9000FA	HA1WXLH2G9000FA
 Sol. 14	4-way, 2-position	1.1	Double solenoid	24 VDC	Internal	HA2WXBG2G9000FA	HA2WXBH2G9000FA
					External	HA2WXLG2G9000FA	HA2WXLH2G9000FA
 #14	4-way, 3-position, all ports blocked	1.0	Double solenoid	24 VDC	Internal	HA5WXBG2G9000FA	HA5WXBH2G9000FA
					External	HA5WXLG2G9000FA	HA5WXLH2G9000FA
 #14	4-way, 3-position, center exhaust	1.0	Double solenoid	24 VDC	Internal	HA6WXBG2G9000FA	HA6WXBH2G9000FA
					External	HA6WXLG2G9000FA	HA6WXLH2G9000FA
 #14	4-way, 3-position, pressure center	1.0	Double solenoid	24 VDC	Internal	HA7WXBG2G9000FA	HA7WXBH2G9000FA
					External	HA7WXLG2G9000FA	HA7WXLH2G9000FA

15407-1, Non Plug-in, Size 26mm (HA)

Single subbase	Description	1/4" NPT	1/4" BSPP
	Side ported base	PS551130P	PS551140P
2 Station manifold bases	Description	1/4" NPT	1/4" BSPP
	End ported bases	PS5511530P	PS5511540P
	Bottom / end port	PS5511630P	PS5511640P
End plate kit	Description	NPT port	BSPP port
	Non-collective wiring end plate	PS5631010P	PS5631011P

15407-1, Non-Plug-in, Size 26mm (HA) Accessories

Accessories	Description	Part number
	Common pressure	2-60 PSIG w/ gauge PS5537155P
	Common pressure	5-125 PSIG w/ gauge PS5537166P
	Independent pressure	2-60 PSIG w/ gauge PS5537255P
	Independent pressure	5-125 PSIG w/ gauge PS5537266P
	Gauge adapter kit	Includes 1/8" coupling and long nipple PS5651160P
	Blanking plate kit	PS5534P
	1/4" NPT	PS552600P
	1/4" BSPP	PS552601P
	1/4" NPT	PS552700P
	1/4" BSPP	PS552701P
	Intermediate air supply module	1/4" NPT D01P-02-80
	Sandwich flow control	PS5542P
	Sandwich Flow Control and Common Port Sandwich Regulator may be sandwiched together on a manifold or subbase. The Sandwich Flow Control MUST be located between the manifold/subbase and the Common Port Sandwich Regulator.	
	Standard	PS561AP
	Blocked #1 port	PS561BP
	Blocked #1, 3, 5, ports	PS561CP
	Blocked #3, 5 ports	PS561DP

 Most popular.



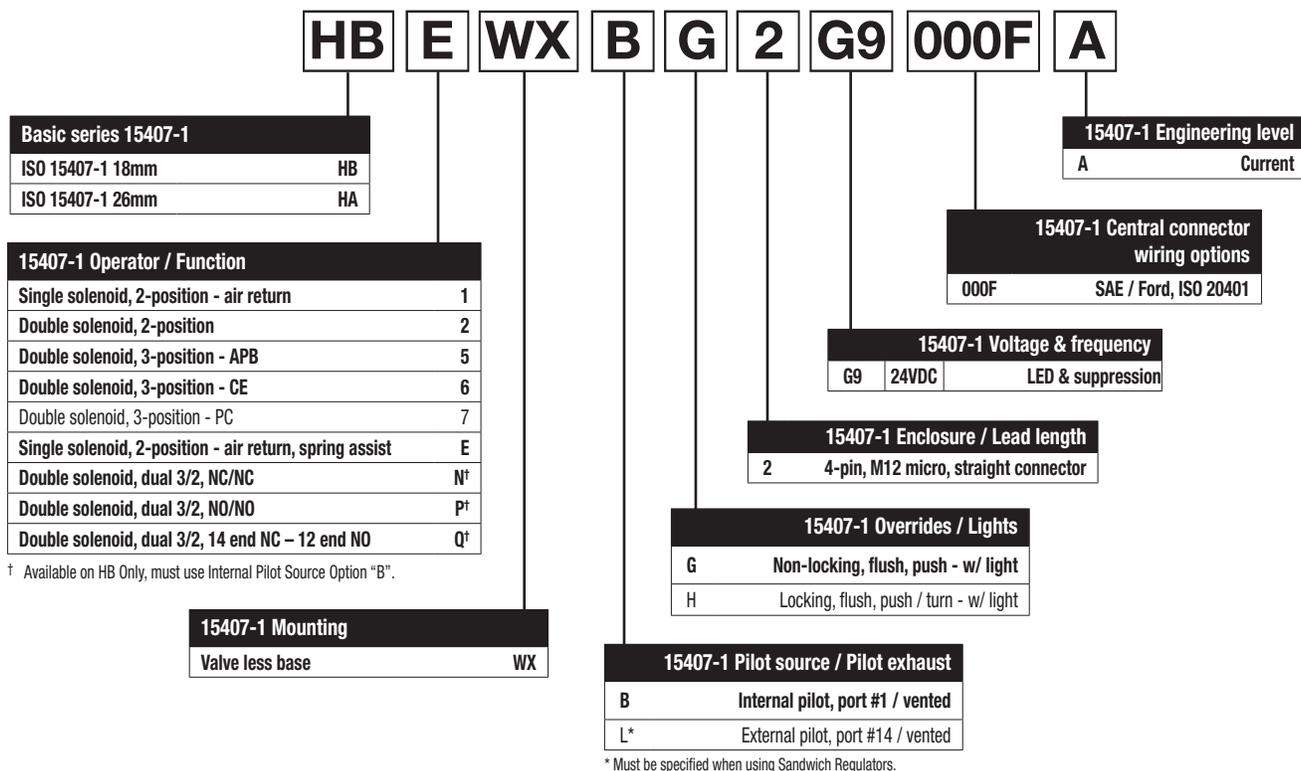
For inventory, lead times, and kit lookup, visit www.pdnplu.com

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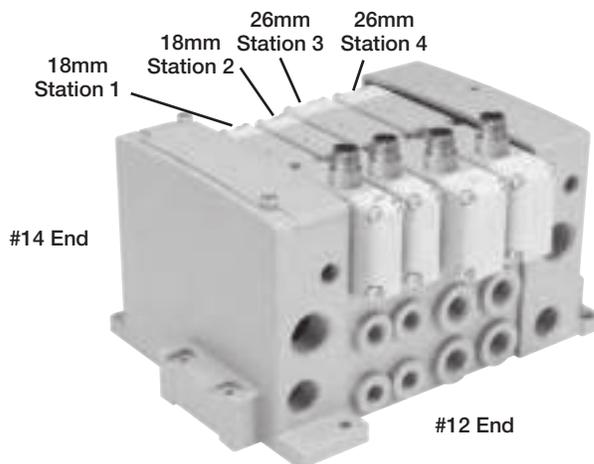
D
 Subbase & Manual Valves
 H Series Micro
 Modutrex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

Non Plug-in, 15407-1, Size 18mm (HB) & 26mm (HA)



How To Order 15407-1 Non Plug-in Add-A-Fold Assemblies

1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold. The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)



Example:
 4-Station Manifold with (2) 18mm and (2) 26mm Valves on Manifold Bases

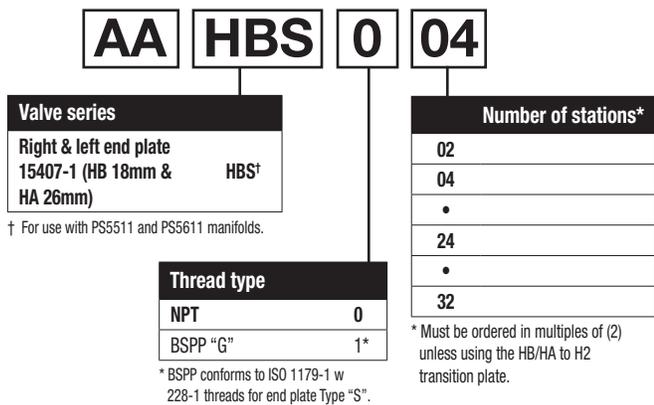
Example

Application requires a 4-Station manifold. (Two 18mm + Two 26mm Stations)

Item	Qty.	Part No.	Location
01	1	AAHBS004	
02	1	1HB1WXBG2G9000FA	Station 1
03	1	1HB2WXBG2G9000FA	Station 2
04	1	1PS5611510P	Station 1 & 2
05	2	2HA1WXBG2G9000FA	Station 3 & 4
06	1	1PS5511510P	Station 3 & 4

NOTE: Construct manifold assemblies from left to right while looking at the ports. Valves must be ordered as External Pilot when using Sandwich Regulator.

Add-A-Fold Assembly Model Number



For inventory, lead time, and kit lookup, visit www.pdnplu.com

D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

Non Plug-in, 15407-1, Size 18mm (HB) & 26mm (HA) Manifold / Subbase Kits

PS561151 **0** **P**

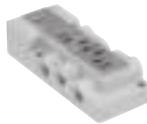
Enclosures / Lead Length	
0	None, No Electrical Plug - 15407-1

Mounting Style / Port Size			
ISO 15407-1, 18mm, HB		15407-1, 26mm, HA	
Manifold with 1/8 NPT End Ports	PS561151	Subbase with 1/4 NPT Side Ports	PS551113
Manifold with 1/8 BSPP End Port	PS561152*	Subbase with 1/4 BSPP Side Ports	PS551114*
Manifold with 1/8 NPT Bottom / End Port	PS561161	Subbase with 1/4 NPT Bottom / Side Port	PS551123
Manifold with 1/8 BSPP Bottom / End Port	PS561162*	Subbase with 1/4 BSPP Bottom / Side Port	PS551124*
		Manifold with 1/4 NPT End Port	PS551153
		Manifold with 1/4 BSPP End Port	PS551154*
		Manifold with 1/4 NPT Bottom / End Port	PS551163
		Manifold with 1/4 BSPP Bottom / End Port	PS551164*

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

Subbase Kits

Manifold Kits



HA



HB



HA

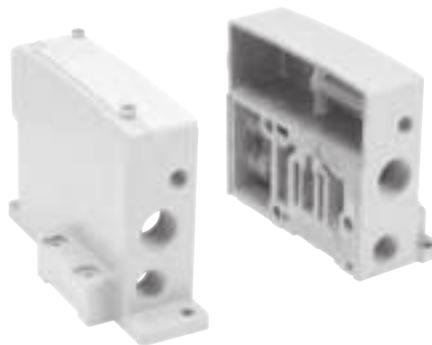
Non-Plug-in, 15407-1, Size 18mm (HB) & 26mm (HA) End Plate Kits

PS563101 **0** **P**

Basic Series	
ISO 15407, Size HB, 18mm & HA, 26mm End Plate, Non-Collective Wiring	PS563101

Thread Type	
0	NPT
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.



HB - HA Non-Collective Wiring End Plates



For inventory, lead times, and kit lookup, visit www.pdnplu.com

D104

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D
 Subbase & Manual Valves
 H Series Micro
 Moduteflex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

Non Plug-in, 15407-1, Sandwich Regulators

PS5637 1 6 6 P

Basic Series	
HB	
15407-1, 18mm, Non Plug-In	PS5637
HA	
15407-1, 26mm, Non Plug-In	PS5537

#2 Port Regulator / Gauge*	
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

Regulator Function	
Common Pressure Regulator	1
Independent Pressure Regulator	2

#4 Port Regulator / Gauge*	
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)



HB - 18mm
 (Independent Dual Port Regulator Shown)



HA - 26mm
 (Common Port Regulator Shown)

Ordering Components

- Manifold or Subbase Kit required.
- Sandwich Regulator Kit configured for Internal Pilot as standard.
- Order valve as External Pilot.

How to Configure Sandwich Regulator / Valve Combinations

Internal Pilot Configuration of Sandwich Regulator HA, HB

Pressure in Base Port 1 feeds regulator configured for Internal Pilot which feeds valve configured for External Pilot.

D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

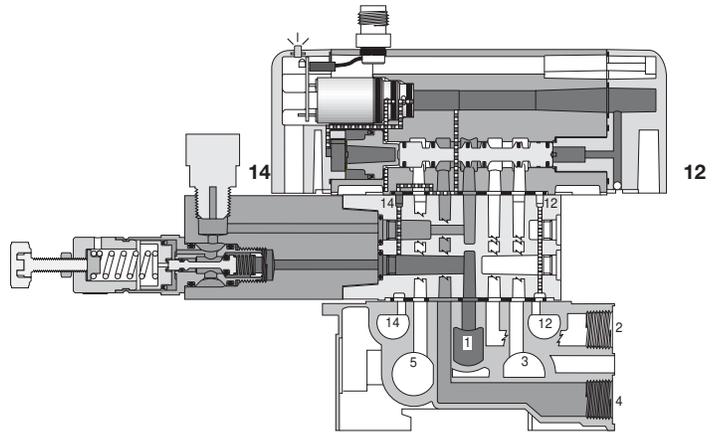
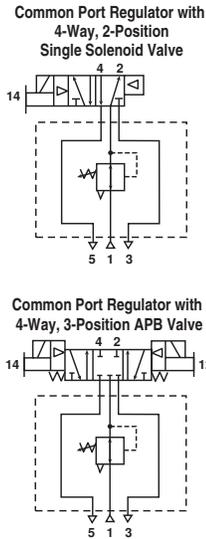


For inventory, lead time, and kit lookup, visit www.pdnplu.com

Non Plug-in, HB & HA Common Port Regulation

Provides adjustable regulated air pressure to the valve's #1 port which gives the same pressure to both the #2 and #4 port of the manifold or subbase. The regulator is always on the 14 end of the valve.

HB Common Port Regulator Shown - Single Solenoid, 14 Energized

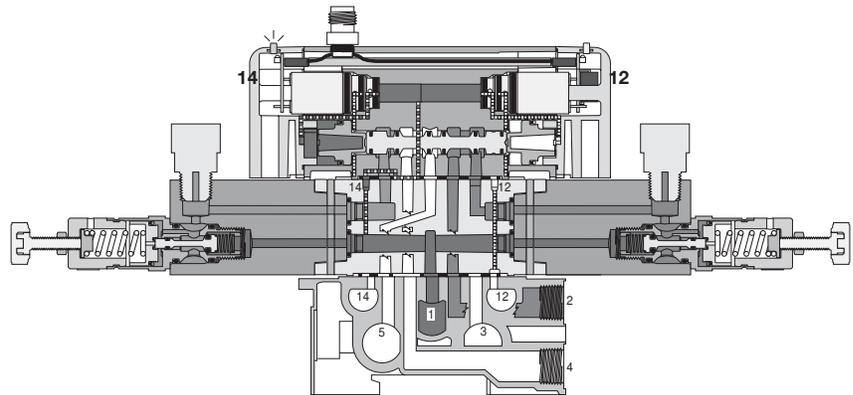
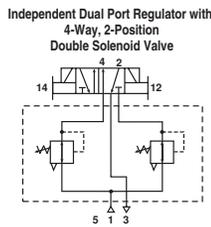


HB & HA Independent Dual Port Regulation

Dual Port Regulator

Provides regulated pressure to both ports. Pressure regulation can occur out of the #2 or #4 port of the valve.

HB Independent Dual Port Regulator Shown - Double Solenoid, 14 Energized



When using an Independent Pressure Sandwich Regulator, the cylinder outlet ports are reversed. The 12 end energizes the #4 port and the 14 end energizes the #2 port. The 3-Position CE and PC functions are also reversed. (See schematics on above.)

D	Subbase & Manual Valves
	H Series Micro
	Modulflex Series
	H Series ISO
	Fieldbus Systems
	DX ISOMAX Series
	Valvair II Series



For inventory, lead times, and kit lookup, visit www.pdnplu.com

Non Plug-in, 15407-1 Transition Plate Kits

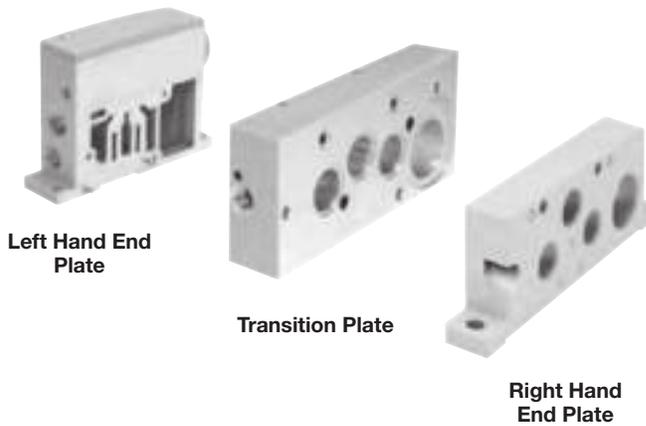
PS562401 **0** **P**

Transition Plate Type*	
HA / HB to H2	PS562401

* Includes Left Hand and Right Hand End Plates.
 Use with PS5511 and PS5611 Manifolds Only.

Thread Type	
0	NPT
1*	BSPG "G"

* BSPG Conforms to ISO 1179-1 w 228-1
 Threads.



D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

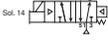
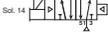
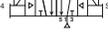
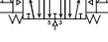


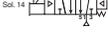
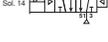
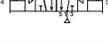
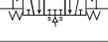
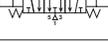
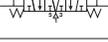
For inventory, lead time, and kit lookup, visit www.pdnplu.com

D107

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5599-1, Non Plug-in, Size 1 (H1) with Central Connectors

Symbol	Type	Cv	Operator	Voltage	Enclosure	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	1.5	Single solenoid	24 VDC	4-pin, central M12 connector	Internal	H1EWXBG2B9000FD	H1EWXBH2B9000FD
						External	H1EWXXG2B9000FD	H1EWXXH2B9000FD
	4-way, 2-position, air return	1.5	Single solenoid	24 VDC	4-pin, central M12 connector	Internal	H11WXBG2B9000FD	H11WXBH2B9000FD
						External	H11WXXG2B9000FD	H11WXXH2B9000FD
	4-way, 2-position	1.5	Double solenoid	24 VDC	4-pin, central M12 connector	Internal	H12WXBG2B9000FD	H12WXBH2B9000FD
						External	H12WXXG2B9000FD	H12WXXH2B9000FD
	4-way, 3-position, all ports blocked	1.2	Double solenoid	24 VDC	4-pin, central M12 connector	Internal	H15WXBG2B9000FD	H15WXBH2B9000FD
						External	H15WXXG2B9000FD	H15WXXH2B9000FD
	4-way, 3-position, center exhaust	1.2	Double solenoid	24 VDC	4-pin, central M12 connector	Internal	H16WXBG2B9000FD	H16WXBH2B9000FD
						External	H16WXXG2B9000FD	H16WXXH2B9000FD
	4-way, 3-position, pressure center	1.2	Double solenoid	24 VDC	4-pin, central M12 connector	Internal	H17WXBG2B9000FD	H17WXBH2B9000FD
						External	H17WXXG2B9000FD	H17WXXH2B9000FD

Symbol	Type	Cv	Operator	Voltage	Enclosure	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	1.5	Single solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H1EWXBG323000FD	H1EWXBH323000FD
						External	H1EWXXG323000FD	H1EWXXH323000FD
	4-way, 2-position, air return	1.5	Single solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H11WXBG323000FD	H11WXBH323000FD
						External	H11WXXG323000FD	H11WXXH323000FD
	4-way, 2-position	1.5	Double solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H12WXBG323000FD	H12WXBH323000FD
						External	H12WXXG323000FD	H12WXXH323000FD
	4-way, 3-position, all ports blocked	1.2	Double solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H15WXBG323000FD	H15WXBH323000FD
						External	H15WXXG323000FD	H15WXXH323000FD
	4-way, 3-position, center exhaust	1.2	Double solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H16WXBG323000FD	H16WXBH323000FD
						External	H16WXXG323000FD	H16WXXH323000FD
	4-way, 3-position, pressure center	1.2	Double solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H17WXBG323000FD	H17WXBH323000FD
						External	H17WXXG323000FD	H17WXXH323000FD

D
Subbase & Manual Valves
H Series Micro
Moduteflex Series
H Series ISO
Fieldbus Systems
DX ISOMAX Series
Valvair II Series

 Most popular.

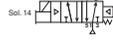
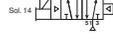
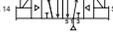
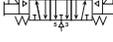


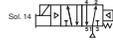
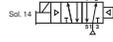
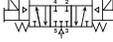
For inventory, lead times, and kit lookup, visit www.pdnplu.com

D108

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5599-1, Non Plug-in, Size 1 (H1) with 3-Pin DIN Connectors

Symbol	Type	Cv	Operator	Voltage	Enclosure	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	1.5	Single solenoid	24 VDC	3-pin DIN connector on coil	Internal	H1EWXBBL49D	H1EWXBBDL49D
						External	H1EWXXBL49D	H1EWXXDL49D
	4-way, 2-position, air return	1.5	Single solenoid	24 VDC	3-pin DIN connector on coil	Internal	H11WXBBL49D	H11WXBBDL49D
						External	H11WXXBL49D	H11WXXDL49D
	4-way, 2-position	1.5	Double solenoid	24 VDC	3-pin DIN connector on coil	Internal	H12WXBBL49D	H12WXBBDL49D
						External	H12WXXBL49D	H12WXXDL49D
	4-way, 3-position, all ports blocked	1.2	Double solenoid	24 VDC	3-pin DIN connector on coil	Internal	H15WXBBL49D	H15WXBBDL49D
						External	H15WXXBL49D	H15WXXDL49D
	4-way, 3-position, center exhaust	1.2	Double solenoid	24 VDC	3-pin DIN connector on coil	Internal	H16WXBBL49D	H16WXBBDL49D
						External	H16WXXBL49D	H16WXXDL49D
	4-way, 3-position, pressure center	1.2	Double solenoid	24 VDC	3-pin DIN connector on coil	Internal	H17WXBBL49D	H17WXBBDL49D
						External	H17WXXBL49D	H17WXXDL49D

Symbol	Type	Cv	Operator	Voltage	Enclosure	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	1.5	Single solenoid	120 VAC	3-pin DIN connector on coil	Internal	H1EWXBBL53D	H1EWXBBDL53D
						External	H1EWXXBL53D	H1EWXXDL53D
	4-way, 2-position, air return	1.5	Single solenoid	120 VAC	3-pin DIN connector on coil	Internal	H11WXBBL53D	H11WXBBDL53D
						External	H11WXXBL53D	H11WXXDL53D
	4-way, 2-position	1.5	Double solenoid	120 VAC	3-pin DIN connector on coil	Internal	H12WXBBL53D	H12WXBBDL53D
						External	H12WXXBL53D	H12WXXDL53D
	4-way, 3-position, all ports blocked	1.2	Double solenoid	120 VAC	3-pin DIN connector on coil	Internal	H15WXBBL53D	H15WXBBDL53D
						External	H15WXXBL53D	H15WXXDL53D
	4-way, 3-position, center exhaust	1.2	Double solenoid	120 VAC	3-pin DIN connector on coil	Internal	H16WXBBL53D	H16WXBBDL53D
						External	H16WXXBL53D	H16WXXDL53D
	4-way, 3-position, pressure center	1.2	Double solenoid	120 VAC	3-pin DIN connector on coil	Internal	H17WXBBL53D	H17WXBBDL53D
						External	H17WXXBL53D	H17WXXDL53D

5599-1, Non Plug-in, Size 1 (H1)

	Single subbase	Description	3/8" NPT	3/8" BSPP
		Side ported base	PS4011150DP	PS4011160DP
	Manifold bases	Description	3/8" NPT	3/8" BSPP
		End ported bases	PS4011550DP	PS4011560CP
		Bottom / end ported bases	PS4011650CP	PS4011660CP
	End plate kits	Description	NPT port	BSPP port
		H1 Non-collective wiring end plates	PS4031010CP	PS4031011DP

 Most popular.



For inventory, lead time, and kit lookup, visit www.pdnplu.com

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Richland, Michigan
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D

Subbase & Manual Valves

H Series Micro

Modulflex Series

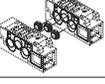
H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

5599-1, Non Plug-in, Size 1 (H1) Accessories

Accessory	Description	Part number
 Sandwich regulator	Common pressure 5-125 PSIG w/ gauge	PS4037166CP
	Independent pressure 5-125 PSIG w/ gauge	PS4037266CP
 Blanking plate kit		PS4034CP
 Sandwich flow control		PS4042CP
Sandwich Flow Control and Common Port Sandwich Regulator may be sandwiched together on a manifold or subbase. The Sandwich Flow Control MUST be located between the manifold/subbase and the Common Port Sandwich Regulator.		
 Manifold to manifold gasket kits		PS4013P
 Manifold port isolation kit	Main galley (1, 3, 5)	PS4032CP
	Pilot galley	PS4033CP
 Auxiliary access plate kit	1/4" & 3/8"	PS403000CP
		NPT BSPP

D

Subbase & Manual Valves

H Series Micro

Modutflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

 Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

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 Pneumatic Division
 Richland, Michigan
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How To Order Non Plug-in Add-A-Fold Assemblies

1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold. The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)

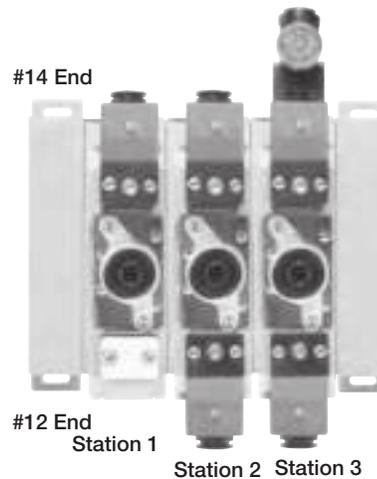
Example

Application requires a 3-Station manifold with a valve, regulator on Station 3.

Item	Qty.	Part No.	Location
01	1	AAH1S003	
02	1	H11WXBG2B9000FD	Station 1
03	1	PS4011550CP	Station 1
04	1	H12WXBG2B9000FD	Station 2
05	1	PS4011550CP	Station 2
06	1	H12WXXG2B9000FD	Station 3
07	1	PS4037166CP	Station 3
08	1	PS4011550CP	Station 3

NOTE: Construct manifold assemblies from left to right while looking at the cylinder ports.

Valves must be ordered as External Pilot when using Sandwich Regulator.



Example:
 3-Station Manifold with (3) H1 Valves on Manifold Bases and Regulator at Station 3

Add-A-Fold Assembly Model Number

AA	H1	S	0	03	
Valve series		End plate type		Transition plate	
Right & left end plate H1		Standard - non-collective wiring S		Blank No transition plate	
				C H1 to H2	
				D H1 to H3	
				Number of stations	
				01	
				02	
				03	
				04	
				•	
				•	
				24	
				Thread type	
				NPT 0	
				BSPP "G" 1*	

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

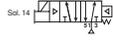
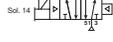
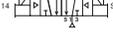
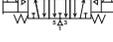
DX ISOMAX Series

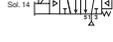
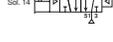
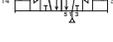
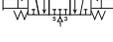
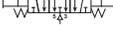
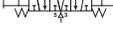
Valvair II Series



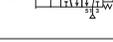
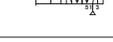
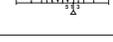
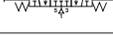
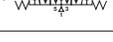
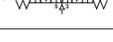
For inventory, lead time, and kit lookup, visit www.pdnplu.com

5599-1, Non Plug-in, Size 2 (H2) with Central Connectors

Symbol	Type	Cv	Operator	Voltage	Enclosure	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	3.0	Single solenoid	24 VDC	4-pin, central M12 connector	Internal	H2EWXBG2B9000FD	H2EWXBH2B9000FD
						External	H2EWXXG2B9000FD	H2EWXXH2B9000FD
	4-way, 2-position, air return	3.0	Single solenoid	24 VDC	4-pin, central M12 connector	Internal	H21WXBG2B9000FD	H21WXBH2B9000FD
						External	H21WXXG2B9000FD	H21WXXH2B9000FD
	4-way, 2-position	3.0	Double solenoid	24 VDC	4-pin, central M12 connector	Internal	H22WXBG2B9000FD	H22WXBH2B9000FD
						External	H22WXXG2B9000FD	H22WXXH2B9000FD
	4-way, 3-position, all ports blocked	2.8	Double solenoid	24 VDC	4-pin, central M12 connector	Internal	H25WXBG2B9000FD	H25WXBH2B9000FD
						External	H25WXXG2B9000FD	H25WXXH2B9000FD
	4-way, 3-position, center exhaust	2.8	Double solenoid	24 VDC	4-pin, central M12 connector	Internal	H26WXBG2B9000FD	H26WXBH2B9000FD
						External	H26WXXG2B9000FD	H26WXXH2B9000FD
	4-way, 3-position, pressure center	2.8	Double solenoid	24 VDC	4-pin, central M12 connector	Internal	H27WXBG2B9000FD	H27WXBH2B9000FD
						External	H27WXXG2B9000FD	H27WXXH2B9000FD

Symbol	Type	Cv	Operator	Voltage	Enclosure	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	3.0	Single solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H2EWXBG323000FD	H2EWXBH323000FD
						External	H2EWXXG323000FD	H2EWXXH323000FD
	4-way, 2-position, air return	3.0	Single solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H21WXBG323000FD	H21WXBH323000FD
						External	H21WXXG323000FD	H21WXXH323000FD
	4-way, 2-position	3.0	Double solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H22WXBG323000FD	H22WXBH323000FD
						External	H22WXXG323000FD	H22WXXH323000FD
	4-way, 3-position, all ports blocked	2.8	Double solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H25WXBG323000FD	H25WXBH323000FD
						External	H25WXXG323000FD	H25WXXH323000FD
	4-way, 3-position, center exhaust	2.8	Double solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H26WXBG323000FD	H26WXBH323000FD
						External	H26WXXG323000FD	H26WXXH323000FD
	4-way, 3-position, pressure center	2.8	Double solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H27WXBG323000FD	H27WXBH323000FD
						External	H27WXXG323000FD	H27WXXH323000FD

5599-1, Non Plug-in, Size 2 (H2) with 3-Pin DIN Connectors

Symbol	Type	Cv	Operator	Voltage	Enclosure	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	3.0	Single solenoid	24 VDC	3-pin DIN connector on coil	Internal	H2EWXBBL49D	H2EWXBCL49D
						External	H2EWXXBL49D	H2EWXXCL49D
	4-way, 2-position, air return	3.0	Single solenoid	24 VDC	3-pin DIN connector on coil	Internal	H21WXBBL49D	H21WXBCL49D
						External	H21WXXBL49D	H21WXXCL49D
	4-way, 2-position	3.0	Double solenoid	24 VDC	3-pin DIN connector on coil	Internal	H22WXBBL49D	H22WXBCL49D
						External	H22WXXBL49D	H22WXXCL49D
	4-way, 3-position, all ports blocked	2.8	Double solenoid	24 VDC	3-pin DIN connector on coil	Internal	H25WXBBL49D	H25WXBCL49D
						External	H25WXXBL49D	H25WXXCL49D
	4-way, 3-position, center exhaust	2.8	Double solenoid	24 VDC	3-pin DIN connector on coil	Internal	H26WXBBL49D	H26WXBCL49D
						External	H26WXXBL49D	H26WXXCL49D
	4-way, 3-position, pressure center	2.8	Double solenoid	24 VDC	3-pin DIN connector on coil	Internal	H27WXBBL49D	H27WXBCL49D
						External	H27WXXBL49D	H27WXXCL49D

 Most popular.

D
 Subbase & Manual Valves
 H Series Micro
 Moduteflex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

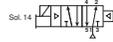
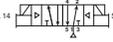
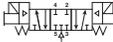


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D112

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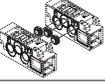
5599-1, Non Plug-in, Size 2 (H2) with 3-Pin DIN Connectors

Symbol	Type	Cv	Operator	Voltage	Enclosure	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	3.0	Single solenoid	120 VAC	3-pin DIN connector on coil	Internal	H2EWXBBL53D	H2EWXBCL53D
						External	H2EWXXBBL53D	H2EWXXCL53D
	4-way, 2-position, air return	3.0	Single solenoid	120 VAC	3-pin DIN connector on coil	Internal	H21WXBBL53D	H21WXBCL53D
						External	H21WXXBBL53D	H21WXXCL53D
	4-way, 2-position	3.0	Double solenoid	120 VAC	3-pin DIN connector on coil	Internal	H22WXBBL53D	H22WXBCL53D
						External	H22WXXBBL53D	H22WXXCL53D
	4-way, 3-position, all ports blocked	2.8	Double solenoid	120 VAC	3-pin DIN connector on coil	Internal	H25WXBBL53D	H25WXBCL53D
						External	H25WXXBBL53D	H25WXXCL53D
	4-way, 3-position, center exhaust	2.8	Double solenoid	120 VAC	3-pin DIN connector on coil	Internal	H26WXBBL53D	H26WXBCL53D
						External	H26WXXBBL53D	H26WXXCL53D
	4-way, 3-position, pressure center	2.8	Double solenoid	120 VAC	3-pin DIN connector on coil	Internal	H27WXBBL53D	H27WXBCL53D
						External	H27WXXBBL53D	H27WXXCL53D

5599-1, Non Plug-in, Size 2 (H2)

Single subbase	Description	1/2" NPT	1/2" BSPP
	Side ported base	PS4111170CP	PS4111180CP
Manifold bases	Description	1/2" NPT	1/2" BSPP
	End ported bases	PS41111570CP	PS41111580CP
	Bottom / end ported bases	PS41111670CP	PS41111680CP
	Note: Manifolds include 2 pipe plugs		
End plate kits	Description	NPT port	BSPP port
	H2 Non-collective wiring end plates	PS4131010DP	PS4131011DP

5599-1, Non Plug-in, Size 2 (H2) Accessories

Accessory	Description	Part number
	Common pressure 5-125 PSIG w/ gauge	PS4137166CP
	Independent pressure 5-125 PSIG w/ gauge	PS4137266CP
	Blanking plate kit	PS4134CP
	Sandwich flow control	PS4142CP
	Sandwich Flow Control and Common Port Sandwich Regulator may be sandwiched together on a manifold or subbase. The Sandwich Flow Control MUST be located between the manifold/subbase and the Common Port Sandwich Regulator.	
	Manifold to manifold gasket kits	PS4113P
	Main galley (1, 3, 5)	PS4132CP
	Pilot galley	PS4033CP

 Most popular.



For inventory, lead time, and kit lookup, visit www.pdnplu.com

D113

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D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

How To Order Non Plug-in Add-A-Fold Assemblies

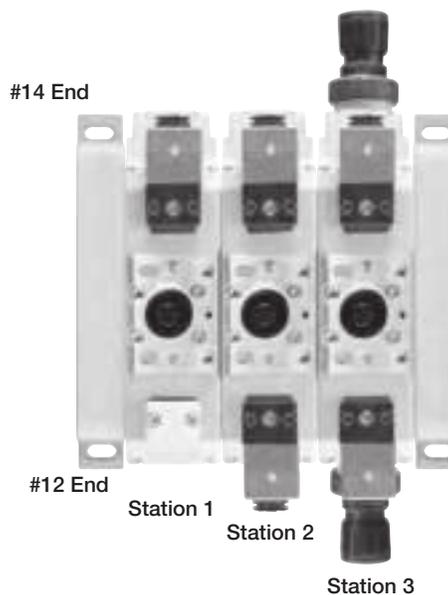
1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold. The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)

Example

Application requires a 3-Station manifold with a valve and regulator on Station 3.

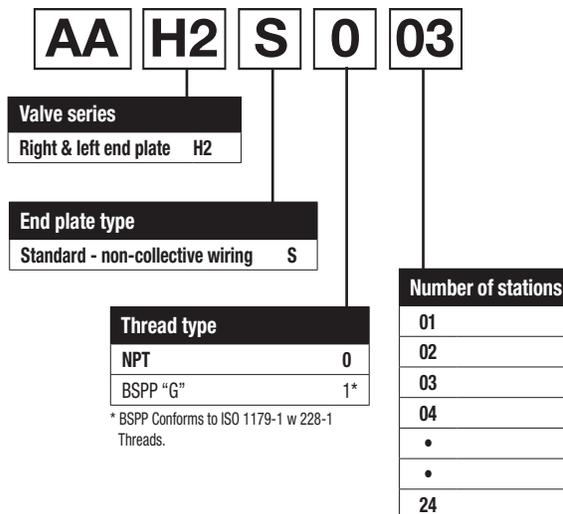
Item	Qty.	Part No.	Location
01	1	AAH2S003	
02	1	H21WXBG2B9000FD	Station 1
03	1	PS4111570CP	Station 1
04	1	H22WXBG2B9000FD	Station 2
05	1	PS4111570CP	Station 2
06	1	H22WXXG2B9000FD	Station 3
07	1	PS4137166CP	Station 3
08	1	PS4111570CP	Station 3

NOTE: Construct manifold assemblies from left to right while looking at the cylinder ports.
 Valves must be ordered as External Pilot when using Sandwich Regulator.



Example:
 3-Station Manifold with (3) H2 Valves on Manifold Bases and Regulator at Station 3

Add-A-Fold Assembly Model Number

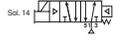
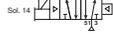
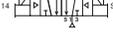
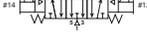
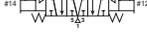


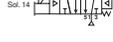
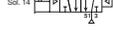
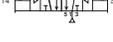
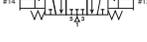
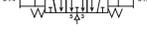
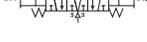
D	Subbase & Manual Valves
H Series Micro	Moduteflex Series
H Series ISO	
Fieldbus Systems	
DX ISOMAX Series	
Valvair II Series	



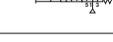
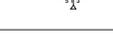
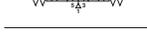
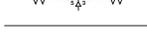
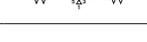
For inventory, lead times, and kit lookup, visit www.pdnplu.com

5599-1, Non Plug-in, Size 3 (H3) with Central Connectors

Symbol	Type	Cv	Operator	Voltage	Enclosure	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	6.0	Single solenoid	24 VDC	4-pin, central M12 connector	Internal	H3EWXBG2B9000FD	H3EWXBH2B9000FD
						External	H3EWXG2B9000FD	H3EWXH2B9000FD
	4-way, 2-position, air return	6.0	Single solenoid	24 VDC	4-pin, central M12 connector	Internal	H31WXBG2B9000FD	H31WXBH2B9000FD
						External	H31WXXG2B9000FD	H31WXXH2B9000FD
	4-way, 2-position	6.0	Double solenoid	24 VDC	4-pin, central M12 connector	Internal	H32WXBG2B9000FD	H32WXBH2B9000FD
						External	H32WXXG2B9000FD	H32WXXH2B9000FD
	4-way, 3-position, all ports blocked	5.0	Double solenoid	24 VDC	4-pin, central M12 connector	Internal	H35WXBG2B9000FD	H35WXBH2B9000FD
						External	H35WXXG2B9000FD	H35WXXH2B9000FD
	4-way, 3-position, center exhaust	5.0	Double solenoid	24 VDC	4-pin, central M12 connector	Internal	H36WXBG2B9000FD	H36WXBH2B9000FD
						External	H36WXXG2B9000FD	H36WXXH2B9000FD
	4-way, 3-position, pressure center	5.0	Double solenoid	24 VDC	4-pin, central M12 connector	Internal	H37WXBG2B9000FD	H37WXBH2B9000FD
						External	H37WXXG2B9000FD	H37WXXH2B9000FD

Symbol	Type	Cv	Operator	Voltage	Enclosure	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	6.0	Single solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H3EWXBG323000FD	H3EWXBH323000FD
						External	H3EWXG323000FD	H3EWXH323000FD
	4-way, 2-position, air return	6.0	Single solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H31WXBG323000FD	H31WXBH323000FD
						External	H31WXXG323000FD	H31WXXH323000FD
	4-way, 2-position	6.0	Double solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H32WXBG323000FD	H32WXBH323000FD
						External	H32WXXG323000FD	H32WXXH323000FD
	4-way, 3-position, all ports blocked	5.0	Double solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H35WXBG323000FD	H35WXBH323000FD
						External	H35WXXG323000FD	H35WXXH323000FD
	4-way, 3-position, center exhaust	5.0	Double solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H36WXBG323000FD	H36WXBH323000FD
						External	H36WXXG323000FD	H36WXXH323000FD
	4-way, 3-position, pressure center	5.0	Double solenoid	120 VAC	5-Pin, central 7/8" mini connector	Internal	H37WXBG323000FD	H37WXBH323000FD
						External	H37WXXG323000FD	H37WXXH323000FD

5599-1, Non Plug-in, Size 3 (H3) with 3-Pin DIN Connectors

Symbol	Type	Cv	Operator	Voltage	Enclosure	Pilot	Non-locking	Locking
	4-way, 2-position, spring return	6.0	Single solenoid	24 VDC	3-pin DIN connector on coil	Internal	H3EWXBBL49D	H3EWXBCL49D
						External	H3EWXBL49D	H3EWXCL49D
	4-way, 2-position, air return	6.0	Single solenoid	24 VDC	3-pin DIN connector on coil	Internal	H31WXBBL49D	H31WXBCL49D
						External	H31WXXBL49D	H31WXXCL49D
	4-way, 2-position	6.0	Double solenoid	24 VDC	3-pin DIN connector on coil	Internal	H32WXBBL49D	H32WXBCL49D
						External	H32WXXBL49D	H32WXXCL49D
	4-way, 3-position, all ports blocked	5.0	Double solenoid	24 VDC	3-pin DIN connector on coil	Internal	H35WXBBL49D	H35WXBCL49D
						External	H35WXXBL49D	H35WXXCL49D
	4-way, 3-position, center exhaust	5.0	Double solenoid	24 VDC	3-pin DIN connector on coil	Internal	H36WXBBL49D	H36WXBCL49D
						External	H36WXXBL49D	H36WXXCL49D
	4-way, 3-position, pressure center	5.0	Double solenoid	24 VDC	3-pin DIN connector on coil	Internal	H37WXBBL49D	H37WXBCL49D
						External	H37WXXBL49D	H37WXXCL49D

 Most popular.



For inventory, lead time, and kit lookup, visit www.pdnplu.com

D115

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D

Subbase & Manual Valves

H Series Micro

Modulflex Series

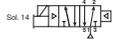
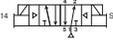
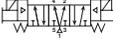
H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

5599-1, Non Plug-in, Size 3 (H3) with 3-Pin DIN Connectors

Symbol	Type	Cv	Operator	Voltage		Pilot	Non-locking	Locking
	4-way, 2-position, spring return	6.0	Single solenoid	120 VAC	3-pin DIN connector on coil	Internal	H3EWXBBL53D	H3EWXBCL53D
						External	H3EWXXBL53D	H3EWXXCL53D
	4-way, 2-position, air return	6.0	Single solenoid	120 VAC	3-pin DIN connector on coil	Internal	H31WXBBL53D	H31WXBCL53D
						External	H31WXXBL53D	H31WXXCL53D
	4-way, 2-position	6.0	Double solenoid	120 VAC	3-pin DIN connector on coil	Internal	H32WXBBL53D	H32WXBCL53D
						External	H32WXXBL53D	H32WXXCL53D
	4-way, 3-position, all ports blocked	5.0	Double solenoid	120 VAC	3-pin DIN connector on coil	Internal	H35WXBBL53D	H35WXBCL53D
						External	H35WXXBL53D	H35WXXCL53D
	4-way, 3-position, center exhaust	5.0	Double solenoid	120 VAC	3-pin DIN connector on coil	Internal	H36WXBBL53D	H36WXBCL53D
						External	H36WXXBL53D	H36WXXCL53D
	4-way, 3-position, pressure center	5.0	Double solenoid	120 VAC	3-pin DIN connector on coil	Internal	H37WXBBL53D	H37WXBCL53D
						External	H37WXXBL53D	H37WXXCL53D

5599-1, Non Plug-in, Size 3 (H3)

Single subbase	Description	3/4" NPT	3/4" BSPP
	Side ported base	PS4211190CP	PS4211180CP
Manifold bases	Description	3/4" NPT	3/4" BSPP
	End ported bases	PS4211590CP	PS4211500CP
	Bottom / end ported bases	PS4211690CP	PS4211600CP
	Note: Manifolds include 2 pipe plugs		
End plate kits	Description	NPT port	BSPP port
	H3 Non-collective wiring end plates	PS4231010DP	PS4231011DP

5599-1, Non Plug-in, Size 3 (H3) Accessories

Accessory	Description	Part number
	Common pressure 5-125 PSIG w/ gauge	PS4237166CP
	Independent pressure 5-125 PSIG w/ gauge	PS4237266CP
	Blanking plate kit	PS4234CP
	Sandwich flow control	PS4242CP
	Sandwich Flow Control and Common Port Sandwich Regulator may be sandwiched together on a manifold or subbase. The Sandwich Flow Control MUST be located between the manifold/subbase and the Common Port Sandwich Regulator.	
	Manifold to manifold gasket kits	PS4213P
	Main galley (1, 3, 5)	PS4232CP
	Pilot galley	PS4033CP

 Most popular.

D
 Subbase & Manual Valves
 H Series Micro
 Modulflex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series



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D116

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 Richland, Michigan
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How To Order Non Plug-in Add-A-Fold Assemblies

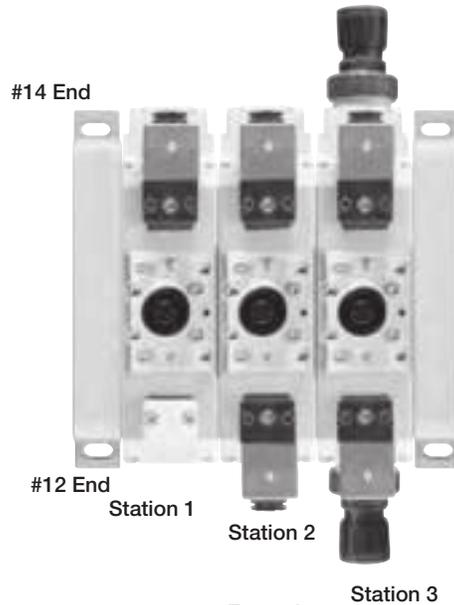
1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold. The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)

Example

Application requires a 3-Station manifold with a valve and regulator on Station 3.

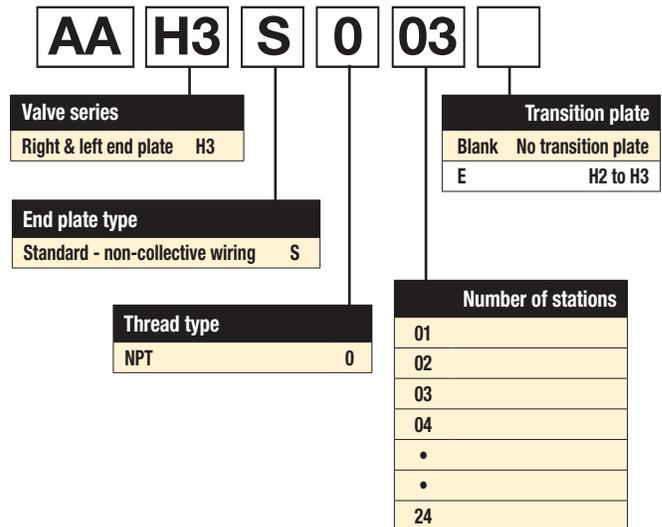
Item	Qty.	Part No.	Location
01	1	AAH3S003	
02	1	H31WXBG2B9000FD	Station 1
03	1	PS4211590CP	Station 1
04	1	H32WXBG2B9000FD	Station 2
05	1	PS4211590CP	Station 2
06	1	H32WXXG2B9000FD	Station 3
07	1	PS4237166CP	Station 3
08	1	PS4211590CP	Station 3

NOTE: Construct manifold assemblies from left to right while looking at the cylinder ports.
 Valves must be ordered as External Pilot when using Sandwich Regulator.

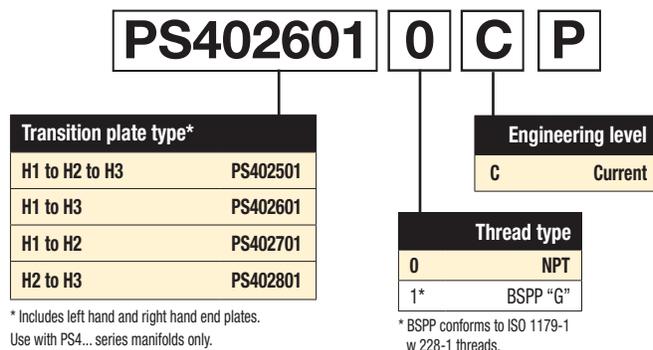


Example:
 3-Station Manifold with (3) H3 Valves
 on Manifold Bases and Regulator at Station 3

Add-A-Fold Assembly Model Number



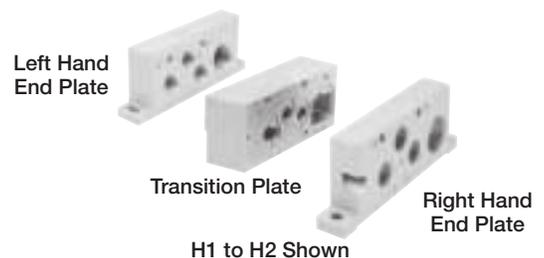
5599-1 Non Plug-in Transition Plate Kits



* Includes left hand and right hand end plates.
 Use with PS4... series manifolds only.

* BSPP conforms to ISO 1179-1 w 228-1 threads.

Most popular.



For inventory, lead time, and kit lookup, visit www.pdnplu.com

D117

Parker Hannifin Corporation
 Pneumatic Division
 Richland, Michigan
www.parker.com/pneumatics

D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

Non Plug-in, 5599-1, Central Connector - Size 1, 2, & 3

H1 E WX B G 2B9 000F D

Basic series 5599-1	
ISO 5599-1 Size 1	H1
ISO 5599-1 Size 2	H2
ISO 5599-1 Size 3	H3

5599 -1 Engineering level	
D	Current

5599-1 Operator / Function	
Single solenoid, 2-position - air return	1
Double solenoid, 2-position	2
Double solenoid, 3-position - APB	5
Double solenoid, 3-position - CE	6
Double solenoid, 3-position - PC	7
Single solenoid, 2-position - air return, spring assist	E

5599-1 Central connector wiring options	
000C	Chrysler
000F*	SAE / Ford, ISO 20401
000G	General Motors

* Complies to ISO 20401 with Enclosure Lead Length "2".

5599-1 Mounting	
Valve less base	WX

5599-1 Pilot source / Pilot exhaust	
Internal pilot, port #1 / vented	B
External pilot, port #12 or #14 / vented	X*

* Must be specified when using Sandwich Regulators.

5599-1 Overrides / Lights	
Non-locking, flush, with light	G
Locking, flush, with light	H

Enclosure / Lead length / Voltage*				
	AC		DC	
	60Hz	50Hz		
1B9 [†]			24	3-pin, central mini connector
123 [†]	120	115		3-pin, central mini connector
2B9			24	4-pin, central M12 connector
3B9			24	5-pin, central mini connector
323	120	115		5-pin, central mini connector
619 [†]			24	2-pin, M12 connector on coil

* All coils include LED & suppression

[†] Operator function "1" or "E"

* Only available with wiring option "000F"

D

Subbase & Manual Valves

Non Plug-in, 5599-1, CNOMO - Size 1, 2, & 3

H1 E WX B B L53 D

Basic series 5599-1	
ISO 5599-1 Size 1	H1
ISO 5599-1 Size 2	H2
ISO 5599-1 Size 3	H3

5599-1 Engineering level	
D	Current

5599-1 Operator / Function	
Single solenoid, 2-position - air return	1
Double solenoid, 2-position	2
Double solenoid, 3-position - APB	5
Double solenoid, 3-position - CE	6
Double solenoid, 3-position - PC	7
Single solenoid, 2-position - air return, spring assist	E

Enclosure / Lead length / Voltage				
	AC		DC	
	60Hz	50Hz		
L42	24			3-pin, 30mm DIN 43650A with CNOMO connector
L45			12	3-pin, 30mm DIN 43650A with CNOMO connector
L49			24	3-pin, 30mm DIN 43650A with CNOMO connector
L53	120	115		3-pin, 30mm DIN 43650A with CNOMO connector
L57	240			3-pin, 30mm DIN 43650A with CNOMO connector
NXX				Valve less coil

5599-1 Mounting	
Valve less base	WX

5599-1 Pilot source / Pilot exhaust	
Internal pilot, port #1 / vented	B
External pilot, port #12 or #14 / vented	X*

* Must be specified when using Sandwich Regulators.

5599-1 Overrides / Lights	
B	Non-locking, flush, push - no light
C	Locking, flush, push / turn - no light

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

D118

Parker Hannifin Corporation
 Pneumatic Division
 Richland, Michigan
www.parker.com/pneumatics

H Series Micro
 Modutefx Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

Non Plug-in, 5599-1, Size 1, 2, & 3 Manifold / Subbase Kits

PS401155 0 D P

Engineering Level	
C	For H2 & H3
D	For H1

Enclosures / Lead Length	
0	None, No Electrical Plug - 5599-1

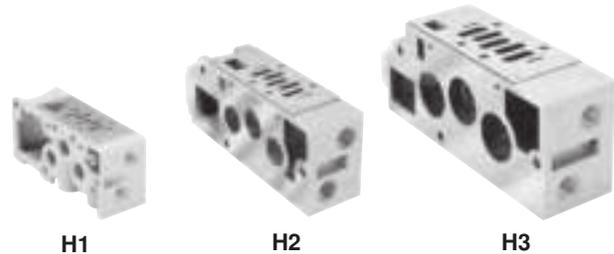
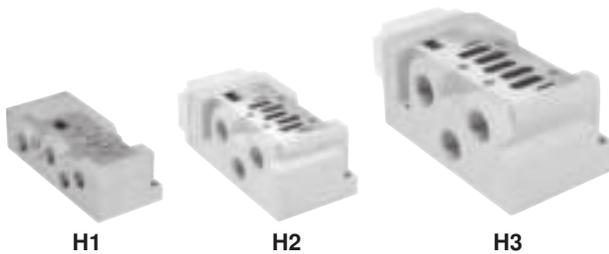
Mounting Base Style / Port Size		H1 Series		H2 Series		H3 Series	
Subbase: 3/8 NPT Side Ports	PS401115	Subbase: 1/2 NPT Side Ports	PS411117	Subbase: 3/4 NPT Side Ports	PS421119		
Subbase: 3/8 BSPP Side Ports	PS401116	Subbase: 1/2 BSPP Side Ports	PS411118*	Subbase: 3/4 BSPP Side Port	PS421110*		
Manifold: 3/8 NPT End Ports	PS401155	Manifold: 1/2 NPT End Port	PS411157	Manifold: 3/4 NPT End Port	PS421159		
Manifold: 3/8 BSPP End Ports	PS401156*	Manifold: 1/2 BSPP End Ports	PS411158*	Manifold: 3/4 BSPP End Port	PS421150*		
Manifold: 3/8 NPT Bottom / End Port	PS401165†	Manifold: 1/2 NPT Bottom / End Port	PS411167	Manifold: 3/4 NPT Bottom / End Port	PS421169		
Manifold: 3/8 BSPP Bottom / End Port	PS401166*†	Manifold: 1/2 BSPP Bottom / End Port	PS411168*	Manifold: 3/4 BSPP Bottom / End Port	PS421160*		

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

† #1 Bottom Port - 1/4".

Subbase Kits

Manifold Kits



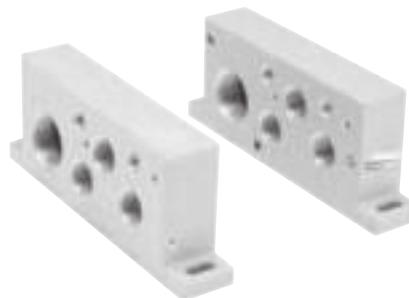
Non-Plug-in, 5599-1, End Plate Kits

PS403101 0 C P

Basic Series	
ISO 5599, Size 1	PS403101
ISO 5599, Size 2	PS413101
ISO 5599, Size 3	PS423101

Thread Type	
0	NPT
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.



H1 Non-Collective Wiring End Plates



For inventory, lead time, and kit lookup, visit www.pdnplu.com

D119

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 Richland, Michigan
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D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

Non Plug-in, 5599-1, Sandwich Regulators

PS4037 1 6 6 C P

Basic Series	
H1	
5599-1, Non Plug-in	PS4037
H2	
5599-1, Non Plug-in	PS4137
H3	
5599-1, Non Plug-in	PS4237

Regulator Function	
Common Pressure Regulator	1
Independent Pressure Regulator	2

#2 Port Regulator / Gauge*	
0**	Line By-Pass Plate
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge
D	Remote Pilot ISO 2 & 3 only

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

** Pressure Line By-Pass Option can only be used with Independent Pressure Regulators.

#4 Port Regulator / Gauge*	
0**	Line By-Pass Plate
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge
D	Remote Pilot ISO 2 & 3 only

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

** Pressure Line By-Pass Option can only be used with Independent Pressure Regulators.

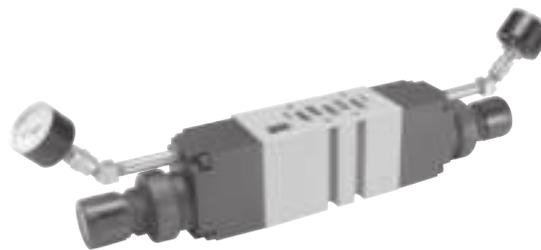
BOLD OPTIONS ARE MOST POPULAR.

Ordering Components

- Sandwich Regulator Kit configured for Internal Pilot as standard.
- Order valve as External Pilot.



H1 - Size 1
 (Independent Dual Port Regulator Shown)



H2 - Size 2
 (Independent Dual Port Regulator Shown)

How to Configure Sandwich Regulator / Valve Combinations

Internal Pilot Configuration of Sandwich Regulator H1, H2 & H3

Pressure in Base Port 1 feeds regulator configured for Internal Pilot which feeds valve configured for External Pilot.

External Pilot Configuration of Sandwich Regulator H1, H2, H3

An External Pilot pressure in Port 12 or 14 of the base feeds thru the Sandwich Regulator 12 or 14 galley directly to the 12/14 pilot of the valve. This configuration takes an External Pilot from the 12 port of the base and passes it thru the regulator to feed the 12 galley of the valve.

Sandwich Regulator Cv Flow Chart*

	Common Pressure Code 166				Single Pressure 2 Code 206				Single Pressure 4 Code 260				Dual Pressure Code 266			
	1-2	1-4	2-3	4-5	1-2	1-4	2-3	4-5*	1-2	1-4	2-3	4-5*	1-2	1-4	2-3	4-5*
H1	0.62	0.61	1.28	1.18	0.73	0.96	0.96	0.93	0.34	0.70	0.94	0.98	0.52	0.48	0.86	0.88
H2	1.47	1.60	2.41	2.33	1.71	1.90	1.52	1.75	1.74	1.67	1.73	1.79	1.61	1.62	1.50	1.67
H3	2.37	2.39	4.30	4.47	2.37	2.81	2.75	3.01	2.65	2.59	2.68	2.74	2.43	2.41	3.16	3.04

* Regulator Port exhaust through Base Port 3.

Note: All Cv's calculated with regulator adjusted full open.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

D120

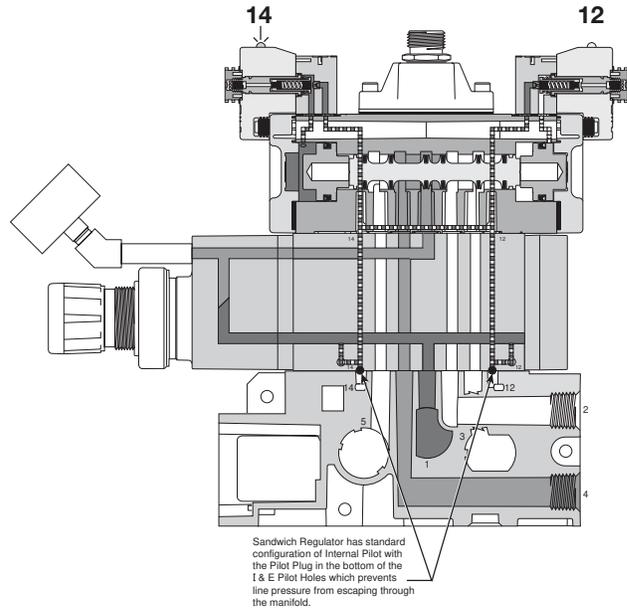
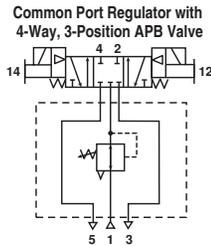
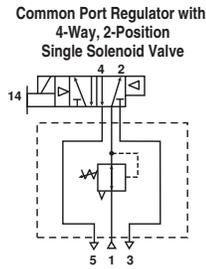
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www.parker.com/pneumatics

D
 Subbase & Manual Valves
 H Series Micro
 Modutef Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

Non Plug-in, H1, H2, H3 Common Port Regulation

Provides adjustable regulated air pressure to the valve's #1 port which gives the same regulated pressure to both the #2 and #4 port of the manifold or subbase. The regulator is always on the 14 end of the valve.

**H2 Common Port Regulator Shown -
 Double Solenoid, 14 Energized, Internal Pilot**

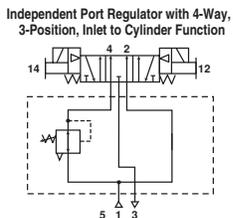
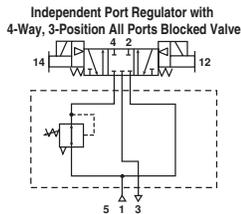


Non Plug-in, H1, H2, H3 Independent Port Regulation

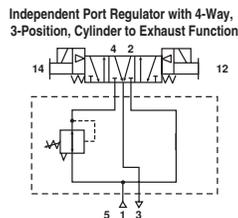
Single Port Regulator

Provides regulated pressure to one of the ports and full line pressure to the other by use of the Line Pressure By-Pass Plate. Pressure regulation can occur out of the #4 port of the valve.

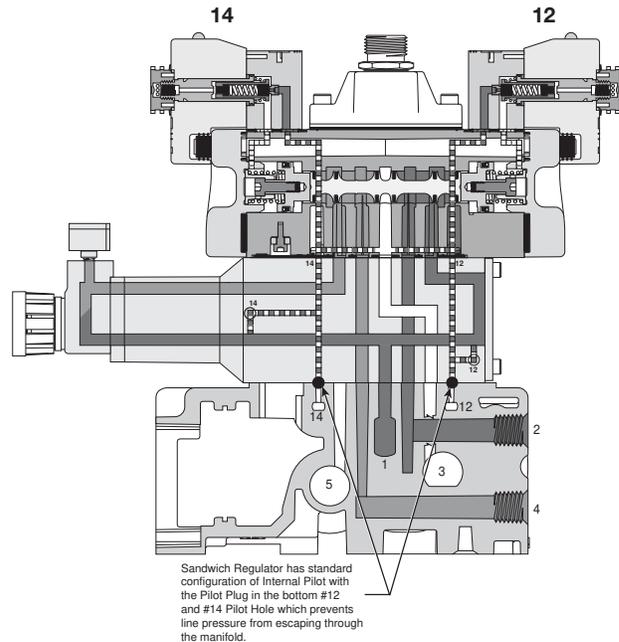
**H1 Independent Port Regulator Shown -
 Double Solenoid, De-energized, Internal Pilot**



⚠ CAUTION: Requires 4-Way, 3-Position, Cylinder to Exhaust Valve



⚠ CAUTION: Requires 4-Way, 3-Position, Inlet to Cylinder Valve



For inventory, lead time, and kit lookup, visit www.pdnplu.com

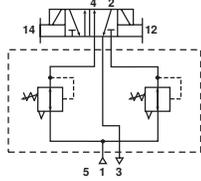
Non Plug-in, H1, H2, H3 Independent Dual Port Regulation

Dual Port Regulator

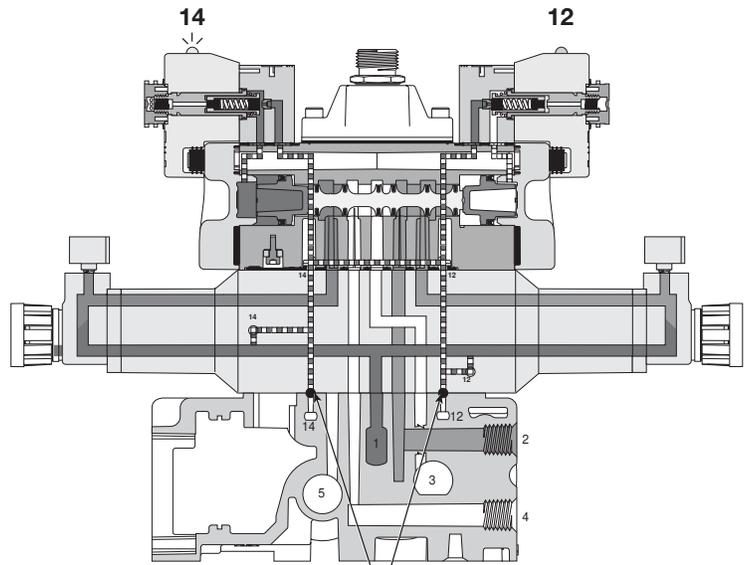
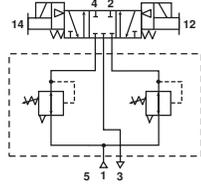
Provides regulated pressure to both ports. Pressure regulation can occur out of the #2 or #4 port of the valve.

H1 Independent Dual Port Regulator Shown - Double Solenoid, 14 Energized, Internal Pilot

Independent Dual Port Regulator with 4-Way, 2-Position Double Solenoid Valve



Independent Dual Port Regulator with 4-Way, 3-Position Double Solenoid Valve



Sandwich Regulator has standard configuration of Internal Pilot with the Pilot Plug in the bottom #12 and #14 Pilot Hole which prevents line pressure from escaping through

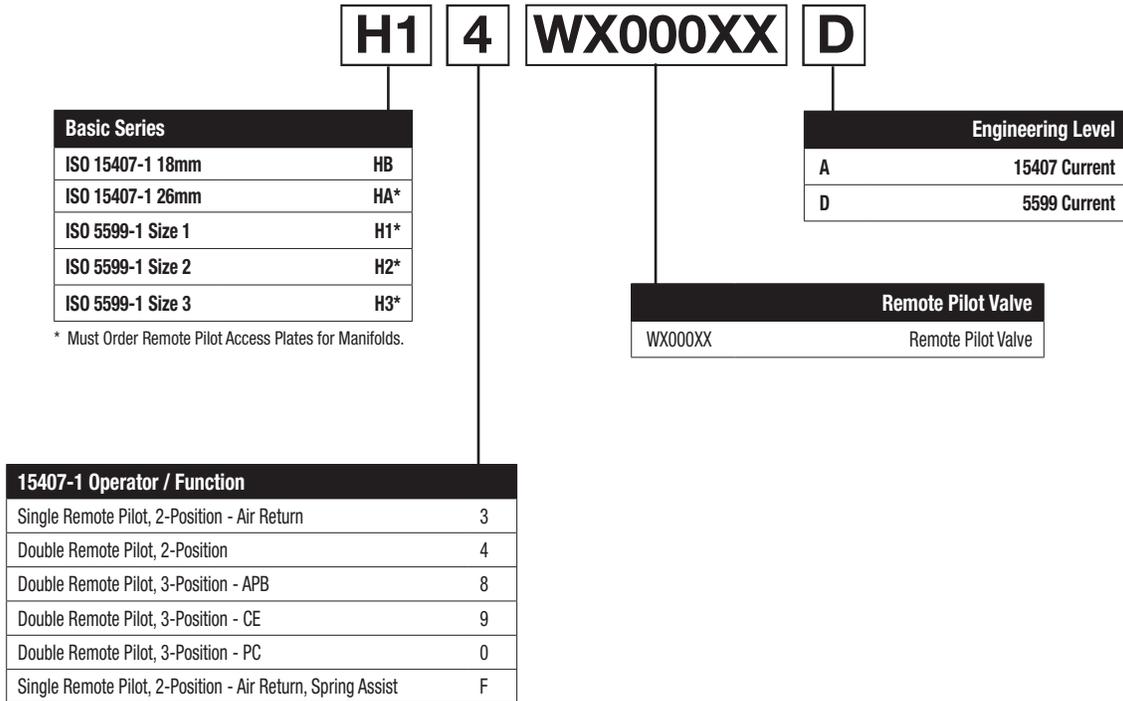
When using an Independent Pressure Sandwich Regulator, the cylinder outlet ports are reversed. The 12 end energizes the #4 port and the 14 end energizes the #2 port. The 3-Position CE and PC functions are also reversed. (See schematics on above.)

D	Subbase & Manual Valves
	H Series Micro
	Modulflex Series
	H Series ISO
	Fieldbus Systems
	DX ISOMAX Series
	Valvair II Series



For inventory, lead times, and kit lookup, visit www.pdnplu.com

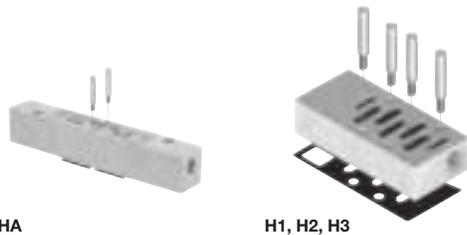
Remote Pilot, Size 18mm (HB), 26mm (HA), H1, H2, & H3



Note: For manifolds, end plates, and accessories, see 15407-1 & 5599-1 Non Plug-in valve section.

Note: HB 18mm Valve Remote Pilot Option only available with PL02 Individual Subbase Kits.

Remote Pilot Access Plate Kits



Size	Port size	NPT	BSPP "G"
HA	1/4"	PS551500P	PS551501P
H1	1/8"	PS401500CP	PS401501CP
H2	1/8"	PS411500CP	PS411501CP
H3	1/8"	PS421500CP	PS421501CP

Kit includes: Pilot Port Access Plate, Gasket and Mounting Studs.



For inventory, lead time, and kit lookup, visit www.pdnplu.com

D	Subbase & Manual Valves
	H Series Micro
	Modulflex Series
	H Series ISO
	Fieldbus Systems
	DX ISOMAX Series
	Valvair II Series

Flow Rating (Cv)

Valve size	Port size	2-Position	3-Position
HB	1/8"	0.55 Cv, C = 1.5 NI/s x bar, b = 0.25, Qn = 390 l/min, Qmax = 648 l/min	0.50 Cv, C = 1.4 NI/s x bar, b = 0.25, Qn = 360 l/min, Qmax = 595 l/min
HA	1/4"	1.1 Cv, C = 3.6 NI/s x bar, b = 0.30, Qn = 918 l/min, Qmax = 1518 l/min	1.0 Cv, C = 3.3 NI/s x bar, b = 0.30, Qn = 845 l/min, Qmax = 1395 l/min
H1	3/8"	1.5 Cv, C = 5.0 NI/s x bar, b = 0.30, Qn = 1248 l/min, Qmax = 2070 l/min	1.2 Cv, C = 4.1 NI/s x bar, b = 0.30, Qn = 1000 l/min, Qmax = 1660 l/min
H2	1/2"	3.0 Cv, C = 9.7 NI/s x bar, b = 0.35, Qn = 2520 l/min, Qmax = 4140 l/min	2.8 Cv, C = 9.0 NI/s x bar, b = 0.35, Qn = 2340 l/min, Qmax = 3860 l/min
H3	3/4"	6.0 Cv, C = 18.7 NI/s x bar, b = 0.35, Qn = 5022 l/min, Qmax = 7848 l/min	5.0 Cv, C = 15.4 NI/s x bar, b = 0.35, Qn = 4185 l/min, Qmax = 6545 l/min

Cv tested per ANSI / (NFPA) T3.21.3
 Flow tested According to ISO 6358.

Response Time (ms)**

Valve Size	Port Size	0 Cu. In. Chamber		## Cu. In. Chamber	
		Fill	Exhaust	Fill	Exhaust
Single Solenoid 2-Position - Air Return / Spring Assist					
HB	1/8"	28	30	141	154
HA	1/4"	24	26	77	124
H1	3/8"	39	41	159	210
H2	1/2"	78	81	219	310
H3	3/4"	90	93	244	320

** HB (12), HA (25), H1 (50), H2 (100), H3 (200)

** With 100 PSIG supply, time (ms) required to fill from 0 to 90 PSIG and Exhaust from 100 PSIG to 10 PSIG measured from the instant of energizing or de-energizing 24VDC solenoid.

Tested per ANSI / (NFPA) T3.21.8

D

Operating Pressure

Maximum: 145 PSIG (1000 kPa)

Minimum:

Operator / Function	Internal Pilot	PSIG (Min. kPa) HB	PSIG (Min. kPa) HA	PSIG (Min. kPa) H1	PSIG (Min. kPa) H2	PSIG (Min. kPa) H3
1	Single Solenoid - 2-Position	30	25	25	25	35
2	Double Solenoid - 2-Position	(207)	(173)	(173)	(173)	(241)
3	Single Remote Pilot - 2-Position **	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
4	Double Remote Pilot - 2-Position**	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
5, 6, 7	Double Solenoid - 3-Position APB, CE, PC	35 (241)	35 (241)	35 (241)	50 (345)	50 (345)
8, 9, 0	Double Remote Pilot - 3-Position** APB, CE, PC	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
E	Single Solenoid Pilot - 2-Position Air Return / Spring Assist	30 (207)	30 (207)	35 (241)	45 (310)	45 (310)
F	Single Remote Pilot - 2-Position** Air Return / Spring Assist	30 (207)	N/A	N/A	N/A	N/A
N, P, Q	Double Solenoid - Dual 3/2 External Pilot*	*	*	*	*	*
All	H Series	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum

* External Pilot Pressure / Remote Pilot Supply - Must meet or exceed minimum pilot pressure for internal pilot option. Not available on Operator / Function N, P, or Q.

** Must be equal to or greater than operating pressure.

Subbase & Manual Valves

H Series Micro

Modulflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series



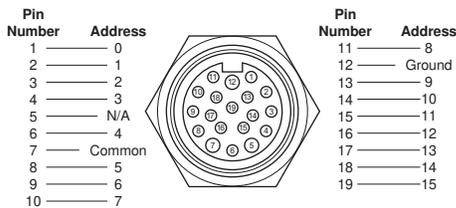
For inventory, lead times, and kit lookup, visit www.pdnplu.com

Minimum Operating Voltage

	HB	HA	H1	H2	H3
MOV (24VDC)	20.4	20.4	20.4	20.4	20.4
MOV (120VAC)	102*	102*	102	102	102

* 120VAC coils have a dropout voltage of 10VAC when used with solid state relays. A pull-down resistor may be necessary.

19-Pin Round Brad Harrison



Face View - Male 19-Pin Connector

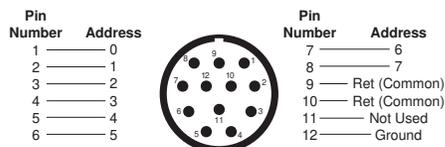
19-Pin Round Cable Specifications

Common Pin "7" is rated for 8 amps. Cable common wire must be greater than total amperage of solenoids on Add-A-Fold assembly.

Example: 8 station manifold, 16 solenoids, 120VAC - 16 x .039 amps = .63 total amp rating.

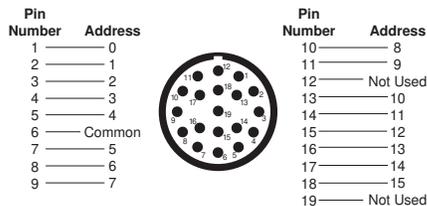
NEMA 4 rated with properly assembled NEMA 4 rated cable.

M23, 12-Pin Round Connector (Male)



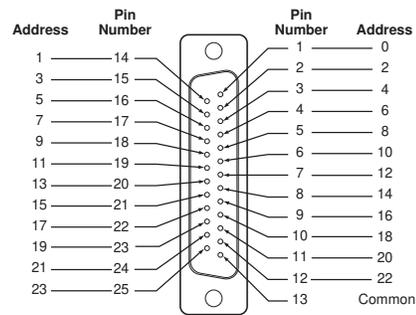
View into End Plate Connector - Male M23, 12-Pin

M23, 19-Pin Round Connector (Male)



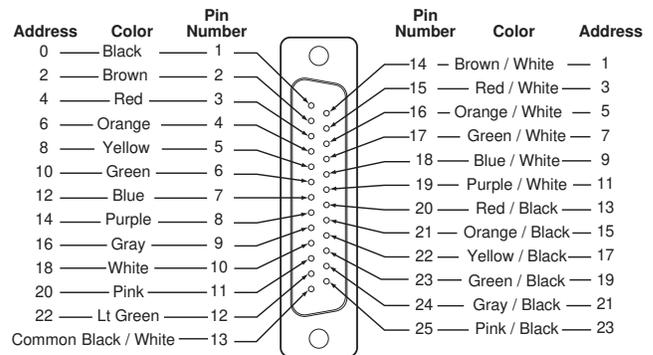
View into End Plate Connector - Male M23, 19-Pin

25-Pin, D-Sub Connector (Male)



View into End Plate Connector - Male D-Sub, 25-Pin

25-Pin, D-Sub Cable (Female)



	Description	Length	Part number
	25-pin, D-sub cable, IP20	3 Meters	P8LMH25M3A
	25-pin, D-sub cable, IP20	9 Meters	SCD259D
	25-pin, D-sub cable, IP65	3 Meters	SCD253W
	25-pin, D-sub cable, IP65	9 Meters	SCD259WE

D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

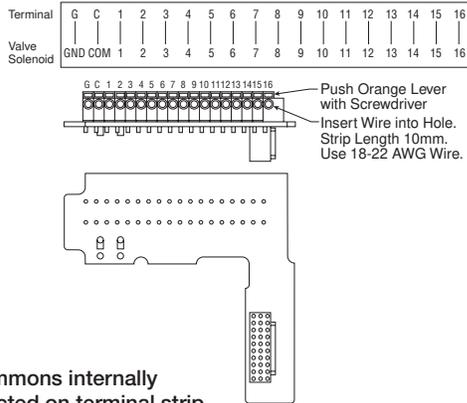
DX ISOMAX Series

Valvair II Series



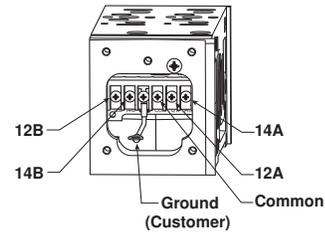
For inventory, lead time, and kit lookup, visit www.pdnplu.com

16-Point Terminal Strip



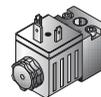
All commons internally connected on terminal strip

Manifold Wiring



Electrical Connectors - Size 1, 2 & 3

5599-1 CNOMO



30mm 3-Pin ISO 4400 (DIN 43650A)

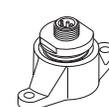


2-Pin M12 Euro

5599-1 AUTO



3-Pin Mini



4-Pin Micro



5-Pin Mini

5599-2

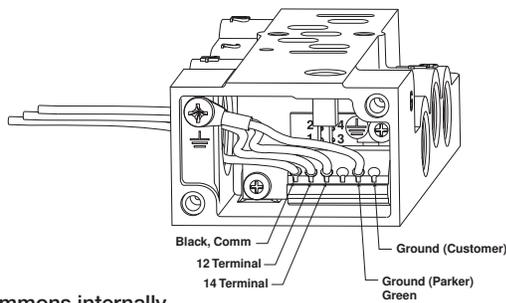


Manifold Auto Connector



Subbase Auto Connector

Subbase Wiring



All commons internally connected on terminal strip

Connections

	14 Solenoid	12 Solenoid
Valves with Wires	Black Wires	Red Wires
Valves with Terminal Block (Will accept 18 to 24 Gauge Wires)	14 and Com Terminals	12 and Com Terminals

D
 Subbase & Manual Valves
 H Series Micro
 Modutflex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

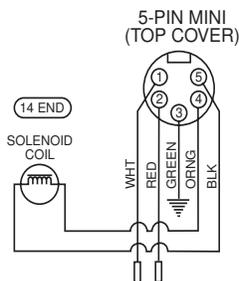


For inventory, lead times, and kit lookup, visit www.pdnplu.com

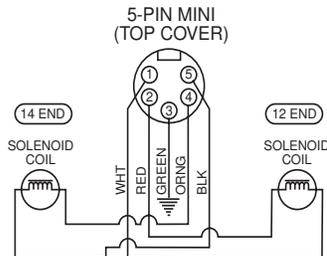
Automotive Connection – Wiring Options

'C' Chrysler Connection

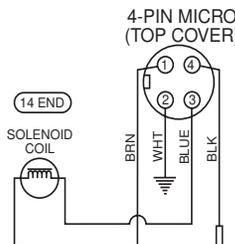
5-Pin Male / Single Solenoid
 (Encl. Option 3, Auto Option C)



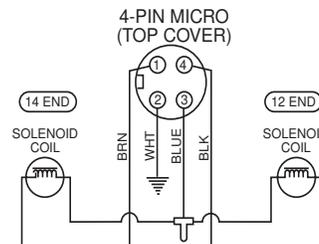
5-Pin Male / Double Solenoid
 (Encl. Option 3, Auto Option C)



4-Pin Male / Single Solenoid
 (Encl. Option 2, Auto Option C)

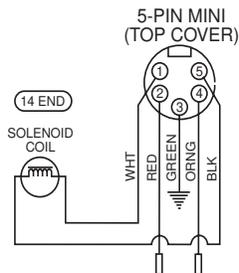


4-Pin Male / Double Solenoid
 (Encl. Option 2, Auto Option C)

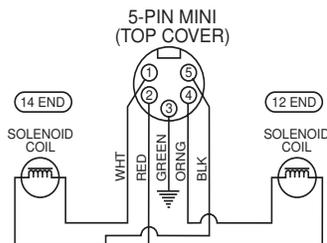


'F' SAE / Ford Wiring

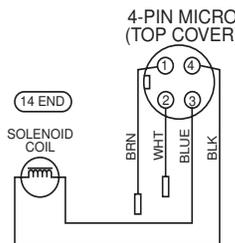
5-Pin Male / Single Solenoid
 (Encl. Option 3, Auto Option F)



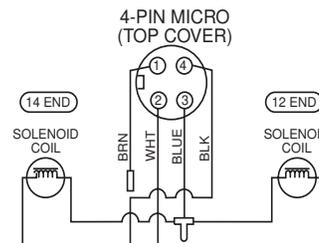
5-Pin Male / Double Solenoid
 (Encl. Option 3, Auto Option F)



ISO 20401
4-Pin Male / Single Solenoid
 (Encl. Option 2, Auto Option F)

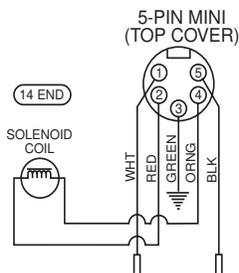


ISO 20401
4-Pin Male / Double Solenoid
 (Encl. Option 2, Auto Option F)

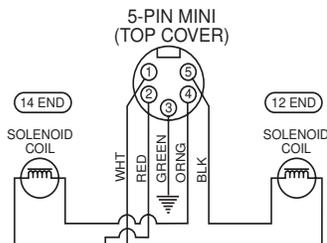


'G' GM Wiring

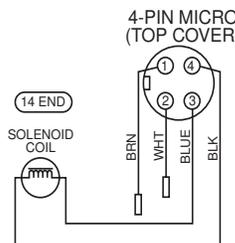
5-Pin Male / Single Solenoid
 (Encl. Option 3, Auto Option G)



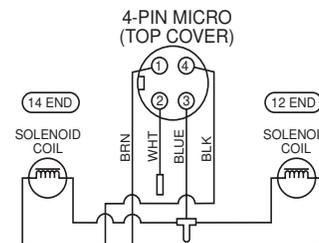
5-Pin Male / Double Solenoid
 (Encl. Option 3, Auto Option G)



4-Pin Male / Single Solenoid
 (Encl. Option 2, Auto Option G)

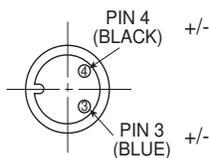


4-Pin Male / Double Solenoid
 (Encl. Option 2, Auto Option G)

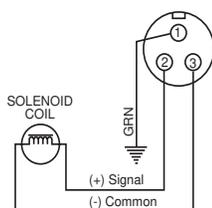


CNOMO Connection - Wiring Options

2-Pin Male / Single Solenoid
 (Encl. Option 6, Auto Option F)



3-Pin Male / Single Solenoid
 (Encl. Option 1, Auto Options C, F & G)



For inventory, lead time, and kit lookup, visit www.pdnplu.com

D	Subbase & Manual Valves
	H Series Micro
Modulflex Series	H Series ISO
Fieldbus Systems	DX ISOMAX Series
Valvair II Series	

Maximum Number of Solenoids
(Maximum energized simultaneously)

HA & HB	Voltage code	25-pin D-sub	19-pin Brad Harrison	12-Pin M23	19-pin M23	Moduflex	H Series Fieldbus	Turck	
								16 Outputs	32 Outputs
24VDC	G9	24 (24)	16 (16)	8 (8)	16 (16)	16 (16)	32 (32)	16 (16)	32 (32)
120VAC*	23	24 (24)	16 (16)	8 (8)	16 (16)	N/A	N/A	N/A	N/A

H1, H2 & H3	Voltage code	25-pin D-sub	19-pin Brad Harrison	12-Pin M23	19-pin M23	Moduflex	H Series Fieldbus	Turck	
								16 Outputs	32 Outputs
12VDC	45	24 (13)	16 (13)	8 (8)	16 (13)	N/A	N/A	N/A	N/A
24VAC*	42	24 (24)	16 (16)	8 (8)	16 (16)	N/A	N/A	N/A	N/A
24VDC	B9	24 (20)	16 (16)	8 (8)	16 (16)	16 (16)	24 (21)	16 (16)	24 (21)
120VAC*	23	24 (24)	16 (16)	8 (8)	16 (16)	N/A	N/A	N/A	N/A

* Not CSA certified for 25-pin, D-sub option.

Female Electrical Connectors (IP65 Rated) 30mm, 3-Pin ISO 4400, (DIN 43650A)

Description	Connector with 6' (2m) cord	Connector
Unlighted	PS2028JCP	PS2028BP
Light – 6-48V, 50/60Hz; 6-48VDC	PS2032J79CP*	PS203279BP
Light – 120V/60Hz	PS2032J83CP*	PS203283BP
Light – 240V/60Hz	N/A	PS203283BP

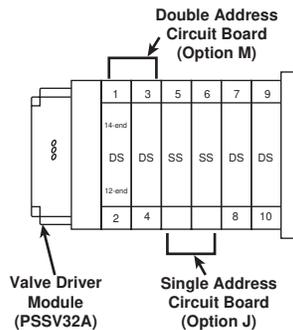
* With surge suppression.

Engineering data:

Conductors: 2 poles plus ground; cable range (connector only): 8 to 10mm (0.31 To 0.39 inch); Contact spacing: 18mm

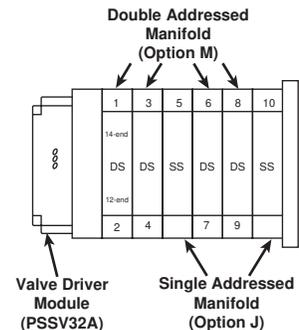
I/O Addressing Examples

HB & HA Example
Two Station Manifold Bases



Notes: SS = Single Solenoid Valve
 DS = Double Solenoid Valve
 First output address the #14 end of the valve closest to the valve driver module.

H1, H2 & H3 Example:
Single Station Manifold Bases



5599-2 & 5599-1 AUTO Solenoid Kits

Valve size	Voltage code	Coil kit number
	42 (24VAC)	PS404142P
	45 (12VDC)	PS404145P
H1, H2 & H3	B9 (24VDC)	PS4041B9P
	23 (120VAC)	PS404123P
	57 (240VAC)	PS404157P

Quantity 1

5599-1 CNOMO Solenoid Kits

Voltage code	3-pin, 30mm 'L' coil kit	2-pin, M12 Euro '6' coil kit
19	—	PS2828619P
42	P2FCA442	—
45	P2FCA445	—
49	P2FCA449	—
53	P2FCA453	—
57	P2FCA457	—

Quantity 1



For inventory, lead times, and kit lookup, visit www.pdnplu.com

D
 Subbase & Manual Valves
 H Series Micro
 Moduflex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

Pilot Operator - CNOMO

Valve size		Kit number
H1, H2 & H3	Locking	PS4052CP
	Non-locking	PS4053CP

Manifold Hardware Kits – PS Series

Valve size	Kit number
HB	PS5612P
HA	PS5512P
H1	PS4012P
H2	PS4112P
H3	PS4212P

Quantity 12

Valve Bolt Kits

Valve size	Kit number
HB	PS5687P
HA	PS5587P
H1	PS4087DP
H2	PS4187DP
H3	PS4287DP

Quantity 12

Valve to Base Gasket Kits

Valve size	Standard	Remote pilot	Dual pressure #3	Dual pressure #5
HB	PS5605P*	—	—	—
HA	PS5505P*	—	—	—
H1	PS4005DP	PS4006DP	PS40D3DP	—
H2	PS4105DP	PS4106DP	PS41D3DP	PS41D5DP
H3	PS4205DP	PS4206DP	PS42D3DP	PS42D5DP

Quantity 1

* Quantity 10

Body Service Kits

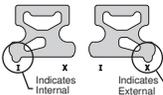
Valve size	2-position	3-position		
		APB	CE	PC
HB	PS5601P	PS5602P	PS5603P	PS5604P
HA	PS5501P	PS5502P	PS5503P	PS5504P
H1	PS4001CP	PS4002CP	PS4003CP	PS4004CP
H2	PS4101CP	PS4102CP	PS4103CP	PS4104CP
H3	PS4201CP	PS4202CP	PS4203CP	PS4204CP

HB / HA Kit Includes: Spool assembly with seals.

H1, H2, H3 Kit Includes: Spool assembly with seals, all piston seals, return spring, pilot selector gasket, coil to end cap gasket.

Quantity 1

Pilot Select Gasket Kits

	Valve size	Part number
	HB	PS5605P
	HA	PS5505P
	H1, H2 & H3	PS4007P

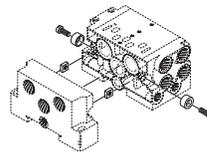
Quantity 10

Regulator Kits

Valve size	Part number
H1	PS4039P
H2, H3	PS4139P

Manifold Hardware Kit – PJJ Series

Description	Part number
Bolt, Washer & Nut	DX02M2MB*



* Includes 10 Bolts, 10 Washers, 10 Nuts



For inventory, lead time, and kit lookup, visit www.pdnplu.com

Regulator & Flow Control Mounting Studs

Valve type	Type	Part number
HB	Flow Control & Regulator	PS5636P
HA	Flow Control & Regulator	PS5536P
H1	Flow Control	PS4036P
	Regulator	PS4040P
H2	Flow Control	PS4136P
	Regulator	PS4140P
H3	Flow Control	PS4236P
	Regulator	PS4240P

Quantity 12

Regulator Gauge Kits – Size H1, H2 & H3

Gauge type	Part number
1" Face Air - Standard	
0 to 60 PSIG	PS4051060BP
0 to 160 PSIG	PS4051160BP
1-1/2" Face Air - Large*	
0 to 60 PSIG	PS4053060BP
0 to 160 PSIG	PS4053160BP
1-1/2" Face Liquid*	
0 to 160 PSIG	PS4052160BP

* Includes brass pipe fitting extensions
Quantity 1

Regulator Spring Range Kits – Size H1, H2 & H3

Spring range	Valve size	Part number
0 to 30 PSIG	H1	PS4050030P
	H2, H3	PS4150030BP
2 to 60 PSIG	H1	PS4050060P
	H2, H3	PS4150060BP
5 to 125 PSIG	H1	PS4050125P
	H2, H3	PS4150125BP

Quantity 1

Regulator Conversion Kits – Size H1, H2 & H3

Valve size	Description	Part number
H1	Manual Bonnet Assembly (w/o Spring)	PS4045BP
	Air Pilot Bonnet Assembly	PS4047BP
	Independent By-Pass Plate	PS4048BP
H2, H3	Manual Bonnet Assembly (w/o Spring)	PS4145BP
	Air Pilot Bonnet Assembly	PS4147BP
	Independent By-Pass Plate	PS4148BP

Quantity 1

Pilot By-Pass Plate

Valve size	Part number
H1, H2, H3	PS4051P

Quantity 10

Valve Driver Module

Driver Module	Part number
32 Point Module – HB, HA, H1, H2, H3	PSSV32A*†
24 Output Cable – HB, HA	PS5624P †
25 - 32 Output Cable – HB, HA	PS5632P †
24 Output Cable – H1, H2, H3	PS4024P †



PSSV32A

* Reference Document E100P for Installation Instructions. See www.pdnplu.com

† H Series Fieldbus Add-A-Fold assemblies and end plate kits include a valve driver module (PSSV32A) and cable.

HB / HA 24 output manifolds require a PS5624P.

HB / HA 32 output manifolds require a PS5624P + PS5632P.

H1, H2, H3 manifolds require a PS4024P, allowing 21 outputs.

D

Subbase & Manual Valves

H Series Micro

Moduteflex Series

H Series ISO

Fieldbus Systems

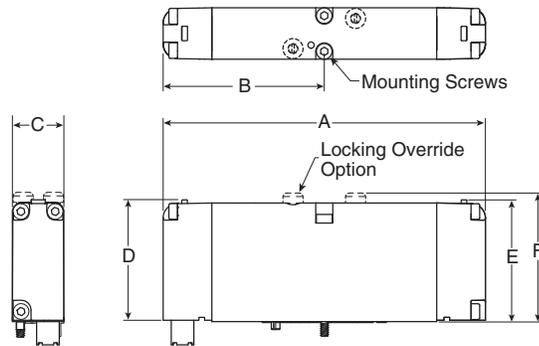
DX ISOMAX Series

Valvair II Series



For inventory, lead times, and kit lookup, visit www.pdnplu.com

H Series ISO 15407-2, Plug-in, Size 18mm (HB)



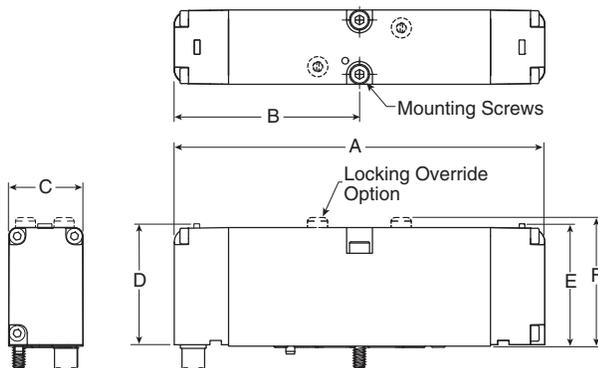
18mm Dimensions

A	B	C	D
4.43	2.22	.72	1.98
(113)	(56)	(18)	(50)

E	F
1.68	1.77
(43)	(45)

Inches (mm)

H Series ISO 15407-2, Plug-in, Size 26mm (HA)



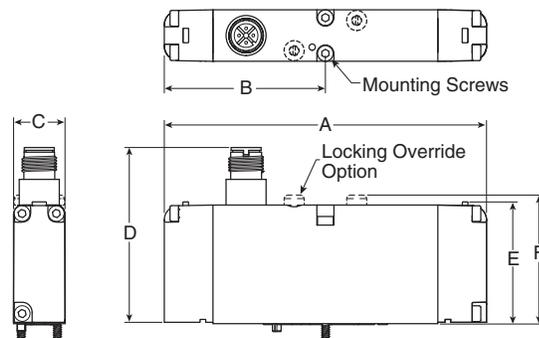
26mm Dimensions

A	B	C	D
5.10	2.55	1.02	1.98
(130)	(65)	(26)	(50)

E	F
1.68	1.77
(43)	(45)

Inches (mm)

H Series ISO 15407-1, Non Plug-in, Size 18mm (HB)



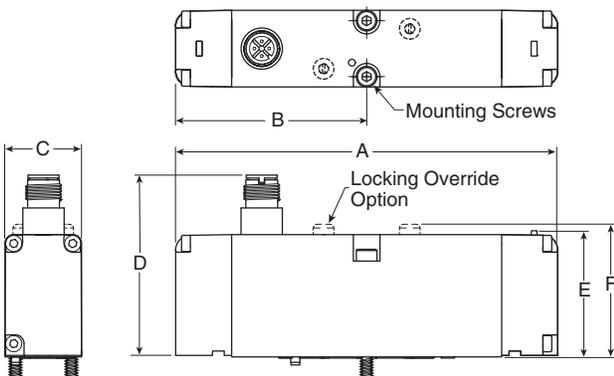
18mm Dimensions

A	B	C	D
4.43	2.22	.72	2.40
(113)	(56)	(18)	(61)

E	F
1.68	1.77
(43)	(45)

Inches (mm)

H Series ISO 15407-1, Non Plug-in, Size 26mm (HA)



26mm Dimensions

A	B	C	D
5.10	2.55	1.02	2.40
(130)	(65)	(26)	(61)

E	F
1.68	1.77
(43)	(45)

Inches (mm)



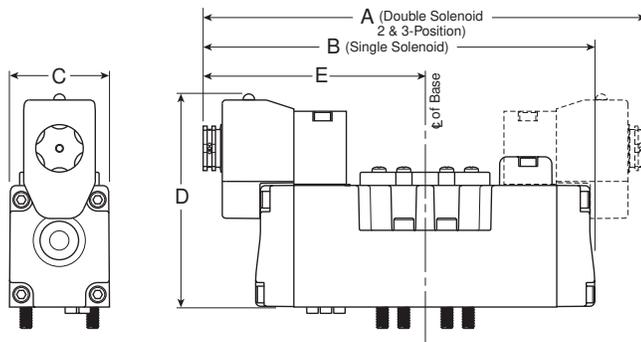
For inventory, lead time, and kit lookup, visit www.pdnplu.com

D131

Parker Hannifin Corporation
 Pneumatic Division
 Richland, Michigan
www.parker.com/pneumatics

D	Subbase & Manual Valves
	H Series Micro
	Moduflex Series
	H Series ISO
	Fieldbus Systems
	DX ISOMAX Series
	Valvair II Series

H Series ISO 5599-2



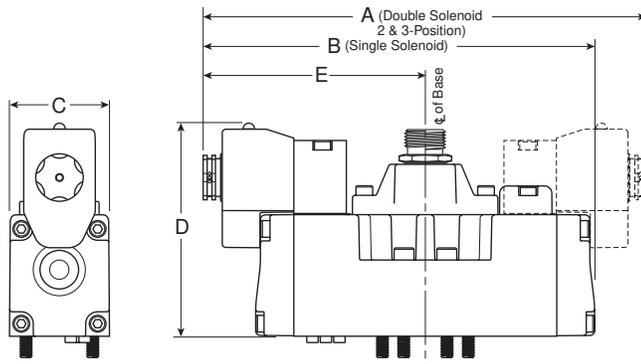
H1 Valves Shown

H1 Dimensions

A	A ₁	B	C
7.32 (186)	5.59 (142)	6.46 (164)	1.65 (42)
D	D ₁	D ₂	D ₃
3.54 (90)	4.29 (109)	4.29 (109)	2.50 (63.5)
D ₄	E	E ₁	
2.48 (63)	3.66 (93)	2.80 (71)	

Inches (mm)

H Series ISO 5599-1 Auto

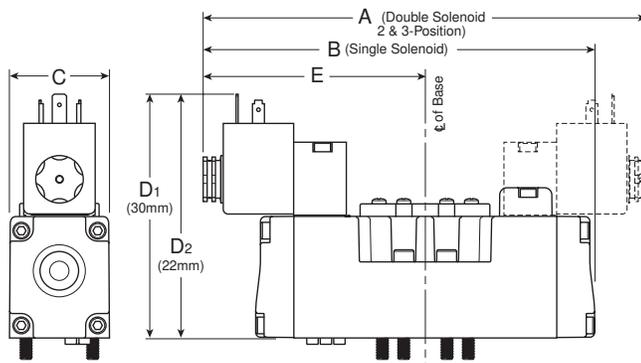


H2 Dimensions

A	A ₁	B	C
8.35 (212)	6.62 (168)	7.48 (190)	2.17 (55)
D	D ₁	D ₂	D ₃
4.05 (103)	4.80 (122)	4.57 (116)	2.99 (76)
E	E ₁		
4.17 (106)	3.31 (84)		

Inches (mm)

H Series ISO 5599-1 CNOMO

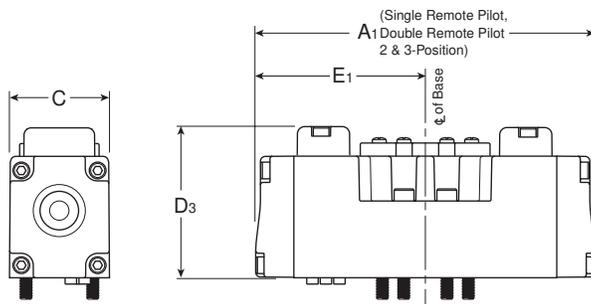


H3 Dimensions

A	A ₁	B	C
9.68 (246)	6.98 (177)	8.68 (220)	2.17 (55)
D	D ₁	D ₂	D ₃
4.05 (103)	4.80 (122)	4.57 (116)	2.99 (76)
E	E ₁		
4.74 (121)	3.49 (89)		

Inches (mm)

H Series ISO 5599-2 / 5599-1 Remote Pilot



D

Subbase & Manual
Valves

H Series
Micro

Modulflex
Series

H Series
ISO

Fieldbus
Systems

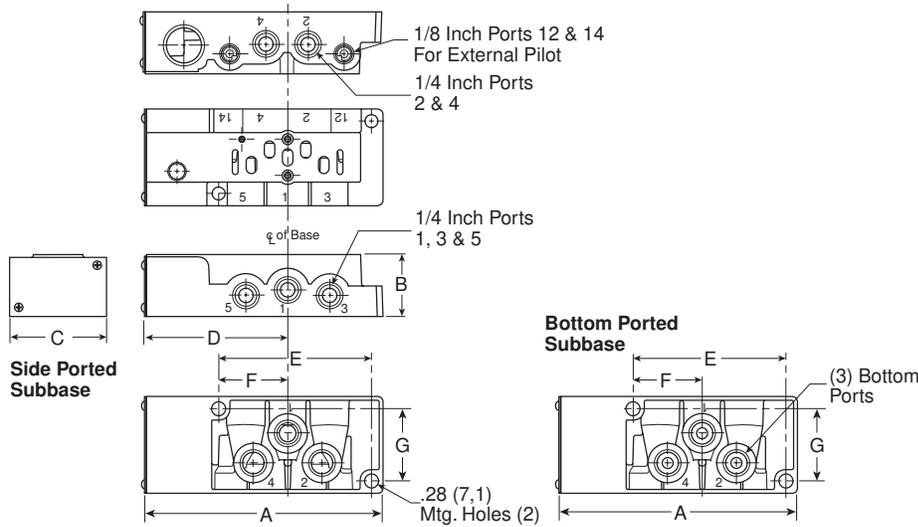
DX ISOMAX
Series

Valvair II
Series



For inventory, lead times, and kit lookup, visit www.pdnplu.com

H Series ISO 15407-2 & 15407-1 Size 26mm (HA), Plug-in Subbases

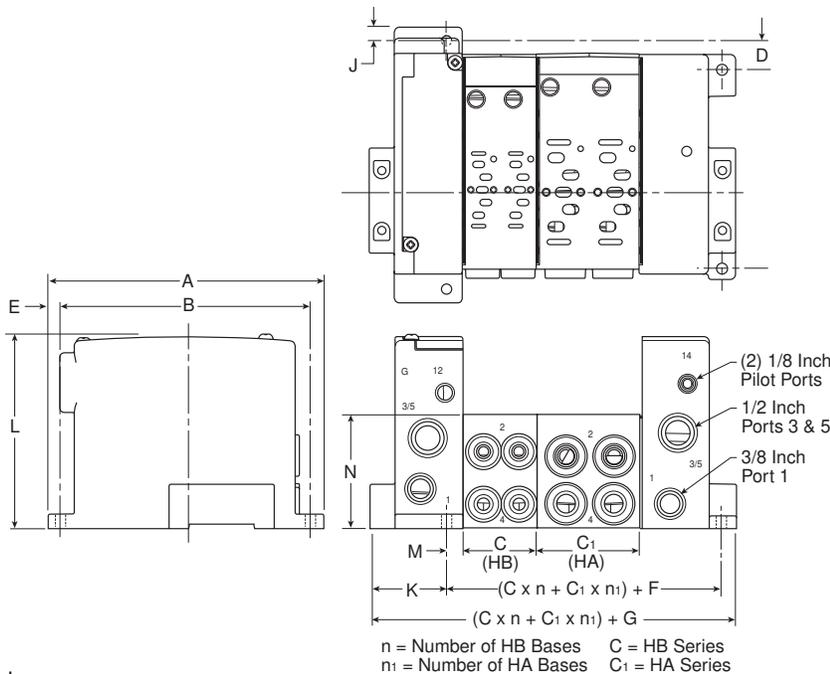


HA Dimensions

A	B	C	D
4.88	1.28	2.00	2.91
(124)	(32.5)	(50.8)	(74)
E	F	G	
1.43	3.16	1.49	
(36.2)	(80.2)	(37.9)	

Inches (mm)

H Series ISO 15407-2 & 15407-1 Size 18mm (HB) & 26mm (HA), PS5611 & PS5511 Manifolds



HB & HA Dimensions

A	B	C	C1	D	E
5.98	5.39	1.61	2.24	.63	.30
(152)	(137)	(40.8)	(56.8)	(16)	(7.5)
F	G	H	J	K	L
2.14	4.12	4.32	.15	1.68	4.17
(54.4)	(104.6)	(109.8)	(4)	(42.7)	(106)
M	N				
.33	2.48				
(8.4)	(63)				

Inches (mm)

Note:
 See Fieldbus Section for the dimensions of manifolds utilizing the H Series Fieldbus, Turck, or Moduflex end plate type.

D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

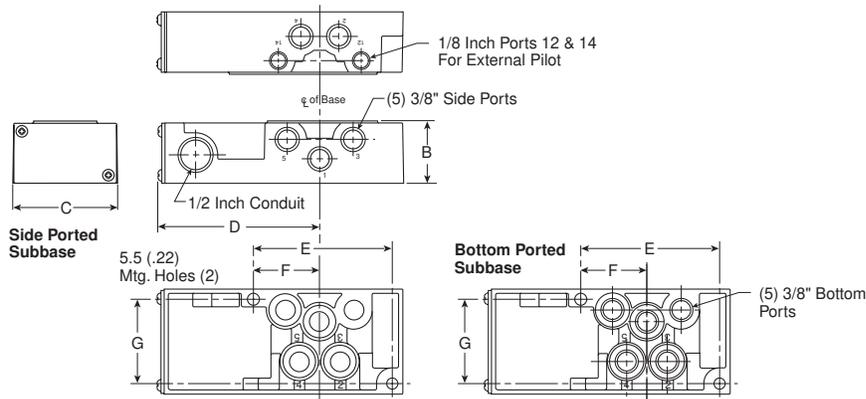
DX ISOMAX Series

Valvair II Series



For inventory, lead time, and kit lookup, visit www.pdnplu.com

H Series ISO 5599-1 Size H1, PS4011 Subbase



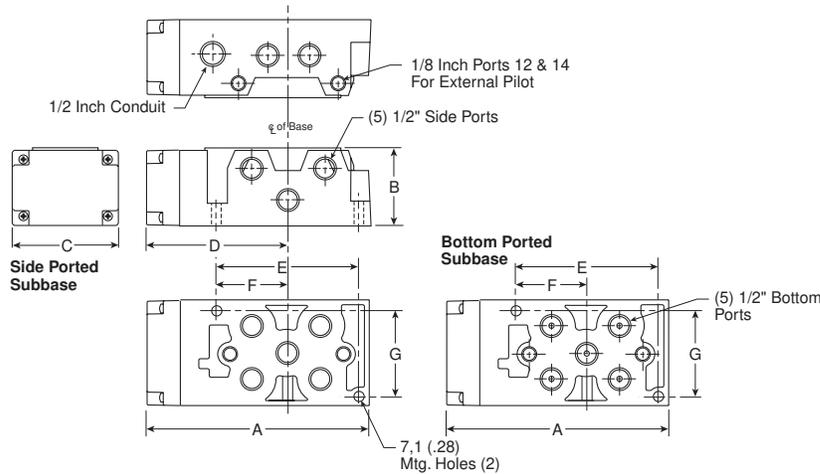
PS4011 Subbase Dimensions

A	B	C	D
5.83	1.48	2.50	3.86
(148)	(38)	(64)	(98)

E	F	G
3.29	1.57	2.00
(84)	(40)	(51)

Inches (mm)

H Series ISO 5599-1 Size H2, PS4111 Subbase



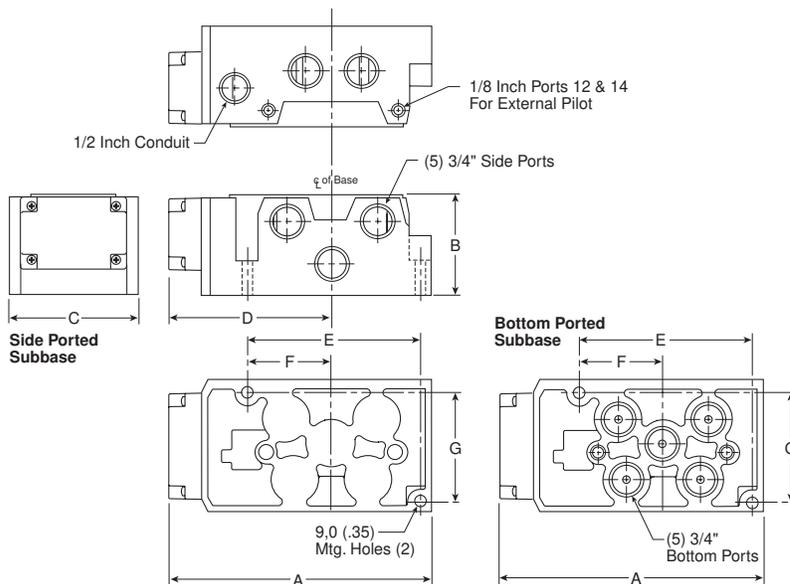
PS4111 Subbase Dimensions

A	B	C	D
6.69	2.33	3.15	4.25
(170)	(59)	(80)	(108)

E	F	G
4.21	2.07	2.56
(107)	(52)	(65)

Inches (mm)

H Series ISO 5599-1 Size H3, PS4211 Subbase



PS4211 Subbase Dimensions

A	B	C	D
7.90	2.96	3.90	4.92
(201)	(75)	(99)	(125)

E	F	G
5.14	2.50	3.24
(131)	(64)	(82)

Inches (mm)

D
 Subbase & Manual Valves
 H Series Micro
 Modutrex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

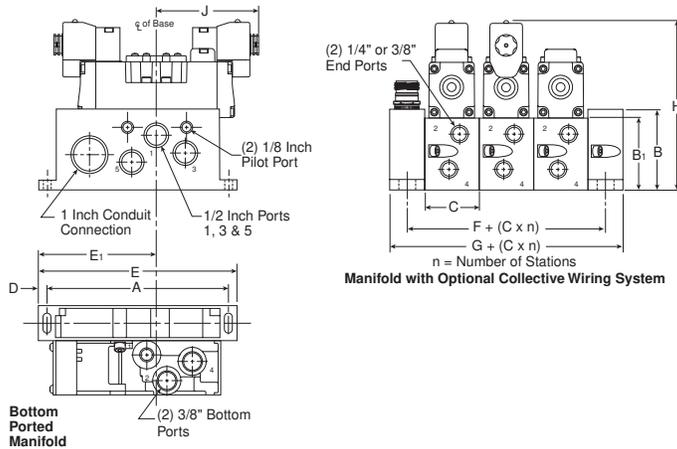


For inventory, lead times, and kit lookup, visit www.pdnplu.com

D134

Parker Hannifin Corporation
 Pneumatic Division
 Richland, Michigan
www.parker.com/pneumatics

H Series ISO 5599 Size H1, PS4011 Manifold

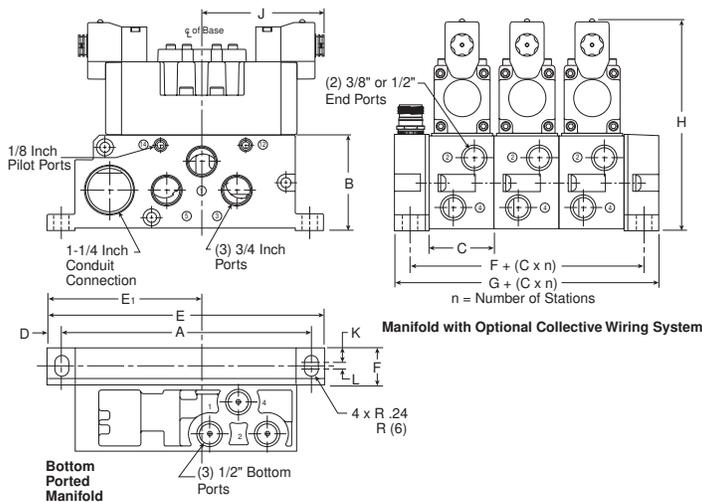


PS4011 Manifold Dimensions

A	B	B ₁	C	D
6.50 (165)	2.87 (73)	2.64 (67)	1.96 (50)	.33 (8)
E	E ₁	F	G	H
7.15 (182)	4.25 (108)	1.25 (32)	2.50 (63.5)	6.18 (157)
J	3.66 (93)			

Inches (mm)

H Series ISO 5599 Size H2, PS4111 Manifold

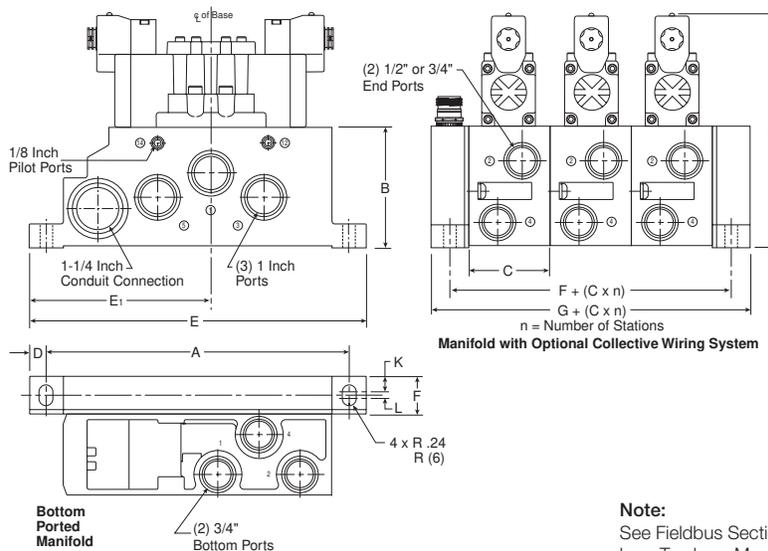


PS4111 Manifold Dimensions

A	B	C	D	E
8.46 (215)	3.35 (85)	2.20 (56)	.47 (12)	9.41 (239)
E ₁	F	G	H	J
5.28 (134)	1.26 (32)	2.60 (63)	7.40 (188)	4.17 (106)
K	L	.65 (16.5)		
.65 (16.5)	.24 (6)			

Inches (mm)

H Series ISO 5599 Size H3, PS4211 Manifold



PS4211 Manifold Dimensions

A	B	C	D	E
10.41 (265)	4.13 (105)	2.80 (71)	.59 (15)	11.61 (295)
E ₁	F	G	H	
6.26 (159)	1.30 (33)	2.60 (63)	8.19 (208)	
K	L	.53 (13.5)		
.53 (13.5)	.24 (6)			

Inches (mm)

Note:

See Fieldbus Section for the dimensions of manifolds utilizing the H Series Fieldbus, Turck, or Modflex end plate type.



For inventory, lead time, and kit lookup, visit www.pdnplu.com

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D

Subbase & Manual Valves

H Series Micro

Modflex Series

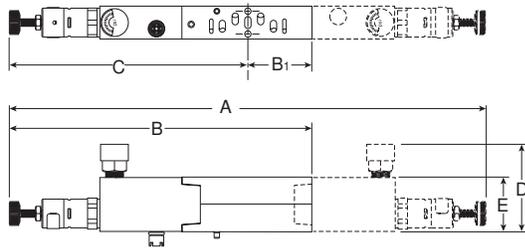
H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

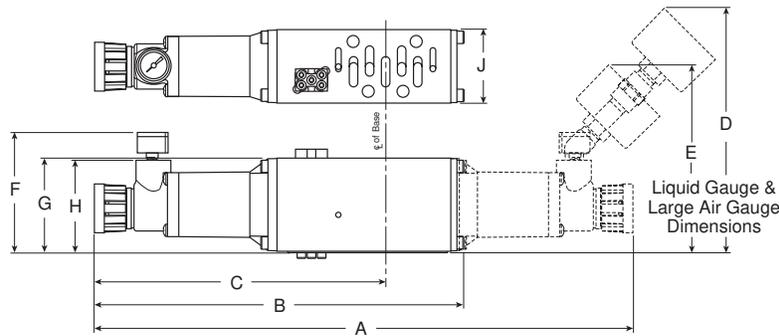
H Series ISO 15407 Sandwich Regulator



Series	Part number	A	B	B ₁	C	D	E
HB	PS5637	10.28 (261)	6.14 (156)	1.02 (26)	5.13 (130)	2.60 (66)	1.18 (30)
HA	PS5537	10.00 (254)	6.42 (163)	1.42 (36)	5.00 (127)	2.72 (69)	1.18 (30)

Inches (mm)

H Series ISO 5599, Size H1 Sandwich Regulator

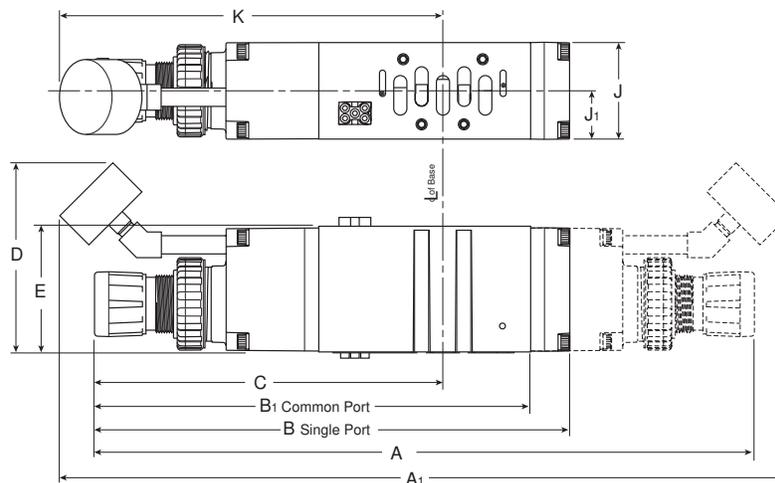


Series	Part number	A	B	C	D	E	F	G	H	J
H1	PS4037	11.84	8.13	6.40	5.45	4.25	2.85	2.09	2.05	1.63
	PS4038	(301)	(207)	(163)	(138)	(108)	(72)	(53)	(52)	(41)

Inches (mm)

H Series ISO 5599, Size H2 & H3 Sandwich Regulator

H2 Sandwich Regulator Shown



Series	Part number	A	A ₁	B	B ₁	C	D	E	J	J ₁	K
H2	PS4137	14.65	16.18	10.56	9.84	7.71	4.20	2.80	2.15	1.07	8.50
	PS4138	(372)	(411)	(268)	(250)	(196)	(107)	(71)	(55)	(27)	(216)
H3	PS4237	15.67	17.15	11.53	10.67	8.37	4.20	2.93	2.50	1.25	9.10
	PS4238	(398)	(436)	(293)	(271)	(213)	(107)	(75)	(64)	(32)	(231)

Inches (mm)

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 H Series ISO
 Fieldbus Systems
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 Valvair II Series



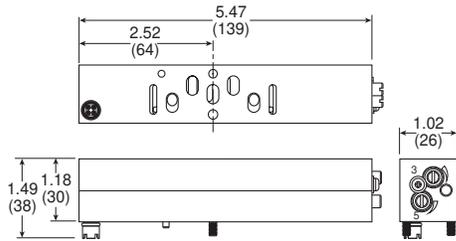
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D136

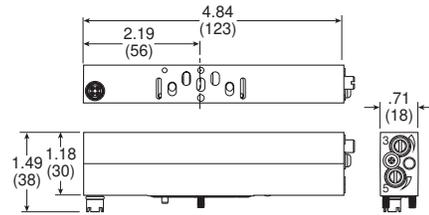
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H Series ISO 15407, Size 18mm (HB) & 26mm (HA), Flow Control

HA Flow Control

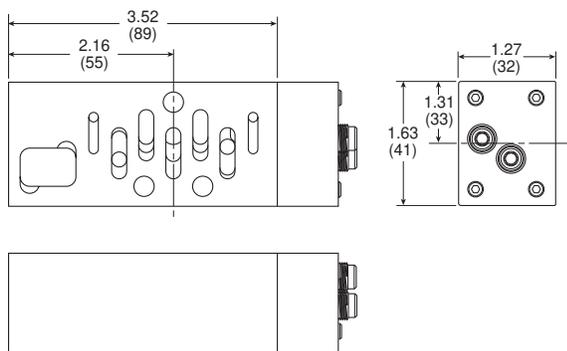


HB Flow Control

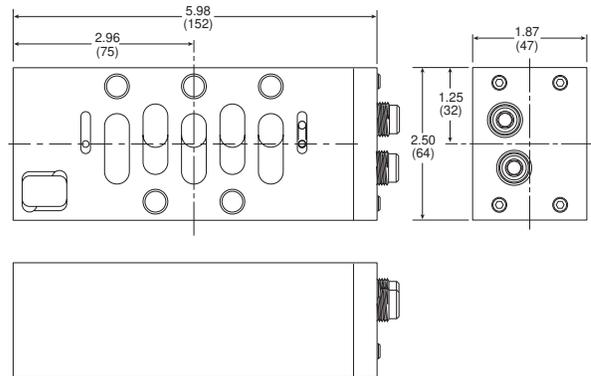


H Series ISO 5599, Size H1, H2 & H3, Flow Control

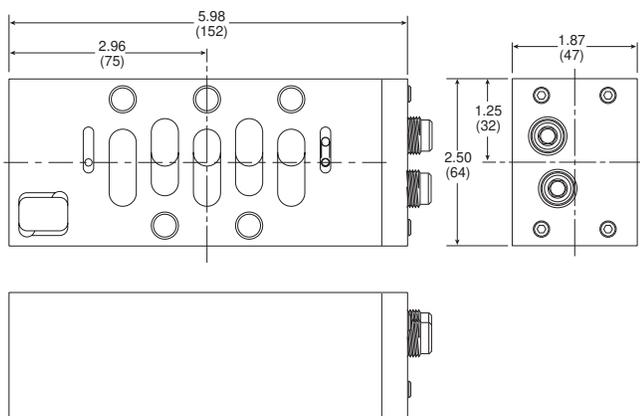
H1 Flow Control



H2 Flow Control



H3 Flow Control



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Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series



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Features

Fieldbus Systems

Fieldbus Offering

Valve series	Moduflex	H Series	Turck
Moduflex	X		
H Series Micro	X	X	X
H Series ISO	X	X	X

Protocol	Moduflex	H Series	Turck
IO-Link	X		
DeviceNet	X	X	X
Ethernet/IP		X	X
Profibus-DP	X	X	X
Profinet			X
Modbus/TCP			X
AS-i	X		
CANopen	X		X
Interbus-S	X		
ControlNet		X	

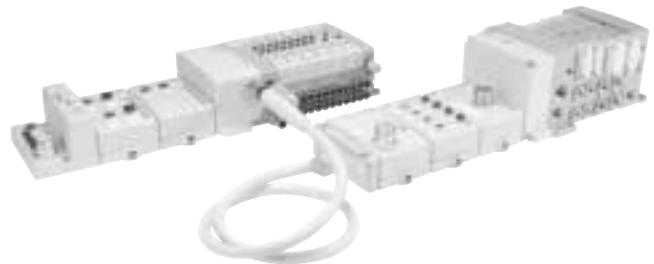
Options	Moduflex	H Series	Turck
Digital inputs / outputs*		X	X
Analog inputs / outputs		X	X
16 Solenoid control*	X		X
32 Solenoid control		X	X
Short circuit protection on inputs			X
Current sensing outputs			X
Bus expansion		X	
DeviceNet subnet			X
Programmable comm modules			X
Power over DeviceNet / CANopen			X
Preferred connectivity		X	
CANopen expansion			X

* Moduflex AS-i modules are available with 6 or 8 inputs and 6 or 8 solenoid outputs

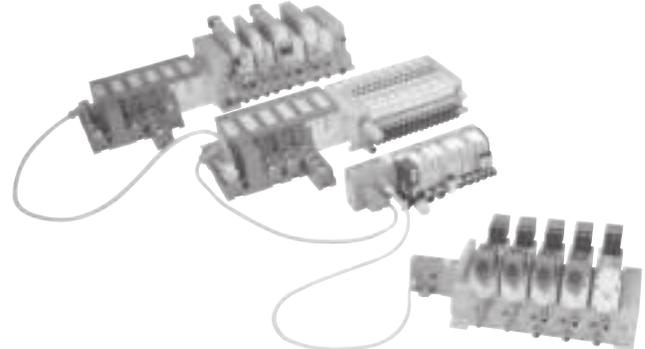
The Moduflex Fieldbus System



The H Series Fieldbus System



The Turck Fieldbus System



	Turck fieldbus	H Series Fieldbus	Moduflex
Solenoid control	Up to 32 solenoids on main valve manifold. DeviceNet Subnet Allows an additional 32 solenoids per node 63 nodes maximum. CANopen expansion Allows an additional 64 solenoids per expansion 5 expansions maximum.	Up to 32 solenoids on main valve manifold H Series Micro Bus Expansion Allows an additional 32 solenoids per expansion 3 expansions maximum 1 meter fixed cable length per expansion	Up to 24 solenoids on main valve manifold 19 Moduflex 24 H Micro 24 H Series ISO
I/O capabilities	256 maximum inputs and outputs directly connected to communication module. DeviceNet Subnet Allows an additional 256 I/O per node 63 nodes maximum Third party DeviceNet modules can be used CANopen expansion Allows an additional 64 I/O per expansion 5 expansions maximum Third party CANopen modules can be used	Maximum of 256 inputs and 256 outputs directly connected to the communication module, including H Series Micro Bus Expansion.	8 Inputs available on AS-i communication only.
Short circuit protection	SXG and diagnostic electronic modules have each point isolated. All other electronic modules are isolated from the backplane.	Devices must be fused between input / output and electronic module.	

Most popular.

D Subbase & Manual Valves H Series Micro Moduflex Series H Series ISO Fieldbus Systems DX ISOMAX Series Valvair II Series



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Features

The Moduflex Fieldbus System

Moduflex communication modules directly attach to the end plate. It offers a compact and low cost fieldbus solution.



Moduflex Features

- Small, compact product design
- IO-Link Class A & B modules
- Broad protocol offering, including DeviceNet, Profibus, AS-i, CANopen, and InterBus
- Channel-level diagnostics (LED and Electronic)
- Inputs available with AS-i modules
- Horizontal and vertical mounting without derating
- 5g vibration
- Quick-disconnects for I/O and network connectivity
- Built-in panel grounding
- CE certification

Control for up to 24 solenoids



P2M2HBVL12400A13
(Type A shown)

Control for up to 16 solenoids



P2M2HBVP21600
(Profibus shown)

Moduflex Communication Modules

IO-Link		Part number
Class A	3-Pin, Aux power 1 & 3	P2M2HBVL12400A13
	3-Pin, Aux power 4 & 3	P2M2HBVL12400A43
	3-Pin, Aux power 4 & 2	P2M2HBVL12400A42
Class B	5-Pin, Aux power 2 & 5	P2M2HBVL12400B25

Bus protocol	Part number
Profibus DP	P2M2HBVP21600
DeviceNet	P2M2HBVD21600
CANopen	P2M2HBVC21600
InterBus-S	P2M2HBVS11600

Most popular.

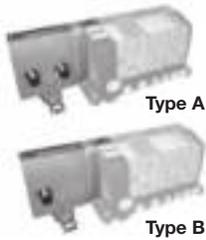


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D	Subbase & Manual Valves
	H Series Micro
	Moduflex Series
	H Series ISO
	Fieldbus Systems
	DX ISOMAX Series
	Valvair II Series

“V” Series Valve Island
Electrical fieldbus head module for IO-Link

Electrical Module for 19 outputs (Moduflex Pilot Valves)
 (The last 5 outputs of this 24 DO module can't be used with Moduflex Valve)



		M12 A coded Connector connection					
Description	IO-Link Class	IO-Link	Aux. Power	Aux. Power Pinout	Weight (g)	Part number	
Moduflex IO-Link Communication Module	Class A	3 Pin's	3 Pin's	1 & 3	160	P2M2HBVL12400A13	
		3 Pin's	3 Pin's	4 & 3	160	P2M2HBVL12400A43	
		3 Pin's	5 Pin's	4 & 2	160	P2M2HBVL12400A42	
	Class B	5 Pin's		2 & 5	140	P2M2HBVL12400B25	
Power & Communication Cable						RKC 4.5T*-RSC 4.5T/S1587	

IODD file can be downloaded from IODD Finder or the Moduflex web site:
<https://ioddfinder.io-link.com> or www.parker.com/pdn/io-link

Where * = 1, 2, 3, 4, 5, 10, 20 meter standard lengths

Moduflex Class A module with independent Auxiliary Power Supply



The Moduflex **IO-Link** Class A module can handle a Moduflex Valve bank having up to 19 pilot solenoid valves.

Thanks to its 2 x M12 A coded male connectors, it can be connected to any IO-Link Class A master and separately receive its auxiliary power supply for valves from an independent source.

The Moduflex **IO-Link** Class A module exists in 3 versions with the Auxiliary Power M12 connector pin out adapted to any sourcing through a standard M12 cable:

- P2M2HBVL12400A13 version: 24VDC / 0VDC on pins 1 & 3 – Standard version
- P2M2HBVL12400A43 version: 24VDC / 0VDC on pins 4 & 3 – Compatible with Siemens wiring
- P2M2HBVL12400A42 version: 24VDC / 0VDC on pins 4 & 2 – Compatible with Rockwell wiring and Turck

Moduflex Class B module



The Moduflex **IO-Link** Class B module can handle a Moduflex Valve bank having up to 19 pilot solenoid valves.

Thanks to its single M12 A coded male connectors, it can be connected to any IO-Link Class B master receiving its auxiliary power supply for valves on pins 2 & 5 from the only cable simplifying the connection.

- P2M2HBVL12400B25 version: 24VDC / 0VDC on pins 2 & 5

Diagnostic



The Moduflex **IO-Link** module offers a local diagnostic through 4 LED's located on the visible top side, showing:

- IO-Link com status
- Module error
- Output error
- Auxiliary power

Additional useful diagnostic information can be read by the PLC through the network simplifying diagnostic and allowing predictive maintenance (all details in the user manual).

Most popular.

Auxiliary power for safe supply

The Moduflex **IO-Link** module is compatible with SAFE power source for valve control.

For more details, refer to next page.

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 H Series ISO
 Fieldbus Systems
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 Valvair II Series



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IO-Link module connection and diagnostic functions



IO-Link module connection

Standard male M12 – type A

Usage of standard manufactured cables available from your usual electrical supplier is recommended.

Note: Auxiliary power for solenoids can be wired allowing the user to turn outputs off while the communications remains on.

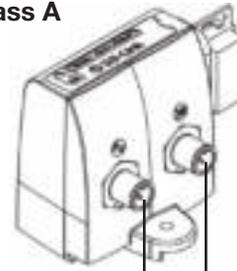
Configuration

IODD file can be downloaded from IODD Finder or the Moduflex web site:
<https://ioddfinder.io-link.com>
www.parker.com/pdn/io-link

Class B



Class A



Legend

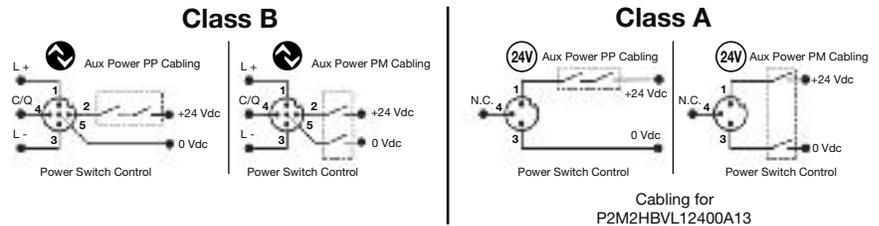
Symbol	Description
L+	IO-Link Power Supply "+"
L-	IO-Link Power Supply "-"
C/Q	IO-Link communication
Aux +	Auxiliary Power Supply 24 VDC
Aux -	Auxiliary Power Supply 0 VDC

M12 Pin's	Class A		
	3 Pin's	5 Pin's	
	P2M...A13	P2M...A43	P2M...A42
L+	Aux +	Not used	Not used
Aux +	-	-	Aux -
L-	Aux -	Aux -	Not used
C/Q	n.c.	Aux +	Aux +
Aux -	-	-	Not used

Auxiliary Power Supply Compatibility

The Moduflex IO-Link Module can be powered from a 24VDC auxiliary source in PP or PM mode as grounds are isolated.

For compatibility with a safe output pulsed module, please refer to user manual document available on www.parker.com/pdn/io-link



IO-Link module diagnostic functions

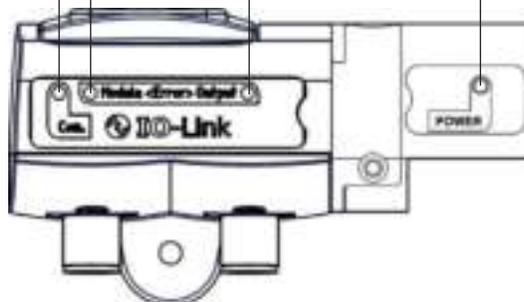
The Moduflex IO-Link module offers additional useful module status information:

- Solenoid overload or short circuit
- Auxiliary Voltage out of tolerance
- Cycle counter for each solenoid
- Module temperature

For more information on product technical information and module diagnostic functionalities, please refer to the User Manual available from the product web page:

www.parker.com/pdn/io-link

COM Green LED			Module – Error Red LED			Error – Output Red LED			POWER Green LED		
LED Status	Description	Solving	LED Status	Description	Solving	LED Status	Description	Solving	LED Status	Description	Solving
OFF	IO-Link L+ / L- not powered	Check connection	OFF	Standard mode	NA	OFF	Standard mode	NA	OFF	AUX power failure	Check Auxiliary Power Supply
ON	IOL L+ / L- powered IO mode	Set IO-Link mode in IO-Link master	ON	24 VDC AUX power missing or any active malfunction	Check power supply or change module	ON	Any driver error (overload, over temperature, etc.)	Fix solenoid issue then acknowledge error	ON	Standard	NA
Blinking	IO-Link communication active	NA							Blinking	Aux Power is out of range, alarm level	Check Auxiliary Power Supply



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Subbase & Manual Valves

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Input Data

One byte of diagnostic input data is transferred from Moduflex to the IO-Link Master.

Process Input Data

7	6	5	4	3	2	1	0
Output Driver SPI Error	Output Driver Channel Error	Polyfuse Tripped	Temperature Warning	SPI Error	AUX Voltage Error	AUX Voltage Warning	Acknowledge Required

Output Data

Three bytes of process data are received by Moduflex from the IO-Link Master for control of solenoids.

Process Output Data (Byte 0)

7	6	5	4	3	2	1	0
EV8	EV7	EV6	EV5	EV4	EV3	EV2	EV1

Process Output Data (Byte 1)

7	6	5	4	3	2	1	0
EV16	EV15	EV14	EV13	EV12	EV11	EV10	EV9

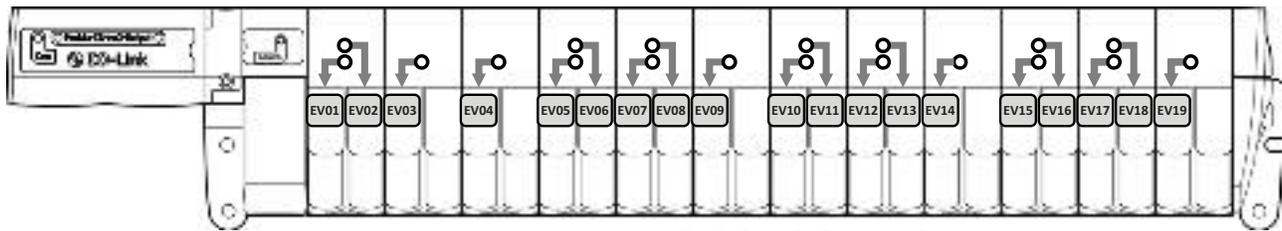
Process Output Data (Byte 2)

7	6	5	4	3	2	1	0
EV24	EV23	EV22	EV21	EV20	EV19	EV18	EV17

Solenoid Pilots Addressing And Process Mapping

IO-Link Module addressing used with Moduflex Valve System

The Moduflex IO-Link module used with Moduflex Valve System can handle up to 19 pilot solenoid valves. Addressing will be done as shown below.



	7	6	5	4	3	2	1	0
PLC mapping	Byte 0							
Process output	EV08 EV01							
	Byte 1							
	EV16 EV09							
	Byte 2							
	EV24 EV17							

IO-Link Module Electrical Specifications

IO-Link Power Supply	According to IO-Link standard V1.1.2
Speed Communication	Com 2 – 38 kBd
Auxiliary Power Supply	20.4 VDC to 26.4 VDC
Current Limit per channel	150 mA
Max Current Limit	4 A
Polarity inversion	YES
Short Circuit Protection	YES
Operating Temperature	0°C to 55°C
Storage Temperature	-25°C to 70°C
Shock According to IEC	60068-2-27:2008
Vibration According to IEC	60068-2-6:2007
EMC According to IEC	61000-4-2 up to -4-6

Network diagnostic through Process mapping:

The Moduflex IO-Link module offers diagnostic data transmitted to the PLC through the master:

	7	6	5	4	3	2	1	0
PLC mapping	Byte 0							
Process input	Diag 7 Diag 0							

Diag bit	Error message	Detail
Diag 0.....	Fail-safe status	Acknowledgment required
Diag 1.....	Auxiliary voltage warning.....	Check auxiliary power
Diag 2.....	Auxiliary voltage failure.....	Check auxiliary power
Diag 3.....	Module failure	Module HS. must be replaced
Diag 4.....	Module over-temperature	
Diag 5.....	Module over-load	
Diag 6.....	Pilot Solenoid(s) short circuit	Solenoid must be replaced
Diag 7.....	Outputs stage failure	

For further details, refer to the User Manual: Can be downloaded from www.parker.com/pdn/io-link



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P2M2HBVA10808A



P2M2HBVA10808B

Standard AS-i Protocol (up to 31 nodes)
Communication module for 8 solenoids max.
(2 nodes per module, 4 inputs, 4 solenoids per node)

Input / Output capability	Weight (oz)	Part number
0 inputs and 8 solenoid outputs	5.29	P2M2HBVA10800
8 (PNP) inputs on eight (M8) connectors and 8 solenoid outputs	7.05	P2M2HBVA10808A
8 (PNP) inputs on four (M12) connectors and 8 solenoid outputs	7.05	P2M2HBVA10808B

Fieldbus Accessories

	Protocol	Connector type	Part number
Power supply Field wireable connector	Profibus DP / InterBus-S / DeviceNet / CANopen	M12 type A female	P8CS1205AA
Line termination resistor	Profibus DP / DeviceNet / CANopen	M12 type B / M12 type A	P8BPA00MB P8BPA00MA

AS-i Version 2.1 Protocol (up to 62 nodes)
Communication module for 6 solenoids max.
(2 nodes per module, 4 inputs, 3 solenoids per node)

Input / Output capability	Weight (oz)	Part number
0 inputs and 6 solenoid outputs	5.29	P2M2HBVA20600
8 (PNP) inputs on eight (M8) connectors and 6 solenoid outputs	7.05	P2M2HBVA20608A
8 (PNP) inputs on four (M12) connectors and 6 solenoid outputs	7.05	P2M2HBVA20608B

AS-i Bus Accessories

M12 Cable with Jack for Addressing

Length	Weight (oz)	Part number
1 m	3.53	P8LS12JACK

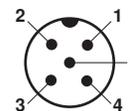
Most popular.

M12 (Male) Power Supply Connector

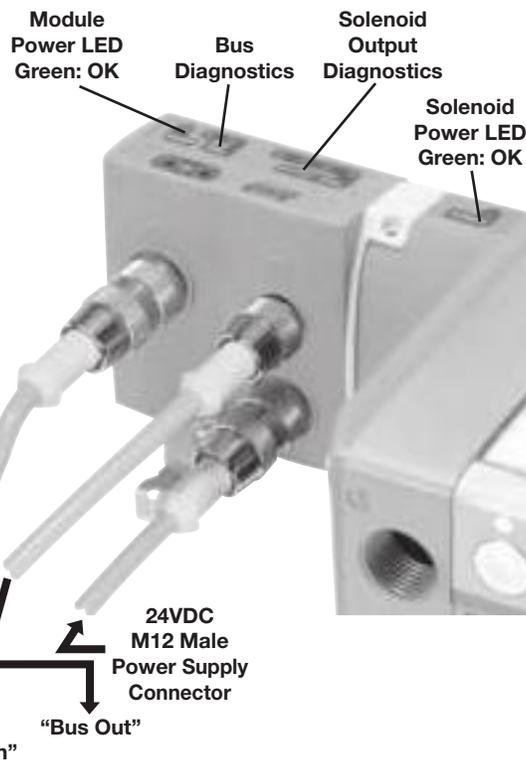
- 1 - 24VDC Module (Not Connected for DeviceNet and CANopen)
- 2 - Not Connected
- 3 - 0VDC Module and Solenoid
- 4 - 24VDC Solenoid
- 5 - Protected Earth (PE)

Profibus DP / DeviceNet / CANopen / InterBus-S

24VDC
 (As Seen On Module)



M12 Male Type A



Connection

All communication modules have an M12 male connector for power supply.

Connector on Moduflex Modules are labeled. Bus Connectors are labeled "Bus In" and "Bus Out" while, Power Supply Connections are labeled "24VDC". Connect Fieldbus to "Bus In" and "Bus Out" and Power Supply to "24VDC".

Diagnostic

The two "power" indicators shown on the illustrations provide visual indication of the module and solenoid supply status.

Note: Output power to the solenoids can be wired to allow the user to turn the outputs off while allowing communications to remain on. This can be done by placing the user's Emergency Stop switch or other hard-wired control contact between Pin 1 and Pin 4. If this feature is not required, Pin 1 and Pin 4 should be wired together.

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Communication Module: Connections, Addressing, Diagnostic



Bus Cable Connections

Profibus DP standard male and female type B M12 connectors.

Line termination P8BPA00MB, is necessary on the “bus out” connector of the last station.

This module incorporates an Autobaud detect feature, eliminating the need to set switches.

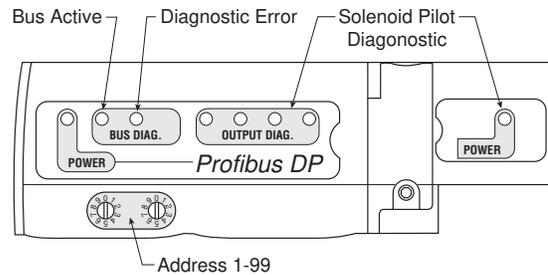
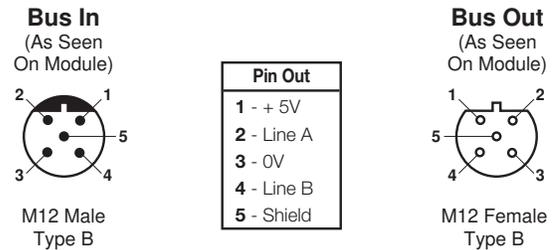
Addressing

Use the GSD file on web site.

The rotary switches enable configuration of the decimal address.

Diagnostic

Diagnostic according to the module dialog shown on the illustration.



Bus Cable Connections

DeviceNet standard male and female type A M12 connectors.

Line termination P8BPA00MA, is necessary on the “bus out” connector of the last station.

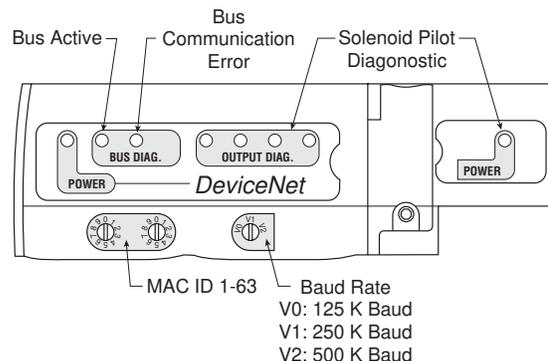
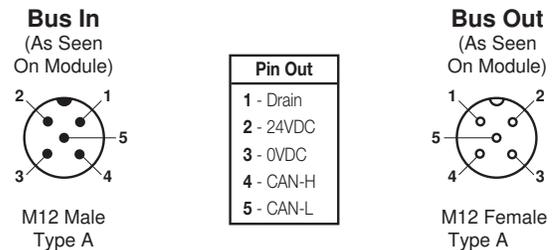
Addressing

Use the EDS file on web site.

The rotary switches enable configuration of the node address (MAC ID) and the baud rate.

Diagnostic

Diagnostic according to the module dialog shown on the illustration.



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CANopen

Bus Cable Connections

CANopen standard male and female type A M12 connectors.

Line termination P8BPA00MA, is necessary on the “bus out” connector of the last station.

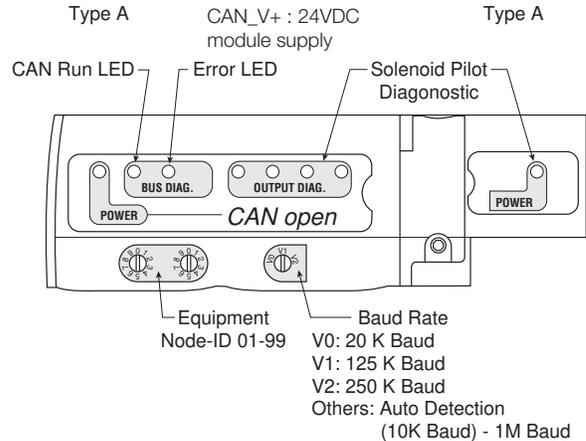
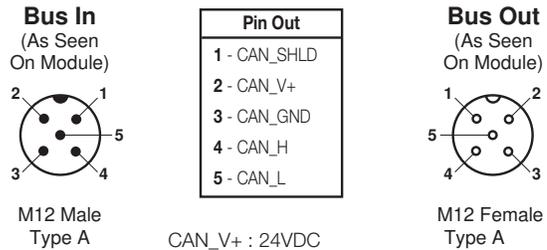
Addressing

Use the EDS file on web site.

The rotary switches enable configuration of the decimal address.

Diagnostic

Diagnostic according to the module dialog shown on the illustration.



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 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

INTERBUS-S

Bus Cable Connections

The M23 connectors conform to “Interbus remote bus”.

This module operates at 500 kbps.

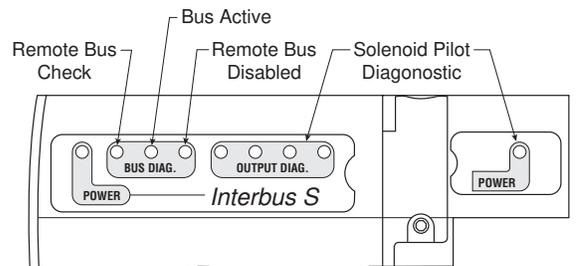
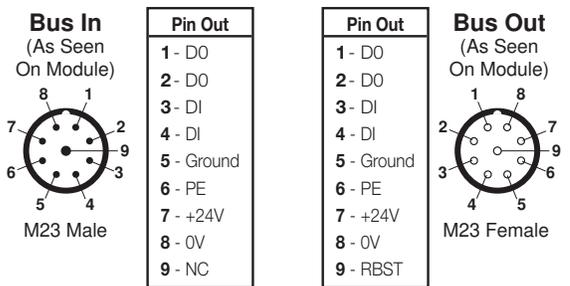
Addressing

InterBus-S is self addressing; therefore, it does not need any software or hardware configuration.

Diagnostic

Diagnostic according to the module dialog shown on the illustration.

This diagnostic conforms to the InterBus-S standard.

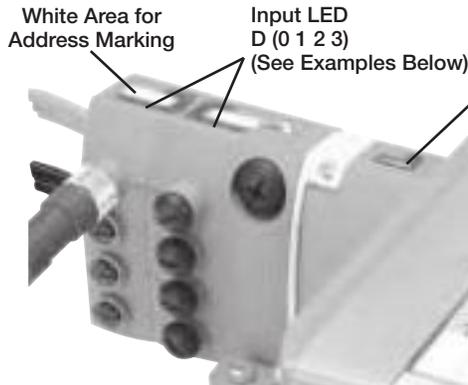
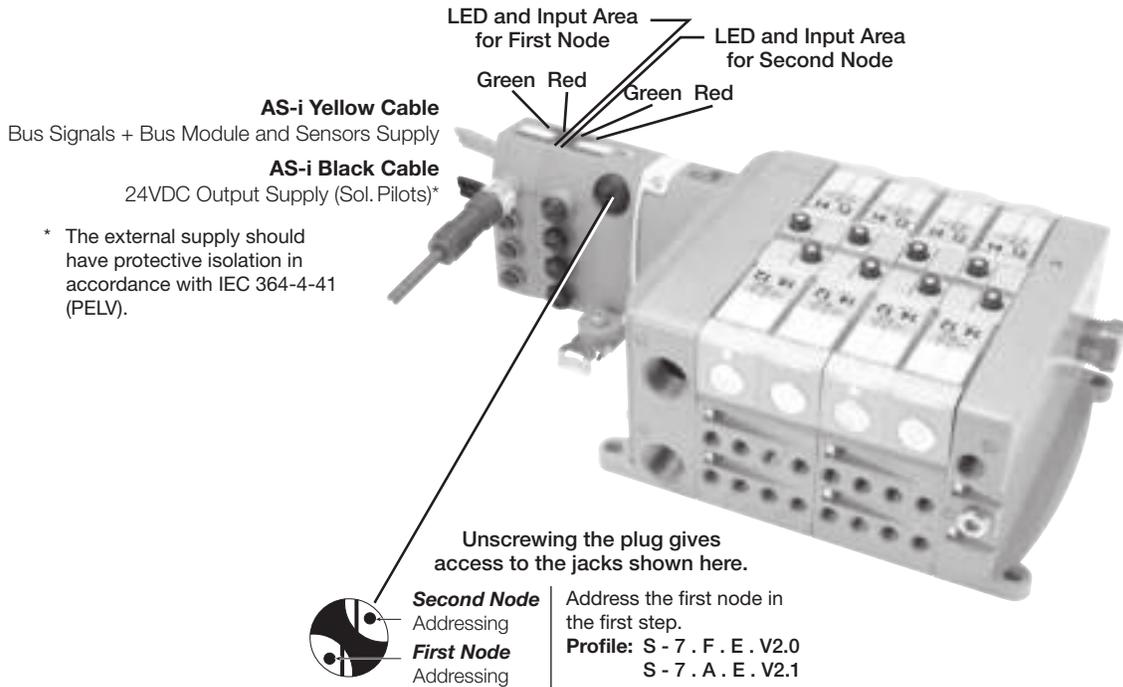


Note: For more details, please consult “Interbus remote bus” documentation.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

AS-i Bus Communication Module: Addressing, Diagnostic, Input Wiring
Bus Addressing, First and Second Node



Bus Diagnostic

"Power" LED State		Off	Green	Red	
Power Supply		Sol. Pilot Supply	Normal Operation	Solenoid Overload	
First Node LEDs State		Second Node LEDs State		System Condition	
Green LED	Red LED	Green LED	Red LED		
★	○	★	○	Normal Operation	
○	○	○	○	No Module + Sensor Supply	
○	⊙	○	⊙	Input Overload	
○	★	○	⊙	No AS-i Communication	
⊙	★	○	⊙	Address First Node = 0	
★	○	⊙	★	Address Second Node = 0	

★ON ○OFF ⊙BLINK

Input Wiring

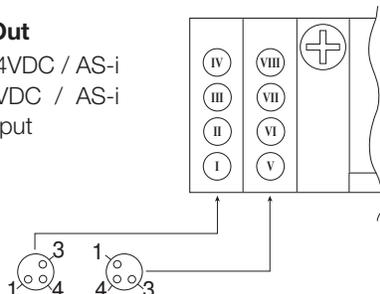
Physical Input (I, II, III, IV) = D (0 1 2 3) First Node,
 Physical Input (V, VI, VII, VIII) = D (0 1 2 3) Second Node.

Examples: Physical Input III = Logical Input 6.2,
 Physical Input V = Logical Input 7.0.

M8 Female Connectors

Pin Out

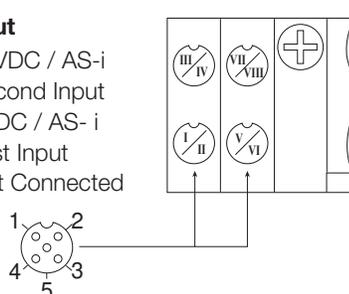
- 1 - 24VDC / AS-i
- 3 - 0VDC / AS-i
- 4 - Input



M12 Female Connectors

Pin Out

- 1 - 24VDC / AS-i
- 2 - Second Input
- 3 - 0VDC / AS-i
- 4 - First Input
- 5 - Not Connected



Note: With only one node, the inputs II and IV are connected to the connections on the right.



For inventory, lead time, and kit lookup, visit www.pdnplu.com

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D

Subbase & Manual Valves

H Series Micro

Moduflex Series

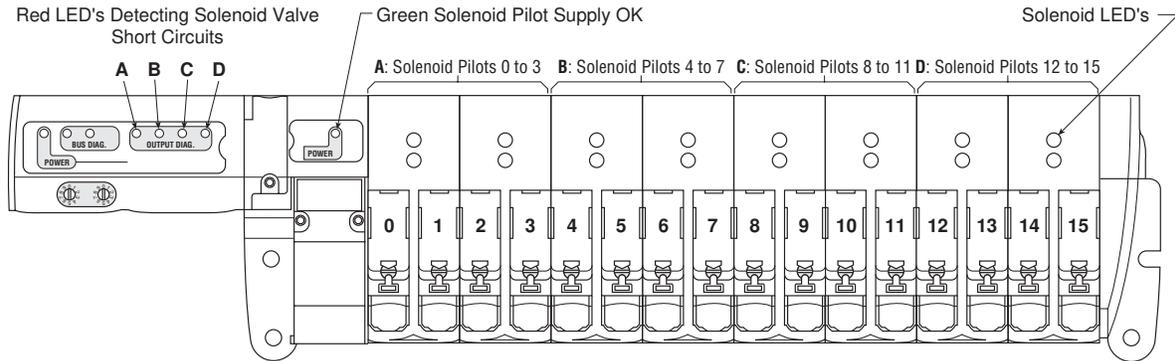
H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

Solenoid Pilot Diagnostic Common to All Device Bus Modules



Inside the communication module, solenoid valve control is protected against short-circuits with the following visual indication provided:

- The red LEDs with code, shown above, detect solenoid valve short-circuits.
- Supply is OK when the solenoid pilot power supply indicator is green.

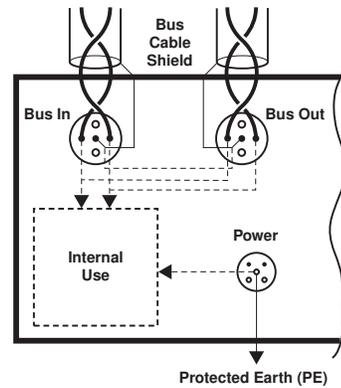
D
 Subbase & Manual Valves
 H Series Micro
 Moduflex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

Bus Cable Protection

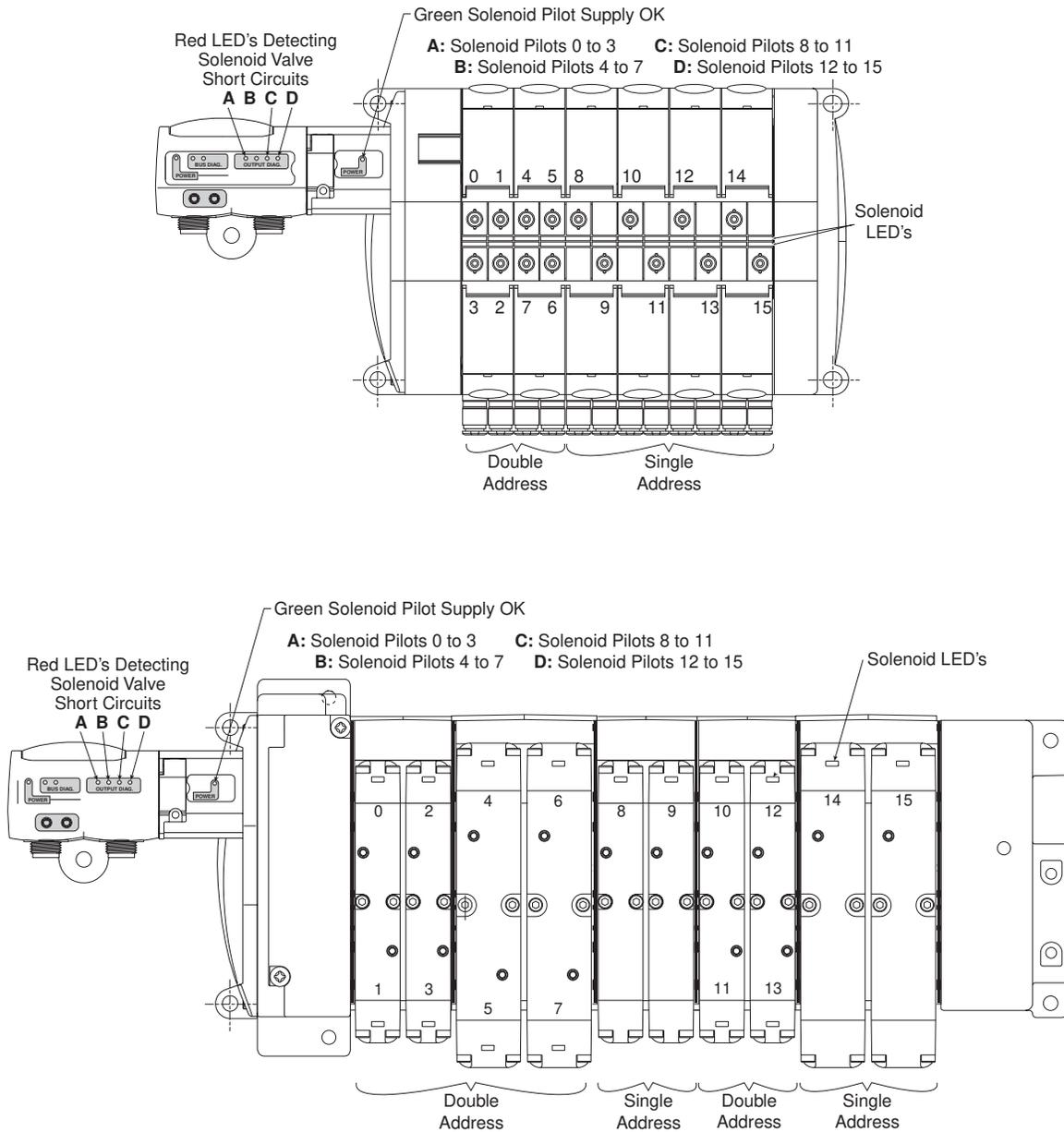
Shield Connections for Profibus DP, DeviceNet and CANopen

To provide protection against electro-magnetic interferences, the bus cables are shielded. The “bus in” and “bus out” connectors each include a pin for connecting the cable shield. It is safer to connect the shield to the protected earth (PE) at both ends of the bus. Within the communication module, provision is made to enable shield continuity by connecting the two shield pins.

The protected earth must be connected locally on each module for CE accordance.



Solenoid Pilot Diagnostic Common to All Moduflex Fieldbus Modules



Inside the communication module, solenoid valve control is protected against short-circuits with the following visual indication provided:

- The red LEDs with code, shown above, detect solenoid valve short-circuits.
- Supply is OK when the solenoid pilot power supply indicator is green.



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D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

Serial Bus Specifications

All Buses	EMC / CE Mark	According to EN 61 000-6-2	EN 50081-2
AS-i Bus	AS-i Line	According to EN 50295	
	Solenoid Pilot Voltage	24VDC	
	Module Consumption	max. 70 mA (2 nodes)	
	Max. Supply for All Inputs	240 mA (including internal input consumption)	
	Internal Input Consump.	9 mA for each active input	
	Inputs	According to IEC 1131-2 class 2	
	Certification	These products have been developed according to the association complete specification (v.2.11) and to the slave profiles S-7.FE or S-B.FE	
	Bus Line	According to each bus specification	
	Module Voltage	20 to 30VDC	
	Solenoid Pilot Voltage	24VDC	
Device Bus	Module Consumption	Profibus DP max. 1.5W	DeviceNet / CANopen max. 1.5W InterBus-S max. 2W
	Outputs	Overload protection	
	Certification	DeviceNet: Compliant to Composite Test Revision 17, Test Suite: M002	
		Profibus-DP: Compliant to Test Specifications for Profibus DP Slaves, Version 2.0, February 2000, based on EN 50170-2 at Siemens AG in Furth.	
		InterBus-S: This product has passed the relevant tests in accordance with the Interbus conformance requirements Certified No. 385.	

I/O Tables Common to All Device Bus Modules

Input Data Table

Byte	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7
0	Discrete Input 0 (Diagnostic LED 0-3)	Discrete Input 1 (Diagnostic LED 4-7)	Discrete Input 2 (Diagnostic LED 8-11)	Discrete Input 3 (Diagnostic LED 12-15)	—	—	—	—

Output Data Table

Byte	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7
0	Discrete Output 0	Discrete Output 1	Discrete Output 2	Discrete Output 3	Discrete Output 4	Discrete Output 5	Discrete Output 6	Discrete Output 7
1	Discrete Output 8	Discrete Output 9	Discrete Output 10	Discrete Output 11	Discrete Output 12	Discrete Output 13	Discrete Output 14	Discrete Output 15

D
 Subbase & Manual Valves
 H Series Micro
 Moduflex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series



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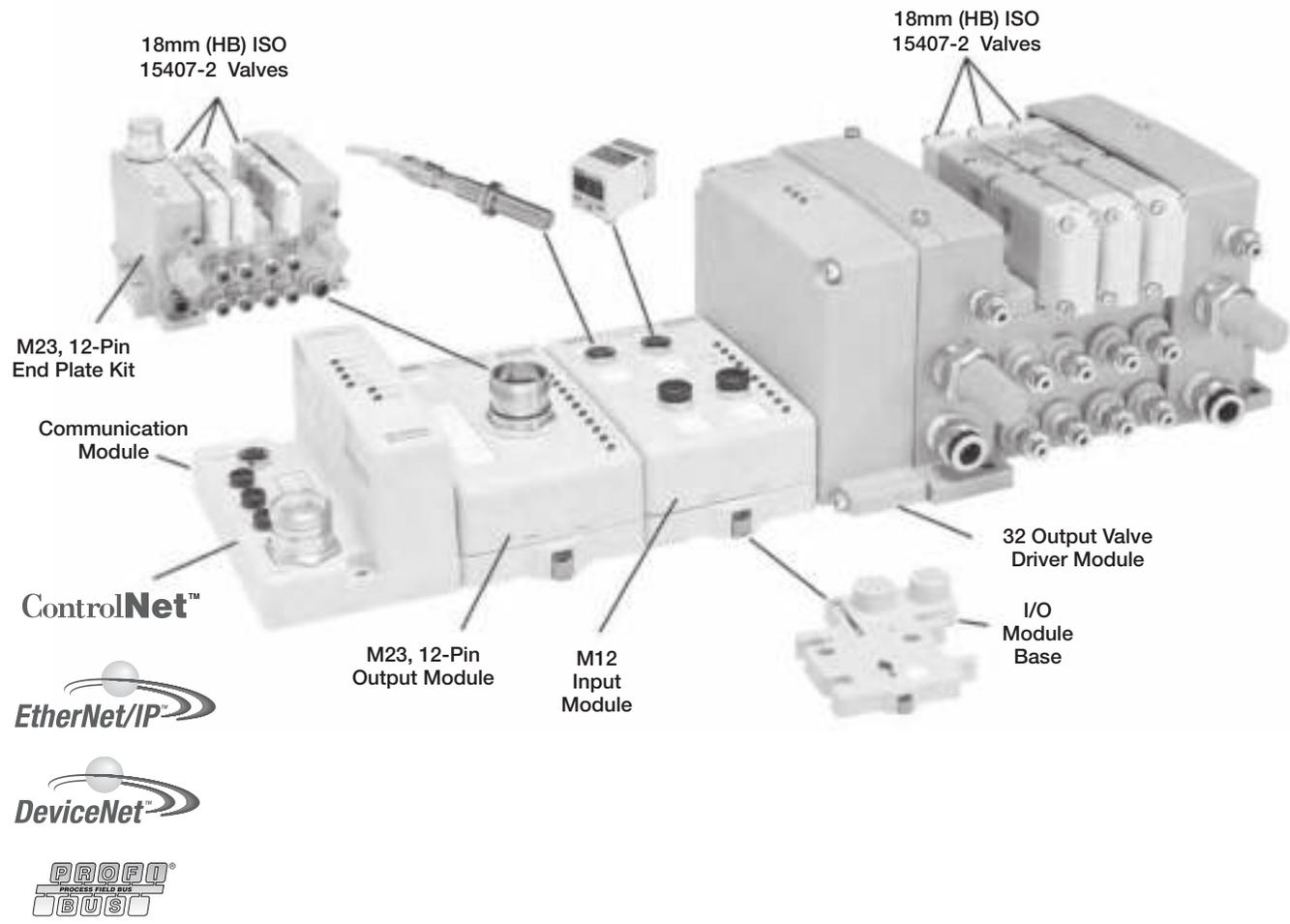
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H Series ISO & H Series Fieldbus System

- A complete fieldbus communication offering for all H Series ISO and H Series Micro valves.
- CSA, C-US and CE certifications (as marked).

I/O Configuration

- Centralized H Series Fieldbus system.
- Pneumatics and I/O are in close proximity to one another.
- I/O density per module = 8 or 16.



D	Subbase & Manual Valves
H Series Micro	H Series ISO
Moduflex Series	Fieldbus Systems
DX ISOMAX Series	Valvair II Series



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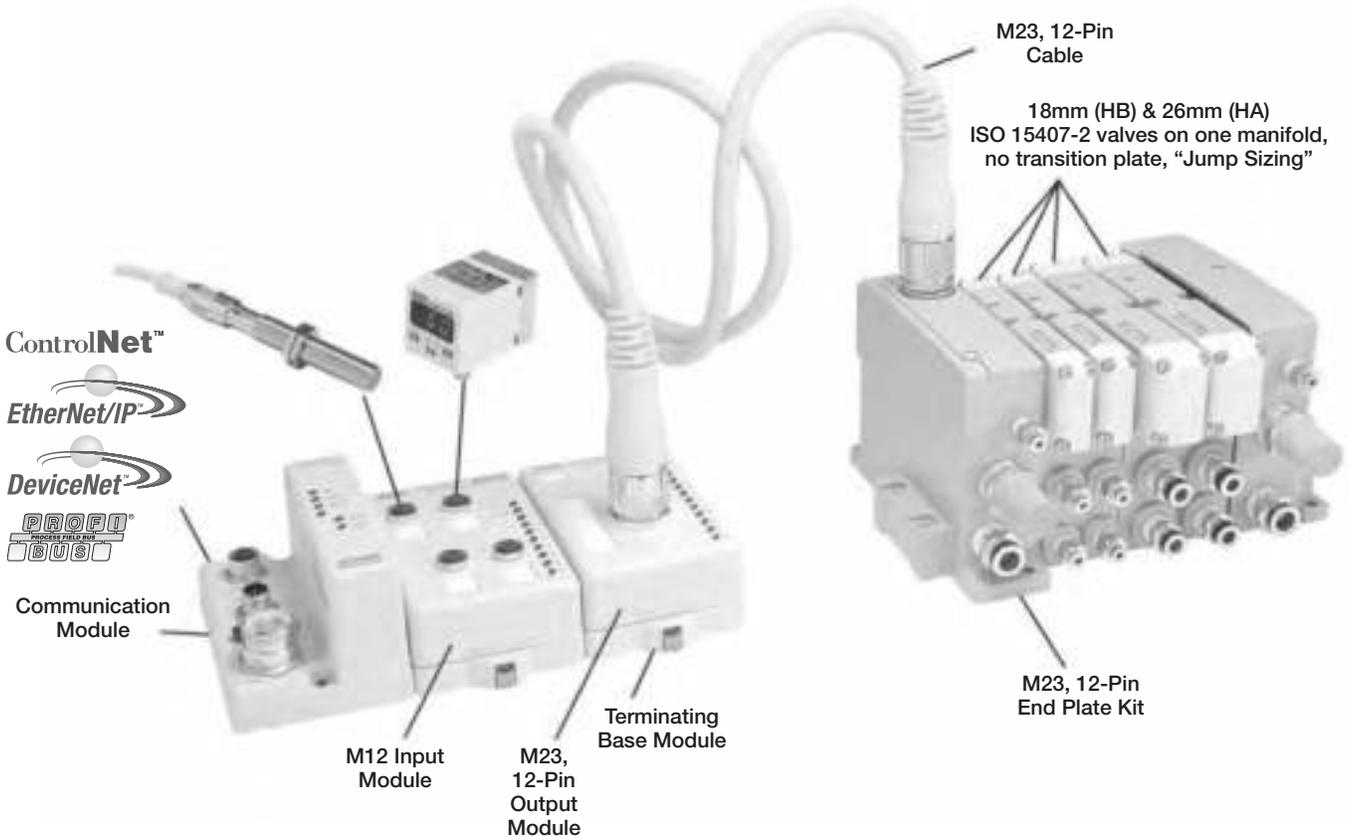
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H Series ISO & H Series Fieldbus System

- A complete fieldbus communication offering for all H Series ISO and H Series Micro valves.
- CSA, C-US and CE certifications (as marked).

I/O Configuration

- Decentralized H Series Fieldbus system.
- Pneumatics and I/O are not in close proximity with one another.
- M23, 12-Pin or 19-Pin output extension to an H Series ISO valve island.
- 25-Pin, D-Sub output extension to an H Series ISO valve island.
- I/O density per module = 8 or 16.



D	Subbase & Manual Valves
	H Series Micro
	Modulflex Series
	H Series ISO
	Fieldbus Systems
	DX ISOMAX Series
	Valvair II Series



For inventory, lead times, and kit lookup, visit www.pdnplu.com

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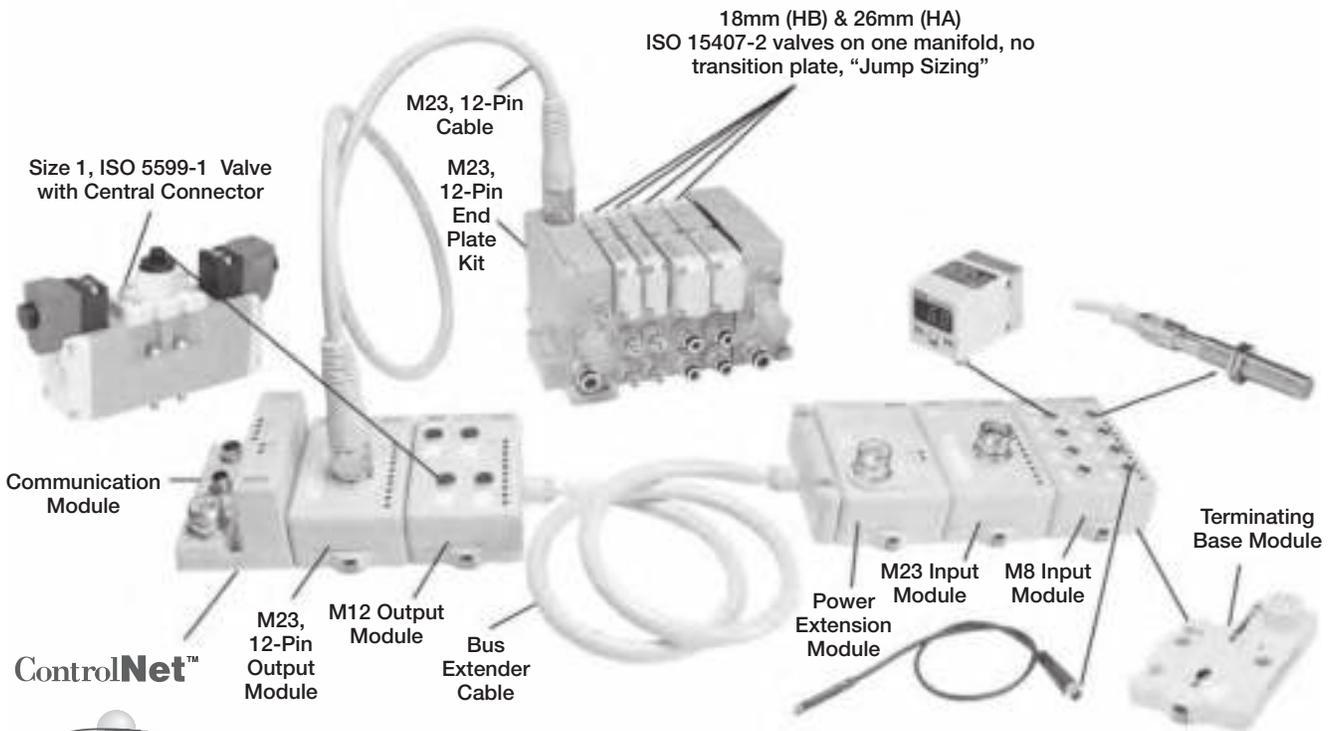
Parker Hannifin Corporation
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H Series ISO & H Series Fieldbus System

- A complete fieldbus communication offering for all H Series ISO and H Series Micro valves.
- CSA, C-US and CE certifications (as marked).

I/O Configuration

- Decentralized H Series Fieldbus system.
- Pneumatics and I/O are not in close proximity with one another.
- M23, 12-Pin or 19-Pin output extension to an H Series ISO valve island.
- Separate output and input clusters using a bus extender cable.
- Separate output and input power using a power extension module.
- 25-Pin, D-Sub output extension to an H Series ISO valve island.
- I/O density per module = 8 or 16.



ControlNet™

EtherNet/IP™

DeviceNet™

PROFIBUS
 PROCESS FIELD BUS



For inventory, lead time, and kit lookup, visit www.pdnplu.com

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D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

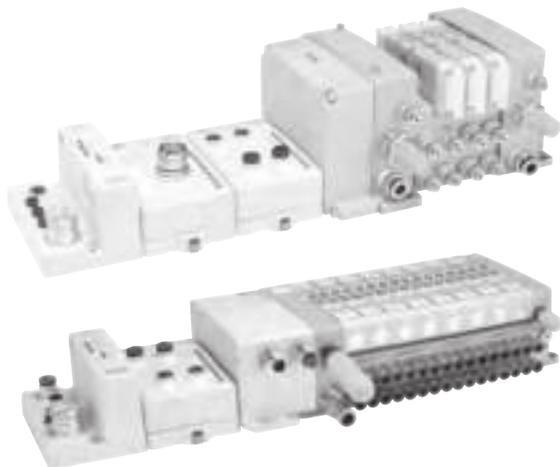
Valvair II Series

Features

The H Series Fieldbus System

H Series Fieldbus has four major components:

- Valve driver module provide control for 32 solenoids on a manifold, with bus extension providing connectivity to 3 more manifolds
- I/O modules provide the field interface, system-interface circuitry, and bases for mounting
- Communication modules provide the network-interface circuitry
- Power distribution module provide 5 additional power inputs to the H Series Fieldbus system



Subbase & Manifold Valve Products H Series Fieldbus System

H Series Fieldbus Features

- Highly modular design (4pt – 16pt modularity)
- Broad application coverage
- Channel-level diagnostics (LED)
- Channel-level alarm and annunciation (electronic)
- Channel-level open-wire detection with electronic feedback
- Parameter-level explicit messaging
- Horizontal and vertical mounting without derating
- 5g vibration
- Electronic and mechanical keying
- Robust backplane design
- Quick-disconnects for I/O and network connectivity
- Built-in panel grounding
- Color-coded module labels
- UL, C-UL, and CE certifications (as marked)
- Highly reliable structural integrity
- Optical isolation between field and system circuits

D

Subbase & Manual
Valves

Communications Module



Protocol	Part number
DeviceNet™	PSSCDM18PA (7/8" Mini) or PSSCDM12A (M12)
ControlNet™	PSSCCNA
Ethernet I/P™	PSSCENA
Profibus-DP®	PSSCPBA

PSSCENA

All Modules IP67 Certified
Reference the following documents for installation instructions.
DeviceNet - E101P, PSS-UM001A; Control Net - E103P
Ethernet I/P - E104P; Profibus-DP - E102P

Digital Inputs



PSSN16M12A



PSSN8M8A

I/O modules	Voltage	Part number
16 digital inputs M12, 5-pin used with PNP sourcing input device	10 to 28.8VDC	PSSN16M12A
8 digital inputs M12, 5-pin used with PNP sourcing input device	10 to 28.8VDC	PSSN8M12A
8 digital inputs M12, 5-pin used with NPN sinking input device	10 to 28.8VDC	PSSP8M12A
8 digital inputs M8, 3-pin used with PNP sourcing input device	10 to 28.8VDC	PSSN8M8A
8 digital inputs M23, 12-pin used with PNP sourcing input device	10 to 28.8VDC	PSSN8M23A

Reference E106P document for installation instructions.

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

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H Series
Micro

Moduteflex
Series

H Series
ISO

Fieldbus
Systems

DX ISOMAX
Series

Valvair II
Series

Digital Outputs

	I/O modules	Voltage	Part number
 PSST16D25A	16 digital outputs M23, 19-pin used with PNP sourcing outputs*	10 to 28.8VDC	PSST16M23A
	16 digital outputs D-sub, 25-pin used with PNP sourcing outputs*	10 to 28.8VDC	PSST16D25A
	16 digital outputs M12, 5-pin used with PNP sourcing outputs*	10 to 28.8VDC	PSST16M12A
 PSST16M12A	8 digital outputs M12, 5-pin used with PNP sourcing outputs*	10 to 28.8VDC	PSST8M12A
	8 digital outputs M8, 3-pin used with PNP sourcing outputs*	10 to 28.8VDC	PSST8M8A
 PSSTR4M12A	4 digital output, high watt relay M12, 5-pin used with PNP sourcing outputs (2 Amp) [§]	24VDC	PSSTR4M12A
	8 digital outputs M23, 12-pin used with PNP sourcing outputs*	10 to 28.8VDC	PSST8M23A

All modules IP67 certified
Reference the following documents for installation instructions.
⁺ E107P
[§] E109P
 See www.pdnplu.com

Analog Inputs

	I/O modules	Voltage	Part number
 PSSNACM12A	2 Analog inputs voltage M12, 5-pin [†]	-10 to 10VDC or 0 to 10VDC	PSSNAVM12A
	2 Analog inputs current M12, 5-pin [†]	4 to 20mA or 0 to 20mA	PSSNACM12A

All modules IP67 certified
[†] Reference E110P document for installation instructions.
 See www.pdnplu.com

Analog Outputs

	I/O modules	Voltage	Part number
 PSSTACM12A	2 Analog outputs voltage M12, 5-pin**	0 to 10V ± 10V	PSSTAVM12A
	2 Analog outputs current M12, 5-pin**	4 to 20mA or 0 to 20mA	PSSTACM12A

All modules IP67 certified
^{**} Reference E111P document for installation instructions.
 See www.pdnplu.com

Terminating Base Module

	Base module	Part number
 PSSTERM	Termination base for stand alone units	PSSTERM

Used as the last terminating module for a stand alone H Series Fieldbus assembly.

 Most popular.



For inventory, lead time, and kit lookup, visit www.pdnplu.com

Power Extender Module

	Extender module	Part number
	24VDC field power module	PSSSE24A

A Power Extender Module must be used on every 14th module in H Series Fieldbus assembly.
 Reference document E105P and PSS-SG001 for configuration instructions.
 See www.pdnplu.com

Bus Extender Cable

	Description	Voltage	Part number
	1 Meter Cable*	24VDC	PSSEXT1
	3 Meter Cable*	24VDC	PSSEXT3

* Requires a PSSSE24 Power Extender Module
 IP67 certified
 Reference E117P document for installation instructions.
 See www.pdnplu.com

H Series Micro Bus Extender Cable

	Description	Voltage	Part number
	1 Meter Cable*	24VDC	PSSVEXT1

* IP67 certified.

Replacement Base Module

	Description	Part number
	Base Module	PSSBASE

D

Subbase & Manual Valves

H Series Micro

Modulflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

 Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

Using Bus Extender Cables

Example #1:

H Series ISO with Standard Bus Extender Cable

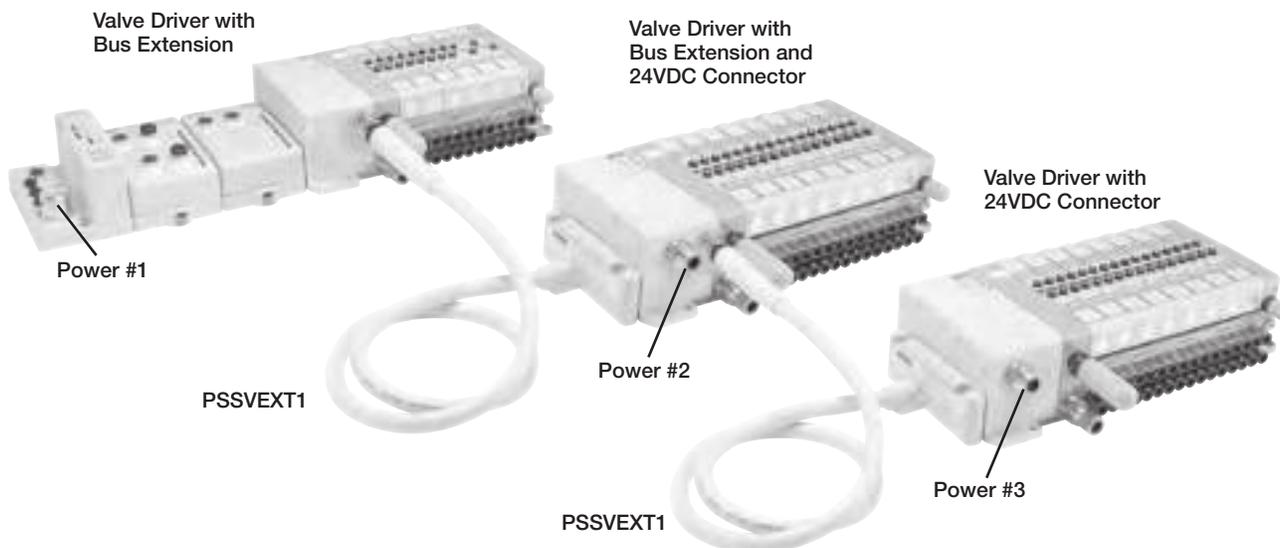
- Separate the communication module and a portion of the I/O from other I/O and the valve manifold.
- Commonly used when overall length is restricted.
- PSSSE24A is needed on the extension. No 24VDC connector needed on the H Series Fieldbus end plate.
- Can be used with H Series ISO and H Series Micro valves.



Example #2:

H Series Micro with Bus Extension on Valve Driver Module – No additional I/O at the Extension

- Add up to three additional valve manifolds without adding another communication module.
- No PSSSE24A is needed on the Extension when the Valve Driver Module with 24VDC Connector is used.
- Commonly used when many valves are required.
- Bus expansion only available with H Series Micro valves.



D
Subbase & Manual Valves
H Series Micro
Modulflex Series
H Series ISO
Fieldbus Systems
DX ISOMAX Series
Valvair II Series



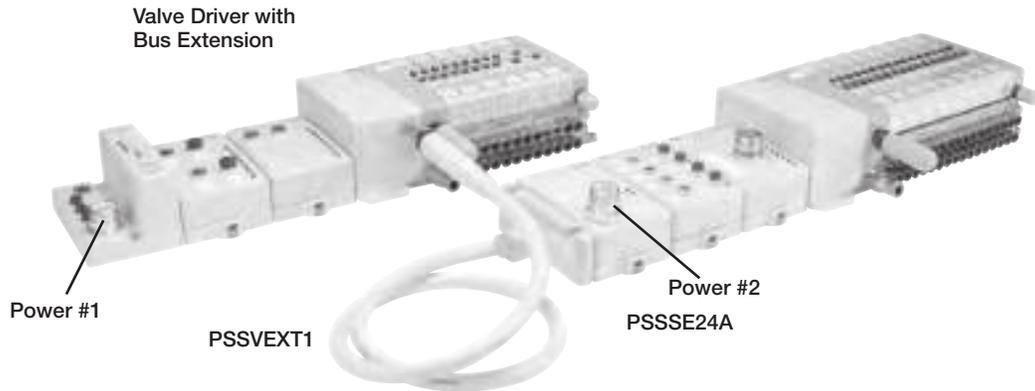
For inventory, lead time, and kit lookup, visit www.pdnplu.com

Using Bus Extender Cables (continued)

Example #3:

H Series Micro with Bus Extension on Valve Driver – With I/O at Extension

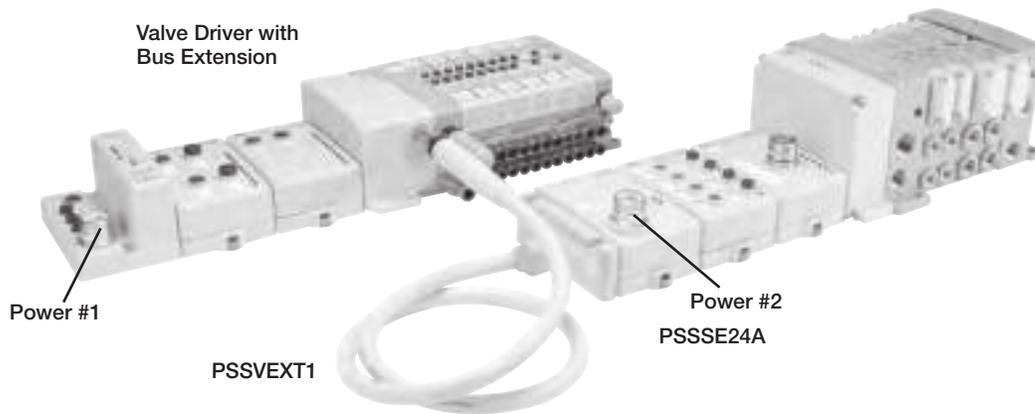
- Add up to three additional valve manifolds without adding another communication module.
- PSSSE24A is needed on the Extension. No 24VDC Connector needed on the H Series Fieldbus end plate.
- Commonly used when many valves are required, and each location requires additional I/O.
- Bus expansion only available with H Series Micro.



Example #4:

H Series Micro with Bus Extension on Valve Driver Module – With I/O at the Extension and larger H Series ISO Valve Manifold

- Add up to two additional H Series Micro valve manifolds and one H Series ISO valve manifold without adding another communication module.
- PSSSE24A is needed on the Extension.
- H Series ISO valve manifold must be the last manifold on the Extension
- Commonly used when many valves are required, and each location requires additional I/O.
- Bus expansion only available with H Series Micro. H Series ISO manifold must be the last manifold in the system.



D	Subbase & Manual
Valves	H Series Micro
Modulflex Series	H Series ISO
Fieldbus Systems	DX ISOMAX Series
Valvair II Series	



For inventory, lead times, and kit lookup, visit www.pdnplu.com

Digital I/O Modules

Choose digital I/O modules when you need:

- **Input Modules.** An input module responds to an input signal in the following manner:
 - Input filtering limits the effect of voltage transients caused by contact bounce and/or electrical noise. If not filtered, voltage transients could produce false data. All input modules use input filtering.
 - Optical isolation shields logic circuits from possible damage due to electrical transients.
 - Logic circuits process the signal.
 - An input LED turns on or off indicating the status of the corresponding input device.
- **Output Modules.** An output module controls the output signal in the following manner:
 - Logic circuits determine the output status.
 - An output LED indicates the status of the output signal.
 - Optical isolation separates module logic and bus circuits from field power.
 - The output driver turns the corresponding output on or off.
- **Surge Suppression.** Most output modules have built-in surge suppression to reduce the effects of high-voltage transients. However, we recommend that you use an additional suppression device if an output is being used to control inductive devices, such as:
 - Relays
 - Motor starters
 - Solenoids
 - Motors

Additional suppression is especially important if your inductive device is in series with, or parallel to, hard contacts such as:

 - Push buttons
 - Selector switches

The digital I/O modules support:

- A wide variety of voltage interface capabilities
- Isolated and non-isolated module types
- Point-level output fault states
- Choice of direct-connect or rack-optimized communications
- Field-side diagnostics on select modules

Connector types are indicated by the catalog number. For example, the PSSN8M12A has an M12 connector.

Digital DC Input Modules

	PSSN8M8A PSSN8M12A PSSN8M23A	PSSN16M12A	PSSP8M12A
Number of Inputs	8 PNP Sourcing	16 PNP Sourcing	8 NPN Sinking
Keyswitch Position	1		
Voltage, On-State Input, Nom.	24VDC		
Voltage, On-State Input, Min.	10VDC		
Voltage, On-State Input, Max.	28.8VDC		
Input Delay Time, ON to OFF	0.5 ms hardware + (0...65 ms selectable)*		
Current, On-State Input, Min.	2 mA		
Current, On-State Input, Max.	5 mA		
Current, Off-State Input, Max.	1.5 mA		
Bus Power Current (mA)	75		
Power Dissipation, Max.	1.0 W @ 28.8VDC		

* Input ON-to-OFF delay time is the time from a valid input signal to recognition by the module.

Digital DC Output Modules

	PSST8M8A PSST8M12A PSST8M23A	PSST16M223A PSST16D25A PSST16M12A
Number of Outputs	8 PNP sourcing	16 PNP Sourcing
Keyswitch Position	1	
Voltage, On-State Output, Nom.	24VDC	
Voltage, On-State Output, Min.	10VDC	
Voltage, On-State Output, Max.	28.8VDC	
Output Current Rating, Max.	3.0 A per module, 1.0 A per channel	
Bus Power Current (mA)	75	
Power Dissipation, Max.	1.2 W @ 28.8VDC	

Relay Output Module

	PSSTR4M12A
Number of Outputs	4 Form A (N.O.) relays, isolated
Key switch Position	7
Output Delay Time, ON to OFF, Max.	26 ms*
Contact Resistance, Initial	30 mΩ
Current Leakage, Off-State Output, Max.	1.2 mA and bleed resistor thru snubber circuit @ 240V ac
Output Current Rating, Max	8.0 A per module, 2.0 A per channel
Bus Power Current (mA)	90
Power Dissipation, Max.	0.5 W

*Time from valid output off signal to relay de-energization by module.



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Analog I/O Modules

The H Series Fieldbus analog modules support: on-board, channel-level data alarming (four set-points per channel); scaling to engineering units; channel-level diagnostics (electronic bits and LEDs); and integer format.

Choose analog I/O modules when you need:

- **Individually configurable channels** to use the module(s) with a variety of sensors.
- **On-board scaling** to eliminate the need to scale the data in the controller. Controller processing time and power are preserved for more important tasks, such as I/O control, communications, or other user-driven functions.
- **On-line configuration.** Modules can be configured in the RUN mode using the programming software or the control program. This allows you to change configuration while the system is operating. For example, the input filter for a particular channel could be changed, or a channel could be disabled based on a batch condition. To use this feature, the controller and network interface must also support this feature.
- **Over- and under-range detections and indications.** This eliminates the need to test values in the control program, saving valuable processing power of the controller. In addition, since alarms are handled by the module, the response is faster and only a single bit per channel is monitored to determine if an error condition has occurred.

- **Ability to direct output device operation during an abnormal condition.** Each channel of the output module can be individually configured to hold its last value or assume a user-defined value on a fault condition. This feature allows you to set the condition of your analog devices, and therefore your control process, which may help to ensure a reliable shutdown.
- **Ability to individually enable and disable channels.** Disabling unused channels improves module performance.
- **Selectable input filters** This lets you select the filter frequencies for each channel that best meets the performance needs of your application based on environmental limitations. Lower filter settings provide greater noise rejection and resolution. Higher filter settings provide faster performance. Note: The analog modules provide four input filter selections.
- **Selectable response to broken input sensor.** This feature provides feedback to the controller that a field device is not connected or operating properly. This lets you specify corrective action based on the bit or channel condition.
- **High accuracy.** The modules share a high accuracy rating of $\pm 0.1\%$ of full-scale accuracy at 25 °C.

Analog Input Modules

	PSSNACM12A	PSSNAVM12A
Number of inputs	2	2
Key switch position	3	3
Input signal range	4...20 mA 0...20 mA	-10 to 10VDC 0 to 10VDC
Input resolution, bits	16 bits - over 21 mA 0.32 μ A/cnt	15 bits plus sign 320 μ V/cnt in unipolar or bipolar mode
Absolute accuracy, current input	0.1% Full Scale @ 25°C*†	—
Absolute accuracy, voltage input	—	0.1% Full Scale @ 25°C*†
Input step response, per channel	70 ms @ Notch = 60 Hz (default) 80 ms @ Notch = 50 Hz 16 ms @ Notch = 250 Hz 8 ms @ Notch = 500 Hz	70 ms @ Notch = 60 Hz (default) 80 ms @ Notch = 50 Hz 16 ms @ Notch = 250 Hz 8 ms @ Notch = 500 Hz
Input conversion type	Delta Sigma	Delta Sigma
Bus power current (mA)	75	75
Power dissipation, max.	0.6 W @ 28.8VDC	0.6 W @ 28.8VDC

* Includes offset, gain, non-linearity and repeatability error terms.

† Analog input modules support these configurable parameters and diagnostics: open-wire with LED and electronic reporting; four-alarm and annunciation set-points; calibration mode and electronic reporting; under and over-range and electronic reporting; channel signal range and update rate and on-board scaling; filter-type; channel update rate.

Analog Output Modules

	PSSTACM12A	PSSTAVM12A
Number of outputs	2	2
Key switch position	4	4
Output signal range	4...20 mA 0...20 mA	-10 to 10VDC 0 to 10VDC
Output resolution, bits	13 bits - over 21 mA 2.5 μ A/cnt	14 bits (13 plus sign) 1.28 mV/cnt in unipolar or bipolar mode
Absolute accuracy, current output	0.1% Full Scale @ 25°C*†	—
Absolute accuracy, voltage output	—	0.1% Full Scale @ 25°C*†
Step response to 63% of FS,	24 μ s	— Current Output
Step response to 63% of FS,	—	20 μ s Voltage Output
Output conversion rate	16 μ s	20 μ s
Bus power current (mA)	75	75
Power dissipation, max.	1.0 W @ 28.8VDC	1.0 W @ 28.8VDC

* Includes offset, gain, non-linearity and repeatability error terms.

† Analog output modules support these configurable parameters and diagnostics: open-wire with LED and electronic reporting (PSSTACM12A only); fault mode; idle mode; alarms; channel signal range and on-board scaling.

D
 Subbase & Manual Valves
 H Series Micro
 Modulflex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series



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Valve Driver Modules

The PSSV32A and PSSVM32A valve driver modules provide an interface between the H Series Fieldbus serial bus system and the valve assembly. These modules will always be the last on the H Series Fieldbus serial bus, and control 32 digital outputs at 24VDC. Depending on the valve selection, a valve driver module can control up to 32 single solenoid valves or 16 double solenoid valves.

PSSV32A is used with H Series ISO valves and PSSVM32A is used with H Series Micro valves.

Specifications

	PSSV32A and PSSVM32A
Outputs per Module	32, PNP sourcing
Voltage Drop, On-State Output, Maximum	0.2VDC
Voltage, Off-State Output, Maximum	28.8VDC
Voltage, On-State Output, Maximum	28.8VDC
Minimum	10VDC
Nominal	24VDC
Output Current Rating	200 mA per channel, not to exceed 6.0 A per module
Output Surge Current, Maximum	0.5 A for 10 ms, repeatable every 3 seconds
Current Leakage, Off-State Output, Maximum	0.1 mA
Current, On-State Output Minimum	200 mA per channel
Output Delay Time OFF to ON, Maximum ¹	0.1 ms
Output Delay Time, ON to OFF, Maximum ¹	0.1 ms
External DC Power Supply Voltage Range	10 to 28.8VDC
External DC Power Supply Voltage Nominal	24VDC

1. OFF to ON or ON to OFF delay is time from a valid output "on" or "off" signal to output energization or de-energization.

Select the Appropriate Power Supply

Part number	Power supply Input voltage, Nom.	Operating Voltage range	Maximum continuous current draw	Power supply Inrush current, Max.	Input Overvoltage Protection	Power supply Interruption Protection
PSSCDM12A	24VDC	10...28.8VDC	10 A	6 A for 10 ms	Reverse polarity protected	Output voltage will stay within specifications when input drops out for max. load.
PSSCDM18PA						
PSSCCNA						
PSSCENA						
PSSCPBA						
PSSSE24A						



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Power Extender Module

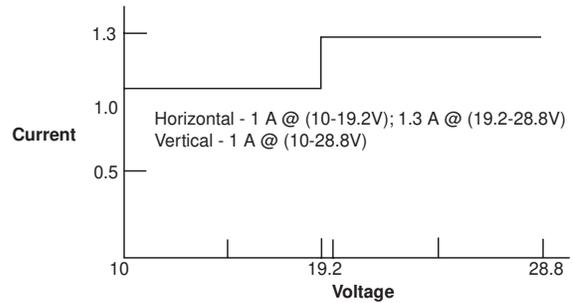
The PSSSE24A expansion power unit passes 24VDC field power to the I/O modules to the right of it. This unit extends the backplane bus power and creates a new field voltage partition segment for driving field devices for up to 13 I/O modules. The expansion power unit separates field power from I/O modules to the left of the unit, effectively providing functional and logical partitioning for:

- Separating field power between input and output modules
- Separating field power to the analog and digital modules
- Grouping modules to perform a specific task or function

You can use multiple expansion power units with any of the communication adapters to assemble a full system. If you are using the PSSCDM12A adapter, you may use a PSSSE24A expansion power unit to add additional modules. For example, if you had a 36 module system with a PSSCDM12A adapter, you would have at least two or more PSSSE24A expansion power units to provide more bus power current for modules to the right of the supply.

- 1.3A of additional bus power
- Starts new voltage distribution
- Partitioning for E-Stop wiring

PSSSE24A Current Derating for Mounting



Power Distribution General Specifications

	PSSSE24A
Power Supply Requirements	Note: In order to comply with CE Low Voltage Directives (LVD), you must use a Safety Extra Low Voltage (SELV) or a Protected Extra Low Voltage (PELV) power supply to power this adapter
Field Side Power Requirements	24VDC (+20% = 28.8VDC max.) @ 400 mA
Inrush Current, Max.	6 A for 10 ms
Input Overvoltage Protection	Reverse polarity protected
Power Supply Interruption Protection	Output voltage will stay within specifications when input drops out for 10 ms at 10V with max. load
Power Supply Input Voltage, Nom.	24VDC
Operating Voltage Range	10...28.8VDC
Power Consumption, Max.	9.8 W @ 28.8VDC
Power Dissipation, Max.	3.0 W @ 28.8VDC
Thermal Dissipation, Max.	10.0 BTU/hr @ 28.8VDC
Isolation Voltage	1250V rms
Bus Power Supply Current, Max.	1.5 A
Field Power Supply Current, Max.	10 A

D
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 Valves
 H Series
 Micro
 Moduteflex
 Series
 H Series
 ISO
 Fieldbus
 Systems
 DX ISOMAX
 Series
 Valvair II
 Series

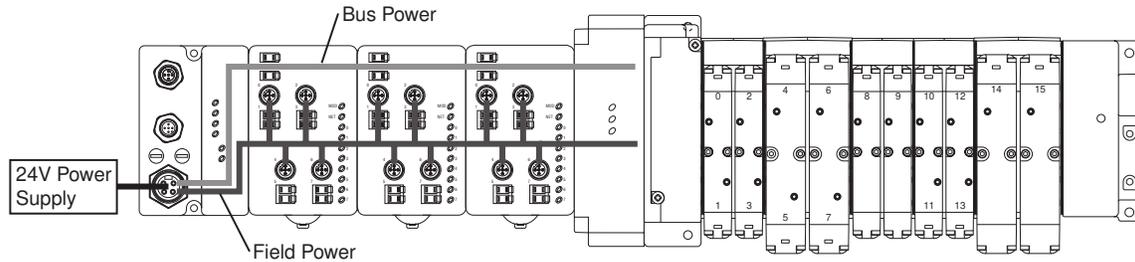


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Power Distribution Options for H Series ISO

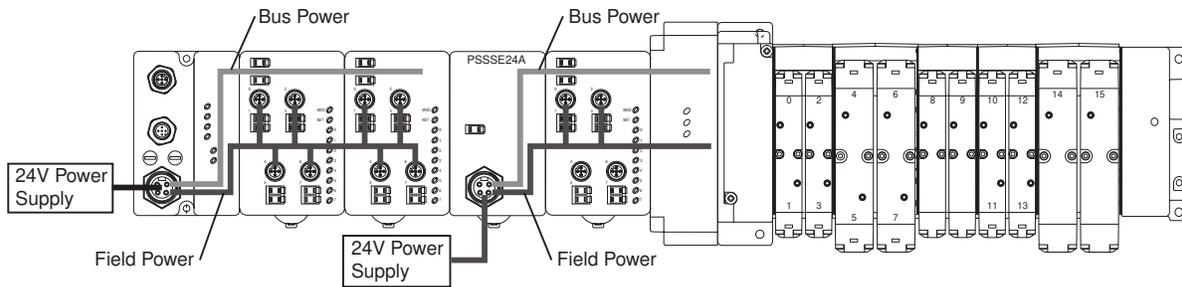
H Series Fieldbus Communication and I/O Modules

An auxiliary 24VDC power supply from the communication module provides power to the backplane bus power and I/O module field power. You can connect up to 13 I/O modules with a maximum of 10 A field power, using the auxiliary power.



H Series Fieldbus System with 24VDC Expansion Power Unit (PSSSE24A)

The auxiliary power from the communication module supports up to 13 I/O modules with a maximum of 10 A field power. The 24VDC Power Extender Module (PSSSE24A) extends the backplane bus power and I/O Module field power to support up to 13 more I/O modules. Connect additional Power Extender Modules to expand the I/O assembly up to the maximum of 63 I/O modules. This secondary 24VDC connector on the PSSSE24A can be wired into an Emergency Stop circuit.



D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

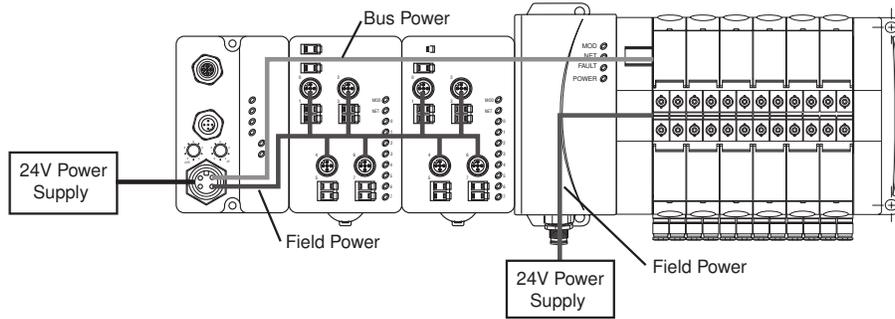


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Additional Power Distribution Options for H Series Micro

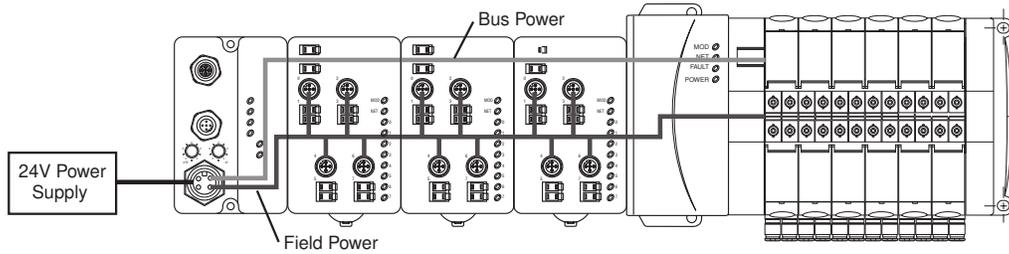
H Series Fieldbus Communication Module and Valve Driver Module with 24VDC Connector

The 24VDC power supply from the Communication Adaptor provides power to the backplane bus power and I/O module field power for up to 13 modules and an adapter with a maximum of 10 A Field Power. In this configuration, backplane bus power and I/O module field power are supplied to the input and output modules. The communication module only supplies backplane bus power to the Valve Driver Module, as the H Series Micro with 24VDC Connector separates the field power from the rest of the network. This secondary 24VDC Connector on the Valve Driver Module supplies Field Power to the valves, and can be wired into an Emergency Stop Circuit.



H Series Fieldbus Communication and I/O Modules

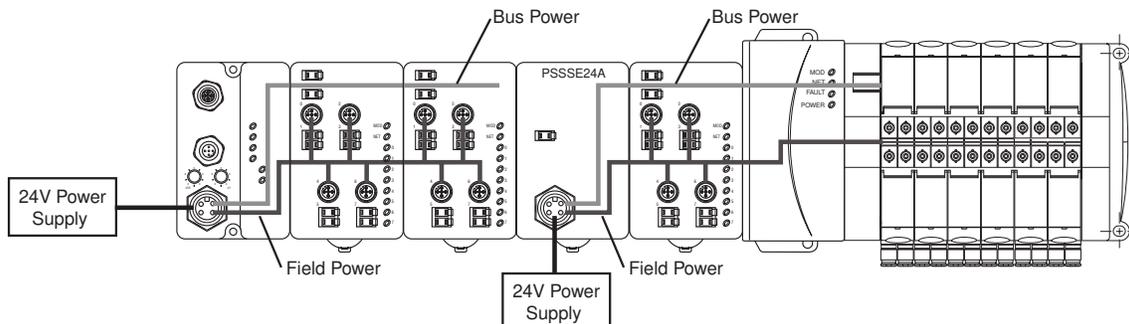
The 24VDC power supply from the communication module provides power to the backplane bus power and I/O module field power. You can connect up to 13 modules and an adapter with a maximum of 10 A field power, using this power source.



H Series Fieldbus Communication and I/O Modules

The 24VDC power supply from the communication module provides power to the backplane bus power and I/O module field power. You can connect up to 13 modules and an adapter with a maximum of 10 A field power, using this power source.

The 24VDC Power Extender Module (PSSSE24A) extends the backplane bus power and I/O module field power to support up to 13 more modules. Connect additional Power Extender Modules to expand the assembly up to the maximum of 63 I/O modules. The Valve Driver Module is the last module on the system, and will draw bus power and field power from the PSSSE24A to the left of it. This secondary 24VDC connector on the PSSSE24A can be wired into an Emergency Stop circuit.



D	H Series Fieldbus Communication and I/O Modules
Subbase & Manual Valves	H Series Micro
Modulflex Series	H Series ISO
Fieldbus Systems	DX ISOMAX Series
Valvair II Series	



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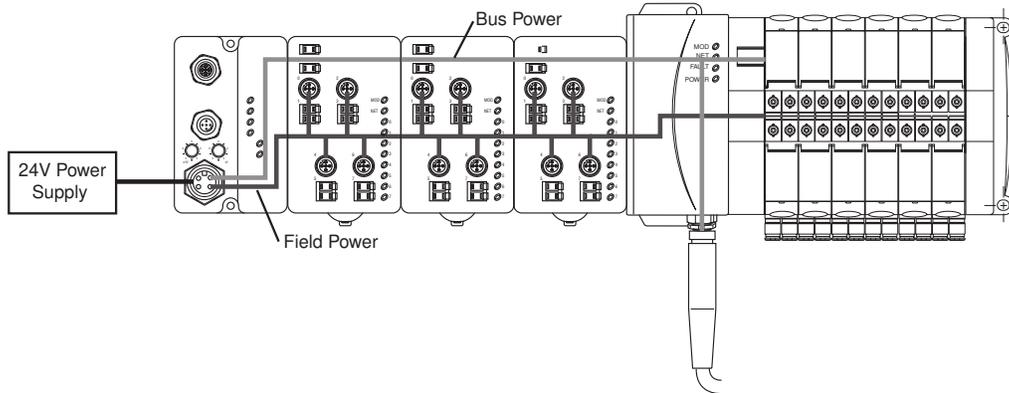
D160

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 Pneumatic Division
 Richland, Michigan
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Power Distribution Options for H Series Micro (Continued)

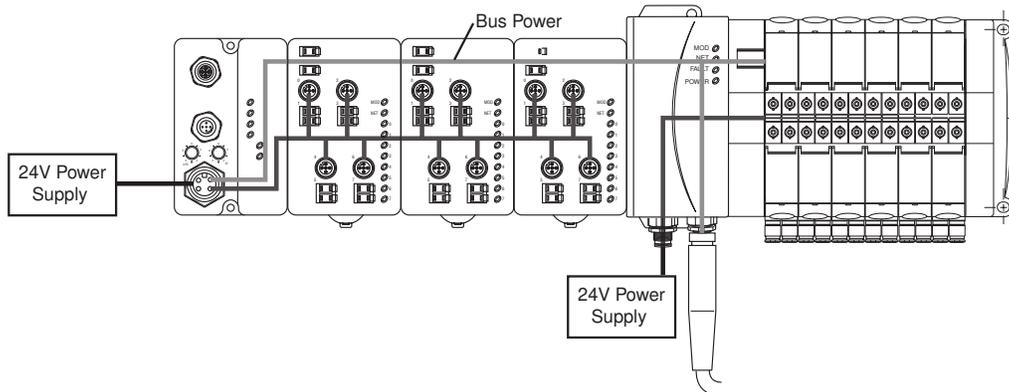
H Series Fieldbus Communication Module with Bus Extension Connector and I/O Modules

The 24VDC power supply from the communication module provides power to the backplane bus power and I/O module field power. You can connect up to 13 modules and an adapter with a maximum of 10 A field power, using this power source. The H Series Micro with Bus Extension Connector carries backplane bus power and communication down to another H Series Fieldbus Assembly through the PSSVEXT1 cable. If additional H Series Fieldbus Input and Output Modules or H Series ISO valve manifold is used on this extension, a PSSSE24A Power Extender Module is required to provide Field Power. If the extension is attached directly to an H Series Micro Manifold, Field Power can be supplied directly by using the 24VDC Connector option.



H Series Fieldbus Communication Module with 24VDC and Bus Extension Connectors and I/O Modules

The 24VDC power supply from the communication module provides power to the backplane bus power and I/O module field power. In this configuration, bus power and field power are supplied to the input and output modules. The communication module only supplies bus power to the Valve Driver Module, as the 24VDC Connector separates the Field Power from the rest of the network. This secondary 24VDC connector on the Valve Driver Module supplies field power to the valves, and can be wired into an Emergency Stop Circuit. The Bus Extension Connector carries bus power and communication down to another H Series Fieldbus Assembly through the PSSVEXT1 cable. If additional H Series Fieldbus input and output modules or H Series ISO valve manifold is used on this extension, a PSSSE24A Power Extender Module is required to provide field power. If the extension is attached directly to an H Series Micro Manifold with 24VDC Connector, field power can be supplied directly by using the 24VDC Connector option.



D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series



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 Pneumatic Division
 Richland, Michigan
www.parker.com/pneumatics

Placing H Series Fieldbus Modules

Maximum Size Layout

Part number	Bus power supply	Maximum I/O modules with 24VDC backplane current at 75 mA each	Maximum I/O modules with expansion power supplies
PSSCDM12A on DeviceNet	1000	Up to 13	63
PSSCDM18PA on DeviceNet			
PSSCCNA on ControlNet			
PSSCENA on EtherNet/IP			
PSSCPBA on PROFIBUS			
PSSSE24A Expansion Power	Horizontal mounting: 1A @ 10...19.2V input; 1.3A @ 19.2...28.8V input Vertical mounting: 1A @ 10...28.8V input		

Power Supply Distance Rating

Modules are placed to the right of the power supply. Each H Series Fieldbus module can be placed in any of the slots to the right of the power supply until the usable backplane current of that supply has been exhausted. A Communication Module provides 1 A current to the PointBus. The Power Extend Module, PSSSE24A, provides up to 1.3 A and I/O modules require from 75 mA (typical for the digital and analog I/O modules) up to 90 mA or more.

Current Requirements

Part number	PointBus current requirements
PSSN8xxx	75 mA
PSSP8xxx	
PSST8xxx	
PSSN16xxx	90 mA
PSST16xxx	
PSSTR4MRA	75 mA
PSSNACM12A	
PSSTACM12A	
PSSNAVM12A	
PSSTAVM12A	
PSSV32A	
PSSVM32A	

D

Subbase & Manual Valves

H Series Micro

Modulflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series



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Related Documentation

Additional user documentation presents information according to the tasks you perform and the programming environment you use. Refer to the table below for information on H Series Fieldbus products.

H Series Fieldbus Related Publications*

	Part number	Description	Instruction sheet*
General Information	—	Industrial Automation Wiring and Grounding Guidelines	E115P
	—	Safety Guidelines for the Application, Installation and Maintenance of Solid State Control	E116P
Communication Interfaces	PSSCDM12A	H Series Fieldbus DeviceNet Adapter Module, Drop or Pass-through, with male and female M12 connectors	E101P, Installation Instructions PSS-UM001, User Manual
	PSSCDM18PA	H Series Fieldbus DeviceNet Adapter Module, Drop or Pass-through, with male and female M18 connectors	
	PSSCCNA	H Series Fieldbus Redundant ControlNet Adapter Module	E103P, Installation Instructions
	PSSCENA	H Series Fieldbus Ethernet/IP 10/100 Mbps Adapter Module	E104P, Installation Instructions
	PSSCPBA	H Series Fieldbus PROFIBUS Adapter Module	E102P, Installation Instructions
Valve Driver Module	PSSV32A, PSSVM32A	32 Point Valve Driver Module	E100P
DC I/O	PSSN16M12A	24VDC 16 Sink Input w/8 M12 connectors, 2 points per connector	
	PSSN8M8A	24VDC 8 Sink Input w/8 M8 connectors	
	PSSN8M12A	24VDC 8 Sink Input w/4 M12 connectors, 2 points per connector	E106P
	PSSN8M23A	24VDC 8 Sink Input w/1 M23 connector	
	PSSP8M12A	24VDC 8 Source Input w/4 M12 connectors, 2 points per connector	
	PSST16M23A	24VDC 16 Source Output w/1 M23	
	PSST16D25A	24VDC 16 Source Output w/1 25-Pin, D-Sub	
	PSST16M12A	24VDC 16 Source Output w/8 M12	E107P
	PSST8M8A	24VDC 8 Source Output w/1 M23	
	PSST8M12A	24VDC 8 Source Output w/4 M12	
Analog	PSSNACM12A	24VDC Analog Current Input w/ 2 M12 connectors	E110P
	PSSNAVM12A	24VDC 2 Analog Voltage Input w/ 2 M12 connectors	
	PSSTACM12A	24VDC Analog Current Output w/ 2 M12 connectors	E111P
	PSSTAVM12A	24VDC Analog Voltage Output w/ 2 M12 connectors	
Power Unit	PSSSE24A	24VDC Expansion Power Supply	E105P
Relay Output	PSSSTR4M12A	4 from A isolated (normally open) electromechanical relays	E109P

* Publications are electronic versions only. To make copies of these publications, go to: www.pdnplu.com

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Subbase & Manual Valves

H Series Micro

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H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series



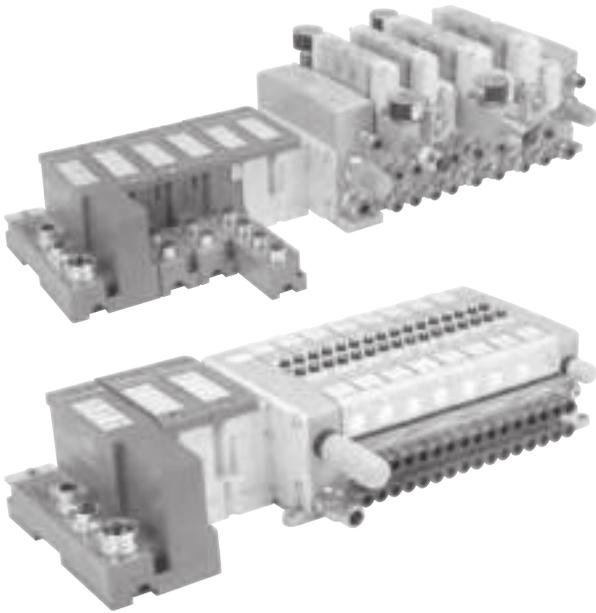
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Features

The Turck Fieldbus System

H Series Fieldbus has four major components:

- **Valve driver module** provide control for either 16 or 32 solenoids on a manifold
- **I/O modules** provide the field interface and system-interface circuitry
- **Communication modules** provide the network-interface circuitry
- **Power distribution module** provide 5 additional power inputs to the Turck system



Subbase & Manifold Valve Products Turck Fieldbus System

Turck Features

- Highly modular design (4pt – 16pt modularity)
- Broad application coverage
- Channel-level diagnostics (LED and electronic)
- Channel-level alarm and annunciation (electronic)
- Channel-level open-wire detection with electronic feedback
- Channel-level short-circuit detection with electronic feedback
- Horizontal and vertical mounting without derating
- 5g vibration
- Electronic and mechanical keying
- Robust backplane design
- Quick-disconnects for I/O and network connectivity
- Built-in panel grounding
- Color-coded module labels
- UL, C-UL, and CE certifications (as marked)
- Highly reliable structural integrity
- Optical isolation between field and system circuits

D

Subbase & Manual
Valves

H Series
Micro

Modulflex
Series

H Series
ISO

Fieldbus
Systems

DX ISOMAX
Series

Valvair II
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Turck Fieldbus System

- A complete fieldbus communication offering for all H Series ISO and H Series Micro valves.
- CSA, C-US and CE certifications (as marked).

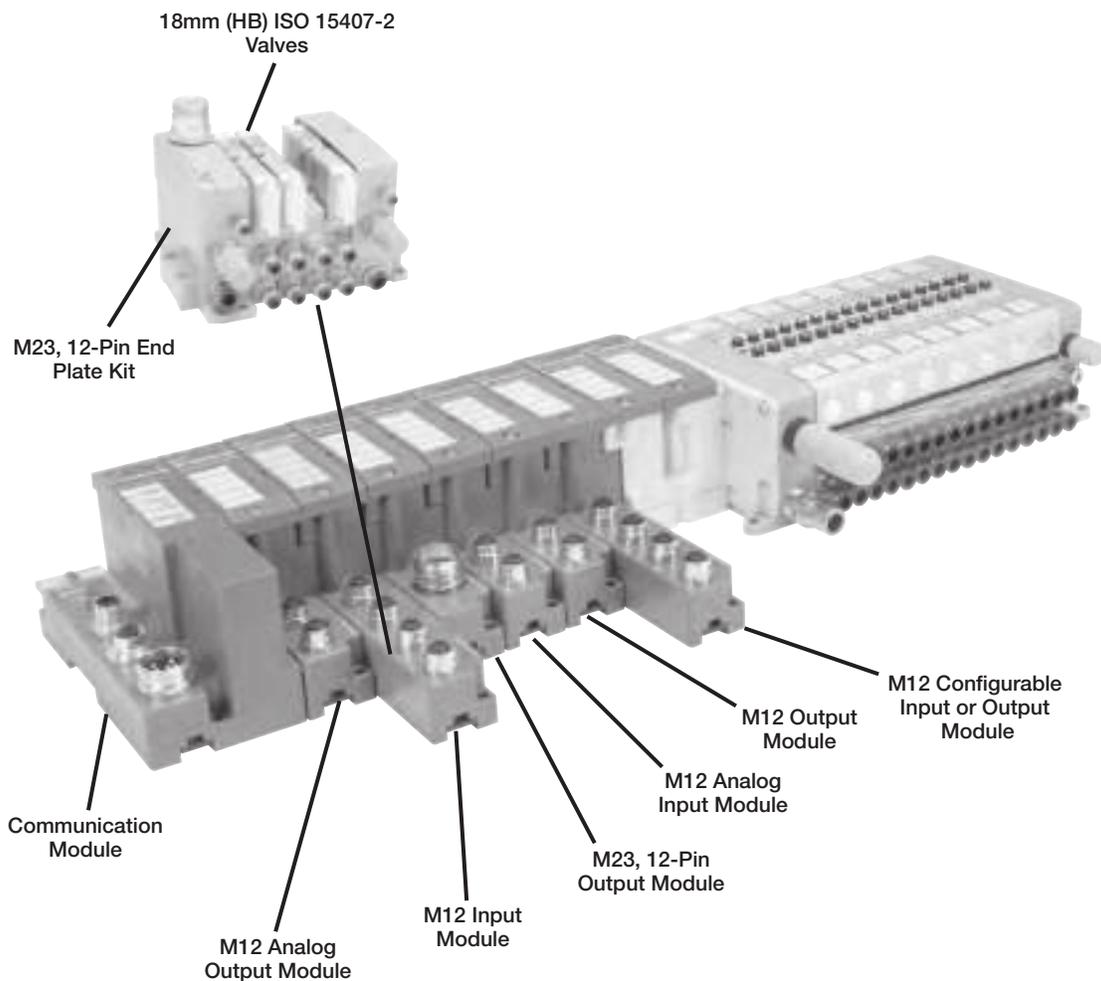
I/O Configuration

- Centralized Turck Fieldbus system.
- Pneumatics and I/O are in close proximity with one another.
- M23, 12-Pin or 19-Pin output extension to an additional H Series valve island.
- I/O density per module = 4, 8 or 16.



Modbus/TCP™

CANopen



Configure / Program any module with RS232, or directly through Ethernet for any module with an Ethernet physical layer.



D	Subbase & Manual Valves
H Series Micro	Modulflex Series
H Series ISO	Fieldbus Systems
DX ISOMAX Series	Valvair II Series



For inventory, lead time, and kit lookup, visit www.pdnplu.com

Turk Fieldbus System

- A complete fieldbus communication offering for all H Series ISO and H Series Micro valves.
- CSA, C-US and CE certifications (as marked).

I/O Configuration

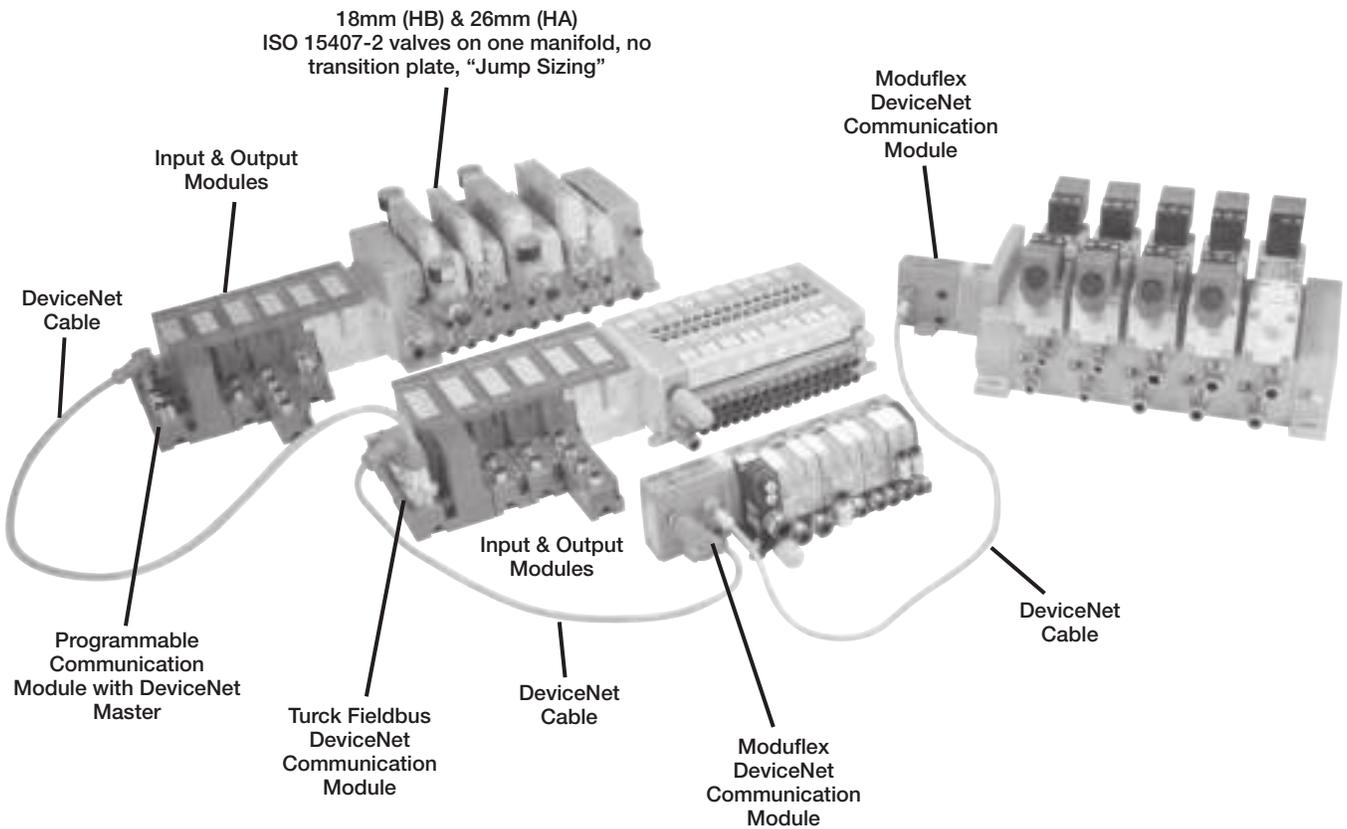
- Complete control of all I/O and valves with stand alone control.
- Additional I/O and valves connected over DeviceNet with BL Remote Subnet.
- BL Remote connection to Moduflex and Turk fieldbus DeviceNet equipped communication modules.
- I/O density per module = 4, 8 or 16.



Modbus/TCP™

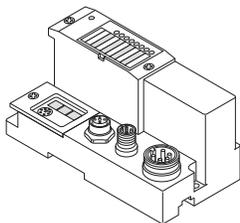
CANopen

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Communications Module

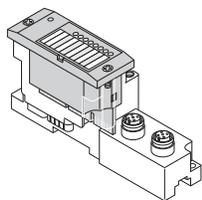


BL67 communication modules are the heart of a BL67 station. They are designed to connect the modular fieldbus nodes to the higher level fieldbus (PROFIBUS-DP, DeviceNet™, CANopen, Ethernet).

All BL67 electronic modules communicate over the internal module bus with the communication modules. The communication module structures the data and sends them clustered via fieldbus nodes to the higher control system.

This way all I/O modules can be configured independently of the fieldbus system.

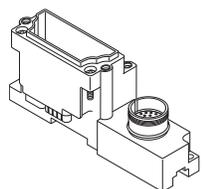
Electronic Module



BL67 electronic modules are inserted into the passive base modules from above and then simply affixed with two screws. Maintenance is extremely simplified due to the separation of connection level and module electronics.

Moreover, flexibility is enhanced because the base modules provide different types of connectors. Voltage supply for the electronic modules is either provided via the communication modules or a Power Extender module. Power Extender modules can be used to create galvanically isolated potential groups.

Base Module



BL67 base modules are aligned one by one to the right of the communication module and are tightened each with two screws, either with the communication modules or with the previous module. A DIN rail is not required. This way a compact and stable unit is created which can be mounted directly on the machine.

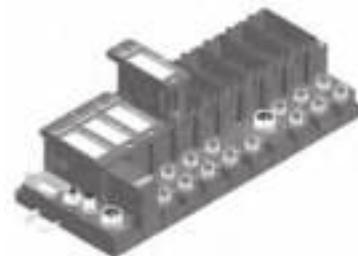
The base modules serve for connection of the field devices and are available with different connection types (M8, M12, M23 and 7/8).

A BL67 system can be extended to a total length of 1 m, comprising of a communication module for PROFIBUS-DP, DeviceNet™/ CANopen or Ethernet and a maximum of 32 modules.

System supply: The power supply for the BL67 system is either derived separately for Profibus-DP and Ethernet communication modules or directly from the DeviceNet™ / CANopen cable for the DeviceNet™ / CANopen communication module.

Power Extender modules can be inserted anywhere in the BL67 station. They provide isolated field voltage for the I/O modules mounted to their right.

Thus Power Extender modules can also be used to create different potential groups.



Maximum System Extension

Module type	PROFIBUS DP		DeviceNet		CANopen		ModbusTCP		EtherNet/IP		PROFIBUS NET		
	Number of chan.	Number of mod.											
Digital inputs	4 DI	128	32	128	32	128	32	128	32	128	32	128	32
	8 DI	256	32	256	32	256	32	256	32	256	32	256	32
Digital outputs	4 DO	128	32	128	32	128	32	128	32	128	32	128	32
	8 DO	256	32	256	32	256	32	256	32	256	32	256	32
	16 DO	512	32	512	32	512	32	512	32	512	32	512	32
Analog inputs	2AI	64	32	64	32	64	32	64	32	64	32	64	32
	4AI	112	28	124	31	124	31	128	32	128	32	128	32
	2 AI-PT	56	28	64	32	64	32	64	32	64	32	64	32
	2 AI-TC	64	32	64	32	64	32	64	32	64	32	64	32
Analog outputs	2 AO-I	38	19	64	32	64	32	64	32	64	32	64	32
	2 AO-V	38	19	50	25	50	25	50	25	50	25	50	25



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Subbase & Manual Valves

H Series Micro

Modulflex Series

H Series ISO

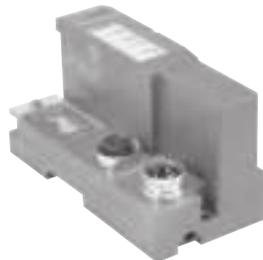
Fieldbus Systems

DX ISOMAX Series

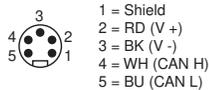
Valvair II Series

BL67-GW-DN

DeviceNet Communication
 Module with Power over
 the Network



7/8 Mini bus in wiring,
 view into male connector



7/8 Mini bus out wiring,
 view into female connector



Turck Fieldbus System with up to 256 inputs, outputs, and 32 solenoids per H Series Micro or H Series ISO manifold. Digital inputs / outputs, analog inputs / outputs, serial interface, and counter modules are available. DeviceNet communication speeds selectable between 120, 250, 500 kbps, and CANopen communication speeds are selectable between 10 kbps up to 1 Mbps. Addressing for either module can be selected via rotary switches or set through software.

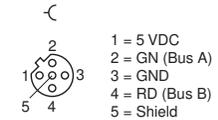
With the Power over the Network feature, it is only necessary to connect one cable to the communication module. For networks requiring additional power, a Bus Power Tee can be installed to combine separate network and power feeds into the communication module. See the Cables and Cordsets section for additional information.

BL67-GW-DPV1

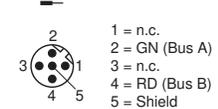
Profibus Communication
 Module



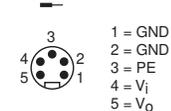
M12 B-code bus out Wiring,
 view into female connector



M12 B-code bus In Wiring,
 view into male connector



7/8 Mini Power in wiring,
 view into male connector



Turck Fieldbus System with up to 256 inputs, outputs, and 32 solenoids per H Series Micro or H Series ISO manifold. Digital inputs / outputs, analog inputs / outputs, serial interface, and counter modules are available. Profibus communication speeds are selectable between 9.6 kbps up to 12 Mbps, and addressing can be selected via rotary switches or set through software.

BL67-GW-CO

CANopen Communication
 Module



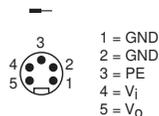
M12 A-code bus out Wiring,
 view into female connector



M12 A-code bus In Wiring,
 view into male connector



7/8 Mini Power in wiring,
 view into male connector



Turck Fieldbus System with up to 256 inputs, outputs, and 32 solenoids per H Series Micro or H Series ISO manifold. Digital inputs / outputs, analog inputs / outputs, serial interface, and counter modules are available. CANopen communication speeds are selectable between 10 kbps up to 1 Mbps, and addressing can be selected via rotary switches or set through software.

BL67-GW-EN

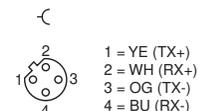
ModbusTCP, EtherNet / IP, and ProfiNet

BL67-GW-EN-PN

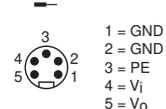
Profinet Communication Module



M12 D-code
 Ethernet in Wiring,
 view into female connector



7/8 Mini Power in wiring,
 view into male connector



Turck Fieldbus System with up to 256 inputs, outputs, and 32 solenoids per H Series Micro or H Series ISO manifold. Digital inputs / outputs, analog inputs / outputs, serial interface, and counter modules are available. Communication speeds of 10/100 Mbps, and addressing can be selected via rotary switches, BOOTP, DHCP, or through software.

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BL67-GW-EN-DN

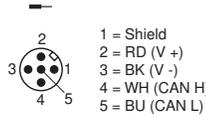
Modbus / TCP Communication Module with DeviceNet Subnet

BL67-GW-EN-IP-DN

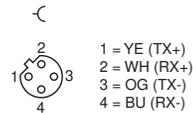
Ethernet / IP Communication Module with DeviceNet Subnet



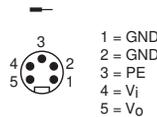
DeviceNet OUT



M12 D-code Ethernet in Wiring, view into female connector



7/8 Mini Power in wiring, view into male connector



With BL Remote DeviceNet Subnet functionality, each communication module has its own DeviceNet master which provides a connection for 63 DeviceNet nodes with additional inputs, outputs, and solenoid control. BL Remote DeviceNet Subnet is independent of the main fieldbus network, and is not visible to the master PLC.

BL67-PG-EN-DN

Modbus / TCP Programmable Communication Module with DeviceNet Subnet

BL67-PG-EN-IP-DN

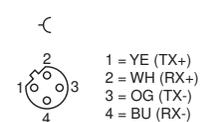
Ethernet / IP Programmable Communication Module with DeviceNet Subnet



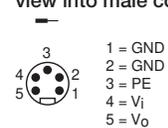
DeviceNet OUT



M12 D-code Ethernet in Wiring, view into female connector



7/8 Mini Power in wiring, view into male connector



Communication modules are equipped with a built in standalone controller which is programmed according to IEC61131-3 with CoDeSys. Each module has 512KB Program memory with 32 bit RISC processor, and can run 1000 instructions in less than 1 ms. These fieldbus equipped modules are optimized to interface with PLC's with fieldbus capability or act as standalone controllers that need to interface with other fieldbus equipped devices.

With BL Remote DeviceNet Subnet functionality, each communication module has its own DeviceNet master which provides a connection for 63 DeviceNet nodes with additional inputs, outputs, and solenoid control. BL Remote DeviceNet Subnet is independent of the main fieldbus network, and is not visible to the master PLC.

BL67-PG-DP

Profibus Programmable Communication Module

BL67-PG-EN

Modbus / TCP Programmable Communication Module

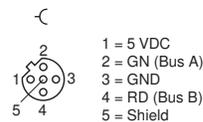
BL67-PG-EN-IP

Ethernet / IP Programmable Communication Module

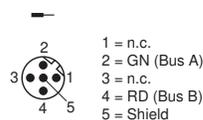


Profibus Wiring

M12 B-code bus out Wiring, view into female connector

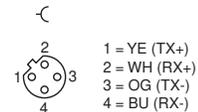


M12 B-code bus in Wiring, view into female connector

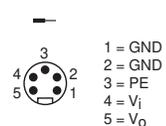


Ethernet Wiring

M12 D-code Ethernet in Wiring, view into female connector



7/8 Mini Power in wiring, view into male connector Common to modules



Communication modules are equipped with a built in standalone controller which is programmed according to IEC61131-3 with CoDeSys. Each module has 512KB Program memory with 32 bit RISC processor, and can run 1000 instructions in less than 1 ms. These fieldbus equipped modules are optimized to interface with PLC's with fieldbus capability or act as standalone controllers that need to interface with other fieldbus equipped devices.



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Base Modules													
	BL67-B-4M8	BL67-B-8M8	BL67-B-1M12	BL67-B-1M12-8	BL67-B-2M12	BL67-B-2M12-P	BL67-B-4M12	BL67-B-4M12-P	BL67-B-1M23	BL67-B-1M23-19	BL67-B-1RSM	BL67-B-1RSM-4	BL67-1RSM-VO
Power Extender Modules													
BL67-PF-24VDC											✓	✓	✓
Digital Input Modules													
BL67-4DI-P	✓				✓	✓	✓		✓				
BL67-8DI-P		✓					✓	✓	✓				
BL67-4DI-PD	✓				✓	✓	✓		✓				
BL67-8DI-PD		✓					✓	✓	✓				
BL67-4DI-N	✓				✓	✓	✓		✓				
BL67-8DI-N		✓					✓	✓	✓				
Digital Output Modules													
BL67-4DO-0.5A-P	✓				✓	✓	✓		✓				
BL67-4DO-2A-P	✓				✓	✓	✓		✓				
BL67-8DO-0.5A-P		✓					✓	✓	✓				
BL67-16DO-0.1A-P										✓			
BL67-4DO-2A-N	✓				✓	✓	✓		✓				
BL67-8DO-0.5A-N		✓					✓	✓	✓				
Relay Output Modules													
BL67-8DO-R-NO								✓					
Digital Input / Output Modules													
BL67-4DI4DO-PD		✓					✓	✓	✓				
Configurable Digital Input / Output Modules													
BL67-8XSG-PD		✓					✓	✓	✓				
Analog Input Modules													
BL67-2AI-I					✓								
BL67-2AI-V					✓								
BL67-4AI-V/I							✓						
BL67-2AI-PT					✓								
BL67-2AI-TC					✓								
Analog Output Modules													
BL67-2AO-I					✓								
BL67-2AO-V					✓								
Technology Modules													
BL67-1RS232			✓	✓					✓				
BL67-1RS485/422			✓	✓					✓				
BL67-1SSI				✓					✓				
BL67-1CNT/ENC				✓					✓				
BL67-1CVI			✓										
BL Ident® RFID Modules													
BL67-2RFID-A					✓								
BL67-2RFID-S					✓								



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D170

Parker Hannifin Corporation
 Pneumatic Division
 Richland, Michigan
www.parker.com/pneumatics

System Supply via the Module Bus

The number of BL67 modules that can be powered by the communication module, depends on the nominal current draw of all the modules in the system. The total bus power current consumption of the installed BL67 modules may not exceed 1.5 A. The total field power current for inputs may not exceed 4 A, and the total field power for outputs may not exceed 8 A for DeviceNet and CANopen with power over the network, or 10A for all other communication modules.

When using the software PACTware, the menu item <Station - Verify> will automatically generate an error message if the system supply via the module bus is not reliably ensured.

Nominal Current Consumption

The following table shows the nominal current consumption of the various BL67 modules:

Modules	Bus Power Current (mA)	Field Power for Inputs ¹⁾ (mA)	Field Power for Outputs (mA)
PROFIBUS-DP Communication Module	0		150
DeviceNet™ Communication Module	0		150
CANopen Communication Module	0		150
Ethernet Communication Module	0		150
Valve Driver with 16 Outputs	30		< 109 mA (Plus Load Current)
Valve Driver with 32 Outputs	60		< 218 mA (Plus Load Current)
BL67-PF-24VDC	30		9
BL67-4DI-P	30	< 49 mA	
BL67-4DI-N	30	< 10 mA	
BL67-4DI-PD	30	< 109 mA	
BL67-8DI-P	30	< 49 mA	
BL67-8DI-N	30	< 10 mA	
BL67-8-DI-PD	30	< 109 mA	
BL67-4DO-0.5A-P	30		< 109 mA (Plus Load Current)
BL67-4DO-2A-P	30		< 109 mA (Plus Load Current)
BL67-4DO-2A-N	30		< 109 mA (Plus Load Current)
BL67-8DO-0.5A-P	30		< 109 mA (Plus Load Current)
BL67-8DO-0.5A-N	30		< 109 mA (Plus Load Current)
BL67-16DO-0.1A-P	30		< 109 mA (Plus Load Current)
BL67-4DI4DO-PD	30		< 109 mA (Plus Load Current)
BL67-8XSG-PD	30		< 109 mA (Plus Load Current)
BL67-8DO-R-NO	30		< 109 mA (Plus Load Current)
BL67-2AI-V	35	< 22 mA	
BL67-2AI-I	35	< 22 mA	
BL67-4AI-I/V	35	< 22 mA	
BL67-2AI-TC	35	< 40 mA	
BL67-2AI-PT	45	< 58 mA	
BL67-2AO-I	40		< 62 mA
BL67-2AO-V	60		< 67 mA
BL67-1RS232	140	< 90 mA	
BL67-1RS485/422	60	< 42 mA	
BL67-1SSI	50	< 39 mA	
BL67-1CNT/ENC	30	< 109 mA	
BL67-1CVI	30	< 109 mA	

1) Is limited to 4 A by means of the integrated short-circuit protection.

D

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Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

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Digital Input Modules

I/O modules	Voltage	Part number
 8 PNP input module	7 to 30 VDC	BL67-8DI-P
8 PNP input module, with diagnostics	7 to 30 VDC	BL67-8DI-PD
8 NPN input module	24 VDC	BL67-8DI-N

Base module	Part number
 8 x M8, 3 pole, female	BL67-B-8M8
 4 x M12, 5 pole, female, A-code	BL67-B-4M12
 4 x M12, 5 pole, female, A-code	BL67-B-4M12-P
 1 x M23, 12 pole, female	BL67-B-1M23

I/O modules	Voltage	Part number
4 PNP input module	7 to 30 VDC	BL67-4DI-P
4 PNP input module, with diagnostics	7 to 30 VDC	BL67-4DI-PD
4 NPN input module	24 VDC	BL67-4DI-N

Base module	Part number
 4 x M8, 3 pole, female	BL67-B-4M8
 2 x M12, 5 pole, female, A-code	BL67-B-2M12
 2 x M12, 5 pole, female, A-code	BL67-B-2M12-P
 4 x M12, 5 pole, female, A-code	BL67-B-4M12
 1 x M23, 12 pole, female	BL67-B-1M23

Digital Output Modules

I/O modules	Output current	Part number
 8 PNP output module	0.5 amps per channel	BL67-8DO-0.5A-P
8 NPN output module	0.5 amps per channel	BL67-8DO-0.5A-N

Base module	Part number
 8 x M8, 3 pole, female	BL67-B-8M8
 4 x M12, 5 pole, female, A-code	BL67-B-4M12
 4 x M12, 5 pole, female, A-code	BL67-B-4M12-P
 1 x M23, 12 pole, female	BL67-B-1M23

I/O modules	Output Current	Part number
4 PNP output module	0.5 amps per channel	BL67-4DO-0.5A-P
4 PNP output module	2 amps per channel	BL67-4DO-2A-P
4 PNP output module	4 amps per channel	BL67-4DO-4A-P
4 NPN output module	2 amps per channel	BL67-4DO-2A-N

Base module	Part number
 4 x M8, 3 pole, female	BL67-B-4M8
 2 x M12, 5 pole, female, A-code	BL67-B-2M12
 2 x M12, 5 pole, female, A-code	BL67-B-2M12-P
 4 x M12, 5 pole, female, A-code	BL67-B-4M12
 1 x M23, 12 pole, female	BL67-B-1M23

 Most popular.



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Digital Output Modules

I/O modules	Output current	Part number
16 PNP output module	0.14 amps per channel	BL67-16DO-0.1A-P

Base module	Part number
 1 x M23, 19 pole, female	BL67-B-1M23-19

Relay Output Modules

I/O modules	Output current	Part number
8 normally open relays	0.14 amps per channel	BL67-8DO-R-NO

Base module	Part number
 4 x M12, 5 pole, female, A-code	BL67-B-4M12-P

Analog Input Modules

I/O modules	Input type	Part number
4 configurable current or voltage analog input module	4 to 20 mA or 0 to 20 mA -10 to +10 VDC or 0 to +10 VDC	BL67-4AI-V/I

Base module	Part number
 4 x M12, 5 pole, female, A-code	BL67-B-4M12

I/O modules	Input type	Part number
2 Current analog input module	4 to 20 mA or 0 to 20 mA	BL67-2AI-I
2 Voltage analog input module	-10 to +10 VDC or 0 to +10 VDC	BL67-2AI-V
2 Temperature analog input module	PT100, PT200, PT500, PT1000, Ni100, Ni1000	BL67-2AI-PT
2 Temperature analog input module	Type B, E, J, K, N, R, S, T	BL67-2AI-TC

Base module	Part number
 2 x M12, 5 pole, female, A-code	BL67-B-2M12

 Most popular.

Combination Input / Output Modules

I/O modules	Input voltage & output current	Part number
4 PNP output 4 PNP input module, with diagnostics	7 to 30 VDC 0.5 Amps	BL67-4DI4DO-PD
8 PNP configurable input or output module, with diagnostics	7 to 30 VDC 0.5 Amps	BL67-8XSG-PD

Base module	Part number
 8 x M8, 3 pole, female	BL67-B-8M8

Base module	Part number
 4 x M12, 5 pole, female, A-code	BL67-B-4M12

Base module	Part number
 4 x M12, 5 pole, female, A-code	BL67-B-4M12P

Analog Output Modules

I/O modules	Input type	Part number
4 Voltage analog output module	-10 to +10 VDC or 0 to +10 VDC	BL67-4AO-V

Base module	Part number
 4 x M12, 5 pole, female, A-code	BL67-B-4M12

I/O modules	Input type	Part number
2 Current analog output module	4 to 20 mA or 0 to 20 mA	BL67-2AO-I
2 Voltage analog output module	-10 to +10 VDC or 0 to +10 VDC	BL67-2AO-V

Base module	Part number
 2 x M12, 5 pole, female, A-code	BL67-B-2M12



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Combination Analog Input / Output Modules

I/O modules	Output current	Part number
4 configurable input and 4 configurable output current or voltage analog module	4 to 20 mA or 0 to 20 mA -10 to +10 VDC or 0 to +10 VDC	BL67-4AI4AO-V/I

Base module	Part number
 8 x M8, 3 pole, female	BL67-B-8M8
 4 x M12, 5 pole, female, A-code	BL67-B-4M12

CANopen Subnet Module

Extender module	Capacity	Part number
1 CANopen connection	64 bits of inputs or outputs	BL67-1CVI

Base module	Part number
 1 x M12, 5 pole, female, A-code	BL67-B-1M12

IO-Link Module

Extender module	Part number
4 Master Channels	BL67-4IOL

Base module	Part number
 4 x M12, 5 pole, female, A-code	BL67-B-4M12

Power Extender Module

Extender module	Current capacity	Part number
24 VDC field power module	10 amps input	BL67-PF-24VDC

Base module	Part number
 5 Pole mini connector to supply bus power and field power	BL67-B-1RSM
 5 Pole mini connector to field power only	BL67-B-1RSM-VO
 4 Pole mini connector to supply bus power and field power	BL67-B-1RSM-4

 Most popular.

I/O modules	Output current	Part number
2 configurable input and 2 configurable output current or voltage analog module	4 to 20 mA or 0 to 20 mA -10 to +10 VDC or 0 to +10 VDC	BL67-2AI2AO-V/I

Base module	Part number
 8 x M8, 3 pole, female	BL67-B-8M8

Serial Interface Module

Extender module	Capacity	Part number
1 RS232 serial interface	300 to 115200 bps	BL67-1RS232
1 RS485 or 422 serial interface	300 to 115200 bps	BL67-1RS485/422

Base module	Part number
 1 x M12, 5 pole, female, A-code	BL67-B-1M12
 1 x M12, 8 pole, female, A-code	BL67-B-1M12-8
 1 x M23, 12 pole, female	BL67-B-1M23

SSI and Counting Modules

Extender module	Capacity	Part number
1 SSI sensor interface	65 kbps up to 1 Mbps	BL67-1SSI
1 counter interface	Up to 250 kHz	BL67-1CNT/ENC

Base module	Part number
 1 x M12, 8 pole, female, A-code	BL67-B-1M12-8
 1 x M23, 12 pole, female	BL67-B-1M23

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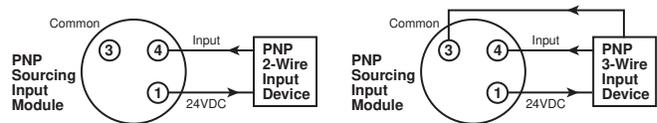
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Digital PNP Input Modules

DC Input Module	BL67-4DI-P	BL67-8DI-P	BL67-4DI-PD	BL67-8DI-PD
Number of inputs	4	8	4	8
Sensor requirement	PNP Sourcing		PNP Sourcing	
Voltage, on-state input, nom.	24 VDC		24 VDC	
Field power for inputs current consumption	49 mA		109 mA	
Bus power current consumption	30 mA		30 mA	
Low level signal voltage	<4.5 V		<4.5 V	
High level signal voltage	7...30V		7...30V	
Low level signal current	<1.5 mA		<1.5 mA	
High level signal current	2.1...3.7 mA		2.1...3.7 mA	
Type of diagnostics	Group Diagnostics		Channel Diagnostics	
Short circuit protection	Group Protection		Channel Protection	
Input delay	0.25 ms		0.25; 2.5 ms	

PNP (Sourcing)

PNP input modules provide sourcing capabilities. When the input field device is passing, current flows from the input device into the Turck input module.

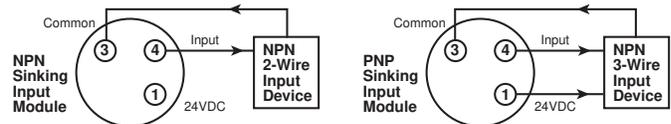


Digital NPN Input Modules

Digital DC Input Module	BL67-4DI-N	BL67-8DI-N
Number of inputs	4	8
Sensor requirement	NPN Sinking	NPN Sinking
Voltage, on-state input, nom.	24 VDC	24 VDC
Field power for inputs current consumption	10 mA	10 mA
Bus power current consumption	30 mA	30 mA
Low level signal voltage	>7 V	>7 V
High level signal voltage	<5 V	<5 V
Low level signal current	<2.5 mA	<1.2 mA
High level signal current	>3 mA	>1.5 mA
Type of diagnostics	Group Diagnostics	Group Diagnostics
Short circuit protection	Group Protection	Group Protection
Input delay	0.25 ms	0.25 ms

NPN (Sinking)

NPN input modules provide sinking capabilities. When the input field device is passing, current out of the Turck input module into the field input device.



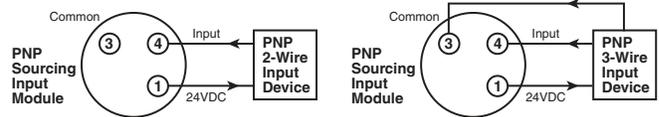
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Digital PNP Output Modules

Digital DC Output Module	BL67-4DO-0.5A-P	BL67-8DO-0.5A-P	BL67-4DO-2A-P	BL67-16DO-0.1A-P
Number of outputs	4	8	4	16
Sensor requirement	PNP Sourcing	PNP Sourcing	PNP Sourcing	PNP Sourcing
Output voltage	24 VDC	24 VDC	24 VDC	24 VDC
Field power for outputs current consumption	109 mA (Plus load current)	109 mA (Plus load current)	109 mA (Plus load current)	109 mA (Plus load current)
Bus power current consumption	30 mA	30 mA	30 mA	30 mA
Output current per channel	0.5 A	0.5 A	2.0A	0.1 A
Output delay	3 ms	3 ms	3 ms	3 ms
Load type	Resistive, Inductive, Lamp Load	Resistive, Inductive, Lamp Load	Resistive, Inductive, Lamp Load	Resistive, Inductive
Load resistance, resistive	>48 Ohm	>48 Ohm	>12 Ohm	>250 Ohm
Load resistance, inductive	<1.2 H	<1.2 H	<1.2 H	<1.2 H
Lamp load	< 3W	< 3W	< 10W	< 10W
Switching frequency, resistive	<200 Hz	<200 Hz	<200 Hz	<200 Hz
Switching frequency, inductive	< 2 Hz	< 2 Hz	< 2 Hz	< 2 Hz
Switching frequency, lamp load	< 20 Hz	< 20 Hz	< 20 Hz	< 20 Hz
Short-circuit protection	Group Protection	Group Protection	Group Protection	Group Protection
Diagnostic bits	4	8	4	16

PNP (Sourcing)

PNP input modules provide sourcing capabilities. When the input field device is passing, current flows from the input device into the Turck input module.

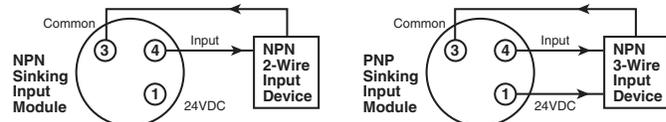


Digital NPN Output Modules

Digital DC Output Module	BL67-8DO-0.5A-N	BL67-4DO-2A-N
Number of outputs	8	4
Sensor requirement	NPN Sinking	NPN Sinking
Output voltage	24 VDC	24 VDC
Field power for outputs current consumption	109 mA (Plus load current)	109 mA (Plus load current)
Bus power current consumption	30 mA	30 mA
Output current per channel	0.5 A	2.0 A
Output delay	3 ms	3 ms
Load type	Resistive, Inductive, Lamp Load	Resistive, Inductive, Lamp Load
Load resistance, resistive	>48 Ohm	>48 Ohm
Load resistance, inductive	<1.2 H	<1.2 H
Lamp load	< 3W	< 3W
Switching frequency, resistive	<200 Hz	<200 Hz
Switching frequency, inductive	< 2 Hz	< 2 Hz
Switching frequency, lamp load	< 20 Hz	< 20 Hz
Short-circuit protection	Group Protection	Group Protection
Diagnostic bits	4	8

NPN (Sinking)

NPN input modules provide sinking capabilities. When the input field device is passing, current out of the Turck input module into the field input device.



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Relay Output Modules

Relay Output Module	BL67-8DO-R-NO
Number of outputs	8
Output type	Relay
Output voltage	24 VDC
Field power for outputs current consumption	109 mA (Plus load current)
Bus power current consumption	30 mA
Output current per channel	100 mA
Output delay	3 ms
Load type	Resistive, TTL logic
Switching resistor	<31 Ohm
Switching frequency, resistive	<200 Hz
Short-circuit protection	None

Combination Digital Modules

Combination Input and Output Modules	BL67-4DI4DO-PD	BL-67-8XSG-PD
Number of outputs	4	Configurable 0 to 8
Number of inputs	4	Configurable 0 to 8
Total channels	8	8
Sensor requirement	PNP Sourcing	PNP Sourcing
Voltage, on-state input, nom.	24 VDC	24 VDC
Output voltage	24 VDC	24 VDC
Field power for outputs current consumption	109 mA	109 mA
Bus power current consumption	30 mA	30 mA
Input low level signal voltage	<4.5 V	<4.5 V
Input high level signal voltage	7...30V	7...30V
Input low level signal current	<1.5 mA	<1.5 mA
Input high level signal current	2.1...3.7 mA	2.1...3.7 mA
Input delay	0.25; 2.5 ms	0.25; 2.5 ms
Output current per channel	0.5 A	0.5 A
Output delay	3 ms	3 ms
Load type	Resistive, Inductive, Lamp Load	Resistive, Inductive, Lamp Load
Load resistance, resistive	>48 Ohm	>48 Ohm
Load resistance, inductive	<1.2 H	<1.2 H
Lamp load	< 3W	< 3W
Switching frequency, resistive	<200 Hz	<200 Hz
Switching frequency, inductive	< 2 Hz	< 2 Hz
Switching frequency, lamp load	< 20 Hz	< 20 Hz
Short-circuit protection	Channel Protection	Channel Protection
Diagnostic bits	8	12

D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series



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D177

Parker Hannifin Corporation
 Pneumatic Division
 Richland, Michigan
www.parker.com/pneumatics

Analog Input Modules

Analog Input Module	BL67-2AI-I	BL67-2AI-V	BL67-4AI-V/I
Number of inputs	2	2	4
Nominal voltage	24 VDC	24 VDC	24 VDC
Field power for inputs current consumption	22 mA	22 mA	22 mA
Bus power current consumption	35 mA	35 mA	35 mA
Analog input type	0/4...20mA	-10/0...+10 VDC	0/4...20mA or -10/0...+10 VDC
Input resistance	<0.125 kOhm	<98.5 kOhm	<0.125 kOhm or <98.5 kOhm
Maximum limiting frequency	50 Hz		20 Hz
Fault limit @ 23 degree C	<0.2%		<0.3%
Repeatability	0.05%	0.05%	0.05%
Temperature coefficient (ppm/degree c of full scale)	<300	<150	<300
Resolution	16 Bit	16 Bit	16 Bit
Measuring principle	Sigma Delta	Sigma Delta	Sigma Delta
Measured value display	16 bit signed integer, 12 bit full range left justified	16 bit signed integer, 12 bit full range left justified	16 Bit signed integer, 12 bit full range left justified
Diagnostic bits	16		32

Temperature Inputs

Analog Input Module	BL67-2AI-PT	BL67-2AI-TC
Number of inputs	2	2
Nominal voltage	24 VDC	24 VDC
Field power for inputs current consumption	58 mA	40 mA
Bus power current consumption	45 mA	35 mA
Temperature input type	PT100, PT200, PT500, PT1000, Ni100, Ni1000	B, E, J, K, N, R, S, T
Voltage resolution	n/a	+/- 50mV; <2uV
Fault limit @ 23 degree C	<0.2%	<0.2%
Repeatability	0.05%	0.05%
Temperature coefficient (ppm/degree c of full scale)	<300	<300
Resolution	16 Bit	16 Bit
Measured value display	16 bit signed integer, 12 bit full range left justified	16 bit signed integer, 12 bit full range left justified
Diagnostic bits	16	16

D

Subbase & Manual
 Valves

H Series
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D178

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Analog Input Modules

Analog Input Module	BL67-2AO-I	BL67-2AO-V
Number of inputs	2	2
Nominal voltage	24 VDC	24 VDC
Field power for outputs current consumption	62 mA	67 mA
Bus power current consumption	40 mA	60 mA
Analog output type	0/4...20mA	-10/0...+10 VDC
Output current per channel	n/a	250 mA
Load resistance, resistive	<0.45 kOhm	> 1kOhm
Load resistance, inductive	<1 mH	n/a
Load resistance, capacitive	n/a	> 1 uF
Transmission frequency	<200 Hz	<100 Hz
Fault limit @ 23 degree C	<0.2%	<0.2%
Repeatability	0.05%	0.05%
Temperature coefficient (ppm/degree c of full scale)	<150	<300
Resolution	16 bit	16 bit
Measured value display	16 bit signed integer, 12 bit full range left justified	16 bit signed integer, 12 bit full range left justified

Combination Analog Modules

Analog Combination Module	BL67-4AI4AO-V/I	BL67-2AI2AO-V/I
Number of analog inputs	4	2
Number of analog outputs	4	2
Nominal voltage	24 VDC	24 VDC
Field power for outputs current consumption	67 mA	67 mA
Bus power current consumption	60 mA	60 mA
Analog input type	0/4...20mA or -10/0...+10 VDC	0/4...20mA or -10/0...+10 VDC
Input resistance	0.065 or 225 kOhm	0.065 or 225 kOhm
Maximum limiting frequency	20 Hz	20 Hz
Fault limit @ 23 degree c	<0.3%	<0.3%
Repeatability	0.05%	0.05%
Temperature coefficient (ppm/degree c of full scale)	<300	<300
Resolution	16 bit	16 bit
Measuring principle	Sigma Delta	Sigma Delta
Measured value display	16 bit signed integer, 12 bit full range left justified	16 bit signed integer, 12 bit full range left justified
Analog output type	-10/0...+10 VDC	-10/0...+10 VDC
Output current per channel	250 mA	250 mA
Load resistance, resistive	>1 kOhm	>1 kOhm
Load resistance, capacitive	<1 uF	<1 uF
Transmission frequency	<100 Hz	<100 Hz
Fault limit @ 23 degree C	<0.3%	<0.3%
Repeatability	0.05%	0.05%
Temperature coefficient (ppm/degree c of full scale)	<300	<300
Resolution	16 bit	16 bit
Measured value display	16 bit signed integer, 12 bit full range left justified	16 bit signed integer, 12 bit full range left justified
Diagnostic bits	8	4

D

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D179

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Power Extender Module

Power Extender Module	BL67-PF-24VDC
Nominal voltage	24 VDC
Field power for outputs current consumption	9 mA
Bus power current consumption	30 mA
Supply for field power for inputs current	4.0 A
Supply for field power for outputs current	10 A
Diagnostic bits	3

RS232 Interface

RS232 Interface	BL67-1RS232
Number of channels	1
Field power for inputs current consumption	90 mA
Bus power current consumption	140 mA
Transmission level active (u rs1)	-15 to -3 VDC
Transmission level inactive (urso)	3 to 15 VDC
Common-mode range (ugl)	-7 to 12 VDC
Transmission signals	RxD, TxD, RTS, CTS
Data buffer received	128 Byte
Send data buffer	64 Byte
Connection type	Full Duplex
Transmission rate	300 to 115200 bps
Parameter	Transmission Rate, Diagnostics, Data Bits, Stop Bits, XON - Character, XOFF - Character, Parity, Flow Control
Cable length	15 m
Diagnostic bits	8

RS485 / 422 Interface

RS485/422 Interface	BL67-1RS485/422
Number of channels	1
Field power for inputs current consumption	42 mA
Bus power current consumption	60 mA
Transmission signals	RxD, TxD
Connection type	2 Wire Half Duplex or 4 Wire Full Duplex
Transmission rate	300 to 115200 bps
Parameter	RS485/422, Transmission Rate, Diagnostics, Data Bits, Stop Bits, XON - Character, XOFF - Character, Parity, Flow Control
Cable length	1000 m
Line impedence	120 Ohm
Bus termination	External
Diagnostic bits	8

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SSI Sensor Interface

SSI Sensor Interface	BL67-1SSI
Number of channels	1
Field power for inputs current consumption	39 mA
Bus power current consumption	50 mA
Transmission signals	CL, D
Connection type	4 Wire Full Duplex (Clock Output/Signal Input)
Transmission rate	62.5 kbps up to 1 Mbps
Parameter	Transmission Rate, Diagnostics, Data Format (Binary / GRAY coded), Data Fram Bits (1-32), Number of Invalid Bits (LSB: 0-15, MSB 0-7)
Cable length	30 m
Diagnostic bits	8

Counting Module

Counting Module	BL67-1CNT/ENC
Number of channels	1
Field power for inputs current consumption	109 mA
Bus power current consumption	30 mA
Input type	PNP
Output type	PNP
Output current per channel	0.5 A
Output delay	2 ms
Load type	Resistive
Frequency measurement	Up to 250 kHz
Speed measurement	Factor Configurable
Period duration measurement	2 usec
Upper count limit	0x80000000 up to 0xFFFFFFFF
Lower count limit	0x80000000 up to 0xFFFFFFFF
Short circuit protection	Channel Protection

CANopen Expansion Module

CANopen Expansion Module	BL67-1CVI
Number of channels	1
Field power for inputs current consumption	109 mA
Bus power current consumption	30 mA
Transmission signals	CAN High, CAN Low
Connection type	CANopen
Transmission speed	10 kbps up to 1 Mbps
Parameter	Transmission Rate, Diagnostics, Bus Termination, Range of I/O Data
Bus termination	Internal
Diagnostic bits	48
Max number of CANopen nodes	8
Max processing data per module	8 Byte
Max data per node	4 Byte



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D

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H Series ISO

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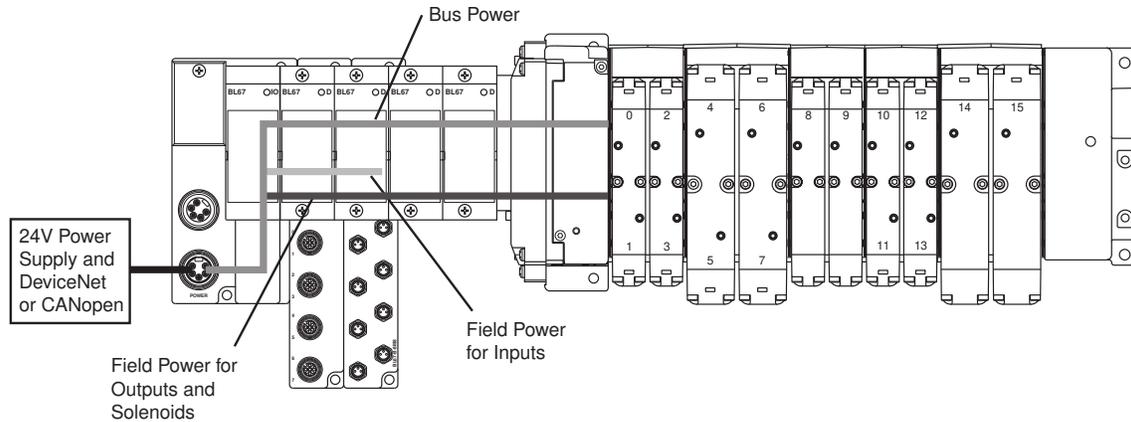
DX ISOMAX Series

Valvair II Series

Power Distribution Options for Turck Fieldbus

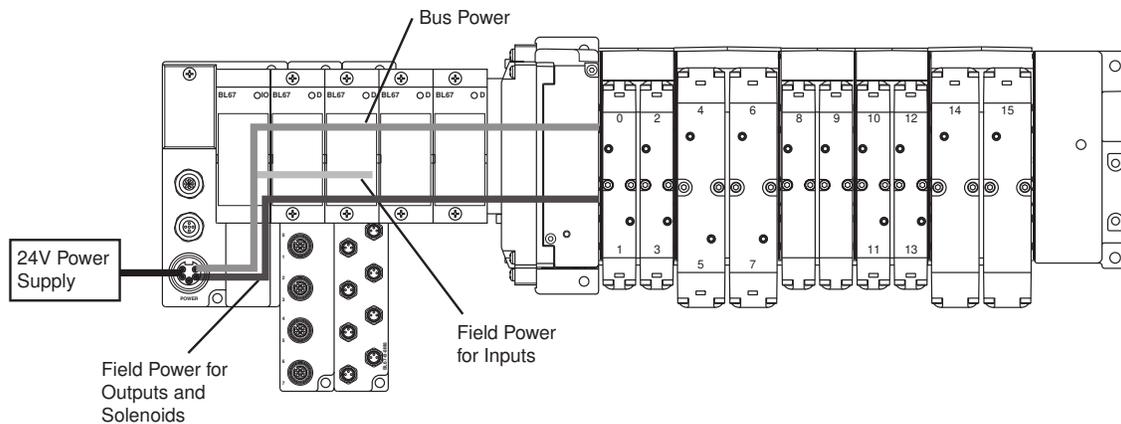
Turck Communication and I/O Modules - DeviceNet and CANopen, Power over Network

The 24VDC power supply pins from the DeviceNet or CANopen network connection on the communication module provides a single power circuit. This circuit provides 1.5 A bus power, 4 A field power for inputs and 8A field power for outputs.



Turck Communication and I/O Modules - Ethernet/IP, Modbus/TCP, Profinet, Profibus, and CANopen

An auxiliary 24VDC power supply from the communication module provides power across two separate circuits. The first circuit provides 1.5 A bus power and 4 A field power for inputs. The second circuit provides 10A field power for outputs which can be wired to an e-stop circuit to kill all outputs.



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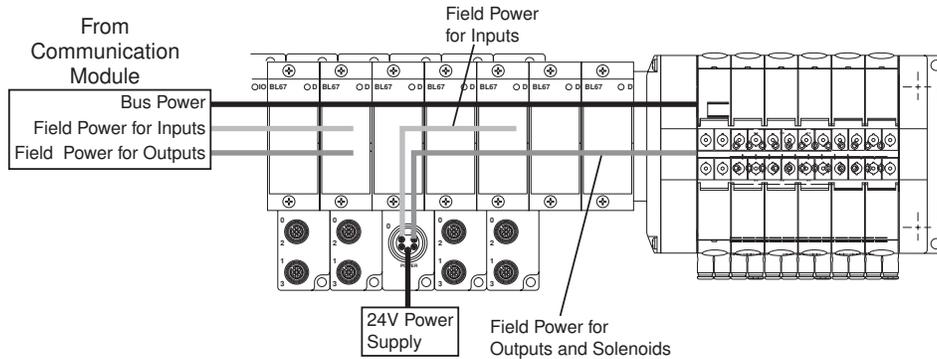


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Power Distribution Options for Turk Fieldbus (continued)

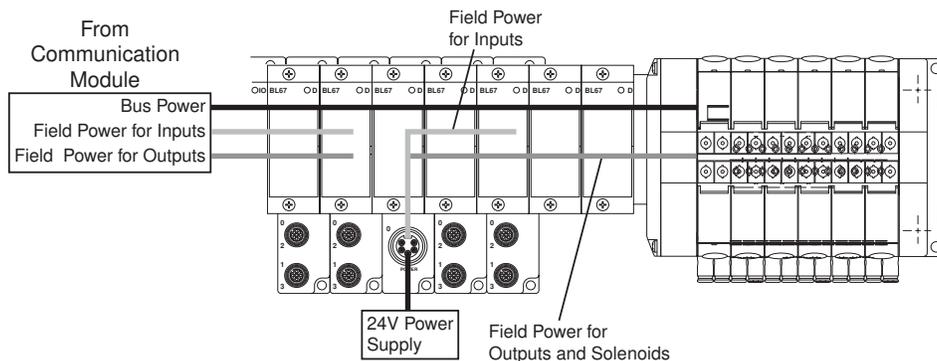
24VDC Power Extender Module (BL67-PF-24VDC) with Base Module BL67-B-1RSM

This configuration creates an auxiliary 24VDC power supply and provides power across two separate circuits, regardless of the communication module used. The first circuit provides 4 A field power for inputs. The second circuit provides 10A field power for outputs which can be wired to an e-stop circuit to kill all outputs and solenoids to the right of the module. The 1.5 A bus power is uninterrupted, and is still supplied from the communication module.



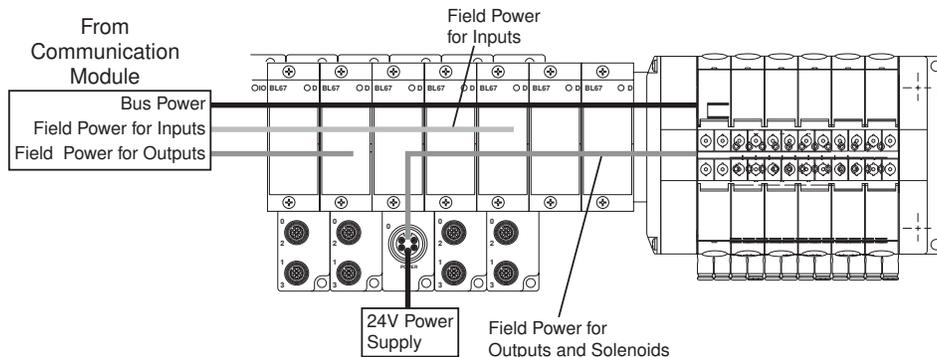
24VDC Power Extender Module (BL67-PF-24VDC) with Base Module BL67-B-1RSM-4

This configuration creates an auxiliary 24VDC power supply and provides power across one circuit, regardless of the communication module used. This circuit provides 4 A field power for inputs and 10A field power for outputs. The 1.5 A bus power is uninterrupted, and is still supplied from the communication module.



24VDC Power Extender Module (BL67-PF-24VDC) with Base Module BL67-B-1RSM-VO

This configuration creates an auxiliary 24VDC power supply and provides power across one circuit, regardless of the communication module used. This circuit provides 10A field power for outputs which can be wired to an e-stop circuit to kill all outputs and solenoids to the right of the module. The 1.5 A bus power and 4 A field power for inputs are uninterrupted, and are still supplied from the communication module.



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Modulflex Series	
H Series ISO	
Fieldbus Systems	
DX ISOMAX Series	
Valvair II Series	

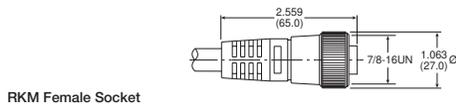


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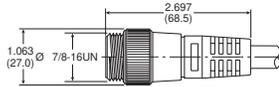
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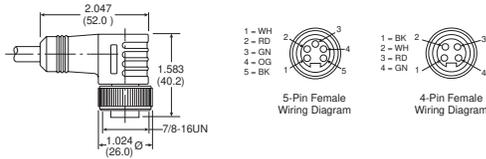
7/8" Mini Power Cables



RKM Female Socket



RSM Male Pins

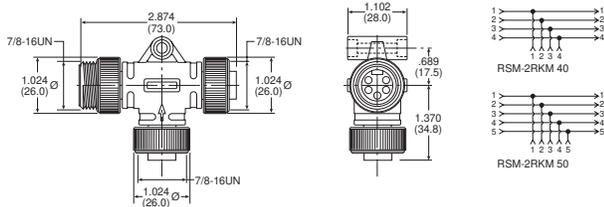


WKM Female Socket

Description	Part number
4-pin female to flying lead cable, 5 meters, TPE	RKM 46-5M/S1587
5-pin female to flying lead cable, 5 meters, TPE	RKM 56-5M/S1587
4-pin male to female cable, TPE	RSM RKM 46-x/S1587
5-pin male to female cable, TPE	RSM RKM 56-x/S1587
4-pin right angle female to flying lead cable, 5 meters, TPE	WKM 46-5M/S1587
5-pin right angle female to flying lead cable, TPE	WKM 56-5M/S1587

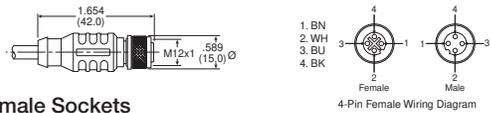
Where x = 2, 4, 5, 6, 8, 10 meter standard lengths

Power Tee

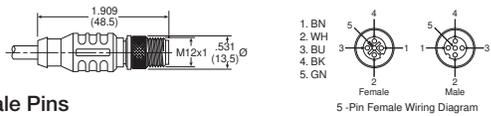


Description	Part number
4-pin Male to 2 female sockets	RSM-2RKM 40
5-pin Male to 2 female sockets	RSM-2RKM 50

M12 A-code Cables



RKC Female Sockets

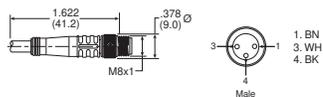
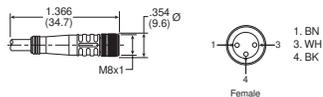


RSC Male Pins

Description	Part number
4-pin female to flying lead cable, PVC	RKC 4.4T-1
4-pin male to flying lead cable, PVC	RSC 4.4T-*
4-pin male to female cable, PVC	RKC 4.4T-*/RSC 4.4T
5-pin female to flying lead cable, TPE	RKC 4.5T-*/S1587
5-pin male to flying lead cable, TPE	RSC 4.5T-4/S1587
5-pin male to female cable, TPE	RKC 4.5T-*/RSC 4.5T/S1587

Where * = 1, 2, 3, 4 meter standard lengths

M8 Cables



Description	Part number
3-pin female to flying lead cable, PUR	PKG 3M-4/S90
3-pin male to flying lead cable, PUR	PSG 3M-*/S90
3-pin male to female cable, PUR	PKG 3M-*/PSG 3M/S90

Where * = 1, 2, 3, 4 meter standard lengths

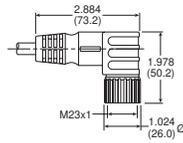
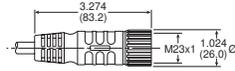
Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

D
 Subbase & Manual Valves
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 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

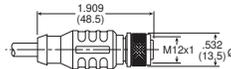
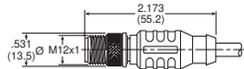
M23 Cables



Description	Part number
12-pin, double ended female thread with male pins and female socket, PUR. Pinout optimized for H Series Fieldbus.	CSCM CKCM 12-11-x/S90
19-pin, double ended female thread with male pins and female socket, PUR. Pinout optimized for H Series Fieldbus.	CSM CKM 19-19-x/S90
19-pin, 90° double ended female thread with male pins and female socket, PUR. Pinout optimized for turck fieldbus.	CSWM CKWM 19-19-x/CS12852

Where x = 1, 2, 3, 4 meter standard lengths

Profibus Cables



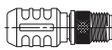
Description	Part number
M12 Male to M12 Female, PUR	RSSW RКСW 455-xM

Where x = 2, 4, 5, 6, 8, 10 meter standard lengths

RSSW Side, Male Pins

RКСW Side, Female Sockets

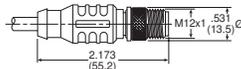
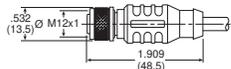
Profibus Terminating Resistor



Male Pins

Description	Part number
M12 male pin terminating resistor	P8BPA00MB

Ethernet Cables

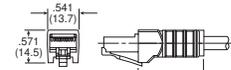


RKSD Side, Female Sockets

RSSD Side, Male Pins

Description	Part number
M12 female to M12 male, PUR	RSSD RКСD 443-xM
RJ45 to M12 male, PUR	RSSD RJ45S 443-2M

Where x = 2, 5, 10, 15, 20, 30 meter standard lengths



RJ45S Side

25-pin, D-Sub Cable (Female)

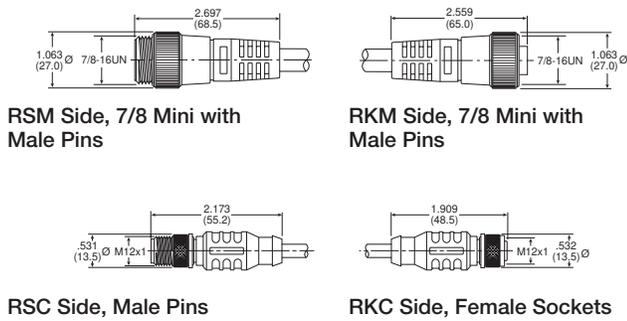
Description	Length	Part number
25-pin, D-sub cable, IP20	3 meters	P8LMH25M3A
25-pin, D-sub cable, IP20	9 meters	SCD259D
25-pin, D-sub cable, IP65	3 meters	SCD253W
25-pin, D-sub cable, IP65	9 meters	SCD259WE

Most popular.



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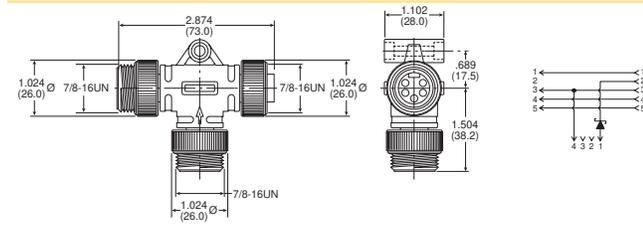
DeviceNet and CANopen Cables



Description	Part number
7/8" mini male to 7/8" mini female, PUR	RSM RKM 5711-xM
7/8" mini male to M12 female, PUR	RSM RKC 5711-xM
M12 male to M12 female, PUR	RSC RKC 5711-xM
M12 male to 7/8" mini female, PUR	RSC RKM 5711-xM

Where x = 2, 4, 5, 6, 8, 10 meter standard lengths

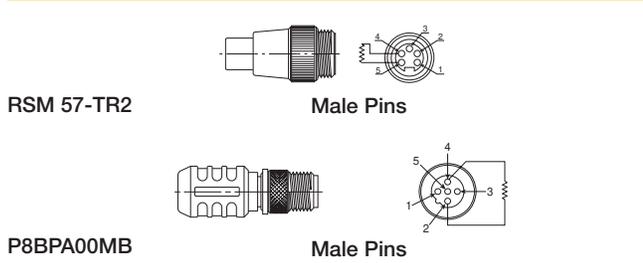
Bus Power Tee



Description	Part number
Bus power tee	RSM RKM 57 WSM 40 PST

For systems not equipped with Power over network, combines separate network and power feeds into the communication module. Includes reverse current protection

DeviceNet and CANopen Terminating Resistor



Description	Part number
7/8" Mini Male Pin Terminating Resistor	RSM 57-TR2
M12 Male Pin Terminating Resistor	P8BPA00MA

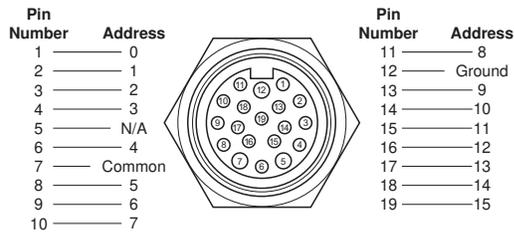
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 H Series ISO
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Most popular.



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19-Pin Round Brad Harrison



Face View - Male 19-Pin Connector

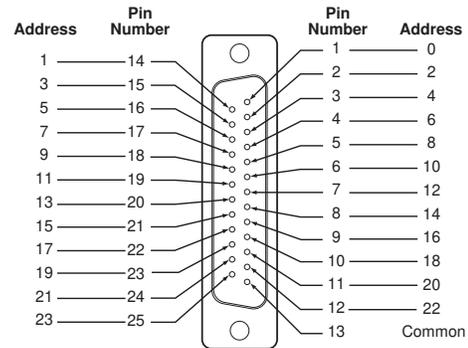
19-Pin Round Cable Specifications

Common Pin "7" is rated for 8 amps. Cable common wire must be greater than total amperage of solenoids on Add-A-Fold assembly.

Example: 8 station manifold, 16 solenoids,
 120VAC - 16 x .039 amps = .63 total amp rating.

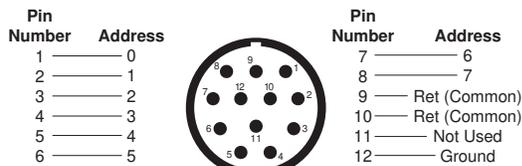
NEMA 4 rated with properly assembled NEMA 4 rated cable.

25-Pin, D-Sub Connector (Male)



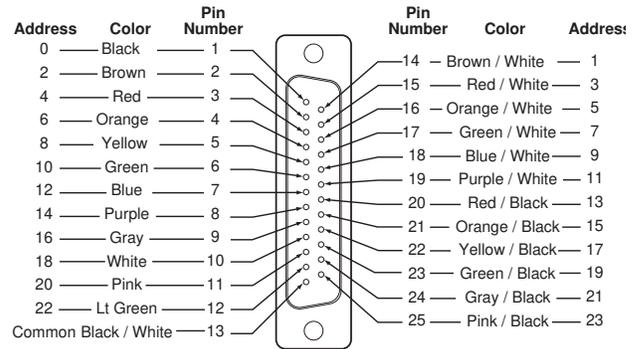
View into End Plate Connector - Male D-Sub, 25-Pin

M23, 12-Pin Round Connector (Male)

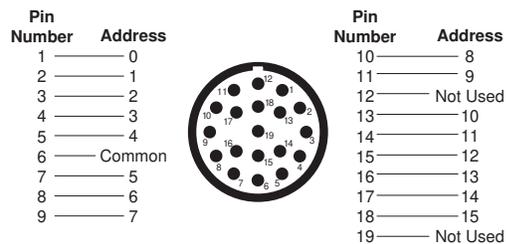


Face View - Male 19-Pin Connector

25-Pin, D-Sub Cable (Female)



M23, 19-Pin Round Connector (Male)



View into End Plate Connector - Male M23, 19-Pin

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		Modulflex					H Series Fieldbus				Turck Fieldbus					
		AS-i	CANopen	DeviceNet	Interbus	Profibus	ControlNet	DeviceNet	EtherNet	Profibus	CANopen	DeviceNet	Ethernet/IP	Modbus/TCP	Profibus	Profinet
Rockwell Automation	PLC-5™			X							X					
	SLC 500™			X							X	X				
	1756 Logix™			X							X	X				
	1769-L32C, -35CR			X			X	X	X		X	X				
	1769 CompactLogix™			X			X	X	X		X	X				
	SoftLogix5800™			X			X	X	X		X	X				
	FlexLogix™			X			X	X	X		X	X				
	1789 ControlLogix™			X			X	X	X		X	X				
Siemens	SIMATIC S7-200	X				X				X				X		
	SIMATIC S7-300	X				X				X				X		
	SIMATIC S7-400					X				X				X	X	
	SIMATIC S7-1200					X				X				X	X	
Omron	SYSMAC One			X							X					
	SYSMAC CJ1			X							X					
	SYSMAC CJ2			X							X					
	SYSMAC CP1			X							X					
	SYSMAC CS1			X							X					
	SYSMAC CQM1H			X							X					
	SYSMAC Alpha			X							X					
	SYSMAC CVM1/CV			X							X					
	SYSMAC CPM			X							X					
Schneider	Modicon Premium		X		X	X				X	X	X	X	X		
	Quantum	X			X						X	X				
	M340™	X	X							X	X	X				
	Momentum™										X	X				
Automation Direct	Productivity 3000			X							X					
	DirectLogic 05			X							X					
	DirectLogic 06			X							X					
	DirectLogic 105			X							X					
	DirectLogic 205			X							X	X	X			
	DirectLogic 305			X							X	X	X			
	DirectLogic 405			X							X	X	X			

Note: Confirm manufacturers specifications to ensure product compatibility.

D
Subbase & Manual Valves
H Series Micro
Modulflex Series
H Series ISO
Fieldbus Systems
DX ISOMAX Series
Valvair II Series



For inventory, lead times, and kit lookup, visit www.pdnplu.com

D188

Parker Hannifin Corporation
 Pneumatic Division
 Richland, Michigan
www.parker.com/pneumatics

Basic Systems

- Up to 24 solenoids per manifold
- Discretely wired solenoids - Optimized for PLCs with onboard Inputs and Outputs
- 25-Pin D-Sub, 19-Pin Brad Harrison or M23, or 12-Pin M23 connectors available.

Centralized Application

Valves Inside Control Cabinet

- Valves located near machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures

Advantages

- Highest degree of environmental protection
- One location for all control devices
- Small size requires minimal cabinet space
- Eliminates junction boxes required for valves
- Eliminates conduit runs for valves

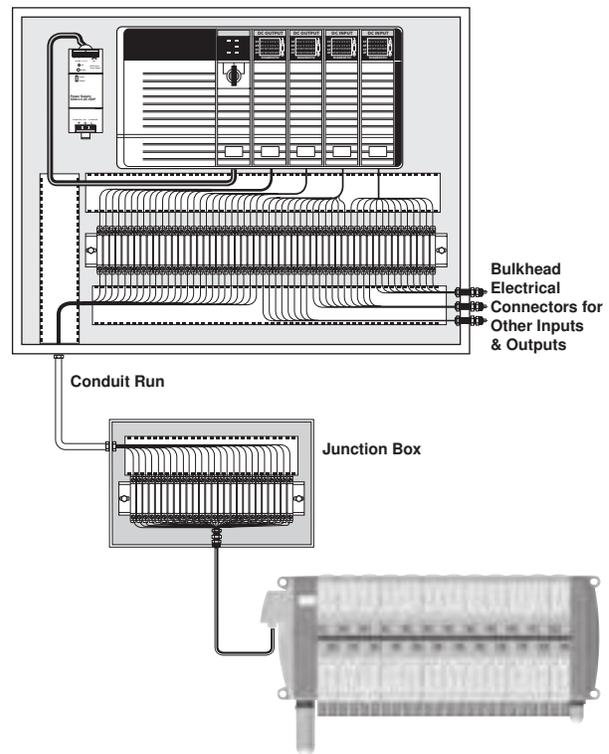
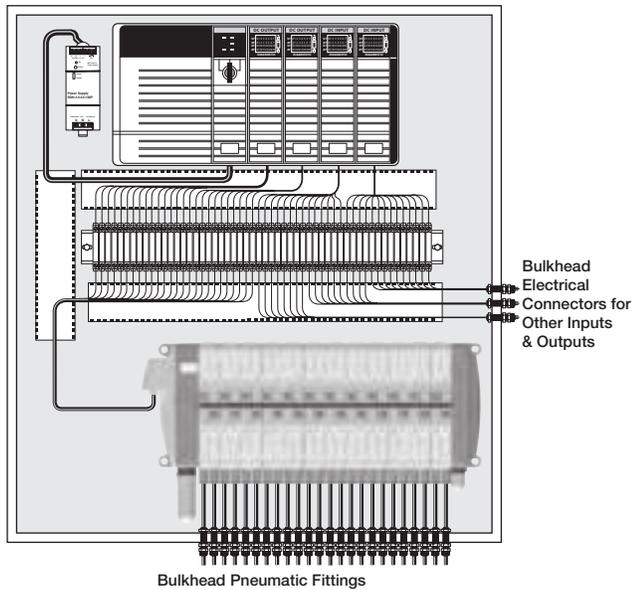
Decentralized Application

Valves Outside Control Cabinet

- Valves located near application - Ready for machine mounting
- IP65 rating suitable for dusty and wet environments

Advantages

- Reduces control cabinet size
- Reduces tubing length and improves pneumatic response time
- Eliminates pneumatic bulk fittings on control cabinet



D

Subbase & Manual Valves

H Series Micro

Moduflex Series

H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series



For inventory, lead time, and kit lookup, visit www.pdnplu.com

Basic Systems: Moduflex Fieldbus

- Up to 16 solenoids per manifold
- Fieldbus equipped manifolds – optimized for PLCs with fieldbus capability
- Routinely used on medium sized machines
- Connectivity to Moduflex, H Series Micro and H Series ISO valves.

Centralized Application

Valves Inside Control Cabinet

- Valves located near machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures
- Additional inputs and outputs are not directly attached to valve manifold

Advantages

- Highest degree of environmental protection
- One location for all control devices
- Small size requires minimal cabinet space
- Eliminates terminal strips and wire ways for valves
- Greatly reduces wiring time
- Eliminates junction boxes for valves
- Eliminates conduit runs for valves

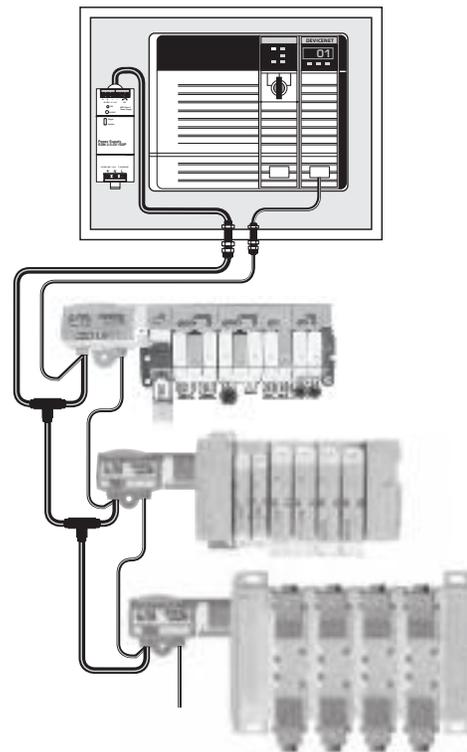
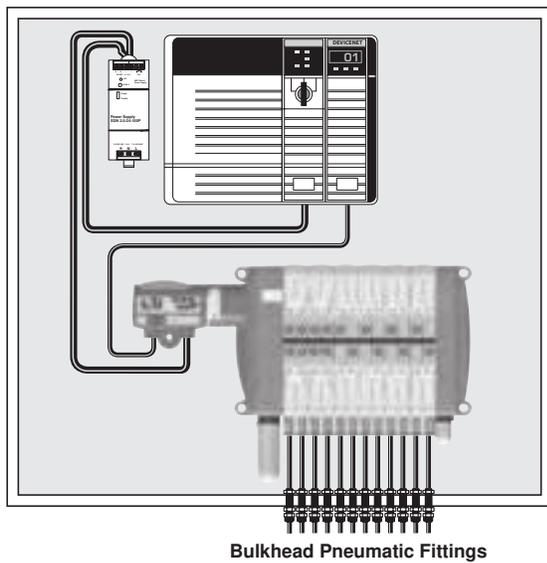
Decentralized Application

H Series Micro Outside Control Cabinet

- Valves located near application - Ready for machine mounting
- IP65 rating suitable for dusty and wet environments
- Additional inputs and outputs are not directly attached to valve manifold

Advantages

- Smallest control cabinet
- Reduces tubing length and improves pneumatic response time
- Eliminates pneumatic bulk fittings on control cabinet
- Many fieldbus nodes can be attached to the network with little incremental cost – valve manifolds, inputs, outputs and other devices.
- Eliminates terminal strips and wire ways for valves
- Greatly reduces wiring time
- Eliminates junction boxes for valves
- Eliminates conduit runs for valves



D	Subbase & Manual Valves
H Series Micro	Moduflex Series
H Series ISO	Fieldbus Systems
DX ISOMAX Series	Valvair II Series



For inventory, lead times, and kit lookup, visit www.pdnplu.com

Complete Fieldbus Systems: H Series Fieldbus System

- Up to 32 Solenoids per Manifold
- With H Series Micro Bus Extension Functionality, 4 Manifolds with up to 32 Solenoids each can be connected on the same Node
- Add Inputs and Outputs to the H Series Fieldbus Network
- Fieldbus equipped Manifolds – optimized for PLC’s with Fieldbus capability
- Connectivity to H Series Micro and H Series ISO valves

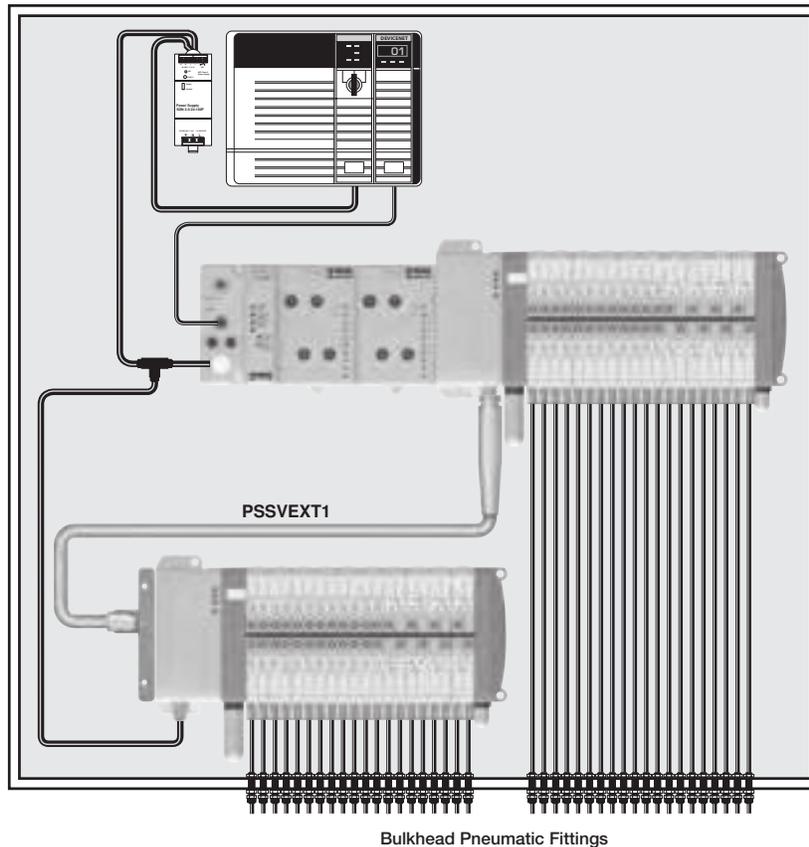
Centralized Application

Valves Inside Control Cabinet

- H Series Fieldbus System with Inputs and Outputs
- Valves located near machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures
- Additional inputs and outputs are directly attached to valve manifold

Advantages

- Handle All I/O from One Node
- Eliminate PLC Input / Output Cards
- Up to 128 Solenoids per Node with Bus Extension Cables
- Up to 256 Inputs and 256 Outputs per H Series Fieldbus Node
- Analog Inputs / Outputs available
- Highest degree of environmental protection
- One location for all control devices
- Eliminates terminal strips and wire ways
- Greatly reduces wiring time



D	Subbase & Manual Valves
H Series Micro	Moduflex Series
H Series ISO	Fieldbus Systems
DX ISOMAX Series	Valvair II Series



For inventory, lead time, and kit lookup, visit www.pdnplu.com

Complete Fieldbus Systems: H Series Fieldbus System

- Up to 32 Solenoids per Manifold
- With H Series Micro Bus Extension Functionality, 4 Manifolds with up to 32 Solenoids each can be connected on the same Node
- Add Inputs and Outputs to the H Series Fieldbus Network
- Fieldbus equipped Manifolds – optimized for PLC's with Fieldbus capability
- Connectivity to H Series Micro and H Series ISO valves

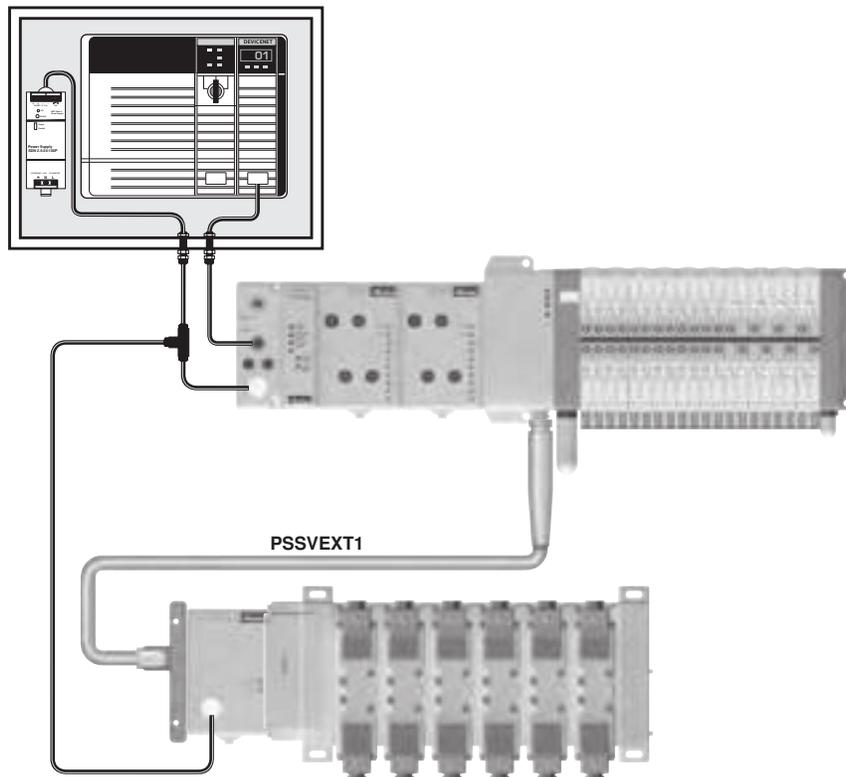
Decentralized Application

Valves Outside Control Cabinet

- H Series Fieldbus System with Inputs and Outputs
- Valves located near application - Ready for machine mounting
- IP65 rating suitable for dusty and wet environments
- Additional inputs and outputs are directly attached to valve manifold

Advantages

- Handle All I/O from One Node
- Eliminate PLC Input / Output Cards
- Up to 128 Solenoids per Node with Bus Extension Cables
- Up to 256 Inputs and 256 Outputs per H Series Fieldbus Nodes
- Analog Inputs / Outputs available
- Smallest control cabinet
- Reduces tubing length and improves pneumatic response time
- Eliminates pneumatic bulk fittings on control cabinet
- Many fieldbus nodes can be attached to the network with little incremental cost – valve manifolds, inputs, outputs and other devices.
- Eliminates terminal strips and wire ways
- Greatly reduces wiring time
- Eliminates junction boxes for all inputs and outputs
- Eliminates conduit runs for all inputs and outputs



D	Subbase & Manual
Valves	
H Series Micro	
Modulflex Series	
H Series ISO	
Fieldbus Systems	
DX ISOMAX Series	
Valvair II Series	



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Complete Fieldbus Systems: Turck Fieldbus System

General Product Features

- Turck Fieldbus System with up to 256 inputs / outputs and 32 Solenoids per manifold
- Digital inputs / outputs, analog inputs / outputs, serial interface, counter modules, and RFID modules available
- Connectivity to H Series Micro and H Series ISO valves system

Advantages

- Handle all I/O from one node; eliminate PLC input / output cards
- Fieldbus equipped manifolds – optimized for PLC's with fieldbus capability
- Eliminates junction boxes, terminal strips, and conduit runs for all inputs and outputs, greatly reducing wiring time

Centralized Application

Valves Inside Control Cabinet

- Valves located near machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures

Advantages

- Highest degree of environmental protection
- One location for all control devices
- Small size requires minimal cabinet space

Decentralized Application

Valves Outside Control Cabinet

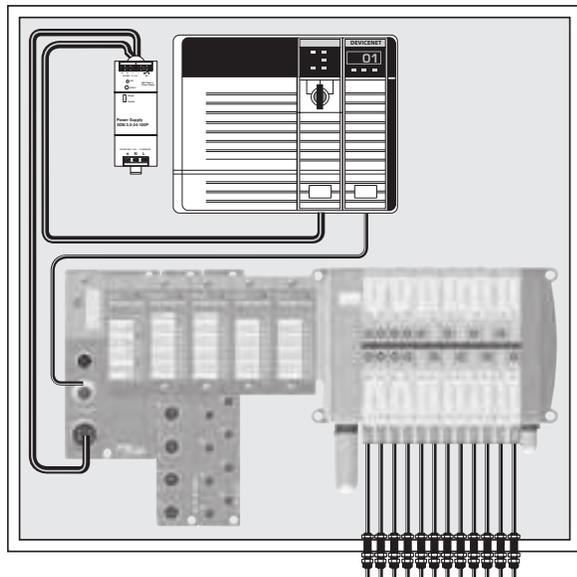
- Valves located near application - ready for machine mounting
- IP65 rating suitable for dusty and wet environments

Advantages

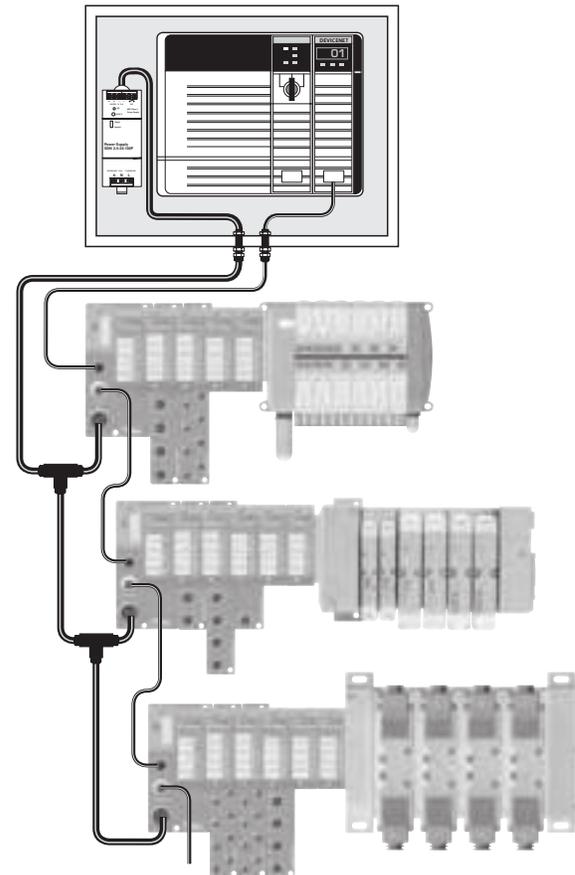
- Smallest control cabinet
- Reduces tubing length and improves response time
- Eliminates pneumatic bulk fittings on control cabinet



Modbus/TCP™
CANopen



Bulkhead Pneumatic Fittings



Complete Fieldbus Systems: Turck Fieldbus System with CANopen Expansion

General Product Features

- Turck Fieldbus System with up to 256 inputs / outputs and 32 Solenoids per manifold
- Digital inputs / outputs, analog inputs / outputs, serial interface, counter modules, and RFID modules available
- Connectivity to H Series Micro and H Series ISO valves

CANopen Expansion Features

- Using a CANopen Interface module, a CANopen subnet is created within the BL67 network, controlling an additional 64 inputs, outputs, or solenoids.
- The CANopen subnet is independent of the main fieldbus network, and is not visible to the master PLC.
- Additional Moduflex CANopen modules can be attached to the CANopen subnet to provide a connection for 16 solenoids each.
- Other 3rd party CANopen devices can also be used on this network, within the 64 bit CANopen Expansion limit.

System Advantages

- Handle all I/O from one node; eliminate PLC input / output cards
- Fieldbus equipped manifolds – optimized for PLC’s with fieldbus capability
- Several CANopen fieldbus nodes can be attached to the network – valve manifolds, inputs, outputs or other devices
- CANopen expansion allows additional devices to be attached to the system without a CANopen scanner card
- Eliminates junction boxes, terminal strips, and conduit runs for all inputs and outputs, greatly reducing wiring time

Centralized Application

Valves Inside Control Cabinet

- Valves located near machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures

Advantages

- Highest degree of environmental protection
- One location for all control devices
- Small size requires minimal cabinet space

Decentralized Application

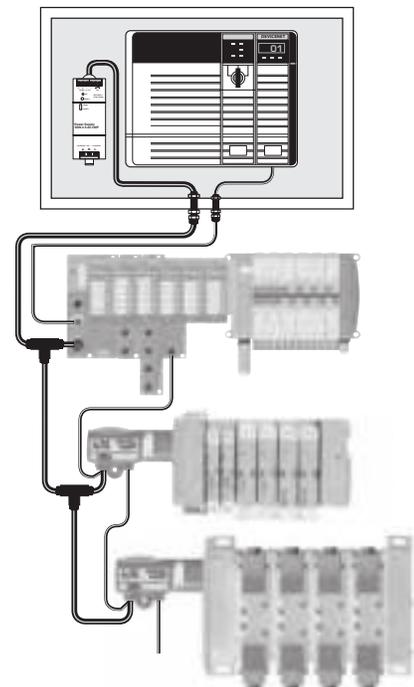
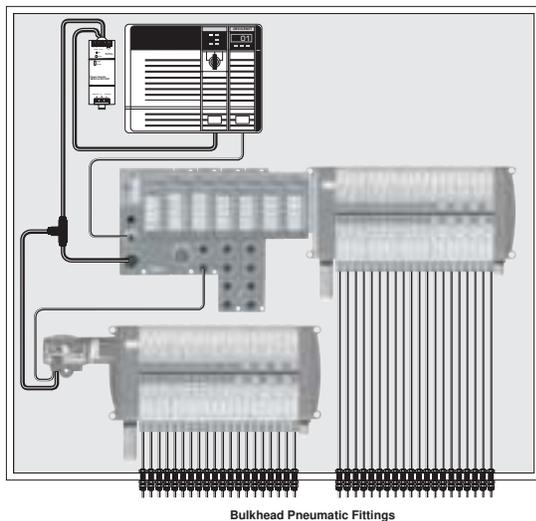
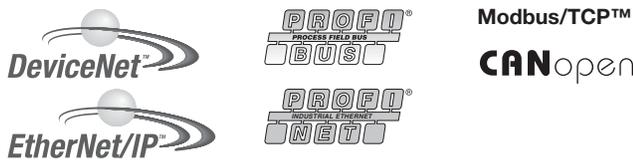
Valves Outside Control Cabinet

- Valves located near application - ready for machine mounting
- IP65 rating suitable for dusty and wet environments

Advantages

- Smallest control cabinet
- Reduces tubing length and improves response time
- Eliminates pneumatic bulk fittings on control cabinet

D
 Subbase & Manual Valves
 H Series Micro
 Moduflex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series



For inventory, lead times, and kit lookup, visit www.pdnplu.com

Complete Fieldbus Systems: Turck Fieldbus System with BL Remote DeviceNet Subnet

General Product Features

- Turck Fieldbus System with up to 256 inputs / outputs and 32 Solenoids per manifold
- Digital inputs / outputs, analog inputs / outputs, serial interface, counter modules, and RFID modules available
- Connectivity to H Series Micro and H Series ISO valves

BL Remote DeviceNet Subnet Features

- With BL Remote DeviceNet Subnet functionality, each communication module has its own DeviceNet master which provides a connection for 63 DeviceNet nodes with additional inputs, outputs, and solenoid control
- BL Remote DeviceNet Subnet is independent of the main fieldbus network, and is not visible to the master PLC
- Moduflex DeviceNet modules can be attached to the subnet to provide a connection for 16 solenoids each
- Turck DeviceNet modules can be attached to the subnet to provide a connection for 16 or 32 solenoids each and inputs and outputs up to the 256 input and output limitation

System Advantages

- Handle all I/O from one node; eliminate PLC input / output cards
- Fieldbus equipped manifolds – optimized for PLC’s with fieldbus capability
- Many DeviceNet nodes can be attached to the network – valve manifolds, inputs, outputs or other devices
- Eliminates junction boxes, terminal strips, and conduit runs for all inputs and outputs, greatly reducing wiring time

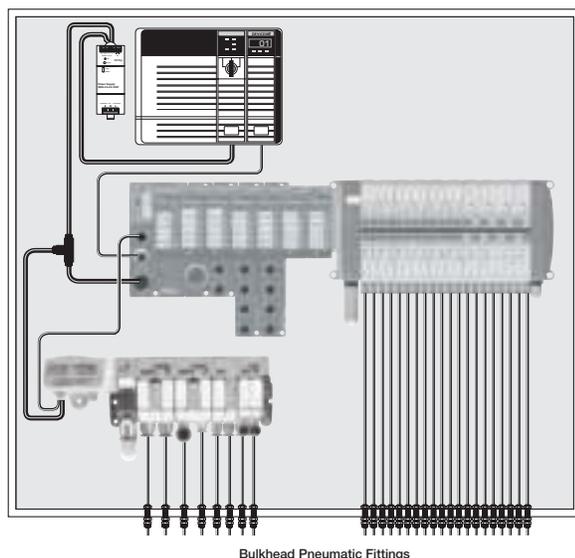
Centralized Application

Valves Inside Control Cabinet

- Valves located near machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures

Advantages

- Highest degree of environmental protection
- One location for all control devices
- Small size requires minimal cabinet space



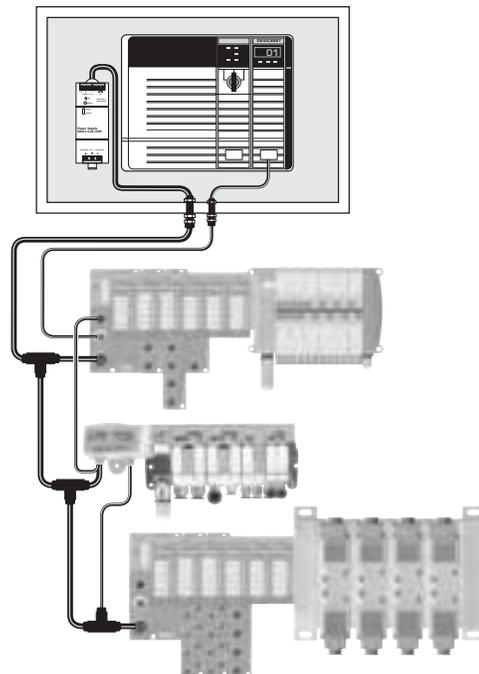
Decentralized Application

Valves Outside Control Cabinet

- Valves located near application, ready for machine mounting
- IP65 rating suitable for dusty and wet environments

Advantages

- Smallest control cabinet
- Reduces tubing length and improves response time
- Eliminates pneumatic bulk fittings on control cabinet



For inventory, lead time, and kit lookup, visit www.pdnplu.com

Complete Fieldbus Systems: Turck Fieldbus System with Stand Alone Control

General Product Features

- Turck Fieldbus System with up to 256 inputs / outputs and 32 Solenoids per manifold
- Digital inputs / outputs, analog inputs / outputs, serial interface, counter modules, and RFID modules available
- Connectivity to H Series Micro and H Series ISO valves

Stand Alone Control Features

- Communication modules equipped with standalone control – programmed according to IEC61131-3 with CoDeSys
- 512KB Program memory with 32 bit RISC processor
- Run 1000 instructions in less than 1 ms
- Fieldbus equipped manifolds – optimized for PLC's with fieldbus capability or standalone controllers that need to interface with other devices

System Advantages

- Handle all I/O and control with one system; eliminate the PLC when used as the main controller for smaller machines
- Reduces programming and bandwidth requirements on large machines with a master PLC controller by handling local I/O and interfacing with the PLC over the fieldbus network
- Fieldbus equipped manifolds provide connectivity to other fieldbus devices
- Eliminates junction boxes, terminal strips, and conduit runs for all inputs and outputs, greatly reducing wiring time

Centralized Application Valves

Inside Control Cabinet

- Valves attached to the machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures

Advantages

- Highest degree of environmental protection
- One location for all control devices

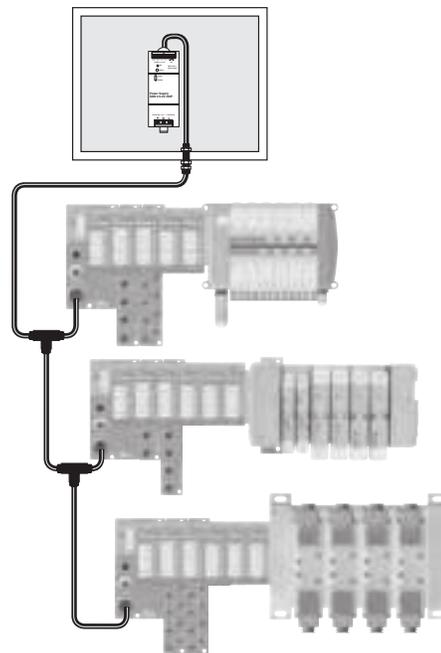
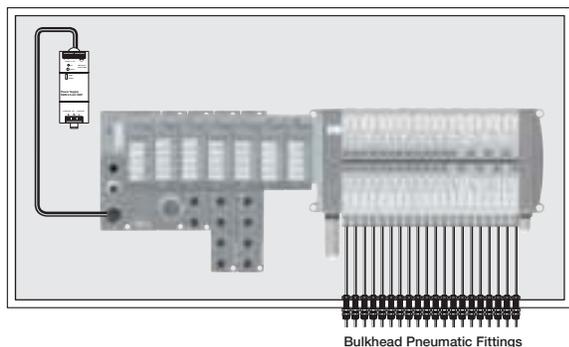
Decentralized Application

Valves Outside Control Cabinet

- Valves and machine control located near application, ready for machine mounting
- IP65 rating suitable for dusty and wet environments

Advantages

- No control cabinet needed when used as the main controller
- Reduces tubing length and improves response time
- Eliminates pneumatic bulk fittings on control cabinet

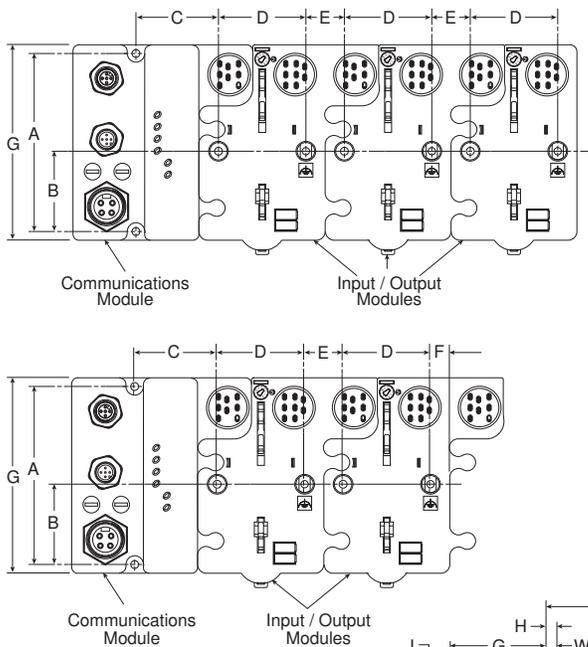


D
Subbase & Manual Valves
H Series Micro
Moduteflex Series
H Series ISO
Fieldbus Systems
DX ISOMAX Series
Valvair II Series



For inventory, lead times, and kit lookup, visit www.pdnplu.com

H Series Fieldbus with H Series ISO Valves



Dimensions

A	B	C	D
4.00 (102)	1.80 (46)	1.90 (48)	2.00 (50)
E	F	G	
.87 (22)	.43 (11)	4.41 (112)	

Inches (mm)

HB - HA Dimensions

G	H	H ₁	J	K
2.68 (68)	.33 (8.4)	1.80 (45.8)	.15 (4)	4.32 (110)
L	M	P	W	W ₁
.63 (16)	5.39 (137)	5.98 (152)	1.61 (40.8)	2.24 (56.8)

Inches (mm)

H1 Dimensions

G	H	J	K	P
2.20 (56)	.63 (15.9)	.33 (8.5)	6.50 (165)	7.17 (182)

W
1.93
(49)

Inches (mm)

H2 Dimensions

G	H	J	K	P
2.28 (58)	.63 (16)	.47 (12)	8.46 (215)	9.41 (239)

W
2.20
(56)

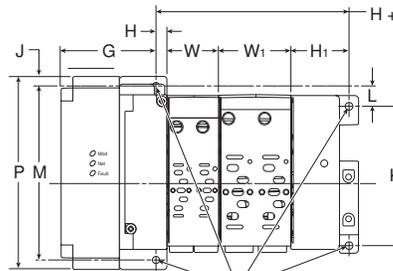
Inches (mm)

H3 Dimensions

G	H	J	K	P
2.52 (64)	.65 (16.5)	.59 (15)	10.43 (265)	11.61 (295)

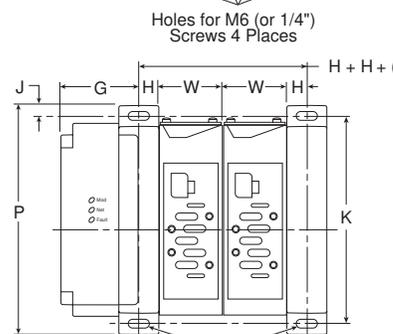
W
2.80
(71)

Inches (mm)



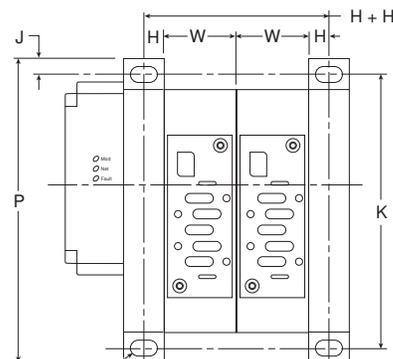
$H + H_1 + (W \times n + W_1 \times n_1)$
 n = Number of 18mm HB Bases
 n₁ = Number of 26mm HA Bases
 W = Width of 18mm HB Bases
 W₁ = Width of 26mm HA Bases

HB - HA Manifold Assembly



$H + H_1 + (W \times n)$
 n = Number of H1 Bases
 W = Width of H1 Bases

H1 Manifold Assembly



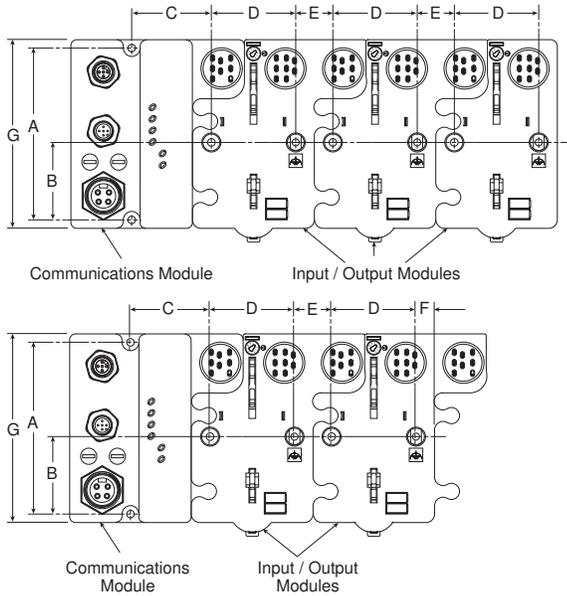
$H + H_1 + (W \times n)$
 n = Number of H2 / H3 Bases
 W = Width of H2 / H3 Bases

H2 - H3 Manifold Assembly



For inventory, lead time, and kit lookup, visit www.pdnplu.com

H Series Fieldbus with H Series ISO Valves



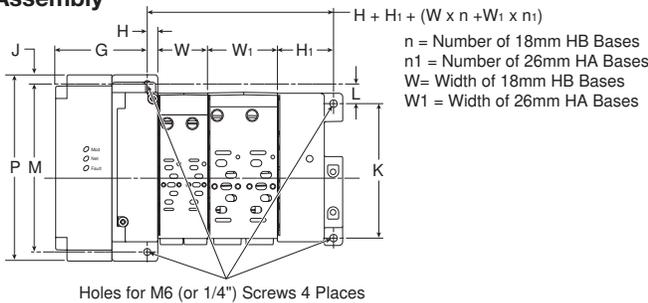
A	B	C	D
4.00 (102)	1.80 (46)	1.90 (48)	2.00 (50)

E	F	G
.87 (22)	.43 (11)	4.41 (112)

Inches (mm)

D Subbase & Manual Valves H Series Micro Series Modulflex Series H Series ISO Series Fieldbus Systems DX ISOMAX Series Valvair II Series

HB - HA Manifold Assembly



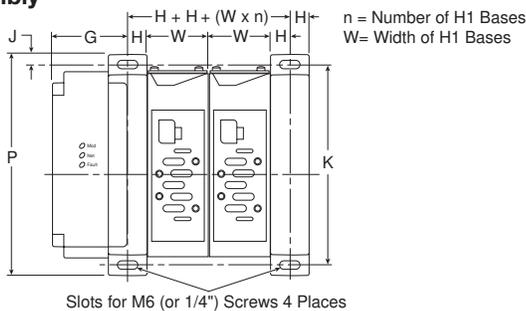
HB - HA Dimensions

G	H	H₁	J	K
2.68 (68)	.33 (8.4)	1.80 (45.8)	.15 (4)	4.32 (110)

L	M	P	W	W₁
.63 (16)	5.39 (137)	5.98 (152)	1.61 (40.8)	2.24 (56.8)

Inches (mm)

H1 Manifold Assembly



H1 Dimensions

G	H	J	K	P
2.20 (56)	.63 (15.9)	.33 (8.5)	6.50 (165)	7.17 (182)

W
1.93 (49)

Inches (mm)

H2 Dimensions

G	H	J	K	P
2.34 (59.5)	.65 (16.5)	.47 (12)	8.46 (215)	9.41 (239)

W
2.20 (56)

Inches (mm)

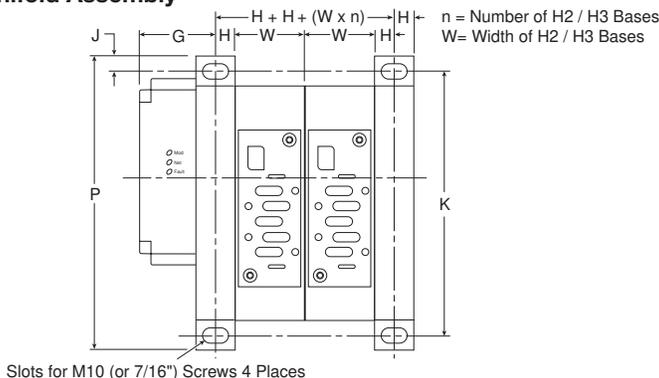
H3 Dimensions

G	H	J	K	P
2.34 (59.5)	.65 (16.5)	.59 (15)	10.43 (265)	11.61 (295)

W
2.80 (71)

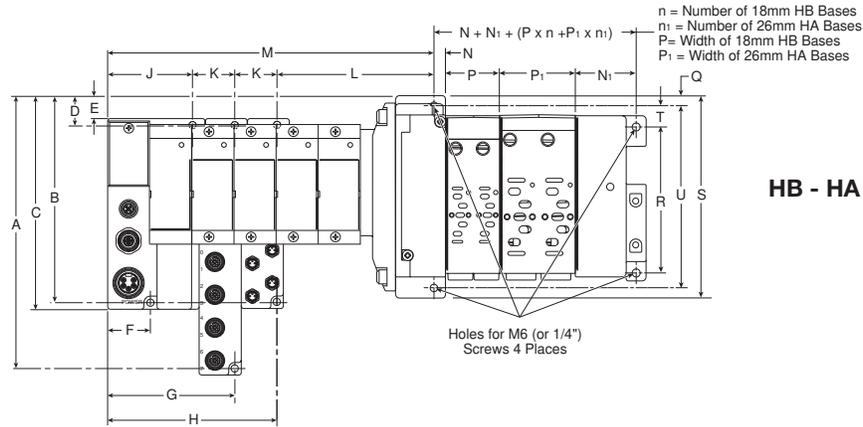
Inches (mm)

H2 - H3 Manifold Assembly

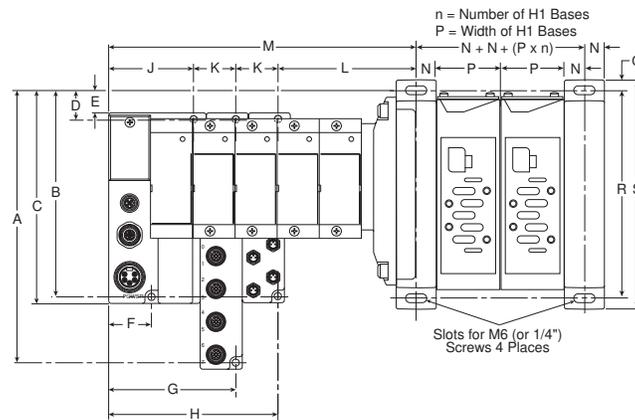


For inventory, lead times, and kit lookup, visit www.pdnplu.com

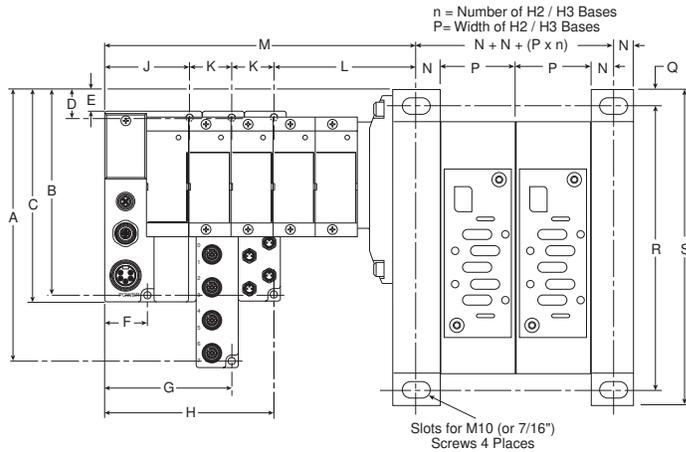
Turck with H Series ISO Valves



HB - HA Manifold Assembly



H1 Manifold Assembly



H2 - H3 Manifold Assembly

	A	B	C	D	E	F	G	H	J	K	L	M	N	N ₁	P	P ₁	Q	R	S	T	U
HA / HB	8.05 (204.5)	6.08 (154.5)	6.28 (159.5)	0.75 (19.5)	0.57 (14.5)	1.28 (32.5)	3.79 (96.5)	5.06 (128.5)	2.53 (64.5)	1.26 (32)	4.75 (120.8)	See note 1	.33 (8.4)	1.80 (45.8)	1.61 (40.8)	2.24 (56.8)	.15 (4)	4.32 (110)	5.98 (152)	.63 (16)	5.39 (137)
H1	8.53 (216.7)	6.56 (166.7)	6.76 (171.7)	1.25 (31.7)	1.05 (26.7)	1.28 (32.5)	3.79 (96.5)	5.06 (128.5)	2.53 (64.5)	1.26 (32)	4.27 (108.5)	See note 1	.63 (15.9)	—	1.93 (49)	—	.33 (8.5)	6.50 (165)	7.17 (182)	—	—
H2	8.38 (212.9)	6.41 (162.9)	6.61 (167.9)	1.10 (27.9)	.90 (22.9)	1.28 (32.5)	3.79 (96.5)	5.06 (128.5)	2.53 (64.5)	1.26 (32)	4.34 (110)	See note 1	.65 (16.5)	—	2.20 (56)	—	.47 (12)	8.46 (215)	9.41 (239)	—	—
H3	8.62 (218.9)	6.65 (168.9)	6.85 (173.9)	1.33 (33.9)	1.14 (28.9)	1.28 (32.5)	3.79 (96.5)	5.06 (128.5)	2.53 (64.5)	1.26 (32)	4.34 (110)	See note 1	.65 (16.5)	—	2.80 (71)	—	.59 (15)	10.43 (265)	11.61 (295)	—	—

Note 1: $M = J + L + n_2 \times K$, where n_2 = Number of Turck input / output modules
 Inches (mm)



For inventory, lead time, and kit lookup, visit www.pdnplu.com

D199

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D

Subbase & Manual Valves

H Series Micro

Modulflex Series

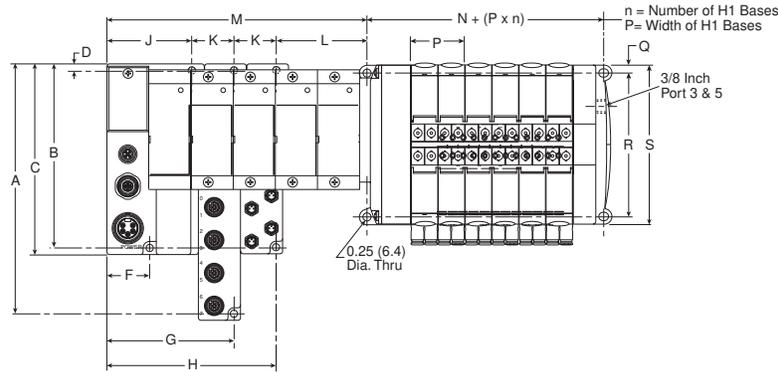
H Series ISO

Fieldbus Systems

DX ISOMAX Series

Valvair II Series

Turk with H Series Micro Valves

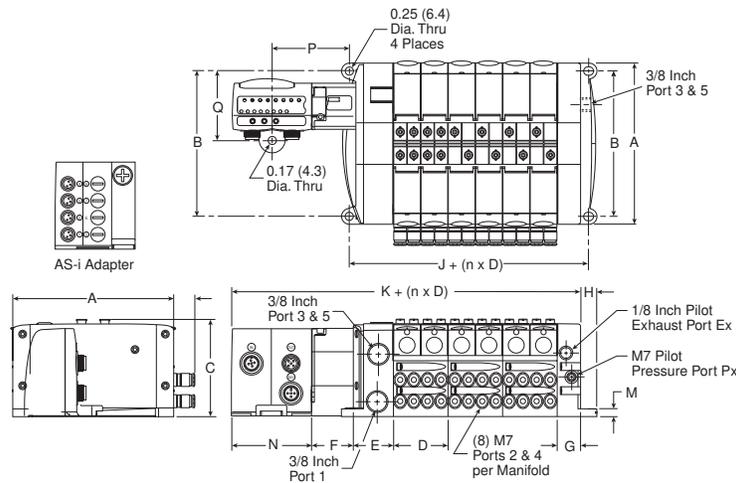


A	B	C	D	F	G	H	J	K	L	M	N	P	Q	R	S
7.48	5.51	5.71	0.20	1.28	3.79	5.06	2.53	1.26	2.54	See note 1	2.28	1.65	.19	4.41	4.88
(190)	(140)	(145)	(5)	(32.5)	(96.5)	(128.5)	(64.5)	(32)	(64)		(58)	(42)	(4.9)	(112)	(124)

Note 1: $M = J + L + n_2 \times K$, where n_2 = Number of Turk input / output modules
 Inches (mm)

D
 Subbase & Manual Valves
 H Series Micro
 Moduflex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series

Moduflex Adapter, Side Ported



A	B	C	D	E	F	G	H	J	K	M	N	P	Q
4.88	4.41	2.95	1.65	1.22	1.28	0.71	0.49	2.28	6.10	0.24	2.40	2.36	2.07
(124.0)	(112.0)	(75.0)	(42.0)	(31.0)	(32.5)	(18.0)	(12.5)	(58.0)	(155.0)	(6.1)	(61.0)	(60.0)	(52.5)

Inches (mm)

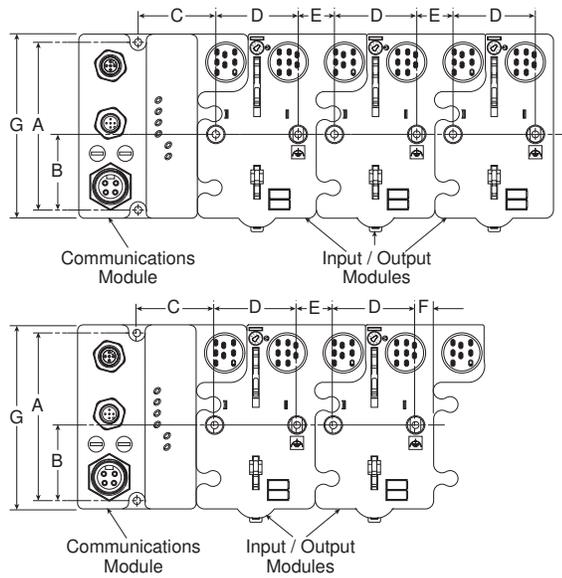


For inventory, lead times, and kit lookup, visit www.pdnplu.com

D200

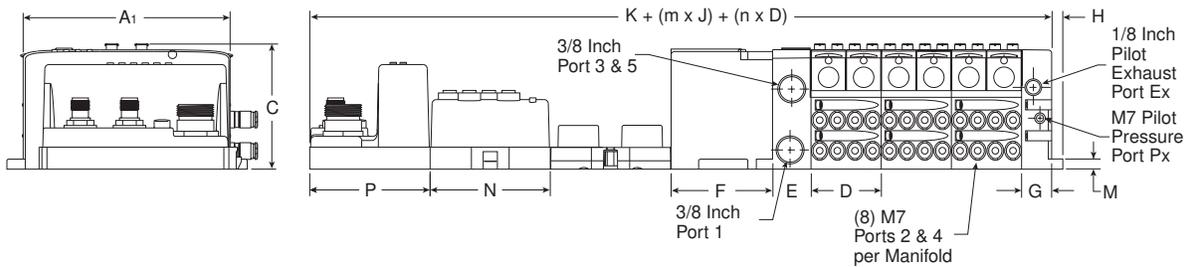
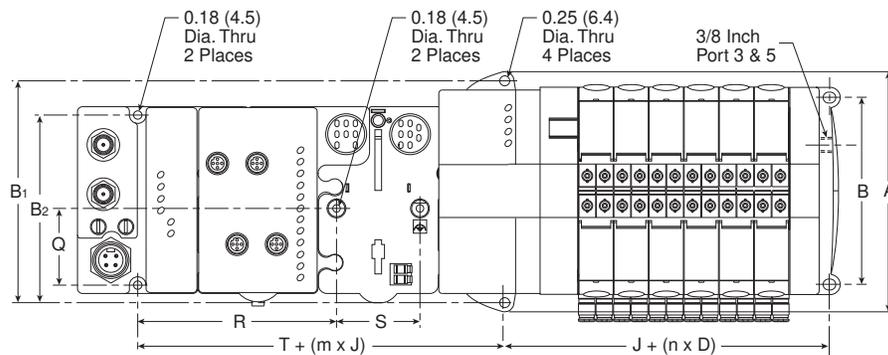
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 Richland, Michigan
www.parker.com/pneumatics

H Series Fieldbus with H Series Micro Valves



A	B	C	D
4.00 (102)	1.80 (46)	1.90 (48)	2.00 (50)
E	F	G	
.87 (22)	.43 (11)	4.41 (112)	

Inches (mm)



A	A1	B	B1	B2	C	D	E	F	G
5.67 (144.0)	4.88 (124.0)	4.41 (112.0)	5.24 (133.0)	4.02 (102.0)	2.95 (75.0)	1.65 (42.0)	0.91 (23.0)	2.40 (61.0)	0.71 (18.0)
H	J	K	M	N	P	Q	R	S	T
0.49 (12.5)	2.72 (69.0)	7.32 (186.0)	0.24 (6.1)	2.83 (72.0)	2.83 (72.0)	1.81 (46.0)	4.72 (120.0)	2.01 (51.0)	2.01 (51.0)

Inches (mm)

n = Number of Manifolds
 m = Number of Modules



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D

Subbase & Manual Valves

H Series Micro

Modulflex Series

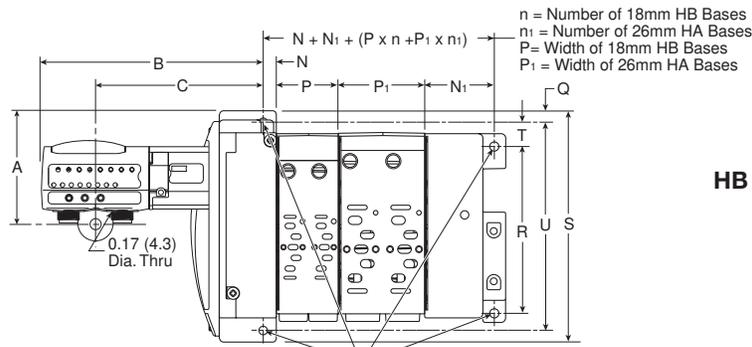
H Series ISO

Fieldbus Systems

DX ISOMAX Series

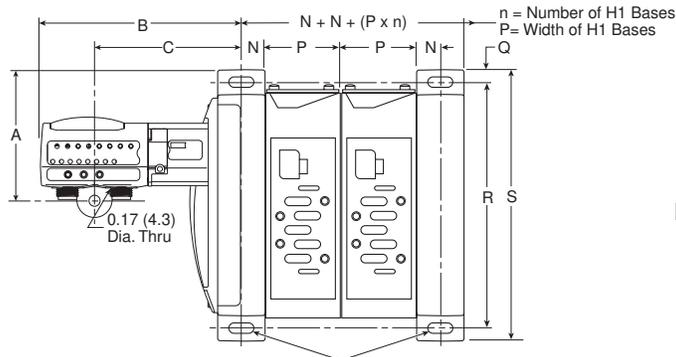
Valvair II Series

Moduflex with H Series ISO Valves



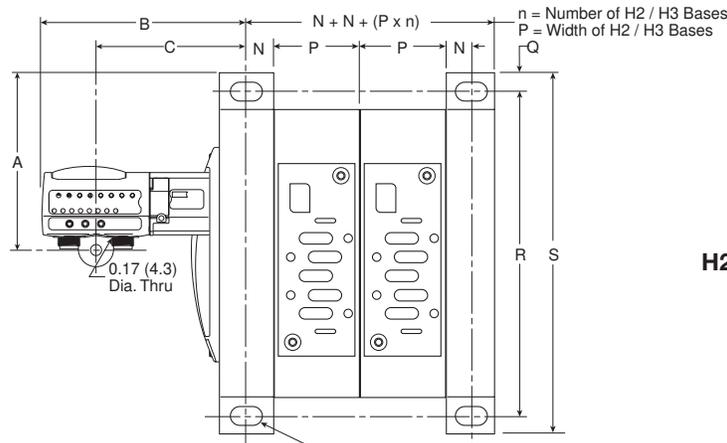
HB - HA Manifold Assembly

Holes for M6 (or 1/4")
 Screws 4 Places



H1 Manifold Assembly

Slots for M6 (or 1/4")
 Screws 4 Places



H2 - H3 Manifold Assembly

Slots for M10 (or 7/16")
 Screws 4 Places

	A	B	C	N	N ₁	P	P ₁	Q	R	S	T	U
HA / HB	2.75 (69.8)	5.61 (142.5)	4.40 (111.8)	.33 (8.4)	1.80 (45.8)	1.61 (40.8)	2.24 (56.8)	.15 (4)	4.32 (110)	5.98 (152)	.63 (16)	5.39 (137)
H1	3.23 (82)	6.33 (160.9)	5.13 (130.2)	.63 (15.9)	—	1.93 (49)	—	.33 (8.5)	6.50 (165)	7.17 (182)	—	—
H2	3.08 (78.2)	6.40 (161.5)	5.19 (131.8)	.65 (16.5)	—	2.20 (56)	—	.47 (12)	8.46 (215)	9.41 (239)	—	—
H3	3.31 (84.2)	6.40 (161.5)	5.19 (131.8)	.65 (16.5)	—	2.80 (71)	—	.59 (15)	10.43 (265)	11.61 (295)	—	—

Inches (mm)

D
 Subbase & Manual Valves
 H Series Micro
 Moduflex Series
 H Series ISO
 Fieldbus Systems
 DX ISOMAX Series
 Valvair II Series



For inventory, lead times, and kit lookup, visit www.pdnplu.com

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 Richland, Michigan
www.parker.com/pneumatics

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, ketones, 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.

Part Number
Index

Safety
Guide

Offer of
Sale

Part Number Index,
Safety Guide, Offer of Sale



For inventory, lead time, and kit lookup, visit www.pdnplu.com

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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 4.9.

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.



PARKER-HANNIFIN CORPORATION
OFFER OF SALE

1. **Definitions.** As used herein, the following terms have the meanings indicated.

Buyer:	means any customer receiving a Quote for Products from Seller.
Goods:	means any tangible part, system or component to be supplied by the Seller.
Products:	means the Goods, Services and/or Software as described in a Quote provided by the Seller.
Quote:	means the offer or proposal made by Seller to Buyer for the supply of Products.
Seller:	means Parker-Hannifin Corporation, including all divisions and businesses thereof.
Services:	means any services to be supplied by the Seller.
Software:	means any software related to the Products, whether embedded or separately downloaded.
Terms:	means the terms and conditions of this Offer of Sale or any newer version of the same as published by Seller electronically at www.parker.com/saleterms .

2. **Terms.** All sales of Products by Seller are contingent upon, and will be governed by, these Terms and, these Terms are incorporated into any Quote provided by Seller to any Buyer. Buyer's order for any Products whether communicated to Seller verbally, in writing, by electronic data interface or other electronic commerce, shall constitute acceptance of these Terms. Seller objects to any contrary or additional terms or conditions of Buyer. Reference in Seller's order acknowledgement to Buyer's purchase order or purchase order number shall in no way constitute an acceptance of any of Buyer's terms of purchase. No modification to these Terms will be binding on Seller unless agreed to in writing and signed by an authorized representative of Seller.

3. **Price; Payment.** The Products set forth in Seller's Quote are offered for sale at the prices indicated in Seller's Quote. Unless otherwise specifically stated in Seller's Quote, prices are valid for thirty (30) days and do not include any sales, use, or other taxes or duties. Seller reserves the right to modify prices at any time to adjust for any raw material price fluctuations. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2010). All sales are contingent upon credit approval and payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified in the Quote). Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law.

4. **Shipment; Delivery; Title and Risk of Loss.** All delivery dates are approximate. Seller is not responsible for damages resulting from any delay. Regardless of the manner of shipment, delivery occurs and title and risk of loss or damage pass to Buyer, upon placement of the Products with the shipment carrier at Seller's facility. Unless otherwise agreed, Seller may exercise its judgment in choosing the carrier and means of delivery. No deferment of shipment at Buyer's request beyond the respective indicated shipping date will be made except on terms that will indemnify, defend and hold Seller harmless against all loss and additional expense. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions.

5. **Warranty.** The warranty related to the Products is as follows: (i) Goods are warranted against defects in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of use, whichever occurs first; (ii) Services shall be performed in accordance with generally accepted practices and using the degree of care and skill that is ordinarily exercised and customary in the field to which the Services pertain and are warranted for a period of six (6) months from the completion of the Services by Seller; and (iii) Software is only warranted to perform in accordance with applicable specifications provided by Seller to Buyer for ninety (90) days from the date of delivery or, when downloaded by a Buyer or end-user, from the date of the initial download. All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer:

DISCLAIMER OF WARRANTY: THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY PERTAINING TO PRODUCTS. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING DESIGN, NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE SOFTWARE IS ERROR-FREE OR FAULT-TOLERANT, OR THAT BUYER'S USE THEREOF WILL BE SECURE OR UNINTERRUPTED. BUYER AGREES AND ACKNOWLEDGES THAT UNLESS OTHERWISE AUTHORIZED IN WRITING BY SELLER THE SOFTWARE SHALL NOT BE USED IN CONNECTION WITH HAZARDOUS OR HIGH RISK ACTIVITIES OR ENVIRONMENTS. EXCEPT AS EXPRESSLY STATED HEREIN, ALL PRODUCTS ARE PROVIDED "AS IS".

6. **Claims; Commencement of Actions.** Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to the Seller within ten (10) days of delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the non-conformance is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

7. **LIMITATION OF LIABILITY.** IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE THE NON-CONFORMING PRODUCT, RE-PERFORM THE SERVICES, OR REFUND THE PURCHASE PRICE PAID WITHIN A REASONABLE PERIOD OF TIME. IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, NON-COMPLETION OF SERVICES, USE, LOSS OF USE OF, OR INABILITY TO USE THE PRODUCTS OR ANY PART THEREOF, LOSS OF DATA, IDENTITY, PRIVACY, OR CONFIDENTIALITY, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE INCURRED WITHOUT SELLER'S WRITTEN CONSENT, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCTS.

8. **Loss to Buyer's Property.** Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which are or become Buyer's property, will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the Products 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. **Special Tooling.** Special Tooling includes but is not limited to tooling, jigs, fixtures and associated manufacturing equipment acquired or necessary to manufacture Products. A tooling charge may be imposed for any Special Tooling. 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 Special Tooling belonging to Seller that is utilized in the manufacture of the Products, even if such Special Tooling has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any Special Tooling or other property in its sole discretion at any time.

10. **Security Interest.** To secure payment of all sums due, Seller retains a security interest in all Products delivered to Buyer and, Buyer's acceptance of these Terms is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect its security interest.

11. **User Responsibility.** The Buyer through its own analysis and testing, is solely responsible for making the final selection of the Products and assuring that all performance, endurance, maintenance, safety and warning requirements of the application of the Products are met. The Buyer must analyze all aspects of the application and follow applicable industry standards, specifications, and other technical information provided with the Product. If Seller provides Product options based upon data or specifications provided by the Buyer, the Buyer is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products. In the event the Buyer is not the end-user, Buyer will ensure such end-user complies with this paragraph.

12. **Use of Products; Indemnity by Buyer.** Buyer shall comply with all instructions, guides and specifications provided by Seller with the Products. **Unauthorized Uses.** If Buyer uses or resells the Products for any uses prohibited in Seller's instructions, guides or specifications, or Buyer otherwise fails to comply with Seller's instructions, guides and specifications, Buyer acknowledges that any such use, resale, or non-compliance is at Buyer's sole risk. Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, intellectual property infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, application, design, specification or other misuse of Products provided by Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, tooling, equipment, plans, drawings, designs or specifications or other information or things furnished by Buyer; (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller, failure to follow instructions, guides and specifications provided by Seller, use with goods not provided by Seller, or opening, modifying, deconstructing or tampering with the Products for any reason; or (e) Buyer's failure to comply with these Terms. Seller shall not indemnify Buyer under any circumstance except as otherwise provided in these Terms.

13. **Cancellations and Changes.** Buyer may not cancel or modify any order for any reason, except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage. Seller, at any time, may change Product features, specifications, designs and availability.

14. **Limitation on Assignment.** Buyer may not assign its rights or obligations without the prior written consent of Seller.

15. **Force Majeure.** Seller does not assume the risk and is not liable for delay or failure to perform any of Seller's obligations by reason of events or circumstances beyond its reasonable control ("Events of Force Majeure"). Events of Force Majeure shall include without limitation: accidents, strikes or labor disputes, acts of any government or government agency, acts of nature, delays or failures in delivery from carriers or suppliers, shortages of materials, or any other cause beyond Seller's reasonable control.

16. **Waiver and Severability.** Failure to enforce any provision of these Terms will not invalidate that provision; nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of these Terms by legislation or other rule of law shall not invalidate any other provision herein and, the remaining provisions will remain in full force and effect.

17. **Termination.** Seller may terminate any agreement governed by or arising from these Terms for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate, in writing, if Buyer: (a) breaches any provision of these Terms (b) appoints a trustee, receiver or custodian for all or any part of Buyer's property (c) files a petition for relief in bankruptcy on its own behalf, or one filed by a third party (d) makes an assignment for the benefit of creditors; or (e) dissolves its business or liquidates all or a majority of its assets.

18. **Ownership of Software.** Seller retains ownership of all Software supplied to Buyer hereunder. In no event shall Buyer obtain any greater right in and to the Software than a right in the nature of a license limited to the use thereof and subject to compliance with any other terms provided with the Software.

19. **Indemnity for Infringement of Intellectual Property Rights.** Seller is not liable for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights ("Intellectual Property Rights") except as provided in this Section. 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 a third party claim that one or more of the Products sold hereunder infringes the Intellectual Property Rights of a third party in the country of delivery of the Products by the Seller to the Buyer. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of any such claim, and Seller having sole control over the defense of the claim including all negotiations for settlement or compromise. If one or more Products sold hereunder is subject to such a claim, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Products, replace or modify the Products so as to render them non-infringing, or offer to accept return of the Products and refund the purchase price less a reasonable allowance for depreciation. Seller has no obligation or liability for any claim of infringement: (i) arising from information provided by Buyer; or (ii) directed to any Products provided hereunder for which the designs are specified in whole or part by Buyer; or (iii) resulting from the modification, combination or use in a system of any Products provided hereunder. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for such claims of infringement of Intellectual Property Rights.

20. **Governing Law.** These Terms and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed in accordance with, the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to the sale and delivery of the Products.

21. **Entire Agreement.** These Terms, along with the terms set forth in the main body of any Quote, forms the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale. In the event of a conflict between any term set forth in the main body of a Quote and these Terms, the terms set forth in the main body of the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter shall have no effect. These Terms may not be modified unless in writing and signed by an authorized representative of Seller.

22. **Compliance with Laws.** Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards, including those of the United States of America, and the country or countries in which Buyer may operate, including without limitation the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti-Kickback Act"), U.S. and E.U. export control and sanctions laws ("Export Laws"), the U.S. Food Drug and Cosmetic Act ("FDCA"), and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), each as currently amended. Buyer agrees to indemnify, defend, and hold harmless Seller from the consequences of any violation of such laws, regulations and standards by Buyer, its employees or agents. Buyer acknowledges that it is familiar with all applicable provisions of the FCPA, the Anti-Kickback Act, Export Laws, the FDCA and the FDA and certifies that Buyer will adhere to the requirements thereof and not take any action that would make Seller violate such requirements. Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly, to any governmental official, foreign political party or official thereof, candidate for foreign political office, or commercial entity or person, for any improper purpose, including the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller. Buyer further represents and agrees that it will not receive, use, service, transfer or ship any Product from Seller in a manner or for a purpose that violates Export Laws or would cause Seller to be in violation of Export Laws.