

Pneumatic Division

Richland, Michigan USA

www.parker.com/pneumatics**MODUFLEX HEAD MODULES**

Bulletin Number		Bulletin Description
☐	30048690101W05B	IO-Link Bus Module, P2M2HBVL12400
☐	W915104300111 01	25-Pin, Sub-D Module, P2M2HEV0D
☐	W915102670111 02	ASi Bus Module, P2M2HBVA11600
☐	W930030140511	CANopen Bus Module, P2M2HBVC21600
☐	W915102670411 02	DeviceNet Bus Module, P2M2HBVD11600 (M12 connector)
☐	W915102670311 02	InterBus-S Bus Module, P2M2HBVS11600 (M12 connector)
☐	W915102670211 02	Profibus-DP Bus Module, P2M2HBVP11600 (M12 connector)
☐	Safety Guide	PDN Safety Guide

MODUFLEX VALVE SERIES

Bulletin Number		Bulletin Description
☐	V345P Rev. 2	25-Pin, D-Sub Cable, Installation & Service Instructions
☐	V680P Rev. 3	Peripherals, Installation & Service Instructions
☐	V682P Rev. 2	Complete Modules, Installation & Service Instructions
☐	W915102510111 01	Valve, Installation & Service Instructions
☐	W915103880111 02	Primary Assembly Instructions, Maintenance
☐	Safety Guide	PDN Safety Guide



Visit www.pdnplu.com for additional instruction sheets.



Pneumatic Division
Richland, Michigan 49083

Installation & Service Instructions V345P

25-Pin, D-Sub Cable

ISSUED: August, 2004
Supersedes: June, 2003

Doc.# V-345P, ECN# 040841, Rev. 2

! WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.
- Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.
- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
- Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
- Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

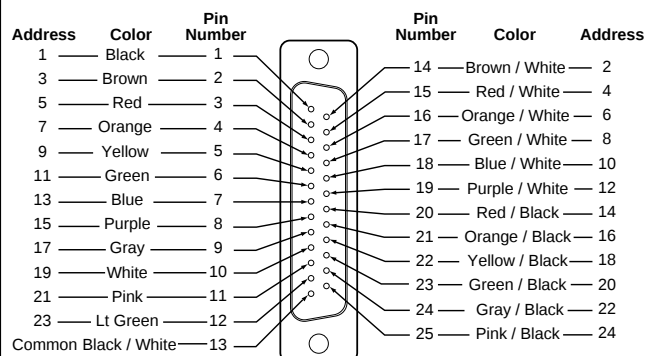
Introduction

Follow these instructions when installing, operating, or servicing the product.



25-Pin, D-Sub Cable

25-Pin, D-Sub Cable (Female)



25-Pin, D-Sub Cable Specifications

Common Pin "13" is rated for 3 amps. Common wire rating must be greater than total amperage of all solenoids on a Add-A-Fold assembly.

Example: 12 station manifold, 24 solenoids,
24VDC — For 24 x .095 amps = 2.28 total amp rating which is less than three amps.

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EXTRA COPIES OF THESE INSTRUCTIONS ARE AVAILABLE FOR INCLUSION IN EQUIPMENT / MAINTENANCE MANUALS THAT UTILIZE THESE PRODUCTS. CONTACT YOUR LOCAL REPRESENTATIVE.



Pneumatic Division
Richland, Michigan 49083

Installation & Service Instructions
V680P

Moduflex Peripherals

ISSUED: May, 2007
Supersedes: July, 2003

DOC. # V680P, EN070360, Rev. 3

⚠ WARNING: Failure to follow all precautions, warnings, instructions, and information contained herein, and from the Parker website, may cause death, personal injury, and/or property damage. More detailed information, in several languages, for complete maintenance / service manuals may be obtained from the Parker website: www.parker.com/pneumatic or call 1-800-C PARKER in the USA.

GENERAL SAFETY GUIDELINES

- Always disconnect the electric and air supply to the valve before adjusting or installing units.
- Always lockout power to machinery that the valve is attached to before adjusting.
- Keep hands and clothing away from any pinch points & paths of moving cylinders.
- Never disassemble valves without proper instruction and manuals. This may be obtained from a distributor or the website described above.

GENERAL INSTALLATION GUIDELINES

- If attaching a unit to the valve base, first press the two fittings (item 1) into the base ports and secure. Then press the unit into the installed fittings.
- If not mounting units onto a valve base, secure to a surface using mounting holes shown as 2.
- Push special connectors into units as shown and attach only Parker tubing. These must be clean, ends cut square, no loose particles, and pushed completely into the fitting.
- Test the system operation for function and leakage. Do not put into operation until the function is as intended and there is no leakage.

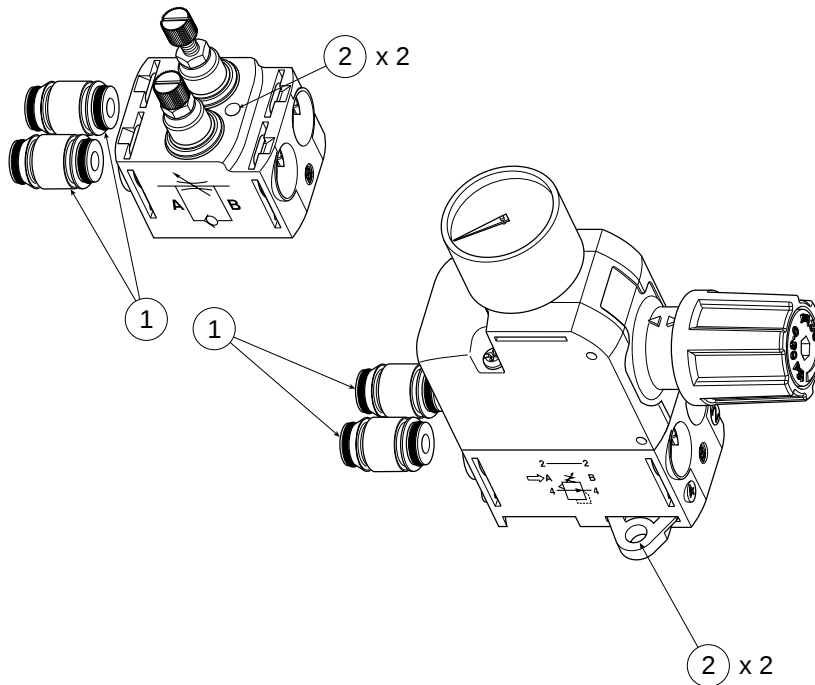
⚠ ADVERTÊNCIA: O não cumprimento de todas as advertências, instruções e informações contidas nesta, pode causar morte, danos pessoais e/ou danos materiais. Maiores detalhes, de manuais de manutenção/instalação em outras línguas, podem ser obtidos do website Parker: <http://www.parker.com/>.

INSTRUÇÕES GERAIS PARA SEGURANÇA

- Sempre desconecte a eletricidade e suprimento de ar da válvula antes da regulagem ou instalação das unidades.
- Sempre desconecte a válvula de qualquer máquina/equipamento antes da regulagem ou instalação.
- Mantenha as mãos e vestuário longe de pontos onde há riscos de agarramentos ou movimentos de cilindros para evitar acidentes.
- Nunca desmonte as válvulas sem manuais e instruções apropriados. Estes podem ser obtidos da fábrica ou do website descrito anteriormente.

INSTRUÇÕES GERAIS PARA INSTALAÇÃO

- Se estiver fixando uma unidade à base da válvula, primeiro pressione as duas conexões (1) nos alojamentos e prenda. Depois, pressione e prenda a unidade às conexões instaladas.
- Caso não esteja montando unidades na base da válvula, utilize os furos de montagem ilustrados como (2) para instalação.
- Pressione os conectores especiais dentro das unidades como mostrado e somente acople tubos Parker. Estes devem estar limpos, com corte das extremidade no esquadro, sem partículas soltas, e pressionadas completamente dentro da conexão.
- Teste o sistema para checar o funcionamento e vazamentos. Não coloque em operação o sistema antes de checar se o funcionamento está adequado e não há vazamentos.



⚠ ACHTUNG: Nichtbeachten der hier und auf der Parker Website aufgezeigten Vorsichtsmassregeln, Hinweise, Anleitungen und Informationen kann zu Tod, Personenschäden und/oder Zerstörung der Einrichtungen führen. Genauere Informationen zu kompletter Wartung und Service-Handbüchern -in verschiedenen Sprachen-können von der Parker Website : www.parker.com/pneumatic abgerufen werden.

ALLGEMEINE SICHERHEITSRICHTLINIEN

- Vor jeglicher Einstellarbeit an oder Einbau von diesen Komponenten sind die Druckluftleitungen zu trennen.
- Vor jeglicher Einstellarbeit an diesen Komponenten ist der entsprechende Anlagenteil energie- und spannungslos zu machen.
- Halten Sie Abstand mit Händen und Kleidung von Klemmstellen (z.B. von Zylindern).
- Bauen Sie niemals Komponenten auseinander ohne entsprechend geeignete Anleitungen. Sie können diese erhalten von unseren Fachhändlern, eigenen Niederlassungen oder von der Webseite abrufen.

ALLGEMEINE INSTALLATIONSRICHTLINIEN

- Zum Anbringen einer Komponente an ein Ventilbasismodul drücken Sie zunächst die zwei Verbindungsstücke (Pos.1) in die Anschlüsse am Modul und verriegeln diese. Anschliessend drücken Sie die Komponente auf die montierten Verbindungsstücke.
- Falls die Komponenten nicht an ein Ventilbasismodul angebracht werden, sichern Sie sie über die Montagebohrungen (Pos.2) auf einer Montagefläche.
- Stecken Sie Schnellsteckverbinder in die jeweilige Komponente und verwenden Sie nur Parker Kunststoffrohr. Das Rohr muss sauber, rechteckig abgeschnitten, ohne lose Partikel und komplett in die Verbinder gesteckt sein.
- Stellen Sie die elektrische Verbindung in spannungslosem Zustand her.
- Testen Sie das System auf Funktion und Leckagen. Nehmen Sie das System erst in Betrieb wenn die Funktionen wie geplant ablaufen und keine Leckagen vorhanden sind.

⚠ PRECAUCION: La Negligencia a los avisos de precaución, instrucciones e información contenida aquí y en el sitio Web de Parker pueden causar la muerte, daños personales y/o daño a la propiedad. Mas información detallada en diferentes idiomas para un completo mantenimiento y/o manuales de servicio pueden ser obtenidos del sitio Web de Parker: www.parker.com/pneumatic o llamando al teléfono 1-800-C PARKER en los Estados Unidos de América.

NORMAS GENERALES DE SEGURIDAD.

- Siempre desconecte el suministro de energía eléctrica y el aire comprimido a la válvula antes de ajustar o instalar unidades.
- Siempre baje el interruptor de energía eléctrica de la maquinaria en la que la válvula esta instalada antes de ajustarla.
- Mantenga las manos y ropa fuera de cualquier punto apriete o partes móviles de los cilindros.
- Nunca desensamble válvulas sin los manuales o instrucciones adecuados. Estos pueden ser obtenidos de un distribuidor o del sitio Web descrito arriba.

NORMAS GENERALES DE INSTALACIÓN

- Si coloca una unidad a la base de la válvula, primero ajuste los dos conectores (ítem 1) a los puertos de la unidad y asegúrelos. Luego, ajuste la unidad a los conectores instalados.
- Si no va montar unidades sobre la base de la válvula, asegure la unidad a la superficie usando los barrenos de montaje mostrados como No. 2.
- Coloque los conectores especiales dentro de las unidades como se muestra y use solamente tubing Parker. Estos deberán estar limpios, cortados a escuadra, sin partículas sueltas y presionados completamente dentro del conector.
- Pruebe la operación del sistema verificando funcionamiento y fugas. No lo ponga en operación hasta que cumpla con la operación requerida y que no haya fugas.

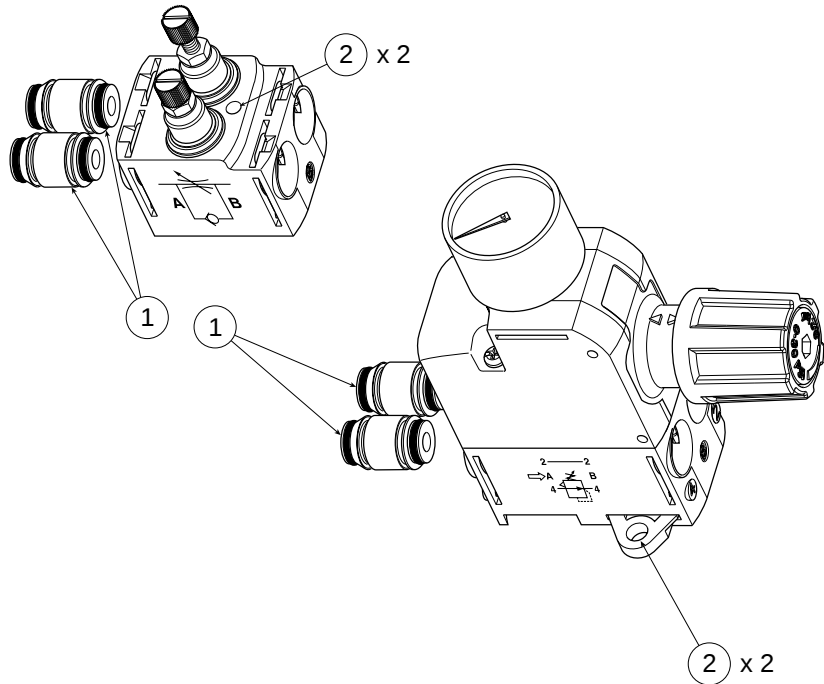
⚠ Danger: Le non-respect des précautions, mises en garde, instructions et informations décrites dans le présent document ou sur le site Parker peut provoquer des dommages matériels et des blessures graves même mortelles. Des précisions complémentaires sur le manuel complet d'installation / maintenance en plusieurs langues peuvent être obtenues en visitant le site web Parker: www.parker.com/pneumatic ou appeler le 1-800-C PARKER aux USA

CONSIGNE GENERALE DE SECURITE

- Débrancher toujours l'arrivée électrique et d'air comprimé du distributeur avant réglage ou installation des modules périphériques.
- Couper toujours l'énergie de l'équipement avant réglage.
- Garder les mains et les vêtements hors de portée des points de pincement des pièces en mouvement
- Ne jamais démonter les distributeurs sans les instructions ou manuels appropriés. Ces derniers peuvent être obtenus chez nos distributeurs ou sur le site web

CONSIGNE GENERALE D'INSTALLATION

- Pour installer un module sur l'embase du distributeur, enfoncer d'abord les deux raccords (figure 1) dans leur logement sur l'embase et les verrouiller. Enfoncer ensuite le module dans les raccords installés.
- Pour une utilisation autonome, fixer le module au bâti en utilisant les logements décrits en figure 2.
- S'assurer du bon positionnement des connecteurs pneumatiques dans leur logement.
- Utiliser des tubes Parker. Ils doivent être propres, coupés droits, sans résidu, et enfoncés complètement.
- Tester les fonctions et fuites du système. Ne jamais rendre le système opérationnel sans que les fonctions correspondent au besoin et qu'il n'y ait pas de fuite.



⚠ ATTENZIONE: Il mancato rispetto delle precauzioni, avvertenze, istruzioni, ed informazioni contenute di seguito e nel sito web Parker, può provocare danni a cose o persone, anche con conseguenze letali. Per informazioni più dettagliate nelle varie lingue, consultare i manuali completi di manutenzione e assistenza disponibili sul sito web Parker: www.parker.com/pneumatic o, negli Stati Uniti, chiamare il 1-800-C PARKER

ISTRUZIONI DI SICUREZZA

- Scollegare sempre la valvola dall'alimentazione elettrica e pneumatica prima di installare o regolare le periferiche.
- Interrompere sempre l'alimentazione elettrica ai macchinari cui la valvola è collegata prima di procedere alla regolazione.
- Tenere le mani e gli abiti lontani dai cilindri in movimento in modo che non rimangano impigliati o intrappolati.
- Non smontare mai le valvole senza aver prima seguito scrupolosamente i manuali di istruzioni che si possono richiedere al distributore, o scaricare dal sito web sopra citato.

ISTRUZIONI GENERALI D'INSTALLAZIONE

- Per montare un'unità alla base della valvola, per prima cosa inserire i due raccordi (1) negli attacchi e fissare. A questo punto inserire l'unità sui raccordi montati.
- Se le unità non vengono montate su una base valvola, fissarle al piano mediante i fori di montaggio (2).
- Inserire i raccordi speciali nelle unità (vedi disegno) e collegarvi solo tubi Parker. I tubi devono essere puliti, con le estremità tagliate a squadra, senza parti libere e inseriti nel raccordo fino in fondo.
- Collaudare il sistema per controllarne il funzionamento ed individuare eventuali perdite. Non utilizzare finché il funzionamento non risulta corretto e senza perdite.

⚠ WAARSCHUWING: Verzuimen tot het volgen van alle voorzorgsmaatregelen, waarschuwingen, instructies, en informatie zoals hier samengevat en op de Parker website, kan persoonlijk letsel, eigendomsschade, of zelfs de dood tot gevolg hebben. Meer detail informatie, in verschillende talen, zie: www.parker.com/automation.

ALGEMENE VEILIGHEIDSRICHTLIJNEN

- Altijd de lucht- en stroomtoevoer naar het ventiel afsluiten voor men gaat afstellen.
- Altijd de energie naar de machine waar het ventiel op gemonteerd zit afsluiten voor men gaat afstellen.
- Handen en kleding weghouden van de klempunten en bewegende cilinders.
- Nooit ventielen demonteren zonder de juiste instructie en handleidingen. Deze zijn te verkrijgen via een vertegenwoordiging of de website.

ALGEMENE INSTALLATIERICHTLIJNEN

- Indien een unit in het basisventiel wordt geplaatst, druk dan eerst de twee koppelingen stevig vast (pos. 1) in de poorten. Druk vervolgens de eenheid in de gemonteerde koppelingen.
- Indien de unit niet in het basisventiel wordt geplaatst, gebruik dan de gaten bij pos 2 om op een ondergrond te monteren.
- Druk speciale koppelingen in de unit (zie boven) en bevestig alleen Parker leidingen. Deze moeten schoon en recht afgesneden zijn, zodat ze goed in de koppeling passen.
- Systeem testen op werking en lekkage, en niet in gebruik nemen voordat aan beide eisen voldaan is.

⚠ WARNING: Instruktioner, varningar och information i denna handling, och på Parkers websida, skall åttlydas noggrant. Följden av att bortse från dessa kan medföra dödsfall, personskador och/eller skador på egendom. Detaljerad information rörande underhåll / instruktionsbok, på flera språk kan hämtas från Parkers websida www.parker.com/pneumatic eller ring 1-800-C PARKER USA

GENERELLA SÄKERHETSANVISNINGAR

- Stäng alltid av både el och luftförsörjningen innan justeringar på ventilen genomförs.
- Bryt alltid huvudströmmen till maskinen som ventilen betjänar.
- Se till att hålla undan händer och kläder från klämrisk.
- Plocka aldrig isär en ventil utan att ha först hämtat underlag för detta från websidan eller leverantören.

INSTALLATIONSANVISNINGAR

- Om enheten skall monteras på en ventilsockel, skall först de två anslutningarna (del 1) tryckas fast i anslutningsportarna. Tryck sedan in enheten i de monterade anslutningarna.
- Fristående enhet ska monteras på lämpligt fast underlag med hjälp av de två skruvhålen, se bilden del 2.
- Tryck fast anslutningarna ordentligt och anslut enbart Parker luftslang. Dessa måste skäras av rakt och vara utan s.k. skägg eller lösa partiklar samt tryckas in helt i kopplingen.
- Testa systemet därefter för funktion läckage. Starta ej maskinen förrän fullgod funktion och täthet uppnåtts.

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- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
- Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
- Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

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Safety Guide

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Pneumatic Specifications

Fluid	Air, inert gas, filtered 40μ ^① , dry ^② or lubricated ^③		
Operating Pressures	Vacuum to 120 PSI		
Piloting Pressure	43 to 120 PSI for operating pressures below, use external pilot supply available on all head modules ^⑤		
Pilot Supply	Internal with S Series , mixed internal / external with T and V Series		
Exhaust Collection	All exhausts are collectable, including solenoid pilot exhaust		
Life Cycle	100 million operations ^④ (with dry air, 3 Hz, 20°C, 6 bar)		
Operating Temperatures	5°F to 140°F (32°F to 130°F for field bus systems)		
Stocking Temperatures	-40°F to 155°F		
Vibration Resistance	According to IEC 68 - 2 - 6	2G	2 to 150 Hz
Impact Resistance	According to IEC 68 - 2 - 27	15G	11 ms

① Class 5 according to ISO 8573-1

② Class 4 according to ISO 8573-1

③ With main air supply lubricated, must use external pilot supply with non-lubricated air

④ 4/2 valve

⑤ Double 3/2 minimum 50 PSI



Pneumatic Division
Richland, Michigan 49083

Installation & Service Instructions:
V682P

Moduflex Complete Modules

ISSUED: December, 2007

Supersedes: July, 2003

Doc. #V682P, EN# 070914, Rev. 2

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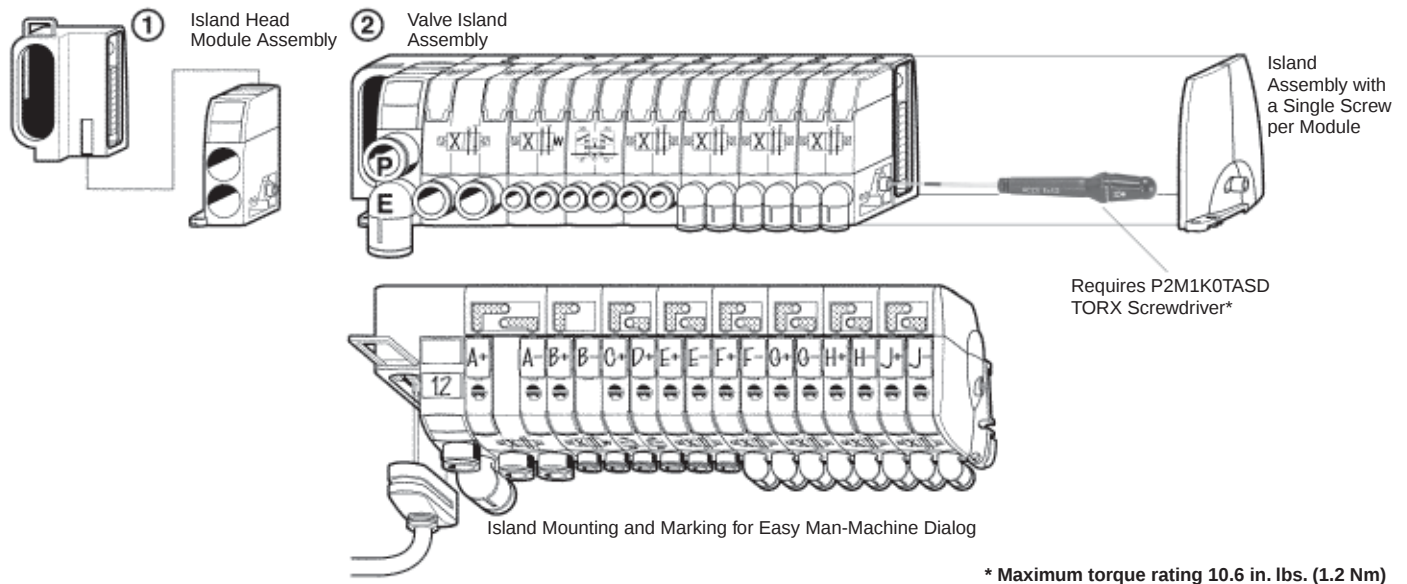
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① Class 5 according to ISO 8573-1

② Class 4 according to ISO 8573-1

③ With main air supply lubricated, must use external pilot supply with non-lubricated air

④ 4/2 valve

⑤ Double 3/2 minimum 50 PSI

Electrical Specifications

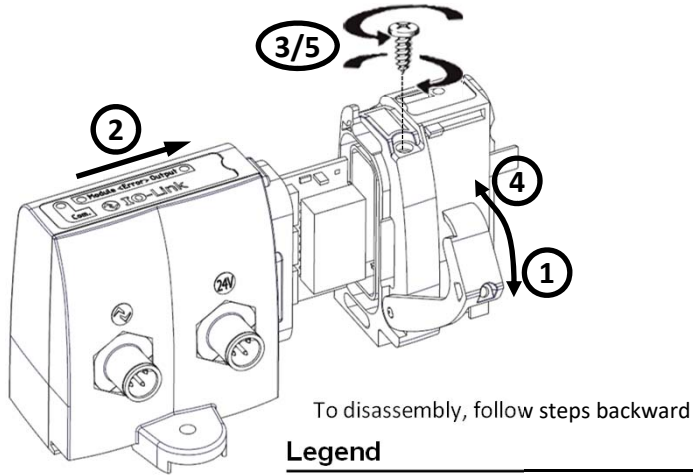
Solenoid Pilot Specification

In order to simplify selection, mounting and maintenance, only one solenoid pilot is required for all Moduflex.

Rated Coil Voltage	24V DC		
Allowable Voltage Fluctuation	-15% to +10 % of nominal voltage		
Electrical Connection	Polarity insensitive: PNP and NPN compatible		
Coil insulation Type	Class B		
Power Consumption	1W (42 mA)		
Manual Override	Locking or non-locking, isolated if required		
Response Time of the Complete Valve	9.6 ms ± 1.2 on 4/2 double solenoid valve size 1 14.8 ms ± 2 on 4/2 double solenoid valve size 2	According to ISO 12238	
Type of Use	Continuous-duty solenoid		
Dust and Water Protection	According to EN 60 529	S and T Series: IP67 V Series: IP65	

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

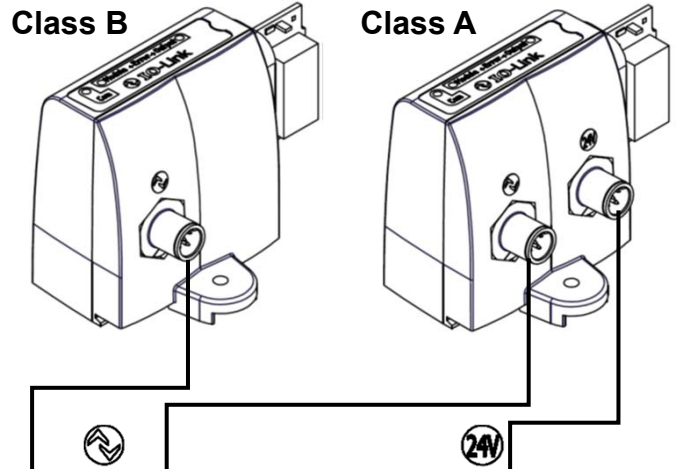
Module assembly / disassembly



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

Module connection



Class B	Class A	M12 Pin's	Class A		
5 Pin's	3 Pin's		3 Pin's		5 Pin's
P2M...B..	P2M...A..		P2M...A13	P2M...A43	P2M...A42
L+	L+	1	Aux +	not used	not used
Aux +	-	2	-	-	Aux -
L-	L-	3	Aux -	Aux -	not used
C/Q	C/Q	4	not used	Aux +	Aux +
Aux -	-	5	-	-	not used

Class A & B units are compatible with SAFE power source for valve control. For further details, please refer to the user manual.

Configuration IODD file

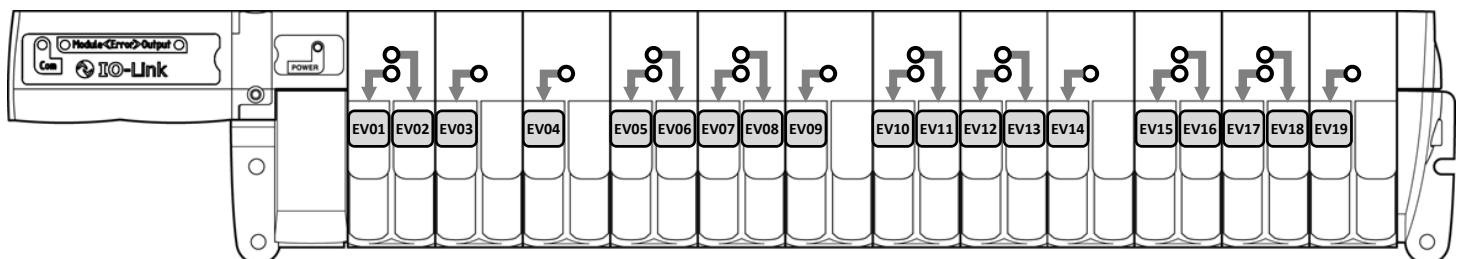
IODD file can be downloaded from either IODD Finder or the Moduflex IO-Link web site:

- <https://ioddfinder.io-link.com> > PARKER
- www.parker.com/pde/io-link

Solenoid pilots addressing and process data 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:



PLC Process outputs data mapping

	7		3	2		0
Byte 0	EV08 EV01					
Byte 1	EV16 EV09					
Byte 2*	EV24 EV20 EV19 ... EV17					

* Byte 2 / Bits 3 to 7 are not connected to valves with Moduflex Valve Range

For usage with H Micro or H ISO Valve Series, please refer to the user manual

IO-Link module electrical specifications

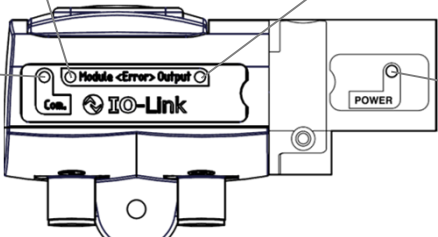
IO-Link power supply	According to IO-Link standard V1.1.2
Speed Communication	Com 2 – 38 kBd
Auxiliary Power Supply	20,4 Vdc to 26,4 Vdc
Current Limit per channel	150 mA
Max Current Limit	4 A
Polarity inversion protection	YES
Short Circuit protection	YES
Operating Temperature	0°C to +55°C
Storage Temperature	-25°C to +70°C
Shock	According to IEC 60068-2-27:2008
Vibration	According to IEC 60068-2-6:2007
EMC	According to EN 55011 & EN 61000-4-2 to -4-6

Diagnostic

Local diagnostic through LED:

The Moduflex IO-Link module offers a local diagnostic by 4 LED's with interpretation described in the table below:

Green LED 			Red LED 			Red LED 			Green LED 		
LED Status	Description	Solving	LED Status	Description	Solving	LED Status	Description	Solving	LED Status	Description	Solving
OFF	IO-Link L+ / L- line not powered	Check IO-Link power supply from IO-Link Master (pin's 1 & 3)	OFF	Standard mode (No error active)	N/A	OFF	Standard mode (No error active)	N/A	OFF	Auxiliary power failure < 18V or > 28,5V	Check Auxiliary Power Supply
ON	IO-Link L+ / L- line powered IO-Link master port set as SIO mode	Set IO-Link master channel in IO-Link mode	ON	24 Vdc Auxiliary power missing or any active malfunction	Check Auxiliary power supply. If auxiliary power supply OK, module must be replaced	ON	Any outputs driver error (Auxiliary power error, overload, short circuit, over temperature, ...)	If auxiliary power OK (see Power LED status), check error messages and related troubleshooting	ON	Standard mode (Auxiliary power within normal range 20,4V* to 26,4V*)	N/A
Blinking	IO-Link communication active	N/A							Blinking	Auxiliary Power out of range (Warning level*)	Check Auxiliary Power Supply Check/reset adjusted values



Module Diagnostic Outputs (valves) Diagnostic

IO-Link Communication Auxiliary Power Supply

*): Warning level values could have been modified by the user! Default values can be restored at any time (please refer to "Aux power management" section)

Diagnostic through network via process inputs data:

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

PLC Process input data mapping	Byte 0	Diag 7 0	Diag 0
--------------------------------	--------	----------------	--------

Diag bit	Error message	Detail
Diag 0	Fail-Safe Status	Acknowledgment Required
Diag 1	Auxiliary Voltage Warning	Auxiliary Voltage Out of range. Check Auxiliary Power line
Diag 2	Auxiliary Voltage failure	Auxiliary Voltage Out of order. Check Auxiliary Power source
Diag 3	Module Failure	Switch OFF / ON auxiliary power. If error message persists, replace the module
Diag 4	Module Over-Temperature	Switch OFF / ON auxiliary power. If error message persists, replace the module
Diag 5	Module Over-Load	Check overall Pilot Solenoid valves. If error message persists, replace the module
Diag 6	Pilot Solenoid(s) Short Circuit	Check faulty pilot solenoid valve(s), replace if necessary
Diag 7	Outputs Stage not Available	Auxiliary power is OFF

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

⚠ WARNING: Failure to follow all precautions, warnings, instructions, and information contained herein, and from the Parker website, may cause death, personal injury, and/or property damage. More detailed information for complete maintenance / service manuals, in several languages, may be obtained from the Parker website: www.parker.com/pneumatic or call 1-800-C PARKER in the USA

GENERAL SAFETY GUIDELINES

- Always disconnect the electric and air supply to the valve before adjusting.
- Always lockout power to machinery that the valve is attached to before adjusting.
- Keep hands and clothing away from any pinch points & paths of moving cylinders.
- Never disassemble valves without proper instruction and manuals. This may be obtained from a distributor or the website described above.

GENERAL INSTALLATION GUIDELINES

- Push special fittings (item 1) securely into the bases as shown.
- Secure the manifold assembly to a surface using fasteners at location 2.
- Attach only Parker tubing to the fittings. These must be clean, ends cut square, no loose particles, and pushed completely into the fitting.
- Attach electrical connections with power off.
- Test the system operation for function and leakage. Do not put into operation until the function is as intended and there is no leakage

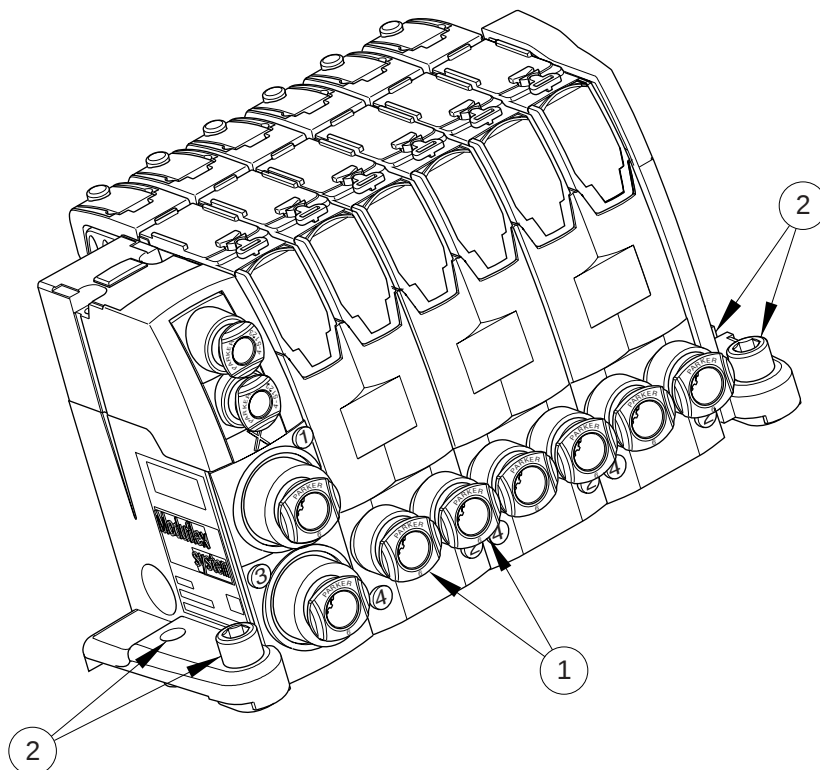
⚠ ADVERTÊNCIA: O não cumprimento de todas as advertências, instruções e informações contidas nesta, pode causar morte, danos pessoais e/ou danos materiais. Maiores detalhes, de manuais de manutenção/ instalação em outras línguas, podem ser obtidos do website Parker: <http://www.parker.com/>.

INSTRUÇÕES GERAIS PARA SEGURANÇA

- Sempre desconecte a eletricidade e suprimento de ar da válvula antes da regulagem ou instalação das unidades.
- Sempre desconecte a válvula de qualquer máquina/ equipamento antes da regulagem ou instalação.
- Mantenha as mãos e vestuário longe de pontos onde há riscos de agarramentos ou movimentos de cilindros para evitar acidentes.
- Nunca desmonte as válvulas sem manuais e instruções apropriados. Estes podem ser obtidos da fábrica ou do website descrito anteriormente.

INSTRUÇÕES GERAIS PARA INSTALAÇÃO

- Pressione os conectores especiais (1) dentro das unidades de válvulas como mostrado
- Instale o conjunto do manifold na superfície utilizando parafusos nos furos de montagem (2).
- Conecte somente tubos Parker. Estes devem estar limpos, com corte das extremidade no esquadro, sem partículas soltas, e pressionadas completamente dentro das conexões.
- Faça as conexões elétricas com a linha desenergizada.
- Teste o sistema para checar o funcionamento e vazamentos. Não coloque o sistema em operação antes de checar se o funcionamento está adequado e não há vazamentos.



⚠ ACHTUNG: Nichtbeachten der hier und auf der Parker Website aufgezeigten Vorsichtsmassregeln, Hinweise, Anleitungen und Informationen kann zu Tod, Personenschäden und/oder Zerstörung der Einrichtungen führen.

Genauere Informationen zu kompletter Wartung und Service-Handbüchern -in verschiedenen Sprachen- können von der Parker Website : www.parker.com/pneumatic abgerufen werden.

Allgemeine Sicherheitsrichtlinien

- Vor jeglicher Einstellarbeit an den Ventilen bzw. der Ventilseln sind die Druckluftleitungen zu trennen.
- Vor jeglicher Einstellarbeit an den Ventilen bzw. der Ventilseln ist der entsprechende Anlagenteil energie- und spannungslos zu machen.
- Halten Sie Abstand mit Händen und Kleidung von Klemmstellen (z.B. von Zylindern).
- Bauen Sie niemals Komponenten auseinander ohne entsprechend geeignete Anleitungen. Sie können diese erhalten von unseren Fachhändlern , eigenen Niederlassungen oder von der Webseite abrufen.

Allgemeine Installationsrichtlinien

- Drücken Sie die Einsteck-Schnellverbinder (Pos.1) fest und sicher in die Basismodule wie gezeigt.
- Sichern Sie die Ventilseln durch Befestigungsschrauben an Pos.2 auf einer Montagefläche.
- Benutzen Sie nur Parker Kunststoffrohr in Verbindung mit den Schnellsteckverbindern. Das Rohr muss sauber, rechteckig abgeschnitten, ohne lose Partikel und komplett in die Verbinder gesteckt sein.
- Stellen Sie die elektrische Verbindung in spannungslosem Zustand her.
- Testen Sie das System auf Funktion und Leckagen. Nehmen Sie das System erst in Betrieb wenn die Funktionen wie geplant ablaufen und keine Leckagen vorhanden sind.

⚠ PRECAUCION: La Negligencia a los avisos de precaución, instrucciones e información contenida aquí y en el sitio Web de Parker pueden causar la muerte, daños personales y/o daño a la propiedad. Mas información detallada en diferentes idiomas para un completo mantenimiento y/o manuales de servicio pueden ser obtenidos del sitio Web de Parker: www.parker.com/pneumatic o llamando al teléfono 1-800-C PARKER en los Estados Unidos de América.

NORMAS GENERALES DE SEGURIDAD.

- Siempre desconecte el suministro de energía eléctrica y aire comprimido a la válvula antes de ajustar o instalar unidades.
- Siempre baje el interruptor de energía eléctrica de la maquinaria en la que la válvula esta instalada antes de ajustarla.
- Mantenga las manos y ropa fuera de cualquier punto apriete o partes móviles de los cilindros.
- Nunca desensamble válvulas sin los manuales o instrucciones adecuados. Estos pueden ser obtenidos de un distribuidor o del sitio Web descrito arriba.

NORMAS GENERALES DE INTALACION

- Presione los conectores especiales (Puntos 1) asegúrelos contra las bases como se muestra.
- Asegure el ensamble de manifold a la superficie usando conectores rápidos en los puntos 2.
- Conecte solamente tubing Parker a las conexiones. Estos deberán de estar limpios, cortados en escuadra, sin partículas sueltas, y presionados completamente dentro de las conexiones.
- Realice las conexiones eléctricas con el interruptor de energía en apagado (OFF).
- Pruebe la operación del sistema verificando funcionamiento y fugas. No lo ponga en operación hasta que cumpla con la operación requerida y que no haya fugas.

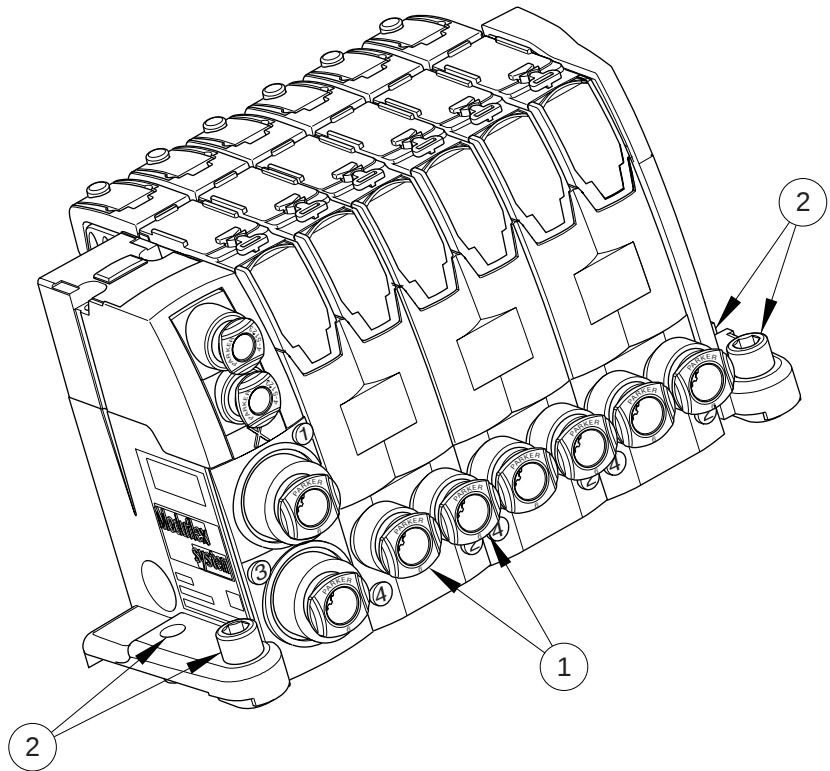
⚠ AVERTISS Danger: Le non-respect des précautions, mises en garde, instructions et informations décrites dans le présent document ou sur le site Parker peut provoquer des dommages matériels et des blessures graves même mortelles. Des précisions complémentaires sur le manuel complet d'installation / maintenance en plusieurs langues peuvent être obtenues en visitant le site web Parker: www.parker.com/pneumatic ou appeler le 1-800-C PARKER aux USA

CONSIGNES GENERALES DE SECURITE

- Débrancher toujours l'arrivée électrique et d'air comprimé du distributeur avant réglage.
- Couper toujours l'énergie de l'équipement avant réglage.
- Garder les mains et les vêtements hors de portée des points de pincement des pièces en mouvement.
- Ne jamais démonter les distributeurs sans les instructions ou manuels appropriés. Ces derniers peuvent être obtenus chez nos distributeurs ou sur le site web

CONSIGNES GENERALES D'INSTALLATION

- S'assurer du bon positionnement des connecteurs pneumatiques dans leur logement (figure 1).
- Fixer l'îlot sur un bâti à l'aide des logements (figure 2).
- Utiliser des tubes Parker. Ils doivent être propres, coupés droits, sans résidu, et enfoncés complètement.
- Connecter électriquement les distributeurs ou îlots hors tension.
- Tester les fonctions et fuites du système. Ne jamais rendre le système opérationnel sans que les fonctions correspondent au besoin et qu'il n'y ait pas de fuite.



⚠ ATTENZIONE! Il mancato rispetto delle precauzioni, avvertenze, istruzioni, ed informazioni contenute di seguito e nel sito web Parker, può provocare danni a cose o persone, anche con conseguenze letali. Per informazioni più dettagliate nelle varie lingue, consultare i manuali completi di manutenzione e assistenza disponibili sul sito web Parker: www.parker.com/pneumatic o, negli Stati Uniti, chiamare il 1-800-C PARKER

ISTRUZIONI DI SICUREZZA

- Scollegare sempre la valvola dall'alimentazione elettrica e pneumatica prima di regolare le periferiche.
- Interrompere sempre l'alimentazione elettrica ai macchinari cui la valvola è collegata prima di procedere alla regolazione.
- Tenere le mani e gli abiti lontano dai cilindri in movimento in modo che non rimangano impigliati o intrappolate.
- Non smontare mai le valvole senza aver prima seguito scrupolosamente i manuali di istruzioni che si possono richiedere al distributore, o scaricare dal sito web sopra citato.

ISTRUZIONI GENERALI D'INSTALLAZIONE

- Inserire e fissare i raccordi speciali (1) nelle basi come indicato nel disegno.
- Fissare il manifold ad un piano mediante i dispositivi di fissaggio indicati (2).
- Collegare ai raccordi esclusivamente tubi Parker. I tubi devono essere puliti con le estremità tagliate a squadra, senza parti libere e inseriti nel raccordo fino in fondo.
- Attaccare le connessioni elettriche ad apparecchio spento.
- Collaudare il sistema per controllarne il funzionamento ed individuare eventuali perdite. Non utilizzare finché il funzionamento non risulta corretto e senza perdite.

⚠ WAARSCHUWING: Verzuimen tot het volgen van alle voorzorgsmaatregelen, waarschuwingen, instructies, en informatie zoals hier samengevat en op de Parker website, kan persoonlijk letsel, eigendomsschade, of zelfs de dood tot gevolg hebben. Meer detail informatie, zie www.parker.com/automation.

Algemene veiligheidsrichtlijnen

- Altijd de lucht- en stroomtoevoer naar het ventiel afsluiten voor men gaat afstellen.
- Altijd de energie naar de machine waar het ventiel op gemonteerd zit afsluiten voor men gaat afstellen.
- Handen en kleding weghouden van de klempunten en bewegende cilinders.
- Nooit ventielen demonteren zonder de juiste instructie en handleidingen.

Algemene installatie voorschrift

- Bevestig speciale koppelingen precies zoals hierboven (pos 1) wordt getoond.
- Bevestig de ventielunit op ondergrond door schroeven te plaatsen in pos 2.
- Alleen Parker leidingen in de koppelingen bevestigen. Deze moeten schoon en recht afgesneden zijn, zodat ze goed in de koppeling passen.
- Elektrische aansluitingen plaatsen, alleen als de voeding uit staat.
- Systeem testen op werking en lekkage, en niet in gebruik nemen voordat aan beide eisen voldaan is.

⚠ WARNING: Instruktioner, varningar och information i denna handling, och på Parkers websida, skall åtlidas noggrant. Följden av att bortse från dessa kan medföra dödsfall, personskador och/eller skador på egendom. Detaljerad information rörande underhåll / instruktionsbok, på flera språk kan hämtas från Parkers websida www.parker.com/pneumatic eller ring 1-800-C PARKER USA

GENERELLA SÄKERHETSANVISNINGAR

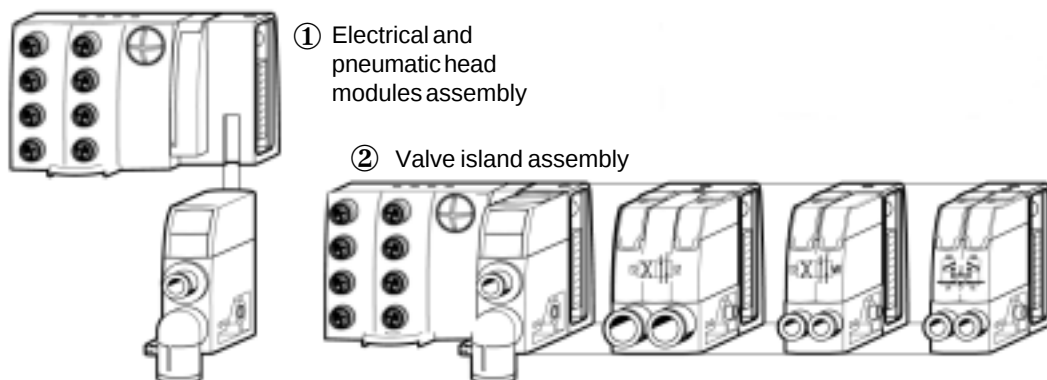
- Stäng alltid av både el och luftförsörjningen innan justeringar på ventilen genomförs.
- Bryt alltid huvudströmmen till maskinen som ventilen betjänar.
- Se till att hålla undan händer och kläder från klämrisker.
- Plocka aldrig isär en ventil utan att ha först hämtat underlag för detta från websidan eller leverantörn..

GENERELLA INSTALLATIONSANVISNINGAR

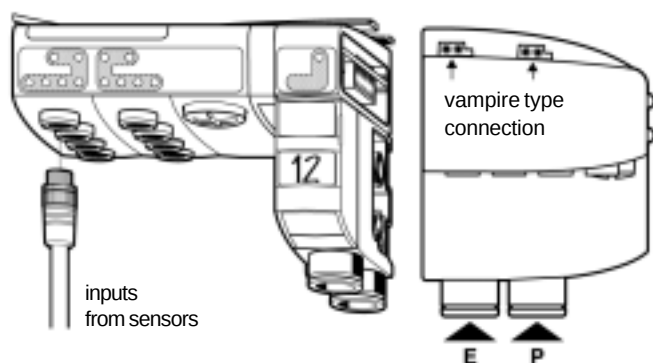
- Tryck de speciella anslutningarna (del 1) ordentligt fast i underdelen, se bilden.
- Sätt fast ventilbas ordentligt på ett stabilt underlag se bild del 2.
- Montera enbart Parker slang i instickskopplingarna. Dessa måste skäras av rakt och vara utan s.k.skägg eller lösa partiklar samt tryckas helt in i kopplingen.
- Koppla in elen med huvudbrytaren i frånläge.
- Test systemet sedan för funktion and läckage. Starta ej maskin förrän fullgod funktion och täthet uppnåtts.



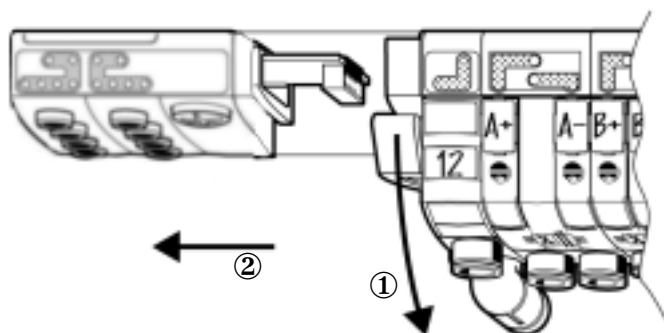
- Assembly



AS-i bus connection



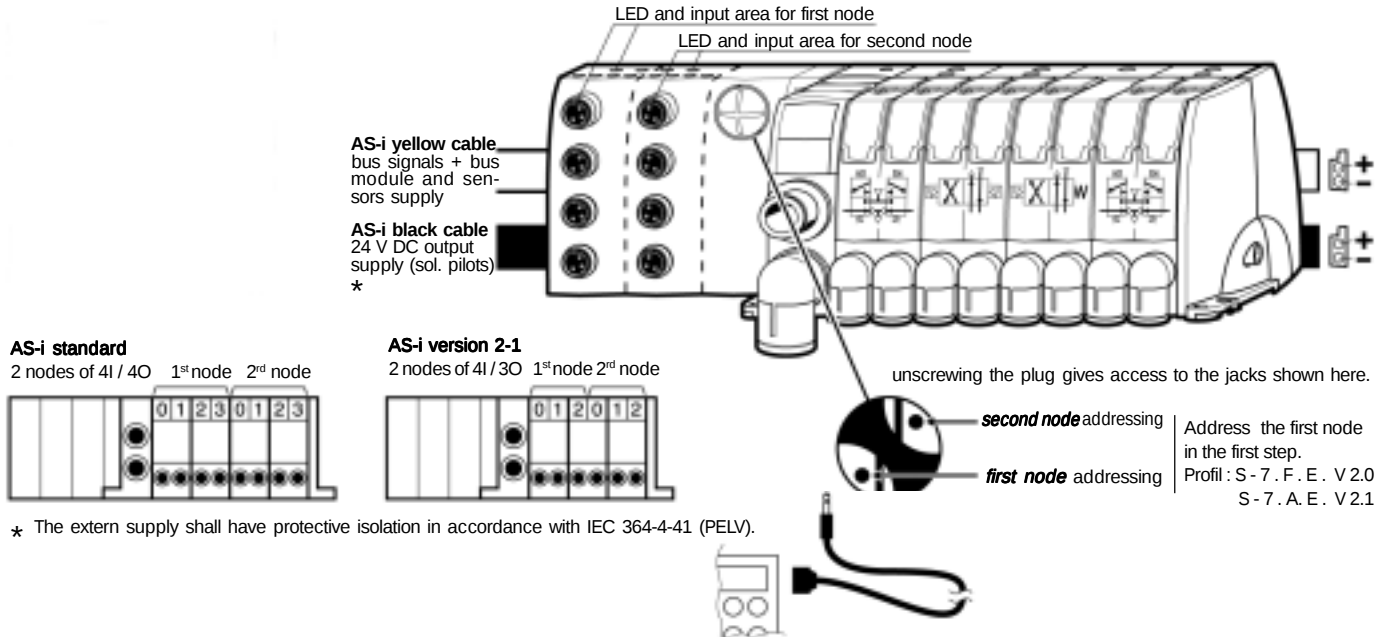
- Maintenance



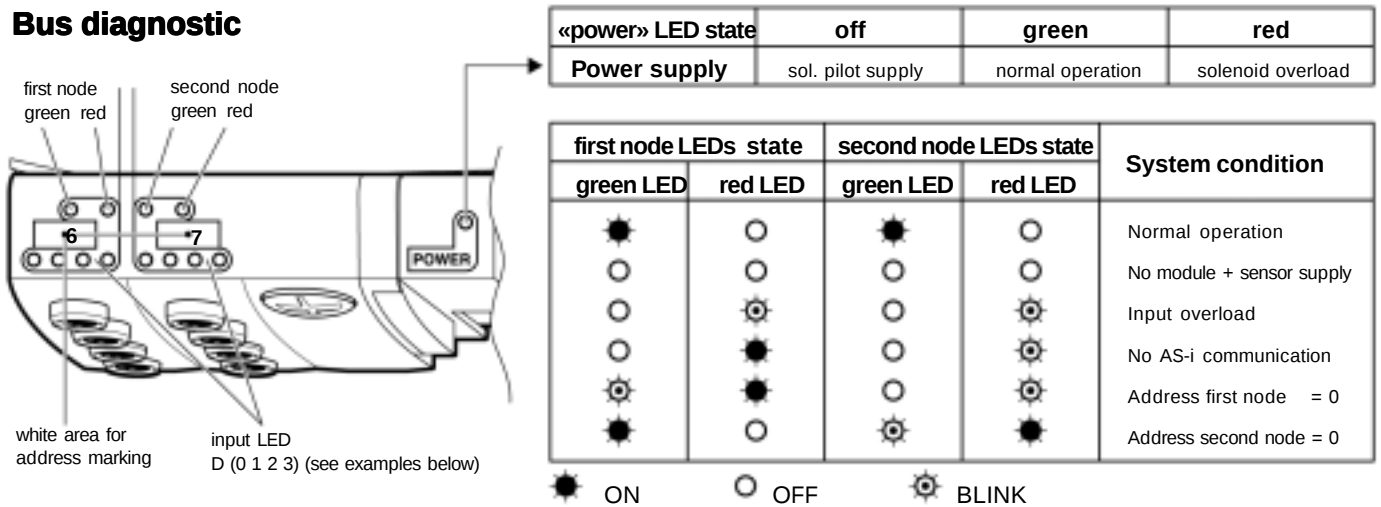
Specifications

EMC / CE mark.	According to EN 61 000-6-2 and to EN 61 000-6-4
AS-i line	According to EN 50295
Solenoid pilot voltage	24 V DC
Module consumption	max. 70 mA (2 slaves)
Max. supply for all inputs	240 mA (including internal input consumption)
Internal input consumption	9 mA for each active input
Inputs	According to IEC 1131-2 class 2
Ext. Output power	2,5 W

Bus addressing, first and second node



Bus diagnostic

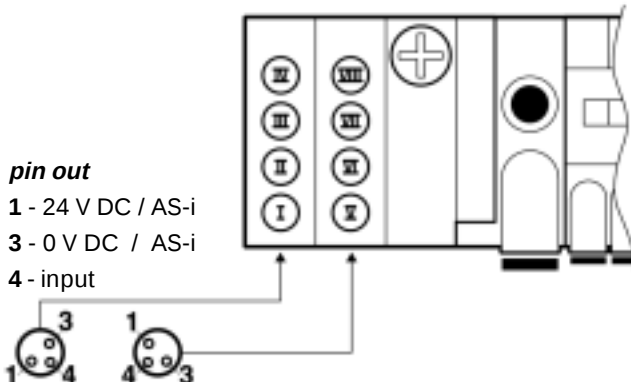


Input wiring

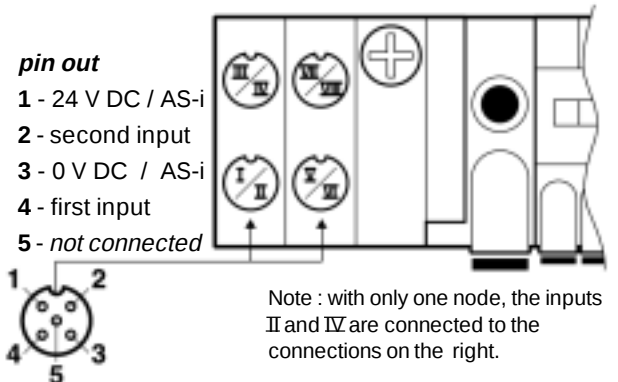
Physical input (I, II, III, IV) = D (0 1 2 3) first node,
Examples : physical input III = logical input 6.2,

physical input (V, VI, VII, VIII) = D (0 1 2 3) second node
physical input V = logical input 7.0

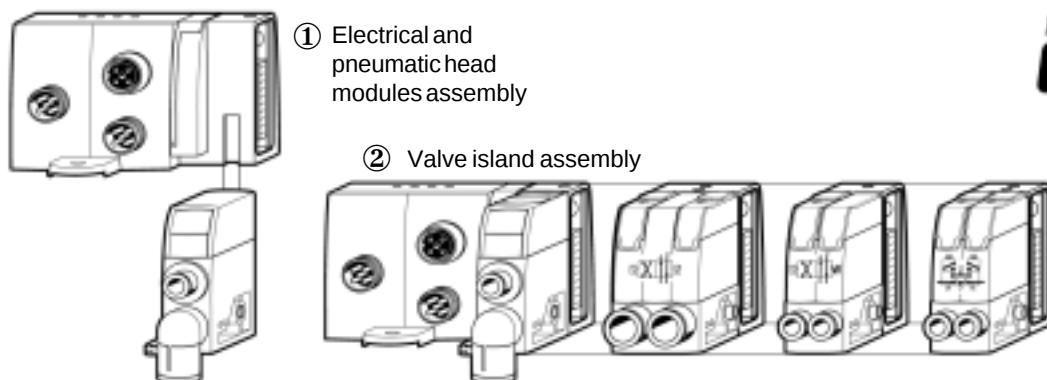
M8 female connectors



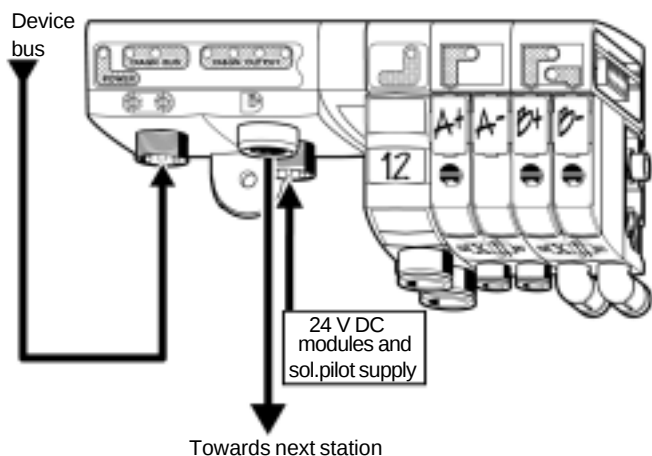
M12 female connectors



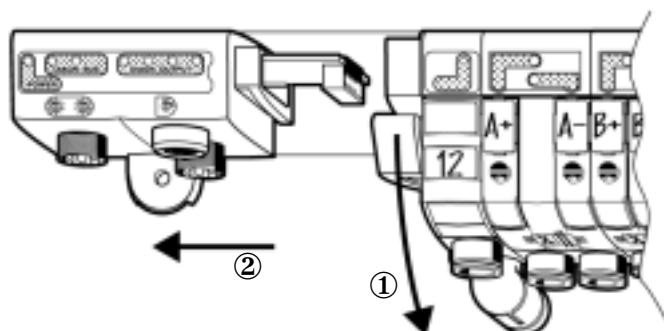
- Assembly



Device bus connection



- Maintenance



Specifications

EMC / CE mark.	According to EN 61 000-6-2 and EN 61 000-6-4
Bus line	According to each bus specification
Module voltage	20 to 30 V DC
Solenoid pilot voltage	24 V DC
Module consumption	Max. 1,5 W (Profibus DP)
Outputs	Overload protection
Ext. output power	2,5 W

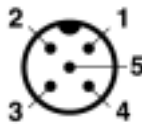
Bus cable connection

M12 supply

connector (as seen on module)

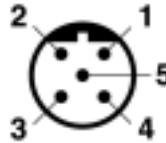
- 1 - 24 V DC module
- 2 - *not connected*
- 3 - 0 V DC module and solenoid
- 4 - 24 V DC solenoid
- 5 - protective earth (PE)

Profibus DP type A



bus in

(as seen on module)



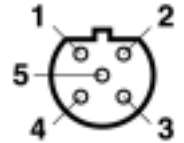
M12 male B type

pin out

- 1 : + 5 V
- 2 : line A
- 3 : 0 V
- 4 : line B
- 5 : shields

bus out

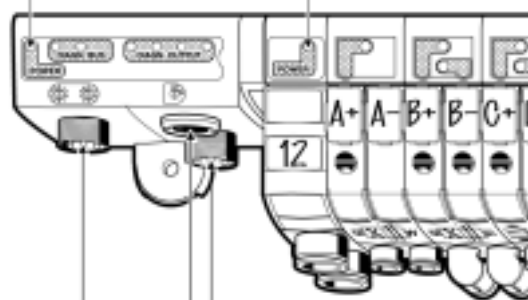
(as seen on module)



M12 female B type

green : power module OK

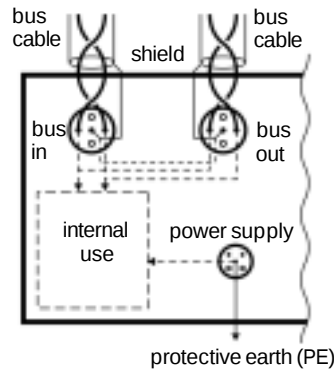
green : power solenoid OK



M12 male supply connector

«bus in» and «bus out» connectors

Bus cable protection shield connections



Line

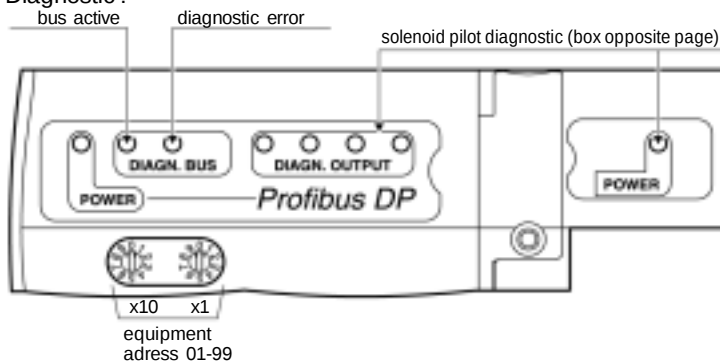
termination :
Plug to be mounted on "bus out" of the last station
ref : P8BPA00MB

Addressing and diagnostic

Addressing :

Use the GSD file on disk ref. P8BDISK to identify the bus module on the master.
The coding wheels enable configuration of the decimal address of the module.

Diagnostic :



Red LEDs detecting solenoid valve short-circuits

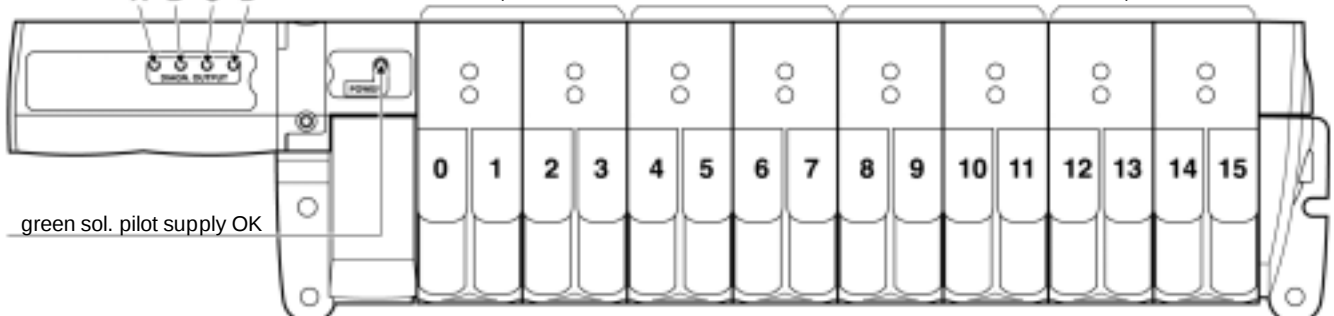
A B C D

A : sol. pilots 0 to 3

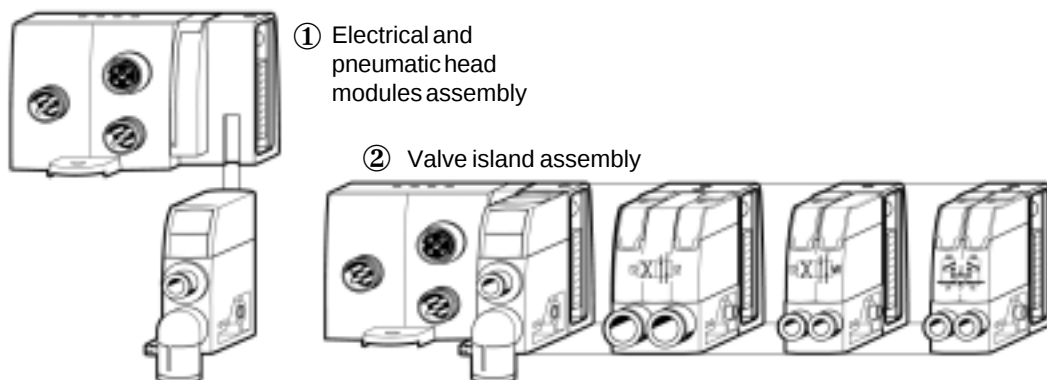
B : sol. pilots 4 to 7

C : sol. pilots 8 to 11

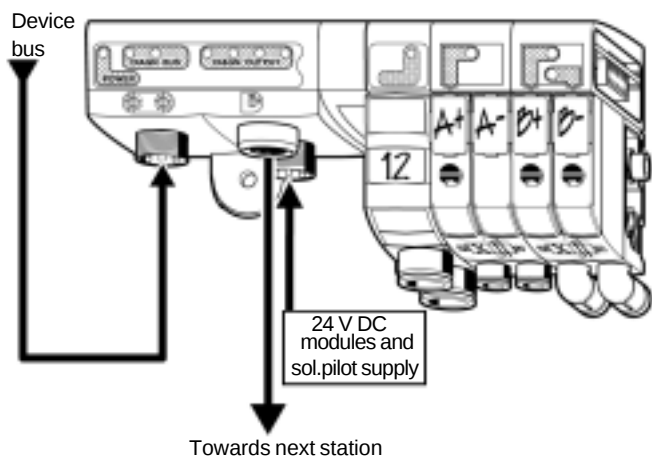
D : sol. pilots 12 to 15



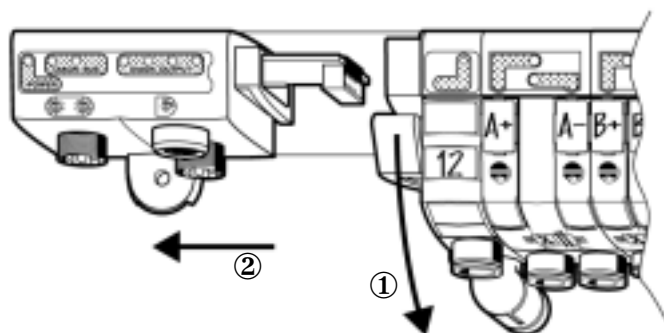
- Assembly



Device bus connection



- Maintenance



Specifications

EMC / CE mark.	According to EN 61 000-6-2 and EN 61 000-6-4
Bus line	According to each bus specification
Module voltage	20 to 30 V DC
Solenoid pilot voltage	24 V DC
Module consumption	Max. 2 W (Interbus S)
Outputs	Overload protection
Ext. output power	2,5 W

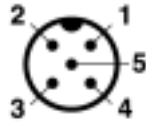
Bus cable connection

M12 supply

connector (as seen on module)

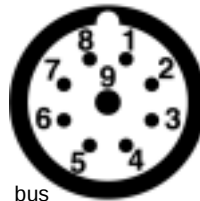
- 1 - 24 V DC module
- 2 - *not connected*
- 3 - 0 V DC module and solenoid
- 4 - 24 V DC solenoid
- 5 - protective earth (PE)

Interbus S
type A



bus in

(as seen on module)



bus
cable

M23 male

pin out

- 1 : D $\overline{0}$
- 2 : D $\overline{0}$
- 3 : DI
- 4 : DI
- 5 : ground
- 6 : PE
- 7 : +24 V
- 8 : 0 V
- 9 : NC

bus out

(as seen on module)



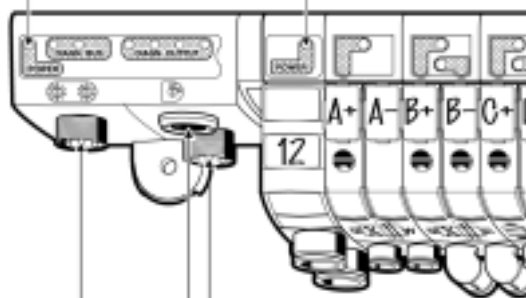
M23 femelle

pin out

- 1 : D $\overline{0}$
- 2 : D $\overline{0}$
- 3 : DI
- 4 : DI
- 5 : ground
- 6 : PE
- 7 : +24 V
- 8 : 0 V
- 9 : RBST

green : power module OK

green : power solenoid OK



M12 male
supply connector

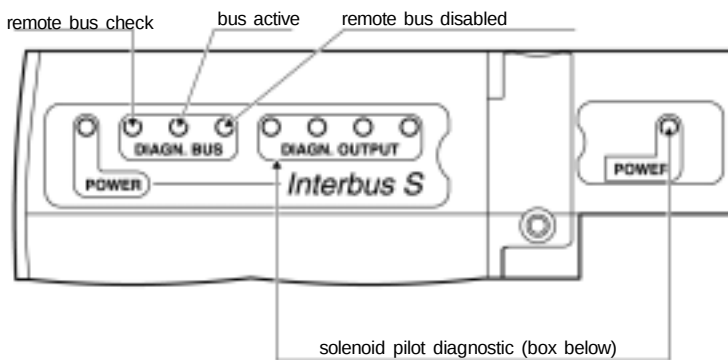
«bus in» and «bus out» connectors

Addressing and diagnostic

Addressing

Interbus S is self addressing. Thus it does not need any software and hardware configuration

Diagnostic :



solenoid pilot diagnostic (box below)

Red LEDs detecting solenoid valve short-circuits

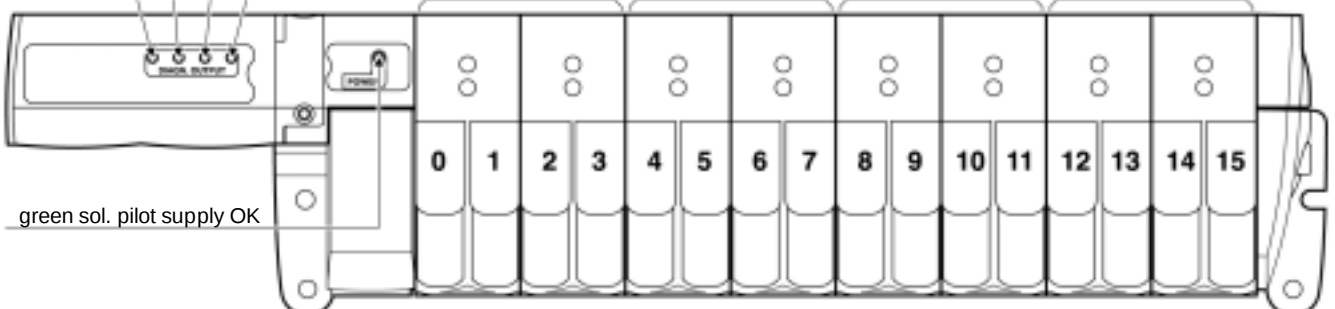
A B C D

A : sol. pilots 0 to 3

B : sol. pilots 4 to 7

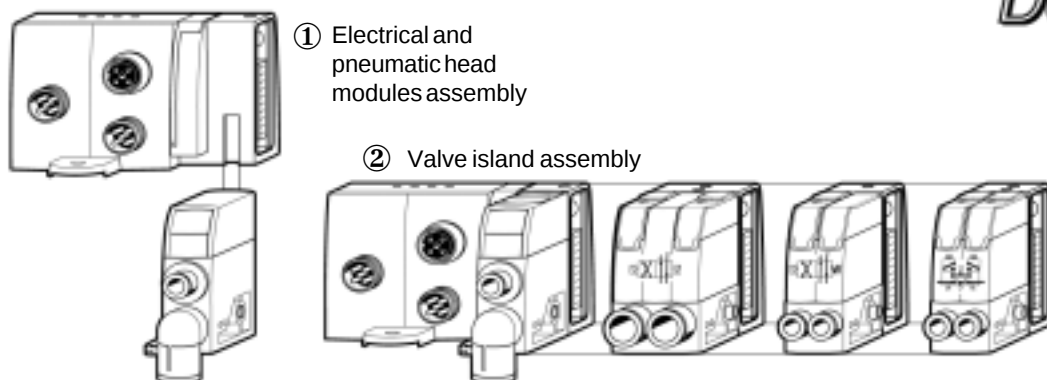
C : sol. pilots 8 to 11

D : sol. pilots 12 to 15

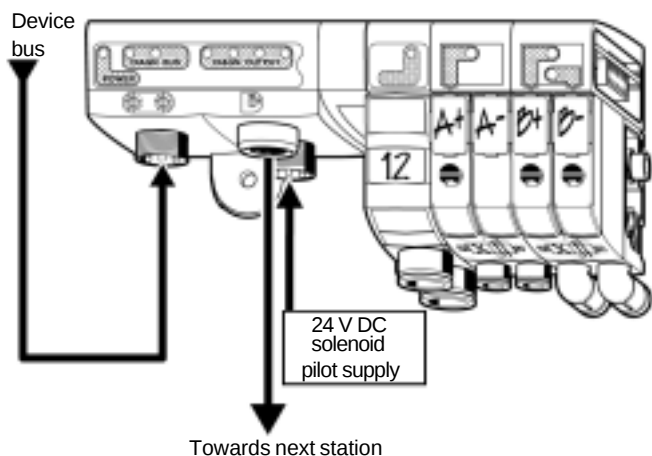


green sol. pilot supply OK

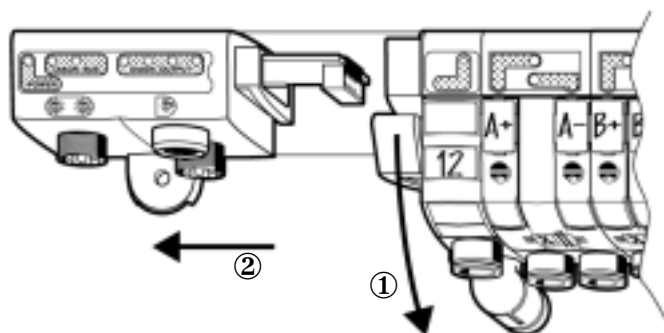
- Assembly



Device bus connection



- Maintenance



Specifications

EMC / CE mark.	According to EN 61 000-6-2 and EN 61 000-6-4
Bus line	According to each bus specification
Module voltage	20 to 30 V DC
Solenoid pilot voltage	24 V DC
Module consumption	Max. 1,5 W (DeviceNet)
Outputs	Overload protection
Ext. output power	2,5 W

Bus cable connection

M12 supply

connector (as seen on module)

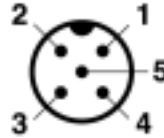
- 1 - not connected
- 2 - not connected
- 3 - 0 V DC solenoid
- 4 - 24 V DC solenoid
- 5 - protective earth (PE)

DeviceNet
type B



bus in

(as seen on module)



M12 male
A type

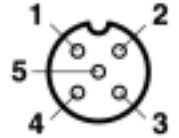
pin out

- 1 : CAN_SHLD
- 2 : CAN_V+
- 3 : CAN_GND
- 4 : CAN_H
- 5 : CAN_L

CAN_V+ : 24V DC
module supply

bus out

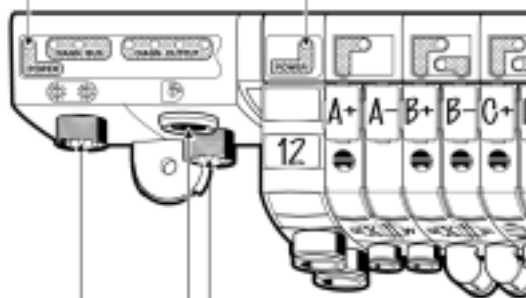
(as seen on module)



M12 femelle
A type

green : power module OK

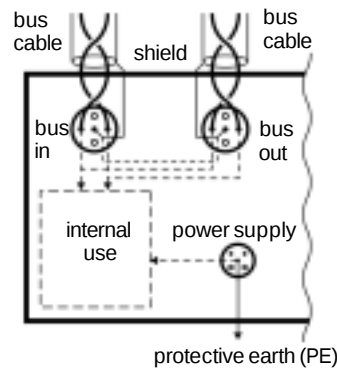
green : power solenoid OK



M12 male
supply connector

«bus in» and «bus out» connectors

Bus cable protection shield connections



Line

termination :
Plug to be
mounted on "bus
out" of the last
station
ref : P8BPA00MA

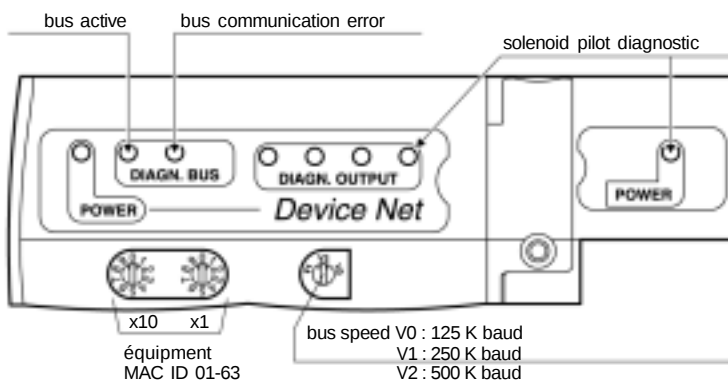
Addressing and diagnostic

Addressing :

Use the EDs file on disk ref. P8BDISK to identify the bus module on the master.

The coding wheels enable configuration of the address (MAC ID) and the transmission speed.

Diagnostic :



Red LEDs detecting solenoid valve short-circuits

A B C D

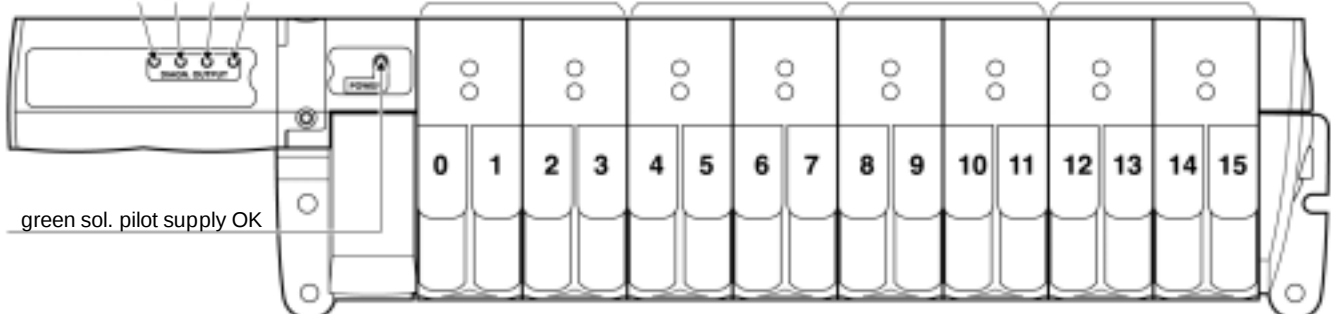
A : sol. pilots 0 to 3

B : sol. pilots 4 to 7

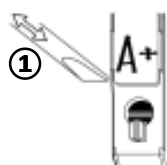
C : sol. pilots 8 to 11

D : sol. pilots 12 to 15

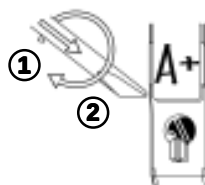
green sol. pilot supply OK



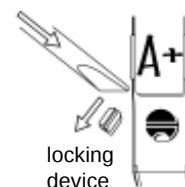
Manual override solenoid



1 - Push -
release



1 - Push -
2 - twist - locking



Remove locking
device

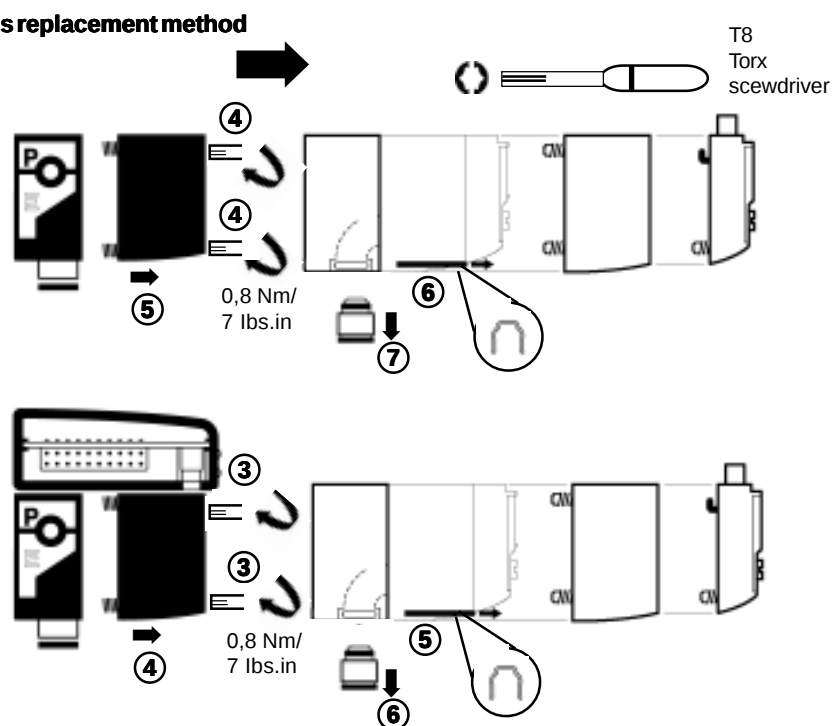
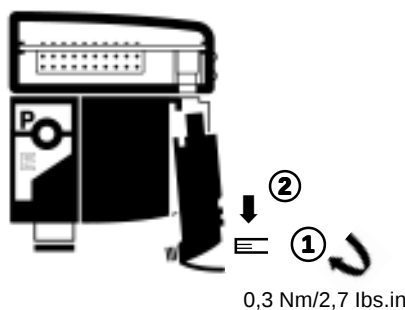
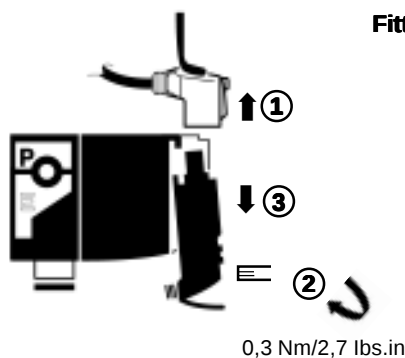
1/8 inch 3,5 mm screwdriver



P2M2K0FA
isolation fork

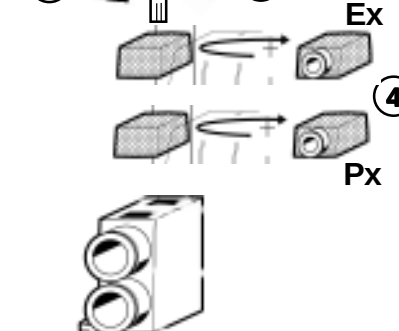
Manual override
is disengaged

Fittings replacement method

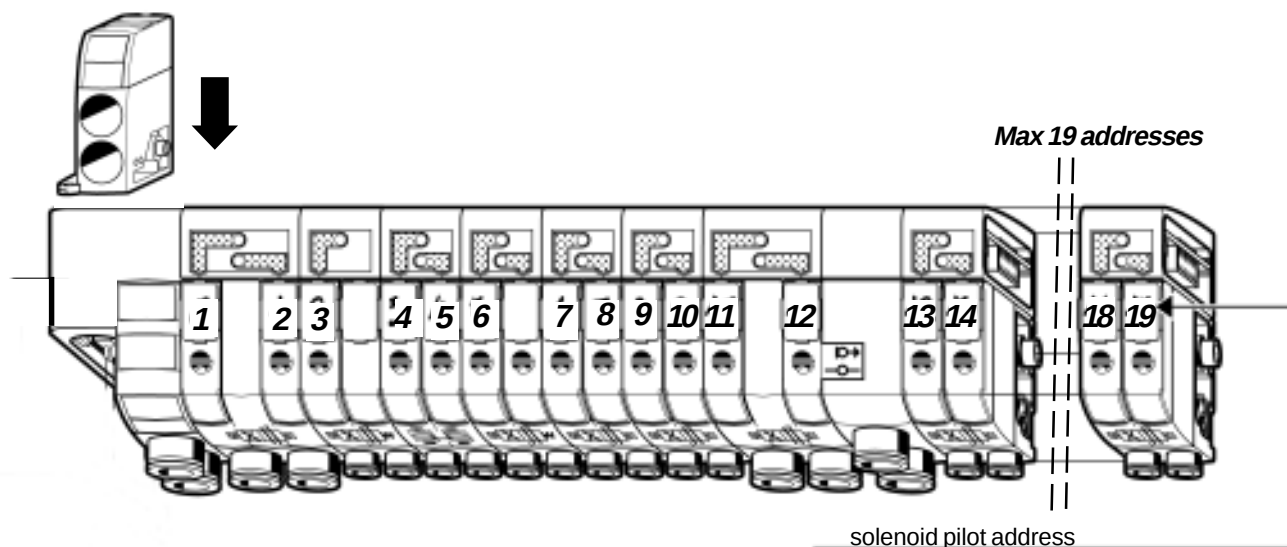
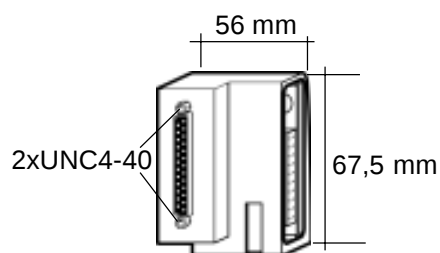


Px Ex Selection

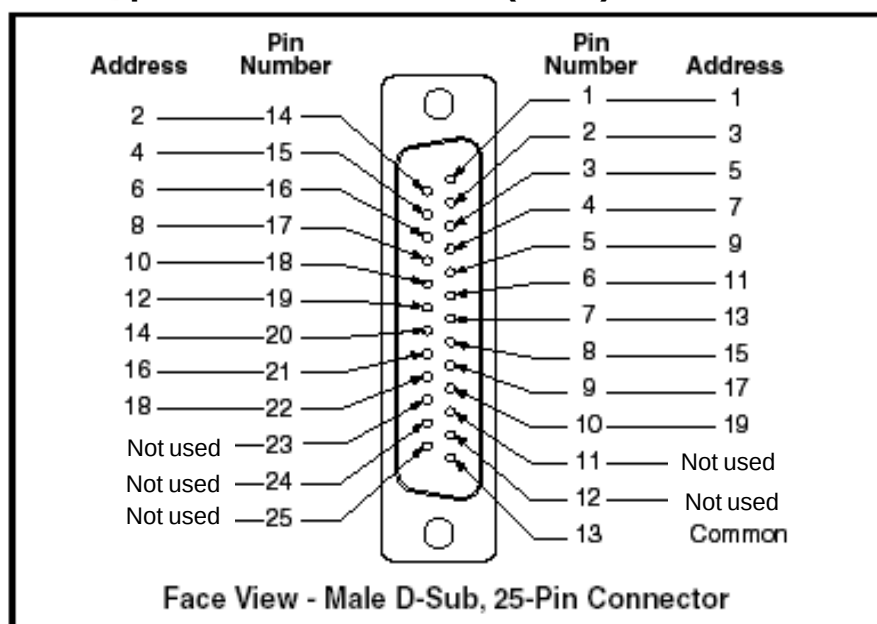
0,4 Nm/3,5 lbs in



Moduflex valve system Sub-D 25 module (P2M2HEV0D)



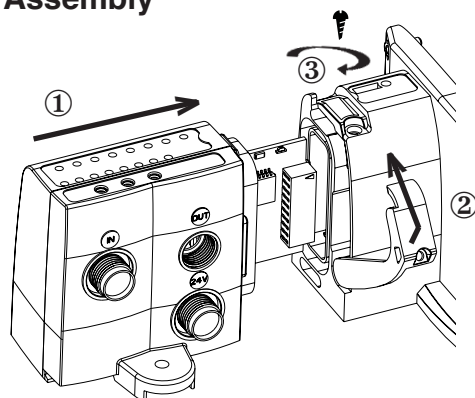
25 pin, sub-D connector (male)



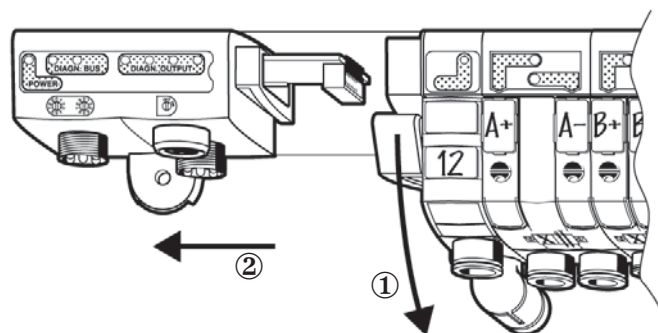
Electrical specifications

Rated voltage	24 V DC
Max addresses	19
Max energized simultaneously	19
Electrical connection	25 Pin Sub-D DIN41652, MIL-C-24308, NFC93425 type HE5
Polarity	Insensitive : PNP and NPN compatible
Dust and water protection	IP 40

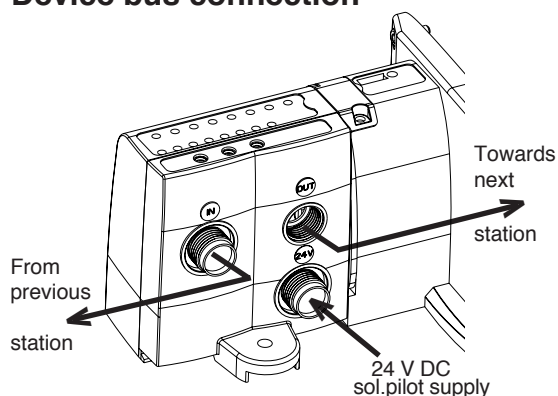
Assembly



Maintenance



Device bus connection



Power supply connector

(as seen on module)

pin OUT

- 1 - not connected
- 2 - not connected
- 3 - 0 V DC solenoid
- 4 - 24 V DC solenoid
- 5 - protective earth (PE)

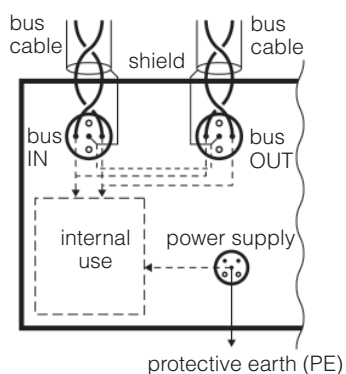
M12
type A



Bus and power supply permutation could create damage.

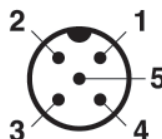
Bus cable connection

Bus cable protection shield connections



bus IN

(as seen on module)



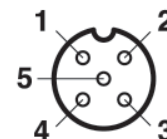
M12 male
A type

pin OUT

- 1 : CAN_SHLD
- 2 : CAN_V+ :
24V DC module supply
- 3 : CAN_GND
- 4 : CAN_H
- 5 : CAN_L

bus OUT

(as seen on module)



M12 femelle
A type

Line
termination :

Plug must be mounted on
"bus OUT" of the last station
ref : P8BPA00MA

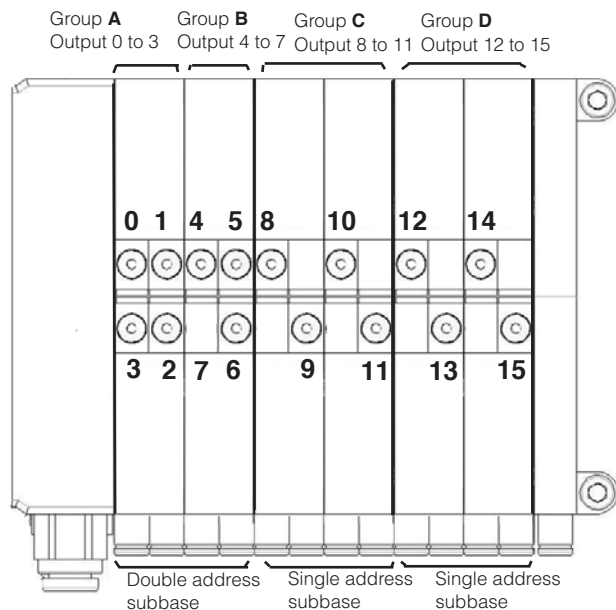
Specifications

EMC / CE mark.	According to EN 61 000-6-2 and EN 61 000-6-4
Number of solenoids	16
Bus line	According to each bus specification
Module voltage	20 to 30 V DC
Solenoid pilot voltage	21,6 to 26,4 V DC
Module consumption	Max. 1,5 W
Outputs	Overload protection
Ext. output power	Max. 2,5 W

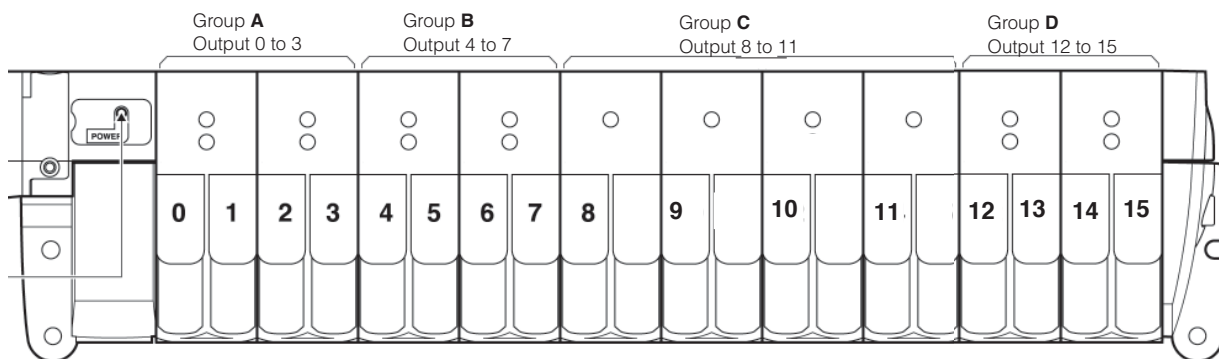
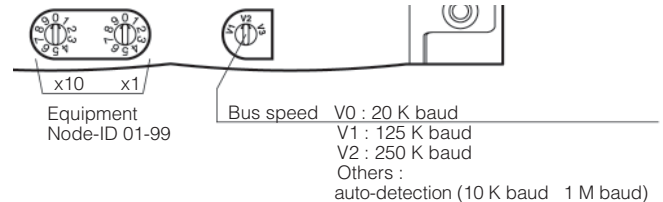


PSMMC . AP P2M2HBVC21600

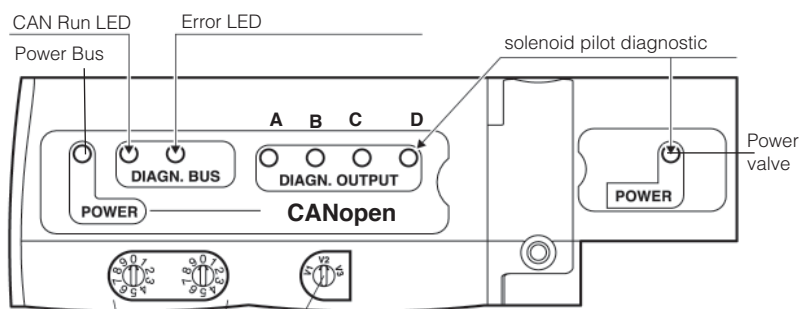
Addressing



Addressing :
Use the EDs file on Web site :
www.parker.com/pneu/modulflex.
Rotary switches enable configuration of the address
(Node-ID) and the transmission speed.



Diagnostic



Power valve	Description
Green	OK
Red	Short Circuit in one of the 16 outputs
OFF	Power supply missing

DIAG	A B C or D
OFF	OK
OFF	Short circuit in one of the 4 outputs in group

CAN Run LED	Description
Flickering	Auto Baudrate detection
Single flash	Device on stop
Blinking	Check addressing CANopen master stop
Green	OK
OFF	Check wiring

Power Bus	Description
Green	OK
OFF	- Power supply missing - Product failure

Error LED	Description
OFF	OK
Single flash	Too many error frames
Flickering	Auto Baudrate detection
Double flash	Watch dog error
Triple flash	Synchronisation error
Red	CANopen master stop



Pneumatic Division
Richland, Michigan 49083
269-629-5000

PDNSG-1

Pneumatic Division Safety Guide

ISSUED: August 1, 2006

Supersedes: June 1, 2006

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.

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

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

3. PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

- 3.1. Component Inspection:** Prior to assembly or installation a careful examination of the valves, FRLs or vacuum products must be performed. All components must be checked for correct style, size, and catalog number. DO NOT use any component that displays any signs of nonconformance.
- 3.2. Installation Instructions:** Parker published Installation Instructions must be followed for installation of Parker valves, FRLs and vacuum components. These instructions are provided with every Parker valve or FRL sold, or by calling 1-800-CPARKER, or at www.parker.com.
- 3.3. Air Supply:** The air supply or control medium supplied to Valves, FRLs and Vacuum components must be moisture-free if ambient temperature can drop below freezing

4. VALVE AND FRL MAINTENANCE AND REPLACEMENT INSTRUCTIONS

- 4.1. Maintenance:** Even with proper selection and installation, valve, FRL and vacuum products service life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a component failure, and experience with any known failures in the application or in similar applications should determine the frequency of inspections and the servicing or replacement of Pneumatic Division products so that products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.10.
- 4.2. Installation and Service Instructions:** Before attempting to service or replace any worn or damaged parts consult the appropriate Service Bulletin for the valve or FRL in question for the appropriate practices to service the unit in question. These Service and Installation Instructions are provided with every Parker valve and FRL sold, or are available by calling 1-800-CPARKER, or by accessing the Parker web site at www.parker.com.
- 4.3. Lockout / Tagout Procedures:** Be sure to follow all required lockout and tagout procedures when servicing equipment. For more information see: OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – (Lockout / Tagout)
- 4.4. Visual Inspection:** Any of the following conditions requires immediate system shut down and replacement of worn or damaged components:
- Air leakage: Look and listen to see if there are any signs of visual damage to any of the components in the system. Leakage is an indication of worn or damaged components.
 - Damaged or degraded components: Look to see if there are any visible signs of wear or component degradation.
 - Kinked, crushed, or damaged hoses. Kinked hoses can result in restricted air flow and lead to unpredictable system behavior.
 - Any observed improper system or component function: Immediately shut down the system and correct malfunction.
 - Excessive dirt build-up: Dirt and clutter can mask potentially hazardous situations.

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

- 4.5. Routine Maintenance Issues:**
- Remove excessive dirt, grime and clutter from work areas.
 - Make sure all required guards and shields are in place.
- 4.6. Functional Test:** Before initiating automatic operation, operate the system manually to make sure all required functions operate properly and safely.
- 4.7. Service or Replacement Intervals:** It is the user's responsibility to establish appropriate service intervals. Valves, FRLs and vacuum products contain components that age, harden, wear, and otherwise deteriorate over time. Environmental conditions can significantly accelerate this process. Valves, FRLs and vacuum components need to be serviced or replaced on routine intervals. Service intervals need to be established based on:
- Previous performance experiences.
 - Government and / or industrial standards.
 - When failures could result in unacceptable down time, equipment damage or personal injury risk.
- 4.8. Servicing or Replacing of any Worn or Damaged Parts:** To avoid unpredictable system behavior that can cause death, personal injury and property damage:
- Follow all government, state and local safety and servicing practices prior to service including but not limited to all OSHA Lockout Tagout procedures (OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – Lockout / Tagout).
 - Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
 - Disconnect air supply and depressurize all air lines connected to system and Pneumatic Division products before installation, service, or conversion.
 - Installation, servicing, and / or conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
 - After installation, servicing, or conversions air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or if the product does not operate properly, do not put product or system into use.
 - Warnings and specifications on the product should not be covered or painted over. If masking is not possible, contact your local representative for replacement labels.
- 4.9. Putting Serviced System Back into Operation:** Follow the guidelines above and all relevant Installation and Maintenance Instructions supplied with the valve FRL or vacuum component to insure proper function of the system.